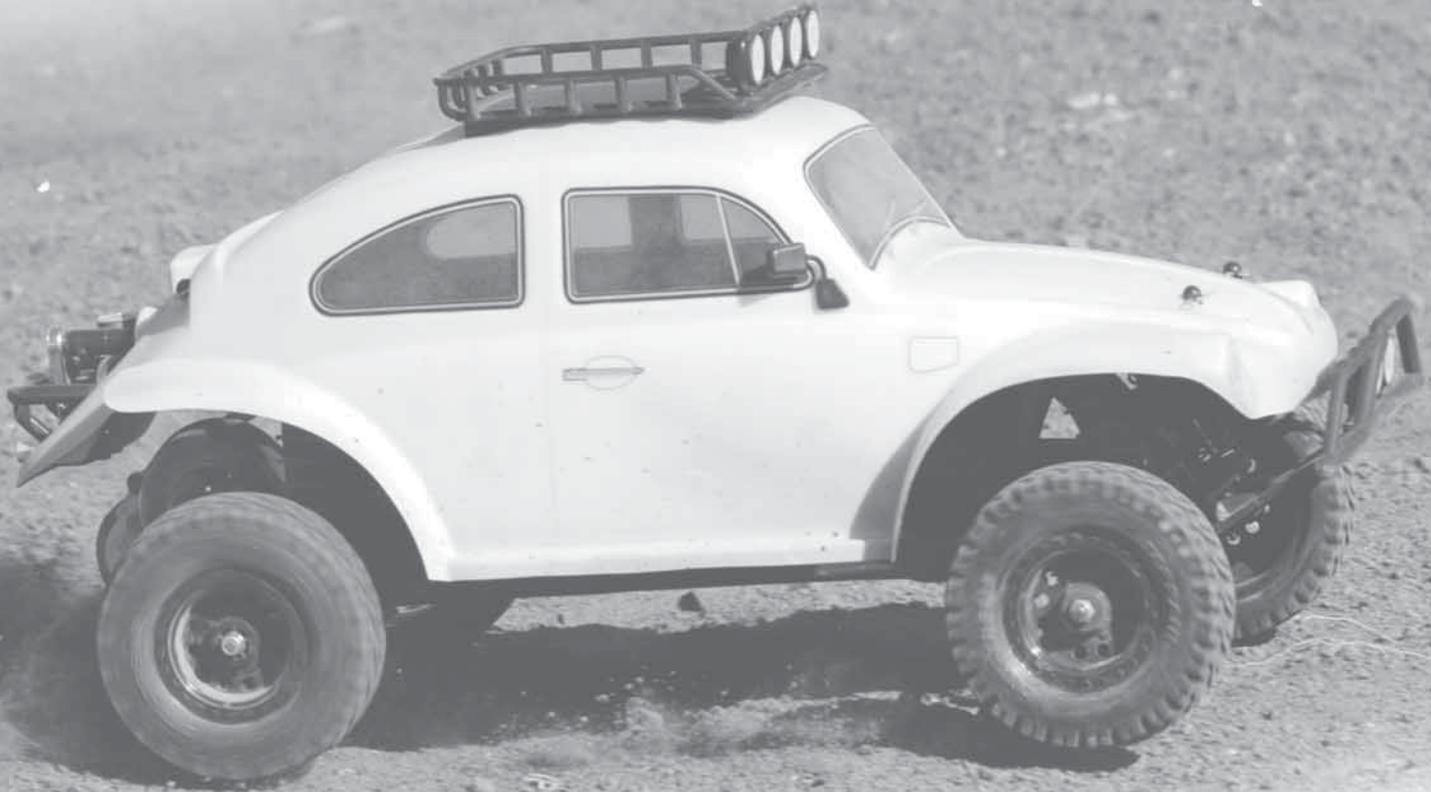


# VW BAJAJ BUG



## INSTRUCTION MANUAL

Officially licensed  
by Volkswagen



**IMPORTANT**



**These are included with your VW Baja Bug.**

- Chassis
- Receiver
- Antenna Tube
- Body
- Instruction Manual
- Transmitter
- Replacement Parts Guide

**These are items you will need to run your VW Bug.**



**ONYX 6C 7.2V 2000MAH NIMH STICK  
DTXC2035**



**AA BATTERIES (x4)**



**ONYX 100 AC/DC PEAK CHARGER  
DTXP4190**

## **SAFETY PRECAUTIONS:**

When the safety precautions are followed, the VW Baja Bug will provide years of enjoyment. Use care and good sense at all times when operating this radio controlled Baja Bug. Failure to use this vehicle in a safe, sensible manner can result in injury or damage to property. You and you alone must insure that the instructions are carefully followed and all safety precautions are obeyed.

- ▶ Do not operate the VW Baja Bug near people. Spectators should be behind the driver or at a safe distance away from the vehicle.
- ▶ Make sure to read the instructions with the battery and charger before charging.
- ▶ Do not leave any charger unattended during charging. If the battery or charger become hot at any time, disconnect the battery from the charger immediately! Failure to do so may cause permanent damage to the charger and battery and may cause bodily harm.
- ▶ The VW Baja Bug features waterproof electronics allowing you to run in almost any conditions. However, to achieve long life, avoid immersing completely in water. After you are finished running, make sure that the electronics are dry to help avoid corrosion.
- ▶ Always turn on the transmitter before turning on the electronic speed control.
- ▶ Before turning on your radio, check to make sure that no one else is running on the same frequency as your VW Baja Bug.

## **HELPFUL HINTS:**

- ▶ Avoid working over a deep pile carpet. If you drop a small part or screw, it may be difficult to find.
- ▶ Place a mat or towel over your work area. This will prevent parts from rolling off and will protect the work surface.
- ▶ Avoid running the Baja Bug in cold weather. The plastic and metal parts can become brittle at low temperatures. In addition, grease and oil become thick, causing premature wear and poor performance.

## **SPECIFICATION AND DESCRIPTION CHANGES:**

All pictures, descriptions and specifications found in this instruction manual are subject to change without notice. Duratrax maintains no responsibility for inadvertent errors in this manual. Visit **Duratrax.com** for the latest updates and information for your model.

## **WARRANTY:**

- ▶ Duratrax® guarantees this kit to be free from defects in both material and workmanship at the date of purchase. Duratrax will warranty this kit for 90 days after the purchase date. Duratrax will repair or replace, at no charge, the incorrectly made part.
- ▶ Make sure you save the receipt or invoice you were given when you bought your model! It is your proof of purchase and we must see it before we can honor the warranty. Further, Duratrax reserves the right to change or modify this warranty without notice.
- ▶ In that Duratrax has no control over the final user assembly or material used for final user assembly, no liability shall be assumed nor accepted for any damage resulting from the use by the user of the final user-assembled product. By the act of using the user-assembled product, the user accepts all resulting liability.

To return your VW Baja Bug for repairs covered under warranty you should send your Baja Bug to:

Hobby Services  
3002 N. Apollo Drive Suite 1  
Champaign, Illinois 61822  
Attn: Service Department  
Phone: (217) 398-0007 9:00 am-5:00 pm  
Central Time M-F  
E-mail: [hobbyservices@hobbico.com](mailto:hobbyservices@hobbico.com)  
[www.hobbyservices.com](http://www.hobbyservices.com)

**If the buyer is not prepared to accept the liability associated with the use of this product, the buyer is advised to return this kit immediately in new and unused condition to the place of purchase.**

## **STRESS-TECH PARTS GUARANTEE:**

We have engineered the VW Baja Bug to take the rough and tumble abuse that makes R/C fun. We are so confident of the quality and durability of the Stress-Tech plastic parts that we will replace any Stress-Tech plastic part you break during the first 12 months you own the Baja Bug. Just send in the part to us and we will send you a FREE replacement. Please see the VW Baja Bug parts list for the items covered under the Stress-Tech guarantee.

To receive your free replacement part please send the following to the Hobby Services address listed above.

- ▶ 1. The broken part must be included.
- ▶ 2. The part number and description of the broken part.

- ▶ 3. Copy of your dated invoice or purchase receipt.
- ▶ 4. Your name, phone number and shipping address.

## **REPAIR SERVICE:**

Repair service is available anytime.

- ▶ After the 90 day warranty, you can still have your VW Baja Bug repaired for a small charge by the experts at Duratrax's authorized repair facility, Hobby Services.
- ▶ To speed up the repair process, please follow the instructions listed below.

1. Under most circumstances return the ENTIRE vehicle. The exception would be sending in a Stress-Tech part. See the instruction under the Stress-Tech Guarantee.

2. Make sure the transmitter is turned off, and all of the batteries are removed.

3. Send written instructions which include: a list of all items returned, a THOROUGH explanation of the problem, the service needed and your phone number during the day. If you expect the repair to be covered under warranty, be sure to include a proof of date of purchase (your store receipt or purchase invoice).

