

# XRAY XB8R

1/8 HIGH PERFORMANCE NITRO OFF-ROAD BUGGY



## INSTRUCTION MANUAL

# XRAY XB8R 1/8 NITRO BUGGY

The XRAY XB8R is a modern, high-competition premium quality racing 1/8 nitro off-road car that is the epitome of high-performance and fine distinctive design. Your XB8R offers highest performance, responsive handling, and traditionally exceptional XRAY quality, engineering, and design. The superb craftsmanship and attention to detail are clearly evident everywhere on the XRAY XB8R.

XB8R was designed based on the extremely successful XB8 platform; the attention to detail creates a low maintenance, extra long life nitro buggy. The ultra-low center of gravity (CG) and optimized weight balance makes set-up, driving, and maintenance easy and quick.

## R/C & BUILDING TIPS

- Read and fully understand the instruction manual before building.
- Always keep this instruction manual ready at hand for quick reference, even after completing the assembly.
- Make sure all fasteners are properly tightened. Check them periodically.
- Make sure that chassis screws do not protrude from the chassis.
- Use removable threadlock (for example, Loctite® 242 blue grade) whenever metal screws go into metal, especially for engine mounts and the flywheel nut.
- 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.

## 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,

The XRAY XB8R was created by blending highest-quality materials and excellent design. On high-speed flat tracks or bumpy tracks, whether driving for fun or racing to win, the XB8R delivers outstanding performance, speed, and precision handling.

We have made every effort to make these instructions as easy to understand as possible. However, if you have any difficulties, problems, or questions, please do not hesitate to contact the XRAY support team at [support@teamxray.com](mailto:support@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.

- Remove and clean the air filter with nitro fuel when it becomes dirty. Spray fuel through the clean side to ensure proper dirt removal. Squeeze the filter to remove excess fuel. Recoat the air filter with oil and reinstall properly.
- Use nitro cleaner or a mild degreaser to clean the chassis. Avoid spraying the electronics. Do not use water!
- Ask your local hobby shop for any advice.

Please support your local hobby shop. We at XRAY Model Racing Cars support all local hobby dealers. Therefore we ask you, if at all possible, to purchase XRAY products at your hobby dealer and give them your support like we do. If you have difficulty finding XRAY products, please check out [www.teamxray.com](http://www.teamxray.com) to get advice, or contact us via email at [support@teamxray.com](mailto:support@teamxray.com), or contact the XRAY distributor in your country.

we cannot guarantee any parts once you start racing the car. Products which have been worn out, abused, neglected or improperly operated will not be covered under warranty. We wish you enjoyment of this high-quality and high-performance off-road buggy 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.**

## BEFORE YOU START

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

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

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

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

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

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## IMPORTANT NOTES - GENERAL

- This product is not suitable for children except under the direct supervision of an 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 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.
- Immediately after using your model, do NOT touch equipment on the model such as the engine and muffler, because they generate high temperatures. You may 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.
- 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.
- 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.



## IMPORTANT NOTES - ELECTRICAL

- Insulate any exposed electrical wiring (using heat shrink tubing or electrical tape) to prevent dangerous short circuits.
- 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.
- 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.
- Do not allow the transmitter batteries to become low on charge, otherwise you risk losing control of the model.
- Do not allow any metal part to short circuit the receiver batteries or other electrical/electronic device on the model.



## IMPORTANT NOTES - NITRO FUEL

- Handle fuel only outdoors. Never handle nitro fuel indoors, or mix nitro fuel in a place where ventilation is bad.
- Only use nitro fuel for R/C models. Do not use gasoline or kerosene in R/C models as it may cause a fire or explosion, and ruin your engine.
- Nitro fuel is highly inflammable, explosive, and poisonous. Never use fuel indoors or in places with open fires and sources of heat.
- Always keep the fuel container cap tightly shut.
- Always read the warning label on the fuel container for safety information.
- Nitro-powered model engines emit poisonous vapors and gasses. These vapors irritate eyes and can be highly dangerous to your health. We recommend wearing rubber or vinyl gloves to avoid direct contact with nitro fuel.
- Nitro fuel for RC model cars is made of the combination of the methyl alcohol, castor or synthetic oil, nitro methane etc. The flammability and volatility of these elements is very high, so be very careful during handling and storage of nitro fuel.



## FIRST AID

- Do not swallow nitro fuel or get it in your eyes. If this happens, immediate measures should be taken.
- If fuel is swallowed, immediately drink large quantities of water and induce vomiting. Consult a physician or poison control center immediately.
- If fuel gets into the eyes, rinse them well with water, and then consult a physician immediately.
- If fuel gets onto the skin, wash it with soap and water well.

## SAFETY PRECAUTIONS

Take enough 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. This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.



## IMPORTANT

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. Improper operations may cause personal and/or property damage. XRAY and its distributors have no control over damage resulting from shipping, improper construction, or improper usage. XRAY assumes and accepts no responsibility for personal and/or property damages resulting from the use of improper building materials, equipment and operations. By the act of assembling or operating this product, the user accepts all resulting liability. If the buyer is not prepared to accept this liability, then he/she should return this kit in new, unassembled, and unused condition to the place of purchase. The XB8R is a high competition, high quality, 1/8-scale nitro off-road car for persons age 16 and older. This is not a toy, it is a precision racing model.

XRAY guarantees this model kit to be free from defects in both material and workmanship. 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 60 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.

- 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, please be responsible when operating all remote controlled models. Extra attention is called for when operating any nitro powered model. These models can reach very high speeds and use highly poisonous and flammable fuels. Exhaust sound becomes noise sometimes to the other people.
- Do not use your model:
  - Near real cars, animals, or people that are unaware that an R/C 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 where loud noises can disturb others, such as hospitals and residential areas.
  - Never run indoors. There is a high risk of fire and/or damage.



## IMPORTANT NOTES - NITRO ENGINES

- Always test the brakes and the throttle before starting your engine to avoid losing control of the model.
- 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.
- Do not run near open flames or smoke while running your model or while handling fuel.
- Some parts will be hot after operation. Do not touch the exhaust or the engine until they have cooled. These parts may reach 275°F during operation!

- Keep nitro fuel away from open flame, sources of heat, direct sunlight, high temperatures, or near batteries.
- Store fuel in a cool, dry, dark, well-ventilated place, away from heating devices, open flames, direct sunlight, or batteries. Keep nitro fuel away from children.
- Do not leave the fuel in the carburetor or fuel tank when the model is not in use. There is danger that the fuel may leak out.
- Wipe up any spilled fuel with a cloth
- Be aware of spilled or leaking fuel. Fuel leaks can cause fires or explosions.
- Do not dispose of fuel or empty fuel containers in a fire. There is danger of explosion.

# XB8R NOTICE

Please note that several parts which are included in the kit may not be available as a spare part, but may be available as a direct replacement part. Any such parts are denoted as „OPTION“ in exploded views.

## 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 	Ensure smooth non-binding movement 	Use pliers 
Cut off shaded portion 	Use special tool 	Cut off remaining material 	Cut off remaining material from all plastic parts. 	Tighten screw gently 	CORECT ✓ 	WRONG ✗  Overtightened → The threads are stripped.			

## EQUIPMENT INCLUDED TOOL INCLUDED

Silicone Shock Oil 	Silicone Diff Oil - Thick 	Silicone Diff Oil - Thin 	Air Filter Oil 	Special Tool for all turnbuckles, nuts and shock clips 
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## TOOLS REQUIRED (not included)

HUDY TOOLS Phillips: 5.0mm  Allen: 1.5mm, 2.0mm, 2.5mm, 3.0mm	17mm Wheel Nut Tool 	Cross wrench (HUDY #107581) 	Reamer (HUDY #107600) 	
Needle Nose Pliers 	Scissors 	Side Cutters 	Hobby Knife 	Pliers 

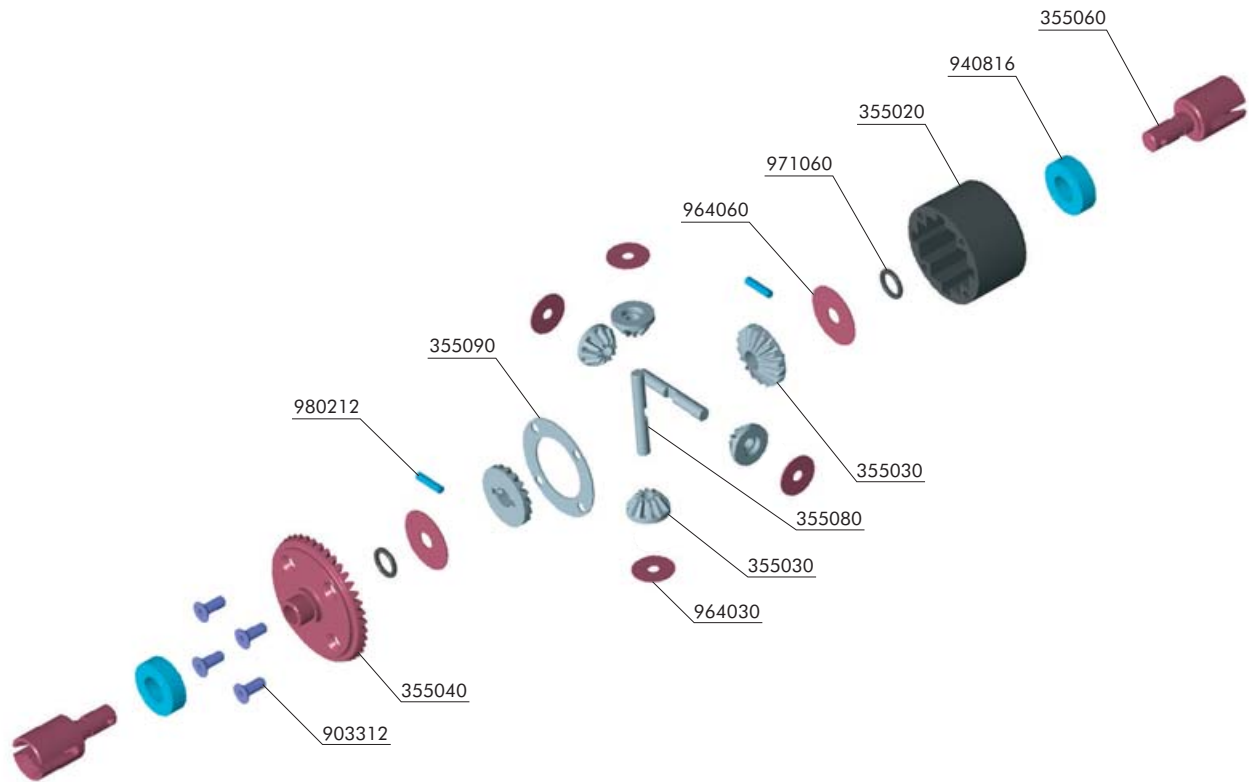
## EQUIPMENT REQUIRED (not included)

Transmitter 	Receiver 	.21 Engine 	Manifold 	Starter Box 	Glow Plug Igniter 	Battery Charger 	Tires & Inserts 	Fuel 	Lexan Paint 
Steering and Throttle Servos 	5-cell 1200NiMh Receiver Pack 								

# TROUBLESHOOTING GUIDE

PROBLEM	CAUSE	SOLUTION
Engine does not start	<ul style="list-style-type: none"> <li>• Fuel tank is empty or carburetor is not primed</li> <li>• Bad glowplug or dead glowdriver battery</li> <li>• Fuel lines, fuel filter, air cleaner, or muffler is clogged</li> <li>• Engine is flooded due to over-priming</li> <li>• Carburetor is not adjusted properly</li> <li>• Throttle servo linkage not adjusted properly</li> </ul>	<ul style="list-style-type: none"> <li>• Fill fuel tank with fuel and prime</li> <li>• Replace glowplug or recharge/replace glowdriver battery</li> <li>• Clean or replace clogged part(s)</li> <li>• Remove glowplug, turn car over to discharge fuel from cylinder. Test glowplug and replace if defective</li> <li>• Set idle and main/slow needle adjusting screw to standard starting position</li> <li>• Move throttle servo to neutral position and re-adjust linkage(s)</li> </ul>
Engine starts but then stalls	<ul style="list-style-type: none"> <li>• Fuel tank is empty</li> <li>• Fuel lines, fuel filter, air cleaner, or muffler is clogged</li> <li>• Carburetor is not adjusted properly</li> <li>• Engine has overheated</li> </ul>	<ul style="list-style-type: none"> <li>• Fill fuel tank with fuel</li> <li>• Clean or replace clogged part(s)</li> <li>• Re-adjust idle and main/slow needle adjusting screw</li> <li>• Allow engine to thoroughly cool down and open main needle adjusting screw 30° turn richer (CCW)</li> </ul>
Bad reaction and response from engine	<ul style="list-style-type: none"> <li>• Carburetor is not adjusted properly</li> <li>• Fuel lines, fuel filter, air cleaner, or muffler is clogged</li> <li>• Low fuel pressure from muffler</li> </ul>	<ul style="list-style-type: none"> <li>• Re-adjust main/slow needle adjusting screw</li> <li>• Clean or replace clogged part(s)</li> <li>• Properly install pressure line between muffler and fuel tank</li> </ul>
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>

# 1. FRONT & REAR DIFFERENTIAL



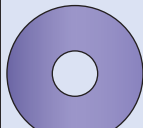
**BAGS**



35 5020	DIFFERENTIAL CASE	90 3312	HEX SCREW SFH M3x12 (10)
35 5030	STEEL DIFF BEVEL & SATELLITE GEARS (2+4)	94 0816	HIGH-SPEED BALL-BEARING 8x16x5 BLUE COVERED (2)
35 5040	FRONT/REAR DIFF LARGE BEVEL GEAR 40T - HUDY STEEL	96 4030	WASHER S 3.5x12x0.2 (10)
35 5060	FRONT/REAR DIFF OUTDRIVE ADAPTER (2) - HUDY SPRING STEEL™	96 4060	WASHER S 6x18x0.2 (10)
35 5080	DIFF PIN (2)	97 1060	SILICONE O-RING 6x1.5 (10)
35 5090	DIFF GASKET (4)	98 0212	PIN 2x11.6 (10)



940816  
BB 8x16x5



964060  
S 6x18x0.2

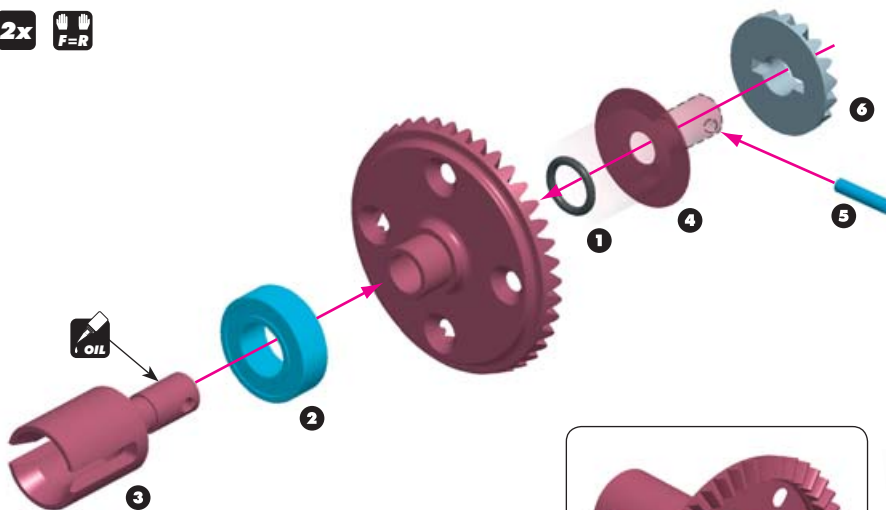


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O 6x1.5

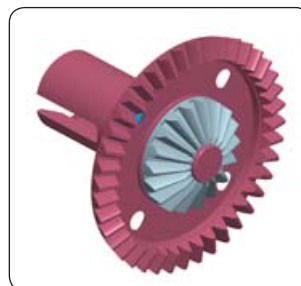


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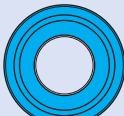
**2x** **F-R**



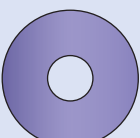
ASSEMBLED VIEW




# FRONT & REAR DIFFERENTIAL




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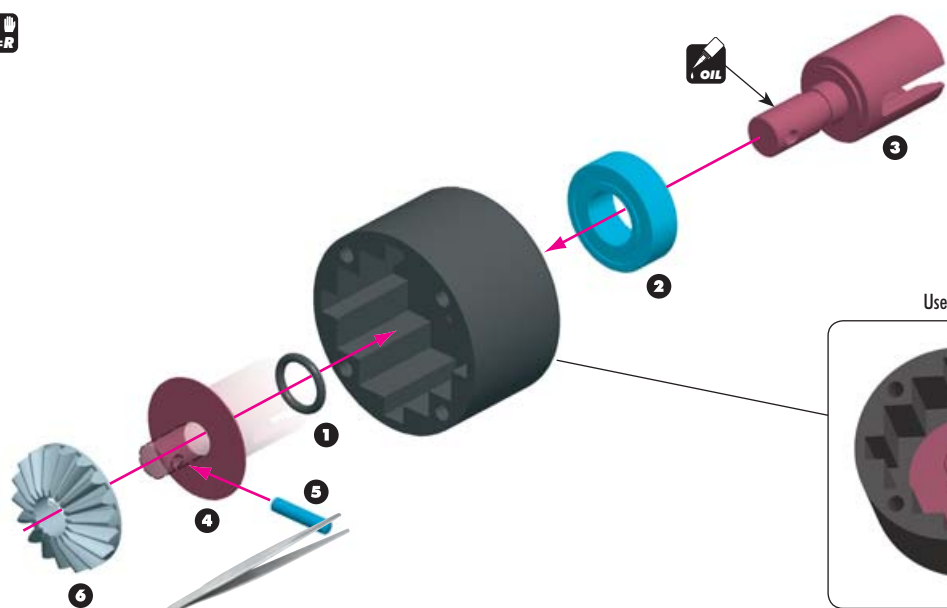


971060  
O 6x1.5



980210  
P 2x11.6

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



**1**

**2**

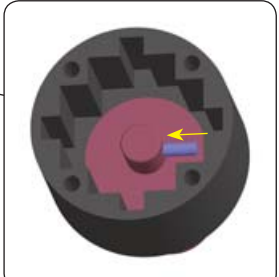
**3**


**4**

**5**


**6**

Use tweezers to insert pin

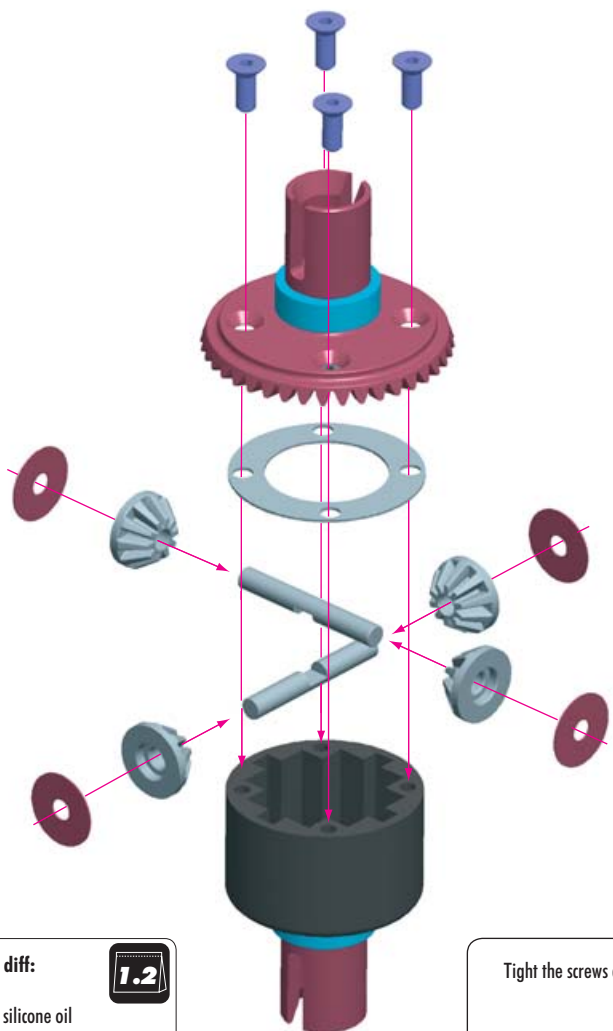




903312  
SFH M3x12





964030  
S 3.5x12x0.2



**1.1** **Front diff:**


THICK silicone oil  
"5.000" ~ "10.000"  
Fill 80% full


**THICK** 



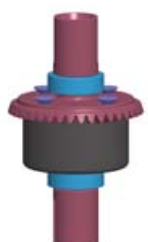
**1.2** **Rear diff:**

THIN silicone oil  
"1000"  
Fill 80% full

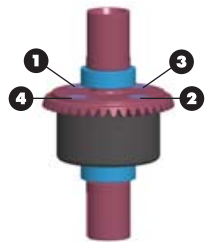
**THIN** 



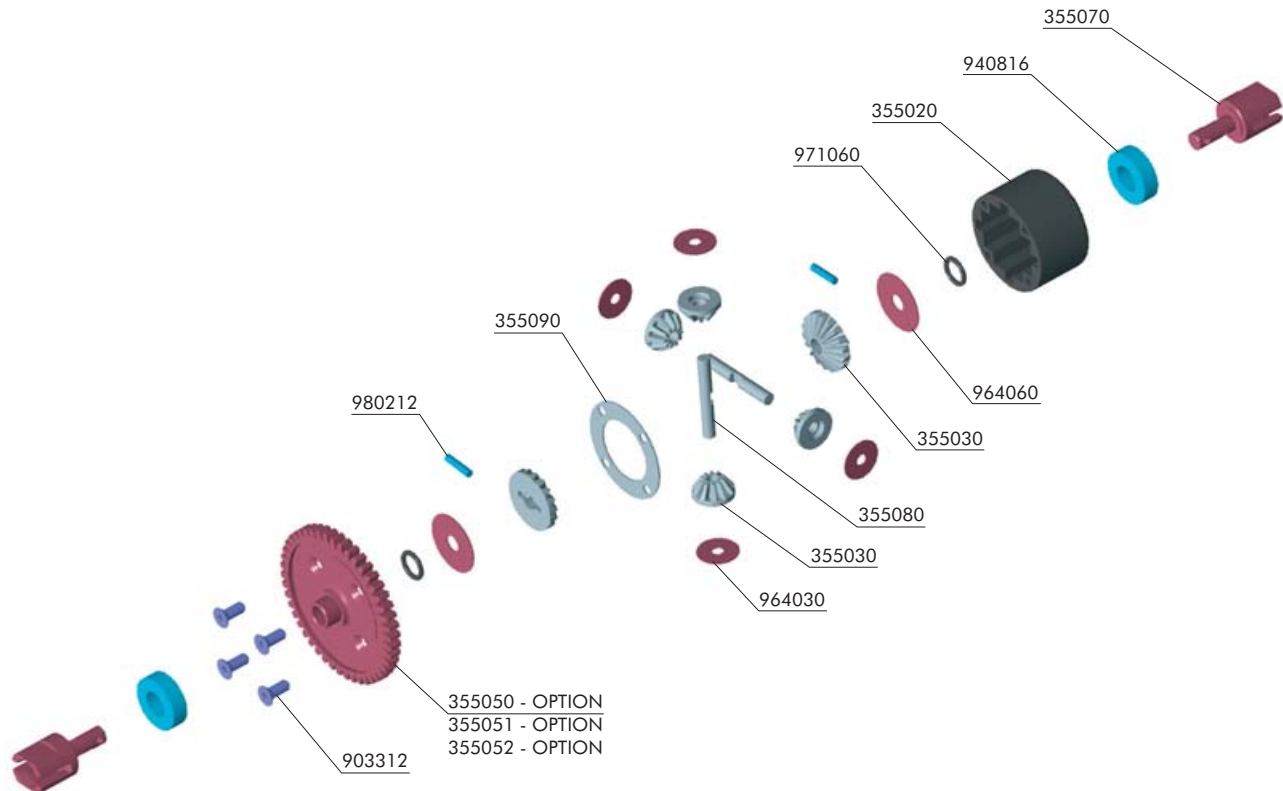
**Tight the screws equally**



**Finish tightening in this order**



# CENTER DIFFERENTIAL

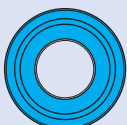


**BAG**

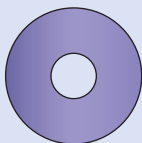
**1.3**

- 35 5020 DIFFERENTIAL CASE
- 35 5030 STEEL DIFF BEVEL & SATELLITE GEARS (2+4)
- 35 5050 CENTER DIFF SPUR GEAR 46T - HUDY STEEL - OPTION
- 35 5051 CENTER DIFF SPUR GEAR 45T - HUDY STEEL - OPTION
- 35 5052 CENTER DIFF SPUR GEAR 44T - HUDY STEEL - OPTION
- 35 5070 CENTER DIFF OUTDRIVE ADAPTER (2) - HUDY STEEL
- 35 5080 DIFF PIN (2)
- 35 5090 DIFF GASKET (4)

- 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 0212 PIN 2x11.6 (10)



