TC6 Factory Team

IFMAR WORLD CHAMPIONS 24 TIME

#30106 RC10TC6 Factory Team Kit

KIT
ASSEMBLY REQUIRED

1:10 Scale Electric 4WD Touring Car Kit Manual & Catalog 8/10

TEAM ASSOCIATED

Designed in California, USA

:: Introduction

Thank you for purchasing this Team Associated product. This assembly manual contains instructions and tips for building and maintaining your new RC10TC6. Please take a moment to read through this manual to help familiarize yourself with these steps.

We are continually changing and improving our designs; therefore, actual parts may appear slightly different than in the illustrations. New parts will be noted on supplementary sheets located in the appropriate parts bags. Check each bag for these sheets before you start to build.

:: KIT Features

Team Associated Factory Team TC6 is Area-51's next generation touring car. Based off decades of race experience with its roots heavily planted from the bar setting TC3, the TC6 blends the best of performance and adjustability to compete in today's touring car racing class. The updated chassis platform considers many hours of testing from Factory Team drivers over the last few race seasons, keeping focus strictly on brushless motors and LiPo batteries. The resulting layout is optimized for the speeds and grip levels that are now higher than ever before… the RC10TC6-FT is definitely another Champion by Design from Team Associated!

- Chassis layout optimized for Lithium Batteries and Brushless Motors
    - o Motor moved toward chassis center by 13mm from TC5
    - o Ultra narrow LiPo chassis with two battery positions, forward and back
    - o Servo mounting slots to ensure proper fit of any servo
    - o Spur gear lowered by 5mm from TC5
    - o Lengthened top plate with symmetric mounting points for equal flex
    - o Motor mounts to centralized point in chassis for equal flex
- Common bulkhead layout minimizes spare part cost
- Updated steering system
    - o More Ackermann options (16 positions total) to fine tune steering feel
    - o Improved steering input rate for more consistent handling
- VCS3 Shock with hard anodized threaded shock bodies
    - o Bottom loading seal system for ease of build
    - o TiN coated shock shaft
    - o Piston attaches to shock shaft with screw for tight clamping and no slop
    - o Improved bladder for more consistent build through time
    - o Threaded collar with fine pitch thread for ease of accurate ride height adjustment
    - o Increased stroke for more up-travel at wheel
- Long upper link option for increased corner speed
- Hard anodized diff outdrives for low wear and long life
- Cross-compatibility with TC5 suspension components

:: Additional Features

Your new TC6 comes unassembled and requires the following items for completion.
(refer to catalog section for suggestions):

- 1:10th scale electric motor and electronic speed control
- 3.7V-7.4V LiPo, 6.0V LiFe, or 4.8V-7.2V NiMh
- Battery charger (suited for, and particular to, one of the batteries mentioned above)
- 2 channel surface transmitter, 2 channel receiver, and steering servo
- 1:10th scale lexan touring car body
- Lexan specific spray paint for body
- 1:10th scale rubber (or foam) touring car tires

:: Other Helpful Items

- Silicone Shock Fluid (Refer to catalog for complete listings)
- Body Scissors (AE Part # 1737)
- Reamer / Hole Punch
- FT Hex Wrenches (AE Part # 1541)
- Hobby Knife
- Needle Nose Pliers
- Wire Cutters
- Multi Tool (AE Part #7494)
- Soldering Iron
- Calipers or a Precision Ruler

:: Table of Contents

:: Notes

This symbols indicates a special note or instruction in the manual.

There is a 1:1 hardware foldout page in the back of the manual. To check the size of a part, line up your hardare with the correct drawing until you find the exact size. Each part in the foldout has a number assigned to it for ordering replacement parts.

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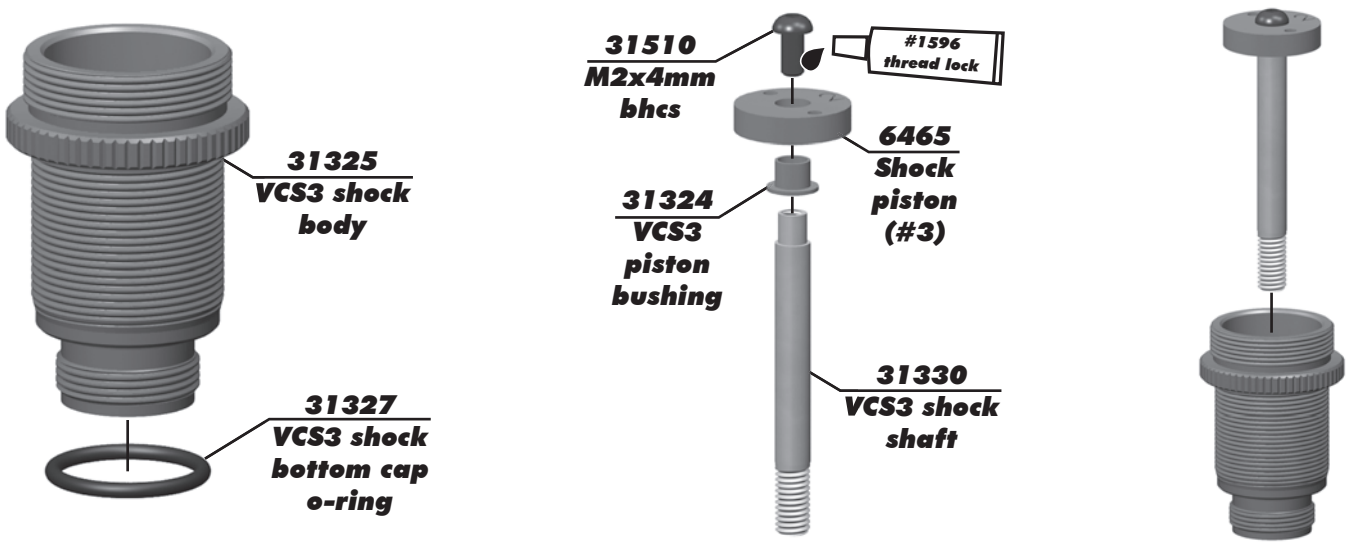
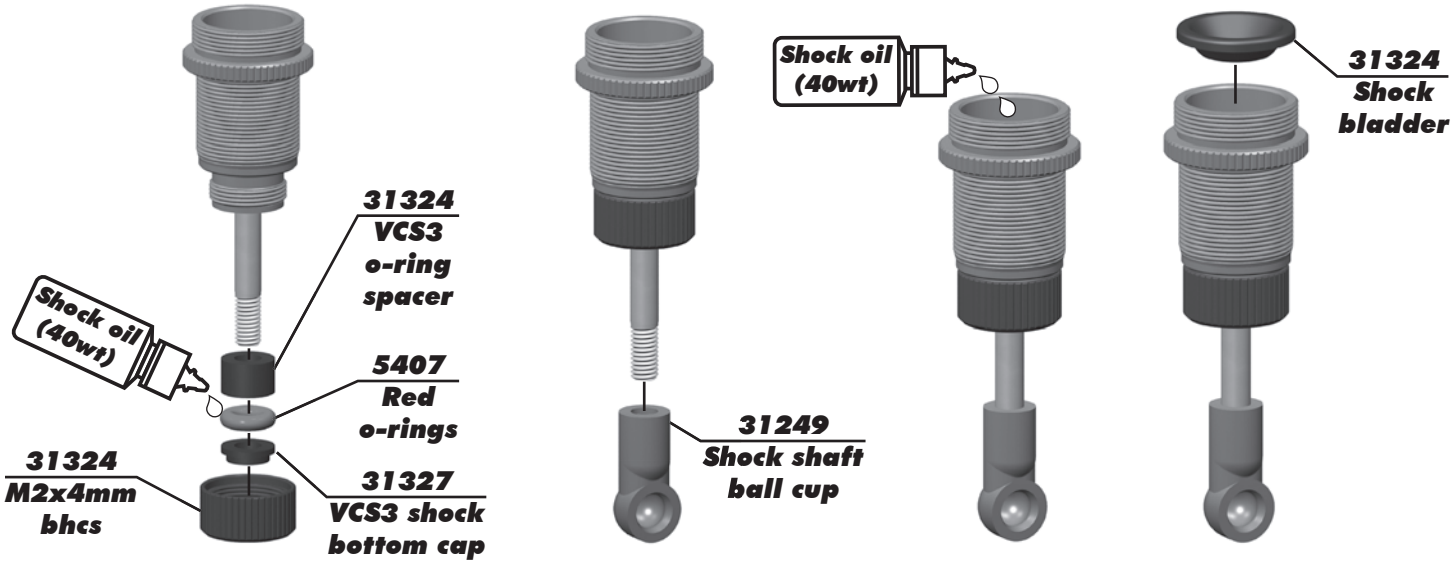
:: Shock Build - Bag A-AA - Step 1



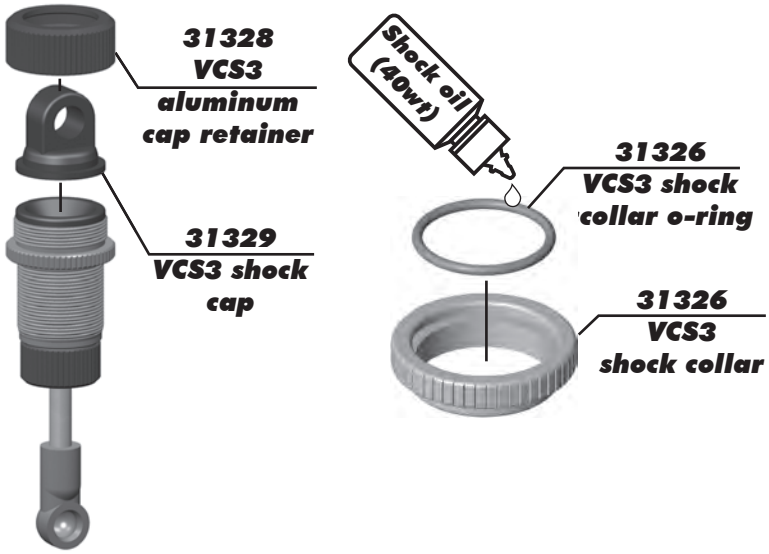
:: Shock Build - Bag A-AA - Step 2



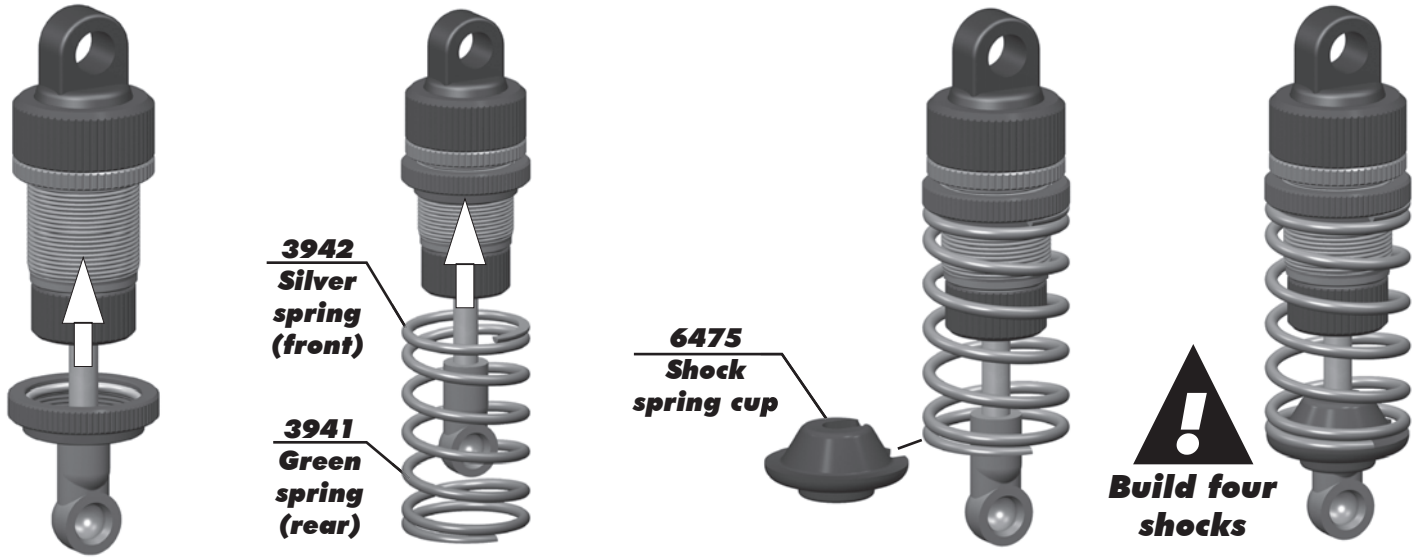
:: Shock Build - Bag A-AA - Step - 3

Bladder Installation

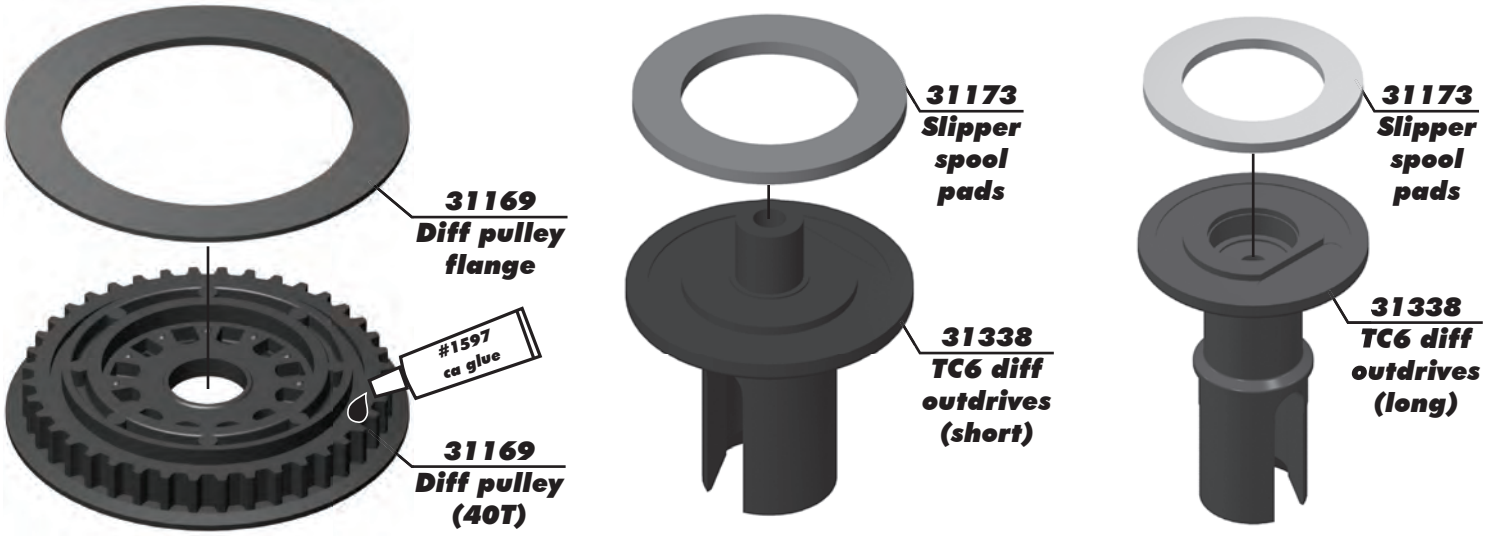
With the shaft fully extended, place bladder on the top of the shock body, displacing the extra oil. While maintaining pressure on the bladder against the shock body, carefully lift one side of the bladder to allow any extra oil to escape.



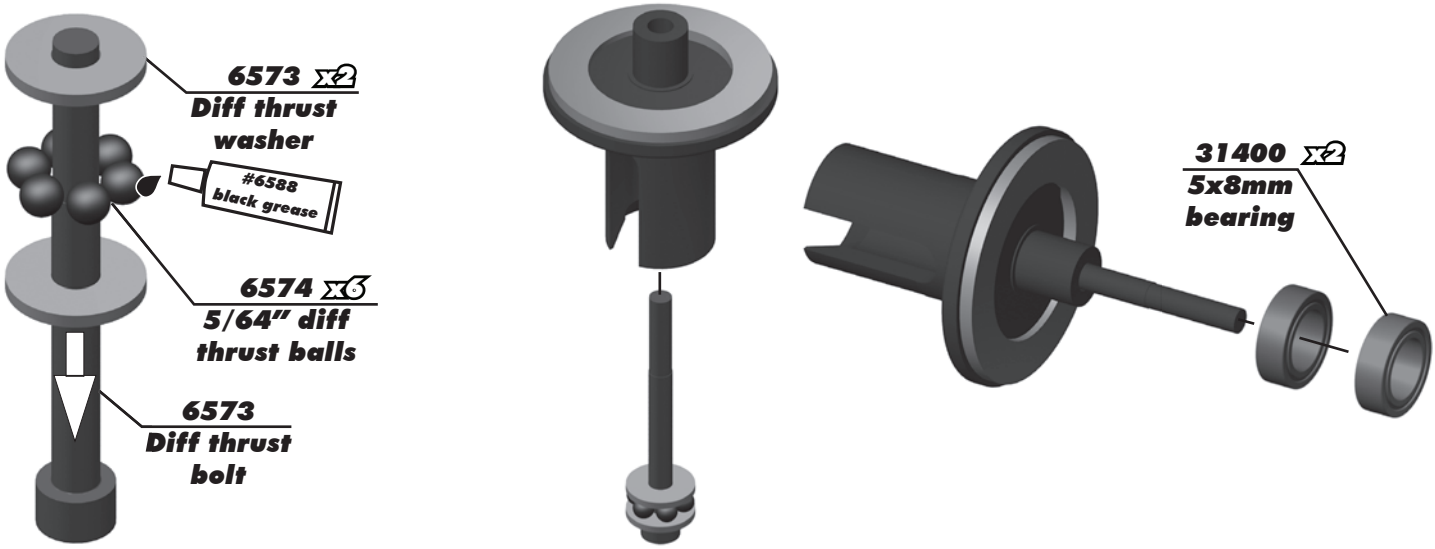
:: Shock Build - Bag A-AA - Step 4



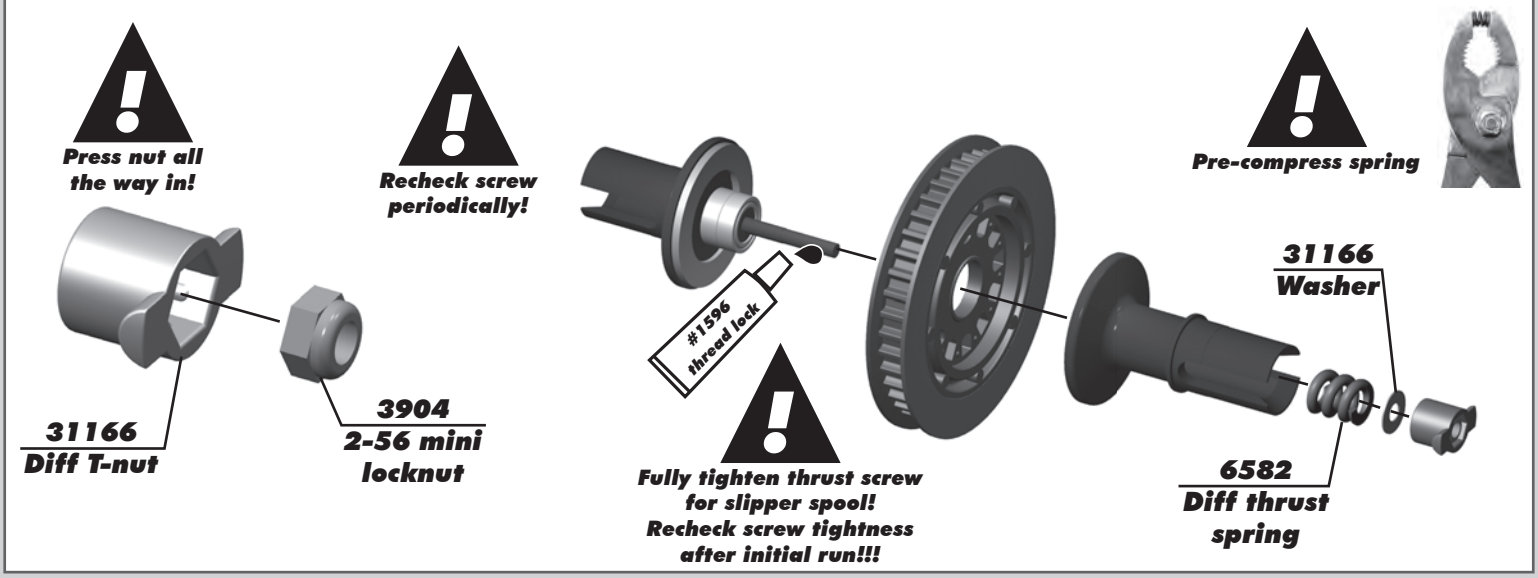
:: Front Slipper Spool Build - Bag B-BB - Step 1



