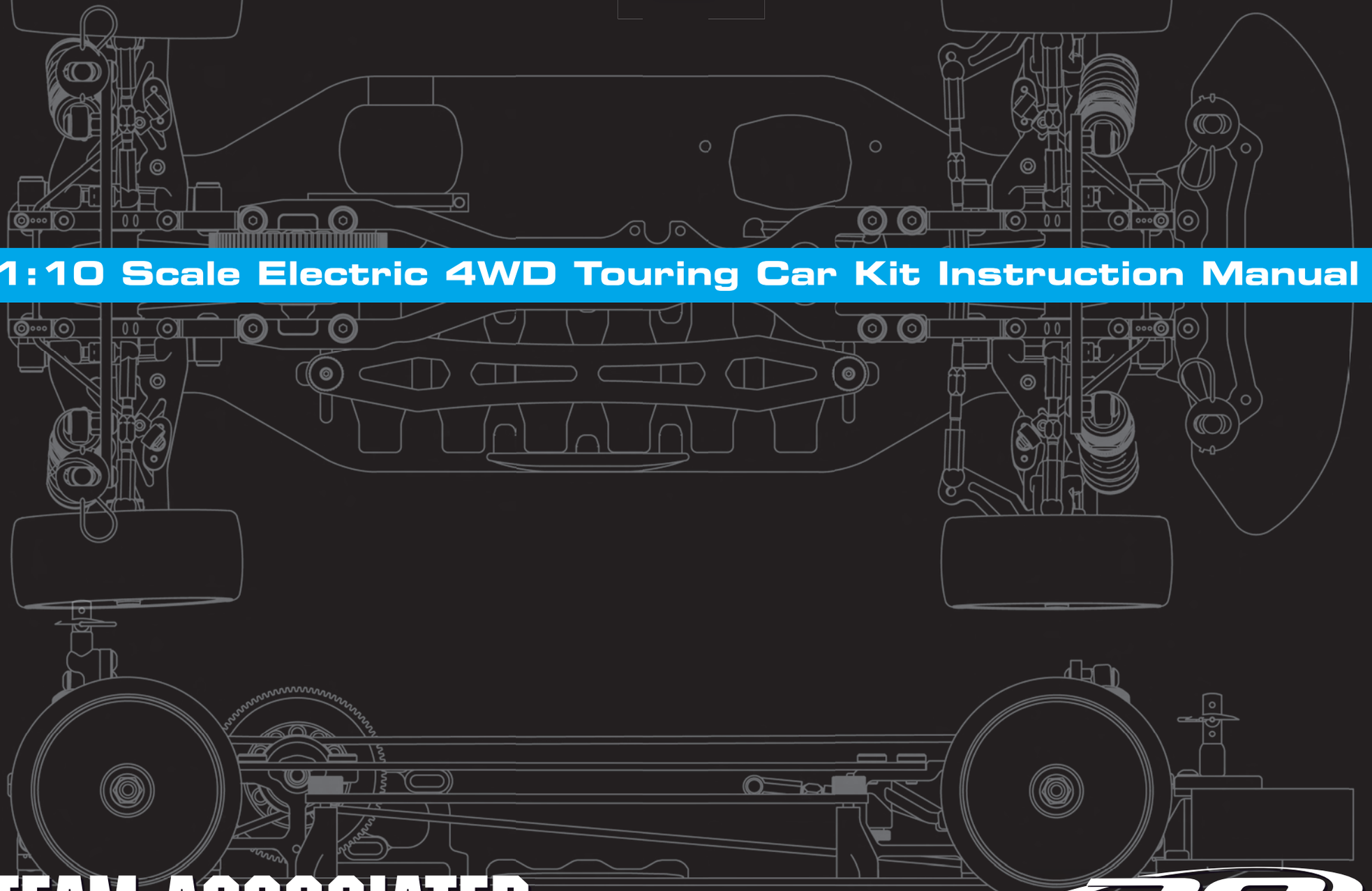
TC5F Factory Team

FOAM TIRE EDITION

IFMAR WORLD CHAMPIONS 22 TIME

TC5R Factory Team

RUBBER TIRE EDITION



1:10 Scale Electric 4WD Touring Car Kit Instruction Manual

TEAM ASSOCIATED

:: Introduction

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

Associated's Factory Team TC5 is Area-51's most competitive onroad touring car in history! Starting with a blank sheet of paper, many decades of race winning experience, and new ideas, the designers built the TC5 from the ground up producing an entirely new platform. The result is the TC5, an electric touring car that offers the performance and durability to stand up to the highest demands of touring car 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!

Bags

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

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.

Items Needed

You will need the following to complete you vehicle:

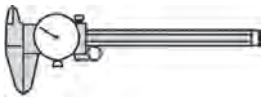
1. R/C two channel surface frequency radio system.
2. Electronic Speed Control.
3. R/C Electric Motor.
4. Battery pack.
5. Battery charger (peak detection recommended).
6. Pinion gear (see motor gearing chart).
7. 190mm Lexan body.
8. Wheels and tires.

Manual

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

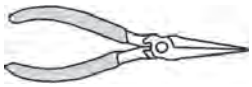
Recommended Tools


hex drivers (#1541) .050", 1.5mm, 2mm, 2mm (ballend)

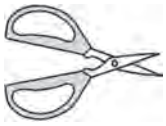

calipers

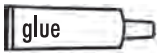

hobby knife


nut drivers (#1561) 5.5mm, 7mm


pliers


soldering iron


scissors (#1737)



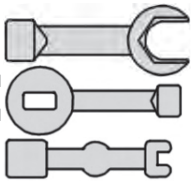
quick dry glue

threadlocking compound (#1596)

Supplied Tools


hex key set (#6950) .050", 1.5mm, 2mm, 2mm (ballend)


multi tool


molded tools (#6956)


droop gauge (#3987)

Notes

This manual contains instructions for both the Foam tire kit and Rubber tire kit.

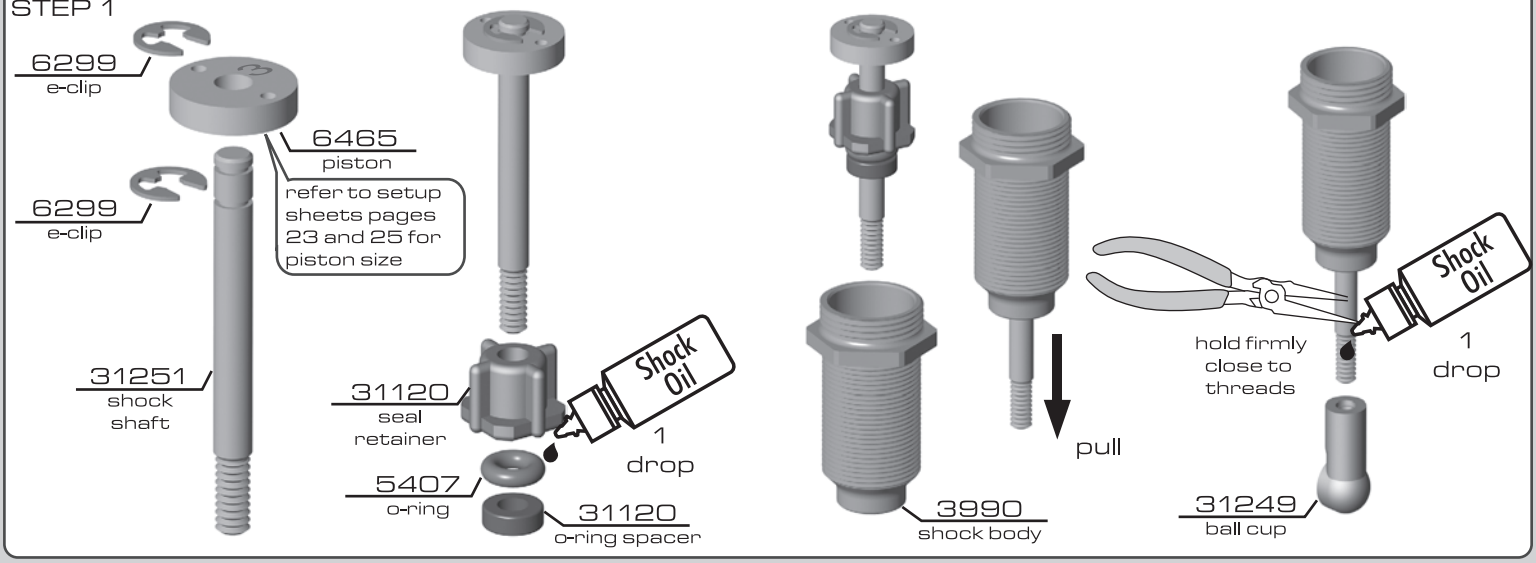
Associated Electrics, Inc.
26021 Commercentre Dr.
Lake Forest, CA 92630

http://www.TeamAssociated.com • http://www.RC10.com

Customer Service
Tel: 949.544.7500
Fax: 949.544.7501

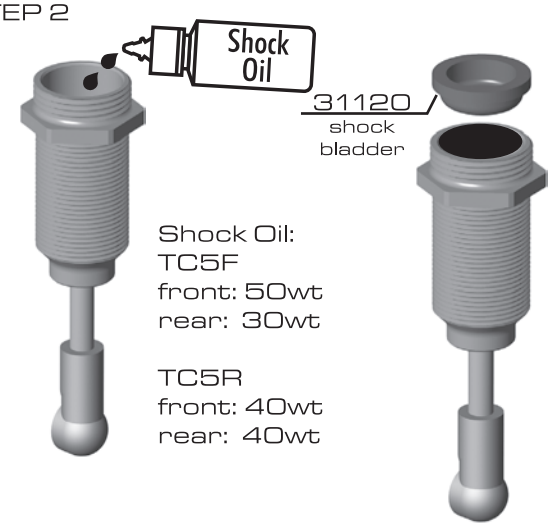
:: Bag A - Shocks

STEP 1



:: Shocks (cont.)

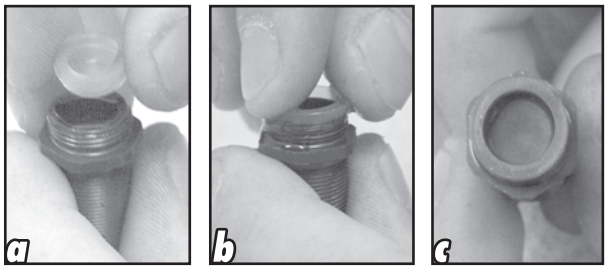
STEP 2



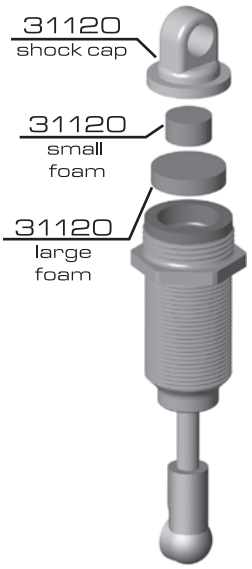
Shock Oil:
TC5F
front: 50wt
rear: 30wt

TC5R
front: 40wt
rear: 40wt

Bladder installation

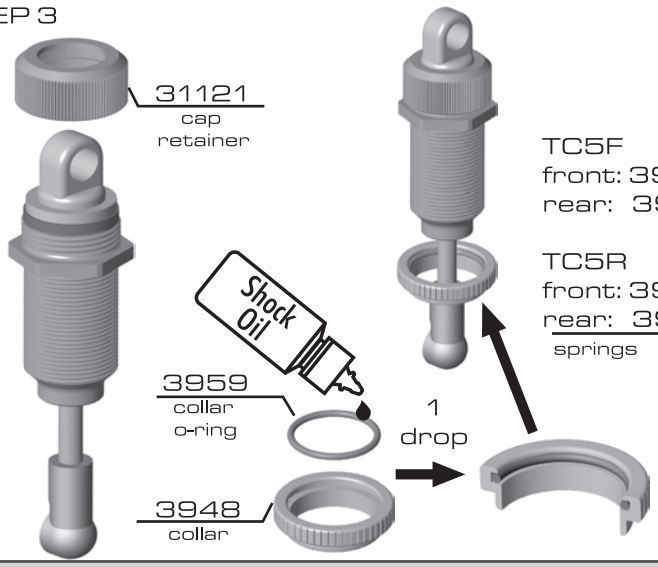


► With the shaft fully extended, place bladder onto the top of the shock body (a), displacing the extra oil (b). Make sure there are no air bubbles under the clear bladder (c). If there are, gently lift one side of the bladder to allow air bubbles to escape.



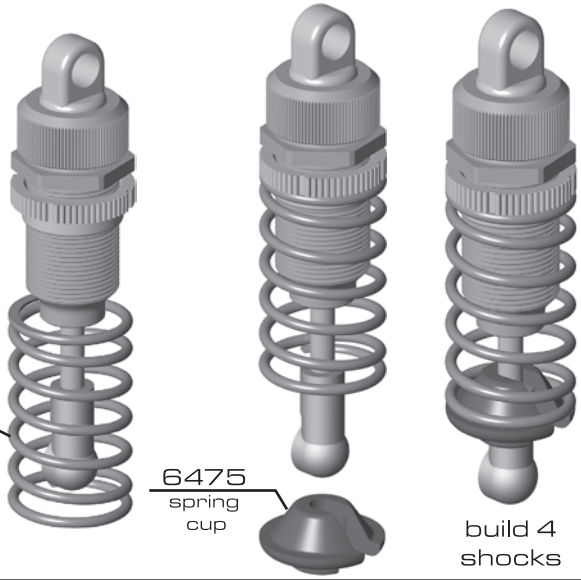
:: Shocks (cont.)

STEP 3



TC5F
front: 3952 (purple)
rear: 3943 (blue)

TC5R
front: 3943 (blue)
rear: 3942 (silver)
springs

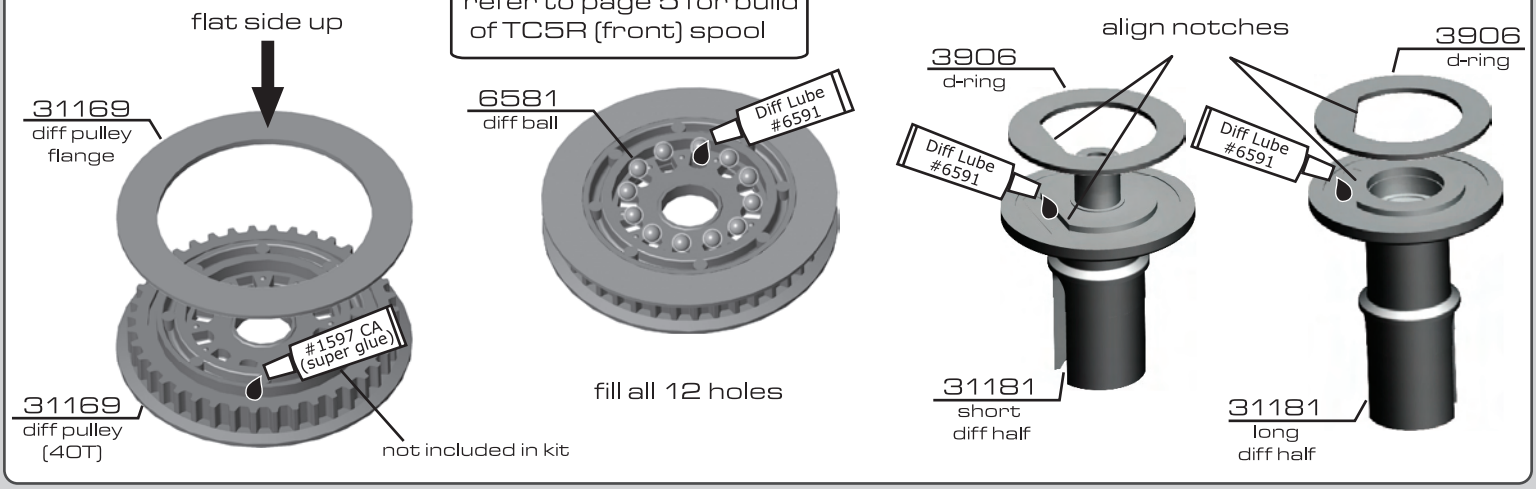


:: Bag B - Differentials

STEP 1

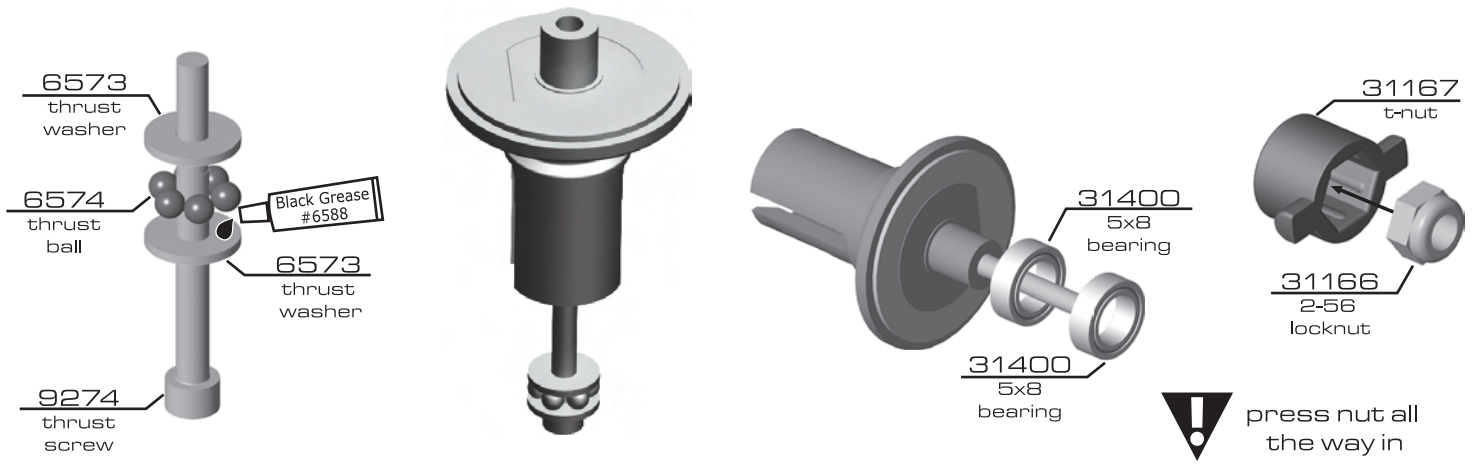
TC5R build options

refer to page 5 for build of TC5R (front) spool



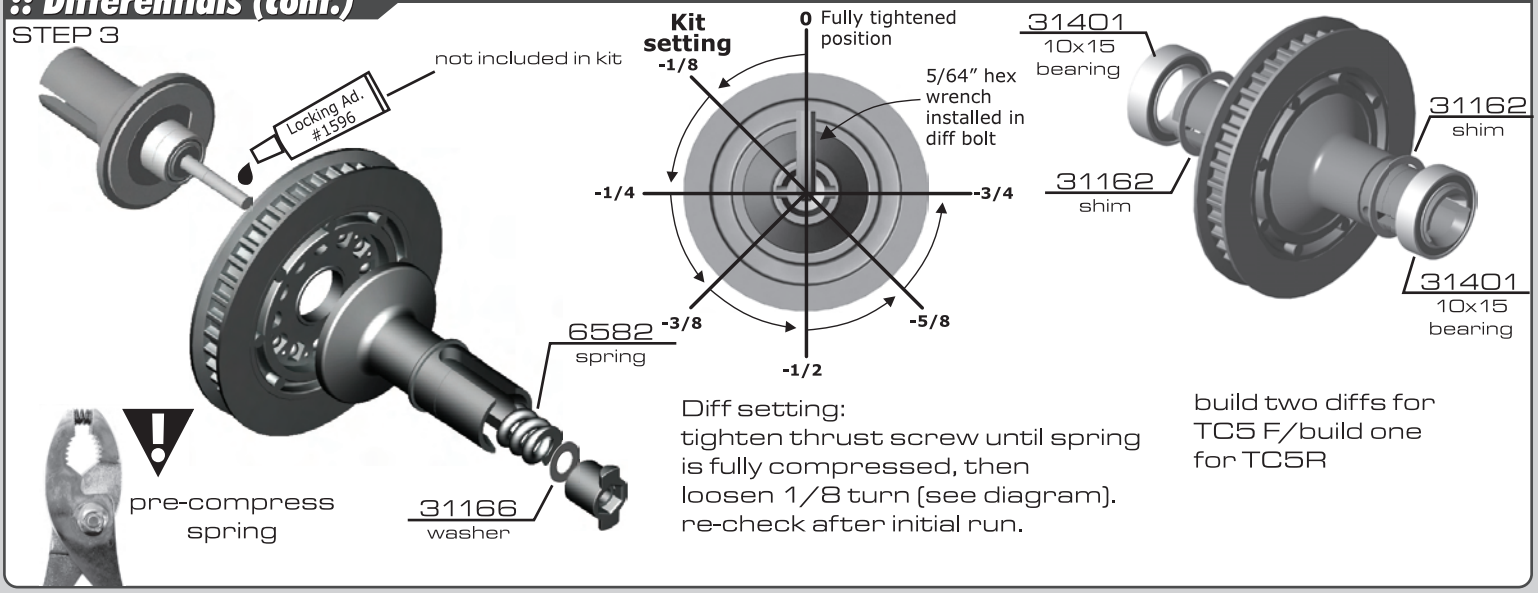
:: Differentials (cont.)

