

# XRAY 2017

1/8 LUXURY ELECTRIC OFF-ROAD BUGGY



MADE IN  
EUROPE

# INSTRUCTION MANUAL



## BEFORE YOU START

The XB8E is a high-competition, high-quality, 1/8 electric buggy 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 XB8E, YOU MUST read through all of the operating instructions and instruction manual and fully understand them to get

## 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](mailto:info@teamxray.com). Also, please visit our Web site at [www.teamxray.com](http://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](http://www.teamxray.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.

## 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.

the maximum enjoyment and prevent unnecessary damage. Read carefully and fully understand the instructions before beginning assembly.

Make sure you review this entire manual, download and use set-up book from the web, and examine all details carefully. If for some reason you decide the XB8E is not what you wanted or expected, do not continue any further. Your hobby dealer cannot accept your XB8E 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.

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USA  
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Fax: (214) 744-2401  
Email: [xray@rcamerica.com](mailto:xray@rcamerica.com)

## **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.

## **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

## **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

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](http://www.teamxray.com) to get advice, or contact us via email at [info@teamxray.com](mailto:info@teamxray.com), or contact the XRAY distributor in your country.

damage from crashing, chemical and/or water damage, excessive moisture, improper or no maintenance, or user modifications which compromise the integrity of components. Warranty will not cover components that are considered consumable on RC vehicles. XRAY does not pay nor refund shipping on any component sent to XRAY or its distributors for warranty. XRAY reserves the right to make the final determination of the warranty status of any component or part.

### **Limitations of Liability**

XRAY makes no other warranties expressed or implied. XRAY shall not be liable for any loss, injury or damages, whether direct, indirect, special, incidental, or consequential, arising from the use, misuse, or abuse of this product and/or any product or accessory required to operate this product. In no case shall XRAY's liability exceed the monetary value of this product.

**Take adequate safety precautions prior to operating this model. You are responsible for this model's assembly and safe operation.**

**Disregard of the any of the above cautions may lead to accidents, personal injury, or property damage. XRAY MODEL RACING CARS assumes no responsibility for any injury, damage, or misuse of this product during assembly or operation, nor any additions that may arise from the use of this product.**

**All rights reserved.**

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.**

## SYMBOLS USED

Part bags used 	Assemble in the specified order 	Assemble left and right sides the same way 	Assemble front and rear the same way 	Pay attention here 	Assemble as many times as specified (here twice) 	Apply instant glue 	Apply oil 	Apply grease 	Apply threadlock 
Cut off shaded portion 	Use special tool 	Cut off remaining material 	Time 	Use cleaner or WD-40® 	Tighten screw gently 	Ensure smooth non-binding movement 	Use pliers 	Follow tip here 	Follow Set-up Book 

## TOOLS REQUIRED

Phillips 5.0mm (HUDY TOOLS) Allen 1.5 / 2.0 / 2.5 / 3.0mm (HUDY TOOLS) Ball Allen 2.5mm (HUDY TOOLS) Arm Reamer 3mm/4mm (HUDY TOOLS) Socket 5.0 / 5.5mm (HUDY TOOLS) 	17mm Wheel Nut Tool (HUDY #107570) 	Turnbuckle Wrench (HUDY #181040 4mm) (HUDY #181050 5mm) 	Special Tool for all turnbuckles, nuts (HUDY #181090) 	Cross Wrench (HUDY #107581) 
Side Cutters (HUDY #189010) 	Pocket Hobby Knife (HUDY #188981) 	Needle Nose Pliers (HUDY #189020) 	Snap Ring Pliers (HUDY #189040) 	Scissors (HUDY #188990) 
				Body Reamer (HUDY #107600) or (HUDY #107601) 

## TOOLS & EQUIPMENT INCLUDED

Silicone Shock Oil (HUDY #106356 550cSt 100ml) (HUDY #106371 700cSt 100ml) 	Silicone Diff Oil (HUDY #106431 3000cSt 100ml) (HUDY #106451 5000cSt 100ml) (HUDY #106471 7000cSt 100ml) 	Graphite Grease (HUDY #106210) 
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## NOT INCLUDED

**SET-UP BOOK**

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 at our website at [www.teamxray.com](http://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.

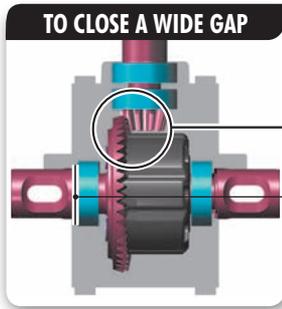
## EQUIPMENT REQUIRED

Transmitter 	Electric Motor 	Pinion Gear 	Speed Controller 	LiPo Battery 	Battery Charger 
Receiver 	Steering Servo 	Threadlock 	CA Glue 	Transmitter Batteries 	Tires & Wheels 
					Lexan™ Paint 

## TIP FRONT & REAR DIFF GEAR MESH ADJUSTMENT

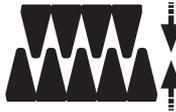
If there is too much or too little diff side play, this may create non-optimal gear mesh between the diff gear and the pinion drive gear. This is easily resolved by inserting 1 or 2 of the included thin shims behind a diff outdrive ball-bearing, depending on how much play there is.

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

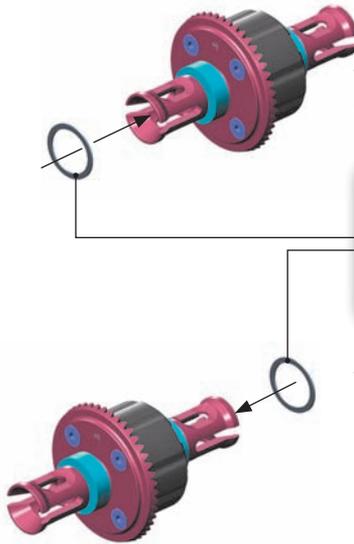


TO CLOSE A WIDE GAP

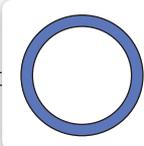
TO CLOSE A WIDE GAP



insert shim(s) here

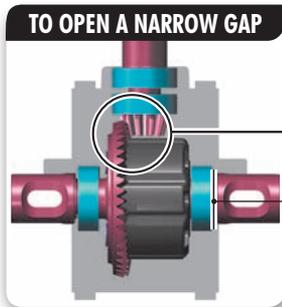


To CLOSE a wide gap:  
add 1 or 2 shims against diff spur gear



WASHER

- #962131 S 13 x 16 x 0.1 mm (10)
- #962130 S 13 x 16 x 0.2 mm (10)



TO OPEN A NARROW GAP

TO OPEN A NARROW GAP



insert shim(s) here

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

## 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.



1 Do not use drive shafts when the pins are worn.

2 Press out the worn pins.

3 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.

## TIP INSTALLING PIVOT BALLS INTO COMPOSITE BALL-JOINTS



1 Place the pivot ball on the ball joint and use a screw to tighten it to an engine mount or some other part.



2 Tighten screw until pivot ball is tight against block.



3 Lift ball joint until it snaps into place over pivot ball. Ball joint should move freely.



4 The finished joint.

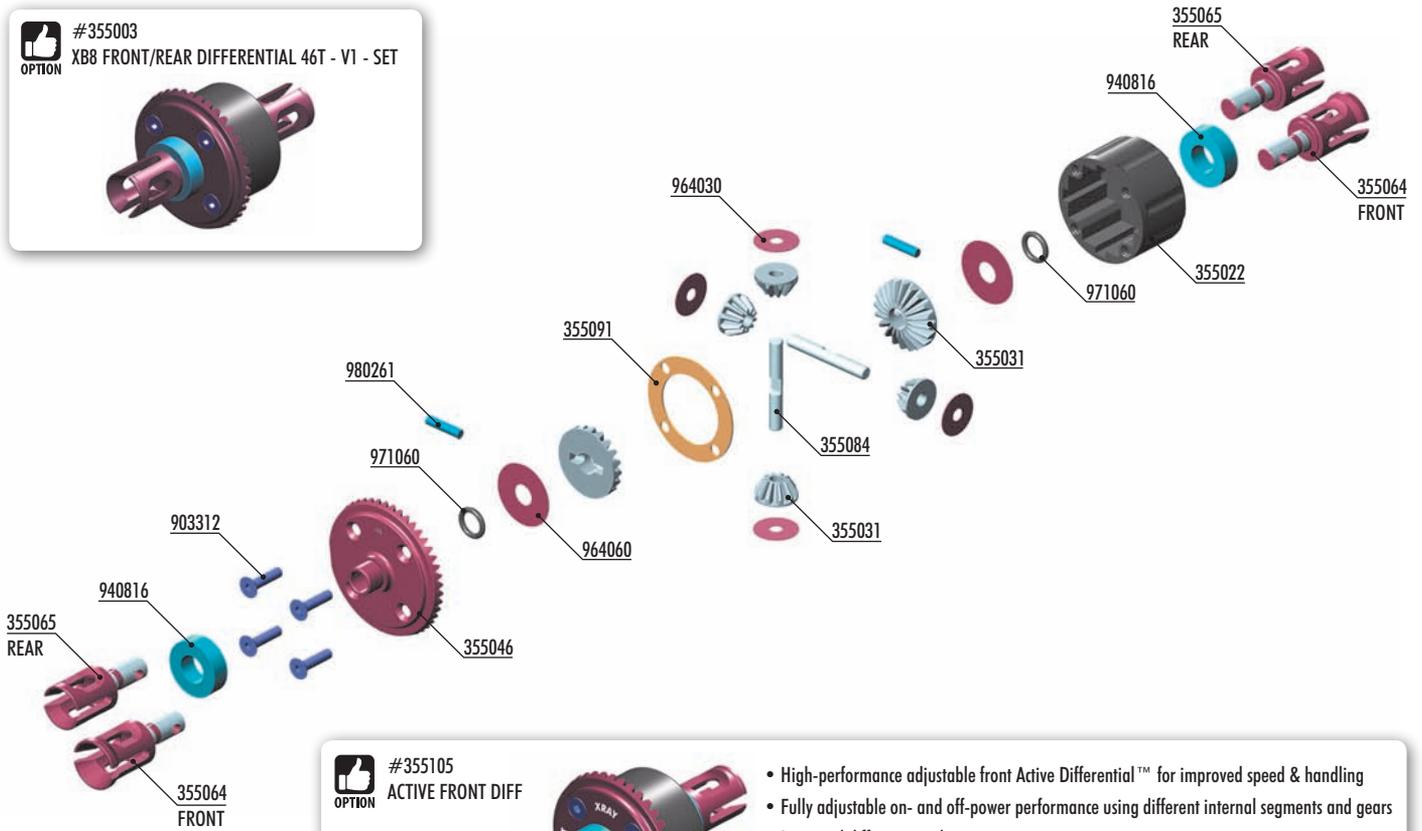


5 Loosen and remove screw.

# 1. FRONT & REAR DIFFERENTIALS



#355003  
XB8 FRONT/REAR DIFFERENTIAL 46T - V1 - SET



#355105  
ACTIVE FRONT DIFF



- High-performance adjustable front Active Differential™ for improved speed & handling
- Fully adjustable on- and off-power performance using different internal segments and gears
- Improved diff action and traction
- Easy and consistent steering

**BAG**

**0.1**

35 5004	XB8 FRONT DIFFERENTIAL 46T - V2 - SET	35 5091	F/R DIFF GASKET (4)
35 5005	XB8 REAR DIFFERENTIAL 46T - V2 - SET	90 3312	HEX SCREW SFH M3x12 (10)
35 5022	DIFFERENTIAL CASE - V2	94 0816	HIGH-SPEED BALL-BEARING 8x16x5 BLUE COVERED (2)
35 5031	STEEL DIFF BEVEL & SATELLITE GEARS - V2 (2+4)	96 4030	WASHER S 3.5x12x0.2 (10)
35 5046	FRONT/REAR DIFF LARGE BEVEL GEAR 46T - HUDY STEEL	96 4060	WASHER S 6x18x0.2 (10)
35 5064	FRONT DIFF OUTDRIVE ADAPTER LONG - V2 - HUDY SPRING STEEL™ (2)	97 1060	SILICONE O-RING 6x1.5 (10)
35 5065	REAR DIFF OUTDRIVE ADAPTER - V2 - HUDY SPRING STEEL™ (2)	98 0261	PIN 2.5x11.5 (10)
35 5084	F/R DIFF PIN (2)		



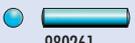
940816  
BB 8x16x5



964060  
S 6x18x0.2

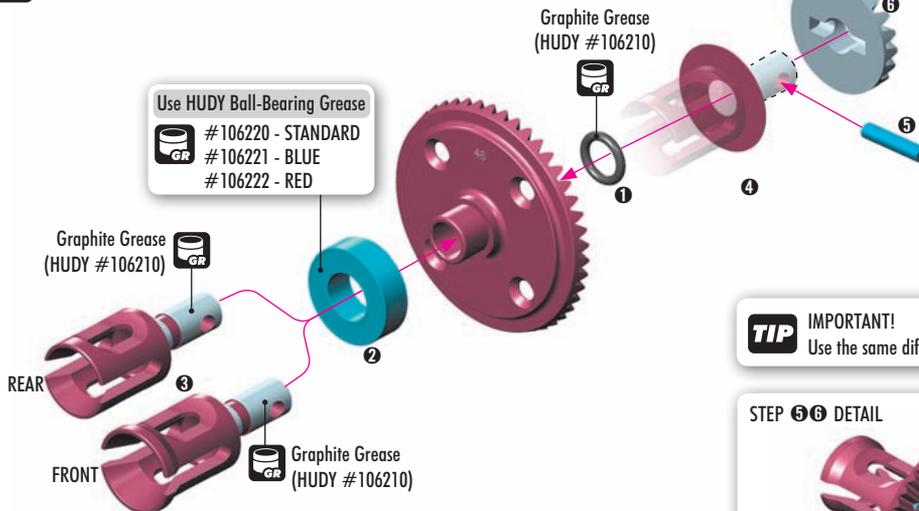


971060  
O 6x1.5



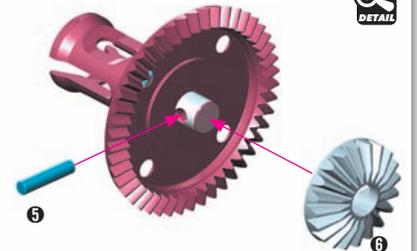
980261  
P 2.5x11.5

**2x** **F=R**



**TIP** IMPORTANT!  
Use the same diff outdrives on both ends of a diff.

STEP 5 6 DETAIL



**SET-UP BOOK**

DIFFERENTIAL GEARS

# 1. FRONT & REAR DIFFERENTIALS



940816  
BB 8x16x5



964060  
S 6x18x0.2



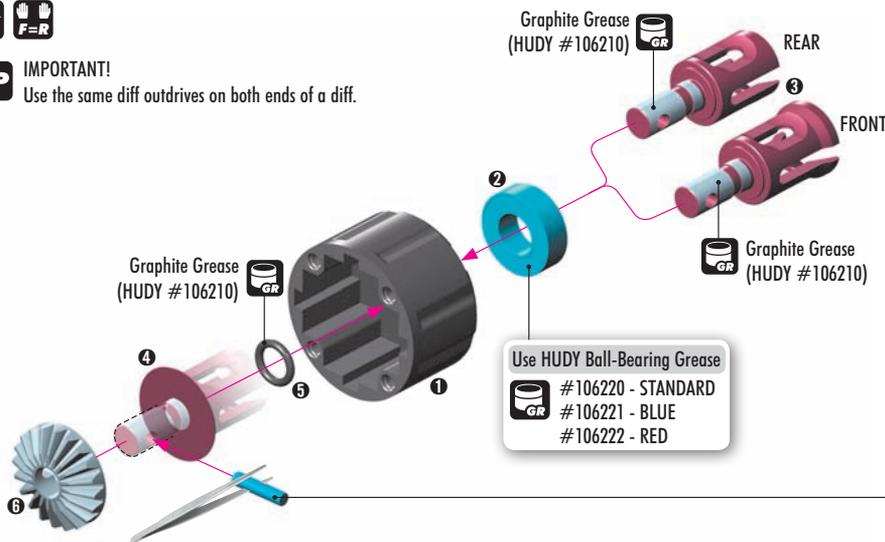
971060  
O 6x1.5



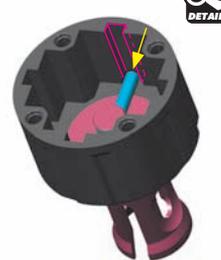
980261  
P 2.5x11.5

2x F=R

**TIP** IMPORTANT!  
Use the same diff outrides on both ends of a diff.



STEP 5 DETAIL



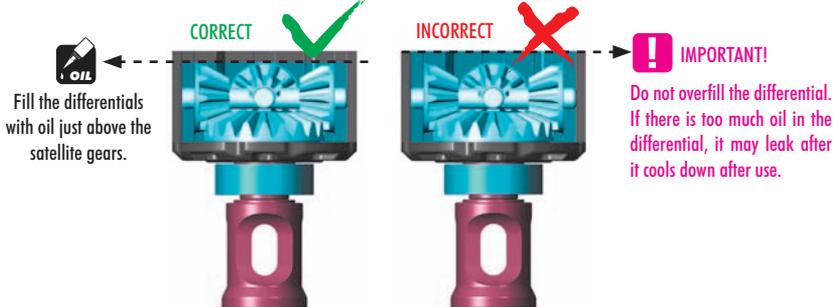
903312  
SFH M3x12



964030  
S 3.5x12x0.2

## VERY IMPORTANT!

Use the following silicone oils included in the kit for initial settings:  
FRONT diff: 5 000cSt / REAR diff: 3 000cSt



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

#107865 HUDY Ultimate Digital Pocket Scale 300g ± 0.01g

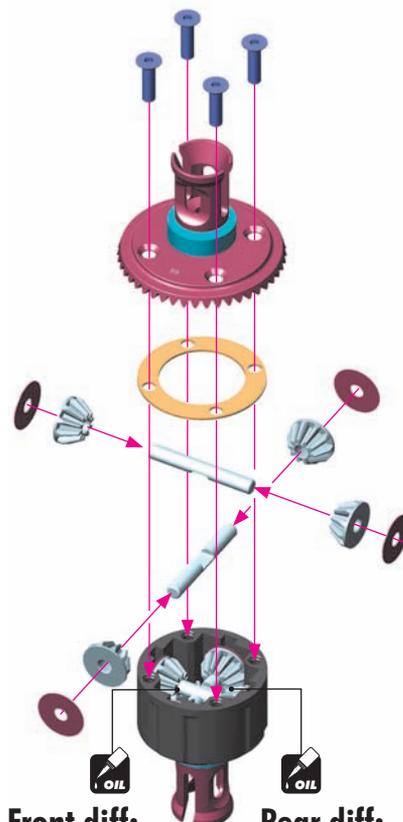


1. Put the diff (without oil) on the scale and check the weight:

- REAR DIFF approx. 39.30g
- FRONT DIFF approx. 40.10g

2. Slowly pour oil into the diff and watch the weight. Add 2.70g of oil into the diff. The approximate weight of the diff + oil is REAR DIFF approx. 42.00g and FRONT DIFF approx. 42.80g

REAR DIFF	39.30g + 2.70g	= 42.00g
FRONT DIFF	40.10g + 2.70g	= 42.80g



**Front diff:**

Silicone oil 5 000cSt  
Fill just above the satellite gears.

**Rear diff:**

Silicone oil 3 000cSt  
Fill just above the satellite gears.

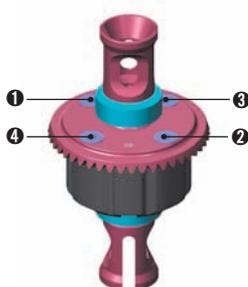
**SET-UP BOOK**

DIFFERENTIAL OIL

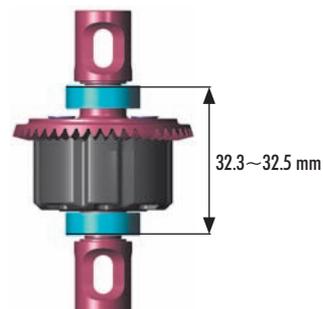
Tighten the screws equally



Finish tightening in this order



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.



# 1. CENTER DIFFERENTIAL



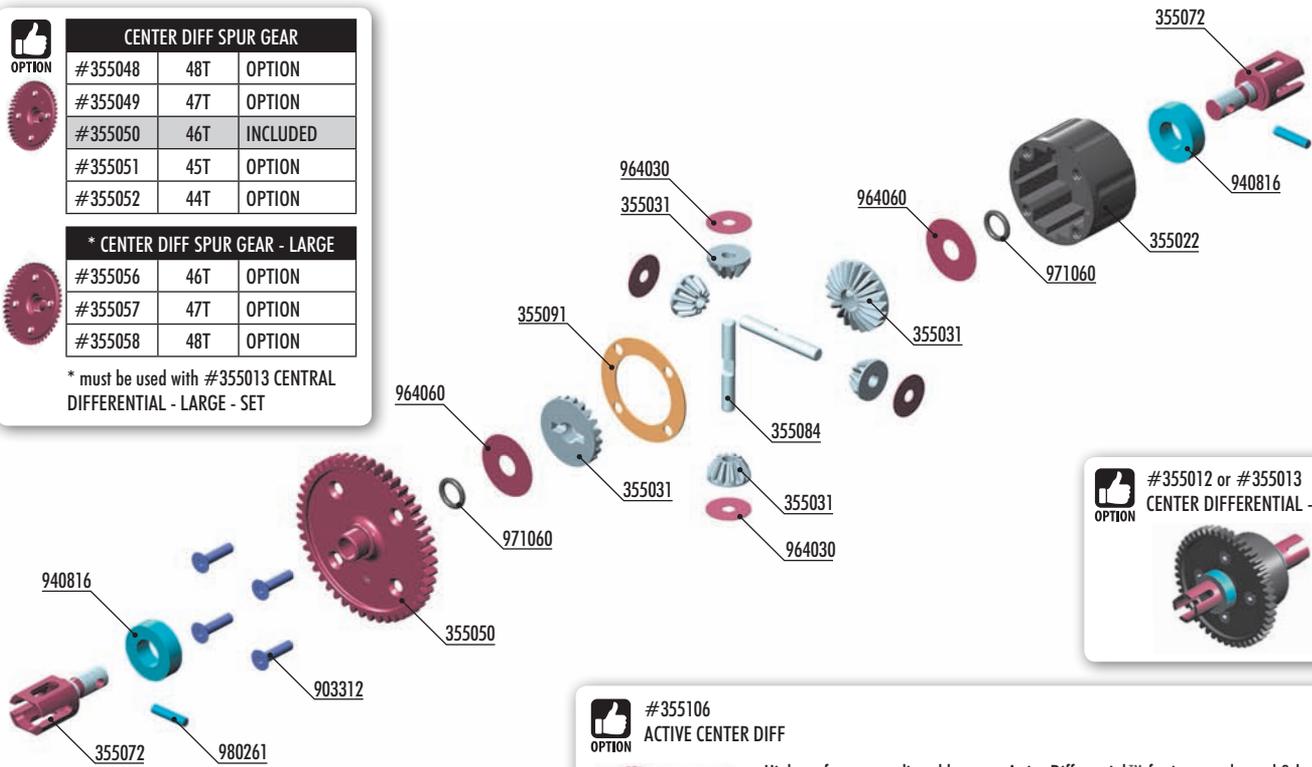
## CENTER DIFF SPUR GEAR

#355048	48T	OPTION
#355049	47T	OPTION
#355050	46T	INCLUDED
#355051	45T	OPTION
#355052	44T	OPTION

## \* CENTER DIFF SPUR GEAR - LARGE

#355056	46T	OPTION
#355057	47T	OPTION
#355058	48T	OPTION

\* must be used with #355013 CENTRAL DIFFERENTIAL - LARGE - SET



## #355012 or #355013 CENTER DIFFERENTIAL - SET



## #355106 ACTIVE CENTER DIFF



- High-performance adjustable center Active Differential™ for improved speed & handling
- Fully adjustable on- and off-power performance using different internal segments and gears
- Increased forward traction and stability
- Easy and consistent steering

### BAG

01.3

35 5022	DIFFERENTIAL CASE - V2
35 5031	STEEL DIFF BEVEL & SATELLITE GEARS - V2 (2+4)
35 5050	CENTER DIFF SPUR GEAR 46T
35 5072	LARGE CENTER DIFF OUTDRIVE ADAPTER - HUDY STEEL (2)
35 5084	DIFF PIN (2)
35 5091	DIFF GASKET (2)

90 3312	HEX SCREW SFH M3x12 (10)
94 0816	HIGH-SPEED BALL-BEARING 8x16x5 BLUE COVERED (2)
96 4030	WASHER S 3.5x12x0.2 (10)
96 4060	WASHER S 6x18x0.2 (10)
97 1060	SILICONE O-RING 6x1.5 (10)
98 0261	PIN 2.5x11.5 (10)



940816  
BB 8x16x5



964060  
S 6x18x0.2



971060  
O 6x1.5

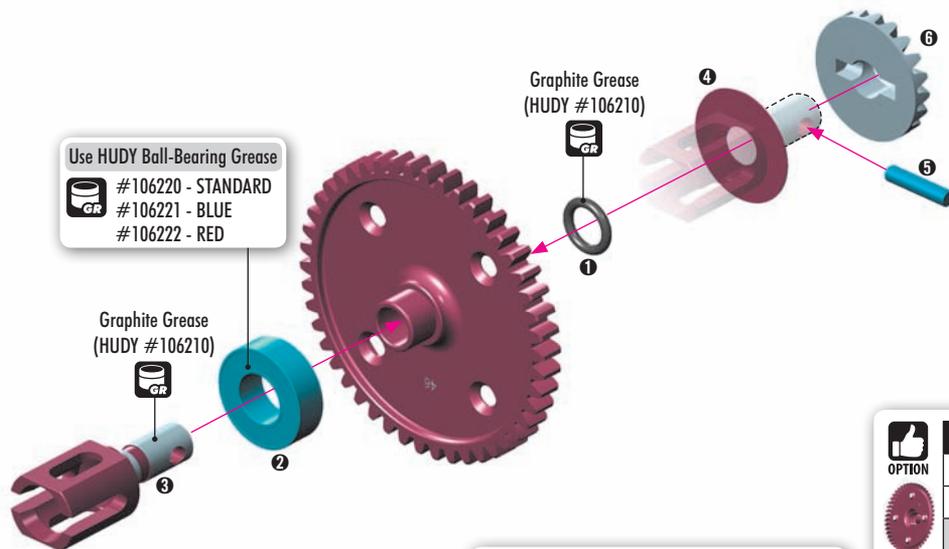


980261  
P 2.5x11.5

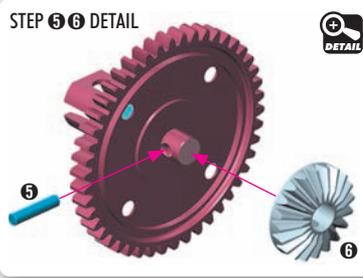
Use HUDY Ball-Bearing Grease

- #106220 - STANDARD
- #106221 - BLUE
- #106222 - RED

Graphite Grease  
(HUDY #106210)



STEP 5 & 6 DETAIL



## CENTER DIFF SPUR GEAR

#355048	48T	OPTION
#355049	47T	OPTION
#355050	46T	INCLUDED
#355051	45T	OPTION
#355052	44T	OPTION

## \* CENTER DIFF SPUR GEAR - LARGE

#355056	46T	OPTION
#355057	47T	OPTION
#355058	48T	OPTION

\* must be used with #355013 CENTRAL DIFFERENTIAL - LARGE - SET

**SET-UP BOOK**  
DIFFERENTIAL GEARS

# 1. CENTER DIFFERENTIAL



940816  
BB 8x16x5



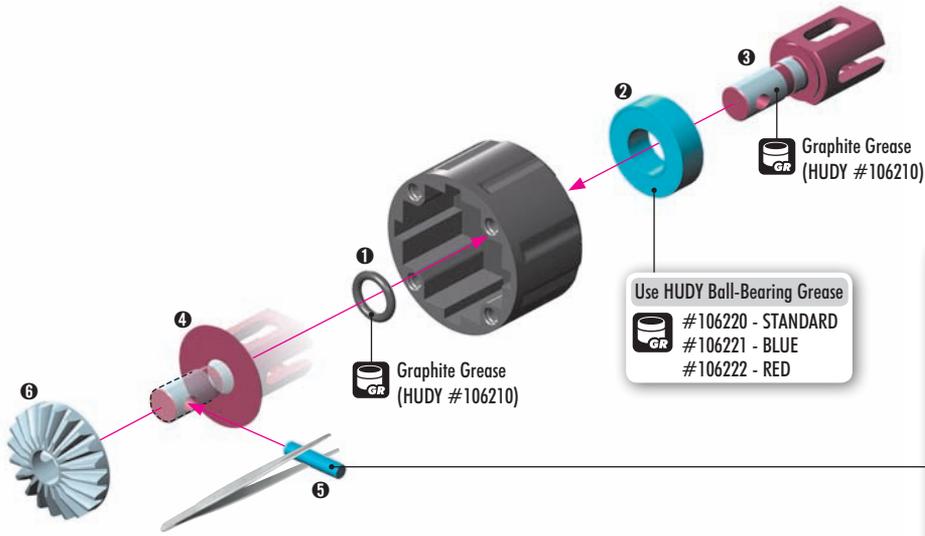
964060  
S 6x18x0.2



971060  
O 6x1.5



980261  
P 2.5x11.5



903312  
SFH M3x12

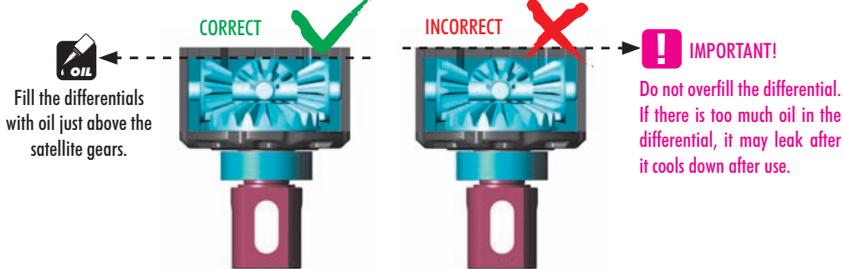


964030  
S 3.5x12x0.2

## VERY IMPORTANT!

Use the following silicone oil included in the kit for initial setting:

Center diff: 7 000cSt



Fill the differentials with oil just above the satellite gears.