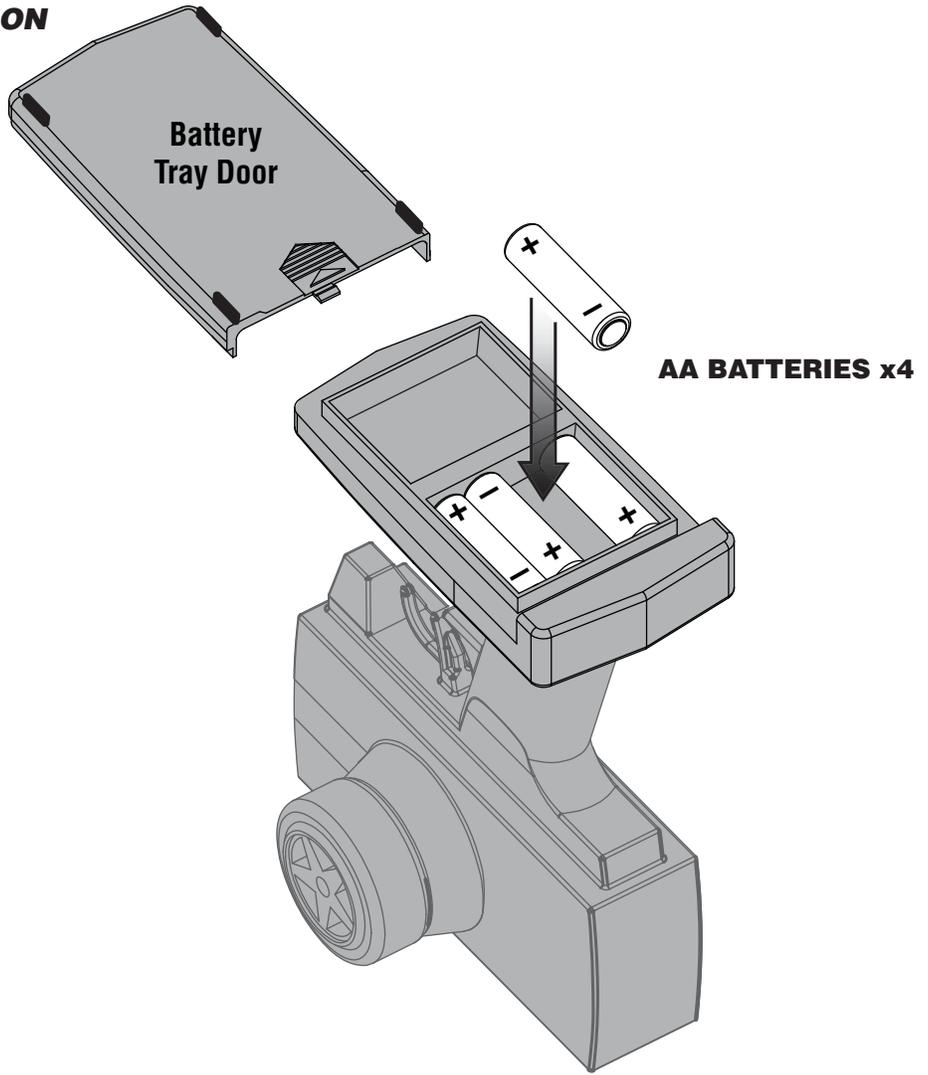
4. Send to Hobby Services at the address shown. When shipping your item(s) to us, we recommend that you insure it and use a company that offers a tracking service (such as Federal Express Ground or UPS Ground).

Our staff will carefully inspect your item and notify you of their findings, at which time you will be notified of your options for return, repair, or replacement. Please note that items sent back unrepaired will still carry a service charge and return shipping.

Hobby Services accepts Visa® and Mastercard®, or you can send in a check. Additionally we can return the item C.O.D., but additional charges apply.

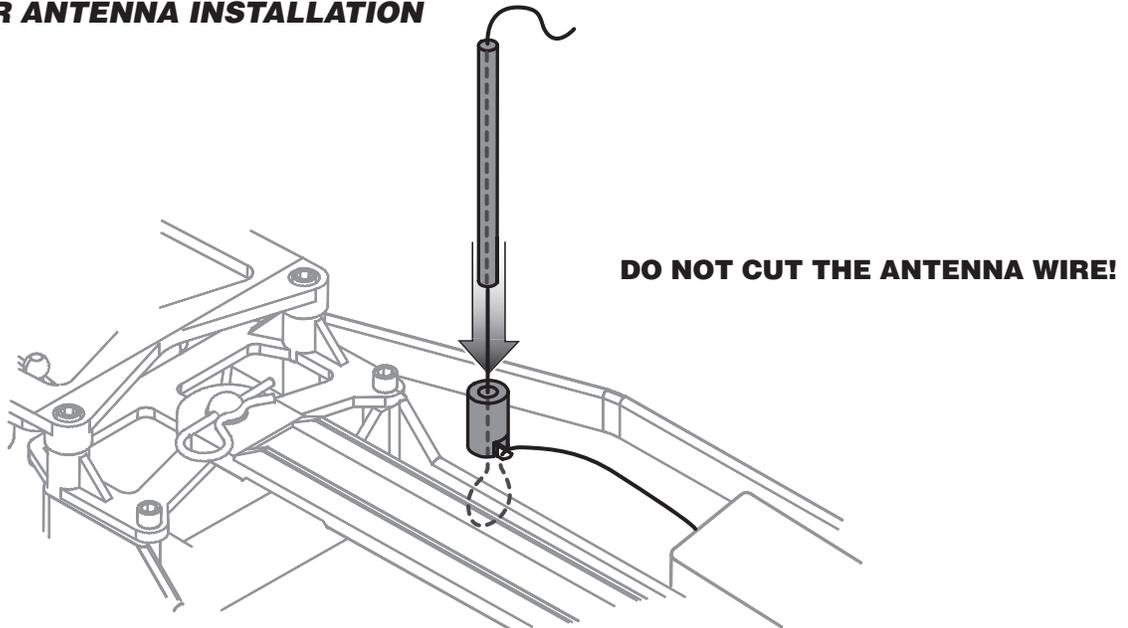
**IMPORTANT**

**TRANSMITTER PREPARATION**

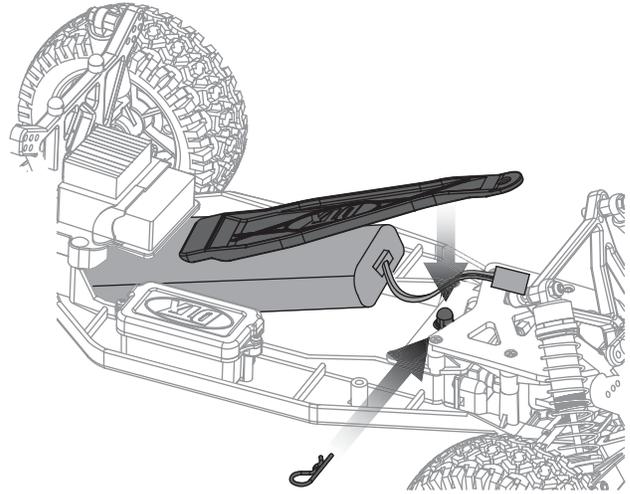
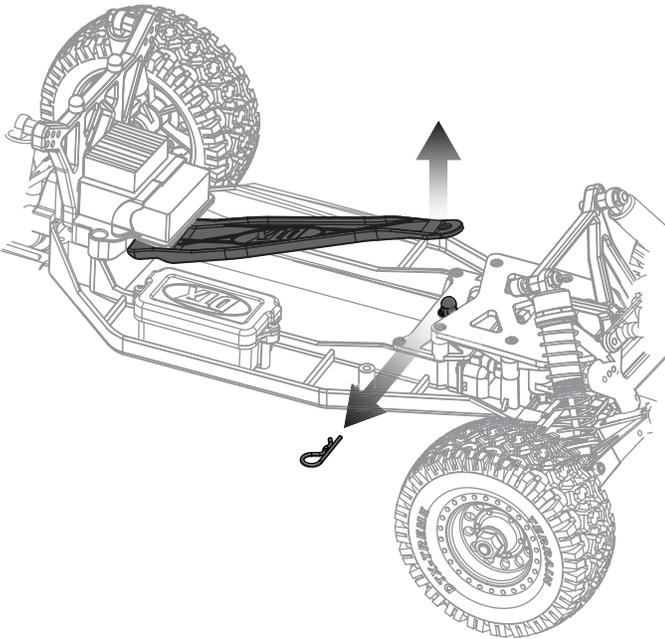


FINISHING

**RECEIVER ANTENNA INSTALLATION**



## 6-CELL BATTERY INSTALLATION



## RADIO SYSTEM CHECK

Your radio system's transmitter and receiver are preset at the factory. If your radio system needs to be rebound:

1. Remove the radio box lid.
2. Turn on the transmitter and receiver.
3. Carefully press the bind button on the top of the receiver and hold it down until the L.E.D. is lit solid green.

The L.E.D. indicate the receiver's status.