STEP 2



:: Differentials (cont.)

STEP 3

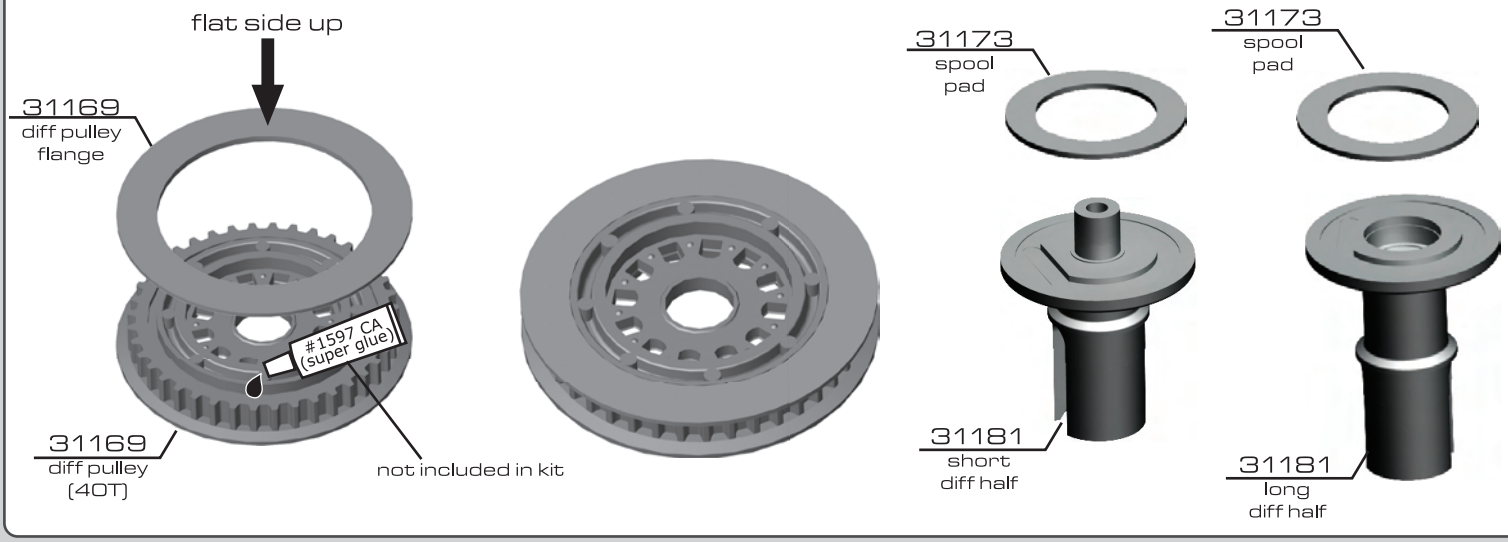


Diff setting:
tighten thrust screw until spring is fully compressed, then loosen 1/8 turn (see diagram). re-check after initial run.

build two diffs for TC5 F/build one for TC5R

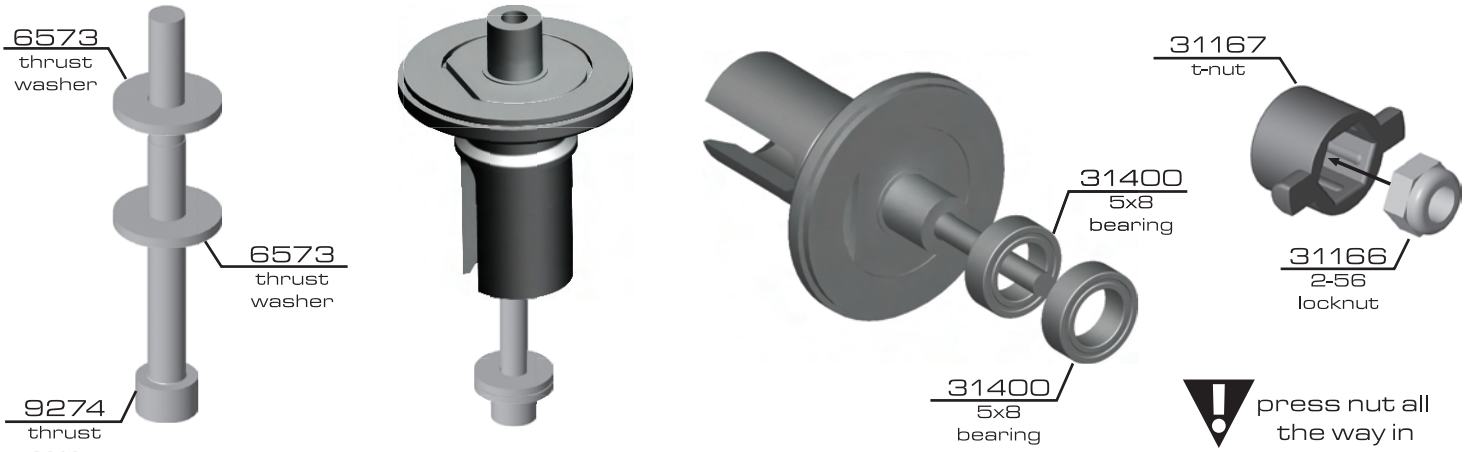
:: TC5 R Front Spool

STEP 4



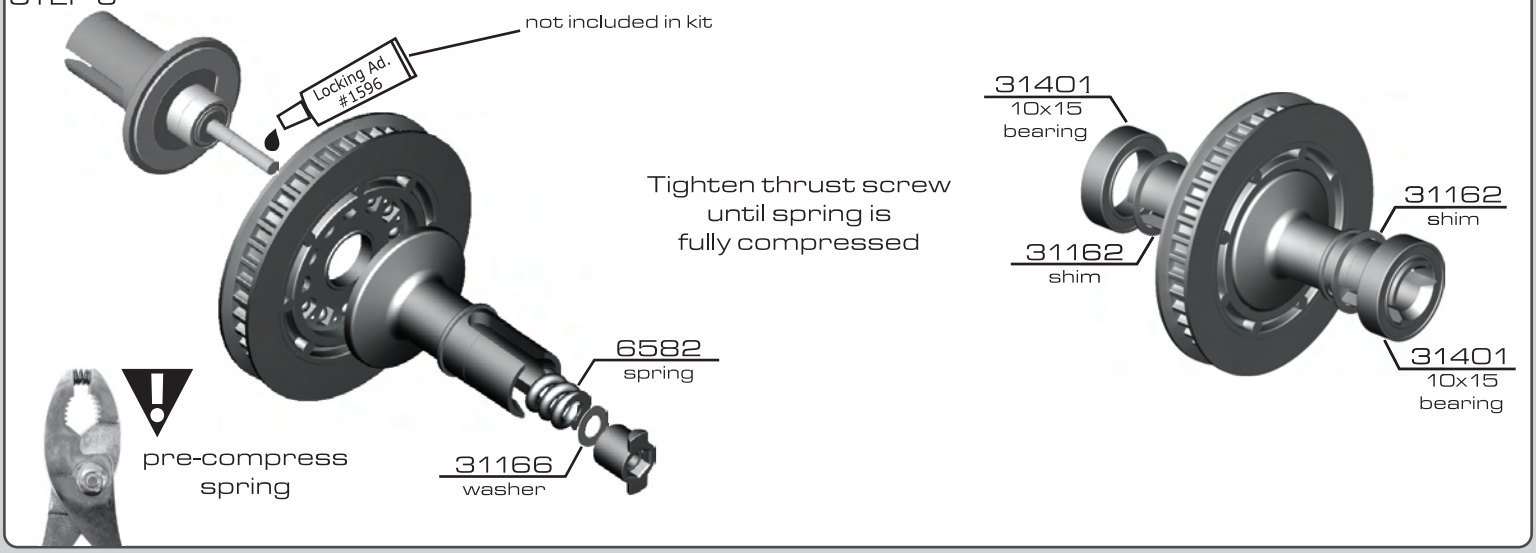
:: Front Spool (cont.)

STEP 5



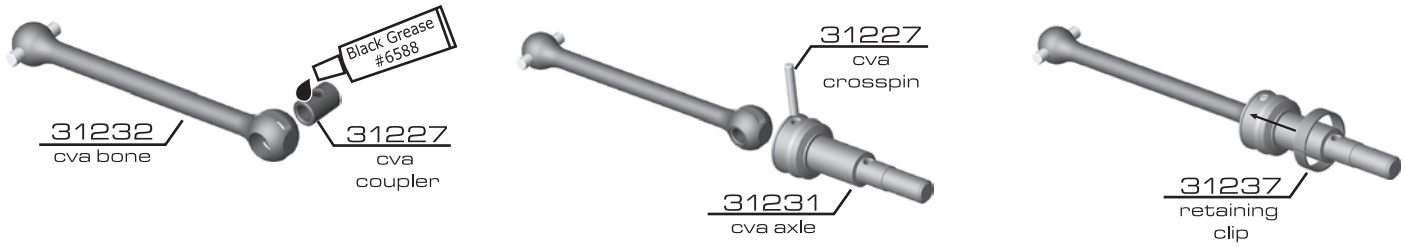
:: Front Spool (cont.)

STEP 6



:: Bag C - CVA's

STEP 1



:: CVA's (cont.)

STEP 2

build 4 cva's

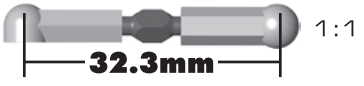
:: Turnbuckles

STEP 3

Camber Link (#1401, 1414 x2)

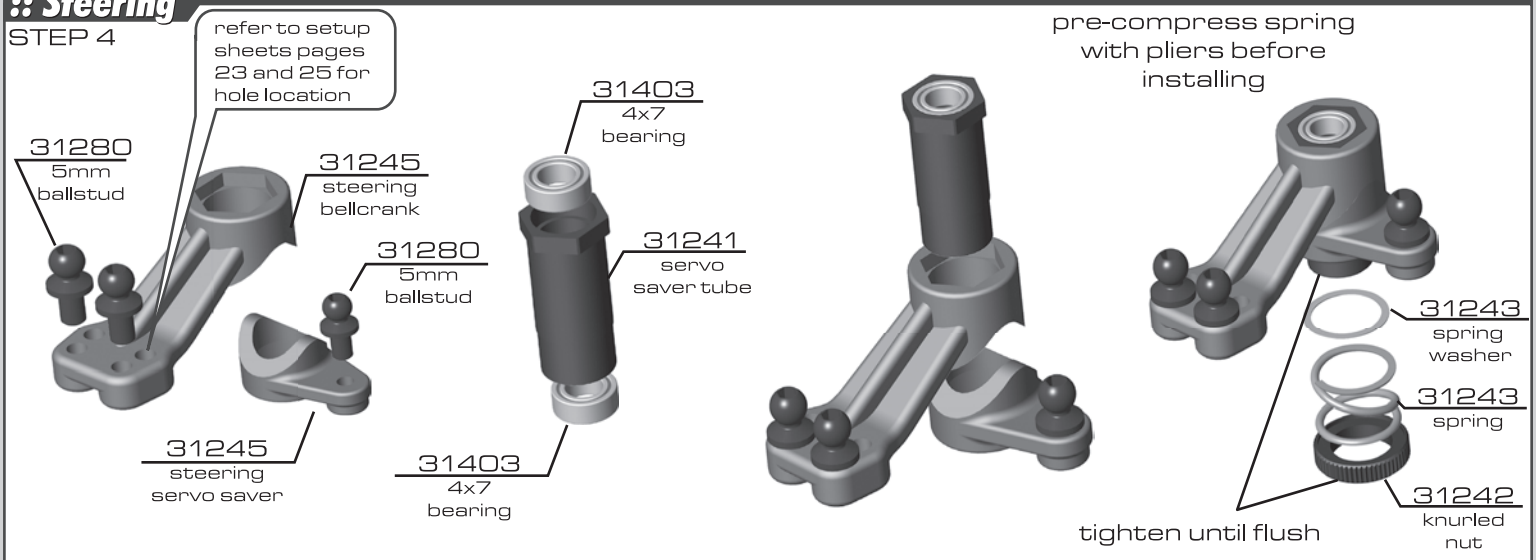
Steering Link (#1403 x2)

Draglink (#1418 x1)



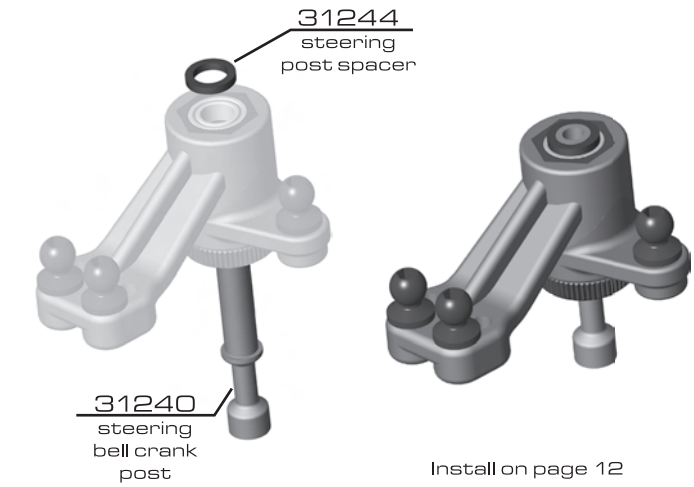
:: Steering

STEP 4



:: Steering (cont.)

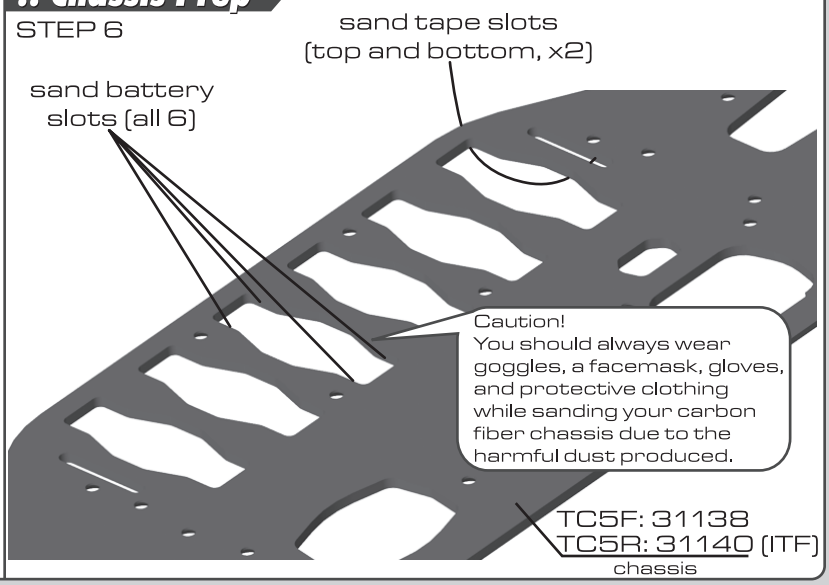
STEP 5



Install on page 12

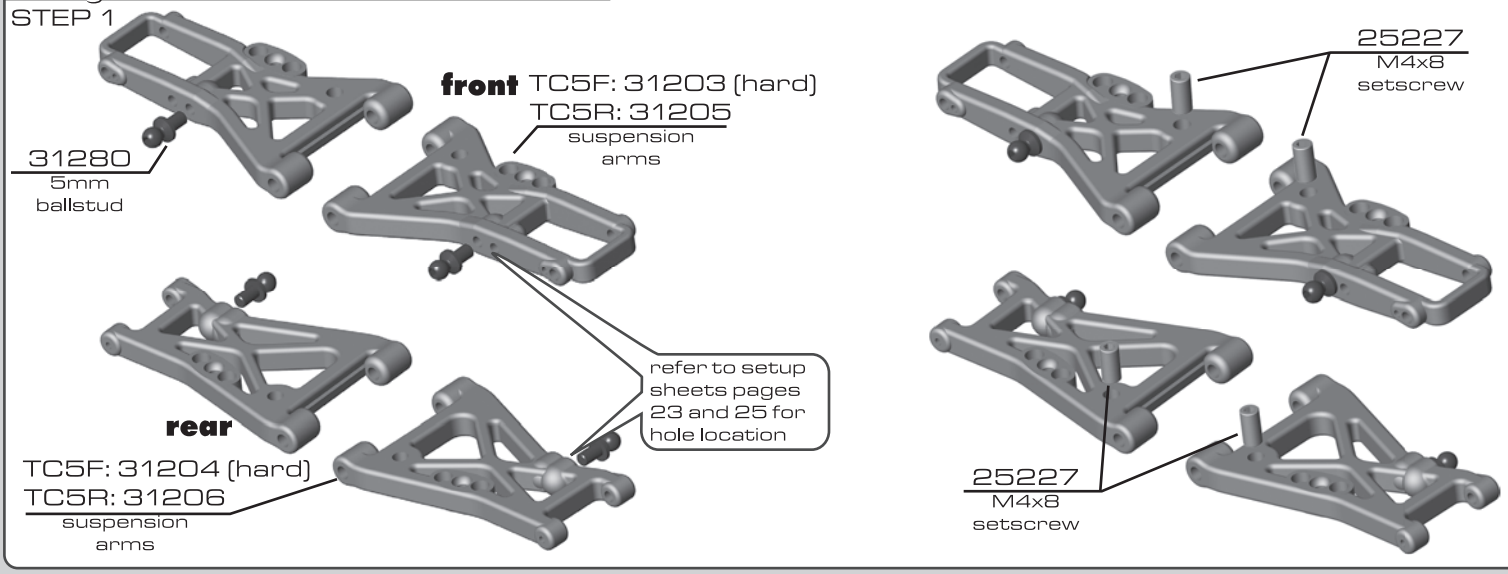
:: Chassis Prep

STEP 6



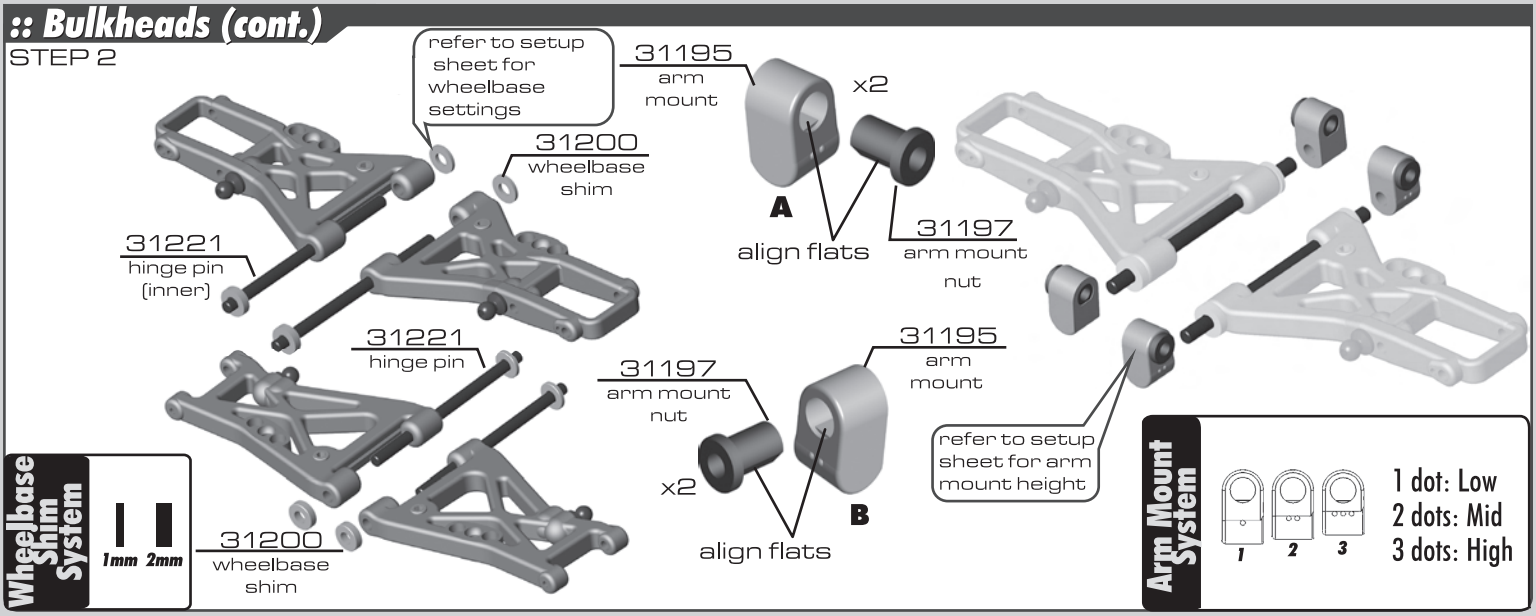
:: Bag D - Bulkheads

STEP 1



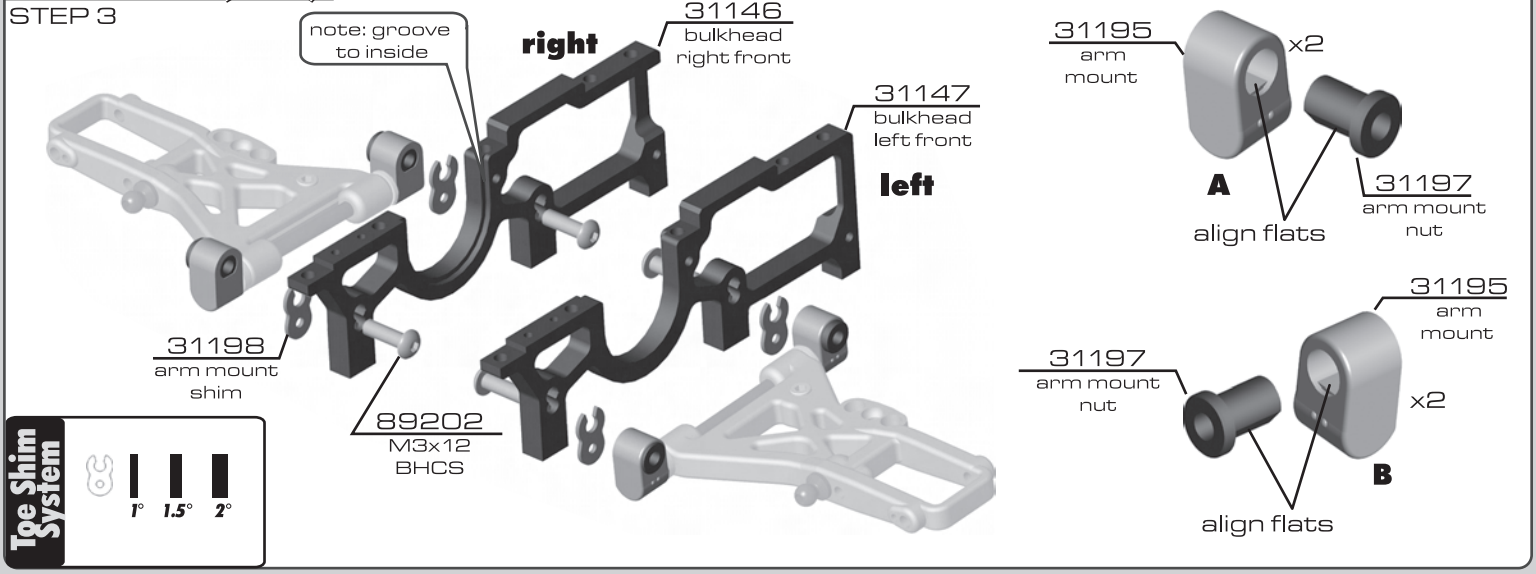
:: Bulkheads (cont.)

