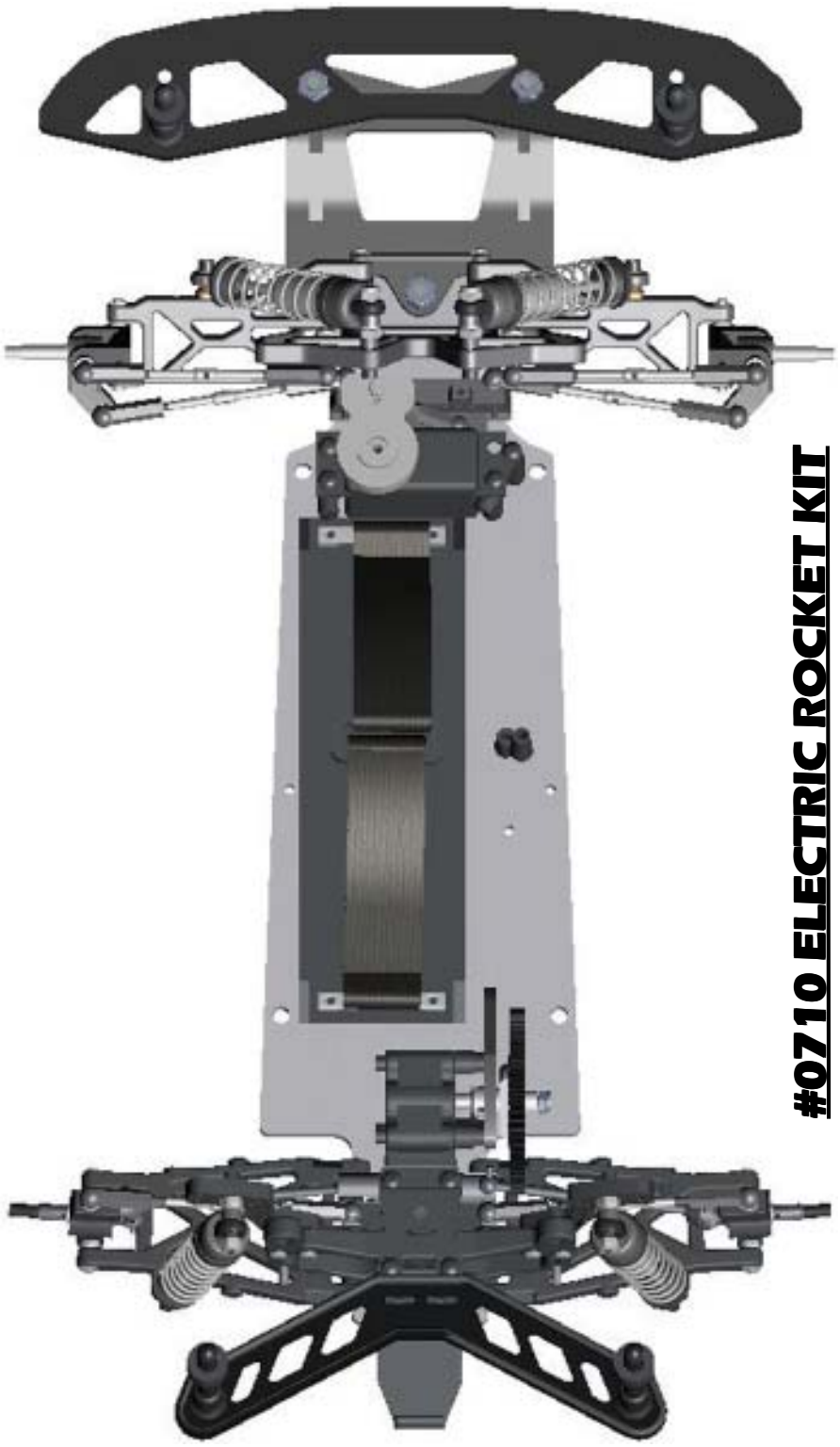
ROCKET

LATEMODEL



#0710 ELECTRIC ROCKET KIT

Manufactured By:

CUSTOMWORKS R/C CARS

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CUSTOMWORKS R/C CARS

REQUIRED READING...UNDERSTAND THIS MANUAL!

Thank You and Congratulations on purchasing the **ROCKET**! Within this kit you will find a race winning car with over 21 years worth of **CUSTOM WORKS** design and quality. In order for you to realize this race car's winning potential it is important to follow the written text along with the pictures included. The steps required to build this car are very easy, as long as you read before you build.

The instructional format for building this car is to open each bag in alphabetical order. Each bag of parts will be broken down into "Steps" thru the manual. All parts and hardware needed to complete all steps for each separate bag, will be found in each individual bag. There is no need to steal screws from other bags. In the rare event you need to look in a different bag for a certain part, it will be noted clearly in the instructions.

Considering the various dirt or clay surfaces that Dirt Oval cars are raced on today, the Outlaw has been designed to be competitive on either loose packed dirt with buggy tires or high bite clay with rubber or foam racing tires. The instructions will build the kit using the most verastale set-up Custom Works has found in testing on different types of tracks, however there are various other suspension configurations available to you that you may find more suitable for your local track. For updates and more proven set-ups login to CustomWorksRC.com.

All hardware (screws, washers, nuts, etc...) are referred to by size and type in the instructions. To help clarify which screw or nut the instruction is calling for refer to the HARDWARE REFERENCE supplement. The size of the screw or nut should match the "shadow" of the same piece very closely.

Screw ID's are: **FH**=Flat Head **BH**=Button Head **SH**=Socket Head **SS**=Set Screw

BUILDING TIPS:

-Using some type of thread locking fluid is suggested for all parts where metal screws thread into other metal parts. We suggest using a lite setting strength thread lock for the reason you may want to take the screw out one day. Remember it only takes a very small amount to secure the screw.

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

-Lightly sand the edges of graphite pieces using a medium grade sandpaper to avoid splinters. Run a thin bead of Super Glue around the edges to give pieces greater durability.

SUGGESTED TOOLS

400 Grit Sandpaper	Wire Cutters	Blue Loctite
Hobby Scissors	X-Acto Knife	3/16" Wrench
Small Needle Nose Pliers	Phillips Head Screw Driver	

Bag A Front Suspension

-Parts for Step#1

3332 Qty 1
1.4" Front Susp Brace

1:1

3253 Qty 2
Front Susp Arms L&R

3257 Qty 2
Front Susp Mount

4240 Qty 2
Front Inner Susp Pin

1:1

1:1

5230 Qty 24
E-Clip

-Parts for Step#2

1222 Qty 1
Rocket Chassis

1276 Qty 1
Front Shock Tower

1:1

5253 Qty 4
4-40 x 3/8 BH Screw

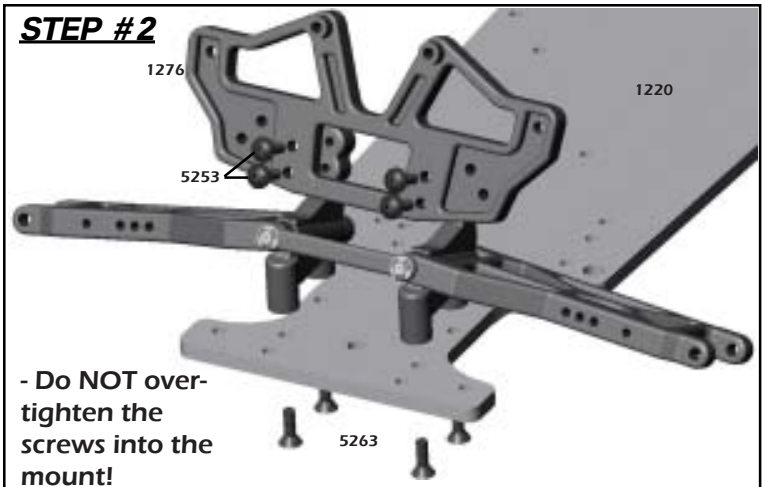
1:1

5263 Qty 4
4-40 x 3/8 FH Screw

STEP #1

- Insert 4240 Inner Pin thru 3332 Susp Brace, then thru first leg of 3253 Susp Arm and into 3257 Front Susp Mount.
- Snap 5230 E-Clips to 4240 Susp Pin.
- Arms should pivot freely on the mounts.

STEP #2



- Do NOT over-tighten the screws into the mount!

- Fasten the 1276 tower to the suspension assembly.
- Fasten the suspension assembly to the 1222 Chassis.