940816  
BB 8x16x5



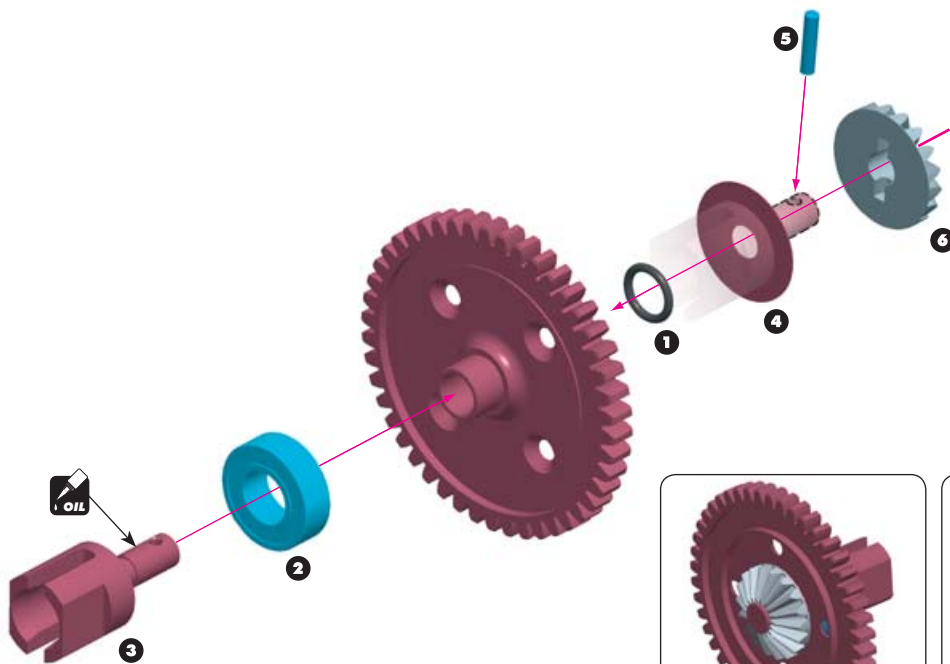
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S 6x18x0.2



971060  
O 6x1.5



980212  
P 2x11.6

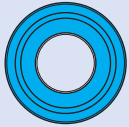


ASSEMBLED VIEW

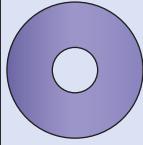




# CENTER DIFFERENTIAL



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BB 8x16x5



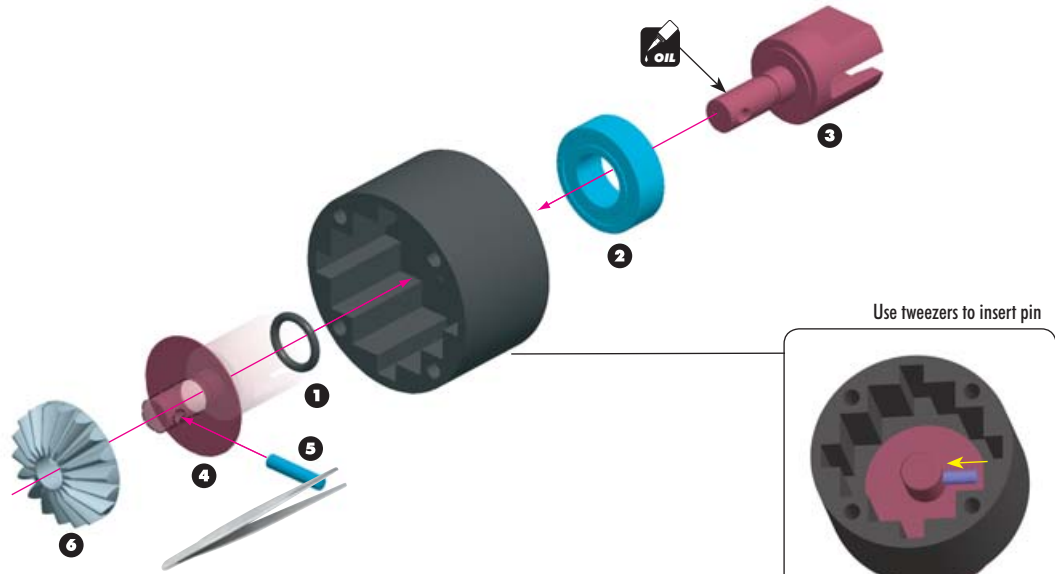
964060  
S 6x18x0.2



971060  
O 6x1.5



980212  
P 2x11.6



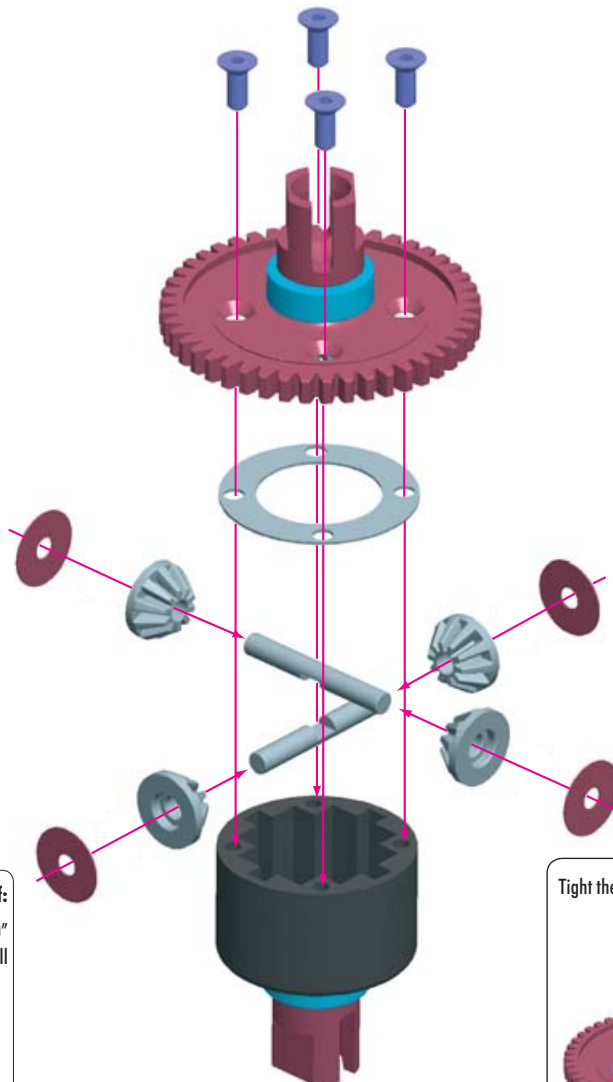
Use tweezers to insert pin



903312  
SFH M3x12



964030  
S 3.5x12x0.2

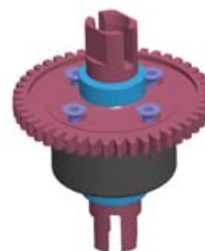


**Center diff:**

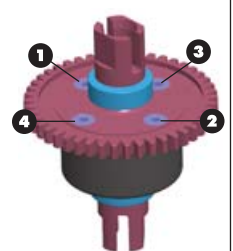
THICK silicone oil "5.000"~"10.000"  
Fill 80% full



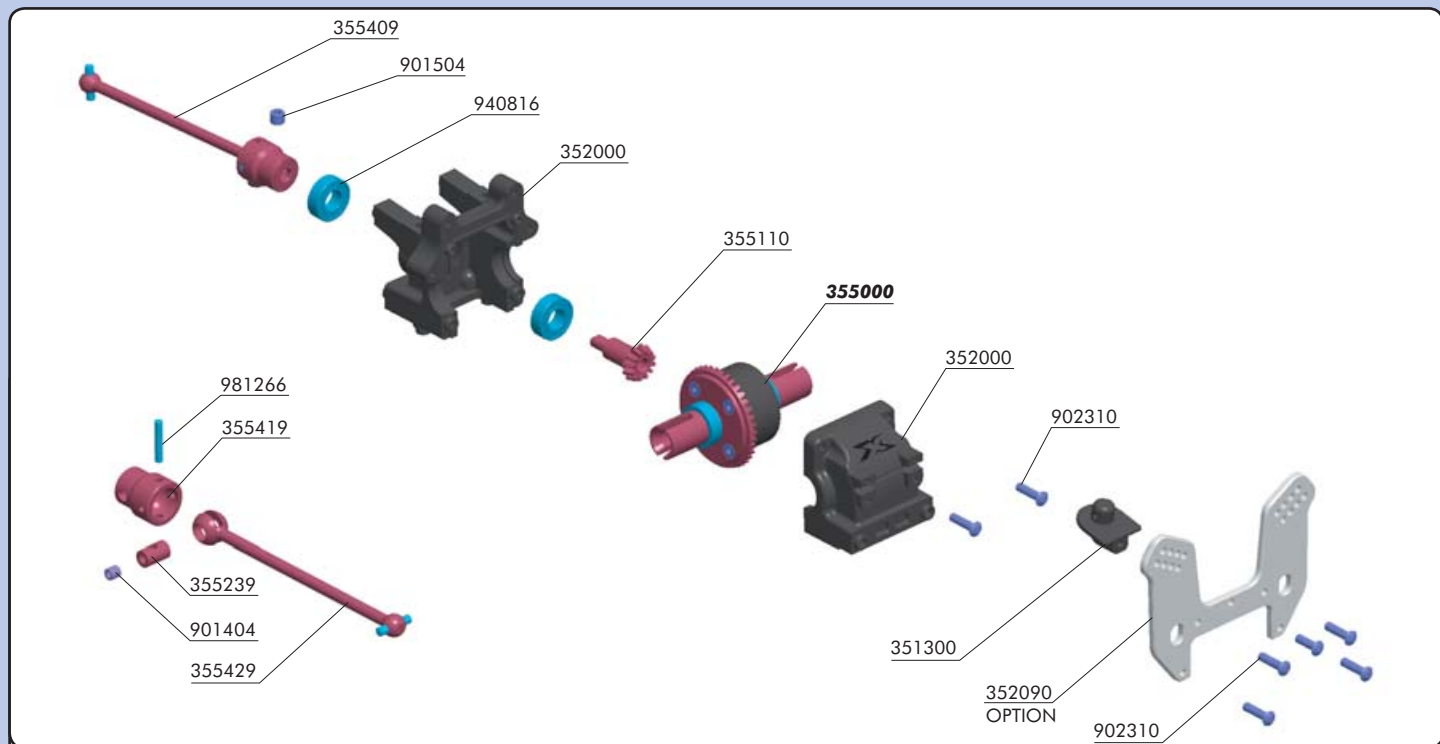
Tight the screws equally



Finish tightening in this order



## 2. FRONT TRANSMISSION

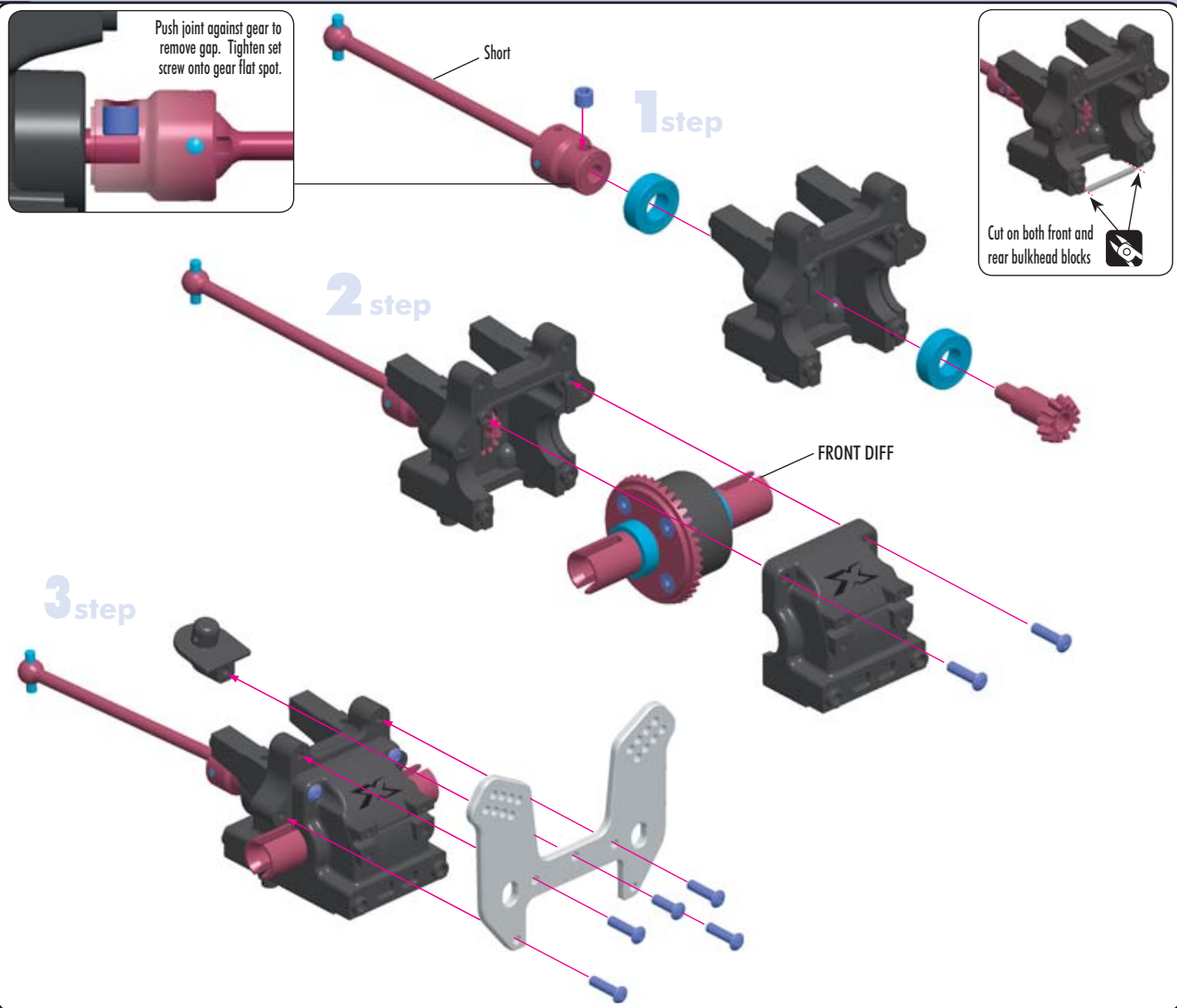


**BAG**



35 1300 BODY POSTS  
 35 2000 DIFF BULKHEAD BLOCK SET FRONT  
 35 2090 ALU FRONT SHOCK TOWER-CNC MACHINED 7075 T6 (4MM)-OPTION  
 35 5110 BEVEL DRIVE GEAR 12T  
 35 5239 CVD DRIVE SHAFT COUPLING  
 35 5409 CVD FRONT UNIVERSAL CENTRAL DRIVE SHAFT - HUDY SPRING STEEL  
 35 5419 CENTRAL CVD SHAFT UNIVERSAL JOINT  
 35 5429 UNIVERSAL CVD DRIVE SHAFT

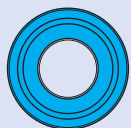
90 1404 HEX SCREW SB M4x4 (10)  
 90 1504 HEX SCREW SB M5x4 (10)  
 90 2310 HEX SCREW SH M3x10 (10)  
 94 0816 HIGH-SPEED BALL-BEARING 8x16x5 BLUE COVERED (2)  
 98 1266 PIN 2.5x16 (10)  
**35 5000 FRONT/REAR DIFFERENTIAL - SET**



901504  
SB 5x4

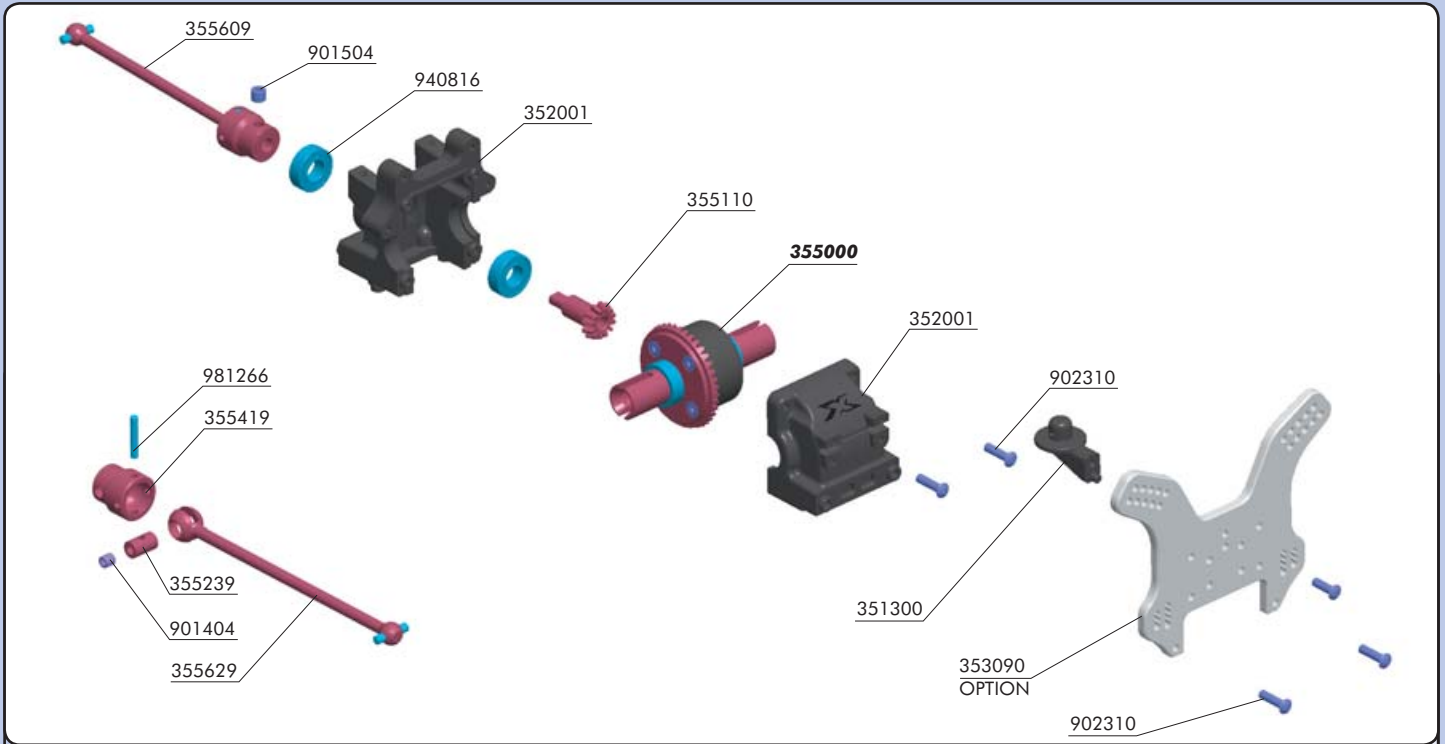


902310  
SH 3x10



940816  
BB 8x16x5

# REAR TRANSMISSION



**BAG**

**2.2**

35 1300 BODY POSTS  
 35 2001 DIFF BULKHEAD BLOCK SET REAR  
 35 3090 ALU REAR SHOCK TOWER - CNC MACHINED 7075 T6 (4MM)- OPTION  
 35 5110 BEVEL DRIVE GEAR 12T  
 35 5239 CVD DRIVE SHAFT COUPLING  
 35 5419 CENTRAL CVD SHAFT UNIVERSAL JOINT  
 35 5609 CVD REAR UNIVERSAL CENTRAL DRIVE SHAFT - HUDY SPRING STEEL  
 35 5629 REAR UNIVERSAL CENTRAL CVD DRIVE SHAFT

90 1404 HEX SCREW SB M4x4 (10)  
 90 1504 HEX SCREW SB M5x4 (10)  
 90 2310 HEX SCREW SH M3x10 (10)  
 94 0816 HIGH-SPEED BALL-BEARING 8x16x5 BLUE COVERED (2)  
 98 1266 PIN 2.5x16 (10)  
**35 5000 FRONT/REAR DIFFERENTIAL - SET**

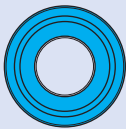


901504  
SB 5x4

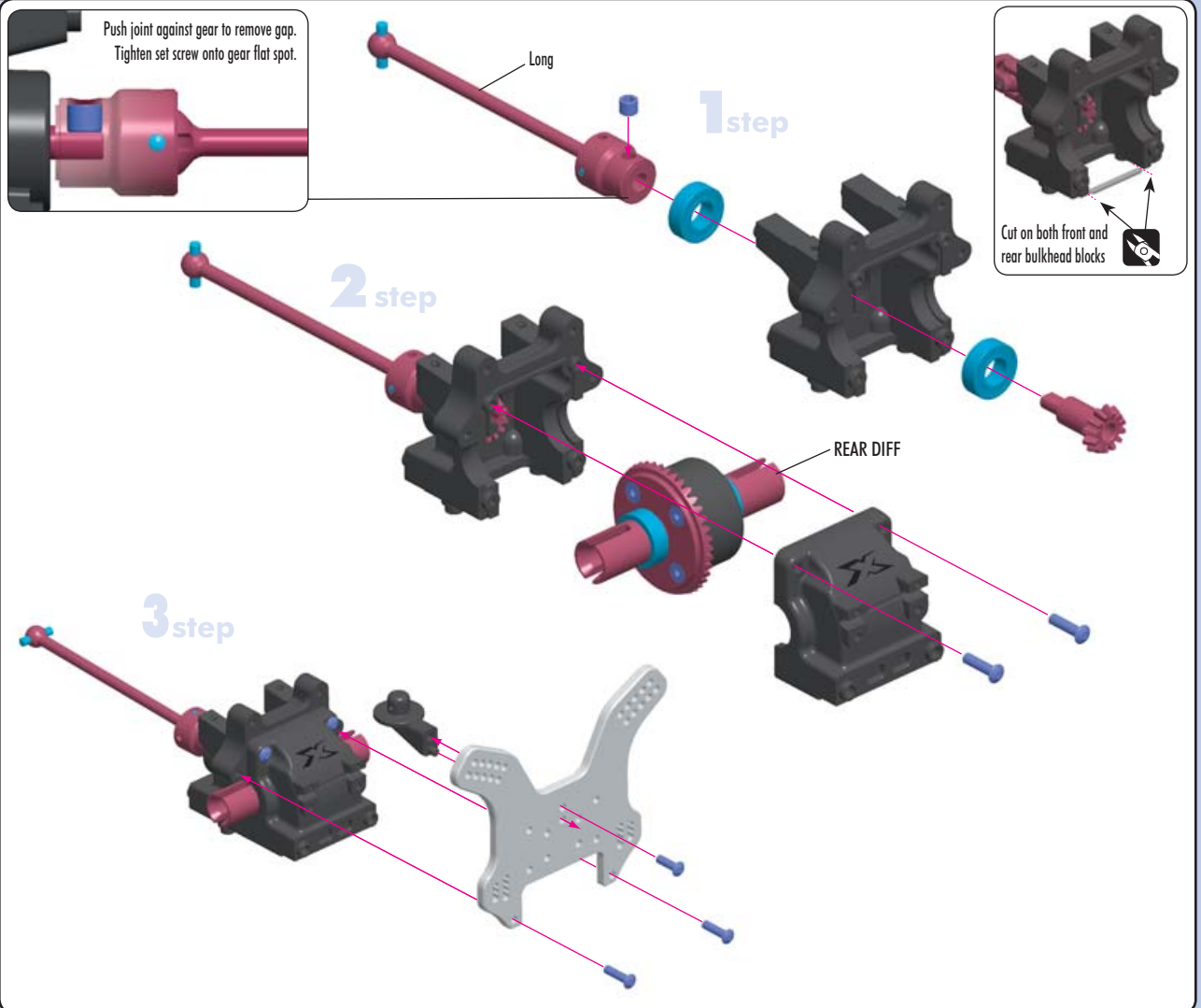


902310  
SH 3x10

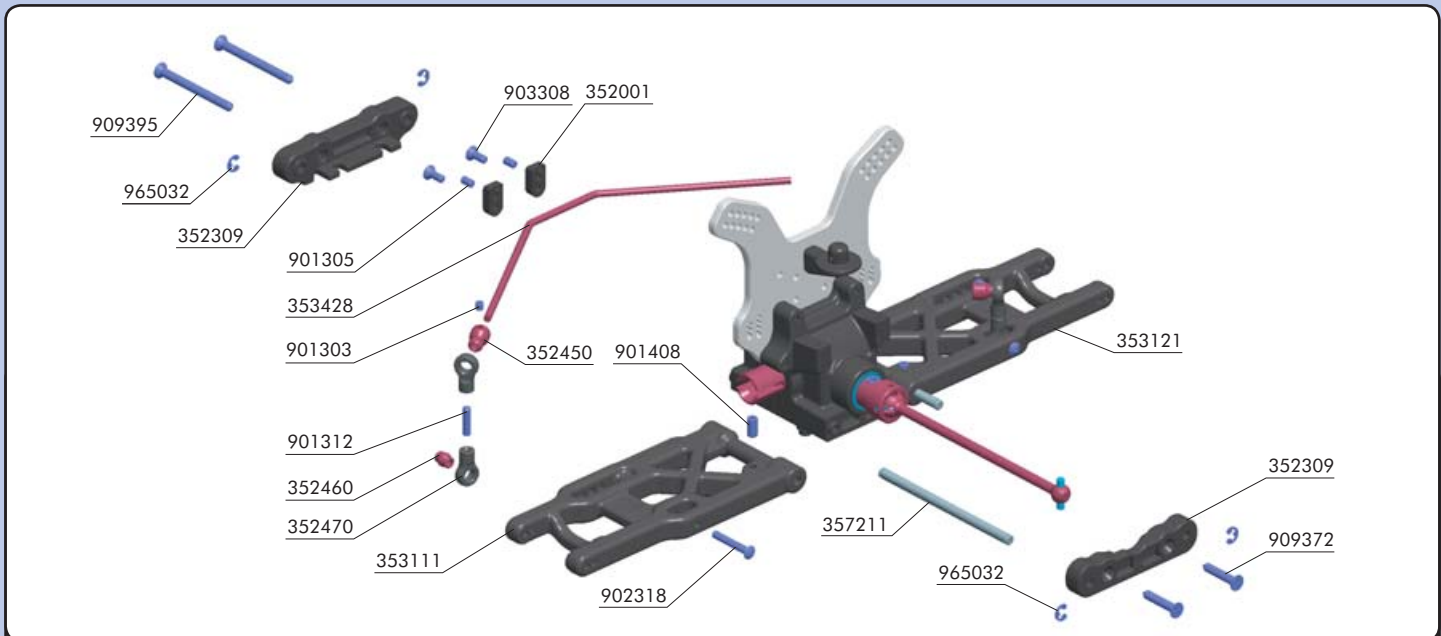
902310  
SH 3x10



940816  
BB 8x16x5



# 3. REAR SUSPENSION



**BAG**



- 35 2001 DIFF BULKHEAD BLOCK SET REAR
- 35 2309 SET OF COMPOSITE LOWER SUSP. HOLDERS
- 35 2450 ANTI ROLL BAR BALL JOINT 5.8 (4)
- 35 2460 PIVOT BALL 5.8 (10)
- 35 2470 BALL JOINT 5.8 (8)
- 35 3111 REAR LOWER SUSPENSION ARM RIGHT - SOFT
- 35 3121 REAR LOWER SUSPENSION ARM LEFT - SOFT
- 35 3428 REAR ANTI-ROLL BAR 2.8MM
- 35 7211 LOWER INNER PIVOT PIN WITH GROOVE 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)
- 96 5032 E-CLIP 3.2 (10)

