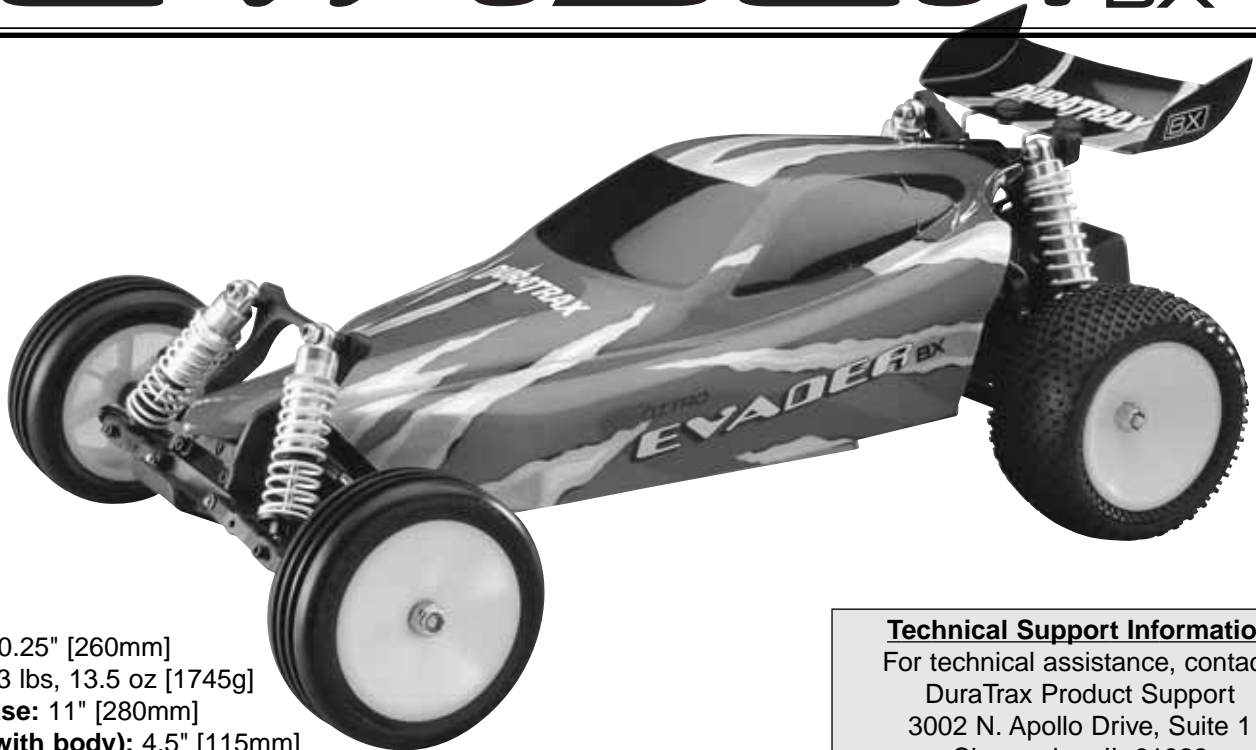


NITRO EVADER™ BX



Width: 10.25" [260mm]
Weight: 3 lbs, 13.5 oz [1745g]
Wheelbase: 11" [280mm]
Height (with body): 4.5" [115mm]
Length (with body & wing): 16.5" [420mm]
Radio: 2-channel surface frequency
Engine: DuraTrax .18

Technical Support Information

For technical assistance, contact:
DuraTrax Product Support
3002 N. Apollo Drive, Suite 1
Champaign, IL 61822
(217) 398-8970, Ext. 5
carsupport@duratrax.com

ASSEMBLY AND OPERATION MANUAL

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. The DTX .18 engine has a two-year warranty.
- 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 assembly or material used for final 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 Nitro Evader BX for repairs covered under warranty you should send your buggy 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

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.

READ THROUGH THIS MANUAL BEFORE STARTING CONSTRUCTION. IT CONTAINS IMPORTANT INSTRUCTIONS AND WARNINGS CONCERNING THE ASSEMBLY AND USE OF THIS MODEL.

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INTRODUCTION

Thank you for purchasing the DuraTrax Nitro Evader BX. This manual contains the instructions you need to build, operate and maintain your new nitro R/C buggy. Read over this manual thoroughly before building or operating the Nitro Evader BX.

IMPORTANT SAFETY PRECAUTIONS

When the safety precautions are followed, the Nitro Evader BX will provide years of enjoyment. Use care and good sense at all times when operating this radio controlled buggy. 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 Nitro Evader BX near people. Spectators should be behind the driver or at a safe distance away from the vehicle.
- Water can cause the electronics to short out and can cause permanent damage.
- Always turn on the transmitter before turning on the receiver.
- Before turning on your radio, check to make sure that no one else is running on the same frequency as your Nitro Evader BX.
- The engine and exhaust produce quite a bit of noise. If you are disturbed by the amount of noise this buggy produces, wear ear protection such as earplugs. Do not run this vehicle when or where it can disturb others.
- The engine and exhaust can become very hot. Avoid touching any of these parts during use and until they have cooled down.
- Model engine fuel is poisonous. Make sure you read and follow all of the precautions on the fuel container. Keep fuel out of the reach of children.
- Model engine fuel is flammable and when ignited has a flame that is difficult to see. Avoid sparks, flames, smoking, or any other ignition source when fuel is near.
- The engine emits carbon dioxide just like real cars. Do not operate this model indoors.
- Fully extend the transmitter antenna before operating your vehicle.

HELPFUL HINTS

- Avoid working over a deep pile carpet. If you drop a small part or screw, it will be difficult to find.
- Place a mat or towel over your work surface. This will prevent parts from rolling off and will protect the work surface.
- Avoid running the buggy 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.
- Test fit all parts before attaching them permanently.

STRESS-TECH™ PARTS GUARANTEE

We have engineered the Nitro Evader BX to take the rough and tumble abuse that makes R/C buggies 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 buggy. Just send in the part to us and we will send you a **FREE** replacement. Please see the Nitro Evader BX 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 on the cover of this manual.

- 1. The broken part must be included.
- 2. The part number and description of the broken part.
- 3. Dated copy of your invoice or purchase receipt.
- 4. Your name, phone number and shipping address.

REPAIR SERVICE

Repair service is available anytime.

- After the 90 day warranty (2 years for the Duratrax .18 engine), you can still have your Nitro Evader BX repaired for a small charge by the experts at DuraTrax's authorized repair facility, Hobby Services, at the address listed on the front page of this manual.

To speed up the repair process, please follow the instructions listed below.

- 1. Under most circumstances return the **ENTIRE** system: buggy and radio. The exception would be sending in a Stress-Tech part. See the instructions under 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. Also be sure to include your full return address.

SPECIFICATION & 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.

REQUIRED ITEMS FOR COMPLETION

To operate the Nitro Evader BX the following items are required:

- Fuel (DuraTrax Red Alert™ - DTXP0520)
- Extra Glow Plugs (DTXG3001)
- Glow Plug Wrench (DTXR1170)

For the pre-built version of the Nitro Evader BX, you will also need:

- 2 channel radio with two (2) standard servos (FUTJ20**)
- Twelve (12) "AA" batteries - Four (4) for the receiver and eight (8) for the transmitter
- Thread-Locking Compound (GPMR6060)
- Receiver Battery Box (DTXM3000)

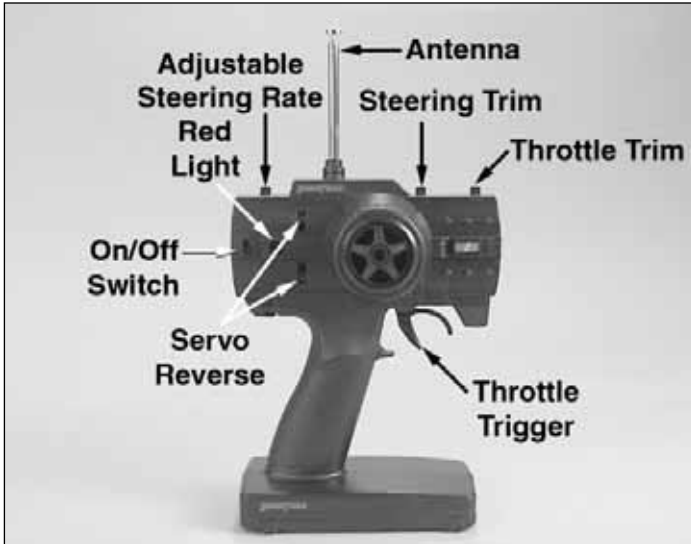
TOOLS NEEDED FOR COMPLETION

- #2 Phillips head screwdriver (DTXR0124, Not Included)
- Needle nose pliers (DTXR0300, Not Included)

TOOLS INCLUDED FOR MAINTENANCE & CLEANING

- 3/32", 1.5mm & 2.5mm hex Wrenches
- Turnbuckle wrench
- Nut driver (4-way)

FINISHING THE NITRO EVADER BX RTR VERSION (DTXD67**)



❑ 1. Install the transmitter antenna by screwing it into the hole on the top of the transmitter. Give the antenna a mild tug to make sure that it is properly secured in the transmitter.

❑ 2. Slide open the battery door on the bottom of the transmitter. Install eight (8) "AA" batteries into the transmitter in the configuration molded into the plastic on the battery holder. Reinstall the battery door.



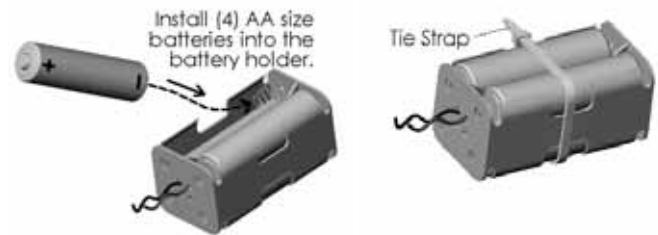
❑ 3. **Warning:** Always extend the transmitter antenna before operating your vehicle. Turn on the transmitter using the switch on the side. The red light on the side of the transmitter should light up. If there is no light on, turn the transmitter off and check to ensure that the batteries are making contact with the metal contacts in the battery holder. Make sure the batteries are installed correctly. Turn the transmitter on and check for the red light. If the red light appears, turn off the transmitter. If the red light blinks, the batteries are low and should be replaced.



❑ 4. Remove the twist-tie from the receiver antenna wire. Locate the antenna tube, and thread the receiver antenna through the antenna tube. The antenna wire will be longer than the antenna tube. **DO NOT CUT OR COIL THE ANTENNA WIRE.** Press fit the antenna tube into the hole in the top of the receiver box. **Tip: Run the antenna wire through your fingers to straighten out the kinks before running through the antenna tube. Also, applying a small amount of soap and water to the antenna wire will help lubricate the wire for threading into the antenna tube.**



❑ 5. Remove the (2) 3x8mm pan head self tapping screws (L) from the receiver battery box (65). Remove the receiver battery box lid (66).



❑ 6. Remove the 4 cell receiver battery box from the radio box and install (4) "AA" included batteries into the battery holder. Follow the configuration molded into the battery holder. Use tie straps to secure the batteries in the holder. Reinstall the receiver battery holder back into the radio box. Tuck the wires into the groove in the radio box so that they do not get crimped under the radio box lid. Re-install the radio box lid and secure it in place with the (2) 3x8 pan head self tapping screws.

❑ 7. Turn the transmitter and receiver on and check that the servos are properly centered. Move the throttle and steering back and forth to check that they are functioning properly.



❑ 8. Decal the body as desired and install on the chassis. Install the wing into the holes in the rear shock tower. **Note:** If the wing fits loosely, bend the end of the wires a bit.

❑ 9. Thoroughly soak the air filter element with the included air filter oil. Work the air filter oil into the entire air filter element, then using a clean, dry paper towel squeeze the excess air filter oil out of the air filter element. **Note: When the air filter element becomes dirty, remove the air filter element from the Nitro Evader and gently wash it out with warm water and dish soap. After the air filter element is completely dry, you can re-oil and re-install it onto your Nitro Evader.**

❑ 10. To continue, turn to page 9, "Carburetor Settings," and then "Breaking In the Engine."

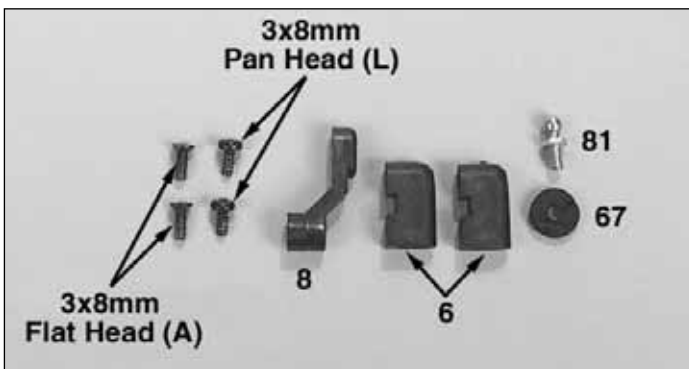
FINISHING THE NITRO EVADER BX PRE-BUILT VERSION (DTXC0067)

PREPARING THE RADIO SYSTEM

- ❑ 1. Install the "AA" batteries in the transmitter.
- ❑ 2. Install and extend the transmitter antenna.
- ❑ 3. Install (4) "AA" batteries into the receiver battery box (refer to RTR section).
- ❑ 4. Connect the servos and receiver battery to the receiver.
- ❑ 5. Uncoil and extend the receiver antenna.
- ❑ 6. Adjust the servo trims of the transmitter to the neutral position.
- ❑ 7. Switch on the transmitter.
- ❑ 8. Switch on the receiver.
- ❑ 9. Operate the steering and throttle control. Make sure the steering and throttle servo arms move in proportion to the movement of the steering wheel and throttle trigger.
- ❑ 10. Switch off the receiver, then the transmitter.

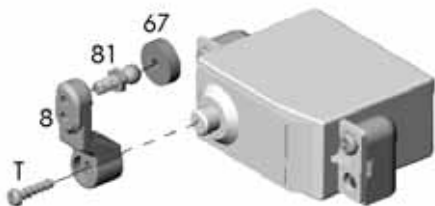
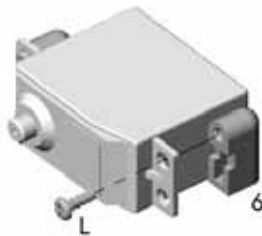
STEERING SERVO ASSEMBLY

- ❑ 1. Remove the Nitro Evader BX and the parts bag from the box.



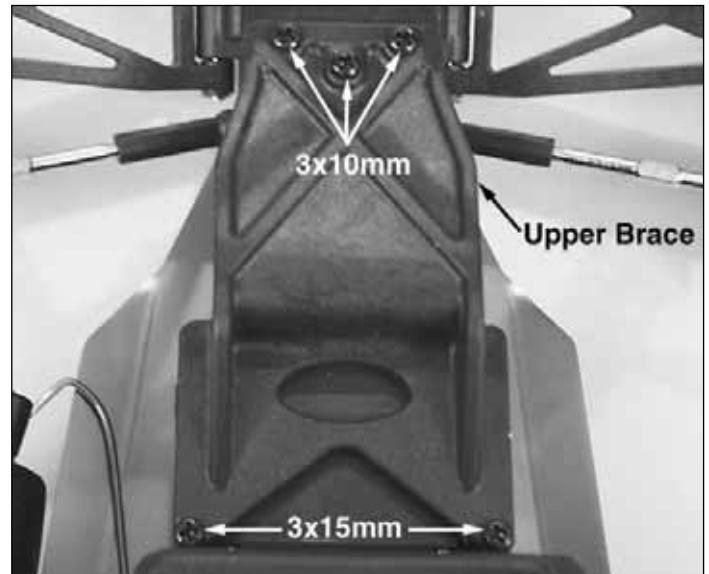
- ❑ 2. Locate and remove from the Parts Bag 2: steering servo mounts (6), one servo arm (8) (determine which servo arm is required for your radio system), one ball stud (81), one foam washer (67), two 3x8 pan head screws (L) and two 3x8 flat head machine screws (A).

- ❑ 3. Attach the servo mounts (6) to the servo using the two (2) 3x8mm screws (L) as shown.

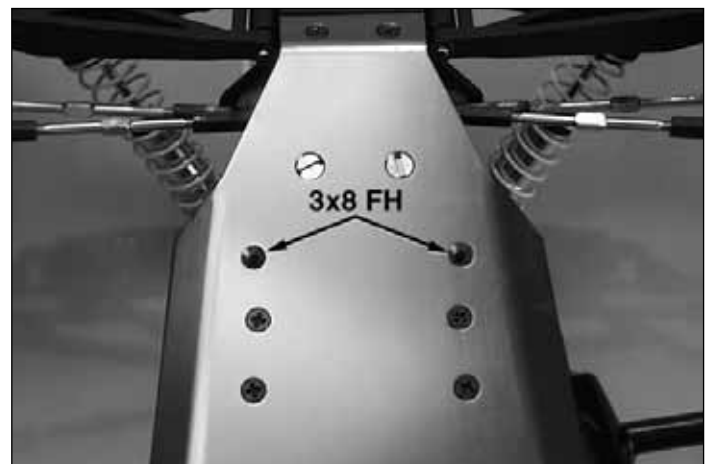


- ❑ 4. Install the ball stud (81) into the flat side of the steering servo arm (8) in the upper hole. With the steering servo centered as described in "Preparing the Radio System," install the correct

steering servo arm onto the servo splines as shown above, making sure that the servo arm is as close to vertical as possible. **Note:** If the steering servo is not properly centered, the steering could be off. Center the servo and then reinstall the servo horn screw, securing the horn onto the servo.



- ❑ 5. Remove the (3) 3x10mm (I) and (2) 3x15mm screws (H) from the top of the upper brace (52). Remove (2) 3x8mm flat head machine screws (A) that hold the upper brace to the main chassis (1). Remove the upper brace from the main chassis.



- ❑ 6. Install the steering servo into the mounting slot. Line up the holes in the servo mounts with the two holes in the chassis. **Note:** There are two different mounting holes in the servo mounts. Use the appropriate holes for your servo. Install the two (2) 3x8 flat head machined screws (A) through the bottom of the chassis into the servo mounts.

- ❑ 7. Attach the steering link ball cup (5) onto the ball stud (81) on the servo. **Note:** Do not reinstall the upper brace (52) back onto the chassis (1) until later.

RECEIVER BATTERY INSTALLATION



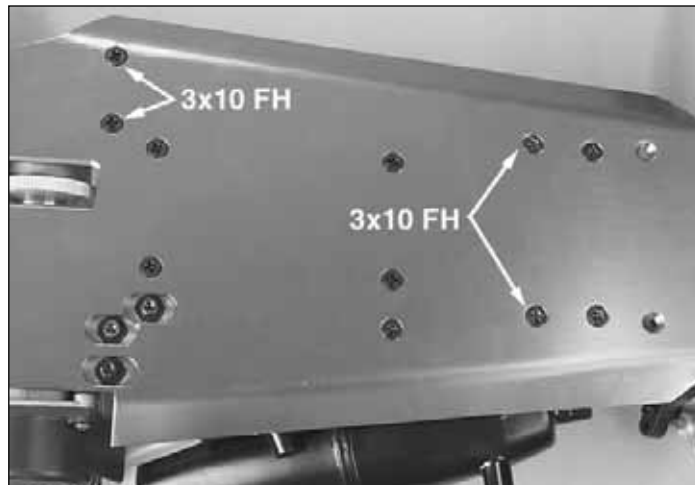
□ 1. Remove the (2) 3x8mm pan head self-tapping screws (L) from the receiver battery box (65). Remove the receiver battery box lid (66). **Note: (4) Four “AA” batteries should already be installed from a previous step, but if not then install the batteries into the receiver battery box.** Install the receiver battery box into the receiver battery holder. Tuck the wires into the groove in the radio box so that they do not get crimped under the radio box lid. Re-install the receiver battery box lid and secure it in place with the (2) 3x8mm pan head self-tapping screws.

□ 2. Route the receiver battery box wire through the shock tower and across the top of the transmission. Tuck the receiver battery box wire into the wire holder molded into the top of the transmission case. Route the wire under the bottom of the engine and along the side of the fuel tank. **Note: Make sure the receiver battery box wire is routed so that it cannot get caught in any moving parts, like the engine’s flywheel.** Secure the receiver battery box wire to the fuel tank using a small tie-straps and the molded tabs on the side of the fuel tank. See photo in step 5 on page 7.

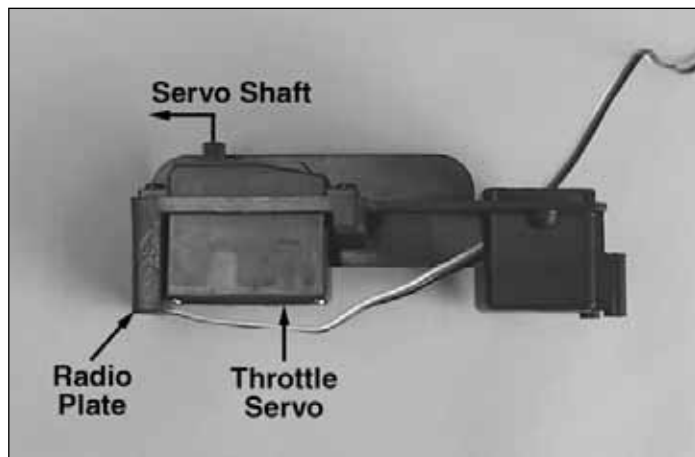
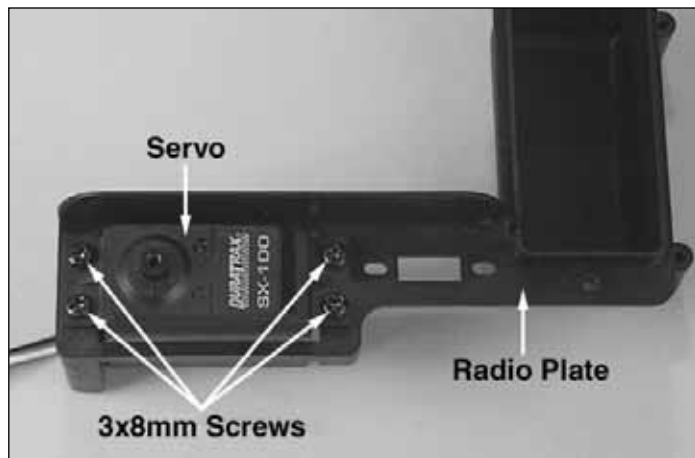
RADIO PLATE INSTALLATION



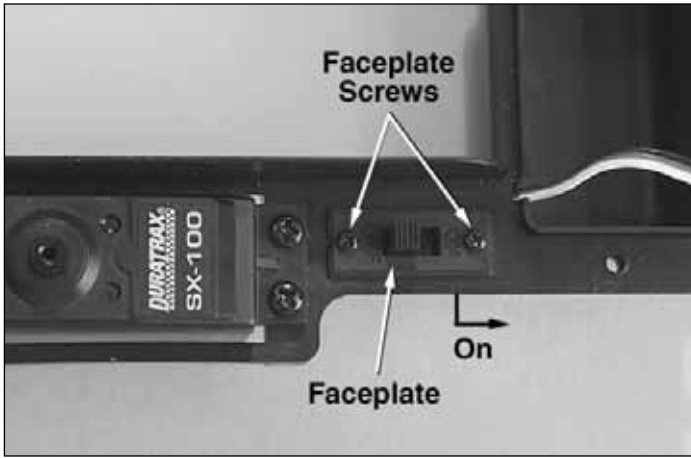
□ 1. Remove the receiver box cover (69) from the radio plate (68) by removing the (2) 3x8mm pan head self tapping screws (I).



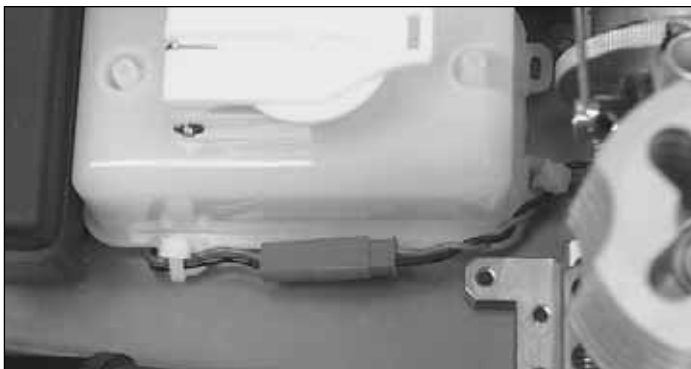
□ 2. Remove the radio plate/receiver box (68) from the chassis (1) by removing (4) 3x10mm flat head machine screws (B) from the bottom of the chassis.



□ 3. Place the throttle servo into the radio plate as shown. Route the servo wire through the hole in the receiver box. Note the location of the servo output shaft. Secure the servo to the radio plate using four 3x8mm screws (L).

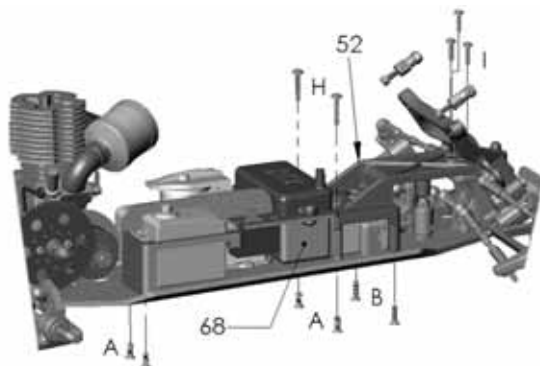


□ 4. Locate the switch that came with your radio system. Remove the two screws from the face plate of the on/off switch and remove the face plate. Note which position is "Off" before removing the face plate. Insert the on/off switch through the bottom of the radio face. Then install the face plate over the top of the on/off switch and place the two screws back through the face plate into the on/off switch. **Note: Make sure the switch is situated so that when the switch is pushed forward it is in the on position. This will prevent the switch from shutting off in case of impact.**



□ 5. Run the end of the on/off switch that installs into receiver through the same hole in the receiver box that you just ran the throttle servo wire through. Connect the other end to the receiver battery box.

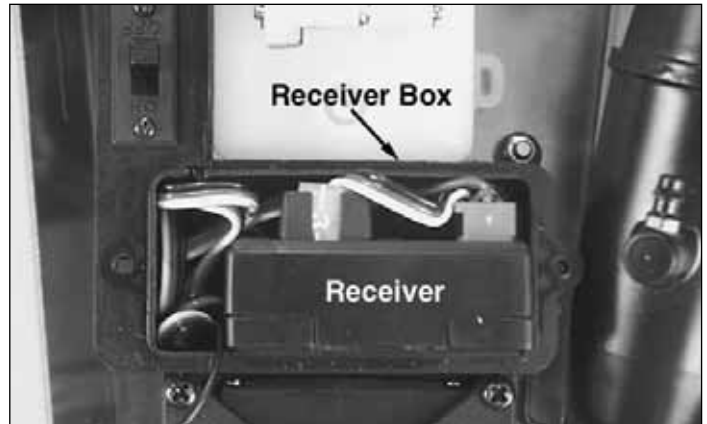
□ 6. Route the steering servo wire through the same hole in the receiver box as the throttle servo and the on/off switch.



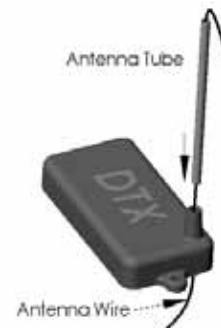
□ 7. Reinstall the receiver box/radio plate onto the chassis using the (4) 3x10mm flat head machine screws (A) on the bottom. Reinstall the upper brace (52) over the servo and reinstall the (3) 3x8mm pan head self tapping screws (I) and the (2) 3x15mm socket head screws (H) in the top and (2) 3x10mm flat head self tapping screws (B) in the bottom.

RECEIVER INSTALLATION

□ 1. Insert the switch, throttle and steering servo plugs into the receiver. Refer to the radio's instruction manual to determine which slots to plug each of the servos into.



□ 2. Install the receiver into the receiver box as shown.



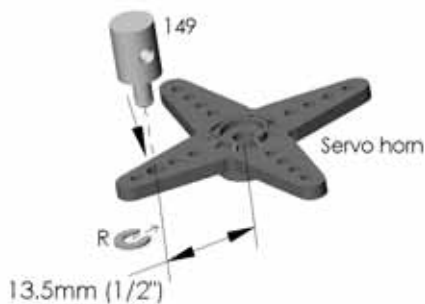
□ 3. Route the receiver antenna through the hole in the receiver box lid (69) as shown in the drawing above. Locate the antenna tube, and

thread the receiver antenna through the antenna tube. The antenna will be longer than the antenna tube. **DO NOT CUT OR COIL THE ANTENNA WIRE.** Press fit the antenna tube into the hole in the chassis. **Tip: Run the antenna wire through your fingers to straighten out the kinks before running through the antenna tube. Also, applying a small amount of soap and water to the antenna wire will help lubricate the wire for threading into the antenna tube.** Re-install the receiver box cover back onto the receiver box using (2) 3x10mm pan head self tapping screws (l).

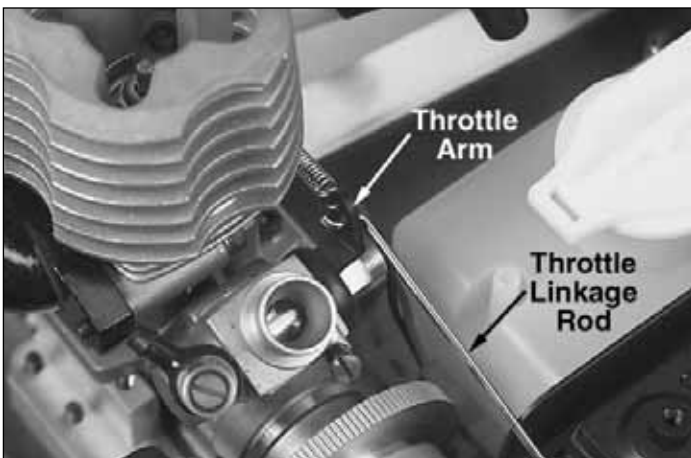
THROTTLE LINKAGE



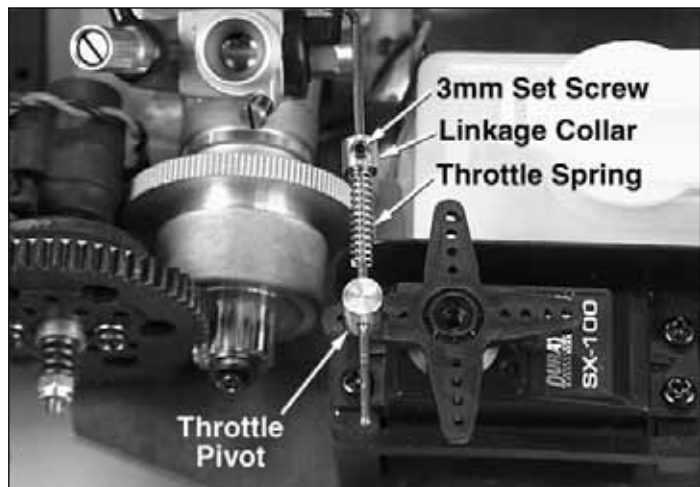
□ 1. Locate an "X" shaped servo horn (like the one above) that came with your radio system.



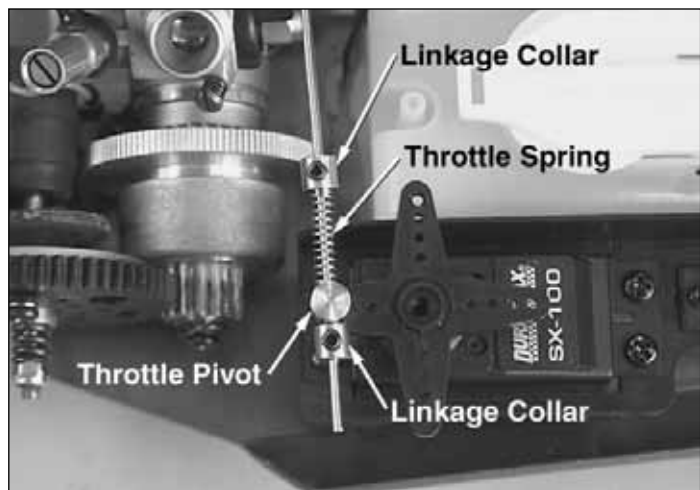
□ 2. Install the throttle pivot (149) in the hole 13.5mm [1/2"] from the center of the servo horn and secure it with the 2mm e-clip (R). **Note: Use a hobby knife to slightly enlarge the hole in the servo horn for the throttle pivot (149) to fit through. The throttle pivot must rotate freely.**



□ 3. Locate the short linkage rod (144) and install the "Z-bent" end into the lower hole of the engine's throttle arm as shown.

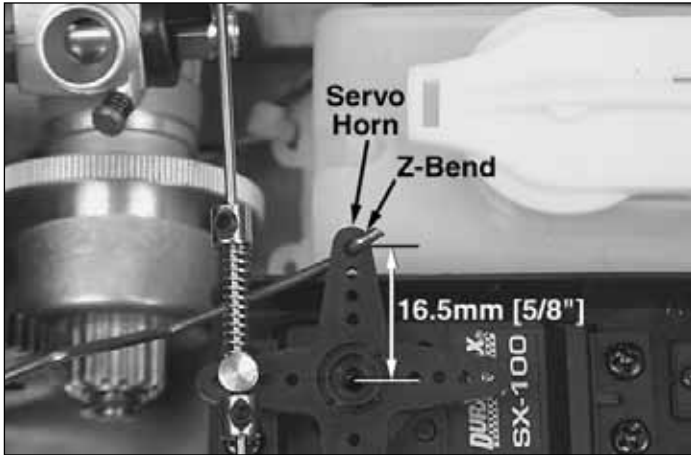


□ 4. Install a 3mm set screw (K) into the linkage collar (146). Then, slide the linkage collar onto the end of the throttle linkage (144) and then the throttle linkage spring (148). Do not tighten the set screw in the linkage collar yet. Install the straight end of the throttle linkage through the hole in the throttle pivot (149). Install the throttle servo horn onto the throttle servo. Do not install the servo horn screw at this time. **NOTE: Thread locking compound must be applied in any step that requires a screw to be threaded into another metal part. For example, when installing the set screws into the linkage collars, apply a generous amount of thread locking compound to the set screw before installing it into the linkage collar.**

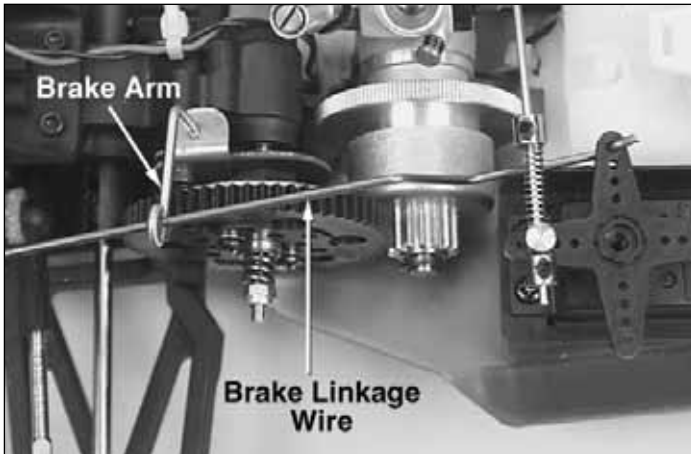


□ 5. Close the throttle to idle and make sure the servo horn is set as shown in the above picture. Install a second 3mm set screw (K) into another linkage collar (146) and then slide the linkage collar (146) onto the throttle linkage (144). Slide the linkage collar (146) against the throttle pivot (149) and tighten the 3mm set screw. Then slide the previously installed linkage collar and spring against the other side of the throttle pivot and apply a slight amount of tension against the spring. Now tighten the set screw in the linkage collar. **Note: This is a good starting point for the linkage. Slight adjustments may need to be made to obtain optimal performance.**

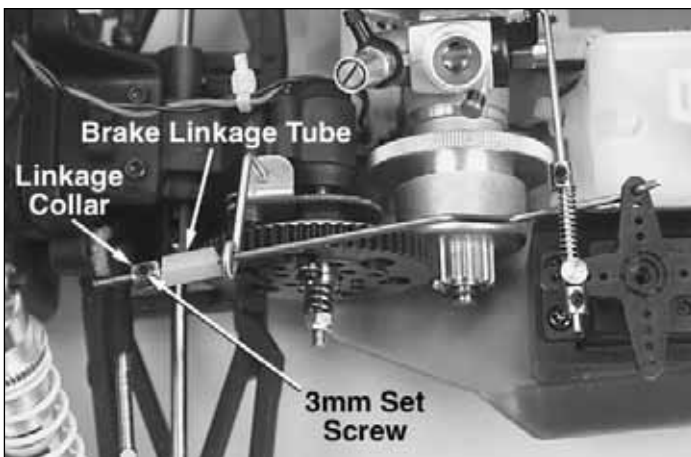
BRAKE LINKAGE



□ 1. Install the Z-bent end of the brake linkage rod (145) into a hole 16.5mm (5/8") away from the center of the servo horn.



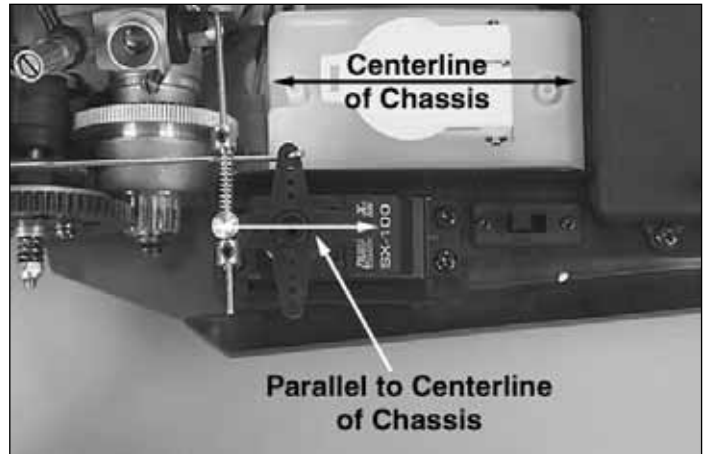
□ 2. Slide the straight end of the brake linkage wire (145) through the brake arm (128).



□ 3. Install the brake linkage tube (147) onto the end of the brake linkage wire. Install a 3mm set screw (K) into the linkage collar (146) and then slide the linkage collar onto the end of the brake linkage wire.

□ 4. With the throttle at idle, slide the linkage collar (146) and tube (147) against the brake actuator rod (128) so that a slight amount of brake is applied. Tighten the 3mm set screw in the linkage collar.

You can check to see if the brakes are applied by gently rolling the vehicle on a flat surface. If the brakes are applied there will be a slight amount of resistance.



□ 5. Remove the throttle servo horn from the throttle servo. Turn the transmitter on and then the receiver. Allow the throttle servo to center. Then, reinstall the throttle servo horn back onto the throttle servo as shown.

INSTALL & OIL AIR FILTER

□ 1. Thoroughly soak the air filter element with the included air filter oil. Work the air filter oil into the entire air filter element, then using a clean, dry paper towel squeeze the excess air filter oil out of the air filter element.

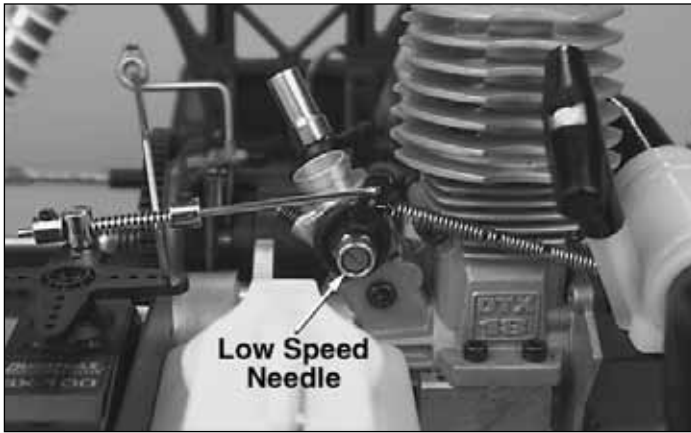
Note: When the air filter element becomes dirty, remove the air filter element from the Nitro Evader and gently wash it out with warm water and dish soap. After the air filter element is completely dry, you can re-oil and re-install it onto your Nitro Evader.

CARBURETOR SETTINGS



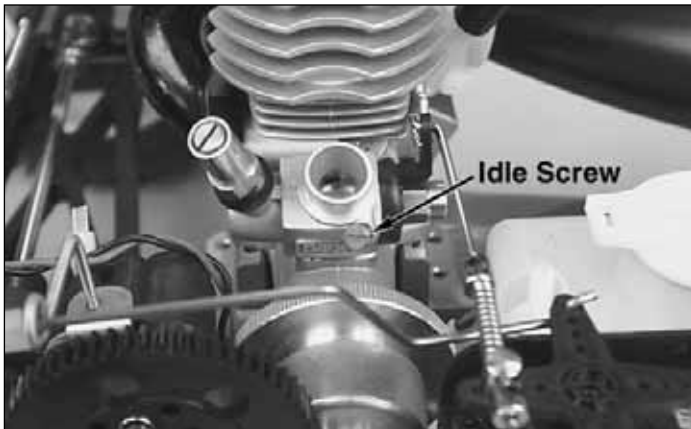
The High-Speed Needle

The "high-speed" needle is sticking up from the side of the carb. It is located in the brass housing, just above the fuel inlet. It controls the fuel to air mixture of the carb. The needle setting for break-in is 2 turns out from fully closed. Once the engine is broken-in, the high-speed needle would typically run from 1-1/4 to 1-3/8 turns out from closed, depending on the temperature, humidity and altitude above sea level. To richen the mixture turn the needle counterclockwise, to lean it turn the needle clockwise.



The Low-Speed Needle

The "low-speed" needle located on the side of the carburetor. It controls the fuel to air mixture at low throttle settings. There is a simple way of adjusting the low-speed needle correctly called the "pinch test." With the engine at idle, pinch the fuel line and listen to how the engine speeds up or slows down. If the engine increases its speed for about 3 or 4 seconds and then loses speed, the needle is set correctly. If the engine loses RPM quickly, it is set too lean and the low-speed needle needs to be opened (counterclockwise) to richen the mixture. Pinch again to check the mixture. If the engine takes longer than 5 seconds to slow down, lean (clockwise) the low-speed needle and then pinch again to check the mixture. **Note: Make sure the high speed needle is set properly before the low speed needle is adjusted.**



The Idle Stop Screw

On the front of the carburetor, there is a black screw. This is called the idle stop screw. This increases or decreases the idle RPM without changing the fuel to air mixture. The barrel should be approximately 1.5mm (between 1/32" and 1/16") from fully closed.

BREAKING-IN THE ENGINE

Note: This engine was designed to racing tolerances and may take longer than 5 tanks to fully break-in.

To insure long life and good performance from your DuraTrax .18 engine, you **MUST** break-in the engine. The break-in period is critical for long life of the internal parts of the engine. This should be done over the first 5 tanks of fuel.

Some Things To Remember During Break-In

- 1. Run with the body off. This will keep the engine cooler.
- 2. Keep the air cleaner on at ALL times
- 3. Run on a smooth, hard surface. An empty parking lot is perfect.
- 4. Use the same fuel that you will use for normal running.
- 5. Resist the urge to accelerate and decelerate the buggy quickly.
- 6. Break-in puts stress on the glow plug and you can burn it out during break-in. Make sure you have an extra plug or two on hand.
- 7. Do NOT overheat the engine. You can check the head temperature by using one of the temperature gauges that are available or by putting a drop of water on the top of the cylinder head. If the water boils away immediately, shut off the engine and allow it to cool. If it takes more than 4 seconds to boil away, the engine is at proper running temperature for break-in.

Before running the engine, read the manual and watch the engine video that came with this kit.

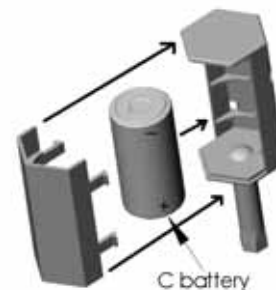


Fuels

Use fuels that are specially formulated for car and buggy engines and have a nitro content between 10-20%. DuraTrax Red Alert (DTXP0520) fuel is specially formulated for R/C car engines like the DTX .18.

There are several simple steps to starting the engine:

- 1. Install a glow plug. This threads into the top of the cylinder head.
- 2. Fueling - Fill the tank almost to the top. Leave a little air at the top of the tank.
- 3. Prime the Engine (when cold) - Wrap your finger with a shop towel and place it over the tuned pipe's exhaust exit. Pull the recoil gently until you can see fuel reach the carburetor (looking through the fuel tubing). **Note:** The engine should not require priming when hot unless you ran out of fuel).
- 4. Open the high speed needle valve exactly **2 turns** out (counterclockwise) from fully closed. The high-speed needle is sticking up from the carburetor inside the brass housing. All of the carburetor settings are adjusted with a flat bladed screwdriver.



- 5. **RTR Version ONLY:** Install the included "C" size battery into the included glow starter as shown.



❑ 6. Install the glow starter onto the glow plug and gently press the top of the glow starter down and turn in a clockwise direction. This will lock the glow starter onto the glow plug. To remove the glow starter, gently press down on the top of the glow starter and turn counter clockwise.

❑ 7. Start the engine by pulling the recoil - Use short, quick pulls. DO NOT pull the recoil starter's string to the end. You only need 10 to 12 inches of pull to start the engine.

❑ 8. Your buggy is equipped with a throttle return spring. It is installed between the throttle arm and the recoil starter. This will return the throttle to idle if there is a loss in power for the on-board radio equipment.

Many times it is helpful to start the engine at around half throttle. Have a friend pull back on the throttle some while you start the engine. This may be an indicator that the low speed needle setting needs to be adjusted. When the engine starts, immediately return the throttle to idle. If this is not done the engine can over-rev and cause engine damage. If the engine is difficult to turn over with the recoil starter, especially if it is brand new, loosen the glow plug a half turn before starting the engine. This allows some compression to escape, but the engine will still start. Make sure you tighten the glow plug after the engine starts. If the recoil starter is still difficult to pull, the engine is flooded - there is too much fuel inside the engine. Remove the glow plug, and then turn the engine upside down and pull the recoil 5 or 6 times. This will clear the engine of fuel, and you will notice the recoil pulls easier. Replace the glow plug and repeat the starting procedure.

Tanks 1-2

Your first two tanks of fuel should be running the buggy at a very rich high-speed needle valve setting. This allows the fuel to carry as much oil as possible into the engine to lubricate the internal parts during the break-in.

❑ 1. After a minute or two of running back and forth at medium speeds, slowly accelerating and decelerating the buggy, make sure the engine is not overheating by putting a drop of water on the cylinder head. If it boils away within 4 seconds, stop the engine and allow it to cool. Open the high-speed needle around a 1/4 turn before starting again. This is a good habit to get into every time you run to ensure that the engine does not overheat during any run. Looking at the smoke that comes out the exhaust is also an

indicator of how rich or lean the engine is running. If there is a good amount of smoke coming out of the exhaust, then chances are good that you are running rich.

❑ 2. Run the buggy back and forth at a medium speed until the tank is almost out of fuel. Do not allow the tank to run out of fuel. This leans out the engine and can cause overheating.

❑ 3. Stop the engine and allow the engine to cool before the second tank. This normally takes around 10 minutes.

How To Stop Your Engine

You may have been wondering how to stop the engine. All you have to do is pinch the fuel line that runs to the carburetor and from the bottom of the fuel tank. Pinching this line will restrict the fuel flow and the engine will quit within a few seconds.

Tanks 3-5

Turn in the needle valve (clockwise) around 1/8 turn from the previous setting for each additional tank. Run the buggy back and forth. You should notice that the buggy will perform better during each run. Stop the buggy periodically to check for overheating. If it is too hot, stop the engine. Wait for it to cool, and then turn the high speed needle valve counterclockwise 1/8 turn, and restart. After the 5th tank, you should be near to the peak performance of the engine.

ENGINE MAINTENANCE

10 Ways To Ensure A Long Life From Your Engine:

❑ 1. Keep your engine clean. Dirt will act as insulation on an engine. It will not be able to shed heat as easily. Use a good air filter to keep dirt out of your engine and clean it often.

❑ 2. Do not over-lean your engine.

❑ 3. Do not run your engine with little or no load. Don't throttle up the engine to full throttle when the wheels are not in contact with the ground.

❑ 4. Do not overheat the engine. This goes along with keeping it clean and not over-leaning the engine.

❑ 5. Do not use a fuel with a low oil content. Make sure you use a fuel from a reputable manufacturer, such as DuraTrax Red Alert.

❑ 6. Avoid using old fuels in the engine. Always run all of the fuel out of the engine. After running for the day, use an after-run oil and work it into the engine by turning the flywheel or pulling the engine recoil slowly.

❑ 7. Do not use a fuel with a nitromethane (often called nitro) content over 20%.

❑ 8. Do not scratch the piston or cylinder sleeve. Avoid jamming something into the exhaust port when removing or reinstalling the clutch or flywheel. Use a special tool called a crankshaft-locking tool, which is installed in the glow plug hole.

❑ 9. Do not use silicone sealer on the engine joints. Silicone sealer contains acetic acid, which is corrosive if it gets inside your engine.

❑ 10. Do not allow any water to get inside the engine. This sounds easy, but temperature changes can cause condensation inside the

engine. This is a good reason to use an after-run oil. Store your engine inside the house, not in a garage or shed where there will be temperature extremes.

Glow Plug

The glow plug is an item that will wear out and need replacement from time to time. It is a good idea to remove the glow plug before your first run, connect the plug to the glow starter and see how well it glows. You should see a bright orange glow from the filament. If a coil or two will not glow or the plug will not glow at all, replace the plug. If the engine quits when you remove the glow starter, the plug might need to be changed, although this may be because you are running too rich and need to screw in your high-speed needle some. Look at the glow plug when you are running the engine. If you see some bubbles coming from around the plug, replace the glow plug (copper) gasket, or both the plug and gasket. The only real way to test a glow plug is to replace it. Make sure you have a spare plug (Siver Sport Glow Plug-DTXG3001) or two on hand every time that you run the Nitro Evader BX.

Fuel

Fuel can go bad. The main ingredient in model fuel is methanol, which is basically alcohol. Alcohol will absorb water out of the air, so keep your fuel jug capped at all times. Store your fuel out of the sunlight and in a cool place. Bad fuel is one of the most difficult problems to diagnose in engines. If you have tried everything you can think of to remedy an engine that is not running correctly, try using some fresh fuel.

Maintenance

The fuel line is susceptible to pinhole leaks. You cannot see the hole in the fuel line, but if you see air bubbles in the line going to the carburetor, replace the fuel line. Another symptom of a leak in the fuel line is a surging engine. A properly tuned engine will surge when the air bubbles hit the carb. It is basically leaning out the mixture.

To keep dirt out of the engine, we recommend that you use an inline fuel filter (Clean Flow Fuel Filter-DTXC2551) on the fuel line running from the fuel tank to the carburetor. Dirt can get caught in the needle seat and cause an inconsistent running engine. If you suspect that some dirt has lodged itself in the carb, remove the needles and clean the carb with denatured alcohol or fuel. It can help to use compressed air to blow out the fuel passages as well. Dirt can get into your carburetor and engine through the air filter. Ensure that your air cleaner has a good seal to the top of the carb. Periodically wash the air cleaner foam element and re-oil the filter. Any air cleaner that has a torn element or a bad seal should be replaced immediately.

Overheating

One of the worst things you can do to your engine is overheat it. The oils that lubricate the engine are carried in the fuel. If your engine is set too lean, there will not be enough oil in the engine to lubricate the internal parts. This will cause premature wear in the engine and cause damage. We have talked about overheating in other parts of this manual, but we want to stress the proper techniques to check for overheating. The easiest way of checking the temperature of the cylinder head is using one of the available temperature gauges. This will give you a direct reading of the cylinder head temperature. Do not let the head temperature exceed 250° Fahrenheit (121° Celsius). Another way of checking the head temperature is to put a drop of water on the cylinder head. If it boils away immediately, the high-speed needle is set too lean. If the water boils away in 3-5 seconds, the engine is within

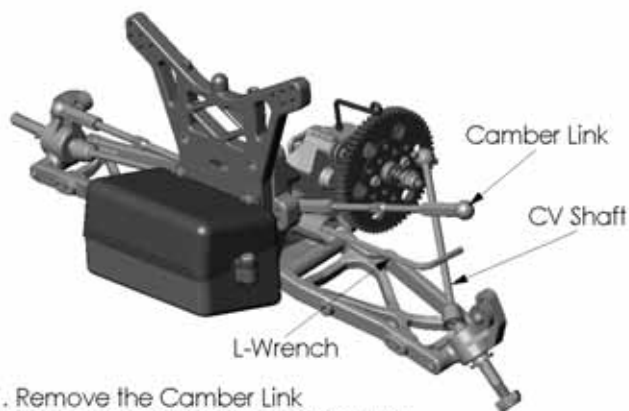
proper operating temperatures. If the water boils away longer than 5 seconds, the mixture is set rich which is preferable when breaking in the engine. Otherwise lean the mixture some and retest after a minute of running.

BALL DIFFERENTIAL BREAK-IN

The ball differential has been adjusted at the factory for proper “break-in”. Do not tighten the differential before the buggy has been properly broken-in or you can damage the differential.

After running the buggy for 2 or 3 tanks of fuel, the ball differential may require readjustment. This is the “normal” break-in period for the ball differential. You will hear a “squealing” sound when accelerating from a stop and the buggy will accelerate slower. This indicates that the differential is properly broken-in and **now requires adjustment**. Do not run the buggy again until the differential is properly readjusted as follows.

Adjusting the differential is quick and easy. Access the adjusting screw by disconnecting the rear camber link (using pliers) at the right rear wheel. Rotate the wheel and CV shaft out of the way.



1. Remove the Camber Link
2. Rotate the CV Shaft out of the way.
3. Adjust the diff screw using the L-Wrench.

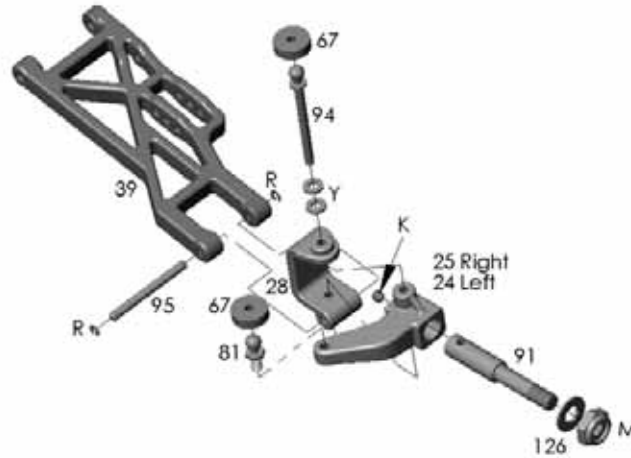
While holding the left rear tire, tighten the adjusting screw by inserting the included 3/32" L-wrench into the cap screw on the right side of the ball differential. The screw should be tightened until it is “just snug.” **Caution:** Do not over tighten the adjusting screw or you will damage the differential. Next, loosen the screw 1/8 of a turn.

Reinstall the CV shaft back into the differential and reattach the camber link. The ball differential may need occasional adjustment to maintain performance.

ASSEMBLY GUIDE

The following information has been provided to help maintain and tune the Nitro Evader BX.

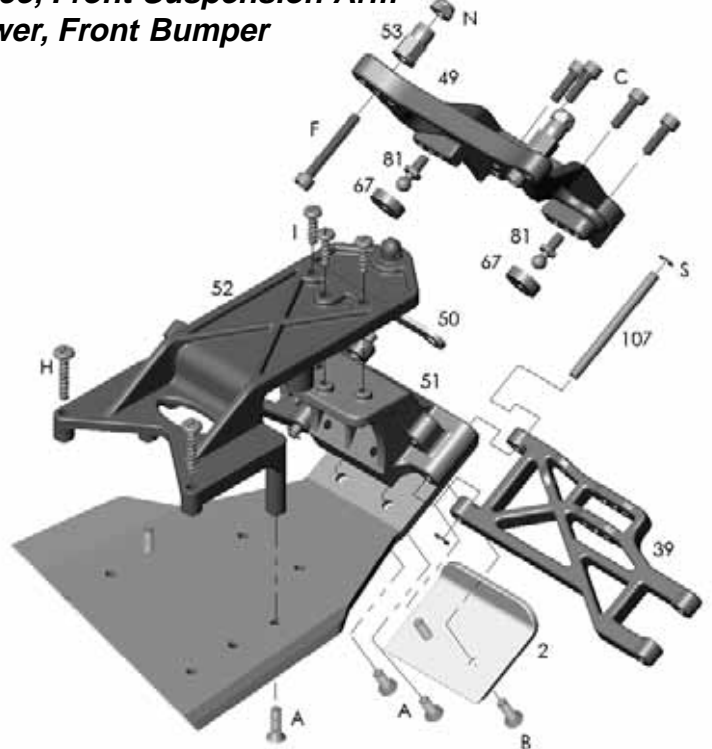
Front Knuckle Arm, Hub Carrier, Axle



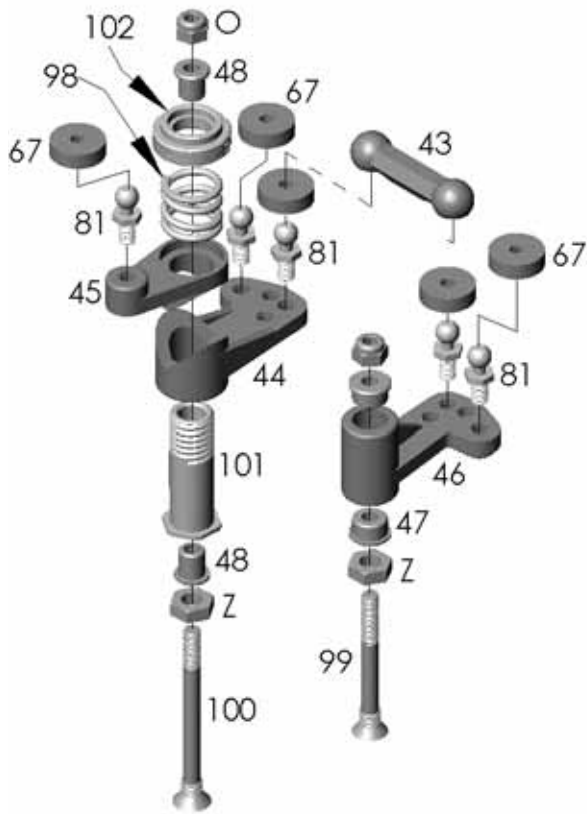
1. Attach the front hub carriers (28) to the front suspension arms (38 & 39) using the outer front hinge pins (95).
2. Install the front axles (91) into the knuckle arms (24 & 25).
3. Install two kingpin spacers (Y) onto each kingpin (94).
4. Insert the knuckle arms (24 & 25) into the front hub carriers (28) and then secure them in place with the kingpins (94). **Note: The king pin spacers go on the top of the hub carriers.**
5. Secure the kingpins (94) in place using 2mm e-clips (R).
6. Install a 3mm set screw (K) into the axle (91) to secure the kingpins (94) in the axle.

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

1. Attach the front bulkhead (51) to the chassis by installing (2) 3x10 flat head self tapping screws (A) into the (2) rear holes.
2. Secure the bumper (2) and bulkhead (51) onto the chassis (1) using (2) 3x8mm flat head self tapping screws (B).
3. Install the front hinge pin brace (50) against the front of the front bulkhead (51). Then attach and secure the front suspension arms (38 & 39) to the front bulkhead (51) using the inner front inner hinge pins (104).
4. Secure the rear of the front inner hinge pin (104) with a 2.5mm e-clip (S).
5. Secure the front bulkhead brace using 2.5mm e-clips (S).
6. Attach the front shock tower (49) to the front bulkhead (51) using (4) 4-40x3/8" socket head screws (C).
7. Secure the front body mount (57) to the front shock tower (49) using (2) 4-40x3/8" socket head screws (C).
8. Attach the top of the front bulkhead (51) to the upper plate (52) with (3) 3x10 pan head screws (I).



Steering Bellcrank Assembly



1. Insert the two bellcrank screw posts (99 & 100) into the bottom of the chassis (1). The long screw post (100) should be installed on the left side of the Nitro Evader chassis when viewed from the rear. Secure the bellcrank screw posts (99 & 100) to the chassis (1) with the 4mm hex nuts (Z).

2. Install ball studs (81) into the right bellcrank (46) in the holes shown.

3. Insert a plastic bushing (48) into each end of the right steering bellcrank (46). Make sure the bushings are fully seated.

4. Slide the assembled right bellcrank onto the short aluminum bellcrank screw post (99).

5. Install ball studs (81) into the lower left bellcrank (44) in the holes shown.

6. Insert the threaded aluminum servo saver hub (101) into the bottom of the lower left steering bellcrank (44). **Note: The aluminum servo saver hub is designed to key into the bottom of the lower left steering bellcrank. Make sure that the hex in the hub fully seats in the bellcrank.**

7. Install a ball stud (81) into the upper left steering bellcrank (45).

8. Insert a plastic bushing (48) into each end of the threaded post guide (101). Again, make sure the bushings are fully seated.

9. Slide the servo saver hub (101) and lower left bellcrank assembly onto the long servo saver shaft (100). Then install the upper left steering bellcrank (45) onto the lower left steering bellcrank (44).

Note: The upper and lower left steering bellcranks are designed to key together.

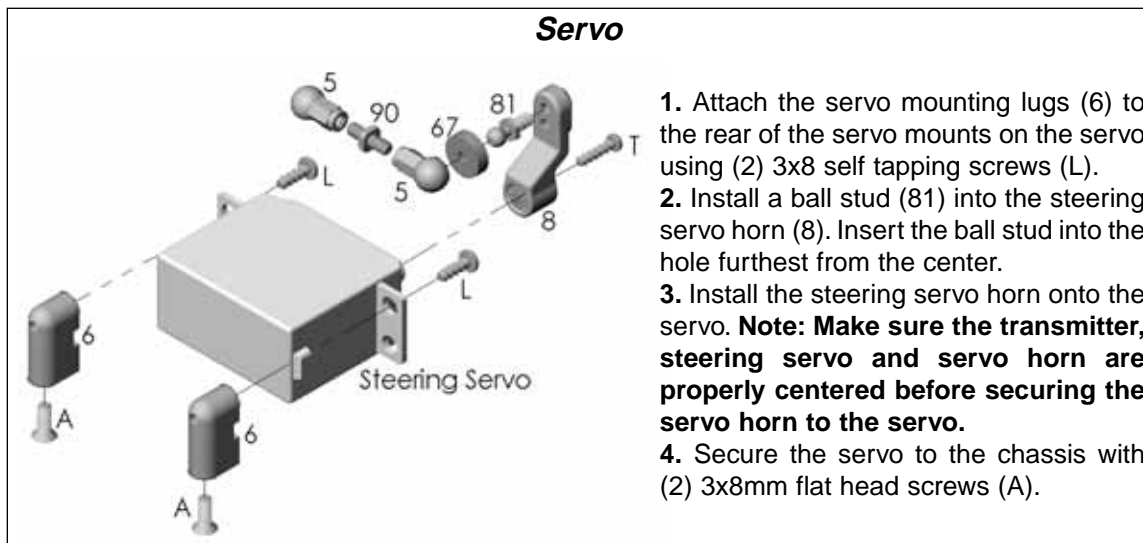
10. Place the servo saver spring (98) on top of the upper left steering bellcrank (45).

11. Secure the left bellcrank assembly together with the aluminum

servo saver spring adjuster nut (102). **Note: The servo saver spring adjuster is machined on one side for the servo saver spring to fit into. Make sure this side goes down against the servo saver spring. Adjust the servo saver so the top edge of (102) is even with the top edge of (101).**

12. Slide the assembled left bellcrank assembly onto the screw post (100). Attach the left and right bellcranks with the one piece molded link (43).

Servo



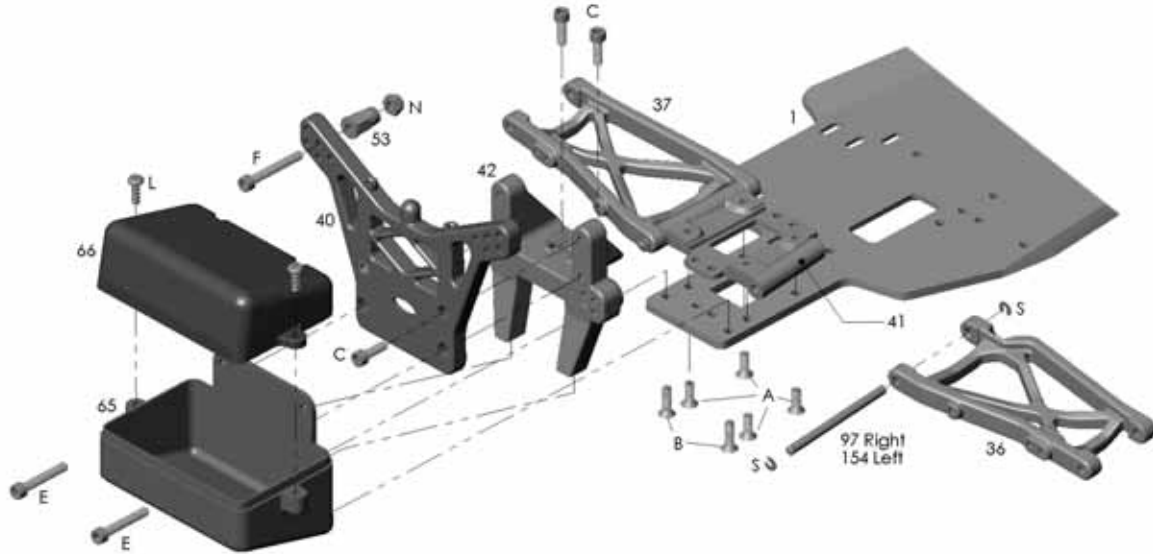
1. Attach the servo mounting lugs (6) to the rear of the servo mounts on the servo using (2) 3x8 self tapping screws (L).

2. Install a ball stud (81) into the steering servo horn (8). Insert the ball stud into the hole furthest from the center.

3. Install the steering servo horn onto the servo. **Note: Make sure the transmitter, steering servo and servo horn are properly centered before securing the servo horn to the servo.**

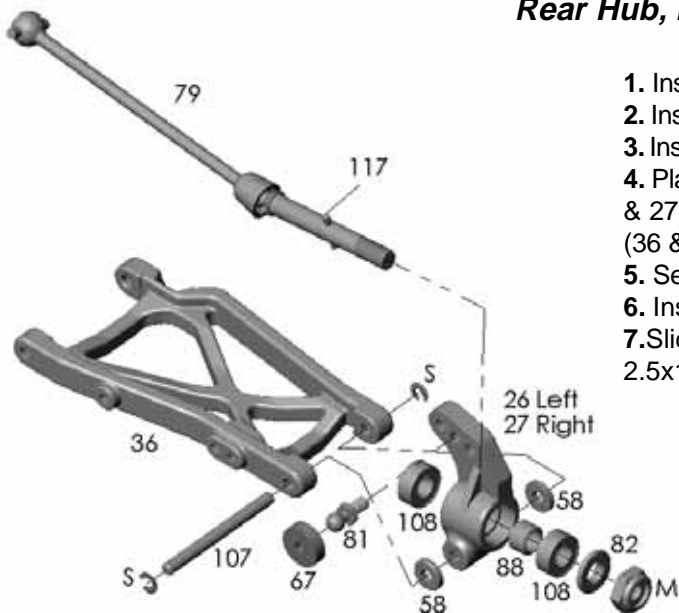
4. Secure the servo to the chassis with (2) 3x8mm flat head screws (A).

**Rear Shock Tower, Rear Bulkhead, Rear Transmission Plate,
Rear Suspension Arm, Receiver Battery Box**



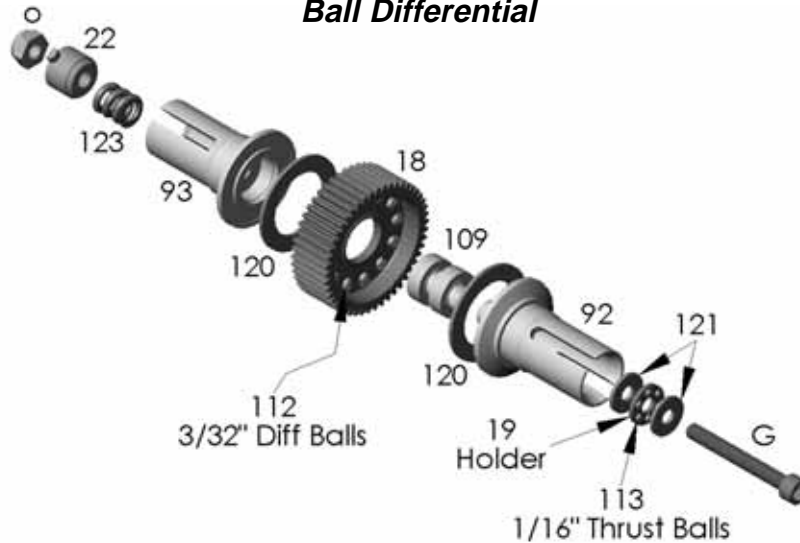
1. Attach the rear suspension plate (41) to the chassis (1) using (4) 3x8mm flat head screws (A).
2. Attach the rear suspension arms (36 & 37) to the rear suspension plate (41) using the inner rear hinge pins (97 & 104).
3. Secure the inner rear hinge pins (97 & 104) in place using (2) 2.5mm e-clips (S).
4. Install (2) ball studs (81) into the appropriate holes in the transmission brace (42). **Note: The stock setting is the lower inner holes. Make sure that the ball studs are in the same hole location on both sides.**
5. Install the transmission brace (42) onto the gearbox using (2) 4-40x3/8" socket head screws (C). **Note: Do not install the two screws through the chassis into the rear bulkhead. You must install the receiver battery box bottom first.**
6. Attach the top of the rear shock tower (40) to the transmission brace (42) using (2) 4-40x3/8" socket head screws (C). **Note: Make sure the screws pass through the shock tower, chassis and into the rear bulkhead.**
7. Attach the receiver battery box bottom (65) to the chassis (1) with (2) 3x10 flat head self tapping screws (B). Also, use (2) 4-40x3/4" socket head screws (E) to secure the receiver battery box bottom (65) to the rear shock tower (40).
8. Secure the receiver battery cover (66) to the receiver battery bottom (65) using (2) 3x5 pan head screws (L).

