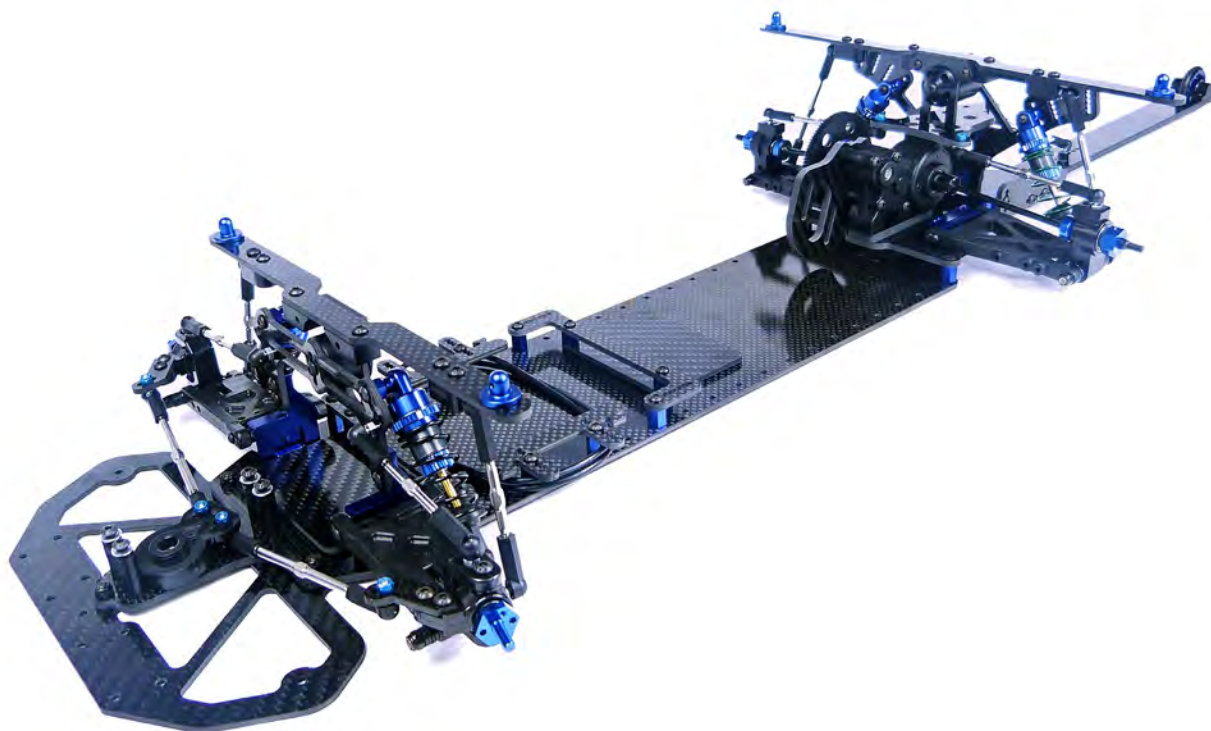


# PATRIOT

BY CUSTOMWORKS

## INSTRUCTIONS



### #0850 PATRIOT Drag Racing Kit



Manufactured by:  
**Custom Works RC Products**  
760-B Crosspoint Drive  
Denver, NC 28037  
[www.customworksrc.com](http://www.customworksrc.com)



Thank you for purchasing the Custom Works Patriot! The Patriot drag racing platform is the culmination of over a year of testing and development by the Custom Works team at America's largest "no prep" drag race events.

This kit includes most of the parts required for the build. The following additional equipment must be added to complete the car.

- Surface transmitter and receiver (minimum 2 channel.)
- Drag specific electronic speed control
- 540 size brushless motor
- Pinion gear (48 pitch, appropriate size for motor)
- 2S drag racing LiPo battery
- Low Profile steering servo (1" or 26mm case height maximum to fit mounts)
- Front and rear wheels and tires
- Silicone shock oil (60 weight recommended)
- Lexan "No Prep" style body
- Lexan paint and/or vinyl wrap for body

### **Tools**

The following tools are provided in the kit and will get you started. We suggest that you purchase higher quality tools for future maintenance.

•.050 Allen key    •1.5mm Allen key    •1/16 Allen key    •5/64 or 2mm Allen key    •Turnbuckle & 3/16 wrench

### **Additional tools**

These tools are recommended for the build and may be required to complete.

•Curved scissors    •Needle nose pliers    •Hobby knife    •Blue thread-lock    •Assorted sandpaper    •7mm hex driver

### **Building tips**

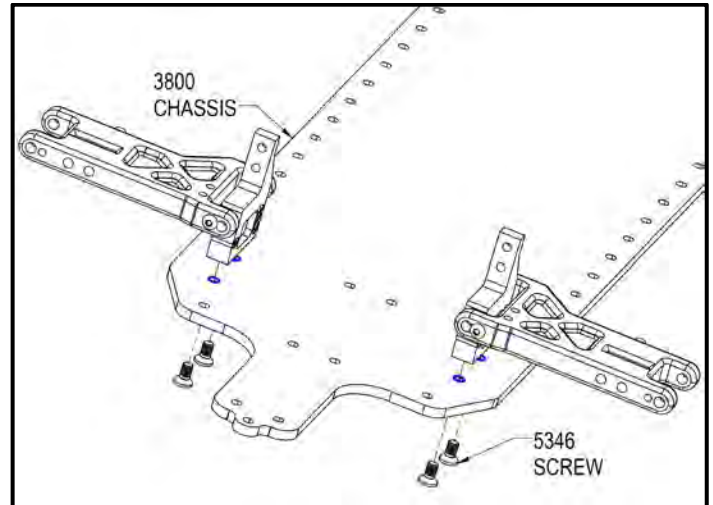
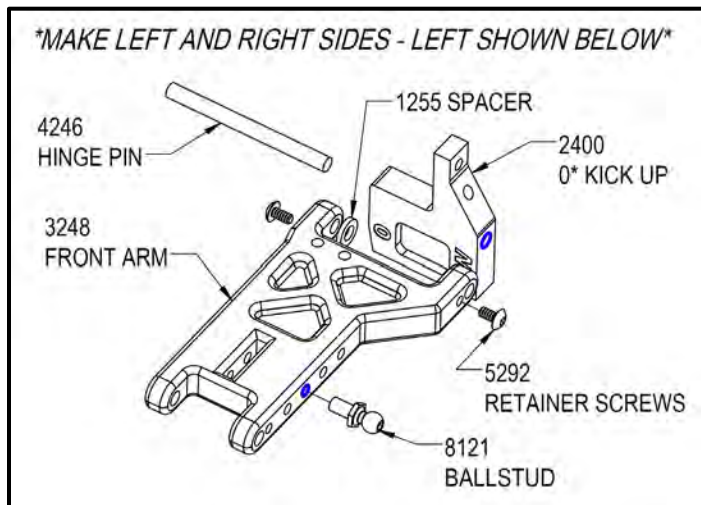
Parts are made with tight tolerance and held to the side of a "snug" fit as wear is expected over time. Try as we may, occasionally a burr may remain in a part and fit more tightly than desired. It is ok to use 400 Grit Sandpaper or a .125" drill to SLOWLY relieve a part from time to time. Suspension components should always pivot and swivel freely but without too much slop.

A lite to medium strength (usually the blue variety) thread locking fluid is suggested for all parts where metal screws thread into other metal parts. This will keep the screws from vibrating loose during operation and still allow the screw to be removed if needed. Remember it only takes a very small amount of thread-lock to secure the screw.

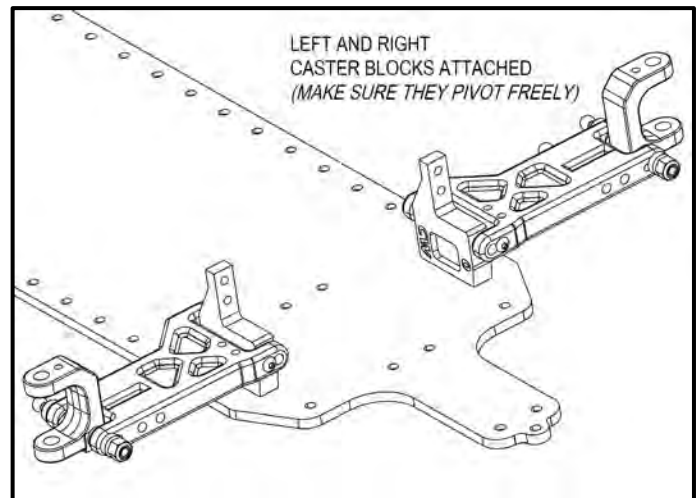
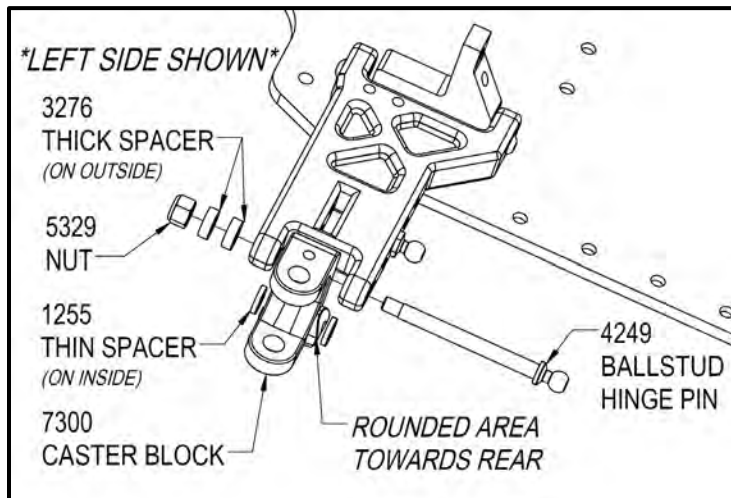
Do NOT use power screwdrivers to drive screws into parts. The fast rotation speed can melt and strip plastic parts or cross-thread into the aluminum parts.

Lightly sand the edges of the carbon fiber pieces using a medium grade sandpaper to avoid splinters. A thin bead of Super Glue can be used to seal the edges of the carbon fiber for more protection against chips and splinters.

