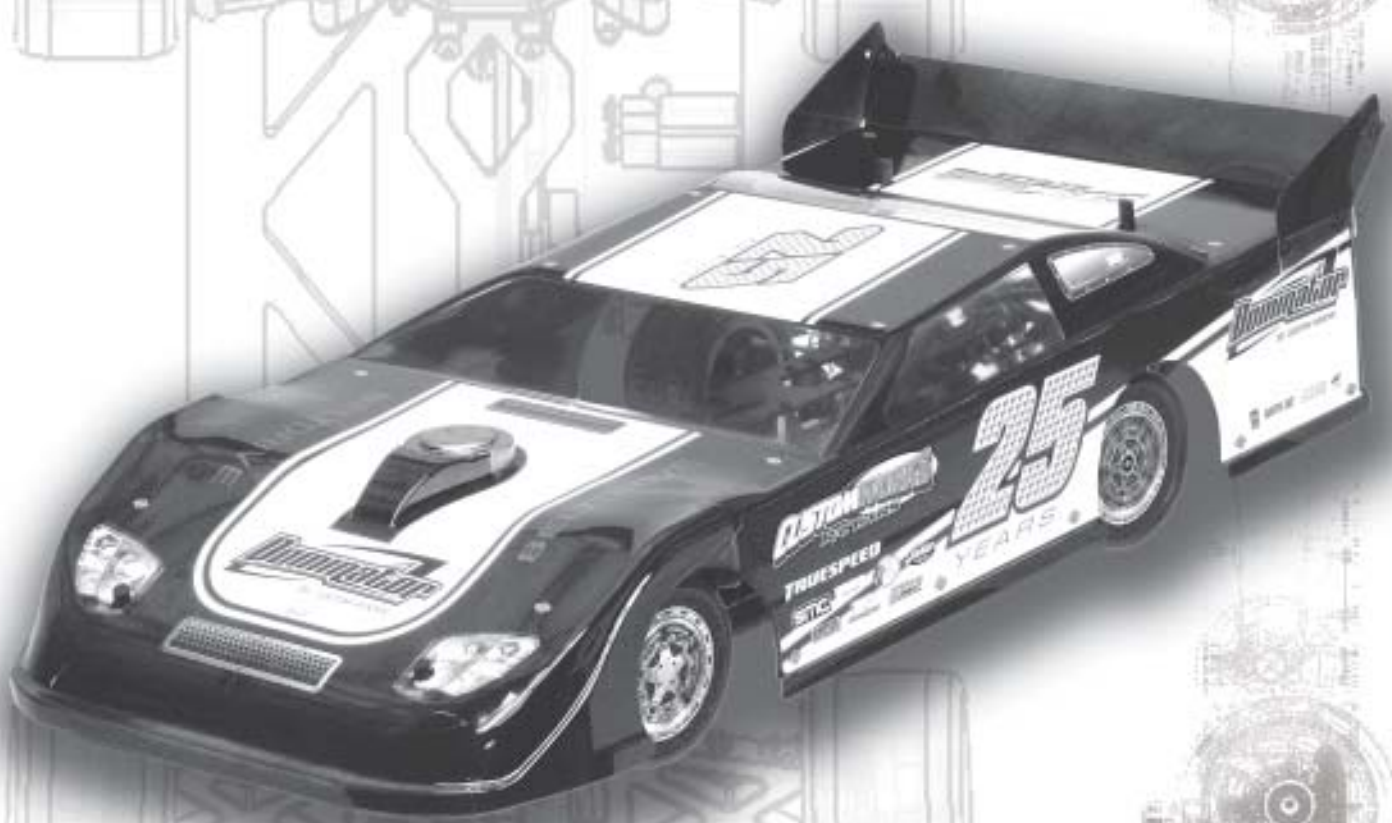
Dominator



1:10 Scale 4WD Dirt Oval Car Kit

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REQUIRED READING...UNDERSTAND THIS MANUAL!

Thank You and Congratulations on purchasing the **DOMINATOR**! Within this kit you will find a race winning car with over 25 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 Dominator has been designed to be competitive on a wide array of dirt surfaces using the CustomWorks "Street-Trac" style tires that come with the kit. 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 instructions are calling for refer to the parts call-out accompanying each step. 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.

-Composite plastic parts are designed to fit and may be tighter than desired when brand new. It should be known that these parts will free up with racing the car fairly quickly. Also these parts have great strength and durability, however the shock resistance is reduced greatly when operating in cold climates.

-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	CA Glue

Bag A One-Way Assembly

-Parts for Bag A

3601 Qty 1
One-Way Hub

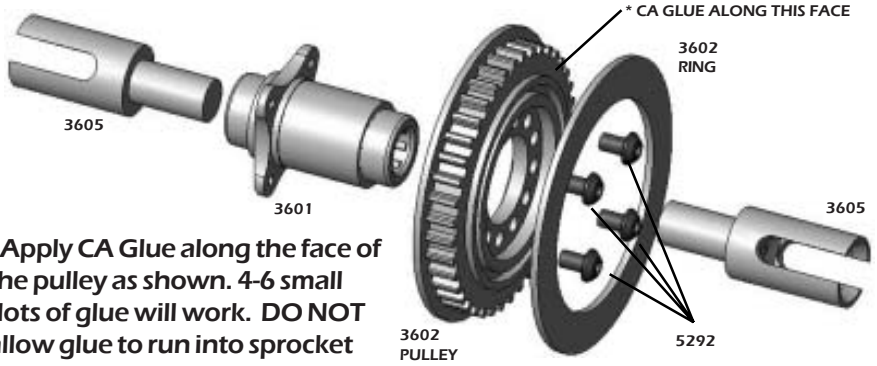
3602 Qty 1
One-Way Pulley

3602 Qty 1
Pulley Ring

3605 Qty 2
One-Way Outdrive

1:1

5292 Qty 4
M2.5 x 4 BH Screw



*Apply CA Glue along the face of the pulley as shown. 4-6 small dots of glue will work. DO NOT allow glue to run into sprocket teeth!

- Mount 3602 One-Way Pulley to the 3601 One-Way Hub using (4) 5292 Screws.

- Attach the 3602 Pulley Ring to the One-Way Pulley using 4-6 small dots of CA Glue where the faces of the two parts meet.

- Slide 3605 One-Way Outdrives into the bearings pressed into the One-Way Hub.

Bag B Diff Assembly

-Parts for Step#1

3613 Qty 1
Right Outdrive

4358 Qty 2
Diff Ring

4360 Qty 2
Thrust Washer

4361 Qty 1
Diff Bolt Cover

1:1

4359 Qty 6
Thrust Balls

3609 Qty 1
Dominator Diff Bolt

1:1

1:1

1229 Qty 2
5/32 x 5/16 Bearing

-Parts for Step#2

3612 Qty 1
Left Outdrive

4362 Qty 1
Diff Spring

3615 Qty 1
Diff Pulley

3615 Qty 1
Pulley Ring

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 4360 Thrust Washers. The textured surface results in a smoother and longer lasting diff.

- Slide a 4360 Thrust Washer onto the 3609 Diff Bolt.

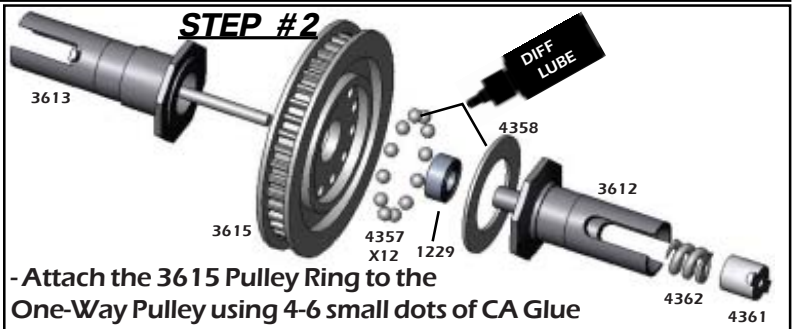
- Apply a thick layer of Diff Lube to the Thrust Washer, press (6) 4359 Thrust Balls into the Diff Lube.

- Slide the other Thrust Washer on the Diff Bolt and insert it into the 3613 Right Outdrive.

- Press (1) 1229 Bearing into the Outdrive.

- Put (1) 4358 Diff Ring on the Outdrive, apply Diff Lube as shown.

STEP #2



- Attach the 3615 Pulley Ring to the One-Way Pulley using 4-6 small dots of CA Glue where the faces of the two parts meet.

- Press (1) 1229 Bearing and the (12) 4357 Diff Balls into the Diff Pulley. Use Diff Lube as shown.

- Put (1) 4358 Diff Ring onto the 3612 Left 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 EXACTLY 1/8 of a turn. Diff motion should be smooth and the Outdrives will turn in opposite directions.