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

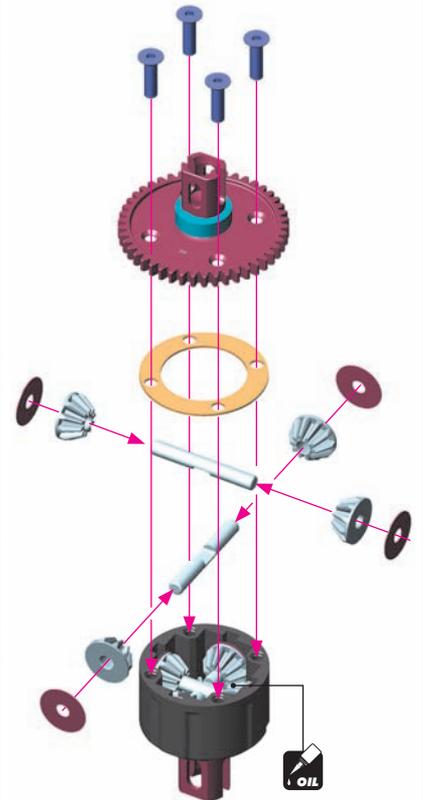
#107865 HUDY Ultimate Digital Pocket Scale 300g ± 0.01g



1. Put the diff (without oil) on the scale and check the weight (approximately 39g).

2. Slowly pour oil into the diff and watch the weight. Add 2.70g of oil into the diff. The approximate weight of the diff + oil is 41.70g.

$$\text{CENTER DIFF } 39.00\text{g} + 2.70\text{g} = 41.70\text{g}$$



Center diff:

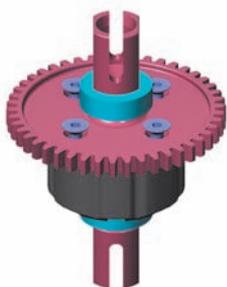
Silicone oil 7 000cSt

Fill to just above the satellite gears.

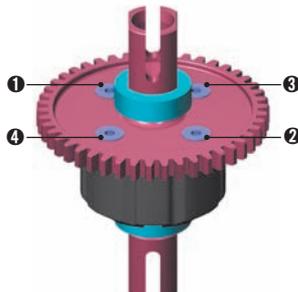
**SET-UP BOOK**

DIFFERENTIAL OIL

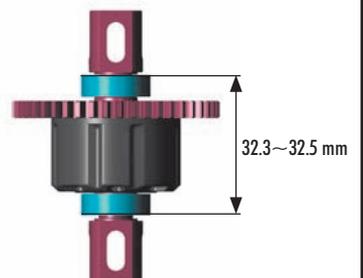
Tighten the screws equally



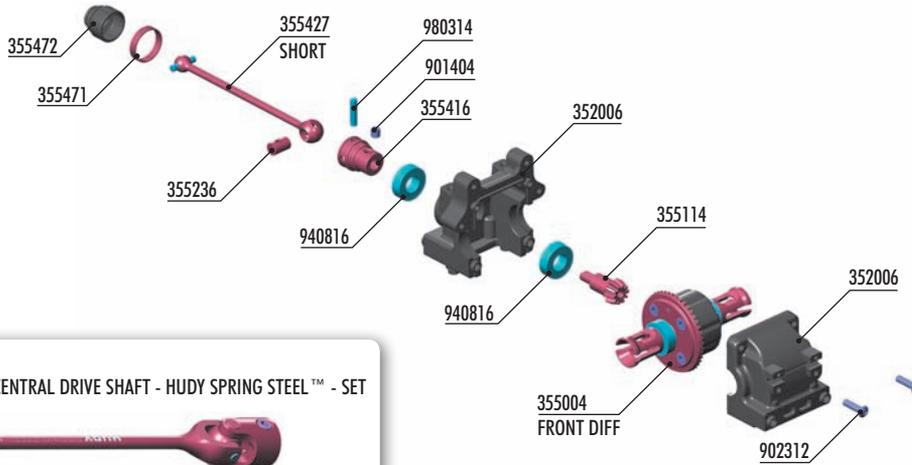
Finish tightening in this order



After assembly the differential should have a length of 32.3~32.5 mm measured from the ends of the installed ball-bearings. If differential is longer, retighten the 4 screws holding the spur gear.



# 2. FRONT TRANSMISSION



**#355426**  
**OPTION** FRONT UNIVERSAL CENTRAL DRIVE SHAFT - HUDY SPRING STEEL™ - SET



**BAG**

**02**

- |         |  |         |  |
|---------|--|---------|--|
| 35 2006 | XB8™16 DIFF BULKHEAD BLOCK SET FRONT/REAR              | 35 5472 | DRIVE SHAFT BOOT (2)                             |
| 35 5004 | XB8 FRONT DIFFERENTIAL 46T - V2 - SET                  | 90 1404 | HEX SCREW SB M4x4 (10)                           |
| 35 5114 | BEVEL DRIVE GEAR 14T                                   | 90 2312 | HEX SCREW SH M3x12 (10)                          |
| 35 5236 | CVD DRIVE SHAFT COUPLING - HUDY SPRING STEEL™          | 94 0816 | HIGH-SPEED BALL-BEARING 8x16x5 RUBBER SEALED (2) |
| 35 5416 | CENTRAL CVD SHAFT UNIVERSAL JOINT - HUDY SPRING STEEL™ | 98 0314 | PIN 3x14 (10)                                    |
| 35 5427 | FRONT CENTRAL CVD DRIVE SHAFT - HUDY SPRING STEEL™     |         |  |
| 35 5471 | DRIVE SHAFT LOCKING RING (2)                           |         |  |



901404  
SB M4x4



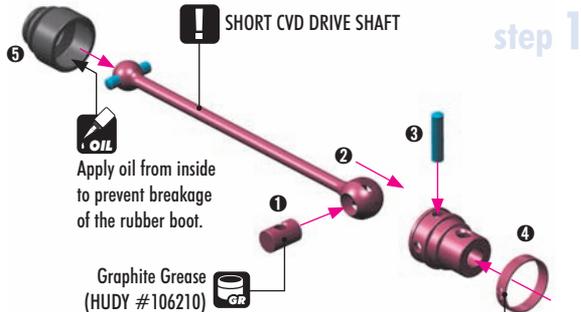
902312  
SH M3x12



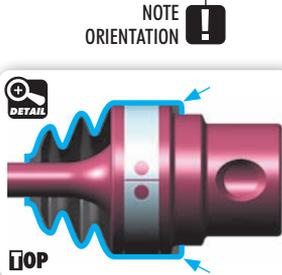
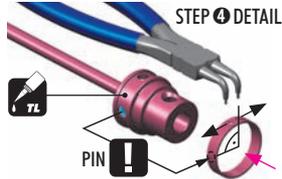
940816  
BB 8x16x5



980314  
P 3x14



The ring can be assembled by hand, but for easy disassembly we recommend using snap ring pliers (HUDY #189040)



**BEFORE** inserting the clip on the central CVD shaft joint, apply a small amount of threadlock on the area where the clip goes.

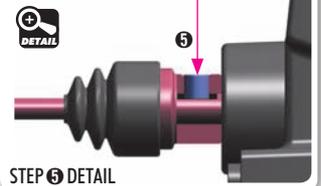
**AFTER** inserting the clip on the central CVD shaft joint, turn the clip so that the slot is 90° from the pin. This will prevent the pin from opening the clip.

step 1

step 2

**TIP** Follow the TECH TIP on page 5 for drive shaft pin servicing

Push joint against gear to remove gap. Tighten setscrew onto gear flat spot.

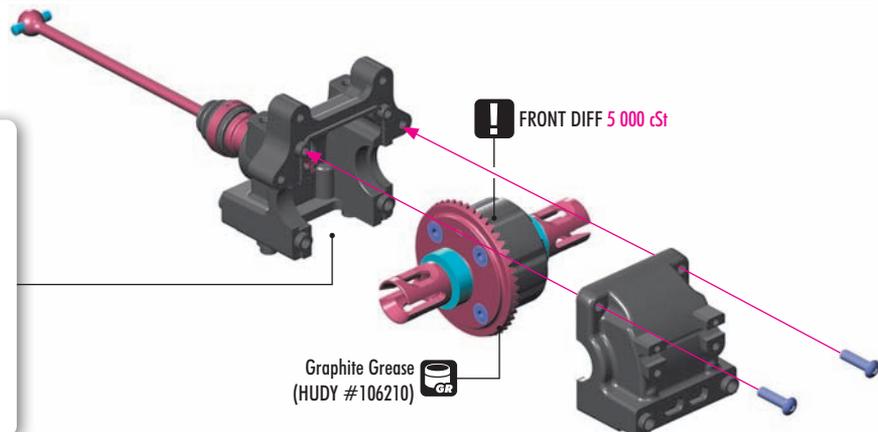


Use HUDY Ball-Bearing Grease  
 #106220 - STANDARD  
 #106221 - BLUE  
 #106222 - RED

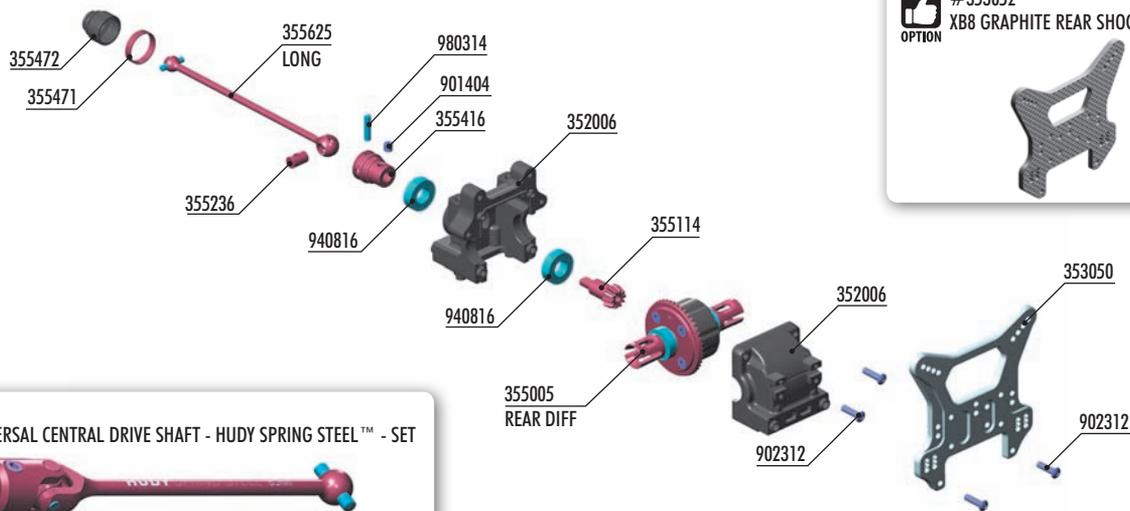
step 3



Cut on both front and rear bulkhead blocks



## 2. REAR TRANSMISSION



**BAG**

**02**

35 2006	XB8'16 DIFF BULKHEAD BLOCK SET FRONT/REAR	35 5471	DRIVE SHAFT LOCKING RING (2)
35 5005	XB8 REAR DIFFERENTIAL 46T - V2 - SET	35 5472	DRIVE SHAFT BOOT (2)
35 3050	XB8 ALU REAR SHOCK TOWER - CNC MACHINED 7075 T6 (4MM)	90 1404	HEX SCREW SB M4x4 (10)
35 5114	BEVEL DRIVE GEAR 14T	90 2312	HEX SCREW SH M3x12 (10)
35 5236	CVD DRIVE SHAFT COUPLING - HUDY SPRING STEEL™	94 0816	HIGH-SPEED BALL-BEARING 8x16x5 RUBBER SEALED (2)
35 5416	CENTRAL CVD SHAFT UNIVERSAL JOINT - HUDY SPRING STEEL™	98 0314	PIN 3x14 (10)
35 5625	REAR CENTRAL CVD DRIVE SHAFT - HUDY SPRING STEEL™		



901404  
SB M4x4



902312  
SH M3x12



940816  
BB 8x16x5



980314  
P 3x14

**step 1**

**LONG CVD DRIVE SHAFT**

Apply oil from inside to prevent breakage of the rubber boot.

Graphite Grease (HUDY #106210)

**NOTE ORIENTATION**

The ring can be assembled by hand, but for easy disassembly we recommend using snap ring pliers (HUDY #189040)

**STEP 4 DETAIL**

**BEFORE** inserting the clip on the central CVD shaft joint, apply a small amount of threadlock on the area where the clip goes.

**AFTER** inserting the clip on the central CVD shaft joint, turn the clip so that the slot is 90° from the pin. This will prevent the pin from opening the clip.

**step 2**

**TIP** Follow the TECH TIP on page 5 for drive shaft pin servicing.

Push joint against gear to remove gap. Tighten setscrew onto gear flat spot.

**STEP 5 DETAIL**

Use HUDY Ball-Bearing Grease

- #106220 - STANDARD
- #106221 - BLUE
- #106222 - RED

**step 3**

Cut on both front and rear bulkhead blocks

**REAR DIFF 3 000 cSt**

Graphite Grease (HUDY #106210)

**step 4**

**NOTE ORIENTATION**

**REAR**

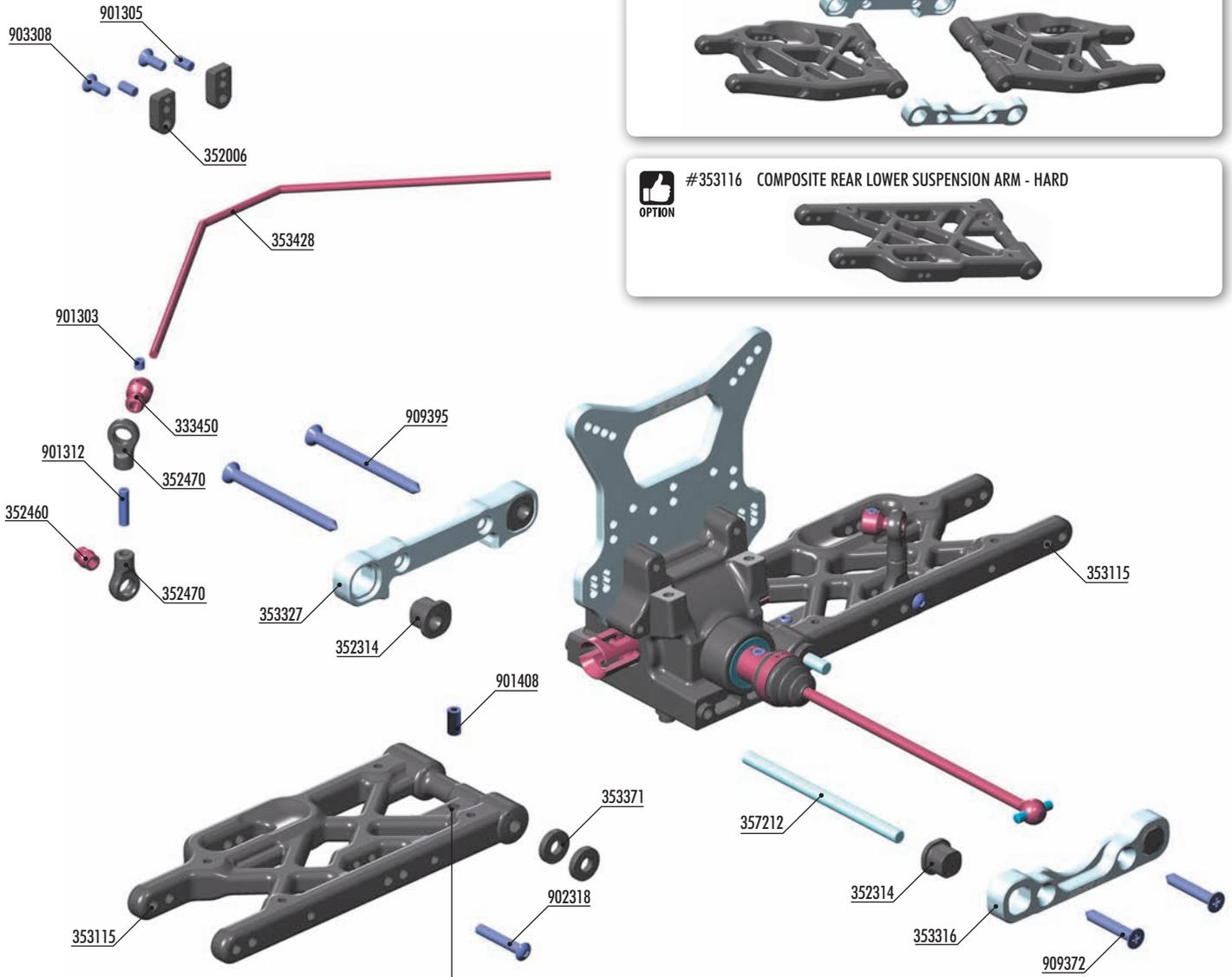
**OPTION** #353052 XB8 GRAPHITE REAR SHOCK TOWER 3.5MM

# 3. REAR SUSPENSION

-  #353113 XBB'16 COMPOSITE REAR LOWER SUSPENSION ARM - RIGHT
-  #353123 XBB'16 COMPOSITE REAR LOWER SUSPENSION ARM - LEFT
- #353317 XBB ALU REAR LOWER SUSP. HOLDER - FRONT - SQUARE ADJ. ROLL CENTER
- #353325 XBB ALU REAR LOWER SUSP. HOLDER - REAR - SQUARE ADJ. ROLL CENTER



-  #353116 COMPOSITE REAR LOWER SUSPENSION ARM - HARD



 #902407  
HEX SCREW SH M4x7 WITH HEX FROM BOTTOM (4)

 #333451  
ALU ANTI-ROLL BAR PIVOT BALL 5.8 MM - SWISS 7075 T6 - HARDCOATED (2)

 REAR ANTI-ROLL BARS

Part Number	Size	Status
#353418	ø1.8mm	OPTION
#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



- 33 3450 ANTI-ROLL BAR BALL JOINT 5.8 MM (2)
- 35 2006 XBB'16 DIFF BULKHEAD BLOCK SET FRONT/REAR
- 35 2314 COMPOSITE ECCENTRIC BUSHINGS - V2 (2)
- 35 2460 PIVOT BALL 5.8 (10)
- 35 2470 BALL JOINT 5.8 (8)
- 35 3115 COMPOSITE REAR LOWER SUSPENSION ARM
- 35 3316 ALU REAR LOWER SUSP. HOLDER - FRONT - SQUARE ADJ. ROLL CENTER
- 35 3327 ALU REAR LOWER SUSP. HOLDER - REAR - SQUARE ADJ. ROLL CENTER
- 35 3371 SET OF COMPOSITE LOWER ARM SHIMS
- 35 3428 REAR ANTI-ROLL BAR 2.8MM
- 35 7212 LOWER INNER PIVOT PIN F+R (2)

- 90 1303 HEX SCREW SB M3x3 (10)
- 90 1305 HEX SCREW SB M3x5 (10)
- 90 1312 HEX SCREW SB M3x12 (10)
- 90 1408 HEX SCREW SB M4x8 (10)
- 90 2318 HEX SCREW SH M3x18 (10)
- 90 3308 HEX SCREW SFH M3x8 (10)
- 90 9372 SCREW PHILLIPS SS 3.5x22 (10)
- 90 9395 SCREW PHILLIPS SS 3.5x45 (10)

# 3. REAR SUSPENSION



353371  
SHIM 4x10x2



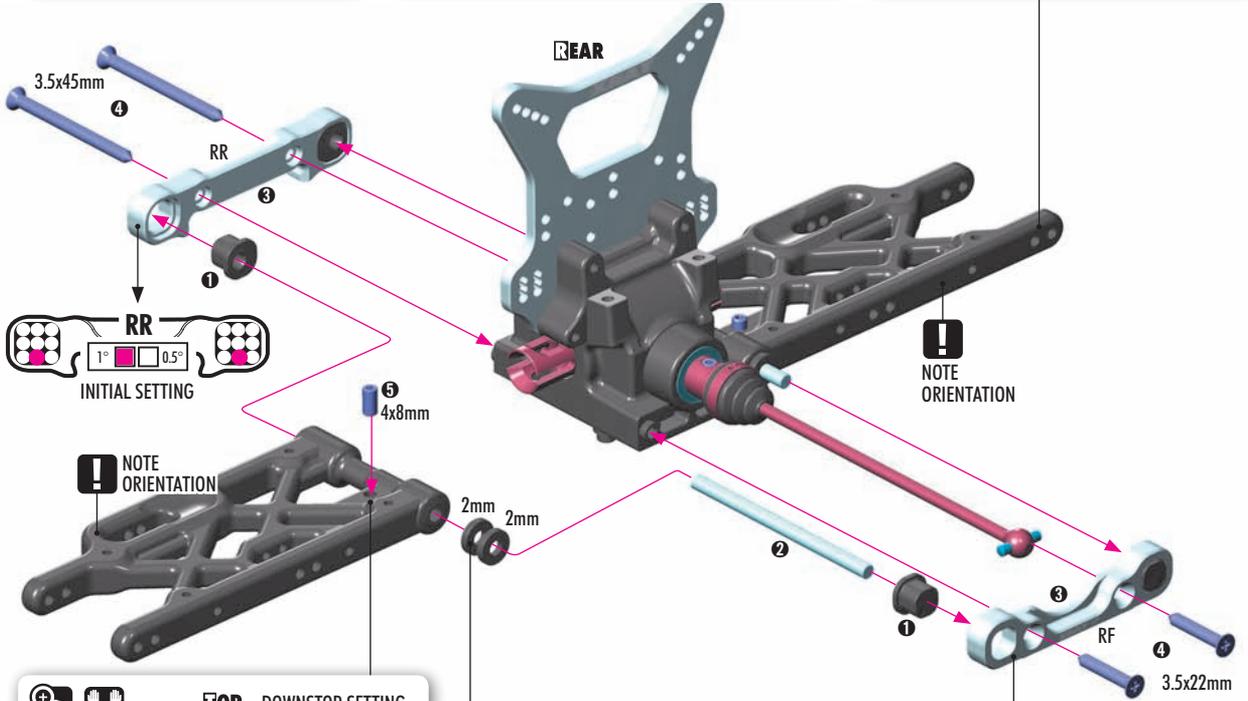
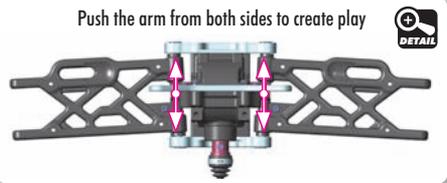
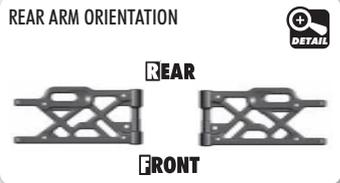
901408  
SB M4x8



909372  
SS 3.5x22



909395  
SS 3.5x45



**TOP DOWNSTOP SETTING**

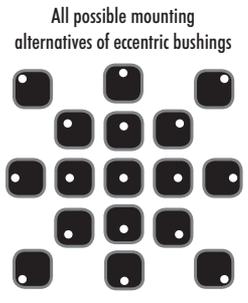
**NOTE ORIENTATION**

#902407  
OPTION

Downstop screw for fine tuning.

**TIP**

If the suspension arm does not move freely use a HUDY Arm Reamer to resize the holes of the arms.  
(HUDY #107634)



**ECCENTRIC BUSHINGS HAVE TWO DIFFERENT OFFSETS FROM THE CENTER.**

- Middle position = 0.5 mm or 0.5° from center
- Outer position = 1 mm or 1° from center

**SET-UP BOOK**

TOE-IN  
ANTI-SQUAT  
ROLL CENTER DOWNSTOP  
WHEELBASE  
TRACK WIDTH

The 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).