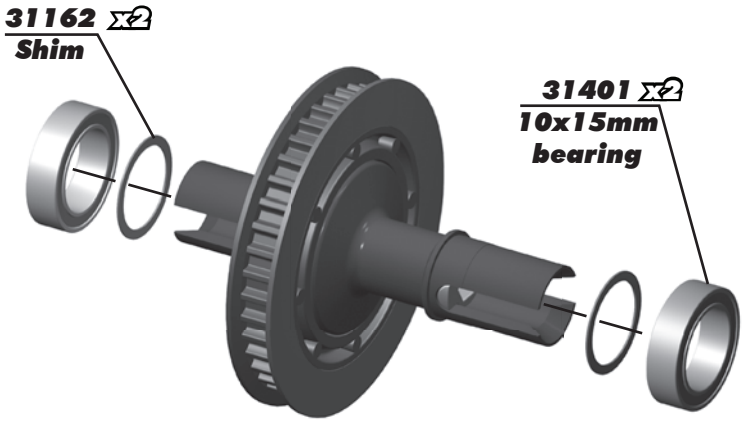
:: Front Slipper Spool Build - Bag B-BB - Step 2



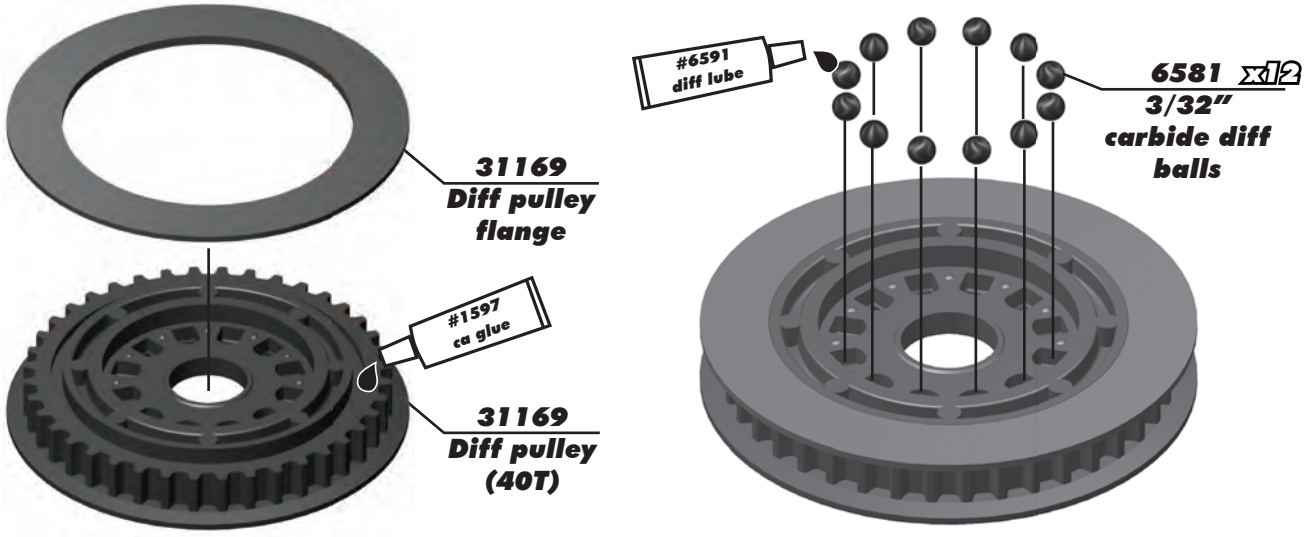
:: Front Slipper Spool Build - Bag B-BB - Step 3



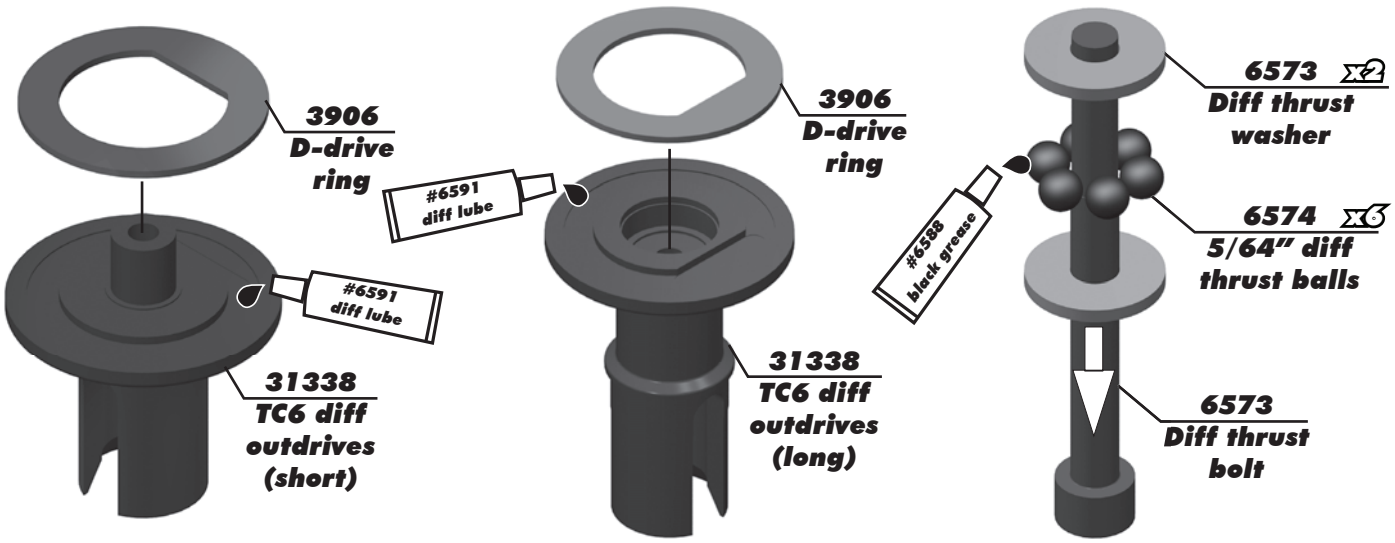
:: Front Slipper Spool Build - Bag B-BB - Step 4



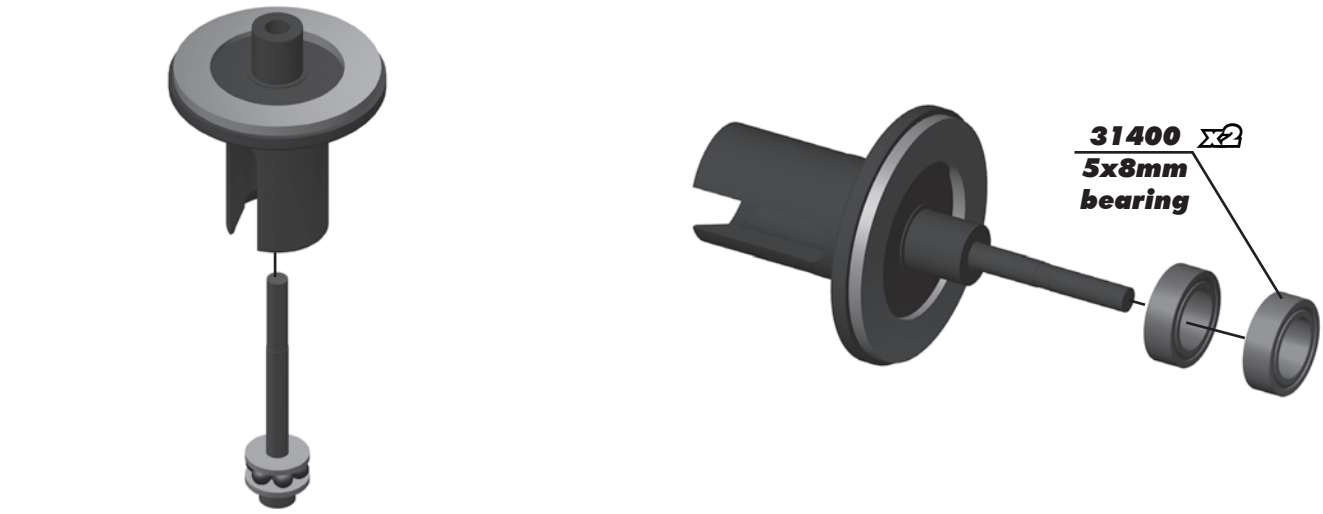
:: Rear Differential Build - Bag B-BB - Step 1



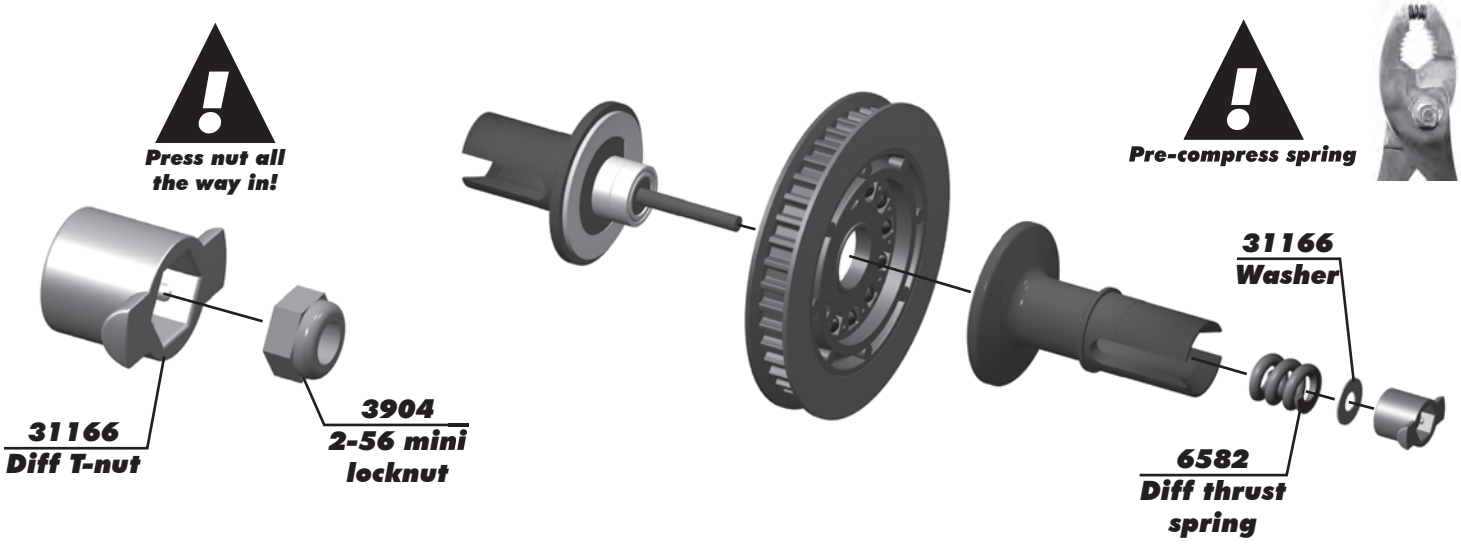
:: Rear Differential Build - Bag B-BB - Step 2



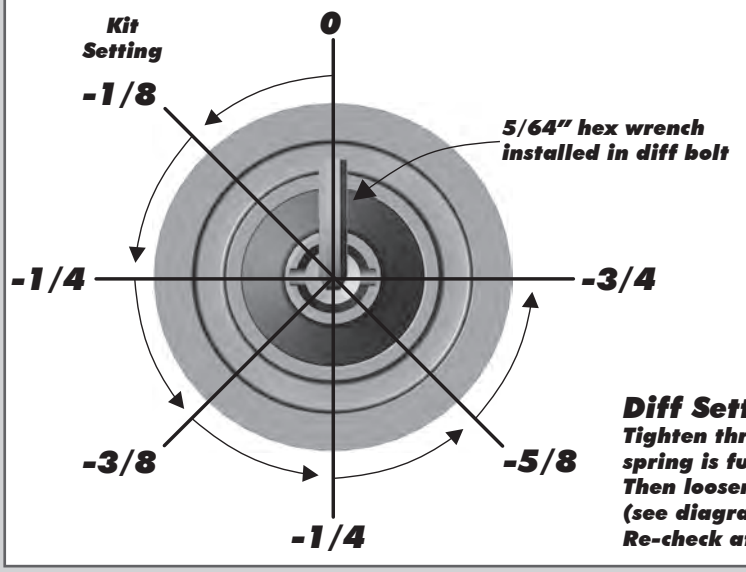
:: Rear Differential Build - Bag B-BB - Step 3

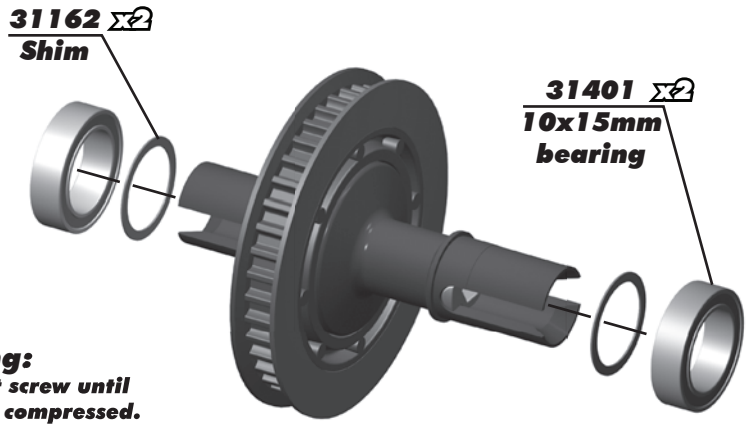


:: Rear Differential Build - Bag B-BB - Step 4



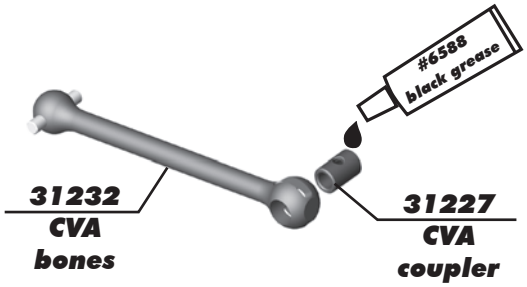
:: Rear Differential Build - Bag B-BB - Step 5

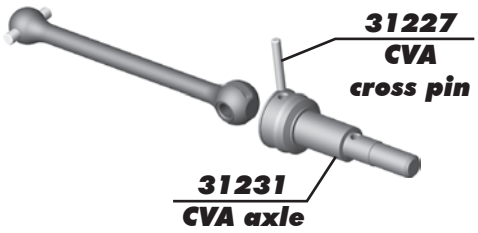


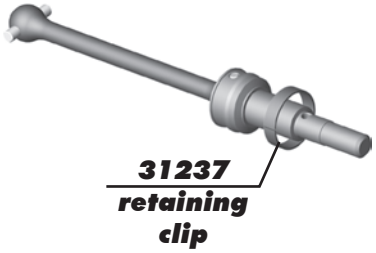


Diff Setting:
Tighten thrust screw until spring is fully compressed. Then loosen 1/8 turn (see diagram). Re-check after initial run.