Bag C Reduction Assembly

-Parts for Bag C


3620 Qty 1
Reduction Shaft


3621 Qty 1
Gear Hub


3622 Qty 2
Reduction Pulley


4881 Qty 1
81T 48P Spur Gear

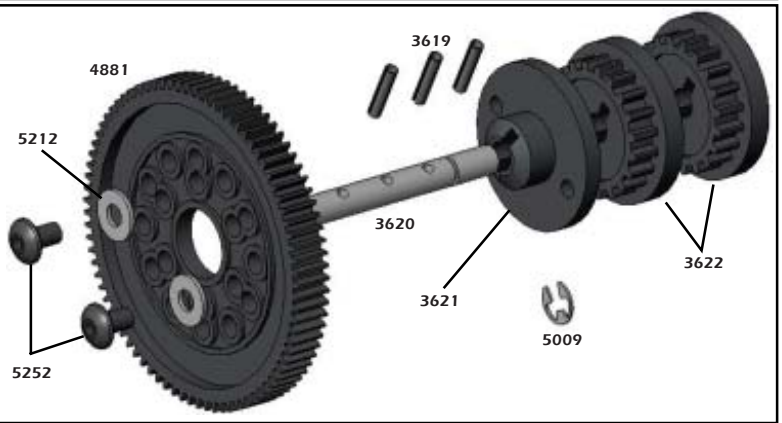

1:1
5009 Qty 2
3mm E-Clip


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


5212 Qty 2
Washer


3619 Qty 3
Roll Pin

-Press (1) 3619 Roll Pin in the hole furthest from the e-clip groove in the 3620 Reduction Shaft.
-Slide the 3621 Gear Hub onto the Reduction Shaft so it seats over the Roll Pin, then press the next Roll Pin in the Reduction Shaft behind the Gear Hub.
-Slide on (1) of he 3622 Reduction Pulleys, then press the last Roll Pin in the Reduction Shaft.
-Slide the other 3622 Reduction Pulley and retain using the 5009 E-Clip.
-Attach the 4881 Spur Gear to the Gear Hub using the (2) 5252 Screws with 5212 Washers on them. Without the washer, the screw will not tighten on the spur gear!



Bag D Chassis

-Parts for Bag D


3640 Qty 1
Dominator Chassis


3650 Qty 1
Motor Plate

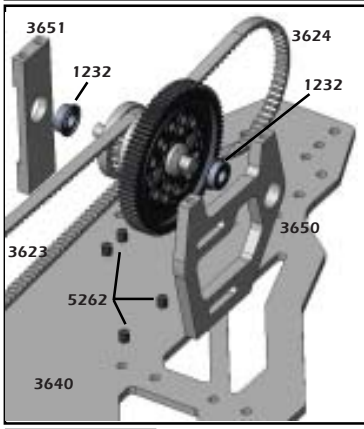

3651 Qty 1
Reduction Plate


1232 Qty 2
4x8mm Flanged Bearing

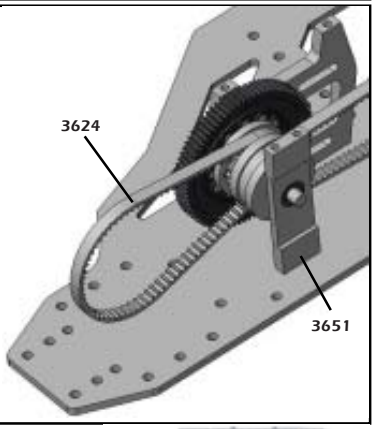

3623 Qty 1
Front Belt


3624 Qty 1
Rear Belt


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



-Mount the 3650 Motor Plate to the 3640 Chassis using (2) 5262 Screws.
-Press (1) 1232 Flanged Bearing into the 3650 Motor Plate and install the Reduction Assembly into the bearing.
-Align the 3624 Rear Belt (SHORT) over the pulley gear closest to the spur gear. Align the 3623 Front Belt (LONG) over the outer most pulley.
-Press (1) 1232 Flanged Bearing into the 3651 Reduction Plate. Align the bearing onto the Reduction Assembly.
-Mount the 3651 Reduction Plate to the Chassis using (2) 5262 Screws.



Bag E Drive Carriers/Top Deck

-Parts for Bag E


3641 Qty 1
Dominator Top Plate


3654 Qty 4
Drive Carrier


3655 Qty 4
Bearing Cam


1234 Qty 4
15X10mm Bearing


1:1
5263 Qty 8
4-40 x 3/8 FH Screw


1:1
5252 Qty 8
4-40 x 1/4 BH Screw


1:1
8046 Qty 8
2-56 x 1/4 BH Screw


1:1
5282 Qty 2
4-40 x 3/8 HOLE HEAD

-Press a 1234 Bearing into each of the (4) 3651 Bearing Cams.

- Attach each bearing cam to a 3650 Drive Carrier using (2) 8046 Screws.
- Make (1) of each part shown below.
- NOTE: The bearing cam has a "thick" and "thin" side, thick side ALWAYS facing Down!


Left Front Left Rear Right Front Right Rear

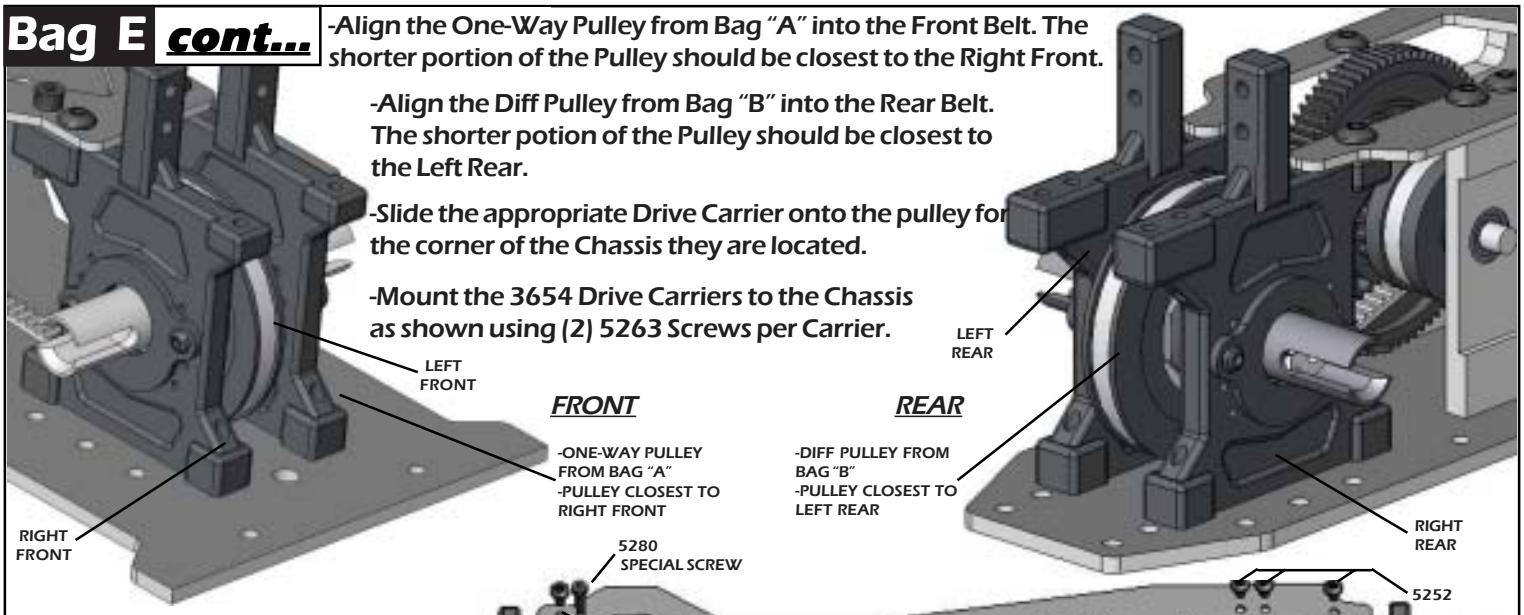
Bag E *cont...*

-Align the One-Way Pulley from Bag "A" into the Front Belt. The shorter portion of the Pulley should be closest to the Right Front.

-Align the Diff Pulley from Bag "B" into the Rear Belt. The shorter potion of the Pulley should be closest to the Left Rear.

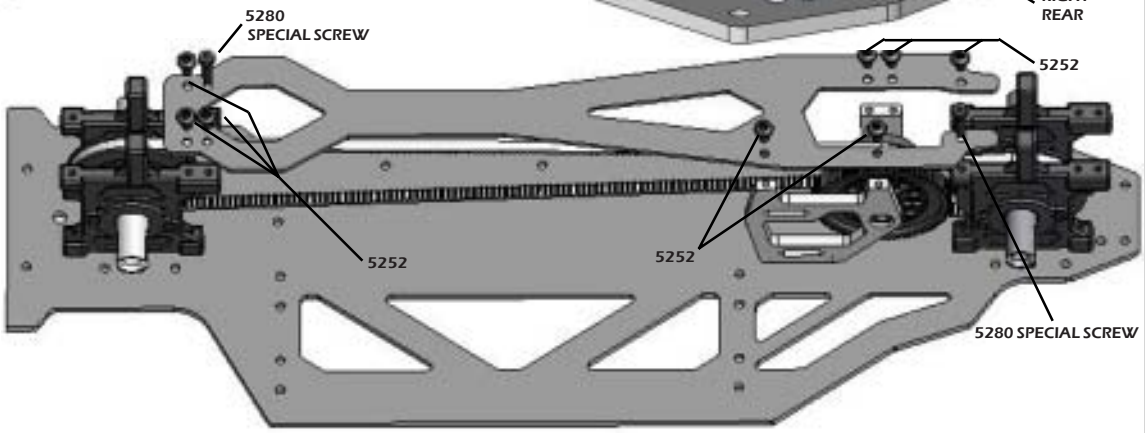
-Slide the appropriate Drive Carrier onto the pulley for the corner of the Chassis they are located.