901408  
SB M4x8

909372  
SS 3.5x22

965032  
C 3.2

909395  
SS 3.5x45

**Tighten screws equally**

**REAR VIEW**

**FRONT VIEW**

**DETAIL**

4x8 Downstop screw

**TOP**      **DOWNSTOP SETTING**

**BOTTOM**

3 mm

901303  
SB M3x3

901305  
SB M3x5

901312  
SB M3x12

902318  
SH M3x18

903308  
SFH M3x8

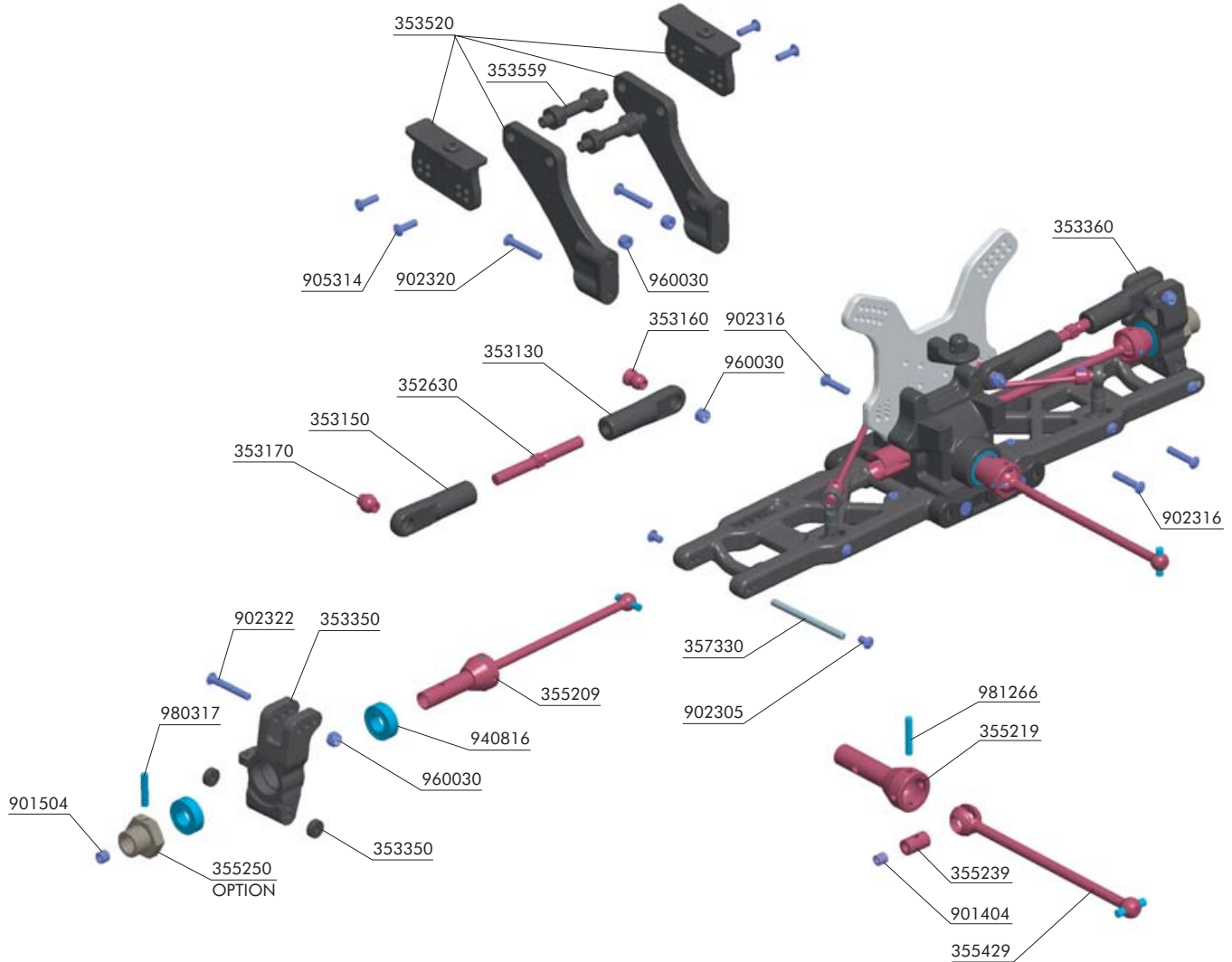
**L=R**    **2x**

**TIP**  
Follow the instructions in bag 3.

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

**RIGHT**

# 4. REAR SUSPENSION

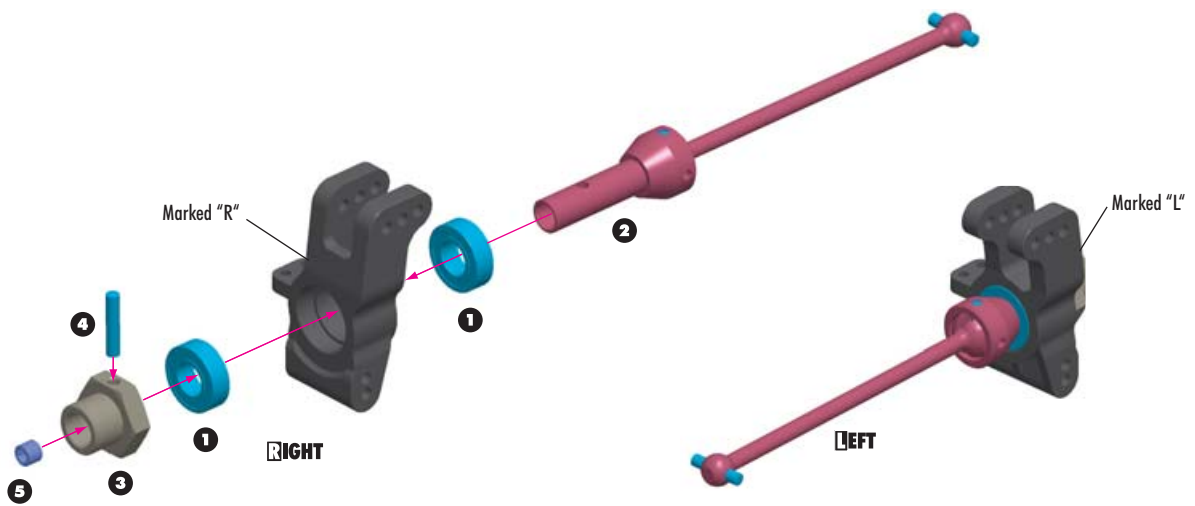
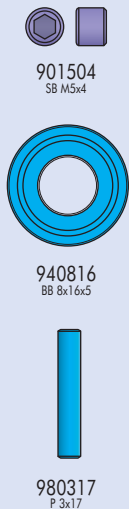


**BAG**


**4**

- 35 2630 ADJ. TURNBUCKLE M5 L/R 50 MM - SPRING STEEL (2)
- 35 3130 REAR UPPER INNER CAMBER LINK BALL JOINT (2)
- 35 3150 REAR UPPER OUTER CAMBER LINK BALL JOINT (2)
- 35 3160 MOUNTING BALL 6.8 (4)
- 35 3170 PIVOT BALL 6.8 (4)
- 35 3350 REAR HUB CARRIER RIGHT
- 35 3360 REAR HUB CARRIER LEFT
- 35 3520 REAR WING POSTS
- 35 3559 COMPOSITE REAR WING MOUNT BRACE (2)
- 35 5209 CVD UNIVERSAL DRIVE SHAFT F/R - HUDY SPRING STEEL™
- 35 5219 CVD DRIVE AXLE
- 35 5239 CVD DRIVE SHAFT COUPLING
- 35 5429 UNIVERSAL CVD DRIVE SHAFT
- 35 5250 ALU WHEEL AXLE - HARD COATED (2) - OPTION

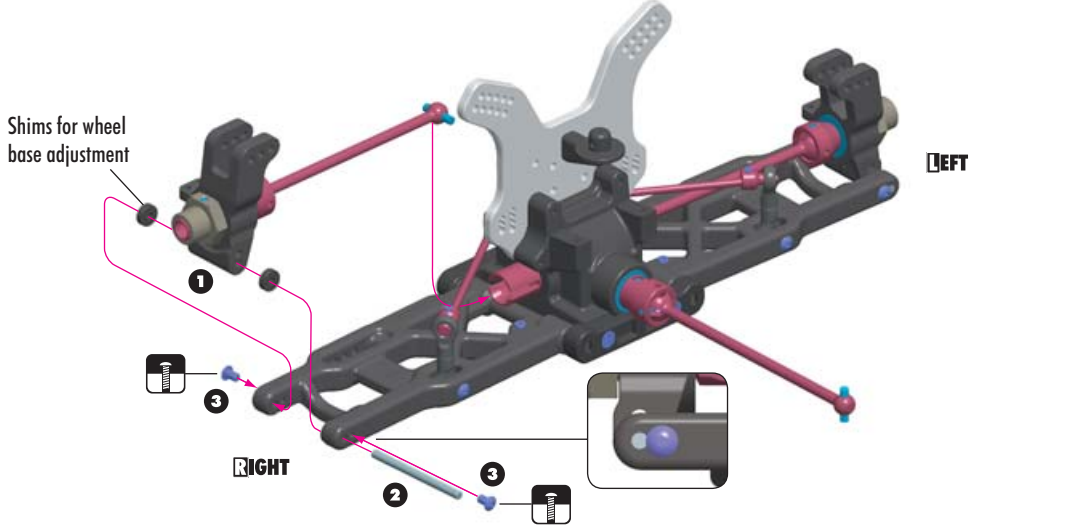
- 35 7330 REAR LOWER OUTER PIVOT PIN (2)
- 90 1404 HEX SCREW SB M4x4 (10)
- 90 1504 HEX SCREW SB M5x4 (10)
- 90 2305 HEX SCREW SH M3x5 (10)
- 90 2316 HEX SCREW SH M3x16 (10)
- 90 2320 HEX SCREW SH M3x20 (10)
- 90 2322 HEX SCREW SH M3x22 (10)
- 90 5314 SCREW PHILLIPS 3.0x14 (10)
- 94 0816 HIGH-SPEED BALL-BEARING 8x16x5 BLUE COVERED (2)
- 96 0030 NUT M3 (10)
- 98 0317 PIN 3x17 (10)
- 98 1266 PIN 2.5x16 (10)



# REAR SUSPENSION



902305  
SH M3x5



Shims for wheel base adjustment

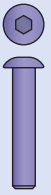
1

2

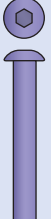
3

LEFT


RIGHT



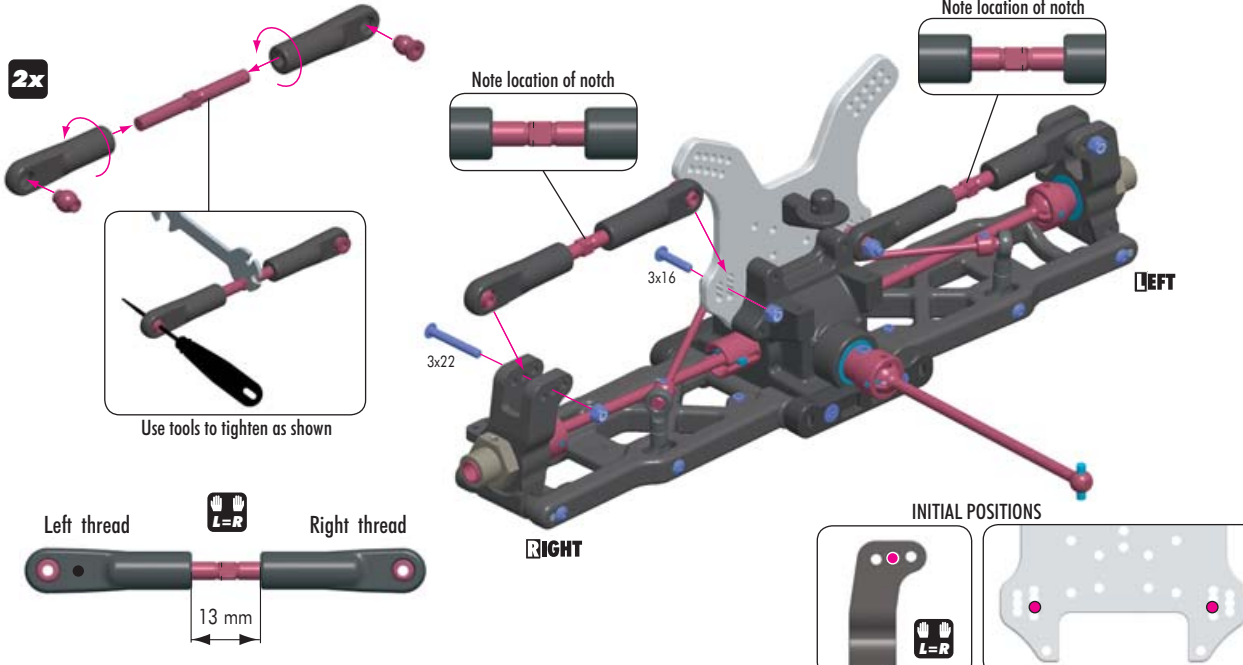
902316  
SH M3x16



902322  
SH M3x22



960030  
N M3



2x

Note location of notch

Note location of notch

3x16

3x22

LEFT

RIGHT

INITIAL POSITIONS


Left thread

Right thread

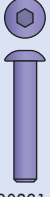
13 mm

L=R


L=R




905314  
SP M3x14



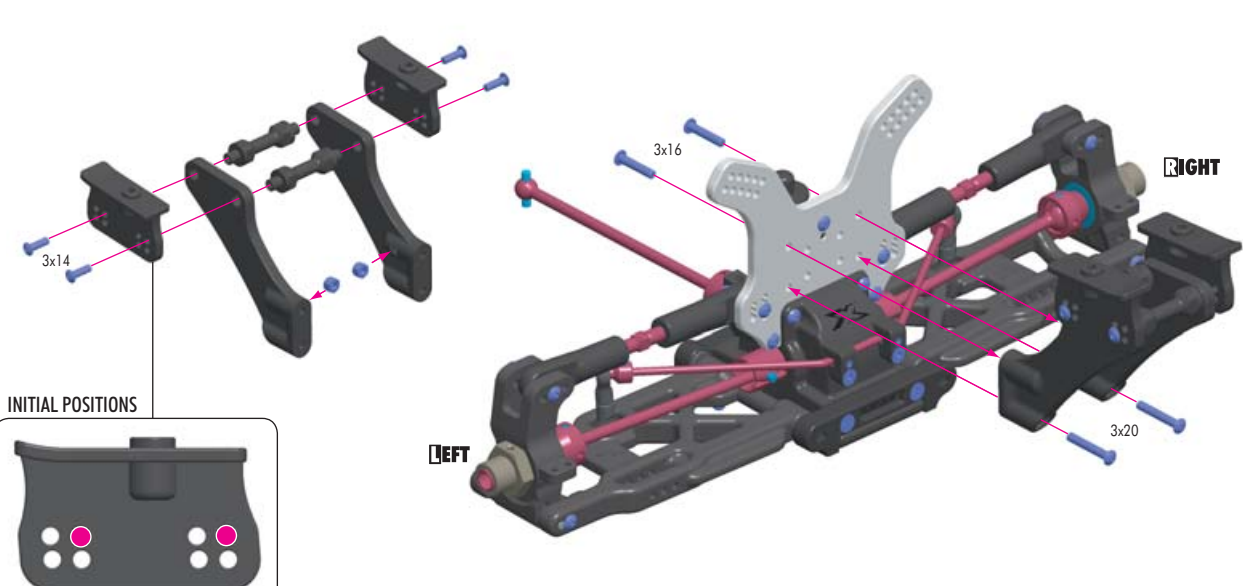
902316  
SH M3x16



902320  
SH M3x20



960030  
N M3



3x14

3x16

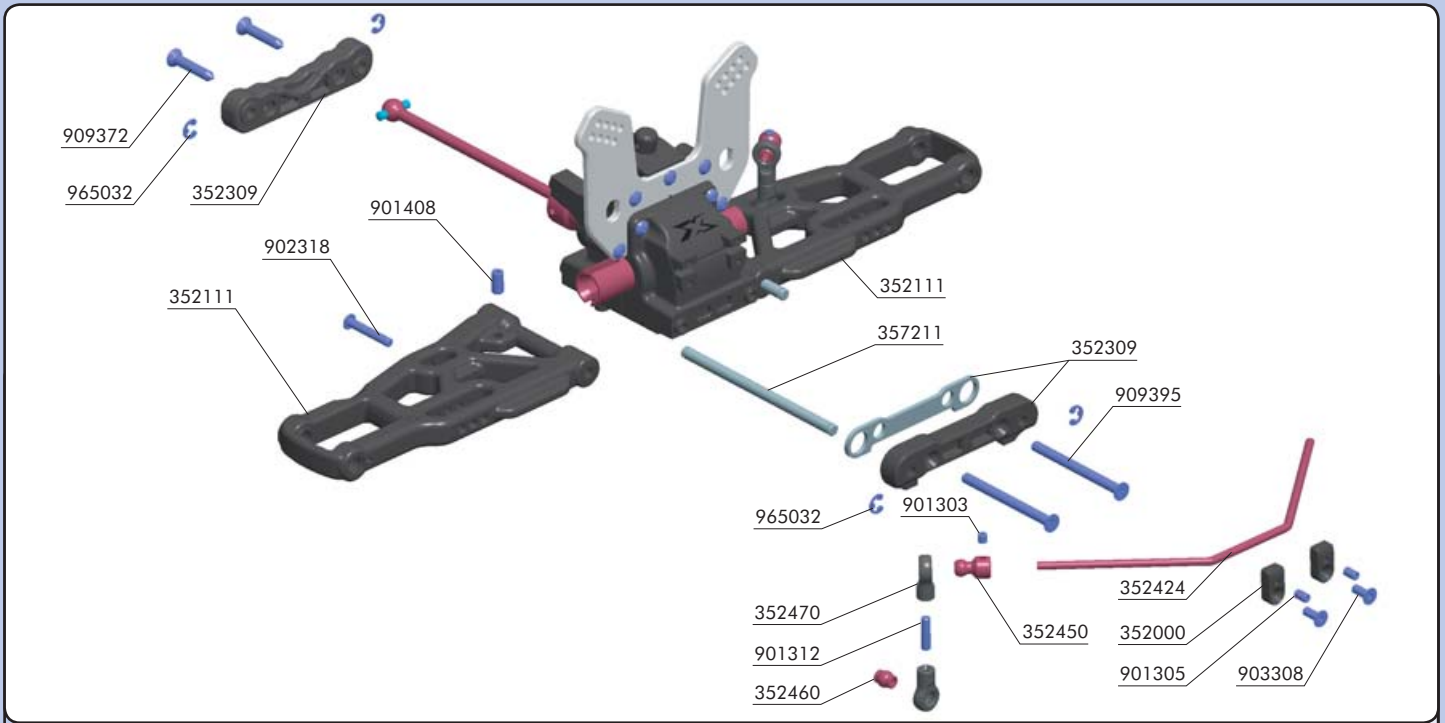
3x20

LEFT

RIGHT

INITIAL POSITIONS

# 5. FRONT SUSPENSION

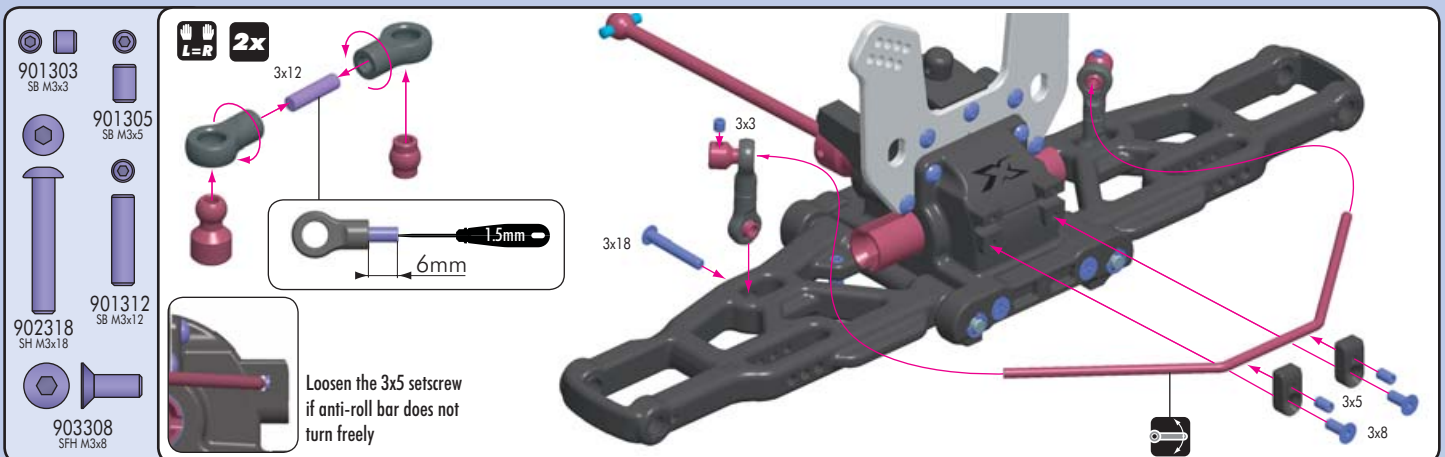
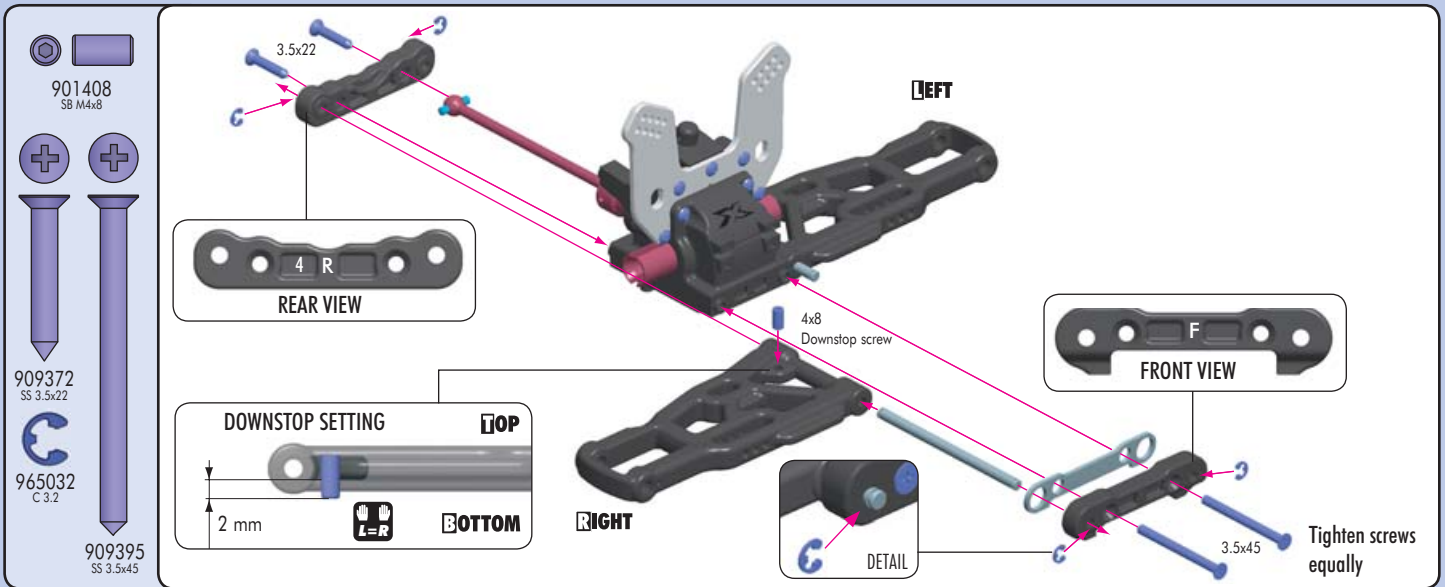