Bag B Steering Components

-Parts for Step#1

5249 Qty 4
Steel Turnbuckle

1:1

5235 Qty 8
Ball Cup

1:1

-Parts for Step#2

3202 Qty 2
Steering Block L&R

7209 Qty 2
Ball Stud King Pin

1:1

7209 Qty 4
Spacer

7200 Qty 2
Front Axle

1:1

1:1

5004 Qty 2
6-20 Set Screw

3410 Qty 2 (Left Shown)
25 Deg Castor Block

1255 Qty 6
Spacer

4241 Qty 2
Front Outer Susp Pin

1:1

1:1

5230 Qty 24
E-Clip

-Parts for Step#3

3304 Qty 1
Steering Slide

3304 Qty 1
Steering Rack

8122 Qty 6
Ball Stud

1:1

5262 Qty 2
4-40 x 1/4 FH Screw

5217 Qty 2
4-40 Lock Nut

STEP #1

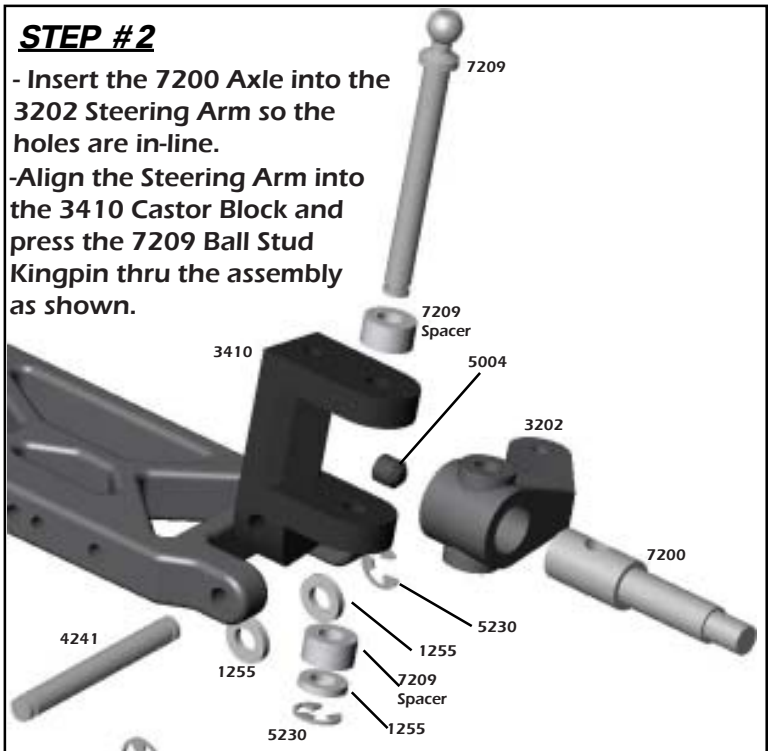
- Thread the 5235 Ball Cups onto the ends of the 5249 Turnbuckle.
- *NOTE: Turnbuckle has RIGHT and LEFT threads!*

- Make 4 Linkages.

1:1 Assembled Camber Link and Steering Linkage.

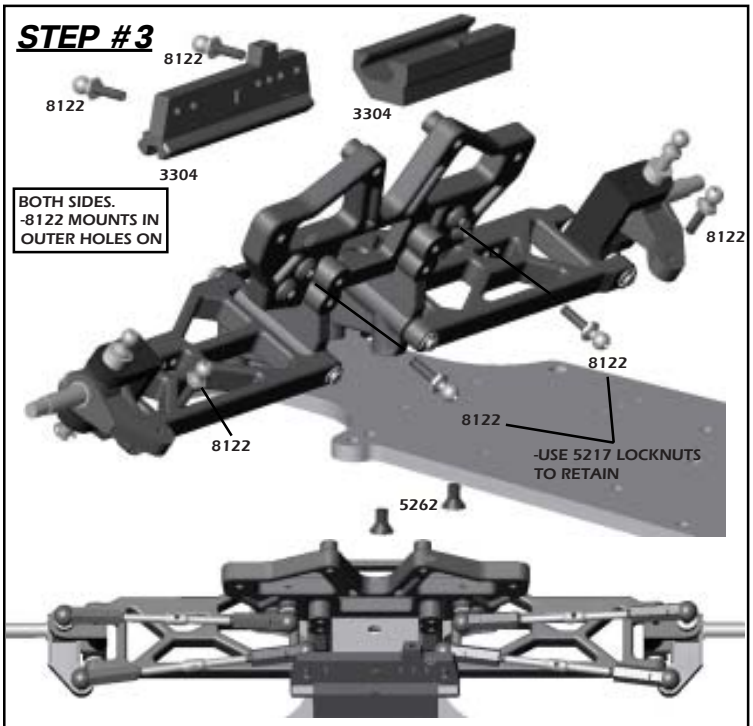
STEP #2

- Insert the 7200 Axle into the 3202 Steering Arm so the holes are in-line.
-Align the Steering Arm into the 3410 Castor Block and press the 7209 Ball Stud Kingpin thru the assembly as shown.



-Mount the Castor Block to the Susp Arm with a 1255 Spacer on each side of the Castor Block as it is fitted between the ears of the Susp Arm.
-Insert the 4241 Susp Pin thru the Susp Arm, Spacer, and Castor Block. Retain by attaching 5230 E-Clips to each end of the 4241.

STEP #3



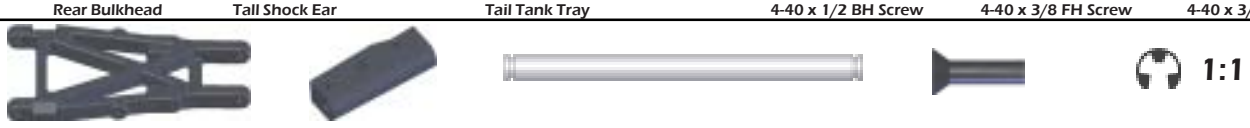
- Thread the 8122 Ball Stud into the front face of 3304 Steering Slide, back face of the shock tower, and top face of the Steering Arm as shown.
-Insert the Steering Slide into the 3304 Steering Rack, mount the rack to the chassis.
-Mount the linkages from Step #1 by snapping the Ball Cups onto the Ball Studs.

Bag C Rear Suspension

-Parts for Step#1

1273 Qty 1 — Rear Bulkhead
3257 Qty 2 — Tall Shock Ear
3305 Qty 1 — Tail Tank Tray
5254 Qty 6 — 4-40 x 1/2 BH Screw
5263 Qty 4 — 4-40 x 3/8 FH Screw
5253 Qty 2 — 4-40 x 3/8 BH Screw

-Parts for Step#2



3254 Qty 2 — Long Rear Susp Arm
2230 Qty 2 — 3 Deg Toe Block
4234 Qty 2 — Rear Inner Susp Pin
5264 Qty 6 — 4-40 x 1/2 FH Screw
5230 Qty 24 — E-Clip

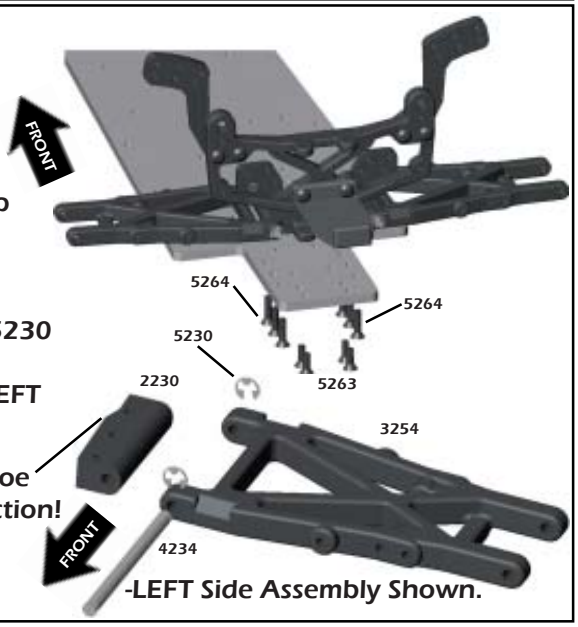
STEP #1

-Attach the 3257 Long Shock Ears to the 1273 Bulk to the side facing away in the diagram.
-Attach the 3305 Tail Tank Tray as shown in the diagram.

STEP #2

-Attach the 3254 Susp Arm to the 2230 Toe Block using the 4234 Susp Pin.
-Retain the pin with 5230 E-Clips.
-Make a RIGHT and LEFT assembly!

-NOTE: Back side of Toe Block for proper direction!



-LEFT Side Assembly Shown.