-Mount the 3654 Drive Carriers to the Chassis as shown using (2) 5263 Screws per Carrier.



-Attach the 3641 Top Plate to the Drive Carriers using (2) 5280 Hole Head Screws in the locations noted.

-Finish mounting the Top Plate using (8) 5252 Screws.



Bag F Main Suspension

-Parts for Step#1

3660 Qty 2
Dominator Shock Tower

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

-Parts for Step#2

3240 Qty 2
Rear Susp Arm

3630 Qty 2
Front Susp Arm

3631 Qty 4 (L&R)
Susp Mount

1248 Qty 2 ea
.040", 1.5 & 3 deg Shims

4247 Qty 4
Front & Rear Inner Susp Pin

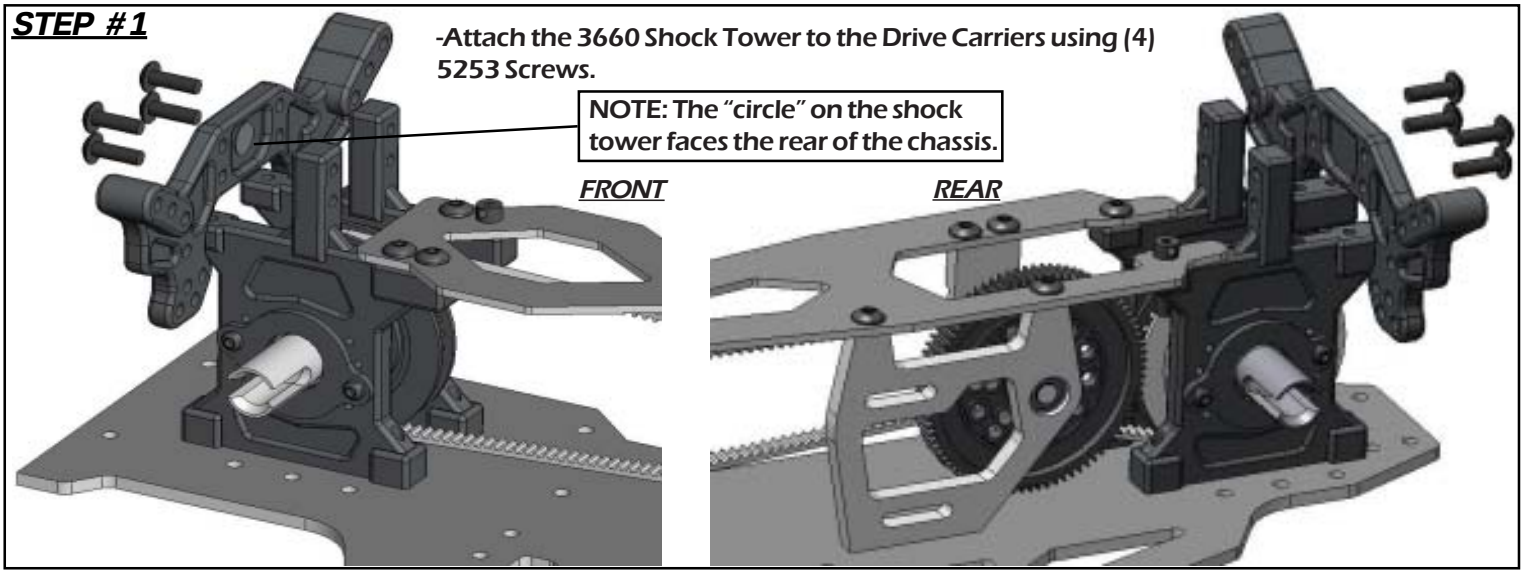
5264 Qty 12
4-40 x 1/2 FH Screw

5292 Qty 8
M2.5 x 4 BH Screw

STEP #1

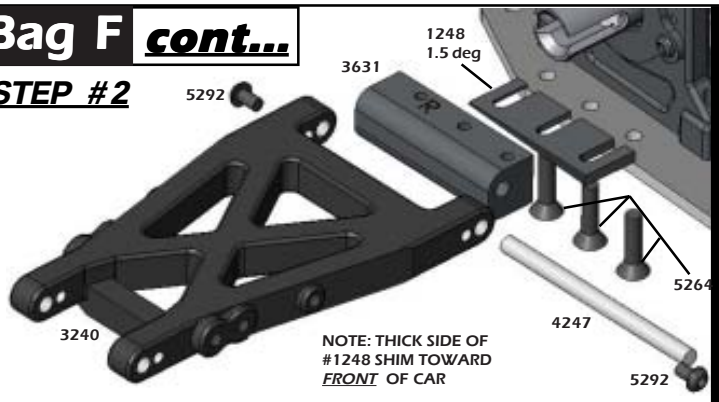
-Attach the 3660 Shock Tower to the Drive Carriers using (4) 5253 Screws.

NOTE: The "circle" on the shock tower faces the rear of the chassis.

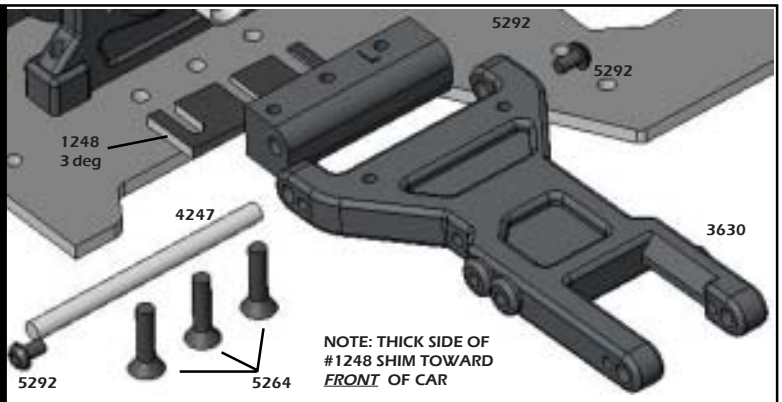


Bag F cont...

STEP #2



- Attach the 3240 Susp Arm to the 3631 Toe Block using the 4247 Susp Pin. Retain the pin with 5292 Screws.
- Mount the rear suspension mounts to the chassis using (3) 5264 Screws. Use the 1.5 deg shim under the Toe Block with the THICK part of the shim toward the front of the car.



- Attach the 3630 Susp Arm to the 3631 Toe Block using the 4247 Susp Pin. Retain the pin with 5292 Screws.
- Mount the front suspension mounts to the chassis using (3) 5264 Screws. Use the 3 deg shim under the Toe Block with the THICK part of the shim toward the front of the car.

Bag G Linkages

- Parts for Bag G -

5235 Qty 14
Ball Cup

5248 Qty 7
2" Turnbuckle

- Thread the 5235 Ball Cups onto the 5248 Turnbuckles. These links will be used over the next 3 steps. Shown are ***approximate*** lengths to start with to make building the car easier. You will adjust these when the car is finished to tune for best handling.