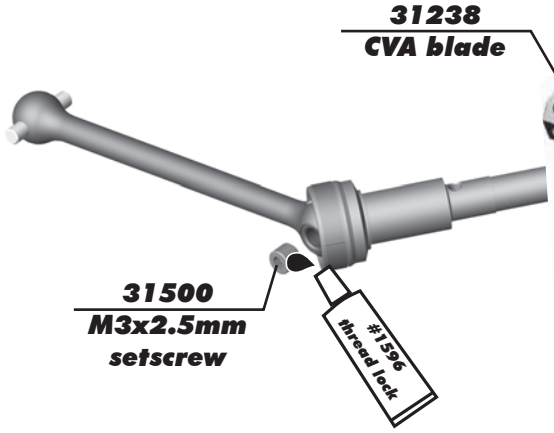
:: CVA Axle Build - Bag C - Step 1







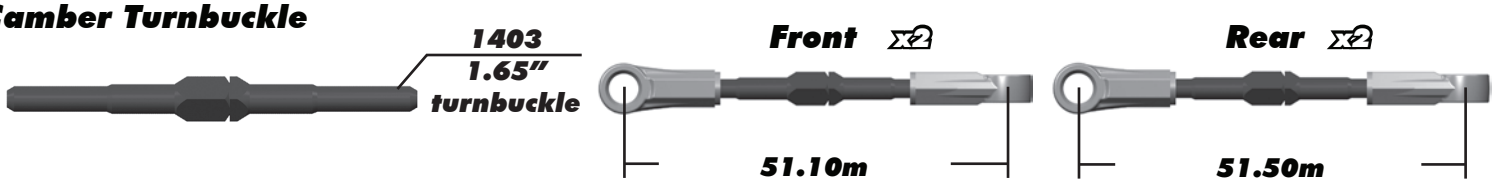
:: CVA Axle Build - Bag C - Step 2



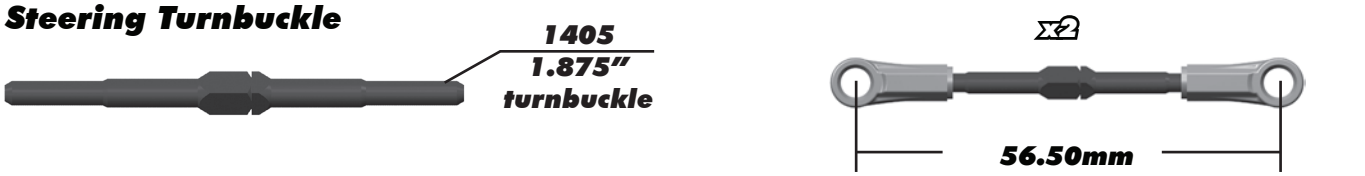
:: Turnbuckle Build - Bag D - Step 1

Servo Turnbuckle

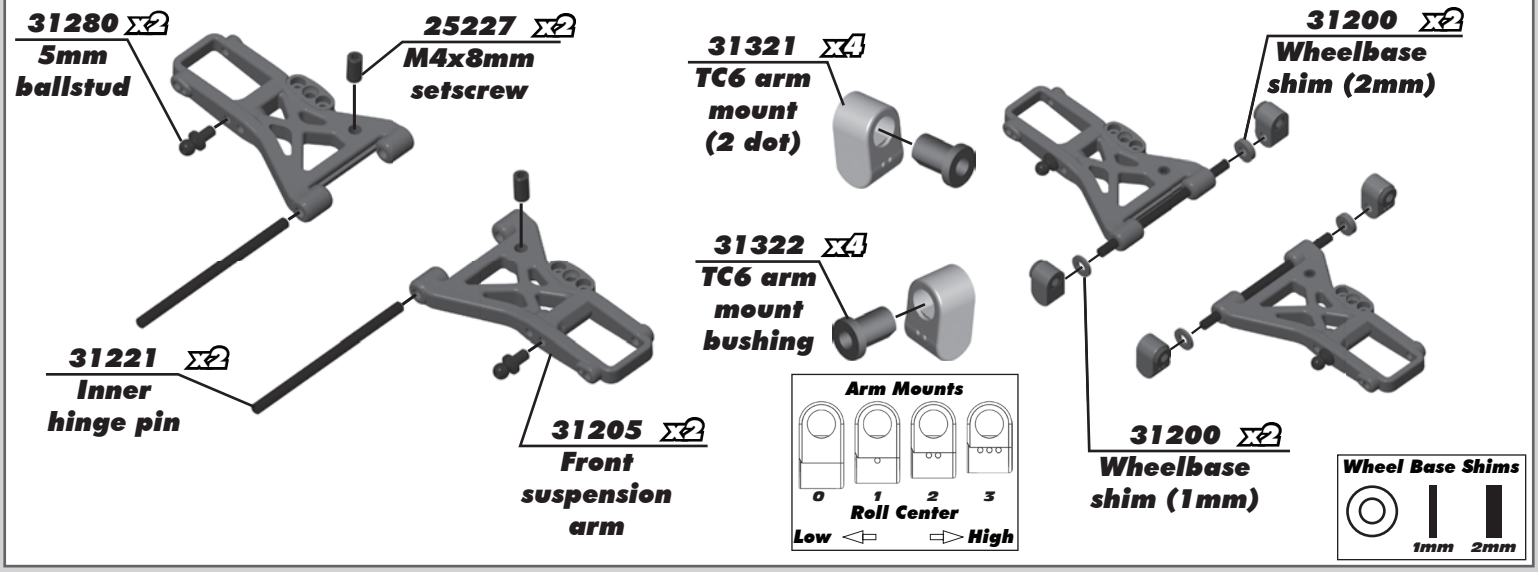
Camber Turnbuckle



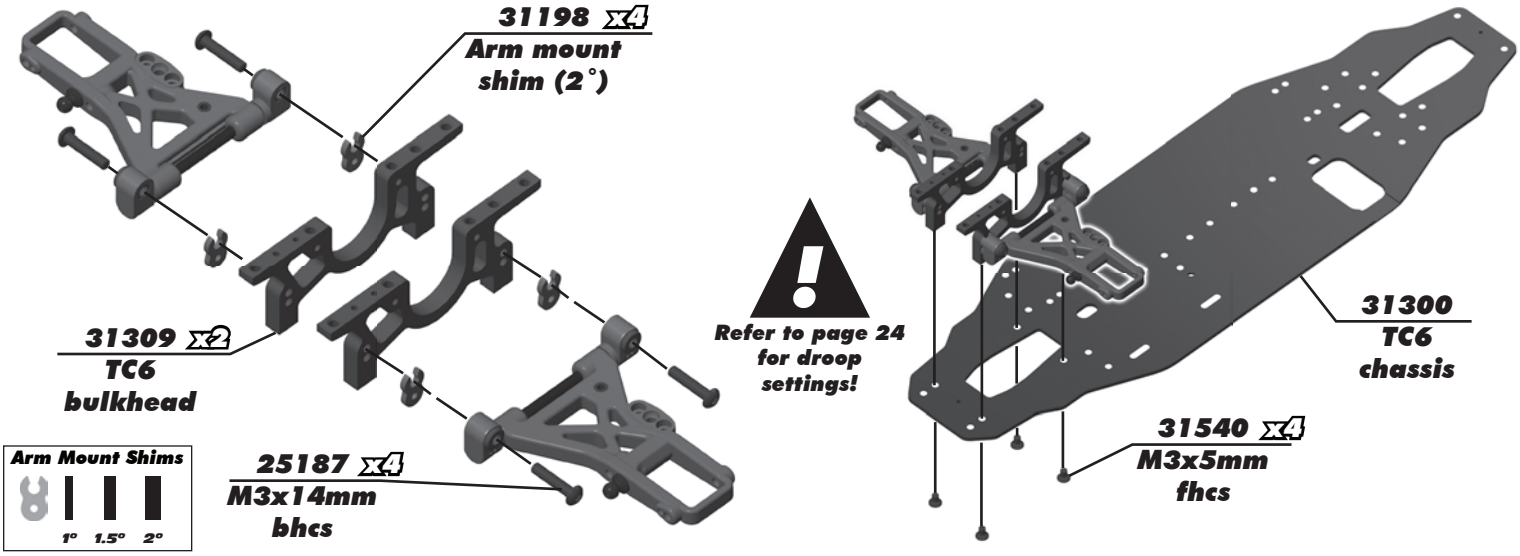
Steering Turnbuckle



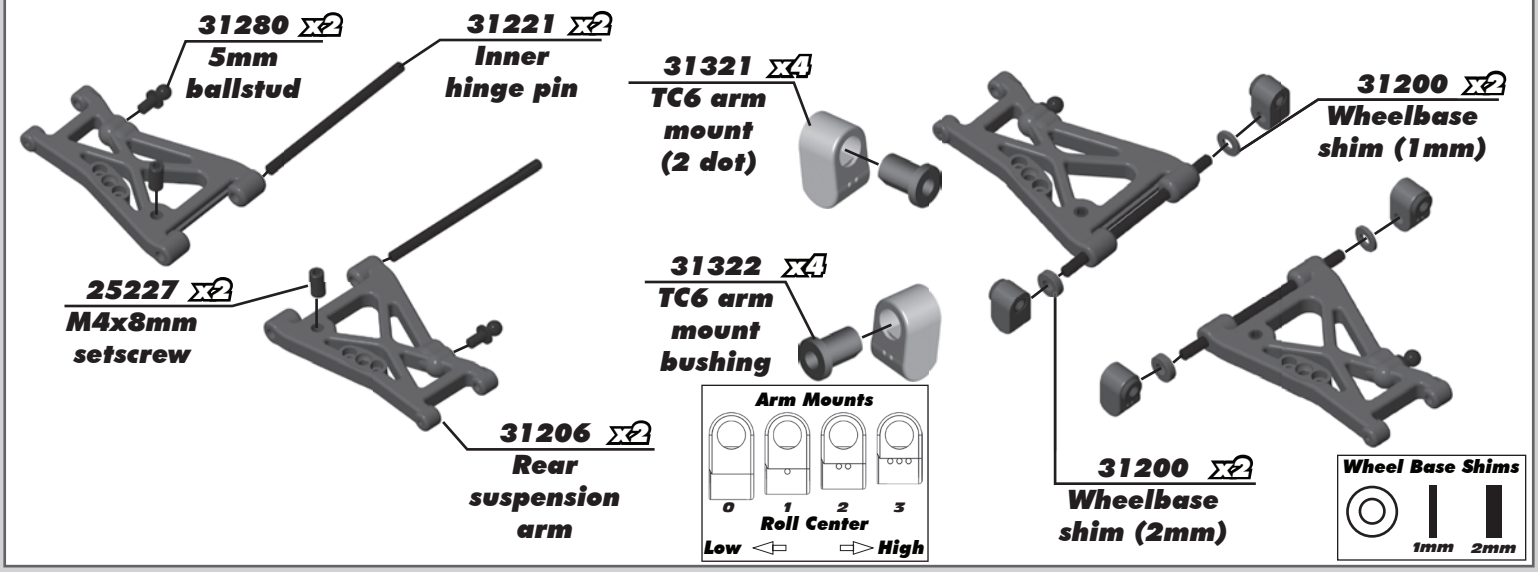
:: Front Bulkhead Build - Bag E-EE - Step 1



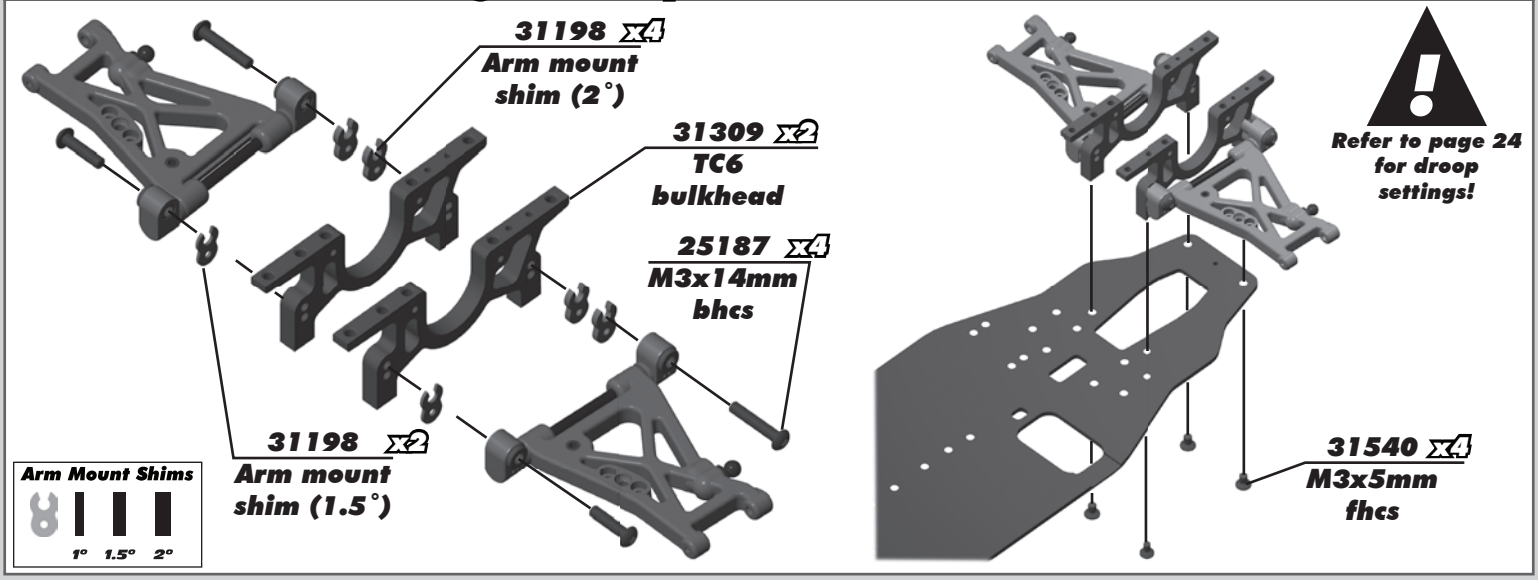
:: Front Bulkhead Build - Bag E-EE - Step 2



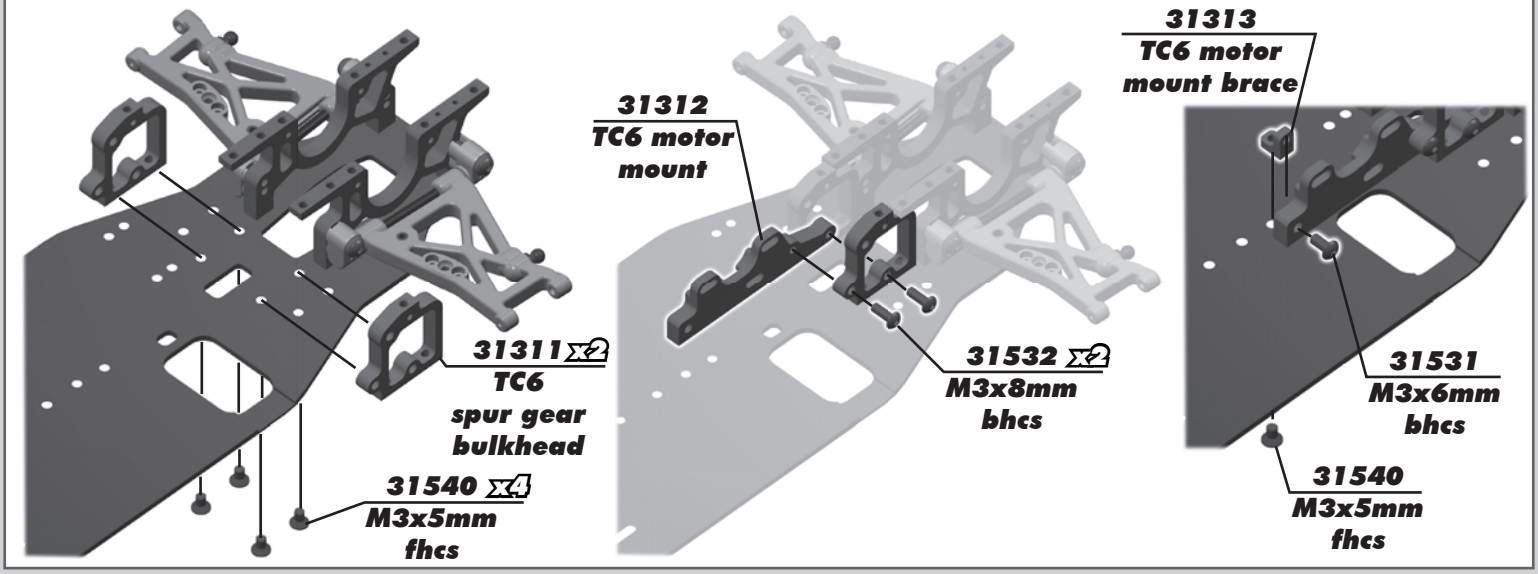
:: Rear Bulkhead Build - Bag E-EE - Step 1



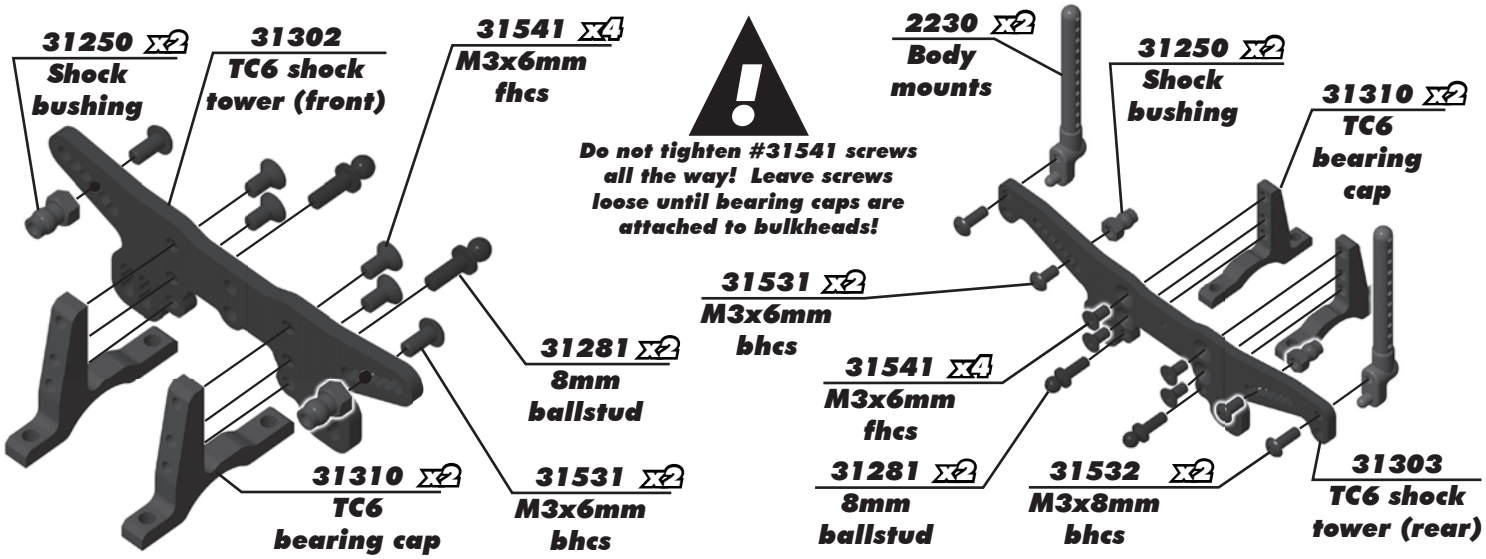
:: Rear Bulkhead Build - Bag E-EE - Step 2



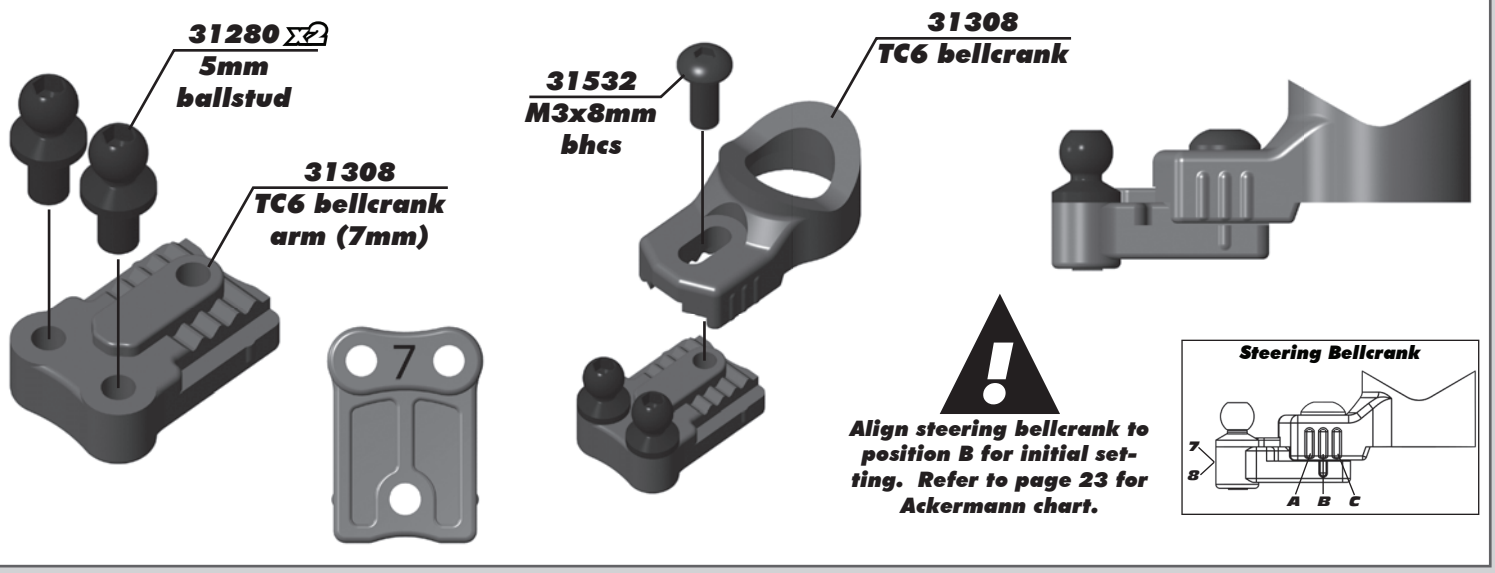
:: Spur Gear Bulkhead / Motor Mount Install - Bag E-EE - Step 1



