

# 12R5.1 FACTORY Team

1:12 Scale Electric 2WD Competition Car Kit  
#4019



1:12 Scale Electric 2WD Competition Car Kit Manual

# TEAM ASSOCIATED



**Thank you!** ...for selecting this Team Associated model.

Associated's Factory Team 12R5.1 is Area-51's answer to the most competitive 12th scale fields to date. Starting with the IFMAR World Championship Winning RC12R5 platform, and building on many decades of race winning experience and new ideas, the designers in Area-51 built the RC12R5.1. With electronic technology improving at a more rapid rate than ever, this new platform has put latest brushless motors and LiPo battery packs at a priority. The result is the RC12R5.1, an electric race car that offers the performance and durability to stand up to the highest demands of racing.

Team Associated wants you to enjoy the process of building, driving and maintaining your new model. If you discover any problems or need help with the assembly of your model, please give us a call and we will do our very best to help you!

## Manual

Examine each step carefully before building. Special notes will be listed for each step.

## Bags

Open the bags in order according to each step. The bags are listed in the manual steps. Some bags contain a large amount of small parts. We recommend using a small container to keep the parts together.

## Items Needed

You will need the following to complete your vehicle:

1. R/C two channel surface frequency radio system.
2. Electronic Speed Control.
3. R/C Electric Motor.
4. Battery pack.
5. Peak detection battery charger
6. Pinion gear (64P)
7. 1/12 scale Lexan body.
8. Wheels and tires.
9. Strapping Tape

## Customer Support

Tel: 949.544.7500

Fax: 949.544.7501

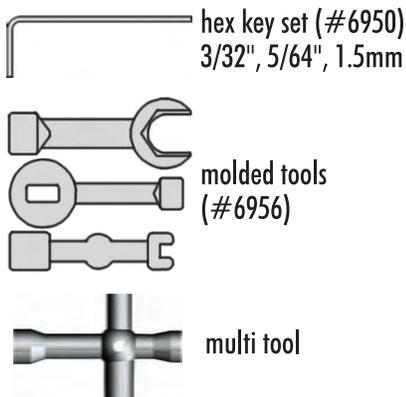
Hours: Monday-Friday  
8:00am - 4:00pm, pst

Visit the following web sites for tips, setup help and racing information:

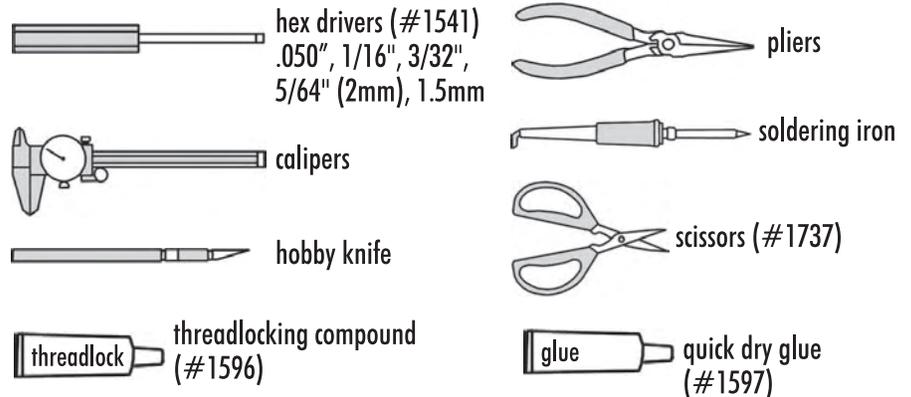
[www.RC10.com](http://www.RC10.com)  
[www.TeamAssociated.com](http://www.TeamAssociated.com)



## Supplied



## Recommended



## Suppl.

We are constantly developing new parts to improve our kits. These changes, if any, will be noted on supplementary sheets located in the appropriate parts bags. Check each bag for these sheets before you start to build.

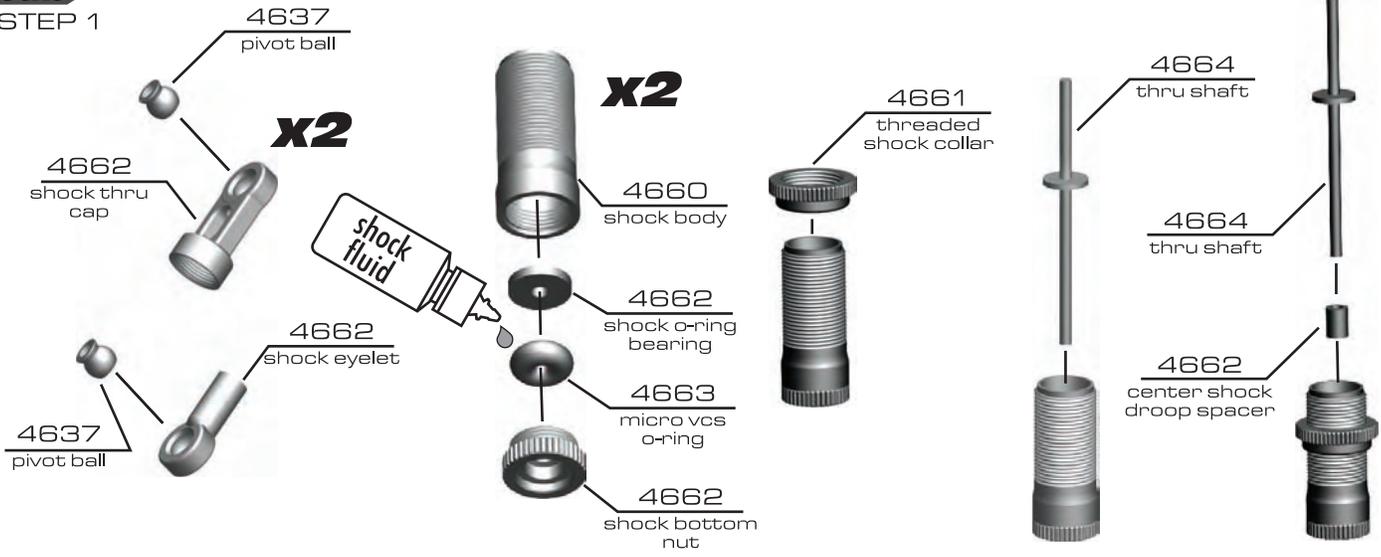
## Notes

There is an included 1:1 fold out in the back of the manual. Fold it out while building your kit for easy parts sizing!