Bag D Rear Suspension

-Parts for Step#1

3241 Qty 2
Bearing Carrier

1:1

1226 Qty 4
Ball Bearing

4235 Qty 2
Rear Outer Susp Pin

1:1

1255 Qty 10
Spacer

1:1

5230 Qty 24
E-Clip

-Parts for Step#2

7211 Qty 2
CVD Coupling

7214 Qty 2
Medium Dogbone

7216 Qty 2
Rear CVD Axle

1:1

7211 Qty 2
Rear CVD Pin

1:1

7211 Qty 2
CVD Set Screw

-Parts for Step#3

5249 Qty 2
Steel Turnbuckle

1:1

5235 Qty 4
Ball Cup

1:1

1:1

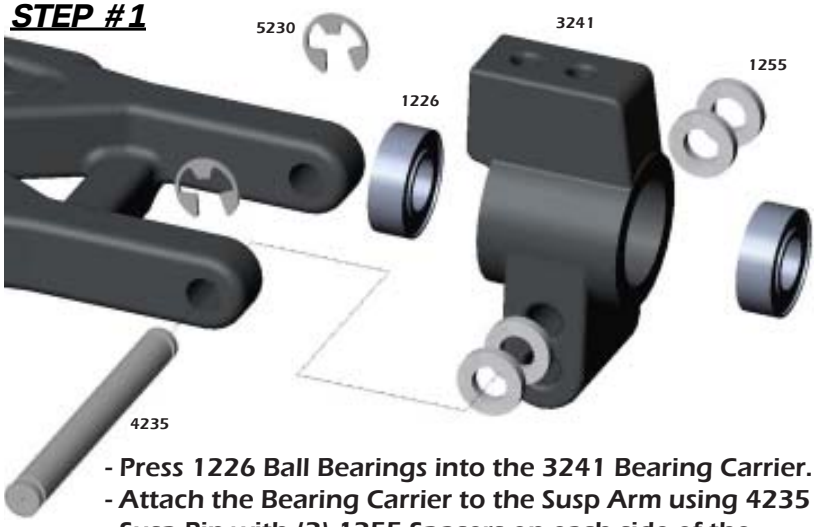
7047 Qty 6
Spacer

8122 Qty 4
Ball Stud

7203 Qty 2
Roll Pin

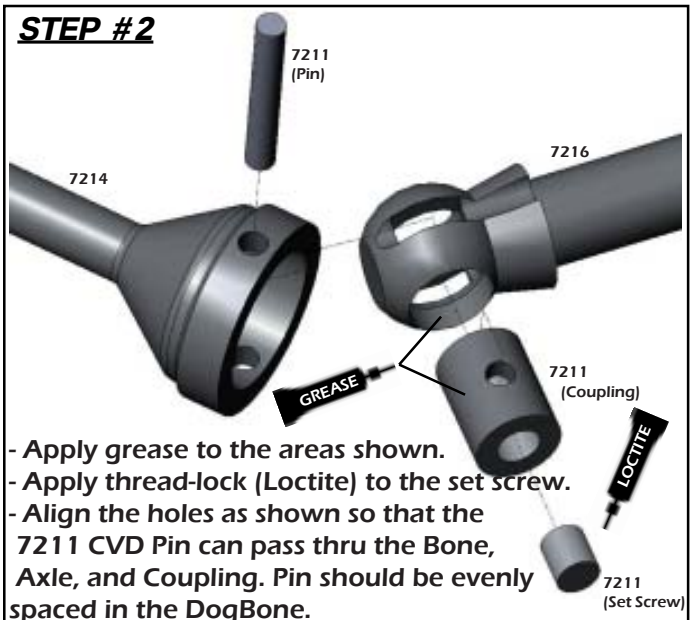
5217 Qty 2
4-40 Lock Nut

STEP #1



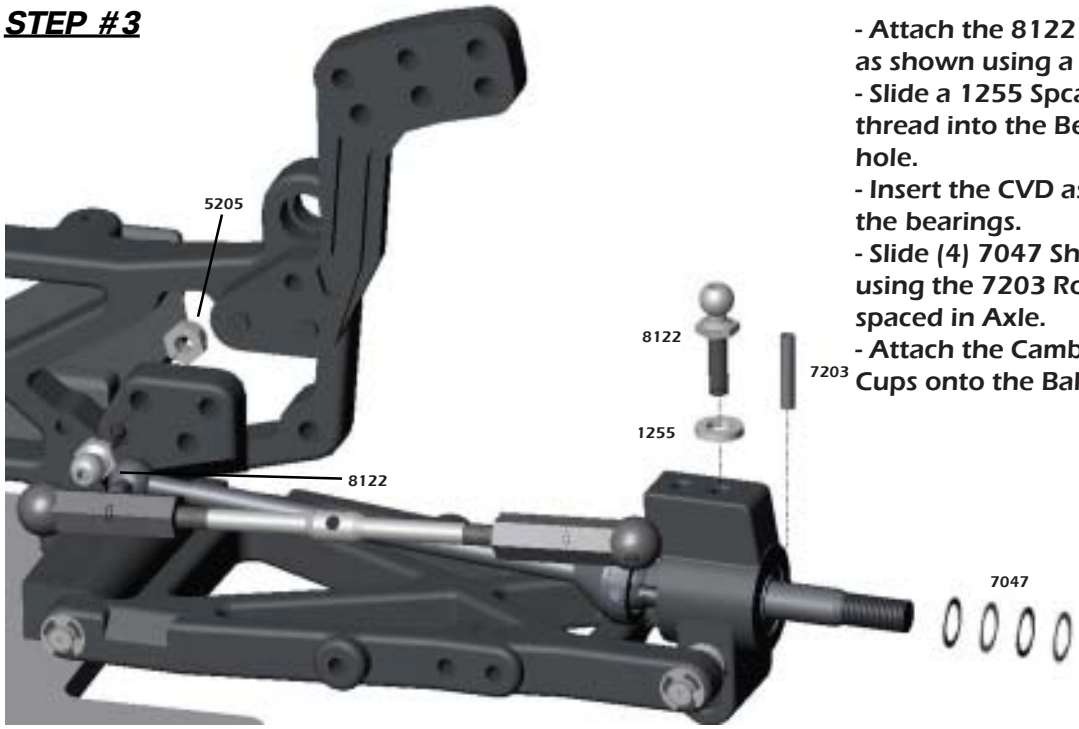
- Press 1226 Ball Bearings into the 3241 Bearing Carrier.
- Attach the Bearing Carrier to the Susp Arm using 4235 Susp Pin with (2) 1255 Spacers on each side of the Bearing Carrier.
- *NOTE: The Suspension Pin will pass thru the UPPER hole in the Bearing Carrier.*
- Retain the Susp Pin using 5230 E-Clips.

STEP #2



- Apply grease to the areas shown.
- Apply thread-lock (Loctite) to the set screw.
- Align the holes as shown so that the 7211 CVD Pin can pass thru the Bone, Axle, and Coupling. Pin should be evenly spaced in the DogBone.
-Tighten the Set Screw by angling the Bone and Axle so the set-screw is able to be tightened.

STEP #3



- Attach the 8122 Ball Stud to the Rear Bulkhead as shown using a 5217 Lock Nut.
- Slide a 1255 Spcaer onto the Ball Stud and thread into the Bearing Carrier in the outer most hole.
- Insert the CVD assembly by sliding the axle thru the bearings.
- Slide (4) 7047 Shims onto the axle and retain using the 7203 Roll Pin. Pin should be evenly spaced in Axle.
- Attach the Camber Link by snapping the Ball Cups onto the Ball Studs.

Bag E — Diff Assembly

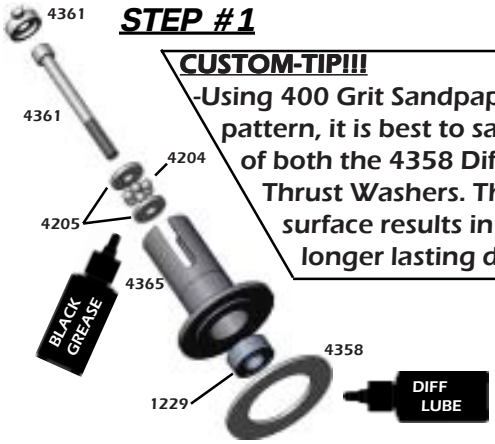
-Parts for Step#1

4365 Qty 1 — Right Outdrive
4358 Qty 2 — Diff Ring
4205 Qty 2 — Thrust Washer
4361 Qty 1 — Diff Bolt Cover
4204 Qty 6 — Thrust Balls
4361 Qty 1 — Diff Bolt
1:1
1229 Qty 2 — 5/32 x 5/16 Bearing

-Parts for Step#2

4364 Qty 1 — Left Outdrive
4362 Qty 1 — Diff Spring
4356 Qty 1 — Diff Gear
4357 Qty 12 — Diff Balls
4361 Qty 1 — Diff T- Nut

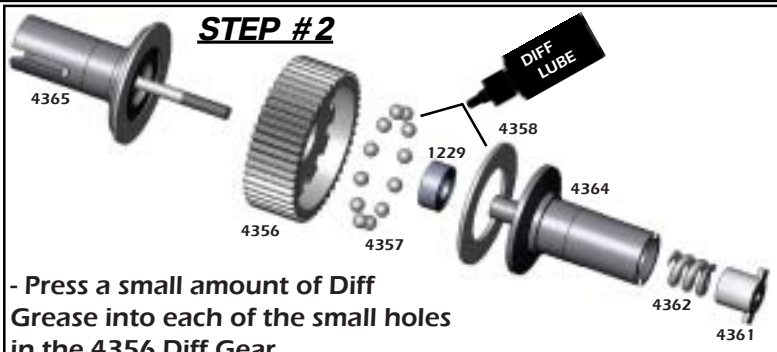
STEP #1



CUSTOM-TIP!!!
-Using 400 Grit Sandpaper in a"Figure 8" pattern, it is best to sand the surfaces of both the 4358 Diff Ring and 4205 Thrust Washers. The textured surface results in a smoother and longer lasting diff.