Bag H Rear CVD's

-Parts for Step#1

3241 Qty 2
Bearing Carrier

1:1

1226 Qty 4
Ball Bearing

4245 Qty 2
Rear Outer Susp Pin

1:1

1255 Qty 10
Spacer

1:1

5292 Qty 4
M2.5 x 4 BH Screw

-Parts for Step#2

7211 Qty 2
CVD Coupling

7215 Qty 2
Short Dogbone

7216 Qty 2
Rear CVD Axle

1:1

7211 Qty 2
Rear CVD Pin

4382 Qty 2
Drive Blade

1:1

7211 Qty 2
CVD Set Screw

-Parts for Step#3

1:1

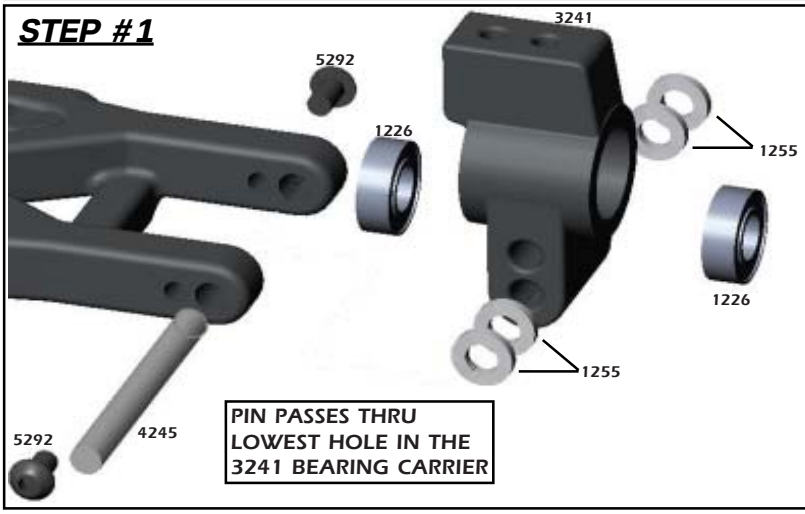
7047 Qty 4
Spacer

8122 Qty 4
Ball Stud

7203 Qty 2
Roll Pin

5217 Qty 2
4-40 Lock Nut

STEP #1

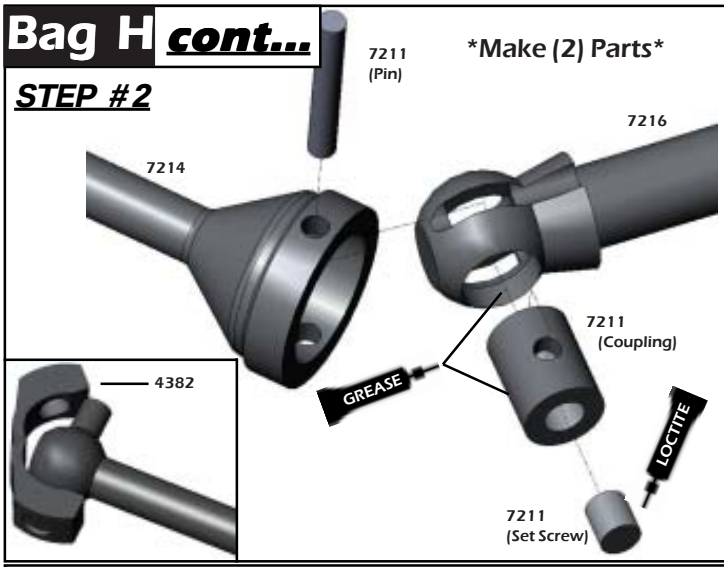


PIN PASSES THRU
LOWEST HOLE IN THE
3241 BEARING CARRIER

- Press 1226 Ball Bearings into the 3241 Bearing Carrier.
- Attach the Bearing Carrier to the Susp Arm using 4245 Susp Pin with (2) 1255 Spacers on each side of the Bearing Carrier.
- *NOTE: The Suspension Pin will pass thru the LOWER hole in the Bearing Carrier.*
- Retain the Susp Pin using 5292 Screws.

Bag H cont...

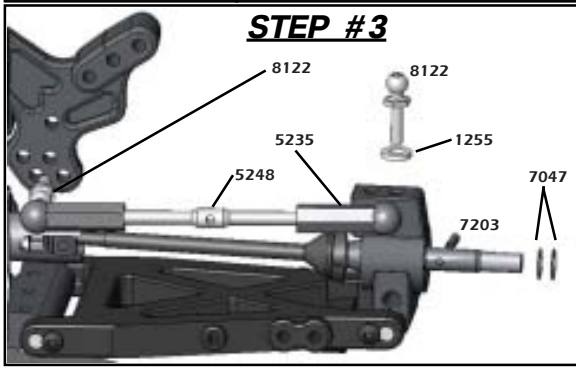
STEP #2



- 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.
- Snap the 4382 Blade over the pin on the Dogbone by gently stretching one side back so one end of the pin can go in the blade as shown. Then press or roll the blade on a flat surface so the other side can snap over and onto the pin.

PRO TIP
In the center of the 7211 Pin grind a small flat spot using a small file or the cut-off wheel with a Dremel. This will provide a key-way for the set-screw to fasten against, practically insuring the pin will never come free during a race.

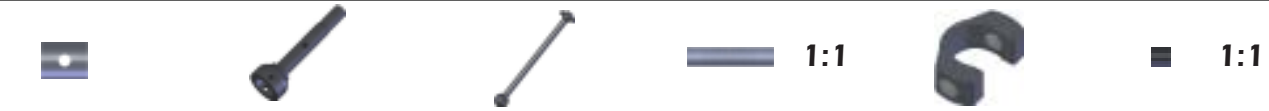
STEP #3



- Fasten the 8122 Ball Stud to the Shock Tower in the upper and outer most hole using (1) 5217 LockNut .
- Slide a 1255 Spcaer onto the Ball Stud and thread into the 3241 Bearing Carrier in the outer most hole.
- Insert the CVD assembly by sliding the axle thru the bearings.
- Slide (2) 7047 Shims onto the axle and retain using the 7203 Roll Pin. Pin should be evenly spaced in Axle.
- Attach the Camber Link from Bag "G" by snapping the Ball Cups onto the Ball Studs.

Bag I Front CVD's

-Parts for Step#1



7211 Qty 2 CVD Coupling
7232 Qty 2 Dom Front Axle
7233 Qty 2 Dom Front Bone
7211 Qty 2 Rear CVD Pin
4382 Qty 2 Drive Blade
7211 Qty 2 CVD Set Screw

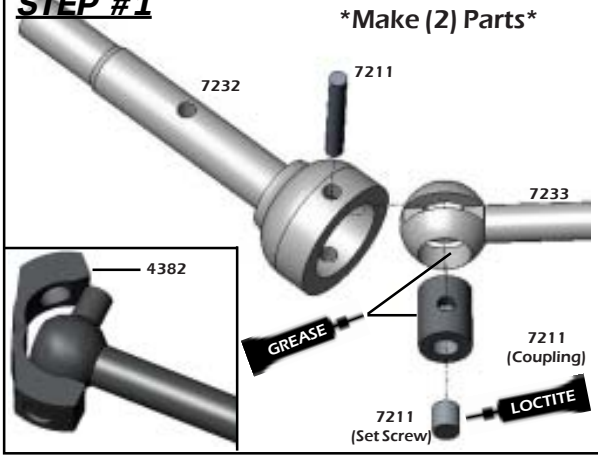
-Parts for Step#2

3632 Qty 2 Steering Arm
3634 Qty 4 Steering Bushing
3710 Qty 2 10 deg Castor L&R
1226 Qty 4 Ball Bearing
8122 Qty 4 Ball Stud
5253 Qty 2 4-40 x 3/8 FH Screw

-Parts for Step#3

7047 Qty 2 Thick Spacer
7203 Qty 2 Roll Pin
5217 Qty 2 4-40 Lock Nut
4244 Qty 2 Front Outer Susp Pin
1255 Qty 4 Spacer
5292 Qty 4 M2.5 x 4 BH Screw
1250 Qty 2 O- Ring

STEP #1



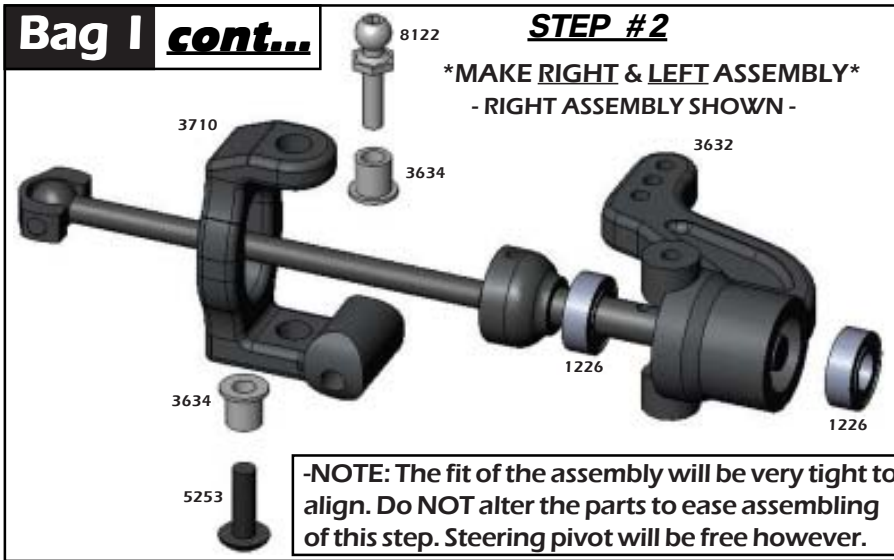
- Apply grease to the areas shown.
- Apply thread-lock (Loctite) to the set screw.
- Align the holes as shown so that the 7211 CVD Pin can pass thru the Bone, Axle, and Coupling. Pin should be evenly spaced in the DogBone.
- Tighten the Set Screw by angling the Bone and Axle so the set-screw is able to be tightened.
- Snap the 4382 Blade over the pin on the Dogbone by gently stretching one side back so one end of the pin can go in the blade as shown. Then press or roll the blade on a flat surface so the other side can snap over and onto the pin.

PRO TIP
In the center of the 7211 Pin grind a small flat spot using a small file or the cut-off wheel with a Dremel. This will provide a key-way for the set-screw to fasten against, practically insuring the pin will never come free during a race.

Bag I *cont...*

STEP #2

MAKE RIGHT & LEFT ASSEMBLY
- RIGHT ASSEMBLY SHOWN -



-NOTE: The fit of the assembly will be very tight to align. Do NOT alter the parts to ease assembling of this step. Steering pivot will be free however.