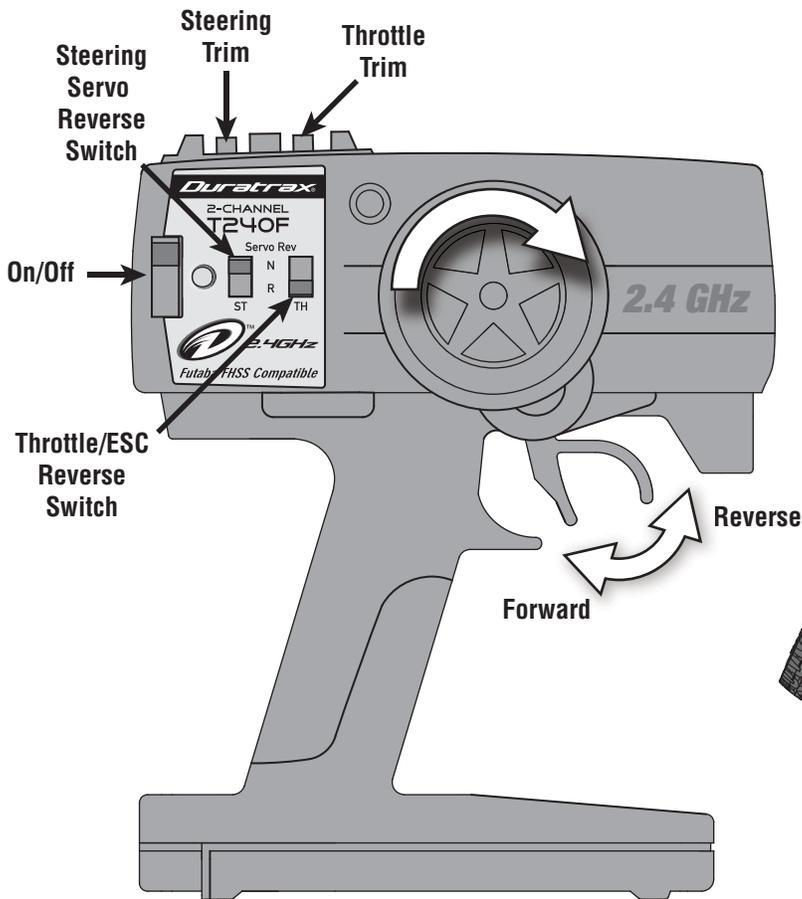
**Red:** No signal being received.

**Blinking Green:** Receiver is detecting a signal from a transmitter it is not bound to.

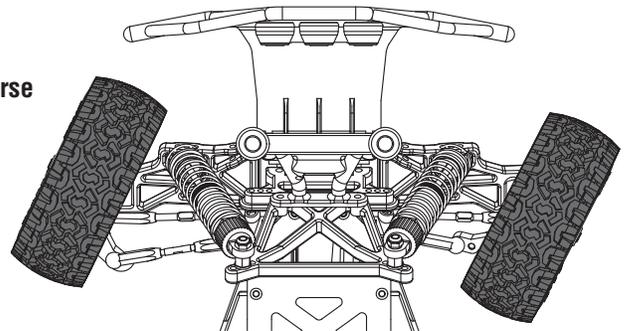
**Solid Green:** Working, the receiver is detecting a signal from the transmitter it is bound to.



## RADIO SYSTEM CHECK (STEERING)



**ALWAYS CHECK THE RADIO OPERATION BEFORE EACH RUN!**



FINISHING

## ELECTRONIC SPEED CONTROL (ESC) SET UP

- ▶ Connect the battery pack to the ESC. Turn on the Tx, and then the ESC.
  - ▶ Do not touch the throttle trigger for 2-3 seconds.
  - ▶ The Sprint 2 sets up automatically.
  - ▶ The green light will flash and then glow steady.
  - ▶ Ready to use!
- ▶ *Never use more than a 6-cell, 7.2 volt NiMH battery pack, 7.4V 2S LiPo or 6.6 volt LiFe battery.*
- ▶ *Do not attempt to connect the battery pack to the ESC in reverse, as permanent damage to the ESC could result.*
- ▶ *Never cut or splice the ESC input wires. Do not connect a battery to the receiver's (Rx) "battery" slot. The Rx receives power through the ESC itself which plugs into the Rx's throttle channel slot.*
- ▶ *Always disconnect the battery pack from the ESC when not in use.*
- ▶ *Be careful not to touch the heat sink as it can become very hot.*
- ▶ *The Sprint 2 Plus features a Low voltage cut-off. This means the ESC will cut power to the motor to protect LiPo packs from over discharging.*



**NOTE:** The Sprint 2 has built-in circuitry to sense an excessive heating condition caused by current overload. If the ESC overheats, it will automatically shut down, as indicated by flashing red and green LEDs. This is to protect all on-board components and prevent permanent damage from occurring. The ESC can again be used once the internal temperature returns to an acceptable level. Reset by cycling the power.

## **ESC TROUBLESHOOTING GUIDE:**

### **IF YOUR ESC DOES NOT WORK**

#### **Problem: Motor and/or steering servo are dead.**

- ▶ Recharge dead batteries.
- ▶ Check for faulty power connections.
- ▶ Check for a damaged connection between ESC and Rx.
- ▶ Internal damage. Unit may require service. See "Repair Service" on page 3.

### **ESC WORKS BUT OTHER PROBLEMS EXIST**

#### **Problem: Steering servo works but motor is dead.**

- ▶ Motor brushes are dirty or the motor is bad. Clean with a motor spray (such as Duratrax Power Shot™, DTXC2458) and re-oil the bushings or replace the motor.
- ▶ Check for faulty motor connections.
- ▶ Battery not fully charged.

#### **Problem: Overheated motor or hot power plugs.**

- ▶ Motor is geared too high. Change to a lower gear setup.
- ▶ Binding in the vehicle's drivetrain. Check to make sure nothing is interfering with the model's drivetrain.

#### **Problem: Motor runs backwards but forward LEDs are on.**

- ▶ Motor is wired backwards. Swap the motor wires.

#### **Problem: Motor runs backwards and the reverse LED is on when forward command is given.**

- ▶ Move the Tx throttle reversing switch to the opposite position, and reset ESC.

#### **Problem: Model runs properly, then motor goes dead.**

- ▶ The built-in thermal protection may be automatically shutting down the ESC due to overheating conditions. Check for binding drivetrain, bad motor or incorrect gear ratio. Adjust gear mesh, replace motor or change gear ratio. Allow the ESC to cool and try again.

## **MAINTENANCE TIPS:**

### **Before Each Run**

1. Check to make sure that all screws are tight and there are not any screws missing.
2. Check to make sure that the transmitter batteries are not low.
3. Check to make sure that all of the moving parts move freely and do not bind.
4. Check for broken or damaged parts. Replace any broken or damaged parts before using. Running the Baja Bug with broken or damaged parts could result in damage to other parts.
5. Check to make sure that the receiver and speed control are still properly secured to the chassis.
6. Check to make sure that all wires are properly connected.
7. **IMPORTANT!** Check the slipper clutch setting. The VW Baja Bug transmission is equipped with a slipper clutch. When properly adjusted the slipper clutch will help to extend the life of the transmission by providing a point that slips when the kit encounters bumps and jolts that would otherwise transfer strain to the internal gears. Although there is no perfect setting for every situation, following the recommended procedure on page 9 will provide a good starting point. Final adjustments will need to be made with the kit on the actual surface it will be running on.

### **After Each Run**

1. Clean any large globs of dirt, mud or debris from the chassis and moving parts.
2. Disconnect and remove the battery.
3. Check for any broken or damaged parts. This way parts may be replaced before the next run.

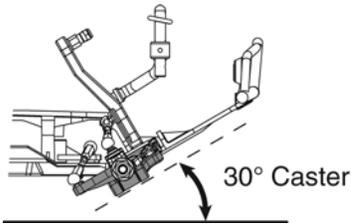
### **After Every 10 Runs**

1. Check the servo saver for proper operation by grasping the servo arm and linkage and turning one of the front tires left and right. If the wheels turn without moving the linkages and servo arm, then the unit is operating properly. If the linkage and servo arm move, loosen the knurled adjustment nut on the left side servo saver shaft. If the servo saver becomes clogged with dirt, it may not work properly which could cause servo or linkage damage. The servo saver needs to be disassembled, cleaned and readjusted. To safely adjust the servo saver, loosen the knurled aluminum collar on the left side steering post completely. Then reinstall 1-1/2 turns onto the post. Retest the servo saver as described above. Adjust the servo saver tighter or looser if needed.
2. Check to make sure that the bearings are free of dirt and debris and roll smoothly.
3. Check the shocks for oil leakage. If the shocks have leaked any shock fluid out, you should properly refill the shocks for best performance.
4. Check for proper gear mesh between the spur gear and the pinion gear.

## TUNING GUIDE:

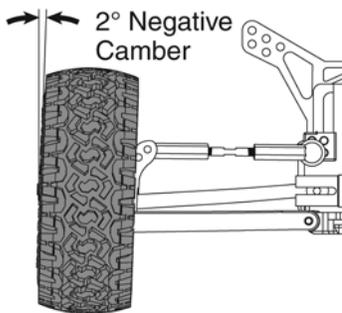
When tuning the VW Baja Bug make sure that you have equal length shocks, camber rods and steering rods on both sides (left and right). They do not have to be the same front to rear.

### CASTER



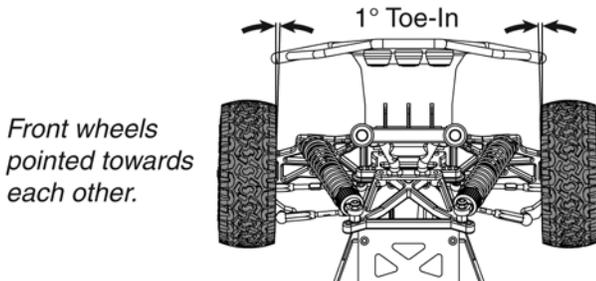
Caster refers to the angle which the kingpin is at in relation to the surface when viewed from the side. 0° of caster means that the kingpin is straight up and down. The VW Baja Bug comes stock with 30° of caster and is not adjustable.