STEP 2



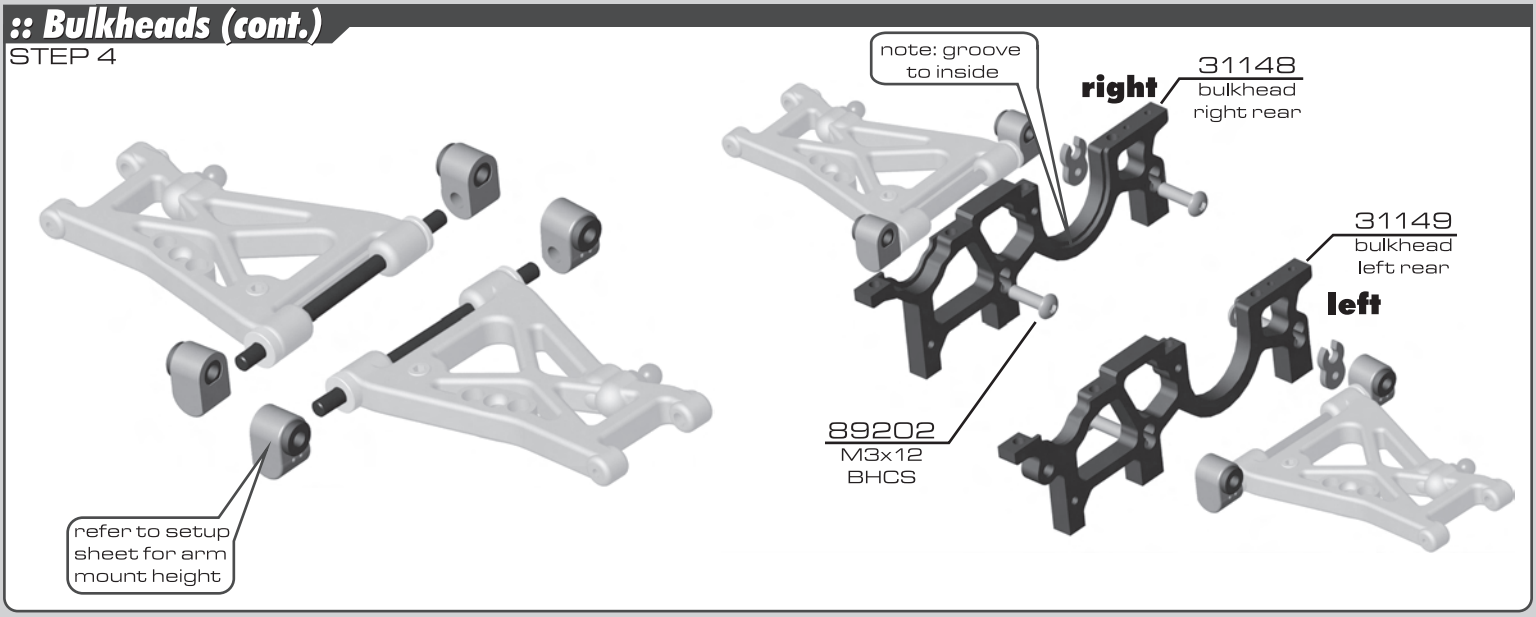
:: Bulkheads (cont.)

STEP 3



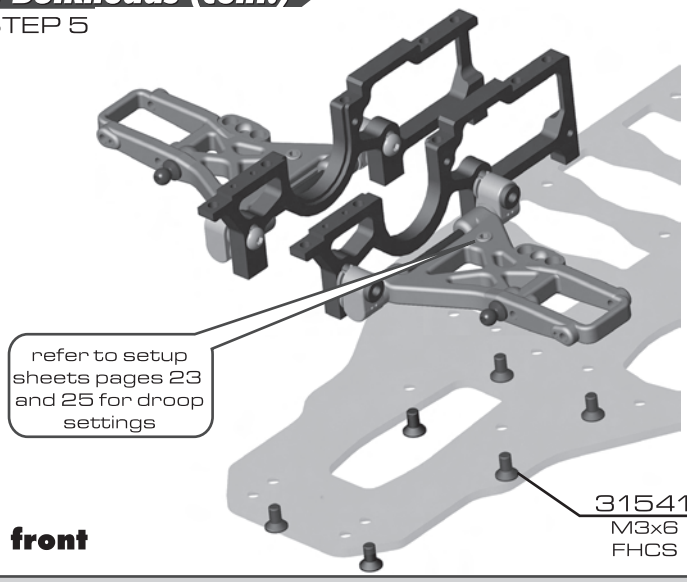
:: Bulkheads (cont.)

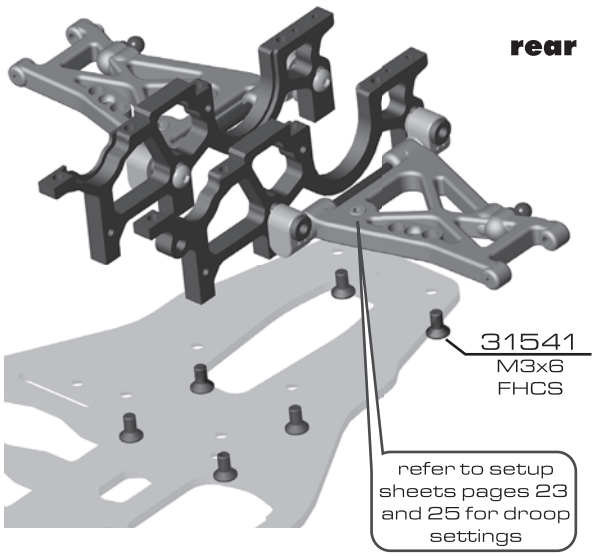
STEP 4



:: Bulkheads (cont.)

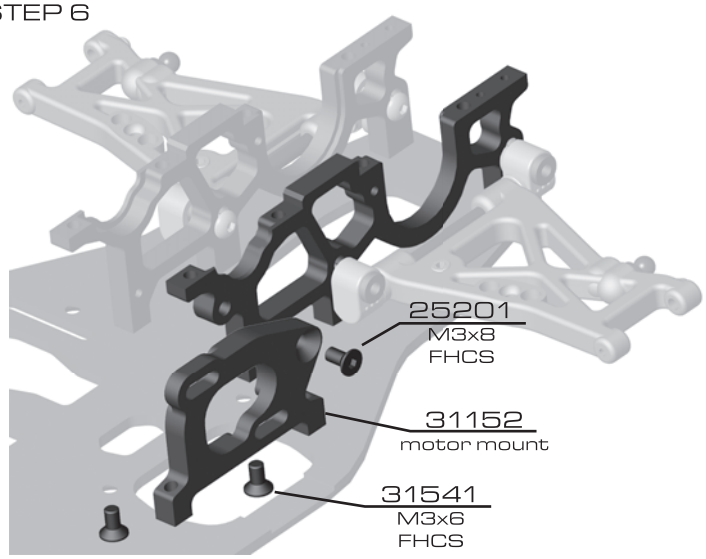
STEP 5





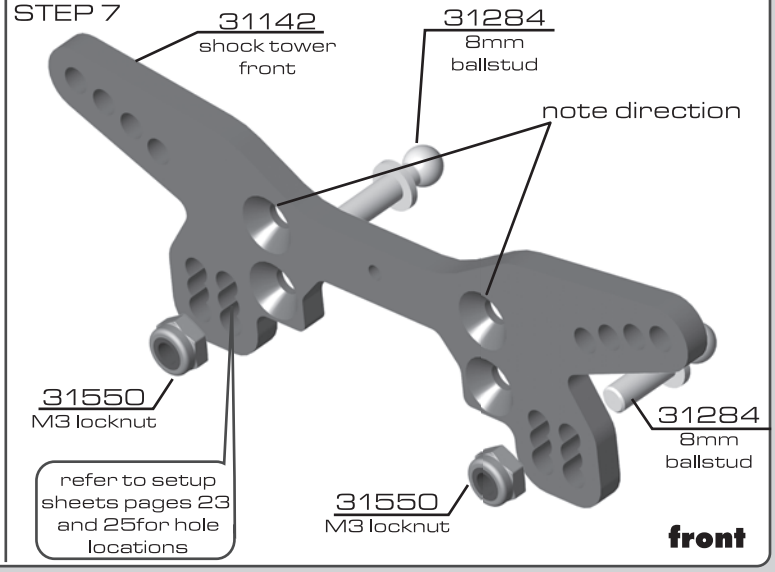
:: Bulkheads (cont.)

STEP 6



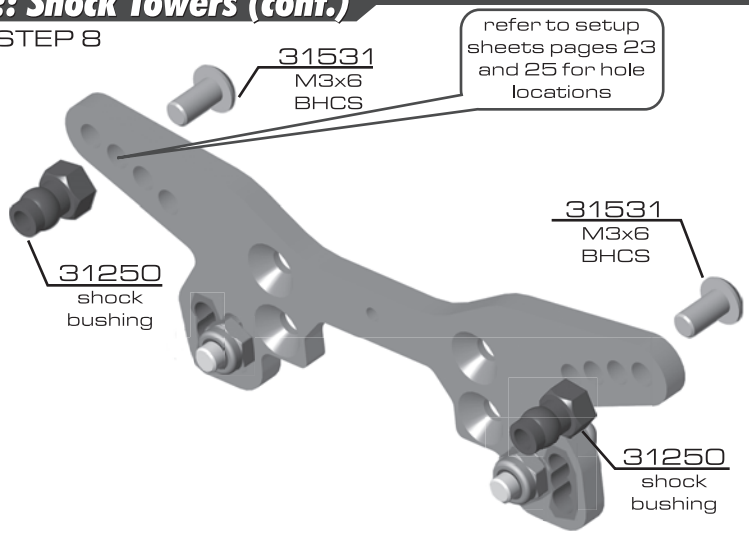
:: Shock Towers

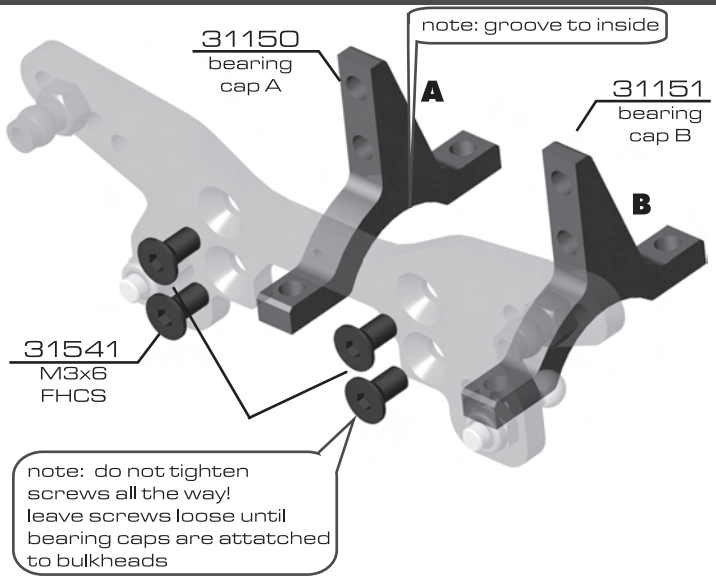
STEP 7



:: Shock Towers (cont.)

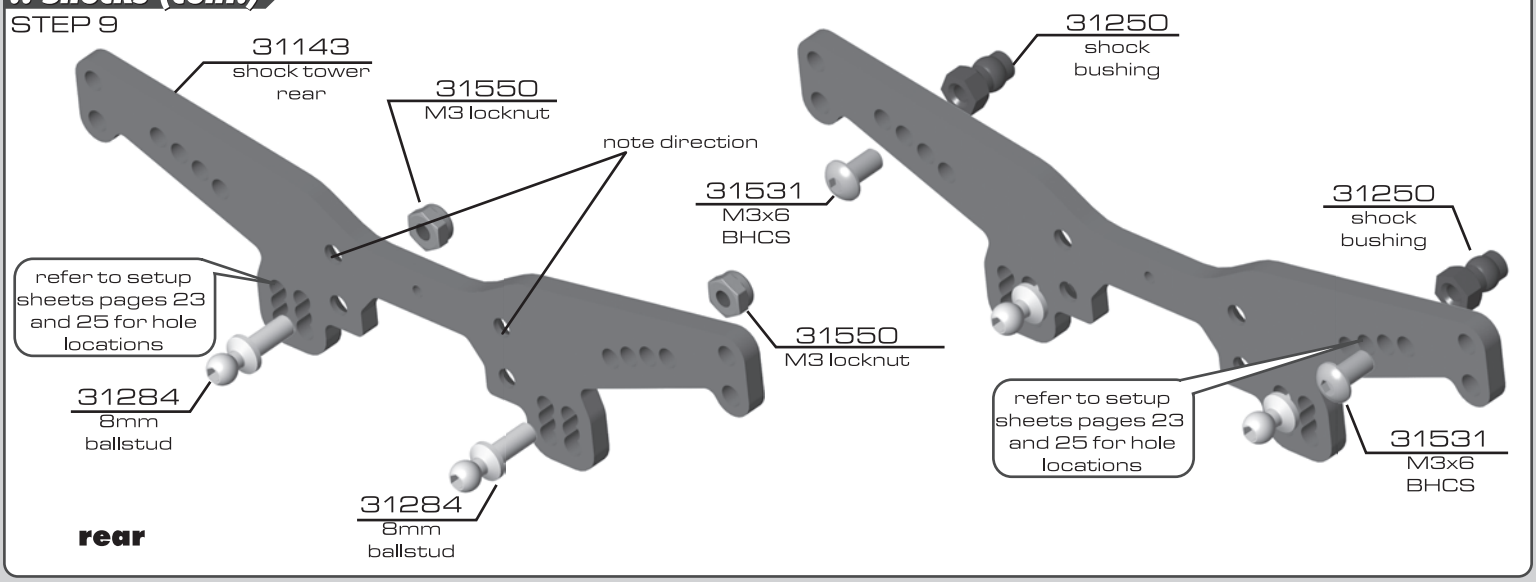
STEP 8





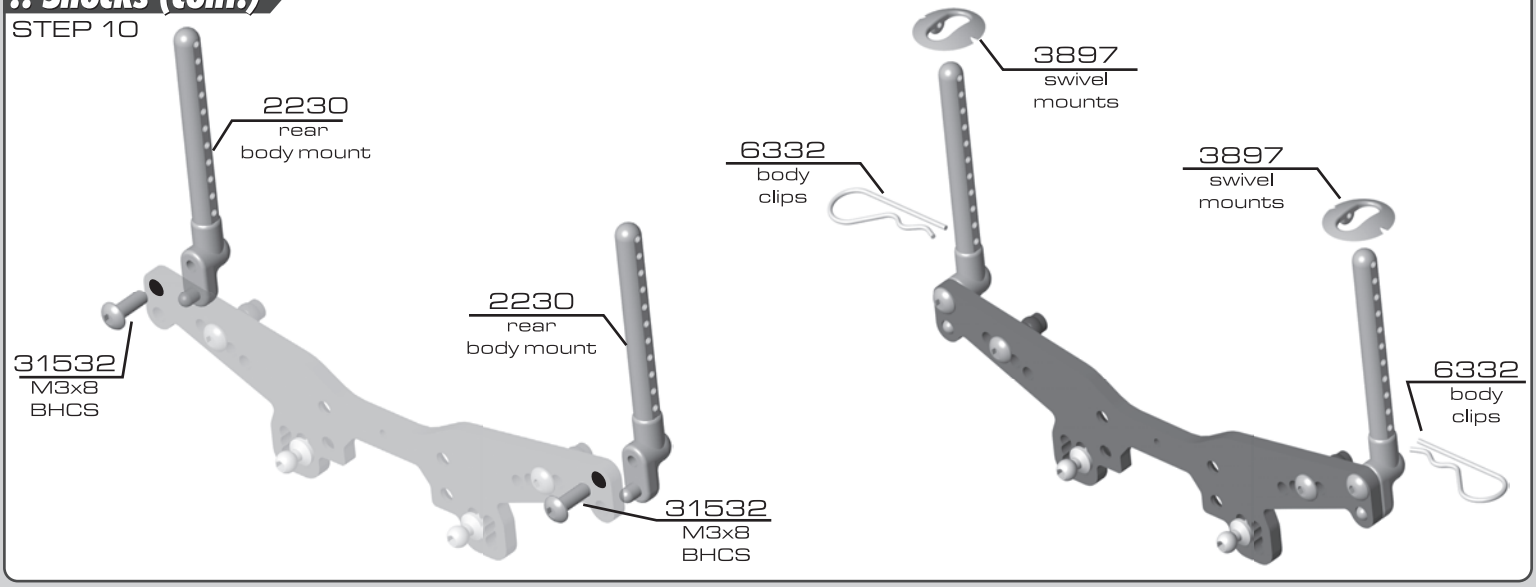
:: Shocks (cont.)

STEP 9



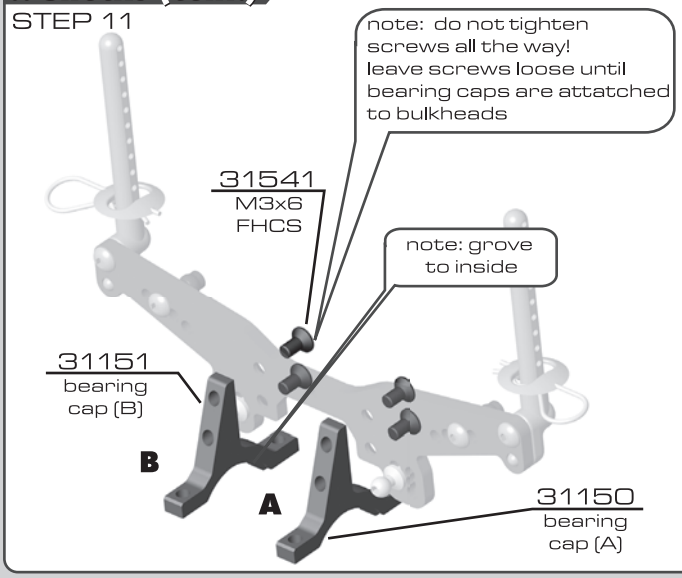
:: Shocks (cont.)