- Slide a 4205 Thrust Washer onto the Diff Bolt.
- Apply a thick layer of Black Grease to the Thrust Washer, press (6) 4204 Thrust Balls into the Black Grease.
- Slide the other Thrust Washer on the Diff Bolt and insert it into the 4402 Left Outdrive.
- Press (1) 1229 Bearing into the Outdrive.
- Put (1) 4404 Diff Ring on the Outdrive, apply Diff Lube as shown.

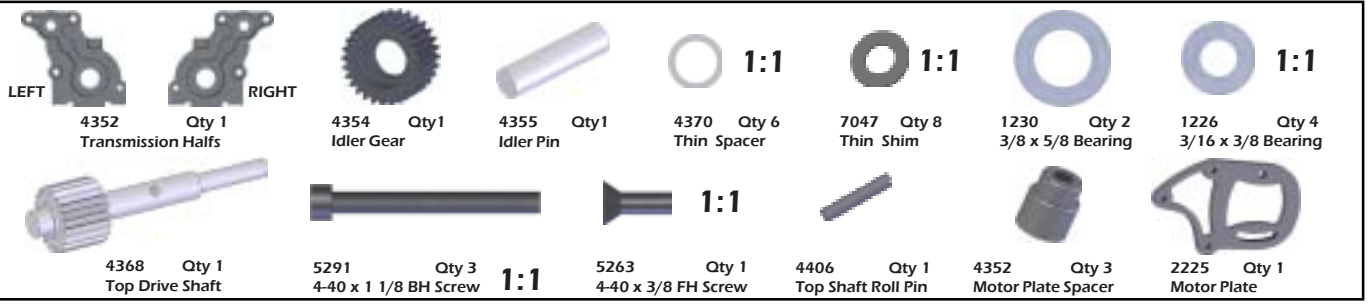
STEP #2



- Press a small amount of Diff Grease into each of the small holes in the 4356 Diff Gear.
- Press (1) 1229 Bearing and the (12) 4357 Diff Balls into the Diff Gear.
- Put (1) 4358 Diff Ring onto the 4364 Right Outdrive, apply Diff Grease as shown.
- Install the 4362 Diff Spring and 4361 T-nut into the Outdrive.
- Carefully slide the diff assembly together so the Diff Bolt passes thru the entire assembly and threads into the T-nut.
-Screw the Diff Bolt into the T-nut until you feel the Diff Spring fully compress. DO NOT OVERTIGHTEN!!!
- Back the Diff Bolt off <u>EXACTLY</u> 1/8 of a turn. Diff motion should be smooth and the Outdrives will turn in opposite directions.

Bag F — Transmission Casing

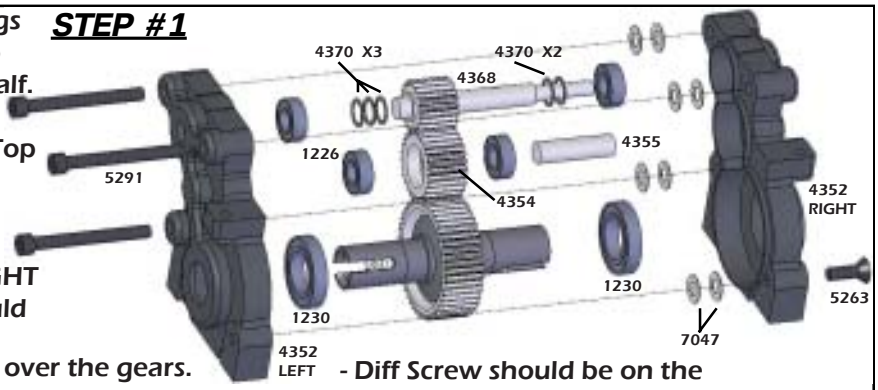
-Parts for Step#1 & Step#2



LEFT / RIGHT
4352 Qty 1 — Transmission Halfs
4354 Qty1 — Idler Gear
4355 Qty1 — Idler Pin
4370 Qty 6 — Thin Spacer
7047 Qty 8 — Thin Shim
1230 Qty 2 — 3/8 x 5/8 Bearing
1226 Qty 4 — 3/16 x 3/8 Bearing
4368 Qty 1 — Top Drive Shaft
5291 Qty 3 — 4-40 x 1 1/8 BH Screw
1:1
5263 Qty 1 — 4-40 x 3/8 FH Screw
4406 Qty 1 — Top Shaft Roll Pin
4352 Qty 3 — Motor Plate Spacer
2225 Qty 1 — Motor Plate

STEP #1

- Press the (2) 1230 Bearings and (4) 1226 Bearings into each 4352 Transmission Half.
- Slide 4370 Thin Washers on each side of the 4368 Top Drive Shaft as shown.
- Insert the Diff Assembly, Top Drive Shaft, 4352 Pin, and Idler Gear into the RIGHT Trans Half. Diff Screw should be on the RIGHT side!
- Align the LEFT Trans Half over the gears. Space the Trans Halves apart using (2) 1226 Shims per screw location.



- Diff Screw should be on the RIGHT side of the Trans!

STEP #2

- Press the 4406 Pin into the Drive Shaft.
- Fasten 2225 Motor Plate by tightening the XXXX Screws with 4352 Spacers.

Bag G Spur Gear Assembly

-Parts for Bag G

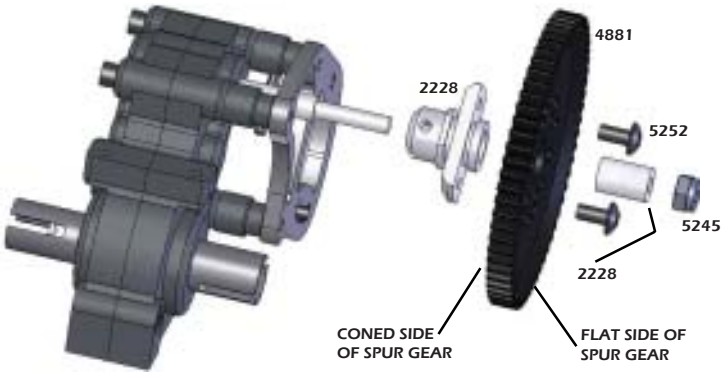

2228 Qty 1
Slipper Eliminator


4881 Qty 1
81T 48P Spur Gear


1:1
5252 Qty 2
4-40 x 1/4 BH Screw


2228 Qty 1
Spacer


1:1
5245 Qty 1
5-40 Locknut



- Press the 2228 Slipper Eliminator onto the Top Drive Shaft so that the Roll Pin keys into the grooves.
- Secure the assembly to the Top Shaft with the 2228 Spacer and the 5245 Locknut. Do NOT overtighten the nut on the Top Shaft!
- Mount the 4881 Spur Gear so the flat side faces AWAY from the transmission. Secure using (2) 5252 Screws.