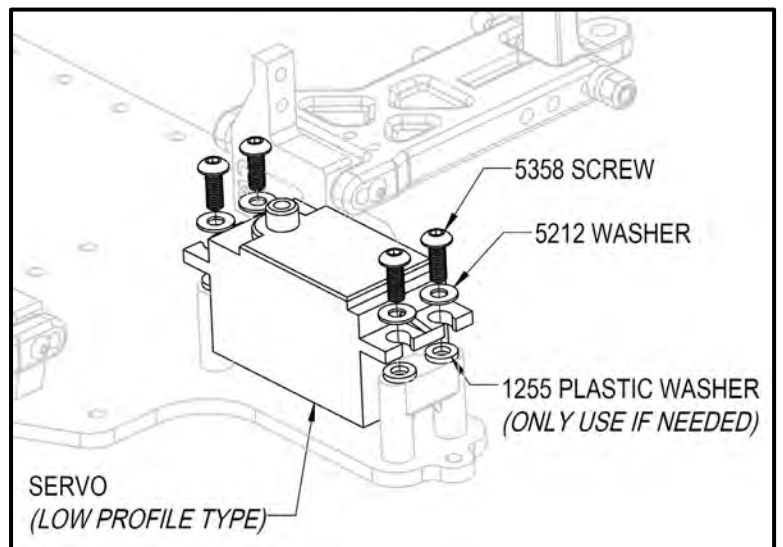
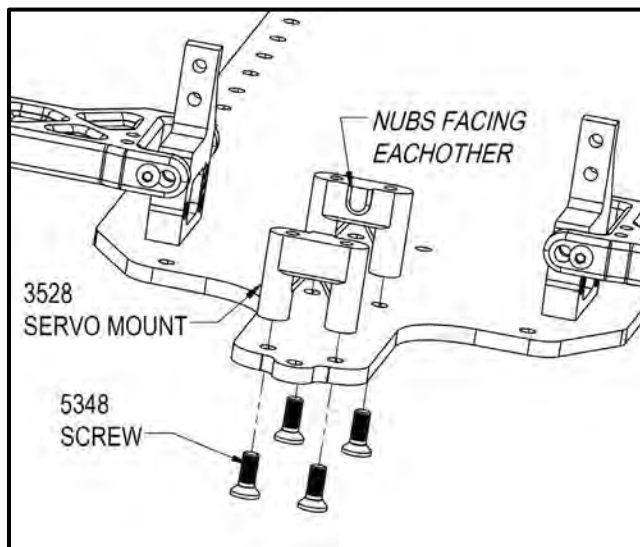
## Front Suspension Arm Assembly



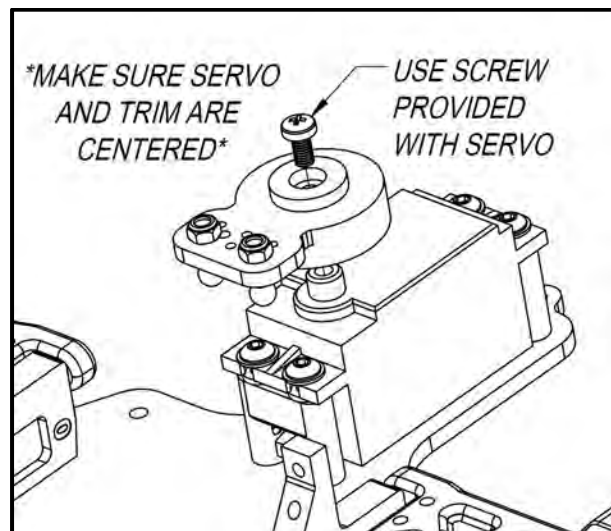
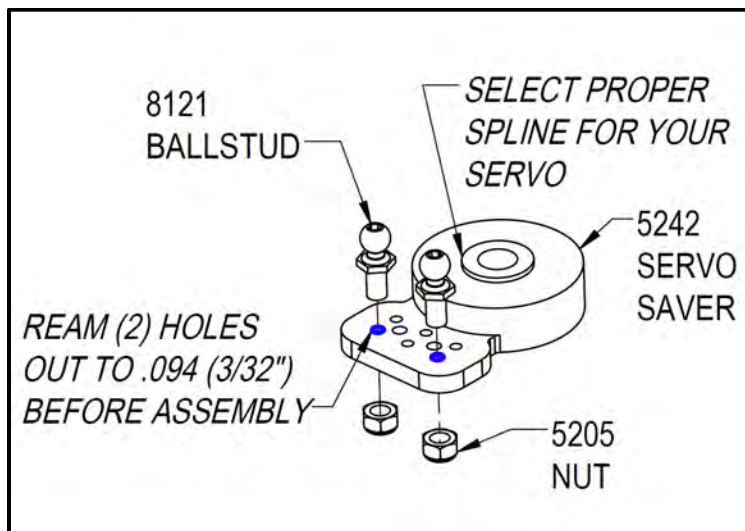
## Caster Block Assembly



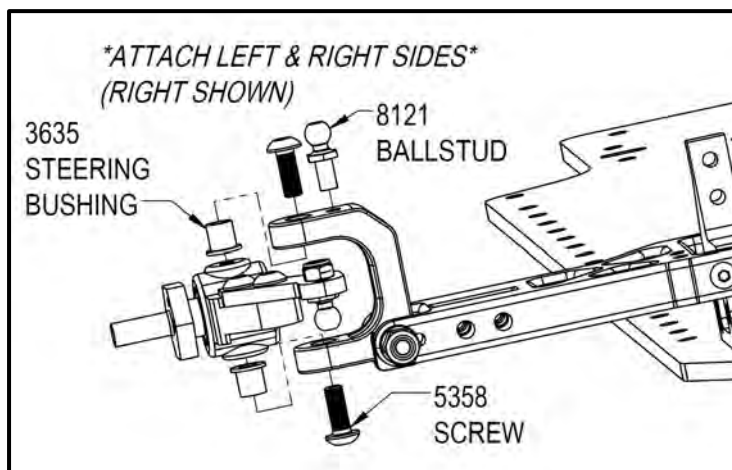
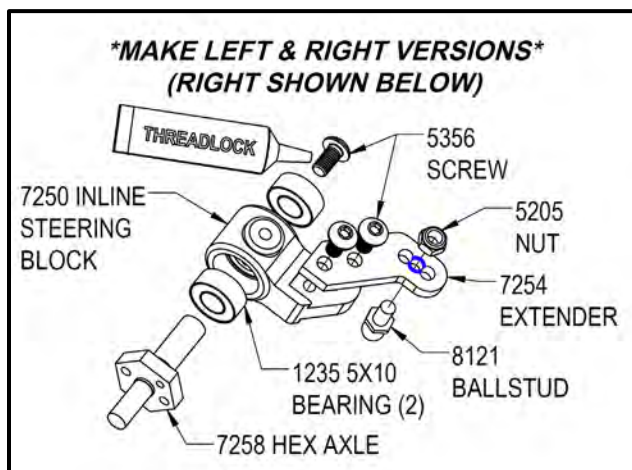
## Steering Servo Mounting



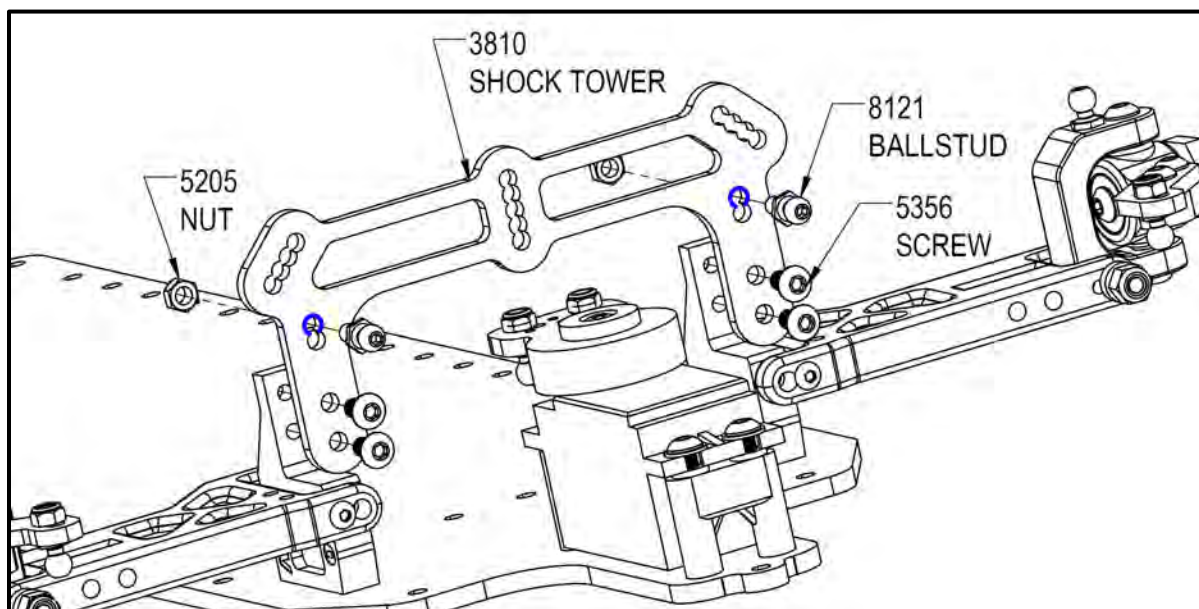
## Servo Saver



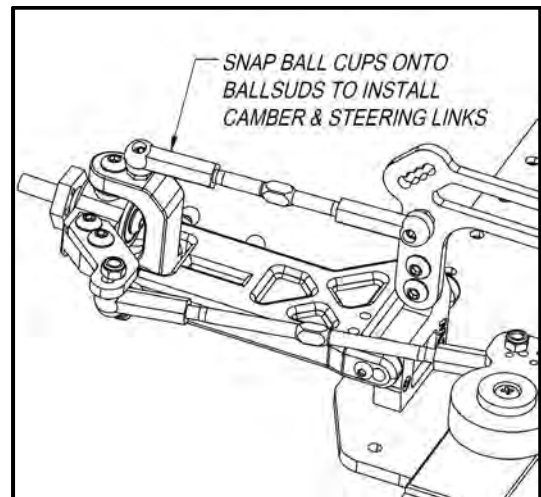
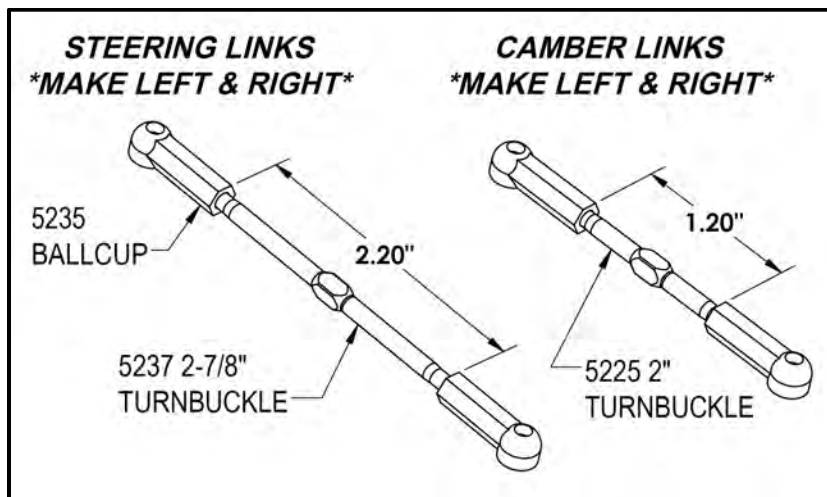
## Steering Blocks