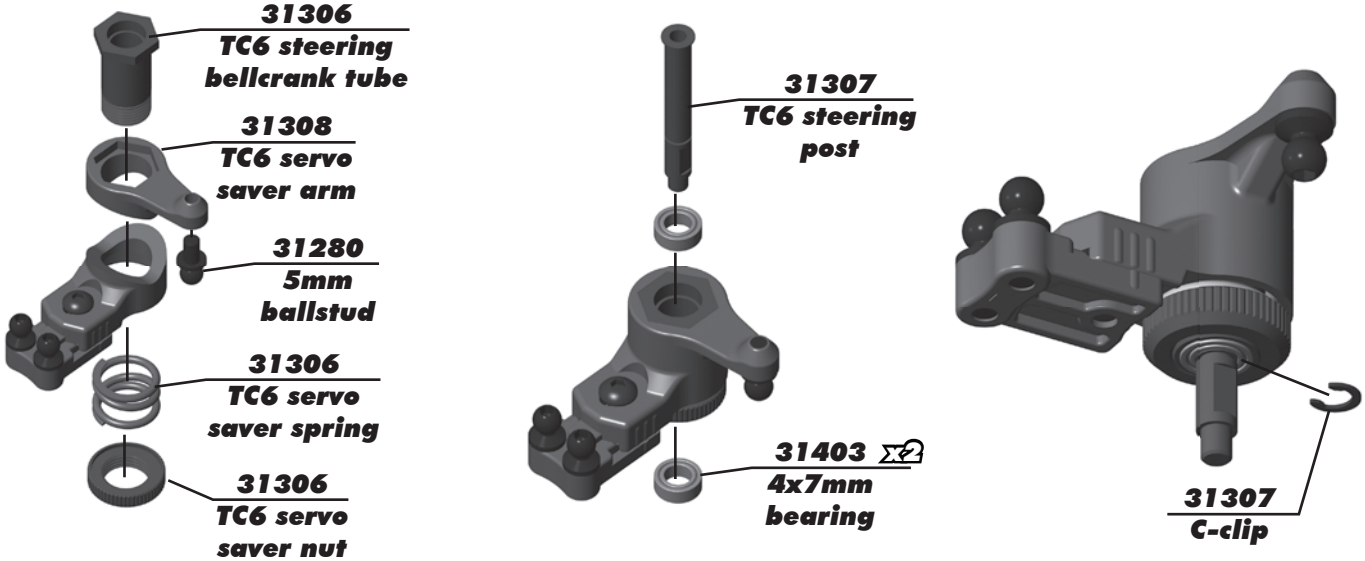
:: Shock Tower Build - Bag E-EE - Step 1



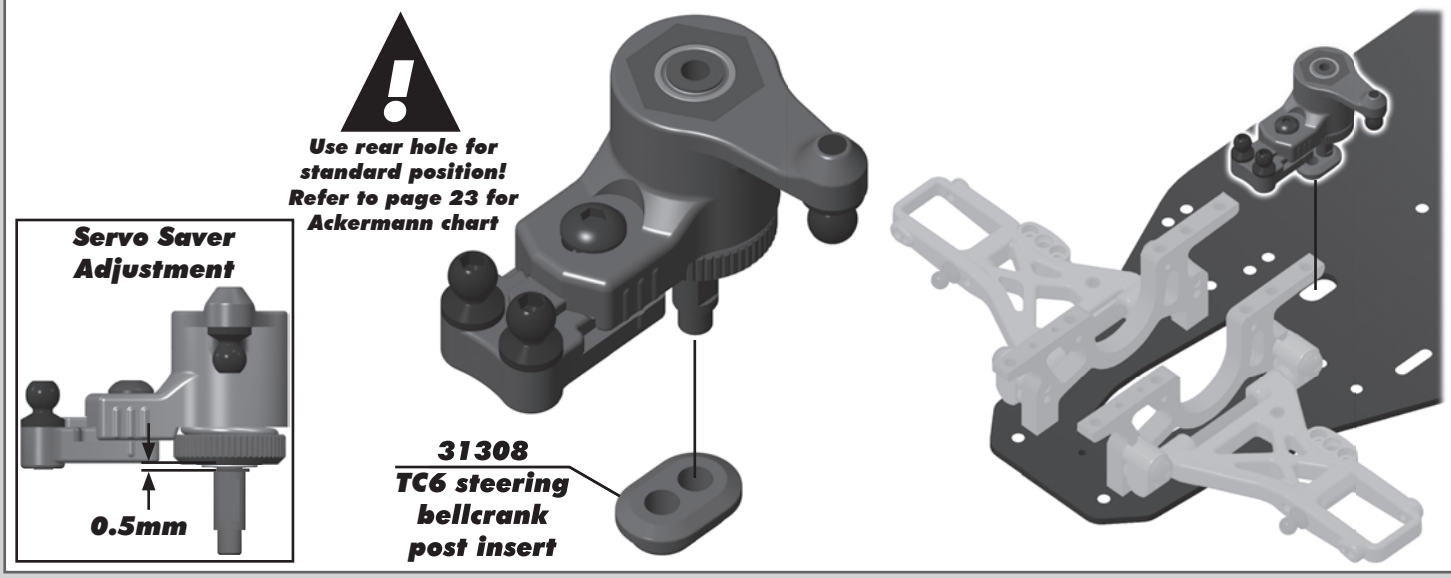
:: Steering Bellcrank Build / Install - Bag F - Step 1



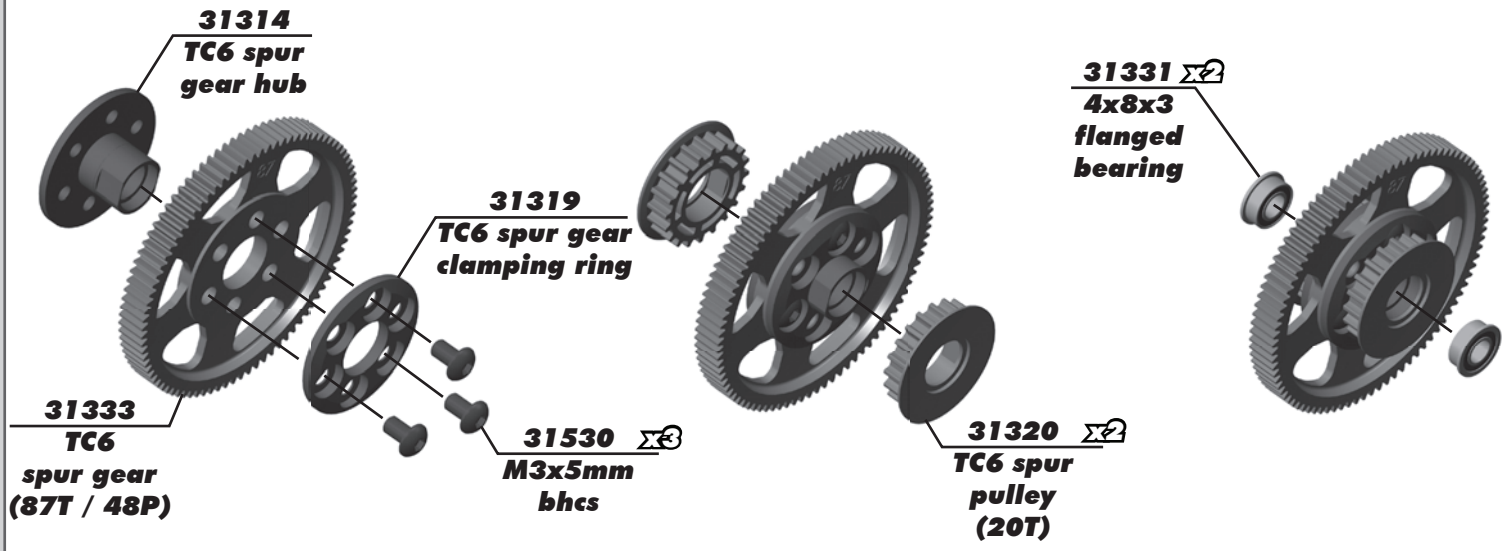
:: Steering Bellcrank Build / Install - Bag F - Step 2



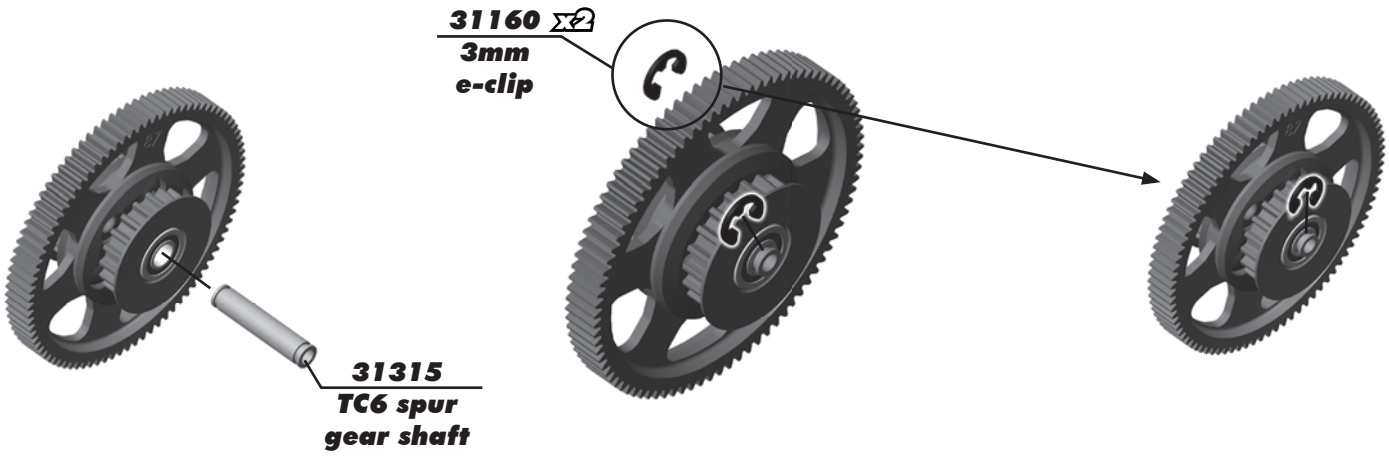
:: Steering Bellcrank Build / Install - Bag F - Step 3



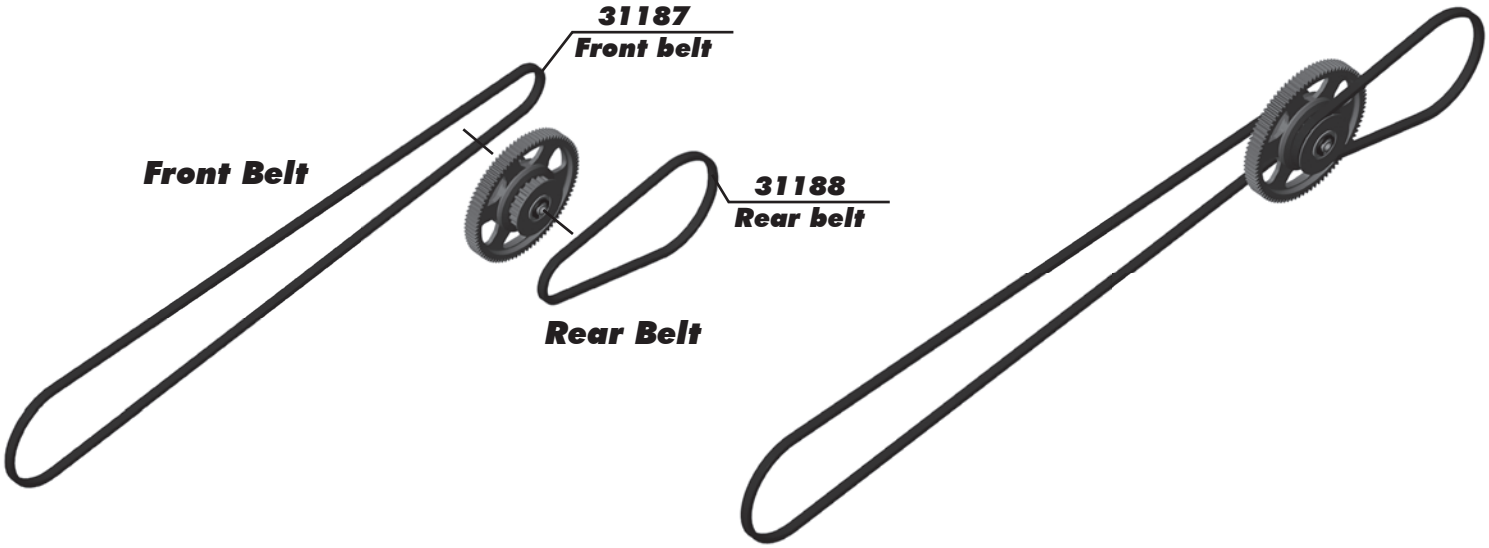
:: Spur Gear Shaft Build - Bag G-GG - Step 1



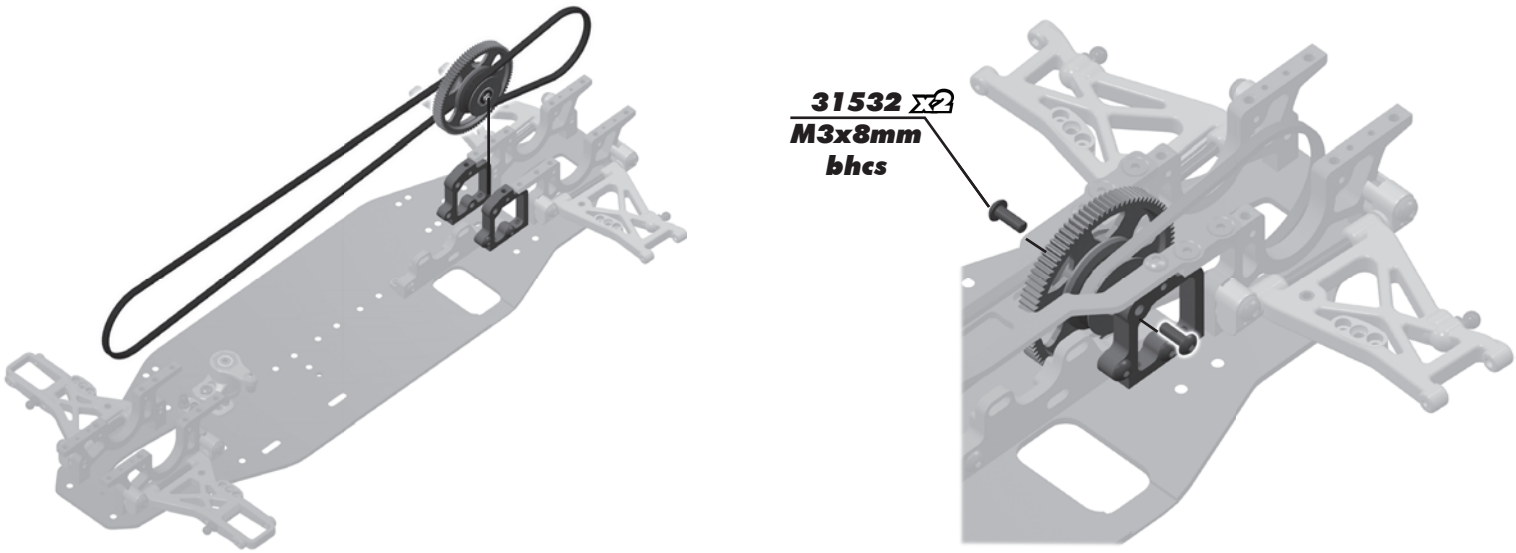
:: Spur Gear Shaft Build - Bag G-GG - Step 2



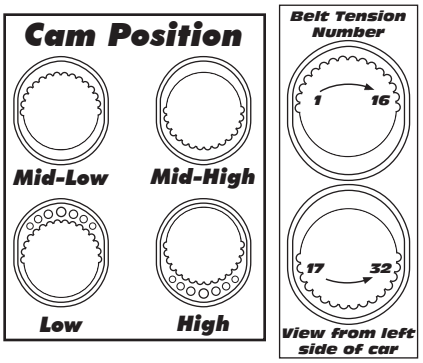
:: Spur Gear Hub / Belts Install - Bag G-GG - Step 1



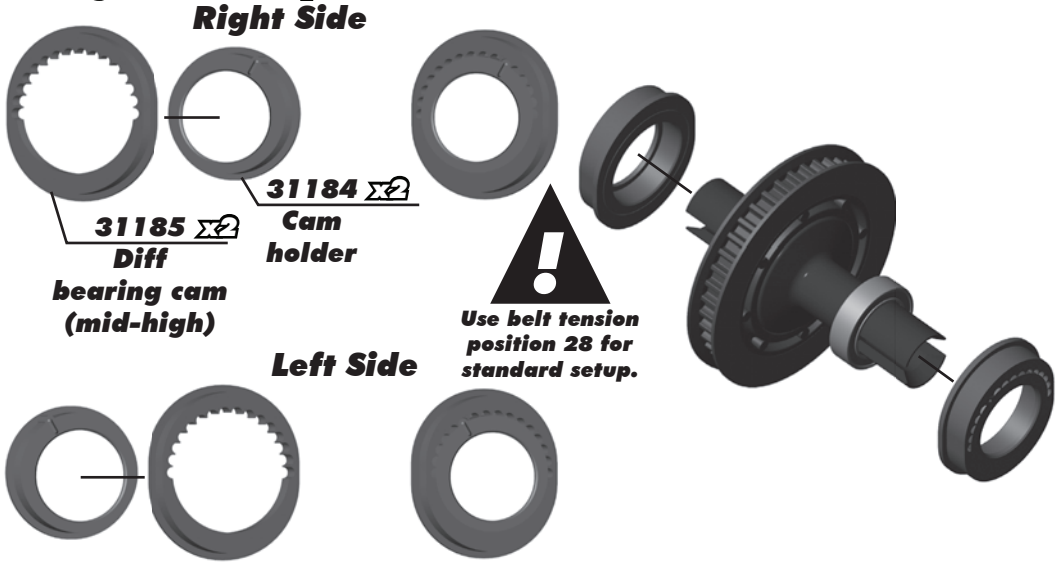
:: Spur Gear Hub / Belts Install - Bag G-GG - Step 2



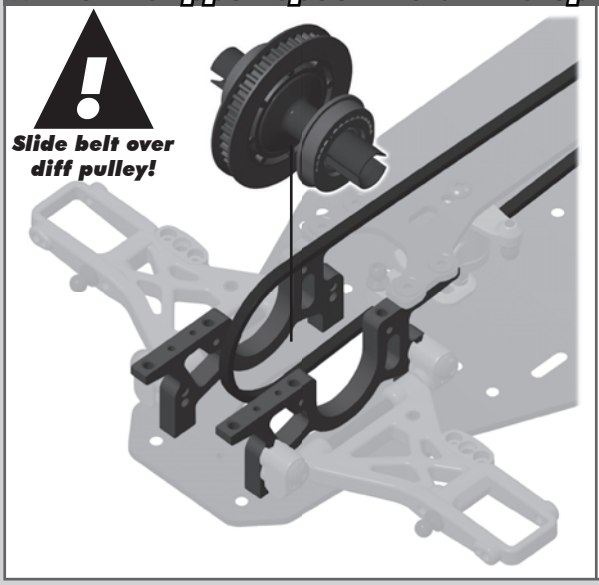
:: Front Slipper Spool Install - Bag G-GG - Step 1

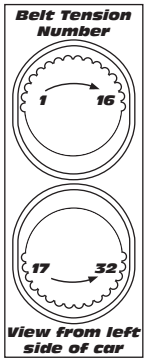


Note!
Always use the same cam position on both sides of the vehicle.