ANTI-SQUAT		
RR	RF	(°)
0	0	=3°
0	0.5	=4°
0	1	=2°
0.5	0	=4°
0.5	0.5	=3°
0.5	1	=5°
1	0	=2°
1	0.5	=3°
1	1	=1°

ROLL CENTER		
RR	RF	(mm)
0	0	=0mm
0	0.5	=1mm
0	1	=-1mm

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° offset. The 0.5mm, 0.5° represents the half change.

**Anti-Squat Example:**

- 0(RR) - 0 (RF) = 3°
- 0(RR) - 0.5 (RF) = 3.5°
- 0(RR) - 1 (RF) = 4°

TRACK-WIDTH		
RR	RF	(mm)
0	0	=308
0	0.5	=306
0	1	=310

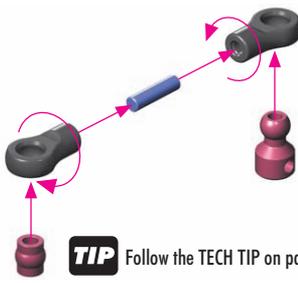
TOE-IN		
RR	RF	(°)
0	0	=3°
0	0.5	=4°
0	1	=2°
0.5	0	=2°
0.5	0.5	=3°
0.5	1	=1°
1	0	=4°
1	0.5	=5°
1	1	=3°

# 3. REAR SUSPENSION

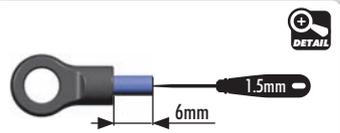


901312  
SB M3x12

2x L=R



**TIP** Follow the TECH TIP on page 5 to install the pivot balls



DETAIL



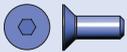
901303  
SB M3x3



901305  
SB M3x5

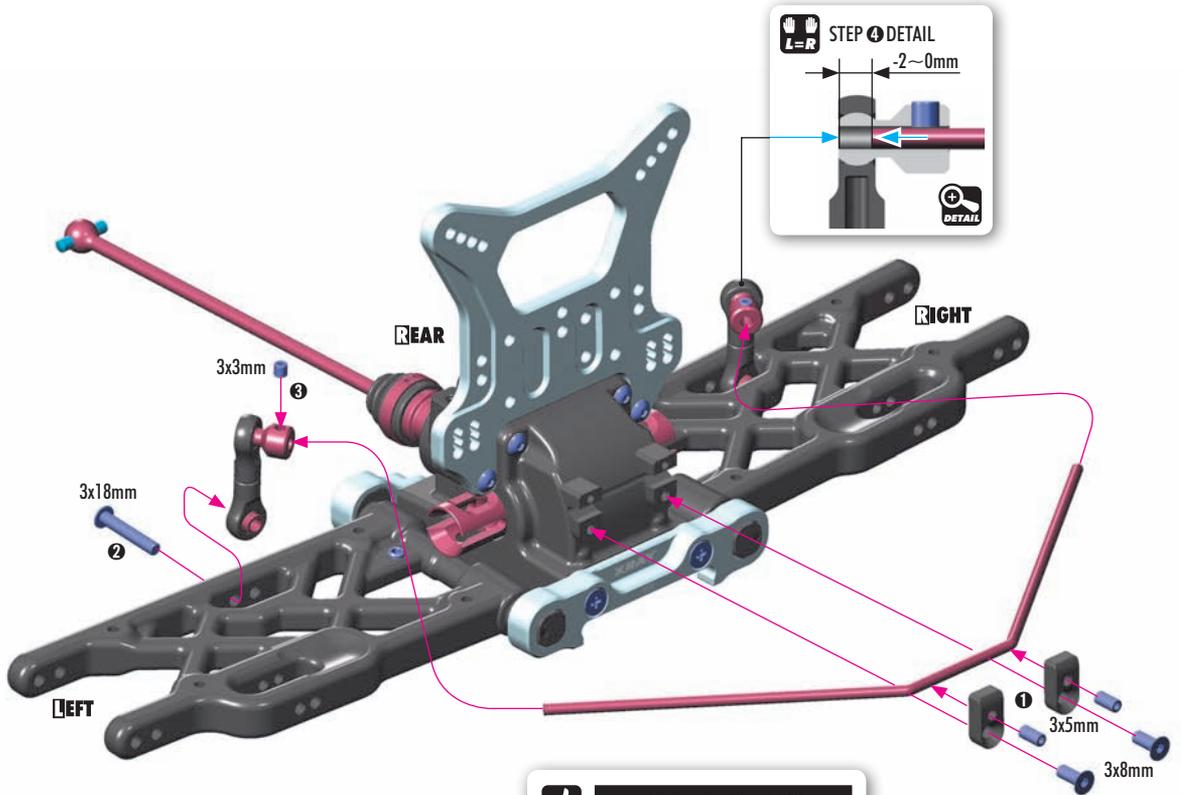


902318  
SFH M3x18



903308  
SFH M3x8

L=R



STEP 4 DETAIL

L=R

-2~0mm

DETAIL

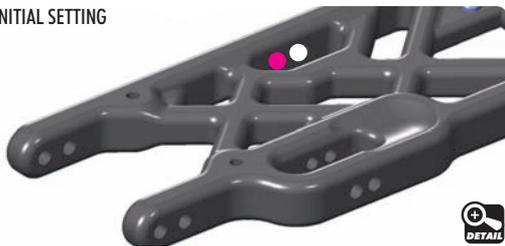
**SET-UP BOOK**  
ANTI-ROLL BAR

OPTION

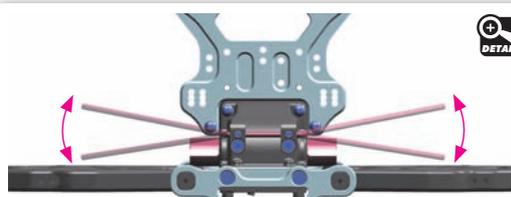
### REAR ANTI-ROLL BARS

#353418	ø1.8mm	OPTION
#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

INITIAL SETTING

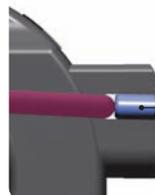


DETAIL



DETAIL

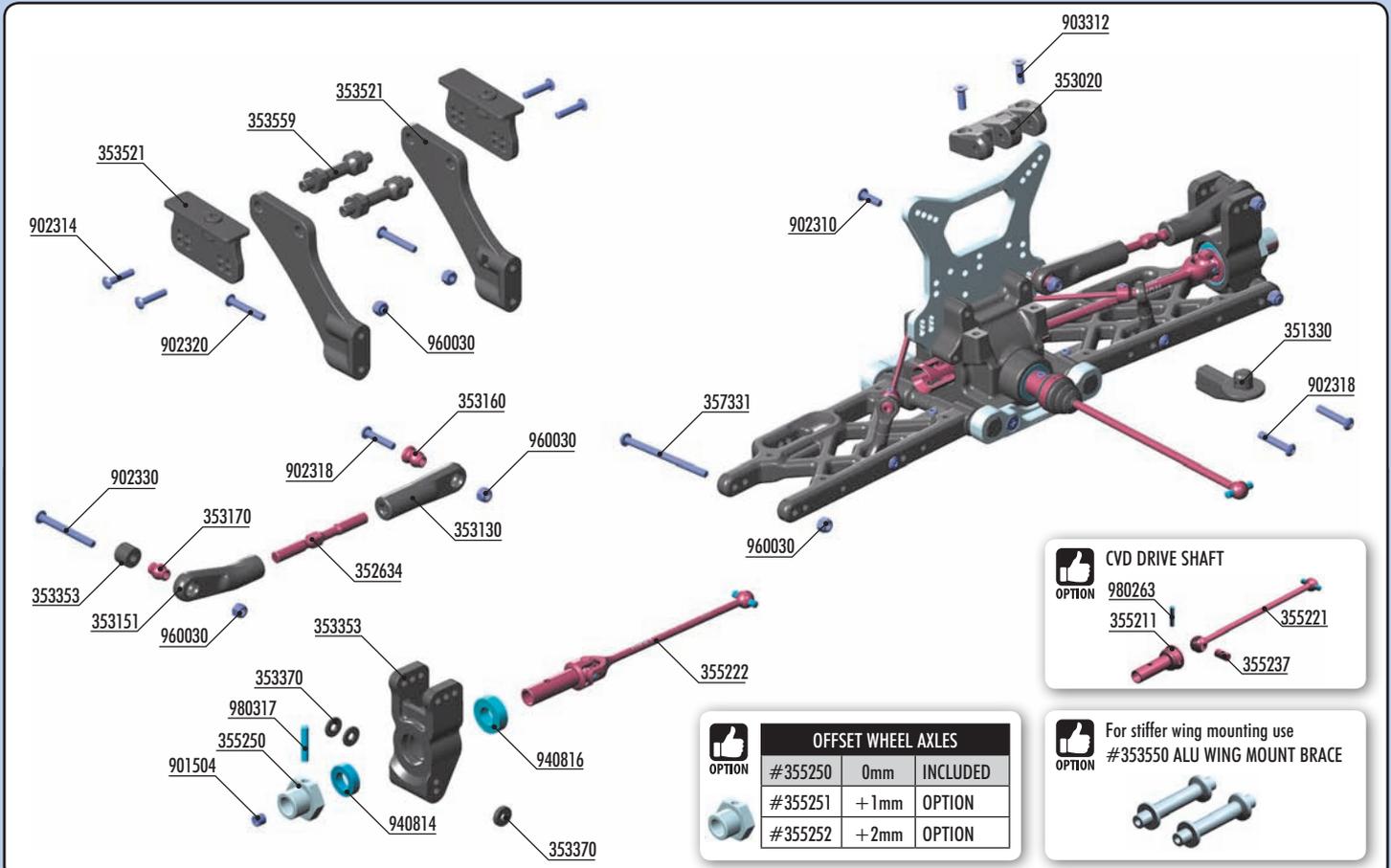
Step 1 check for free movement



Step 1 Loosen the 3x5 setscrew if the anti-roll bar does not turn freely

DETAIL

# 4. REAR SUSPENSION



**CVD DRIVE SHAFT**  
 OPTION 980263  
 355211 355221 355237

**OFFSET WHEEL AXLES**

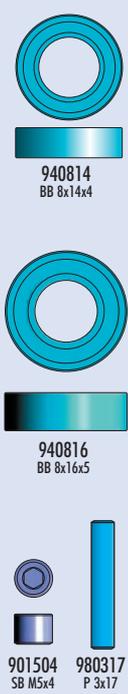
OPTION	Part #	Offset	Status
	#355250	0mm	INCLUDED
	#355251	+1mm	OPTION
	#355252	+2mm	OPTION

**For stiffer wing mounting use**  
 OPTION #353550 ALU WING MOUNT BRACE

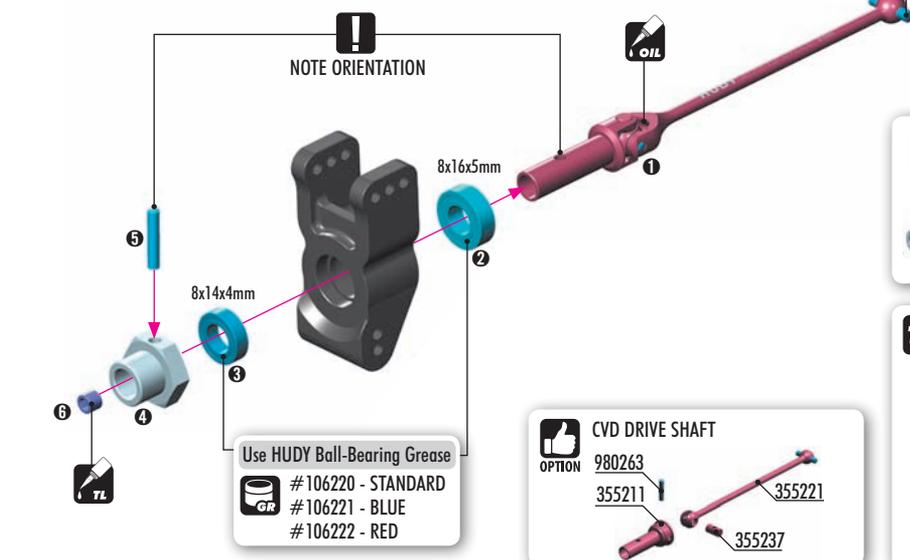
**BAG**  
**04**

- 35 1330 COMPOSITE REAR BODY POST - LONG
- 35 2634 ADJ. TURNBUCKLE M5 L/R 50 MM - HUDY SPRING STEEL™ (2)
- 35 3020 COMPOSITE REAR BRACE HOLDER
- 35 3130 REAR UPPER INNER CAMBER LINK BALL JOINT (2)
- 35 3151 RELIEF REAR UPPER OUTER CAMBER LINK BALL JOINT (2)
- 35 3160 MOUNTING BALL 6.8 (4)
- 35 3170 PIVOT BALL 6.8 (4)
- 35 3353 XB8®16 COMPOSITE REAR UPRIGHT
- 35 3370 SET OF COMPOSITE REAR HUB CARRIER SHIMS
- 35 3521 REAR WING POSTS
- 35 3559 COMPOSITE REAR WING MOUNT BRACE (2)
- 35 5222 UNIVERSAL DRIVE SHAFT - HUDY SPRING STEEL™
- 35 5250 ALU WHEEL AXLE - BLACK COATED (2)

- 35 7331 XB808 REAR LOWER OUTER PIVOT PIN SCREW 3MM (2)
- 90 1504 HEX SCREW SB M5x4 (10)
- 90 2310 HEX SCREW SH M3x10 (10)
- 90 2314 HEX SCREW SH M3x14 (10)
- 90 2318 HEX SCREW SH M3x18 (10)
- 90 2320 HEX SCREW SH M3x20 (10)
- 90 2330 HEX SCREW SH M3x30 (10)
- 90 3312 HEX SCREW SH M3x12 (10)
- 94 0814 HIGH-SPEED BALL-BEARING 8x14x4 BLUE COVERED (2)
- 94 0816 HIGH-SPEED BALL-BEARING 8x16x5 BLUE COVERED (2)
- 96 0030 NUT M3 (10)
- 98 0317 PIN 3x17 (10)



**2x** **L=R**



**OFFSET WHEEL AXLES**

OPTION	Part #	Offset	Status
	#355250	0mm	INCLUDED
	#355251	+1mm	OPTION
	#355252	+2mm	OPTION

**TIP** To tighten the setscrew you can also use the HUDY 17mm Wheel Nut Tool #107570

**CVD DRIVE SHAFT**  
 OPTION 980263  
 355211 355221 355237



# 4. REAR SUSPENSION



353370  
SHIM 3x9x1



353370  
SHIM 3x9x2



960030  
N M3

2x L-R

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

Shims for wheelbase adjustment

1 + 1mm

2mm

REAR

LEFT

RIGHT

Do not overtighten the self-locking nut. Overtightening may result in suspension binding.

2x L-R

ARM REAMER (HUDY #107633)

If the rear upright does not move freely, use a HUDY Arm Reamer to resize the hole.



INITIAL SETTING



Check for free movement

2x L-R

NOTE ORIENTATION

**TIP** Follow the TECH TIP on page 5 to install the pivot balls

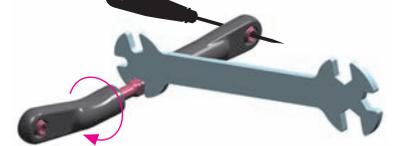
NOTE ORIENTATION

**TIP** Follow the TECH TIP on page 5 to install the pivot balls

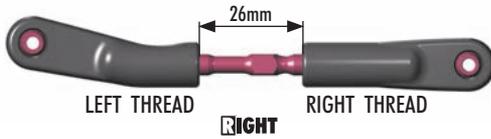
OIL LEFT THREAD

OIL RIGHT THREAD

Use tools to tighten as shown



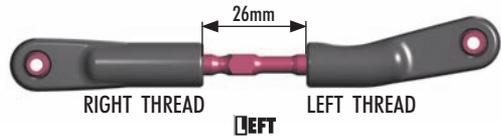
Special Tool for all turnbuckles & nuts (HUDY #181090) or Turnbuckle Wrench 5mm (HUDY #181050)



LEFT THREAD

RIGHT

RIGHT THREAD



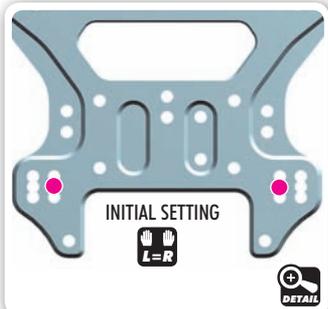
RIGHT THREAD

LEFT

INITIAL SETTING



INITIAL SETTING



353353  
SHIM 3x9x7



902318  
SH M3x18



902330  
SH M3x30



960030  
N M3

2x L-R

NOTE ORIENTATION

7mm

3x18mm

3x30mm

REAR

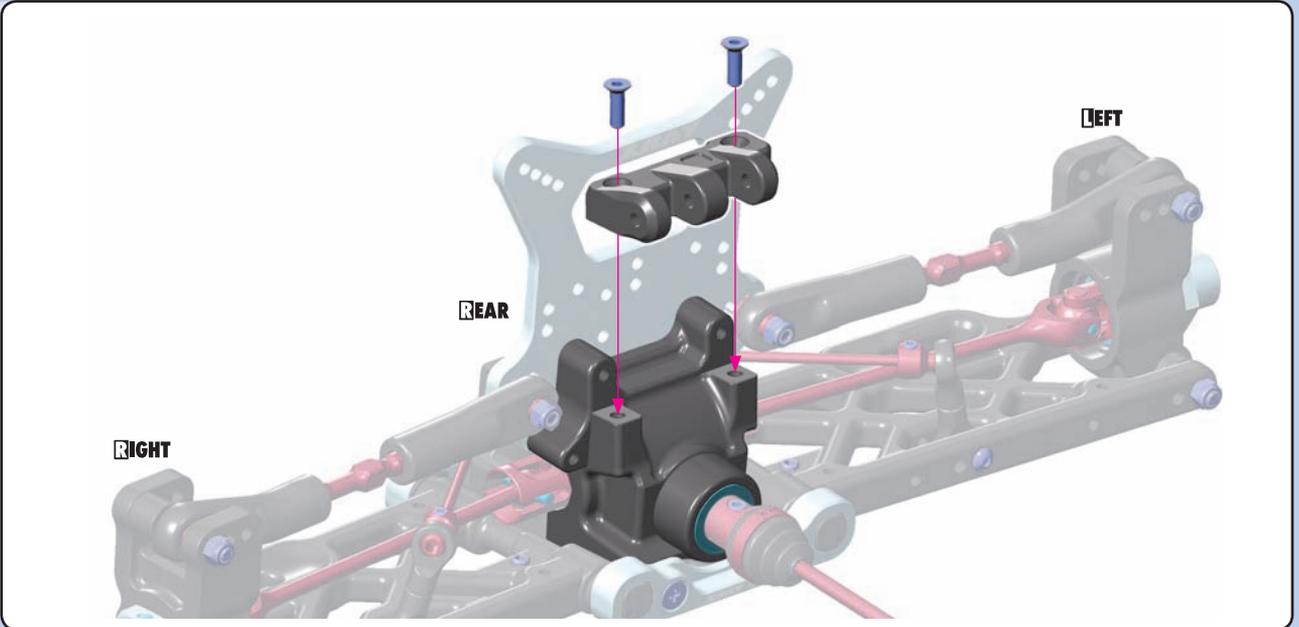
LEFT

RIGHT

# 4. REAR SUSPENSION



903312  
SFH M3x12



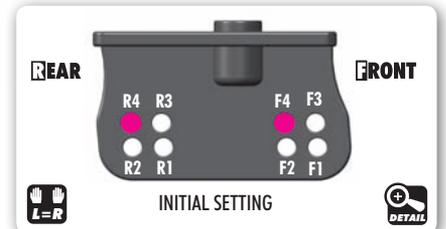
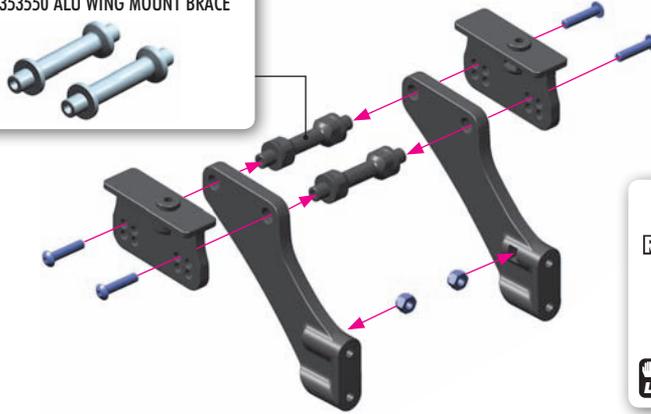
902314  
SH M3x14



960030  
N M3

2x L=R

**OPTION** For stiffer wing mounting use #353550 ALU WING MOUNT BRACE



**SET-UP BOOK**  
REAR WING



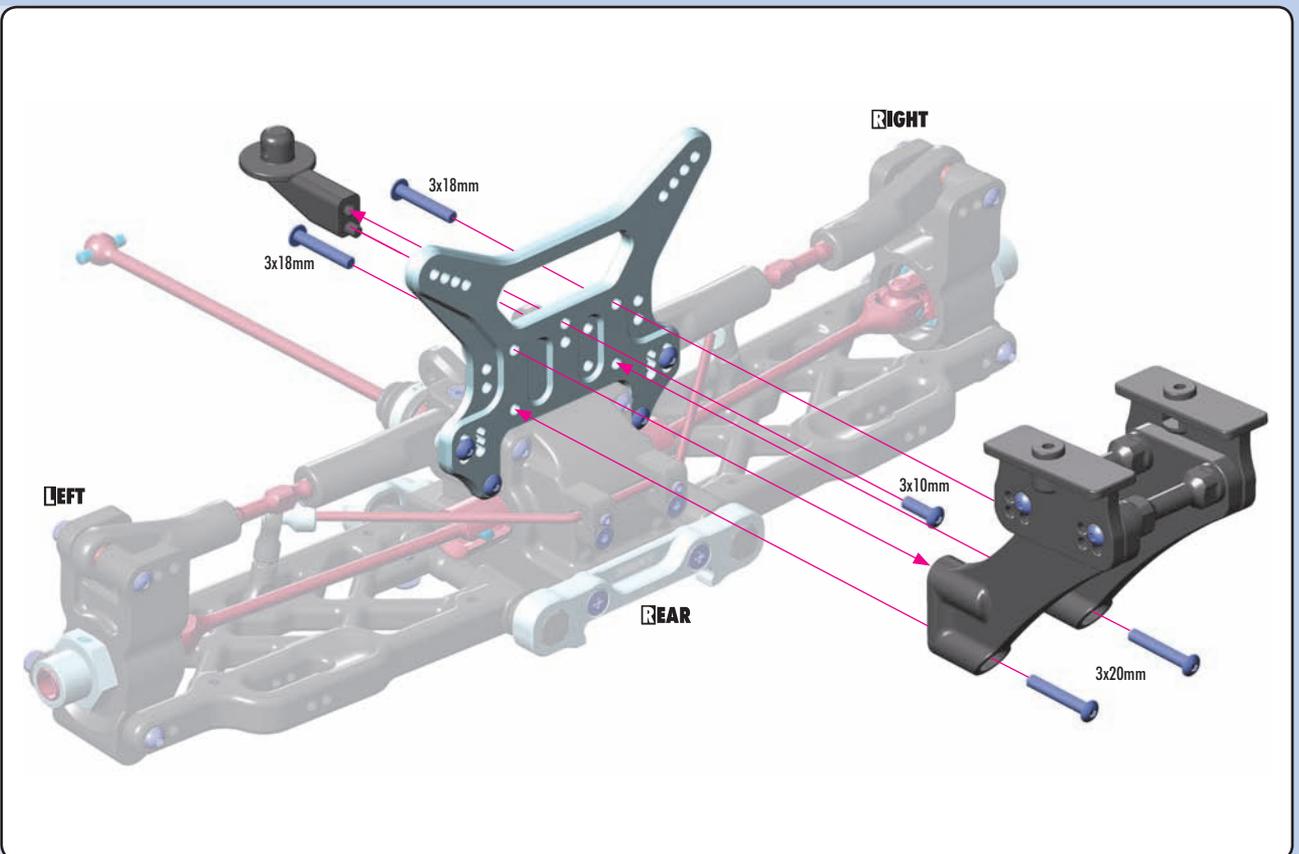
902310  
SH M3x10



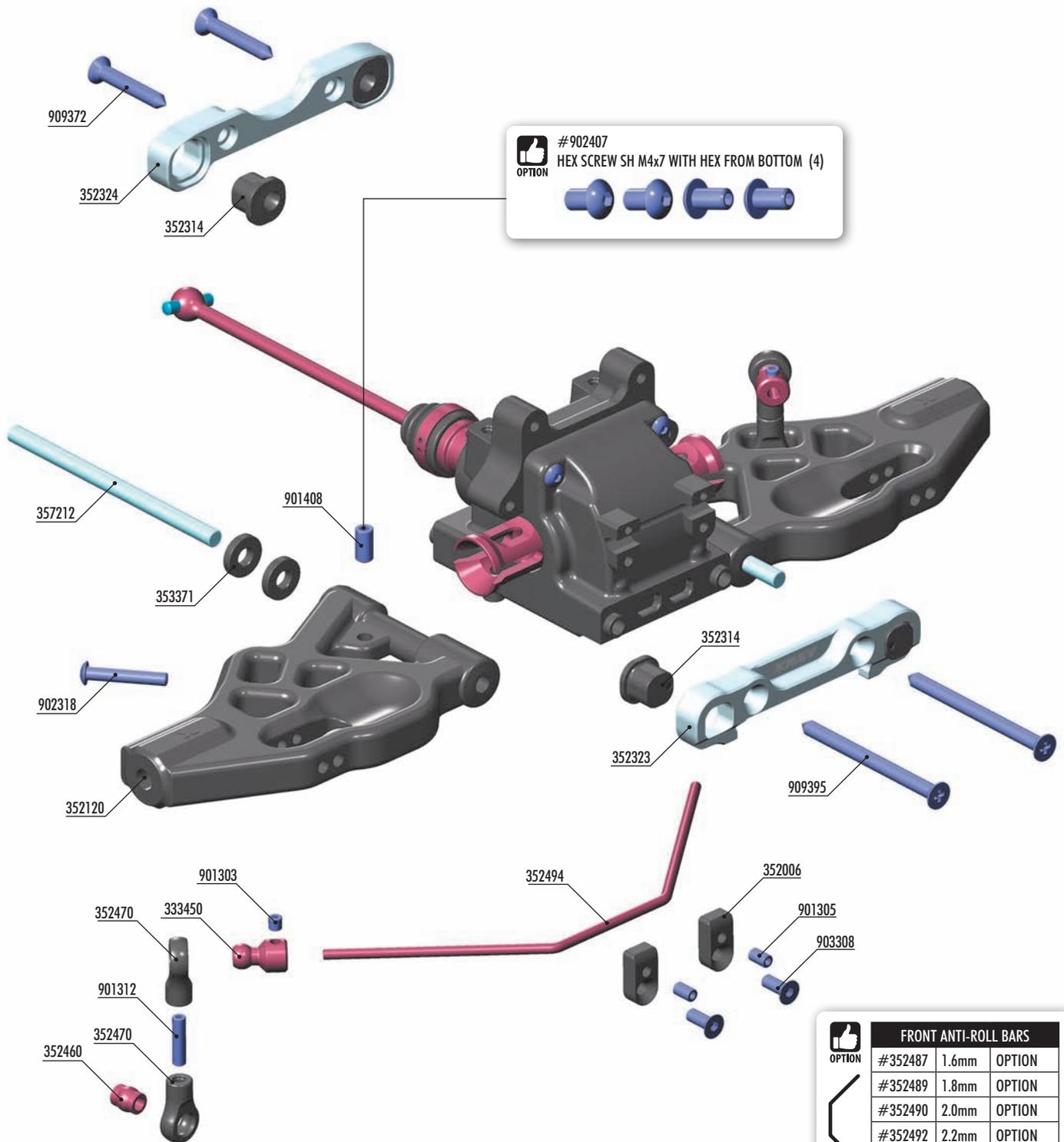
902318  
SH M3x18



902320  
SH M3x20



# 5. FRONT SUSPENSION



**#902407**  
 HEX SCREW SH M4x7 WITH HEX FROM BOTTOM (4)

**#333451**  
 ALU ANTI-ROLL BAR PIVOT BALL 5.8 MM - SWISS 7075 T6 - HARDCOATED (2)

FRONT ANTI-ROLL BARS		
#352487	1.6mm	OPTION
#352489	1.8mm	OPTION
#352490	2.0mm	OPTION
#352492	2.2mm	OPTION
#352493	2.3mm	OPTION
#352494	2.4mm	INCLUDED
#352495	2.5mm	OPTION
#352496	2.6mm	OPTION

