REQUIRED READING

Thank You and Congratulations on purchasing this **Aggressor**! Within this kit you will find a race winning car with over 17 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" in 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.

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

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.

REQUIRED TOOLS

Double Sided Tape	.110" Drill Bit	Super Glue
Hobby Scissors	X-Acto Knife	220 Grit Sandpaper
Small Needle Nose Pliers	Phillips Head Screw Driver	400 Grit Sandpaper
3/16" Wrench	Blue Loctite	#43 Drill Bit

Bag A

Chassis

To begin building this kit locate the bag of graphite parts, start by lightly sanding the edges of the graphite pieces using a medium grade sandpaper like 220 Grit or a sanding drum on a Dremel. Run a thin bead of Super Glue around the edges to give pieces greater durability and reduce the chance of splitting the chassis in a hard wreck. To smooth the edges of the battery slots you may use a file or an appropriate pointed sanding stone on a Dremel.

Step #1: Attach the #8010 Front Bumper to the #8000 Chassis using (2) 3/8" FH Screws thru the bottom of the Chassis with (2) #5212 Washers and (2) 4-40 Lock-nuts as shown in Figure #1.

Figure 1

Figure 2

Step #2: Attach each #8071 Front Track Plates to the main chassis using (1) 3/8" FH Screw thru the bottom of the Chassis and (1) 4-40 Lock-nut. Notice that the screw passes thru the Chassis in the 3rd hole from the top of the Chassis in the row of holes and then thru the 2nd hole from the top of the 5 holes on the Front Track Plate as shown in Figure #2.

Step #3: Using (2) 1/2" BH Screws mount (1) #8018 Center Shock Tower on each side of the #8023 Center Shock Anchor and fasten with (2) 4-40 Lock-nuts. Notice the antenna mount hole in the Anchor and the holes in the Shock Tower face away from each other. Mount the Center Shock Tower to the Chassis with (2) 3/8" FH Screws thru the holes shown in Figure #3.

Figure 3

Step #4: Mount the (2) #8022 Anchor Plates to the Chassis using (4)1/4" FH Screws as shown in Figure #4.

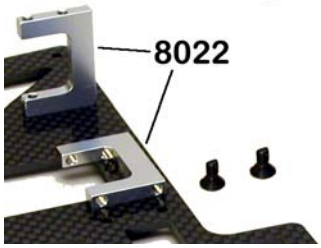


Figure 4

Step #5: Attach the #8012 Shock Tower to the Anchor Plates using (2) 1/4" BH Screws. Notice that side with the furthest distance between the shock mounting holes and the shock tower mounting holes is on the left side of the car as shown in Figure #5. Now mount (2) #8121 Ball Studs thru the top most holes in the shock tower and the balls facing the front of the car using (2) 4-40 Lock-nuts.

Figure 5

Step #6: Mount (2) #8013 Body Mounts to the tops of the Anchor Plates using (4) 1/4" BH Screws thru the holes as shown in Figure #6.

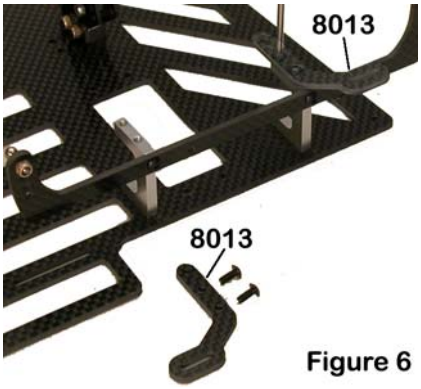


Figure 6

Step #7: Attach the #8011 Side Bumper to the chassis using (2) 3/8" FH Screws thru the bottom of the Chassis with (2) 5212 Washers and (2) 4-40 Lock-nuts as shown in Figure #7. You may tighten these down so the bumper does not move or you may just barely snug the screws so that the bumper will “give” if you were to bump the wall.

Figure 7

Bag B

Rear Pod

Figure 8

Step #1: Attach the #8021 Left Pod Plate and the #8020 Motor Pod Plate to the #8016 Bottom Plate with (4) 1/4" FH Screws as shown in Figure #8. Notice that the back edge of the bottom plate is directly underneath the oval holes for the bearing carriers, at this point in time we are building the car with a standard length pod.

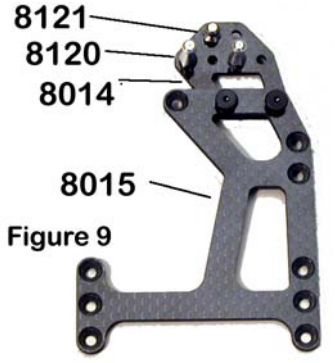


Figure 9

Step #2: Mount (2) #8120 Tall Ball Studs and (1) #8121 Ball Stud to the #8014 Shock Plate thru the holes shown in Figure #9 using (3) 4-40 Lock-nuts. Then mount the Shock Plate to the #8015 Top Plate using (2) 3/8" FH Screws and (2) 4-40 Lock-nuts thru the RIGHT most holes in the Top Plate also shown.

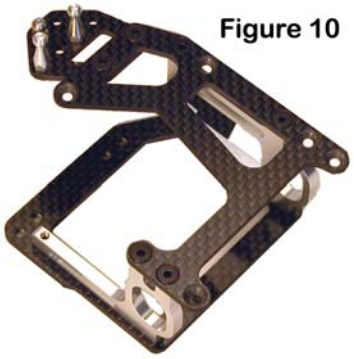


Figure 10

Step #3: Attach the Top Plate to the Pod Plates using (4) 1/4" FH Screws thru the FORWARD most screws on the Top Plate. Your rear pod should look like that in Figure #10.

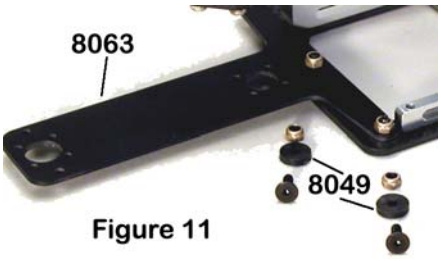
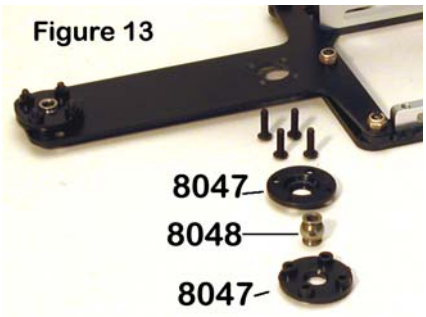


Figure 11

Step #4: Place (2) 3/8" FH Screws thru the LEFT most set of each pair of holes on the front on the Bottom Plate as shown in Figure #11. Press (1) #8049 T-Bar Spacers over each screw and now place the #8060 .063" Centered Fiberglass T-Bar over the two screws and secure with (2) 4-40 Lock-Nuts.

Step #5: Finish mounting the T-Bar to the Rear Pod by mounting the #8017 Rear Steer Clip to the Bottom Plate with (2) 1/4" FH Screws and (2) 4-40 Lock-nuts. The Clip should be mounted under the T-Bar and on top of the Bottom Plate. Fasten the Clip to the T-Bar with (1) 1/4" BH Screw and (1) 4-40 Lock-Nut as shown in Figure #12.

NOTE: The Rear Steer Clip has a notch on one end, this is the end used to angle the pod 1/2 Degree. The opposite end without the notch is the 0 Degree side. To run the pod in the “offset” position, just flip the rear steer clip over using the same end either with or without the notch.



Step #6: Following the assembly shown in Figure #13, mount the #8047 Pivot Ball Carriers and #8048 Pivot Balls to the T-Bar using (4) 3/8" 2-56 X 3/8" BH Screws per Carrier. Just snug the Screws to the carrier, the Pivot Balls should move very freely in the Carriers.

Step #7: Finally mount the T-Bar and Rear Pod assembly to the Chassis using (2) 5/8" FH Screws thru the Chassis and secure with (2) 4-40 Lock-Nuts. Your car should now look like the one shown in Figure #14.

Bag C

Rear Axle

Step #1: Press (12) 1/8" Balls into the #4600 Spur Gear and (1) #1232 1/4" X 3/8" Unflanged Bearing to the center of the Gear. Place (1) #8035 D-Drive Diff Ring onto the #8030 Axle so that the notch on the Axle and Ring line up. Apply a small amount of #4201 Blue Goo Grease to one side of the Diff Ring and on both sides of the Balls in the Spur Gear. Slide the gear onto the axle and apply a small amount of Grease to the other Diff Ring and slide it onto the axle as well with the greased side facing the Spur Gear. Use Figure #15 as a reference.

Step #2: Following Figure #16, press (1) #1231 1/4" X 3/8" Flanged Bearing into each end of the #8031 Standard Diff Hub. Slide the Hub onto the axle and align the notch in the Hub into the Diff Ring. Next place (1) #8034 Diff Thrust Cone onto the axle with the taper facing the Hub. Then slide (3) #8034 Bell Washers onto the axle with the taper pointing away from the Thrust Cone. Secure the Diff Assembly to the Axle using (1) #8036 8-32 Nylon Lock-Nut.

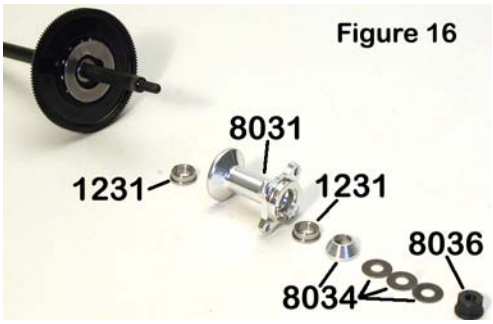


Figure 16

NOTE: Do NOT overtighten the Diff Nut, just tighten it a half turn past when it is tight to the Bell Washers. You will adjust the Diff Nut tighter once the car is being driven.

Step #3: Press (1) #1231 1/4" X 3/8" Flanged Bearing into each Ride Height Adjuster with the 3 Dots on it. Place (1) #8040 Ride Height Adjuster into each oval on the rear pod plates as shown in Figure #17.

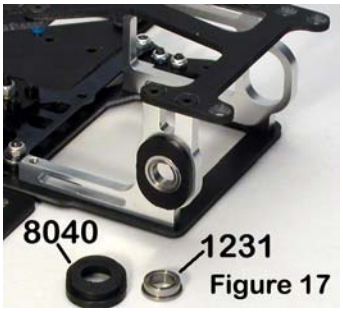


Figure 17

NOTE: There are 4 different Ride Height Adjuster in the kit marked by a number on the bottom of the part. Never mix and match different sized Ride Height Adjusters, the axle should always slide thru both bearings easily.

Step #4: Slide the Axle thru the Bearings in the Ride Height Adjusters mounted in the Rear Pod Plates. Following Figure # 18, slide (1) #8037 .050" Axle Spacer and (2) #8038 .100" Axle Spacers onto the axle with the tapered end facing toward the Spur Gear. Finally place the #8033 Clamping Hub onto the axle and tighten so the screw is just snug, over-tightening will just bend or break the hub. There should be just a paper width of play when the axle slides side to side.

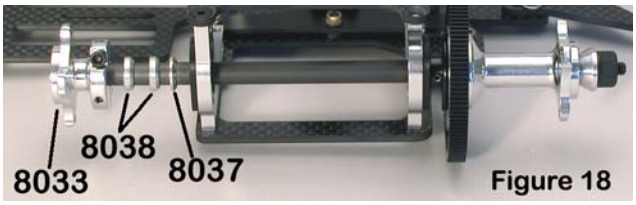


Figure 18

NOTE: Left over in the bag is (8) 3/8" SH screws to be used to mount the Rear Tires to the Axle Hubs.

Bag D

Side Shocks

For the following 7 steps, complete each step twice to make 2 shocks.

Step #1: As shown in Figure #19, soak the #8103 VC foam with 20wt Shock Oil and push it into the VC Housing.

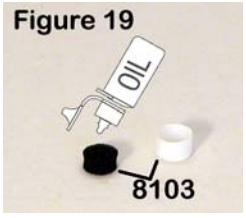


Figure 19

Step#2: Fill the #8101 Shock Body with 30 weight shock oil up to the line shown in Figure #20 and insert the #8102 Shock Piston all the way till it bottoms out.

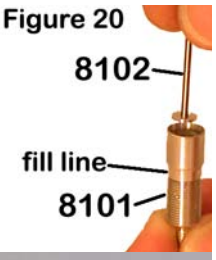


Figure 20

Step #3: Following the sequence in Figure #21, place the VC Housing and Foam onto the Shock Shaft with the foam facing up. Next slide the smaller of the two washers onto the shaft, then the red O-ring followed by the larger washer. Lastly slide on the 5 sided retaining clip.

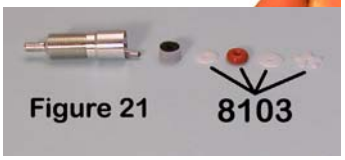


Figure 21

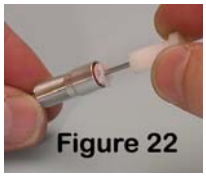


Figure 22

Step #4: Holding the shock as shown in Figure #22, with the piston pressed to the bottom slide the Assembly Tool over the shaft and press the washers and o-ring into the shock body until the Retaining Clip is locked into place. The piston should rebound out of the shock when you press the clip into place. Test the shock by pressing the shaft back into the shock, the Retaining Clip should not pop-out, if so the shock has too much oil. The shaft should rebound back out smoothly after you release your finger.

Step #5: Thread (1) #5235 Long Ball Cup onto both the Shock Body and the #8104 Shock Shaft End until the Ball Cup reaches the end of the threads. Your shock should look like the one shown in Figure #23.

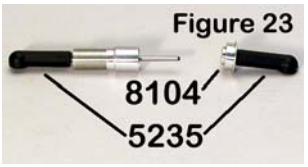


Figure 23

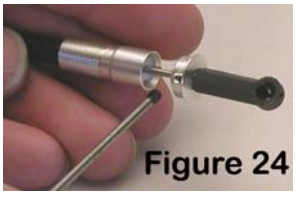


Figure 24

Step #6: Slide the Shock Shaft into the Shaft End so that the shaft bottoms out. Make sure there are no burrs remaining in the Shaft End and thread the Set Screw into the Shaft End as shown in Figure #24.

Step #7: Slide the #8105 silver springs over the Shock Body and onto the Shaft End. As shown in Figure #25 hold the spring down and thread on the Spring Collar to retain the spring on the shock.

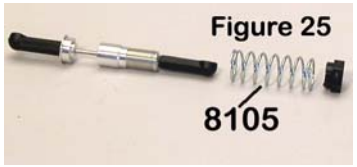


Figure 25

Step #8: Now mount the side shocks to the car by snapping the ball cups onto the ball studs on top of the rear pod plate and the balls at the top of the side shock towers. Refer to Figure #26.


Figure 26

Bag E

Center Shock

Step #1: Mount (1) #1403 Large Black O-ring into the groove on the #1402 Threaded Shock Collar as shown in Figure #27. Add a drop of Shock Oil to the O-ring and thread it onto the #1401 Threaded Shock Body with the “shoulder” facing down.

Figure 27

Step #2: Soak the #1411 VC Foam with the Shock Oil and install it onto the VC Bobbin as shown in Figure #28.

Figure 28

Step #3: Remove the #1405 Shock Pistons with the "2" on them from the parts tree as shown in Figure #29. Be SURE to REMOVE ANY BURRS on the Shock Piston, or your shock will NOT work correctly. Add a #5230 E-Clip to each side of the #2 Shock Piston on the #1415 Shock Shaft. Install (1) #1406 O-ring over the threads on the TOP of the Shock Body. Both of these are shown in Figure #30.

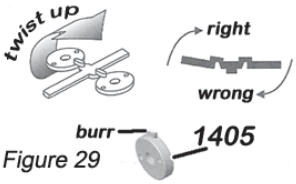


Figure 29

Figure 30

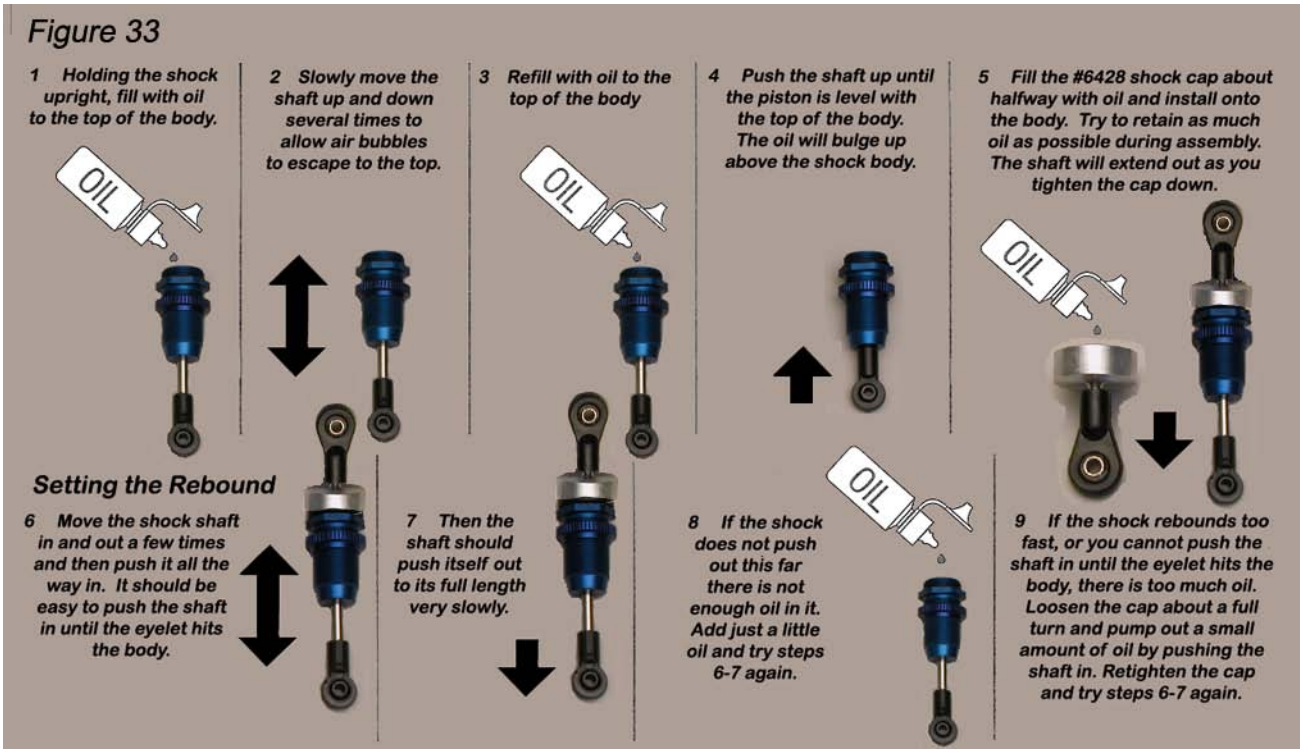
Step #4: Following the sequence of parts in Figure #31, slide the VC Bobbin from Step #2 on the Shock Shaft and then (2) #1250 O-Rings. Add a couple drops of oil to the O-Rings and insert the entire Shock Assembly into the Shock Body and FIRMLY pull the Shock Shaft through in order to "seat" the VC Bobbin. Thread #8130 Ball Cup onto Shock Shaft until threads are all the way inside the ball cup.

Figure 31

Step #5: Press the Pivot Ball into the #5228 Ball End. Thread the Ball End onto the #1418 Aluminum Shock Cap so that the distance from the center of the Pivot Ball to the top of the cap is no less than 5/8".

Step #6: To fill the Shocks with oil and complete their assembly follow the picures and text provided in Figure #33.

Figure 32



Step #7: Slide the #1472 Buggy spring over the shock shaft and on to the shock body. Compress the spring and than add the #1407 Spring cup by sliding it on the shaft through the notch in the spring cup. The cup should than slide down over the shock eyelet until it bottoms out. Release the spring and your shock should now look like the one at the left of Figure 34

Figure 34

Step #8: Mount the completed Center Shock to the car by placing the Ball End on the Center Shock between the Center Shock towers. Secure the Shock to the Towers using (1) 1/2" BH Screw and (1) 4-40 Lock-Nut with the screw passing thru the center grouping of holes on the Center Shock Tower. Lastly snap the Ball Cup end of the shock to the Small Ball Stud already on the top plate of the rear pod. Your car should now look like the one shown in Figure #35.


Figure 35

Bag F

Front Suspension:

Step #1: Following along with Figure #36, shave the (2) very small radius underneath each #8077 Lower Suspension Arm. This will allows the Lower Suspension Arm to fit flush on the chassis inside the Front Trac Plates.

Figure 36

Step #2: Laying the parts out as shown in Figure #37, press the #8075 Pivot Ball into the Lower Suspension Arm from underneath the hole in the Arm with the shoulder of the Pivot Ball facing UP. Press the #8074 Upper Suspension Eyelet onto the other Pivot Ball with both the bigger hole on the Eyelet and shoulder on the Pivot Ball facing DOWN.

Figure 37

Step #3: Attach the #8072 Upper Suspension Mounts to the Lower Suspension Arm using (4) 1/2" BH Screws. Thread the #8073 Turnbuckles into both the #8076 Upper Suspension Arms and the Eyelets from the previous step. Refer to Figure #38 for example.

Figure 38

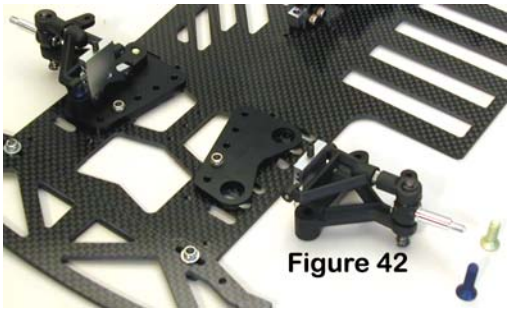
Step #4: Mount the Upper Suspension Arm to the Mount using the #8078 Suspension Pin thru the 2nd Hole from the BOTTOM on the Mount. Notice in Figure #39 that the shoulders on the Pivot Ball should be facing each other. Secure the pin using (2) #5008 1/16" E-Clips with one clip on each side of the Suspension Arm. Finally thread (1) 1/2 inch set screw into the top of the Mount to secure the location of the Upper Suspension Arm on the mount.

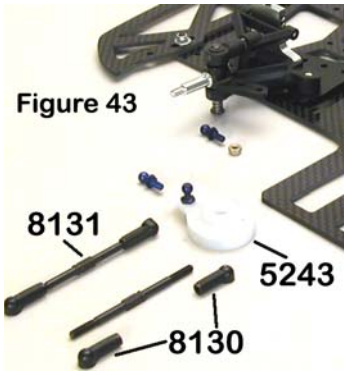
Figure 39

Step #5: Following Figure #40 slide the #8080 In-Line Axle into the #8081 In-Line Steering Block so that the holes in both the Axle and Arm line up. Thread (1) SS420 into the back of the axle only one or two turns, leaving the set-screw in the axle but not in the way for the next step.

Step #6: Attach (1) 5230 E-Clip to the #8079 Kingpin and slide it half way thru the top of the Pivot Ball in the Eyelet. Slide (1) 8085 Kingpin Shim onto the Kingpin and then the assembled Steering Arm with Axle. Finally slide the remaining part of the kingpin thru the Pivot Ball located in the Lower Suspension Arm as shown in Figure #41. With the pin now in both Pivot Balls the Steering Arm should move freely up and down thru the lower pivot ball. If it is tight check to see how close the E-Clip on the top pivot ball is to the outer edge of the Eyelet. There should be a gap between the bottom of the E-Clip and the top of the Eyelet roughly the thickness of the E-Clip. With the E-Clip gap correct and smooth suspension movement, tighten the Set Screw in the Axle so that it holds the gap set between the E-Clip and Eyelet. Finish by sliding (1) 8087 .020 Spring onto the Kingpin and fastening with (1) E-Clip.

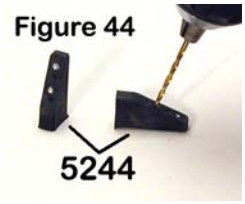
Step #7: Press the Front Suspension Assemblies into the Front Track Plates securing them with (1) Blue 5/8" 8-32 Screw in the front hole and (1) Gold 1/2" 8-32 Screw in the rear hole as shown in Figure #42.





Step #8: Following Figure #43, thread (2) Blue Ball Ends down through the top of the rear hole on both Steering Arms and secure with (2) 4-40 Locknuts, also thread (2) Blue Ball Ends into the holes on the #5243 Servo Saver. Thread the #8130 Ball Cups onto the #8131 Turnbuckle until the Ball Cup reaches the end of the thread. Complete the step by snapping the Ball Cups onto the Ball Ends on the Steering Arm and Servo Saver.

Step #9: Using a #43 Drill bit, drill a hole perpendicular to the face of the #5244 Servo Mount thru the “upper” dimples marks as shown in Figure #44.



Step #10: Mount your servo to the Servo Mounts using the (4) Blue 5/16" SH Screws with (1) #4 Washer on each of them as shown in Figure #45. Now place the servo saver onto the servo horn and secure with the screw that came with your servo.

Step #11: Measure the hole spacing on the bottom of servo mounts so that you can mark their positions on the Chassis. You want the steering linkages angled and the servo mount centered in the car as shown in Figure #46. Using the 10" Wheelbase, an approximate distance from the center of the servo mount holes to the front edge of the Chassis is 4.00" as view by the grey line on the Chassis in Figure #46. Once you have marked the positions of the 2 holes needed drill the chassis using a .110" Drill Bit. If you have a countersink bit it is recommended to countersink from the bottom of the chassis. You can now mount the servo using either (2) 3/8" FH screws or use the (2) 3/8" BH Screws if you did not countersink the holes.

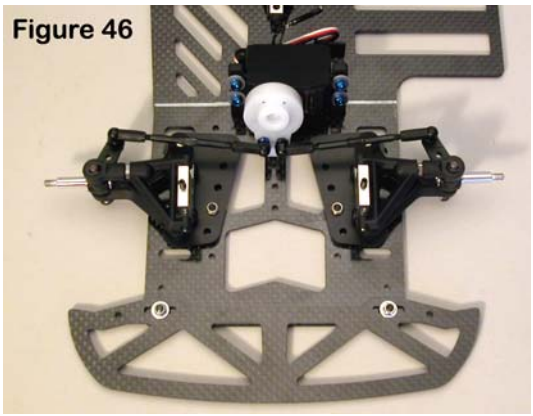


Figure 46

NOTE: Left over in the bag is (2) Lock-Nuts and (4) #1233 Flanged Bearings to be used to mount the front tires to the Axles.

Bag G

Body Mounts and Misc:

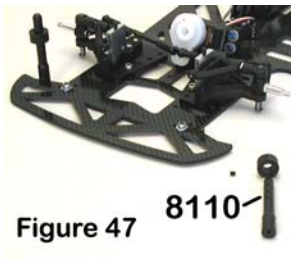


Figure 47

Step #1: Mount the (2) #8110 2" Body Posts to the Front Bumper shown in Figure #47 using (2) 3/8" BH Screws. Slide the Body Post Collar over the Post and thread (1) Set Screw into the collar to hold the body height position.

Step #2: Mount the (2) #8111 3" Body Posts to the Rear Body Mounts shown in Figure #48 using (2) 3/8" BH Screws. Slide the Body Post Collar over the Post and thread (1) Set Screw into the collar to hold the body height position.

Figure 48

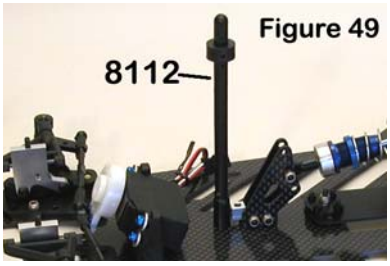


Figure 49

Step #3: Mount the (1) #8112 4" Body Post in the center of the Chassis shown in Figure #49 using (1) 3/8" FH Screws. Slide the Body Post Collar over the Post and thread (1) Set Screw into the collar to hold the body height position.

Step #4: Slide your antenna thru the hole in the Center Shock Anchor and also thru the #3209 Antenna Tube. Press the Tube into the Center Shock Anchor and place the Antenna Cap over the end of the Tube and Antenna Wire. Using double-sided tape mount your receiver to the Chassis in the suggested position shown in Figure #50. Speed Control placement can vary and usually ends up wherever you are not currently running your battery pack.

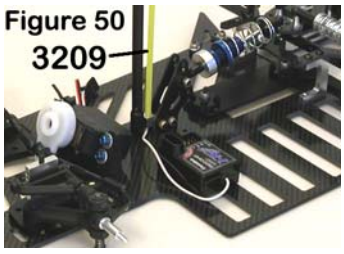


Figure 50

Now mount your choice of tires and wheels and body on the car and you are ready to go.

Congratulations!!

You have now completed the assembly process of your new Custom Works Aggressor kit. 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.

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 almighty 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 is Loose or Oversteers

Install Wing to Rear of Car
Slide Wing Toward Rear of Car
Increase Wing Angle
Add Wedge/Tweak to Chassis Using Side Shocks
Softer Side Shock Springs
Stiffer Front Springs
Softer Center Shock Spring
Decrease Center Shock Spring Tension
Try Harder Front Compound Tire
Try Softer Rear Compound Tire
Move Battery to Center of Car
Raise Front Ride Height
Lower Rear Ride Height
Move RF Suspension Out
Move RR Tire Closer to Pod
Increase Castor

Car Pushes or Understeers

Slide Wing Toward Front of Car
Decrease Wing Angle
Remove Wedge/Tweak to Chassis Using Side Shocks
Stiffer Side Shock Springs
Softer Front Springs
Stiffer Center Shock Spring
Decrease Center Shock Spring Tension
Try Softer Front Compound Tire
Try Harder Rear Compound Tire
Move Battery Toward Left Side
Lower Front Ride Height
Raise Rear Ride Height
Move RF Suspension IN
Move RR Tire Away From Pod
Decrease Castor

Car is Erratic:

Bent Front Suspension Pin: Remove spring and check for free movement
Chunked Tire: Check side wall to see if rubber is still glued to wheel.
Bent Axle: Tire "wobbles" while spinning.
Loose Screws: Especially Chassis Screws, add Blue Loctite to prevent.
Bound Ball Joint: Steering link and shocks should spin free on balls.
Shocks: Either Bound Up, Bent Shaft, or Out of Oil.
Bearings: Broken or completely seized.
Foreign Objects: Unlucky Dirt/Stones preventing suspension movement especially in front pivot balls.
Bottoming Out: Look on bottom side of chassis for buffed or scratched areas.
Tire Rub: Look on inside of body for extreme black marks from tires.
Blown Differential
Radio Problem: Bad Servo, Weak Servo Saver Spring, Transmitter Pot blown.

Castor: 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 as well as 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.

Front Toe IN: Front edge of car tires point *toward* the chassis as viewed from above the car. Settles and makes steering reaction less aggressive especially on acceleration. Easier set-up to drive and works well on bumpy tracks.

Front Toe OUT: Front edge of car tires point *away* from the chassis as viewed from above the car. Increases aggressiveness of car especially on entry to the turn. Works well on smooth, high bite tracks where rear traction is not a problem. Generally the preferred set-up for pan car racing.

Camber: Angle by which the tire and wheel contacts the racing surface when viewed from the Front or Rear of the car. Oval cars generally always have the Right Side tires leaning TOWARD the chassis and the Left Side tires leaning AWAY from the chassis. In oval racing jargon, more camber means more angle TOWARD the chassis on the Right Side and more angle AWAY from the chassis on the Left Side. Starting from 0 Degrees (tire standing straight up) ADDING camber in the oval fashion will increase traction when cornering however remember too much of anything is generally a bad thing. Camber is usually adjusted (especially foam tires) when one edge of the tire is wearing more than the other.

Camber Gain: Angle of the Upper Suspension Arm relative to the ground, so that when the suspension travels the amount of camber for that tire will increase. With the arm parallel to the ground the front suspension will have the least amount of camber gain. Lowering the Upper Suspension Arm on the Upper Suspension Mount will increase the amount of camber gained when the suspension travels. 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.

Shock Angle (Center Shock): Mounting the shock in the lower positions will increase the stiffness of the spring and generally works best on smooth high bite tracks. Mounting the center shock in the upper positions (shock parallel to the ground) will make the spring feel softer and works best on low grip surfaces and bumpy tracks as well.

Shock Angle (Side Shocks): Mounted in the shocks in the lower positions will increase the stiffness of the spring and will decrease chassis roll which is good for high bite tracks and especially flat tracks. Side Shocks mounted in the upper holes (shocks parallel to the ground) will make the springs feel softer and will increase chassis roll which seems to be best for cap tire racing and low bite flat tracks.

Tweak: Refers to the amount of weight placed on the Left Rear and Right Front tires by adjusting the collars on the side shocks. Threading the collars IN on the right side shock and OUT on the left side shock will place more weight on the Left Rear tire and on the Right Front tire and will make the car push. Threading the collars OUT on the right side shock and IN on the left side shock will place more weight on the Right Rear tire and Left Front tire and will make the car loose. Generally the car is always set-up so that it is "tweaked" so that the Left Rear is heavier than the Right Rear. You can check to see how much weight is on each rear tire by using a hobby knife to pick up the rear of the car under the center of the rear pod. The Right Rear should come off the ground about 1/8" inch before the Left Rear does. The higher the Right Rear comes off the ground before the Left Rear does, the more tweak and more weight that is on the Left Rear.

Ride Height: Check by pushing the chassis down once or twice to simulate bumps on the track. Having the front end *higher* than the front will make the car increase rear traction especially out of the turn. Having the front end *lower* than the rear end will make the car increase front traction especially entering the turn. Generally a safe place to start is with all corners of the car even with 1/4" ride height under the chassis. Since these cars sit so close to the ground even 1/16" difference is drastic.

Battery Placement: Since the battery is the single heaviest component in the car its placement is critical. Moving the battery further to the left will make the car turn more thru the center of the turn and coming off but will decrease forward bite. Placing the battery closer to the center of the car will work better on low bite tracks and increase forward bite.

Wheelbase: Wheelbase is the distance between the front and rear axles. Mounting the entire front end assembly in the forward position (10 3/8") will make the car more stable on long fast tracks with flowing turns or tracks with low bite compared to the power used. Running the entire front assembly in the rear most position (9 5/8") will make the car more suitable for short tracks where you are constantly turning. Using the middle position (10") is a happy-medium of both set-ups described.

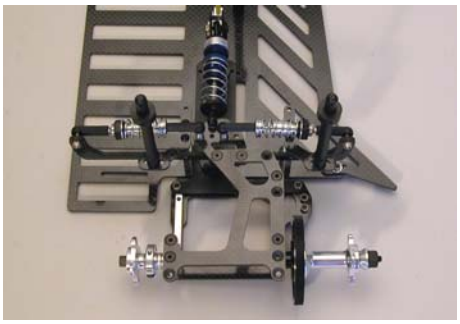
Long Pod: Unique to this car is the option to increase the length of the rear pod and keep the wheelbase and body mount positions the same. Increasing the pod length (distance from axle to t-bar) makes the center shock and t-plate effectively a lot softer and best for severely bumpy conditions and flat tracks.

Front Track Width: This can be viewed as the distance between the two front tires but more accurately it is the distance from the center of the car to the individual tire. For example moving the Right Front tire closer to the center of the car will increase the amount of weight transferred to the tire when cornering, best used when the car is extremely tight. Moving the Right Front away from the center of the car will decrease the amount of weight transferred to the tire when cornering, best used when the car is extremely loose or over aggressive to drive. Since the majority of the cars cornering ability is done thru the Right Front tire, moving the location of the Left Front tire will not be near as drastic but will help fine tune your set-up.

Rear Track Width: Distance from the rear pod the tires are mounted. This is accomplished using spacers on the axle located between the bearing and the hubs. Moving the Right Rear away from the pod will increase steering in the center of the turn and exiting while decreasing forward bite off the turn. Moving the Right Rear closer to the pod will increase forward bite thru the center of the turn and especially while exiting. The opposite can be said for the location of the left rear. Mounting the left rear close to the pod will increase steering thru the center of the turn and decrease forward bite off the turn, while mounting it further from the pod will increase stability and forward bite while cornering.

Rear Pod (On-Center or Offset): Mounting the pod "on-center" positions the motor (which is the majority of the weight of the rear pod) pretty much center in the rear pod and generally works best in wide open type driving classes like stock. Mounting the pod "off-set" places the motor closer to the left rear tire and helps keep the left rear tire planted during acceleration and works well in modified classes.

T-Plate (On-Center or Offset): Unique to this car is the option to run the t-bar offset from the center-line of the car. Along with offsetting the t-bar the rear shock tower and shocks also offset creating even more left side weight on the chassis. This feature works well for flat tracks and especially modified classes when getting the power to the ground is critical.



Rear Steer: This feature allows you to run the axle straight in the car or angled ½ degree so that the rear helps turn the car in the same fashion as four wheel steering. This option works best on tracks where you are constantly turning and when forward bite off the turn is not a problem.

Rear Wing: To increase traction to the rear of the car wings can be mounted to the rear window of the body for foam tire racing or directly to the rear pod for cap tire racing. Generally every class of pan car racing uses a rear wing, with the exception of stock classes on very high bite tracks since the wing is extra weight and aero drag. On banked tracks the wing is mounted very flat and below the roof of the car so that just the side dams of the wing keep the car stable at high speeds. On flat tracks the wing is mounted at least even with the roof height of the car and angled up almost as much as the angle of the front window of the body.