**:: Shocks**

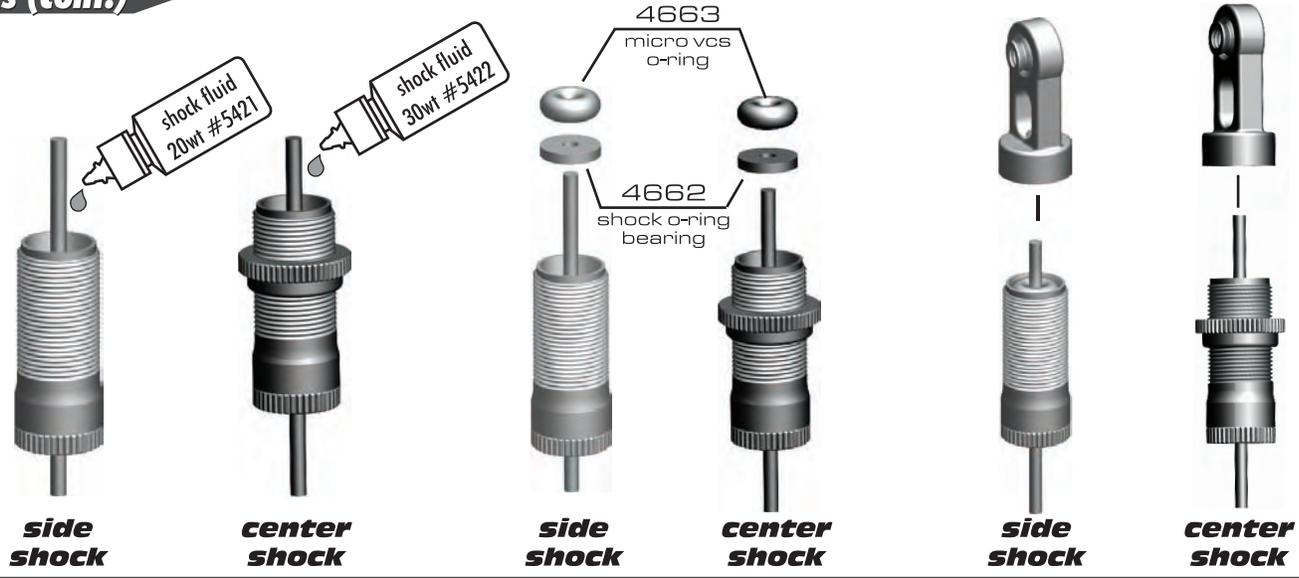
**BAG A-AA**

STEP 1



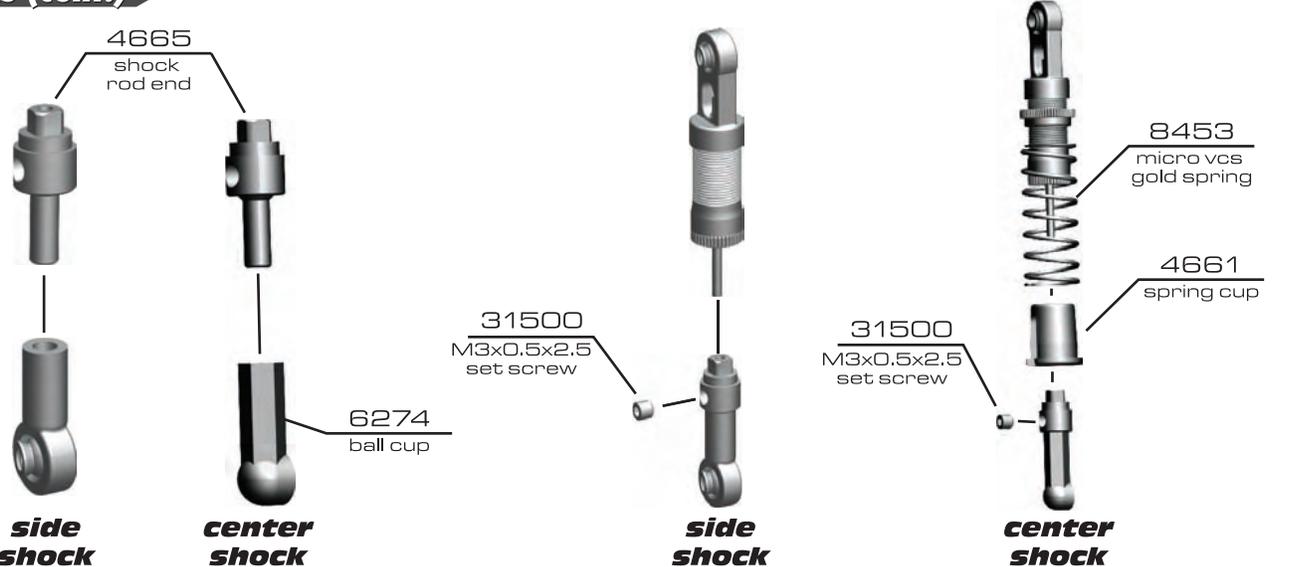
**:: Shocks (cont.)**

STEP 2



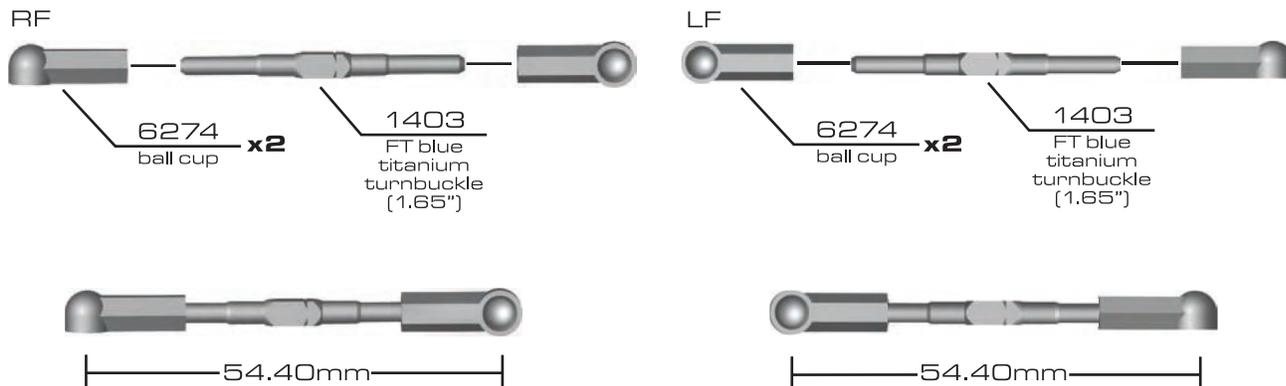
**:: Shocks (cont.)**

STEP 3



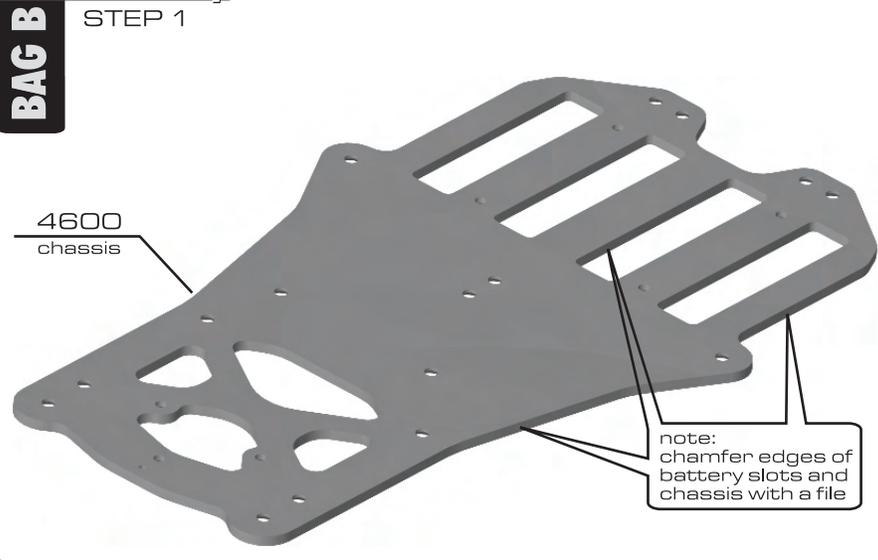
**:: Turnbuckles**

STEP 4



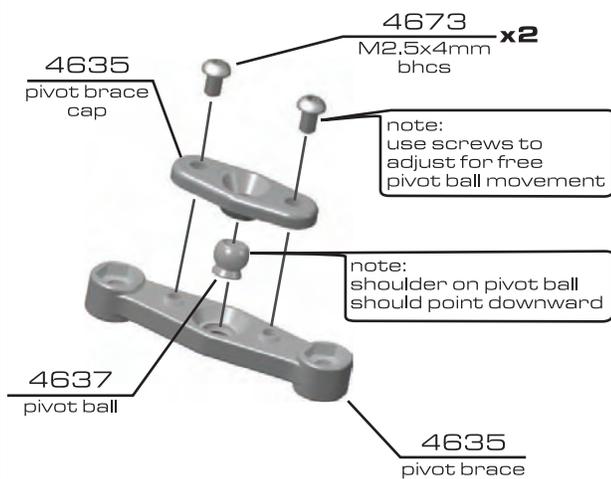
**:: Chassis Prep**

STEP 1



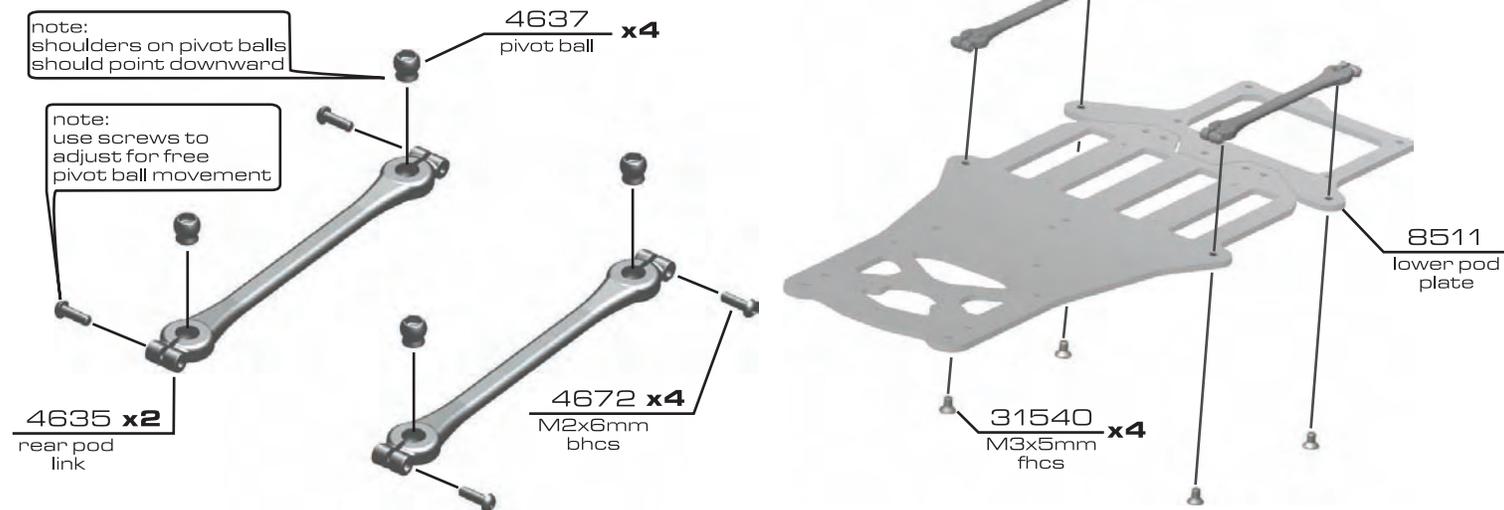
**:: Pivot Brace**

STEP 2



**:: Pivot Brace (cont.)**

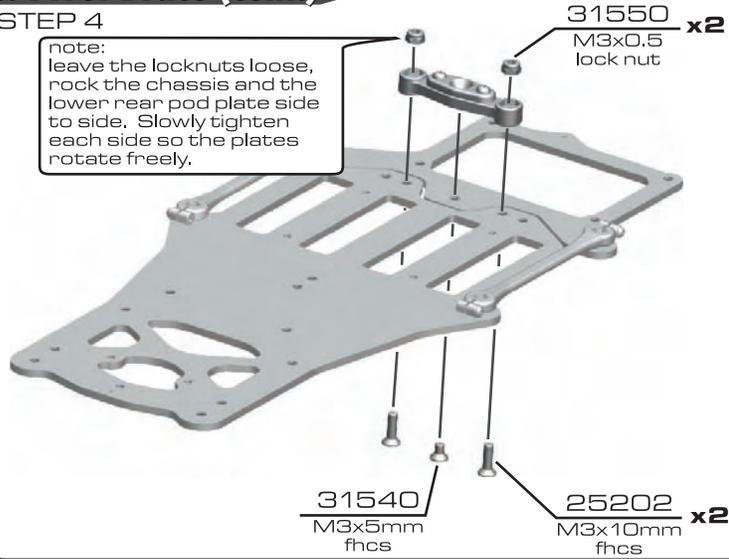
STEP 3



**:: Pivot Brace (cont.)**

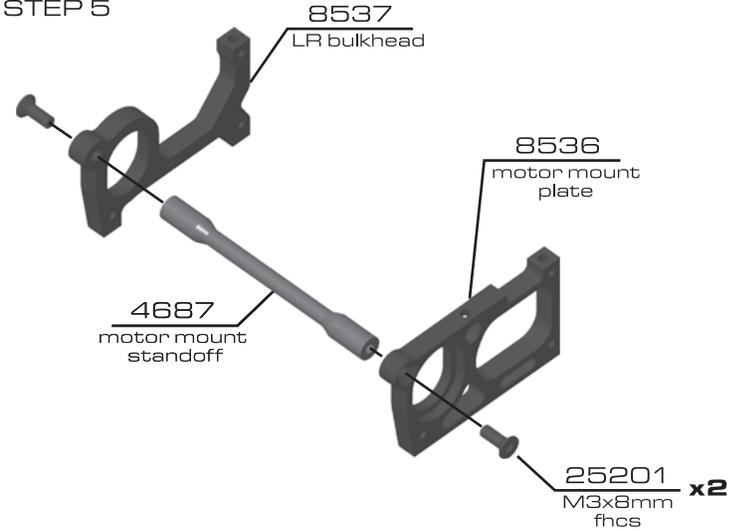
STEP 4

note:  
leave the locknuts loose,  
rock the chassis and the  
lower rear pod plate side  
to side. Slowly tighten  
each side so the plates  
rotate freely.