Bag H Transmission Mount

-Parts for Bag I


3308 Qty 1
Transmission Brace


1202 Qty 1
Trans Spacer


1:1
5264 Qty 2
4-40 x 1/2 FH Screw


1:1
5253 Qty 4
4-40 x 3/8 FH Screw


1:1
5262 Qty 1
4-40 x 1/4 FH Screw

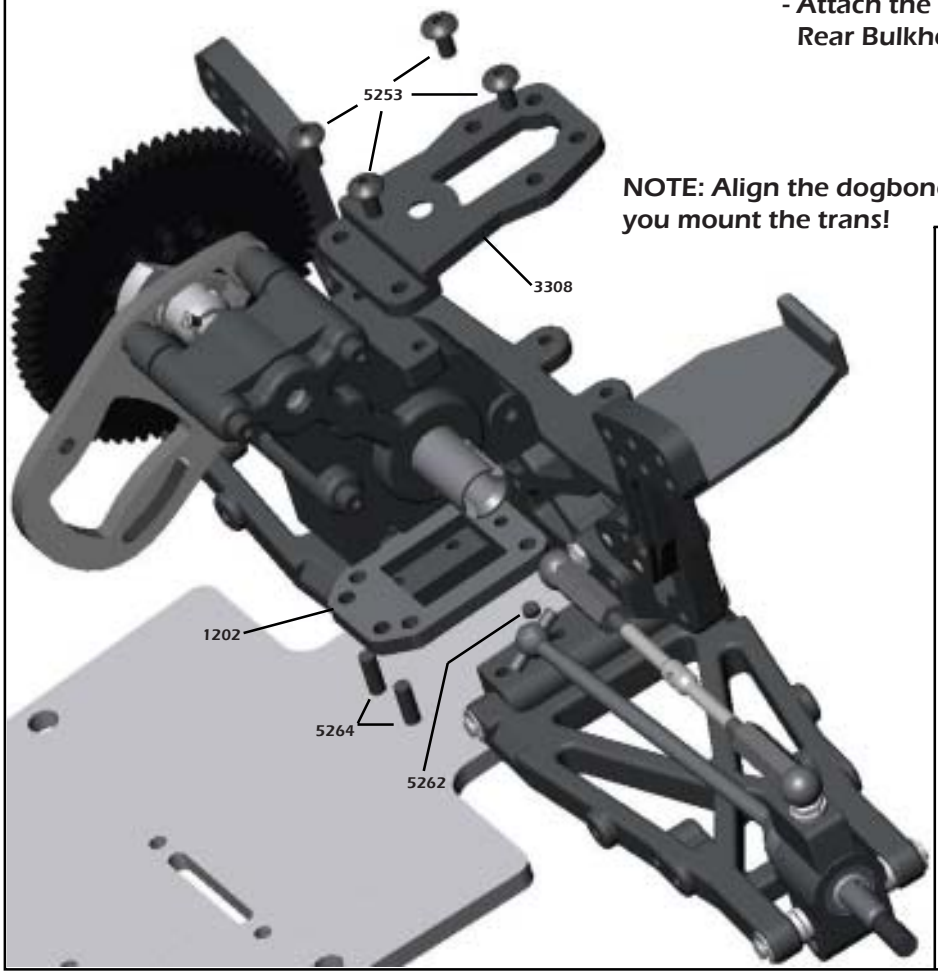
- Mount the 1202 Trans Spacer to the Chassis using the 5262 Screw where shown.

- Secure the Trans to the Chassis using (2) 5264 Screws thru the 1202 Trans Spacer as shown.

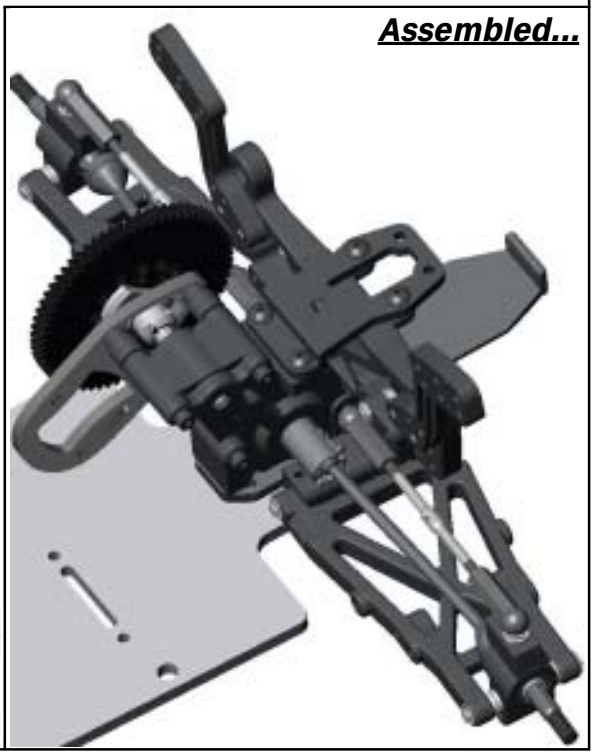
- Attach the 3308 Trans Brace to the Trans and Rear Bulkhead using 5253 Screws.

- Mount the Trans Brace to the Transmission and Rear Bulkhead using 5253 Screws.

NOTE: Align the dogbone shafts into the outdrives of Transmission as you mount the trans!



Assembled...



Shock Bag

Shock Assembly

-Parts for Step#1

1424 Qty 4
Long Shock Body

1428 Qty4
Long Shock Shaft

1434 Qty4
Shaft Guide

1250 Qty 8
O- Ring

1435 Qty 6
Reatining Clip

1436 Qty4
Piston

5230 Qty 10
E-Clip

-Parts for Step#2

1432 Qty4
Eyelet Cap

1431 Qty4
Threaded Cap

1437 Qty 4
FIRM Bladder (BLACK)

1:1

5228 Qty4
Short Ball End

5228 Qty4
Pivot Ball

-Parts for Step#3

1433 Qty4
Spring Collar

REAR

1804 Qty2
(WHITE) Spring

FRONT

1807 Qty2
(GREEN) Spring

1407 Qty4
Spring Bucket

1408 Qty4
Mount Ball

5278 Qty 4
4-40 x 1" SH Screw

5274 Qty 4
4-40 x 1/2 SH Screw

5217 Qty 8
4-40 Lock Nut

STEP #1

NOTE: Put a few drops of oil on the O-Rings!

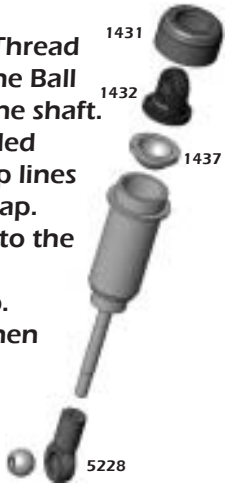
- Attach 1436 Shock Piston to 1428 Shaft using 5230 E-Clips to secure.
- Press 1250 O-rings into 1424 Shock Body followed by 1434 Shaft Guide. Retain using 1435 Clip.

TIP: To press clip in easiest, compress the clip so the diameter is a little smaller.Insert open end of clip first, working counter-clockwise to the bent end as shown.

STEP #2

- Snap Pivot Ball into the 5228 Ball End. Thread the Ball End onto the Shock Shaft until the Ball End is flush with the end of threads on the shaft.
- Press 1432 Eyelet Cap into 1431 Threaded Shock Cap so that guide in the Eyelet Cap lines up in the recess in the Threaded Shock Cap.
- Press the 1437 Firm Bladder (BLACK) into the Threaded Shock Cap so the dome of the bladder points away from the Eyelet Cap.
- Fill the Shock Body with oil to the top then thread the Eyelet Cap assembly onto the Shock Body until tight.

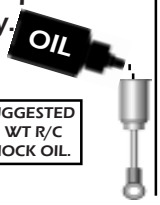
-NOTE: See shock filling tips for more instructions.



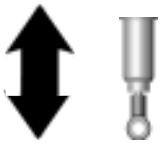
SHOCK FILLING INSTRUCTIONS:

Filling Shocks: Steps 1-4 ***Setting Shock Rebound: Steps 5-8***

1) Holding the shock upright, fill with oil until the top of the body.



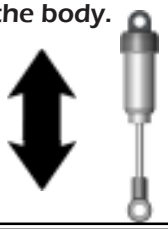
2) Slowly move the shaft up and down several times to allow air bubbles to escape to the top.



3) Refill with oil to the top of the shock body.

4) Thread the Eyelet Cap assembly onto the Shock Body until it is hand tight. Oil should seep out of the bleed hole in the Threaded Cap.

5) Move the shock shaft in and out a few times and then push it all the way in. It should be easy to push the shaft in until the eyelet hits the body.



6) Then the shaft should push itself out to its full length slowly.

7) If the shock does not push out this far there is not enough oil in it. Add just a little oil and try steps 5-6 again.

8) If the shockrebounds too fast , or you cannot push the shaft in until the eyelet hits the body, there is too much oil. Loosen the cap and pump out a small amount of oil by pushing the shaft in. Re-tighten the cap and try steps 5-6 again.

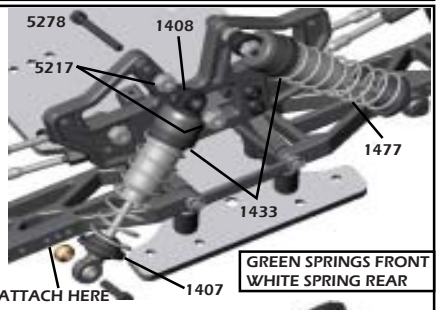
STEP #3

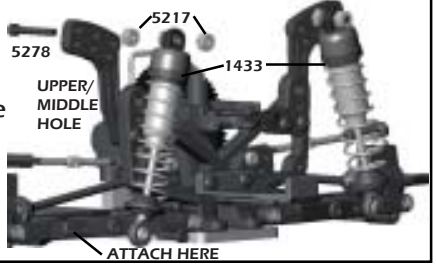
- Thread 1433 Spring Collar onto the shock. Slide the springs onto the shock and secure using the 1407 spring bucket as shown.