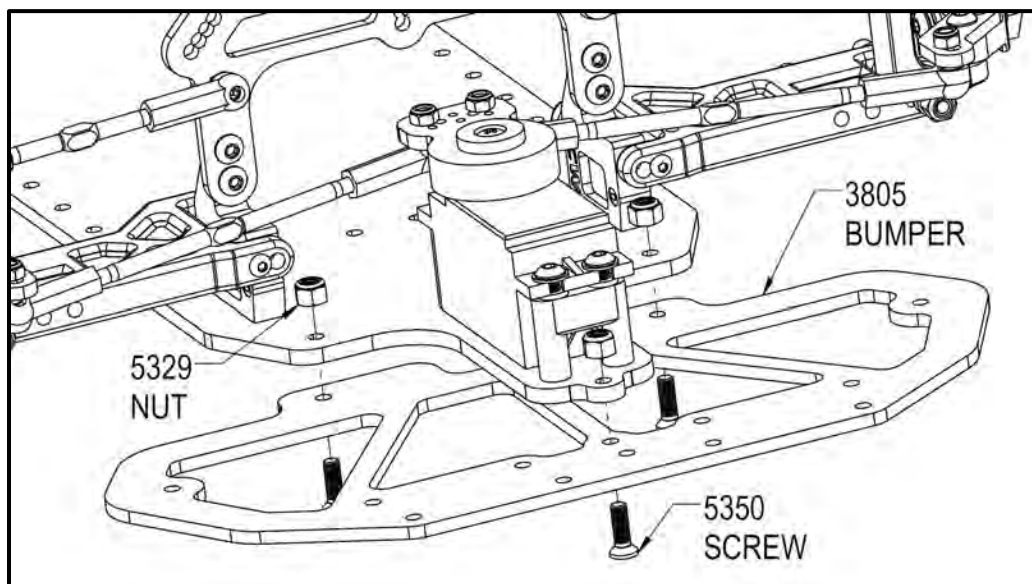
## Front Shock Tower Assembly



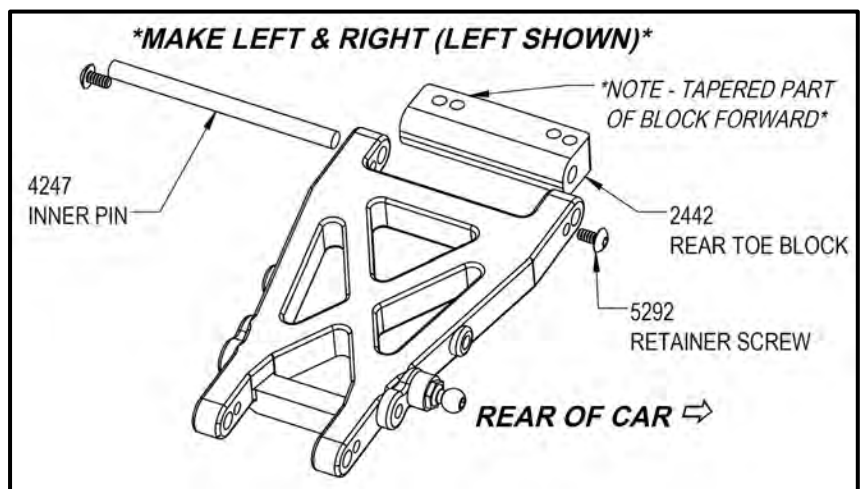
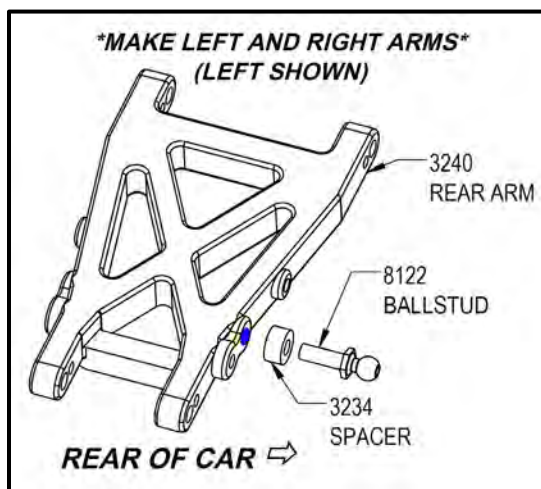
## Steering/Front Camber Links



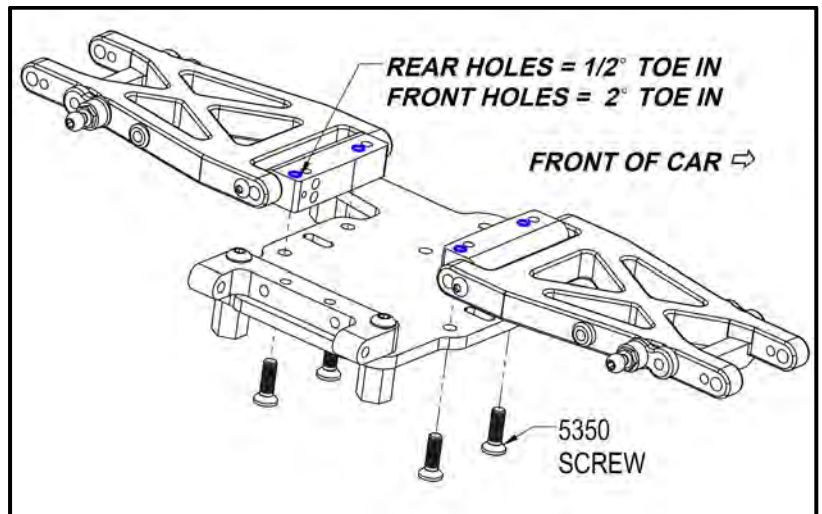
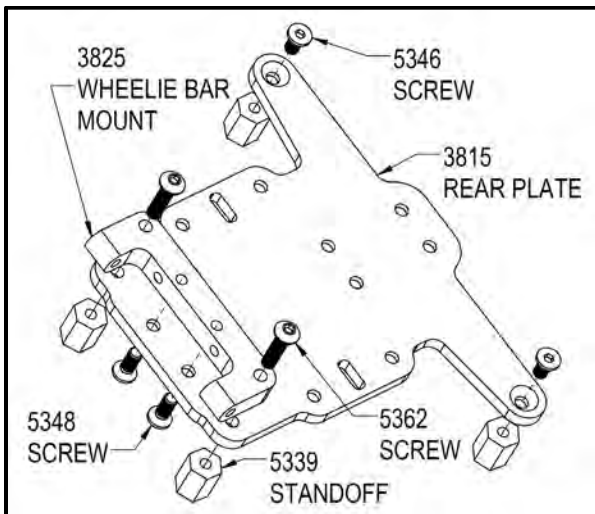
## Front Bumper Assembly