**BAG**

**05**

- 33 3450 ANTI-ROLL BAR BALL JOINT 5.8 MM (2)
- 35 2006 XB8 16 DIFF BULKHEAD BLOCK SET FRONT/REAR
- 35 2120 XB8 COMPOSITE FRONT LOWER SUSPENSION ARM
- 35 2323 ALU FRONT LOWER SUSP. HOLDER - FRONT - SQUARE ADJ. ROLL CENTER - V2
- 35 2324 ALU FRONT LOWER SUSP. HOLDER - REAR - SQUARE ADJ. ROLL CENTER - V2
- 35 2314 COMPOSITE SQUARE ADJ. ROLL CENTER BUSHINGS - V2 (2)
- 35 2460 PIVOT BALL 5.8 (10)
- 35 2470 BALL JOINT 5.8 (8)
- 35 2494 FRONT ANTI-ROLL BAR 2.4MM
- 35 3371 SET OF COMPOSITE LOWER ARM SHIMS

- 35 7212 LOWER INNER PIVOT PIN F+R (2)
- 90 1303 HEX SCREW SB M3x3 (10)
- 90 1305 HEX SCREW SB M3x5 (10)
- 90 1312 HEX SCREW SB M3x12 (10)
- 90 1408 HEX SCREW SB M4x8 (10)
- 90 2318 HEX SCREW SH M3x18 (10)
- 90 3308 HEX SCREW SFH M3x8 (10)
- 90 9372 SCREW PHILLIPS SS 3.5x22 (10)
- 90 9395 SCREW PHILLIPS SS 3.5x45 (10)

# 5. FRONT SUSPENSION



353371  
SHIM 4x10x2



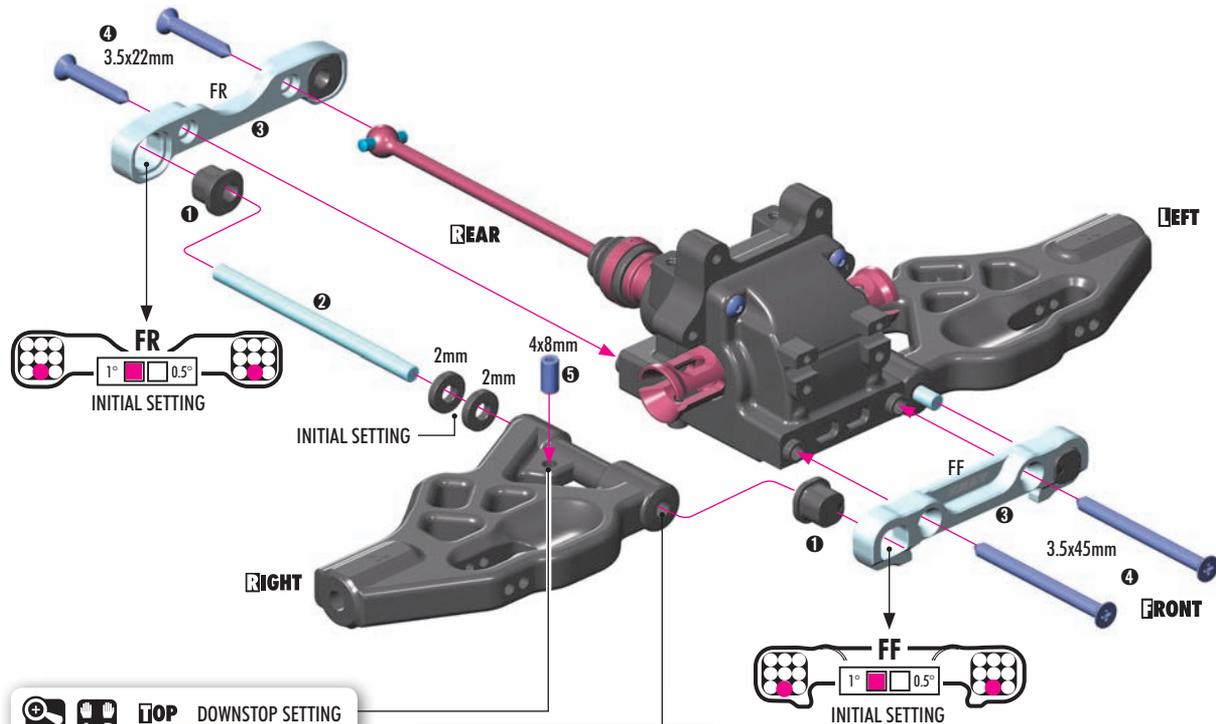
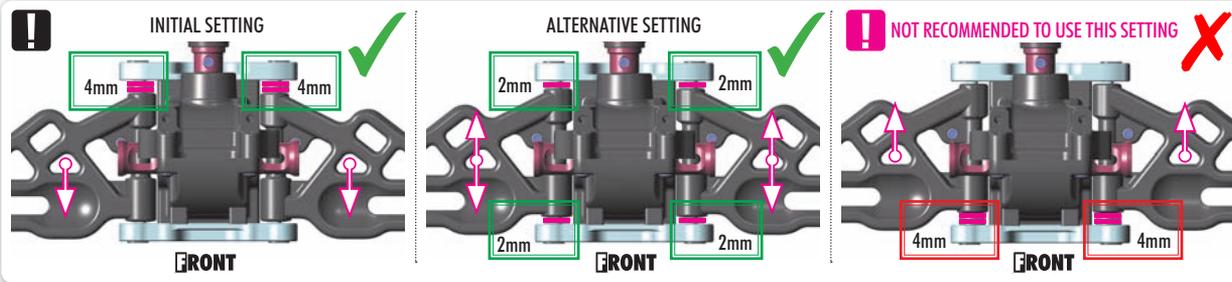
901408  
SB M4x8



909372  
SS 3.5x22



909395  
SS 3.5x45



**TOP DOWNSTOP SETTING**

DETAIL L=R

0.0mm

#902407 OPTION

Downstop screw for fine tuning.

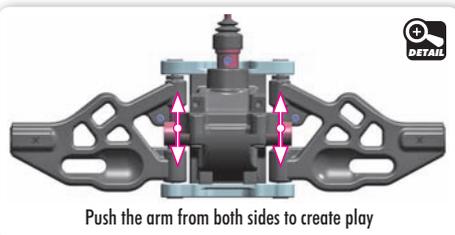
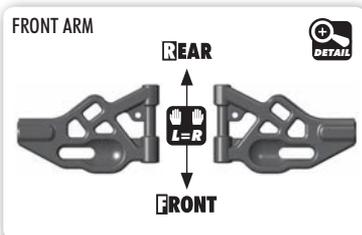
**TIP** L=R

If the suspension arms do not move freely, use a HUDY Arm Reamer to resize the holes.

(HUDY #107634)

ARM REAMER

All possible mounting alternatives of eccentric bushings



Eccentric bushings have two different offsets from the center.

- Middle position = 0.5 mm or 0.5° from center
- Outer position = 1 mm or 1° from center

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			(mm)
FF	FR		
0	0		=308
0	1		=306
0	1*		=310*

ROLL CENTER			(mm)
FF	FR		
0	0		=1
0	1		=0
0	1*		=-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.

\* Not recommended to use this setting.

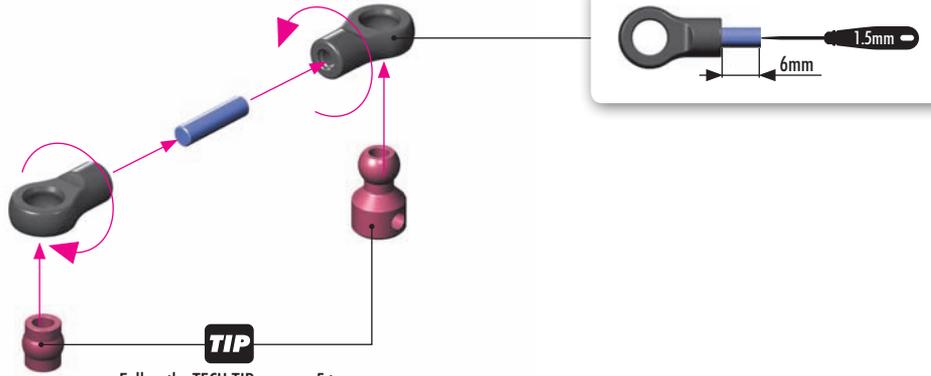
**SET-UP BOOK**  
KICK UP  
ROLL CENTER DOWNSTOP  
WHEELBASE  
TRACK WIDTH

# 5. FRONT SUSPENSION



901312  
SB M3x12

2x L=R



**TIP**  
Follow the TECH TIP on page 5 to install the pivot balls



901303  
SB M3x3



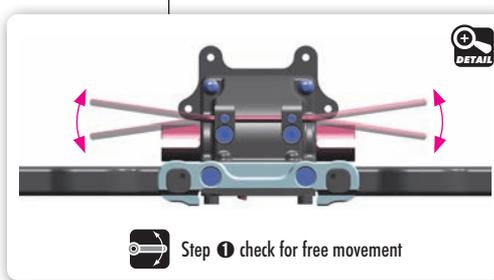
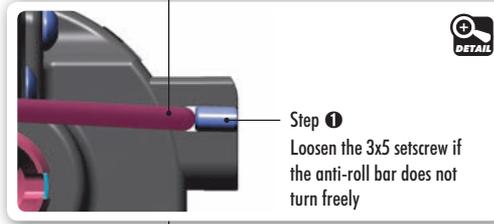
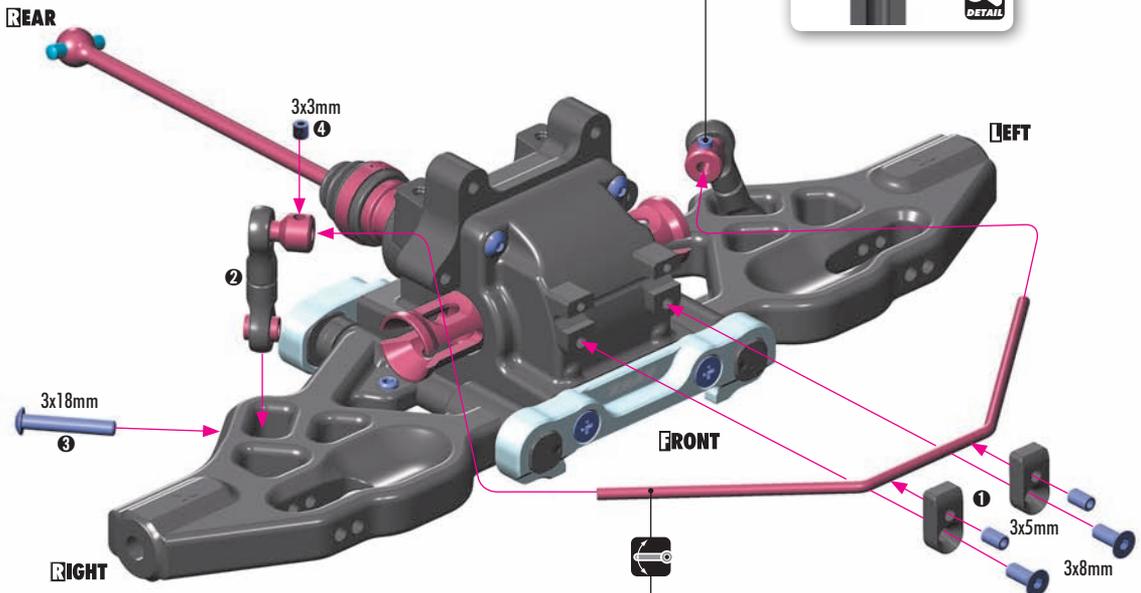
901305  
SB M3x5



902318  
SH M3x18



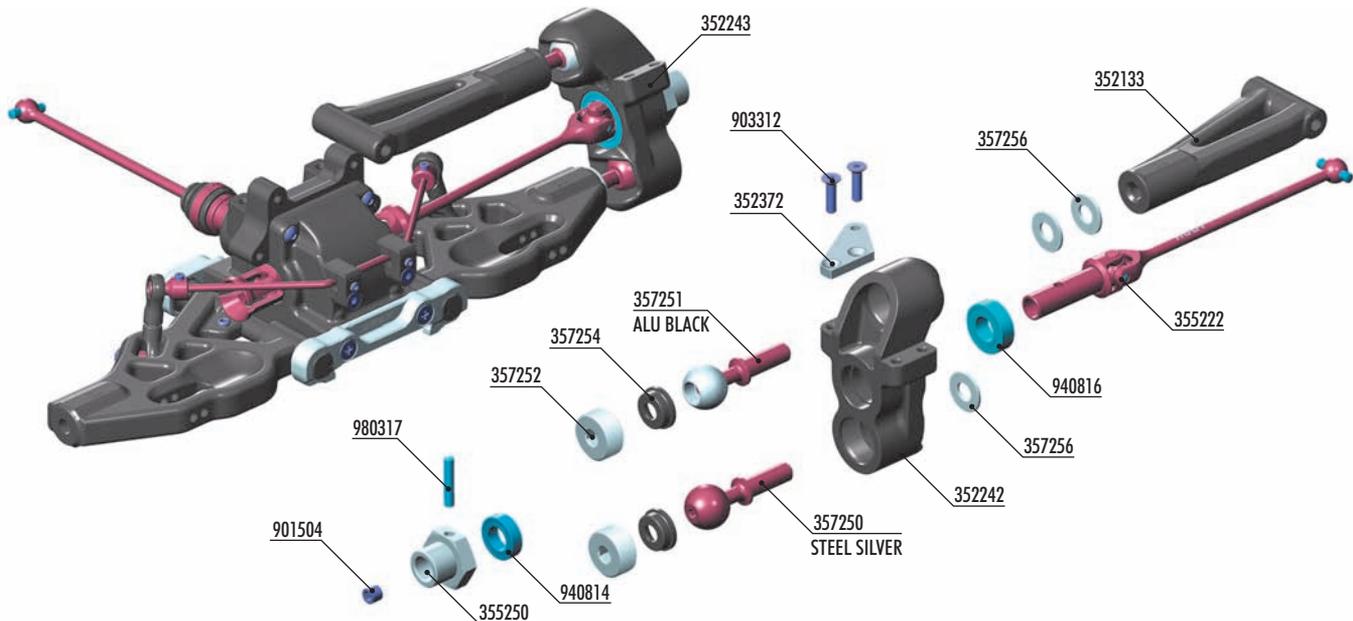
903308  
SFH M3x8



FRONT ANTI-ROLL BARS			
OPTION	#352487	1.6mm	OPTION
}	#352489	1.8mm	OPTION
	#352490	2.0mm	OPTION
}	#352492	2.2mm	OPTION
	#352493	2.3mm	OPTION
}	#352494	2.4mm	INCLUDED
	#352495	2.5mm	OPTION
}	#352496	2.6mm	OPTION

**SET-UP BOOK**  
ANTI-ROLL BAR

# 6. FRONT SUSPENSION



**#352241**  
XB8'16 STEERING BLOCK  
OPTION

**#357253**  
BRASS ADJUSTING NUT M15x1  
OPTION

**OFFSET WHEEL AXLES**  
OPTION

#355250	0mm	INCLUDED
#355251	+1mm	OPTION
#355252	+2mm	OPTION

**CVD DRIVE SHAFT**  
OPTION

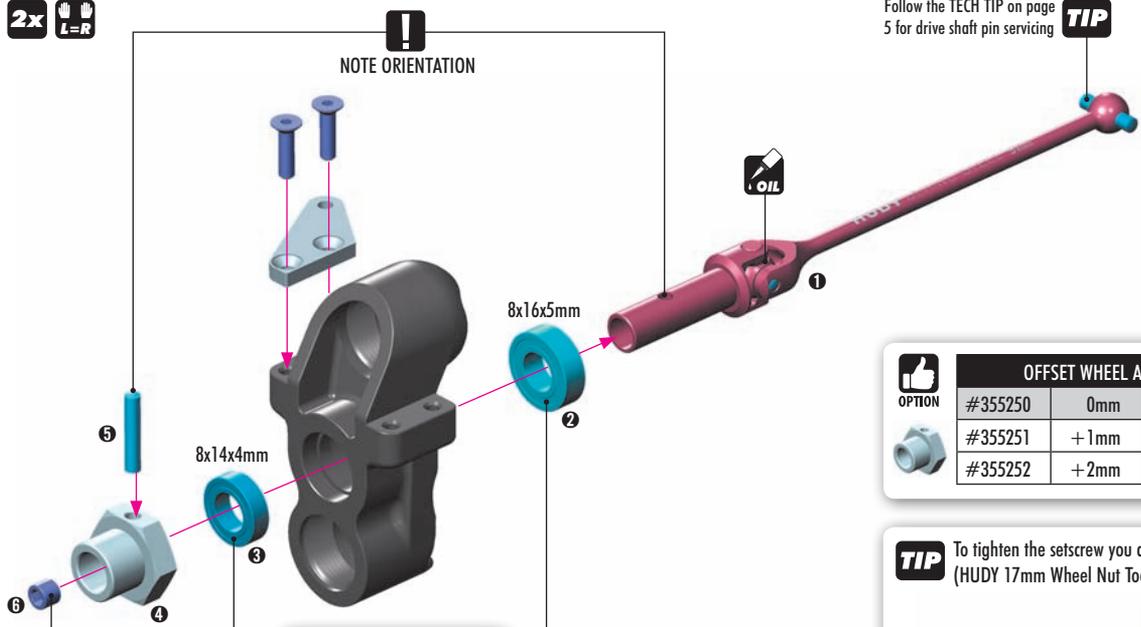
980263  
355211 355221 355237

**BAG**  
06

- 35 2133 XB8'16 FRONT UPPER ARM
- 35 2242 XB8'16 STEERING BLOCK - TRAILING AXLE - RIGHT
- 35 2243 XB8'16 STEERING BLOCK - TRAILING AXLE - LEFT
- 35 2372 XB8'17 ALU STEERING PLATE - SWISS 7075 T6 (L+R)
- 35 5222 UNIVERSAL DRIVE SHAFT - HUDY SPRING STEEL™
- 35 5250 ALU WHEEL AXLE - BLACK COATED (2)
- 35 7250 STEEL PIVOT BALL 13.7 MM (2)
- 35 7251 ALU PIVOT BALL 13.7 MM WITH STEEL SCREW (2)
- 35 7252 ALU ADJUSTING NUT M15x1 (2)

- 35 7254 COMPOSITE BALL CUP 13.9 MM (2)
- 35 7256 ALU SHIM 6x13x1 (2)
- 90 1504 HEX SCREW SB M5x4 (10)
- 90 3312 HEX SCREW SFH M3x12 (10)
- 94 0814 HIGH-SPEED BALL-BEARING 8x14x4 BLUE COVERED (2)
- 94 0816 HIGH-SPEED BALL-BEARING 8x16x5 BLUE COVERED (2)
- 98 0317 PIN 3x17 (10)

- 901504 SB M5x4
- 940814 BB 8x14x4
- 940816 BB 8x16x5
- 903312 SFH M3x12
- 980317 P 3x17



Use HUDY Ball-Bearing Grease

- #106220 - STANDARD
- #106221 - BLUE
- #106222 - RED

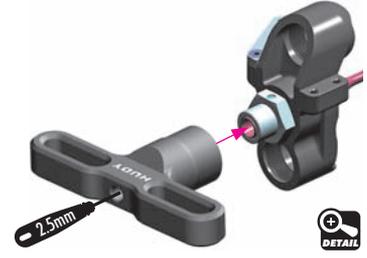
**OFFSET WHEEL AXLES**  
OPTION

#355250	0mm	INCLUDED
#355251	+1mm	OPTION
#355252	+2mm	OPTION

**TIP** To tighten the setscrew you can also use the (HUDY 17mm Wheel Nut Tool #107570)

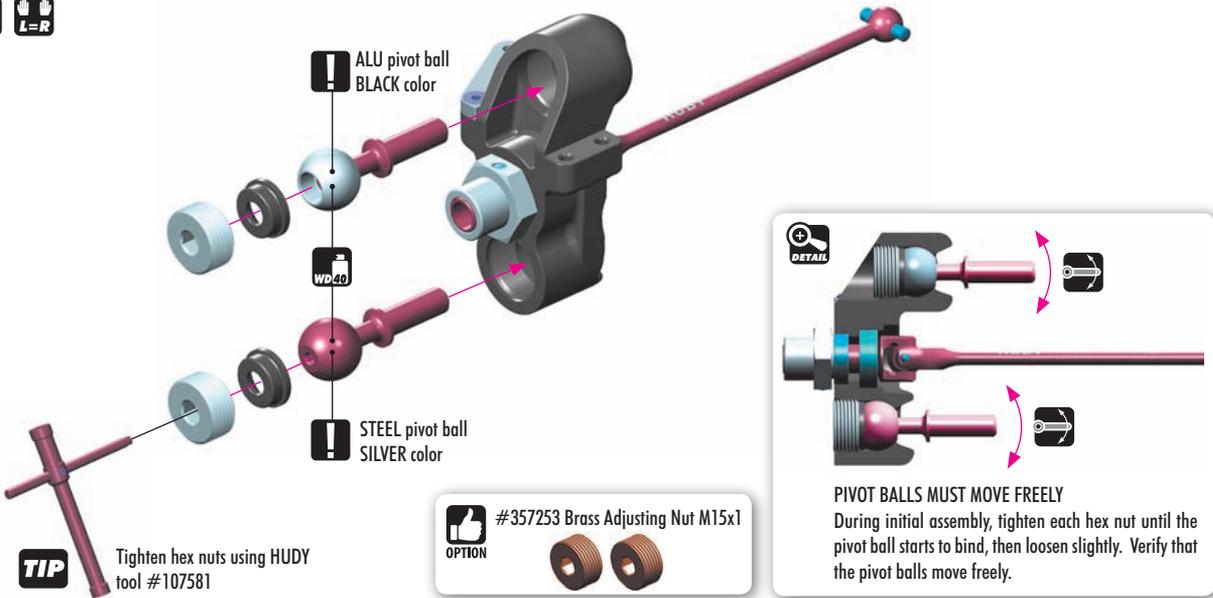
**CVD DRIVE SHAFT**  
OPTION

980263  
355211 355221 355237



# 6. FRONT SUSPENSION

**2x** 



**ALU pivot ball**  
BLACK color

**STEEL pivot ball**  
SILVER color

**TIP** Tighten hex nuts using HUDY tool #107581

**OPTION**  #357253 Brass Adjusting Nut M15x1

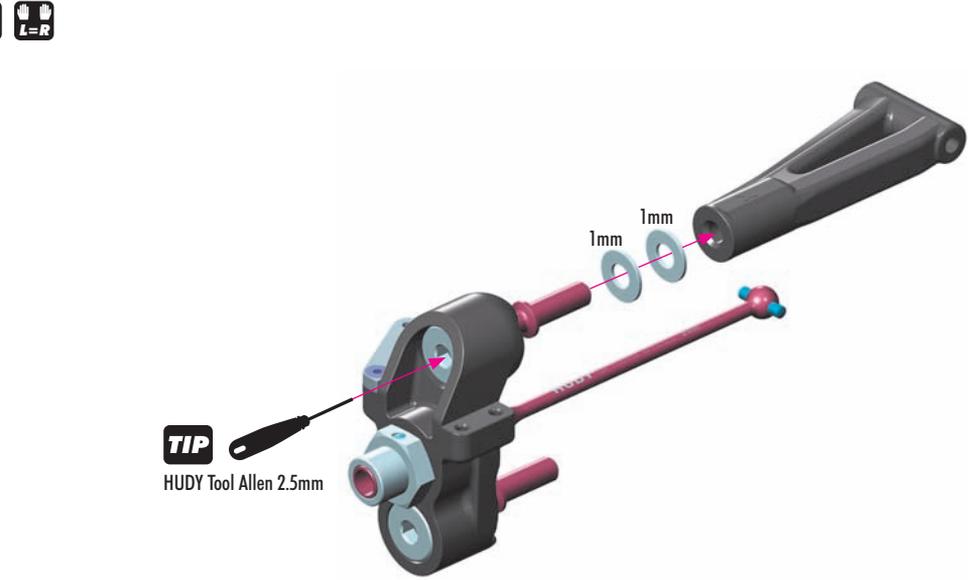
**DETAIL**

**PIVOT BALLS MUST MOVE FREELY**  
During initial assembly, tighten each hex nut until the pivot ball starts to bind, then loosen slightly. Verify that the pivot balls move freely.