**BAG**

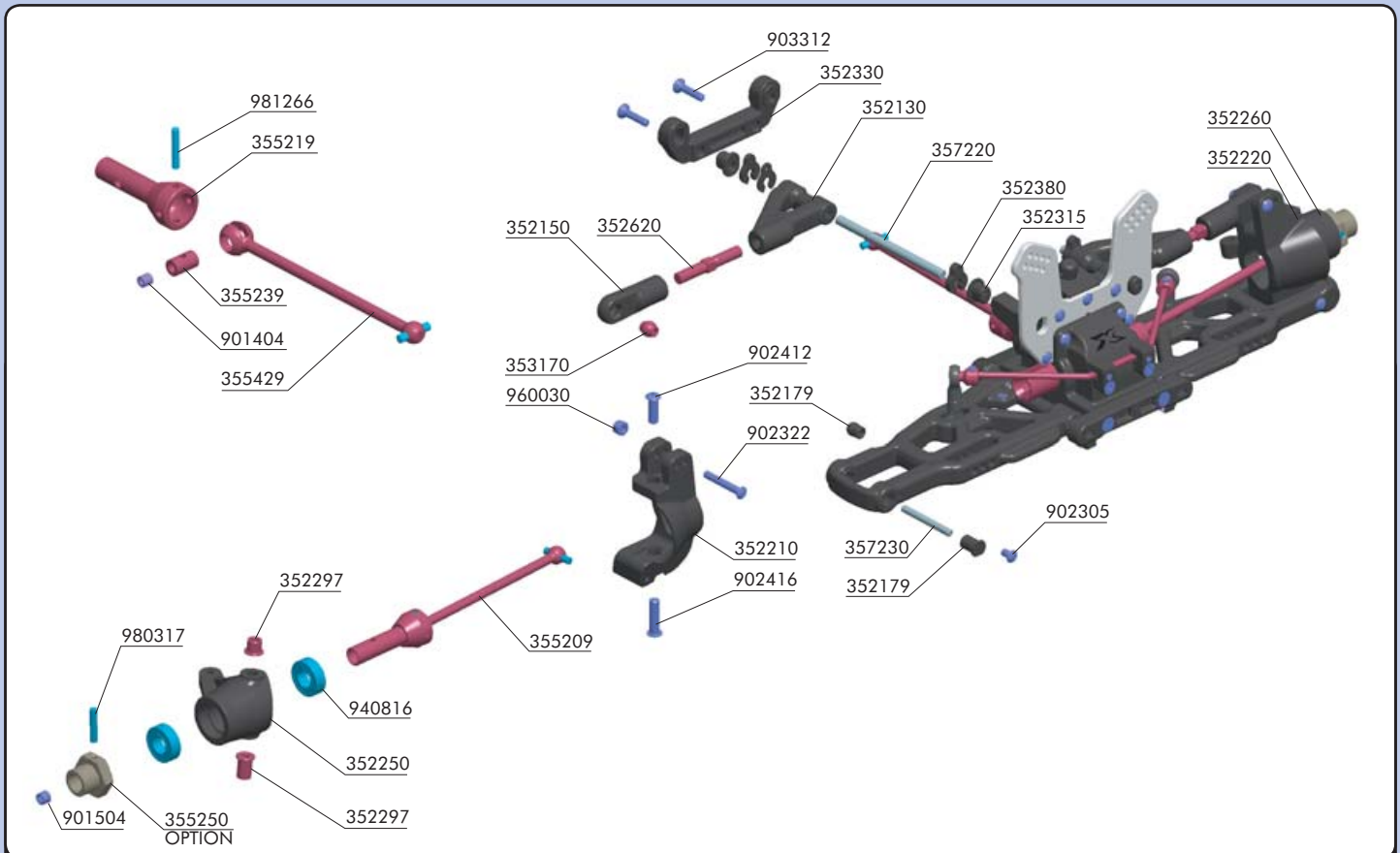
**5**

35 2000 DIFF BULKHEAD BLOCK SET FRONT  
35 2111 FRONT LOWER ARM - SOFT  
35 2309 SET OF COMPOSITE LOWER SUSP. HOLDERS  
35 2424 FRONT ANTI-ROLL BAR 2.4MM  
35 2450 ANTI ROLL BAR BALL JOINT 5.8 (4)  
35 2460 PIVOT BALL 5.8 (10)  
35 2470 BALL JOINT 5.8 (8)  
35 7211 LOWER INNER PIVOT PIN WITH GROOVE 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)  
96 5032 E-CLIP 3.2 (10)



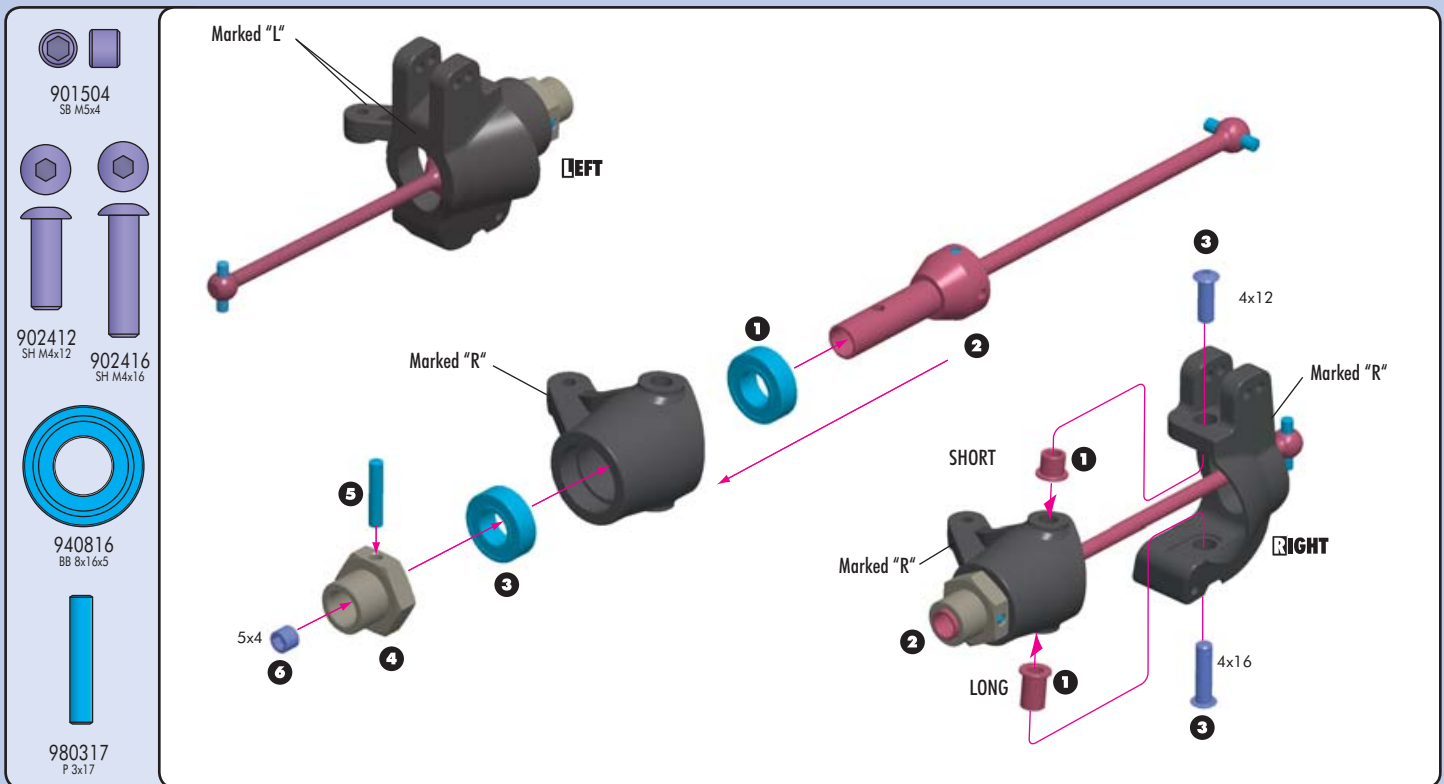
# 6. FRONT SUSPENSION



**BAG**



35 2130	FRONT UPPER ARM	35 5429	UNIVERSAL CVD DRIVE SHAFT
35 2150	FRONT UPPER ARM BALL JOINT (2)	35 5250	ALU WHEEL AXLE - HARD COATED (2) - OPTION
35 2179	COMPOSITE BUSHING & BALL MOUNT SET (2+2)	35 7220	FRONT UPPER PIVOT PIN (2)
35 2210	C-HUB RIGHT	35 7230	FRONT LOWER OUTER PIVOT PIN (2)
35 2220	C-HUB LEFT	90 1404	HEX SCREW SB M4x4 (10)
35 2250	STEERING BLOCK RIGHT	90 1504	HEX SCREW SB M5x4 (10)
35 2260	STEERING BLOCK LEFT	90 2305	HEX SCREW SH M3x5 (10)
35 2297	STEEL STEERING BUSHING - LONG (2+2)	90 2322	HEX SCREW SH M3x22 (10)
35 2315	ECCENTRIC BUSHING (2)	90 2412	HEX SCREW SH M4x12 (10)
35 2380	CASTER CLIPS (2)	90 2416	HEX SCREW SH M4x16 (10)
35 2330	COMPOSITE FRONT UPPER SUSP. HOLDER - REAR	90 3312	HEX SCREW SFH M3x12 (10)
35 2620	ADJ. TURNBUCKLE M5 L/R 35 MM - SPRING STEEL (2)	94 0816	HIGH-SPEED BALL-BEARING 8x16x5 BLUE COVERED (2)
35 3170	PIVOT BALL 6.8 (4)	96 0030	NUT M3 (10)
35 5209	CVD UNIVERSAL DRIVE SHAFT F/R - HUDY SPRING STEEL™	98 0317	PIN 3x17 (10)
35 5219	CVD DRIVE AXLE	98 1266	PIN 2.5x16 (10)
35 5239	CVD DRIVE SHAFT COUPLING		





# FRONT SUSPENSION



902305  
SH M3x5

**ASSEMBLY**

1 Press pivot ball into arm until it snaps into place

**DISASSEMBLY**

Remove 3x5 screw holding composite bushing in arm. Push out the pivot pin from the rear to remove the composite bushing.



DOT IN FRONT

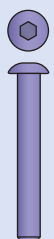
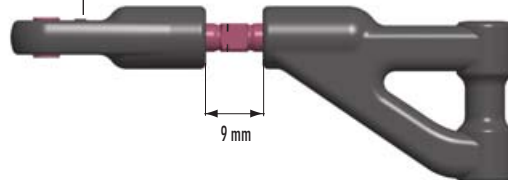
RIGHT

2x L-R

DOT IN FRONT

Notch goes to outside

LEFT



902322  
SH M3x22



903312  
SFH M3x12



960030  
N M3

Install inserts as shown

FRONT VIEW

3x22

3 mm

2 mm

1 mm

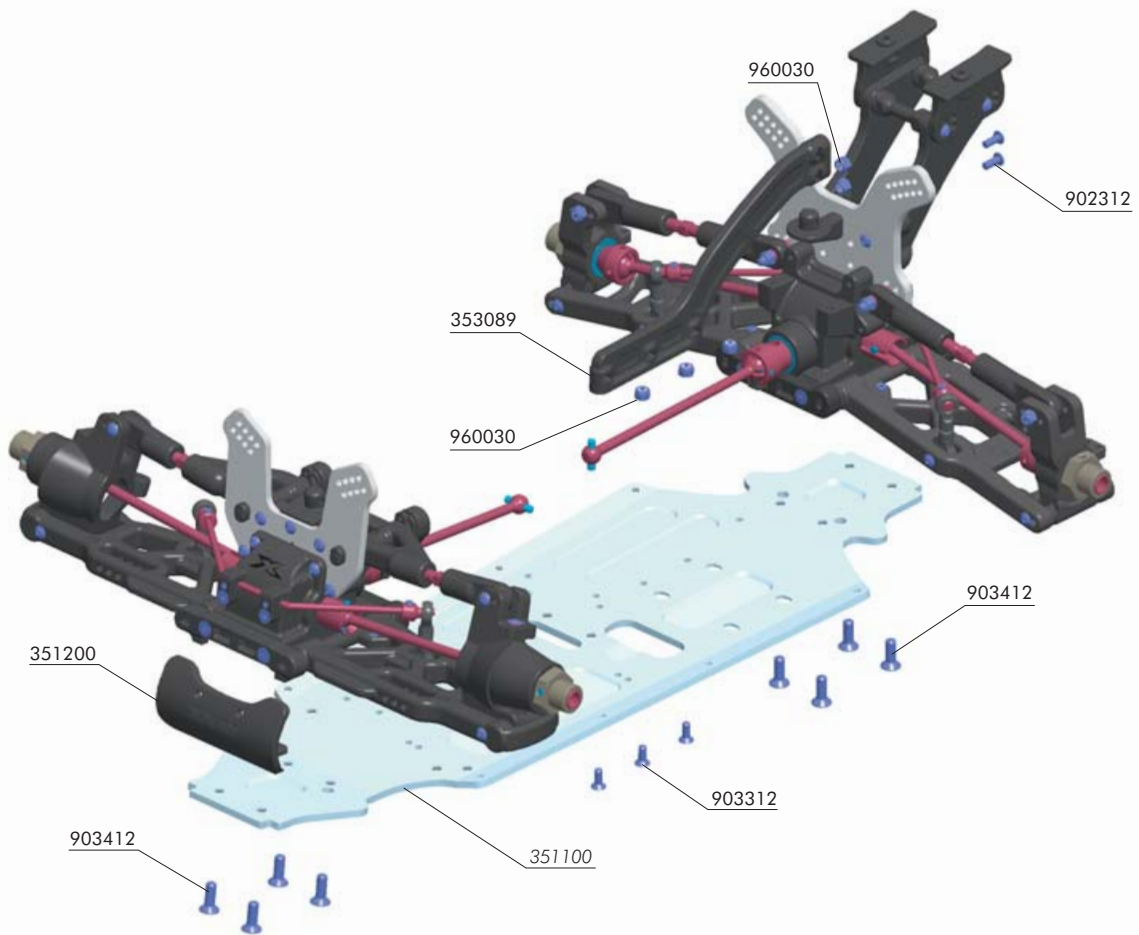
3x12

REAR VIEW

INITIAL POSITION

L-R

# FRONT & REAR ASSEMBLY



**BAG**

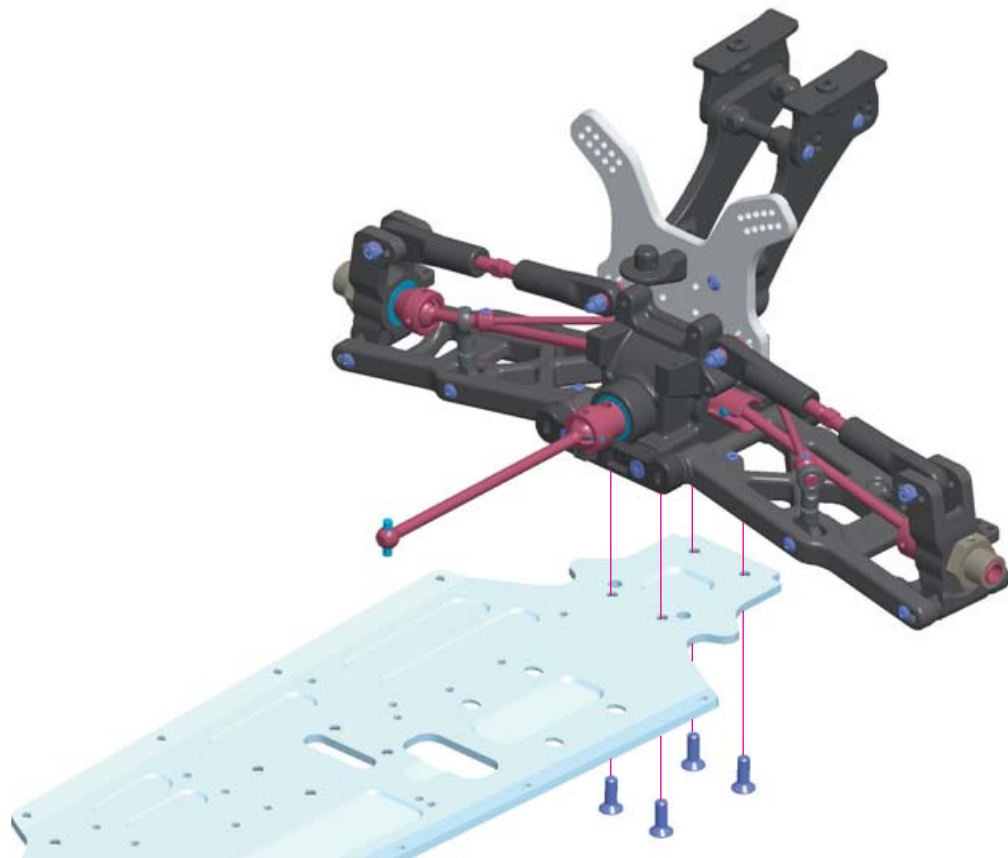
**6.2**

35 1200 FRONT & REAR BUMPER  
 35 3089 COMPOSITE REAR BRACE  
 90 2312 HEX SCREW SH M3x12 (10)  
 90 3312 HEX SCREW SFH M3x12 (10)

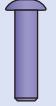
90 3412 HEX SCREW SFH M4x12 (10)  
 96 0030 NUT M3 (10)  
 35 1100 ALU CHASSIS - CNC MACHINED 7075 T6 (3MM)



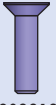
903412  
 SFH M4x12



# FRONT & REAR ASSEMBLY



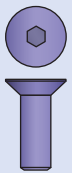
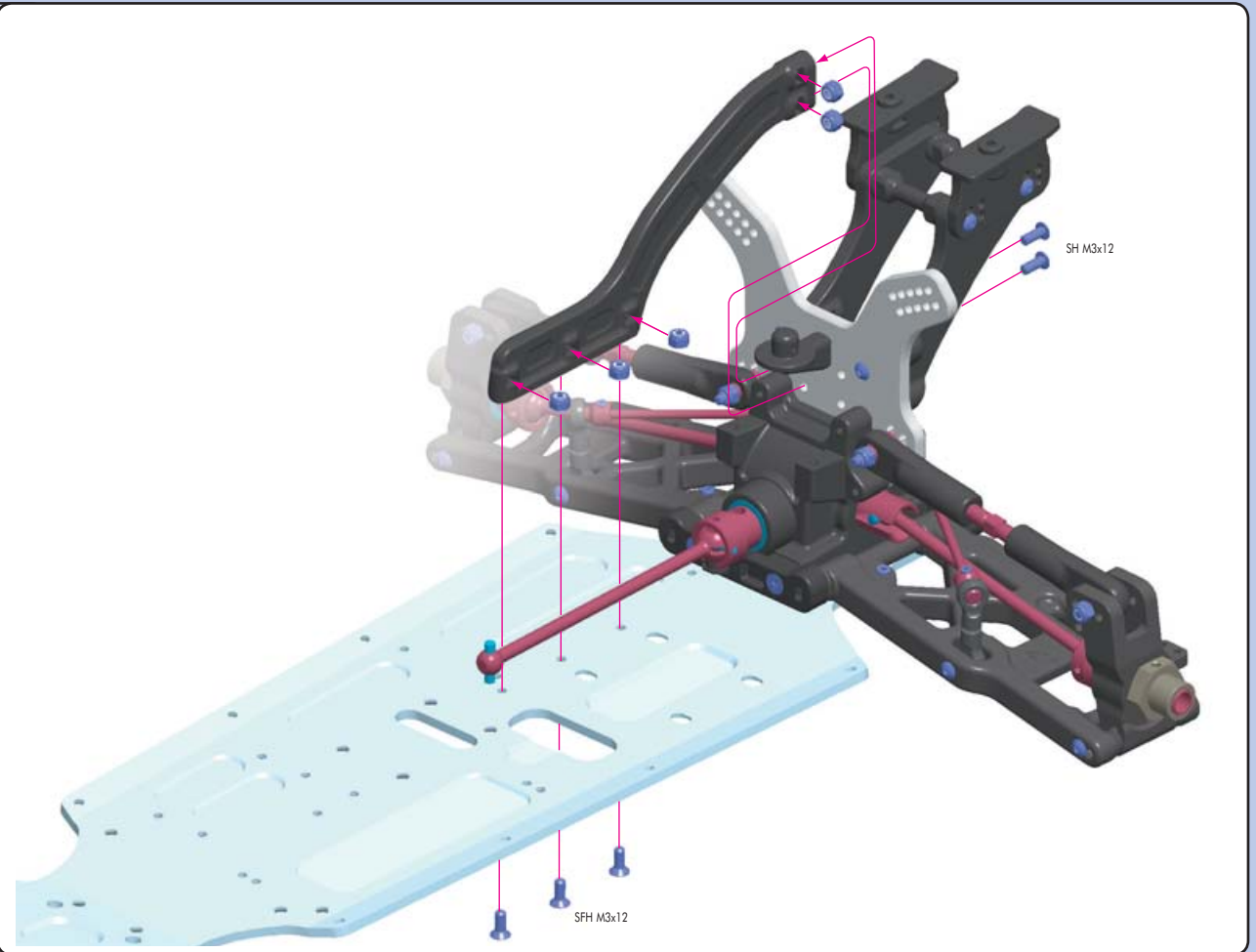
902312  
SFH M3x12



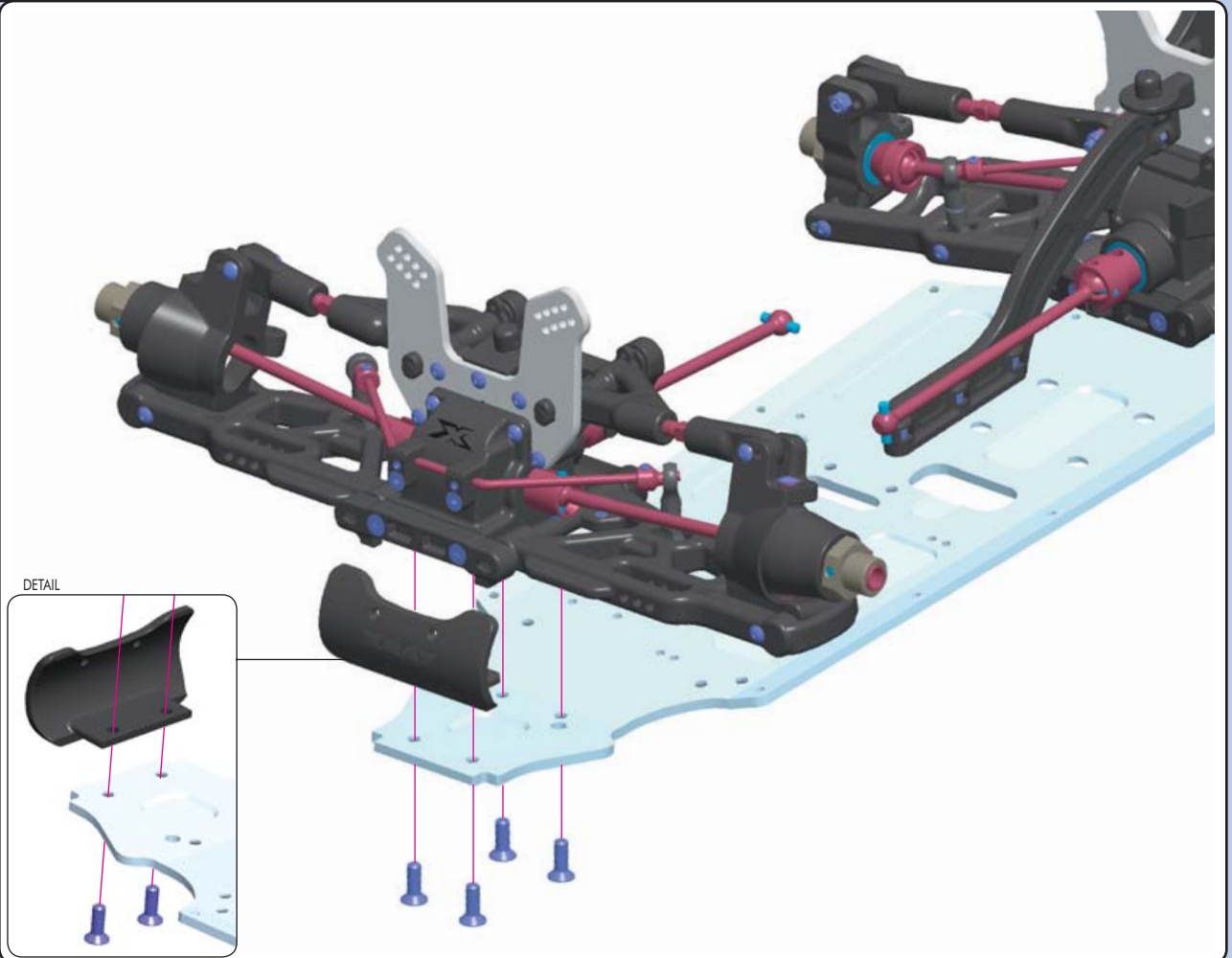
903312  
SFH M3x12



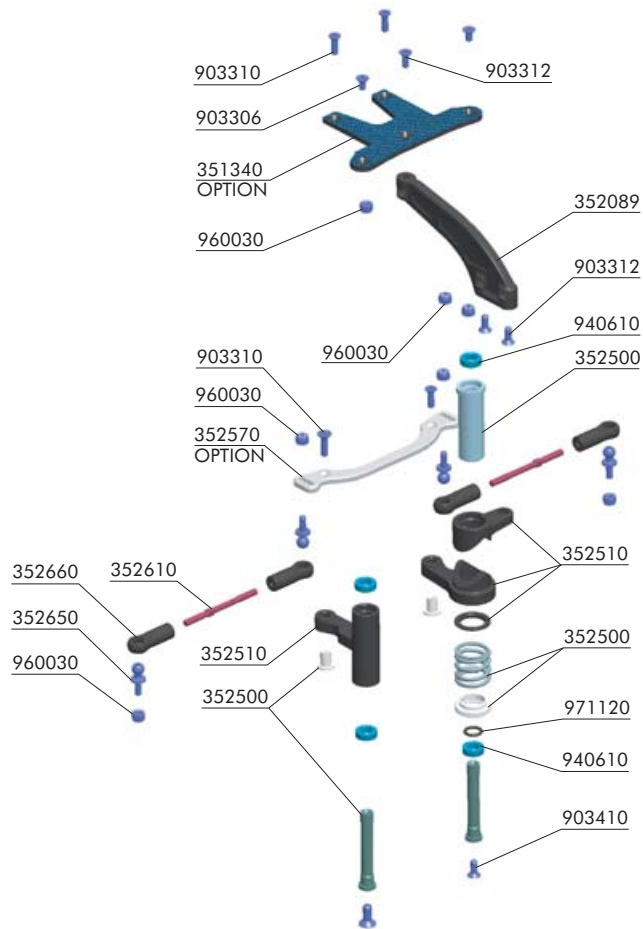
960030  
N M3



903412  
SFH M4x12



# 7. STEERING



**BAG**



- 35 1340 GRAPHITE UPPER PLATE - OPTION
- 35 2089 COMPOSITE FRONT BRACE
- 35 2500 SERVO SAVER COMPLETE SET
- 35 2510 COMPOSITE SERVO SAVER
- 35 2570 ALU STEERING PLATE 7075 T6 (3MM) - OPTION
- 35 2610 ADJ. TURNBUCKLE M3 L/R 45 MM - SPRING STEEL (2)
- 35 2650 BALL STUD 5.8MM (4)
- 35 2660 STEERING BALL JOINT 5.8MM (4)