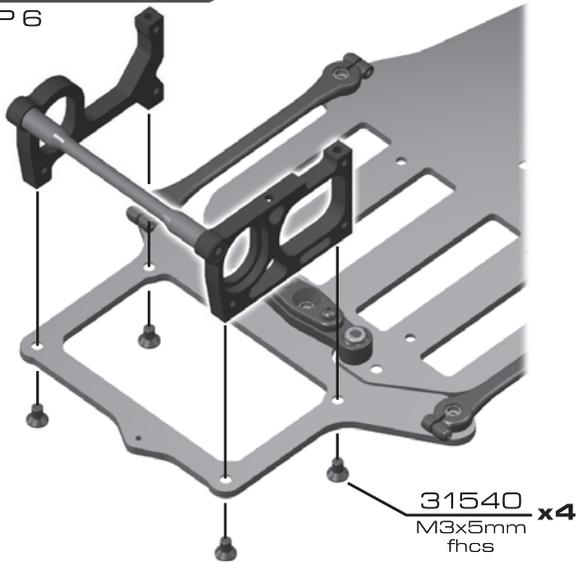
**:: Rear Bulkhead**

STEP 5



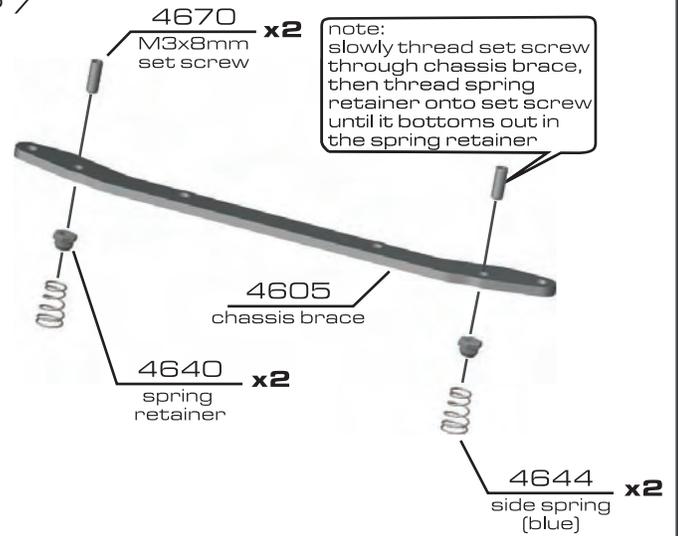
**:: Rear Bulkhead**

STEP 6



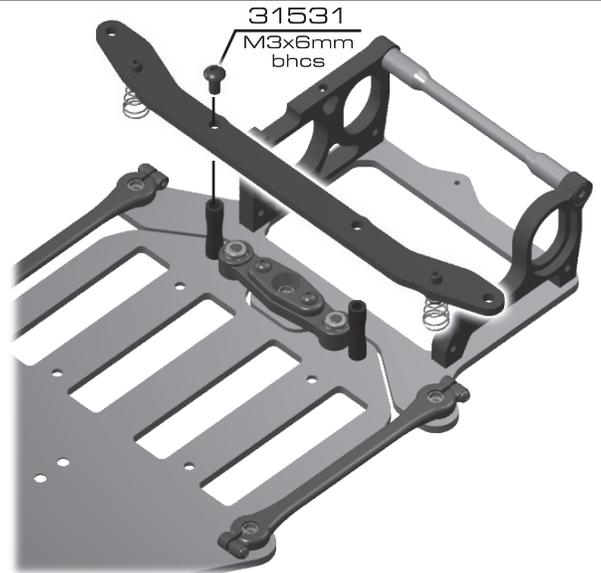
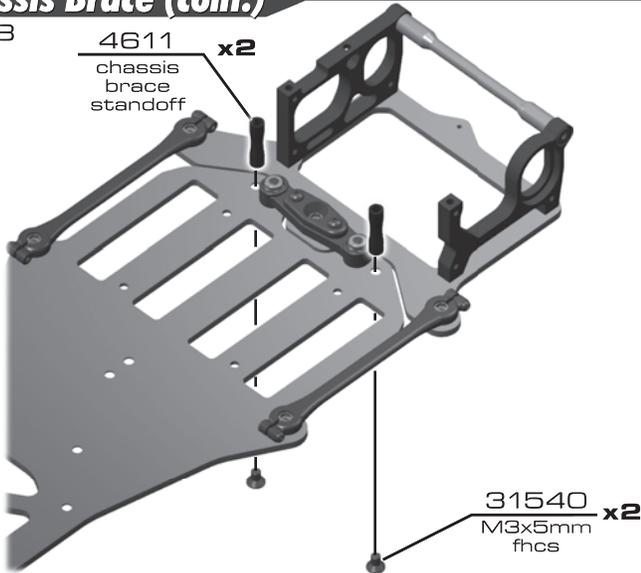
**:: Chassis Brace**

STEP 7



**:: Chassis Brace (cont.)**

STEP 8



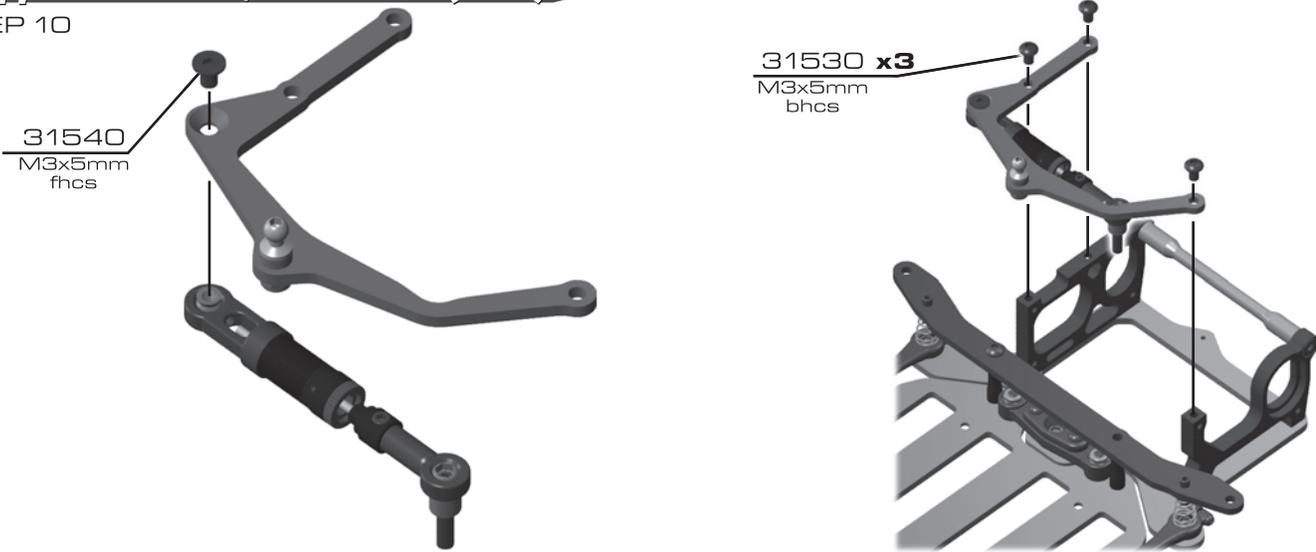
**:: Upper Pod Plate / Side Shock**

STEP 9



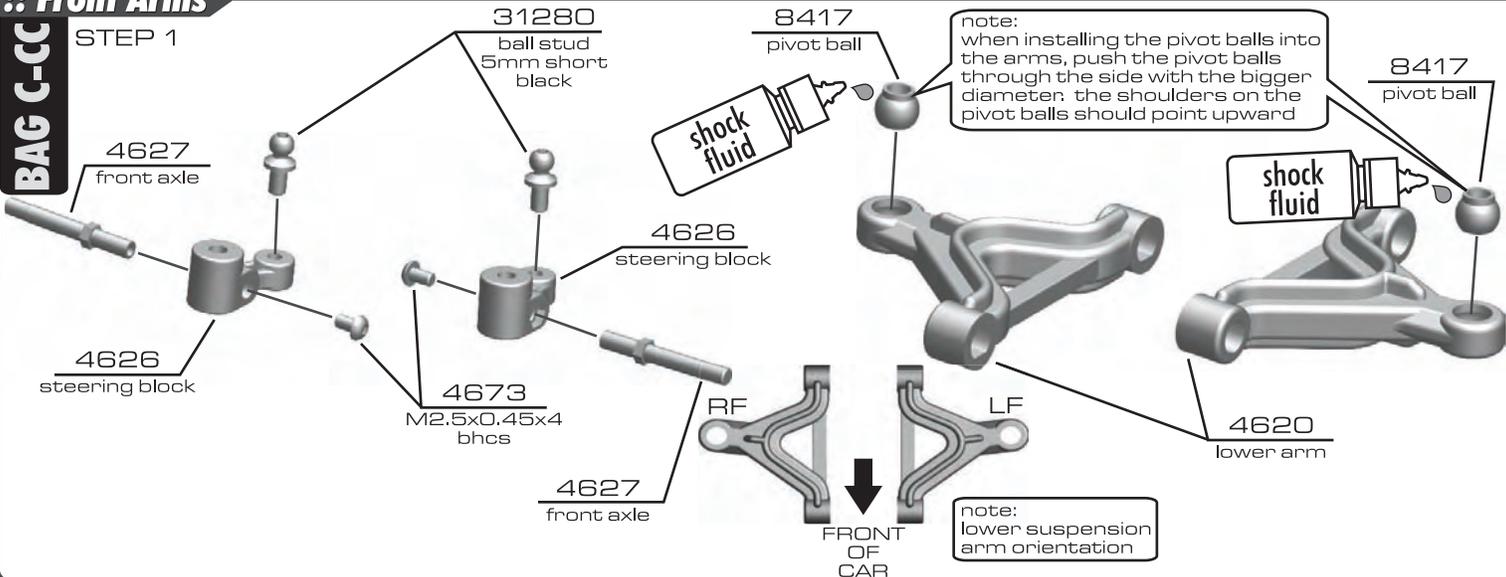
**:: Upper Pod Plate / Side Shock (cont.)**