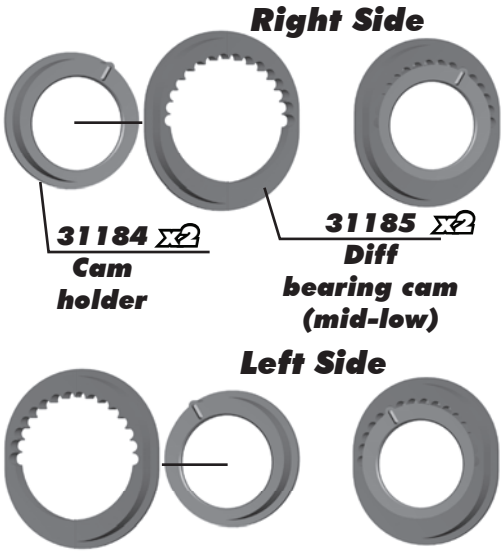


:: Front Slipper Spool Install - Step 2 / Rear Differential Install - Bag G-GG - Step 1

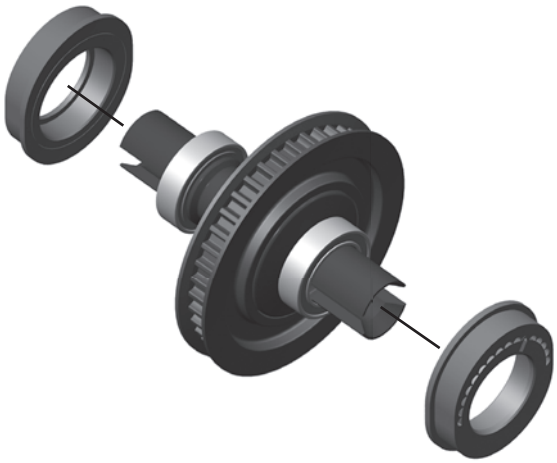




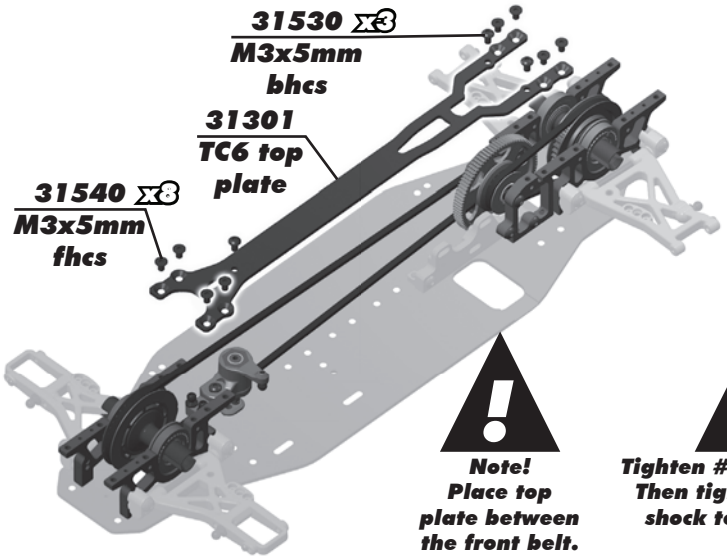
Use belt tension position 6 for standard setup.



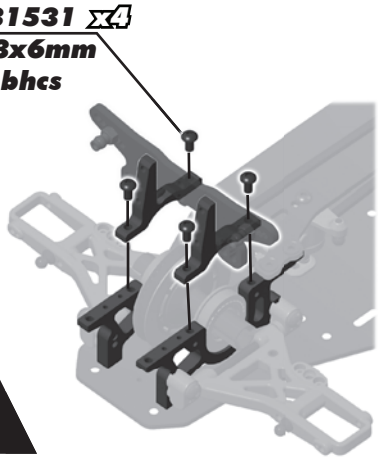
:: Rear Differential Install - Bag G-GG - Step 2



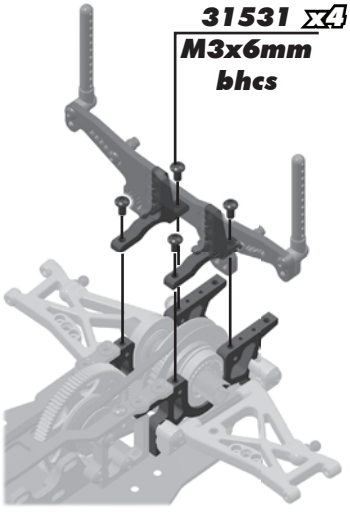
:: Top Plate / Bearing Caps Install - Bag G-GG - Step 1



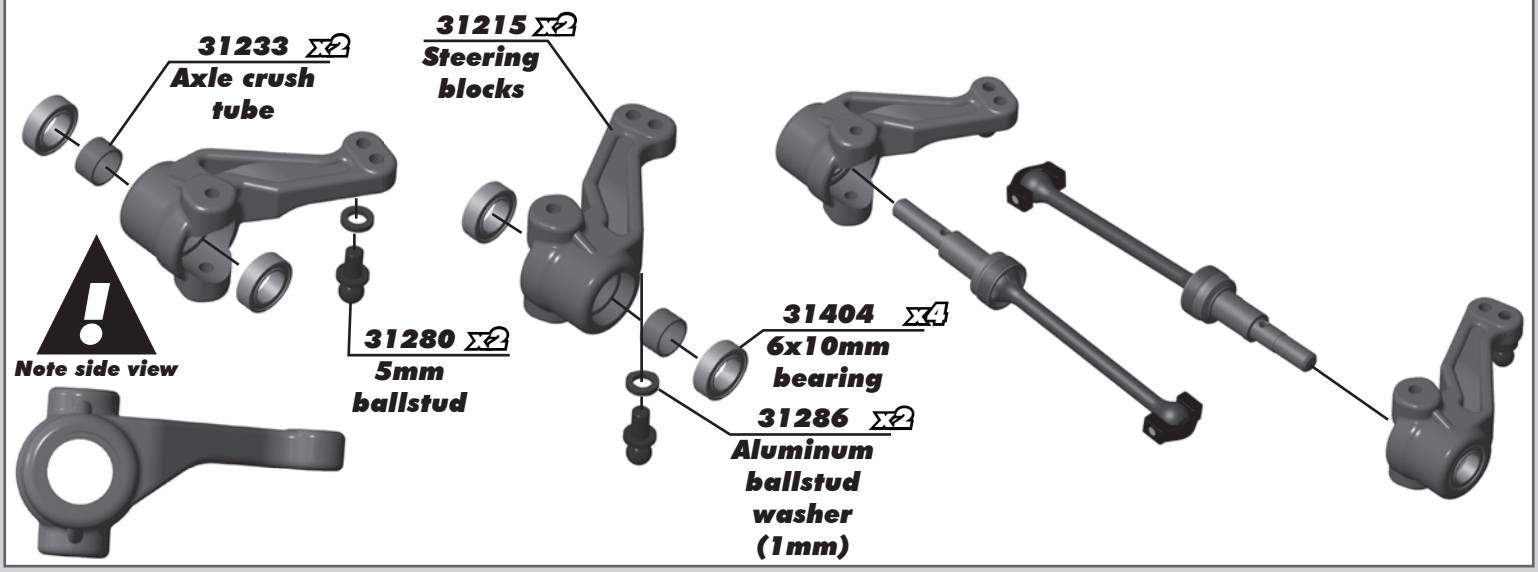
Note! Place top plate between the front belt.



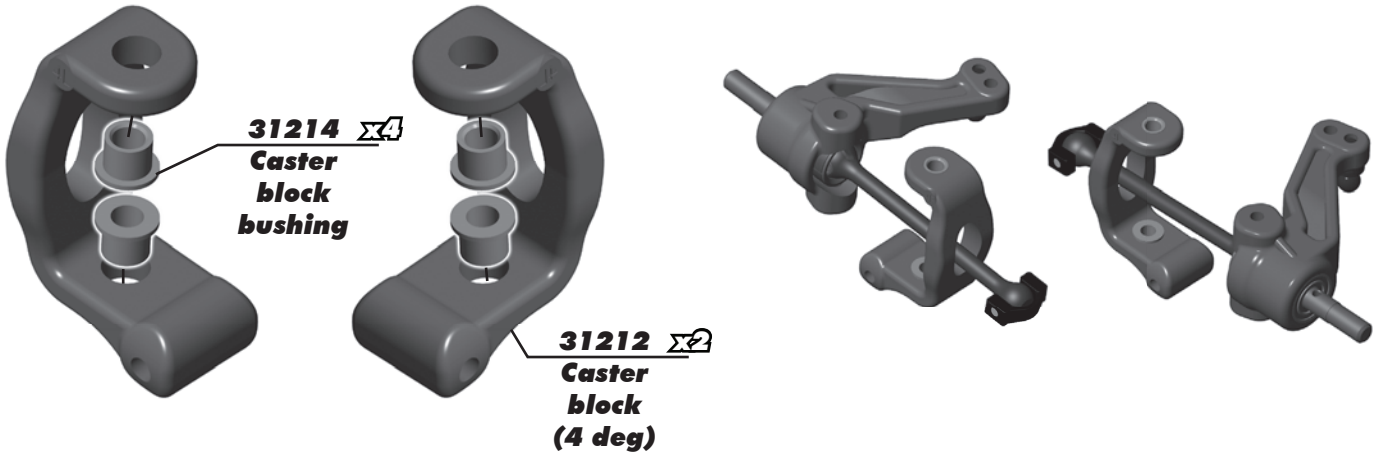
Tighten #31531 screws. Then tighten #31541 shock tower screws!



:: Steering Block Build / Install - Bag H - Step 1

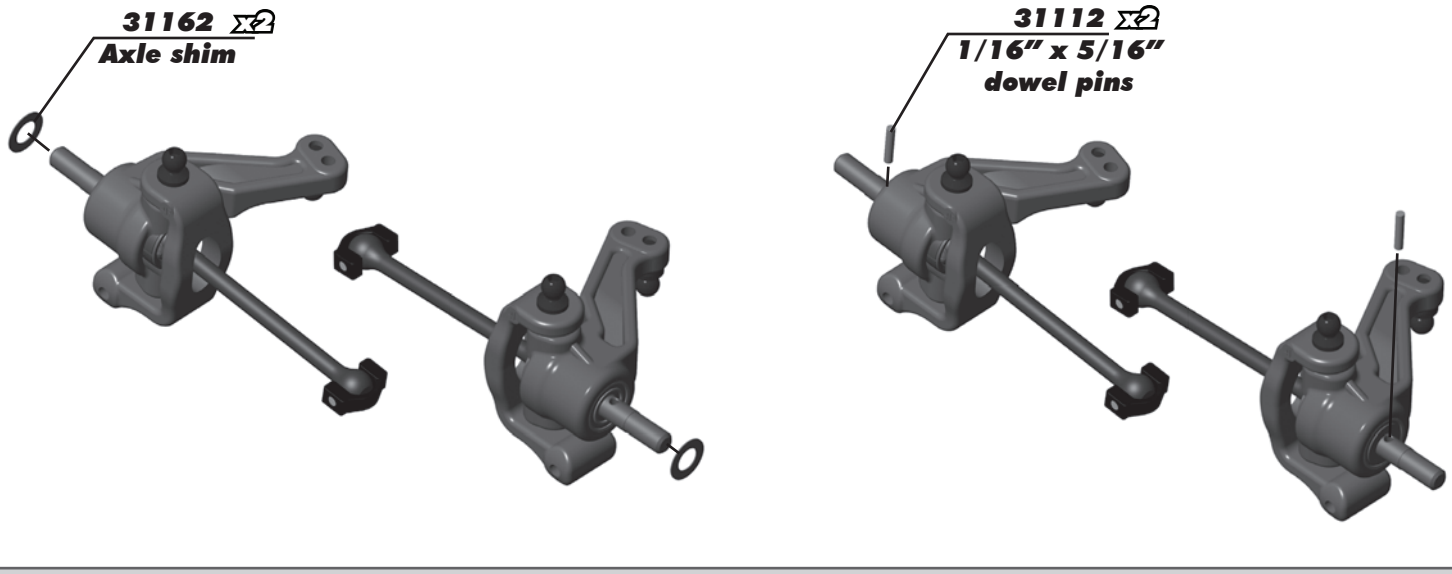


:: Steering Block Build / Install - Bag H - Step 2

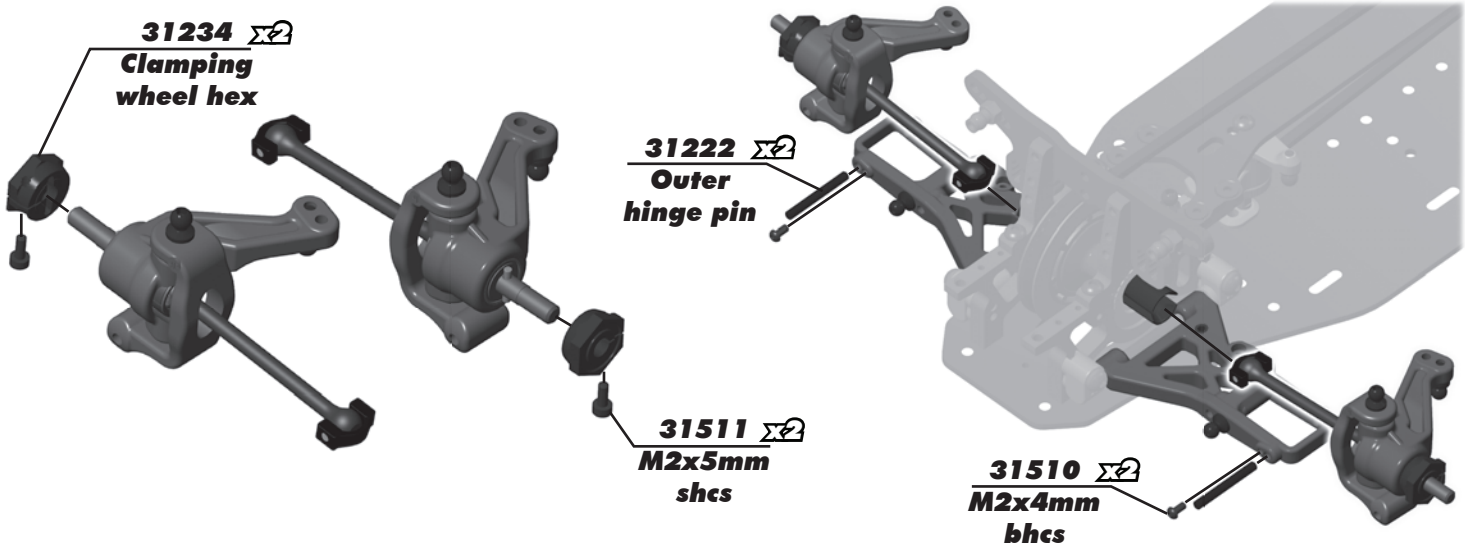


:: Steering Block Build / Install - Bag H - Step 3

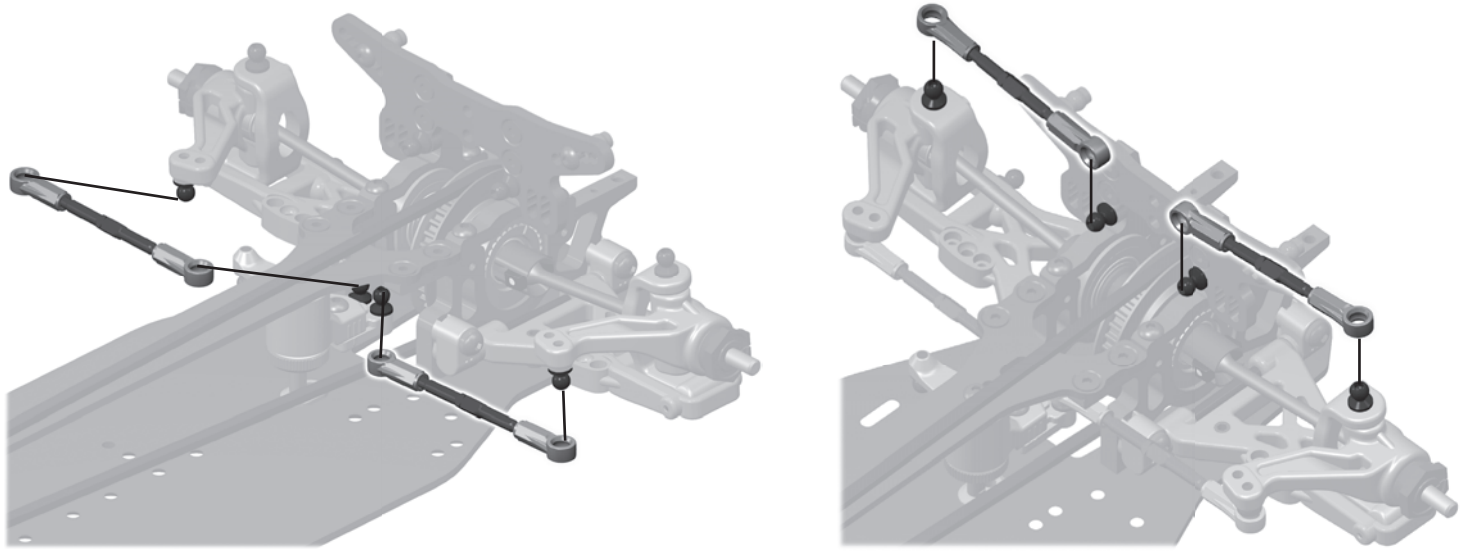
:: Steering Block Build / Install - Bag H - Step 4