STEP 10



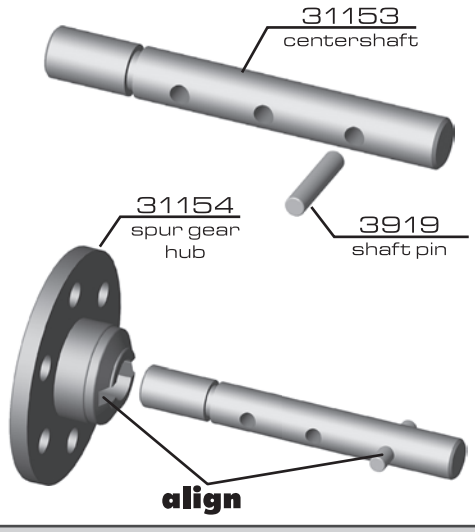
:: Shocks (cont.)

STEP 11



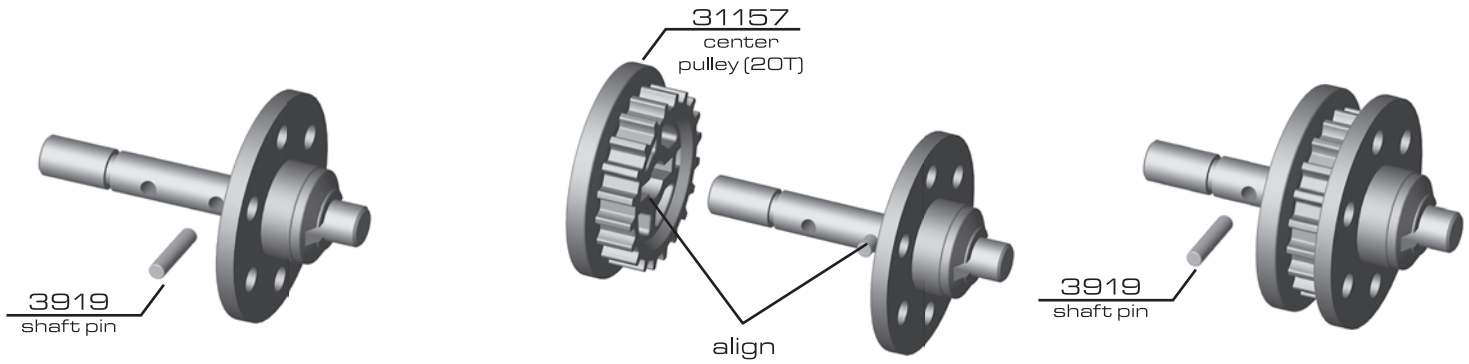
:: Bag E - Center Shaft

STEP 1



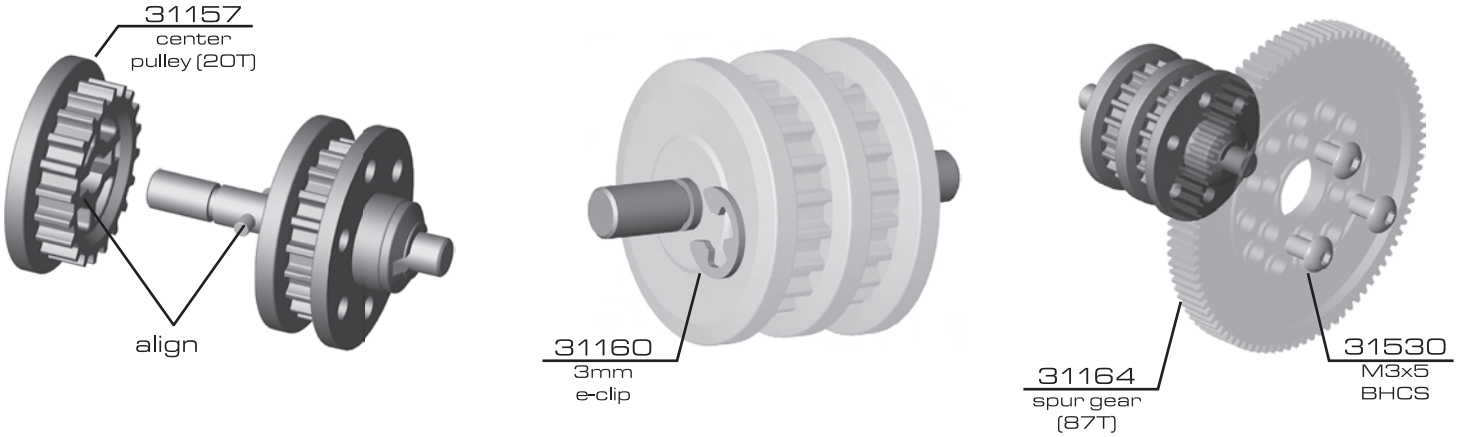
:: Center Shaft (cont.)

STEP 2



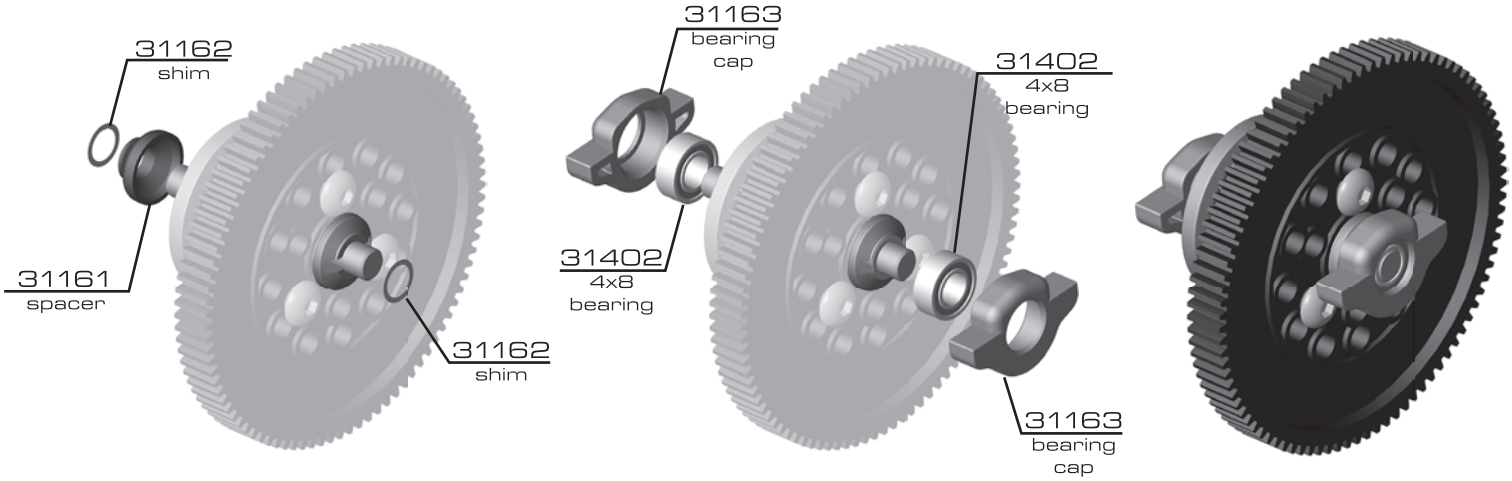
:: Center Shaft (cont.)

STEP 3



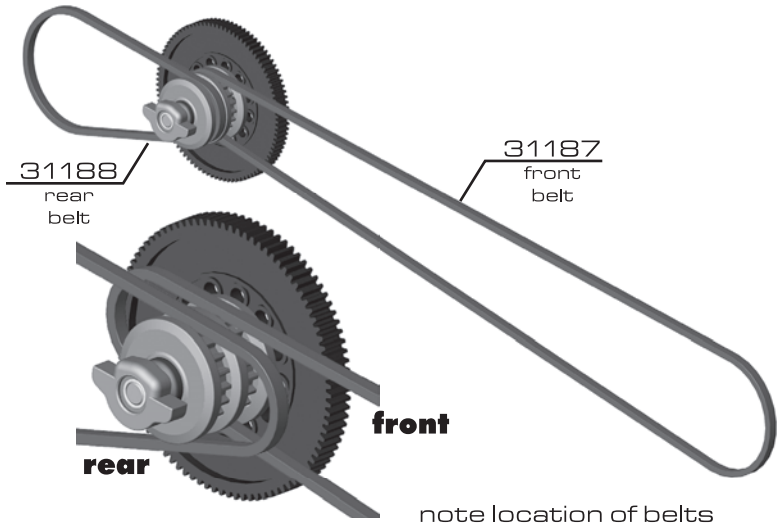
:: Center Shaft (cont.)

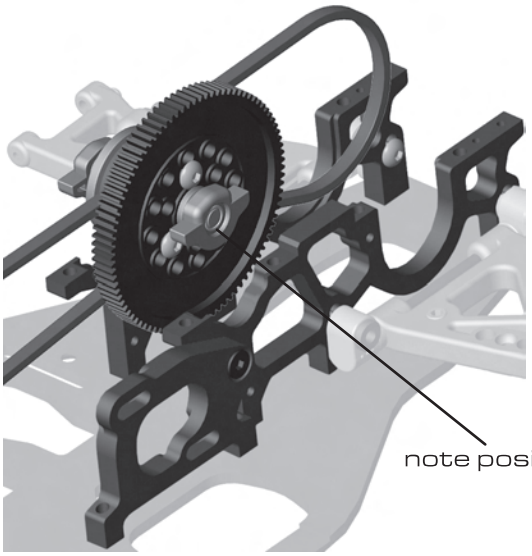
STEP 4



:: Center Shaft (cont.)

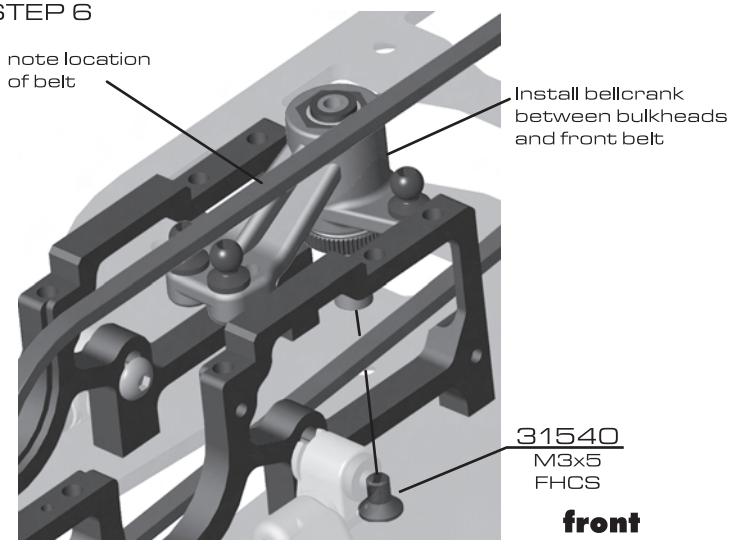
STEP 5





:: Bellcrank - Install

STEP 6



:: Top Deck - Install

STEP 7

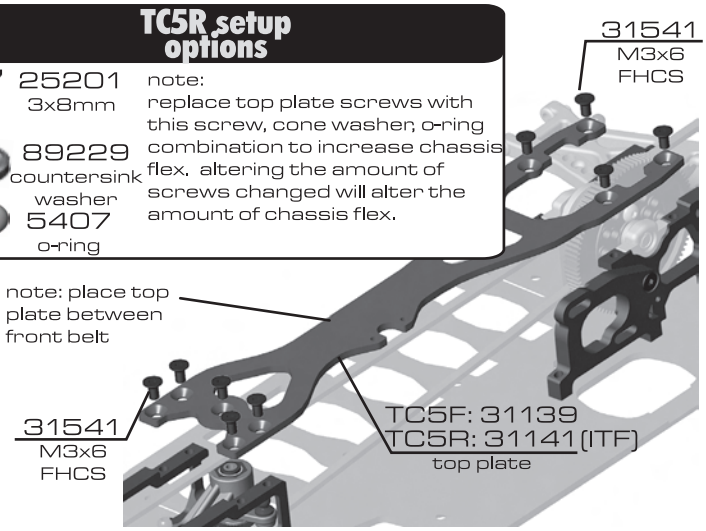
TC5R setup options

25201
3x8mm

89229
countersink
washer

5407
o-ring

note:
replace top plate screws with this screw, cone washer, o-ring combination to increase chassis flex. altering the amount of screws changed will alter the amount of chassis flex.

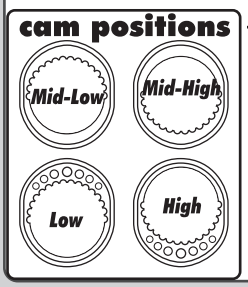


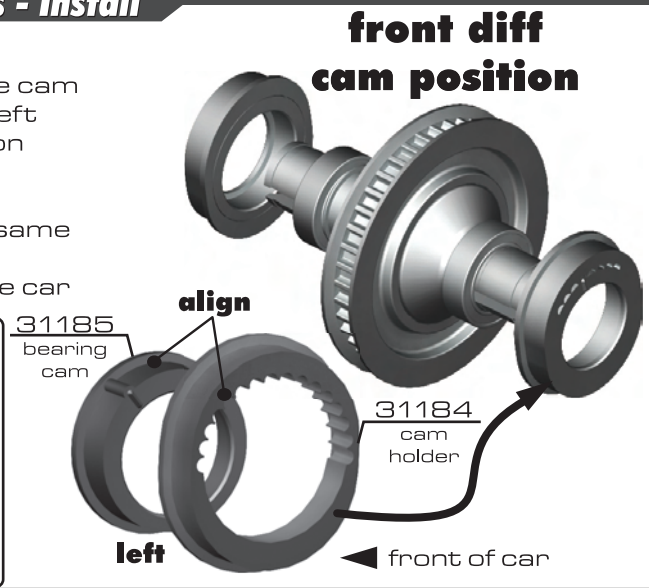
:: Differentials - Install

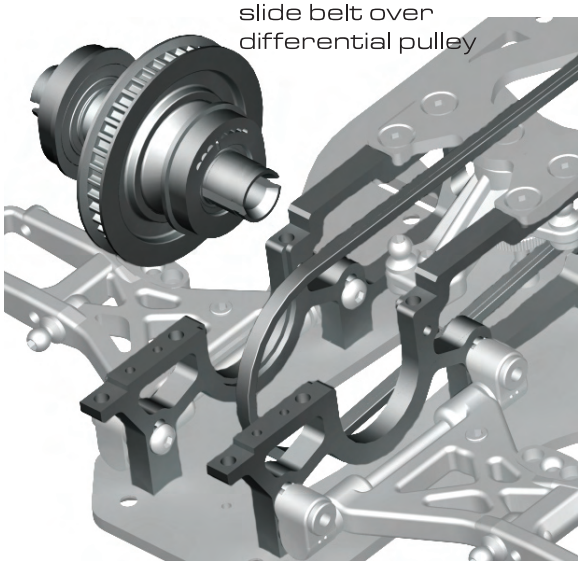
STEP 8

match right side cam position to the left side cam position

note:
always use the same cam position on both sides of the car

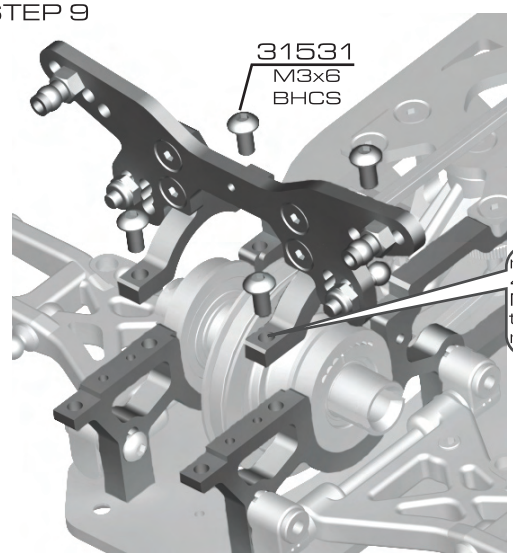






:: Differentials - Install (cont.)

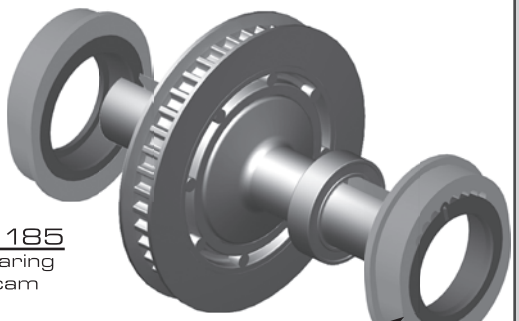
STEP 9

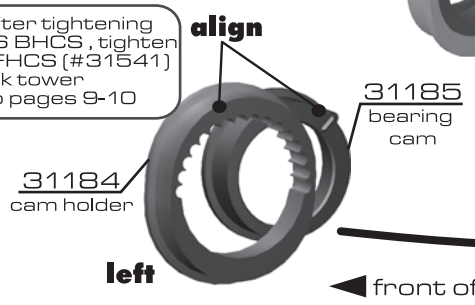


match right side cam positions to the left side cam positions

note:
always use the same cam position on both sides of the car

rear diff cam position

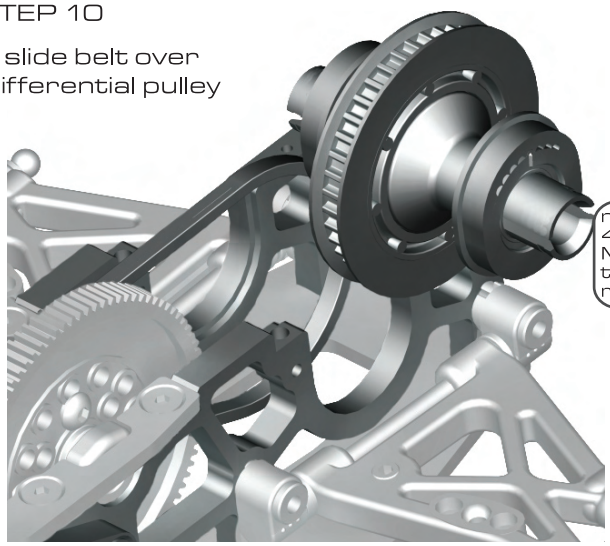


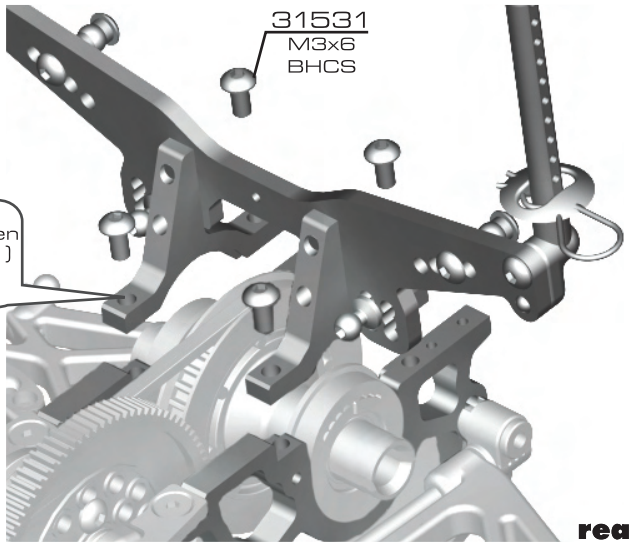


:: Differentials - Install (cont.)