357256  
SHIM 6x13x1

**2x** 



**TIP** HUDY Tool Allen 2.5mm

1mm

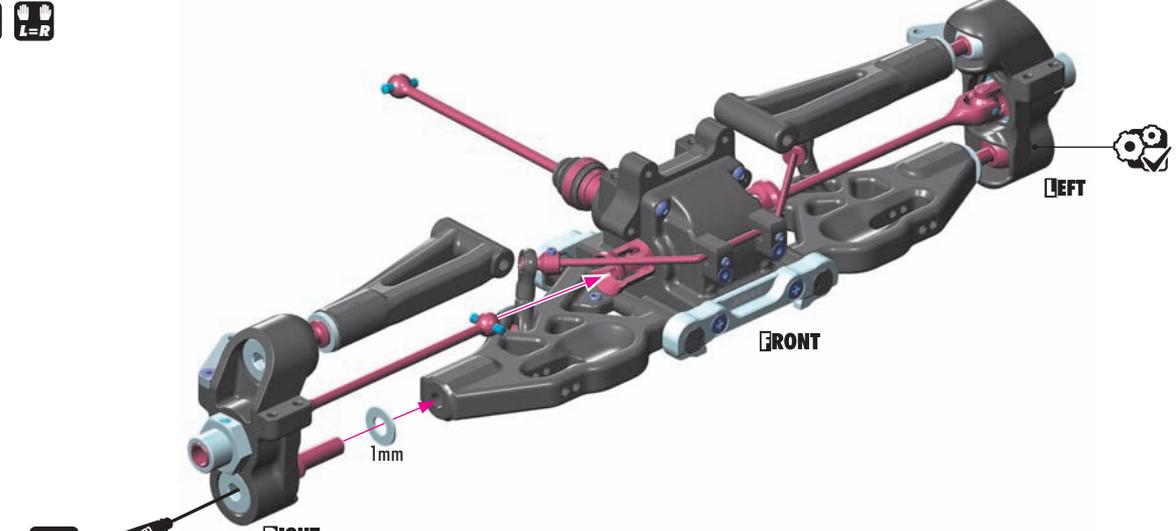
1mm

**SET-UP BOOK**  
CAMBER  
TRACK-WIDTH



357256  
SHIM 6x13x1

**2x** 



**TIP** HUDY Tool Allen 2.5mm

1mm

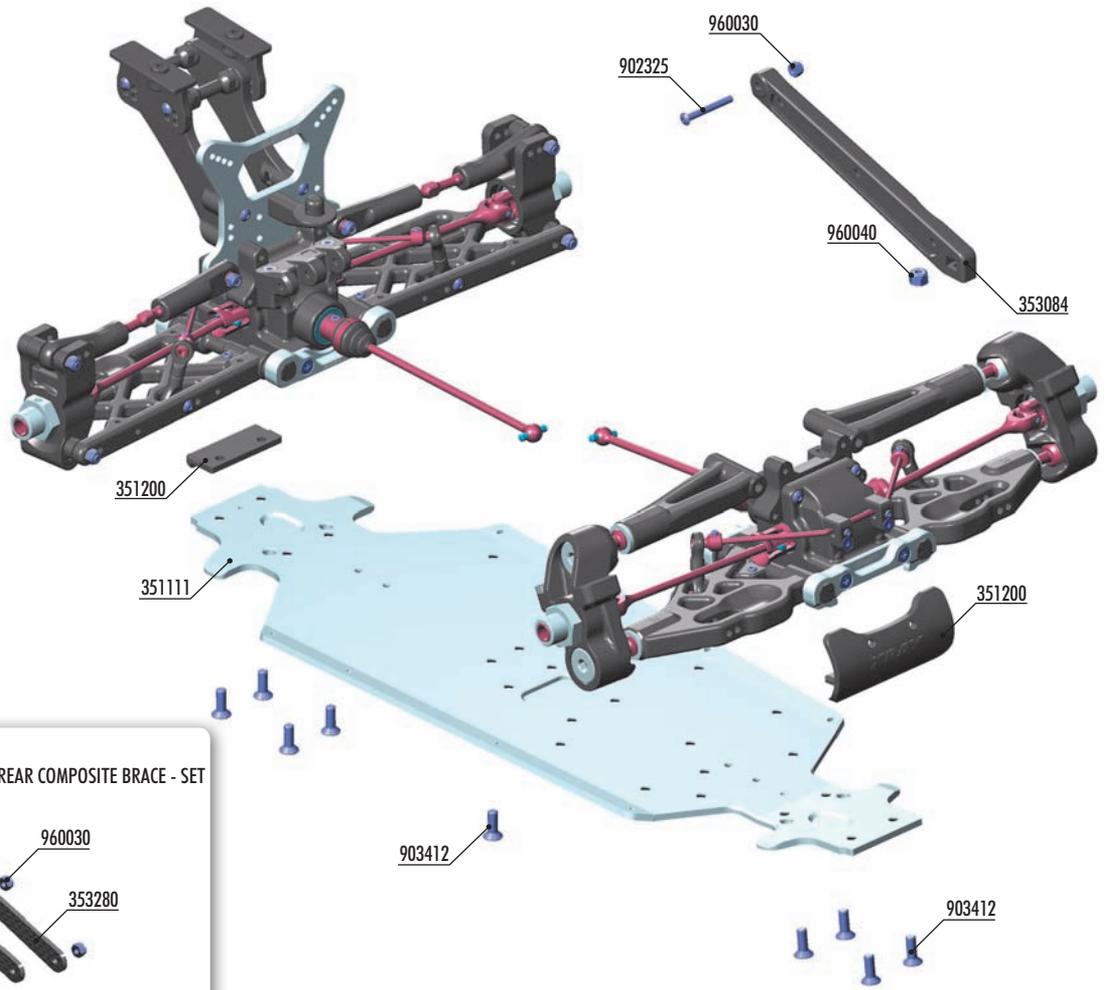
**FRONT**

**RIGHT**

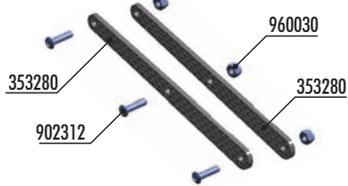
**LEFT**

**SET-UP BOOK**  
ROLL CENTER

# 6. FRONT & REAR ASSEMBLY



**#353280**  
**OPTION** GRAPHITE INSERT FOR MEDIUM REAR COMPOSITE BRACE - SET



**BAG**

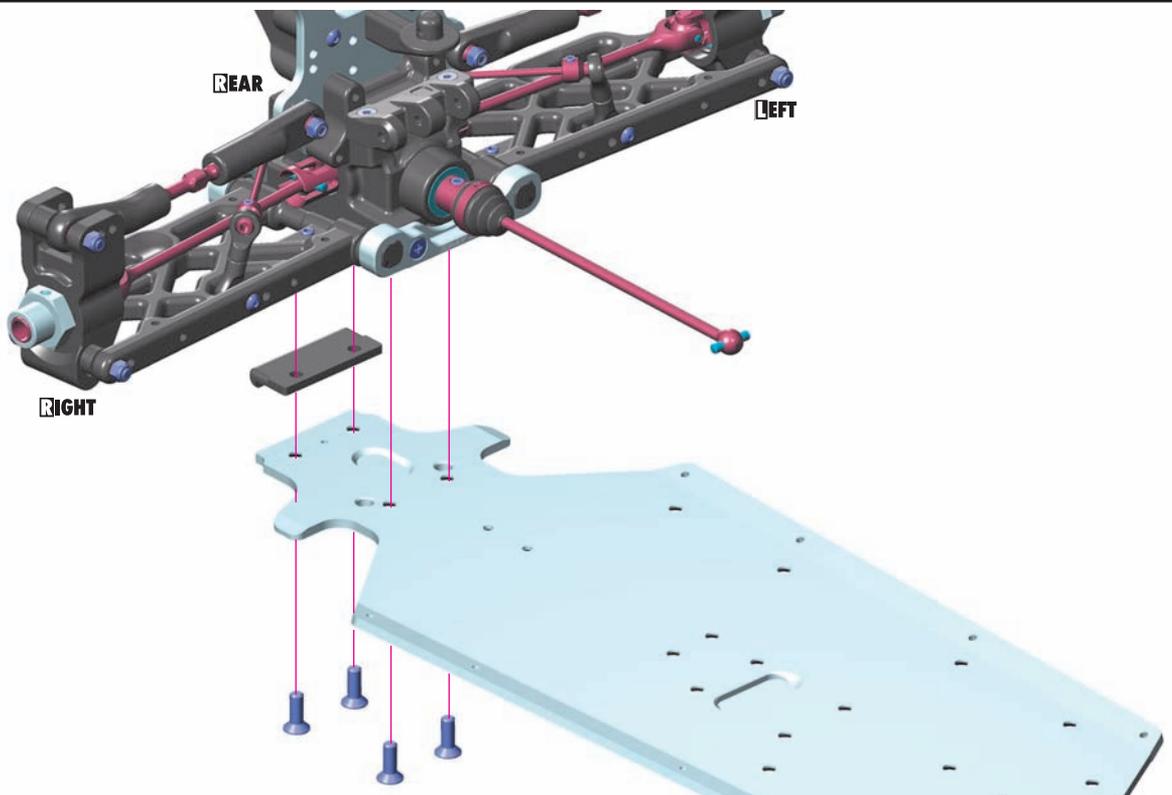
**06**

35 1111 XB8E'16 ALU CHASSIS - SWISS 7075 T6 (3MM)  
 35 1200 FRONT & REAR BUMPER - V2  
 35 3084 XB8'16 COMPOSITE REAR BRACE - MEDIUM

90 2325 HEX SCREW SH M3x25 (10)  
 90 3412 HEX SCREW SFH M4x12 (10)  
 96 0030 NUT M3 (10)  
 96 0040 NUT M4 (10)



903412  
 SFH M4x12



# 6. FRONT & REAR ASSEMBLY



902325  
SFH M3x25



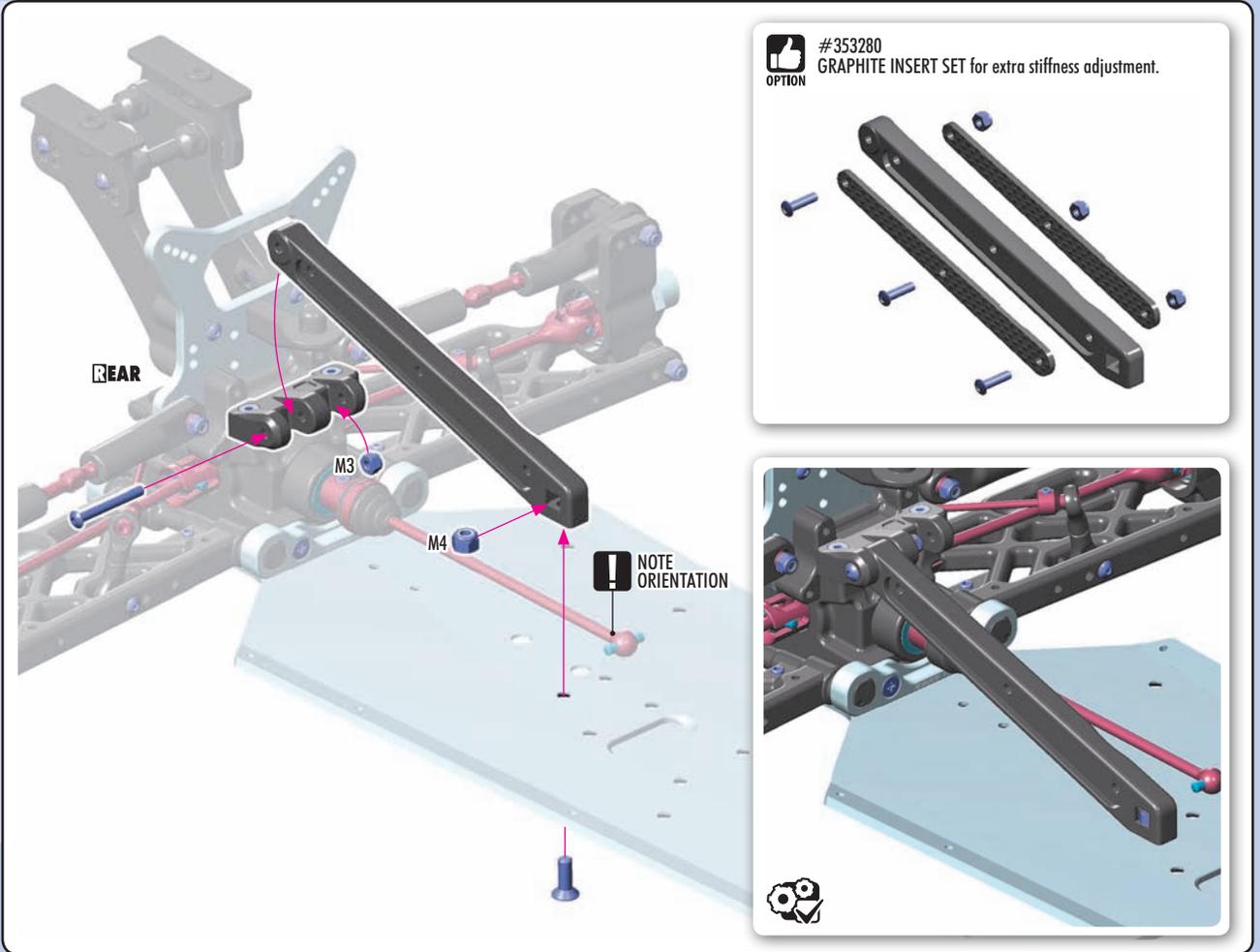
903412  
SFH M4x12



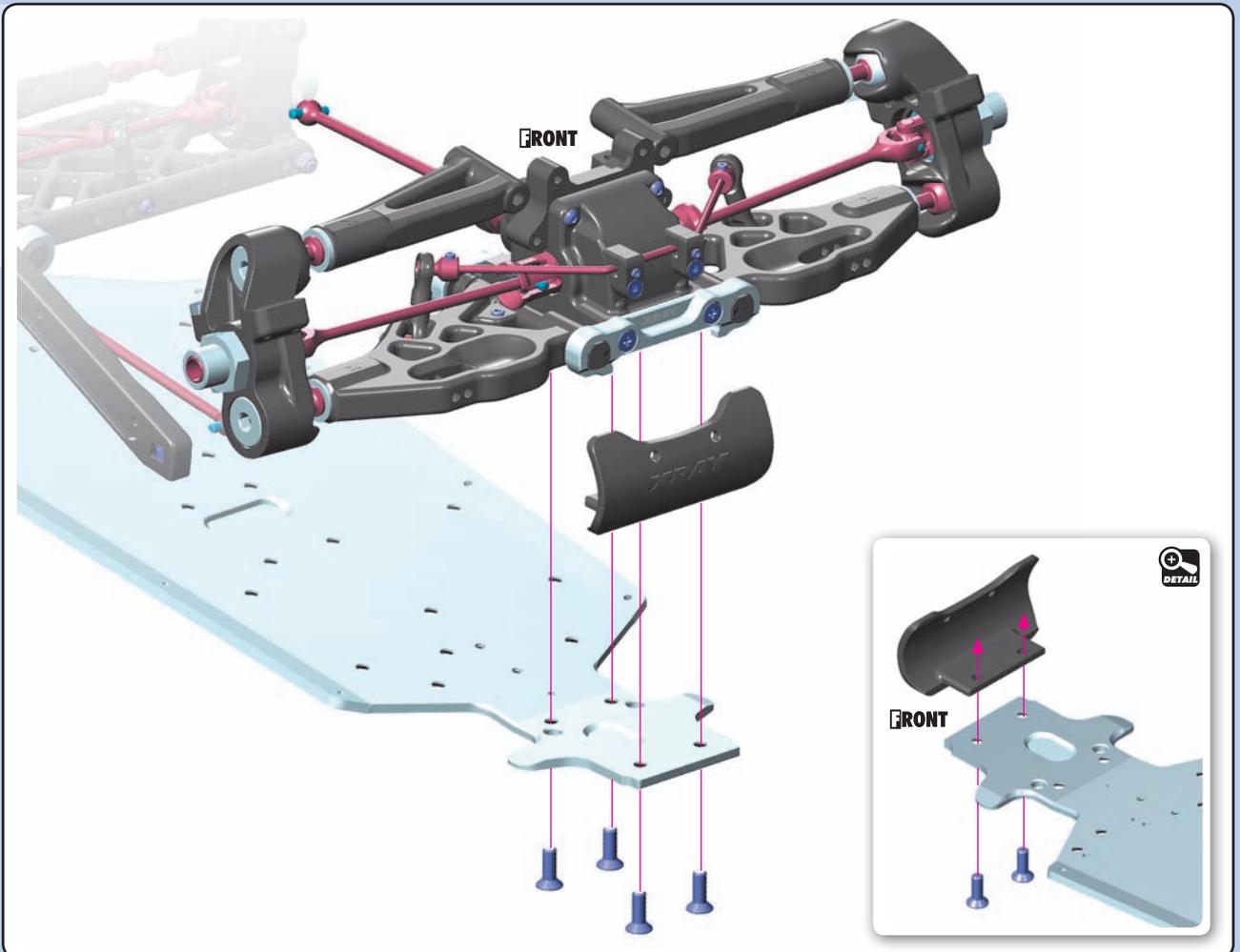
960030  
N M3



960040  
N M4

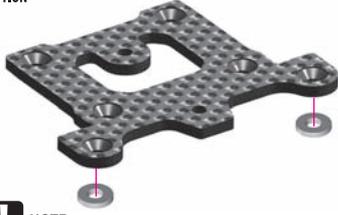


903412  
SFH M4x12



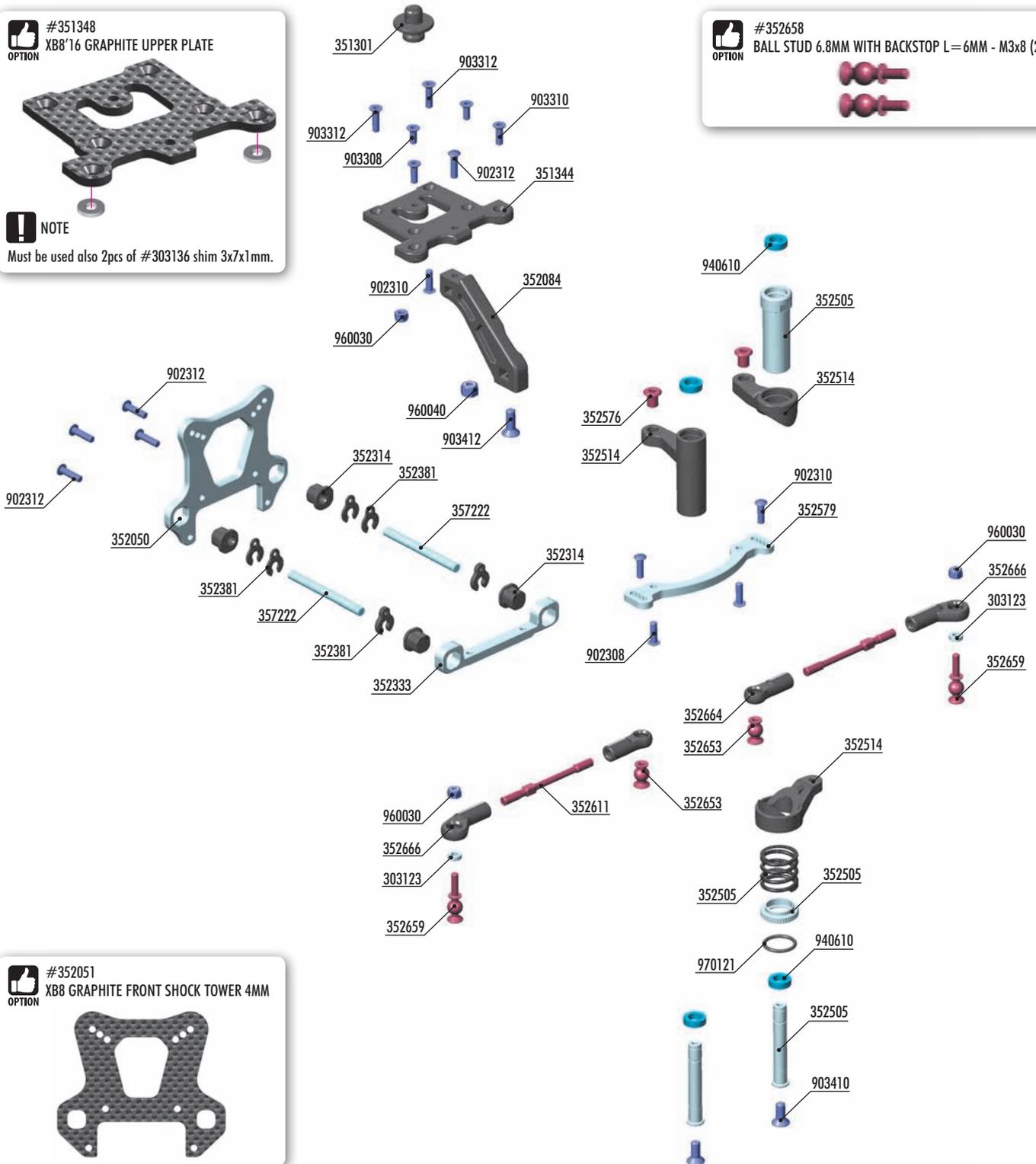
# 7. STEERING

**#351348**  
XB8'16 GRAPHITE UPPER PLATE  
OPTION



**NOTE**  
Must be used also 2pcs of #303136 shim 3x7x1mm.

**#352658**  
BALL STUD 6.8MM WITH BACKSTOP L=6MM - M3x8 (2)  
OPTION



**#352051**  
XB8 GRAPHITE FRONT SHOCK TOWER 4MM  
OPTION



**BAG**

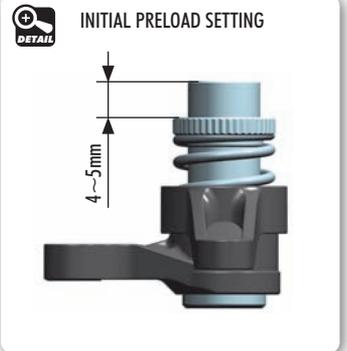
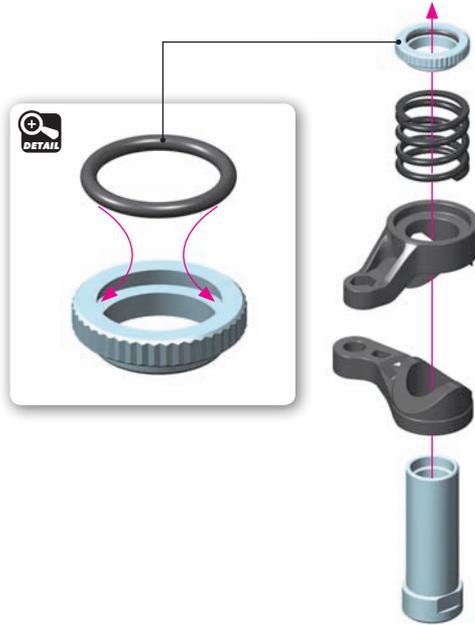
**07**

- |         |   |         |   |
|---------|---|---------|---|
| 30 3123 | ALU SHIM 3x6x2.0MM (10)                                 | 35 7222 | FRONT UPPER PIVOT PIN 4x45 (2)                  |
| 35 1301 | BODY POSTS  | 90 2308 | HEX SCREW SH M3x8 (10)                          |
| 35 1344 | COMPOSITE UPPER PLATE                                   | 90 2310 | HEX SCREW SH M3x10 (10)                         |
| 35 2084 | XB8'16 COMPOSITE FRONT BRACE                            | 90 2312 | HEX SCREW SH M3x12 (10)                         |
| 35 2050 | XB8 ALU FRONT SHOCK TOWER - CNC MACHINED 7075 T6 (4MM)  | 90 3308 | HEX SCREW SFH M3x8 (10)                         |
| 35 2314 | COMPOSITE SQUARE ADJ. ROLL CENTER BUSHINGS - V2 (2)     | 90 3310 | HEX SCREW SFH M3x10 (10)                        |
| 35 2333 | XB8 ALU FRONT UPPER ARM HOLDER - SWISS 7075 T6 (6MM)    | 90 3312 | HEX SCREW SFH M3x12 (10)                        |
| 35 2381 | XB8 CASTER CLIPS (2)                                    | 90 3410 | HEX SCREW SFH M4x10 (10)                        |
| 35 2505 | XB8'16 SERVO SAVER COMPLETE SET - GRAPHITE              | 90 3412 | HEX SCREW SFH M4x12 (10)                        |
| 35 2514 | XB8 COMPOSITE SERVO SAVER - GRAPHITE                    | 94 0610 | HIGH-SPEED BALL-BEARING 6x10x3 BLUE COVERED (2) |
| 35 2576 | STEERING PLATE BUSHING (2)                              | 96 0030 | NUT M3 (10)                                     |
| 35 2579 | XB8'16 ALU STEERING PLATE - SWISS 7075 T6               | 96 0040 | NUT M4 (10)                                     |
| 35 2611 | ADJ. TURNBUCKLE M4 L/R 52.5 MM - HUDY SPRING STEEL™ (2) | 97 0121 | O-RING 12.1 x 1.6 (10)                          |
| 35 2653 | BALL STUD 6.8MM WITH BACKSTOP - M3 (2)                  |         |   |
| 35 2659 | BALL STUD 6.8MM WITH BACKSTOP L=6MM - M3x11 (2)         |         |   |
| 35 2664 | COMPOSITE STEERING BALL JOINT 6.8MM - V3 (2)            |         |   |
| 35 2666 | COMPOSITE RELIEF STEERING BALL JOINT 6.8MM (2)          |         |   |

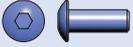
# 7. STEERING



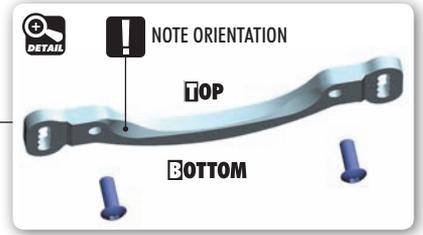
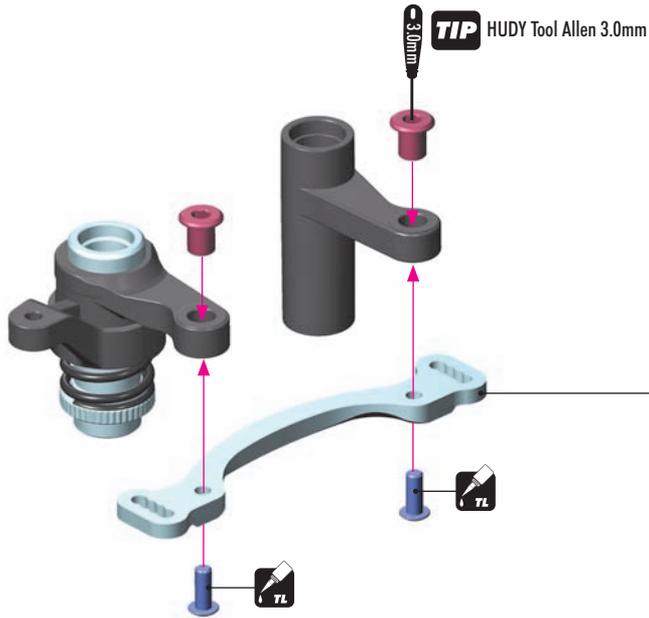
970121  
O 12.1x1.6