STEP 10



**:: Front Arms**

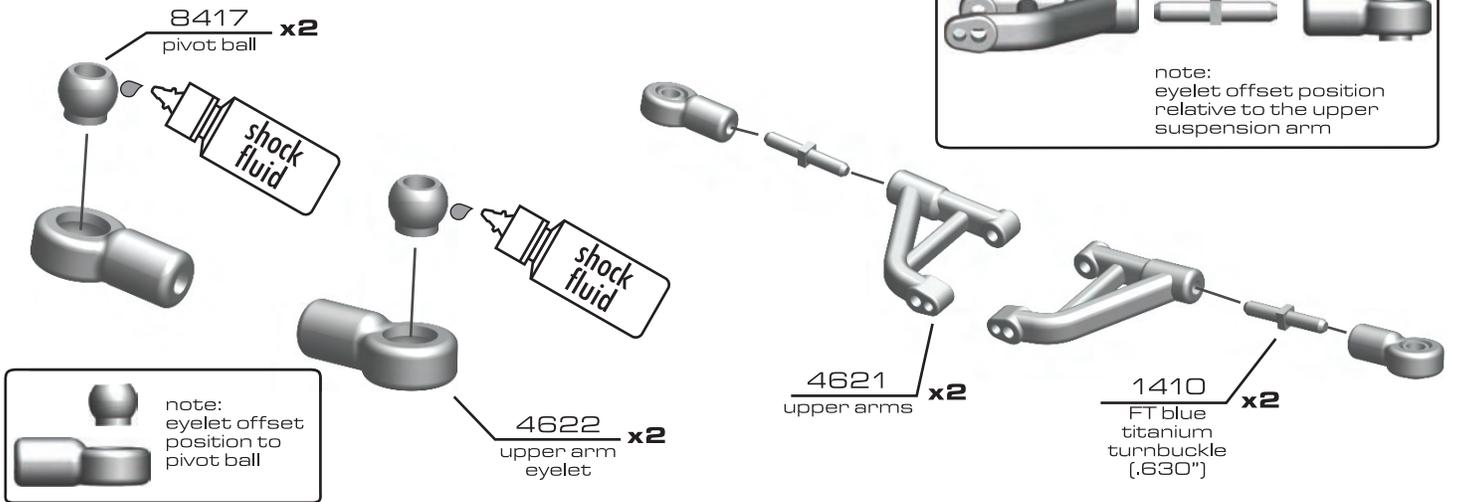
STEP 1



BAG C-CC

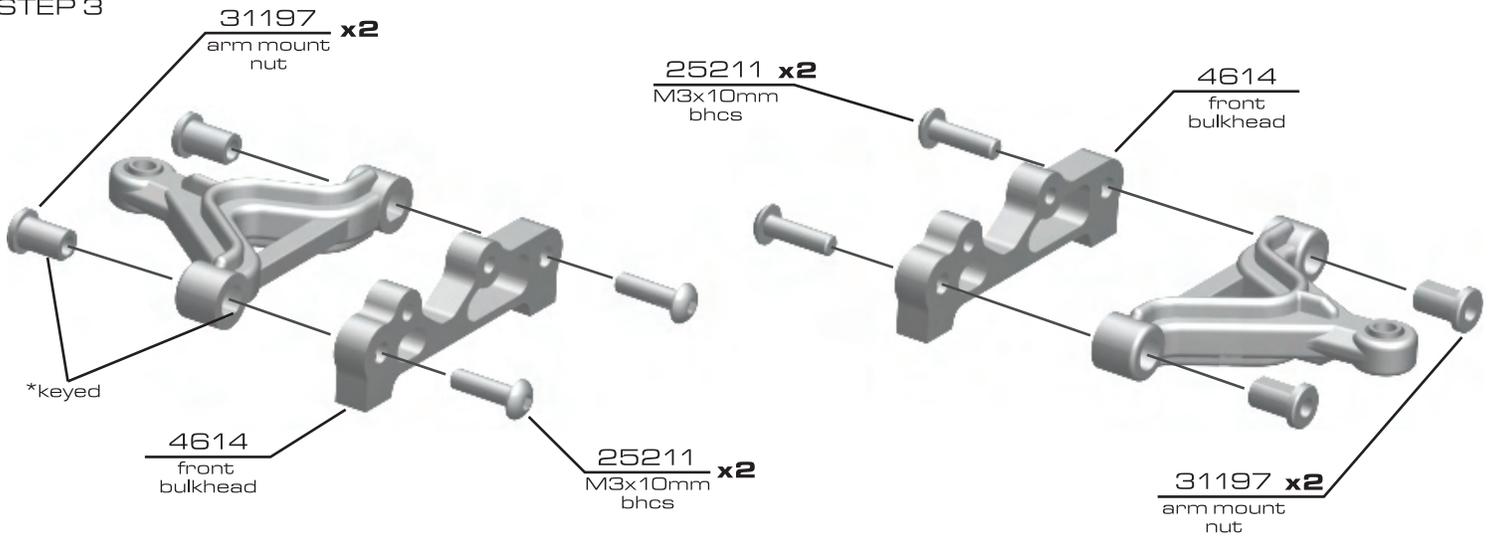
**:: Front Arms (cont.)**

STEP 2



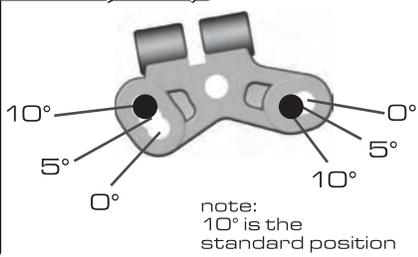
**:: Front Arms (cont.)**

STEP 3

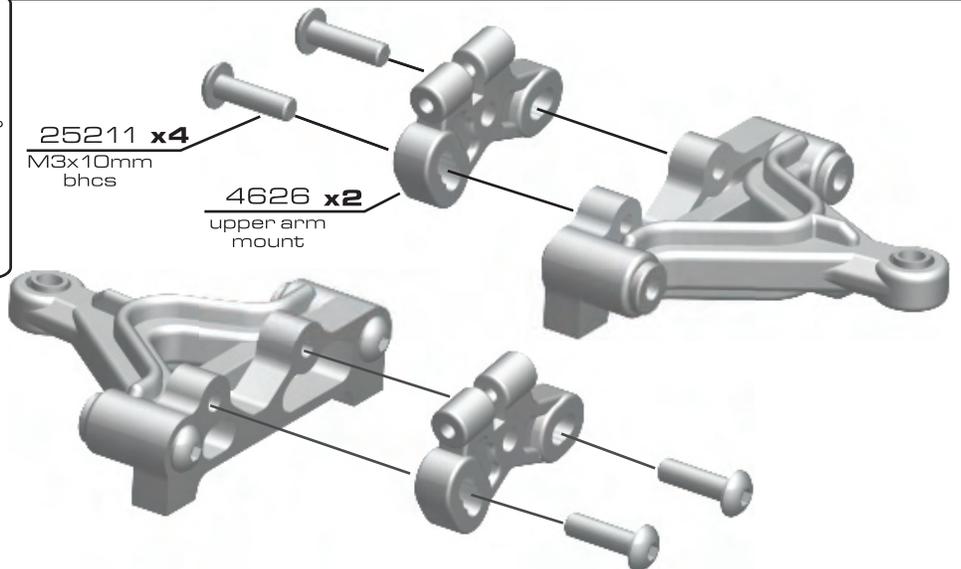


**:: Front Arms (cont.)**

**Upper Suspension Mount Active Caster Settings**

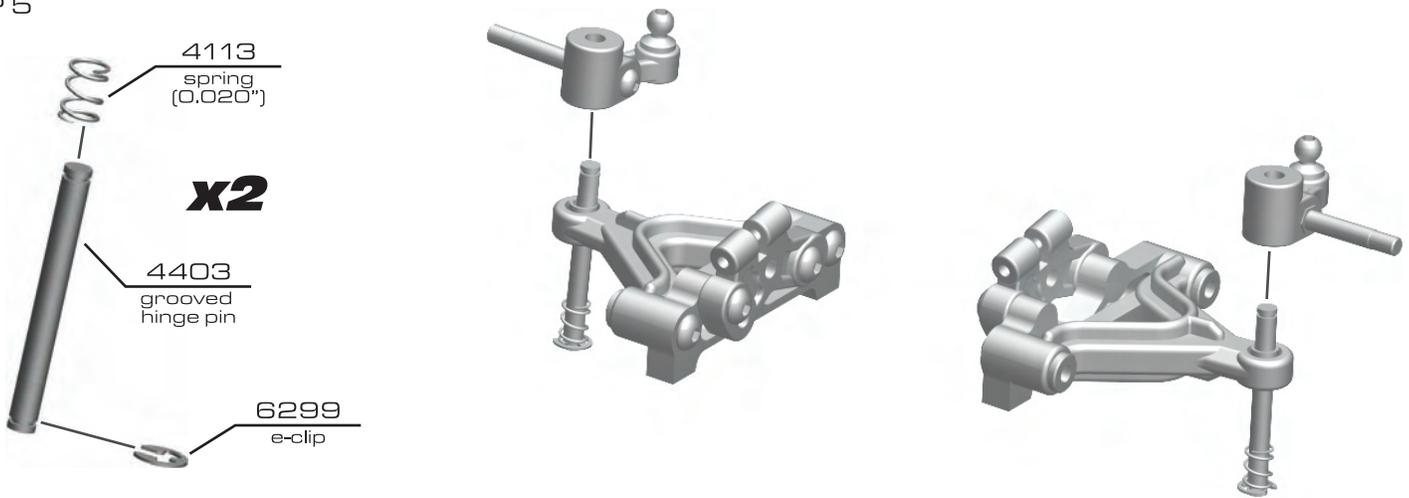


STEP 4



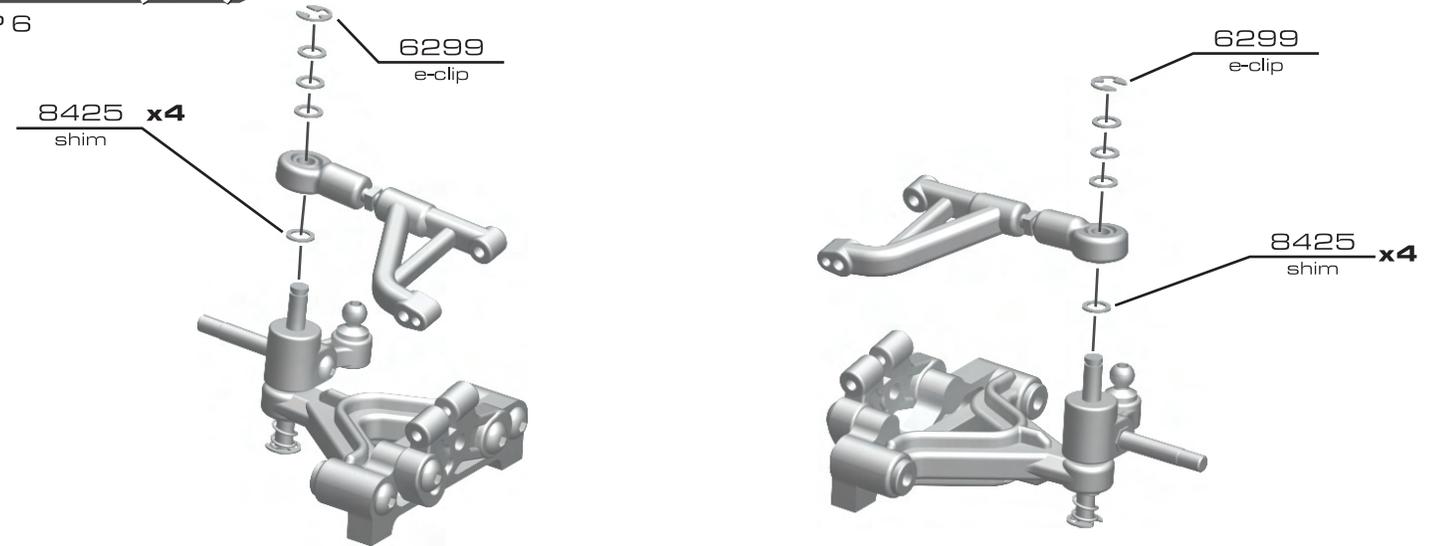
**:: Front Arms (cont.)**

STEP 5



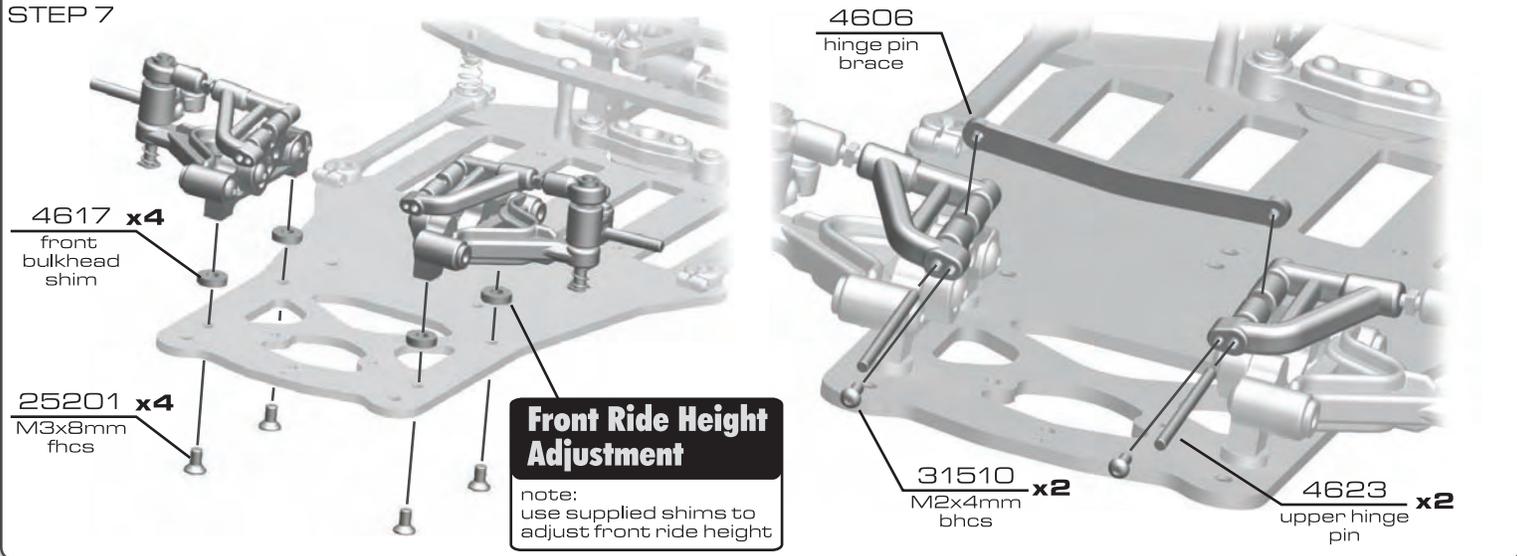
**:: Front Arms (cont.)**

STEP 6



**:: Front Bulkhead**

STEP 7

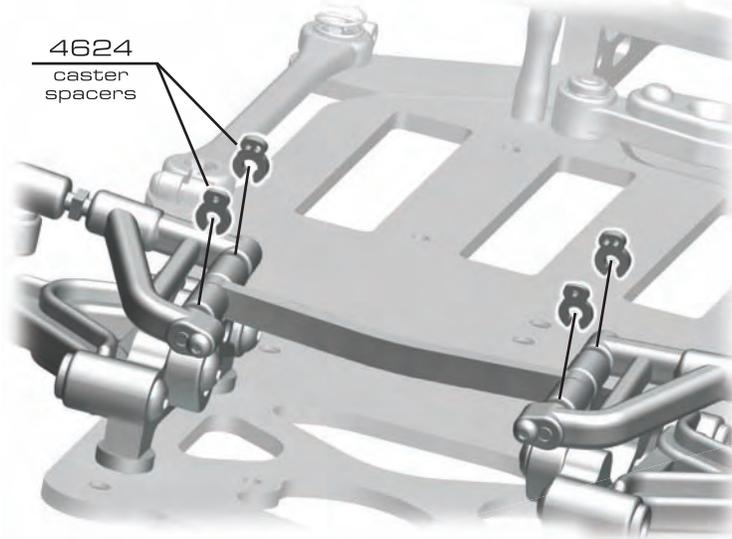


## :: Front Bulkhead (cont.)

STEP 8

**Caster Spacers**

0.8mm 1.2mm



**Caster Adjustments**



## :: Rear Axle

STEP 1

**BAG D-DD**

4565 rear axle

4615 spur gear 96T