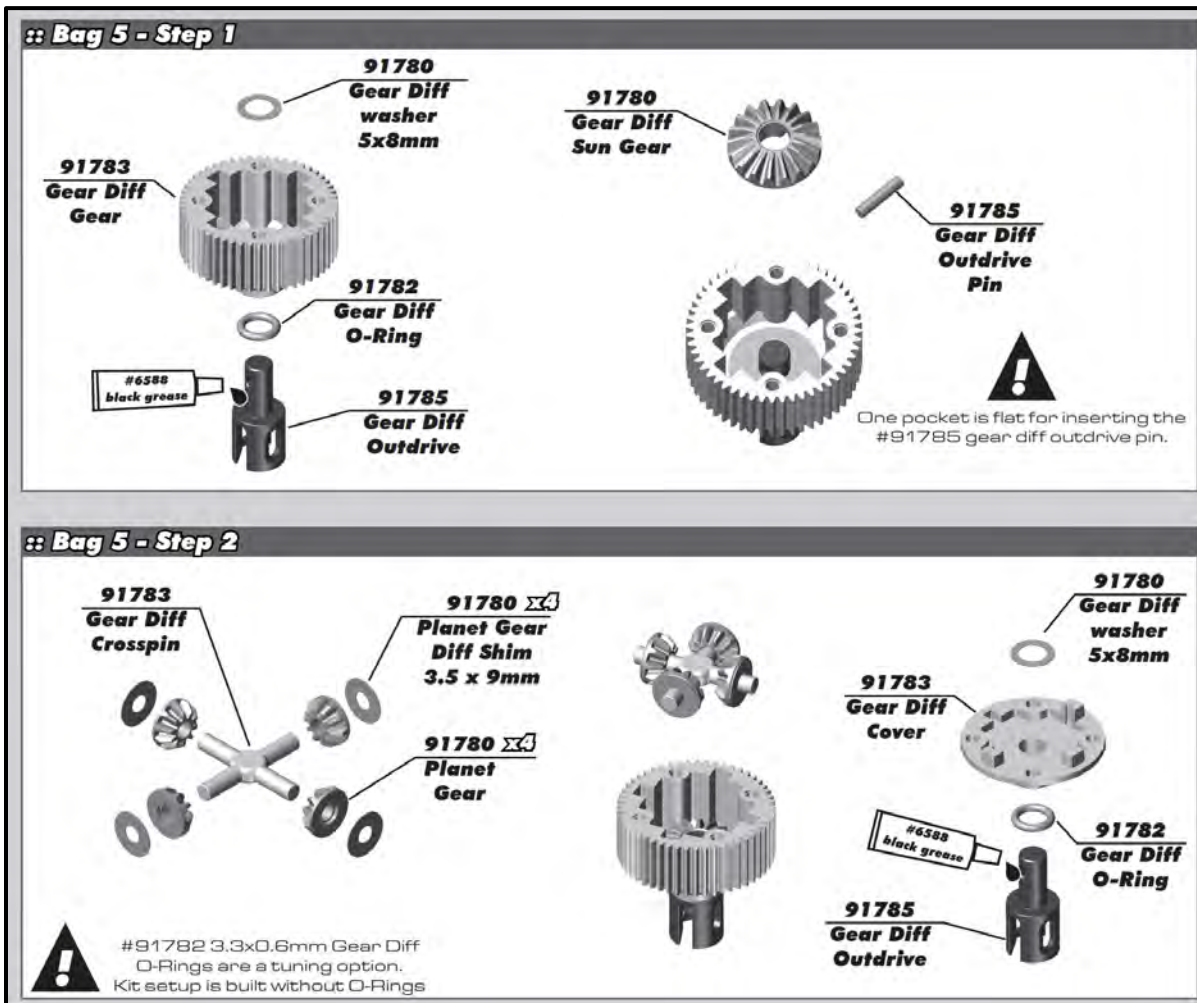
## Rear Suspension Arm Assembly



## Rear Plate Assembly (set aside when completed)



## Differential Assembly



**:: Bag 5 - Step 3**

**91780**  
**Gear Diff**  
**Sun Gear**



**91785**  
**Gear Diff**  
**Outdrive**  
**Pin**



**31522**   
**M2.5 x 10mm**  
**BHCS**



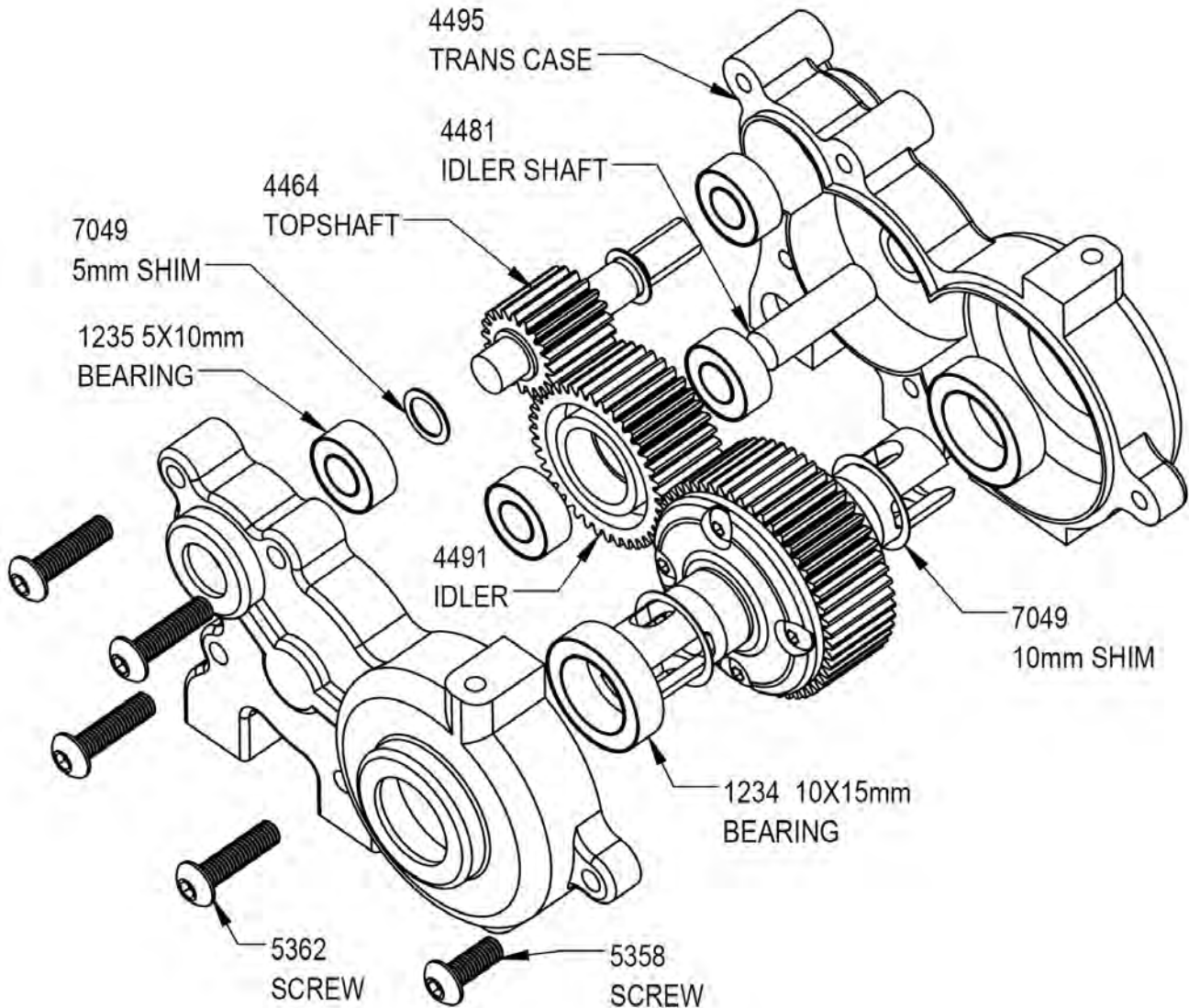
**91782**  
**Gear Diff**  
**Gasket**

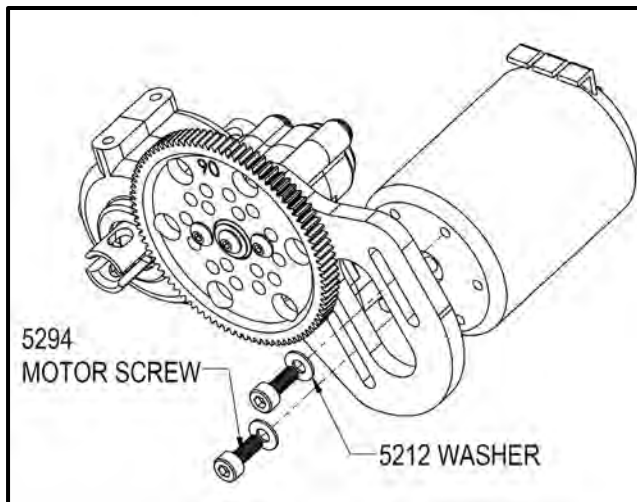
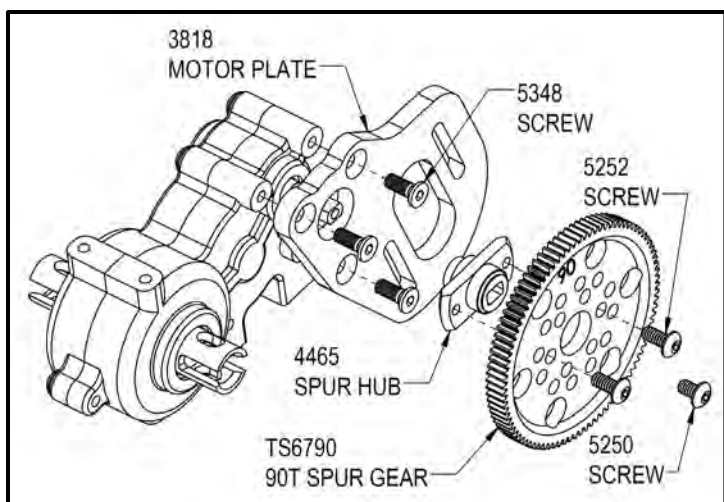


Fill to top of the  
cross pins

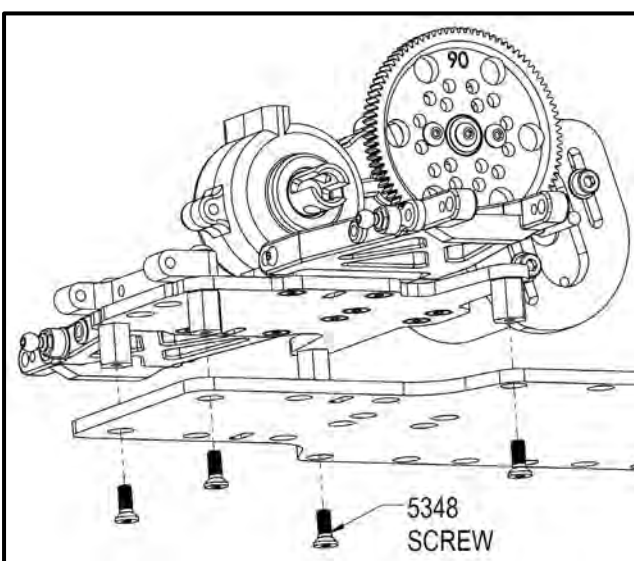
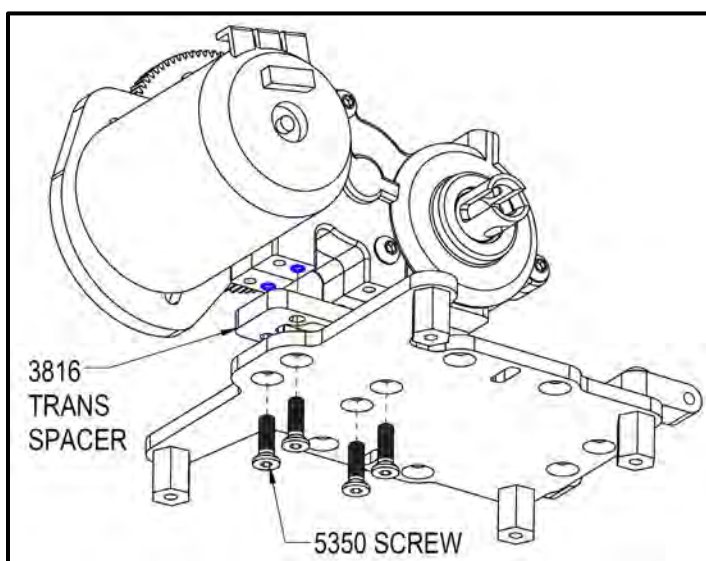


## Transmission Assembly

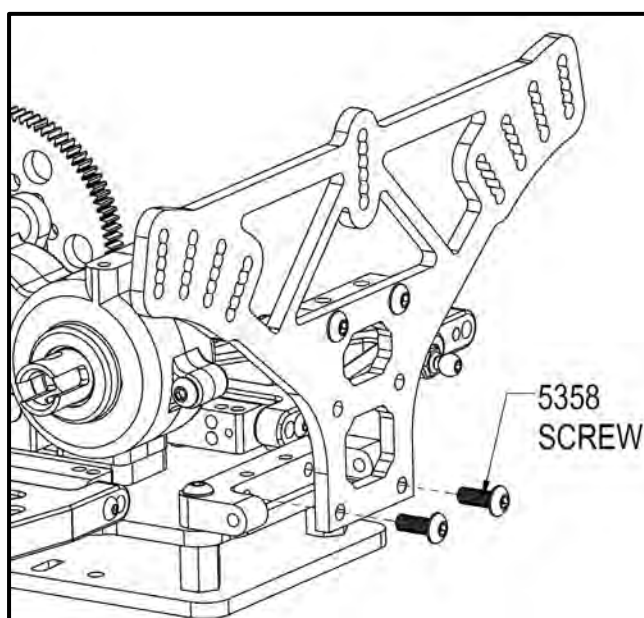
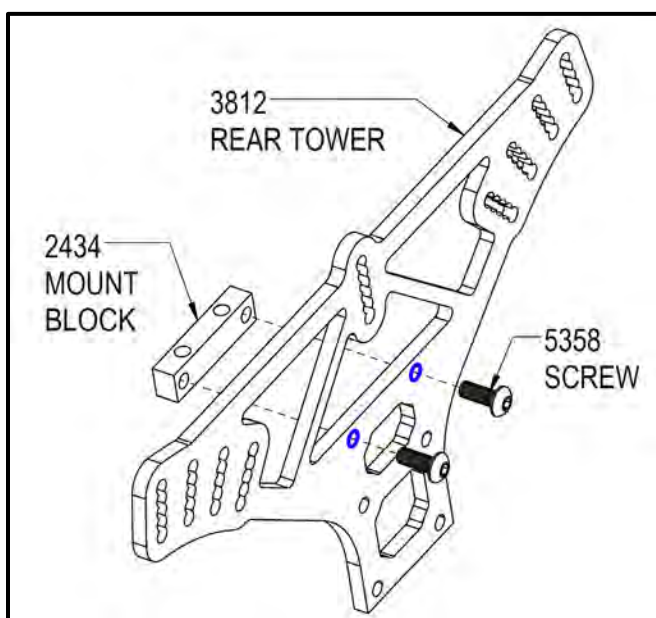