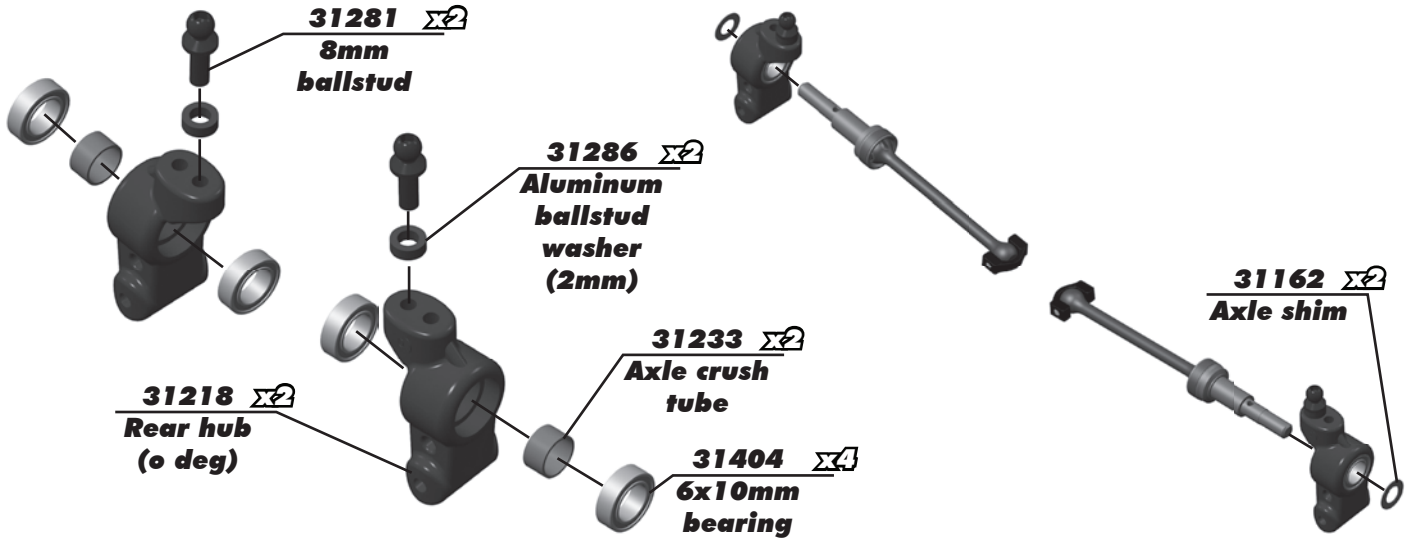
:: Steering Block Build / Install - Bag H - Step 5



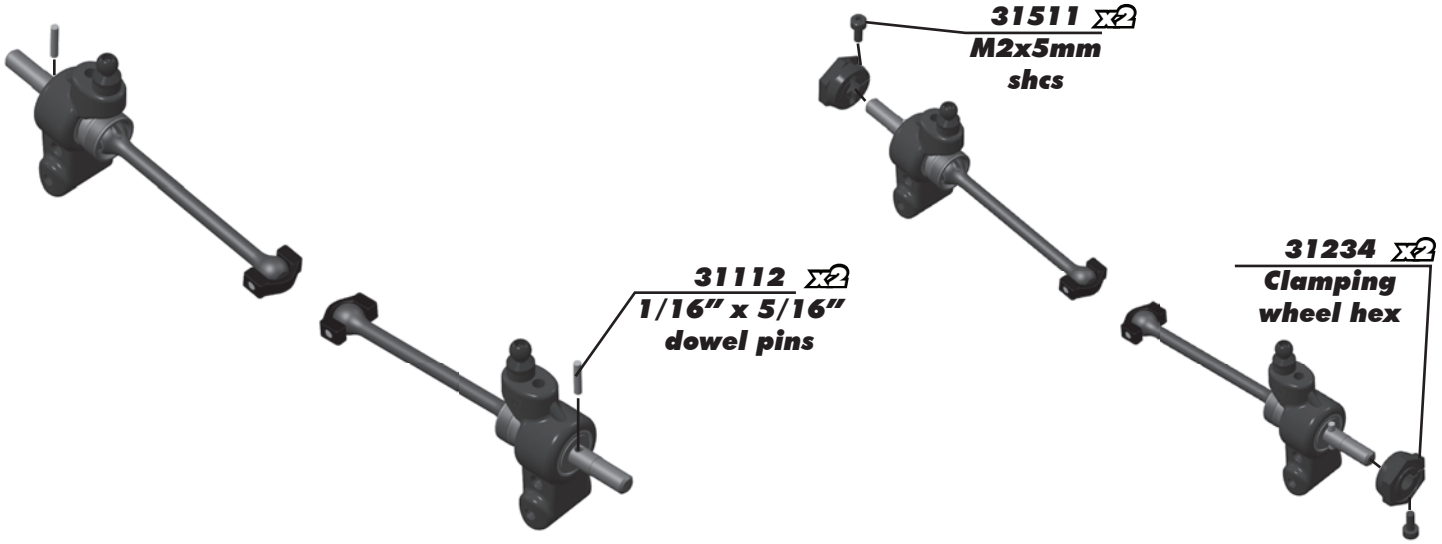
:: Steering Block Build / Install - Bag H - Step 6



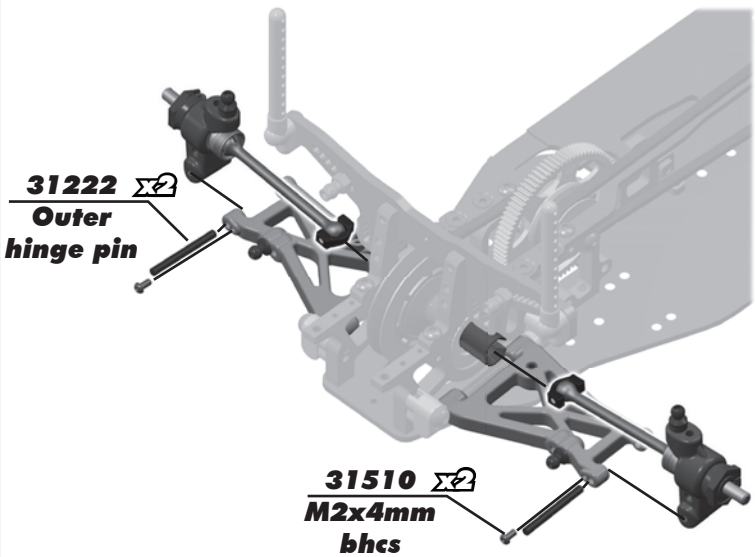
:: Rear Hubs Build / Install - Bag H - Step 1



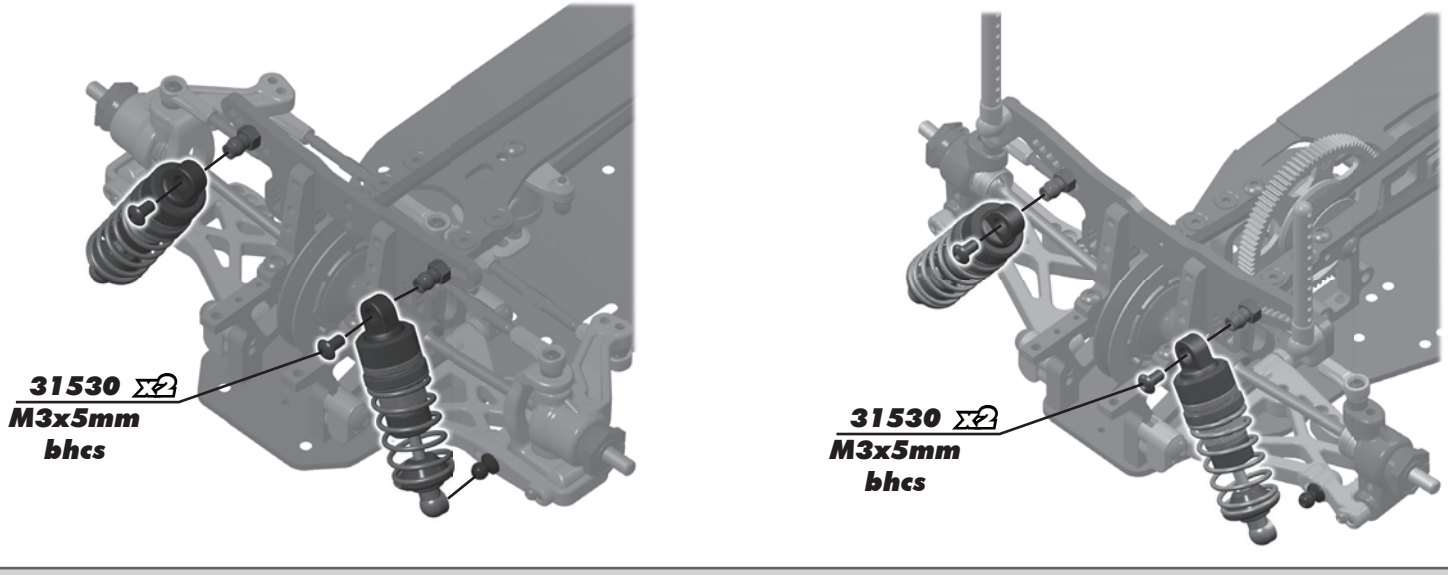
:: Rear Hubs Build / Install - Bag H - Step 2



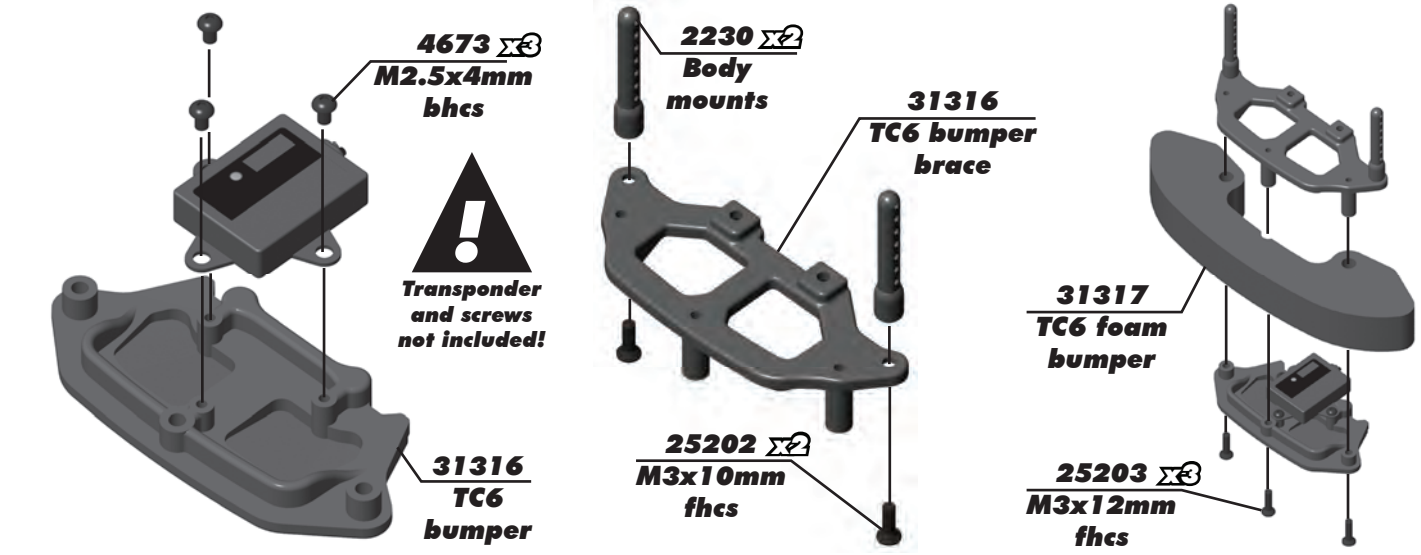
:: Rear Hubs Build / Install - Bag H - Step 3



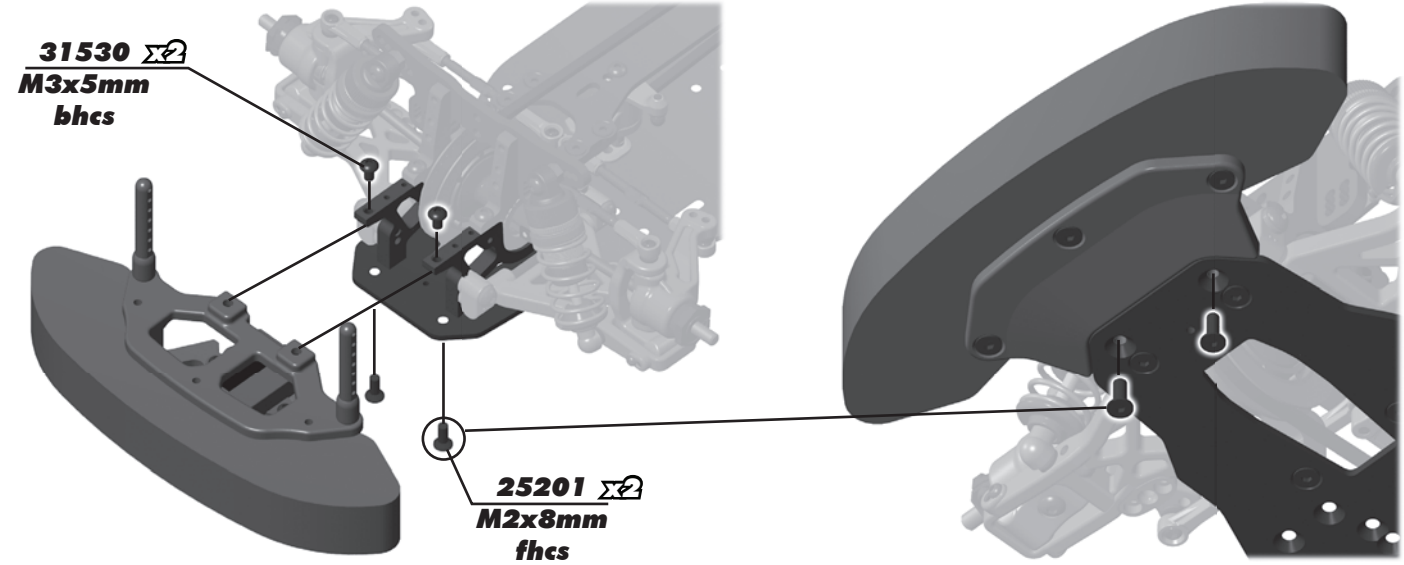
:: Shocks Install - Bag H - Step 1



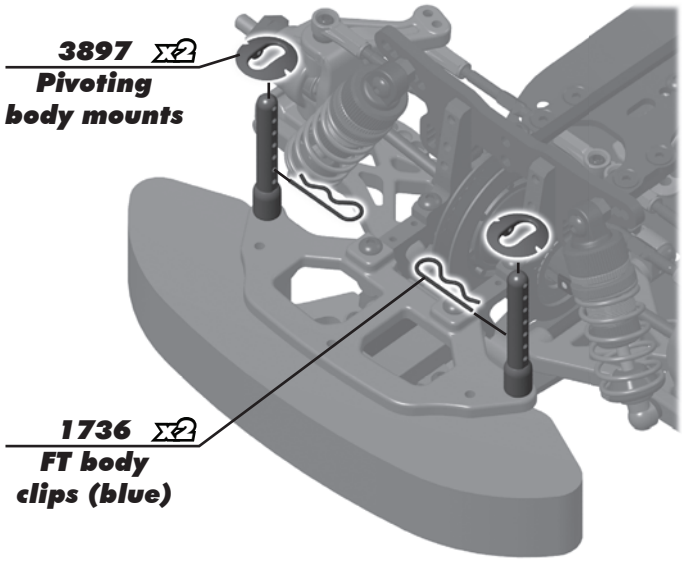
:: Bumper Build / Install - Bag I - Step 1

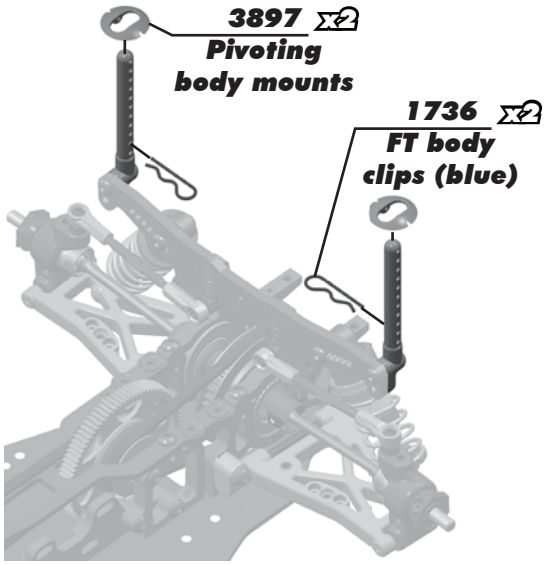


:: Bumper Build / Install - Bag I - Step 2

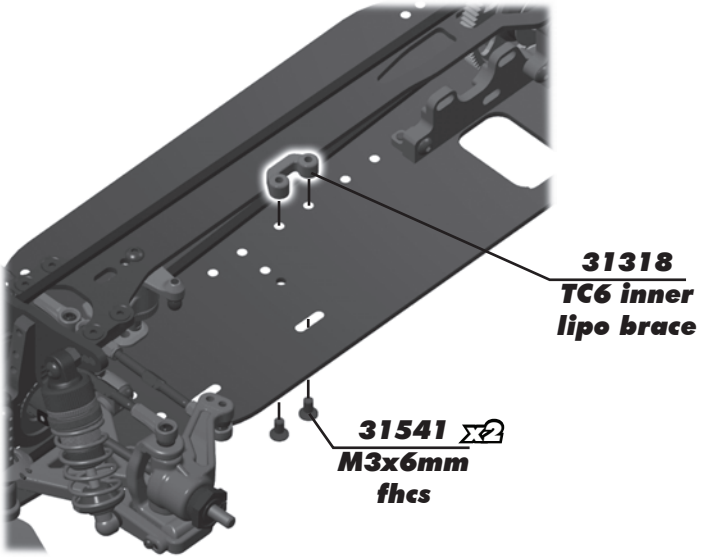


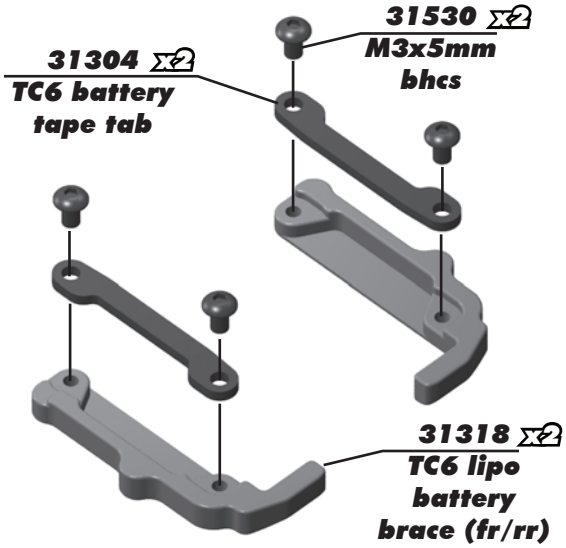
:: Pivoting Body Mounts Install - Bag I - Step 1