### CAMBER



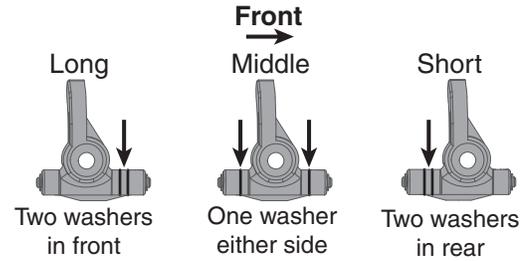
Camber refers to the angle at which the tire and wheel ride in relation to the ground when viewed from the front or rear. Negative camber is when the tire and wheel lean inward and positive camber is when the tire and wheel lean outward. Typically you want 0° to 2° of negative camber. Never put in positive camber. Make sure that both sides have equal amounts of camber by keeping the camber turnbuckles equal in length.

### FRONT TOE-IN AND TOE-OUT



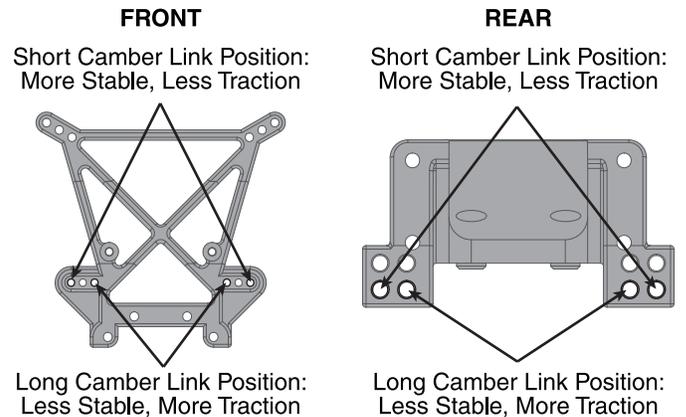
Toe-in and toe-out refer to the angle which the tire is at when viewed from above. Toe-in increases stability under acceleration. However, toe-in also decreases steering when entering a corner. Toe-out will increase steering into corners, but will decrease the overall stability during acceleration. The front typically is set-up with 0° to -2° of toe-in.

### WHEEL BASE



Wheel base is the distance from the center of the front wheel to the center of the rear wheel. Lengthening the wheel base increases steering, but decreases rear traction as a result of increased weight distribution to the front wheels. Decreasing the wheel base will increase rear traction, but decrease steering.

### CAMBER LINK PLACEMENT



The camber link placement affects the traction and handling on rough tracks. Using a long mounting position will increase traction but decrease stability. Shortening the link will increase stability, but decrease traction.

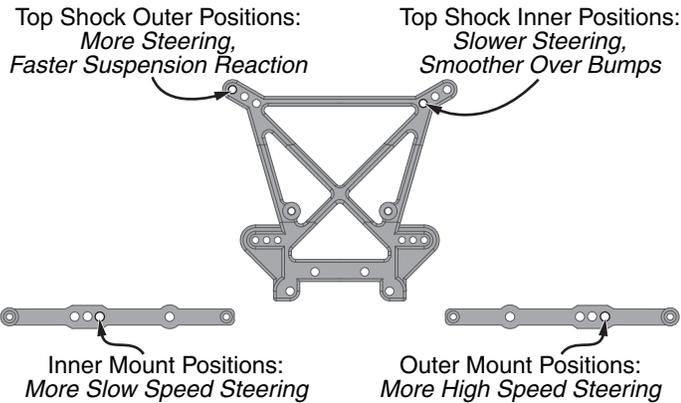
### SHOCK OILS AND SHOCK SPRINGS

Many different combinations can be used between the shock oils and shock springs. Some basic guidelines are that if the rear end is stiff, the Baja Bug will have more steering and less rear traction. Stiffening the front shocks will result in less steering and more rear traction. Duratrax offers different rate (stiffness) springs to suit most running conditions. The springs are color coded for easy identification:

	Front	Rear
<b>Silver</b> (Extra Soft)	DTXC9261	DTXC9260
<b>White</b> (Soft)	DTXC9232	DTXC9237
<b>Yellow</b> (Medium)	DTXC9230	DTXC9235
<b>Green</b> (Hard)	DTXC9231	DTXC9236
<b>Green</b> (Hard/Progressive)	Included	Included

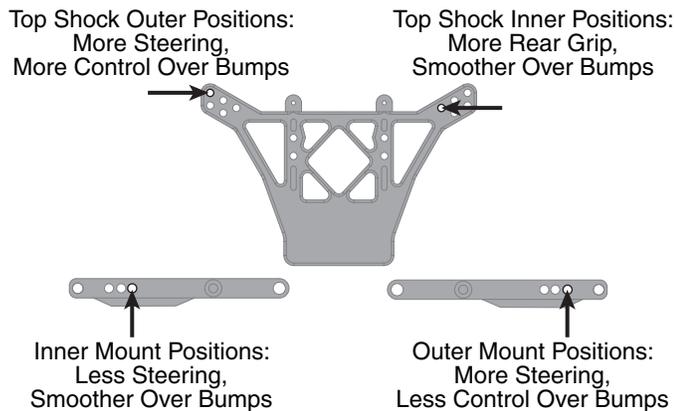
Thinner shock oil will make the shocks react faster, but makes the Baja Bug less stable and may cause the Baja Bug to bottom out over large jumps. Thicker shock oil makes the Baja Bug smoother over large jumps and in straights, but less reactive over rough sections. We have filled the shocks with 30 weight shock oil, which is a good choice for most driving conditions.

## FRONT SHOCK ADJUSTMENT



Moving the tops of the shocks out will increase steering and produce quicker suspension reaction, but will result in slower steering reaction. Mounting the bottoms of the shocks in the inside hole of the arms will give more slow speed steering but will take away some high speed steering.

## REAR SHOCK ADJUSTMENT



Moving the tops of the shocks in will result in more traction in the corners and greater smoothness over the bumps. Moving the tops of the shocks out will give the Baja Bug more steering and enable it to handle large jumps better.

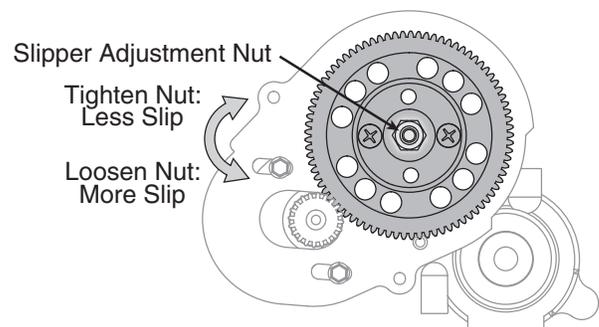
## CLEANING TIPS

The VW Baja Bug is fun to drive through the dirt and mud. When it comes time to clean the chassis, here are a few tips:

1. Remove the ESC, motor, receiver and steering servo. Wipe down using a slightly damp cloth.
2. Remove the wheels and wash with water. A small scrub brush works well.
3. Rinse off the body and chassis with water.
4. Wipe dry thoroughly.
5. Relubricate the wheel bearings and servo saver. **TIP:** To keep the metal parts from rusting, spray lightly with WD-40.
6. Reassemble making sure all parts move free.

## SLIPPER CLUTCH ADJUSTMENT

**IMPORTANT!** To protect the transmission gears, it is imperative that the slipper is properly set. If too tight, or locked, gear damage will occur.



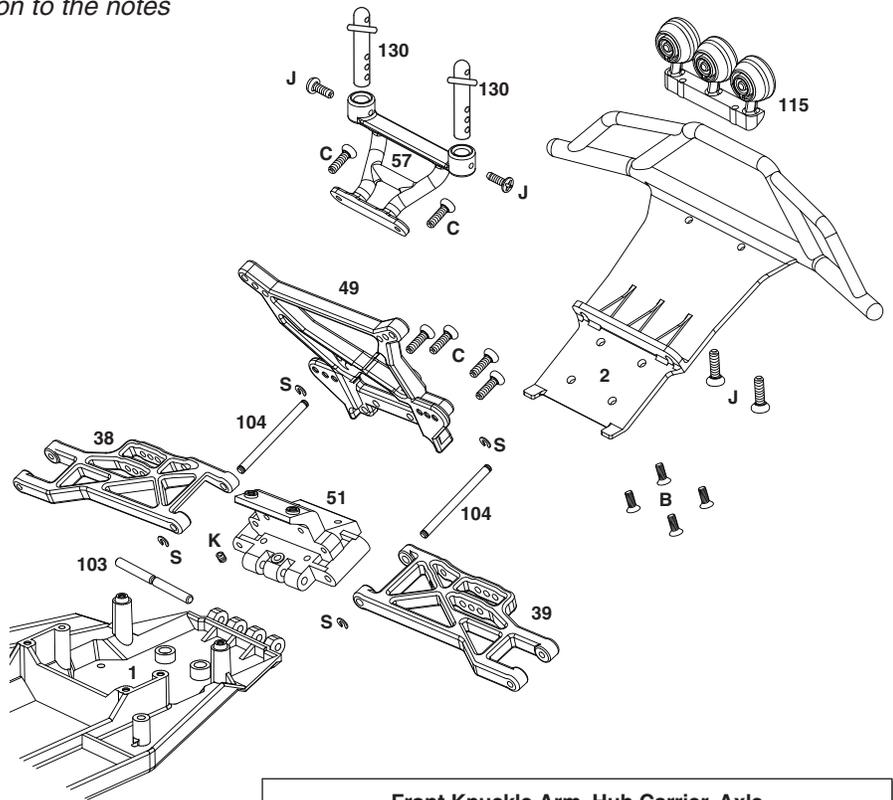
1. Tighten the slipper adjustment nut all the way down.
2. Loosen the adjustment nut two full turns.
3. Set the kit on the work surface and try to rotate the spur gear by hand. It should be hard to turn with both the rear wheels resting on your work surface.
4. If it turns easily the slipper adjustment nut needs to be tighter. Tighten the adjustment nut 1/8th of a turn and try to rotate the spur gear again.
5. If the gear will not turn, then the slipper is too tight. Loosen the adjustment nut 1/8th of a turn and try to rotate the spur gear again.
6. For the final adjustment use a fully charged pack to run the Baja Bug. Place the Baja Bug on the surface it will run on and give it a short 1-2 second burst of full throttle. When adjusted correctly it should slip for 1-2 feet without the tires breaking loose. If the tires do break loose, the slipper will need to be set looser. If it slips for more than the recommended 1-2 feet, it is set too loose and will need to be set tighter.
7. Repeat each step as needed to get the desired setting.