- Press 5278 Screws thru the holes on the front tower and thru the upper/middle set of holes on the rear tower. Secure using 5217 Nut.

- Install the shocks onto the screws with the shoulder of the 1408 Mount Ball facing the tower, secure with 5217 Nut.

- Attach the shock to the susp arms in the outer most holes on both front and rear arms as shown.





Bag I Battery Mount

-Parts for Bag J

3224 Qty 1
Battery Tray

2004 Qty 2
Strap Mount

3009 Qty 1
Strap Buckle

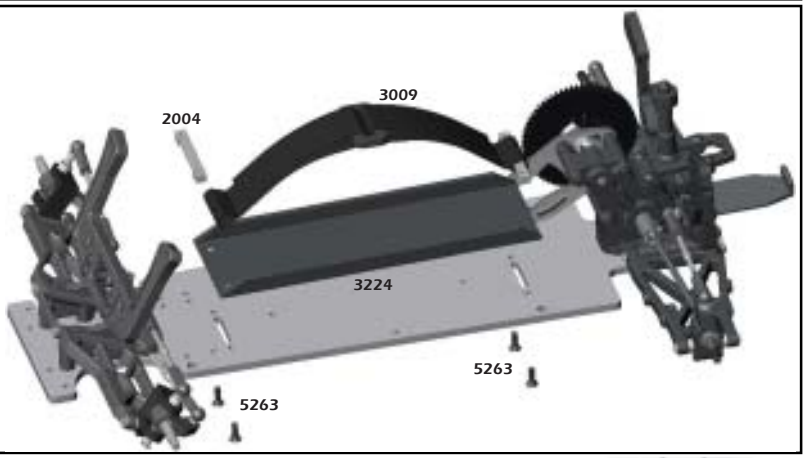
3009 Qty 2
Battery Strap

5263 Qty 4
4-40 x 3/8 FH Screw

STEP #1

- Slide the 2004 Strap Mount thru the small loop on the 3009 Battery Strap.
- Trim the 3224 Batt Tray so it sits flat to the chassis. On the marked spots, drill the (4) holes in the 3224 Battery Tray so they align with the holes in the chassis.
- Mount the Tray to the Chassis using 5263 Screws thru the Chassis and into the 2004 Strap Mount.
- Peel apart both 3009 Battery Straps. Insert one Strap end thru the Buckle and re-attach to itself. Then slide the end of the other Strap thru the Buckle, pull tight to the Battery and attach to the velcro.

NOTE: Battery packs come in a variety of widths. For wider battery packs it may be necessary to alter the Tray by cutting the it into two pieces and re-aligning the holes it mounts in.



Bag J Servo and Linkage Installation

-Parts for Steps #1&#2

5242 Qty 1
Large Servo Saver

8130 Qty2
Small Ball Cup

8122 Qty 2
Ball Stud

3234 Qty2
Spacer

5263 Qty 5
4-40 x 3/8 FH Screw

5240 Qty2
Servo Mount

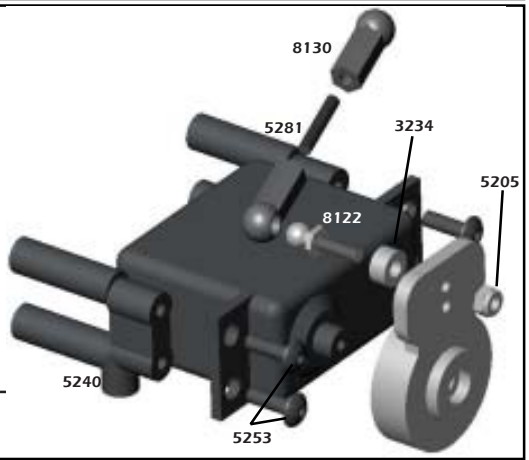
5281 Qty1
4-40 Stud

3209 Qty1
Antenna Mount

5253 Qty 4
4-40 x 3/8 BH Screw

STEP #1

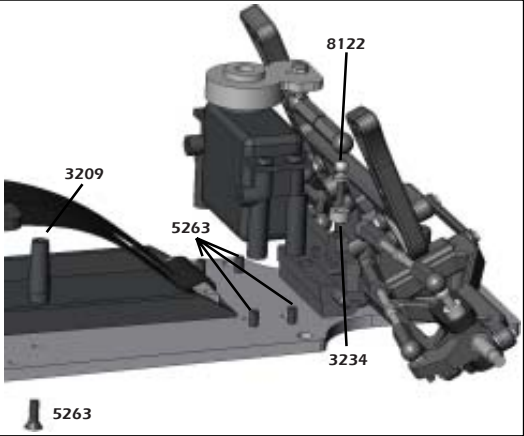
- Attach 5240 Servo Mounts to your steering servo in the position shown using 5253 Screws.
- Thread 8120 Ball Stud into the upper-most center hole in the 5242 Servo Saver.
- Attach both 8130 Ball Cups to one another using the 5281 Stud until the Ball Cups bottom out on one another. Snap a Ball Cup onto the Ball Stud on the Servo Saver.
- Determine which of the Spline Inserts are correct for your servo by pressing it over the drive on the servo. Align the servo so it has equal throw in both directions.
- Press the Servo Saver onto the Spline Insert so that the Servo Saver is perpendicular to the servo, attach using the screw that came with your servo.



STEP #2

- Mount the servos to the chassis using 5263 Screws as shown.
- Thread 8122 Ball Stud with the 3234 Spacer into the top of the Steering Slide.
- Snap the Ball Cup onto the Ball Stud threaded into the Steering Slide.
- Attach 3209 Antenna Mount in either of the two holes shown below.

NOTE: Steering movement should be bind free except for the restriction of the servo transmission.



Mount Bag

Parts for Mount Bag

3015 Qty1
INT Front Bumper

3229 Qty2
Short Body Post

3229 Qty4
Post Collar

3229 Qty 4
Set Screw

1274 Qty 1
Rear Body Mount

5253 Qty 2
4-40 x 3/8 BH Screw

1275 Qty1
INT Front Clip

5283 Qty 7
8-32 x 1/2 FH Screw

3228 Qty2
Long Body Post

5207 Qty 3
8-32 Lock Nut

5264 Qty 2
4-40 x 1/2 FH Screw

5217 Qty 4
4-40 Lock Nut

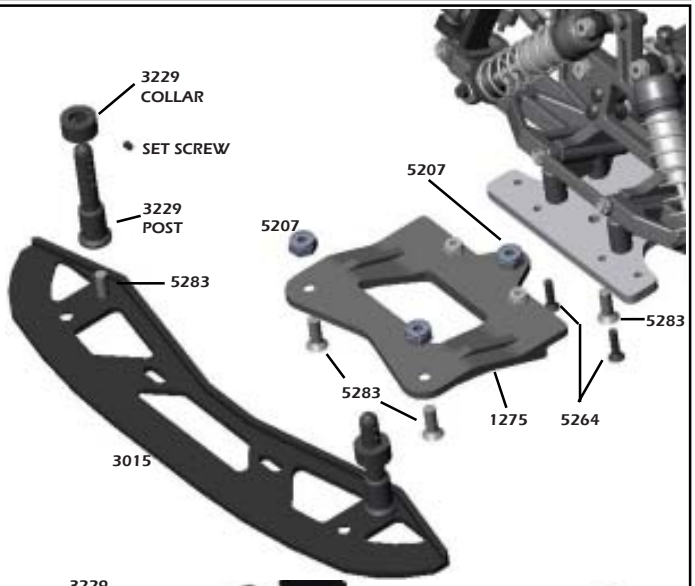
FRONT

- Slide the Post Collar onto the 3229 Short Body Post, use the Set Screw to retain the Collar.

- Mount the (2) 3229 Short Body Posts to the rearward set of holes on the 3015 Bumper using 5283 Screw.

- Attach and center the 3015 Bumper to the 1275 Front Clip using 5283 Screws and 5207 Nuts. The bumper is slotted to allow you to adjust the body position easily.

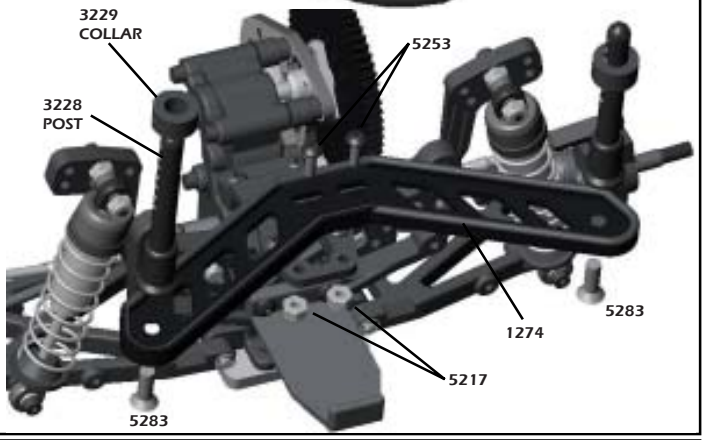
- Mount the 1275 Front Clip to the Chassis using (1) 5283 Screw and 5207 Nut along with (2) 5264 Screws and 5217 Nuts.