- Press (1) 1226 Bearing into each side of the 3632 Steering Arm and insert the Front Axle from Step 1.

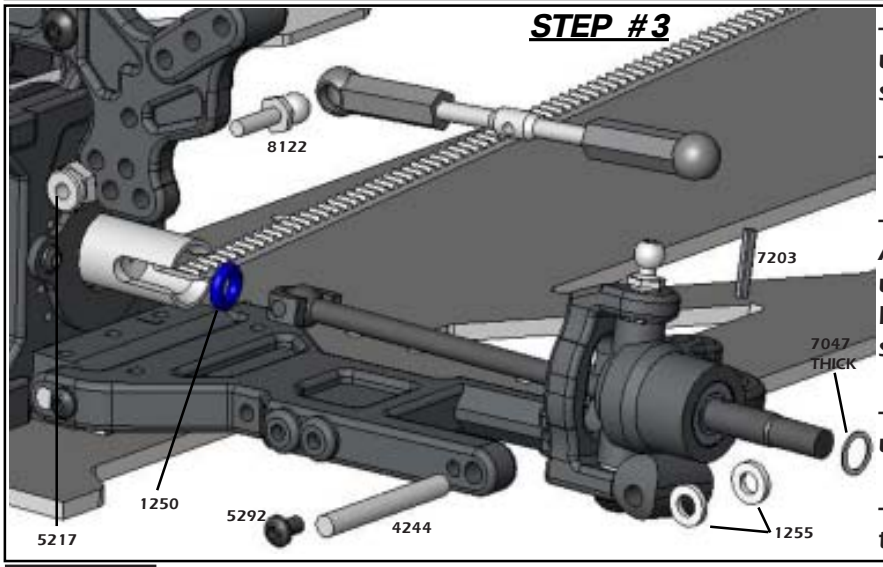
- Insert (1) of each 3634 Steering Bushing into the top and bottom of the 3710 Castor Block.

NOTE: Castor Blocks are RIGHT AND LEFT parts! Blocks should lean toward rear of car!

-Carefully slide the dogbone thru the hole in the Castor Block and align the Steering Arm between the Steering Bushings. The fit of these parts are tight and will ensure a good handling car.

-Fasten the assembly together using (1) 8122 Ball Stud on the top and (1) 5253 on the bottom.

STEP #3



- Slide (1) Thick 7047 Shim onto the axle and secure it using (1) 7203 Roll Pin. The Roll Pin should be evenly spaced in Axle.

- Press (1) 1250 O-Ring inside the Outdrive.

- Attach the Steering Assembly to the Suspension Arm by passing (1) 4244 Susp Pin thru the parts using the 1255 Shims on both sides of the Castor Block. Secure the pin using (1) 5292 Screw on each side of the arm.

- Fasten the 8122 Ball Stud to the Shock Tower in the upper and outer most hole using (1) 5217 LockNut .

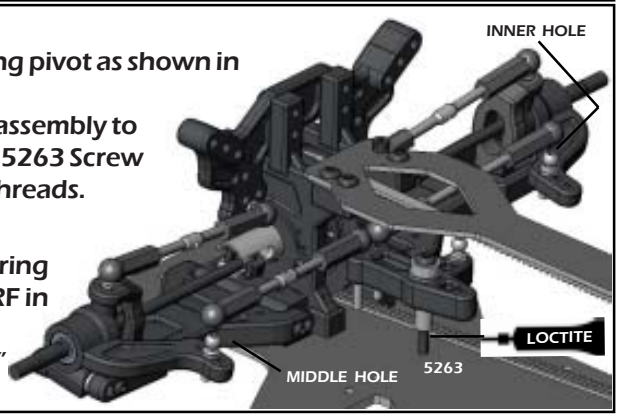
- Attach the Camber Link from Bag "G" by snapping the Ball Cups onto the Ball Studs.

Bag J Steering Assembly

-Parts for Step#1	3646 Qty 1 Steering Post	3647 Qty 1 Steering Pivot	7207 Qty 1 Spacer	1233 Qty 2 Flanged Bearing	8122 Qty 6 Ball Stud	5252 Qty 4 4-40 x 1/4 BH Screw	5263 Qty 1 4-40 x 3/8 FH Screw
-Parts for Step#2	3642 Qty 1 Dom Radio Tray	5240 Qty2 Servo Mount	5242 Qty 1 Large Servo Saver	3209 Qty1 Antenna Mount	5263 Qty 3 4-40 x 3/8 FH Screw	5217 Qty 3 4-40 Lock Nut	5253 Qty 4 4-40 x 3/8 FH Screw / 5212 Qty 4 Washer

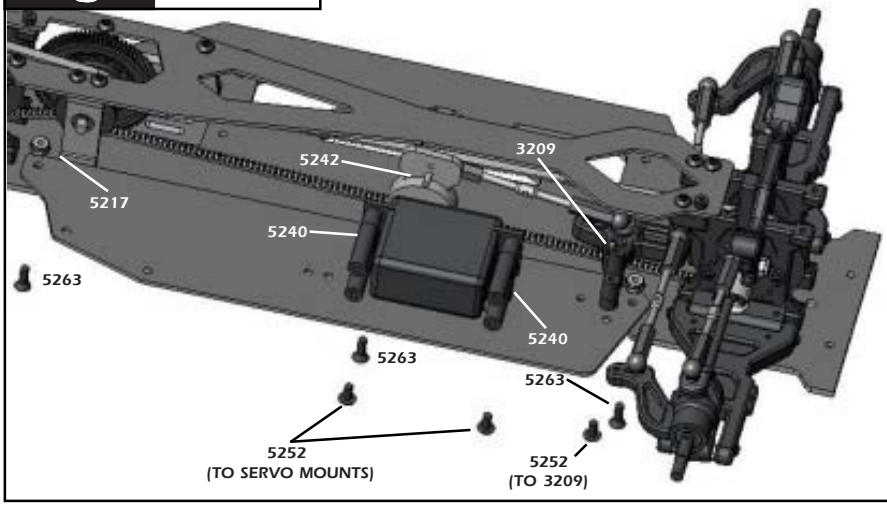
STEP #1

- Assemble the steering pivot as shown in the diagram.
- Mount the steering assembly to the chassis using (1) 5263 Screw with Loctite on the threads.
- Thread 8122 Ball Studs into the steering arms, the LF in the middle hole, the RF in the inner hole.
- Snap the steering arms from Bag "G" onto the steering arms and pivot.



Bag J cont...

STEP #2



- Fasten the 3642 Radio Tray to the Main Chassis using (3) 5263 Screws & (3) 5217 LockNuts.
- Attach 5240 Servo Mounts to your servo in the position shown using 5253 Screws and 5212 Washers.
- Fasten the servo to the Radio Tray using (2) 5252 Screws.
- Thread 8122 Ball Stud into the lower-most center hole in the 5242 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.
- Snap the main steering link from "Bag G" on the remaining 8122 Ball Studs.
- Attach the 3209 Antenna Mount using a 5263 Screw.

Mount Bag

Parts for Mount Bag


3015 Qty1
INT Front Bumper


3229 Qty4
Short Body Post


3229 Qty4
Post Collar


3229 Qty 4
Set Screw

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


1275 Qty1
INT Front Clip


5207 Qty 3
8-32 Lock Nut


3657 Qty 2
Rear Bumper Mount


3658 Qty 1
Dominator Rear Bumper


1274 Qty 1
Rear Body Mount

5253 Qty 6
4-40 x 3/8 BH Screw

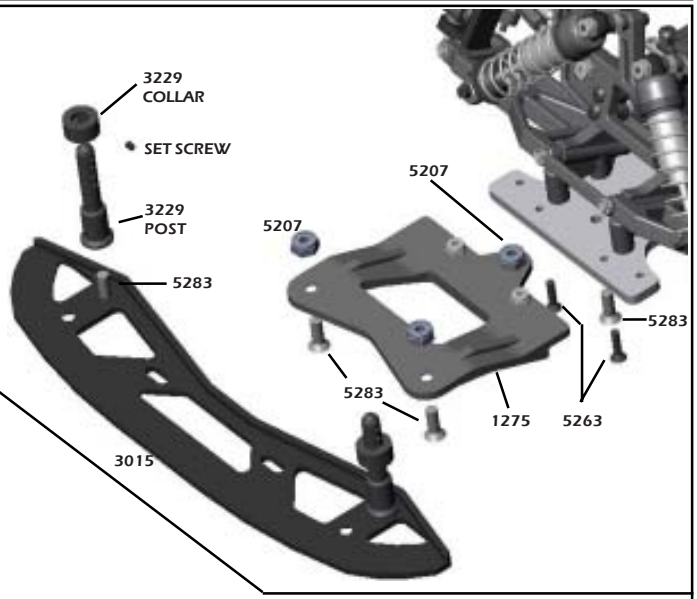
5263 Qty 6
4-40 x 3/8 FH Screw

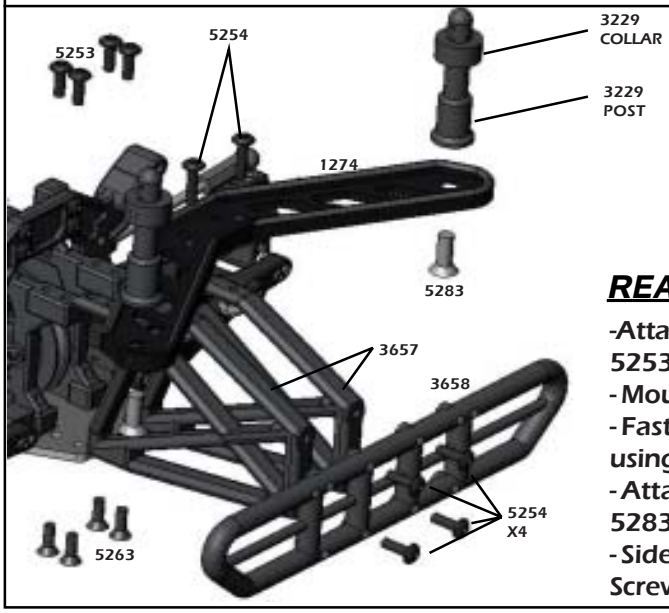
5254 Qty 6
4-40 x 1/2 BH Screw


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) 5254 Screws and 5217 Nuts.