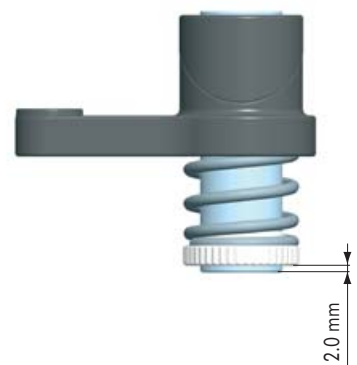
- 90 3306 HEX SCREW SFH M3x6 (10)
- 90 3310 HEX SCREW SFH M3x10 (10)
- 90 3312 HEX SCREW SFH M3x12 (10)
- 90 3410 HEX SCREW SFH M4x10 (10)
- 94 0610 HIGH-SPEED BALL-BEARING 6x10x3 BLUE COVERED (2)
- 96 0030 NUT M3 (10)
- 97 1120 SILICONE O-RING 12x1.6 (10)



971120  
O 12x1.6



INITIAL PRELOAD SETTING

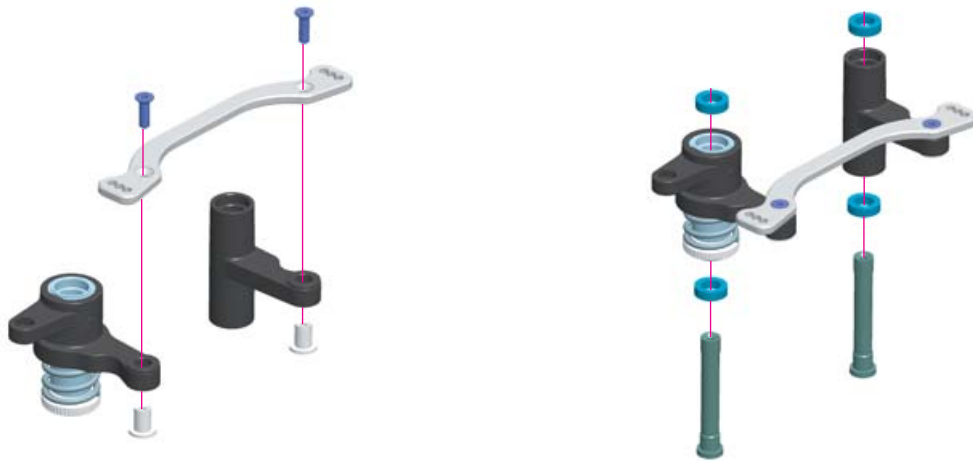




903310  
SFH M3x10



940610  
BB 6x10x3



903306  
SFH M3x6



903310  
SFH M3x10



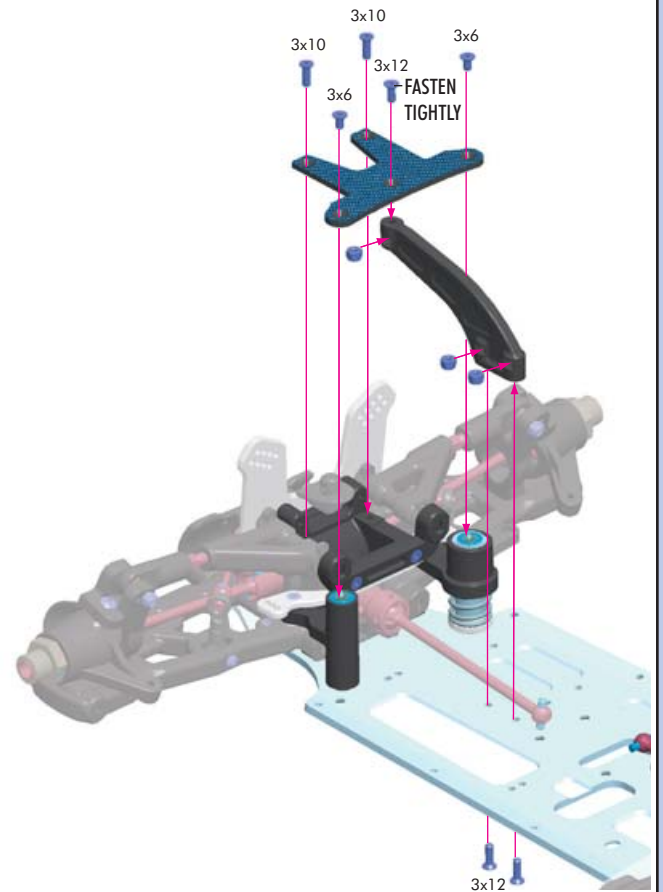
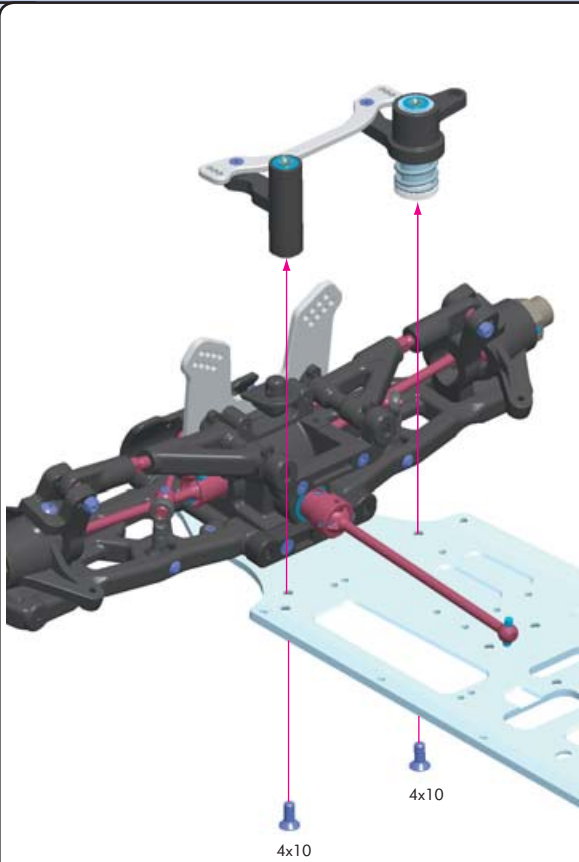
903312  
SFH M3x12



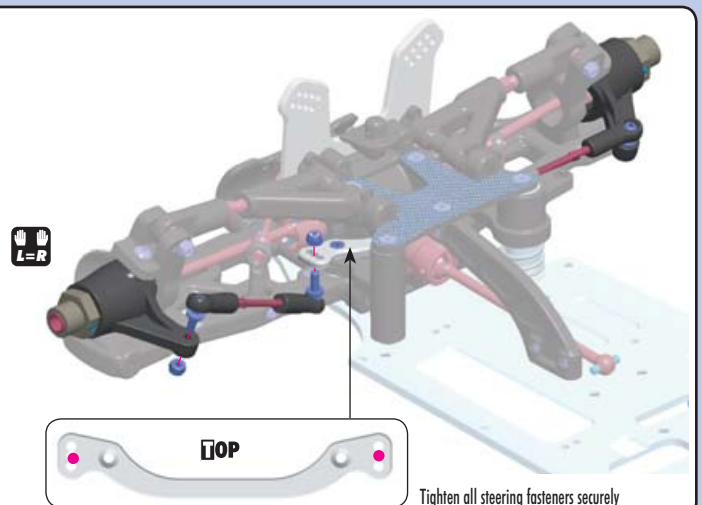
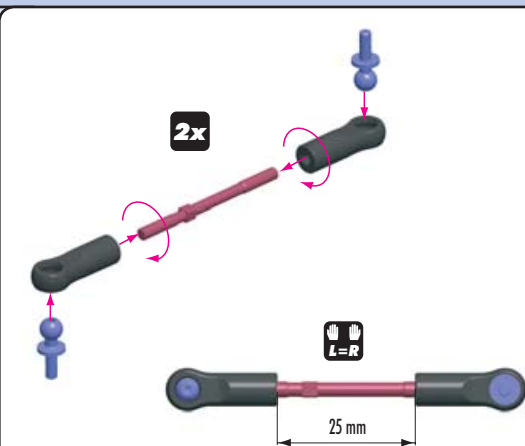
903410  
SFH M4x10



960030  
N M3

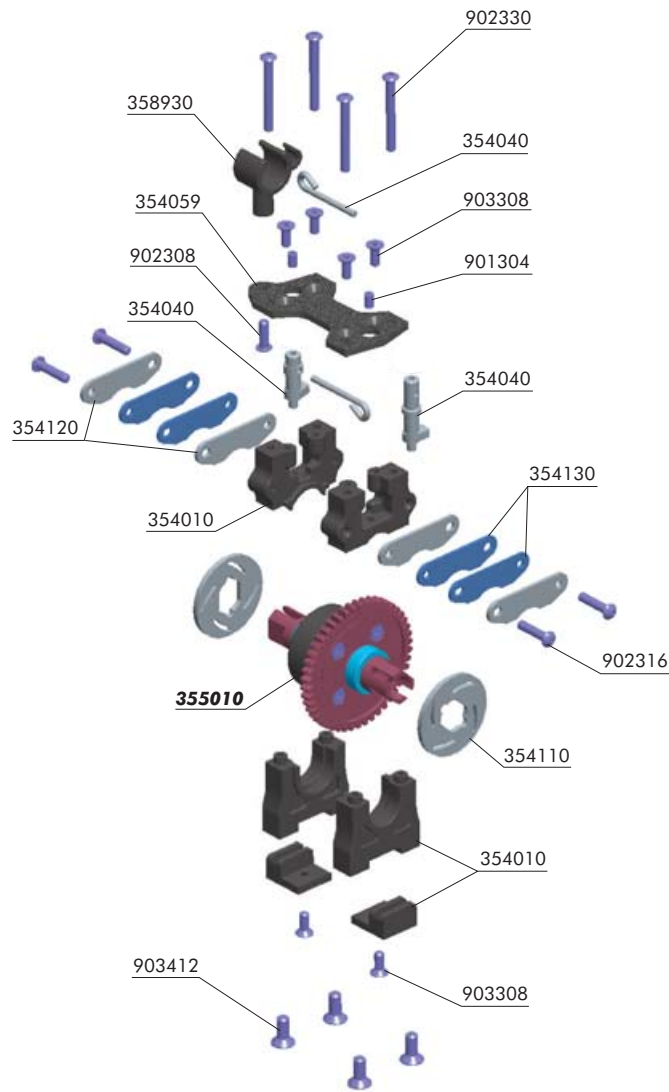


960030  
N M3



Tighten all steering fasteners securely

# 8. CENTER DIFF & BRAKE



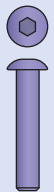
**BAG**

**8**

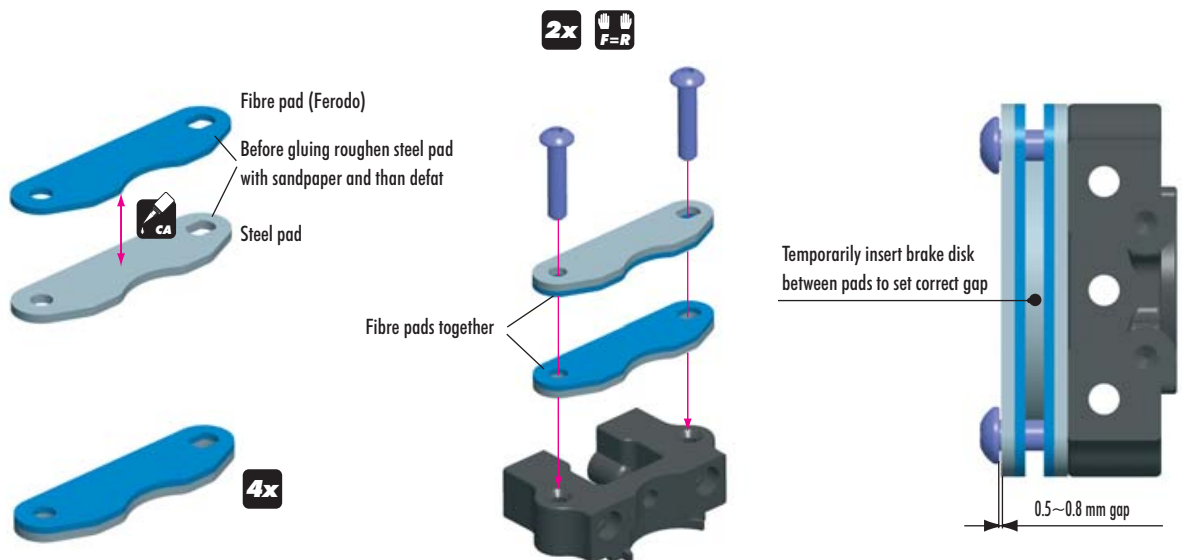
- 35 4010 CENTER DIFF MOUNTING PLATE - SET
- 35 4040 BRAKE CAM POST & ROD (2+2)
- 35 4059 COMPOSITE CENTER DIFF MOUNTING PLATE
- 35 4110 VENTILATED BRAKE DISK - LASER CUT- PRECISION-GROUND- OPTION
- 35 4120 STEEL BRAKE PAD - LASER CUT (4)
- 35 4130 BRAKE PAD FERODO (4)
- 35 8930 FUEL FILTER MOUNT & TUBING HOLDERS

- 90 1304 HEX SCREW SB M3x4 (10)
- 90 2308 HEX SCREW SH M3x8 (10)
- 90 2316 HEX SCREW SH M3x16 (10)
- 90 2330 HEX SCREW SH M3x30 (10)
- 90 3308 HEX SCREW SFH M3x8 (10)
- 90 3412 HEX SCREW SFH M4x12 (10)

**35 5010 CENTRAL DIFFERENTIAL - SET**



902316  
SH M3x16



# CENTER DIFF & BRAKE

901304  
SB M3x4

902308  
SH M3x8

903308  
SFH M3x8

902330  
SH M3x30

903308  
SFH M3x8

Before inserting 3x30 long screws, loosen the four flat-head screw in the upper graphite plate by 1/2 turn. Tighten all screws after assembly.

**NOTE ORIENTATION**

Insert brake disk between brake pads

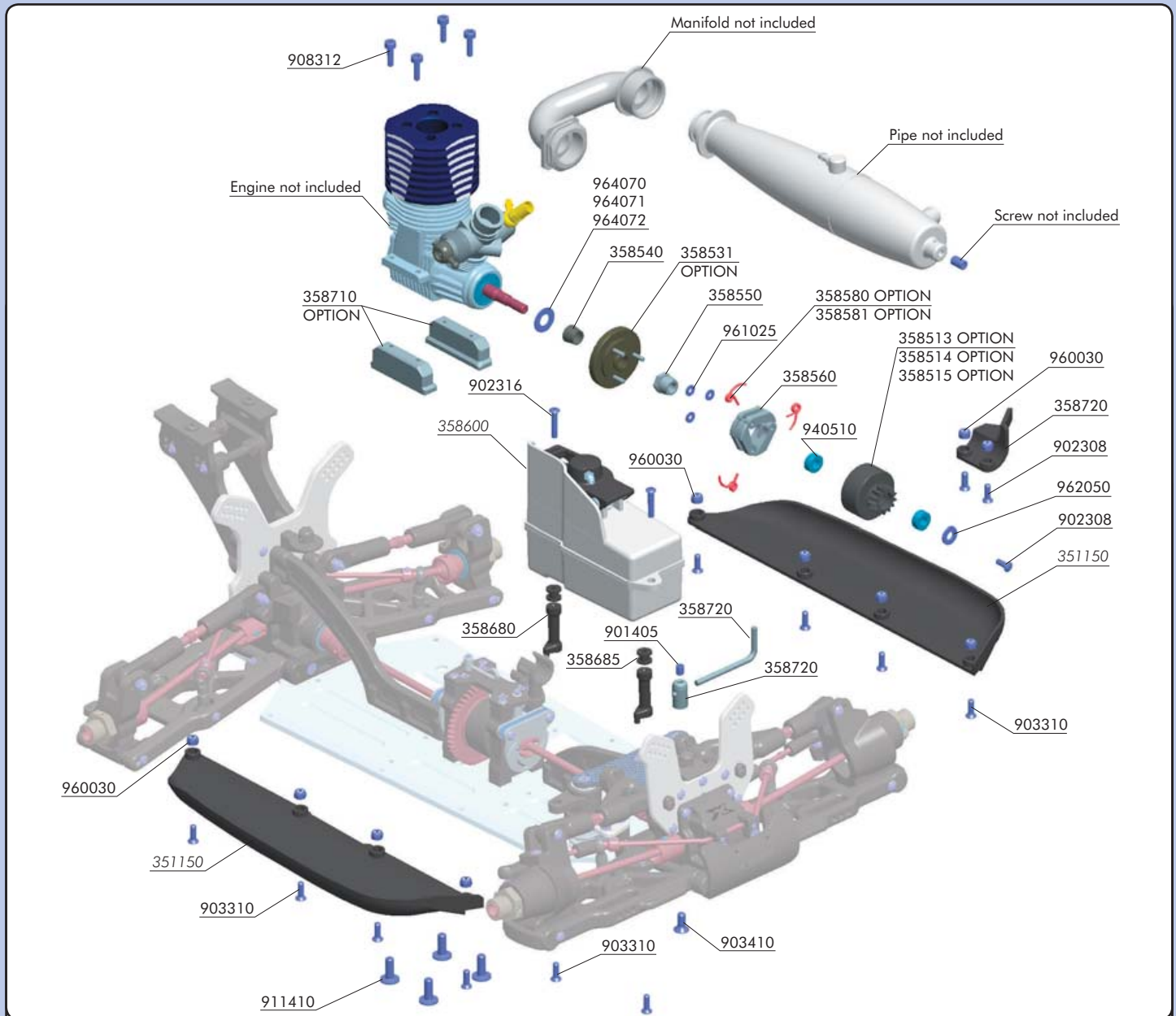
903412  
SFH M4x12

**NOTE ORIENTATION**

FRONT

REAR

# 9. FUEL TANK & ENGINE



**BAG**



- 35 8513 CLUTCH BELL 13T - OPTION
- 35 8514 CLUTCH BELL 14T - OPTION
- 35 8515 CLUTCH BELL 15T - OPTION
- 35 8531 FLYWHEEL - OPTION
- 35 8540 FLYWHEEL COLLAR
- 35 8550 FLYWHEEL NUT - HUDY SPRING STEEL™
- 35 8560 ALU CLUTCH SHOES - CNC MACHINED (3)
- 35 8580 CLUTCH SPRINGS 0.9MM (3) - OPTION
- 35 8581 CLUTCH SPRINGS 1.0MM (3) - OPTION
- 35 8680 FUEL TANK MOUNTING POST (2)
- 35 8685 FUEL TANK MOUNTING GROMMET (4)
- 35 8710 ALU ENGINE MOUNT - CNC MACHINED - OPTION
- 35 8720 EXHAUST WIRE MOUNT SET
  
- 90 1405 HEX SCREW SB M4x5 (10)
- 90 2308 HEX SCREW SH M3x8 (10)

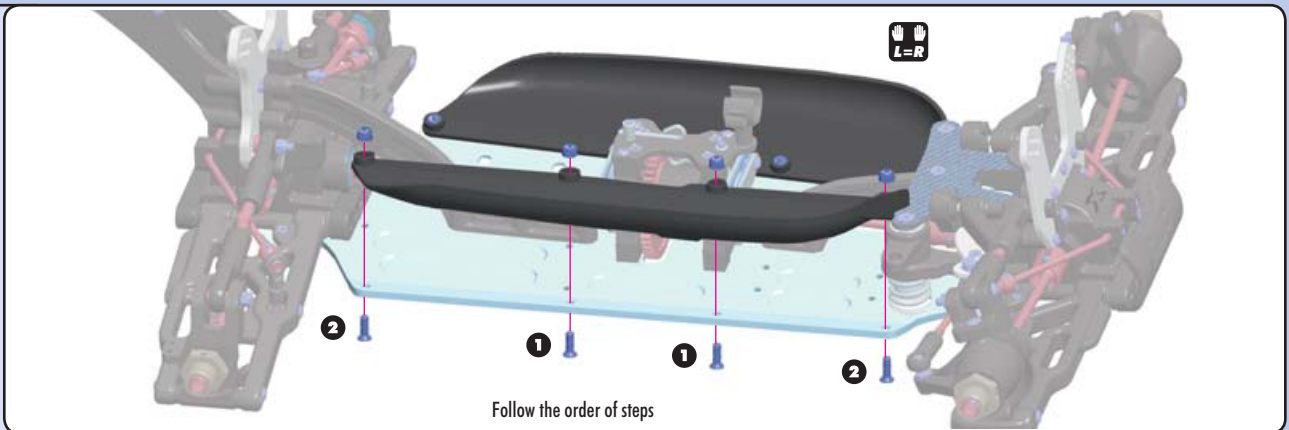
- 90 2316 HEX SCREW SH M3x16 (10)
- 90 3310 HEX SCREW SFH M3x10 (10)
- 90 3410 HEX SCREW SFH M4x10 (10)
- 90 8312 HEX SCREW (CAP HEAD) 3x12 (10)
- 91 1410 HEX SCREW FLANGED SH M4x10 (10)
- 94 0510 HIGH-SPEED BALL-BEARING 5x10x4 BLUE COVERED (2)
- 96 0030 NUT M3 (10)
- 96 1025 WASHER S 2.5 (10)
- 96 2050 WASHER S 5x10x1.0 (10)
- 96 4070 WASHER S 7x12x0.2 (10)
- 96 4071 WASHER S 7x12x0.3 (10)
- 96 4072 WASHER S 7x12x0.5 (10)
  
- 35 1150 CHASSIS SIDE GUARDS L+R
- 35 8600 FUEL TANK 120CC - SET



903310  
SFH M3x10



960030  
N M3



Follow the order of steps



902308  
SH M3x8

908312  
SCH M3x12

940510  
BB 5x10x4

961025  
S 2.5

962050  
S 5x10x1

964070  
S 7x12x0.2

964071  
S 7x12x0.3

964072  
S 7x12x0.5

3x12

7x12x0.2/0.3/0.5

11~11.2 mm

2.5

5x10

3x8

**Use appropriate shims to achieve proper clutchbell endplay**

**Note the orientation of the clutch shoes. The short side of spring must be in the groove of the flywheel nut.**

**Tight the flywheel nut with cross-wrench**

902316  
SH M3x16

903310  
SFH M3x10

911410  
SHF M4x10

**Adjust engine position to achieve proper gear mesh**

**Extremely Important !!!**  
It is very important to ensure that your XB8R has properly adjusted gear mesh. Adjust the gear mesh so there is slightly larger play between the spur gear and clutch bell teeth.

4x10

3x16

3x10

**Press grommets into fuel tank tabs.**

901405  
SB M4x5

902308  
SH M3x8

903410  
SFH M4x10

960030  
N M3

**CUT AWAY FOR MUFFLER OUTLET**

**Make 3mm holes as appropriate to mount muffler support/protector.**

4x5

4x10

3x8



902308  
SFH M3x8

902310  
SFH M3x10

903308  
SFH M3x8

KO PROPO

FUTABA

SANWA

Use appropriate servo stands

Route steering servo lead behind lead clamp

NOTE ORIENTATION

NOTE ORIENTATION

903308  
SFH M3x8

907206  
SP M2x6

Route receiver wire through mounting hole in top plate and through antenna tube

Use foam to cushion the inside of the radio case so the receiver and battery cannot vibrate or move.

Route servo leads through this gap. Seal gap with silicone after leads are all routed and plugged into receiver.

Install plug if not using an on/off switch.