## MAINTENANCE GUIDE:

The following section is provided to help you with maintenance and repairs to your VW Baja Bug. Pay extra attention to the notes and tips for proper assembly.

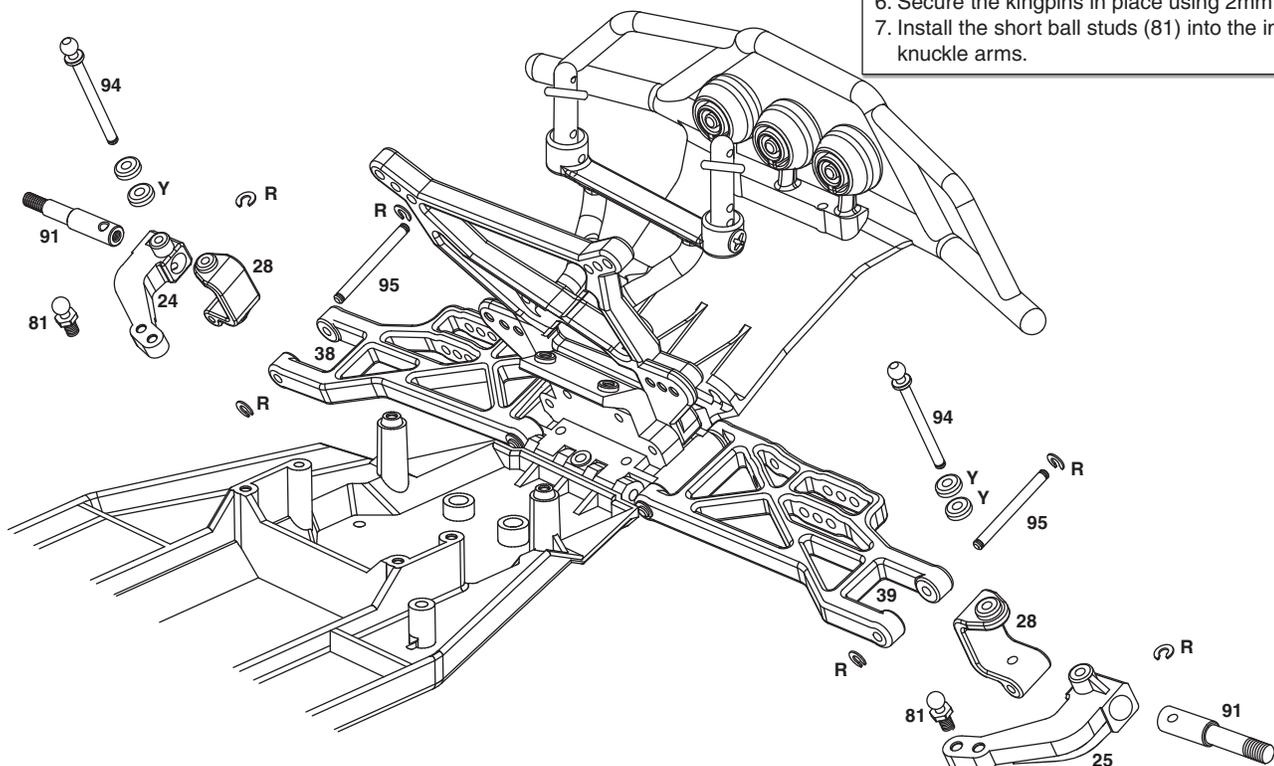
### Bulkhead, Bulkhead Brace, Front Suspension Arm, Front Shock Tower, Front Bumper

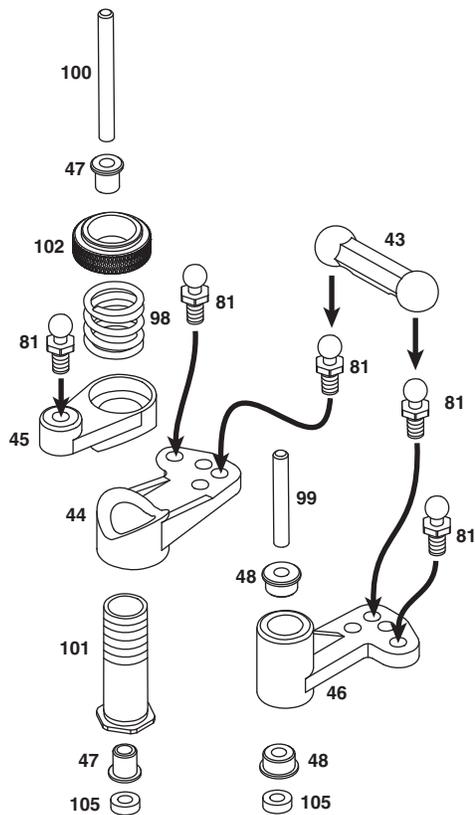
1. Attach the front bulkhead (51) to the chassis (1) using the bulkhead hinge pin (103).
2. Secure the bulkhead hinge pin in place using the 3mm set screw (K).
3. Attach and secure the front suspension arms (38,39) to the front bulkhead using the front inner hinge pins (104).
4. Secure the front inner hinge pins (104) with the 2.5mm e-clips (S).
5. Attach the front shock tower (49) to the front bulkhead using four 3x10mm round head screws (C).
6. Secure the front body mount bracket (57) to the shock tower using two 3x10mm round head screws (C).
7. Attach the front bumper light bar (115) to the front bumper/skid plate (2) using two 3x6mm pan head screws (J).
8. Attach the front bumper/skid plate to the front bulkhead using four 4-40x5/16" flat head screws (B).
9. Attach the front body mount posts (130) to the front body mount bracket (57) using two 3x6mm pan head screws (J).



### Front Knuckle Arm, Hub Carrier, Axle

1. Attach the front hub carriers (28) to the front suspension arms (38,39) using the front outer hinge pins (95).
2. Secure the hinge pins with two 2mm e-clips (R).
3. Install the front axles (91) into the knuckle arms (24,25).
4. Install two spacers (Y) onto each kingpin (94).
5. Insert the knuckle arms into the front hub carriers and then secure them in place with the kingpins. **Note: The spacers go on the top of the hub carriers.**
6. Secure the kingpins in place using 2mm e-clips (R).
7. Install the short ball studs (81) into the inner holes of the knuckle arms.