REAR

- Mount the (2) 3228 Long Body Posts to the 1274 Rear Body Mount.

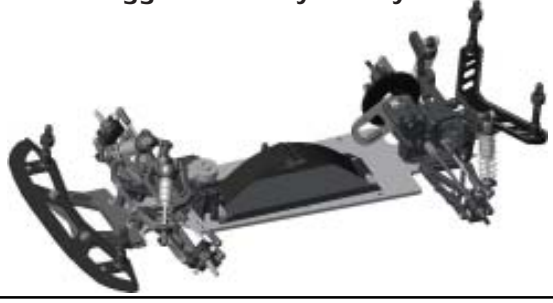
- Attach and center the 1004 to the Trans Brace using 5253 Screws and 5217 Lock Nuts. The rear mount is slotted to allow you to adjust the body position easily.



MISC...

Radio Gear: Best suggested to mount the speed control unit on the rear 3305 Tail Tray. Reciever can be mounted anywhere on the chassis to the right of the battery pack area.

Body: Suggested to use the CustomWorks #9012 Eldora Body. It is a two-piece design and will work best if you remove the front and rear window material so the air can easily reach the rear spoiler. Leaving the material in makes for a much more aggressive body usually not best for rubber tire.



* El Dora body shown with optional #9019 driver *

Tire Bag — Tire & Wheel Installation

-Parts for Bag M


6204 Qty 2
Street-Trac FRONT


6214 Qty 2
Street-Trac REAR


6220 Qty 2
Soft Insert FRONT


6221 Qty 2
Soft Insert REAR


6252 Qty 2
Front Wheel


6253 Qty 2
Rear Wheel


5207 Qty 4
8-32 Lock Nut

7047 Qty 6
Spacer

1226 Qty 4
Ball Bearing

7220 Qty 2
Axle Spacer

NOTE: **In this step you will be using a fast drying super glue type adhesive to secure the tires and wheels to each other. Be very careful with this process as the glue can tend to run very easilly through the tire and may glue your finger to the tire or wheel before you know it. You must follow the directions and precautions provided by the glue manufacturer to insure a secure bond.**

STEP #1: Using a reamer or a small drill bit make a hole in the center of each of the 4 wheels as shown in **Figure 1.**

STEP #2: Place the foam inserts into the tires with the wider inserts going in the rear tires, the narrower in the fronts. Make sure the insert is laid into the tire evenly. As shown in **Figure 2** it should not be bunched up too much in any area.

STEP #3: Place the wheel inside of the tire and work both beads of the tire into the channels on the outside edge of the wheel. Peel back a portion of the tire from the wheel and apply an even bead of tire glue between the wheel and the tire as shown in **Figure 3.** It may be easiest to only glue one section at a time, rather the entire bead at once. Also wrapping electrical tape around the edge of the tire will help hold the tire tight to the wheel as the glue sets. Repeat this step several times working your way around the tire until it is secure.

You may repeat this process now for the remaining 3 tires **BUT BE SURE TO PLACE THE FRESHLY GLUED SIDE UP** until it has dried completely. Once dry it is a good idea to go back and re-seal the edges by applying another small bead of glue and letting it run around the edge of the tire at the gap between tire and wheel.

STEP #4: Place one #1226 Bearing into each side of the front wheels as shown in **Figure 4.**


Figure 1


Figure 2


Figure 3


Figure 4


Figure 5


Figure 6

STEP #5: Refer to **Figure 5** and place one 7047 shim over the front axle followed by the front wheel and then the 7220 Axle Spacer. Now secure with one 5207 Locknut, be very careful to not overtighten the nut. You want to tighten it just enough to eliminate any slop from side to side but no more. Repeat for other side of car.

STEP #6: Now slide one of the rear wheels onto the rear axle as shown in **Figure 6.** Be sure to index the roll pin in the axle so that it slides into the drive slot molded in the back of the wheel. Secure with a 5207 locknut. Wheel should spin freely, remove 7047 spacers from behind roll pin if necessary. Do not overtighten 5207 nut.

TIRE TIPS:

- The tires work best after a run or two of breaking in depending on the dirt oval track surface. Lightly scuffing the tires on asphalt (1min of gentle driving) helps break them very quickly.

- Cleaning the tires with Simple Green and a rag works very well and gives the tire a little more grip.

- Traction additives such as Paragon or Buggy Grip also help with traction but will not cure ill-handling issues. If you do not have these products, applying WD-40 to the tire can do wonders as well.

CONGRATULATIONS!!! You have now completed the assembly process of your new Custom Works Rocket! In the next section of this manual you will find some basic setup hints and advice. It is important to remember that all tracks and racing surfaces are different. Therefore the suggestions we give you are general in nature and should by no means be treated as the only options.

MAINTENANCE:

Occasionally dirt will get into the moving and pivoting locations in your car. It is best to periodically clean your car to keep all the suspension components moving freely. Read the tips below to keep your car running at its best!

- Begin by removing the majority of the dirt using a small brush, toothbrush, or compressed air.
- Compressed air is ok to use, be mindful to not FORCE the dirt into the radio gear, transmission, bearings, or air filter. Typically these items only have dirt on them, hitting the dirt with the compressed air puts dirt ***IN*** these parts!
- Tires, either foam or rubber are best cleaned using water or cleaners like Simple Green (TM). Simple Green also does a great job cleaning car parts as well. Lightly spraying car parts (NOT radio components, transmission, air filter, or bearings) with Simple Green and blowing off with compressed air or wiping the parts using the paint brush is a great way to clean in a hurry.
- Another R/C friendly cleaner is WD-40 (TM). After the car is clean, very lightly spray the car components and bearings (NOT radio components, transmission, or air filter). Use your brush or compressed air to remove the extra WD-40. This will lube your bearings and leave a protective coating on the parts making it easier to remove dirt later.
- Differential Maintenance is needed when the action of the diff feels "notchy". Usually cleaning the diff parts, re-sand the thrust and diff plates with 400 paper, and lube appropriately will be all that is needed to bring back to new. Ignoring your differential will lead to handling woes and increase transmission temps, which will cause part failure.

TUNING TIPS:

These are some general guidelines for optimizing handling performance. None of these "tips" are EVER set in stone. On any given day this manual or any chassis engineering book or guru can be proved wrong by the stop watch. A good way to approach chassis set-up is to try one change, practice it, think how the car felt different from before, and compare lap times from the stop watch.....this will never fail.

Car Pushes (understeers):	Car Is Loose (oversteers):	Car Is Erratic:
- Decrease Spoiler on Body - Heavier Rear Spring - Softer Front Spring - Use Rear Sway Bar - Try Softer Front Compound Tire - Try Harder Rear Compound Tire - Lower Front Ride Height - Raise Rear Ride Height - Thread Shock Collar UP on Right Front - Thread Shock Collar DOWN on Right Rear - Decrease Rear Toe - Decrease Castor - Add Rear Toe Stagger or Increase the difference	- Increase Spoiler Angle - Softer Rear Spring - Heavier Front Spring - Use Front Sway Bar - Try Harder Front Compound Tire - Try Softer Rear Compound Tire - Raise Front Ride Height - Lower Rear Ride Height - Thread Shock Collar DOWN on Right Front - Thread Shock Collar UP on Right Rear - Increase Rear Toe - Increase Castor - Decrease Rear Toe Stagger or Decrease the difference	- Bent Suspension Pins: Remove shocks to check free movement. - Bound Ball Joint: Should spin free on balls while mounted to the car. - Bent or Loose Camber Links - Wore out Bearings or Completely Seized Bearings - Chunked Tire: Check to see if Foam or Rubber Tire is still glued to wheel. - Loose Screws: Especially Chassis Screws, add Blue Loctite to prevent. - Shocks: Either Bound-up or Out of Oil. Must swivel freely on mounts. - Foreign Objects: Unlucky Dirt/Stones preventing Suspension or Steering Movement. - Blown Differential - Radio Problem: Bad Servo, Weak Servo Saver Spring, Transmitter Pot blown.

SET-UP GUIDELINES:

When looking for the "perfect set-up" it is important to remember 2 things...

1) Keeping things simple is best.

2) As you are making your set-up change, the track is changing too! Ask a local racer what the track usually does from begining to end, especially day to night.

- Start your car's ride height with it equal at all four corners to start. Use the shock collars to adjust ride height by measuring the distance under the chassis when the car is sitting on a FLAT & LEVEL surface.