STEP 10

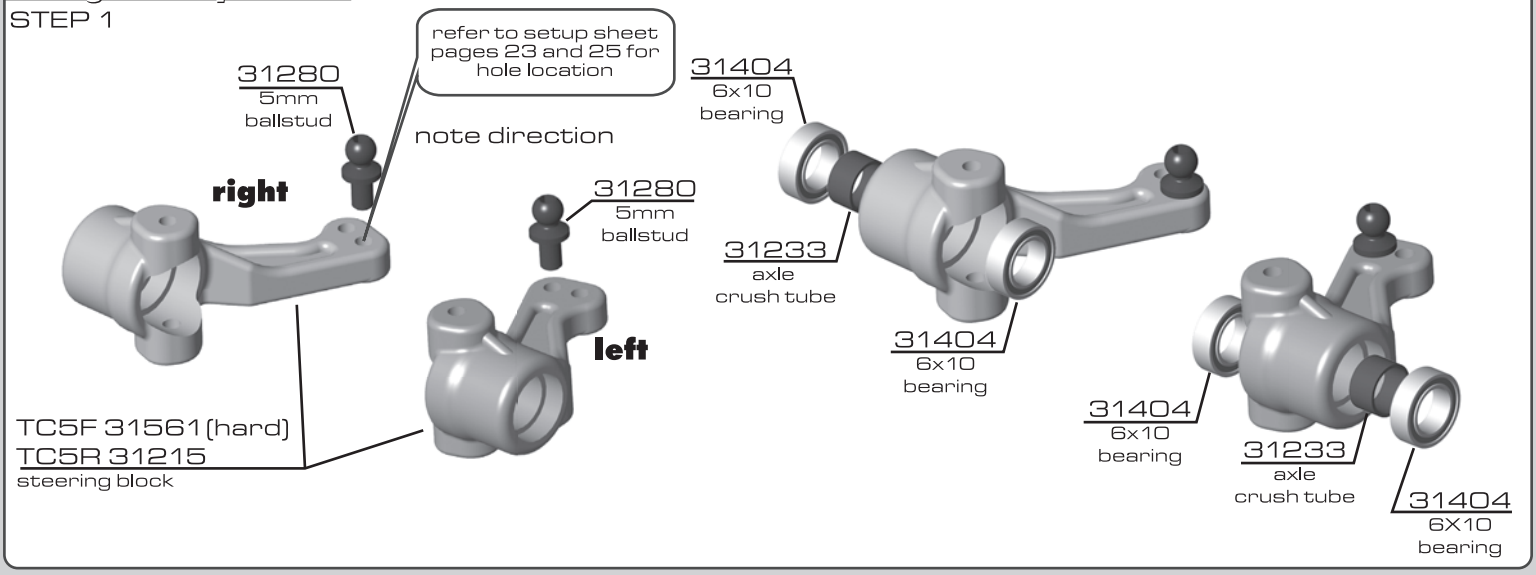
slide belt over differential pulley





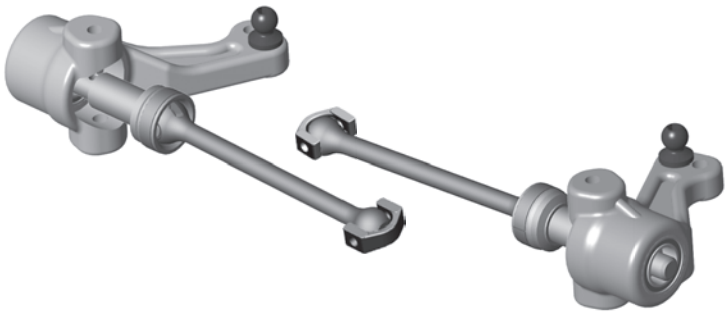
:: Bag F - Suspension

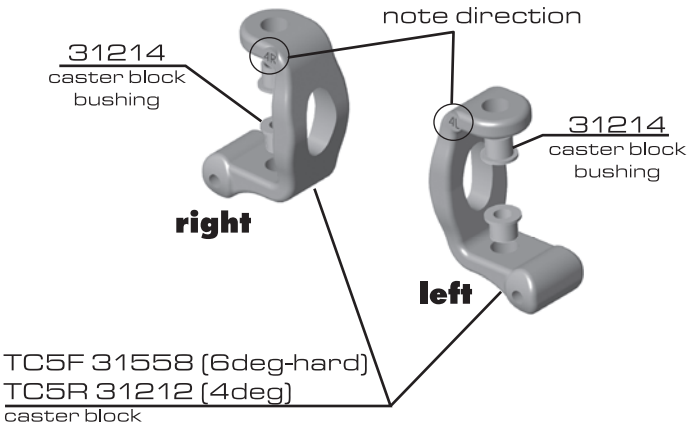
STEP 1



:: Suspension (cont.)

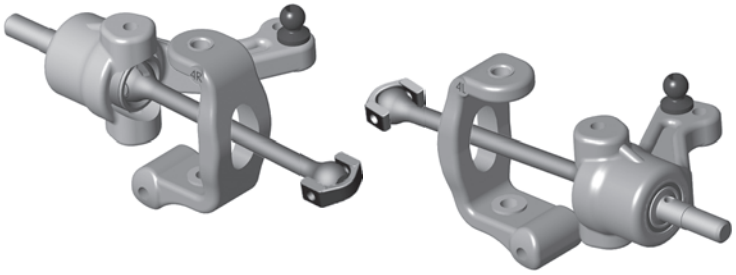
STEP 2

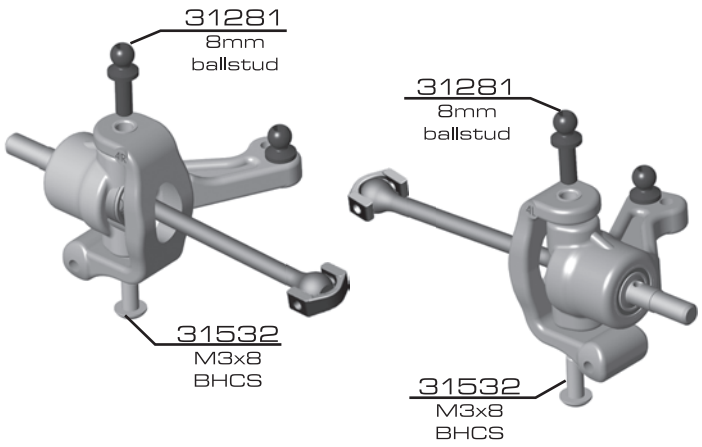




:: Suspension (cont.)

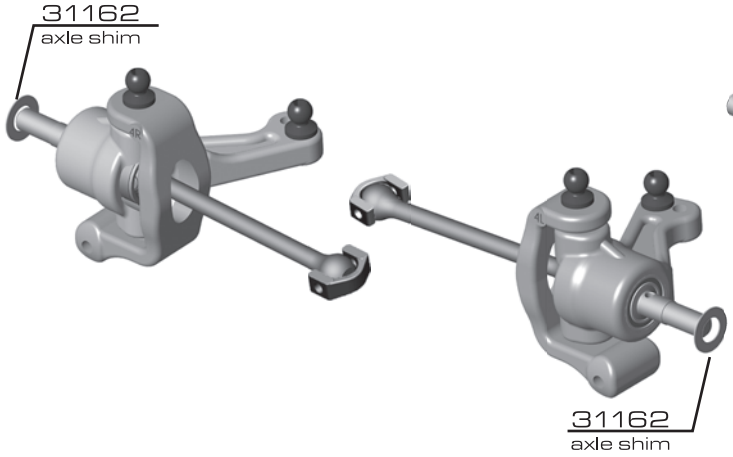
STEP 3

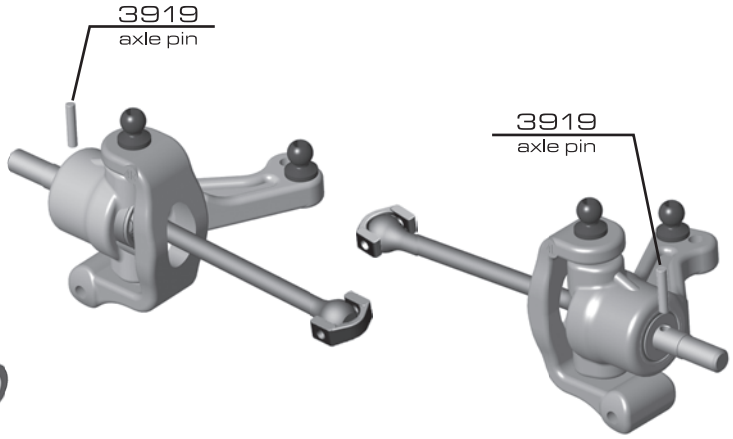




:: Suspension (cont.)

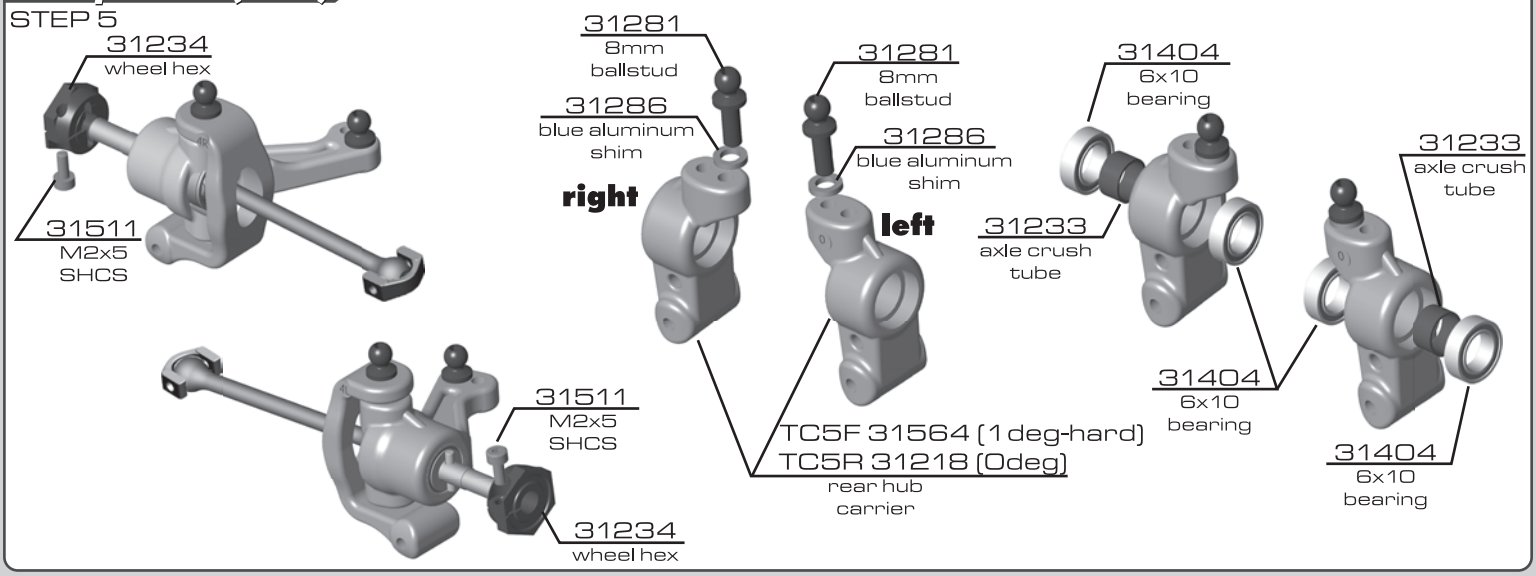
STEP 4





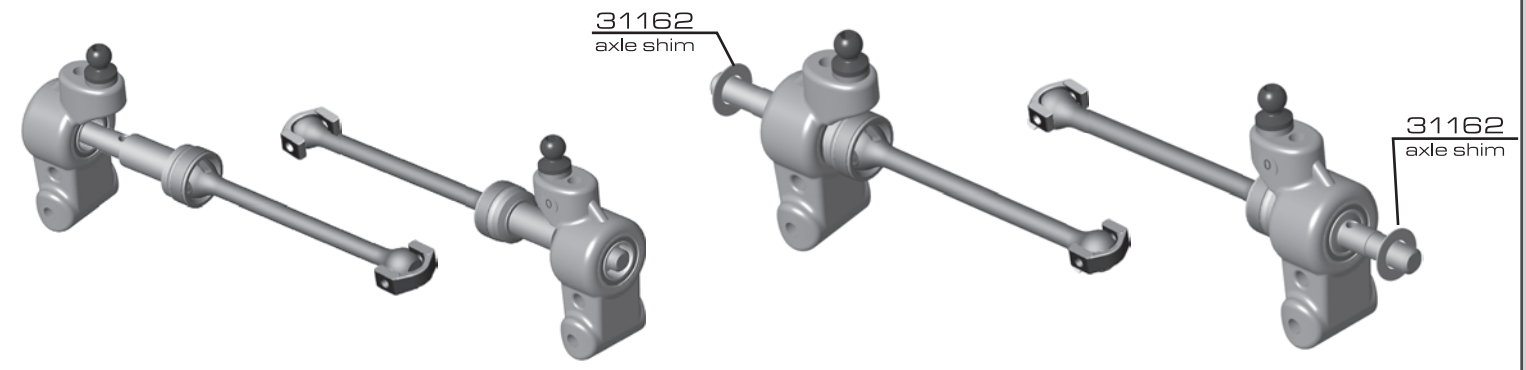
:: Suspension (cont.)

STEP 5



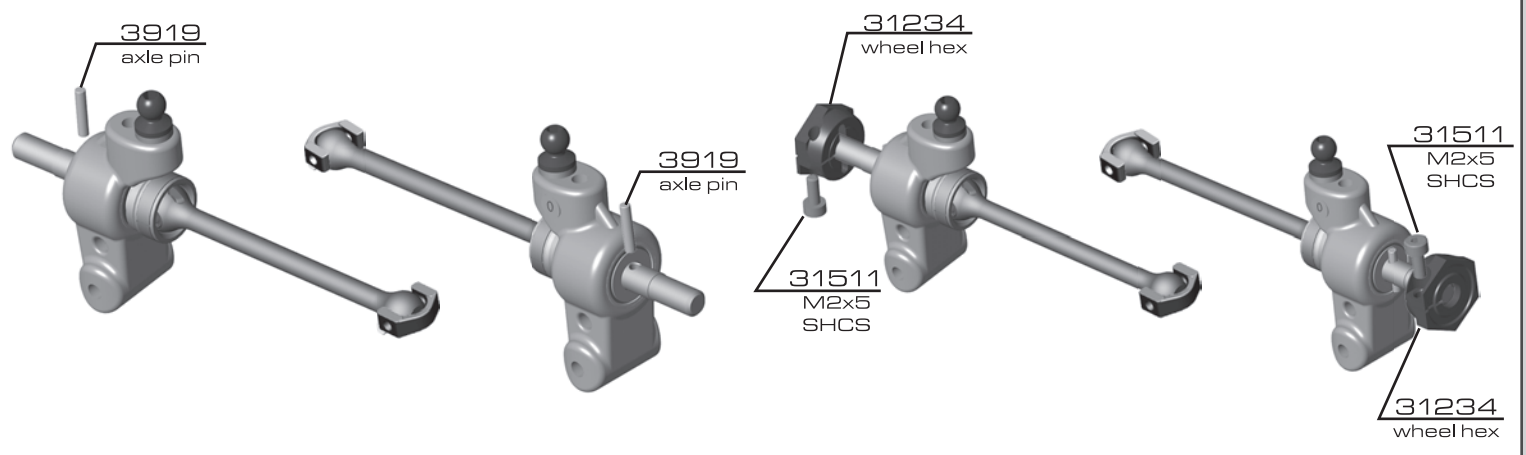
:: Suspension (cont.)

STEP 6



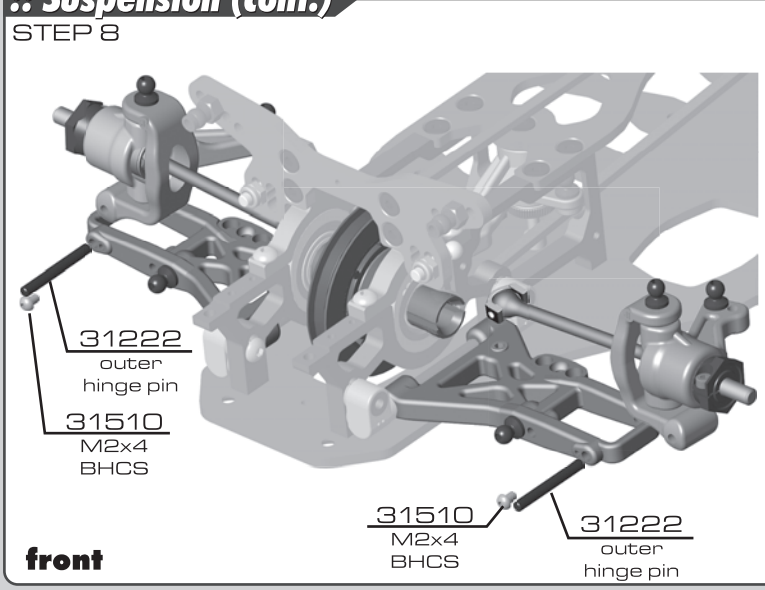
:: Suspension (cont.)

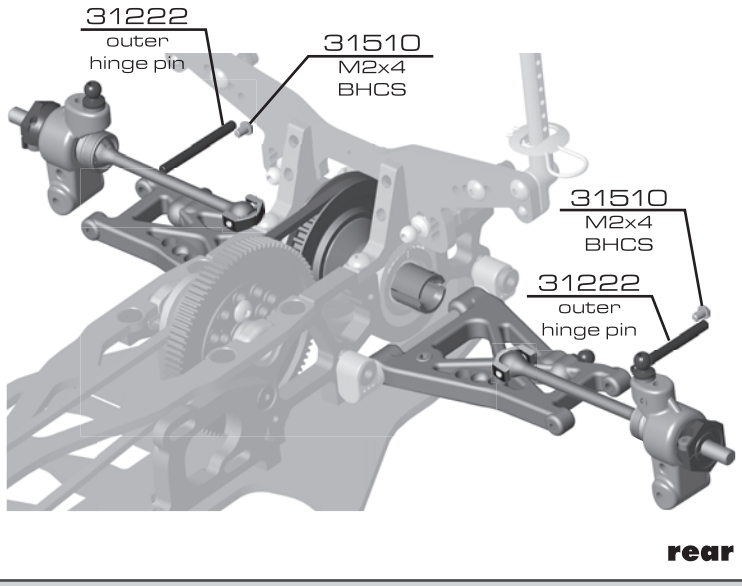
STEP 7



:: Suspension (cont.)

STEP 8

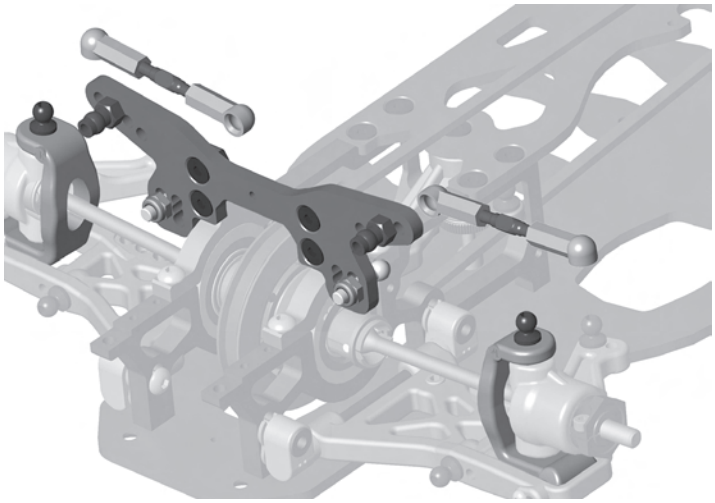




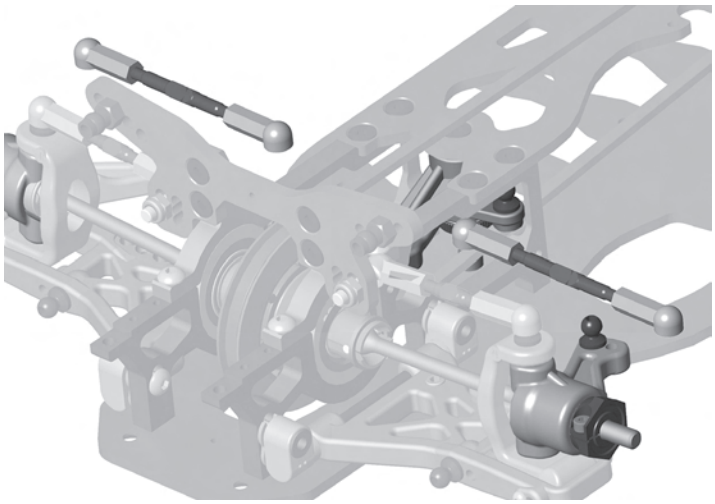
:: Turnbuckles Install

STEP 9

front - camber links



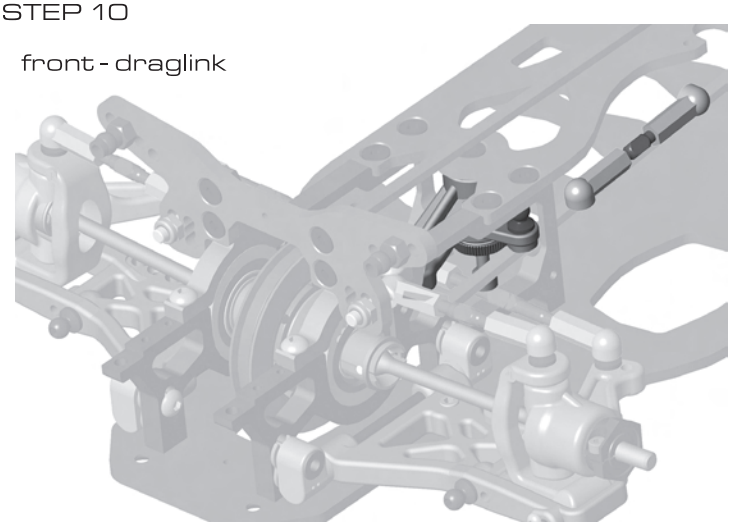
front - steering links

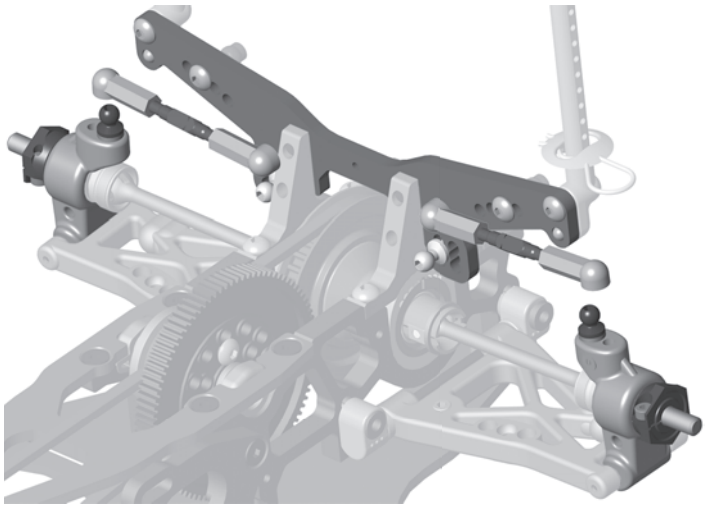


:: Turnbuckles Install (cont.)