**SET-UP BOOK**  
SERVO SAVER



902308  
SH M3x8

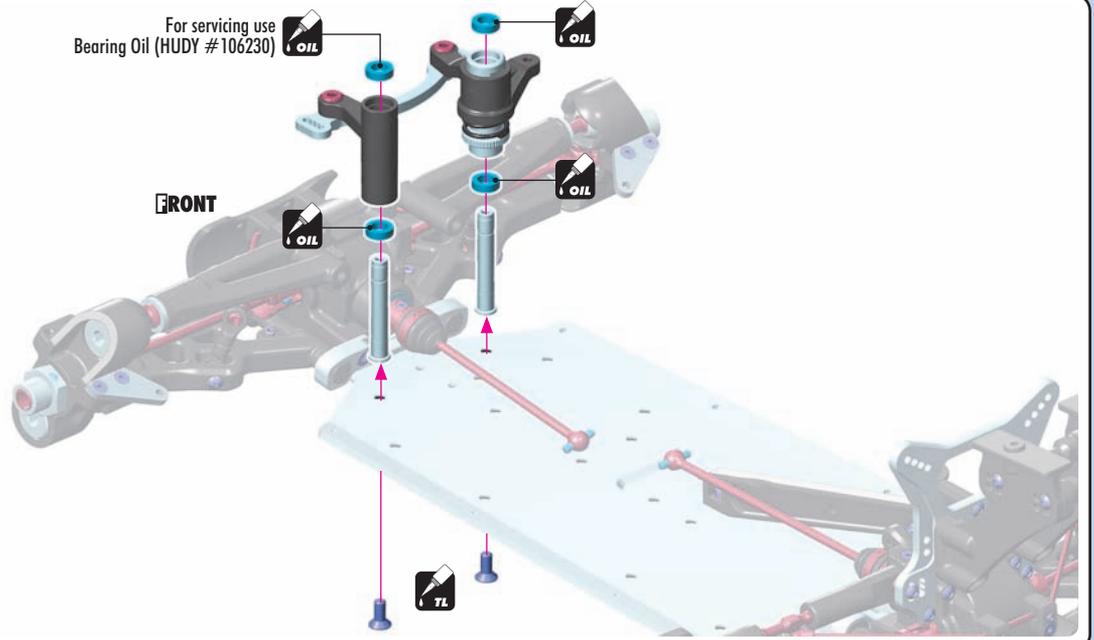


903410  
SFH M4x10



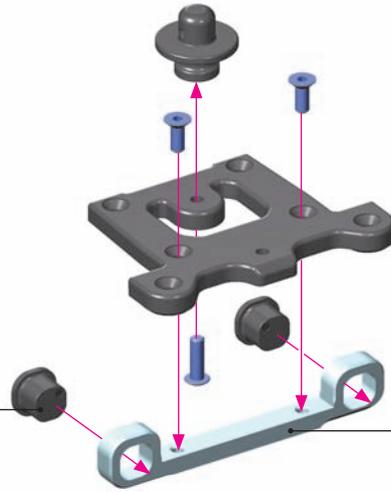
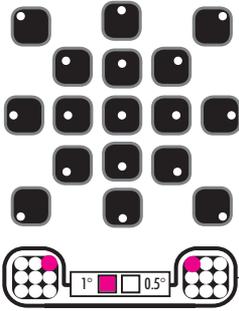
940610  
BB 6x10x3

For servicing use  
Bearing Oil (HUDY #106230)

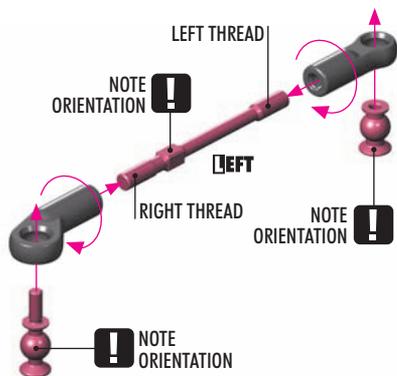
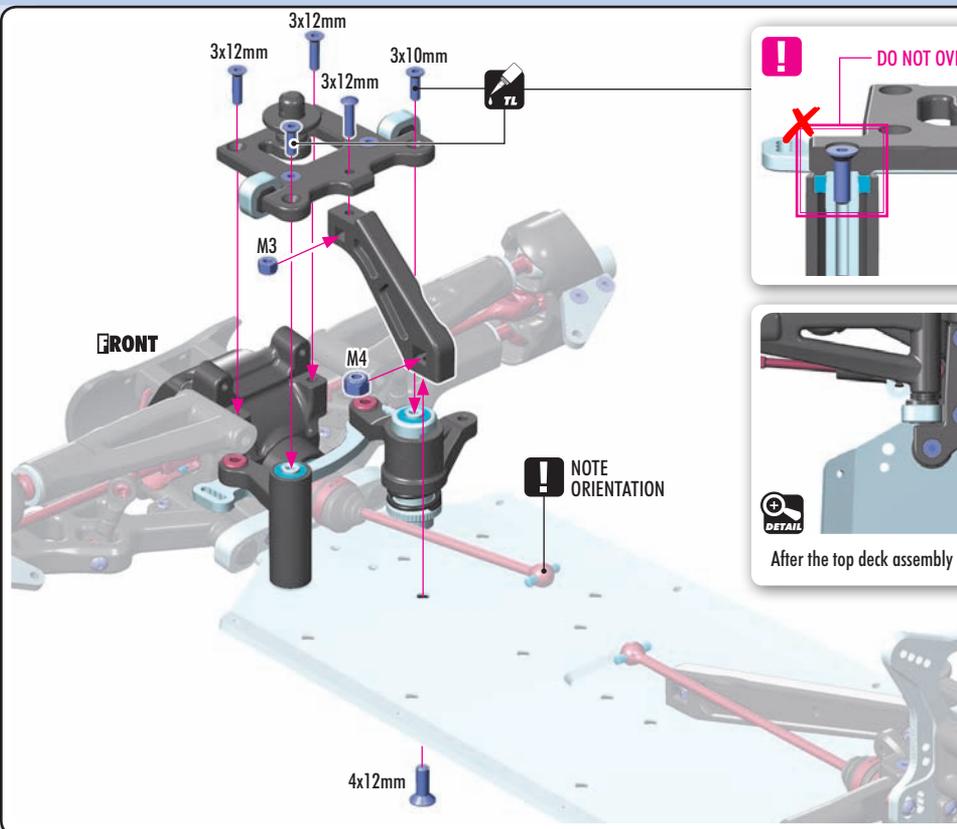
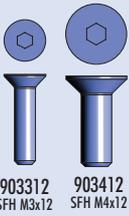




All possible mounting alternatives of eccentric bushings

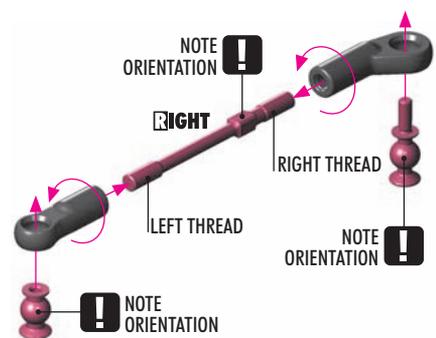


**SET-UP BOOK**  
ROLL CENTER



**TIP**

Follow the TECH TIP on page 5 to install the pivot balls



# 7. STEERING



902312  
SH M3x12

**FRONT** **RIGHT** **LEFT**

NOTE ORIENTATION

1.0mm 1.0mm 2.0mm

INITIAL POSITION

1° 0.5°

All possible mounting alternatives of eccentric bushings

#352051  
XB8 GRAPHITE FRONT SHOCK TOWER 4MM  
OPTION

UPPER CLIP  
Behind arm

LOWER SHIM  
Behind arm

**CASTER**

UPPER CLIP (Behind arm)	CASTER		
	LOWER SHIM (Behind arm)		
	4mm	2mm	0
4mm	24°	21°	18°
3mm	25.5°	22.5°	19.5°
2mm	27°	24°	21°
1mm	28.5°	25.5°	22.5°
0	30°	27°	24°

F=R

**SET-UP BOOK**  
ROLL CENTER  
CASTER



303123  
SHIM 3x6x2



902310  
SH M3x10



960030  
N M3

**2x** **L=R**

**FRONT** **RIGHT** **LEFT**

INITIAL POSITION

NOTE ORIENTATION  
Adjustment block towards outside

2.0mm

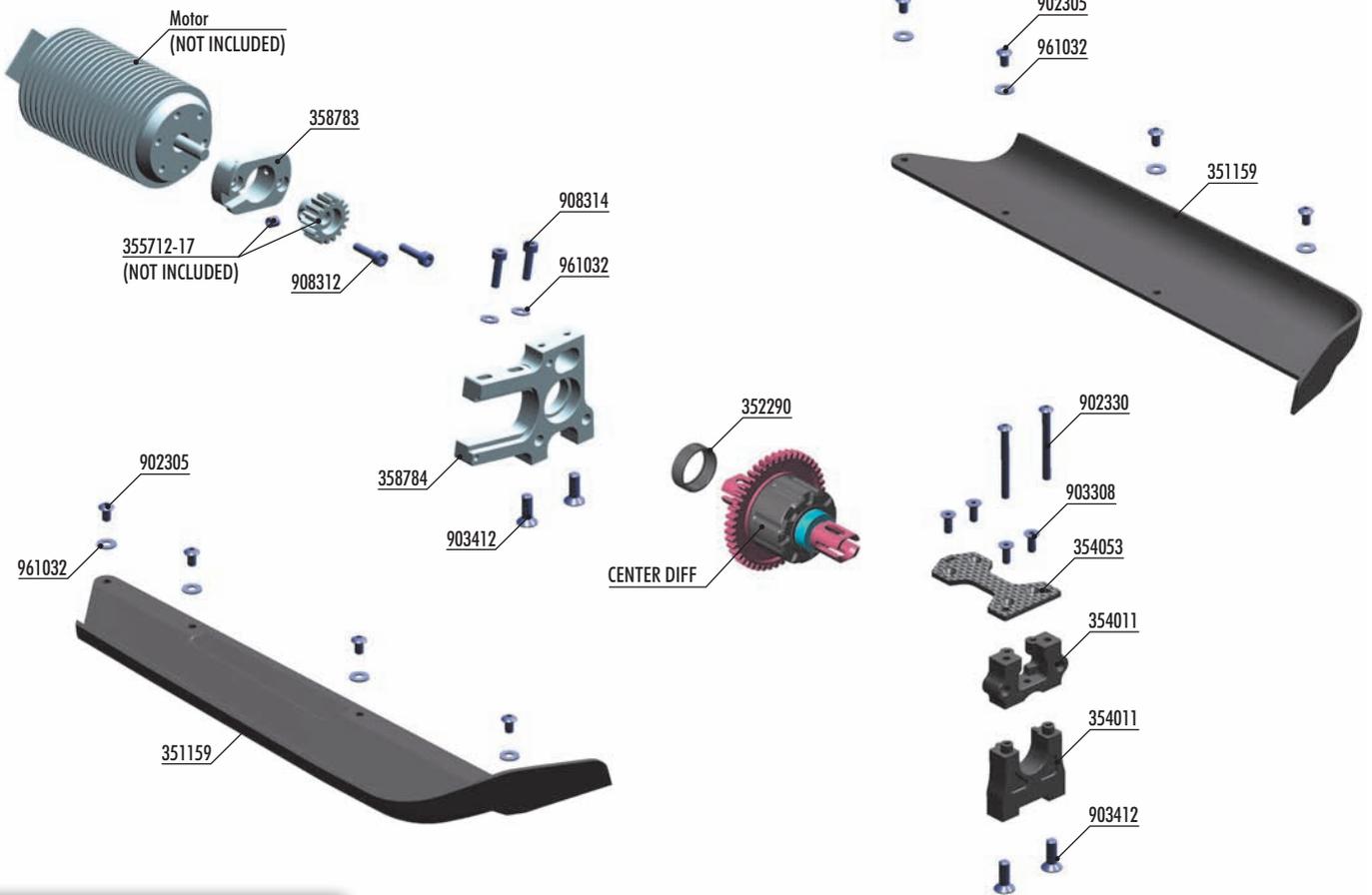
NOTE ORIENTATION  
Adjustment block towards outside

Check for free movement

Check for free movement

**SET-UP BOOK**  
ACKERMANN  
BUMP STEER  
TOE-IN

# 8. CENTER DIFF & MOTOR



XRAY PINION GEAR			
#355712	12T	OPTION	
#355713	13T	OPTION	
#355714	14T	OPTION	
#355715	15T	OPTION	
#355716	16T	OPTION	
#355717	17T	OPTION	



#353250  
XB8 GRAPHITE BRACE FOR CHASSIS SIDE GUARDS - SET

**BAG**

**08**

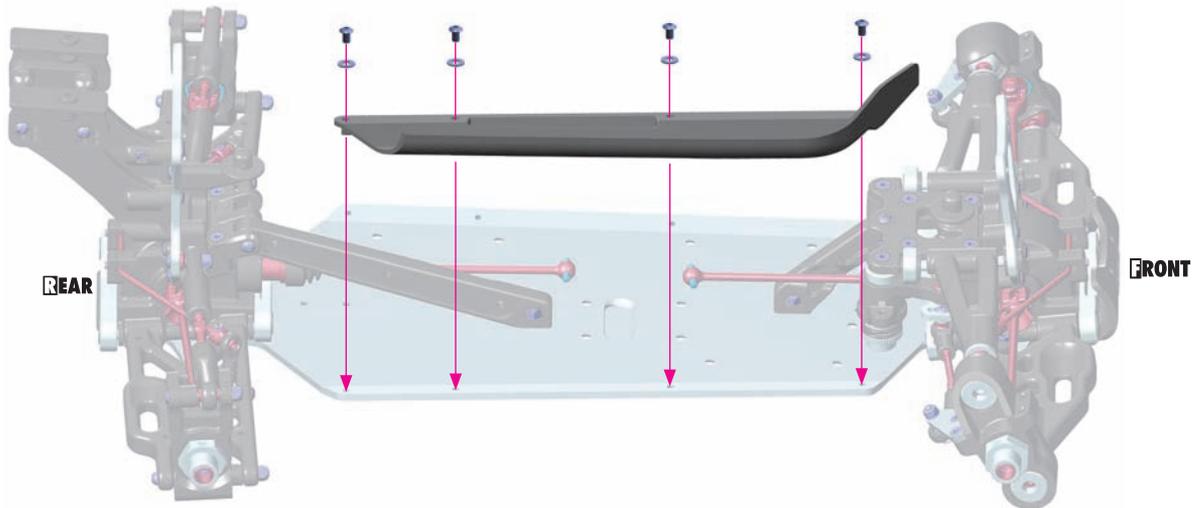
- |            |  |         |                                      |
|------------|--|---------|--------------------------------------|
| 35 1159    | XB8'16 CHASSIS SIDE GUARDS L+R               | 90 2305 | HEX SCREW SH M3x5 (10)               |
| 35 2290    | COMPOSITE BUSHING FOR ALU STEERING BLOCK (4) | 90 2330 | HEX SCREW SH M3x30 (10)              |
| 35 4011    | CENTER DIFF MOUNTING PLATE SET - HIGHER      | 90 3308 | HEX SCREW SFH M3x8 (10)              |
| 35 4053    | XB9E GRAPHITE CENTER DIFF MOUNTING PLATE     | 90 3412 | HEX SCREW SFH M4x12 (10)             |
| 35 5712~17 | XRAY 12~17T PINION GEAR (OPTION)             | 90 8312 | HEX SCREW SOCKET HEAD CAP M3x12 (10) |
| 35 8783    | XB9E ALU MOTOR MOUNT PLATE - V2              | 90 8314 | HEX SCREW SOCKET HEAD CAP M3x14 (10) |
| 35 8784    | XB8E ALU MOTOR MOUNT - V2                    | 96 1032 | WASHER S 3.2 (10)                    |



902305  
SH M3x5



961032  
S 3.2



# 8. CENTER DIFF & BRAKE



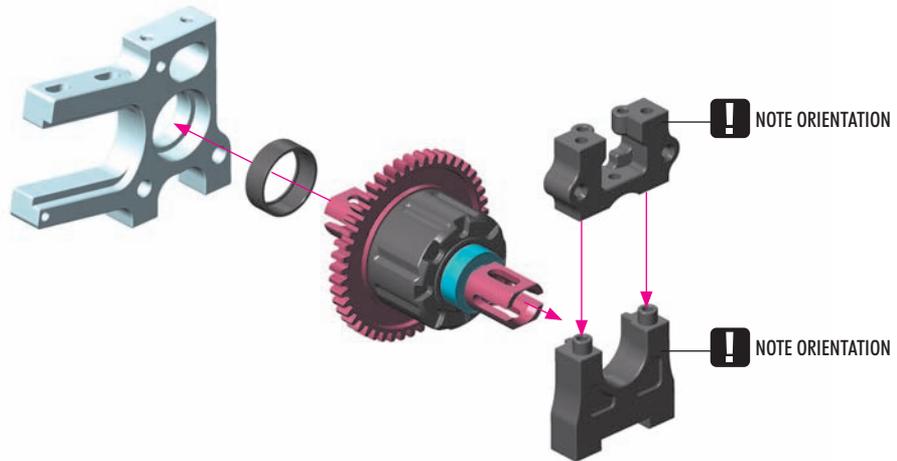
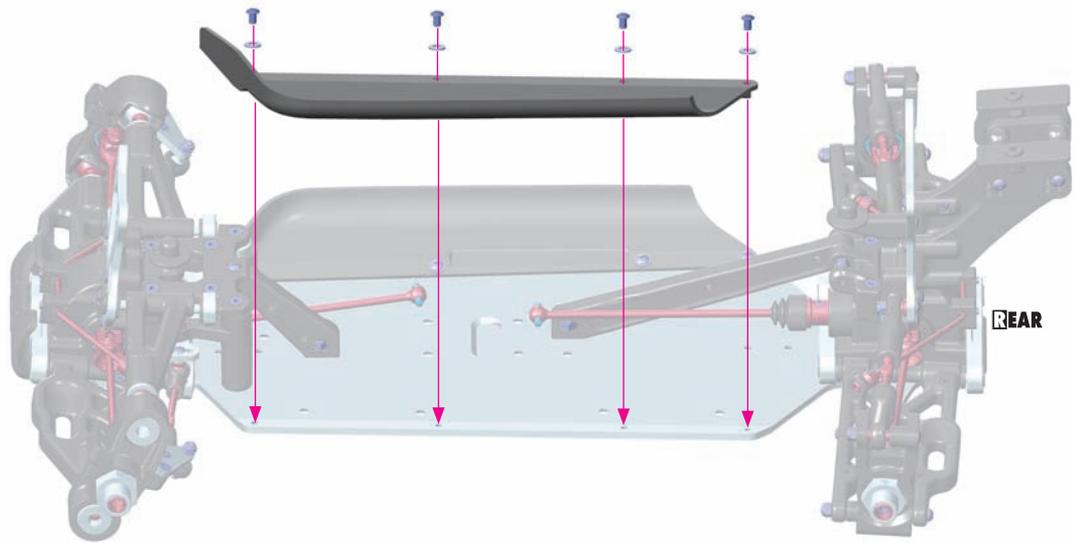
902305  
SH M3x5