903308  
SFH M3x8

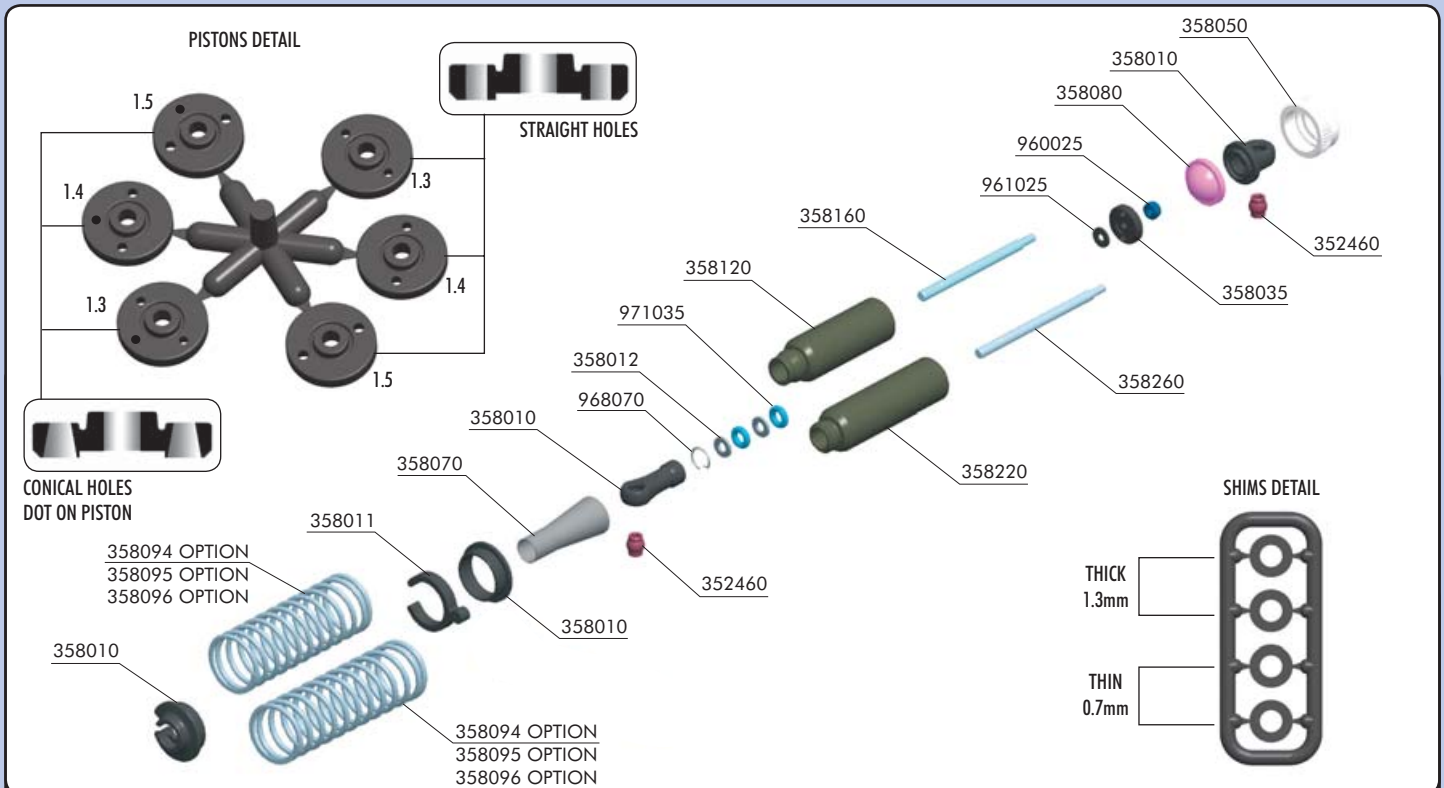
903310  
SFH M3x10

960030  
N M3

Route servo leads as shown

Note orientation of servo arm when servo is at neutral

# 11. SHOCK ABSORBERS



**BAGS**



- 35 2460 PIVOT BALL 5.8 (10)
- 35 8010 COMPOSITE FRAME SHOCK PARTS
- 35 8011 COMPOSITE SHOCK ADJUSTABLE CLIPS
- 35 8012 COMPOSITE SET OF SHIMS FOR SHOCKS 0.7 & 1.3 MM
- 35 8035 SHOCK PISTON SET (2)
- 35 8050 ALU SHOCK CAP NUT (2)
- 35 8070 SHOCK BOOT (4)
- 35 8080 SHOCK RUBBER MEMBRANE (4)
- 35 8094 XRAY SPRING-SET SOFT WHITE (2+2) - OPTION
- 35 8095 XRAY SPRING-SET MEDIUM LIGHT-BLUE (2+2) - OPTION

- 35 8096 XRAY SPRING-SET HARD DARK-BLUE (2+2) - OPTION
- 35 8120 ALU FRONT SHOCK BODY - HARD COATED (2)
- 35 8160 FRONT SHOCK SHAFT (2)
- 35 8220 ALU REAR SHOCK BODY - HARD COATED (2)
- 35 8260 REAR SHOCK SHAFT (2)

- 96 0025 NUT M2.5 (10)
- 96 1025 WASHER S 2.5 (10)
- 96 8070 G-CLIP 7 (10)
- 97 1035 SILICONE O-RING 3.5x2 (10)

**FRONT SHOCKS 2x**

- 960025 N M2.5
- 961025 S 2.5
- 968070 G 7
- 971035 O 3.5x2

**1 step**

Use 1.5mm pistons, straight (no dot on the piston)

**!** Do not overtighten

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

**2 step**

- G-clip
- Thick Shim 1.3mm
- O-ring
- Thin Shim 0.7mm
- O-ring

Insert G-clip in groove

**3 step**

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

**OIL**

SHORT shock rod

SHORT shock body

**REAR SHOCKS 2x**

- 960025 N M2.5
- 961025 S 2.5
- 968070 G 7
- 971035 O 3.5x2

**1 step**

Use 1.5mm pistons, straight (no dot on the piston)

**!** Do not overtighten

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

**2 step**

- G-clip
- Thick Shim 1.3mm
- O-ring
- Thin Shim 0.7mm
- O-ring

Insert G-clip in groove

**3 step**

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

**OIL**

LONG shock rod

LONG shock body

1. Install the pivot ball into the composite pivot mount.
2. Extend the shock rod so the piston is near the bottom of the shock body.
3. Hold shock upright and slightly overfill the shock body with shock oil.
4. Let the oil settle and allow air bubbles to rise to the top. Slowly move the piston up and down until no more air bubbles appear. Add shock oil as necessary.
5. Pull the piston most of the way out of the shock body.

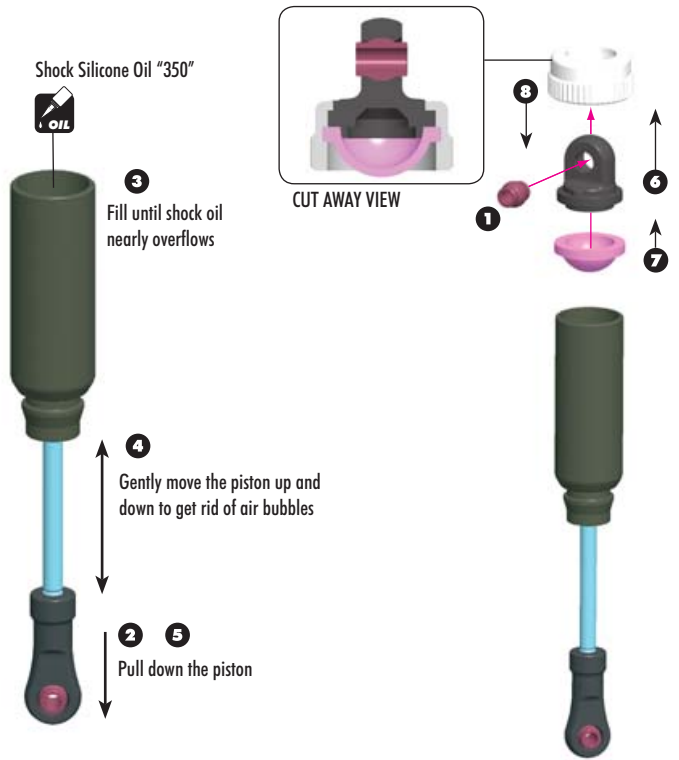
6. Insert the top composite pivot mount in the alu collar. Ensure the notch in the collar fits over the tab on the top pivot mount.
7. Insert the rubber membrane in the alu collar. The membrane must be installed properly.
8. Place the top assembly on the shock body, then thread it fully onto the shock body. Excess oil should spill out.

### Shock bleeding:

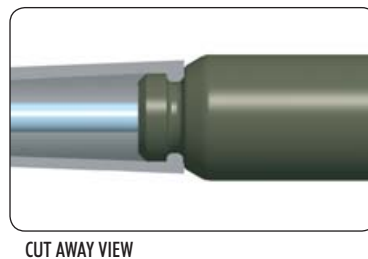
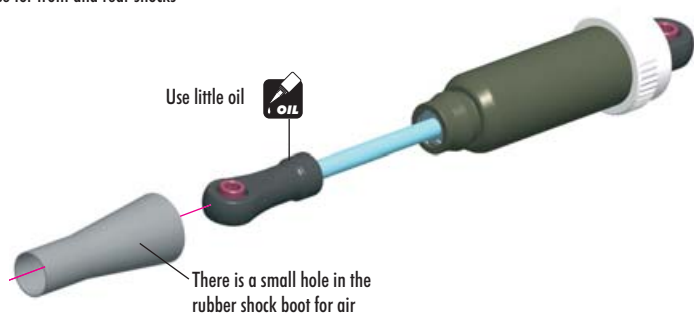
Check the shock for proper operation. The shock rod must move in and out freely with only "hydraulic" damping.

The shock rod should not extend out by itself when pushed in and released. If this happens, extend the shock rod, loosen the top collar, and then slightly push the shock rod into the shock body. Excess oil should escape out the top of the shock. Retighten the top collar and retest. Repeat bleeding as required.

The shock rod should not be drawn into the shock body when pulled out and released. If this happens, remove the top collar assembly (including bladder). Fill the shock body with more shock oil and reassemble. Retest. Repeat bleeding as required.

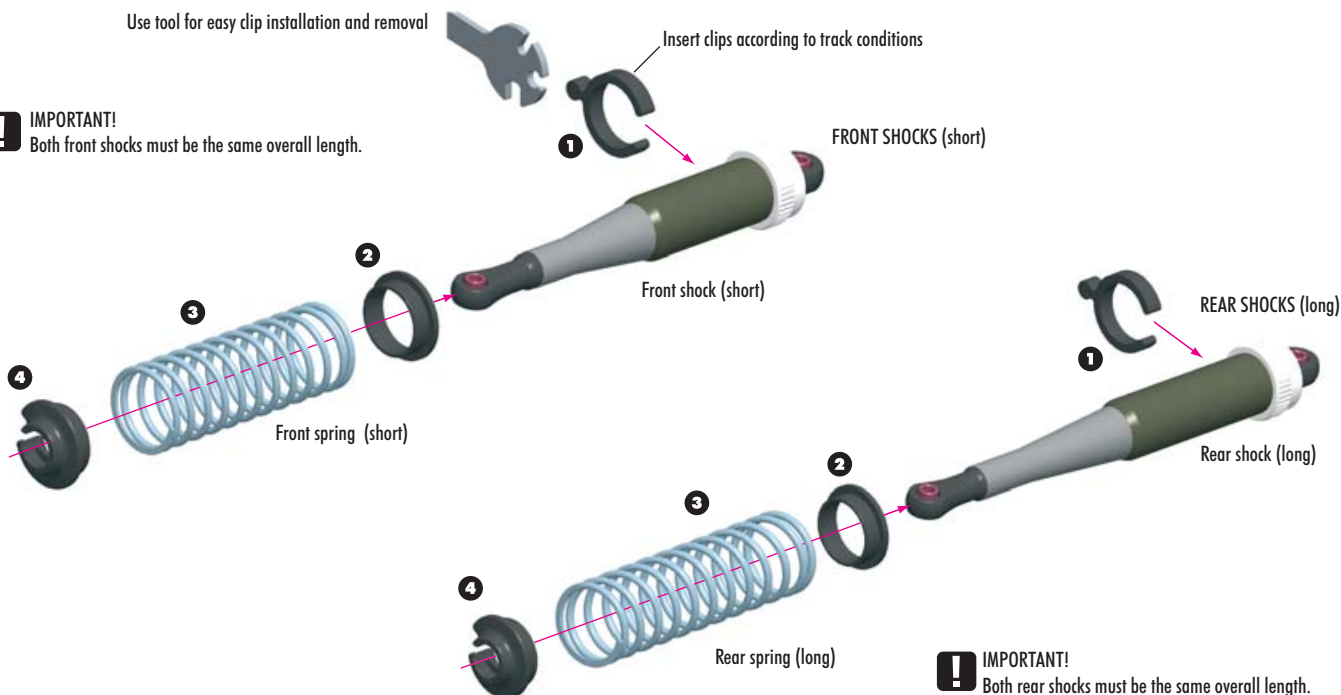


**4x** Use for front and rear shocks

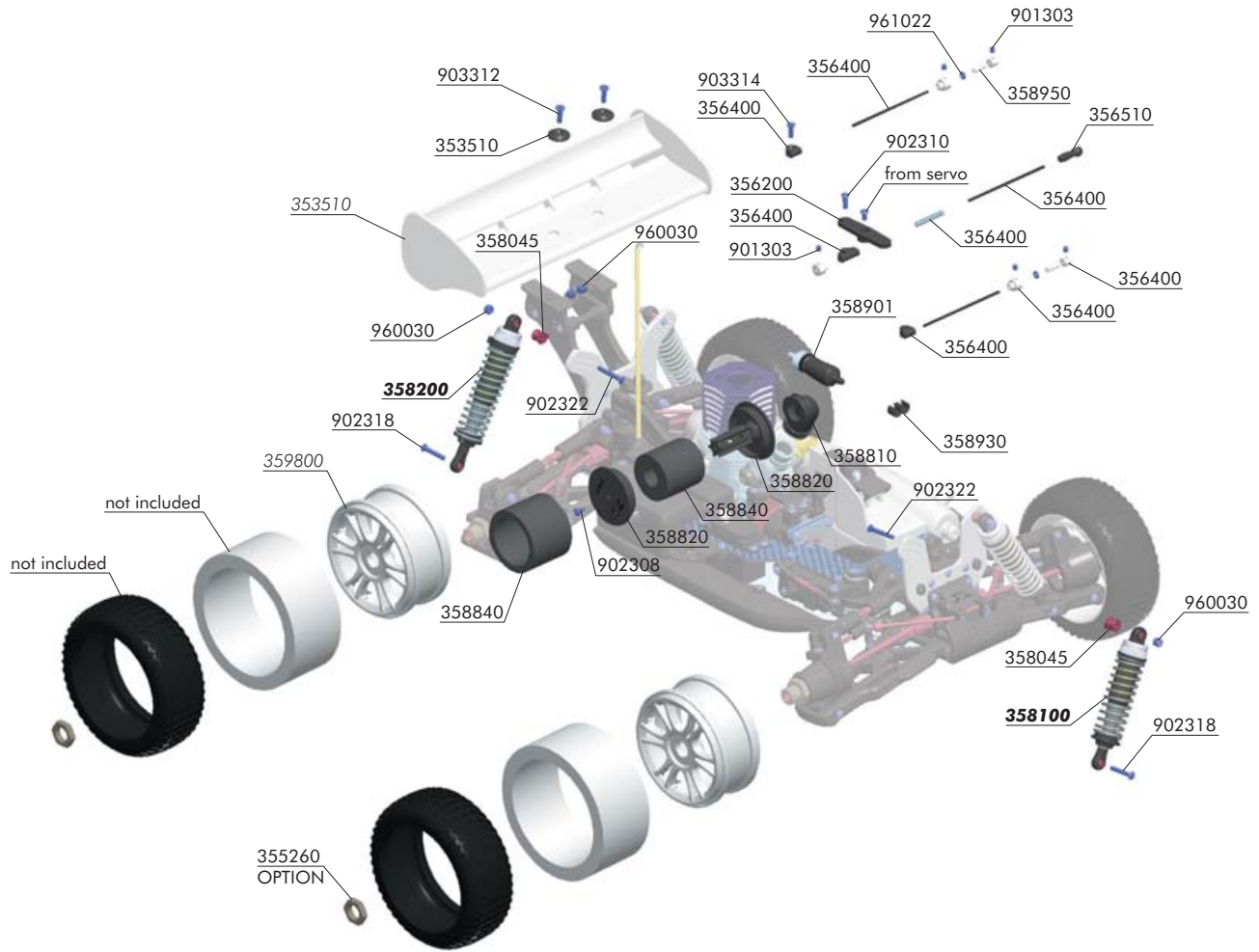


Use tool for easy clip installation and removal

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



# 12. FINAL ASSEMBLY



**BAG**

**12**

- 35 5260 WHEEL NUT - HARD COATED (2) - OPTION
- 35 6200 BRAKE/THROTTLE ARMS & SERVO ARMS - SET
- 35 6400 BRAKE/THROTTLE SYSTEM - SET
- 35 6510 CLOSED BALL JOINT 3.9 (4)
- 35 8045 SHOCK PIVOT BALL WITH HEX (2)
- 35 8810 AIR FILTER ELBOW
- 35 8820 AIR FILTER BODY & CAP
- 35 8840 AIR FILTER FOAM & OIL
- 35 8901 COMPOSITE FUEL FILTER SET
- 35 8930 FUEL FILTER MOUNT & TUBING HOLDERS
- 35 8950 SILICONE TUBING 1M (2.4 x 5.5MM)
- 90 1303 HEX SCREW SB M3x3 (10)
- 90 2308 HEX SCREW SH M3x8 (10)

- 90 2310 HEX SCREW SH M3x10 (10)
- 90 2318 HEX SCREW SH M3x18 (10)
- 90 2322 HEX SCREW SH M3x22 (10)
- 90 3312 HEX SCREW SFH M3x12 (10)
- 90 3314 HEX SCREW SFH M3x14 (10)
- 96 0030 NUT M3 (10)
- 96 1022 WASHER S 2.2 (10)

- 35 8100 FRONT SHOCK ABSORBERS COMPLETE SET (2)**
- 35 8200 REAR SHOCK ABSORBERS COMPLETE SET (2)**

- 35 3510 REAR WING
- 35 9800 WHEELS STARBURST - WHITE (4)

902318  
SH M3x18

902322  
SH M3x22

960030  
N M3

### FRONT SUSPENSION

3x22

FRONT SHOCKS (SHORT)

3x18

INITIAL POSITIONS

L-R

902318  
SH M3x18

902322  
SH M3x22

960030  
N M3

## REAR SUSPENSION

3x22

REAR SHOCKS (LONG)

3x18

INITIAL POSITIONS

L-R

901303  
SB M3x3

902310  
SH M3x10

903314  
SFH M3x14

961022  
S 2.2

SILICONE TUBING

2xCUT 10mm

Use servo horn depending on your servo

K - KO Propo  
F - Futaba  
H - Hitec

Thread brake rods into plastic pivots until flush with outer end

Brake rods

Throttle rod

Tighten screw until snug. Pivots should move freely.

Upper rod = rear brake  
Lower rod = front brake

from servo

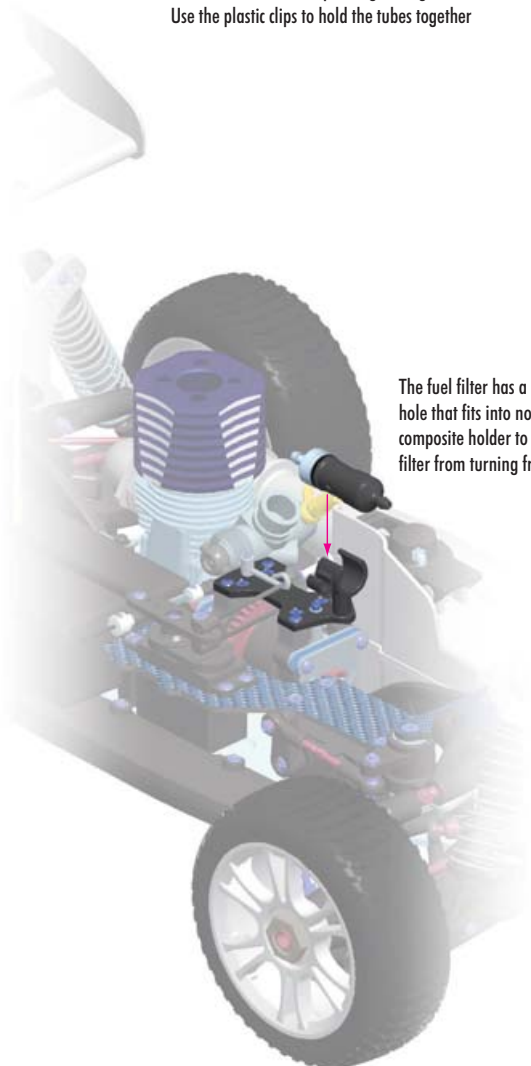
903312  
SFH M3x12

960030  
N M3

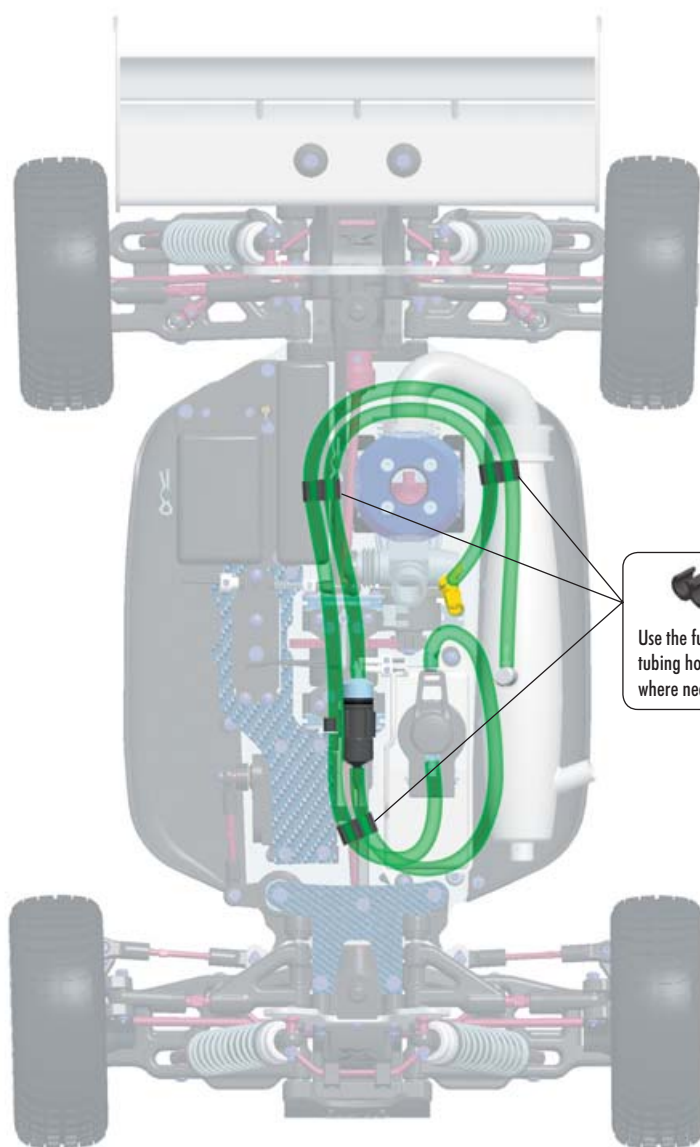
CA

# FINAL ASSEMBLY

Cut the silicone tube depending on engine and muffler.  
Use the plastic clips to hold the tubes together



The fuel filter has a small hole that fits into notch on the composite holder to prevent the filter from turning freely