STEP 10

front - draglink

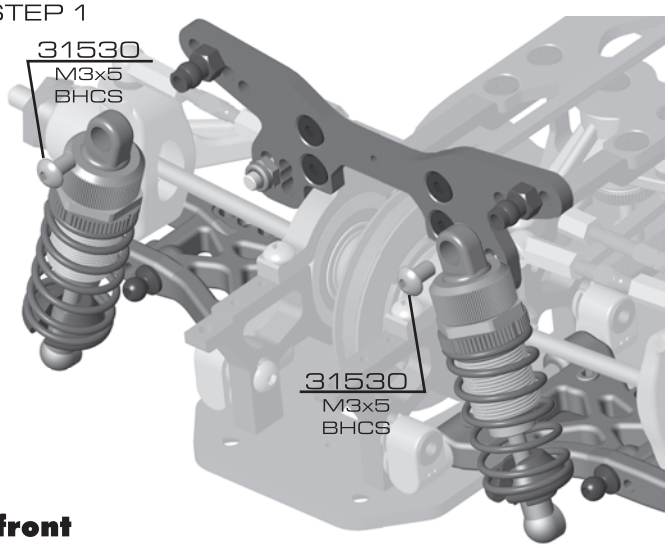


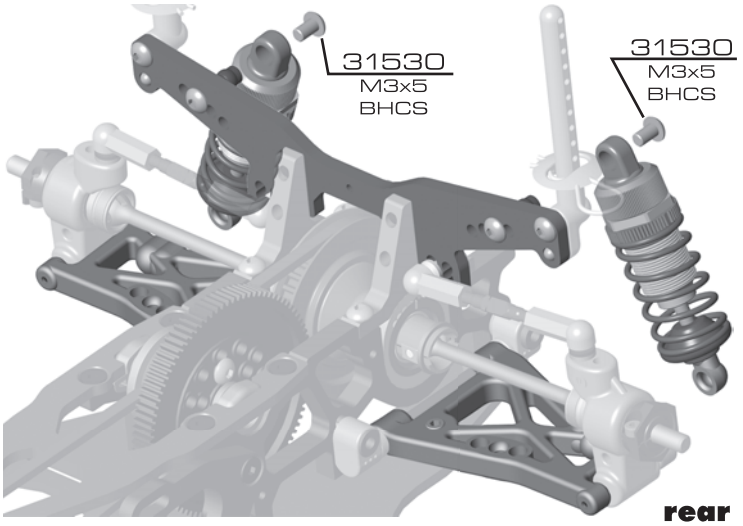


rear - camber links

:: Bag G - Shocks Install

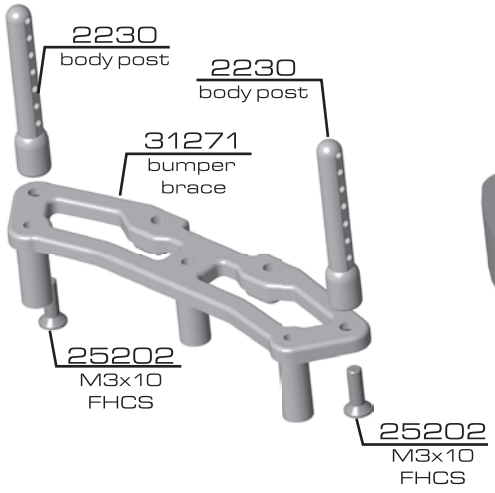
STEP 1

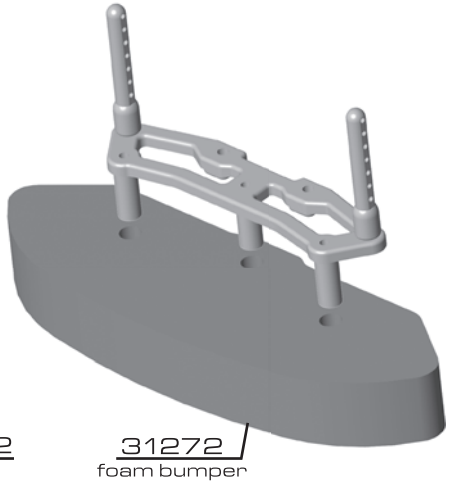


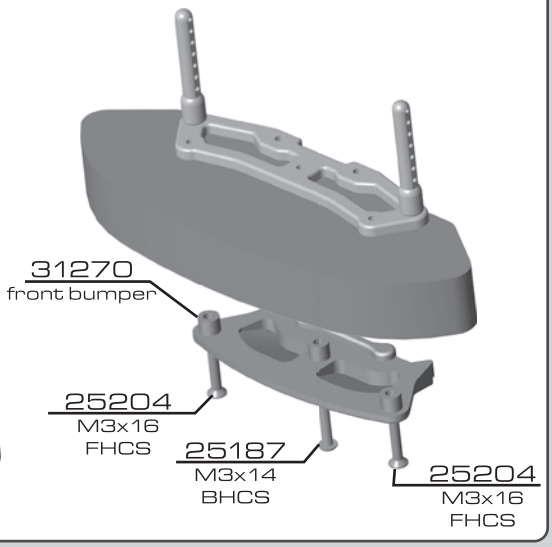


:: Front Bumper

STEP 2

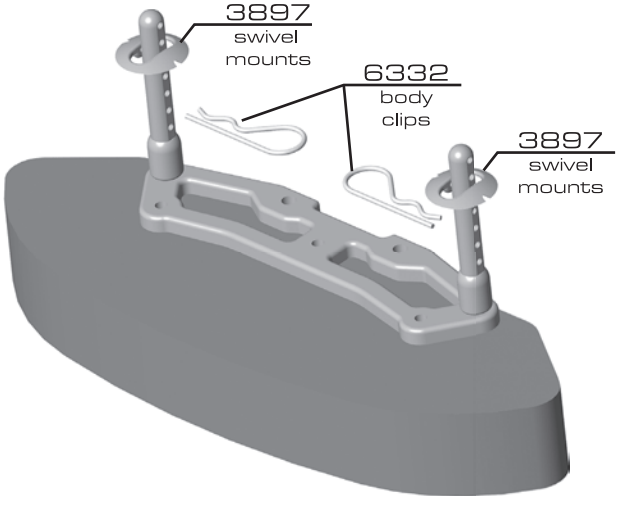


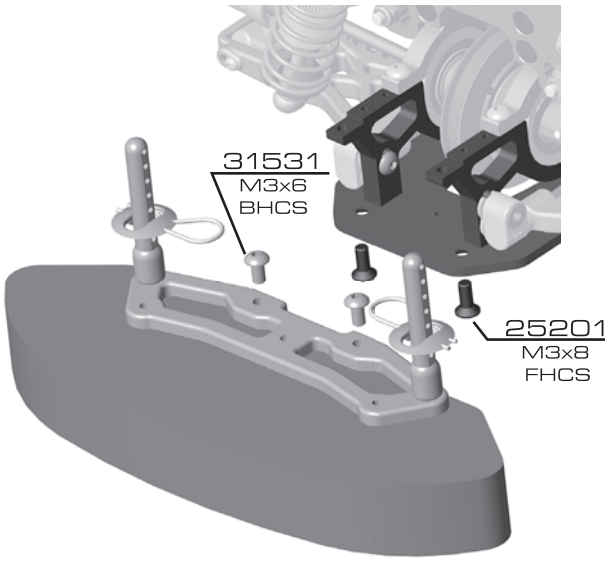




:: Front Bumper (cont.)

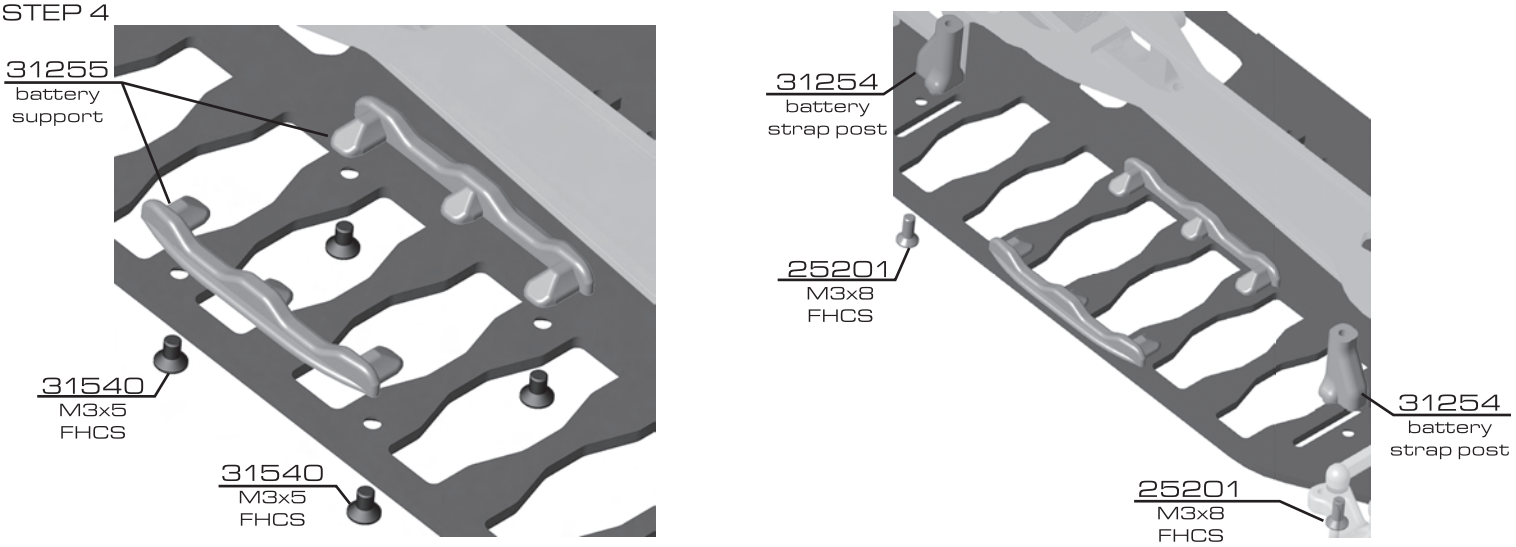
STEP 3





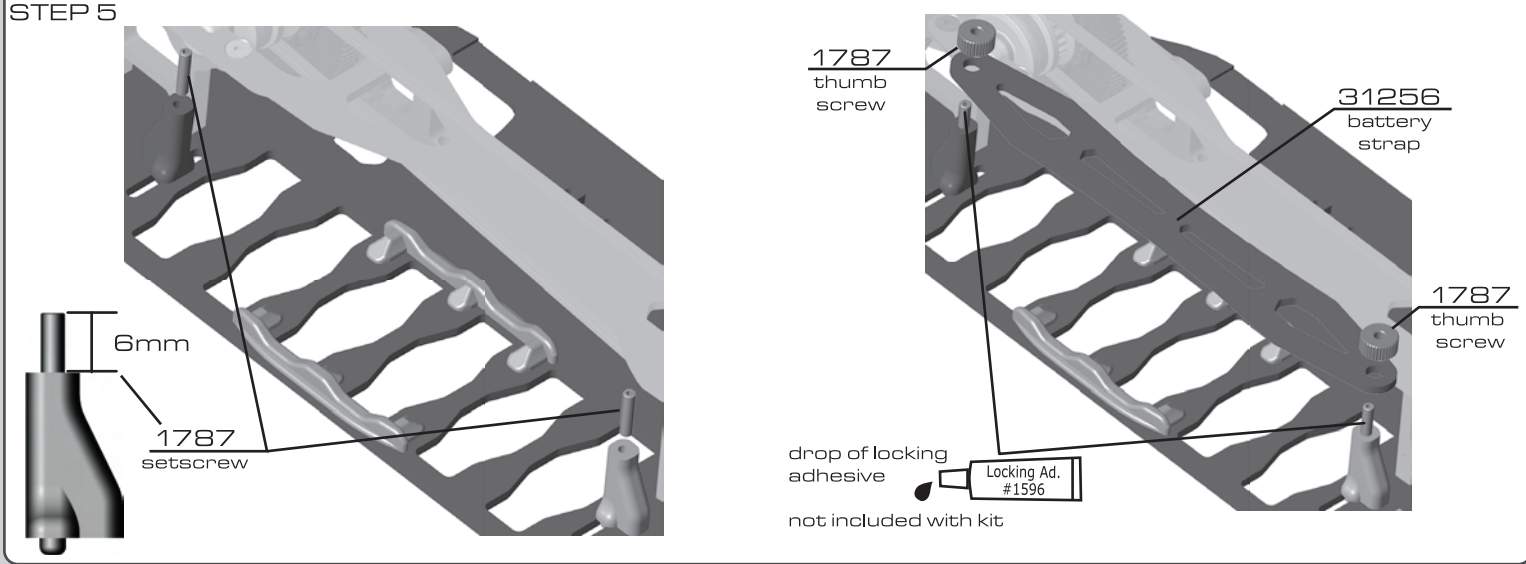
:: Battery Support/Strap - Install

STEP 4



:: Battery Support/Strap - Install (cont.)

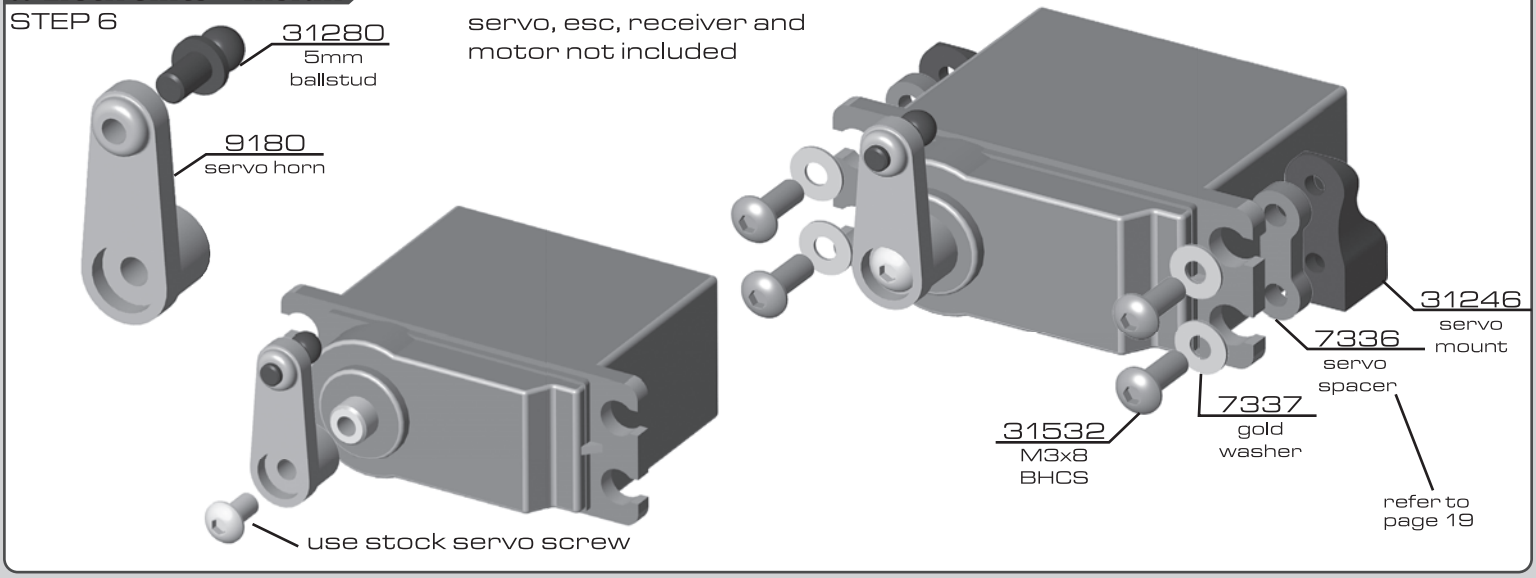
STEP 5



:: Electronics - Install

STEP 6

servo, esc, receiver and
motor not included



refer to
page 19

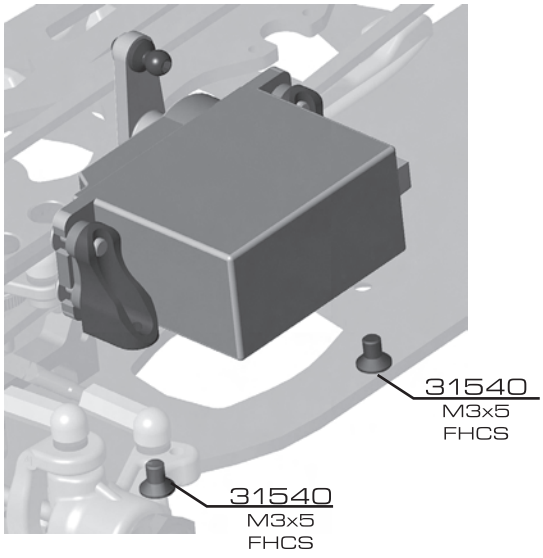
:: Electronics - Install (cont.)

STEP 7

Steering Servo Chart*

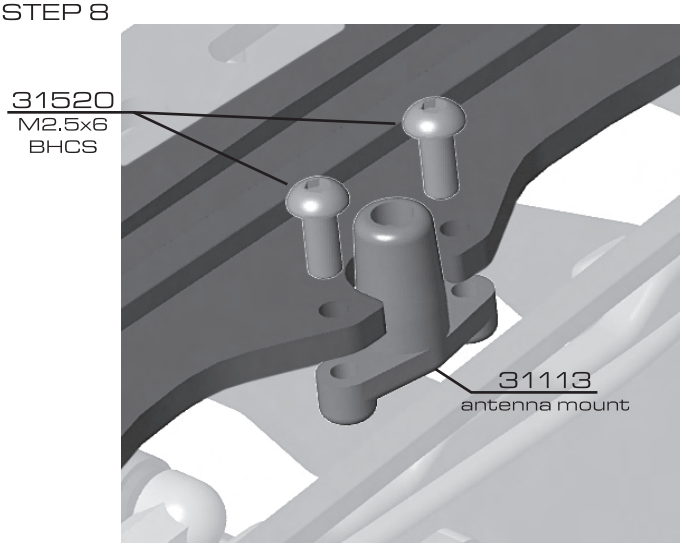
		#7336 Spacer	#9180 Servo Arm
Associated	XP-1015, XP-1313	no spacer	F
Airtronics	94102	no spacer	A
Airtronics	94738, 94157, 94158, 94257, 94258, 94357, 94358, 94452, 94453, 94751, 94755	thick spacer	A
Hitec	HS-5625MG, HS-5645MG, HS625MG, HS645MG	no spacer	H
Hitec	HS-322HD, HS-325HB, HS-965, HS-985MG, HS-5965, HS-5985MG, HS-425BB, HS-422	thin spacer	H
JR	Z4725, Z4750, Z2750, Z8450, Z8550, NES-4750	no spacer	J
JR	Z250, Z550	thin spacer	J
Futaba	S9204, S9250, S9450, S148	no spacer	F
Futaba	S3003, S9202, S9101	thin spacer	F
Futaba	S9404	thick spacer	F
KO	PS-401, PS-2001, PS-2004, PS-2015, PS-2173, PS-2174, PS-2123, PS-2143, PS-2144	thin spacer	J

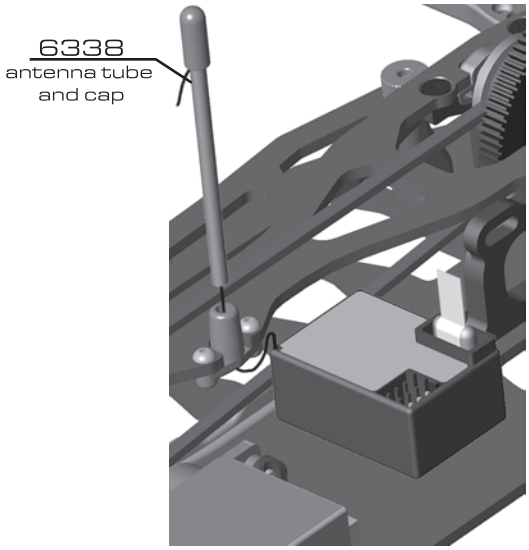
Not all servo's are listed.