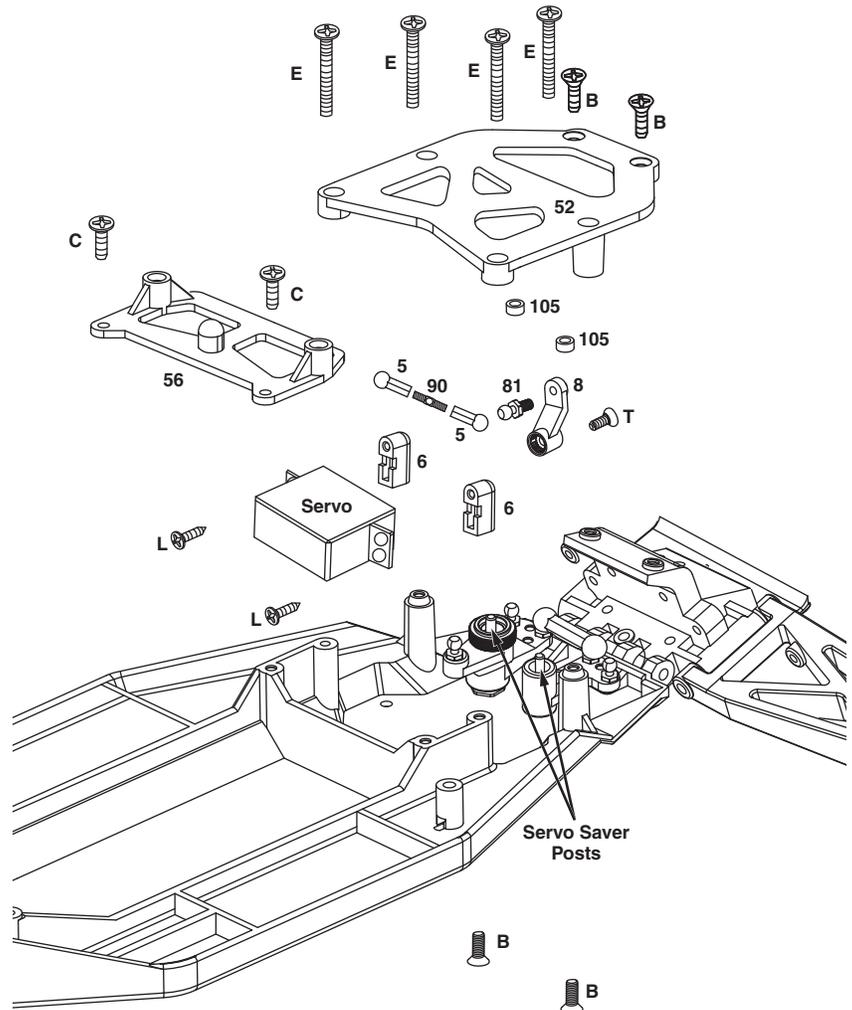


### Steering Servo Saver Assembly

1. Insert the short servo saver post (99) into the right side brass bushing (105).
2. Install two short ball studs (81) into the right servo saver (46) in the holes shown.
3. Insert a plastic bushing (48) into each end of the right servo saver. Make sure the bushings are fully seated.
4. Slide the assembled right half onto the short servo saver post (99).
5. Install two short ball studs (81) into the lower left servo saver (44) in the holes shown.
6. Insert the threaded aluminum servo saver hub (101) into the bottom of the lower left servo saver. **Note: The aluminum servo saver hub is designed to key into the bottom of the lower left servo saver. Make sure that the hex in the hub fully seats in the servo saver.**
7. Install a ball stud (81) into the upper left servo saver (45).
8. Slide the upper left servo saver onto the hub. The upper and lower left servo savers are designed to key together.
9. Place the servo saver spring (98) on top of the two left servo savers.
10. Secure the left side servo saver assembly together with the servo saver adjustment collar (102). **Note: The servo saver adjustment collar is machined on one side for the servo saver spring to fit into. Make sure this side goes down against the servo saver spring. The servo saver spring will need to be properly adjusted once the entire servo saver assembly has been installed.**
11. Insert a plastic bushing (47) into each end of the left side servo saver assembly. Again, make sure the bushings are fully seated.
12. Install the long servo saver post (100) into the left side brass bushing (105).
13. Slide the assembled left servo saver assembly onto the servo saver post.
14. Attach the left and right servo savers together with the one piece molded link (43).

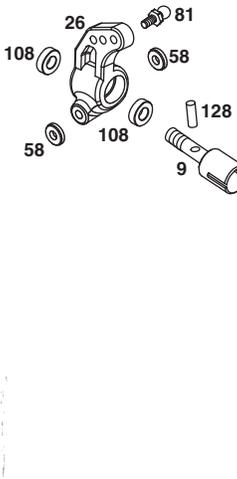
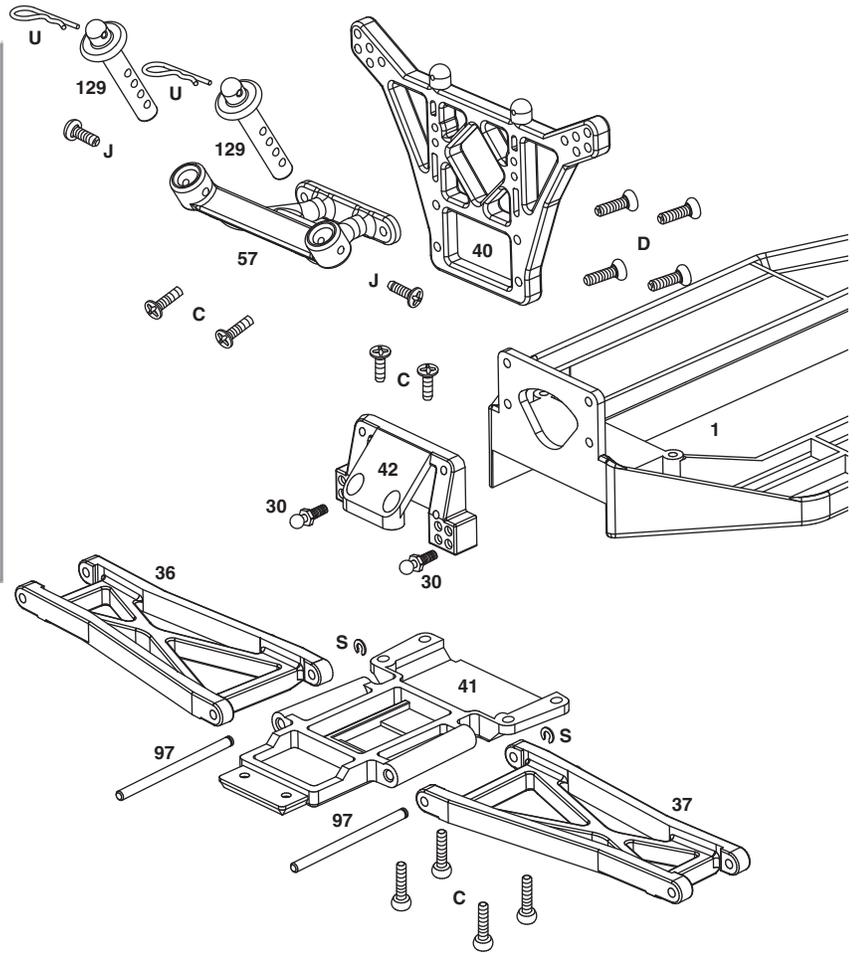
### Servo, Servo Brace, Front Brace

1. Attach the steering servo mounts (6) to the front of the servo mounting lugs using two 3x8mm S/T screws (L).
2. Install a short ball stud (81) into the steering servo horn (8).
3. Install the steering servo horn onto the servo with a 2.6x8mm S/T screw (T). **Note: Make sure the transmitter, steering servo and servo horn are properly centered before securing the servo horn to the servo.**
4. Secure the servo to the chassis with two 4-40x5/16" flat head screws (B).
5. Attach the servo brace (56) to the chassis by installing two 3x10mm screws (C) into the two rear holes.
6. Connect the servo horn to the servo saver assembly using the adjustable steering servo link (5,90).
7. Install two brass bushings (105) into the underside of the front brace (52). **Note: The brass bushings may need to be slightly tapped into place. The bushings must be fully seated.**
8. Install the front brace onto the servo brace and servo saver assembly. Make sure the servo saver posts insert into the bushings in the front brace. Secure the front brace with four 3x20mm screws (E) into the chassis and two 4-40x5/16" flat head screws (B) into the bulkhead.



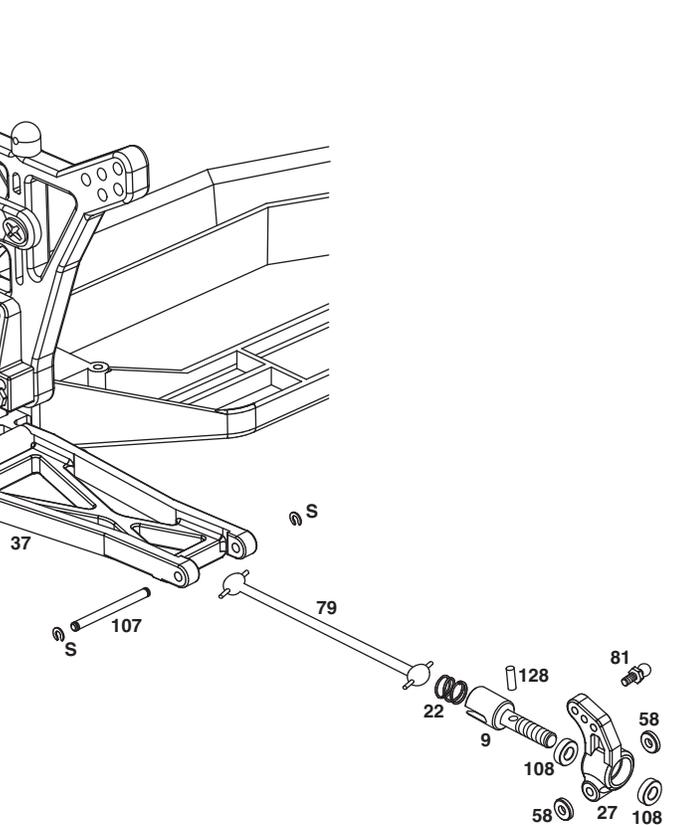
### Rear Shock Tower, Rear Transmission Plate, Rear Bulkhead, Rear Suspension Arm