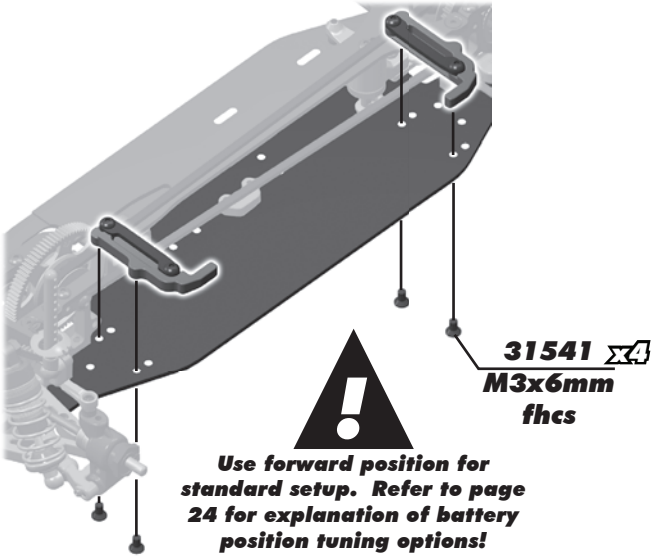


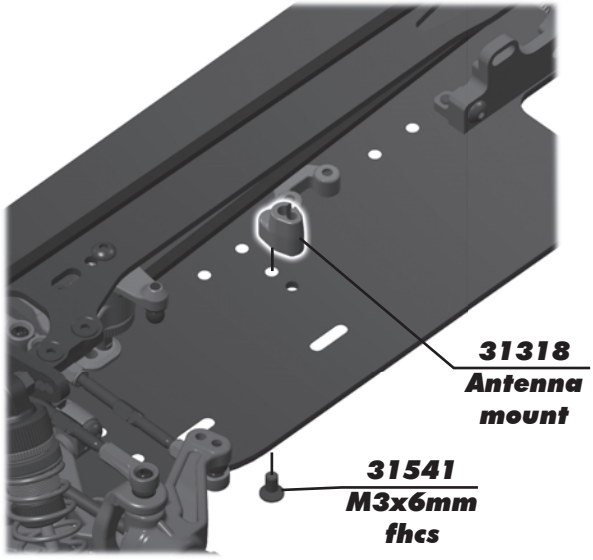
:: Battery Braces / Antenna Mount Install - Bag I - Step 1



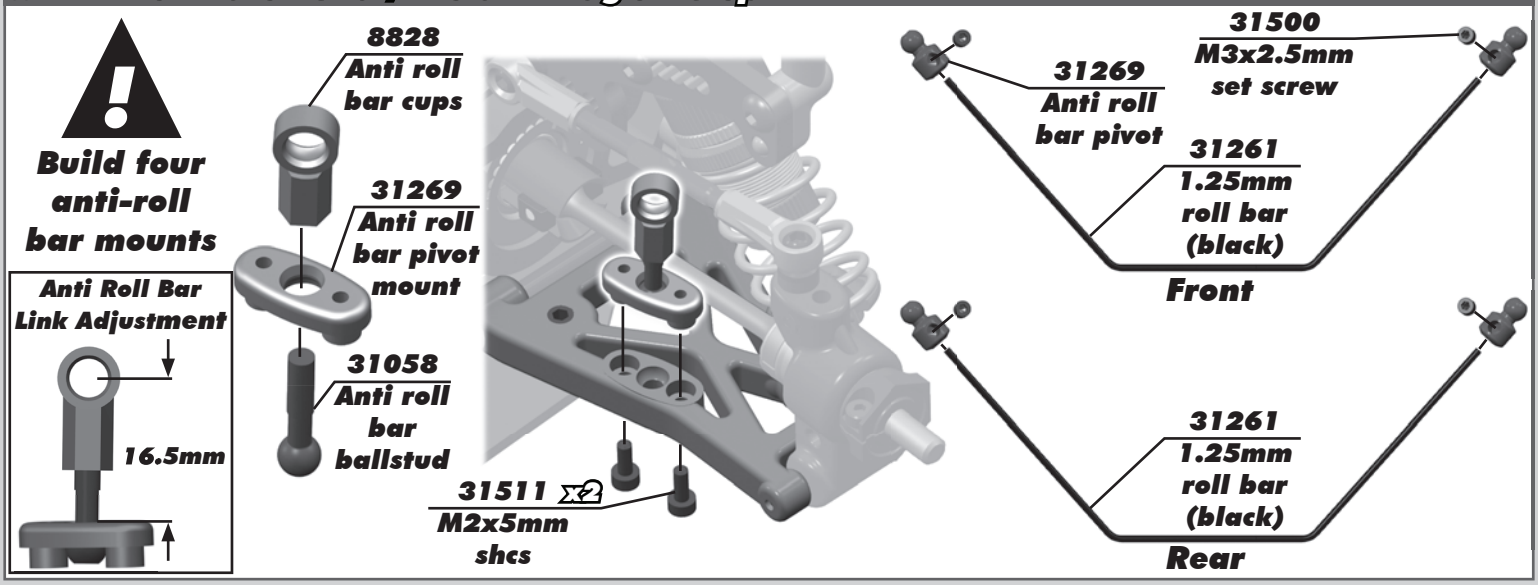


:: Battery Braces / Antenna Mount Install - Bag I - Step 2

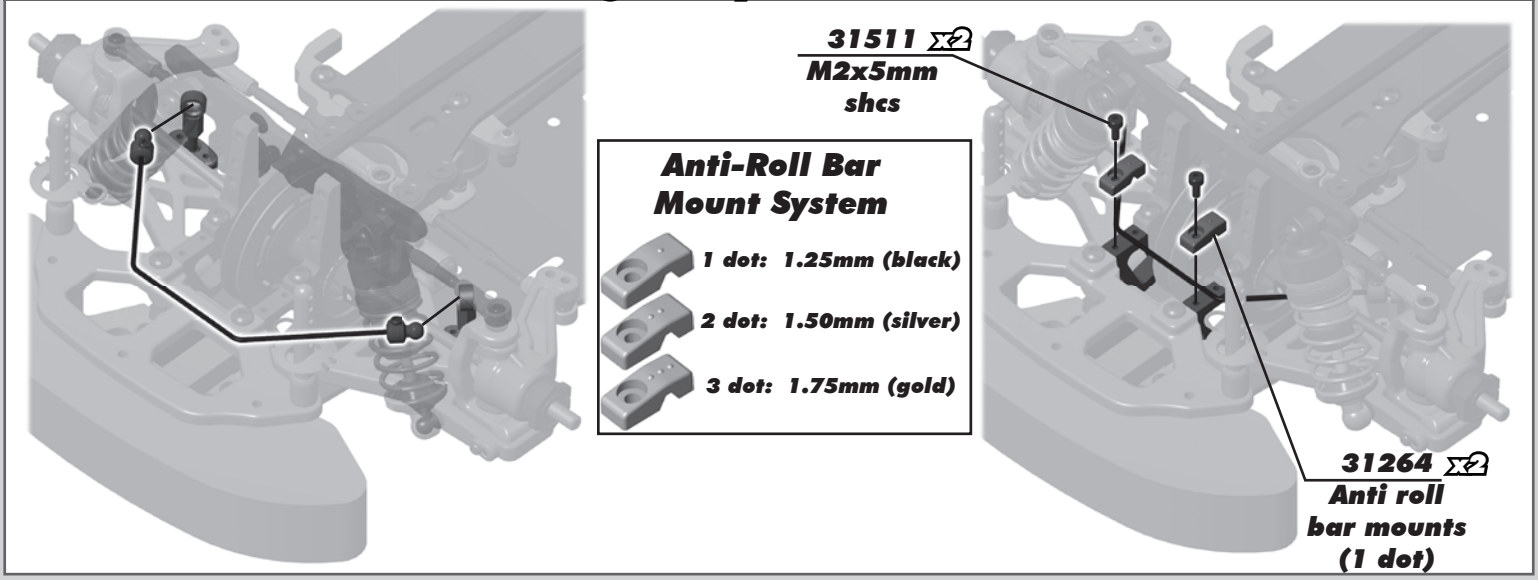




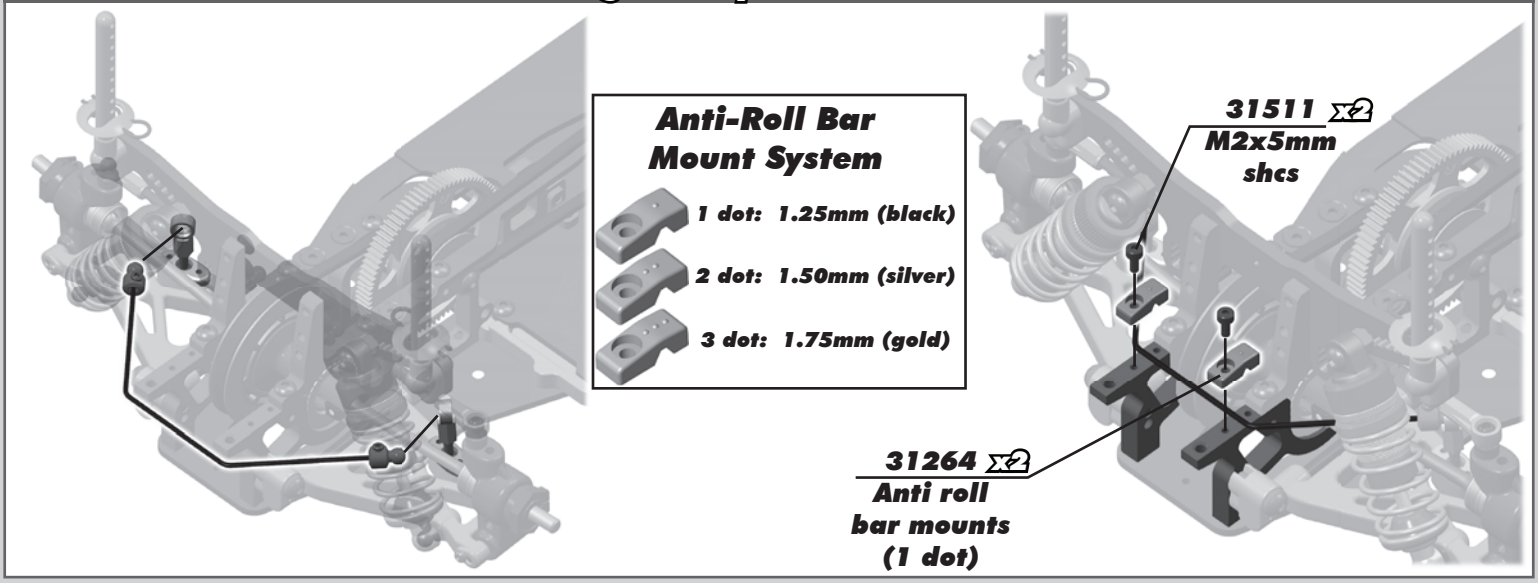
:: Anti-Roll Bars Build / Install - Bag J - Step 1



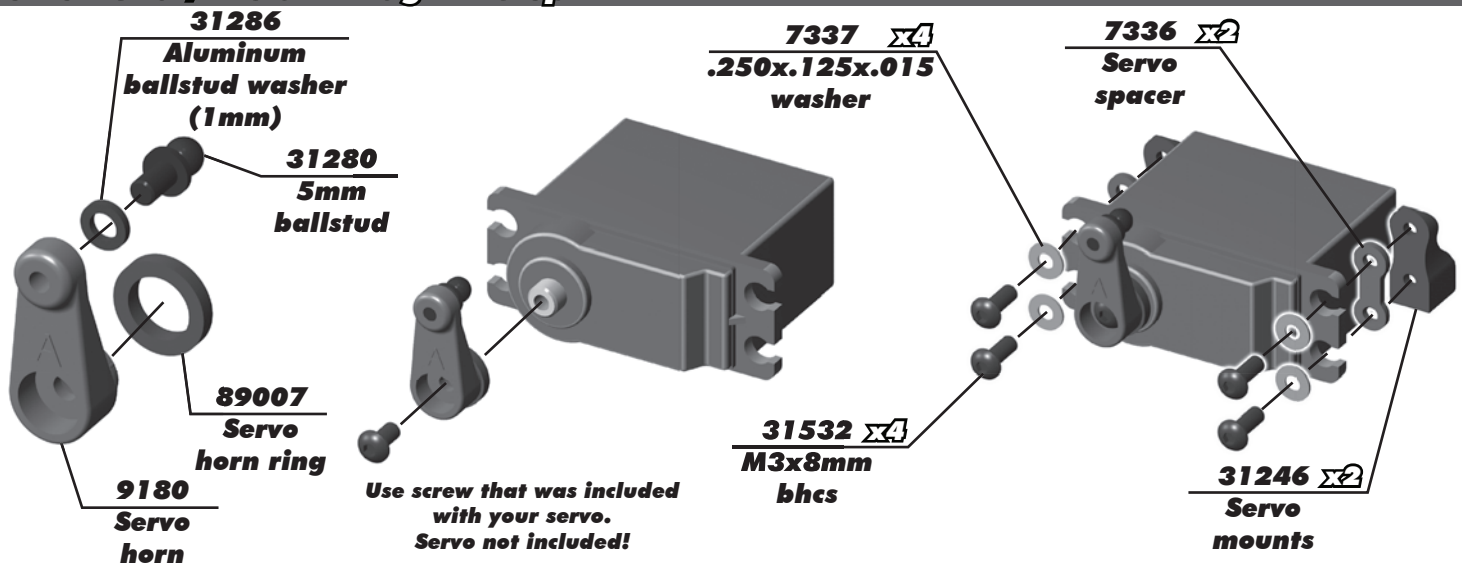
:: Anti-Roll Bars Build / Install - Bag J - Step 2



:: Anti-Roll Bars Build / Install - Bag J - Step 3



:: Servo Build / Install - Bag K - Step 1

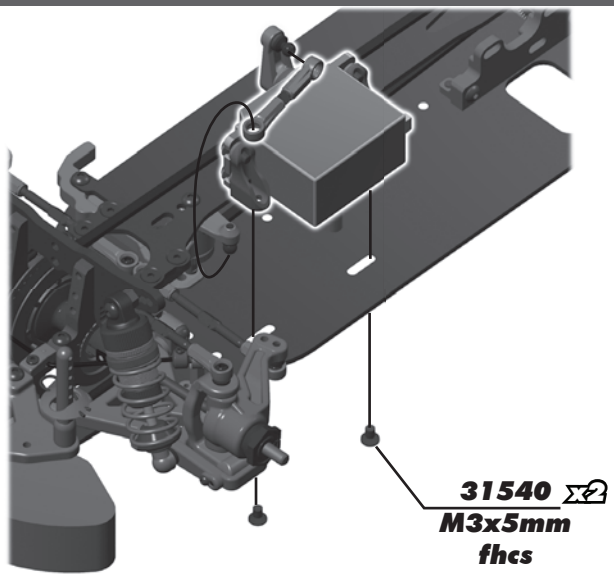


:: Servo Build / Install - Bag K - Step 2

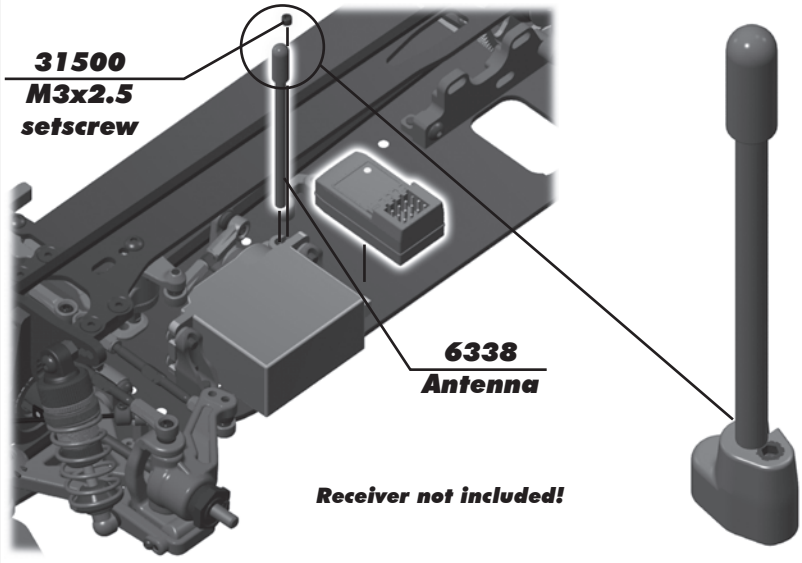
Steering Servo Chart

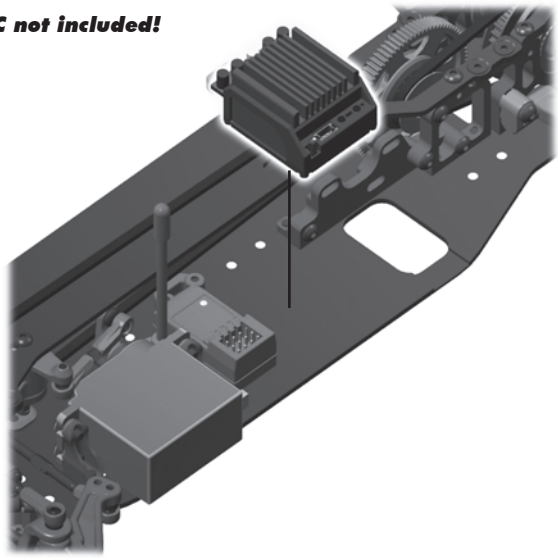
		# 9180 servo arm
Associated	XP-1015, XP-1313	F
Airtronics	94102	A
Airtronics	94738, 94157, 94158, 94257, 94258, 94357, 94358, 94452, 94453, 94751, 94755	A
Hitec	HS-5625MG, HS-5645MG, HS625MG, HS645MG	H
Hitec	HS-322HD, HS-325HB, HS-965, HS-985MG, HS-5965, HS-5985MG, HS-425BB, HS-422	H
JR	Z4725, Z4750, Z2750, Z8450, Z8550, NES-4750	J
JR	Z250, Z550	J
Futaba	S9204, S9250, S9450, S148	F
Futaba	S3003, S9202, S9101	F
Futaba	S9404	F
KO	PS-401, PS-2001, PS-2004, PS-2015, PS-2173, PS-2174, PS-2123, PS-2143, PS-2144	J

* Not all servo's are listed
* Make sure servo linkage clears the servo through full travel in both directions. Use #7336 servo spacers to adjust servos position

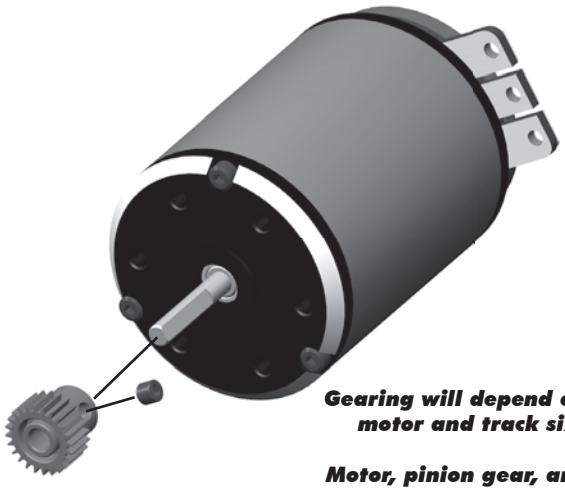


:: Electronics Install - Bag L - Step 1



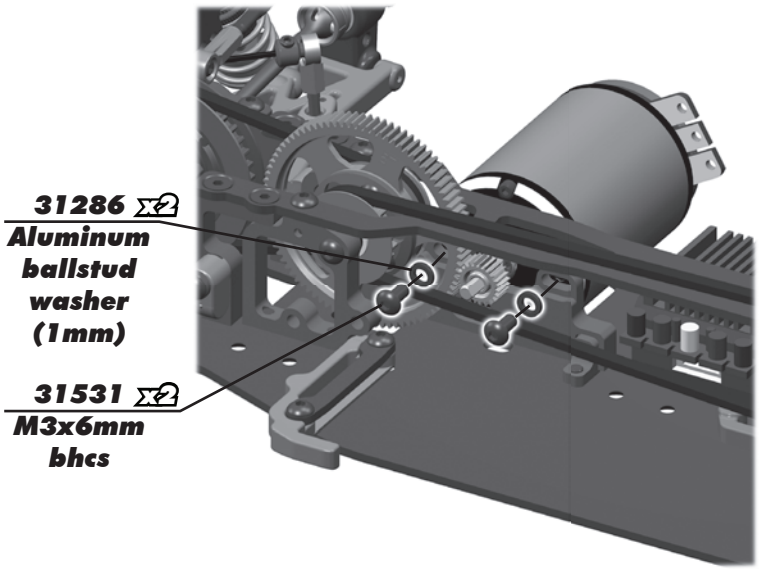


:: Electronics Install - Bag L - Step 2

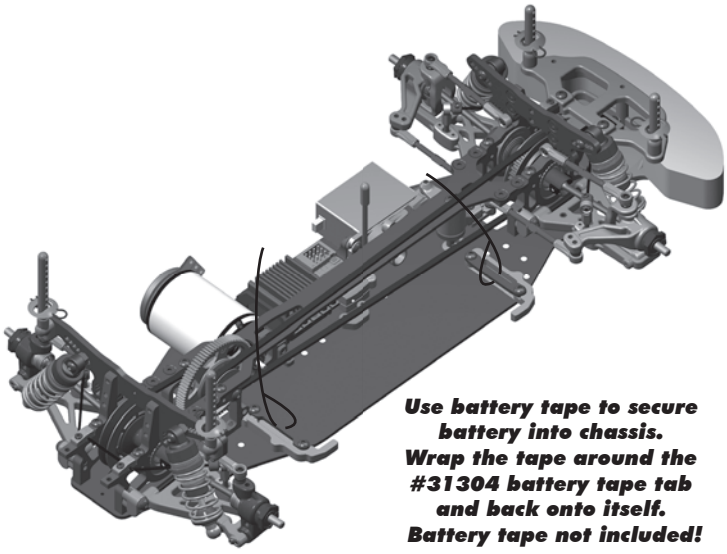


Gearing will depend on the motor and track size.