:: Electronics - Install (cont.)

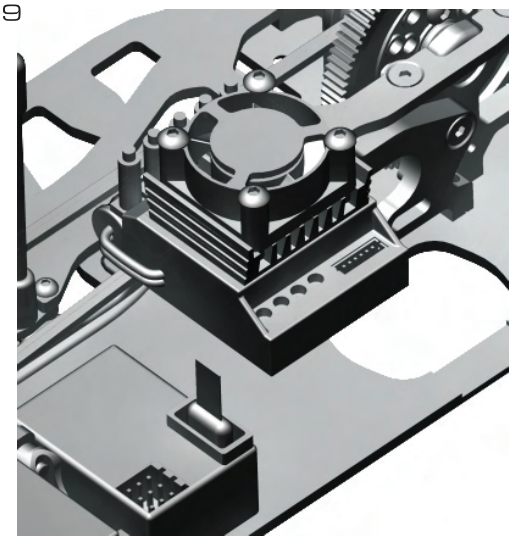
STEP 8

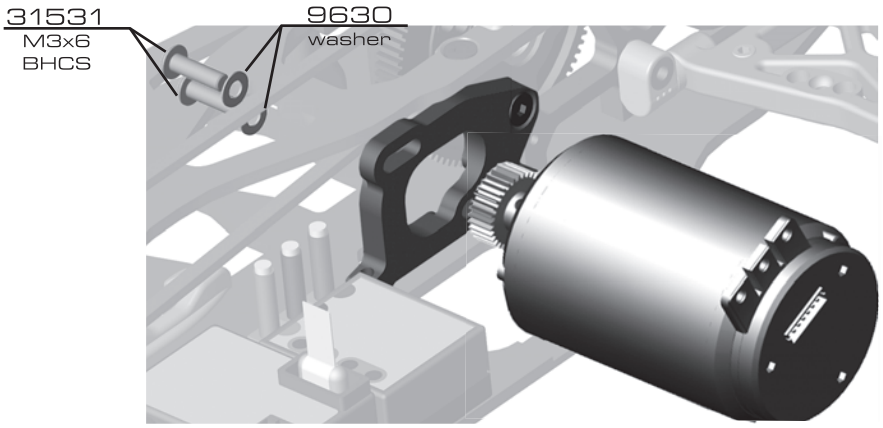




:: Electronics - Install (cont.)

STEP 9

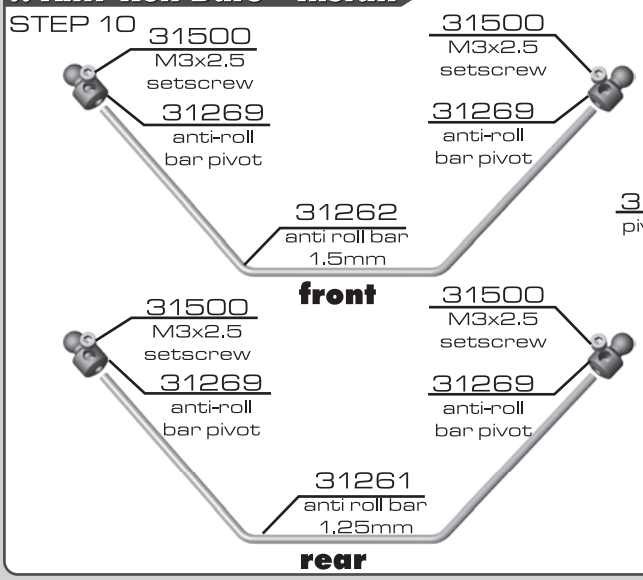




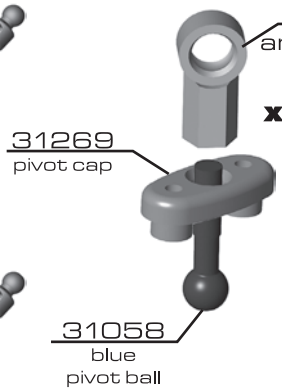
gearing will depend on the motor and track size. pinion gear and set screw not included

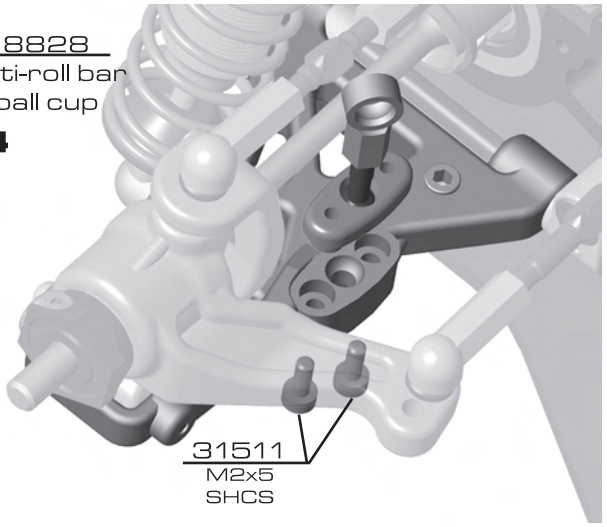
:: Anti-Roll Bars - Install

STEP 10



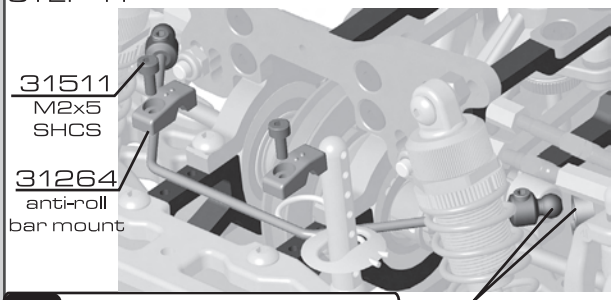
all 4 equal length





:: Anti-Roll Bar - Install (cont.)

STEP 11

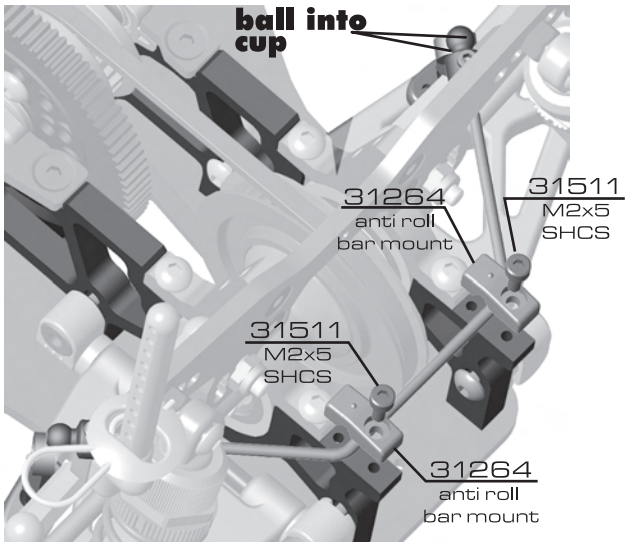


Anti-Roll Bar Mount System

1 dot: 1.25mm bar

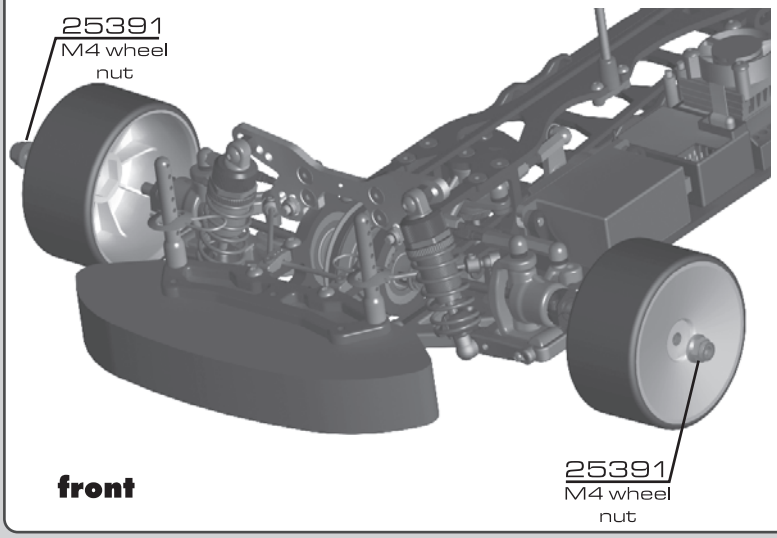
2 dots: 1.50mm bar

3 dots: 1.75mm bar

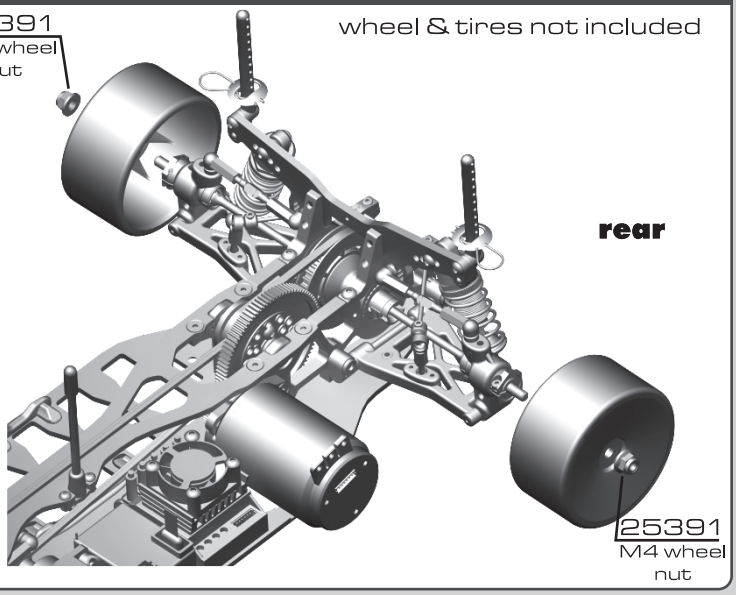


:: Wheels/Tires - Install

STEP 12



wheel & tires not included



Ackermann

The inside hole on the steering blocks gives more Ackermann, while the outboard hole yields less Ackermann. Similarly, the rearward holes on the steering bellcrank produce more Ackermann, while the forward holes give less. Increasing Ackermann will smooth out steering and is best when running a one-way or on a high traction surface such as carpet. Reduced Ackermann will typically work best with a front diff or a solid axle. This will give more mid-to-exit steering and more corner speed.

Anti-Dive (front)

Rear mount higher than front mount, negative result. Adding anti-dive reduces weight transfer to the front on deceleration entering corners. It also reduces caster at the wheel.

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.

Anti-Squat (rear)

Front mount higher than rear mount, positive result. 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.

Arm Mount Position

The TC5s arm mounting system allows for maximum adjustability for both rubber tire and foam tire conditions. Six arm mount positions allow you to run the pins flat, or with angles to produce kick-up, anti-dive, anti-squat, and pro-squat. The arm mounts are indicated one, two, and three with the corresponding number of dots on the outer face, where one is the lowest and three is the highest. Each bulkhead has two positions for the arm mount, the lower (position A) and upper (position B). The following chart shows some examples of arm mount positions and there resulting arm angle shown in degrees:

Front

Fwd Mount	Rwd Mount	Result	Roll Center
1B	3A	1° Kick-Up	High
3A	1B	1° Anti-Dive	
1B	2A	2° Kick-Up	
2A	1B	2° Anti-Dive	
3A	3A	Flat	
3A	2A	1° Kick-Up	
2A	3A	1° Anti-Dive	
3A	1A	2° Kick-Up	
1A	3A	2° Anti-Dive	
2A	2A	Flat	Std.
2A	1A	1° Kick-Up	
1A	2A	1° Anti-Dive	
1A	1A	Flat	Low

Rear

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

Pro-Squat (rear)

Rear mount higher than front mount, negative result. Running Pro-Squat will increase rearward weight transfer on power.

Kick-Up (front)

Front mount higher than rear mount, positive result. Increasing kick-up will give more entry steering, as well as increasing caster at the wheel.

Droop

The standard settings of 5mm front and 4mm rear will work best in most cases. Reducing the droop by 0.5 to 1mm both front and rear will increase responsiveness. On carpet, you should run more droop to account for smaller tire diameters.

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.

Motor Gearing

Motor gearing is a starting recommendation only. You may need to adjust your gearing according to your track size. Internal Gear Ratio is 2.0.

Spur (48 Pitch)

Pinion (48 Pitch)	84	85	86	87	88	89	90
17	9.88	10.00	10.12	10.24	10.35	10.47	10.59
18	9.33	9.44	9.56	9.67	9.78	9.89	10.00
19	8.84	8.95	9.05	9.16	9.26	9.37	9.47
20	8.40	8.50	8.60	8.70	8.80	8.90	9.00
21	8.00	8.10	8.19	8.29	8.38	8.48	8.57
22	7.64	7.73	7.82	7.91	8.00	8.09	8.18
23	7.30	7.39	7.48	7.57	7.65	7.74	7.83
24	7.00	7.08	7.17	7.25	7.33	7.42	7.50
25	6.72	6.80	6.88	6.96	7.04	7.12	7.20
26	6.46	6.54	6.62	6.69	6.77	6.85	6.92
27	6.22	6.30	6.37	6.44	6.52	6.59	6.67
28	6.00	6.07	6.14	6.21	6.29	6.36	6.43
29	5.79	5.86	5.93	6.00	6.07	6.14	6.21
30	5.60	5.67	5.73	5.80	5.87	5.93	6.00
31	5.42	5.48	5.55	5.61	5.68	5.74	5.81
32	5.25	5.31	5.38	5.44	5.50	5.56	5.63

Ballstud Height & Camber Location

You can lower the front or rear roll center by lowering the arm mounts, or raising the inner ballstud. A lower roll center will put more weight on the tires during cornering, and increases traction to that end of the car. Shortening the link (typically used on high grip and carpet) will raise the roll center and decrease grip. A similar effect can come from lowering the ballstud.

Battery Placement

(4 or 5 cell packs)

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.

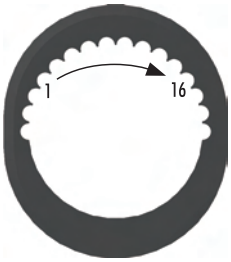
Rear Toe-In

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

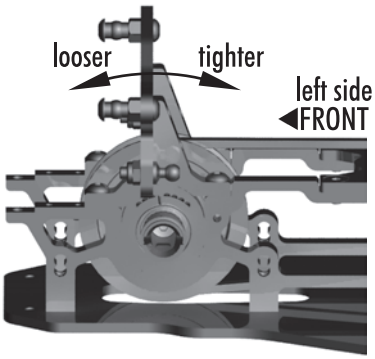
Belt Tension

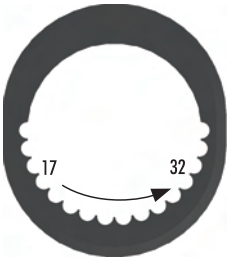
When altering the differential height, you will need to adjust the tension of the belt. Follow the chart below.

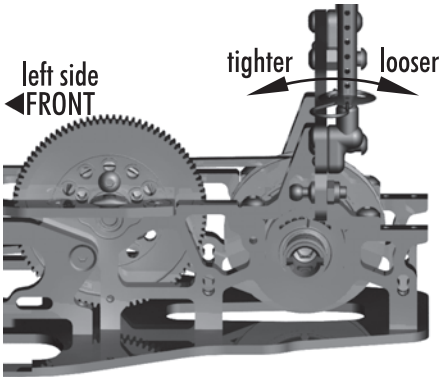
Front	Height	Pos.
	Mid-Low	2
	Mid-High	9
	Low	1
	High	10



Rear	Height	Pos.
	Mid-Low	6
	Mid-High	13
	Low	8
	High	11







NOTE: Charts show left side cam positions from the left side of the car. Match right side cam position to left side cam position.

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.

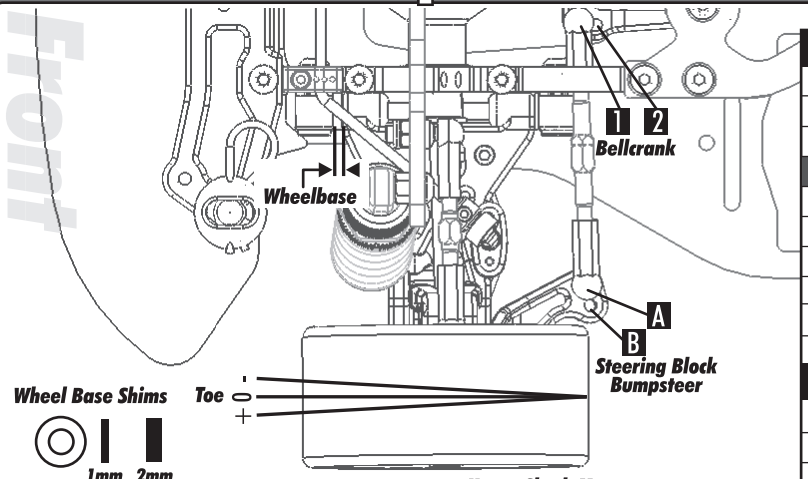
When you are satisfied with your car, fill in the setup sheet thoroughly and file it away. Use this as a guide for future track days or conditions.

TC5 Factory Team Setup Data

Name: _____ **Date:** _____
Event: _____ **Track:** _____
Conditions: FOAM TIRE KIT SETTINGS

For Team Driver's setups, please visit www.RC10.com or www.TeamAssociated.com!