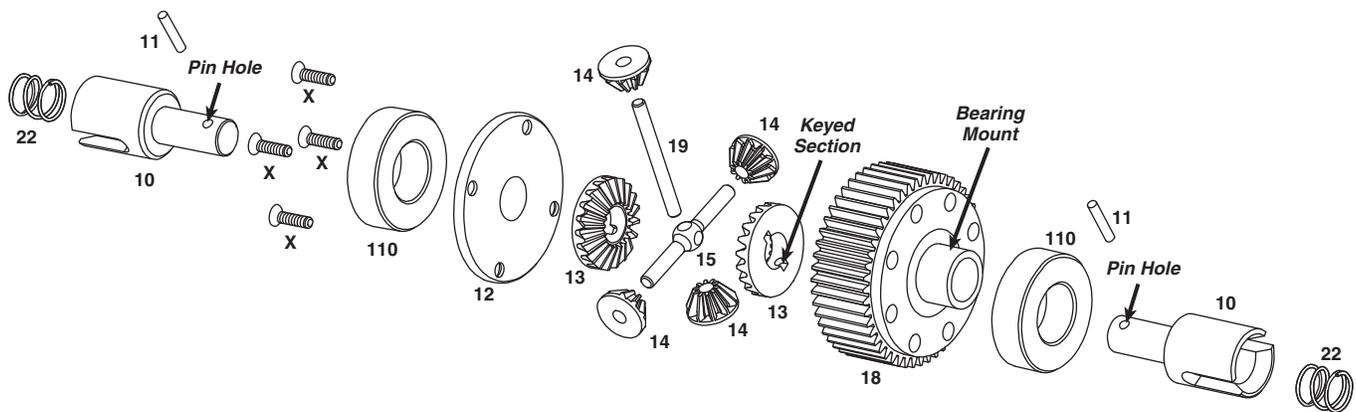
1. Attach the rear chassis plate (41) to the chassis (1) using four 3x10mm round head screws (C).
  2. Attach the rear suspension arms (36,37) to the rear chassis plate using the inner rear hinge pins (97).
  3. Secure the front of the inner rear hinge pins in place using two 2.5mm e-clips (S).
  4. Install the rear body mount posts (129) into the body mount bracket (57). Secure each post using a 3x6mm pan head screw (J). Secure the complete body mount assembly to the rear shock tower (40) using two 3x10mm round head screws (C).
  5. Install the rear shock tower (40) and transmission brace (42) onto the chassis using four 3x12mm round head screws (D).
- Note: Make sure the screws pass through the shock tower, chassis and into the transmission brace.**
6. Install two long ball studs (30) into the appropriate holes in the transmission brace. **Note: The stock setting is the lower inner holes. Make sure that the ball studs are in the same hole location on both sides.**



### Rear Hub, Rear Axles

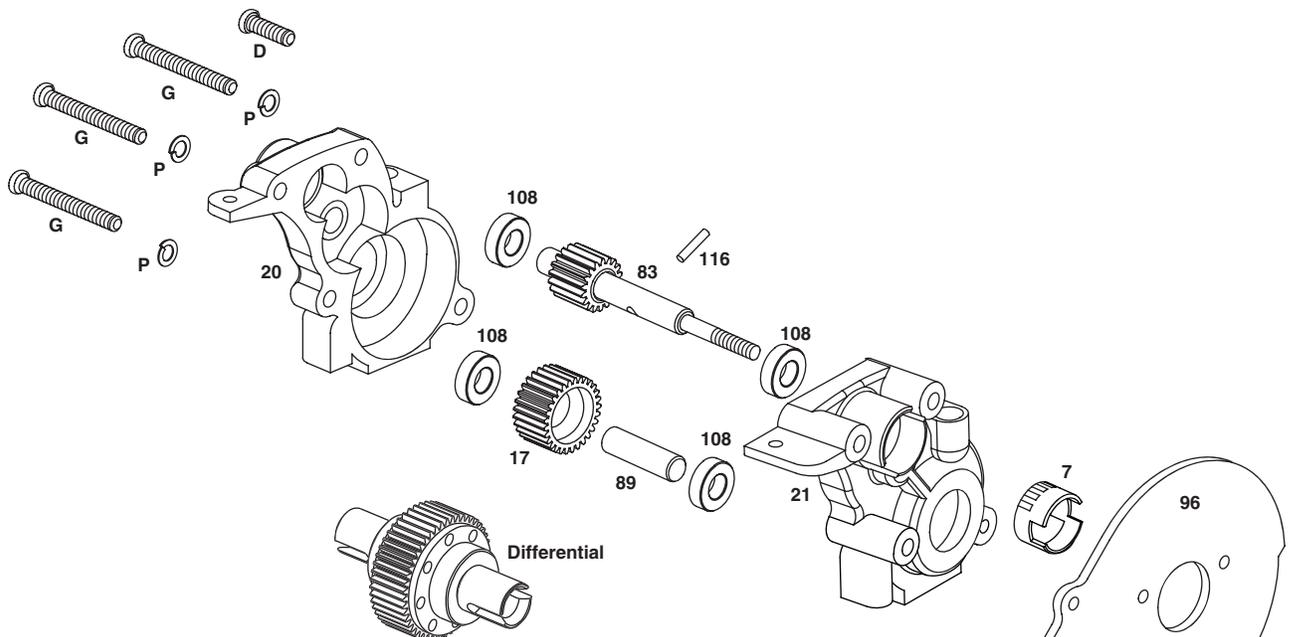
1. Install two 5x10mm bearings (108) in both of the rear hubs (26,27).
2. Install a short ball stud (81) into the center hole on the front of the rear hubs.
3. Place one 3mm plastic spacer (58) on each side of the rear hubs. Secure the rear hubs to the rear suspension arms (36,37) with the 3mm outer rear hinge pins (107).
4. Secure the outer rear hinge pins with 2.5mm e-clips (S).
5. Install the rear axles (9) through the bearings in the hubs.
6. Install a rear axle pin (128) into each of the rear axles.
7. Install one joint spring (22) into each of the axles.
8. Install a dogbone (79) into each of the axles.





### Differential

1. Place one of the 10x16mm bearings (110) on the bearing mounts on the diff gear case (18) and the diff gear case cover (12).
2. Install the outdrives (10) through the diff gear case and the gear cover, and install the pins (11) into their holes.
3. Align the keyed section of the large planetary gears (13) on the spring pins that are now installed in the outdrives.
4. Center the diff cross pin B (19) through the opening in the diff cross pin A (15) and install one small planetary gear (14) onto each end of both diff cross pins.
5. Place the planetary gear and diff shaft assembly into the diff gear case.
6. Place a small amount of gear grease on the planetary gears that were installed in the large diff half. Rotate the gears to spread the grease evenly. There should be enough to evenly coat each tooth of all the gears. Add or remove grease as needed.
7. Install the diff gear case cover into the diff gear case and secure it with the four 2x6mm flat head screws (X).
8. Install one dogbone spring (22) into each open end of the outdrives.



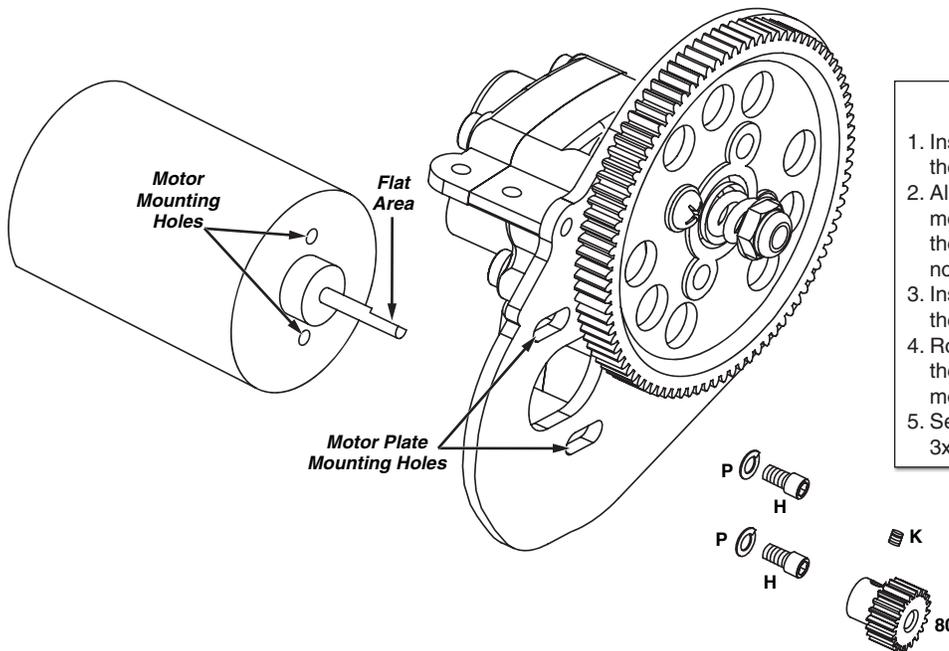
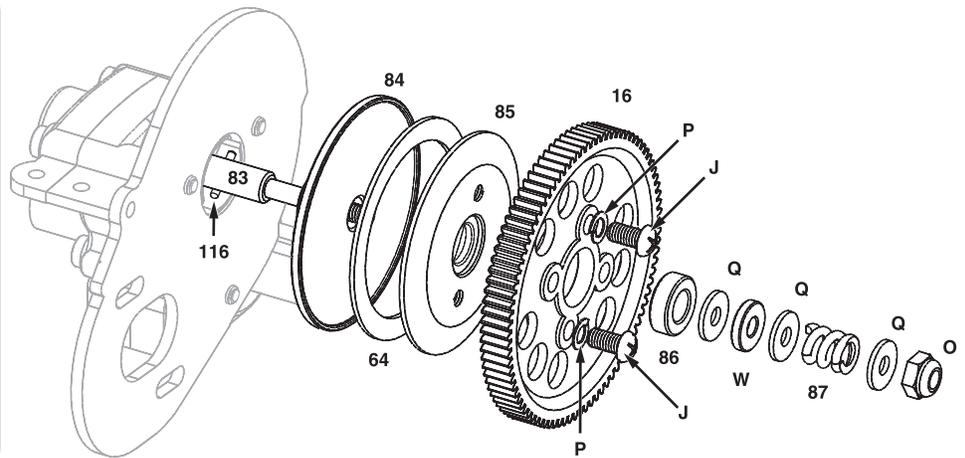
### Gearbox

**Note: When installing the bearings, make sure they are fully seated. If the bearings are not fully seated the gearbox halves may not properly fit together or may cause binding.**

1. Install the 5x10mm bearings (108) into the upper holes of the left and right gearbox halves (20, 21).
2. Install the top shaft (83) into the 5x10mm bearing that was just installed into the left gearbox half.
3. Install a 5x10mm bearing (108) into each side of the idler gear (17).
4. Install the idler gear shaft (89) into the idler gear bearings.
5. Install the idler gear into the left gearbox half.
6. Install the assembled differential into the bottom hole in the left gearbox half.
7. Install the two gearbox halves together. Make sure they seat together properly.
8. Secure the two halves together with the 3x12mm round head screw (D).
9. Install the 2x10mm spring pin (116) into the top shaft.
10. Install the gearbox dust cover (7) onto the right side gear box half (21).
11. Install the motor plate (96) on the side of the gearbox and attach it with the three 3x26mm round head screws (G) and 3mm spring washers (P).