897 x3 .250x.375x.125 bearing

8504 x2 diff d-rings

4608 right wheel hub (brushless)

4609 diff thrust cone (brushless)

4459 bellville washer

4185 plastic nut

6619 x12 .125 carbide diff balls

silicone lube #6336

**note:**  
Use nut to adjust differential tension (see page 13)

## :: Rear Axle (cont.)

STEP 2

4349 x2 ride height adjuster

4567 left wheel hub

4568 2-56x3.13 shcs

897 x2 .250x.375x.125 bearing

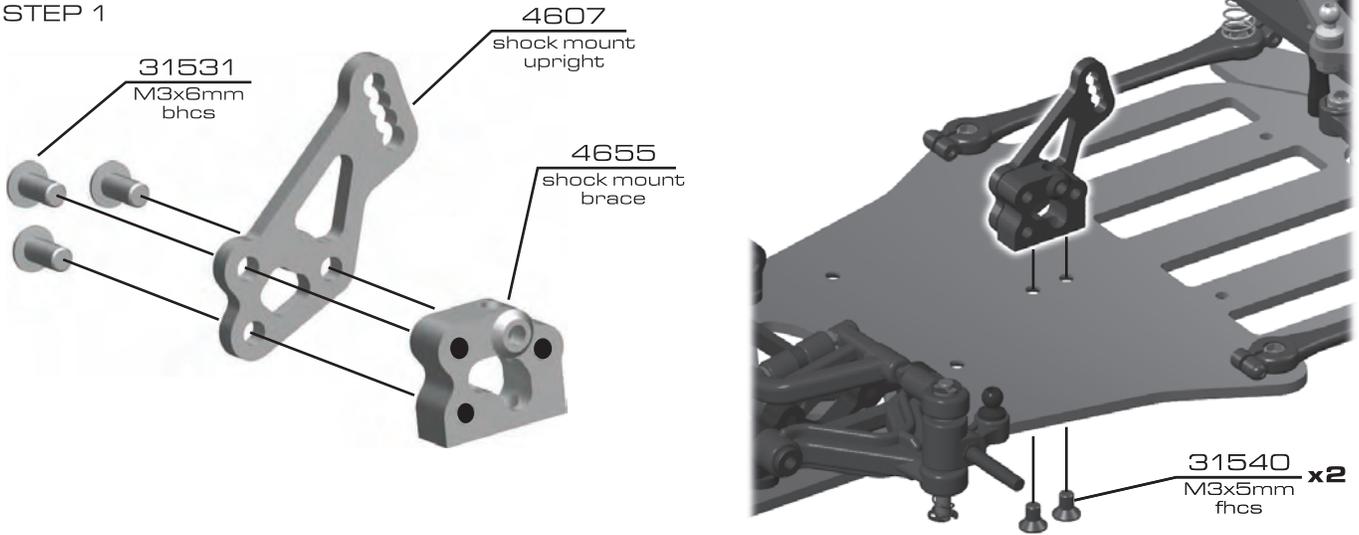
**note:** this end onto rear axle first

4554 x4 rear axle shims, .250"

**:: Center Shock**

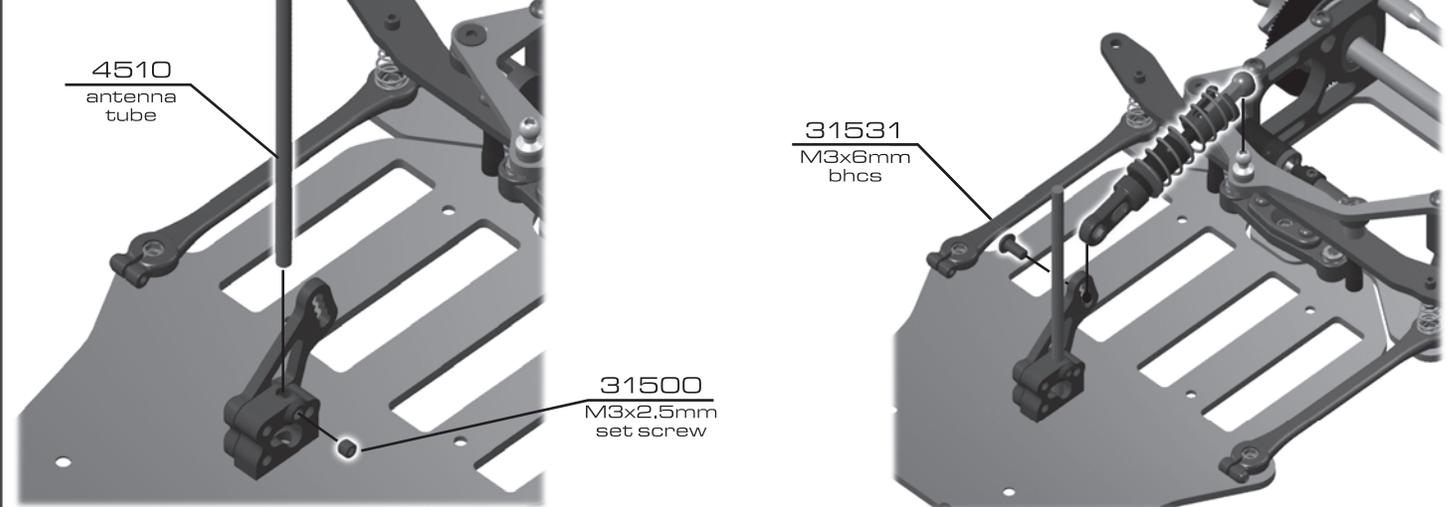
**BAG E**

STEP 1



**:: Center Shock (cont.)**

STEP 2

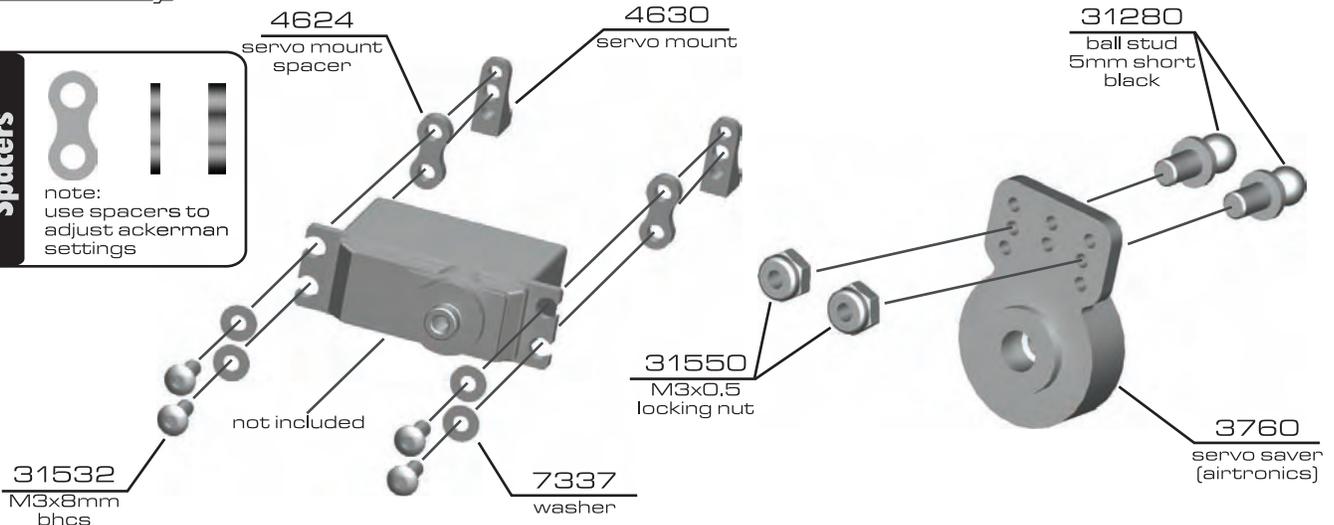


**:: Servo Assembly**

STEP 3

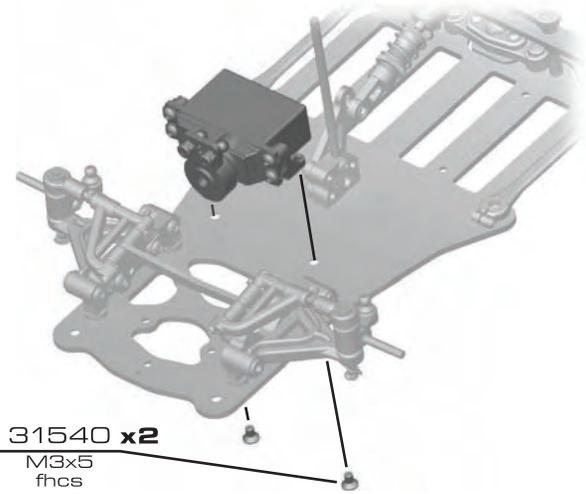
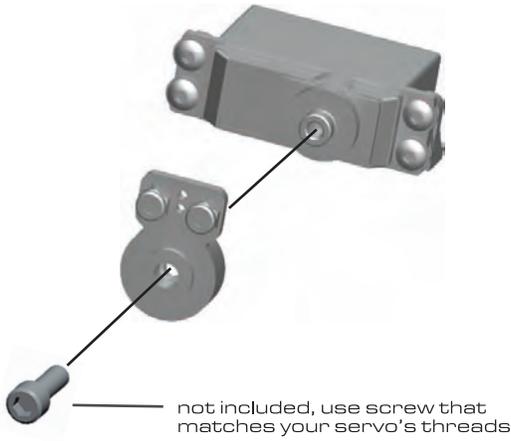
**Ackerman  
Adjustment  
Spacers**