REAR

-Attach the (2) 3657 Rear Bumper Mounts to the Drive Carriers using (4) 5253 Screws and (4) 5263 thru the chassis.
- Mount the 3658 Rear Bumper to the Mounts using (4) 5254 Screws.
- Fasten the 1274 Rear Body Mount to the top of the Bumper Mounts using (2) 5254 Screws and (2) 5217 Nuts for added strength.
- Attach the (2) 3229 Short Body Posts to the 1274 Rear Body Mount using 5283 Screws.
- Side the Body Post Collars onto the Body Posts and use the 3229 Set Screw to adjust the height of the collar for the body of your choice.

Shock Bag — Shock Assembly

-Parts for Step#1

1425 Med / 1426 Short Qty 2ea
2 Med / 2 Short Shock Body

1429 Med / 1430 Short Qty2ea
2 Med / 2 Short Shock Shaft

1434 Qty4
Shaft Guide

1250 Qty 8
O- Ring

1435 Qty 8
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)

1433 Qty4
Spring Collar

5228 Qty4
Short Ball End

5228 Qty4
Pivot Ball

-Parts for Step#3

1488 Qty4
Spring

1407 Qty4
Spring Bucket

1408 Qty4
Mount Ball

1255 Qty4
Spacer

5278 Qty 4
4-40 x 1" SH Screw

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

5273 Qty 2
4-40 x 3/8 SH Screw

5233 Qty 2
4-40 Coned Washer

5217 Qty 4
4-40 Lock Nut

STEP #1

BUILD 2 SHORT & 2 MED LENGTH SHOCKS!
- USE #1429 SHAFT WITH #1425 BODY.
- USE #1430 SHAFT WITH #1426 BODY .

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

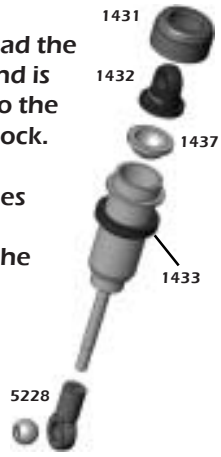
- Attach 1436 Shock Piston to Shock Shaft using 5230 E-Clips to secure.
- Press 1250 O-rings into the Shock Body followed by 1434 Shaft Guide. Retain using 1435 Clip.

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 Med Shock until the Ball End is flush with the end of threads on the shaft. Do the same with the 5235 Ball Cup to the Short Shock.
- 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.
- Thread 1433 Spring Collar onto the Shock Body.

-NOTE: See shock filling tips for more instructions.

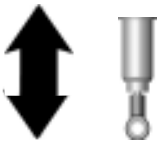


SHOCK FILLING INSTRUCTIONS:

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

40 wt suggested starting point.

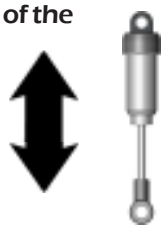
2) Slowly move the shaft up and down several times to allow air bubbles to escape to the top.



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 is within 1/8" of the shock body.



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

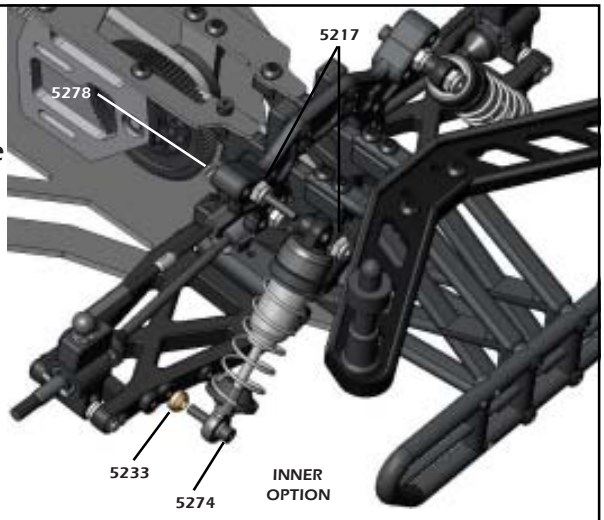
7) If the shock does not push out this far there is not enough oil in it. Add just a little oil and try steps 5-6 again.

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 about 2 full turns and pump out a small amount of oil by pushing the shaft in. Retighten the cap and try steps 5-6 again.

Shock Bag *cont...*

STEP #3

- Slide 1488 Springs on the shocks and secure using the 1407 Spring Bucket.
- Insert 5278 Screws thru the middle holes shown in the Shock Towers and fasten each using 5217 Nut.
- Mount the SHORT Shocks to the Suspension Arm in the outer of the two options using 5273 Screw.
- Mount the MEDIUM Shocks to the Suspension Arm in the inner of the two options using 5274 Screw and 5233 Coned Washer.



Battery Bag — Battery Mounts & Straps

-Parts for Battery Bag

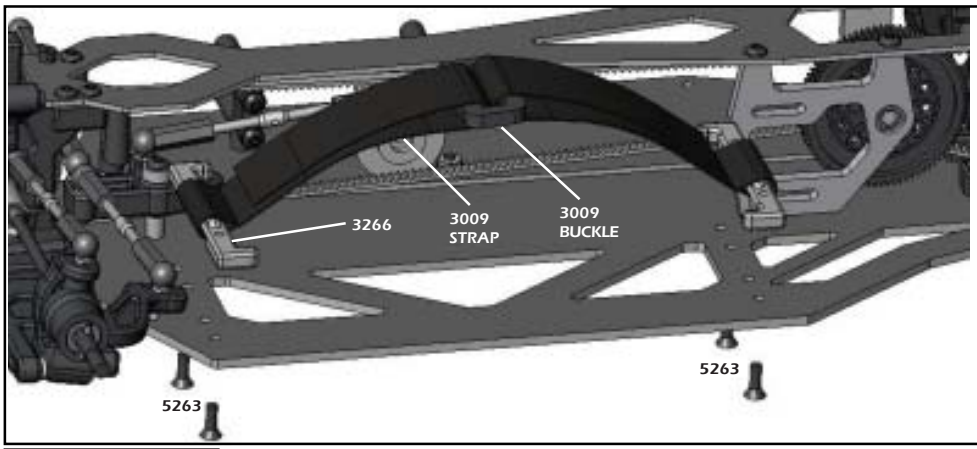
3266 Qty 2
Li-Po Locator

3009 Qty 1
Strap Buckle

3009 Qty 2
Battery Strap

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

1:1



- Slide 3266 LiPo Locator Mount thru the small loop in the 3009 Battery Strap.
- Attach the LiPo Locators to the chassis using (4) 5263 Screws in the outer most option available on the chassis.
- Thread the straps thru the buckle and pull each one thru the buckle an equal distance when mounting the battery into the car.

NOTE: You can simply cut off excess length of the strap with a pair of scissors.

Tire Bag — Mounting Tires

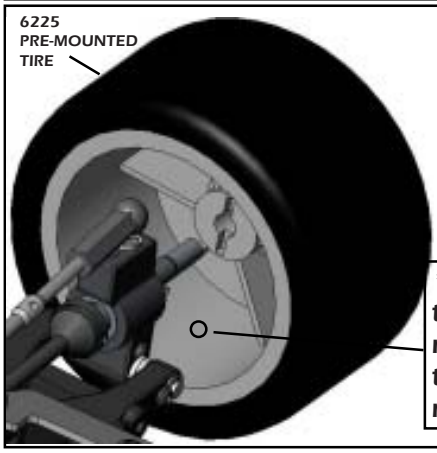
-Parts for Battery Bag

6225 Qty 4
HB/Med Insert

7221 Qty 4
Outer Wheel Spacer

5207 Qty 4
8-32 Lock Nut

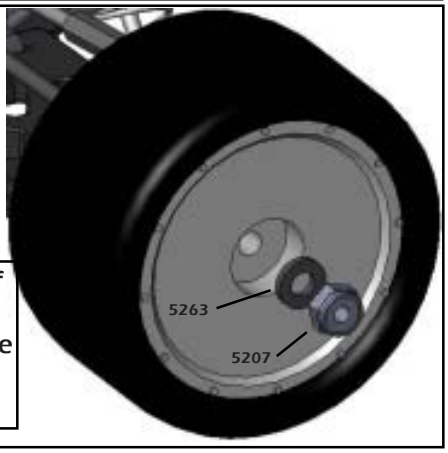
NOTE: The 7221 Spacers and 5207 Lock Nuts were packaged with Bags H and I.