### Slipper Clutch

1. Install the inner slipper plate (84) onto the top shaft (83). Make sure the notch in the inner slipper plate keys onto the 2x10 spring pin (116).
2. Place the slipper pad (64) and outer slipper plate (85) onto the top shaft. Make sure the slipper pad is properly centered between the two plates.
3. Install the slipper bushing (86) into the spur gear (16).
4. Slide the spur gear onto the top shaft and secure it to the outer slipper plate using two 3x6mm screws (J) and two 3mm spring washers (P).
5. Slide a 3mm flat washer (Q), 3mm brass washer (W), and then another 3mm washer onto the top shaft.
6. Install the slipper spring (87), a 3mm washer, and then the 3mm lock nut (O). Refer to page 9 for adjusting the slipper.

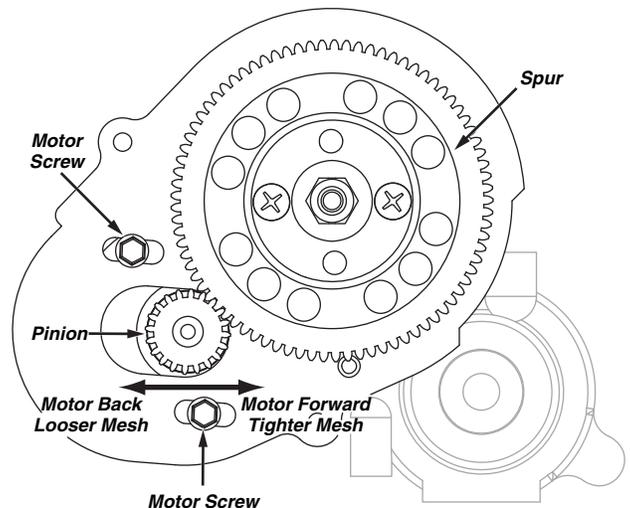


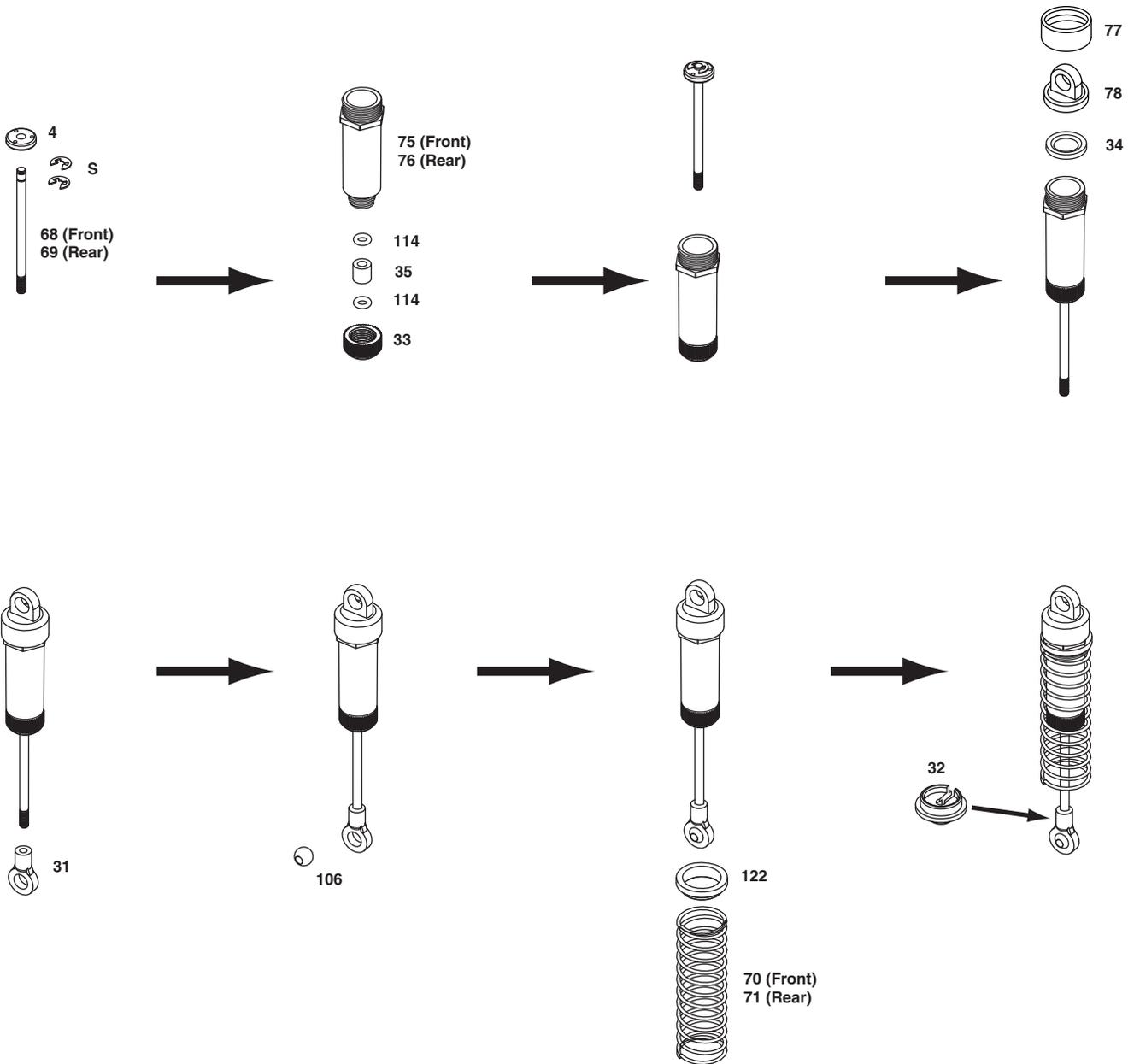
### Motor Installation

1. Install one 3mm spring washer (P) onto each of the 3x8mm motor mount screws (H).
2. Align the mounting holes in the motor with the mounting holes in the motor plate, and secure the motor with the two 3x8mm screws. **Note:** Do not fully tighten the 3x8mm screw at this time.
3. Install the pinion gear (80), tooth side out, onto the motor shaft.
4. Rotate the pinion gear on the motor shaft until the set screw hole is aligned with flat area of the motor shaft.
5. Secure the pinion to the motor shaft with the 3x3mm set screw (K).

### Gear Mesh

1. Setting the proper mesh between the spur and pinion gears is important. Improper mesh can result in damage to the spur and pinion gears, shorter run times and can make the motor run hot. Although setting the mesh correctly can be tedious, the process can be simplified with the aid of a simple scrap of standard note book paper.
2. Place the scrap paper between the pinion and spur gear. Slide the motor forward so the pinion teeth mesh with the spur gears with the piece of paper pinched tight between them.
3. Tighten the motor screws to hold the motor in place, and slowly rotate the gears until the paper is pushed out from between the gears.
4. Rock the spur gear back and forth with light pressure. The gear should be able to move a small amount (about 1/4 of the size of one of the gear teeth) without moving the pinion.
5. If the spur moves more than the recommended amount the gear mesh is too loose. Loosen the motor mount screws and move the motor closer to the spur gear.
6. If the spur moves less than the recommended amount the gear mesh is too tight. Loosen the motor mount screws and move the motor away from the spur gear. Once the gear mesh is correct, tighten down the motor screws and re-check the mesh to be sure it did not change as the motor screws were tightened. After every few runs it is a good idea to re-check the gear mesh and make sure the motor screws are still tight.





### Shock Assembly

1. Install a 2.5mm e-clip (S) onto the groove on the shock shafts (68,69) closest to the center of the shaft.
2. Place the shock piston (4) on top of the 2.5mm e-clip.
3. Secure the shock piston in place with a 2.5mm e-clip in the groove closest to the end of the shaft.
4. Install a shock O-ring (114), a shock seal spacer (35), and then another shock O-ring (114) into the shock seal holder in the bottom of the shock body (75,76). Secure all of the parts in the shock seal holder using the shock seal retainer (33).
5. Install the shock shaft assembly into the shock body.
6. Fill the shock with fluid. Install the shock diaphragm (34), the shock cap (78) and the shock cap ring (78).
7. While tightening the shock cap down, work the shock shaft and piston up and down to help remove any air and excess oil that may be trapped in the shock.
8. Thread the shock ball end (31) onto the end of the shock shaft. **Note:** To hold the shock shaft, use needle nose pliers with a piece of cloth (to protect the shaft).
9. Install the shock ball (106) in the shock end.
10. Install the upper spring clamp (122) and spring (70,71).
11. Secure the shock spring in place with the lower spring clamp (32).