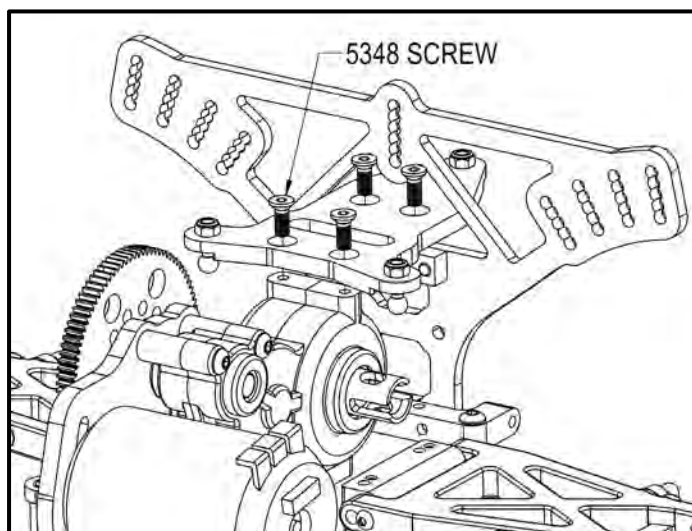
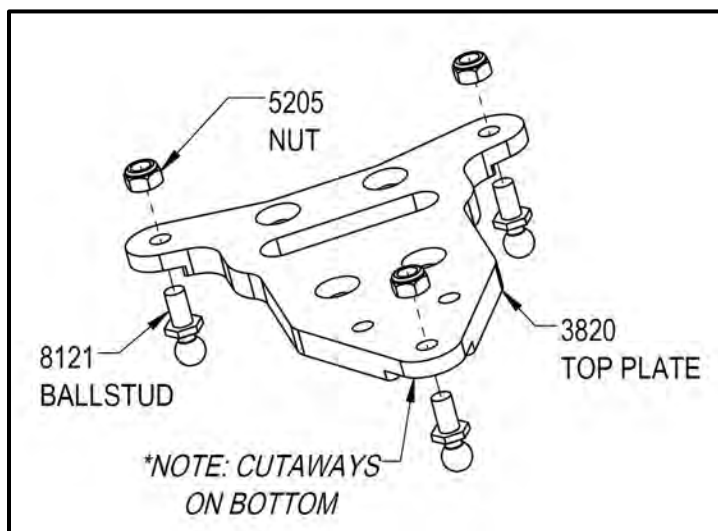
## Transmission Mounting



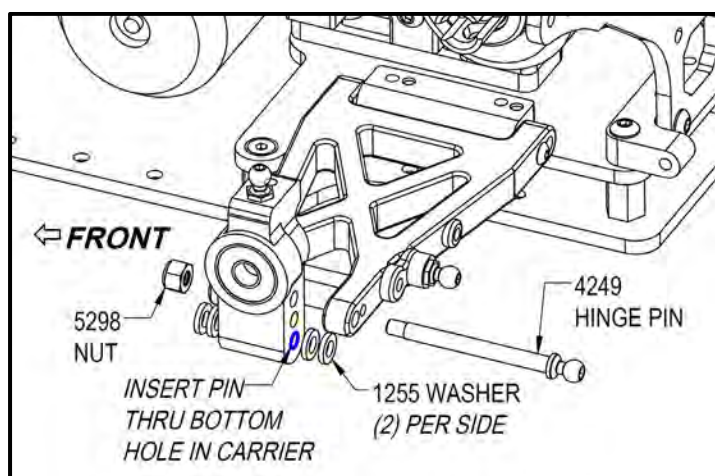
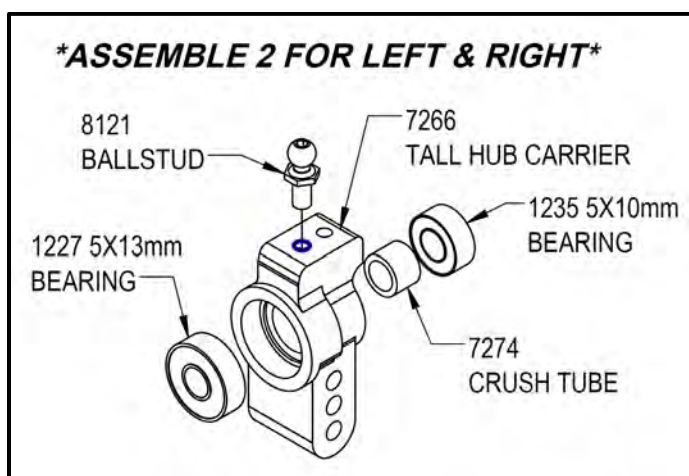
## Rear Shock Tower Assembly



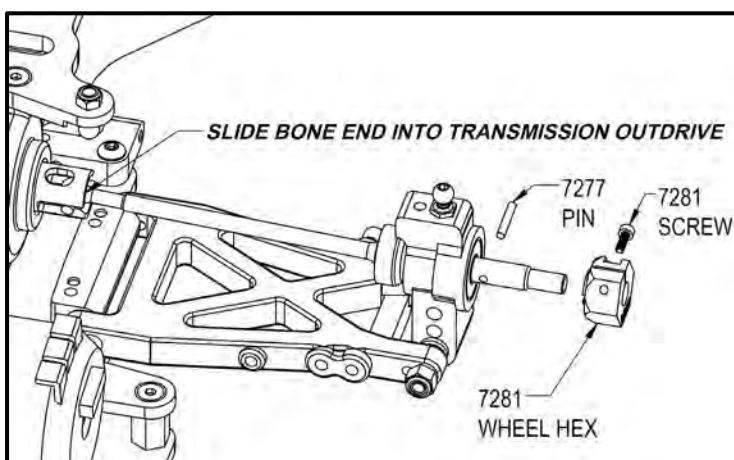
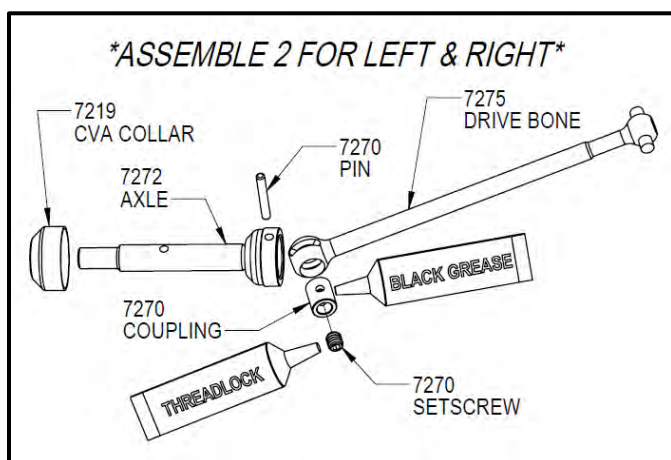
## Top Plate Assembly