- Align the 6225 Pre-Mounted Tire&Wheel onto the axle so that the slot in the wheel will capture over the roll pin in the axle.
- Fasten the wheel and tire to the axle using (1) 7221 Spacer and 5207 Lock Nut.

NOTE: The 7221 spacer is only necessary when not using the optional #7208 wheel spacer.

**TIP:* Creating (2) small vent holes on opposite sides of the rim allow air to exscape the inner foam insert making the tire softer. This will make the car have more traction on the straights and less into the corner. We recommend starting without the holes first.



Inner Panels

-Parts for Bag E

9045 Qty 1
Dominator Inner Panel

9038 Qty 4
Body Clip

1:1

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

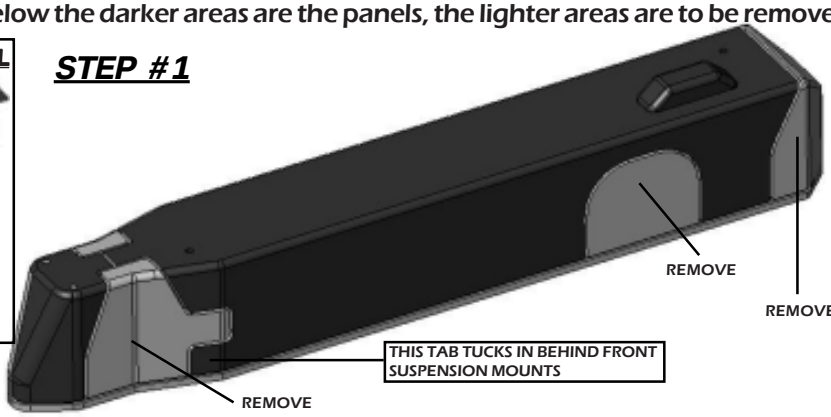
1:1

5280 Qty 1
4-40 x 3/8 HOLE HEAD

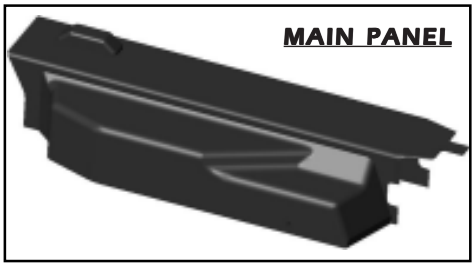
- Cut the 9045 Inner Panel *directly* on the trim lines making the main panel (shown right) and the front panel (shown left). In the diagram below the darker areas are the panels, the lighter areas are to be removed.

FRONT PANEL

STEP #1

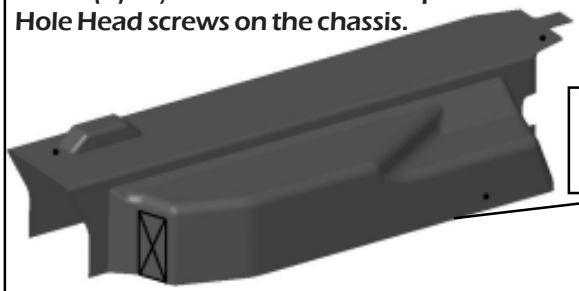


MAIN PANEL

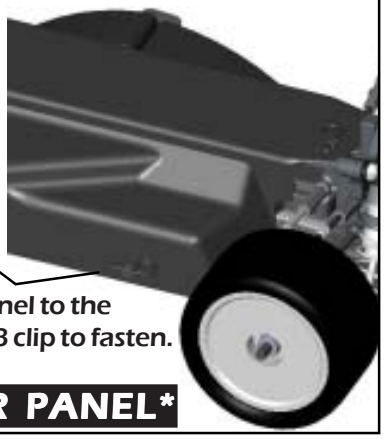


STEP #2

- Thread the 5280 Hole Head Screw into the lowest and most forward hole in the back of the servo mounts.
-Make (3) 13/64" holes on the dimples of the MAIN PANEL. These holes will saddle over the Hole Head screws on the chassis.



THIS EDGE MOUNTS OVER AND FLUSH WITH BOTTOM OF THE RIGHT SIDE OF CHASSIS.



- Remove the "X" area so that the Inner Panel may saddle over the motor wires running from the speed control to the motor.

- Attach the Main Panel to the chassis and use 9038 clip to fasten.

ALWAYS USE THE INNER PANEL

STEP #3

- Make (2) 1/8" holes on the dimples of the FRONT PANEL and mount it to the chassis using (2) 5252 Screws.

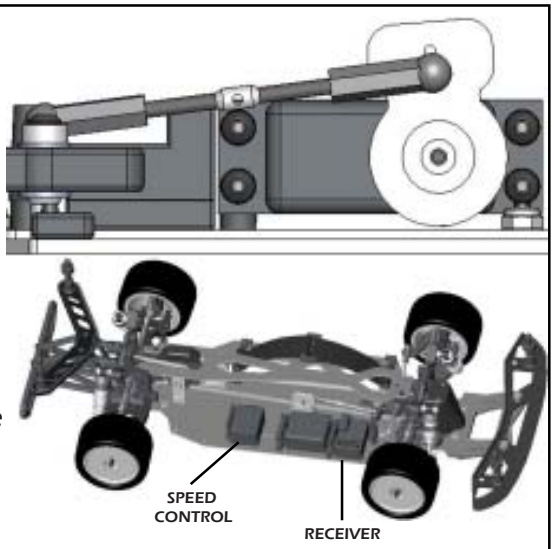
Misc...

Servo Alignment: Center your servo using the sub-trim settings within your radio so that the servo saver and control link make a 90 deg angle as shown. Adjust the length of the link so that the 3647 Steering Pivot is centered. Lastly using the End Point Adjustments or Travel function in your radio, set the servo so it can only move the same amount LEFT and RIGHT as the steering components. The steering travel should be at 100% at this time. Failure to do this will result in damaged parts or servo!

Radio Locations: Shown is the suggested mounting locations for the reciever and speed control. It is possible to re-arrange the mounting location of the servo using the remaining holes in the Radio Tray to move this weight further rearward.

Electronics Removal: To easily remove all electronics for cleaning, remove the (2) motor screws and the (3) screws for the Radio Tray. Disconect the servo control link and all electrical components can be set aside.

Body Mounting: The best body for the Dominator is the CustomWorks #9016 Paducah Latemodel. Mount the body with the front wheels centered on the wheel cut-outs. Ideal spoiler length is roughly 1.5". Suggested body height is with the body clips in the lowest most hole in the front and highest in the rear.



CONGRATULATIONS!!! You have now completed the assembly process of your new Custom Works DOMINATOR! 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 you 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, etc. 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, 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.
- The #4382 "Blade" parts are made to be an inexpensive wearable item vs the old steel vs steel pin. You NEED to check this part for wear periodically especially with high bite and big motors.

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 - 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 - 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 and the dogbones level 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. The left collars will be turned lower than the right side ones.

- 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 throttle, 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.

	SPUR GEAR									
PINION	75	78	81	83	85	87	90	92	94	96
17	11.03	11.47	11.91	12.21	12.50	12.79	13.24	13.53	13.82	14.12
18	10.42	10.83	11.25	11.53	11.81	12.08	12.50	12.78	13.06	13.33
19	9.87	10.26	10.66	10.92	11.18	11.45	11.84	12.11	12.37	12.63
20	9.38	9.75	10.13	10.38	10.63	10.88	11.25	11.50	11.75	12.00
21	8.93	9.29	9.64	9.88	10.12	10.36	10.71	10.95	11.19	11.43
22	8.52	8.86	9.20	9.43	9.66	9.89	10.23	10.45	10.68	10.91
23	8.15	8.48	8.80	9.02	9.24	9.46	9.78	10.00	10.22	10.43
24	7.81	8.13	8.44	8.65	8.85	9.06	9.38	9.58	9.79	10.00
25	7.50	7.80	8.10	8.30	8.50	8.70	9.00	9.20	9.40	9.60
26	7.21	7.50	7.79	7.98	8.17	8.37	8.65	8.85	9.04	9.23
27	6.94	7.22	7.50	7.69	7.87	8.06	8.33	8.52	8.70	8.89
28	6.70	6.96	7.23	7.41	7.59	7.77	8.04	8.21	8.39	8.57
29	6.47	6.72	6.98	7.16	7.33	7.50	7.76	7.93	8.10	8.28
30	6.25	6.50	6.75	6.92	7.08	7.25	7.50	7.67	7.83	8.00
31	6.05	6.29	6.53	6.69	6.85	7.02	7.26	7.42	7.58	7.74
32	5.86	6.09	6.33	6.48	6.64	6.80	7.03	7.19	7.34	7.50
33	5.68	5.91	6.14	6.29	6.44	6.59	6.82	6.97	7.12	7.27
34	5.51	5.74	5.96	6.10	6.25	6.40	6.62	6.76	6.91	7.06
35	5.36	5.57	5.79	5.93	6.07	6.21	6.43	6.57	6.71	6.86
36	5.21	5.42	5.63	5.76	5.90	6.04	6.25	6.39	6.53	6.67
37	5.07	5.27	5.47	5.61	5.74	5.88	6.08	6.22	6.35	6.49
38	4.93	5.13	5.33	5.46	5.59	5.72	5.92	6.05	6.18	6.32
39	4.81	5.00	5.19	5.32	5.45	5.58	5.77	5.90	6.03	6.15
40	4.69	4.88	5.06	5.19	5.31	5.44	5.63	5.75	5.88	6.00
41	4.57	4.76	4.94	5.06	5.18	5.30	5.49	5.61	5.73	5.85
42	4.46	4.64	4.82	4.94	5.06	5.18	5.36	5.48	5.60	5.71
43	4.36	4.53	4.71	4.83	4.94	5.06	5.23	5.35	5.47	5.58
44	4.26	4.43	4.60	4.72	4.83	4.94	5.11	5.23	5.34	5.45
45	4.17	4.33	4.50	4.61	4.72	4.83	5.00	5.11	5.22	5.33
46	4.08	4.24	4.40	4.51	4.62	4.73	4.89	5.00	5.11	5.22
47	3.99	4.15	4.31	4.41	4.52	4.63	4.79	4.89	5.00	5.11