- Shock collars can only jack weight and adjust the car's handling when the car makes ALL 4 shocks squat when the car is set down. Use the RF shock collar to adjust how the car ENTERS the corner. Use the RR shock collar to adjust how the car exits the corner ON-POWER. Use the LF shock collar to make the car turn in less, and off the corner more.

- It is best to have a little bit of brake drag when you let off the gas, this will allow for a more controlable car in ALL conditions. Increasing how much the brake drags will make your car turn into the corner harder.

SET-UP GLOSSARY:

Caster: Angle of the kingpin in relation to a vertical plane as viewed from the side of the car. Increasing the angle will make the car more stable out of the turn and down the straights and increase steering entering a turn. Decreasing the angle will make the car feel more "touchy" at high speeds and help steering while exiting the turn.

Camber Gain: Angle of the Camber Link relative to the Suspension Arm. Lowering the camber link on the shock tower OR raising the camber link on the castor block will INCREASE the camber angle of the tire when the suspension is compressed. Raising the camber link on the shock tower OR lowering the camber link on the castor block will DECREASE the camber angle of the tire when the suspension is compressed. There is not a "correct" set-up and once again too much of anything is generally bad. This will help change the "feel" of the car thru the turns.

Camber Link Length: Comparing this to the length of the Suspension Arm from each pivot point and keeping the Camber the same, making the link *shorter* will decrease traction for that corner of the car while making it *longer* will increase traction for that corner of the car. Once the camber link is equal to or greater than the Suspension Arm pivots, the gain of traction ends. Also a shorter camber link will increase camber gain and a longer decrease camber gain.

Shock Angle: Leaning the shock toward the car is effectively like changing to a *softer* spring. Standing the shock closer to vertical is effectively like changing to a *stiffer* spring. Try when the car is working well and when one spring change is TOO much for your set-up.

Ride Height: Check by pushing the chassis down once or twice to simulate bumps on the track. Having the front end *higher* than the rear will make the car increase rear traction especially out of the turn. Having the front end *lower* than the front will make the car increase front traction especially entering the turn. Generally its safe to start the car with the ride heights even.

Rear Toe-In: Front edge of car tires point *toward* the chassis as viewed from above the car. Increasing the angle toward the car will increase rear traction while decreasing front traction. Decreasing the angle will do the opposite.

Rear Toe Stagger: Difference in the amount of Rear Toe-In among the rear tires. Typically used only on high bite tracks with MORE toe-in on the Left Rear tire than the Right so the rear of the car helps turn the car LEFT under acceleration.

Wheelbase (Front End): Wheelbase is the distance between the front and rear axles. Running the entire front end assembly in the forward position makes the wheelbase longer and therefore more stable on long/fast tracks with flowing turns. Running the entire front end assembly in the rear position make the wheelbase shorter and therefore more suitable for short-tracks where you are constantly turning.

Wheelbase (Rear End): This adjustment uses the plastic spacers on the kingpin the rear bearing carrier rides on. With the spacers in front of the carrier it will lengthen the wheelbase but will increase steering. If the spacers are behind the carrier it will shorten the wheelbase but increase rear traction. This is completely backwards from how it works for the Front End only because in the rear of the car you have the weight of the motor and the torque it creates. Shortening the wheelbase here makes more of the car hang over the rear tires and promotes more weight transfer.

Final Drive Chart: The chart provided below gives you the final drive of the motor to spin the axle 1 revolution. This chart is NOT just the pinion and spur, but has the transmission ratio included as well.

- To determine the final drive in your car:

1) Divide the Spur Gear by the Pinion Gear, which equals a "Ratio".
2) Multiply the "Ratio" by the "Transmission Ratio" which will equal your "Final Drive".
   Transmission Ratio = 2.4 for this car.

- Gearing choice can vary greatly depending on track size, surface type, amount of traction, you motor and driving style. For starters consult your local hobby dealer or fellow racer at your local track for the ideal gear choice for your application.

64 Pitch	Spur Gear							
Pinion	78	81	85	88	93	96	100	104
16	11.70	12.15	12.75	13.20	13.95	14.40	15.00	15.60
17	11.01	11.44	12.00	12.42	13.13	13.55	14.12	14.68
18	10.40	10.80	11.33	11.73	12.40	12.80	13.33	13.87
19	9.85	10.23	10.74	11.12	11.75	12.13	12.63	13.14
20	9.36	9.72	10.20	10.56	11.16	11.52	12.00	12.48
21	8.91	9.26	9.71	10.06	10.63	10.97	11.43	11.89
22	8.51	8.84	9.27	9.60	10.15	10.47	10.91	11.35
23	8.14	8.45	8.87	9.18	9.70	10.02	10.43	10.85
24	7.80	8.10	8.50	8.80	9.30	9.60	10.00	10.40
25	7.49	7.78	8.16	8.45	8.93	9.22	9.60	9.98
26	7.20	7.48	7.85	8.12	8.58	8.86	9.23	9.60
27	6.93	7.20	7.56	7.82	8.27	8.53	8.89	9.24
28	6.69	6.94	7.29	7.54	7.97	8.23	8.57	8.91
29	6.46	6.70	7.03	7.28	7.70	7.94	8.28	8.61
30	6.24	6.48	6.80	7.04	7.44	7.68	8.00	8.32
31	6.04	6.27	6.58	6.81	7.20	7.43	7.74	8.05
32	5.85	6.08	6.38	6.60	6.98	7.20	7.50	7.80
33	5.67	5.89	6.18	6.40	6.76	6.98	7.27	7.56
34	5.51	5.72	6.00	6.21	6.56	6.78	7.06	7.34
35	5.35	5.55	5.83	6.03	6.38	6.58	6.86	7.13
36	5.20	5.40	5.67	5.87	6.20	6.40	6.67	6.93
37	5.06	5.25	5.51	5.71	6.03	6.23	6.49	6.75
38	4.93	5.12	5.37	5.56	5.87	6.06	6.32	6.57
39	4.80	4.98	5.23	5.42	5.72	5.91	6.15	6.40
40	4.68	4.86	5.10	5.28	5.58	5.76	6.00	6.24
41	4.57	4.74	4.98	5.15	5.44	5.62	5.85	6.09
42	4.46	4.63	4.86	5.03	5.31	5.49	5.71	5.94
43	4.35	4.52	4.74	4.91	5.19	5.36	5.58	5.80
44	4.25	4.42	4.64	4.80	5.07	5.24	5.45	5.67
45	4.16	4.32	4.53	4.69	4.96	5.12	5.33	5.55
46	4.07	4.23	4.43	4.59	4.85	5.01	5.22	5.43
47	3.98	4.14	4.34	4.49	4.75	4.90	5.11	5.31

48 Pitch	Spur Gear							
Pinion	66	68	70	72	75	78	81	84
12	13.20	13.60	14.00	14.40	15.00	15.60	16.20	16.80
13	12.18	12.55	12.92	13.29	13.85	14.40	14.95	15.51
14	11.31	11.66	12.00	12.34	12.86	13.37	13.89	14.40
15	10.56	10.88	11.20	11.52	12.00	12.48	12.96	13.44
16	9.90	10.20	10.50	10.80	11.25	11.70	12.15	12.60
17	9.32	9.60	9.88	10.16	10.59	11.01	11.44	11.86
18	8.80	9.07	9.33	9.60	10.00	10.40	10.80	11.20
19	8.34	8.59	8.84	9.09	9.47	9.85	10.23	10.61
20	7.92	8.16	8.40	8.64	9.00	9.36	9.72	10.08
21	7.54	7.77	8.00	8.23	8.57	8.91	9.26	9.60
22	7.20	7.42	7.64	7.85	8.18	8.51	8.84	9.16
23	6.89	7.10	7.30	7.51	7.83	8.14	8.45	8.77
24	6.60	6.80	7.00	7.20	7.50	7.80	8.10	8.40
25	6.34	6.53	6.72	6.91	7.20	7.49	7.78	8.06
26	6.09	6.28	6.46	6.65	6.92	7.20	7.48	7.75
27	5.87	6.04	6.22	6.40	6.67	6.93	7.20	7.47
28	5.66	5.83	6.00	6.17	6.43	6.69	6.94	7.20
29	5.46	5.63	5.79	5.96	6.21	6.46	6.70	6.95
30	5.28	5.44	5.60	5.76	6.00	6.24	6.48	6.72
31	5.11	5.26	5.42	5.57	5.81	6.04	6.27	6.50
32	4.95	5.10	5.25	5.40	5.63	5.85	6.08	6.30
33	4.80	4.95	5.09	5.24	5.45	5.67	5.89	6.11
34	4.66	4.80	4.94	5.08	5.29	5.51	5.72	5.93
35	4.53	4.66	4.80	4.94	5.14	5.35	5.55	5.76

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