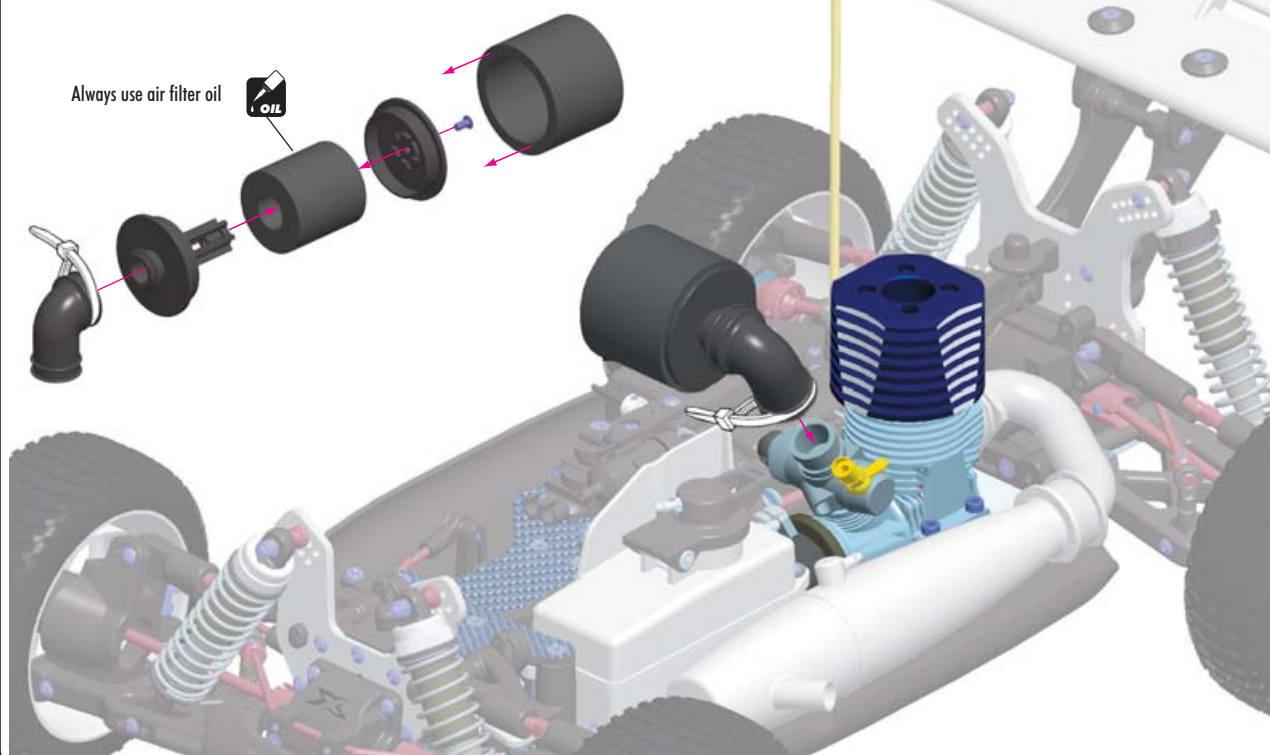


Use the fuel tubing holders where necessary



902308  
SH M3x8

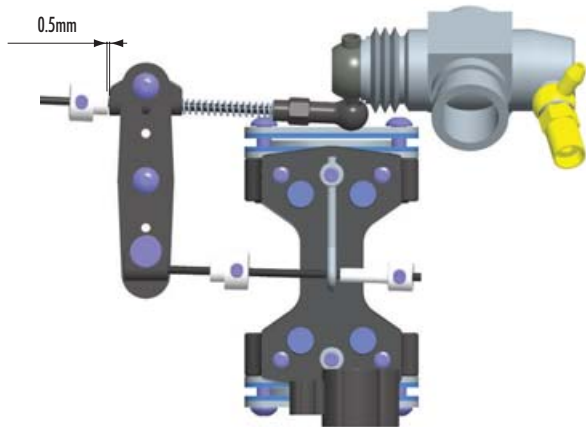
Always use air filter oil



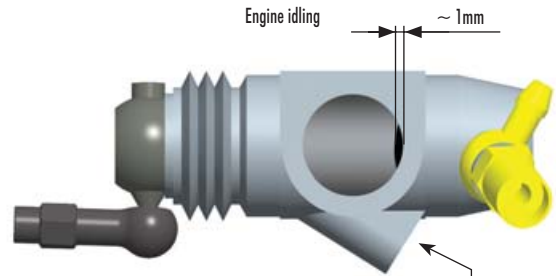


# THROTTLE LINKAGE ADJUSTMENT

## NEUTRAL (IDLE)



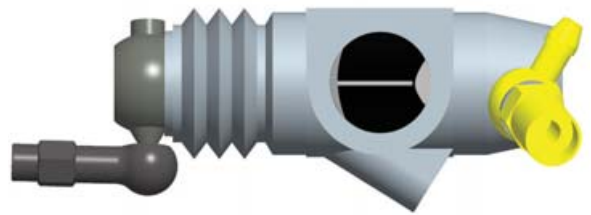
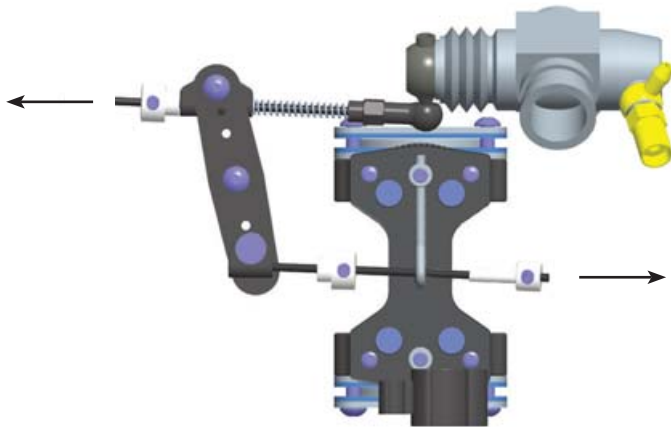
ADJUST INDIVIDUAL LINKAGES SEPARATELY TO AVOID INTERFERING WITH THE OPERATION OF THE OTHERS



Idling Adjustment Screw  
Use to adjust the idle setting of the carburetor.  
Do not allow carburetor to close to less than 1mm.

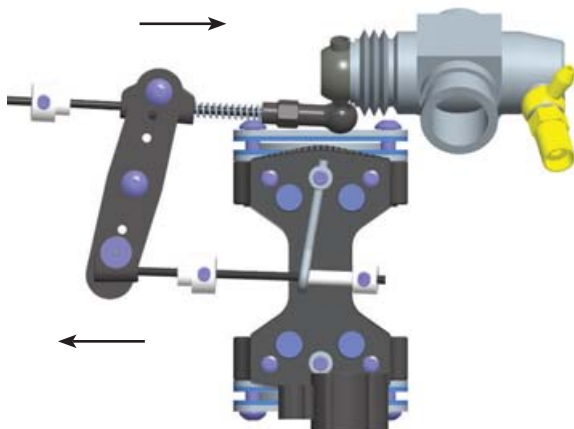
- \* Turn on the transmitter and receiver and set the throttle servo trim to the neutral position.
- \* Adjust the idle adjustment screw on the carburetor to open approx. 1mm.
- \* Adjust both the throttle linkage and brake linkages accordingly.
- \* DO NOT adjust the linkage with the engine running.

## HIGH THROTTLE

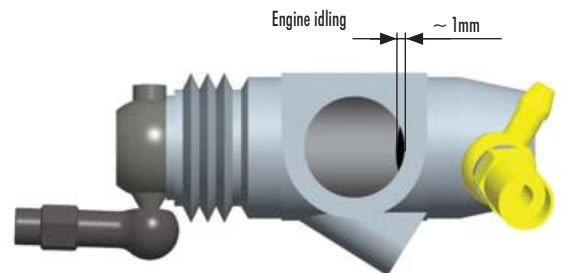


- \* Adjust the servo-horn mounting position for the carburetor to open fully.
- \* Change the pivot mounting position on the servo horn in case the carburetor is not opening fully or if it is opening excessively at full servo throw.  
Or if available on the transmitter, adjust the throttle high end point.

## BRAKE

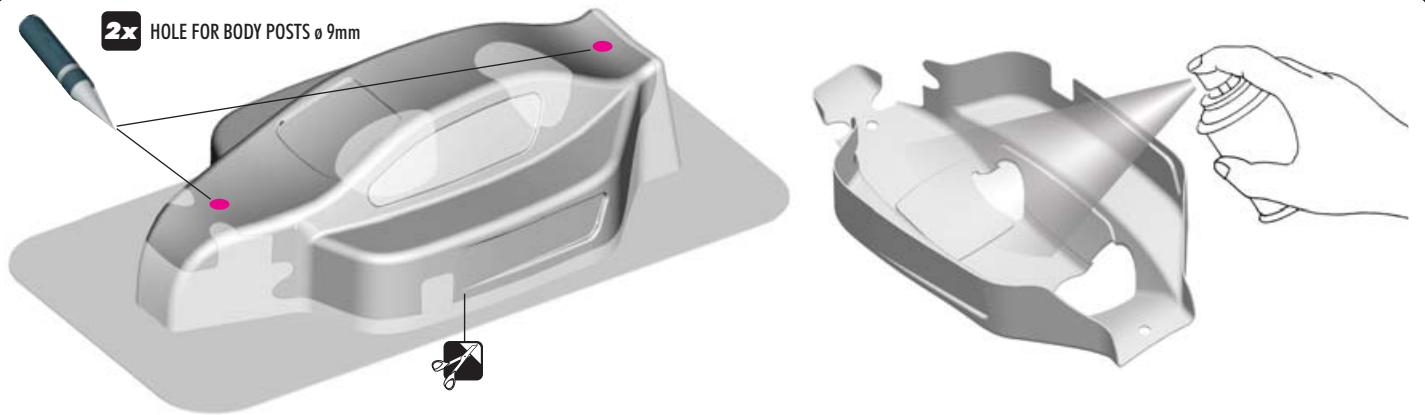


Brake adjusting knobs:  
Upper linkage - rear brake  
Lower linkage - front brake



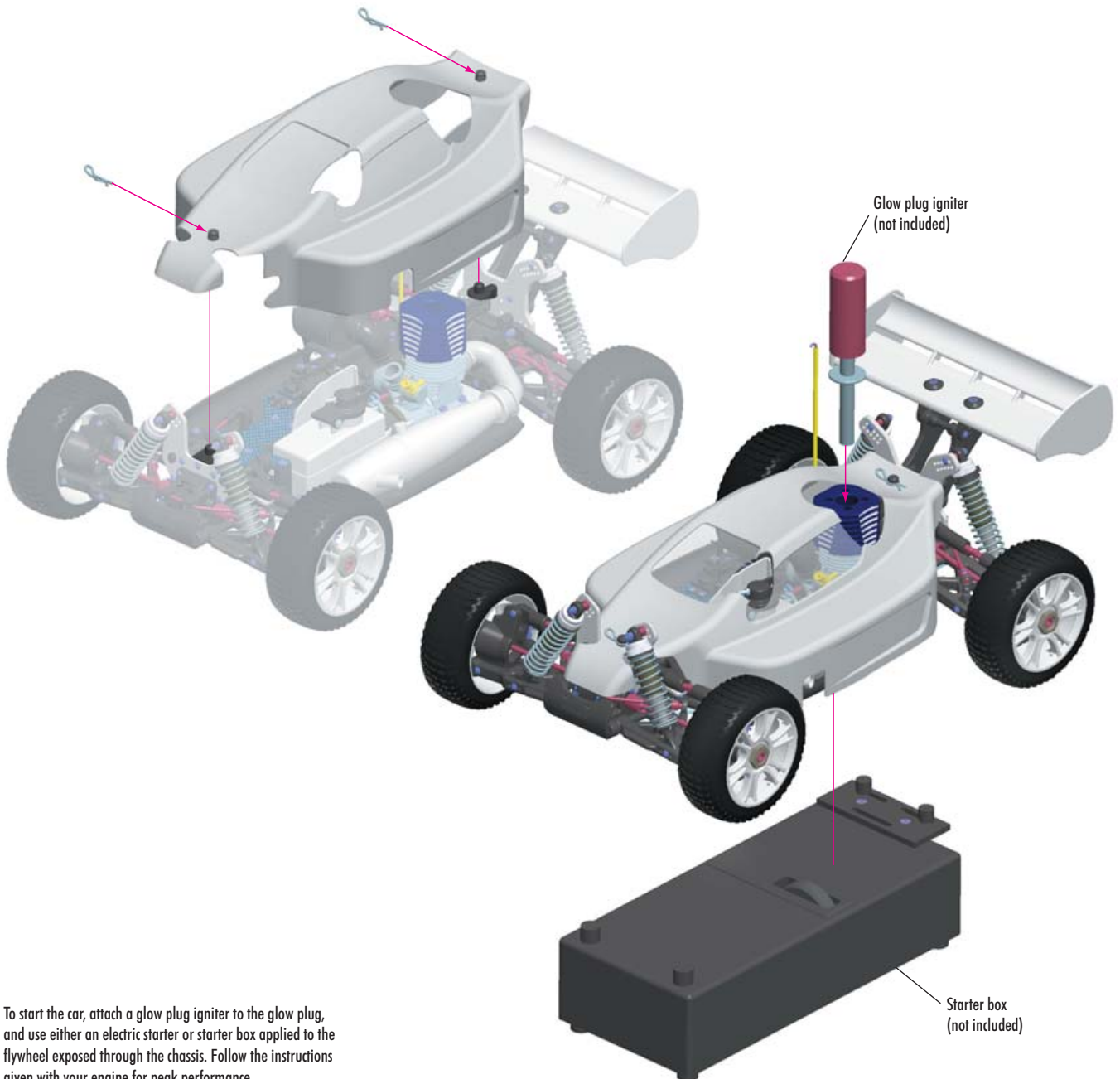
- \* Adjust the adjustable collars so the brakes work smoothly.
- \* If the brakes apply too much or not enough, adjust the adjustable collars accordingly. Or if available on the transmitter, adjust the brake endpoint.
- \* To tighten brakes, turn collar to thread brake rod INTO pivot.
- \* To loosen brakes, turn collar to thread brake rod OUT of pivot.

# BODY PREPARATION



- 1 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.
- 2 Carefully cut out the body using appropriate scissors or cutting tools.
- 3 Before painting, wash the inside of the body with mild detergent, and then rinse and dry thoroughly.
- 4 Mask all windows.

- 5 Apply paint masks as appropriate.
- 6 Paint the body using paints formulated for polycarbonate bodies.
- 7 When the paint is dry, remove the masking.
- 8 When you have finished painting, peel off the external protective films.



To start the car, attach a glow plug igniter to the glow plug, and use either an electric starter or starter box applied to the flywheel exposed through the chassis. Follow the instructions given with your engine for peak performance.

## 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 leaks out.

## Starting and running the engine

Be sure to observe the following starting process. Non-observance will make model car start suddenly, and may lead the damage or unexpected accidents.

1. Make sure the transmitter and receiver batteries are fully charged.
2. Put the car on the starter box and keep the tires from touching the ground.
3. Turn on the switch of the receiver.
4. Turn on the switch of the transmitter.
5. Make sure the steering servo and engine control servo work normally and adjust them correctly.
6. Put the fuel in the fuel tank, and close the cap securely.
7. Apply the glow igniter to the engine glowplug.
8. 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).
9. When the engine is running, remove the glow igniter.
10. 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:

- 1) Use a rag to cover the exhaust tip. Be careful! The exhaust is extremely hot so use a thick rag and gloves.
- 2) 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.
- 3) Put your hand over the air filter, or squeeze the air filter element to block the airflow.
- 4) 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.

## Finish to operate

1. Stop the engine.
2. Turn off the switch of the receiver.
3. Turn off the switch of 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 oil in 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.

# XB8R SET-UP

Your XRAY XB8R nitro buggy is a top competition, precision racing machine that features multiple adjustments that allows you to set up for any track condition. The XB8R was built on the XB8 platform and features plenty of the smart and quick set-up adjustments. Some of the adjustments, such as toe-in, caster, anti-dive or anti-squat were limited to the range of the most frequently used settings, to keep the setting of the XB8R as easy as possible. However, anytime required, you can purchase the optional parts which will allow you to enjoy the full range of adjustments. Anytime an optional part for increased setting range is available, it is listed with the part number.

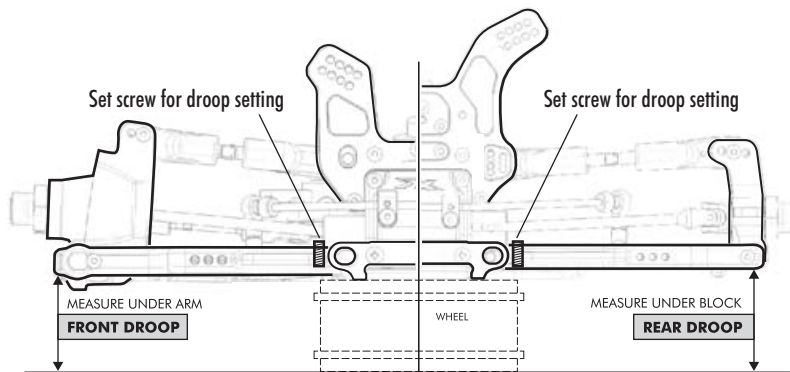
Please refer to the XB8 Basic Set-Up Sheet for a good overall starting point. After rebuilding the chassis, or in case you become lost with your set-up, always return to the basic starting set-up described here. If you choose to experiment with set up, make small adjustments one at a time, and see if you find any improvement with each adjustment. We strongly advise you to record and keep track of your set-up changes, record which set-ups work best at different racetracks under various conditions. You can use the XRAY XB8 Set-Up Sheet to record your data and set-ups.

This set-up section describes how to adjust your XB8R to suite your driving style. For each individual set-up area, we describe the effects of changing the adjustment, and also how to make the adjustment.

## ○ DROOP

Adjust front/rear droop by adjusting the front/rear down stop screws. Tighten the screws to increase the droop height (less arm movement). Loosen the screws to decrease the droop height (more arm movement).

Droop is a very sensitive adjustment, since it affects and alters weight transfer, and all aspects of chassis performance are affected: braking, acceleration, jumping, traction and rough track handling.



## IMPORTANT!

Make equal adjustments on both left and right sides of the car, 1/2 turn of adjustment at a time.

**TIP:** Set the car to full travel as a starting point. The front is usually unchanged and left at full travel. For the front and rear, most drivers will use about 2mm of adjustment range for most North American tracks. Experiment to find the best compromise for your particular track and driving style.

Droop height	Front/ Rear	Characteristics
Less droop = turning the screw in	Front	· less on power steering · better for smaller jumps
	Rear	· less off-power traction
More droop = turning the screw out	Front	· more on power steering · better handling on rough tracks
	Rear	· more rear traction · better handling on rough tracks

## ○ ROLL CENTER

You can adjust the front and rear roll centers of the XB8R by changing the mounting locations of various components.

### Front Roll Center

You can raise or lower the front roll center by adjusting the following components:

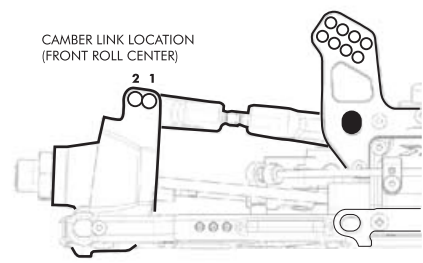
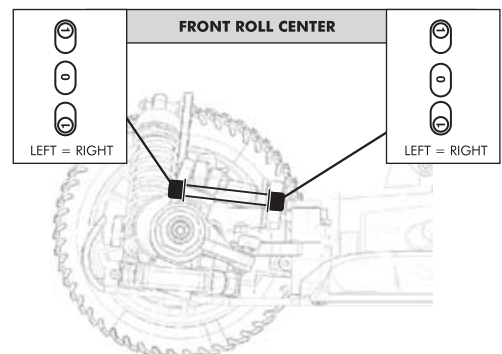
- Front upper arm inner pin mounting position. Use the eccentric bushings at the front and rear of each pin to raise or lower the pin.
- Front upper camber link outer mounting position. The outer end of the front upper camber link can be attached to the front C-hub blocks in one of 2 positions (inner and outer).

Front upper arm - inner pin	Characteristics
Higher position = lower roll center	· increases on-power steering · car is less responsive · better on smooth, high-grip tracks with long fast corners
Lower position = higher roll center	· decreases on-power steering · car is more responsive · use in high-grip conditions to avoid traction rolling · use on tracks with quick direction changes (chicanes)

Front upper camber link - front C-hub	Characteristics
Inner hole	· increases camber gain · slightly more off-power steering · slightly quicker steering response
Outer hole	· slows down steering response · decreases camber gain · steering more "forgiving"

## IMPORTANT!

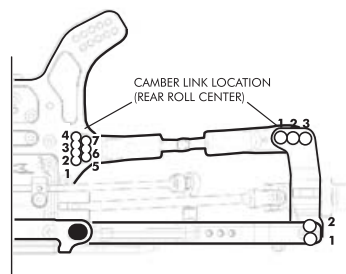
Make equal adjustments on both left and right sides of the car.



## Rear Roll Center

You can raise or lower the rear roll center by adjusting the following components:

- Rear upright lower mounting position.  
The rear lower arm attaches to the rear upright in one of two mounting holes.
- Rear upper camber link mounting position.  
The inner end of the rear upper camber link can be attached to the rear shock tower in one of 7 positions. The outer end of the rear upper camber link can be attached to the rear upright in one of 3 positions.



Rear upright - lower pin	Effect on Rear Roll Center
Upper hole	• lower rear roll center
Lower hole	• higher rear roll center

Rear upper camber link - shocktower	Effect on Rear Roll Center
Upper holes	• lower rear roll center
Lower holes	• higher rear roll center

Rear roll center	Characteristics
Higher	<ul style="list-style-type: none"> <li>• increases on-power traction</li> <li>• decreases traction under braking</li> <li>• use to avoid traction rolling at corner entry</li> <li>• use under low-traction conditions</li> <li>• reduces rear tire wear</li> </ul>
Lower	<ul style="list-style-type: none"> <li>• decreases rear traction</li> <li>• use to avoid traction rolling mid-corner and corner exit</li> </ul>

Rear upper camber link - length	Characteristics
Shorter link = outer hole on tower and/or inner hole on hub	<ul style="list-style-type: none"> <li>• increases rear camber gain</li> <li>• increases traction slightly</li> <li>• decreases steering and stability</li> </ul>
Longer link = inner hole on tower and/or outer hole on hub	<ul style="list-style-type: none"> <li>• decreases rear camber gain</li> <li>• increases stability</li> <li>• slows down the car's responsiveness</li> </ul>

## SHOCK ABSORBERS

Adjust the shock absorbers and their mounting positions to suit track conditions.

### Piston Hole Type

There are two different types of shock pistons that can be used in the XB8.

Piston hole type	Characteristics
Conical up (with dot on the piston)	<ul style="list-style-type: none"> <li>• less dampening when shock is compressed</li> <li>• more dampening on rebound</li> </ul>
Conical down (with dot on the piston)	<ul style="list-style-type: none"> <li>• more dampening when shock is compressed</li> <li>• less dampening on rebound</li> </ul>
Straight	• equal damping all the time (compressing and rebounding)



CONICAL UP HOLES



CONICAL DOWN HOLES



STRAIGHT HOLES

### Piston Hole Size

For each type of shock piston (conical or straight holes), there are three pistons with holes of different sizes.

Piston hole size	Characteristics
Smaller	<ul style="list-style-type: none"> <li>• harder damping</li> <li>• slower chassis weight transfer</li> <li>• slower response</li> <li>• decreases chance of bottoming out when landing if used with "thicker" oil</li> <li>• decreases chassis roll if used with "thicker" oil</li> <li>• use with thinner oil if track is rough</li> </ul>
Larger	<ul style="list-style-type: none"> <li>• softer damping</li> <li>• increases traction</li> <li>• quicker chassis weight transfer</li> <li>• quicker response</li> <li>• increases chance of bottoming out when landing if used with "thinner" oil</li> <li>• increases chassis roll if used with "thinner" oils</li> <li>• use with thicker oil if track is smooth</li> </ul>

### Shock Oil

You can use shock oils of different weights in a shock absorber.

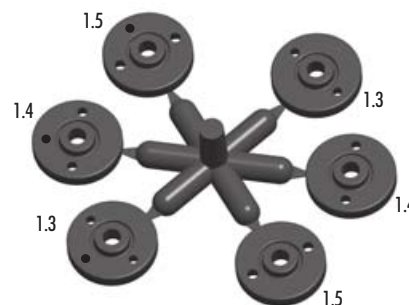
Shock Oil	Characteristics
Thinner	• same characteristics as larger pistons holes
Thicker	• same characteristics as smaller pistons holes

Note that typically you should use piston hole sizes to suit the track conditions rather than alter the oil viscosity.

Use only the genuine premium quality Xray silicone shock oils. The shock oils are available in 50ml size in these viscosities:



Part	Viscosity	Part	Viscosity
359515	"150"	359545	"450"
359520	"200"	359550	"500"
359525	"250"	359560	"600"
359530	"300"	359570	"700"
359535	"350"	359580	"800"
359540	"400"	359590	"900"



### IMPORTANT!

Make equal adjustments on both left and right sides of the car.

## Shock Springs

You can use shock springs of different rates to alter performance.

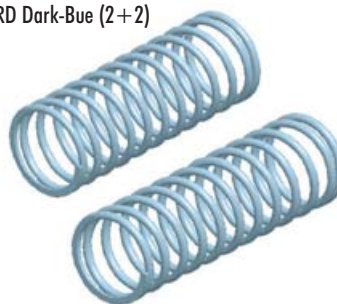
Shock spring	Characteristics
Softer	<ul style="list-style-type: none"> <li>· more chassis roll</li> <li>· more traction</li> <li>· better on bumpy tracks</li> <li>· increases chance of bottoming out when landing</li> </ul>
Stiffer	<ul style="list-style-type: none"> <li>· less chassis roll</li> <li>· less traction</li> <li>· more responsive</li> <li>· better on smooth tracks</li> <li>· decreases chance of bottoming out when landing</li> </ul>

## Available XRAY Shock Springs

#35 8094 XRAY Spring-Set SOFT White (2+2)

#35 8095 XRAY Spring-Set MEDIUM Light-Blue (2+2)

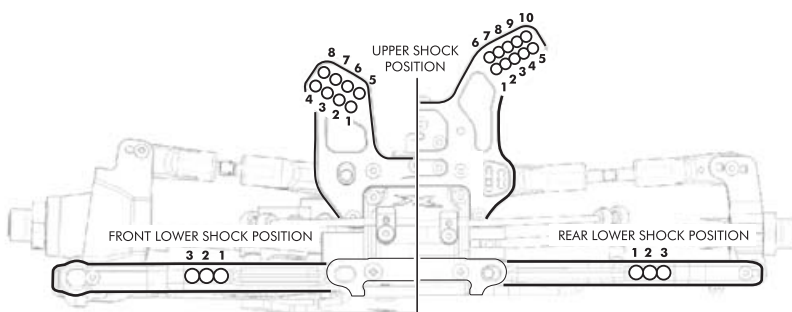
#35 8096 XRAY Spring-Set HARD Dark-Blue (2+2)



## Shock Mounting Position

You can change the shock mounting position by leaning the shocks at different angles, and also moving the shock closer or further from the centerline of the car. You accomplish this by moving the shock top and bottom mounts to different locations on the shock towers and lower arms

Shock position	Characteristics
More inclined = moving in on tower and/or moving out on lower arm	<ul style="list-style-type: none"> <li>· softer initial damping</li> <li>· more progressive damping</li> <li>· more lateral (side) traction</li> <li>· makes the handling more "forgiving"</li> <li>· may be better on high-bite tracks, since it slows down the handling and makes it easier to driver</li> </ul>
Less inclined = moving out on tower and/or moving in on lower arm	<ul style="list-style-type: none"> <li>· harder damping</li> <li>· less lateral (side) traction</li> <li>· makes the car more responsive</li> <li>· usually better suited on technical tracks</li> </ul>



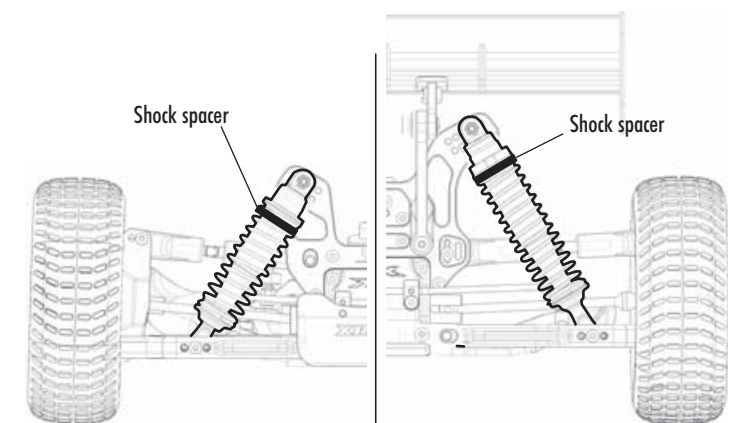
## Shock Preload

Adjust the front/rear shock spring preload by using preload clips of various thicknesses above the shock springs.