- 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 = 2.0 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.

-Suggested Gearing...(Using stock tires)
6.5 motor 17/81 13.5 motor 25/81

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CUSTOMWORKS
R/C CARS

DRIVER:_____
DATE:_____
EVENT_____
CLASS:_____
TRACK:_____ LENGTH:_____

❑Clay ❑Hard Packed ❑Loose Dirt
❑Carpet ❑Asphalt ❑Concrete
❑Flat ❑Banked ❑True Oval ❑Tri-Oval
Traction: ❑High ❑Medium ❑Low

FRONT SUSPENSION

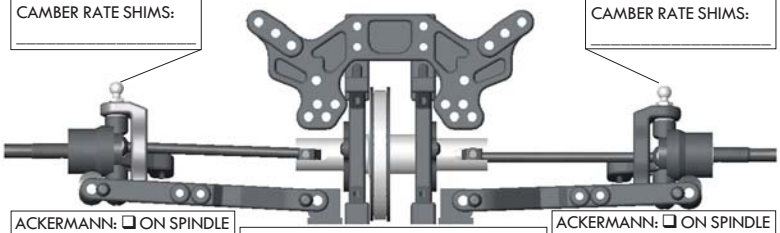
LEFT

CAMBER:_____
CAMBER LINK LOCATION
❑OUTER ❑INNER
CAMBER RATE SHIMS:
_____

TOE IN/OUT _____
RF ❑LEAD ❑TRAIL
AMOUNT:_____
SWAY BAR:❑NONE ❑.063" ❑.078"

RIGHT

CAMBER:_____
CAMBER LINK LOCATION
❑OUTER ❑INNER
CAMBER RATE SHIMS:
_____



ACKERMANN: ❑ ON SPINDLE
❑SHORT ❑MIDDLE ❑LONG

KICKUP:❑NONE ❑1.5° ❑3°

ACKERMANN: ❑ ON SPINDLE
❑SHORT ❑MIDDLE ❑LONG

CASTOR:
❑0° ❑5°
❑10° ❑15°

AXLE SHIMS:_____
INNER PIVOT ANGLE (LEFT)
❑STOCK(3°) ❑_____

AXLE SHIMS:_____
INNER PIVOT ANGLE (RIGHT)
❑STOCK(3°) ❑_____

CASTOR:
❑0° ❑5°
❑10° ❑15°

REAR SUSPENSION

LEFT

CAMBER LINK LOCATION
❑OUTER ❑INNER
R.C. HEIGHT: ❑HIGH ❑LOW

RIGHT

CAMBER LINK LOCATION
❑INNER ❑OUTER
R.C. HEIGHT: ❑HIGH ❑LOW

HUB SPACING:
F❑❑❑❑❑❑❑R
CAMBER:_____
TOE-IN: _____
WHEEL SPACERS:
_____

SWAY BAR:❑NONE ❑.063" ❑.078"
REAR WIDTH (NARROW OR WIDE)
TOE-BLOCK SHIMS:
LR:_____RR:_____
ANTI-SQUAT SHIMS:
LR:_____RR:_____

HUB SPACING:
F❑❑❑❑❑❑❑R
CAMBER:_____
TOE-IN: _____
WHEEL SPACERS:
_____

-SHADE IN MOUNTING LOCATIONS ON SUSPENSION ARMS, BEARING CARRIER AND SHOCK TOWER.

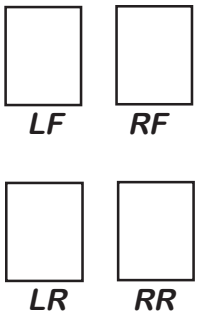
TIRES & TRACTION

TIRE TYPE: ❑FOAM ❑STREET RUBBER ❑LOOSE DIRT

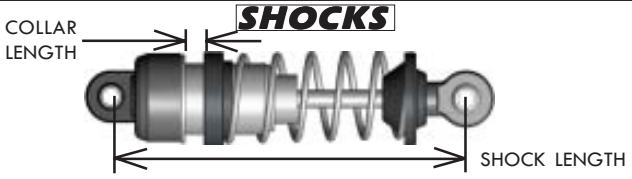
-SHADE IN AREAS OF TRACTION ADDITIVE AND DRAW IN TIRE GROOVES

	COMPOUND	DIAMETER	INSERT
RF:	_____	_____	_____
LF:	_____	_____	_____
RR:	_____	_____	_____
LR:	_____	_____	_____

TRACTION ADDITIVE:_____
_____
_____
_____



SHOCKS



LEFT FRONT SHOCK
BODY LENGTH
❑SHORT ❑MED ❑LONG
SHAFT LENGTH
❑SHORT ❑MED ❑LONG
SPRING:_____
OIL:_____ PISTON:_____
BLADDER:_____
LENGTH:_____
COLLAR:_____

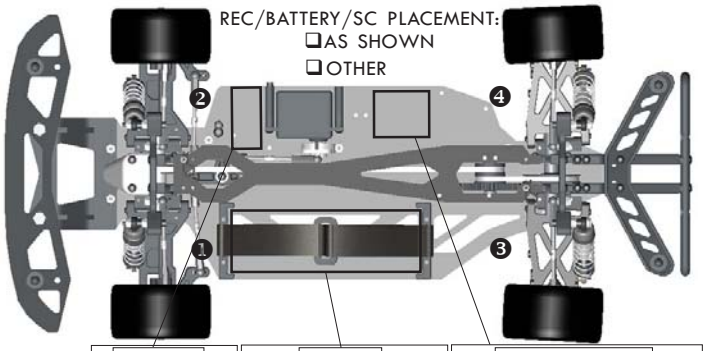
RIGHT FRONT SHOCK
BODY LENGTH
❑SHORT ❑MED ❑LONG
SHAFT LENGTH
❑SHORT ❑MED ❑LONG
SPRING:_____
OIL:_____ PISTON:_____
BLADDER:_____
LENGTH:_____
COLLAR:_____

LEFT REAR SHOCK
BODY LENGTH
❑SHORT ❑MED ❑LONG
SHAFT LENGTH
❑SHORT ❑MED ❑LONG
SPRING:_____
OIL:_____ PISTON:_____
BLADDER:_____
LENGTH:_____
COLLAR:_____

RIGHT REAR SHOCK
BODY LENGTH
❑SHORT ❑MED ❑LONG
SHAFT LENGTH
❑SHORT ❑MED ❑LONG
SPRING:_____
OIL:_____ PISTON:_____
BLADDER:_____
LENGTH:_____
COLLAR:_____

WEIGHT & CHASSIS HEIGHTS

REC/BATTERY/SC PLACEMENT:
❑AS SHOWN
❑OTHER



RECIEVER
❑AS SHOWN
❑ _____

BATTERY
❑INNER ❑OUTER

SPEED CONTROL
❑AS SHOWN
❑ _____

CORNER WEIGHTS:
LF:_____ RF:_____
LR:_____ RR:_____

OVERALL WEIGHT: _____

CHASSIS HEIGHTS BY LOCATION:
❶_____ ❷_____
❸_____ ❹_____
MEASURED FROM:
❑TOP OF CHASSIS
❑BOTTOM OF CHASSIS
-NOTE: RADIO TRAY IS .060" HIGHER IN HEIGHT VS CHASSIS.

MISC...

MOTOR: _____
PINION:_____ SPUR:_____
BODY TYPE:❑MODIFIED ❑LATE MODEL
PART#_____
SPOILER ANGLE:_____
SPOILER LENGTH:_____
WICKERBILL:_____
BODY LOCATION FROM A BODY POST:
_____
_____
_____