961032  
S3.2

FRONT

REAR



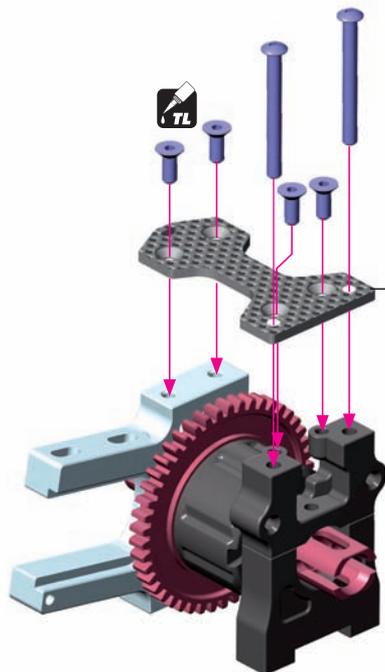
902330  
SH M3x30



903308  
SFH M3x8



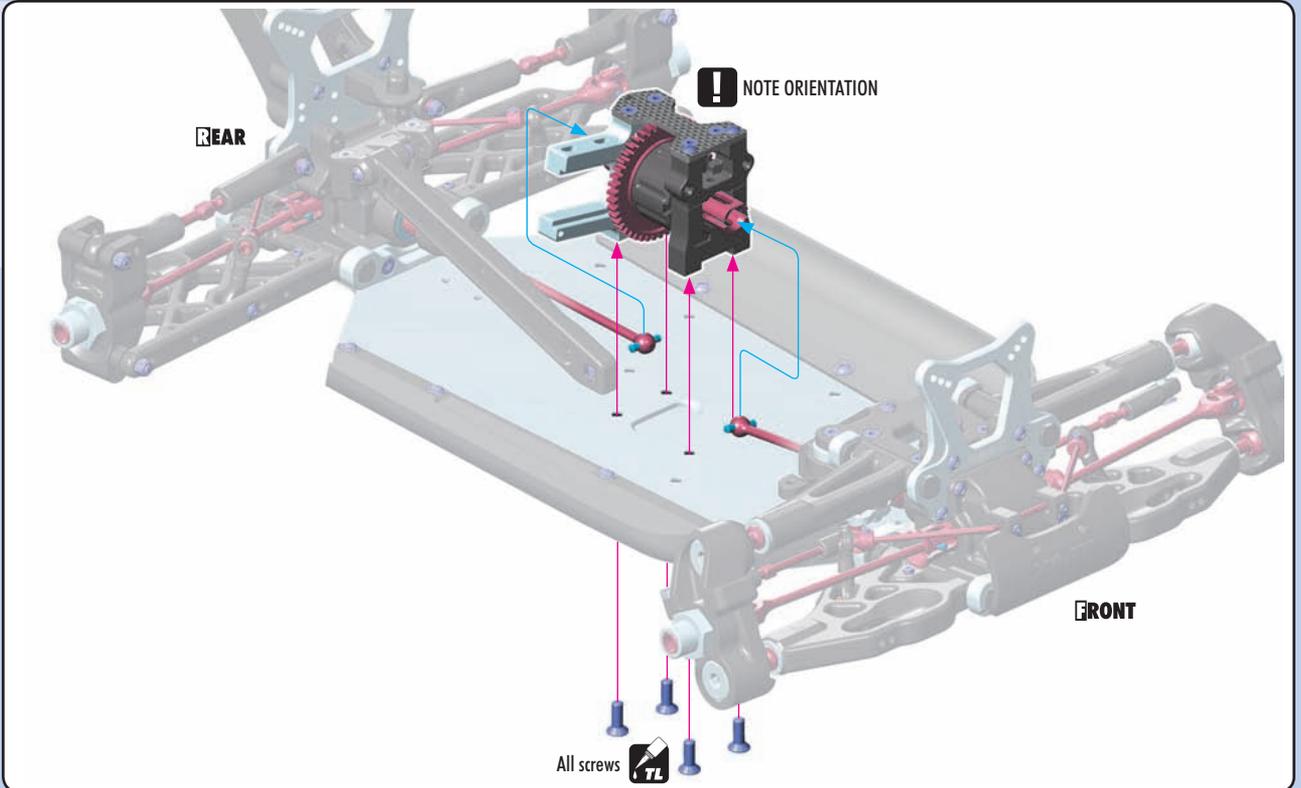
NOTE ORIENTATION



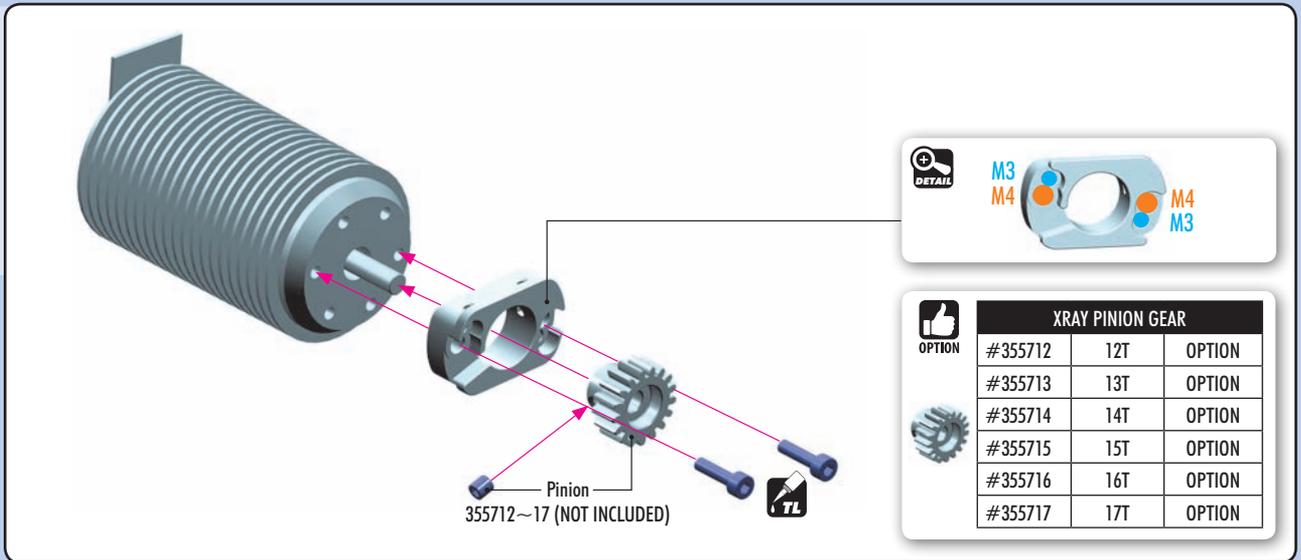
# 8. CENTER DIFF & BRAKE



903412  
SFH M4x12



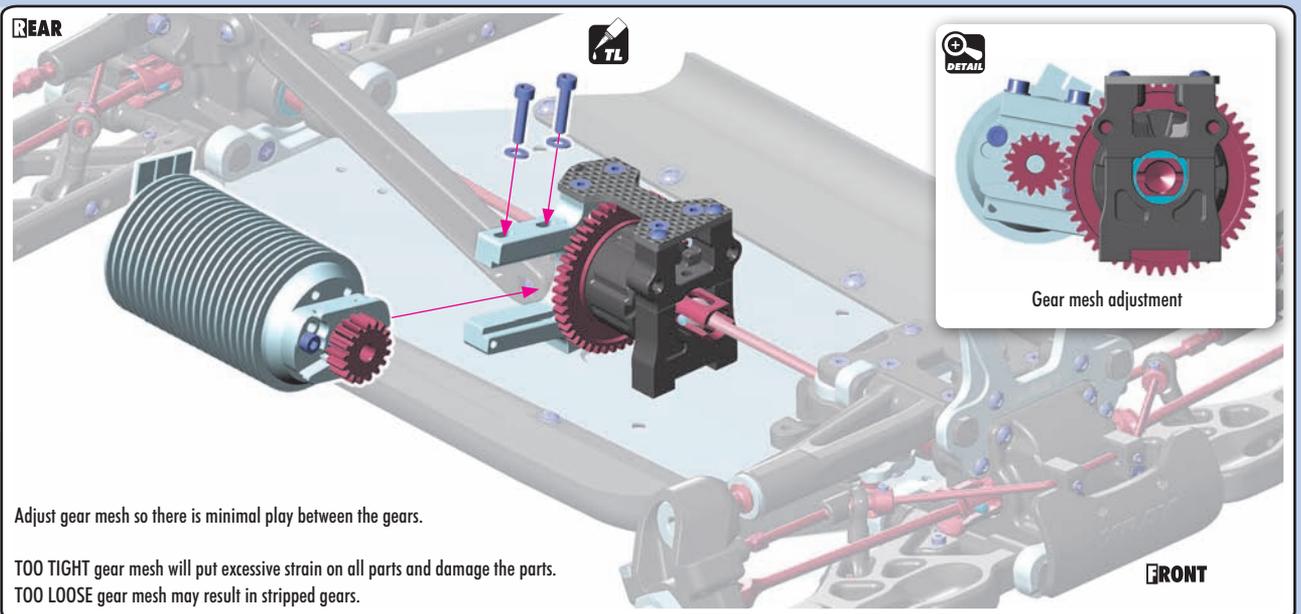
908312  
SCH M3x12



908314  
SCH M3x14



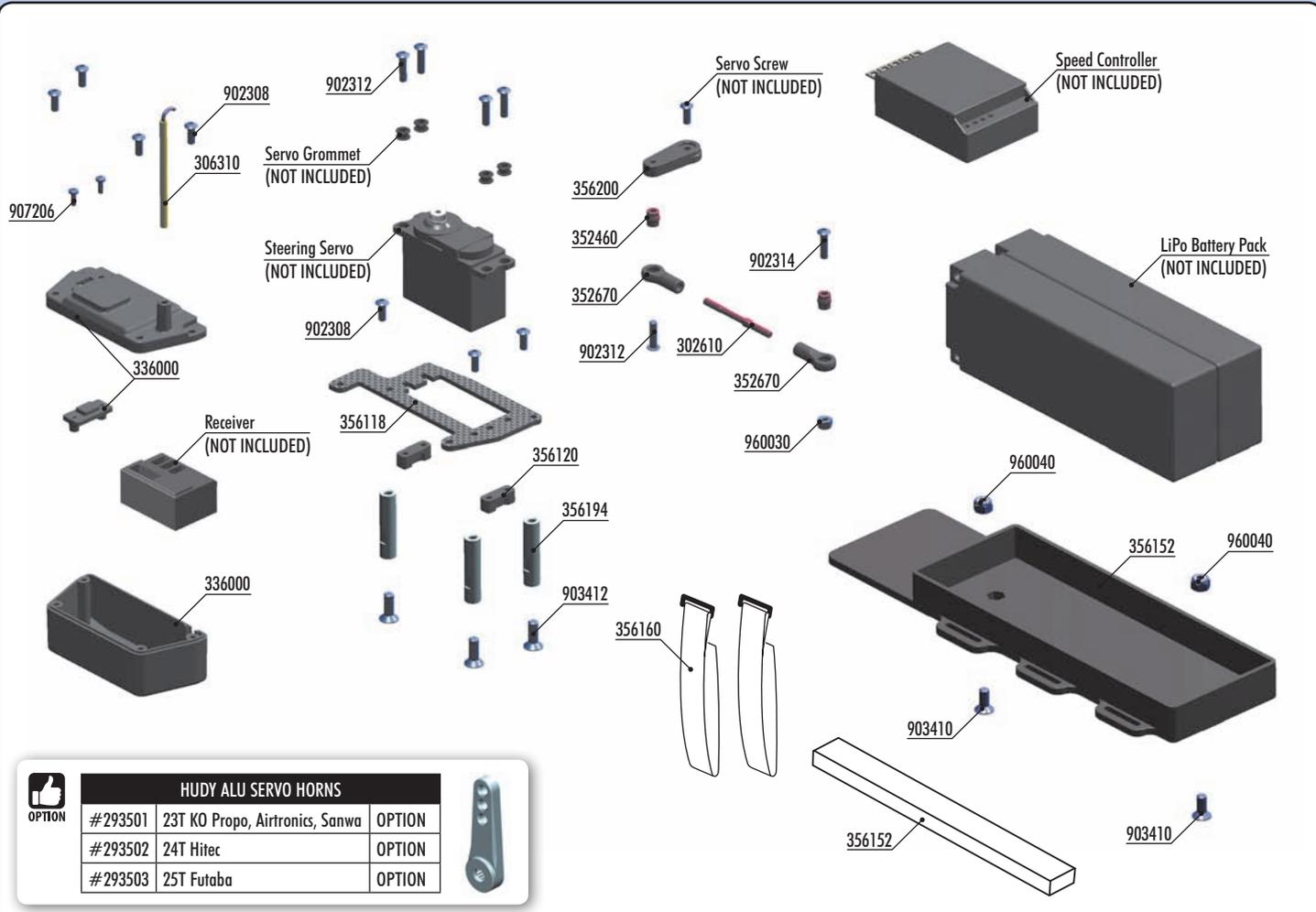
961032  
S3.2



Adjust gear mesh so there is minimal play between the gears.

TOO TIGHT gear mesh will put excessive strain on all parts and damage the parts.  
TOO LOOSE gear mesh may result in stripped gears.

# 10. RADIO CASE



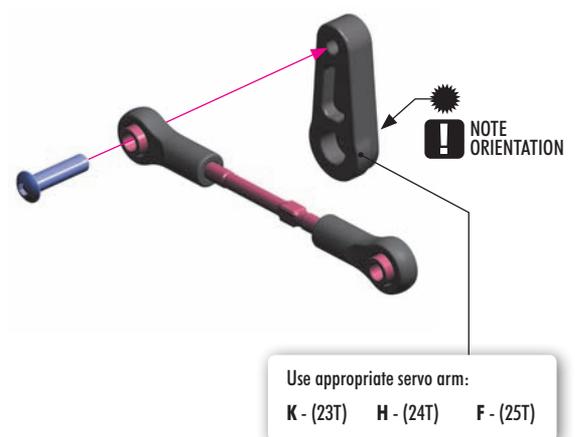
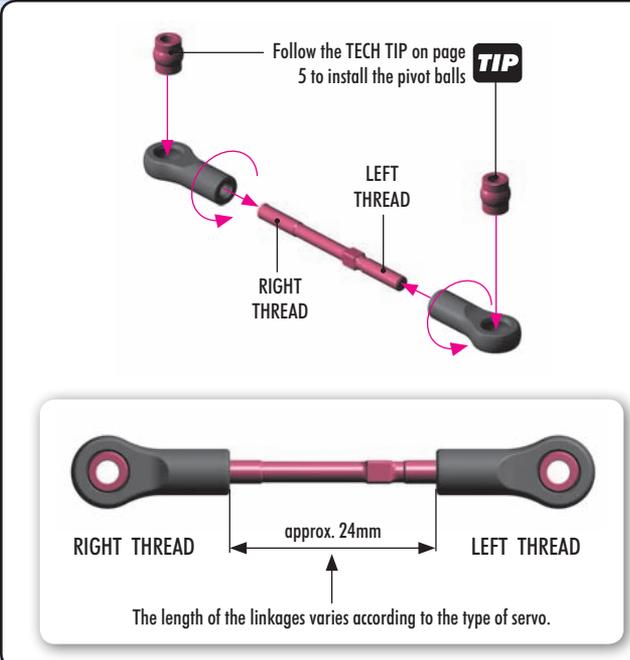
**OPTION**

HUDY ALU SERVO HORNS		
#293501	23T KO Propo, Airtronics, Sanwa	OPTION
#293502	24T Hitec	OPTION
#293503	25T Futaba	OPTION




- 30 2610 ADJ. TURNBUCKLE L/R 40 MM - HUDY SPRING STEEL (2)
- 30 6310 ANTENNA TUBE (2)
- 33 6000 COMPOSITE RECEIVER CASE - V2
- 33 6060 RECEIVER SWITCH - SET (OPTION)
- 35 2460 PIVOT BALL 5.8 (10)
- 35 2670 SERVO BALL JOINT 5.8MM (4)
- 35 6118 XB9E GRAPHITE RECEIVER CASE TOP PLATE
- 35 6120 STEERING SERVO MOUNT - SET
- 35 6152 XB8E'16 COMPOSITE BATTERY PLATE
- 35 6160 VELCRO BATTERY STRAP 20x300MM (2)
- 35 6194 XB9E ALU MOUNT FOR RECEIVER BOX

- 35 6200 BRAKE/THROTTLE ARMS & STEERING SERVO ARMS - SET
- 38 9135 CONNECTING CABLE RECEIVER/BATT. PACK (OPTION)
- 90 2308 HEX SCREW SH M3x8 (10)
- 90 2312 HEX SCREW SH M3x12 (10)
- 90 2314 HEX SCREW SH M3x14 (10)
- 90 3410 HEX SCREW SFH M4x10 (10)
- 90 3412 HEX SCREW SFH M4x12 (10)
- 90 7206 SCREW PHILLIPS 2x6 (10)
- 96 0030 NUT M3 (10)
- 96 0040 NUT M4 (10)



**OPTION**

HUDY ALU SERVO HORNS		
#293501	23T KO Propo, Airtronics, Sanwa	OPTION
#293502	24T Hitec	OPTION
#293503	25T Futaba	OPTION





# 10. RADIO CASE



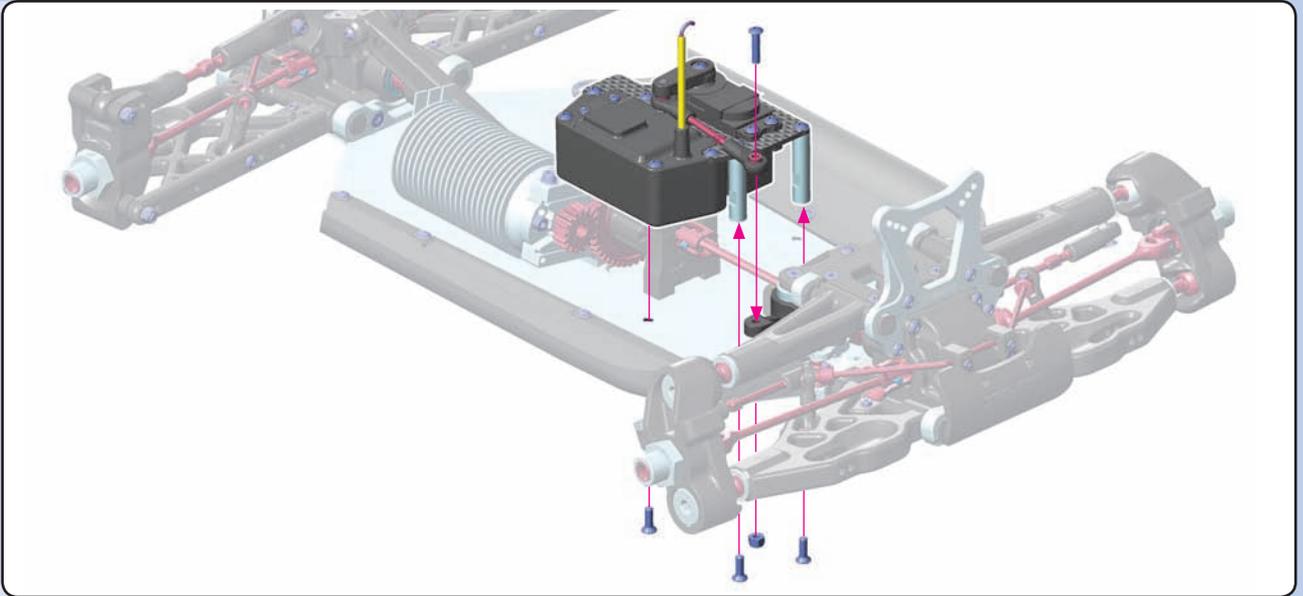
902314  
SH M3x14



903412  
SFH M4x12



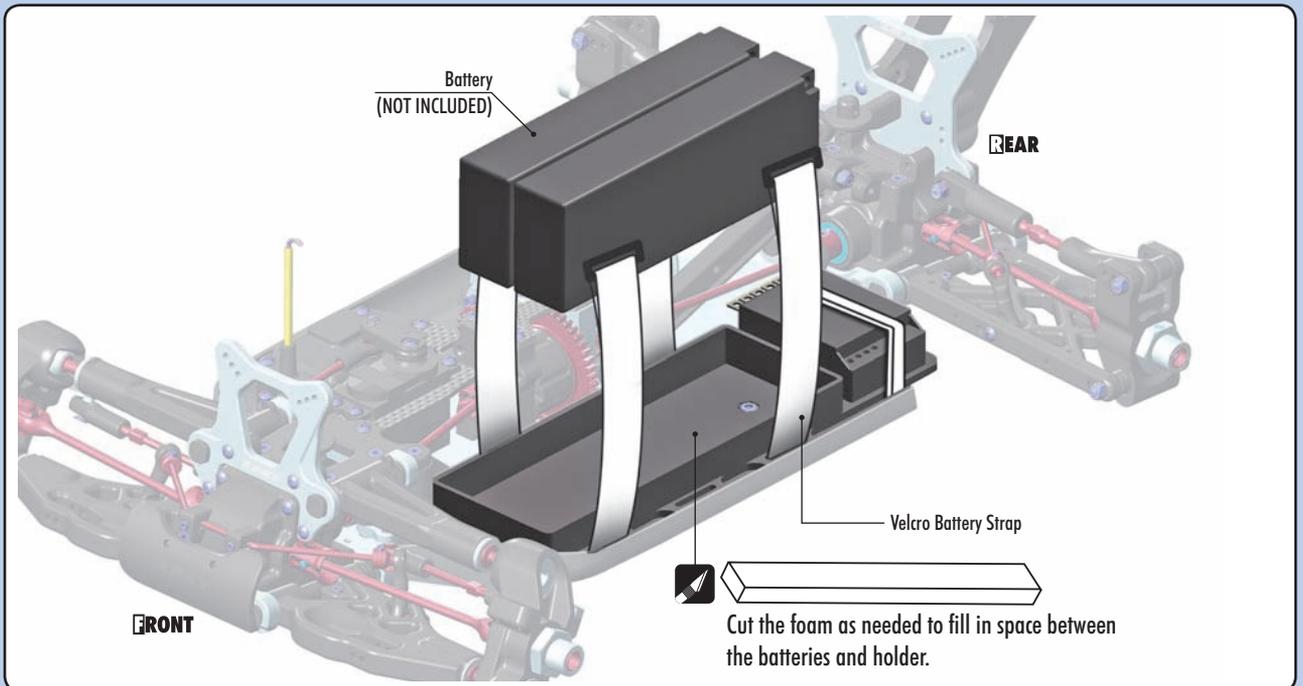
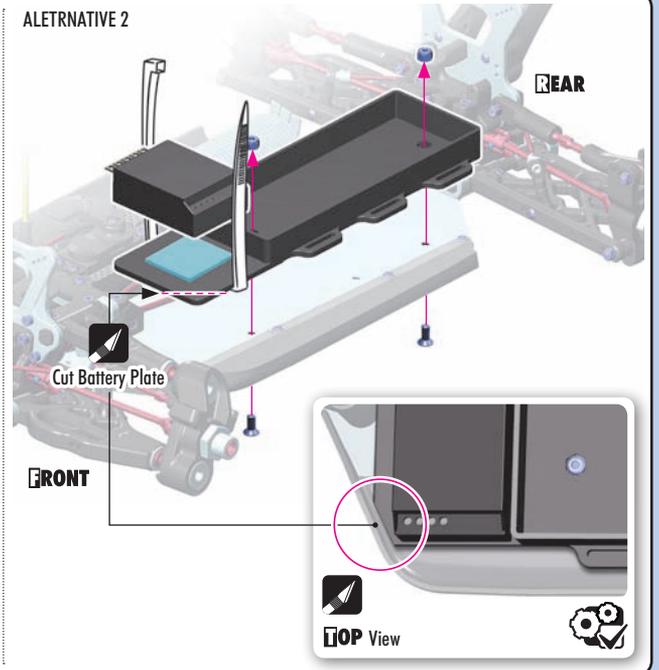
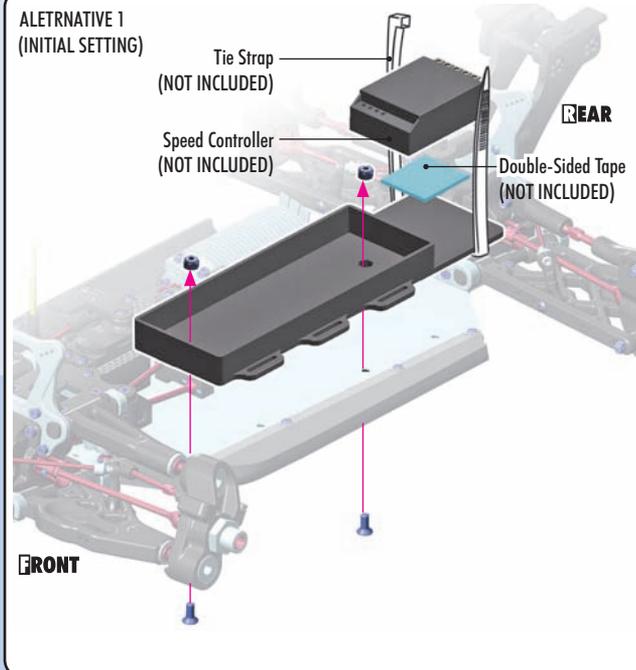
960030  
N M3



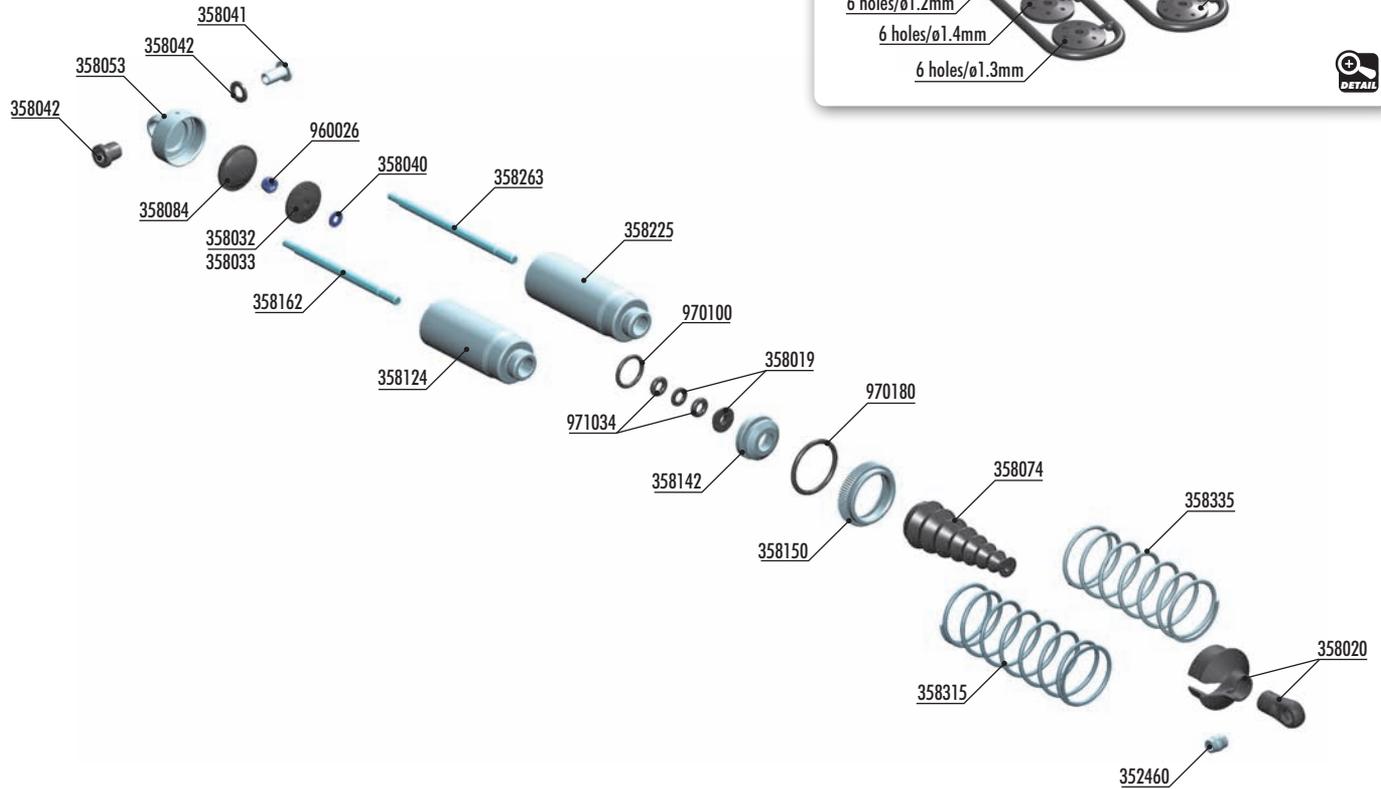
903410  
SFH M4x10



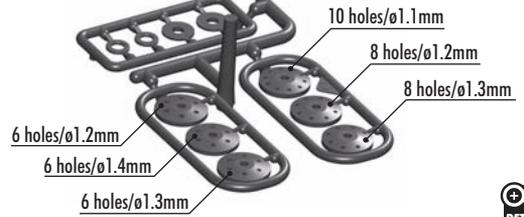
960040  
N M4



# 11. SHOCK ABSORBERS



## PISTONS



### FRONT LINEAR SPRINGS

#	C	Color	Length	Option
#358182	C=0.65	White	SHORT	OPTION
#358183	C=0.70	Grey	SHORT	OPTION
#358184	C=0.75	Silver	SHORT	OPTION
#358185	C=0.80	Grey-Blue	SHORT	OPTION
#358187	C=0.92	Violet	SHORT	OPTION

### REAR LINEAR SPRINGS

#	C	Color	Length	Option
#358282	C=0.47	White	LONG	OPTION
#358283	C=0.50	Grey	LONG	OPTION
#358284	C=0.53	Silver	LONG	OPTION
#358285	C=0.57	Grey-Blue	LONG	OPTION
#358287	C=0.65	Violet	LONG	OPTION
#358288	C=0.70	Purple	LONG	OPTION



### SHOCK SPRINGS

#	C	Color	Length	Option
#358315	C=0.77-0.80	3 DOTS	FRONT	INCLUDED
#358316	C=0.80-0.83	4 DOTS	FRONT	OPTION
#358335	C=0.68-0.70	3 DOTS	REAR	INCLUDED
#358336	C=0.70-0.73	4 DOTS	REAR	OPTION



### FRONT & REAR PROGRESSIVE SPRINGS

#	C	Color	Length	Option
#358174	C=0.7-0.8	Grey	SHORT	OPTION
#358274	C=0.5-0.6	Grey	MEDIUM	OPTION
#358275	C=0.65-0.7	1 STRIPE	MEDIUM	OPTION
#358276	C=0.7-0.75	2 STRIPES	MEDIUM	OPTION
#358277	C=0.72-0.8	3 STRIPES	MEDIUM	OPTION

### REAR PROGRESSIVE SPRINGS

#	C	Color	Length	Option
#358279	C=0.55-0.63	2 STRIPES	LONG	OPTION
#358280	C=0.6-0.68	3 STRIPES	LONG	OPTION
#358281	C=0.65-0.7	4 STRIPES	LONG	OPTION



#358054  
XB8 ALU SHOCK CAP NUT WITH VENT HOLE - BLACK COATED (2)



## BAGS



- 35 2460 PIVOT BALL 5.8 - V3 (10)
- 35 8019 COMPOSITE SET OF SHIMS FOR SHOCKS - V2 (2)
- 35 8020 COMPOSITE SHOCK PARTS
- 35 8032 SHOCK PISTON SET 8-HOLE (1.2; 1.3) 10-H. (1.1MM) - DELRIN - V2
- 35 8033 COMPOSITE SHOCK 6-HOLE PISTON SET (1.2; 1.3; 1.4MM) - DELRIN - V2
- 35 8040 HARDENED SHOCK SHIMS (4)
- 35 8041 STEEL SHOCK BUSHING (2)
- 35 8042 COMPOSITE SHOCK BUSHING & SHIM - V2 (2+2)
- 35 8053 XB8 ALU SHOCK CAP NUT - BLACK COATED (2)
- 35 8054 XB8 ALU SHOCK CAP NUT WITH VENT HOLE - BLACK COATED (2) (OPTION)
- 35 8074 FOLDING SHOCK BOOT (4)
- 35 8084 SHOCK RUBBER MEMBRANE BOTTOM RIBBED (4)

- 35 8124 XB8 ALU FRONT SHOCK BODY - HARD COATED (2)
- 35 8142 ALU SHOCK BODY NUT FOR SHOCK BOOT (2)
- 35 8150 ALU SHOCK BODY ADJ. NUT (2)
- 35 8162 FRONT SHOCK SHAFT (2)
- 35 8225 XB8\*16 ALU REAR SHOCK BODY - HARD COATED (2)
- 35 8263 XB8 REAR SHOCK SHAFT (2)
- 35 8315 XRAY FRONT SPRING 69MM - 3 DOTS (2)
- 35 8335 XRAY REAR SPRING 85MM - 3 DOTS
- 96 0026 NUT M2.5 - SHORT (10)
- 97 0100 O-RING 10 x 1.5 (10)
- 97 0180 O-RING 18 x 1.8 (10)
- 97 1034 SILICONE O-RING 3.5x2 (10)

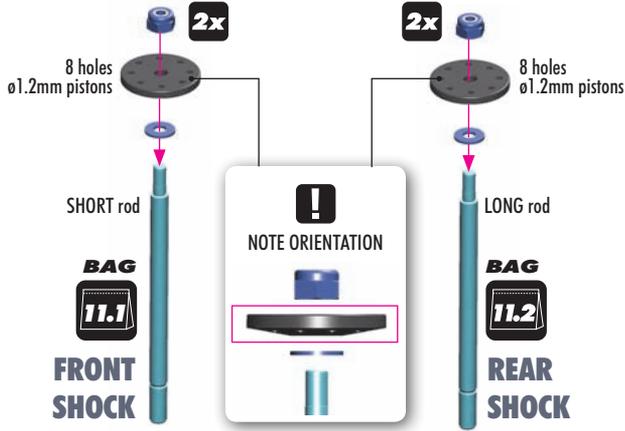
# 11. SHOCK ABSORBERS



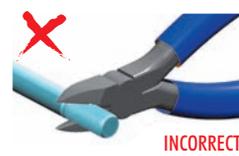
358040  
5 2.5x6x0.5



960026  
N M2.5



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



**SET-UP BOOK**  
SHOCK DAMPING  
SHOCK PISTONS



970100  
0 10x1.5

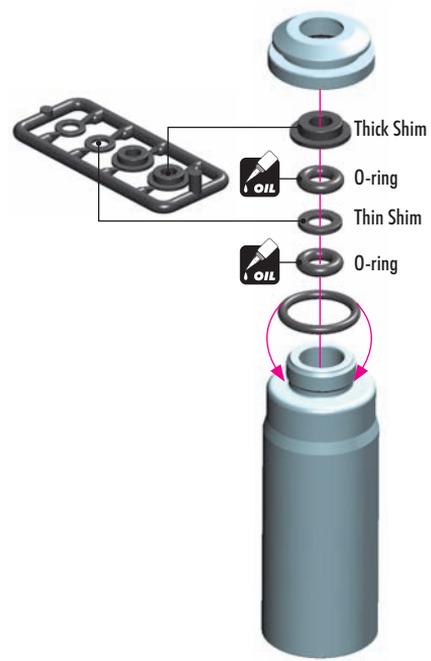


971034  
0 3.4x2

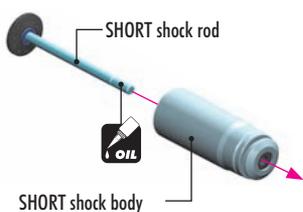
**2x** FRONT SHOCKS (SHORT)

**2x** REAR SHOCKS (LONG)

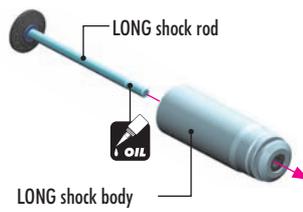
There are two different thickness shims, use them as shown. Use the same procedure when building both front and rear shocks.