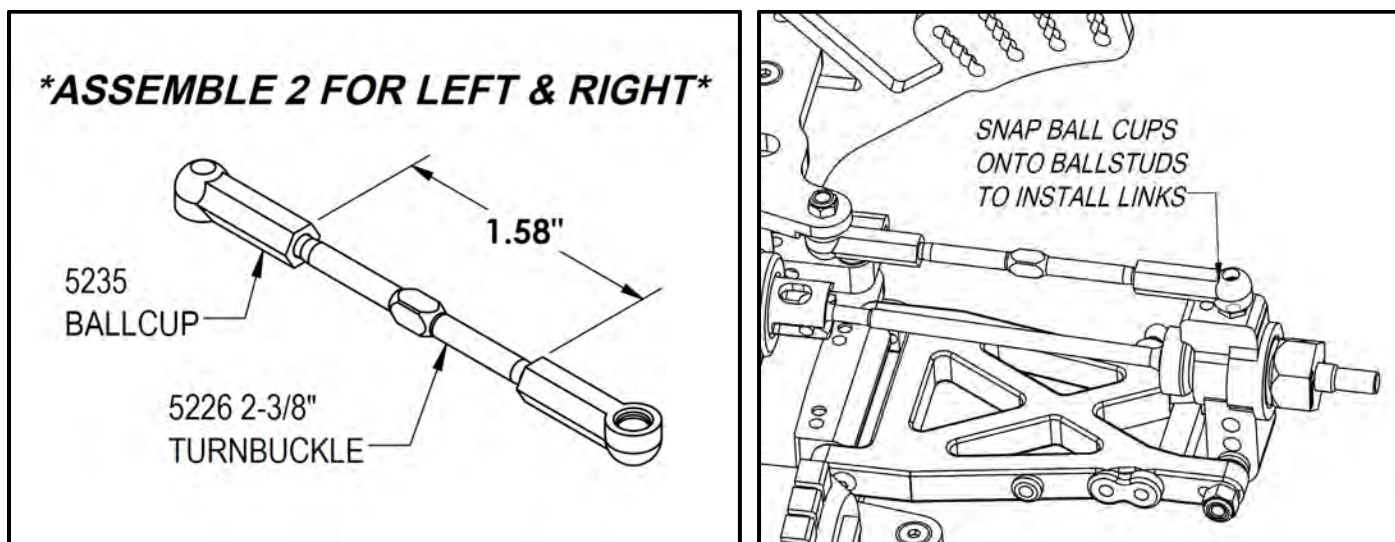
## Rear Hub Carrier Assembly



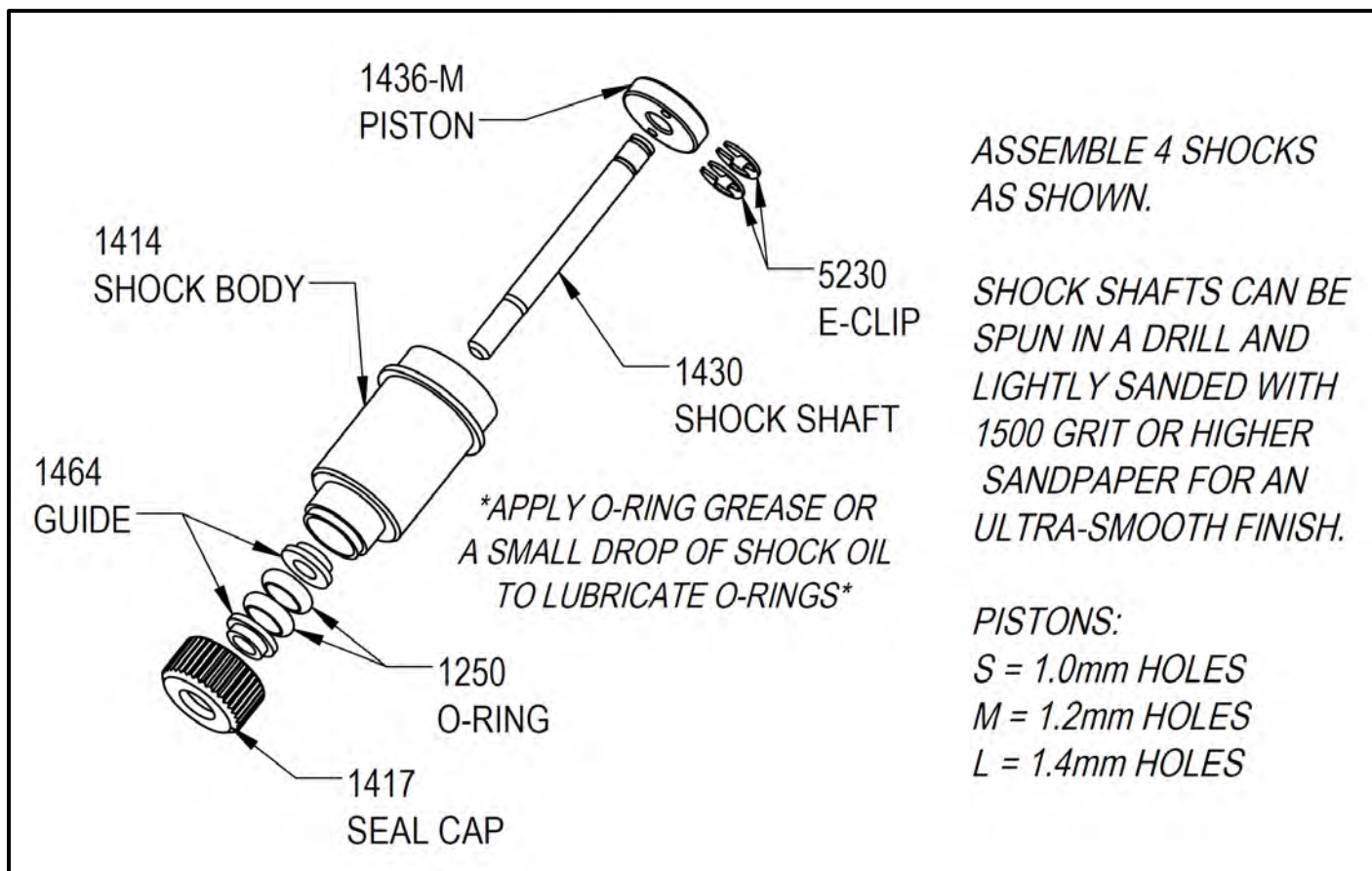
## Drivetrain (CVA) Assembly



## Rear Camber Link Assembly



## Shock Assembly



## Shock Assembly continued

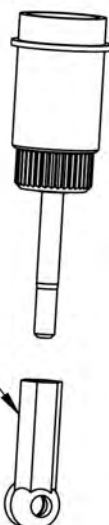
1438 SHOCK CAP



\*60 WEIGHT  
SILICONE SHOCK OIL  
RECOMMENDED\*

1437  
BLADDER

5235  
BALL CUP



### SHOCK FILLING INSTRUCTIONS

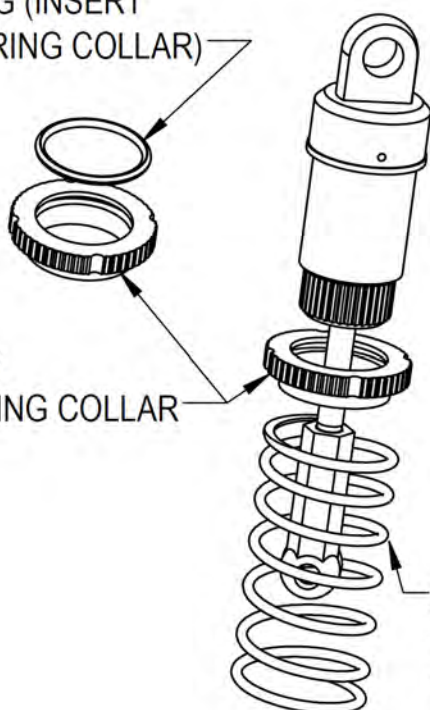
1. EXTEND THE SHOCK ALL THE WAY AND FILL WITH SHOCK OIL. LEAVE SOME ROOM AT THE TOP FOR THE BLADDER.
2. MOVE THE SHOCK SHAFT UP AND DOWN SLOWLY TO REMOVE ANY AIR BUBBLES.
3. BEGIN TO SCREW ON THE SHOCK CAP & BLADDER.
4. SLOWLY PUSH THE SHAFT ALL THE WAY INTO THE SHOCK. ANY EXCESS OIL WILL SEEP OUT OF THE BLEED HOLE IN THE SHOCK CAP.
5. FINISH SCREWING ON THE SHOCK CAP UNTIL IT IS HAND TIGHT.
6. THE SHOCK SHAFT SHOULD NOW MOVE SMOOTHLY UP AND DOWN UNTIL IT GETS WITHIN 1/16" OF THE SHOCK BODY. IF IT GETS TIGHT BEFORE 1/16", THERE IS TOO MUCH OIL IN THE SHOCK. RE-BLEED THE SHOCK USING LESS OIL.

1433

O-RING (INSERT  
IN SPRING COLLAR)

1433

SPRING COLLAR



SET SPRING COLLARS THE SAME  
ON LEFT AND RIGHT TO ADJUST  
RIDE HEIGHT.

1407  
SPRING CUP

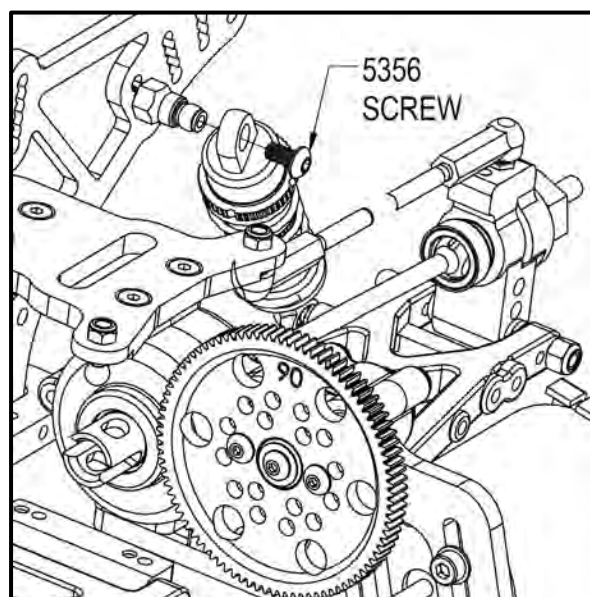
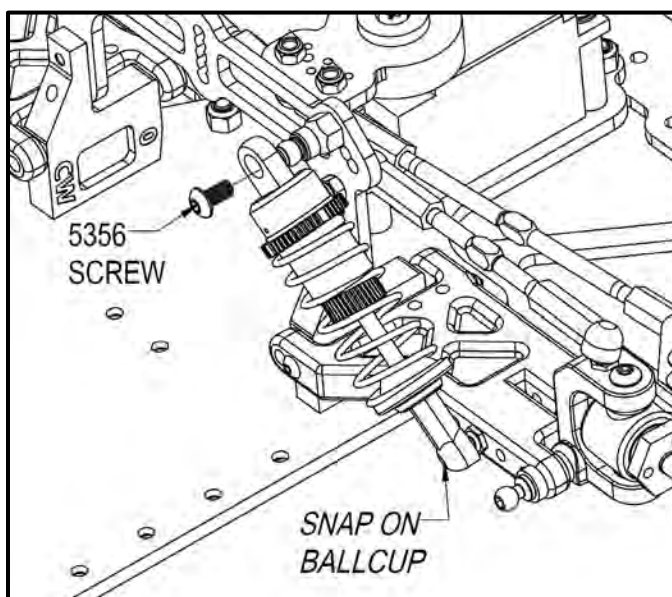
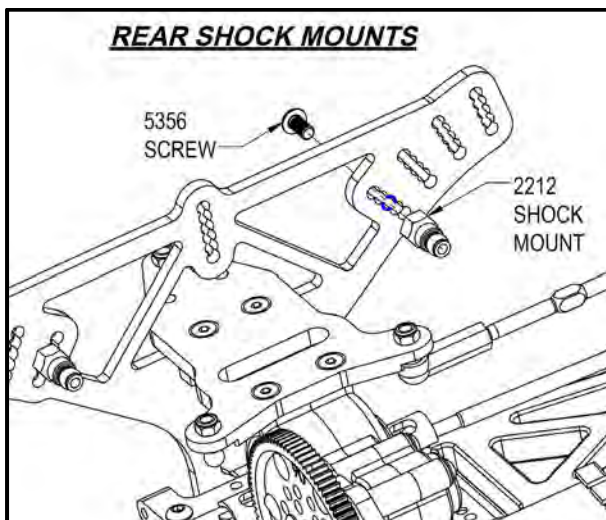
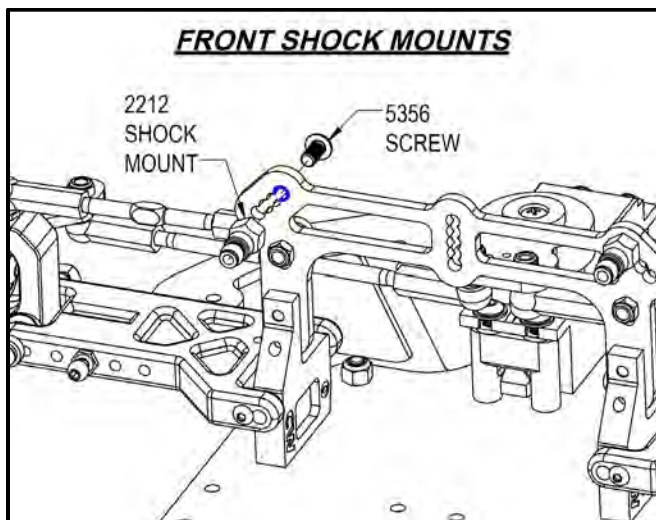
SPRING

1490 10# BLACK - FRONT  
1487 7# GREEN - REAR

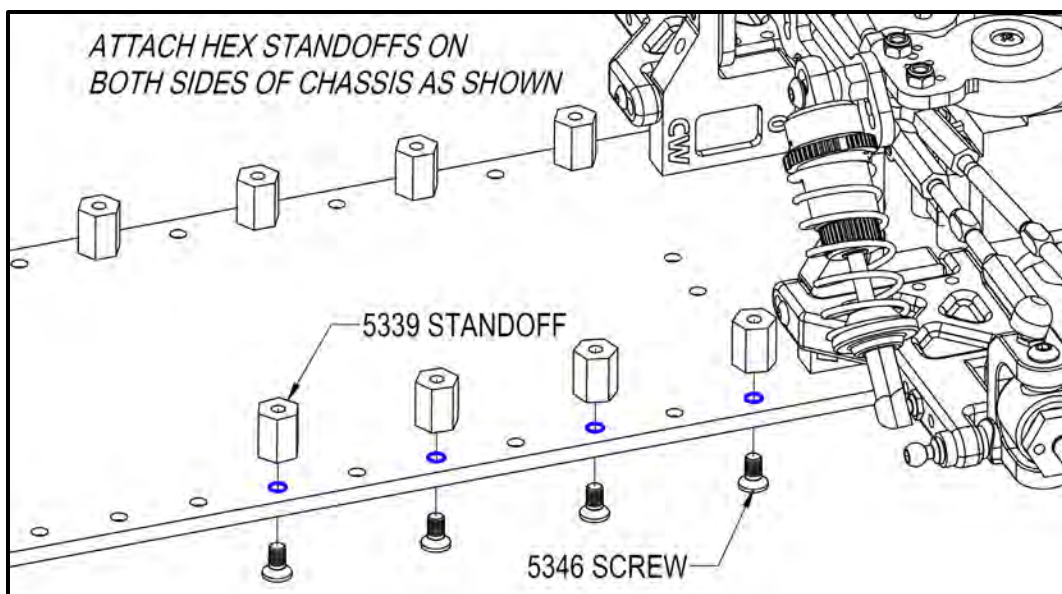
OPTIONAL SPRINGS:

1485 5# YELLOW  
1486 6# RED  
1488 8# CHROME  
1489 9# GRAY  
1491 11# PLATINUM  
1492 12# ORANGE  
1494 14# WHITE  
1496 16# RED

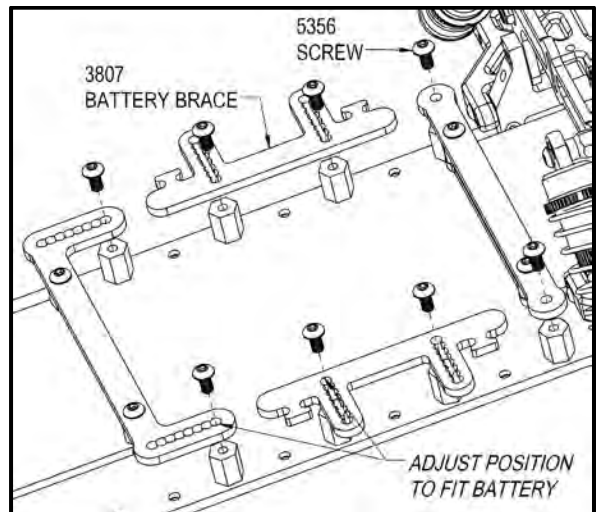
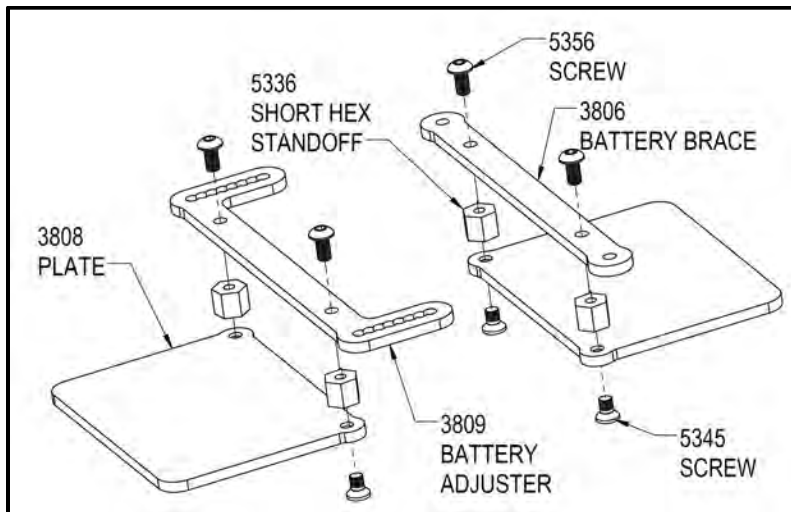
## Shock Mounting



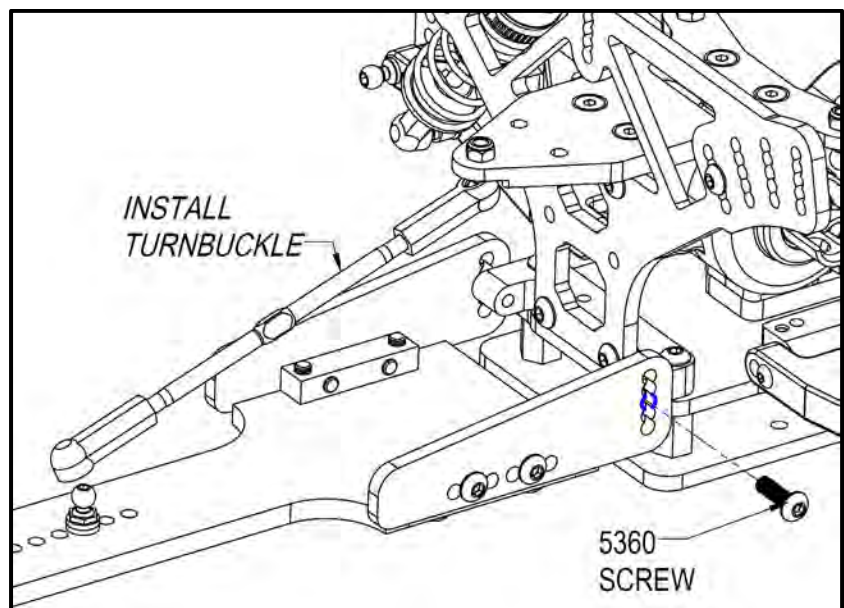
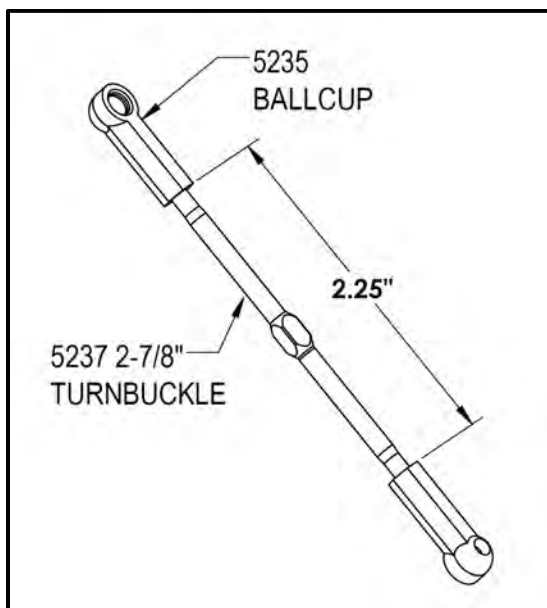
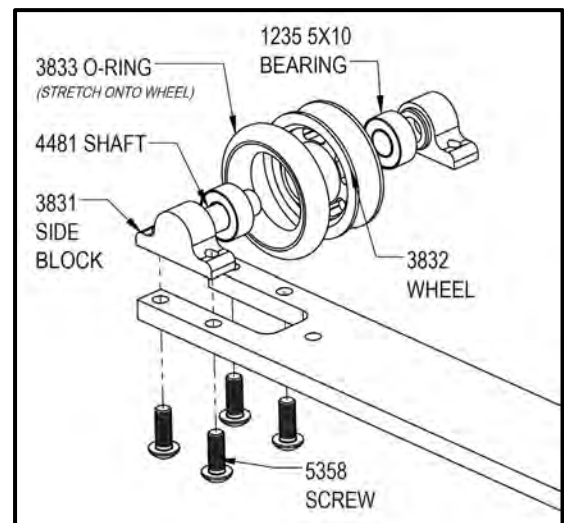
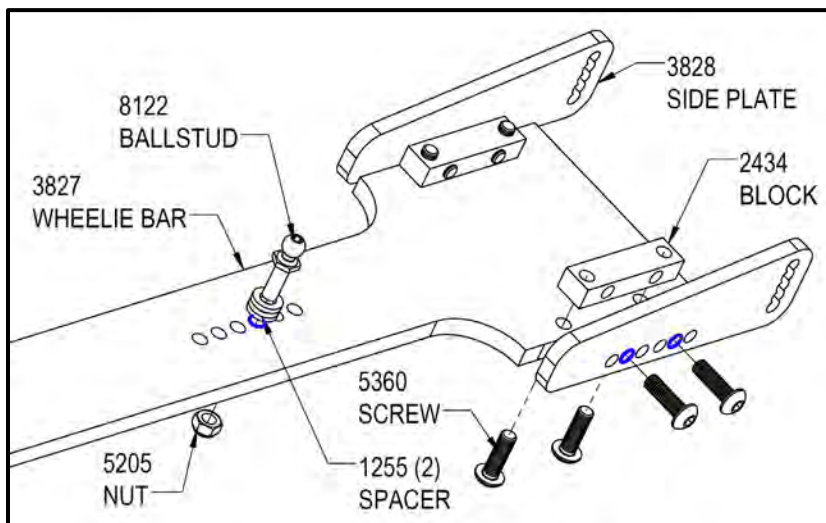
## Battery & Electronics Mounting