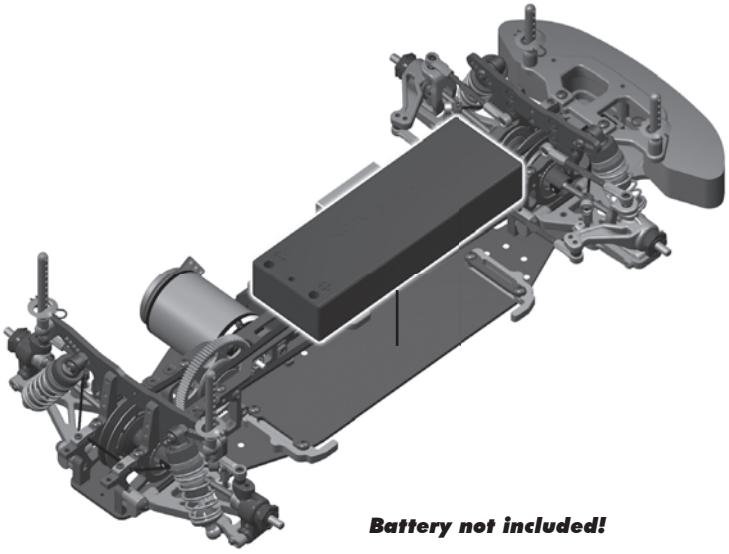
Motor, pinion gear, and set screw are not included!



:: Electronics Install - Bag L - Step 3

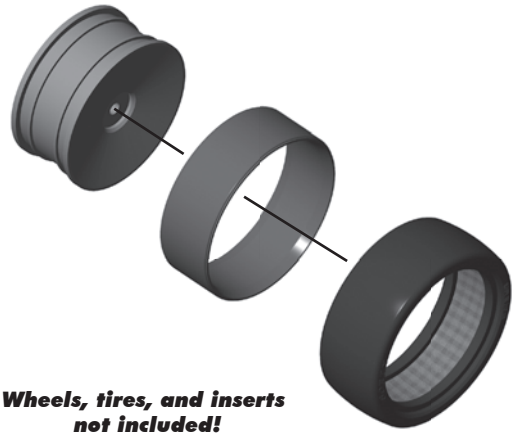


Use battery tape to secure battery into chassis. Wrap the tape around the #31304 battery tape tab and back onto itself. Battery tape not included!

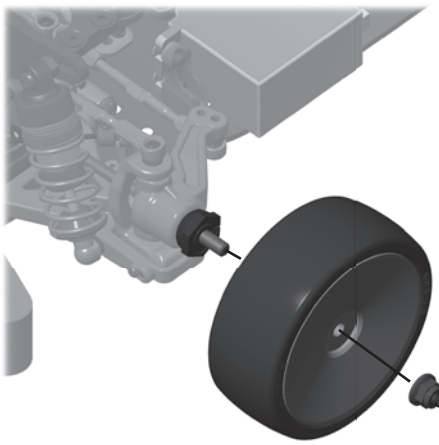


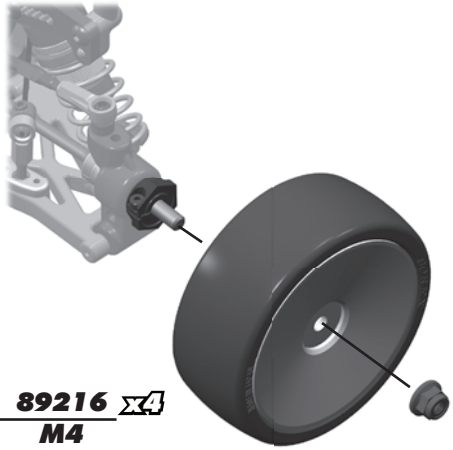
Battery not included!

:: Wheel & Tire Build / Install - Bag L - Step 4



Wheels, tires, and inserts not included!





:: Tuning Tips

Tips for Beginners:

Before making any changes to the standard setup, make sure you can get around the track without crashing. Changes to your car will not be beneficial if you can't stay on the track. Your goal is consistent laps.

Once you can get around the track consistently, start tuning your car. Make only ONE adjustment at a time, testing it before making another change. If the result of your adjustment is a faster lap, mark the change on the included setup sheet (make additional copies of the sheet before writing on it). If your adjustment results in a slower lap, revert back to the previous setup and try another change.

When you are satisfied with your car, fill in the setup sheet thoroughly and file itaway. Use this as a guide for future track days or conditions.

Ride Height:

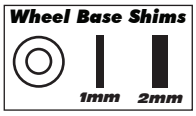
The standard starting point for ride height is 5.0mm (keep in mind that your local track may have minimum ride height requirements). You can slightly raise the rear relative to the front to give the car more steering. Raise the car slightly for tracks with large bumps.

Battery Placement:

For most cases, run the battery in the standard forward position. Typically this will be the most stable and easiest to drive. Try moving the battery back if you encounter a low traction surface.

Wheelbase:

Lengthening the front will reduce steering, shortening the front will increase steering. Shortening the rear will increase rear grip, lengthening the rear will decrease rear traction.



Rear Toe-In:

Decreasing toe-in will decrease rear traction and increase corner speed. Use numbered toe shims for adjustment.

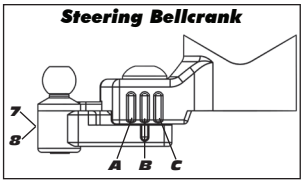
Ackermann & Steering Rate:

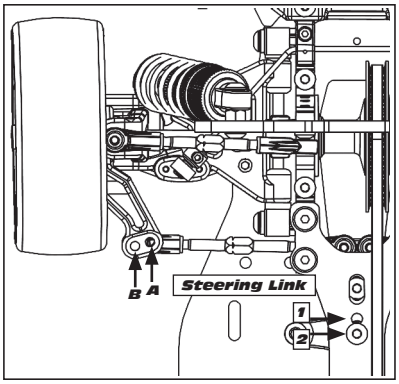
Ackermann refers to the relative angle difference between the front wheels as they are turned to steer the car. The outside wheel will turn less than the inside wheel in most conditions. Settings with more Ackermann will have a bigger difference in wheel angle, causing the outside wheel to turn less. Likewise, settings with less Ackermann will cause the outside wheel to turn more.

Increasing the Ackermann will smooth out the steering and is used most often on high traction surfaces such as carpet. This is a result of the reduced outside wheel angle. Settings with reduced Ackermann will help to increase corner entry steering, and are typically used when running a spool in the front.

The steering rate is also adjusted when changing the length of the steering bellcrank. There are three rate options. The shortest position (position C) produces a slower speed than the longest position (position A). Slower steering rates will make the car less aggressive, making it easier to drive. These settings are good for high traction conditions such as carpet.

The chart to the right lists the different Ackermann options along with their associated steering rates.





Steering Link	Steering Bellcrank	Steering Speed	
2A	7B	Fast	Less Ackermann
2A	8B	Fast	
1C	7B	Slow	
1C	8B	Slow	
2B	7B	Medium	
2B	8B	Medium	
2A	7A	Fast	
2A	8A	Fast	
2C	7B	Slow	More Ackermann
1C	7A	Slow	
2C	8B	Slow	
1C	8A	Slow	
2B	7A	Medium	
2B	8A	Medium	
2C	7A	Slow	
2C	8A	Slow	

:: Tuning Tips

Caster:

Caster describes the angle of the kingpin from vertical while looking from the side of the car. Positive caster means the top of the kingpin leans rearward. Negative caster means the kingpin is leaning towards the front of the car. Since caster is measured at the wheel, it is affected by running any inclination in your inboard arm mount. Kick-up adds (+) caster, and anti-dive adds (-) caster.

When figuring out your caster at the wheel, add the number of degrees of kick-up or anti-dive and add it to the degree caster blocks you have on the car.

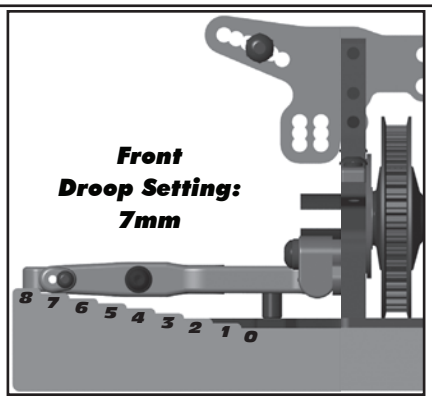
Typically for most racing surfaces, 4 degrees caster is the normal starting point for the Team. From there, increase caster to reduce mid to exit steering and make the front end less responsive. Conversely, decreased caster gives a more responsive feel and more exit steering.

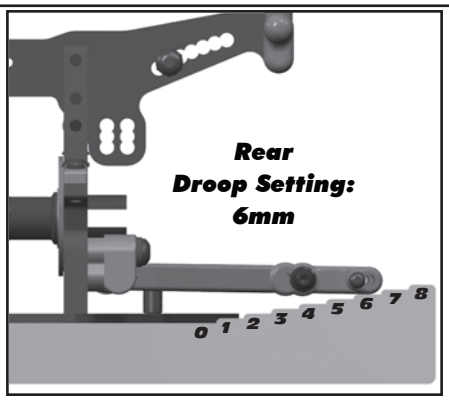
Droop:

The standard settings of 7mm front and 6mm rear will work best in most cases. Droop is measured just underneath the outer hinge pin as shown in the photos to the right.

On bumpy or low grip surfaces, increase the droop (going to a lower number on the droop gauge), this will help increase traction and consistency.

Droop adjustments of 0.5mm to 1mm can be very effective on the track!





Camber Link Position:

The camber link is used to set static camber at ride height, but it is also an effective setting to adjust roll center height and camber gain. The TC6 has 7 positions for the front camber link, and 14 for the rear. These positions vary in both length and angle.

Longer links will produce less camber gain, stiffening that particular end of the car in roll. These are particularly effective on large tracks with big sweeping corners. Shorter links will give more camber gain, softening that end of the car in roll. This will make the car more aggressive, and is a good setting for smaller indoor tracks with high grip levels.

The angle of the camber link will make fine adjustments to the roll center height. Typically the camber link will be no more than parallel to the suspension arm with the inboard side of the link lower than the outboard side. As the inboard side of the camber link is moved down, the roll center goes up, stiffening that end of the car. Camber link angle is a good adjustment to help fine tune the balance of the car to the track by setting the front and rear at slightly different angles.

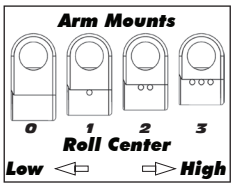
Arm Mount Position:

The TC6's arm mounting system allows for maximum adjustability for all track and racing conditions. Six arm mount positions allow you to run the pins flat, or with angle to produce kick-up, anti-dive, anti-squat, and pro-squat. The arm mounts are indicated zero, one, two, and three, with the corresponding number of dots on the outer face. Zero is the lower roll center and three the higher roll center, with one and two in order between.

Each bulkhead has two positions to attach the arm mount to. The lower position (A) is used for the lowest roll center options, and the upper position (B) is used for the highest roll center options.

In general, lower roll centers will effectively make the car softer in roll, allowing the car to lean more in the corners. Lower roll center positions are good for low traction conditions. If the grip level is high, then raising the roll centers to a higher position will help to stiffen the car in roll making it more stable.

The following chart shows some examples of arm mounting positions along with their resulting arm angles shown in degrees.



Front

Fwd Mount	Rwd Mount	Result	Roll Center
3B	3B	Flat	High
3B	2B	1˚ Kick Up	
2B	3B	1˚ Anti Dive	
3B	1B	2˚ Kick Up	
1B	3B	2˚ Anti Dive	
2B	2B	Flat (std)	
2B	1B	1˚ Kick Up	
1B	2B	1˚ Anti Dive	
2B	0B	2˚ Kick Up	
0B	2B	2˚ Anti Dive	Std.
1B	1B	Flat	
1B	0B	1˚ Kick Up	
0B	1B	1˚ Anti Dive	Low
0B	0B	Flat	

Rear

Fwd Mount	Rwd Mount	Result	Roll Center
3B	3B	Flat	High
3B	2B	1˚ Anti Squat	
2B	3B	1˚ Pro-Squat	
3B	1B	2˚ Anti Squat	
1B	3B	2˚ Pro-Squat	
2B	2B	Flat	
2B	1B	1˚ Anti Squat	
1B	2B	1˚ Pro-Squat	
2B	0B	2˚ Anti Squat	
0B	2B	2˚ Pro-Squat	Std.
1B	1B	Flat	
1B	0B	1˚ Anti Squat	
0B	1B	1˚ Pro-Squat	Low
0B	0B	Flat	

:: Tuning Tips

Kick-Up (front):

Kick-up describes the angle of the front suspension arm, where the front mount is higher than the rear mount. Increasing kick-up will give more entry steering, as well as increasing caster at the wheel.

Anti-Dive (front):

Anti-dive is a front arm angle where the rear mount is higher than the front mount. Adding anti-dive reduces weight transfer to the front on deceleration entering corners. It also reduces caster at the wheel.

Anti-Squat (rear):

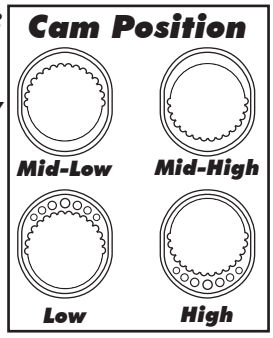
Anti-Squat describes a rear arm angle where the front mount is higher than the rear mount. Increasing anti-squat will make the rear suspension stiffer. It tends to give the car more entry steering and reduce rearward weight transfer on power.

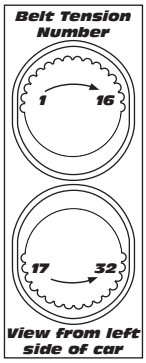
Pro-Squat (rear):

Pro-squat is a rear arm angle where the rear mount is higher than the front mount. Running Pro-Squat will increase rearward weight transfer on power.

Belt Tension:

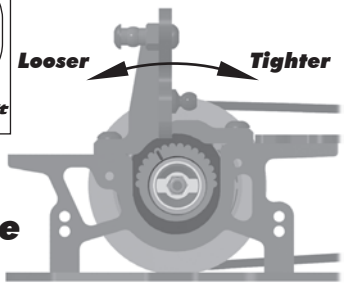
When altering the differential height, you will need to adjust the tension of the belt. The following chart shows suggested starting positions.

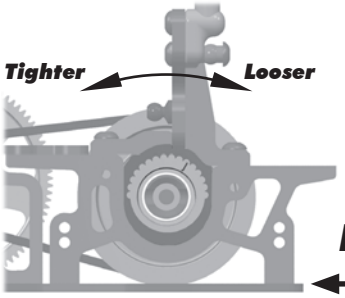




Front	Height	Pos.
	High	31
	Mid-High	28
	Mid	9
	Low	6

Rear	Height	Pos.
	High	18
	Mid-High	20
	Mid	6
	Low	8





Note! Charts show left side cam positions from the left side of the car. Match right side cam position to left side cam position.

Motor Gearing:

The following chart shows final drive ratio numbers for the TC6. Refer to motor manufacturer's suggested gear ratio for starting point. You may need to adjust the gearing according to your track size.

The following formula's can be helpful in determining final drive ratios and pinion size.

TC6 Internal Ratio = 2.0

$$\text{Final Drive Ratio} = \frac{\#\text{ of Teeth Spur} \times \text{Internal Ratio}}{\#\text{ of Teeth on Pinion}}$$

$$\#\text{ of Teeth on Pinion} = \frac{\#\text{ of Teeth on Spur} \times \text{Internal Ratio}}{\text{Final Drive Ratio}}$$

Pinion teeth (48 Pitch)	Spur Gear Teeth (48 Pitch) 80	81	82	83	84	85	86	87
17	9.41	9.53	9.65	9.76	9.88	10.00	10.12	10.24
18	8.89	9.00	9.11	9.22	9.33	9.44	9.56	9.67
19	8.42	8.53	8.63	8.74	8.84	8.95	9.05	9.16
20	8.00	8.10	8.20	8.30	8.40	8.50	8.60	8.70
21	7.62	7.71	7.81	7.90	8.00	8.10	8.19	8.29
22	7.27	7.36	7.45	7.55	7.64	7.73	7.82	7.91
23	6.96	7.04	7.13	7.22	7.30	7.39	7.48	7.57
24	6.67	6.75	6.83	6.92	7.00	7.08	7.17	7.25
25	6.40	6.48	6.56	6.64	6.72	6.80	6.88	6.96
26	6.15	6.23	6.31	6.38	6.46	6.54	6.62	6.69
27	5.93	6.00	6.07	6.15	6.22	6.30	6.37	6.44
28	5.71	5.79	5.86	5.93	6.00	6.07	6.14	6.21
29	5.52	5.59	5.66	5.72	5.79	5.86	5.93	6.00
30	5.33	5.40	5.47	5.53	5.60	5.67	5.73	5.80
31	5.16	5.23	5.29	5.35	5.42	5.48	5.55	5.61
32	5.00	5.06	5.13	5.19	5.25	5.31	5.38	5.44
33	4.85	4.91	4.97	5.03	5.09	5.15	5.21	5.27
34	4.71	4.76	4.82	4.88	4.94	5.00	5.06	5.12