note:  
use spacers to  
adjust ackerman  
settings



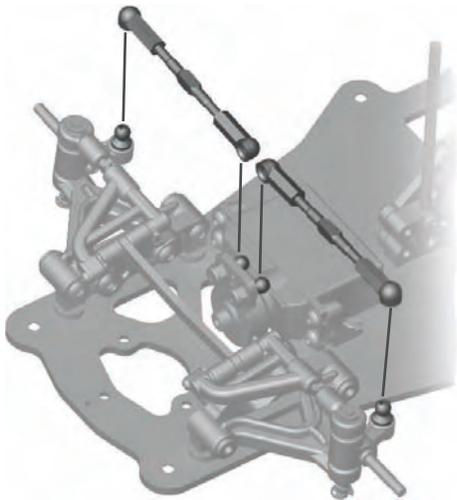
**:: Servo Assembly (cont.)**

STEP 4



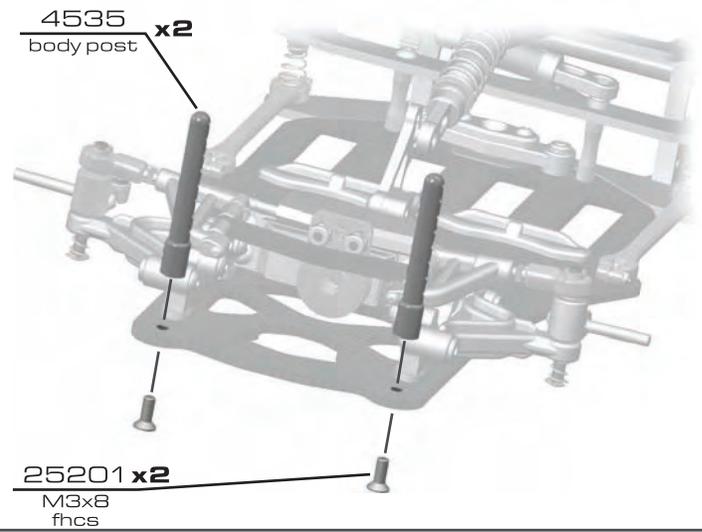
**:: Servo Assembly (cont.)**

STEP 5



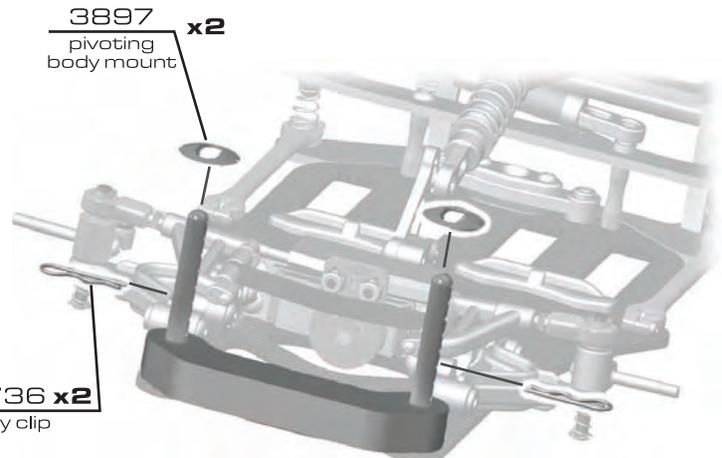
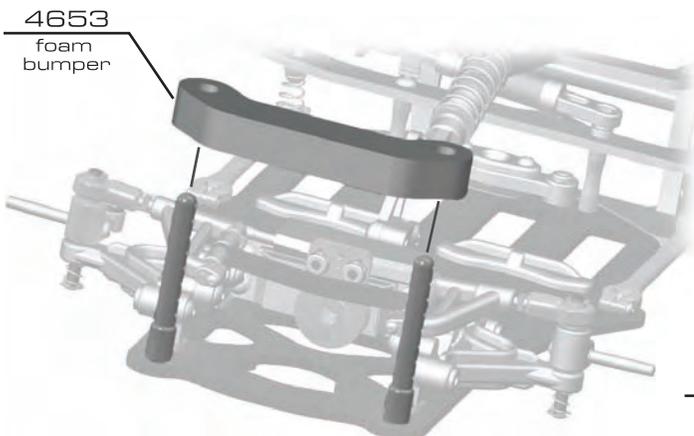
**:: Body Posts**

STEP 6



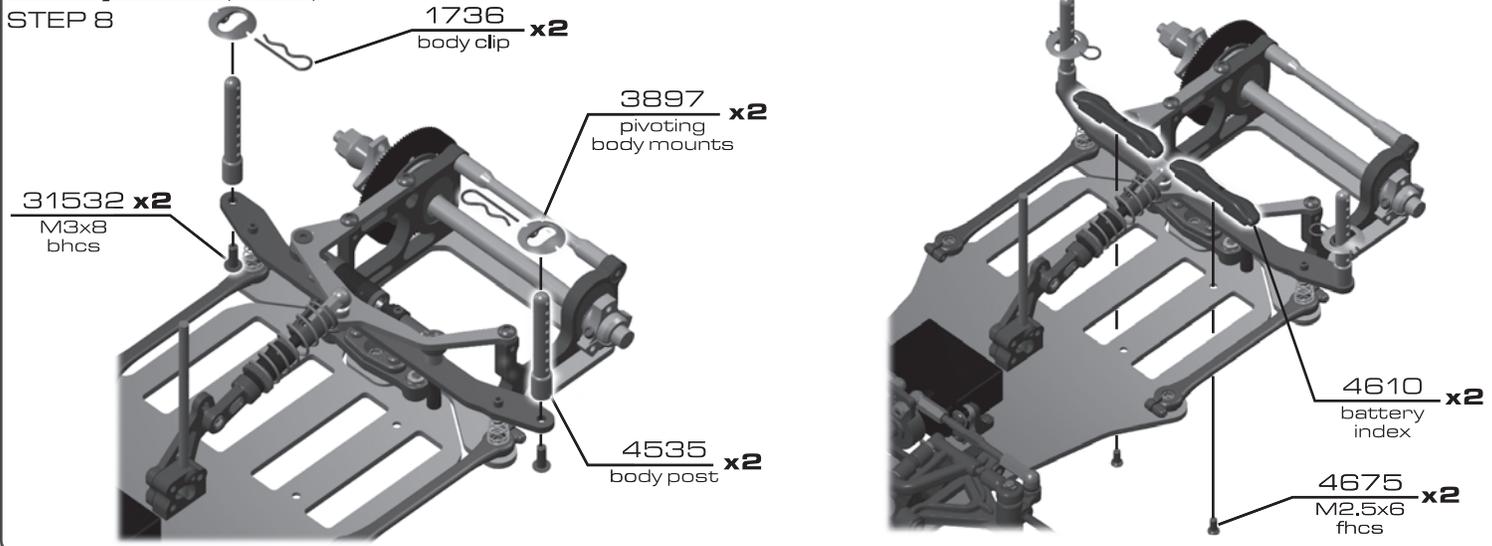
**:: Body Posts (cont.)**

STEP 7



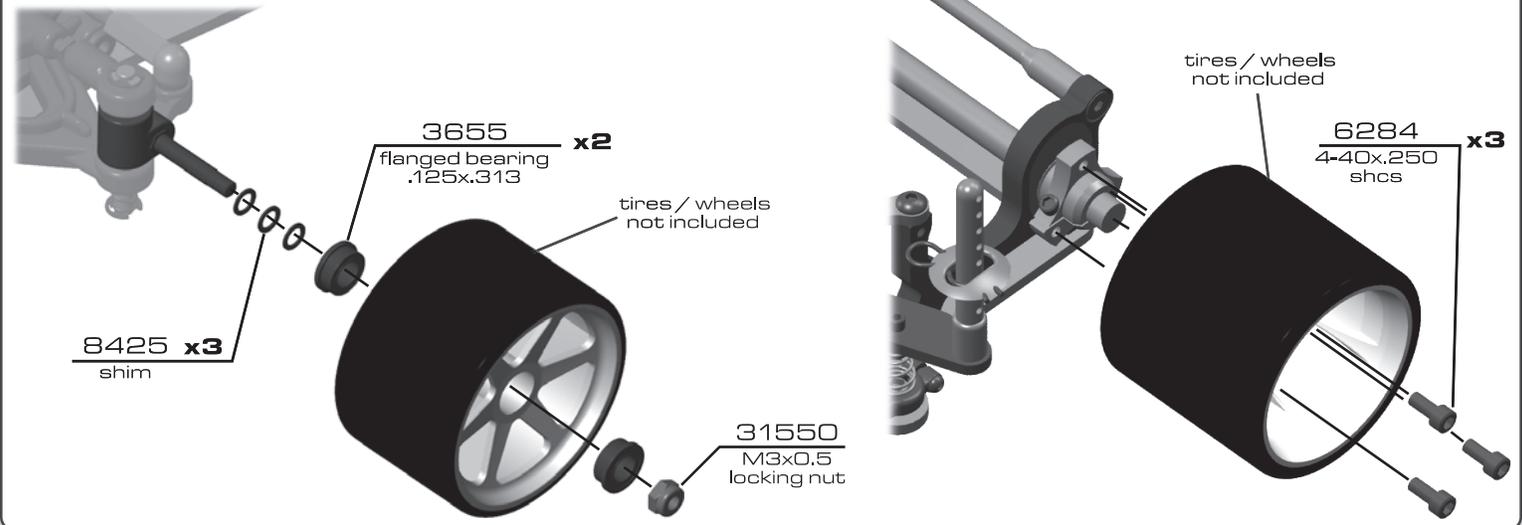
**:: Body Posts (cont.)**

STEP 8



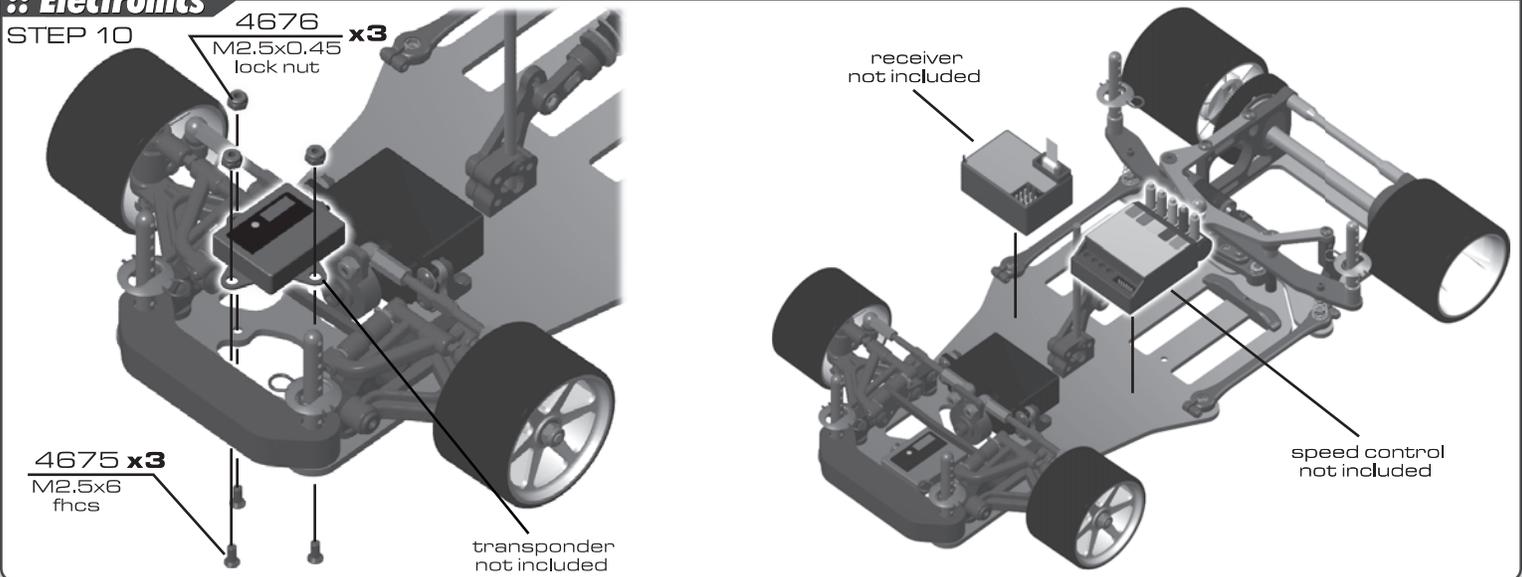
**:: Tires / Wheels**

STEP 9



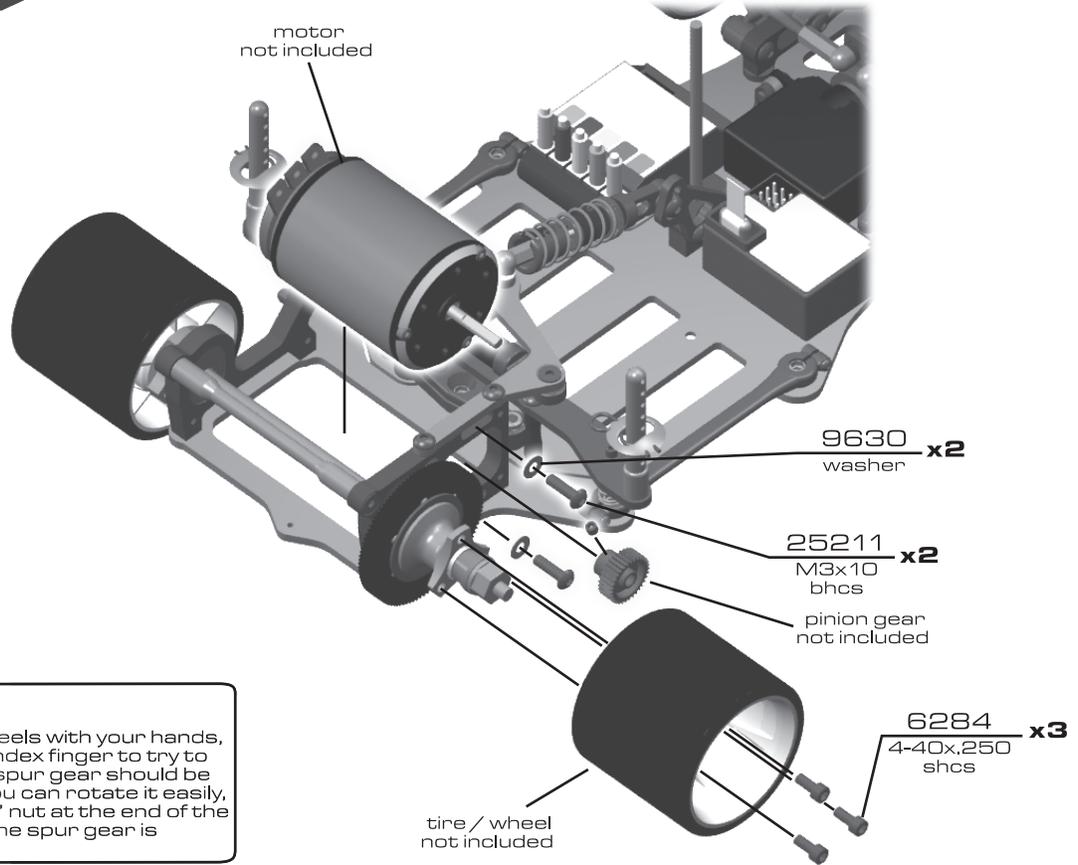
**:: Electronics**

STEP 10



## :: Electronics (cont.)

### STEP 11



#### Differential Adjustment:

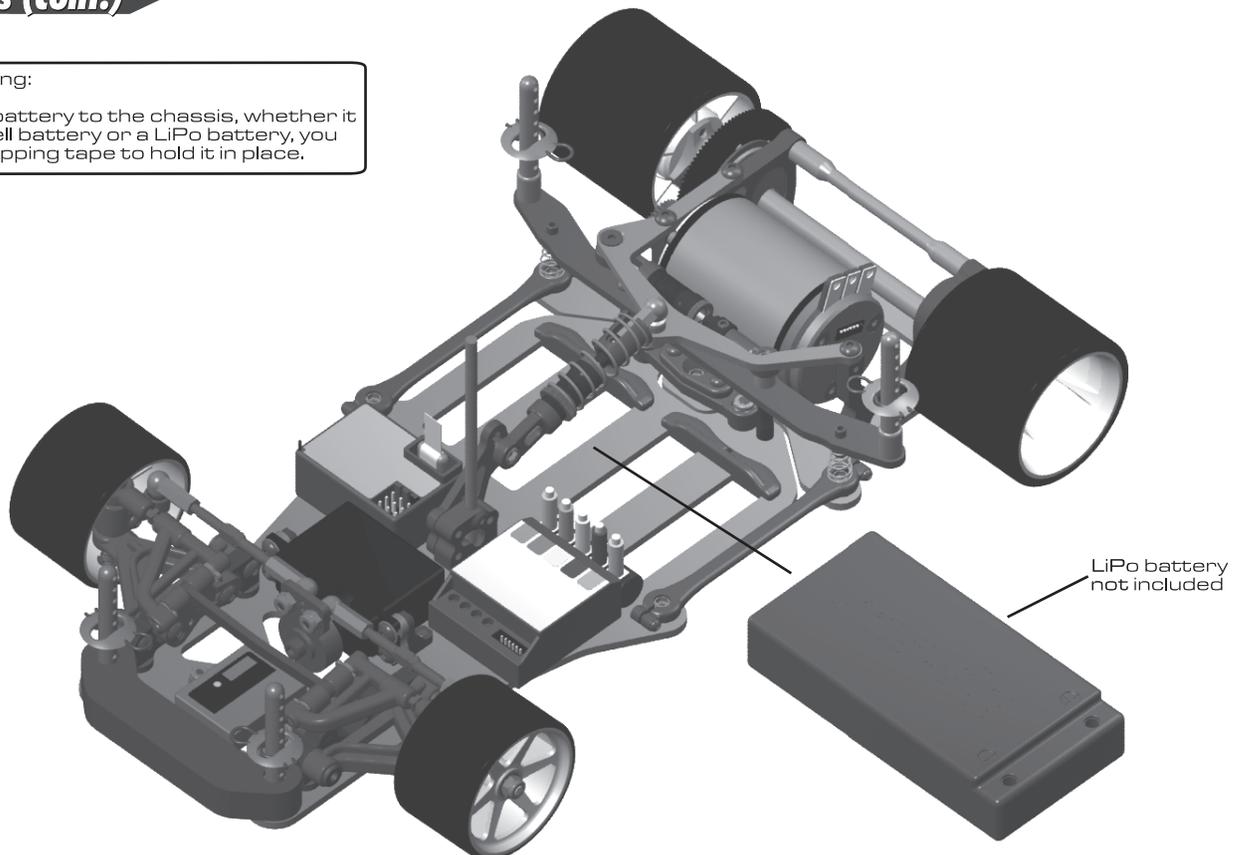
While holding both rear wheels with your hands, use your right thumb and index finger to try to rotate the spur gear. The spur gear should be very difficult to rotate. If you can rotate it easily, tighten the #4185 11/32" nut at the end of the axle, **a little at a time**, until the spur gear is difficult to rotate.

## :: Electronics (cont.)

### STEP 12

#### Battery Mounting:

To mount your battery to the chassis, whether it be a Ni-MH 4-cell battery or a LiPo battery, you should use strapping tape to hold it in place.



## :: Tuning Guide

### Front

**Camber:** Camber is one of the most effective adjustments in tuning the car to the track conditions. In most situations only negative camber (where the top of the tire is leaning in) is recommended. The typical setting for camber in the front wheels is -1 degree. Adding more negative camber will give more steering, making the car feel more aggressive. Likewise, adding more positive camber will make the car more stable and be easier to drive.

**Caster:** Caster describes the angle of the kingpin from vertical when looking at the side of the car. Adding angle to the kingpin, or "caster", controls the amount of camber gain at the front wheels through steering angle. Negative caster means leaning the top of the kingpin toward the back of the car, and it adds negative camber on the outside front wheel during steering. Using less negative caster will give less steering entering the corner, making the car feel smoother and more stable. The standard setting of -3.25 degrees is good for most conditions, and -1.80 degrees is a good setting for extremely high traction conditions.

**Active Strut Upper Arm Mount:** The active strut system dynamically controls caster through suspension travel. The active strut upper arm mount adds an angle to the upper arm hinge pin, pointing the front of the pin down. This angle causes caster to become more positive as the suspension is compressed. Increasing the angle in the active strut upper arm mount will give more entry steering, but less mid-corner steering. In most conditions, the standard setting of 10 degrees is optimal. In bumpy, or very high bite conditions, using the 5 degree active strut position can help to make the car more consistent through the corner.

**Kingpin Damping:** Damping is added to the front suspension by applying silicone diff fluid to the outside of the kingpin below the bottom of the pivot ball in the lower suspension arm. This is a necessary and highly effective adjustment to the front suspension. Typical diff fluid weights for damping the kingpin spring vary from 5K to 60K. The standard starting point for silicone fluid is 30,000wt. With slower spec motors, and in high bite conditions, 60,000wt can help to make the car more consistent through the corner.

**Kingpin Spring:** The kit standard spring has a wire diameter of 0.020", and is optimal for most conditions. If the racing surface is bumpy or low grip, softer, 0.018" springs can help give the car more steering and consistency.

### Rear

**Side Damping:** Side damping controls the speed at which the rear of the chassis transitions side-to-side through the corners. As the damping is increased, the side-to-side transition is slower, making the car more stable through the corner. The standard shock oil for the side shock is 20wt. In high bite conditions, increasing to 25wt or 30wt will help to make the car more consistent through the corner.

**Side Spring:** The side springs control the change in ride height at rear corners of the chassis as the car transitions side-to-side through the corners. The kit standard side springs are blue. Softer side springs can help keep the car more consistent in low bite and bumpy track conditions like asphalt.

**Center Spring:** The center spring controls the ride height of the chassis as it is loaded over bumps in the track, and as the car accelerates and decelerates. This adjustment is mainly relative to the mass of the chassis with all electronics and body included. The kit standard gold spring is a good starting point for most racing conditions with 3.7V LiPo packs. In bumpier track conditions, a softer center spring and more droop can help give more grip to the rear end of the car. With heavier 4.8V NiMH packs, a stiffer red spring may be necessary to help keep the chassis from bottoming out on the track.

**Center Damping:** Center damping controls the speed that the chassis will change ride height as it is loaded over bumps, and as the car accelerates and decelerates. Using between 25wt and 35wt is a good match for the standard gold spring. Thicker oil will help to stiffen the rear of the car, giving it more mid-corner steering. Likewise, thinner oil can help give the car more rear grip in low bite track conditions.

**Battery Position:** The standard battery position of forward is good for most racing conditions. Moving the battery back will tend to give the car more mid-corner steering. This may be a good adjustment when the car feels lazy and unresponsive.

# 12R5.1

**:: Driver:** Team Associated **:: Date:** \_\_\_\_\_  
**:: Track:** Standard 12R5.1 Setup  
**:: Event:** \_\_\_\_\_

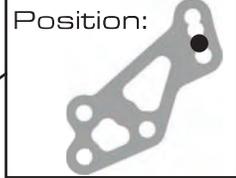
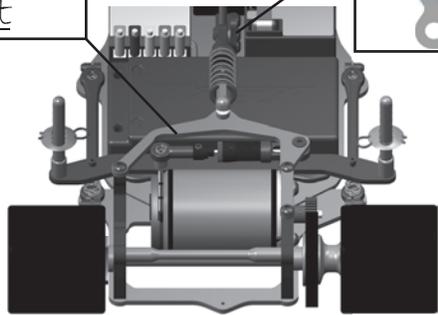
## Setup Sheet for Team Associated's 12R5.1

Rev. 1

### :: Front Suspension

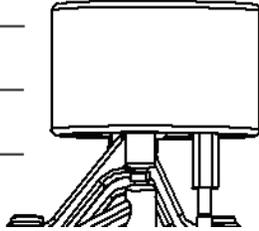
Kingpin Lube: \_\_\_\_\_  
 Springs: .020  
 Upper Arm Mounts:  0°  5°  10°  
 Camber: -1°  
 Caster:  
 thick thin thin thick thick and thin  
  
 1.80°  3.25°  6.15°  
 Ride Height: 3.5mm  
 Notes: \_\_\_\_\_

### :: Rear Suspension

Side Spring: blue  
 T-Plate: \_\_\_\_\_  
 Ride Height Adjuster: \_\_\_\_\_  
 Ride Height: 3.5mm  
 Side Shock  
 Oil: 20wt  
 Center Shock  
 Oil: 30wt  
 Spring: gold  
 Position:   
  
 Notes: \_\_\_\_\_

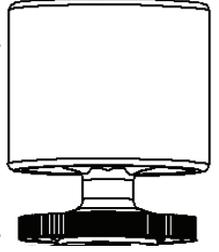
### :: Front Tires

Tire: \_\_\_\_\_  
 Diameter: \_\_\_\_\_  
 Wheel Type: \_\_\_\_\_  
 Additive: \_\_\_\_\_  
 Notes: \_\_\_\_\_



### :: Rear Tires

Tire: \_\_\_\_\_  
 Diameter: \_\_\_\_\_  
 Wheel Type: \_\_\_\_\_  
 Additive: \_\_\_\_\_  
 Notes: \_\_\_\_\_



### :: Body

Body Type and Make: \_\_\_\_\_  
 Notes: \_\_\_\_\_

### :: Motor/Battery

Motor: \_\_\_\_\_  
 Brush: \_\_\_\_\_ Spring: \_\_\_\_\_  
 Timing: \_\_\_\_\_ Gear: \_\_\_\_\_/  
 Battery: \_\_\_\_\_  
 Battery Position:  
 Front  Back

### :: Transmitter

Turning Circle: \_\_\_\_\_  
 Steering Expo: \_\_\_\_\_  
 Brake E.P. : \_\_\_\_\_  
 Throttle Expo: \_\_\_\_\_  
 Notes: \_\_\_\_\_

### :: Track Info

smooth:  bumpy:   
 traction:  high  med.  low  
 Notes: \_\_\_\_\_

### :: Speed Control

S.C. : \_\_\_\_\_  
 S.C. Settings: \_\_\_\_\_

**:: Hardware - 1:1**

**cap head (shcs)**

-  2-56x.5/16" (4568)
-  4-40x.1/4" (6284)

**nuts (lock/plain)**

-  m2.5 locknut (4676)
-  m3 locknut (31550)

**setscrews**

-  3x2.5mm (31500)
-  3x5mm (89219)
-  3x8mm (4670)
-  3x16mm (4689)

**pivot balls**

-  hard anodized pivot ball (4637)
-  plastic pivot ball (8417)

**button head (bhcs)**

-  2x4mm (31510)
-  2x6mm (4672)
-  2.5x4mm (4673)
-  3x6mm (31531)
-  3x8mm (31532)
-  3x10mm (25211)

**flat head (fhcs)**

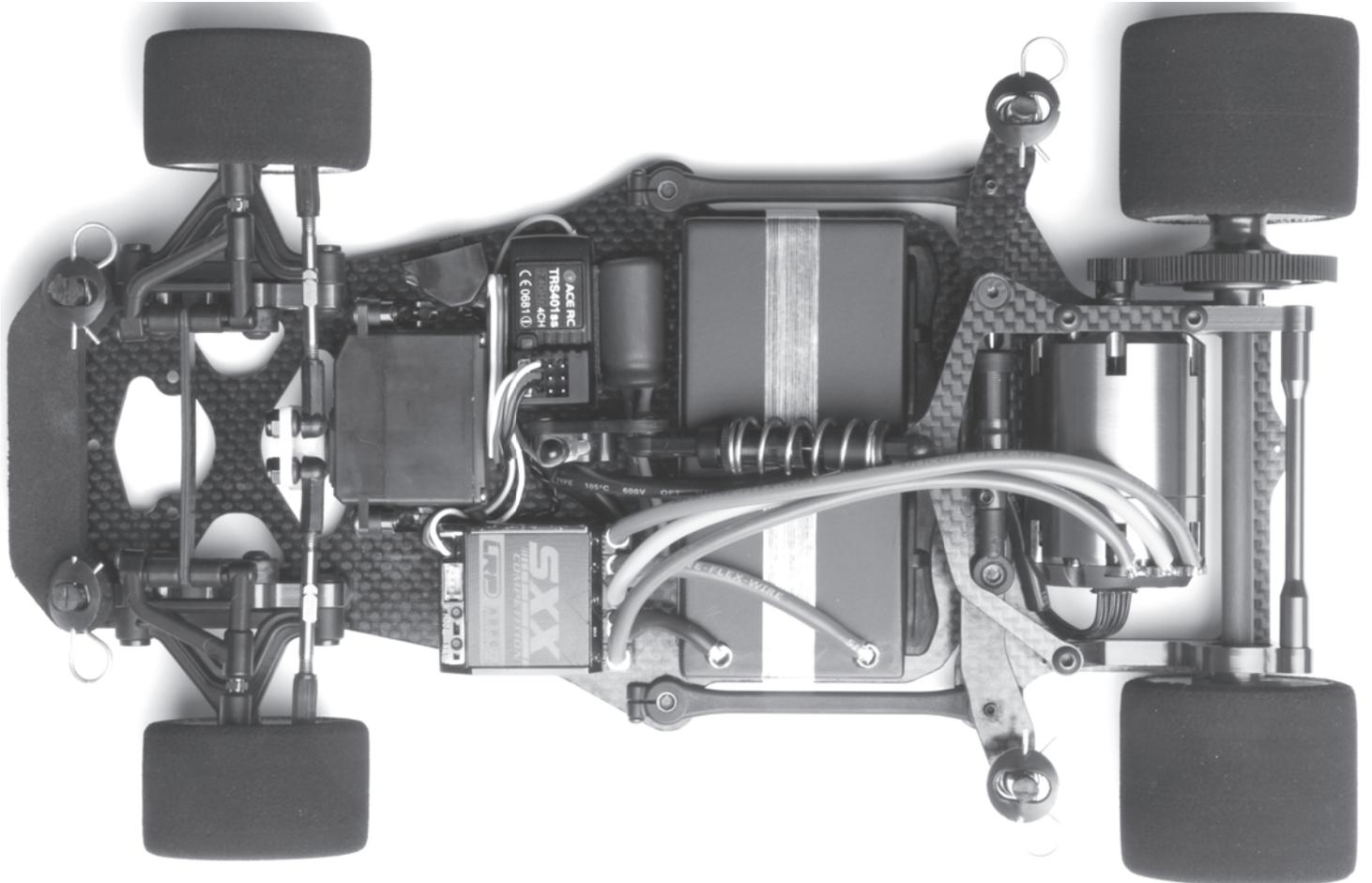
-  2.5x6mm (4675)
-  3x5mm (31540)
-  3x8mm (25201)
-  3x10mm (25202)
-  2-56X3/8 (31125)

**shims & washers**

-  .030 washer (9630)
-  kingpin shim (8425)
-  blue aluminum shims  
1 mm, 2mm (31286)
-  washer (7337)
-  bulkhead shim (4617)  
0.5mm, 1 mm, 2mm
-  t-plate spacers (4650)
-  near axle shim .005" (4554)

**ball bearings**

-  rear axle bearing (897)  
.250x.375x.125
-  front wheel bearing (3655)  
.125x.313



# 12R5.1

**:: Driver:** \_\_\_\_\_ **:: Date:** \_\_\_\_\_  
**:: Track:** \_\_\_\_\_  
**:: Event:** \_\_\_\_\_

## Setup Sheet for Team Associated's 12R5.1

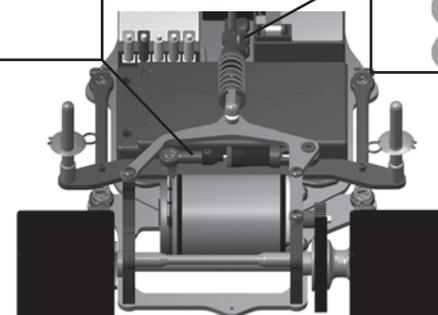
Rev. 1

### :: Front Suspension

Kingpin Lube: \_\_\_\_\_  
 Springs: \_\_\_\_\_  
 Upper Arm Mounts:  0°  5°  10°  
 Camber: \_\_\_\_\_  
 Caster:  
 thick thin thin thick thick and thin  
  
 1.80°  3.25°  6.15°  
 Ride Height: \_\_\_\_\_  
 Notes: \_\_\_\_\_

### :: Rear Suspension

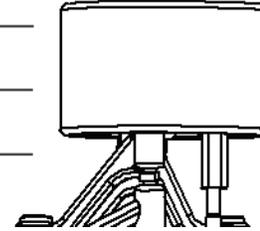
Side Spring: \_\_\_\_\_  
 T-Plate: \_\_\_\_\_  
 Ride Height Adjuster: \_\_\_\_\_  
 Ride Height: \_\_\_\_\_  
 Side Shock  
 Oil: \_\_\_\_\_  
 Center Shock  
 Oil: \_\_\_\_\_  
 Spring: \_\_\_\_\_  
 Position: 



Notes: \_\_\_\_\_

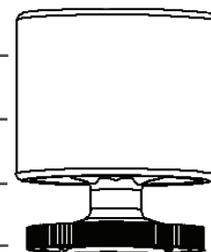
### :: Front Tires

Tire: \_\_\_\_\_  
 Diameter: \_\_\_\_\_  
 Wheel Type: \_\_\_\_\_  
 Additive: \_\_\_\_\_  
 Notes: \_\_\_\_\_



### :: Rear Tires

Tire: \_\_\_\_\_  
 Diameter: \_\_\_\_\_  
 Wheel Type: \_\_\_\_\_  
 Additive: \_\_\_\_\_  
 Notes: \_\_\_\_\_



### :: Body

Body Type and Make: \_\_\_\_\_  
 Notes: \_\_\_\_\_

### :: Motor/Battery

Motor: \_\_\_\_\_  
 Brush: \_\_\_\_\_ Spring: \_\_\_\_\_  
 Timing: \_\_\_\_\_ Gear: \_\_\_\_\_/  
 Battery: \_\_\_\_\_  
 Battery Position:  
 Front  Back

### :: Transmitter

Turning Circle: \_\_\_\_\_  
 Steering Expo: \_\_\_\_\_  
 Brake E.P. : \_\_\_\_\_  
 Throttle Expo: \_\_\_\_\_  
 Notes: \_\_\_\_\_

### :: Track Info

smooth:  bumpy:   
 traction:  high  med.  low  
 Notes: \_\_\_\_\_

### :: Speed Control

S.C. : \_\_\_\_\_  
 S.C. Settings: \_\_\_\_\_



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