## Battery & Electronics Mounting (continued)

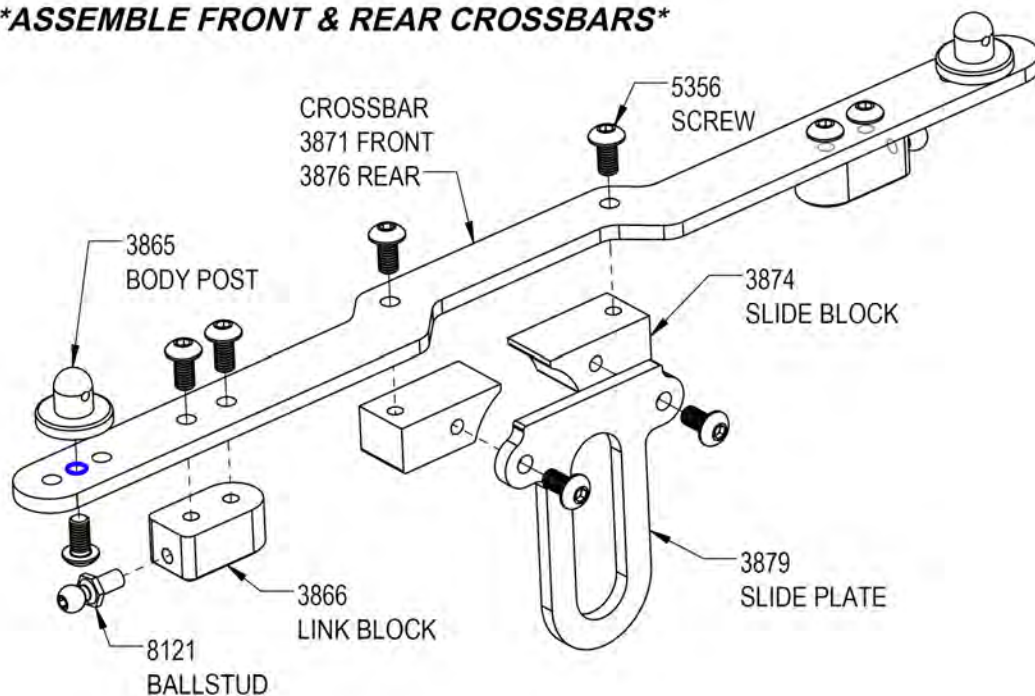


## Wheelie Bar

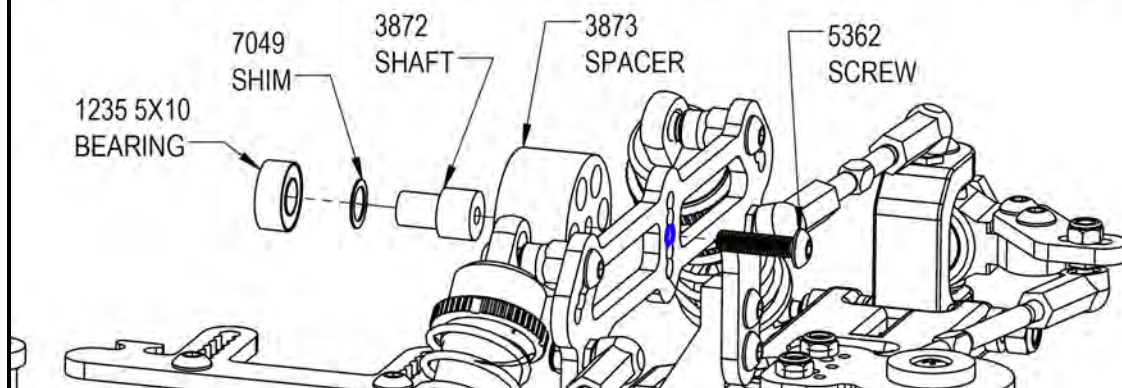


# Floating Body Mount System

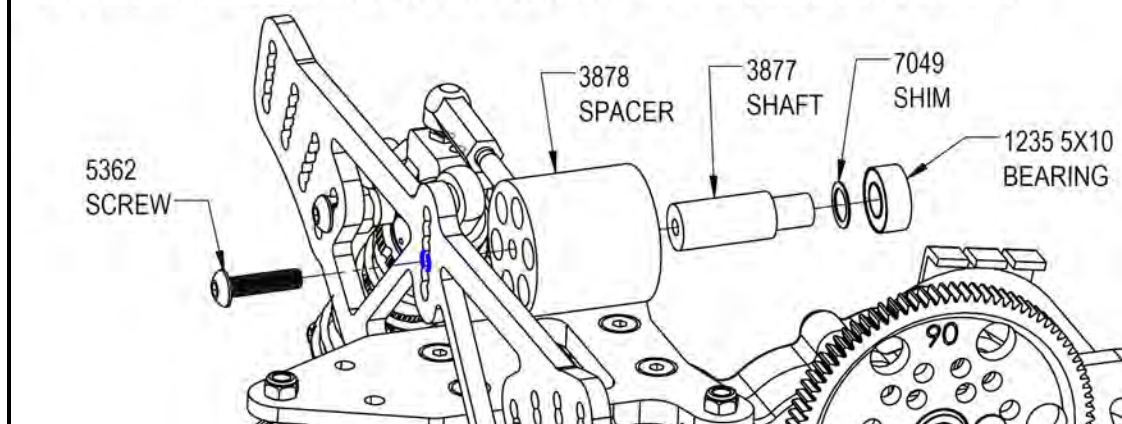
## **\*ASSEMBLE FRONT & REAR CROSSBARS\***

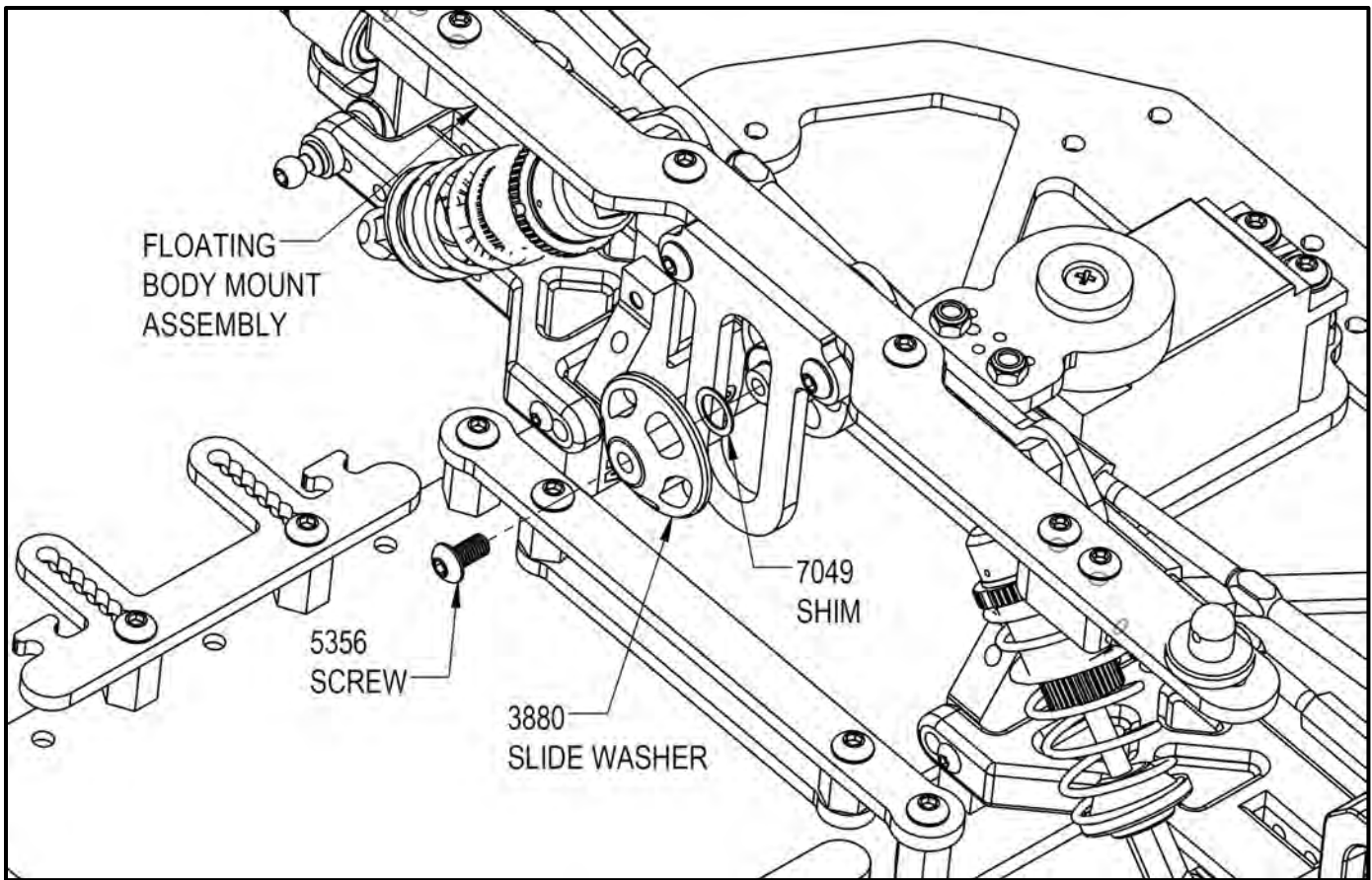


## **\*ATTACH FRONT SPACER TO BACK OF FRONT SHOCK TOWER\***



## **\*ATTACH REAR SPACER TO FRONT OF REAR SHOCK TOWER\***





- *Attach rear Floating Body Mount assembly the same as the front assembly shown.*
- *Use an additional #7049 shim if assembly does not slide up and down freely.*
- *Attach short turnbuckles to support front body mount.*
- *Attach long turnbuckles to support rear body mount.*
- *Remove 1 shim from behind slide washer when marking body for mounting to allow solid alignment. Replace the shim when finished.*

*Congratulations! The assembly process is nearly complete. Install wheels and tires of your choice using the included wheel nuts.*

### **FINAL SETUP:**

- *Set ride height. We recommend starting at 11mm rear and 10mm front (bottom of chassis.)*
- *Set front toe to 0 degrees with the servo centered.*
- *Adjust camber on all 4 tires to 0 degrees.*
- *Set wheelie bar height to 8mm (bottom of wheel) using the turnbuckle link. Lower the wheel for higher grip tracks and raise it to let the rear squat more on lower grip tracks.*



Driver: \_\_\_\_\_ Class: \_\_\_\_\_

Track: \_\_\_\_\_ Surface: Smooth ☐☐☐☐☐ Bumpy

Event: \_\_\_\_\_ Traction: High ☐☐☐☐☐ Low

### Tires

	Brand/Name	Compound	Insert
RF			
LF			
RR			
LR			

Cleaned With: \_\_\_\_\_

Traction Additive: \_\_\_\_\_

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

### Shocks

	Body Length	Shaft Length	Spring	Oil	Piston	Shock Length	Collar	Spring Cup
RF	S M L	S M L			S M L			Std. Ext.
LF	S M L	S M L			S M L			Std. Ext.
RR	S M L	S M L			S M L			Std. Ext.
LR	S M L	S M L			S M L			Std. Ext.

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

### Ride Height

LF		RF	
LR		RR	

### Max Chassis Height

LF		RF	
LR		RR	

### Corner Weights

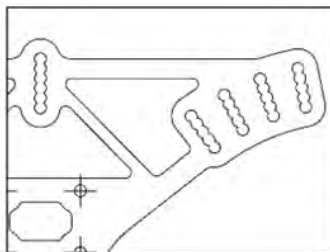
LF		RF	
LR		RR	

Front %	
Rear %	

Measured From: ☐ Bottom of Chassis ☐ Top of Chassis

Total Weight: \_\_\_\_\_ ☐ Measured without body

### Rear Suspension



#### Left

- ☐ 0
- ☐ 1 ☐ 2
- ☐ 3 ☐ 4
- ☐ None
- ☐ .060
- ☐ .125
- ☐ Short
- ☐ Long
- ☐ Upper
- ☐ Lower

#### Camber

Spacers Behind Hub

Suspension Mount Shims

Suspension Mount

Hub Pin Location

#### Right

- ☐ 0
- ☐ 1 ☐ 2
- ☐ 3 ☐ 4
- ☐ None
- ☐ .060
- ☐ .125
- ☐ Short
- ☐ Long
- ☐ Upper
- ☐ Lower

#### Left

- ☐ Inner
- ☐ Outer
- ☐ None
- ☐ 1.5°
- ☐ 3°
- ☐ Inner
- ☐ Outer

#### Toe

Outer Link Location

Anti-Squat

Bottom Shock Hole

Hex Offset

#### Right

- ☐ Inner
- ☐ Outer
- ☐ None
- ☐ 1.5°
- ☐ 3°
- ☐ Inner
- ☐ Outer

Outdrives / Diff.

- ☐ Steel
- ☐ Alum
- ☐ Gear

Gear Diff Fluid: \_\_\_\_\_

Wheelie Bar Height: \_\_\_\_\_

Wheel: ☐ Yes ☐ No

### Aerodynamics

Body: \_\_\_\_\_

Body Mount: Floating (FBM) ☐ Solid ☐

FBM Mount Links – Exposed Turnbuckle F- \_\_\_\_\_ R- \_\_\_\_\_

Rear Deck Height From Bottom Of Chassis: \_\_\_\_\_

Spoiler: \_\_\_\_\_

Spoiler Angle: \_\_\_\_\_ Wickerbill: \_\_\_\_\_

### Power

Motor: \_\_\_\_\_ Speed Control: \_\_\_\_\_

2 Pole ☐ 4 Pole ☐ Timing/Boost: \_\_\_\_\_

Endbell Timing: \_\_\_\_\_ Battery: \_\_\_\_\_

Pinion: \_\_\_\_\_ Spur: \_\_\_\_\_ Battery Position: \_\_\_\_\_

Transmitter: \_\_\_\_\_

### Notes: