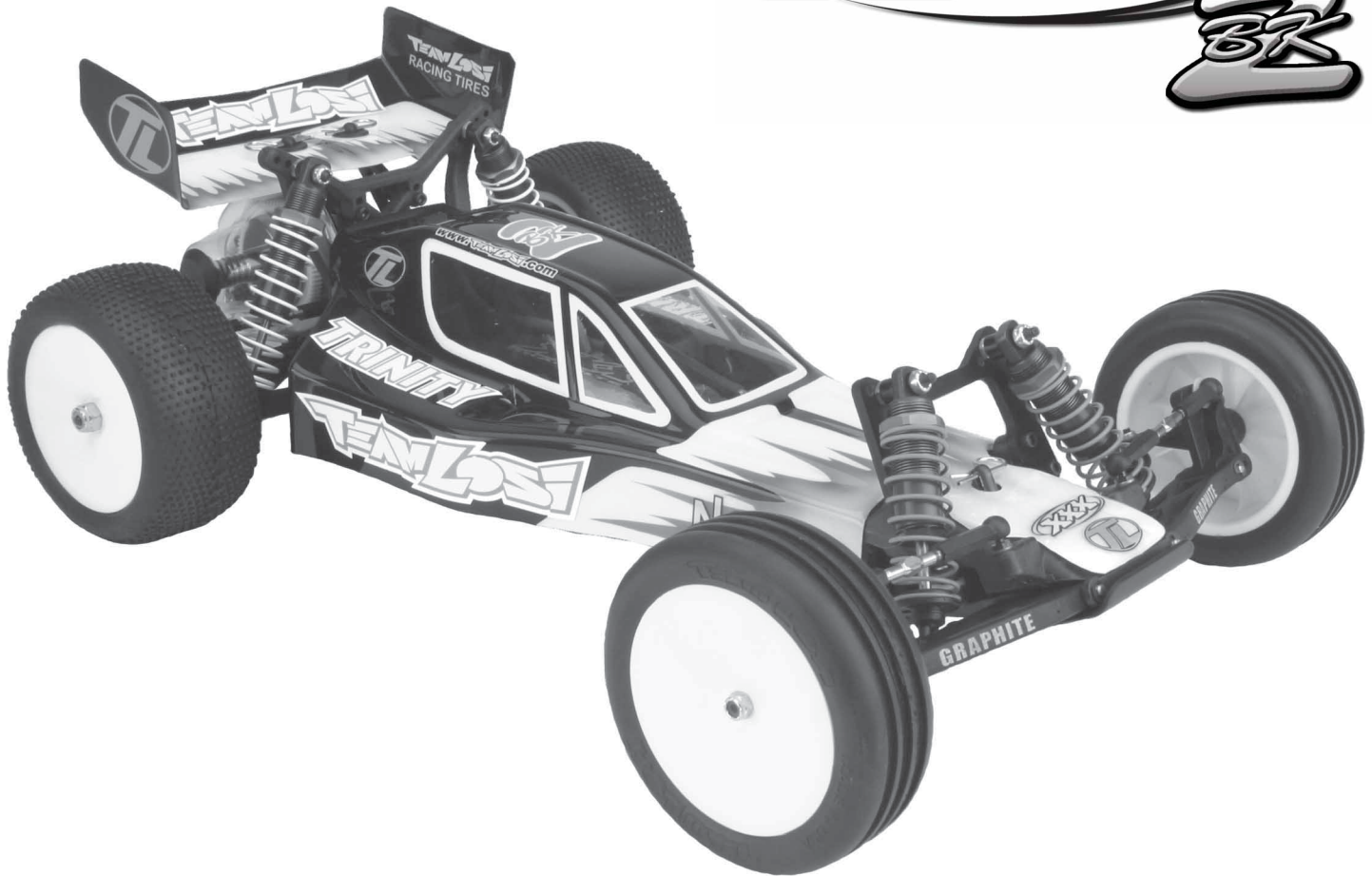


XXX BK2



1/10 Scale 2wd Electric Off-Road Racing Buggy

BK2 OWNER'S MANUAL

- ⑦ Carefully read through all instructions to familiarize yourself with the parts, construction technique, and tuning tips outlined in this manual. Being able to grasp the overall design of your new XXX-BK2 racing buggy before beginning the construction process will ensure a smooth assembly.
- ⑦ Take your time and pay close attention to detail. Keep this manual for future reference.

TEAM LOSI

Always Racing Towards The Future.

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MADE IN THE UNITED STATES OF AMERICA

P/N - 800-0214
J.A.C. - M.D.B.
11/01/2003



When all else fails, read the instructions.

**For the latest setup tips and information on your new *XXX-BK2*, visit Team Losi on the Internet at:
www.TeamLosi.com**

Welcome Team Losi XXX-BK2 Owner!

Thank you for choosing the Team Losi *XXX-BK2*. I have been fortunate to work and race for Team Losi through the years. I owe a great deal of my success to their cutting edge designs and attention to detail. The Team Losi *XXX-BK2* kit includes a large selection of the more important specialty parts I used to win many ROAR Modified 2 Wheel Drive National Championships. Before you start building your new *XXX-BK2*, I suggest you read through the instructions first. Be sure to check out the performance tips as you build and the tuning tips at the back of this manual as well. I hope you enjoy your *XXX-BK2* as much as I do mine.

Good luck, and thank you for choosing Team Losi.



1. INTRODUCTION

TRIPLE-X KINWALD, EDITION 2, COMPLETED KIT DIMENSIONS

Length: 14.875"

Front Width: 9.82"

Rear Width: 9.84"

Height: 5.125"

Wheelbase: 10.6"

All dimensions at ride height.

Weight will vary depending on accessories.

NOTES & SYMBOLS USED


Step A-1


This is a common step sequence found at the beginning of each new illustration throughout the manual.

1. Each step throughout the entire manual has a check box to the left of it. As you complete each step, mark the box with a check. If you need to take a break and return to building at a later time, you will be able to locate the exact step where you left off.

*NOTE: This is a common note. It is used to call attention to specific details of a certain step in the assembly.

IMPORTANT NOTE: Even if you are familiar with Team Losi kits, be sure and pay attention to these notes. They point out very important details during the assembly process. Do not ignore these notes!

 The Team Losi icon designates a performance tip. These tips are not necessary, but can improve the performance of your *XXX-BK2* car.

 In illustrations where it is important to note which direction parts are facing, a helmet like this one will be included in the illustration. The helmet will always face with a driver's perspective. Any reference to the right or left side will relate to the direction of the helmet.

KIT/MANUAL ORGANIZATION

The kit is composed of different bags marked A through G. Each bag contains all of the parts necessary to complete a particular section of the kit. Some of these bags have subassembly bags within them. It is essential that you open only one bag at a time and follow the correct assembly sequence, otherwise you may face difficulties in finding the correct part. It is helpful to read through the instructions for an entire bag prior to beginning assembly. Key numbers (in parentheses) have

been assigned to each part and remain the same throughout the manual. In some illustrations, parts which have already been installed are not shown so that the current steps can be illustrated more clearly.

For your convenience, an actual-size hardware identification guide is included with each step. To check a part, hold it against the silhouette until the correct part is identified. In some cases extra hardware has been supplied for parts that may be easy to lose.

The molded parts in the kit are manufactured to demanding tolerances. When screws are tightened to the point of being snug, the parts are held firmly in place. For this reason it is very important that screws not be overtightened in any of the plastic parts.

To ensure that parts are not lost during construction, it is recommended that you work over a towel or mat to prevent parts from rolling away.

IMPORTANT SAFETY NOTES

1. Select an area for assembly that is away from the reach of small children. *Some parts in this kit are small and can be swallowed by children, causing choking and possible internal injury.*

2. The shock fluid and greases supplied should be kept out of children's reach. *They are not intended for human consumption!*

3. *Exercise care* when using *any* hand tools, sharp instruments, or power tools during construction.

4. *Carefully read all manufacturers' warnings and cautions* for any glues, chemicals, or paints that may be used for assembly and operating purposes.

TOOLS REQUIRED

Team Losi has supplied all necessary Allen wrenches and a special wrench that is needed for assembly and adjustments. The following common tools will also be required: Needle nose pliers, regular pliers, hobby knife, scissors or other body cutting/trimming tools, and a soldering iron may be necessary for radio installation. 3/16", 1/4", 11/32", and 3/8" nut drivers are optional.

RADIO/ELECTRICAL

A suggested radio layout is provided in this manual. Your high performance R/C center should be consulted regarding specific questions pertaining to radio/electrical equipment.

HARDWARE IDENTIFICATION

When in question, use the hardware identification guide in each step. For screws, the prefix number designates the screw size and number of threads per inch (i.e., 4-40 is #4 screw with 40 threads per inch). The second number or fraction designates the length of the screw. For Cap Head and Button Head Screws, this number refers to the length of the threaded portion of the screw. For Flat Head Screws, this number refers to the overall length of the screw. Bearings and bushings are referenced by the inside diameter x outside diameter. Shafts and pins are referred to by diameter x length. Washers are described by inside diameter or the screw size that will pass through the inside diameter. E-clips are sized by the shaft diameter that they attach to.

MOTORS AND GEARING

The *XXX-BK2* includes an 78-tooth, 48-pitch Kevlar spur gear. The overall internal drive ratio of the transmission is 2.56:1. The pinion gear that is used will determine the final drive ratio. To calculate the final drive ratio, first divide the spur gear size by the pinion gear size. For example, if you are using a 21-tooth pinion gear, you would divide 78 (spur gear size) by 21 (pinion gear size) $78/21=3.71$. This tells you that 3.71 is the external drive ratio. Next, multiply the internal drive ratio (2.56) by the external drive ratio (in this case 3.71). $2.56 \times 3.71 = 9.50$. This means that by using a 21-tooth pinion gear with a 78-tooth spur gear, the final drive ratio is 9.50:1.

Consult your high-performance shop for recommendations to suit your racing style and class. The chart below lists some of the more common motor types and a recommended initial gearing for that motor. Ratios can be adjusted depending on various track layouts, tire sizes, and battery types.

RECOMMENDED INITIAL GEARING FOR COMMON MOTORS

TYPE OF MOTOR	PINION	SPUR
24° Stock	20-22	78
10-Turn Modified	19	78
11-Turn Modified	20	78
12-Turn Modified	21	78
13-Turn Modified	22	78
14-Turn Modified	23	78
15-Turn Modified	24	78
16-Turn Modified	25	78

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Team Losi is continually changing and improving designs; therefore, the actual part may appear slightly different than the illustrated part. Illustrations of parts and assemblies may be slightly distorted to enhance pertinent details.

BAG A

Step A-1 Servo Saver Assembly:



⑥

- ❑ 1. Place the Servo Saver Bottom (1) over the Servo Saver Post (2) and slide the Servo Saver Bottom all the way against the hex at the opposite end. Be sure that the hex on the Servo Saver Post is inserted into the hex in the Servo Saver Bottom.
- ❑ 2. Slide the Servo Saver Top (3) down over the Servo Saver Post so that the 'V' area of the Servo Saver Top rests in the 'V' area of the Servo Saver Bottom. The arm on the Servo Saver Top and the arm on the Servo Saver Bottom should now point in opposite directions as shown in Figure 1.
- ❑ 3. Slide the Servo Saver Spring (4) over the Servo Saver Post and push it into the recessed area of the Servo Saver Top. Install the Servo Saver Spring Cap (5) and thread the 6-40 Locknut (6) onto the end of the Servo Saver Post.
- ❑ 4. Tighten the 6-40 Locknut all the way down and then loosen it two full turns (e.g. $360^\circ \times 2$). This is a good starting point for the adjustment. Once assembly is complete, if you wish, the servo saver can be adjusted tighter or looser.

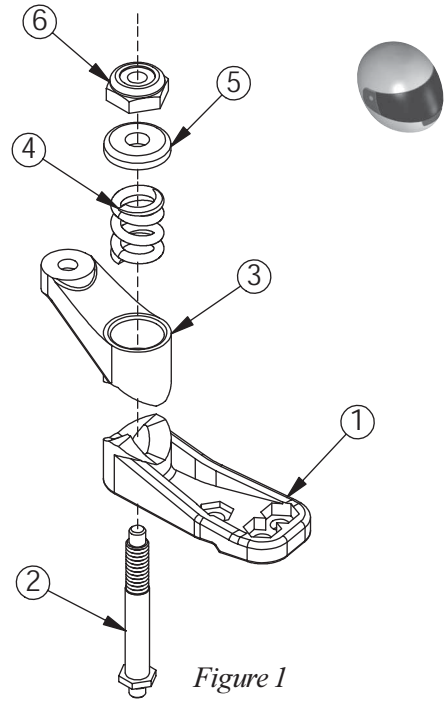


Figure 1

Step A-2 Ball Stud Install:



⑪

⑦

- ❑ 1. Insert a 4-40 Mini-Locknut (7) into the outer hex area in the Servo Saver Bottom (1) and steering Idler Arm (8) as shown in Figure 2. Thread a 3/16" Ball Stud (11) through the outside hole in each arm, into the Nuts, and tighten. Insert a 4-40 Mini-Locknut into the hex area in the Servo Saver Top (3). Thread a 3/16" Ball Stud through the hole in the Arm, into the Nut, and tighten.
- ❑ 2. Insert a 4-40 Mini-Locknut into the hex areas in the rear holes of the Servo Saver Bottom and the steering Idler Arm as shown in Figure 2. Thread a 3/16" Ball Stud through the Arms, into each Nut, and tighten.
- ⚠ Once assembly of your new XXX-BK2 is complete, you may notice that the tires toe-in slightly as the suspension compresses. We have found this setting to yield the best performance. Should you prefer to change this so that the tires do not toe in, you can add one Ball Stud Washer under the Ball Studs on the outside of the Servo Saver assembly and steering Idler Arm. To accomplish this, you will want to replace the 3/16" Ball Studs with 1/4" Ball Studs.

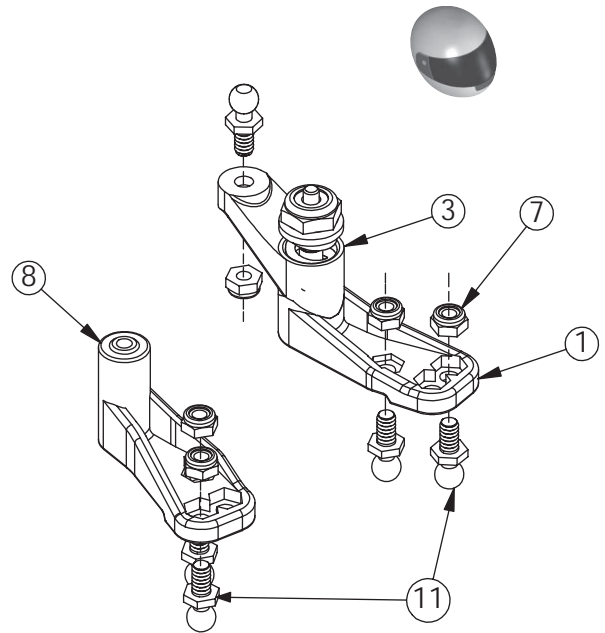


Figure 2

Step A-3 Servo Link:

- ❑ 1. Snap one end of the steering Draglink (12) to the rear Ball Stud (11) on the Servo Saver Bottom (1). Snap the other end to the Rear Ball Stud on the steering Idler Arm (8).

*NOTE: Be sure to snap the rod onto the correct ball studs as shown!

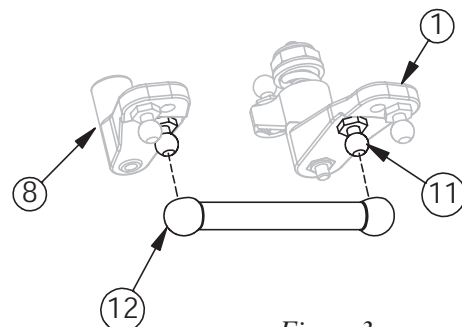
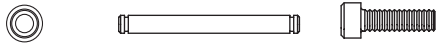


Figure 3

BAG A (Continued)

Step A-4 Steering Install:



(13)

(16)

(17)

❑ 1. Insert a 3/32" x 3/16" Ball Bearing (13) into the two large, angled holes in the bottom of the front Kickplate (14). Insert the other two Bearings into the two outer holes in the Steering Brace (15).

❑ 2. Insert a 3/32" x .930" Hinge Pin (16) through the hole in the steering Idler Arm (8) and center the Hinge Pin in the Idler Arm. Place the Servo Saver assembly and the steering Idler Arm into the Bearings in the Kickplate so that the installed Draglink is to the front as shown in Figure 4.

❑ 3. Place the Steering Brace on top of the Servo Saver assembly and steering Idler Arm ensuring that the Ball Bearings slide over the Pins.

⚙️ There is a short Thread-Cutting Screw included in the Wrench bag. This Screw can be used to tap threads in the holes in the Kickplate. Pre-tapping these holes makes it easier to install the Screws during assembly.

❑ 4. Secure the Steering Brace to the Kickplate using two 4-40 x 3/8" Cap Head Screws (17).

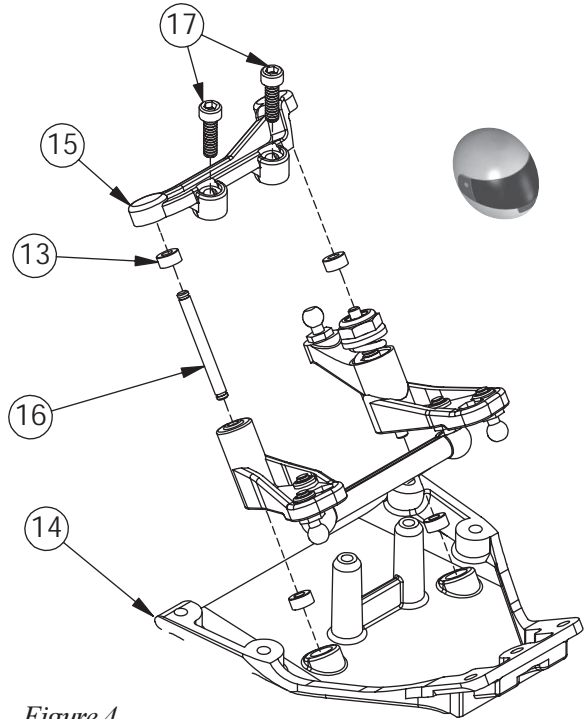


Figure 4

Step A-5 Threaded Insert Install:



(18)

❑ 1. Install a Threaded Insert (18) into the top of each of the two forward holes in the main Chassis (19). The inserts should be installed with the hex-side up as shown in Figure 5. Press the Threaded Inserts all the way into the holes in the Chassis, lining up the hex on the inserts with the hex in the holes.

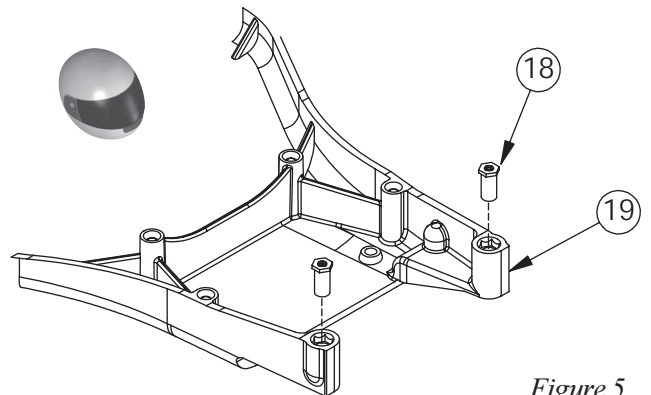


Figure 5

Step A-6 Kickplate Install:



(17)

⚙️ There is a short Thread-Cutting Screw included in the wrench bag. This Screw can be used to tap threads into the back two holes in the front part of the main Chassis. Pre-tapping these holes makes it easier to install the Screws during assembly.

⚠️ **IMPORTANT NOTE:** Ensure that the hex of the Threaded Insert remains seated in the hex area on top of the Chassis.

❑ 1. Attach the front Kickplate (14) to the bottom of the main Chassis (19). Align the four holes in the Kickplate with the four holes in the main Chassis. Secure the Kickplate to the Chassis by threading two 4-40 x 3/8" Cap Head Screws (17) through the forward holes and into the Threaded Inserts (18). Thread two more 4-40 x 3/8" Cap Head Screws through the two rear holes of the Kickplate and into the Chassis.

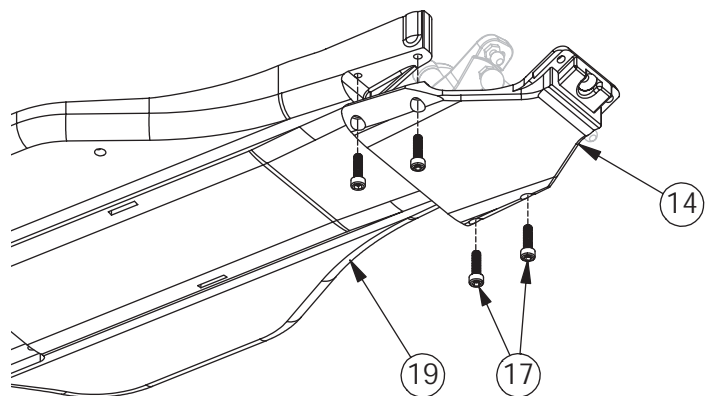
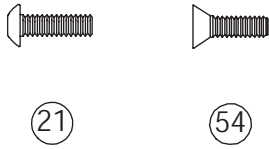


Figure 6

BAG B

Step B-1 Front Bulkhead Install:



There is a short Thread-Cutting Screw included in the Wrench bag. This Screw can be used to tap threads into the middle bottom hole in the front Bulkhead. Pre-tapping this hole makes it easier to install the Screw during assembly.

1. Position the front Bulkhead (20) on top of the front Kickplate (14) and main Chassis (19) as shown in Figure 7. Secure the front Bulkhead to the Chassis by threading two 4-40 x 3/8" Button Head Screws (21) through the hole in the top of the Bulkhead and into the Threaded Inserts in the Chassis.

2. Secure the front Kickplate to the front Bulkhead by threading a 4-40 x 3/8" Flat Head Screw (54) through the center hole in the front of the Kickplate and into the Bulkhead.

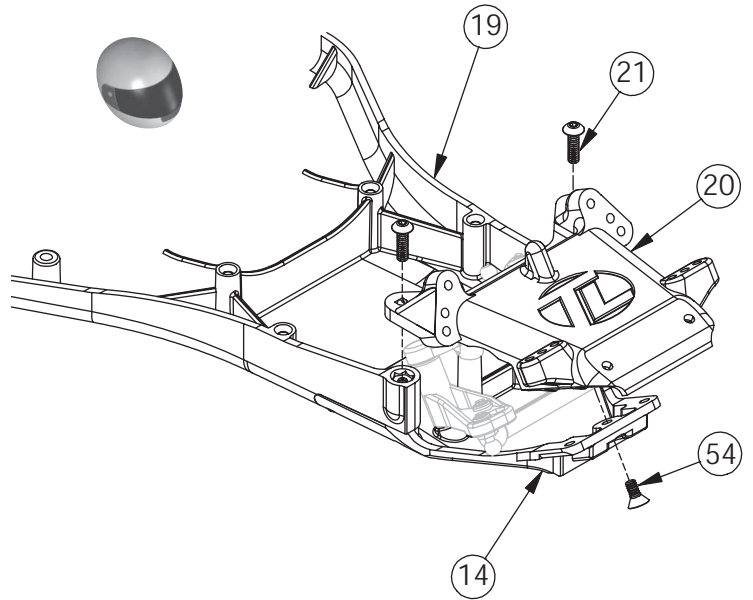
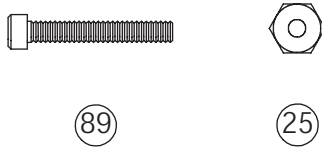


Figure 7

Step B-2 Front Shock Tower Assembly:



1. Insert two 4-40 x 3/4" Cap Head Screws (89), one on each side through center holes in the top of the Front Shock Tower (24). Secure the Screws to the Shock Tower by threading a 4-40 Nut (25) over each Screw and tightening.

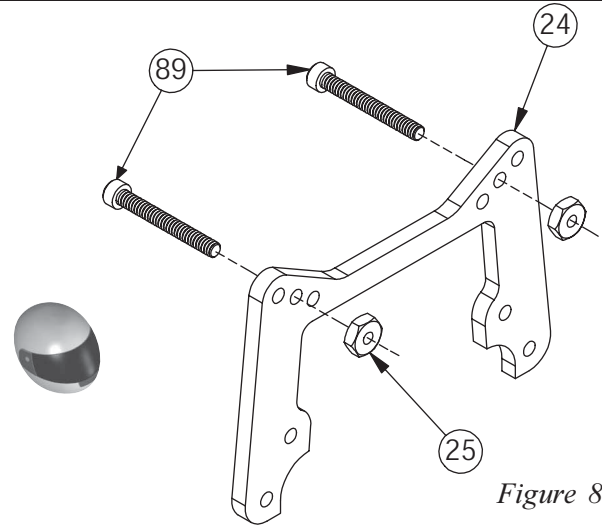
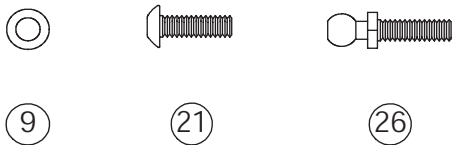


Figure 8

Step B-3 Front Shock Tower Install:



IMPORTANT NOTE: The Screws in the top of the Shock Tower must be pointing forward as shown in Figure 9.

1. Attach the front Shock Tower (24) to the front Bulkhead (20) with four 4-40 x 3/8" Button Head Screws (21). The Screws thread into the top-most and bottom-most holes in the Bulkhead, corresponding with the appropriate holes in the front Shock Tower. The center holes are not used.

2. Place one Ball Stud Washer (9) over each of the two 3/8" Ball Studs (26). Thread a 3/8" Ball Stud into the outside of the three camber position holes, on each side of the front Bulkhead.

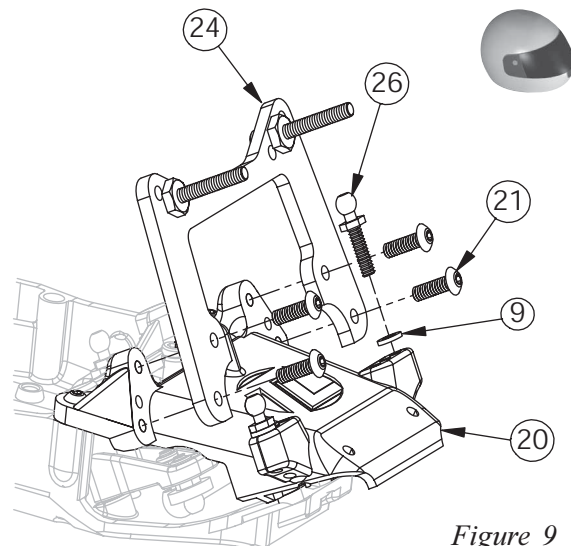



Figure 9

BAG B (Continued)

Step B-4 Front Spindle Assembly:



**NOTE: If the 3/16" x 3/8" Bearing only has one Teflon™ seal (colored, woven-looking) in it, position the bearing so that the seal faces the outside of the Spindle.*

- ❑ 1. Insert a 3/16" x 3/8" sealed Bearing (27) into each side of both front Spindles [left (28), right (29)].
 - ❑ 2. Insert a front Stub Axle (30) from the outside of both Spindles as shown in Figure 10.
 - ❑ 3. Place a front Axle Spacer (31) over each of the two front Stub Axles as shown in Figure 10. Thread a 4-40 x 1" Button Head Screw (32) into each of the Stub Axles from the back side. The front Axle Spacer should be positioned on the Stub Axle between the head of the Screw and the inner sealed Bearing. Tighten the Screws while holding the Stub Axle with a 3/8" socket wrench or pliers.
-  Be sure that the front Axle Screws are **TIGHT!** The thread-lock compound that is on the Screws takes 24 hours to cure.

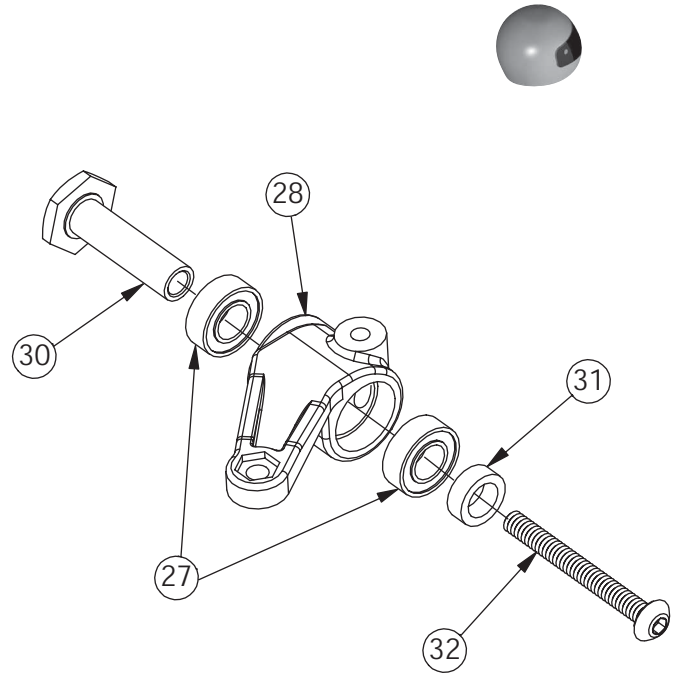
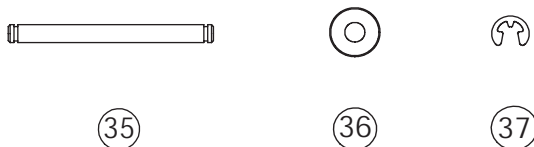



Figure 10

Step B-5 Front Spindle to Spindle Carrier:



- ❑ 1. Attach the left Spindle (28) to the left Spindle Carrier (33) by aligning the holes in each part and inserting a 3/32" x 1.050" Hinge Pin (35) from the bottom. Do not insert the Pin all the way through both parts yet.
- ❑ 2. Insert a front Spindle Spacer (36) between the top of the Spindle and the Spindle Carrier as shown in Figure 11. Once the Spacer is in place, insert the Hinge Pin through the Spacer and the top of the Spindle Carrier. Center the Hinge Pin in the Spindle Carrier.

 **IMPORTANT NOTE:** There are two different sizes of E-clips in this assembly bag. Be sure to use the smallest E-clips on the 3/32" Hinge Pins. Refer to Figure 11 and make sure that the Spindles are installed correctly.

- ❑ 3. Secure the Hinge Pin with two 3/32" E-clips (37), one on each end.
- ❑ 4. Repeat Steps 1-3 for the right Spindle (29) and right Spindle Carrier (34).

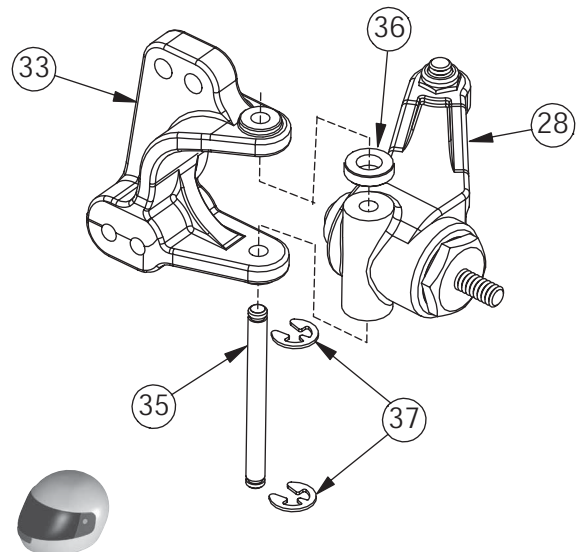
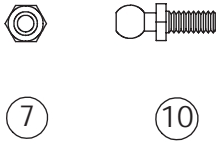


Figure 11

BAG B (Continued)

Step B-6 Ball Stud To Front Spindle:



1. Insert a 4-40 Mini Locknut (7) into the hex area on the back side of each Spindle Carrier (33), (34) as shown in Figure 12. Insert a 1/4" Ball Stud (10) into the outside hole (closest to the installed Hinge Pin) and tighten.

2. Insert a 4-40 Mini Locknut into the hex area in the top side of each Spindle (28), (29). Thread a 1/4" Ball Stud into the Nut from the bottom of the Spindle and tighten.

IMPORTANT NOTE: Do not overtighten the Ball Studs! This can strip out the hex area in the Spindles and cause the Spindle Carrier to crack/break.

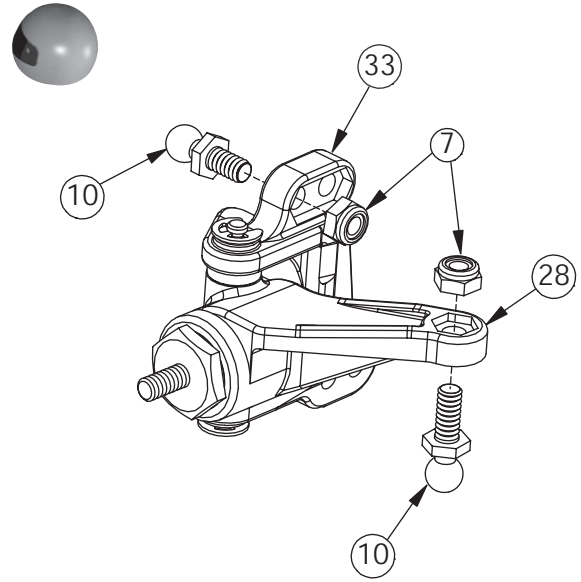
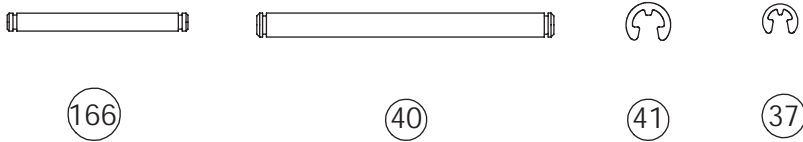


Figure 12

Step B-7 Front Suspension Arm Assembly:



IMPORTANT NOTE: There are two sizes of E-clips in this assembly bag. Be sure to use the small E-clips on the 3/32" Pins.

1. Place the left Spindle and Carrier assembly (Figure 12) into a front suspension Arm (38) as shown in Figure 13. Note that the Spindle Arm faces the side of the suspension Arm with the Shock mount holes (rear) and the Ball Stud (10) in the Spindle Carrier is pointing forward. Line up the two sets of holes in the Spindle Carrier (33) with the holes in the front Arm, insert a 3/32" x .930" Hinge Pin (166) in the inside of the outer two holes of the Arm and Spindle Carrier then attach a 3/32" E-clip (37) to both sides of the Hinge Pin.

2. Install a 1/8" E-clip (41) on one end of each inner 1/8" x 1.42" Hinge Pin (40).

3. Attach the Arm to the left side of the front Pivot Block (39) by inserting Hinge Pin from the back side, through the inside hole in the front Arm, and Pivot Block as shown in Figure 13.

4. Repeat Steps 1-3 for the right Spindle and Carrier assembly and remaining front suspension Arm.

5. Slide the front Hinge Pin Brace (42) over both front inner Hinge Pins. The E-clip grooves in both Hinge Pins should be exposed in front of the Brace. Secure the Brace by installing a 1/8" E-clip to the front of each Hinge Pin.

The XXX-BK2 has been designed with Variable Length Arms (VLA). For a more detailed description of the VLA system, please read the VLA section in the back of this manual.

IMPORTANT NOTE: Make sure that the Hinge Pin is installed into both of the inner-most holes on the VLA Arms and Spindle Carriers.

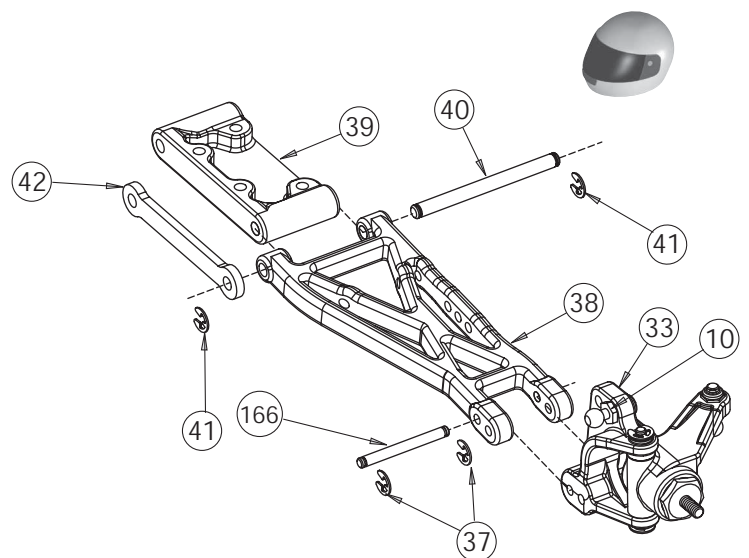


Figure 13

BAG B (Continued)

Step B-8 Front Suspension Arm Install:



150

1. Hold the Chassis assembly upside down. Place the front Pivot Block (39) over the front edge of the front Kick plate (14) as shown in Figure 14. The front edge of the front Bulkhead (20) should be positioned between the front Pivot Block and the Hinge Pin Brace (42).

2. While holding the front suspension assembly in place, position the front Bumper (43) on the bottom of the front Pivot Block so that the four holes in the Bumper are aligned with the four holes in the Pivot Block. The Bumper should be attached as shown so that the edges curve towards the top of the Chassis. Secure the Bumper and Pivot Block to the front Bulkhead and Kickplate by threading four 4-40 x 5/8" Flat Head Screws (150) through the Bumper and Pivot Block and tightening.

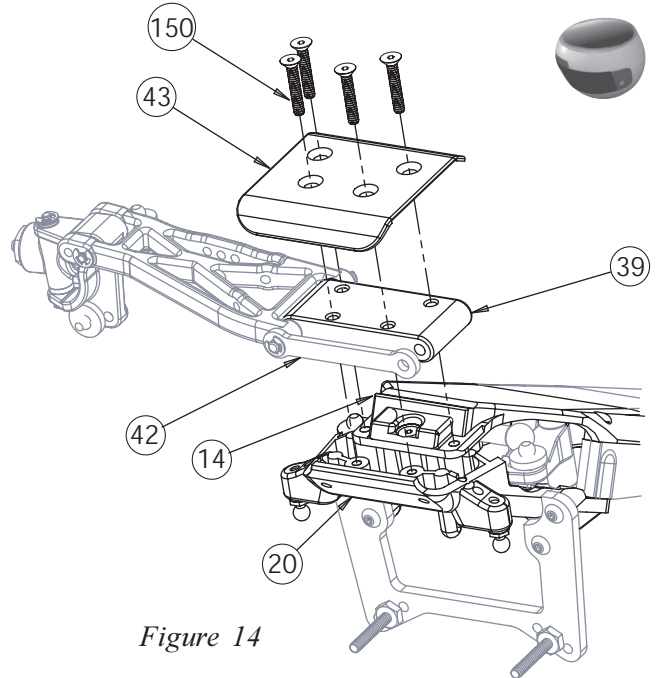
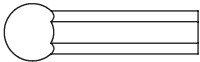
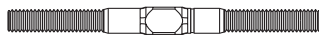


Figure 14

Step B-9 Tierod - Camber Link Assembly:



45



46

There is a small container/package of White Grease in this bag. It is recommended that this be applied to the threads of the Turnbuckles before trying to thread on the plastic Rod Ends.

**NOTE: The two ends of the turnbuckle are threaded opposite. The end closest to the groove, next to the square, has standard right-hand threads, the other end has left-hand threads. This allows the length of the Tierods, once installed, to be adjusted without removing them.*

1. Thread a plastic Rod End (45) onto each end of a 1-5/8" Turnbuckle (46). Tighten both Rod Ends equally until the Tierod is the same length as the Rod in Figure 15B. Make two of these camber link assemblies.

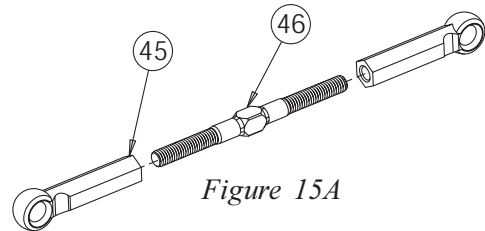


Figure 15A

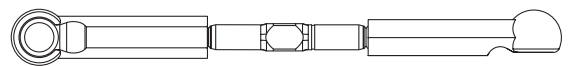


Figure 15B

Step B-10 Camber Link Install:

**NOTE: Assure that the grooves on all of the front Turnbuckles are located on the drivers right-hand side for easier adjustment later.*

1. Place a "Foam Thing" (47) over the Ball Studs (10) in each of the Spindle Carriers (33), (34). Next, attach one side of a camber link assembly (Figure 15B) to the Ball Stud (26) on the left side of the Bulkhead. Attach the other side of the camber link assembly to the Ball Stud in the Spindle Carrier.

2. Attach the second camber Tierod to the right side of the car.

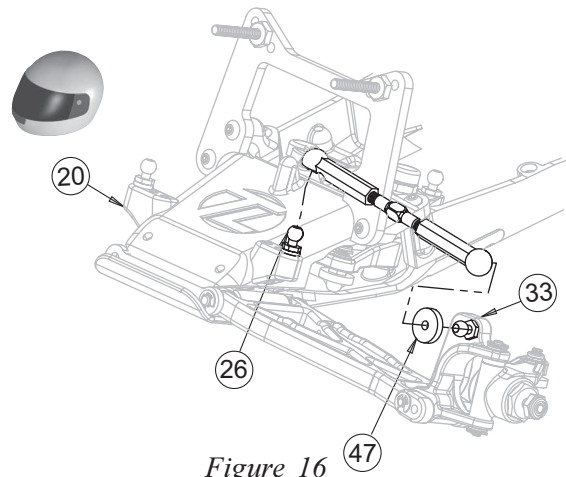


Figure 16

BAG B (Continued)

Step B-11 Steering Tierod:

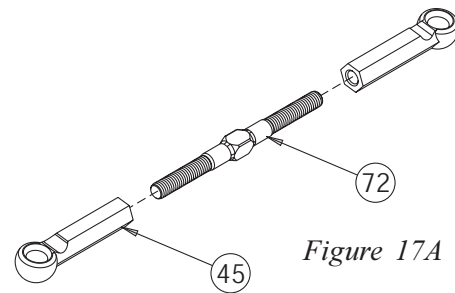
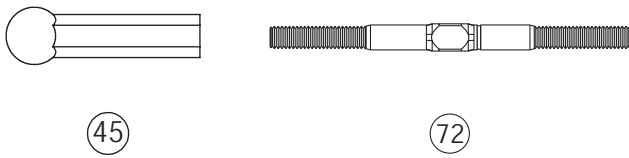



Figure 17A

 There is a small container/package of White Grease in this bag. It is recommended that this be applied to the threads of the Turnbuckles before trying to thread on the plastic Rod Ends.

**NOTE: The two ends of the turnbuckle are threaded opposite. The end closest to the groove, next to the square, has standard right-hand threads, the other end has left-hand threads. This allows the length of the Tierods, once installed, to be adjusted without removing them.*

- 1. Thread a Plastic Rod End (45) onto each End of a 1-7/8" Turnbuckle (72). Tighten both Rod Ends equally until the Rod is the same length as the Rod in Figure 17B. Make two of these Tierod assemblies.

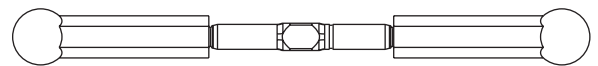


Figure 17B

Step B-12 Steering Tierod Install:

NOTE: Assure that the grooves on all of the **front Turnbuckles are located on the drivers **right-hand** side for easier adjustment later.*

- 1. Place a "Foam thing" (47) over the Ball Studs (10) in each of the Spindle (28), (29). Snap one end of a steering Tierod assembly (Figure 17B) to the Ball Stud (11) in the steering Servo Saver Bottom (1). Snap the other end to the Ball Stud (10) in the left Spindle (28).
- 2. Attach the second steering Tierod to the right side of the car.

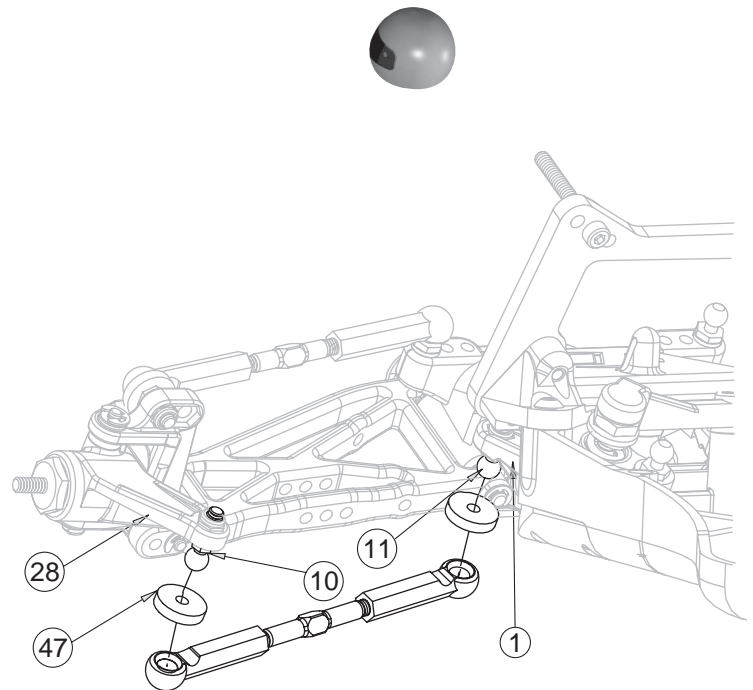
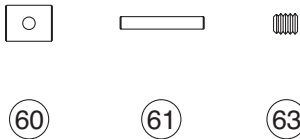


Figure 18

BAG C

Step C-1 CVD Dogbone Assembly:



1. Apply a thin coat of White Thrust Bearing/Assembly Grease (87) to the outside of the CVD Coupling (60). Insert the greased Coupling into the large hole in the rear Axle (62) so that the hole in the Coupling can be seen through the slots in the Axle.

2. Place the CVD Dogbone (59) over the rear Axle. Align the holes in the Dogbone with the hole in the Coupling. Secure all three parts by inserting a 1/16" x 7/16" (solid) Coupling Pin (61) through the holes in the Dogbone, the slots in the rear Axle, and the hole in the Coupling.

IMPORTANT NOTE: Apply the enclosed thread-lock to the Set Screw before threading it into the CVD Coupling. If Thread Lock is not used, the Set Screw could loosen during operation causing your CVD to possibly fail or be damaged.

3. Center the Pin in the Dogbone and secure it by threading a 4-40 Setscrew (63) into the end of the Coupling.

4. Build two of these assemblies.

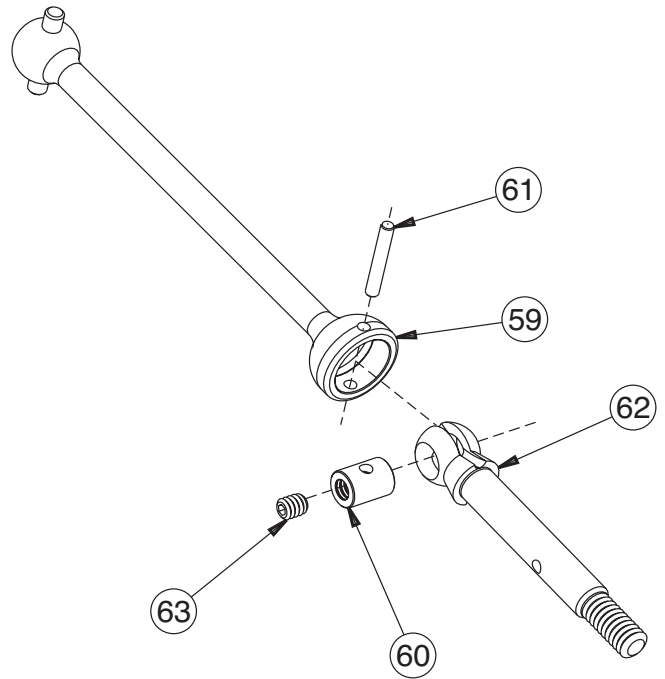


Figure 19

Step C-2 Rear Hub Assembly:



1. Thread a silver colored Ball Stud (22) into the inside hole of the left rear Hub (66), from the front (the side without the recessed area) and secure it with a 4-40 Mini-Nut (7) as shown in Figure 20.

IMPORTANT NOTE: Do not overtighten the Ball Studs.

2. Place a "Foam Thing" (47) over the Ball Stud.

**NOTE: If the 3/16" x 3/8" Bearings only have one Teflon™ seal (colored, woven-looking) in it, position the seal to the outside of the Hub.*

3. Press a 3/16" x 3/8" sealed Bearing (27) into the inside of the left rear Hub. Slide a rear Axle (62) through the sealed Bearing in the rear Hub.

4. Slide an inner rear Bearing Spacer (67) over the rear Axle, from the outside, against the inside of the Bearing. Place a second 3/16" x 3/8" Bearing over the rear Axle and press the Bearing into the outside of the rear Hub.

5. Place a rear Axle Spacer (68) over the rear Axle, small side first, against the outside Bearing.

6. Secure the rear Axle and the rear Axle Spacer by inserting a 1/16" x 7/16" Spirol Pin (69) through the small hole in the rear Axle. The Pin should be centered in the rear Axle.

7. Repeat Steps 1-6 for the right rear Hub (65).

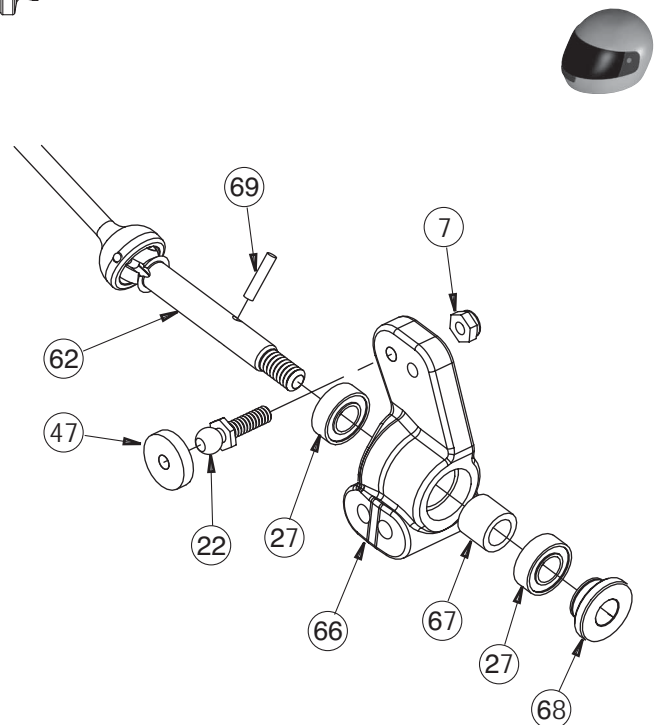
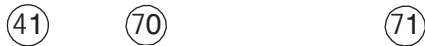
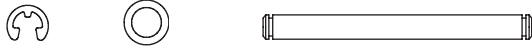


Figure 20

BAG C (Continued)

Step C-3 Rear Hub Assembly Install:



❑ 1. Place the left rear Hub (66) between the outer rails of the left rear suspension Arm (51) (Marked "L"). Be sure that the Ball Stud (22) is pointed towards the front of the Arm. Position a rear Hub Spacer (70) between the Hub and the Suspension Arm on each side of the Hub.

❑ 2. Insert the outer rear Hinge Pin (71) into the inside hole on the Suspension Arm, through each of the two Hub Spacers and the inside hole in the rear Hub. Secure the Hinge Pin with two 1/8" E-clips (41).

❑ 3. Repeat Steps 1 and 2 for the right rear Hub (65) assembly.

**Note: Read the VLA section in the back of this manual for tips on when to use the outer holes on the rear Arms and Hubs..*

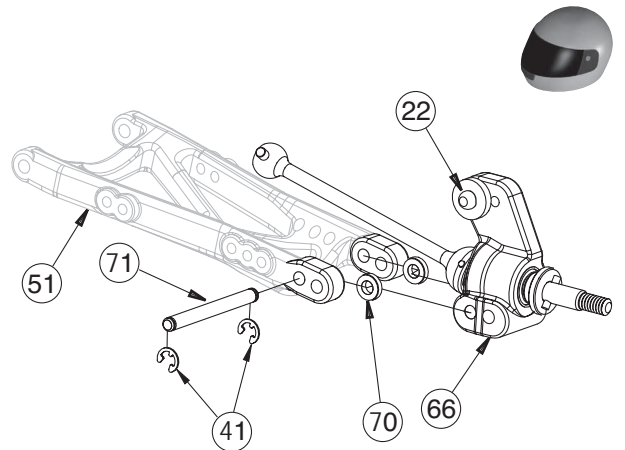


Figure 21

Step C-4 Rear Arm & Suspension Assembly Install:



❑ 1. Attach the plastic rear inner Pivot Block (49) to the rear Pivot Plate (53) with two 4-40 x 1/2" Flat Head Screws (44) with the Hinge Pin holes facing rearward. Thread the Flat Head Screws in 3-4 turns to hold the plastic rear Pivot in place.

❑ 2. Locate the small Anti-Squat Shims (165) (read the "Anti-Squat" section in "Tips" for when to use more or less of these). Place one Anti-Squat Shim between the plastic rear Pivot and the rear Pivot Plate, making sure the flat edge is towards the outside, and tighten the two Screws.

⚠ IMPORTANT NOTE: Ensure that the Anti-Squat Shims are completely under the plastic rear Pivot to provide a rigid mounting surface.

❑ 3. Attach the rear Pivot Plate to the Chassis (19) using four 4-40 x 3/8" Flat Head Screws (54). Make sure the Pivot Plate is flush with the Chassis, and the holes in the Pivot Plate and Chassis are aligned.

❑ 4. Slide the a rear inner Hinge Pin (52) into the left rear suspension Arm (51) marked 'L' push the hinge pin into the left side of the plastic rear Pivot Block.

❑ 5. Repeat Step 4 for the right rear suspension Arm.

❑ 6. Slide the aluminum rear Pivot (164) over the rear inner Hinge Pins with the flat side facing towards the rear of the car. Thread two 4-40 x 3/8" Flat Head Screws through the Pivot Plate into the aluminum rear Pivot, **do not tighten them at this time!**

⚠ IMPORTANT NOTE: The screws holding the aluminum Rear Pivot will have to be removed later to allow for the installation of the Motor Guard, it is important that these Screws are only snug at this time.

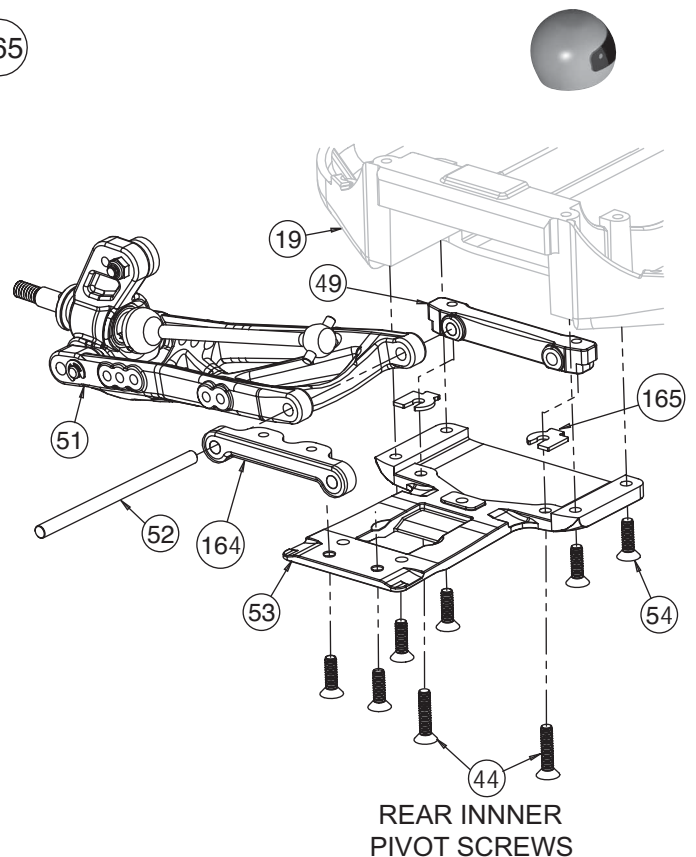
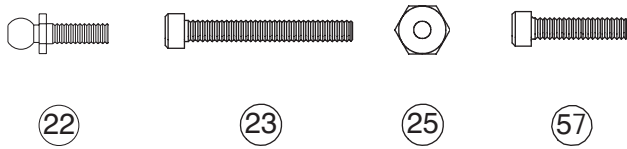


Figure 22

BAG C (Continued)

Step C-5 Rear Shock Tower Assembly:



1. Insert two 4-40 x 7/8" Cap Head Screws (23), one on each side, through the second hole out on the top of the rear Shock Tower (55) as shown in Figure 23. Secure the Screws to the Shock Tower by threading a 4-40 Nut (25) onto each Screw and tightening.

IMPORTANT NOTE: The Screws should extend from the same side of the Shock Tower as the two tabs near the center of the Shock Tower.

2. Thread a silver colored Ball Stud (22) into the center hole on each side of the rear Shock Tower.

IMPORTANT NOTE: The Ball Stud installed in the rear shock tower, must be a silver colored "Short Neck" Ball Stud.

3. Align a rear Wing Mount (56) with the lower set of holes in the left side of the rear Shock Tower. Secure the Wing Mount with two 4-40 x 1/2" Cap Head Screws (57). Align and secure the other Wing Mount to the right side of the Shock Tower in the same manner.

IMPORTANT NOTE: The Wing Mounts should extend from the Shock Tower in the opposite direction of the Screws in the top of the Tower as shown in Figure 23.

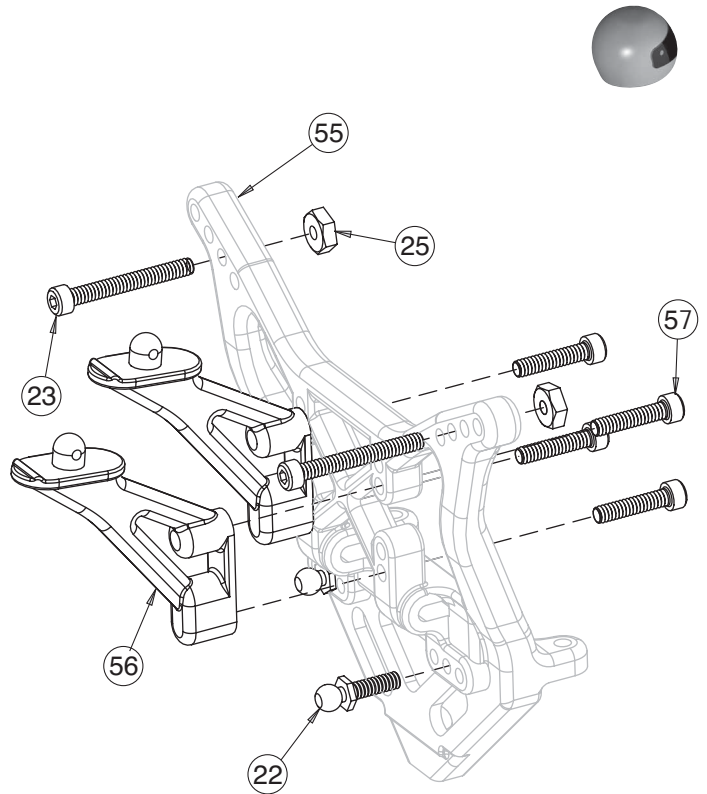
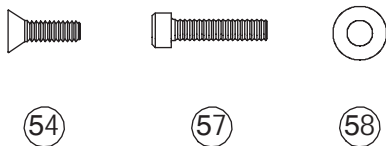


Figure 23

Step C-6 Rear Shock Tower Install:



There is a short thread-cutting screw included in the Wrench bag. This Screw can be used to tap threads in the holes in the Main Chassis. Pre-tapping these holes makes it easier to install the Screws during assembly.

1. Place the rear Shock Tower (55) between the rear Suspension Arms and behind the aluminum rear Inner Pivot (164). The Shock Tower should sit flat against the rear Pivot Plate (53). Place a #4 washer (58) over two 4-40 x 1/2" Cap Head Screws (57). Secure the Shock Tower to the Chassis by threading the two 4-40 x 1/2" Cap Head screws, with #4 washers attached, through the tabs on the Shock Tower and into the Chassis.

2. Secure the rear Shock Tower to the rear Pivot Plate by threading a 4-40 x 3/8" Flat Head Screw (54) from the bottom side of the Chassis through the Pivot Plate, and into the Shock Tower.

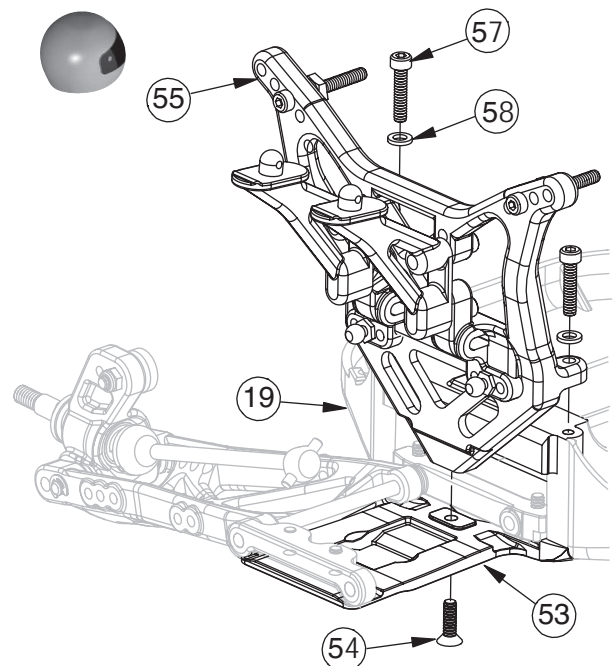
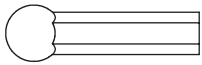


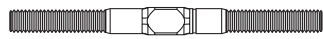
Figure 24

BAG C (Continued)

Step C-7 Rear Camber Tierod Assembly:



45



46

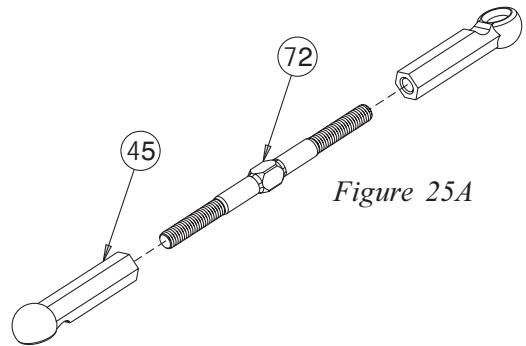




Figure 25A

 There is a small container/package of White Grease in Bag B. It is recommended that this be applied to the threads of the Turnbuckles before trying to thread on the plastic Rod Ends.

**NOTE: The two ends of the turnbuckle are threaded opposite. The end closest to the groove, next to the square, has standard right-hand threads, the other end has left-hand threads. This allows the length of the Tierods, once installed, to be adjusted without removing them.*

 1. Thread a plastic Rod End (45) onto each end of the 1-5/8" Turnbuckles (46). Tighten both Rod Ends equally until the Rod End is the same length as the one shown in Figure 25B. Make two of these rear Camber Tierod assemblies.

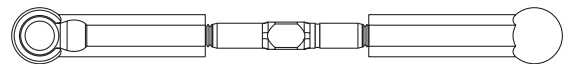



Figure 25B

Step C-8 Rear Camber Link Install:

NOTE: Assure that the grooves on all of the rear Turnbuckles are located on the drivers left-hand side for easier adjustment later.

 1. Attach one end of a rear Camber Link assembly (Figure 25B) to the Ball Stud (22) in the left rear Hub (66) and the other end to the Ball Stud in the rear Shock Tower (55).

 2. Repeat Step 1 for the right side of the car.

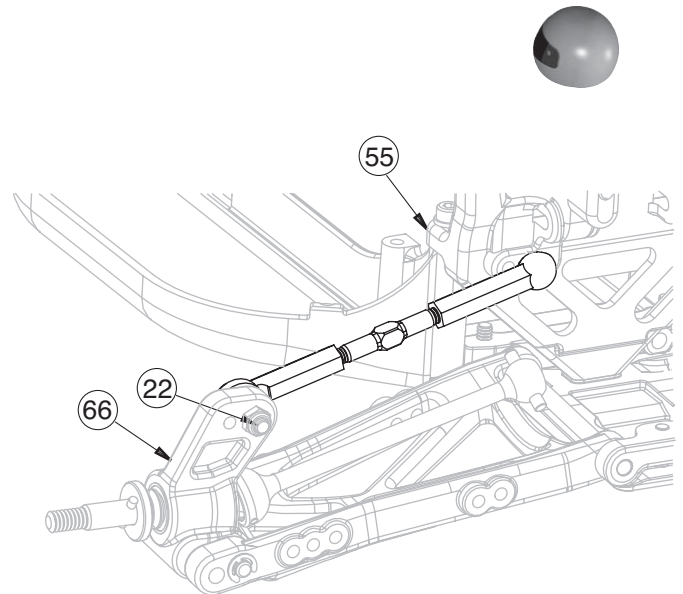
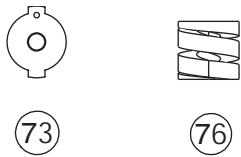


Figure 26

BAG D

Step D-1 Diff Nut Assembly:



1. Locate the 5/64" Allen Wrench (74) supplied with the kit. Place the Diff Nut (73), over the Allen Wrench, with the ears on the Diff Nut towards the bent end of the Allen Wrench.
2. Place the Diff Spring (76) over the Allen wrench against the Diff Nut.

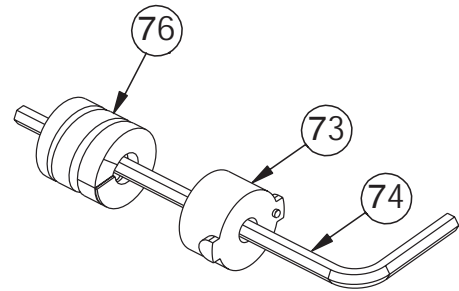



Figure 27

Step D-2 Diff Nut Assembly To Outdrive:

1. Insert all of the parts that are stacked on the wrench into the male Outdrive/Diff Half (77). Line up the tabs on the Diff Nut (73) with the slots in the Outdrive. Make certain that the Diff Spring (76) is seated all the way into the Outdrive/Diff Half, and that it is flat to the bottom of the pocket.

 Leave the Allen Wrench in place to hold the Diff Nut in the Outdrive while continuing assembly.

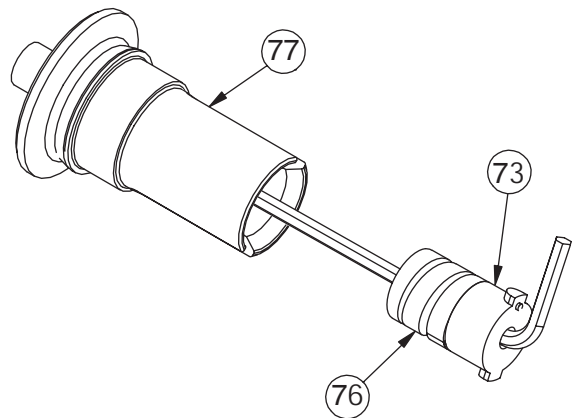
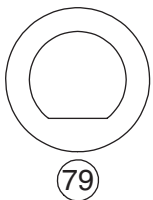



Figure 28

Step D-3 Diff Drive Ring To Male Outdrive:



1. Apply a small amount of Diff Grease (clear) (78) to the outside ridge of the Outdrive/Diff Half (77). Attach a Diff Ring (79) to the Outdrive by lining up the "D shape" of the Ring with the "D shape" of the Outdrive.

**NOTE: Only a small amount of Grease is needed. It is only used to hold the Diff Ring in place.*

 **IMPORTANT NOTE:** Do not glue the Diff Ring to the Outdrive/Diff Halves. Doing so may not allow the Rings to mount flat on the Outdrive.

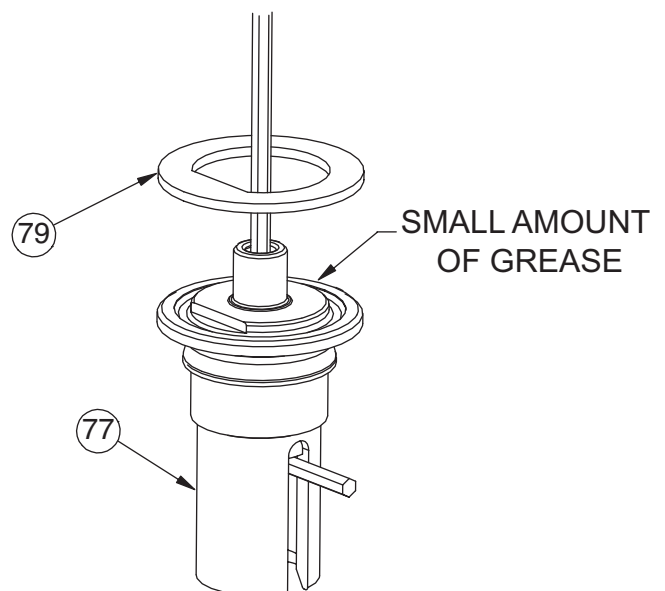
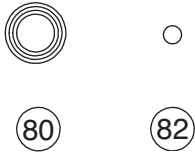


Figure 29

BAG D (Continued)

Step D-4 Diff Gear:



❑ 1. Insert a 5mm x 8mm Ball Bearing (80) into the center of the Diff Gear (81).

❑ 2. Press a 3/32" carbide Diff Ball (82) into each of the 12 small holes in the Diff Gear. There should be a total of twelve Balls installed.

⚠ IMPORTANT NOTE: There are two sets of Balls in Bag D. Be certain to use the Balls that are packaged separately (12 total) in Step D-4. There is a second set of eight 5/64" Balls packaged with Thrust Washers in the bag. These Balls will be used in Step D-6.

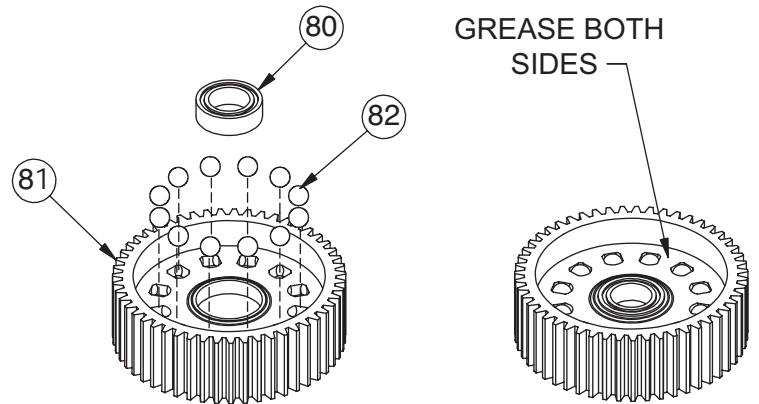


Figure 30

Step D-5 Diff Gear to Male Outdrive:

❑ 1. Apply a small bead of clear Diff Grease (78) to the exposed side of the Diff Ring (79). Carefully place the Diff Gear (81) over the bearing boss, so the Diff Balls (82) and Diff Gear rest flat against the Diff Ring.

⚠ IMPORTANT NOTE: It is a good idea to hold the Diff Nut in place, with the Allen Wrench, so the Diff Nut is not pushed out of the Outdrive/Diff Half.

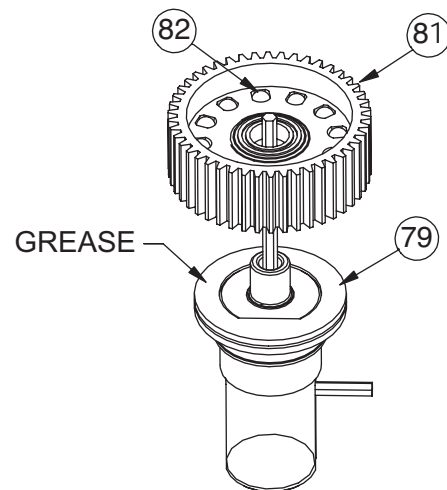
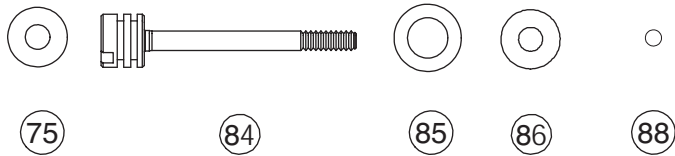


Figure 31

BAG D (Continued)

Step D-6 Bearing Insert to Female Outdrive:



**NOTE: Be very careful when installing the foam Thrust Bearing Seals, do not over-stretch them.*

❑ 1. Locate the Diff Adjusting Screw (84) and carefully stretch the two blue foam Thrust Bearing Seals (85) into the grooves on the head of the Diff Screw.

❑ 2. Place one of the Belleville Washers(75) onto the Diff Adjusting Screw with the cone pointing toward the head of the Diff Screw.

**NOTE: The Thrust Bearing Washers are packaged in a small bag along with the eight 5/64" Thrust Bearing Balls.*

❑ 3. Place a Thrust Washer (86) on the Diff Screw against the Belleville Washer.

❑ 4. Grease the Thrust Washer well with White Thrust Bearing/ Assembly Grease (87) and place the eight 5/64" Thrust Bearing Balls (88) on top of the Thrust Washer, around the Diff Screw. Apply more White Thrust Bearing/Assembly Grease to the top of the Thrust Bearing Balls.

❑ 5. Place another Thrust Bearing Washer over the Diff Screw and against the Thrust Bearing Balls.

❑ 6. Place another Belleville Washer on the Diff Screw with the cone pointing away from the head of the Diff Screw.

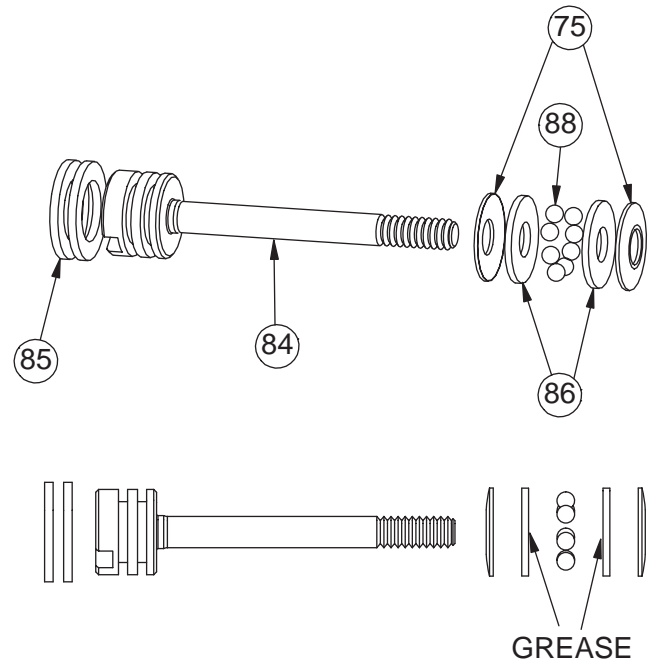


Figure 32

Step D-7 Diff Adjusting Screw Assembly:

❑ 1. Very carefully insert the Diff Thrust Assembly, into the female Outdrive (83). Be very careful to make sure the Thrust Balls(88) remain seated between the Thrust Washers (86) while inserting the Diff Screw. Pull the threaded end of the Diff Screw until the Thrust Bearing assembly rests against the inside of the female Outdrive.

⚠ IMPORTANT NOTE: Ensure that all eight Thrust Bearing Balls remain in place between the two Washers, around the Diff Screw.

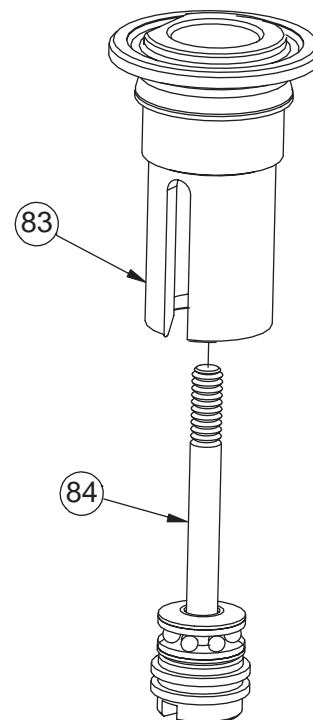
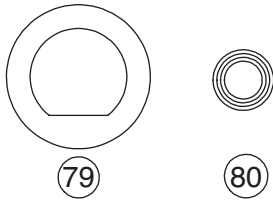


Figure 33

BAG D (Continued)

Step D-8 Diff Ring to Female Outdrive:



1. Insert a 5mm x 8mm Ball Bearing (80) into the center of the female Outdrive/Diff Half (83).
2. Place the 1/16" Allen Wrench (92) through the slot in the Outdrive/Diff Half containing the Diff Screw (84). Slide the wrench all the way against the Screw. By handling the Outdrive/Diff Half with the Wrench inserted, the Diff Screw will be held in place while finishing assembly of the Differential.
3. Apply a small amount of Clear Diff Grease (78) to the outer ridge of the Outdrive. Install the remaining Diff Ring (79), again lining up the "D shape" of the Outdrive/Diff Half with the "D shape" of the Diff Ring. Apply a good size bead of grease to the exposed side of the Diff Ring.

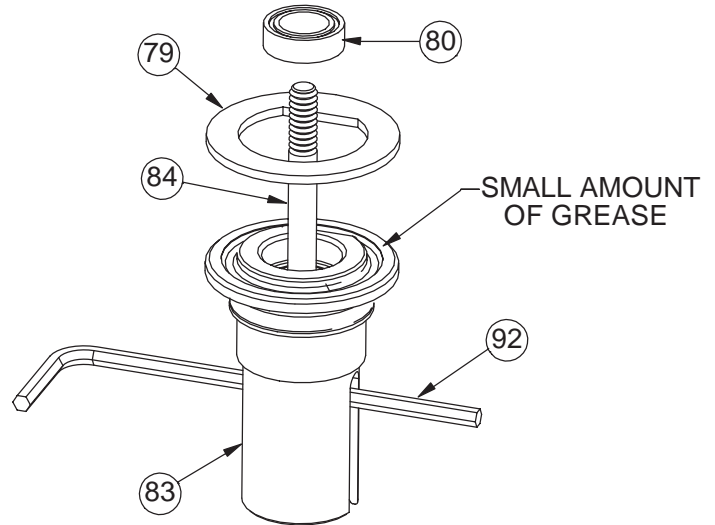



Figure 34

Step D-9 Diff Assembly:

1. Make sure that the slot in the Diff Screw (84) is lined up with the slot in the female Outdrive/Diff Half (83) and that the Allen Wrench is inserted in the slot in the Diff Screw.
2. Carefully remove the Allen Wrench from Diff Nut in the male Outdrive. Insert it through the slot of the male Outdrive (same as what was done with the female Outdrive). This will hold the Diff Nut in place during assembly.
3. While holding the Female Outdrive/Diff Half with the Allen Wrench inserted, carefully place the two Outdrive/Diff Halves together.
4. Hold the Diff assembly so that the Outdrive/Diff Half with the Diff Nut (73) is pointing up. Slowly turn the Male Diff Half clockwise to thread the Diff Screw in the Diff Nut. Thread the two halves together until the Screw just starts to snug up.
 When tightening the diff, tighten the screw a little and then "work" the diff a little, by holding the Diff Gear and Rotating the Outdrive/Diff Half. Then tighten the Diff a little more and "work" the diff again. Continue this until the Diff is tight. This will ensure proper seating of all the parts in the Diff assembly.
5. Tighten the Diff until the Gear (81) cannot be turned while both of the Outdrives/Diff Halves are being held. Final Diff adjustment should be made after completion of the car.

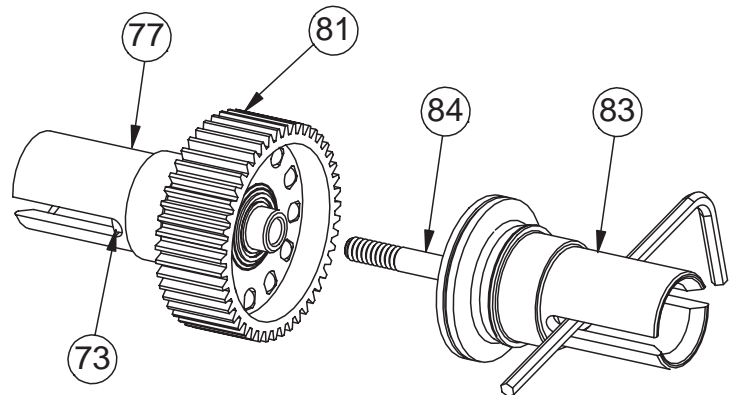
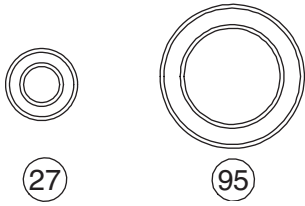


Figure 35

BAG D (Continued)

Step D-10 Bearing to Left Gearbox Half:



- ❑ 1. Insert a 3/16" x 3/8" sealed Bearing (27) into the top Bearing seat of the left Gearbox Half (94).
- ❑ 2. Insert a 1/2" x 3/4" Bearing (95) into the lower Bearing seat of the left Gearbox Half.

**NOTE: If the 1/2" x 3/4" Bearing only has one Teflon™ seal (colored, woven looking) in it, position the seal to the outside of the Gearbox Half.*

⚠ IMPORTANT NOTE: Never allow the Gearbox Halves to come into direct contact with any type of motor spray/cleaner. The material used on these parts was selected with performance in mind, and some motor sprays/cleaners may damage the parts.

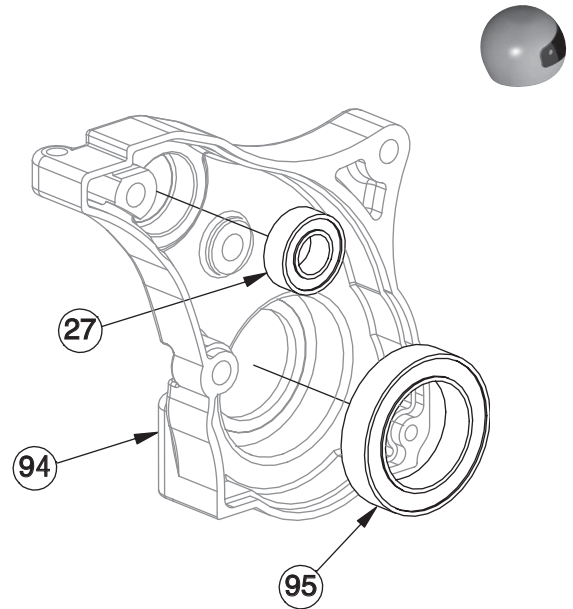
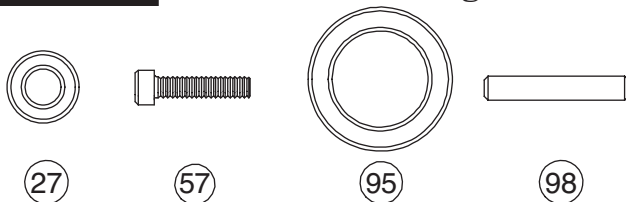


Figure 36

Step D-11 Motor Plate to Right Gearbox Half:



**Note: Motorplate supplied in kit may look slightly different than pictured in Figure 37.*

- ❑ 1. Place the Motor Plate (96) against the outside of the right Gearbox Half (97) by aligning the hole in the Motor Plate with the Top Shaft Bearing housing in the right Gearbox Half as shown in Figure 37.

- ❑ 2. Rotate the Motor Plate so that the Screw holes in the Motor Plate line up with the Screw holes in the Gearbox Half. Secure the Motor Plate to the Gearbox Half by threading a 4-40 x 1/2" Cap Head Screw (57) through the hole near the center of the Gearbox Half from the inside into the hole in the Motor Plate and tighten.

- ❑ 3. Insert a 3/16" x 3/8" sealed Bearing (27) into the top Bearing seat of the right Gearbox Half. Carefully push the Bearing all the way into the Bearing seat using a pencil or the handle of a hobby knife. Care should be taken not to damage the seals on the Bearing.

**NOTE: If the 3/16" x 3/8" Sealed Bearing only has one Teflon™ seal (colored, woven looking) in it, position the seal to the outside of the gearbox half.*

- ❑ 4. Insert a 1/2" x 3/4" sealed Bearing (95) into the lower bearing seat of the right Gearbox Half.
- ❑ 5. Press or lightly tap the Idler Gear Shaft (98), into the hole in the center of the right Gearbox Half.

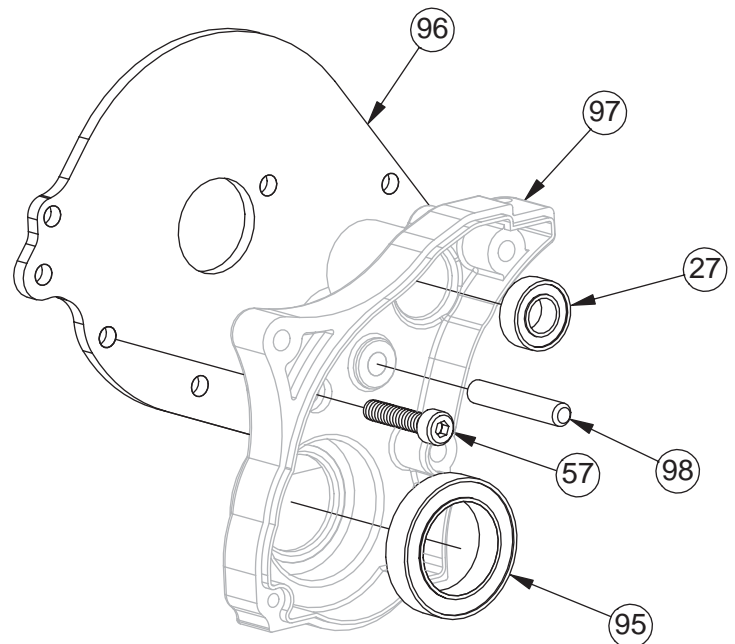
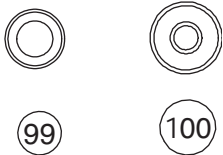


Figure 37

BAG D (Continued)

Step D-12 Right Gearbox Half Assembly:



**NOTE: Be sure there is no flashing left on the Top Shaft Spacer before you install it into the transimssion.*

- ❑ 1. Slide the Top Shaft Spacer (99) over the long side of the Top Shaft (90).
- ❑ 2. Insert the Top Shaft, threaded side first, through the Bearing (27) in the right Gearbox Half (97). Firmly press the Slipper Shaft into the Right Gearbox Half ensuring the Bearing is properly seated.
- ❑ 3. Insert a 1/8" x 3/8" Ball Bearing (100) into each side of the Idler Gear (101). Place the Idler Gear over the Idler Gear Shaft (98).

! IMPORTANT NOTE: Install the Differential so that the head of the Diff Screw is on the left hand side of the car. This will make for easier adjustment later.

- ❑ 4. Insert the Diff Assembly into the 1/2" x 3/4" Sealed Bearing (95) in the right Gearbox Half with the Diff Nut (73) side first.

**NOTE: Align the teeth on all Gears when installing the Differential.*

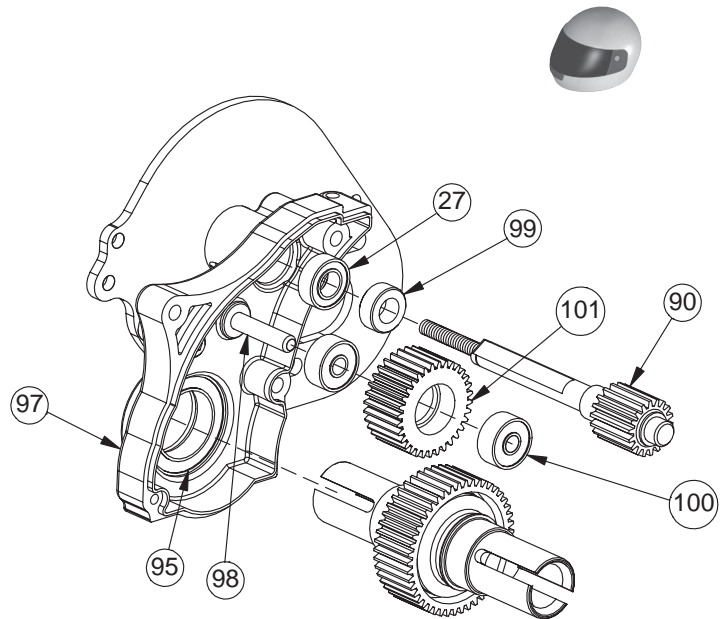
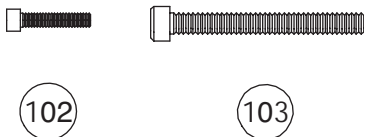


Figure 38

Step D-13 Gearbox Assembly:



- ❑ 1. Carefully place the left Gearbox Half (94) over the assembled right Gearbox Half.
- ❑ 2. Thread the 2-56 x 3/8" Cap Head Screw (102) into the lower, forward hole in the Gearbox Housing from the left side.
- ❑ 3. Insert a 4-40 x 1" Cap Head Screw (103) into each of the two rear holes in the left Gearbox Half and thread them into the Motor Plate (96) as shown in Figure 39.

! IMPORTANT NOTE: The top, forward hole in the Gearbox Halves remains open at this point. This hole will be used to attach the Gearbox to the rear Shock Tower.

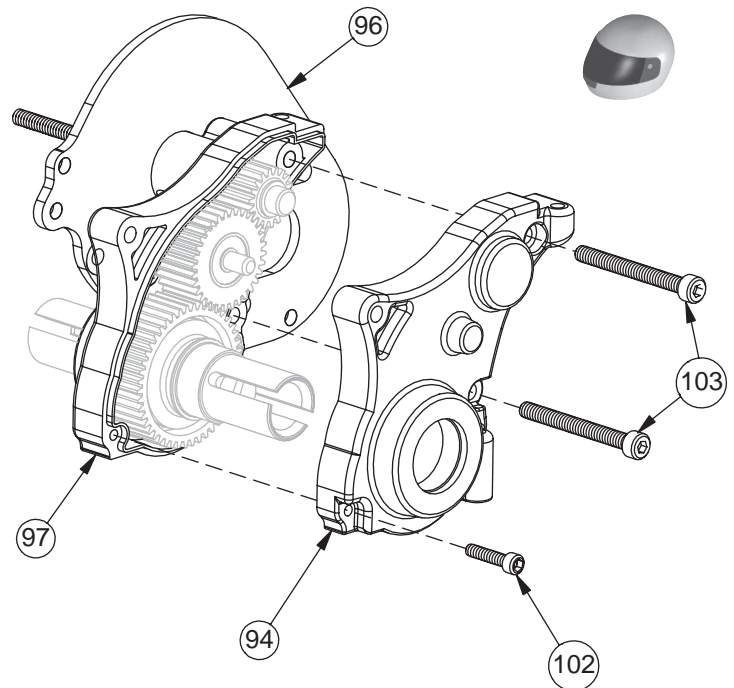


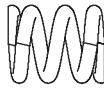
Figure 39

BAG D (Continued)

Step D-14 Slipper Clutch Assembly:



107



108



109



110

- ❑ 1. Slide the Slipper Backing Plate (104) over the Top Shaft (90), aligning the flat sections on the Top Shaft (90) with the flat sections of the Slipper Backing Plate.
- ❑ 2. Place the Slipper Pad (105) on one side of the 78 tooth Spur Gear (106) and align the notches on the Spur Gear with the notches on the Slipper Pad.
- ❑ 3. Place the Spur Gear, Pad side first, over the Top Shaft. The Slipper Pad should rest against the Slipper Backing Plate.
**NOTE: Ensure that the Slipper Pad remains indexed in the Spur Gear.*
- ❑ 4. Install the second Slipper Pad to the exposed side of the Spur Gear. Again, align the notches on the Spur Gear with the notches on the Slipper Pad.
- ❑ 5. Place the second Slipper Backing Plate over the Top Shaft so that the large, flat surface of the Backing Plate rests against the Slipper Pad.
- ❑ 6. Place the Slipper Spacer (107), long side first, onto the Slipper Shaft and against the outer Slipper Backing Plate.
- ❑ 7. Place the silver Slipper Spring (108) over the Slipper Shaft, followed by the Slipper Spring Retaining Washer (109) and secure with the 4-40 Locknut (110).

⚠ IMPORTANT NOTE: Before tightening the Locknut, check to see that the Slipper Pads are properly aligned with the notches on both sides of the Spur Gear. If not, align them before proceeding.

- ❑ 8. Tighten the 4-40 locknut all the way down, and then back it off four complete turns ($360^\circ \times 4$). This is a good starting point for adjustment. Final adjustment can be made later.

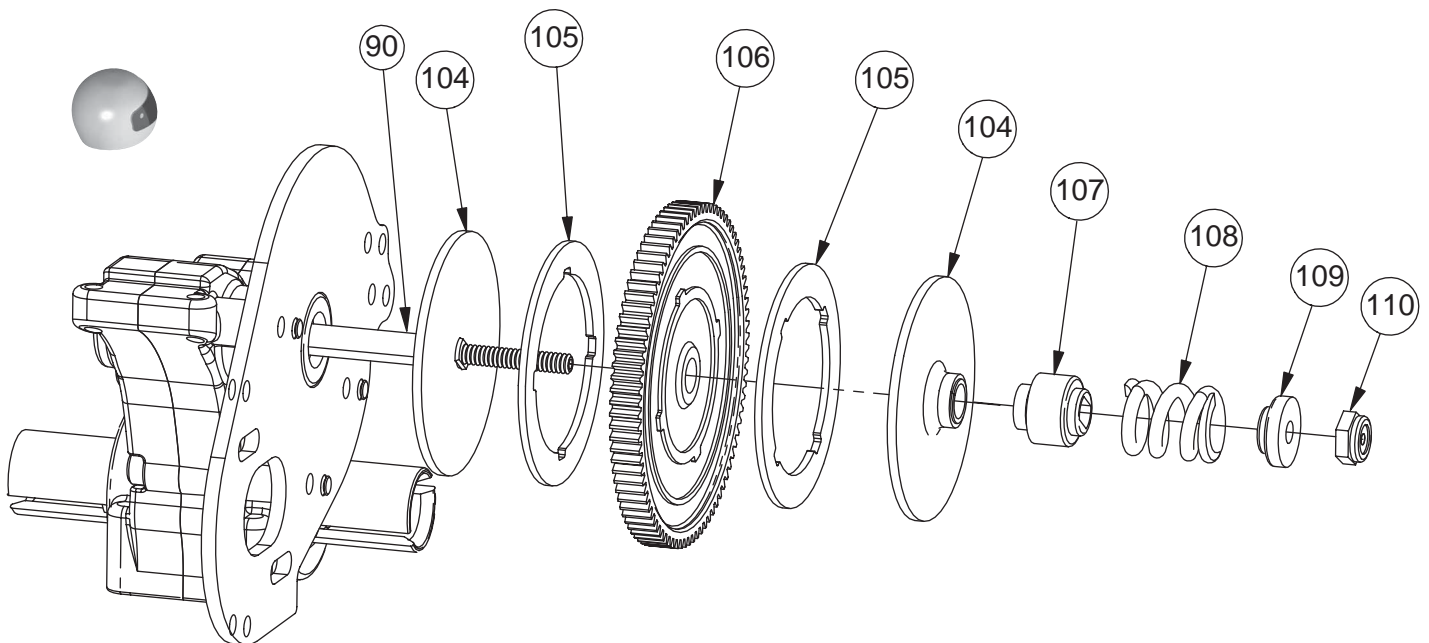


Figure 40

BAG D (Continued)

Step D-15 Gearbox Install:



58

112

54

- ❑ 1. Place the assembled Chassis (19) on a flat table so that the rear suspension Arms (50), (51) and Chassis (19) are laying flat on the table. This will make installing the Gearbox a little easier.
- ❑ 2. Insert the ball end of the CVD Dogbones (59) into each of the Outdrive/Diff Halves (77), (83) and place the Gearbox between the Rear Pivot Blocks (164) (49). Push the Gearbox forward so that the top, center portion of the Gearbox fits between the tabs on the rear Shock Tower (55).
- ❑ 3. Hold the rear suspension Arms up so that the CVD's stay in place, and turn the car over holding the Gearbox in place while doing so. Align the two holes in the rear of the Gearbox Housing with the two holes in the rear of the Pivot Plate (53).
- ❑ 4. Apply a small amount of White Assembly Grease (87) to each of the two 4-40 x 3/8" Flat Head Screws (54). Thread the Screws through the two holes in the back of the Pivot Plate into the Gearbox Halves (94), (97).
- ❑ 5. Place a #4 Washer (58) onto the 4-40 x 1-1/2" Cap Head Screw (112). Thread the Screw through the hole in the left side of the rear Shock Tower, through both Gearbox Halves and into the Motor plate (96).

**NOTE: In order to properly align all parts, it may be necessary to pull the transmission forward while inserting the screw.*

⚠ IMPORTANT NOTE: Ensure that the 4-40 x 1-1/2" Cap Head Screw is threaded into the Motor Plate.

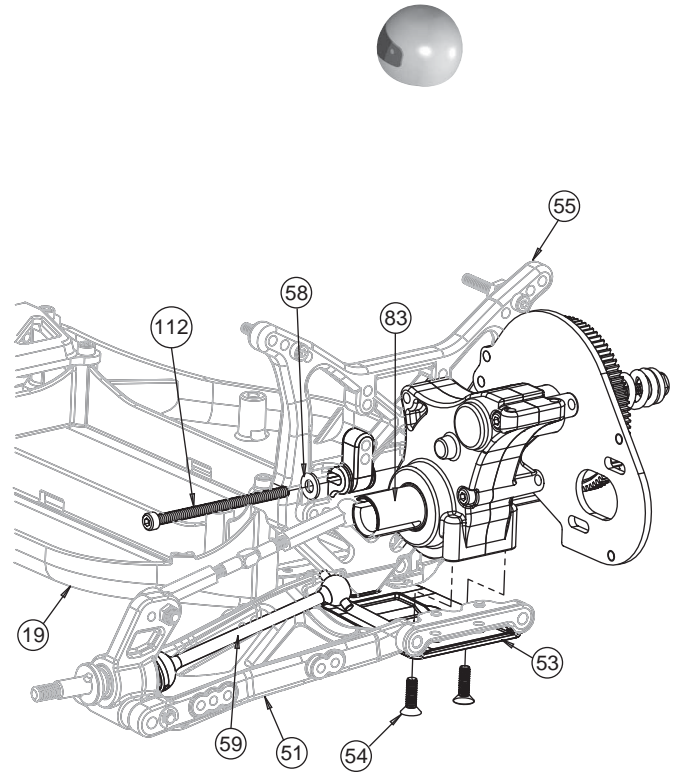


Figure 41

Step D-16 Motor Guard Install:



91

54

**NOTE: The Screws, installed in the previous section, which hold the Aluminum Rear Pivot to the Pivot Plate will have to be removed, then reinstalled to allow the Motor Guard to slip into place.*

- ❑ 1. Slide the bottom of the Motor Guard (111) between the rear Pivot Plate (53) and the Aluminum Rear Pivot (164) as shown in Figure 42. The top of the Motor Guard should fit over the top edge of the Gearbox.
- ❑ 2. Replace the two Screws which hold the Aluminum Rear Pivot, using them to capture the Motor Guard, and tighten.
- ⚙ There is a short Thread-Cutting Screw included in the Wrench bag. This Screw can be used to tap threads in the holes in the Gearbox Halves. Pre-tapping these holes makes it easier to install the Screws during assembly.
- ❑ 3. Secure the top of the Motor Guard to the top of the Gearbox by threading a 4-40 x 5/16" Button Head Screw (91) through each of the two holes in the Motor Guard and into the Gearbox Halves (94), (97).

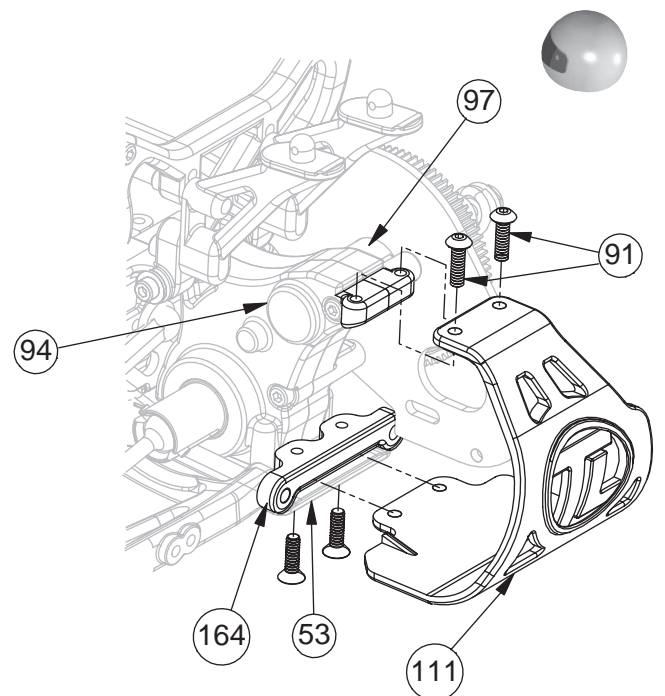
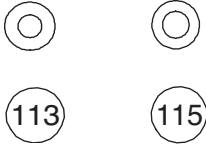


Figure 42

BAG E

Step E-1 Shock Cartridge Assembly:



***NOTE: THIS STEP WILL ONLY BE USED FOR CARTRIDGE MAINTENANCE, ALL CARTRIDGES IN THIS KIT HAVE BEEN PRE-ASSEMBLED AT THE FACTORY.**

- 1. Place one Shock O-ring (113) into the Cartridge Body (114), making sure that the O-ring sits flat in the bottom of the Cartridge Body.
- 2. Insert the Cartridge Spacer (115) into the Cartridge Body followed by a second O-ring.
- 3. Once the second O-ring is inserted, it should be flush with the top of the Cartridge Body, press the Cartridge Cap (116) onto the Cartridge Body. Make sure the Cartridge Cap is snapped all the way on.
- 4. Repeat assembly process for the remaining three cartridges.

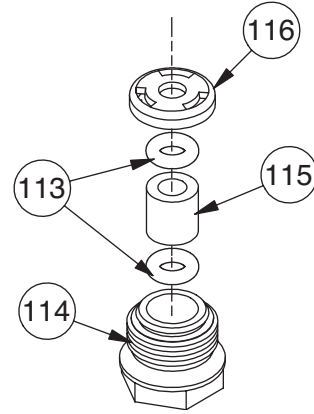
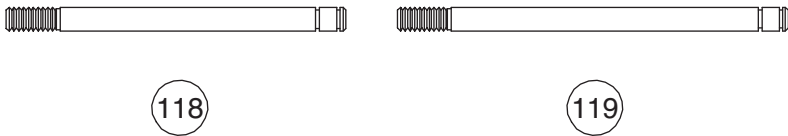


Figure 43

Step E-2 Shock Shaft Install:



- 1. Place a drop of Shock Fluid (117) on the grooved end of each Shock Shaft [front (118), rear (119)]. Then slide a Cartridge, hex end first, down the Shock Shaft toward the threads as shown in Figure 44.

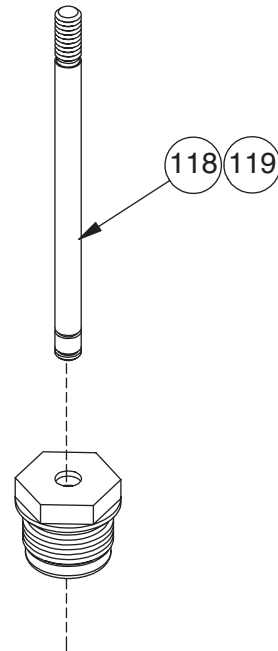


Figure 44

BAG E (Continued)

Step E-3 Shock End Install:



- 1. Using needle-nose pliers, or small vise grips, grasp the front Shock Shaft (118) between the grooves and thread a Shock End (120) onto the Shock Shaft. Thread the Shock End all the way onto the Shaft until the threads stop.

⚠ IMPORTANT NOTE: Use caution when threading the Shock Ends onto the Shafts. Avoid gouging or scratching the Shock Shaft, while gripping Shock Shaft with the pliers, by placing a towel over the shaft, then gripping the portion of the Shaft covered by the towel. This will work very well to protect the Shock Shaft.

- 2. Repeat Step 1 for the second front Shaft and two rear Shafts.
- 3. Carefully snap a 1/4" Shock Mount Ball (122) into each of the Shock Ends on each of the Shafts.

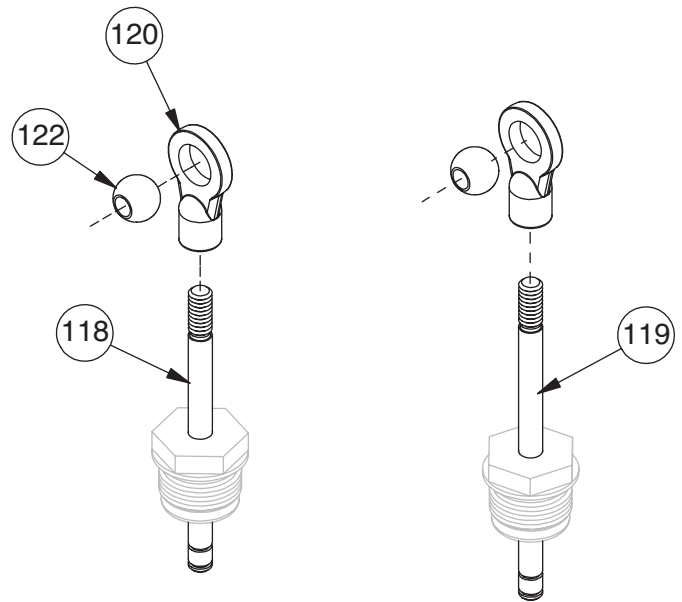


Figure 45

Step E-4 Shock Piston Assembly:



- 1. Place a 0.050" Shock Spacer (36) over each of the front Shock Shafts and move them up against the Shock Cartridges.
- 2. Snap a 1/8" E-clip (41) into the groove closest to the Cartridge on all four shafts (capturing the Spacers on the front Shock Shafts).
- 3. Slide a #56 (Red) Shock Piston (123) over the end of each Shaft until it rests against the E-clip. Secure the Pistons to the Shaft with another 1/8" E-clip placed in the groove now exposed on the top of the Shaft.

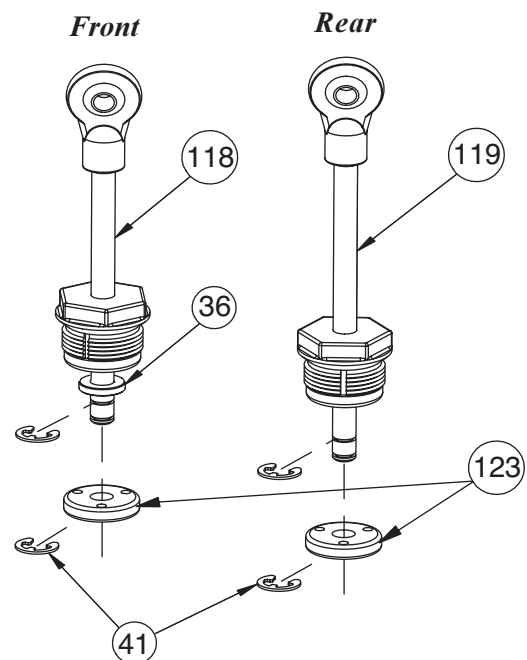


Figure 46

BAG E (Continued)

Step E-5 Shock Oil Install:

❑ 1. Match the short, front Shock Bodies (125) to the short, front Shock Shafts (118), and the long, rear Shock Bodies (126) to the long, rear Shock Shafts (119).

❑ 2. Fill the Shock Bodies with Shock Fluid (127) up to the bottom of the threads inside the Shock Body.

**NOTE: Be sure to match the front Shock Shafts with the front Shock Bodies.*

❑ 3. Insert the shaft assembly with the Cartridge against the Shock Piston (123), (124). Slowly tighten the Cartridge about two full turns only. With the Cartridge still slightly loose, slowly push the Shock Shaft down into the Shock Body. This will bleed the excess fluid out of the Shock. Once the Shock Shaft is all the way in, tighten the Shock Cartridge the rest of the way.

❑ 4. Now, with the Shock Shaft still all the way in, secure the Cartridge by tightening it with pliers or a Wrench approximately 1/8 of a turn. There should be no air in the Shocks as you push the Shaft in and out. If there is, the Shock needs more Fluid. If the Shock Shaft does not compress all the way, the Shock has too much Fluid in it.

**NOTE: If leaking persists around the outside, tighten the cartridge more. Be careful not to over tighten and strip the threads on the Cartridge Body.*

❑ 5. Repeat Steps 2-4 for the remaining three Shocks.

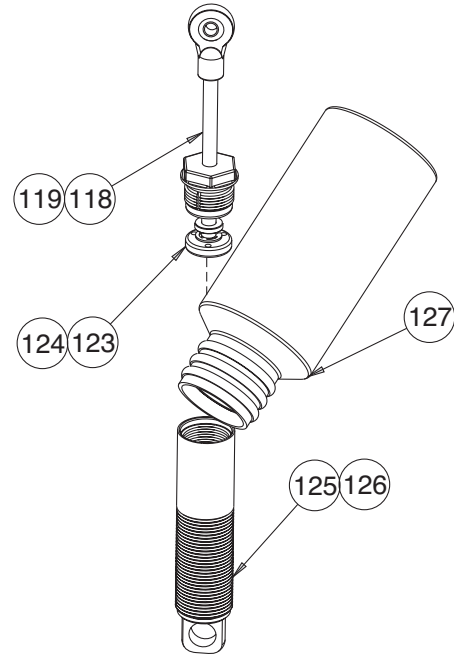


Figure 47

Step E-6 Shock Adjustment Nut Assembly:

**Note: This step will only be used for maintenance purposes, all of the Shock Adjustment Nuts in this kit have been pre-assembled at the factory.*

**NOTE: Place a drop of Shock Fluid onto each O-ring before installing it into the Shock Adjusting Nut. This will allow the Nut to thread onto the Shock Body easily.*

❑ 1. Place the O-ring (5) into the groove inside of the Shock Adjusting Nut (130). Be sure to seat the O-ring completely into the groove as shown in Figure 48B.

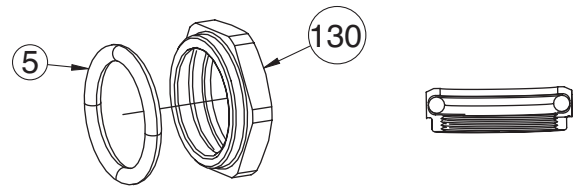


Figure 48A

Figure 48B

Step E-7 Shock Install:

❑ 1. Snap a Shock Spring Cup (128) with the small side down, onto each of the four Shock Shafts (118), (119) and over the Shock End (120).

❑ 2. Slide an Orange front (short) Shock Spring (129) over each of the two front Shocks so that the Spring rests on the Spring Cup. Slide a Yellow rear (long) Shock Spring (131) over each of the two Rear Shocks so that the Spring rests on the Spring Cup.

❑ 3. Thread a Shock Spring Adjustment Nut (130), small side down, on to the top of all four Shock Bodies (125), (126). Thread the Spring Adjustment Nuts on to the Shocks until the Adjusting Nut just touches the Spring.

**NOTE: Final ride height adjustment should be made once the car is fully built and all radio gear and electrics are installed. Refer to the setup sheet provided in the back of this manual for final ride height adjustment.*

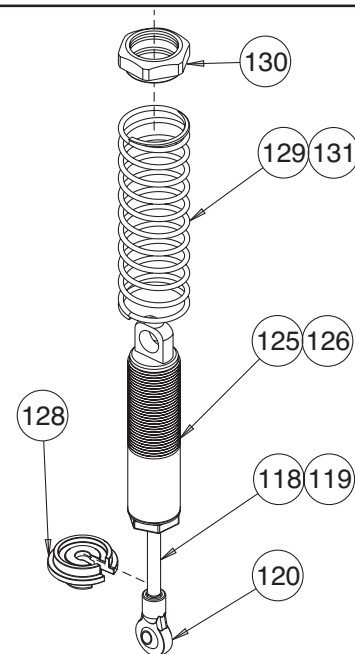


Figure 49

BAG E (Continued)

Step E-8 Rear Shock Install:



(57)

(110)

- ❑ 1. Position your car so that the Shock mounting holes in the front of the Arms are accessible. Make sure that the CVD Dogbones (59) stay in the Outdrives/ Diff halves (77)(83).
- ❑ 2. Position the bottom of an assembled rear Shock in front of the Shock mounting area on the left rear suspension Arm (51). Align the hole in the Shock Mount Ball (122) with the middle hole in the Arm.
- ❑ 3. Attach the Shock to the rear Arm by threading a 4-40 x 1/2" Cap Head Screw (57) through the Shock Mount Ball all the way into the middle hole of the suspension Arm.
- ❑ 4. Slide a short Shock Mount Bushing (132), large side first, over the Shock mounting Screw (23) in the top left side of the rear Shock Tower (55).
- ❑ 5. Place the top of the Shock Body (126) over the Shock Mount Bushing. Secure the Shock to the Shock Tower by threading a 4-40 Locknut (110) onto the Shock Mount Screw.

**NOTE: Before attaching the top of the Shock, make sure that the CVD Dogbones are in place in the Outdrives.*

- ❑ 6. Repeat Steps 2-5 for the right rear Shock.

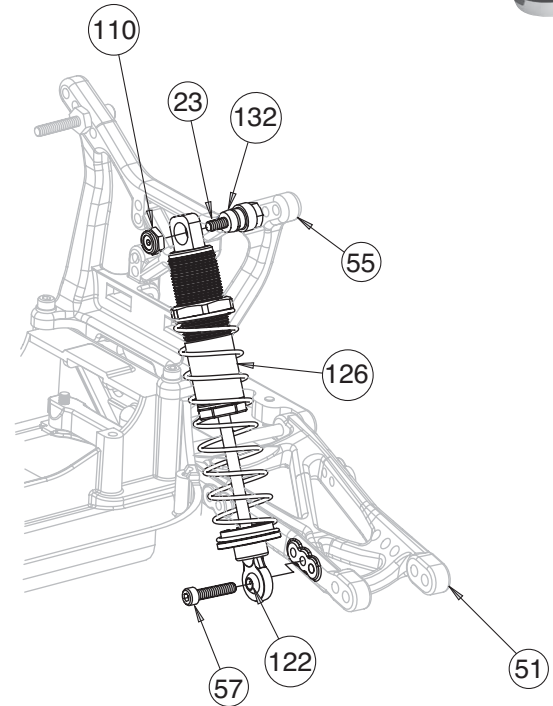


Figure 50

Step E-9 Front Shock Install:



(57)

(110)

- ❑ 1. Insert the Shock End (120) of a front Shock into the Shock mounting area of the left front suspension Arm (38) and line up the hole in the Shock Mount Ball (122) with the middle hole in the Arm.
- ❑ 2. Secure the Shock to the front Arm by threading a 4-40 x 1/2" Cap Head Screw (57) all the way into the Arm from the back side.
- ❑ 3. Slide a long Shock Mount Bushing (133), large side first, over the Screw (89) on the left side of the front Shock Tower (24).
- ❑ 4. Place the top of the Shock Body (125) over the Shock Mount Bushing on the front Shock Tower. Secure the Shock to the Shock Tower by threading a 4-40 Locknut (110) onto the Shock Mount Screw.
- ❑ 5. Repeat Steps 1-4 for the right front Shock.

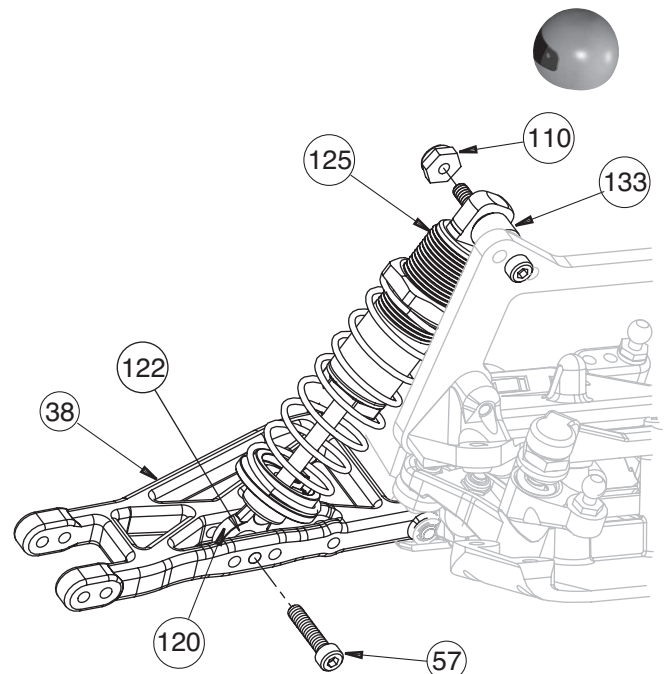
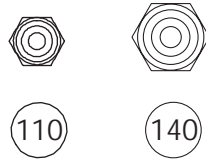


Figure 51


BAG F

Step F-1 Tire Mounting and Install:




- ❑ 1. Inspect the inside of the Tires [front (134), rear (135)] for any excess material. If present, trim excess rubber to ensure proper seating of the Tire bead on the Wheel [front (136), rear (137)]. During Tire assembly, make sure that all lettering on the sidewall of the Tires faces to the outside of the Wheel.


**NOTE: Do not set Tires on furniture as they may leave permanent stains.*

 It is recommended that you dampen a corner of a cloth with some rubbing alcohol and use it to clean off any residue from the bead of the Tire to ensure a clean gluing surface. Be sure to let the alcohol on the Tire dry before inserting the Foam Insert into the Tire.

- ❑ 2. Insert the front Foam Liners (138) into the front Tires. Pull the front Tires over the front Wheels and squeeze the Tires to properly seat the bead into the grooves of the Wheels. Make certain that the Foam Liners are not pinched between the Tires and the Wheels.

- ❑ 3. Insert the rear foam Tire Liners (139) into the rear Tires. Pull the rear Tires over the rear Wheels and squeeze the Tires to properly seat the bead into the grooves of the Wheels. Make certain that the Foam Liners are not pinched between the Tires and the Wheels.

 Team Losi Tire Glue (A-7880 "Thick", A-7881 "Thin") is the best Glue available for gluing R/C car Tires. This Glue was produced specifically for this purpose. The Team Losi (A-7884) off-road Tire Gluing kit is also available to get the job done right. It includes a bottle of glue, an applicator tube, and a ten rubber bands. The rubber bands will be used to properly seat and hold the Tire bead into the Wheel.

 **IMPORTANT NOTE:** Allow the Glue to dry thoroughly before continuing. Read and follow adhesive manufacturers' safety warnings regarding use.

- ❑ 4. The tires now need to be glued to the wheels. This can be done by using a fast-curing superglue or cyanoacrylate glue, available at your local hobby shop. Install a Tire gluing rubber band to around the outside of the Tire, inline with the bead to hold it onto the Wheel. Now slightly pull back the bead from the Wheel and apply a thin bead of glue between the Tire bead and the Wheel all the way around, wait for this side to dry and do the same to the other side until the tire is firmly adhered to the wheel. Allow the glue to dry thoroughly before continuing.

- ❑ 5. Install the front Wheels to the front Stub Axles (30) by lining up the hex on the Axle with the Hex area in the front Wheel.
- ❑ 6. Secure the front Wheels by threading a 4-40 Locknut (110) onto each of the front Axles and tightening.
- ❑ 7. Mount the rear Wheels to the rear Axles (62) by lining up the Roll Pin (69) in the rear Axle with the groove in the rear Wheel and pushing the Wheel all the way onto the Axle, making sure the Roll Pin is lined up with the slot on the Wheel.
- ❑ 8. Secure the rear Wheels by threading the 8-32 Locknuts (140) on to the Rear Axles and tightening.

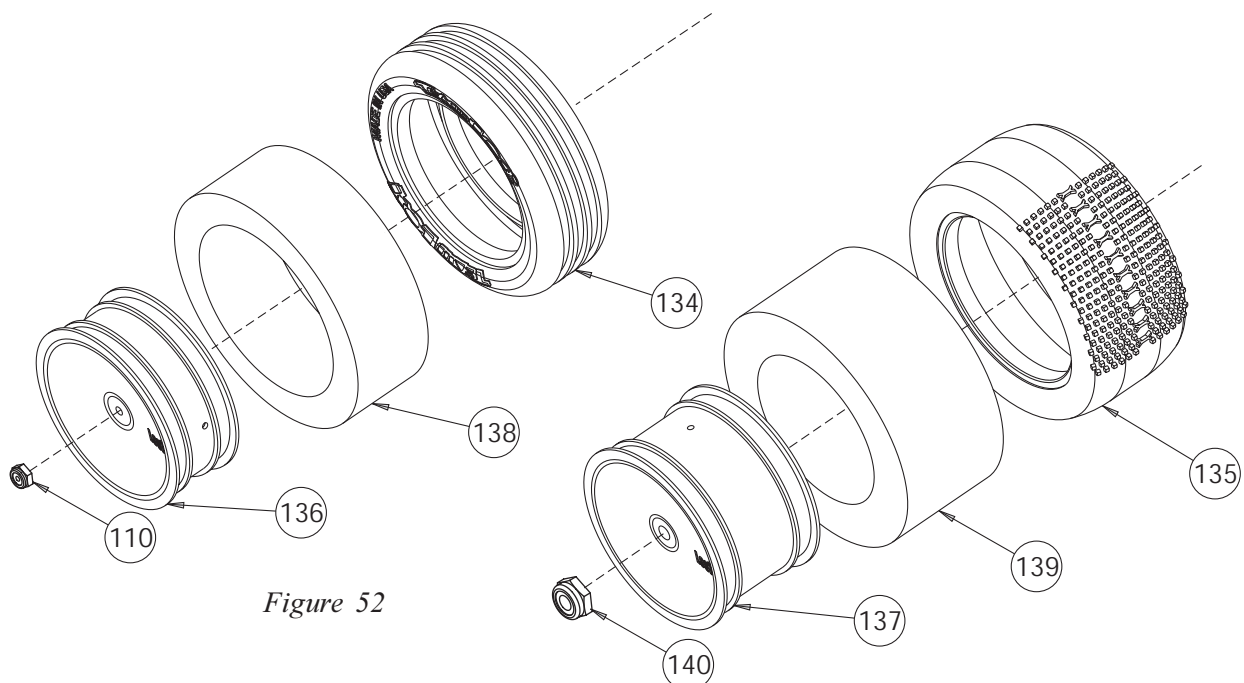
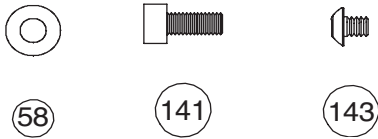


Figure 52

BAG G

Step G-1 Motor and Gear Cover Install:



1. Attach the motor (*not included*) to the Motor Plate (96) using two 3mm x 8mm Cap Head Screws (141) and two #4 Washers (58). Do not tighten the Screws yet.

2. Attach the pinion gear (*not included*) to the motor shaft by aligning the set screw in the pinion with the flat side on the motor shaft and tightening. Adjust gear mesh so that there is a little "backlash" between the Gears, and tighten the Motor Screws one at a time, checking the mesh between the tightening of each Screw.

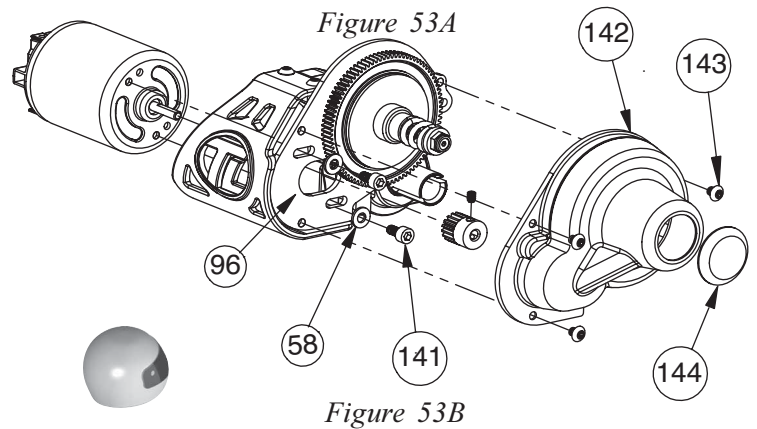
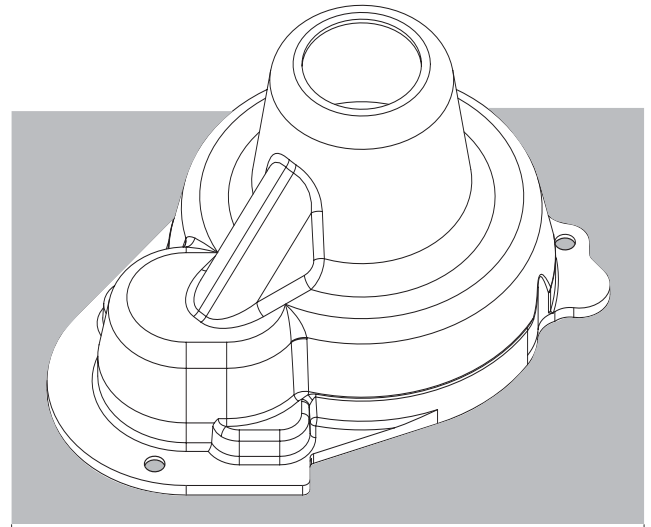
**NOTE: The gears need some backlash in order to function properly. Too much though will cause failure, so be sure to check the Gear mesh at different points in the rotation of the Spur Gear.*

**NOTE: Some of the Gear Covers may come pre trimmed from the factory, with mounting holes already in place.*

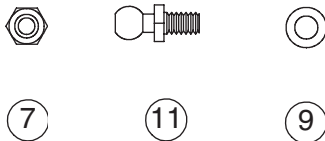
3. Locate the Gear Cover (142) and cut the back side of it along the trim line as shown. If not already present, drill three 1/8" mounting holes in the gear cover at the three locations marked with dimples.

4. Place the trimmed Gear Cover over the Motor Plate and secure it with three 4-40 x 1/8" Button Head Screws (143) through the three tapped holes in the Motor Plate.


5. Install the Gear Cover Plug (144) into the large hole in the Gear Cover.



Step G-2 Servo Arm Install:



1. Using Table 55B (on the following page), determine which Servo Arm (145) is required for your Servo. If your particular Servo is not listed, try using the Arm recommended for another Servo made by the same manufacturer.

 Some Servos may require the use of a Ball Stud Washer (9) placed behind the Ball Stud (11) for proper Servo Link alignment, as shown in Figure 54A.

2. Insert a 4-40 Mini-Locknut (7) into the hex area on the back side of the Servo Arm. Thread a 3/16" Ball Stud (11) through the hole in the Servo Arm, into the Locknut, and tighten.

3. Plug the Servo into the radio system's receiver (*not included*). Make sure that there is power to the Receiver, and turn the transmitter on followed by the Receiver. Be sure that the trim settings for the steering on your transmitter are set to the center. With the radio system still turned on, attach the Servo Arm to the output shaft so that the Arm is one spline off center in the direction shown in Figure 54B. Secure the Servo Arm with the screw supplied with the Servo.

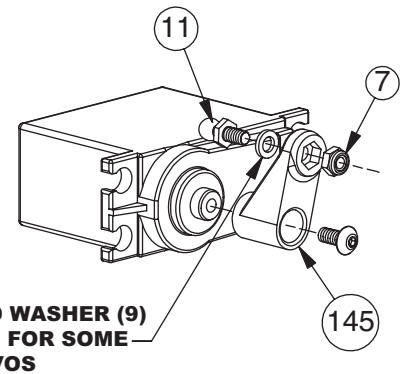


Figure 54A

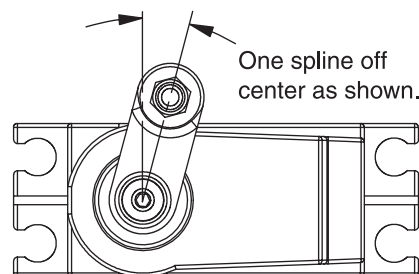


Figure 54B

BAG G (Continued)

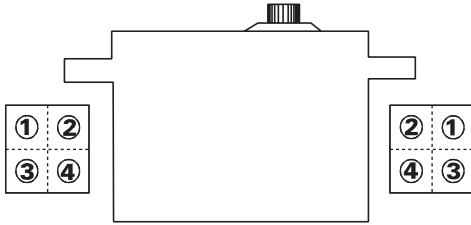


Figure 55

Position of pin on servo mount post	
1	Forward away from servo
2	Forward next to servo
3	To rear away from servo
4	To rear next to servo

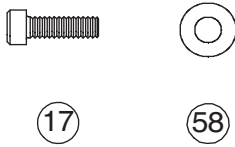
Table 55A

SERVO TYPE	MOUNTING POST PIN LOCATION	REQUIRED SERVO ARM	STEERING LINK LENGTH
AIRTRONICS All	4	23	58B
Futaba S131, S131SH, S148, S3001, S5101, S9101, S9201, S9301, S9401, S9403	2	25	58B
Futaba S3401, S9402, S9404, S9450	3	25	58B
Futaba S9303	4**	25	58B
HiTech HS-605, HS-615, HS-925, HS-945	3**	24	58C
HiTech All other's	1	24	58C
JR NES-507, NES-513, NES-517, NES-901, NES-4000, NES-4131, NES-4721, NES-4735, NES-9021, DS-8231	1	23	58B
KO PS-702, PS-703, PS-1001, PS-1003	2	23	58B
KO PS-901BH, PS-902	1	23	58B
Multiplex All	3	23	58B

** Use 1 Ball Stud washer on the ball stud when attaching it to the servo arm.

Table 55B

Step G-3 Servo Mounting Post Install:



□ 1. Use Tables 55A and 55B to determine how the Servo Mounting Posts (146) should be attached to the Servo (*not included*).

⚙️ Trim any flashing from the pins on the Mounting Posts so that they will seat all the way into the holes in the Chassis and Chassis Brace.

□ 2. Place a #4 Washer (58) over each of the four 4-40 x 3/8" Cap Head Screws (17) and attach the Servo Posts to the Servo by threading a Screw through the upper and lower holes in each Post. Do not tighten the Screws yet! Just snug them up so that the Posts are held in place, but can still be moved from side to side with a little resistance. The Screws will be tightened at a later step so that the Posts have the correct spacing.

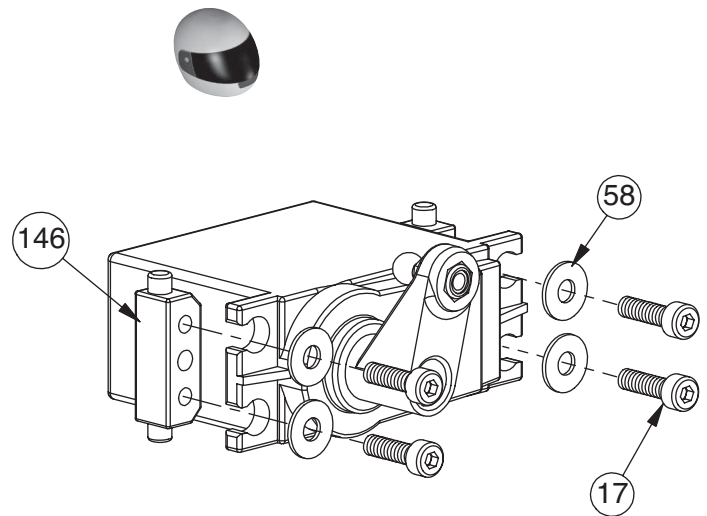


Figure 56

BAG G (Continued)

Step G-4 Servo Mounting:



17

1. Install the Servo into the Chassis (19) as shown in Figure 57. Insert the pin on the left Servo Mounting Post (146) into the hole in the Chassis. Move the Servo and Posts slightly until both the left and right Posts are inserted in the holes in the Chassis.

2. Place the Chassis Brace (147) on top of the Servo. The pins from both Servo Mounting Posts should line up with the holes on the bottom of the Chassis Brace. If they do not, move the Posts slightly until the pins fit into the holes.

**NOTE: The Servo should be as close to centered between the two Posts as possible*

3. Remove both the Servo and the Chassis Brace from the car. While holding the Brace in place, tighten the top two Screws (21), followed by the bottom two Screws. Holding the brace in place will help keep the Posts from moving while tightening the Screws.

4. Reinstall the Servo and Brace to the Chassis. Ensure that the pins on both sides of the Servo Posts are in their respective holes, and secure the Brace to the Chassis with four 4-40 x 3/8" Cap Head Screws (17).

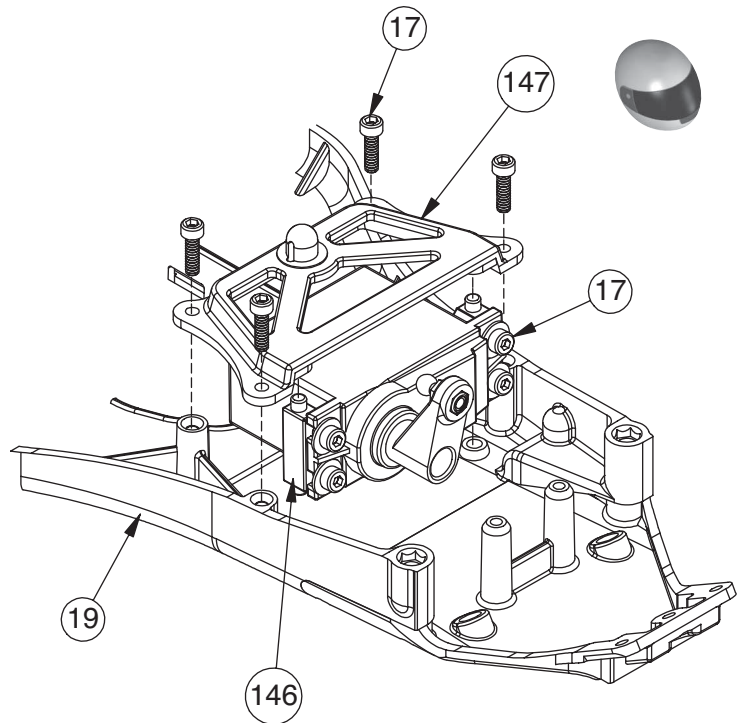
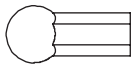


Figure 57

Step G-5 Servo Link:



148



149

1. Thread a short plastic Rod End (148) onto each end of the 4-40 x 5/8" Set Screw (149).

2. Refer to Table 55B to determine the appropriate Servo Link length for the servo that is installed. Tighten both sides equally until the Rod is the same length as the one shown in Figure 58B or 58C.

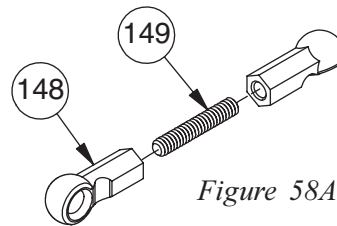


Figure 58A

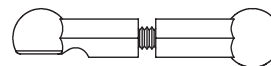


Figure 58B

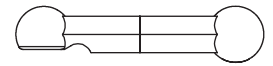


Figure 58C

Step G-6 Servo Link Install:

1. Attach one end of the Servo Link to the Ball Stud (11) in the Servo Arm (145) and the other to the Ball Stud in the Servo Saver as shown in Figure 59.

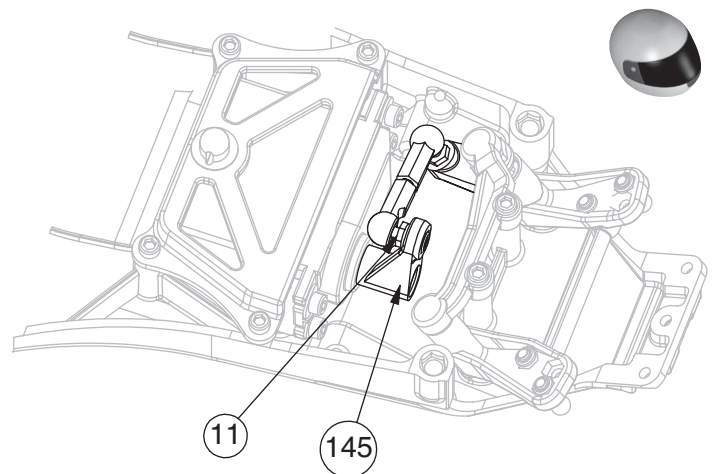


Figure 59

BAG G (Continued)

Step G-7 Rear Body Mount Install:



54

- ❑ 1. Insert a 4-40 x 3/8" Flat Head Screw (54) into each of the two rear Body Mounts (151) from the side with the recess for the head of the Screw.
- ❑ 2. Attach a rear Body Mount to the rear of each side of the Chassis (19) so that the Posts point, at an angle, towards the rear of the car as shown in Figure 60A. Secure the Body Mounts by tightening the Screws.
- ❑ 3. Apply the Self Adhesive Battery Insulation Tape (121) to both inner edges of the battery compartment on the Chassis, as shown in Fig. 60B.

Figure 60A

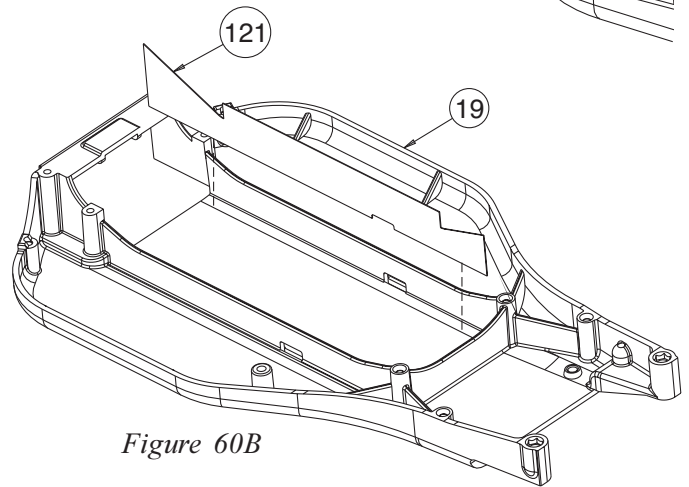
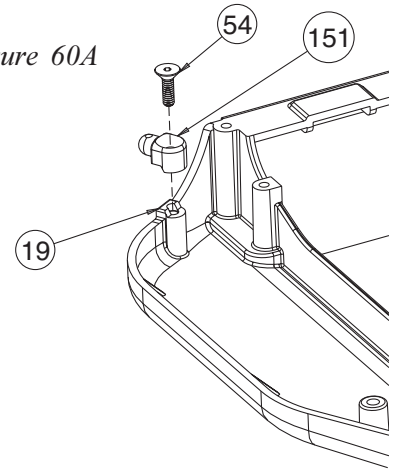
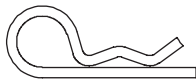


Figure 60B

Step G-8 Battery Foam/Strap Install:



155

- ❑ 1. Place the Battery Spacing Foam (152) into the recessed area in the rear of the Chassis (19). The foam should be positioned against the rear Shock Tower (55).

! IMPORTANT NOTE: The Battery Strap can be mounted in one of two ways. The different offset will accommodate different styles of batteries. If you will be running matched-type cells, or individual cells laid out side-by-side, the Foam Strip should be attached on the side with ribs. The foam should be positioned between these ribs. If, however, you are using a pre-assembled stick pack, the foam strip should be attached to the side of the strap opposite the ribs.

- ❑ 2. Remove the Backing Tape from the Battery Strap Foam Strip (153) and attach it to the bottom side of the Battery Hold Down Strap (154).

- ❑ 3. Once the battery pack (not included) is installed, the Battery Strap (154) will hold the batteries in place. The Battery Strap fits under the rear "bridge" of the Chassis, between the two ribs on the bottom, and fits over the post on the front Chassis Brace (147). The strap is secured to the post with a Body Clip (155).

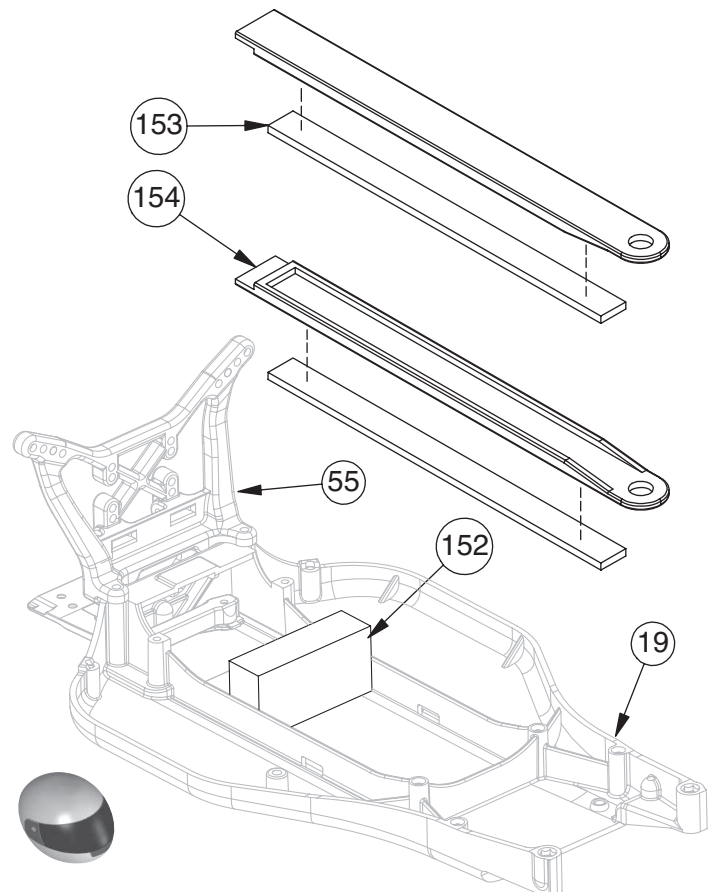


Figure 61

BAG G (Continued)

Step G-9 Receiver Install:

❑ 1. Cut a piece of Two Sided Tape (156) to the same size as the bottom of the receiver (*not included*). Peel one side of the backing off and stick the Tape to the bottom of the receiver.

❑ 2. Make sure that the area on the right side of the Chassis (19) is clean. Wipe this area off with a clean cloth or rag.

**NOTE: Rubbing alcohol can be used to clean any oily residue that may be present on the Chassis or receiver. Allow the alcohol to dry before applying the Two Sided Tape.*

❑ 3. Peel the backing off of the Two Sided Tape and install the receiver to the right side of the Chassis with the antenna wire exiting the receiver towards the front of the car as shown in Figure 62.

❑ 4. Run the antenna wire forward to the Antenna Post on the Chassis. Run the wire into the small hole in the bottom of the Antenna Mounting Post, and up through the top of the Post.

❑ 5. Slide the antenna wire through the Antenna Tube (157) (*a small drop of oil in the tube will make this easier*) so that the wire comes out the other end of the tube.

NOTE: If antenna wire is shorter than the Tube, **remove the Tube and cut off enough of the Tube so that the wire will extend about 3/4" past the end of the Tube.*

❑ 6. While pulling the wire through the Antenna Tube, slide the Antenna Tube down and push it firmly into the Antenna Mounting Post on the main Chassis.

❑ 7. Fold the wire down over the Antenna Tube and place the Antenna Cap (158) over the tube and excess wire.

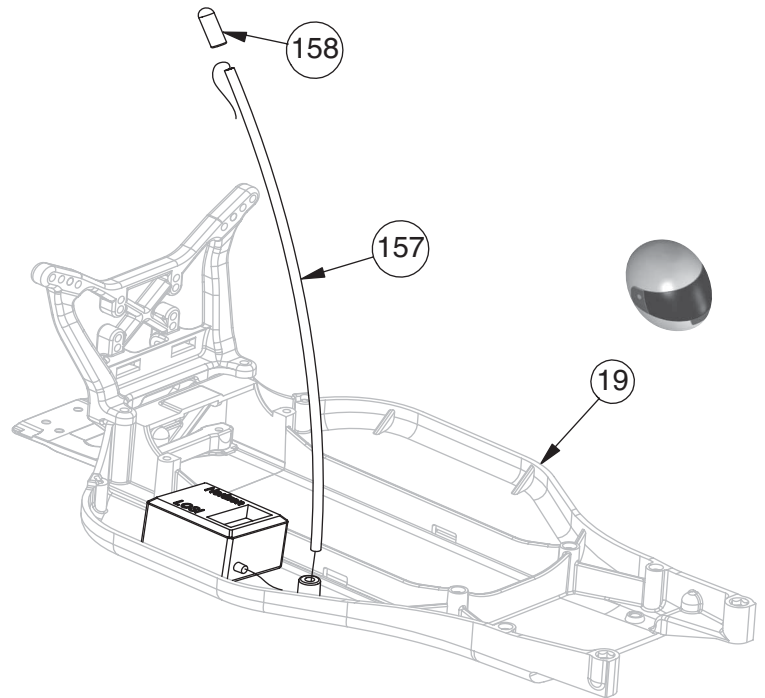


Figure 62

Step G-10 Speed Control Install:

❑ 1. Cut a piece of Two Sided Tape (156) to the same size as the bottom of the speed control (*not included*). Peel one side of the backing off and stick the Tape to the bottom of the speed control.

❑ 2. Make sure that the area on the left side of the Chassis (19) is clean. Wipe this area off with a clean cloth or rag.

**NOTE: Rubbing alcohol can be used to clean any oily residue that may be present on the chassis or receiver. Allow the alcohol to dry before applying the two-sided Tape.*

❑ 3. Peel the backing off of the Two Sided Tape and install the speed control to the left side of the Chassis as shown in Figure 63.

❑ 4. Run the wire from the speed control through the slot in the left rail on the Chassis, across the center of the Chassis, and through the slot in the right rail of the Chassis.

❑ 5. Plug the speed control wire into the channel 2 slot on the receiver, then plug the wire from the servo into the channel 1 slot.

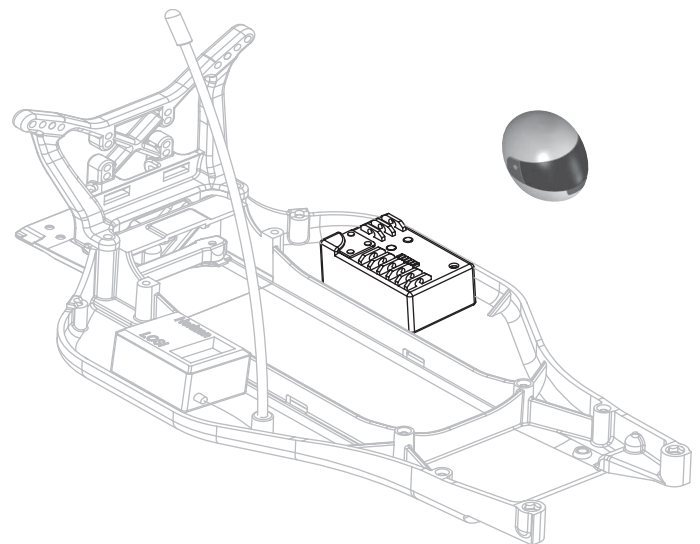


Figure 63

BAG G (Continued)

Painting the Body and Wing

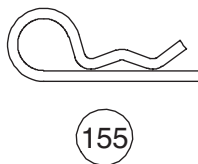
BODY AND WING PAINTING

Prepare the Lexan Body and Wing for painting by washing them thoroughly (inside and out) with warm water and liquid detergent. Dry both the Body and Wing with a clean, soft cloth. Use the Window Masks (162) supplied to cover the windows *from the inside*. A high-quality masking tape should be used on the inside of the Body to mask off any stripes, panels, or designs that you wish to paint on the Body or Wing. Use acrylic lacquer, acrylic enamel, or any other paints recommended for Lexan (polycarbonate). Apply paint to the inside of the Body and the bottom side of the wing. Remove the tape for the next color and continue. Try to use darker colors first. If you use a dark color after a light color, apply a coat of white over the lighter color before applying the darker color. This will help prevent the darker color from bleeding through the lighter color.

STICKERS

Apply the stickers after the mounting of the Body and Wing is complete. Cut the stickers from the Sticker Sheet (163) that you wish to apply to the Body or Wing. Before removing the protective backing, find the desired location. Remove the backing completely and reattach an edge of the sticker to the shiny side of the backing material. Using the rest of the backing material as a handle, position the sticker and press firmly into place to complete its application.

Step G-11 Body Trim and Install:



- ❑ 1. After Painting, trim the Body (159) along the trim lines (as shown in Figure 64, emphasized by the dark shading), there is an indented trim line around the body which can be used as a guide for trimming.
- ❑ 2. Make four 1/4"-diameter holes at the locations marked with dimples at the front, right side pod, and rear of the left and right side pods of the Body. These will be the body mounting and Antenna Tube holes.
- ❑ 3. Install the Body onto the rolling Chassis and secure it with Body Clips (155) through the post on the front Bulkhead (20), and through the rear Body Mounts (151).

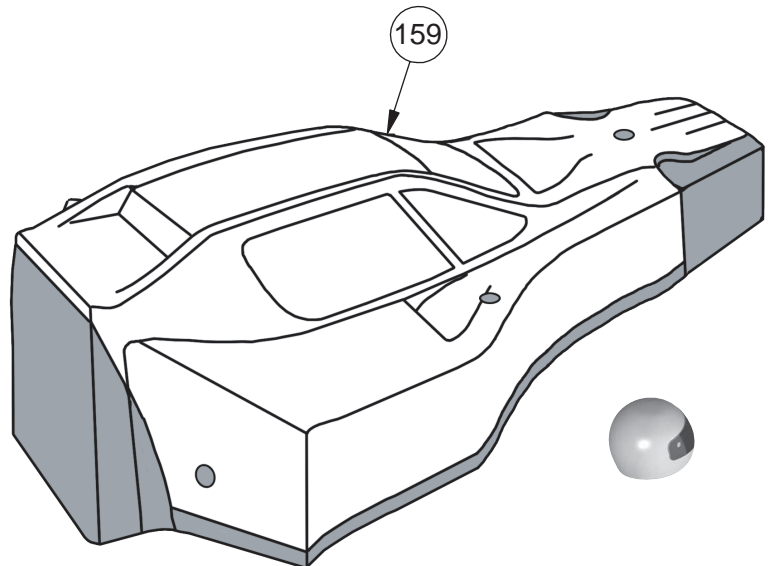
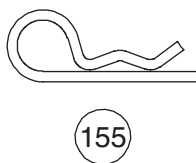
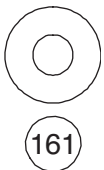


Figure 64

Step G-12 Rear Wing Install:



- ❑ 1. Trim the rear Wing (160) along the trim lines as shown in Figure 65.
- ❑ 2. Make two 5/32"-diameter holes in the Wing at the locations marked with dimples.
- ❑ 3. Place the rear Wing onto the rear Wing Mounts (56) as shown in Figure 65. Place a Wing Mount Washer (161) over the post on each rear Wing Mount.
- ❑ 4. Secure the rear Wing and Wing Mount Washers to the rear Wing Mounts by installing a Body Clip (155) through the hole in the post on each rear Wing Mount.

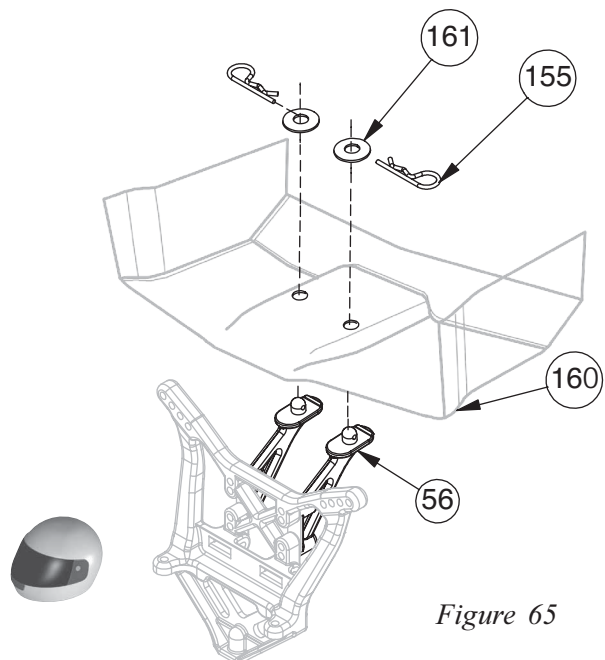


Figure 65

FINAL CHECKLIST

BEFORE RUNNING YOUR NEW XXX-BK2 for the first time, you should run down the following checklist in order and complete the listed tasks. I'm sure you're anxious to get out and run your new *XXX-BK2* now that it's built, but following this simple checklist will help to make your first run with your new car much more enjoyable.

1. Adjust the differential

See: *About The Differential*, in the tips section.

2. Adjust the slipper

See: *Adjusting The Slipper*, in the tips section.

3. Check for free suspension movement

All suspension arms should move freely. Any binds will cause the car to handle poorly. The steering should also operate very freely.

4. Set the ride height

You should start with the rear ride height where the car comes to a rest at a height where the dogbones are slightly below level with the surface. The front ride height should be set so that the bottom of the chassis is level with the surface.

5. Adjust the camber

Both front and rear tires should have 1/2 degree of negative camber (top of the tire leans in). It is critical that both front and both rear tires be adjusted the same. With either end of the car closest to you, use your assembly wrench to adjust the tierods. Turn the top of the wrench towards the center of the car to shorten the tierods, and the opposite direction to lengthen them.

6. Set the front toe-in

Adjust the front tie rods so that, when the steering is straight on the transmitter, the front tires are both pointing straight. It is recommended that you start with the front toe-in set to zero (no toe-in or toe-out).

7. Charge a battery pack

Charge a battery pack as per battery manufacturer's and/or charger manufacturer's instructions so that radio adjustments can be made.

8. Adjust the speed control

Following the manufacturer's instructions, adjust your speed control, and set the throttle trim on your transmitter so the the car does not creep forward when not applying throttle. Make sure that there is not too much brake being applied when the trigger/stick is in the neutral position.

9. Set transmitter steering trim

The steering trim tab on the transmitter should be adjusted so that the car rolls straight when you are not touching the steering wheel/stick. If the servo was installed correctly, as per Tables 55A and 55B, the wheels should turn equally to the left and right. If this is not the case, refer to Table 53A & B and ensure that the steering servo and rod were properly installed.

TIPS AND HINTS FROM THE TEAM

About The Differential Never allow the diff to slip; that's what the slipper is for. Before trying to adjust your diff, you need to tighten the slipper until the spring is fully compressed. Next, hold the spur gear and right rear tire, then try turning the left rear tire forward. It should be **very** difficult to turn the left rear tire. If the tire turns easily, the diff is too loose. To tighten the diff, line up the slot in the diff screw with the groove in the left outdrive. Place the 1/16" Allen wrench through both of these slots. This will lock the diff screw and the outdrive together. While holding the Allen wrench in place, turn the right rear tire forward about 1/8 of a turn. Check the differential adjustment again and repeat the tightening process as necessary until the differential is no longer slipping. See "**Adjusting the Slipper**" on the following page, and then continue from here. The final differential adjustment check should be made by placing the car on carpet, grass, or asphalt and punching the throttle. The differential should not slip. If it does, tighten the diff in 1/8-turn increments as described above until the slippage stops.

Once the diff has been adjusted, it should still operate freely and feel smooth. If the diff screw starts to get tight before the diff is close to being adjusted properly, the diff should be disassembled and inspected; you may have a problem with the differential assembly. Refer to the assembly instructions to ensure that the diff is properly assembled and that all parts are properly seated in the assembly.

There are a few things you should know about differentials. First, when rebuilding your diff, you should always replace the small, diff nut. Second, after the diff has been run a time or two, it is not uncommon for the balls to seat into the rings and create a slightly loose adjustment. So, after your first and second runs, check the adjustment to avoid slippage. Third, remember: Never let the diff slip. Doing so can damage the diff balls, rings, and gear. Always make sure that the slipper will slip before the diff.

Adjusting the Slipper should be done after the diff is properly adjusted. If you have just finished adjusting the differential, loosen the slipper adjustment nut four full turns (e.g., 360 degrees x 4) to return the adjustment to the setting originally described in the assembly instructions. To make the final adjustments, place your car on the racing surface and give the car full throttle. The slipper should slip for one or two feet. If the slipper slips for more than two feet, you'll need to tighten the adjustment nut. If the slipper doesn't slip for at least one foot, back off the adjustment nut 1/8 of a turn and retry. If you can't hear the slipper when you punch the throttle, hold the front of the car with the rear wheels still on the track and give the car full throttle. The car should push against your hand with reasonable force and the slipper only slipping slightly. Don't expect the slipper to make up for poor driving or set-up. You still have to use the throttle and maintain the shocks and chassis. The slipper will help you drive more comfortably and help accelerate of corners and land jumps.

The Most Sensitive Adjustments, and the most used by the Team Losi race team, are the number of washers under the front camber link ball studs and the anti-squat. See these two sections and try to familiarize yourself with the way that these adjustments affect the handling of the *XXX-BK2*.

Ride Height is an adjustment that affects the way your car jumps, turns, and goes through bumps. To check the ride height, drop one end (front or rear) of the car from about a 5-6 inch height onto a flat surface. Once the car settles in to a position, check the height of that end of the car in relationship to the surface. To raise the ride height, lower the shock adjuster nuts on the shocks evenly on the end (front or rear) of the car you are working on. To lower the ride height, raise the shock adjuster nuts. Both left and right nuts should be adjusted evenly.

You should start with the rear ride height where the car comes to a rest at a height where the dogbones are slightly below level with the surface. The front ride height should be set so that the bottom of the chassis is level with the surface. Occasionally, you may want to raise the front ride height to get a little quicker steering reaction, but be careful as this can also make the car flip over more easily. Every driver likes a little different feel so you should try small ride height adjustments to obtain the feel you like. We have found that ride height is really a minor adjustment. This should be one of the last adjustments after everything else has been dialed in. Do not use ride height adjustment as a substitute for a spring rate. If your car needs a softer or firmer spring, change the spring. Do not think that simply moving the shock nuts will change the stiffness of the spring; it will not!

Rear Hub Camber Location is best set according the settings described in this manual. You should start with the inner hole in the top of the hub (hole "A"). The outer hole will tend to make the car feel a bit stiffer. This results in the car accelerating straighter and also makes it a bit easier to line up for jumps. Moving to the inner hole will typically make the car go through bumps better. The inner hole may also give the feeling of more steering. This steering generally comes from the rear end though. What this means is that the rear end of the car may swing a bit more — at times even sliding more.

Rear Camber Link Length can be another useful adjustment. It is virtually impossible to make a blanket statement for exactly how the length of the camber link will affect the handling under all conditions. The following is our experience with how the length of the camber link will typically affect the handling of the *XXX-BK2*. A longer rear camber link will usually result in more rear traction. With a longer link, the car can start to drive more square, or point-to-point. This can make it difficult to carve corners at high speed. A shorter rear camber link will generally result in more steering from the rear of the car due to increased chassis roll. This can make it easier to change directions quicker, but can cause the rear of the car to roll around if the link is too short. A shorter rear link will usually go through bumps a bit better than a long link as well.

Front Carrier Camber Location is another adjustment that is almost always run in the standard (outer) location. This location keeps the car flatter with less roll. The outer location also helps the car stay tighter in turns with a more precise steering feel. Moving the link to the inner hole will make the steering react slightly slower. The advantage to the inner hole is that it can increase on-power steering and help the car get through bumps better.

Washers Under the Front Camber Link Ball Stud can be added or removed. This is one of the most important adjustments on the *XXX-BK2* car. You should get a feel for how the number of washers affects the handling. Adding washers will make the car more stable and keep the front end flatter. Removing washers will make the steering more aggressive. This can be good in some conditions, but can also make the car difficult to drive in others. The best all-around adjustment is with one washer as per the assembly instructions.

Front Camber Link Length is another adjustment that is difficult to make a generic statement for as it can have slightly different results on various conditions. The following is a summary of how this adjustment will usually impact the handling of the

XXX-BK2. A longer front camber link will usually make the car feel stiffer. This will help keep the car flatter with less roll, but can make the car handle worse in bumpy conditions. A shorter front camber link will result in more front end roll. This will increase high-speed steering and make the car better in bumps. Too short of a front link may make the car feel twitchy or "wandery" meaning that it may be difficult to drive straight at high speed.

Front Shock Location can be adjusted easily by simply moving top of the shock to another hole in the shock tower. The standard location (center hole in the tower) works best on most tracks. Moving the top of the shock out one hole will result in an increase in steering and the car will react quicker. Moving the top of the shock to the inside hole in the tower will slow the steering response time and make the car smoother in bumps.

The bottom of the shock can also be moved in or out on the suspension arm. Moving the bottom of the shocks to the inside hole in the arm will result in more low-speed steering and less high-speed steering. Mounting the shocks in the inside hole will require limiters in the shocks to limit the travel, and the springs should be changed to stiffer ones. Moving the bottom of the shocks to the outside hole will reduce overall travel, increase high-speed steering, and reduce low-speed steering. This position may be good for oval tracks and high-traction surfaces.

Rear Shock Location can be changed just as easily as the front. Again, the standard location is the best place to start for most tracks. Moving the top of the shock in on the shock tower results in less side-bite (traction in corners) but makes the car smoother in bumps. Moving the top of the shocks to one of the two outside holes will give the car more forward traction and side bite as well as keeping the car from bottoming out on big jumps. A softer spring should be used if the shocks are mounted in one of the two outer holes in the tower.

Moving the bottom of the rear shocks to the outside hole in the arm will improve stability but may not handle bumps as well. You may also notice that the car is faster in the turns. The downside is that the car will not straighten out or "square up" as well.

Rear Anti-Squat is one of the most commonly used adjustments of the *XXX-BK2*. As per assembly instructions, there is 1 degree of antisquat. Adding the additional shims under the front of the block will result in 2 degrees. This will result in less side-bite, which will cause the car to have more steering from the rear end. It will also give the car more forward traction and get more air off of large jumps. By removing the shims will result in 0 degrees of antisquat. This will have more side bite but will have less forward traction and get less air off of jumps.

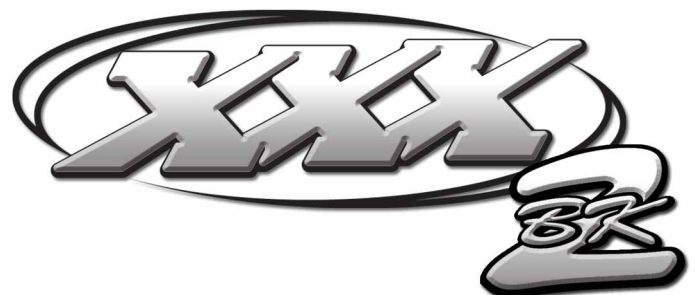
Rear Hub Spacing can be adjusted by moving the spacers at the front and rear of the hub carrier. You will probably find that the middle (standard) location works best on just about every track. Spacing the hub back might help on large, high-speed, outdoor tracks. Spacing the hub forward might help on tight, indoor tracks.

Battery Location is sometimes overlooked, but can be a useful adjustment. Start by running the battery spaced forward. Moving the battery back can improve rear traction on slippery tracks. Moving the battery back too far can cause the rear end to swing through turns on some tracks. This is a result of having the weight too far back.

Arm Length Adjustment (VLA), the *XXX-BK2* is like having four cars in one. With the addition of a longer arm position, you can have an aggressive setup by using the standard mounting positions or a more conservative setup by using the longer position. For most tracks the standard setup will work well, but for extremely bumpy, rutted, and high bite tracks the longer arm length will help slow the reactions of the car, making it feel less twitchy.

The longer arm setting will help to increase steering during the middle, exit, and during on power turns. It can also be used as a valuable tuning aid to balance your car if you are experiencing too much chassis roll in the front or rear. For example if the rear of the car is experiencing too much chassis roll in the front, then the longer arm position could be used to balance the car. For instance, European tracks often have long sweeping turns, which require a very stable car, the longer arm position should prove to work very well.

We are sure that you will find the *XXX-BK2* to be the most versatile and easiest car to drive fast with great consistency. We at Team Losi hope this information helps you to enjoy your *XXX-BK2* and racing as much as we do. For the latest in setup and accessory parts information, visit the Team Losi website at: www.TeamLosi.com



SPARE PARTS LIST

<u>KEY #</u>	<u>KIT/PART DESCRIPTION</u>	<u>PART NO.</u>	<u>SPARE PARTS DESCRIPTION</u>
1	SERVO SAVER BOTTOM	A-1620	Steering/Servo Mount Assembly (Molded)
2	SERVO SAVER POST	A-1610	Steering Hardware Set
3	SERVO SAVER TOP	A-1620	Steering/Servo Mount Assembly (Molded)
4	SERVO SAVER SPRING	A-1610	Steering Hardware Set
5	O-RING, ALUMINUM SHOCK NUT	A-5049	Aluminum Shock Adjusting Nut (4)
6	6-40 LOCKNUT	A-1610	Steering Hardware Set
7	4-40 MINI-LOCKNUT	A-6306	4-40 Aluminum Mini Nuts (10)
8	STEERING IDLER ARM	A-1620	Steering/Servo Mount Assembly (Molded)
9	BALL STUD WASHER	A-6215	#4 Narrow Washers (10)
10	1/4" BALL STUD	A-6006	Ball Studs w/Rod Ends 4-40 x 1/4" (4)
11	3/16" BALL STUD	A-6001	Ball Studs w/Rod Ends 4-40 x 3/16" (4)
12	STEERING DRAGLINK	A-1620	Steering/Servo Mount Assembly (Molded)
13	3/32" x 3/16" BEARING	A-6912	3/32" x 3/16" Ball Bearings
14	FRONT KICKPLATE	A-9713	Front Kickplate, Bulkhead, and Steering - Graphite
15	STEERING BRACE	A-9713	Front Kickplate, Bulkhead, and Steering - Graphite
16	STEERING HINGE PIN	A-1146	Front Outer & King Pins 3/32" x .960"
17	4-40 x 3/8" CAP HEAD SCREW	A-6206	4-40 x 3/8" Cap-Head screws (10)
18	THREADED CHASSIS INSERT	A-4224	Threaded Chassis Inserts - Short and Long
19	MAIN CHASSIS	A-9905	Main Chassis and Brace - Graphite
20	FRONT BULKHEAD	A-9713	Front Kickplate, Bulkhead, and Steering Brace
21	4-40 x 3/8" BUTTON HEAD SCREW	A-6229	4-40 x 3/8" Button-Head Screws (6)
22	SHORT NECK BALL STUD	A-6007	Studded Balls w/Ends (Short Neck) 0.35"
23	4-40 x 7/8" CAP HEAD SCREWS	A-6216	4-40 x 7/8" Cap-Head Screws (10)
24	SHOCK TOWER, FRONT	A-1107	Front Shock Tower
25	4-40 PLAIN NUT	A-6300	4-40 Hex Nuts (10)
26	3/8" BALL STUD	A-6000	Ball Studs w/Rod Ends 4-40 x 3/8" (4)
27	SEALED BEARING, 3/16" x 3/8"	A-6903	3/16" x 3/8" Teflon™-Sealed Bearings (2)
28	SPINDLE, LEFT	A-1122	Front Spindles/Carriers
29	SPINDLE, RIGHT	A-1122	Front Spindles/Carriers
30	STUB AXLE, FRONT	A-1133	Front Stub Axles and Screws
31	AXLE SPACER	A-3016	Axle Spacers (2)
32	4-40 x 1" BUTTON HEAD SCREW	A-1133	Front Axles and Screws
33	SPINDLE CARRIER, LEFT	A-1122	Front Spindles/Carriers
34	SPINDLE CARRIER, RIGHT	A-1122	Front Spindles/Carriers
35	HINGE PIN, FRONT OUTER	A-6082	Front Outer & King Pins 3/32" Ti-Nitride
36	SPACER, SPINDLE	A-2127	Spacers (1/8" x .060")
37	E-clip, 3/32"	A-6103	E-Clips 3/32"
38	SUSPENSION ARM, FRONT	A-9700	Front Suspension Arms
39	PIVOT BLOCK, FRONT	A-4129	Pivot Block Front
40	HINGE PIN, FRONT INNER	A-6089	Hinge Pin 1/8" x 1.42", Ti-Nitride
41	E-clip, 1/8"	A-6100	1/8" E-Clips
42	HINGE PIN BRACE, FRONT	A-9956	Alum. Front Hinge Pin Brace - Hard anodize
43	FRONT BUMPER	A-4131	Front Skidplate/Bumper - Black
44	4-40 x 1/2" FLAT HEAD SCREW	A-6220	4-40 x 1/2" Flat-Head Screws (6)
45	LONG BALL CUP	A-6005	H.D. 30 Deg Plastic Rod Ends (16) - Black
46	1-5/8" TITANIUM TURNBUCKLE	N/A	
47	FOAM THING	A-6003	Foam Things (Linkage Rings) (24)
48	1/8" x 1/4" WASHER	A-6350	#4 and 1/8" Hardened Washers
49	PIVOT BLOCK, INNER REAR	A-4127	Pivot Mount and Shims, Forward Rear
50	REAR ARM, RIGHT	A-9800	Rear Suspension Arms - Graphite
51	REAR ARM, LEFT	A-9800	Rear Suspension Arms - Graphite
52	1/8" x 2-1/8" HINGE PIN	A-6094	Inner Rear Hinge Pins, Ti-Nitride
53	PIVOT PLATE, REAR	A-9833	Rear Pivot Plate - Graphite
54	4-40 x 3/8" FLAT HEAD SCREW	A-6210	4-40 x 3/8" Flat-Head Screws (10)
55	SHOCK TOWER, REAR	A-9814	Rear Shock Tower - Graphite
56	WING MOUNT	A-4222	Wing Mount Set
57	4-40 x 1/2" CAP HEAD SCREW	A-6204	4-40 x 1/2" Cap-Head Screws (10)

SPARE PARTS LIST

<u>KEY #</u>	<u>KIT/PART DESCRIPTION</u>	<u>PART NO.</u>	<u>SPARE PARTS DESCRIPTION</u>
58	#4 WASHER	A-6350	#4 and 1/8" Hardened Washers
59	CVD DOGBONE	A-9985	MIP CVD Rebuild Kit (1)
60	CVD COUPLING	A-9933	MIP CVD Rebuild Kit
61	CVD COUPLING PIN	A-9933	MIP CVD Rebuild Kit
62	CVD AXLE	A-9986	MIP CVD Rear Axle, (.200 Offset)
63	4-40 SET SCREW	A-9933	MIP CVD Rebuild Kit
64	ASSEMBLY WRENCH	A-6030	Assembly Wrench (version 2)
65	HUB CARRIER, RIGHT REAR	A-2128	Rear Hubs
66	HUB CARRIER, LEFT REAR	A-2128	Rear Hubs
67	BEARING SPACER, REAR HUB	A-9942	Bearing Spacer/Wheel Washer Set
68	SPACER, REAR AXLE	A-9942	Bearing Spacer/Wheel Washer Set
69	DRIVE PIN, REAR AXLE	A-6401	Pins — Wheels and Gears
70	SPACER, REAR HUB	A-2127	Rear Hub Spacers (1/8" x .060")
71	HINGE PIN, REAR OUTER	A-6088	Hinge Pins, 1/8" x 1.246", Ti-Nitride
72	1-7/8" TITANIUM TURNBUCKLE	N/A	
73	DIFF NUT CARRIER	A-2911	One-Piece Diff Nut/Carrier
74	5/64" ALLEN WRENCH	N/A	
75	BELEVILLE WASHER	A-2933	Differential Screw, Hardware, and Seal
76	DIFF SPRING	A-2933	Differential Screw, Hardware, and Seal
77	MALE OUTDRIVE HALF	A-2935	Outdrive Cup/Diff Set
78	DIFF GREASE (CLEAR)	A-3065	Silicone Differential Compound
79	DIFF RING	A-3070	Transmission Drive Rings (2)
80	5mm x 8mm BEARING	A-6907	5mm x 8mm Bearings
81	DIFF GEAR	A-3074	Transmission Diff Gear, 46 Teeth
82	3/32" CARBIDE DIFF BALLS	A-6951	3/32" Carbide Diff Balls (12)
83	FEMALE OUTDRIVE HALF	A-2935	Outdrive Cup/Diff Set
84	DIFF ADJUSTING SCREW	A-2933	Differential Screw, Hardware, and Seal
85	FOAM THRUST BEARING SEAL	A-2933	Differential Screw, Hardware, and Seal
86	3mm x 8mm THRUST BEARING WASHER	A-3099	Full Compliment Thrust Bearing Set
87	WHITE THRUST / ASSEMBLY GREASE	A-3066	Assembly Grease
88	5/64" THRU BEARING BALLS	A-3099	Full Compliment Thrust Bearing Set
89	4-40 x 3/4" CAP HEAD SCREW	A-6205	4-40 x 3/4 Cap Head Screws (10)
90	TOP SHAFT	A-9932	Alum. Gear /Slipper Shaft, 18 Teeth
91	4-40 x 5/16" BUTTON HEAD SCREW	A-6245	4-40 x 5/16 Button Head Screws (10)
92	1/16" ALLEN WRENCH	N/A	
94	LEFT GEARBOX HALF	A-2938	Transmission Case Set and Spacer (Gen II)
95	1/2" x 3/4" BEARING	A-6908	1/2" x 3/4" Ball Bearings w/Teflon Seal (2)
96	MOTOR PLATE	A-2941	Lightened Motor Plate - Black Anodize
97	RIGHT GEARBOX HALF	A-2938	Transmission Case Set and Spacer (Gen II)
98	IDLER GEAR SHAFT	A-2937	Idler Gear, 32 Teeth, and Shaft
99	TOP SHAFT SPACER	A-2938	Transmission Case Set and Spacer (Gen II)
100	1/8" x 3/8" BEARING	A-6909	1/8" x 3/8" Ball Bearings (2)
101	IDLER GEAR	A-2937	Idler Gear, 32 Teeth, and Shaft
102	2-56 x 3/8" CAP HEAD SCREW	A-2940	Transmission Screw Set (Gen II)
103	4-40 x 1" CAP HEAD SCREW	A-2940	Transmission Screw Set (Gen II)
104	SLIPPER BACK PLATE	A-3132	Slipper Backing Plate
105	SLIPPER PAD	A-3123	Slipper Pad
106	78 TOOTH SPUR GEAR	A-3981	78T 48-Pitch Kevlar® Spur Gear
107	SLIPPER SPACER	A-3124	Slipper Spring, Cup, Spacer, Bushing, and Washer
108	SLIPPER SPRING	A-3124	Slipper Spring, Cup, Spacer, Bushing, and Washer
109	SPRING RETAINING WASHER	A-3124	Slipper Spring, Cup, Spacer, Bushing, and Washer
110	4-40 LOCKNUT	A-6305	4-40 Aluminum Locknuts, Low Profile (6)
111	MOTOR GUARD	A-4123	Motor Guard, & Body Mnts. - Black
112	4-40 x 1-1/2" CAP HEAD SCREW	A-2940	Transmission Screw Set (Gen II)
113	SHOCK O-RING	A-5015	Double O-Ring Shock Cartridge
114	SHOCK CARTRIDGE BODY	A-5015	Double O-Ring Shock Cartridge
115	SHOCK CARTRIDGE SPACER	A-5015	Double O-Ring Shock Cartridge

SPARE PARTS LIST

<u>KEY #</u>	<u>KIT/PART DESCRIPTION</u>	<u>PART NO.</u>	<u>SPARE PARTS DESCRIPTION</u>
116	CAP, SHOCK CARTRIDGE	A-5015	Double O-Ring Shock Cartridge
118	SHOCK SHAFT, FRONT	A-5060	.6" Titanium Nitrided Shock Shaft
119	SHOCK SHAFT, REAR	A-5064	1.0" Titanium Nitrided Shock Shaft
120	SHOCK END	A-5079	Shock Ends & Cups (2)
121	BATTERY INSULATING TAPE	A-9606	Battery Box Insulation (Diecut)
122	1/4 " SHOCK MOUNT BALL	A-2006	Swivel Suspension Balls .250" (8)
123	SHOCK PISTON	A-5046	Teflon Shock Pistons #56 (Red)
125	SHOCK BODY, FRONT	A-5054	.6" Threaded Shock Body Set w/Nuts
126	SHOCK BODY, REAR	A-5055	.9" Threaded Shock Body Set w/Nuts
127	SHOCK FLUID	A-5224	Team Losi Certified Shock Fluid 30wt
128	SHOCK SPRING CUP	A-5079	Shock Ends & Cups (2)
129	FRONT SHOCK SPRING	A-5129	2" Spring 2.9 Rate (Orange)
130	SHOCK ADJUSTING NUT ALUMINUM	A-5049	Threaded Shock Body Adjuster Nuts w/O-rings (4)
131	SHOCK SPRING, REAR	A-5148	2.5" Spring 2.0 Rate (Yellow)
132	SHOCK MOUNT BUSHING, SHORT	A-5013	Front and Rear Upper Shock Mount Bushings
133	SHOCK MOUNT BUSHING, LONG	A-5013	Front and Rear Upper Shock Mount Bushings
134	TIRE, FRONT	A-7204S	Front Xtra-Wide Tires (Silver) w/Foam
135	TIRE, REAR	A-7369R	2.2" Rear X-2000 Tires (Red) w/Foam
136	FRONT WHEEL	A-7004	Wide Front (Solid) Wheels -Yellow
137	REAR WHEEL	A-7104	Wide Rear (Solid) Wheels - Yellow
138	FRONT FOAM TIRE LINER	A-7297	4wd Front Foam Liners - Firm
139	REAR FOAM TIRE LINER	A-7398	Buggy Rear Foam Liners - Firm
140	8-32 LOCKNUT	A-6310	8-32 Alum. Locknuts (6)
141	3mm x 8mm CAP HEAD SCREW	A-6201	3mm x 8mm Cap-Head w/Washers (10)
142	GEAR COVER	A-2943	Gear Cover with Access Plug (Gen II)
143	4-40 x 1/8" BUTTON HEAD SCREW	A-6212	4-40 x 1/8" Button-Head Screws (4)
144	GEAR COVER PLUG	A-3045	Slipper Gear Cover Plug (4)
145	SERVO ARM	A-1620	Steering/Servo Mount Assembly (Molded)
146	SERVO MOUNTING POST	A-1620	Steering/Servo Mount Assembly (Molded)
147	CHASSIS BRACE	A-9905	Main Chassis and Brace - Graphite
148	SHORT PLASTIC ROD END	A-6010	30 Degree Rod Ends - Black (16)
149	4-40 x 5/8" SET SCREW	A-1615	Short Ball Cups and Threaded Rod
150	4-40 x 5/8" FLAT HEAD SCREW	A-6233	4-40 x 5/8" Flat-Head Screws (10)
151	BODY MOUNT, REAR	A-4123	Front Bumper, Motor Guard, & Body Mnts. - Black
152	BATTERY SPACING FOAM	A-9910	Battery Strap, Pad, and Foam Block - Graphite
153	BATTERY STRAP FOAM STRIP	A-9910	Battery Strap, Pad, and Foam Block - Graphite
154	BATTERY STRAP	A-9910	Battery Strap, Pad, and Foam Block - Graphite
155	BODY CLIP	A-8200	Body Clips (12)
156	TWO-SIDED TAPE	A-4004	Servo Tape (6)
157	ANTENNA TUBE	A-4002	Antenna Kit
158	ANTENNA CAP	A-4003	Antenna Caps (8)
159	BODY	A-8039	BK2 Body and Wing
160	WING	A-8116	BK2 Wing
161	WING MOUNT WAHSER	A-4222	Wing Mount Set
162	WINDOW MASK	A-8039	BK2 Body and Wing
163	STICKER SHEET	A-8355	XXX-BK2 Kinwald Edition Sticker Sheet
164	REAR PIVOT, ALUMINUM	A-4128	Pivot Mount, Rear, Aluminum
165	ANTI-SQUAT SHIM	A-4127	Pivot Mount and Shims, Forward Rear
166	HINGE PIN, FRONT OUTER	A-6081	Hinge Pins 3/32" x .960", Ti-Nitride