### IMPORTANT!

Make equal adjustments on both left and right sides of the car.

Shock preload	Characteristics
Less preload = thinner/less spacers	<ul style="list-style-type: none"> <li>· lower ride height</li> <li>· may give higher corner speed on high bite tracks</li> <li>· better suited to smooth tracks</li> </ul>
More preload = thicker/more spacers	<ul style="list-style-type: none"> <li>· higher ride height</li> <li>· less prone to bottoming out</li> <li>· better suited to rough tracks</li> </ul>



## STEERING

You can adjust the Ackermann angle and the spring preload of the central servo saver.

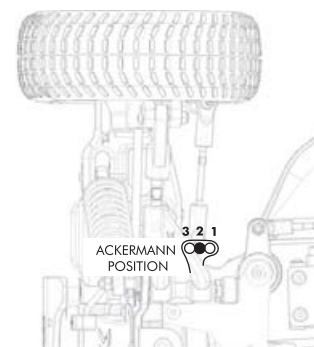
### IMPORTANT!

Make equal adjustments on both left and right sides of the steering plate.

### Ackermann

Adjust the Ackermann angle by moving the inside ends of the steering rods into different holes in the steering plate.

Steering rod inner mounting position	Characteristics
Forward holes = steeper angle	<ul style="list-style-type: none"> <li>· smoothens out steering response</li> <li>· car reacts smoothly</li> <li>· better suited to smooth flowing tracks with high speed corners</li> </ul>
Rearward holes = shallower angle	<ul style="list-style-type: none"> <li>· quickens initial steering response</li> <li>· car reacts faster to steering input</li> <li>· better suited to small, tight tracks</li> </ul>



## BUMP STEER

Using the optional steering plate #352571 you can decrease the bump steer. The less bump steer makes the handling of the car more neutral in corners. It makes the car easier to drive through bumpy parts and bumps as the wheels do not steer on "their own" as the suspension moves up and down.

## Servo Saver Preload

Adjust the preload of the central servo saver by adjusting the tension on the spring with the threaded collar.



Servo saver spring preload	Characteristics
Softer	<ul style="list-style-type: none"> <li>· less steering</li> <li>· better suited to standard servos</li> </ul>
Stiffer	<ul style="list-style-type: none"> <li>· more steering with a quicker reaction</li> <li>· better suited to high torque metal-gear servos</li> </ul>

## ○ CAMBER

Adjust the front/rear camber by adjusting the lengths of the upper camber linkages.

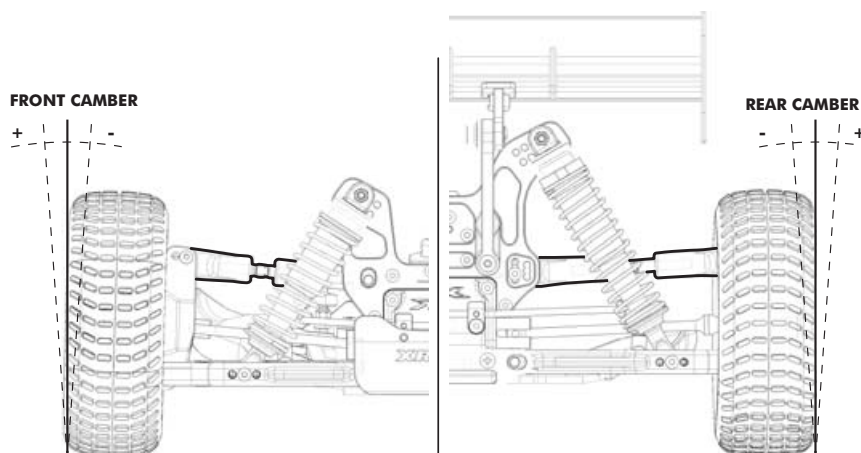
### IMPORTANT!

Make equal adjustments on both left and right sides of the car.

Camber angle	Front/Rear	Characteristics
More negative camber (more inclined)	Front	· more steering
	Rear	· decreases rear traction entering and in corners
Less negative camber (more vertical)	Front	· less steering
	Rear	<ul style="list-style-type: none"> <li>· increases rear traction entering and in corners up to a point</li> <li>· if the shock is too vertical and traction is lost, the traction will be lost very abruptly and the car will be hard to control.</li> </ul>

Note that you can also change the camber gain by shortening or lengthening the length of the upper camber linkages, and angling them differently by placing the end ball joints in the different holes in shock towers and outer blocks (C-hubs and rear hubs).

Upper arm - length	Characteristics
Shorter link = outer hole on tower and/or inner hole on hub	<ul style="list-style-type: none"> <li>· increases camber gain</li> <li>· increases traction</li> </ul>
Longer link = inner hole on tower and/or outer hole on hub	<ul style="list-style-type: none"> <li>· decreases camber gain</li> <li>· car handles smoother</li> </ul>



## ○ FRONT KICK-UP

Adjust front kick-up of the front lower arms by changing the lower plate at the rear of the front bulkhead. You should also adjust the angle of the front upper arms so that they are parallel with the front lower arms.



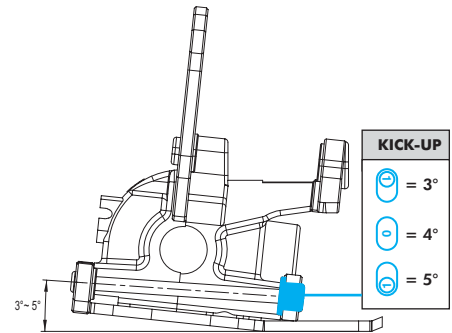
## ○ FRONT KICK-UP - I.S.S SETTING

Using the optional #352320 plate and set of eccentric bushings #352315 you can easily adjust front kick-up of the front lower arms by exchanging the eccentric bushings in the plate at the rear of the front bulkhead.

### IMPORTANT!

Make equal adjustments on both left and right sides of the car.

Front kick-up angle	Characteristics
More kick-up	<ul style="list-style-type: none"> <li>more weight transfer to the front of the chassis off-throttle or under braking</li> <li>chassis compresses or drops more off-throttle or under braking</li> <li>handling is improved on bumpy tracks</li> <li>decreased steering response</li> </ul>
Less kick-up	<ul style="list-style-type: none"> <li>less weight transfer to the front of the chassis off-throttle or under braking</li> <li>chassis compresses or drops less off-throttle or under braking</li> <li>handling is improved on smooth tracks</li> <li>increased steering response</li> </ul>



After you adjust the front kick-up angle, you should adjust the angle of the front upper arm inner pin so that it is parallel with the front lower arm. This will help to prevent binding during suspension movement. Each front upper arm inner pin rides in two eccentric bushings (one on each end). By using different combinations of positions, you can angle the pin. Note that these eccentric bushings are also used to adjust the front roll center.

## ○ CASTER

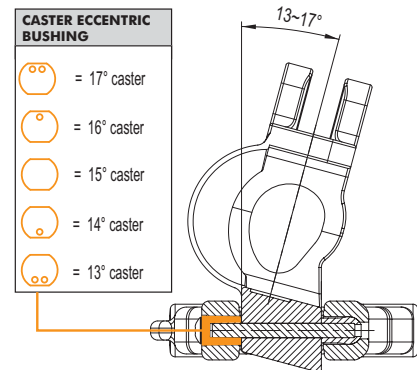
The XB8R has preset 15° caster of the front C-hub. Adjust the front caster angle by changing the optional caster eccentric bushings (#352171, #352172) in the front lower arms (in front of the C-hub). After you set the caster angle using the eccentric bushings, you must adjust the front upper arm position. The final caster also depends on the kick-up setting. Therefore once you set the caster on the C-hub you have to add the value of kick-up to calculate your final caster. Example: 15° caster on C-hub + 4° kick-up = 19° final caster. Use the reference table to calculate your final caster easily.

### IMPORTANT!

Make equal adjustments on both left and right sides of the car.

Caster angle	Characteristics
Less caster (block more vertical)	<ul style="list-style-type: none"> <li>increases off-power steering into a corner</li> <li>decreases on-power steering out of and in a corner</li> <li>decreases straight-line stability</li> </ul>
More caster (block more laid-back)	<ul style="list-style-type: none"> <li>decreases off-power steering into a corner</li> <li>increases on-power steering out of and in a corner</li> <li>increases straight-line stability</li> </ul>

After you have set the caster using the eccentric bushings, you need to set the front upper arm position. Remove all clips around the front upper arm and move the front suspension a few times to let it settle. The front upper arm will move to its optimal position on the pin. Then insert the clips around the arm so that the arm stays in its optimum position.

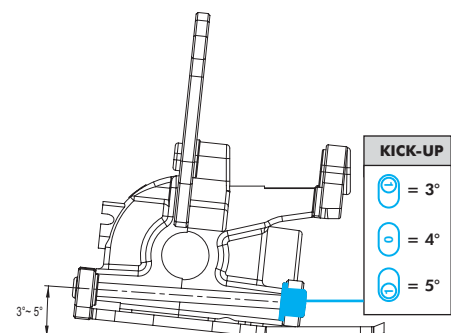


The caster of C-hub is set using different optional eccentric bushings in different orientations. Refer to the table above.

## TOTAL CASTER = C-HUB CASTER + KICK-UP

		KICK-UP		
		3°	4°	5°
CASTER ECCENTRIC BUSHING	17°	20°	21°	22°
	16°	19°	20°	21°
	15°	18°	19° *	20° *
	14°	17°	18°	19°
	13°	16°	17°	18°

\* The XB8R features 19° and 20° total caster adjustment in the stock version. All other total caster settings can be achieved by using the optional I.S.S. alu suspension holder and eccentric bushings.



The kick-up is adjusted using exchanging the suspension holders or optionally using different eccentric bushings in different orientations. Refer to the table above.



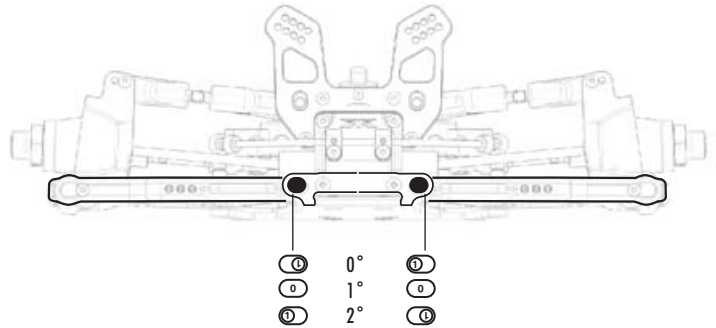
## ○ TOE

You can adjust different types of toe angle on the XB8R: front inboard toe, front toe, and rear toe-in.

### Front Inboard Toe - Adjustable only optional

To adjust the front inboard toe, you need to use the I.S.S. alu suspension holders #352310 and eccentric bushings #352315. Adjust front inboard toe of the front lower arms by changing the eccentric bushings in the plate at the very front of the front bulkhead.

Inboard toe angle	Characteristics
Less inboard toe	<ul style="list-style-type: none"> <li>decreases steering</li> </ul>
More inboard toe	<ul style="list-style-type: none"> <li>increases steering</li> </ul>



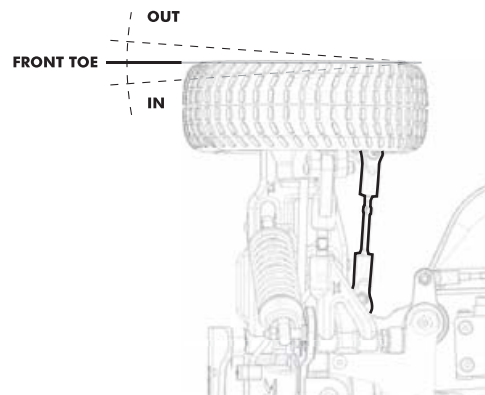
### Front Toe

Adjust front toe by adjusting the length of the left and right steering rods.

#### IMPORTANT!

Make equal adjustments on both left and right sides of the car.

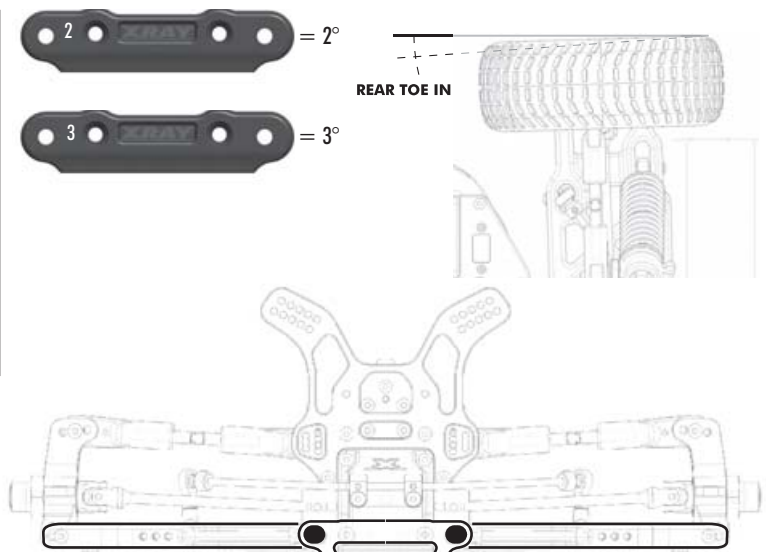
Steering rod length	Characteristics
More front toe-in = longer steering rod	<ul style="list-style-type: none"> <li>increases straight-line stability</li> <li>decreases steering response</li> <li>increases steering mid-corner and on-power corner exit</li> </ul>
More front toe-out = shorter steering rod	<ul style="list-style-type: none"> <li>decreases straight-line stability</li> <li>increases initial steering response</li> <li>decreases steering on-power at corner exit</li> </ul>



### Rear Toe-In

Adjust rear toe-in by exchanging the rear composite holders at the very rear of the rear bulkhead. There are two different suspension holders with engraved 2° and 3°. Each of the suspension holder will set the given rear toe-in.

Rear toe-in angle	Characteristics
More rear toe-in	<ul style="list-style-type: none"> <li>increases stability under braking</li> <li>increases stability on power at corner exit</li> <li>decreases top speed</li> <li>if too much rear toe-in is used, the car will be twitchy to drive and harder to recover if it loses traction</li> </ul>
Less rear toe-in	<ul style="list-style-type: none"> <li>increases steering</li> <li>decreases stability on power at corner exit</li> <li>increases top speed</li> <li>if the car slides, it will be much easier to control</li> </ul>



### Rear Toe-In - I.S.S. Setting

Using the optional #353320 (0° - 2°), #353322 (2° - 4°) plate and set of eccentric bushings #352315 you can easily adjust rear toe-in by changing the rear plate and eccentric bushings at the very rear of the rear bulkhead. Use a combination of plates and eccentric bushings to achieve the desired rear toe-in angle. There are two different plates: one plate is used for rear toe-in angles 0° - 2°, while the other plate is used for rear toe-in angles of 2° - 4°. The eccentric bushings are used to give angles within these ranges.

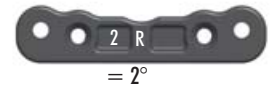
#### IMPORTANT!

Make equal adjustments on both left and right sides of the car.

REAR TOE-IN			
0-2		2-4	
⓪	0°	⓪	2°
ⓔ	0.5°	ⓔ	2.5°
⓪	1°	⓪	3°
ⓔ	1.5°	ⓔ	3.5°
⓪	2°	⓪	4°

## ○ REAR ANTI-SQUAT

Adjust rear anti-squat of the rear lower arms by changing the plate at the front of the rear bulkhead.



## ○ REAR ANTI-SQUAT - I.S.S SETTING

Using the optional #353310 and set of eccentric bushings #352315 you can easily adjust front kick-up of the front lower arms by exchanging the eccentric bushings in the plate at the rear of the front bulkhead.

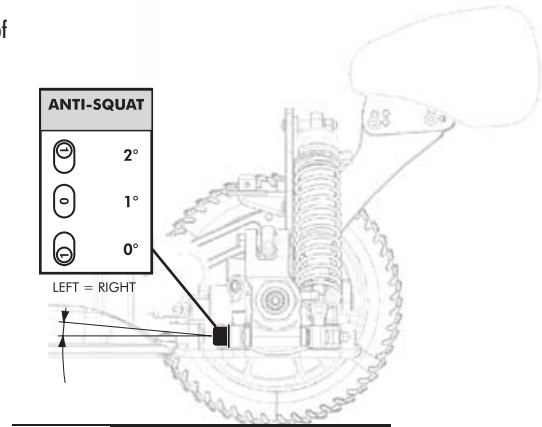
### IMPORTANT!

Make equal adjustments on both left and right sides of the car.

Rear anti-squat angle	Characteristics
Less anti-squat = flatter arm	<ul style="list-style-type: none"> <li>· increases rear traction off-power</li> <li>· decreases rear traction on-power</li> <li>· better on a bumpy track</li> </ul>
More anti-squat = leaning more backwards	<ul style="list-style-type: none"> <li>· increases rear traction during acceleration</li> <li>· decreases rear traction off-power</li> <li>· better on smooth and/or slippery tracks</li> </ul>

ANTI-SQUAT	
	2°
	1°
	0°

LEFT = RIGHT



## ○ WHEELBASE

Adjust the wheelbase by using the spacers on either side of the rear uprights (at the bottom pin).

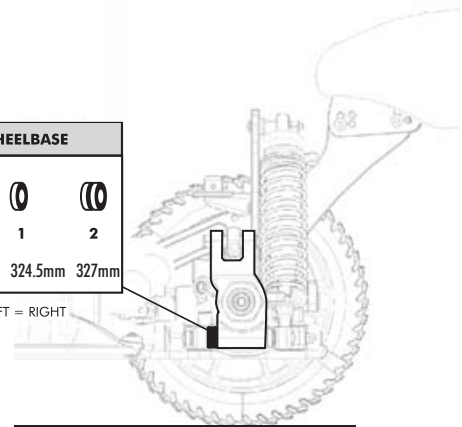
### IMPORTANT!

Make equal adjustments on both left and right sides of the car.

Wheelbase	Characteristics
Shorter wheelbase = less spacers in front of rear upright	<ul style="list-style-type: none"> <li>· increases rearward weight transfer during acceleration</li> <li>· increases on-power traction</li> <li>· quicker off-power steering into corners</li> <li>· slight tendency to push on-power at corner exit</li> <li>· increases steering response</li> <li>· better on tighter, more technical tracks</li> </ul>
Longer wheelbase = more spacers in front of rear upright	<ul style="list-style-type: none"> <li>· decreases off-power steering into sharp corners</li> <li>· increases stability</li> <li>· slower initial steering reaction (off-power)</li> <li>· improves on-power steering at corner exit</li> <li>· better handling over bumps and ruts</li> <li>· better on more open tracks with high-speed corners</li> </ul>

WHEELBASE		
0	1	2
322mm	324.5mm	327mm

LEFT = RIGHT



## ○ ANTI-ROLL BARS

Adjust the stiffness of the front or rear anti-roll bar by using a thinner or thicker wire.

Anti-roll bar stiffness	Front/Rear	Characteristics
Softer = thinner wire	Front	<ul style="list-style-type: none"> <li>· increases front chassis roll</li> <li>· increases front traction</li> <li>· decreases rear traction</li> <li>· increases off-power steering (may cause oversteer)</li> </ul>
	Rear	<ul style="list-style-type: none"> <li>· increases rear chassis roll</li> <li>· increases rear traction</li> <li>· decreases front traction</li> <li>· decreases on-power steering (increases understeer)</li> </ul>
Stiffer = thicker wire	Front	<ul style="list-style-type: none"> <li>· decreases front chassis roll</li> <li>· decreases front traction</li> <li>· decreases off-power steering at corner entry (increases understeer)</li> <li>· quicker steering response</li> </ul>
	Rear	<ul style="list-style-type: none"> <li>· decreases rear chassis roll</li> <li>· decreases rear traction</li> <li>· increases front traction</li> <li>· increases on-power steering (may cause oversteer)</li> <li>· quicker steering response in high speed chicanes</li> </ul>



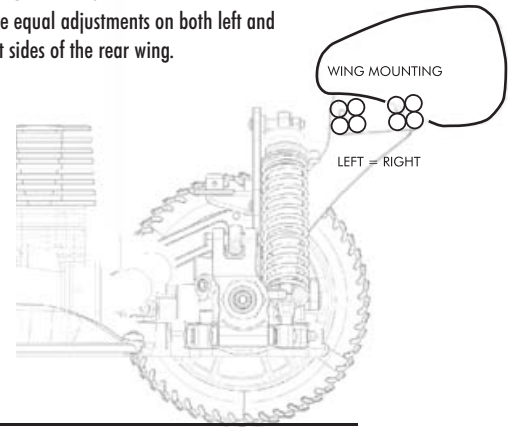
## ○ REAR WING

Adjust the position and angle of the rear wing using the different mounting position of the wing supports.

Wing position/angle	Characteristics
Higher	· increases stability at higher speeds
Lower	· increases stability at lower speeds
Forward	· decreases rear traction
Rearward	· increases rear traction
Flatter angle	· level jumping or nose-diving
Steeper angle	· increases traction at higher speeds · less nose-diving

## IMPORTANT!

Make equal adjustments on both left and right sides of the rear wing.



## ○ CLUTCH

You can adjust the engagement characteristics of the clutch by changing the clutch springs or changing the orientation of the clutch shoes.

### Clutch Springs

Adjust the engagement characteristics of the clutch by using different clutch springs.

Clutch springs	Characteristics
Thinner (0.9mm)	· clutch engages earlier at lower RPM · more gradual acceleration · easier to drive but not as aggressive
Thicker (1.0mm)	· clutch engages later at higher RPM · more sudden acceleration · car is more aggressive

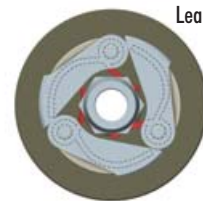
### Clutch Shoe Orientation

Adjust the engagement characteristics of the clutch by changing the orientation of the clutch shoes.

Clutch shoe orientation	Characteristics
Trailing shoes	· clutch engages more smoothly · more ideal for slick track conditions
Leading shoes	· clutch engages more aggressively · more ideal on high-traction tracks



Trailing shoes



Leading shoes

## ○ DIFFERENTIALS

Adjust the characteristics of the differentials by using thinner or thicker silicone oil.

Changing the oil in the front differential affects overall steering response.

Changing the oil in the center differential affects the front-to-rear drive.

Changing the oil in the rear differential affects cornering traction and overall steering.

Use only the genuine premium quality Xray silicone diff oils. The differential oils are available in 50ml size in these viscosities:

Differential	Oil thickness	Characteristics
Front	Thinner	· increases steering into corners (off-power) · if oil is too thin the steering may become inconsistent, especially it can lose forward traction (and steering) during acceleration out of corners
	Thicker	· increases stability into corners during braking · increases steering on-power at corner exit
Center	Thinner	· front wheels unload more during acceleration · decreases on-power steering (reduces oversteer) · easier to drive on rough tracks · if a high-power engine is used you could waste too much power and sometime "cook" the oil in the center differential because it "overloads"
	Thicker	· more all-wheel drive effect · better acceleration · increases on-power steering (reduces understeer) · better suited on high-bite, smooth tracks · car can be more nervous to drive especially if a high power engine is used - you might need to be smooth on the throttle
Rear	Thinner	· increases cornering traction · increases steering into corner
	Thicker	· decreases rear traction while cornering · reduces wheelspin

Part number	Viscosity
359601	"1 0000"
359602	"2 0000"
359603	"3 0000"
359605	"5 0000"
359607	"7 0000"
359610	"10 000"
359620	"20 000"
359630	"30 000"
359660	"60 000"



Silicone Diff Oil



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

**XRAY MODEL RACING CARS**

PO.BOX 103  
911 50 TRENČÍN  
SLOVAKIA, EUROPE  
PHONE: ++421 905 402724  
[support@teamxray.com](mailto:support@teamxray.com)



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