Front

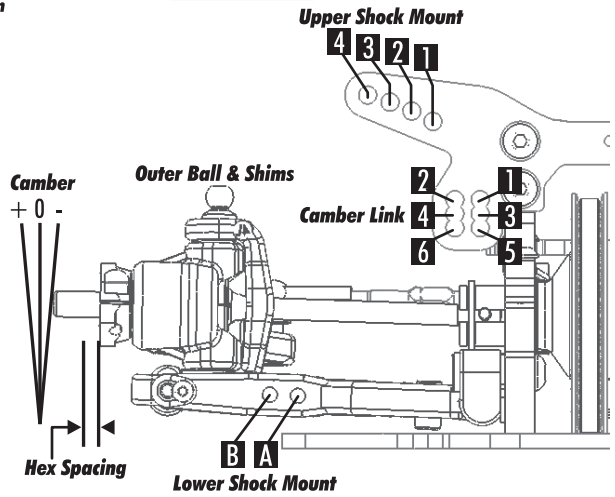


Wheel Base Shims
1mm 2mm

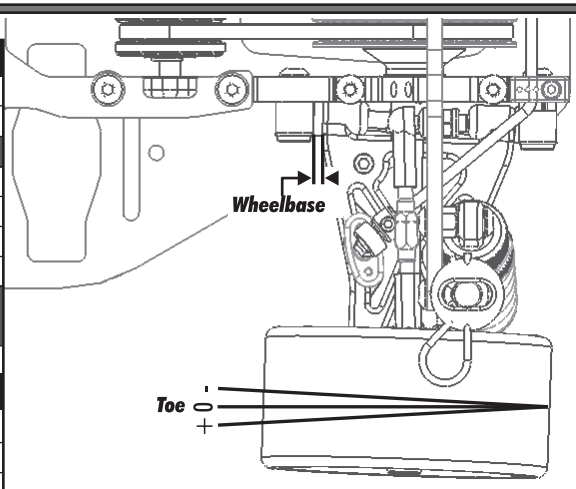
Toe
0
+

Arm Mount Shims
1° 1.5° 2°

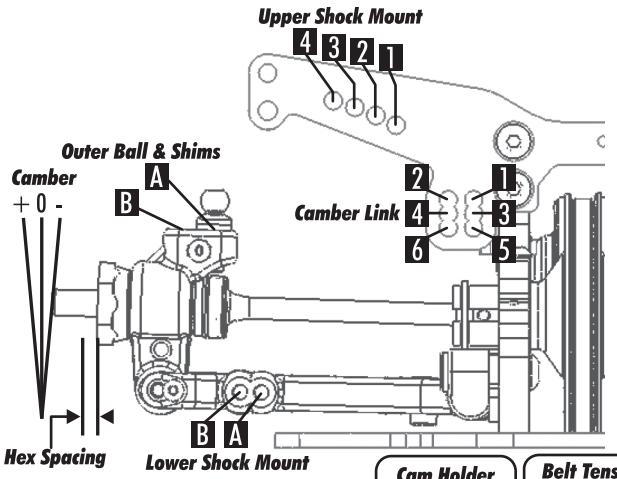
Arm Mounts
1 2 3



Rear



Toe
0
+



Front	Alignment	Rear
4.5mm	Ride Height	4.5mm
- 2.0 deg	Camber	- 2.5 deg
6 deg	Caster	N/A
	Rear Hub Toe	- 1 deg
+ 0.5 deg	Toe (Total)	- 3 deg
-	Hex Spacing	-
1mm	Wheelbase	2mm
1 A	Steering Link	N/A
Black + 4mm	Bumpsteer	N/A

Notes:

Suspension Geometry

2 B	Shock Position	2 B
4	Camber Link Position	5 A
Black + 0	Outer Ball & Shims	Black +2mm
2 A	FWD Arm Mount	3 A
2 deg	FWD Mount Shims	1.5 deg
2 A	RWD Arm Mount	3 A
2 deg	RWD Mount Shims	3.5 deg
6	Droop	5
-	Anti-Roll Bar	-

Notes:

Shocks

50 wt	Oil	30 wt
# 3	Piston	# 3
No Rebound	Rebound	No Rebound
Purple	Spring	Blue

Notes:

Differentials

Alum. Diff	Type	Alum. Diff
1/8 loose	Setting	1/8 - 1/4 loose
A	Cam Holder	B
4	Belt Tension Number	14

Notes:

Tires

-	Tire	-
57.5mm	Tire Diameter	57.5mm
-	Insert & Wheel	-
Inside 1/3	Additive & Amount	Full

Notes:

Chassis

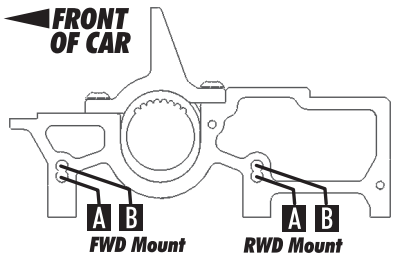
Chassis: Std.
Top Plate: Std.
Notes:

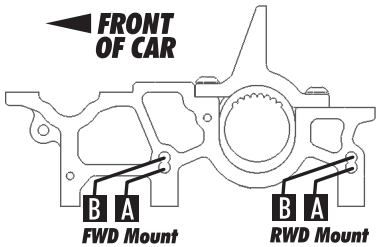
Transmitter

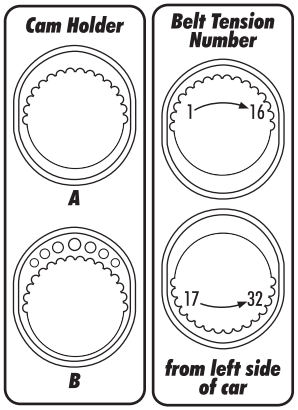
Turning Circle:	3.5 ft
Steering Expo:	-
Brake E.P. :	-
Throttle Expo:	-

Speed Control

S.C. Type:	-
S.C. Settings:	-





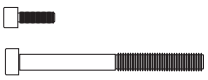


Motor	Gear	Notes
-	- / -	

Body & Wing	Battery
-	-

:: Hardware - 1:1

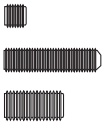
cap head (shcs)



2x5mm (31511)

Thrust screw (9274)

setscrews

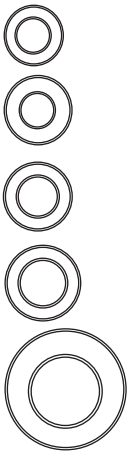


3x2.5mm (31500)

3x12mm (1787)

4x8mm (25227)

ball bearings



4x7mm (31403)

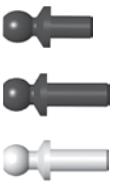
4x8mm (31402)

5x8mm (31400)

6x10mm (31404)

10x15mm (31401)

ballstuds

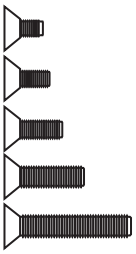


black 5mm (31280)

black 8mm (31281)

silver 8mm (31284)

flat head (fhcs)



3x5mm (31540)

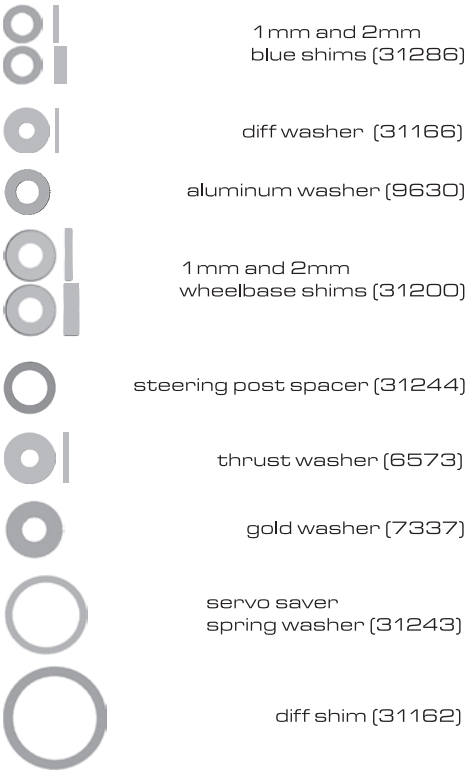
3x6mm (31541)

3x8mm (25201)

3x10mm (25202)

3x16mm (25204)

shims & washers



1 mm and 2mm blue shims (31286)

diff washer (31166)

aluminum washer (9630)

1 mm and 2mm wheelbase shims (31200)

steering post spacer (31244)

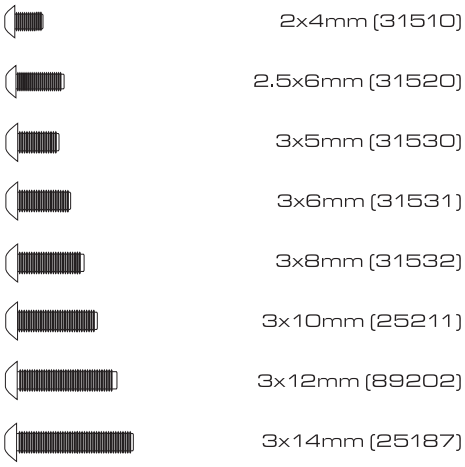
thrust washer (6573)

gold washer (7337)

servo saver spring washer (31243)

diff shim (31162)

button head (bhcs)



2x4mm (31510)

2.5x6mm (31520)

3x5mm (31530)

3x6mm (31531)

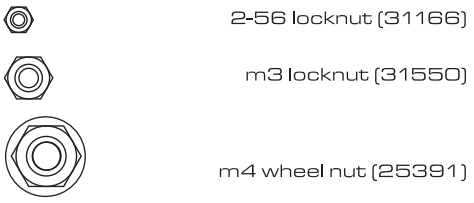
3x8mm (31532)

3x10mm (25211)

3x12mm (89202)

3x14mm (25187)

nuts (lock/plain)



2-56 locknut (31166)

m3 locknut (31550)

m4 wheel nut (25391)

e-clips

e-clip (6299)

3mm e-clip (31160)

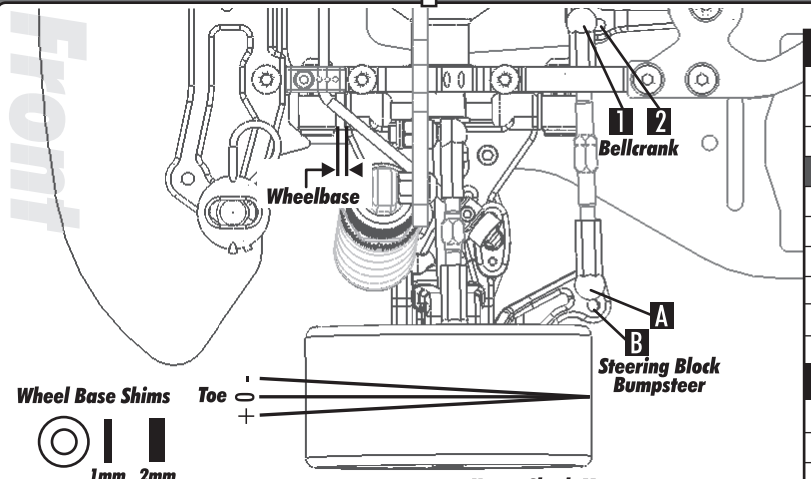
notes

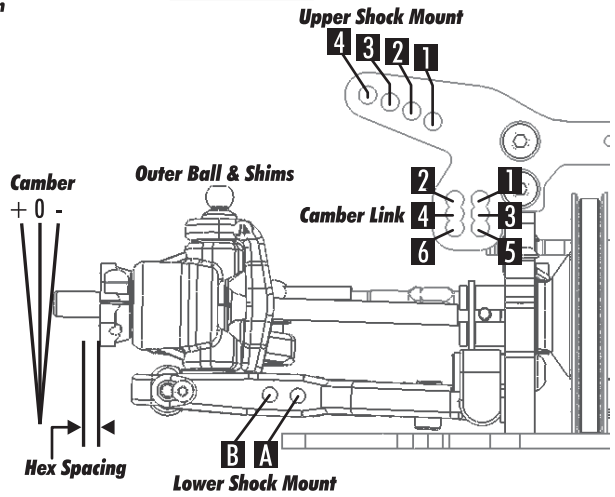
TC5 Factory Team Setup Data

Name: _____ **Date:** _____
Event: _____ **Track:** _____
Conditions: RUBBER TIRE KIT SETTINGS

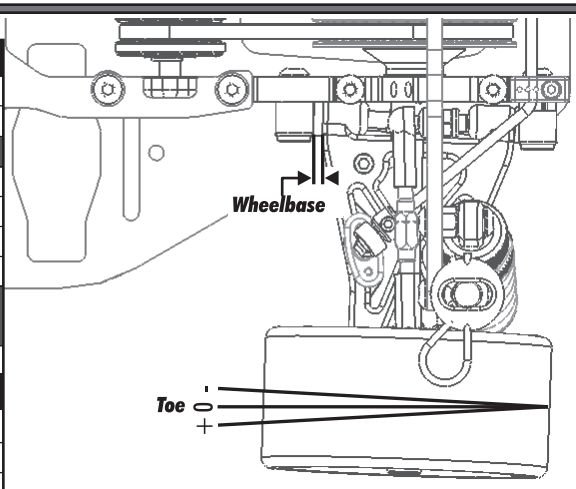
For Team Driver's setups, please visit www.RC10.com or www.TeamAssociated.com!

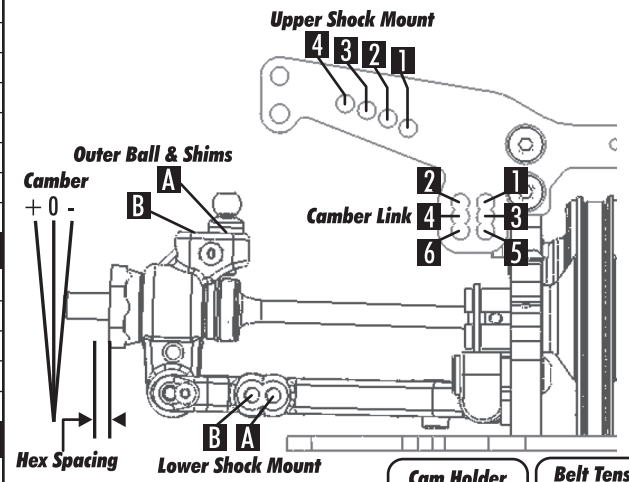
Front





Rear





Front	Alignment	Rear
5.0mm	Ride Height	5.0mm
- 1.5 deg	Camber	- 2.0 deg
4 deg	Caster	N/A
N/A	Rear Hub Toe	-
- 1.5 deg	Toe (Total)	- 3 deg
-	Hex Spacing	-
2mm	Wheelbase	2mm
1 B	Steering Link	N/A
Silver + 0	Bumpsteer	N/A

Notes:

Suspension Geometry		
2 B	Shock Position	3 B
3	Camber Link Position	3 A
Black + 0	Outer Ball & Shims	Black +1mm
2 A	FWD Arm Mount	2 A
-	FWD Mount Shims	-
2 A	RWD Arm Mount	2 A
-	RWD Mount Shims	3 deg
6	Droop	4
1.50mm	Anti-Roll Bar	1.25mm

Notes:

Shocks		
35 wt	Oil	35 wt
# 2	Piston	# 2
No Rebound	Rebound	No Rebound
Blue	Spring	Silver

Notes:

Differentials		
Spool	Type	Alum. Diff
-	Setting	1/8 loose
A	Cam Holder	A
4	Belt Tension Number	11

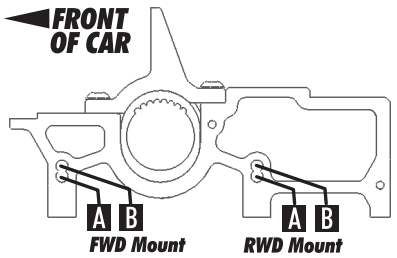
Notes:

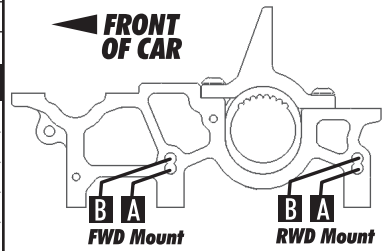
Tires		
-	Tire	-
-	Tire Diameter	-
-	Insert & Wheel	-
Inside 3/4	Additive & Amount	Full

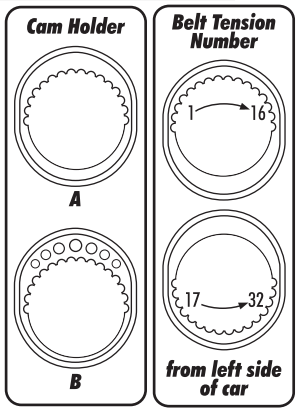
Notes:

Chassis
Chassis: ITF
Top Plate: ITF
Notes:

Transmitter	
Turning Circle:	3.5 ft
Steering Expo:	-
Brake E.P. :	-
Throttle Expo:	-
Speed Control	
S.C. Type:	-
S.C. Settings:	-







Motor	Gear	Notes
-	- / -	

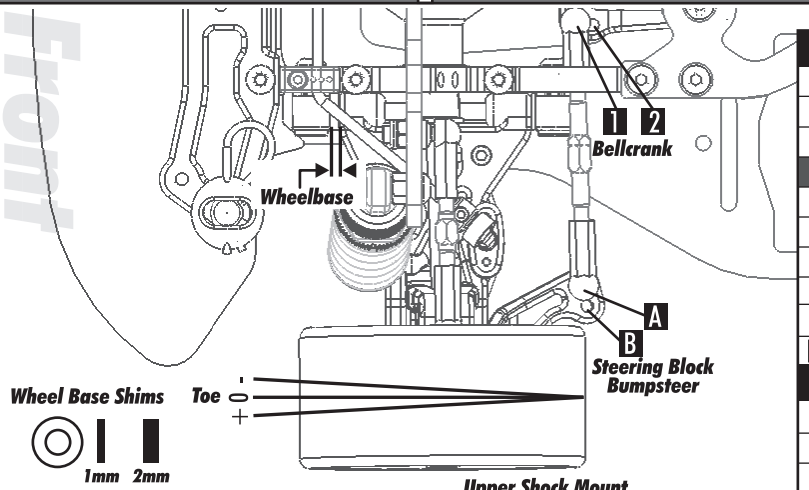
Body & Wing	Battery
-	-

TC5 Factory Team Setup Data

Name: _____ **Date:** _____
Event: _____ **Track:** _____
Conditions: _____

For Team Driver's setups, please visit www.RC10.com or www.TeamAssociated.com!

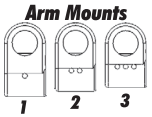
Front

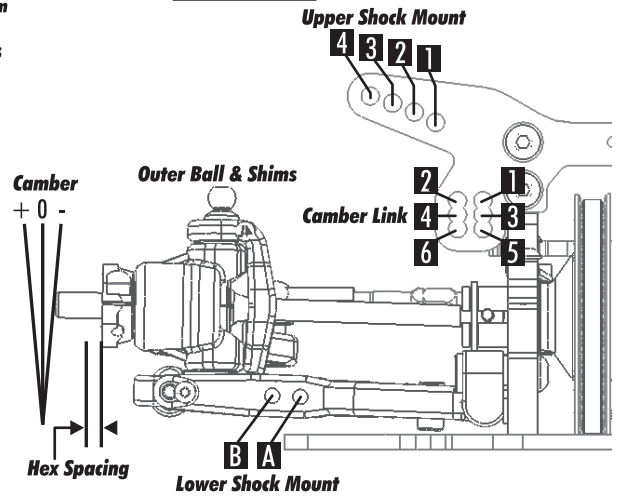


Wheel Base Shims

Arm Mount Shims

Arm Mounts





Alignment	Front	Rear
Ride Height		
Camber		
Caster		N/A
Rear Hub Toe	N/A	
Toe (Total)		
Hex Spacing		
Wheelbase		
Steering Link		N/A
Bumpsteer		N/A

Notes:

Suspension Geometry		
Shock Position		
Camber Link Position		
Outer Ball & Shims		
FWD Arm Mount		
FWD Mount Shims		
RWD Arm Mount		
RWD Mount Shims		
Droop		
Anti-Roll Bar		

Notes:

Shocks		
Oil		
Piston		
Rebound		
Spring		

Notes:

Differentials		
Type		
Setting		
Cam Holder		
Belt Tension Number		

Notes:

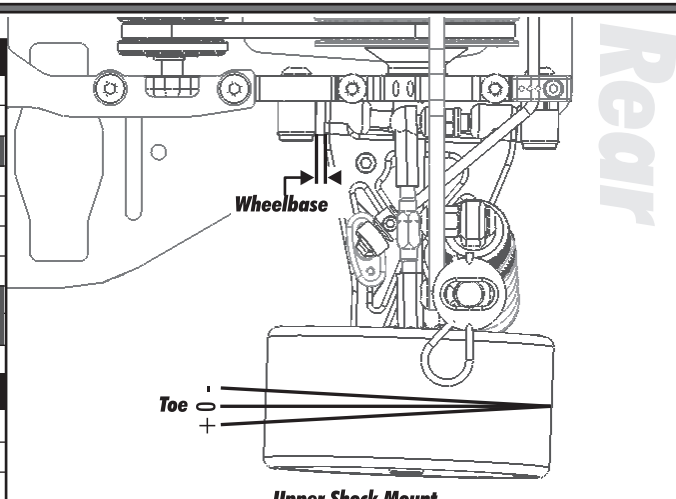
Tires		
Tire		
Tire Diameter		
Insert & Wheel		
Additive & Amount		

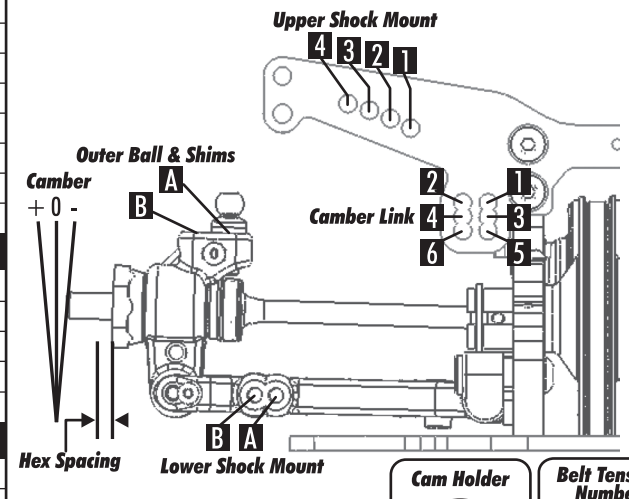
Notes:

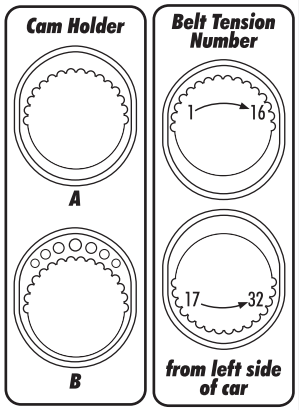
Chassis

Chassis:
Top Plate:
Notes:

Rear

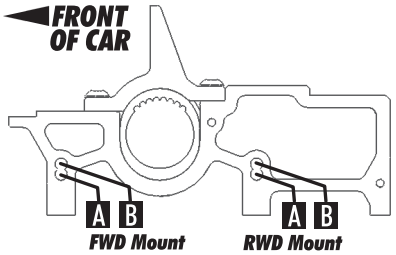


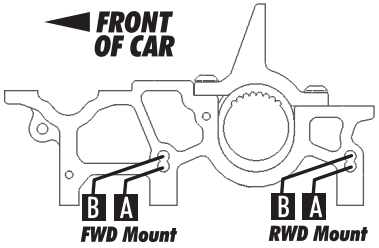




Transmitter	
Turning Circle:	
Steering Expo:	
Brake E.P. :	
Throttle Expo:	

Speed Control	
S.C. Type:	
S.C. Settings:	





Motor	Gear	Notes
	/	

Body & Wing	Battery