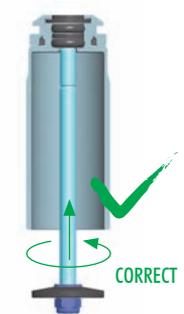
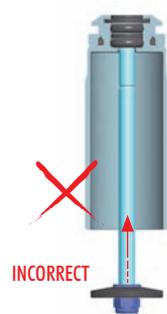
**2x** FRONT SHOCKS



**2x** REAR SHOCKS



**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.

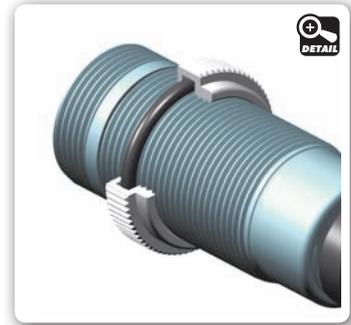
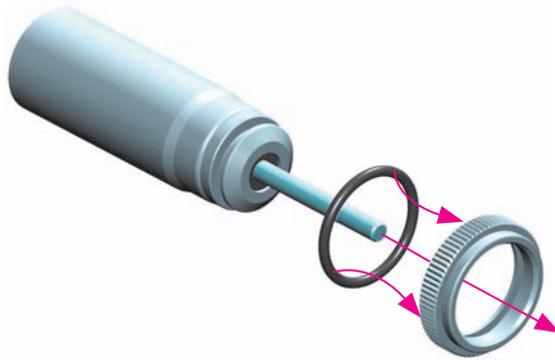
# 11. SHOCK ABSORBERS



970180  
Ø 18x1.8

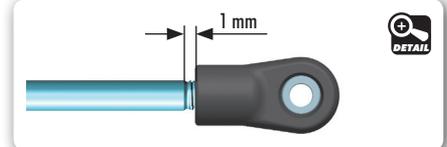
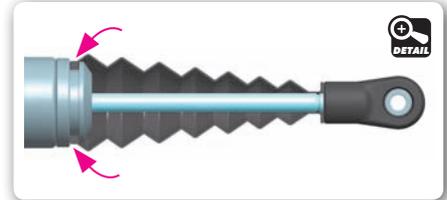
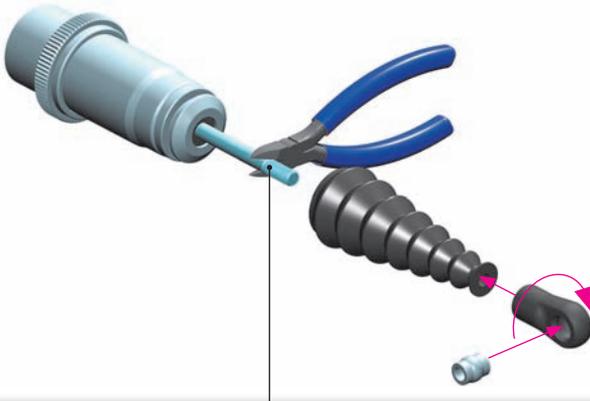
**2x** FRONT SHOCKS

**2x** REAR SHOCKS



**2x** FRONT SHOCKS

**2x** REAR SHOCKS



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



INCORRECT



INCORRECT



CORRECT

## 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 550cSt

**SET-UP BOOK**  
SHOCK OIL



1

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 550cSt oil.



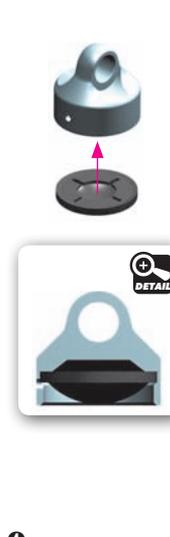
2

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



3

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



4

Install the shock membrane into the groove in the upper shock cap.



5

Gently place the shock cap assembly onto the filled shock body. Excess oil will spill from the shock. Screw the shock cap onto the body by only a few turns.



6

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



7

Keep the shock shaft pushed in the shock body and tighten the shock cap completely. The rebound will be at approximately 0%.

# 11. SHOCK ABSORBERS

**2x REAR SHOCKS**  
LONG rear shock

**2x FRONT SHOCKS**  
SHORT front shock

LONG spring

SHORT spring

**REAR shock PRELOAD**  
approx. 5mm

**FRONT shock PRELOAD**  
approx. 10mm

**IMPORTANT!** Both rear shocks must be the same overall length.

**IMPORTANT!** Both front shocks must be the same overall length.

**IMPORTANT!**  
FRONT & REAR SHOCKS

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

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)

**1 REMOVE SHOCK CAP**  
Extend the shock shaft completely and remove the shock cap.

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

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

**4 HALF TIGHTEN 50%**  
Gently place the shock cap assembly onto the filled shock body. Excess oil will spill from the shock.

**5 50%**  
Push the shock shaft 50% into the shock body. Excess oil will bleed through the hole in the shock cap.

**6 100%**  
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)

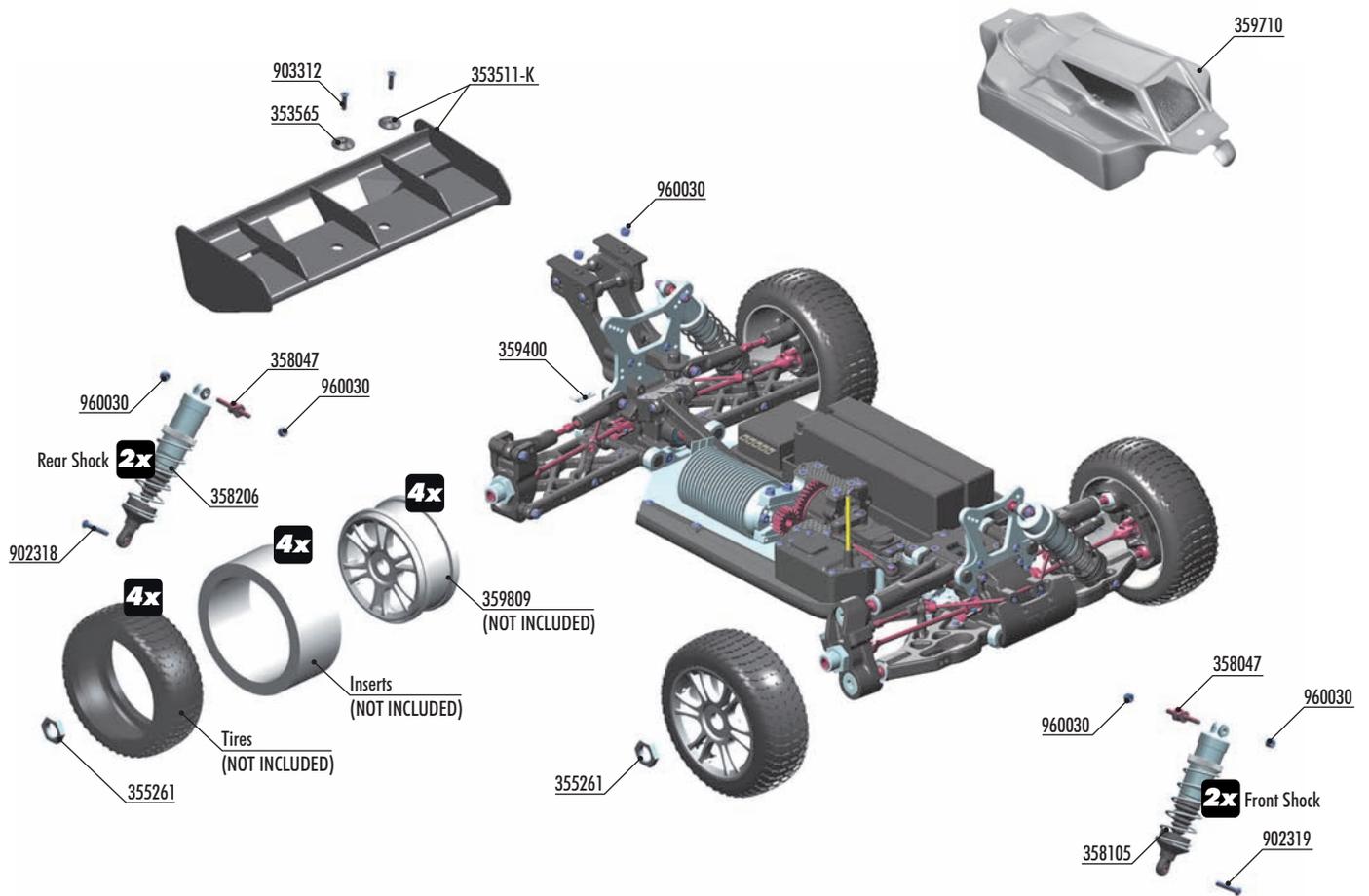
**1 REMOVE SHOCK CAP**  
Extend the shock shaft completely and remove the shock cap.

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

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

**4 100%**  
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%.

# 12. FINAL ASSEMBLY



**OPTION** #359711 XRAY XB8 HIGH SPEED BODY 

**OPTION** XRAY STARBURST WHEELS

#359808	PINK	OPTION
#359809	YELLOW	OPTION



**OPTION** WHEEL NUTS

#355261	OPEN	INCLUDED
#293560	COVERED	OPTION
#355265	COVERED	OPTION



**OPTION** WING SHIMS

#353565	COMPOSITE	INCLUDED
#293561	ALU	OPTION
#293561-0	ALU	OPTION
#353561	ALU	OPTION



**OPTION** WINGS

#353511-K	BLACK	INCLUDED
#353511	WHITE	OPTION
#353511-Y	YELLOW	OPTION
#353512	LEXAN	OPTION

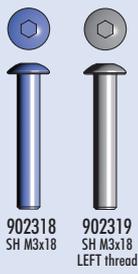


**BAG**

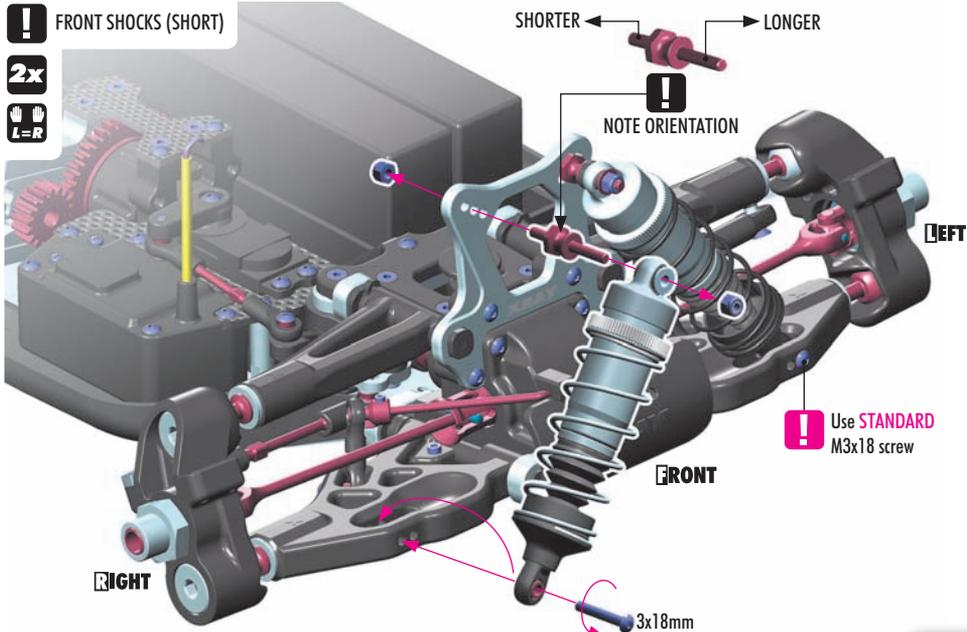
**12**

- |           |  |         |                                       |
|-----------|--|---------|---------------------------------------|
| 35 3511-K | XB8 REAR WING - BLACK                                | 90 2318 | HEX SCREW SH M3x18 (10)               |
| 35 3565   | COMPOSITE REAR WING SHIM - BLACK (2)                 | 90 2319 | HEX SCREW SH M3x18 - LEFT THREAD (10) |
| 35 5261   | WHEEL NUT - RIBBED - HARD COATED (2)                 | 90 3312 | HEX SCREW SFH M3x12 (10)              |
| 35 8047   | STEEL SCREW SHOCK PIVOT BALL WITH HEX (2)            | 96 0030 | NUT M3 (10)                           |
| 35 8105   | XB8 FRONT SHOCK ABSORBERS + BOOTS COMPLETE SET (2)   |         |                                       |
| 35 8206   | XB8'16 REAR SHOCK ABSORBERS + BOOTS COMPLETE SET (2) |         |                                       |
| 35 9400   | BODY CLIP (10)                                       |         |                                       |
| 35 9710   | XRAY XB8'16 BODY                                     |         |                                       |

# 12. FINAL ASSEMBLY

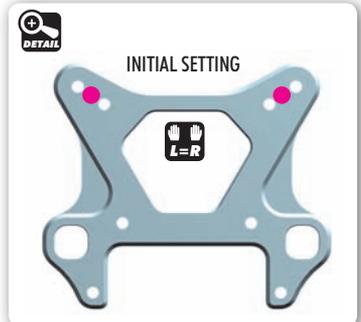


## FRONT SHOCKS (SHORT)

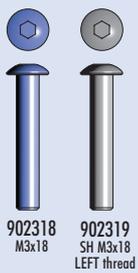


Use STANDARD M3x18 screw

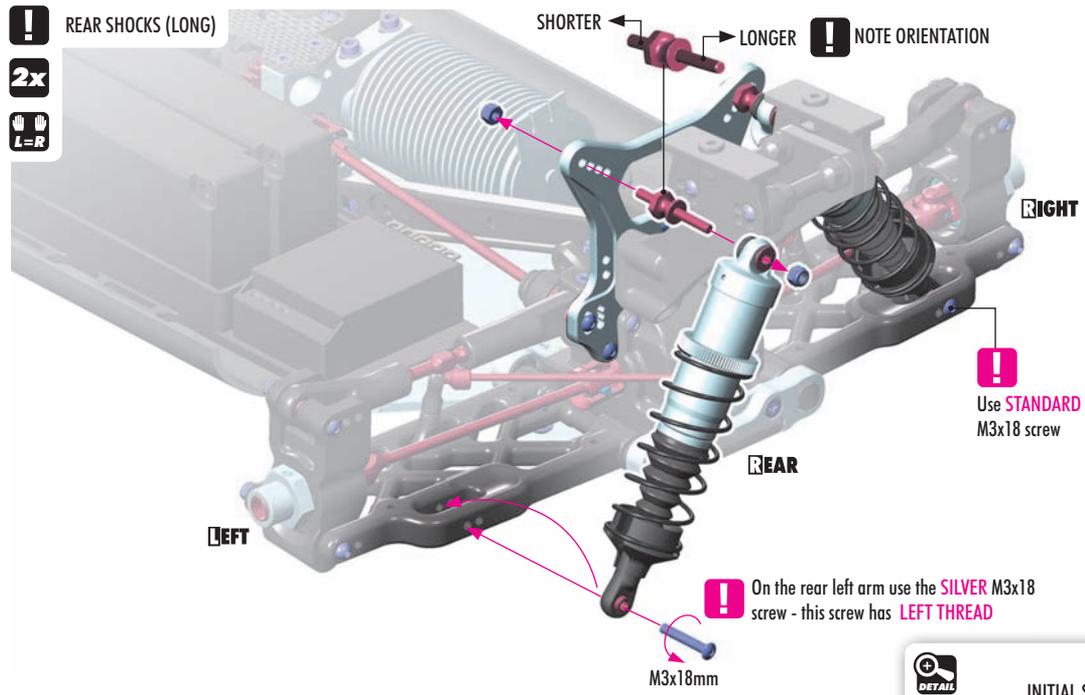
On the front right arm use the SILVER M3x18 screw - this screw has LEFT THREAD



SET-UP BOOK SHOCK ABSORBERS

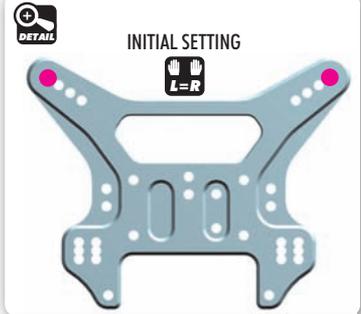


## REAR SHOCKS (LONG)



Use STANDARD M3x18 screw

On the rear left arm use the SILVER M3x18 screw - this screw has LEFT THREAD



SET-UP BOOK SHOCK ABSORBERS

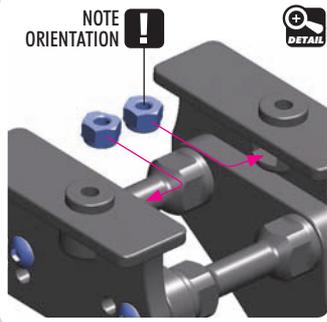
# 12. FINAL ASSEMBLY



903312  
SFH M3x12



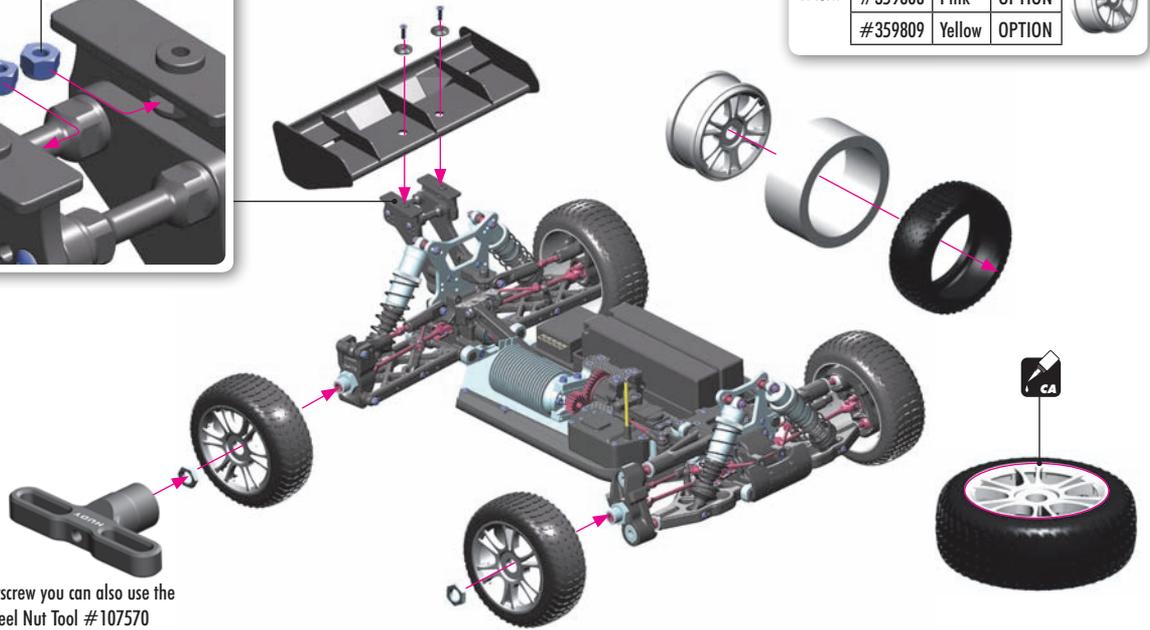
960030  
N M3



NOTE  
ORIENTATION



XRAY STARBURST WHEELS				
OPTION	#359808	Pink	OPTION	
	#359809	Yellow	OPTION	



**TIP** 4x

To tighten the setscrew you can also use the HUDY 17mm Wheel Nut Tool #107570

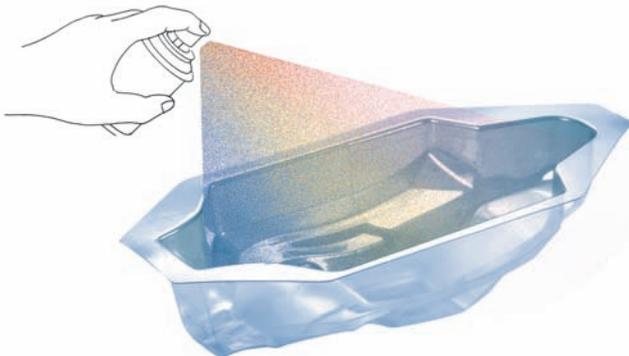
WING SHIMS			
OPTION	#353565	COMPOSITE	INCLUDED
	#293561	ALU	OPTION
	#293561-0	ALU	OPTION
	#353561	ALU	OPTION

WHEEL NUTS			
OPTION	#355261	OPEN	INCLUDED
	#293560	COVERED	OPTION
	#355265	COVERED	OPTION

WINGS			
OPTION	#353511-K	BLACK	INCLUDED
	#353511	WHITE	OPTION
	#353511-Y	YELLOW	OPTION
	#353512	LEXAN	OPTION

- 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 painting, wash the inside of the body with mild detergent, and then rinse and dry thoroughly.
- Mask all windows.
- Apply paint masks as appropriate.

- Paint the body using paints formulated for polycarbonate bodies.
- When the paint is dry, remove the masking.
- Carefully cut out the body using appropriate scissors or cutting tools.
- When you have finished cutting, peel off the external protective films.



Body Reamer (HUDY #107600)



Ensure to make this rear body mount hole oval so in the case of chassis flex after a big jump the body mount will not tear up the hole.

**TIP** To reinforce the body or to fix broken body use #106280 HUDY BODY FIX

## ENGINE OPERATION

### PREPARING TO OPERATE THE ENGINE

- Never modify the engine or muffler.
- Confirm the position of needle and idling before running. Be sure to run a new engine smoothly.
- Make sure the air filter is clean and oiled.
- Never run your engine without an air filter. Your engine can be seriously damaged if dirt and debris get inside the engine.
- For proper engine break-in, please refer to the manual that came with the engine.
- The engine may not start or run properly if the air filter is dirty, or choked with sand and dust.
- If the fuel pipe is choked or deteriorates, the engine may not start, and there is danger that fuel will leak out.

### STARTING AND RUNNING THE ENGINE

Be sure to observe the following starting process. Failure to do so may cause the model car to start suddenly, which may lead to damage or unexpected accidents.

1. Make sure the transmitter and receiver batteries are fully charged.
2. Make sure that your transmitter and receiver are both on the same frequency. If you have a transmitter with multiple model memory, make sure you have selected the proper profile for your car.
3. Put the car on the starter box and keep the tires from touching the ground.
4. Turn on the transmitter.
5. Turn on the receiver in the car.
6. Make sure the steering servo and engine servos work normally and adjust them correctly.
7. Put fuel in the fuel tank, and close the cap securely.
8. Apply the glow igniter to the engine glowplug.
9. Push the model car onto the starter box to start the engine. (If the engine is new, follow the instruction manual and be sure to break in the new engine properly).
10. When the engine has started, remove the glow igniter.
11. Follow your engine break-in procedure and tune the engine as appropriate.

### STOPPING THE ENGINE

Before you stop the engine, try to make sure the engine is at idle first. There are several ways to stop the engine:

- Use a rag to cover the exhaust tip. Be careful! The exhaust is extremely hot so use a thick rag and gloves.
- Pinch the fuel tubing to stop the flow of fuel to the carb. Be careful, this can make the motor run lean which can damage the motor.
- Put your hand over the air filter, or squeeze the air filter element to block the airflow.
- Press an object (such as a screwdriver handle or shoe) against the rotating flywheel to stop its rotation. Be very careful, and do not stick your hand or fingers near the rotating flywheel.

### FINISHING OPERATIONS

1. Stop the engine.
2. Turn off the receiver in the car
3. Turn off the transmitter.

### MAINTENANCE AFTER RUNNING

Take proper care of your car after running to keep it performing well, and take notice of any damage and wear.

1. Do not leave fuel in the tank.
2. Go outside to drain any residual fuel from the exhaust pipe.
3. Clean the car and remove all sand, mud, and other debris.
4. Use after-run oil in your engine after you have finished running for the day.

## 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.

1. 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.
7. 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 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.

### 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.

### RECOMMENDED PRODUCTS

- 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  
#106213



HUDY  
#106220



HUDY  
#106222



HUDY  
#106221



HUDY #106230  
HUDY #106232



# TROUBLESHOOTING GUIDE

PROBLEM	CAUSE	SOLUTION
CAR IS HARD TO CONTROL	<ul style="list-style-type: none"> <li>Weak transmitter and/or receiver batteries</li> <li>Low reception from radio antennas</li> <li>Servo linkages not adjusted properly</li> </ul>	<ul style="list-style-type: none"> <li>Recharge or replace batteries</li> <li>Fully extend transmitter and receiver antennas</li> <li>Move servo to neutral then re-adjust linkage(s)</li> </ul>
STEERING DOES NOT WORK PROPERLY	<ul style="list-style-type: none"> <li>Weak transmitter and/or receiver batteries</li> <li>Bent linkages or driveshafts</li> <li>Loose steering components</li> <li>Drivetrain damage</li> </ul>	<ul style="list-style-type: none"> <li>Recharge or replace batteries</li> <li>Check tightness of steering components and tighten if necessary</li> <li>Replace damaged parts</li> </ul>
HANDLING PROBLEMS	<ul style="list-style-type: none"> <li>Shocks are not working properly</li> <li>Suspension is binding</li> <li>Improper tires</li> </ul>	<ul style="list-style-type: none"> <li>Rebuild the shocks and replace worn or broken parts</li> <li>Make sure suspension moves freely. Replace worn or broken parts</li> <li>Use different tires</li> </ul>
STEERING FEELS SLUGGISH OR VAGUE	<ul style="list-style-type: none"> <li>Suspension is binding</li> <li>Damaged steering servo</li> </ul>	<ul style="list-style-type: none"> <li>Make sure suspension moves freely, and replace worn or broken parts</li> <li>Check the steering servo for damage and wear, and replace/repair if necessary</li> </ul>
THE CAR DOES NOT DRIVE STRAIGHT	<ul style="list-style-type: none"> <li>Suspension is binding</li> <li>Steering trim is off-center</li> <li>Wheels are loose</li> <li>Damaged steering servo</li> </ul>	<ul style="list-style-type: none"> <li>Make sure suspension moves freely, and replace worn or broken parts</li> <li>Adjust steering trim until car drives straight</li> <li>Check the make sure the wheel nuts are properly tightened</li> <li>Check the steering servo for damage and wear, and replace/repair if necessary</li> </ul>

**[www.teamxray.com](http://www.teamxray.com)**

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