Rear Hub, Rear Axles



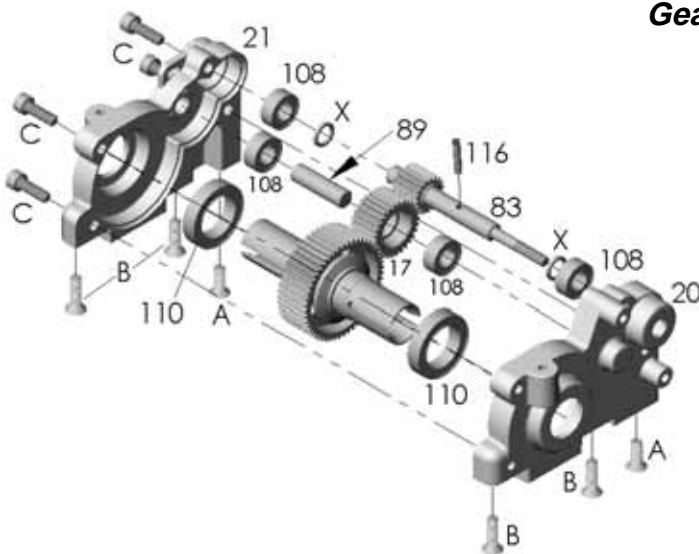
1. Install axle spacer (88) in the center of each rear hub.
2. Install (2) 5x10mm bearing (108) in both of the rear hubs (26 & 27).
3. Install a ball stud (81) into the center hole of the rear hubs (26 & 27).
4. Place a 3mm plastic spacer (58) on each side of the rear hubs (26 & 27). Secure the rear hubs (26 & 27) to the rear suspension arms (36 & 37) with the 3mm outer rear hinge pins (107).
5. Secure the outer rear hinge pins (107) with 2.5mm E-clips (S).
6. Install the rear axles (79) through the bearings in the hubs.
7. Slide a rear axle washer (82) onto the axle then install a 2.5x12mm spring pin (117) into the rear axle.

Ball Differential



1. Place one of the differential thrust washers (121) onto the 3x25mm cap screw (G).
2. Lubricate the differential thrust washer (121) and then install the plastic thrust ball holder (19) and 1/16" thrust balls (113) using silicone grease.
3. Lubricate the other differential thrust washer (121) and install it on top of the 1/16" thrust balls (113) and holder (9).
4. Insert the screw and thrust ball assembly into the left outdrive (92).
5. Apply a small amount of grease to one of the differential rings (120) and place it onto the left outdrive (92). The grease should hold the differential ring (120) in place.
6. Install a 5x9mm bearing (109) onto the left outdrive (92).
7. Install the 3/32" differential balls (112) into the differential gear (18).
8. Install a 5x9mm bearing (109) into the center of the differential gear (18) and install the gear onto the left outdrive (92).
9. Install the other differential ring (120) onto the right differential outdrive (93).
10. Insert the differential spring (123), lock nut holder (22) and the 3mm lock nut (O) into the end of the right differential outdrive (93).
11. Join the left and right differential outdrives (92&93) together and tighten the 3x25mm cap screw (G) until the differential gear cannot be turned while both differential outdrives are being held. **Note:** Be careful not to over tighten the differential. The differential will require fine tuning once it has been installed into the buggy. **(The diff can be properly adjusted by tightening the diff bolt (G) until snug and then back off 1/8 turn.)**

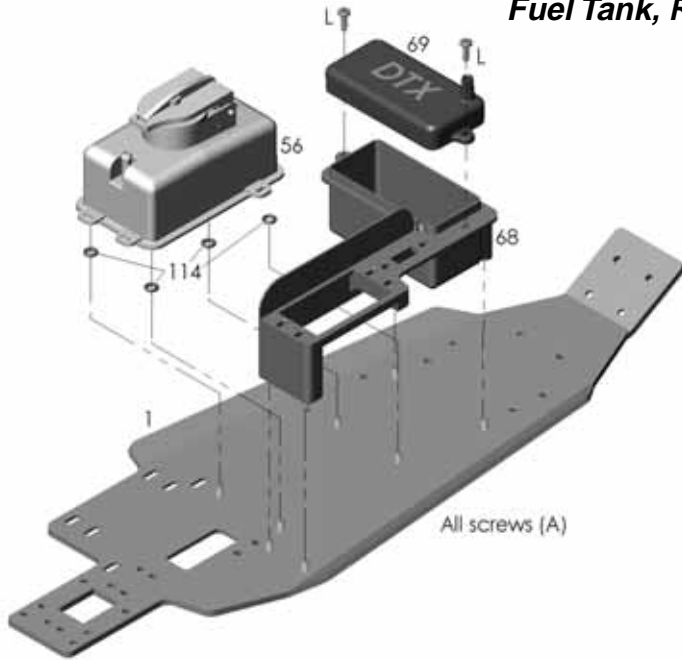
Gearbox



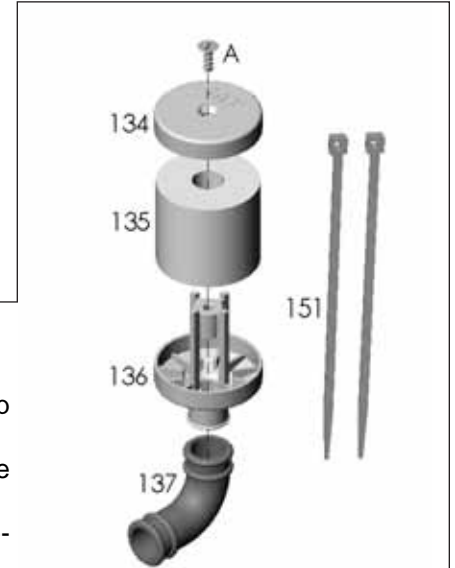
Note: When installing the bearings make sure they are fully seated. If the bearings are not fully seated the gearbox halves may not properly fit together or may cause binding.

1. Install a 5mm washer (X) onto each end of the top shaft (83).
2. Install a 5x10mm bearing (108) into the upper hole of the right gearbox half (20).
3. Install the top shaft (83) into the 5x10mm bearing (108) that was just installed into the right gearbox half (20).
4. Install the 2x10mm spring pin (116) into the top shaft (83)
5. Install a 5x10mm bearing (108) into each side of the idler gear (17).
6. Install the idler gear shaft (89) into the idler gear bearings.
7. Install the idler gear into the right gearbox half (20).
8. Install a 12x18mm bearing (110) into the lower hole in the right gear box half (20).
9. Install the ball differential into the 12x18mm bearing (110) that was just installed into the right gear box half (20).
10. Insert a 12x18mm bearing (110) and 5x10mm bearing (108) into the left gearbox half (21).
11. Install the two gearbox halves (20&21) together. Make sure the two gearbox halves properly fit together.
12. Secure the two halves together with the 4-40x3/8" socket head screw (C).

Fuel Tank, Radio Plate



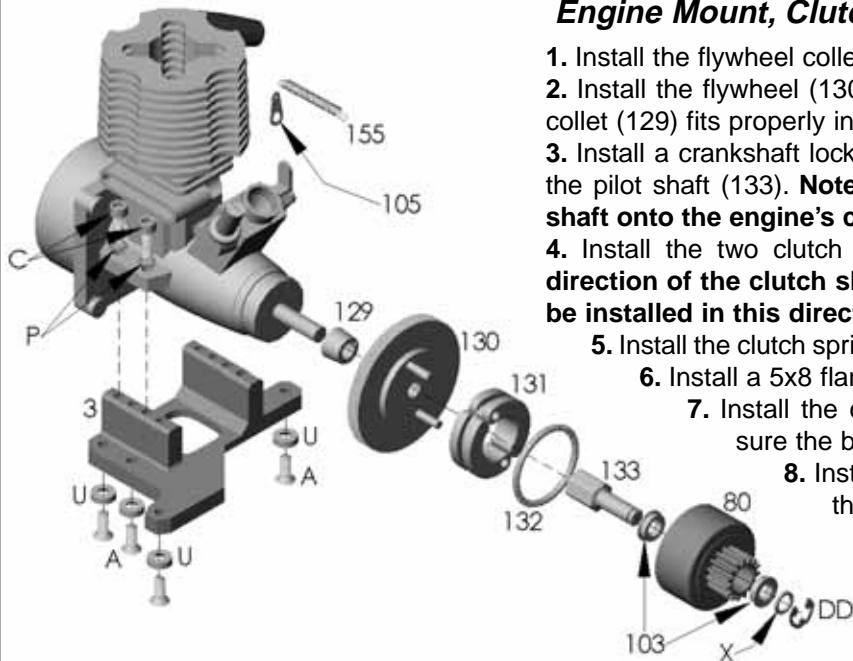
1. Secure the radio plate (68) to the chassis (1) using (4) 3x8mm flat head screws (A).
2. Secure the radio box cover (69) to the radio plate (68) using (2) 3x10mm self tapping screws (L).
3. Attach the fuel tank (56) to the chassis (1) using (4) 3x8mm flat head screws (A).



Air Filter

1. Place the air filter element (135) onto the air filter base (136).
2. Secure the air filter element (135) onto the base (136) by installing the air filter top (134) and securing it all together with the 3x8mm flat head self tapping screw (A).
3. Install the air filter neck (137) onto the bottom of the air filter base (136). Secure the air filter neck (137) to the base using a tie-strap (151).
4. Secure the other end of the air filter neck (137) to the engine using another tie-strap (151).

Engine Mount, Clutch



1. Install the flywheel collet (129) onto the engine's crankshaft.
2. Install the flywheel (130) onto the engine's crankshaft, making sure the collet (129) fits properly into the flywheel (130).
3. Install a crankshaft locking tool (not included) into the engine and install the pilot shaft (133). **Note: Make sure you thoroughly tighten the pilot shaft onto the engine's crankshaft.**
4. Install the two clutch shoes (131) onto the flywheel pins. **Note the direction of the clutch shoes in the drawing. The clutch shoes should be installed in this direction for optimal performance.**
5. Install the clutch spring (132) into the groove of the clutch shoes (131).
6. Install a 5x8 flanged bearing (103) onto the pilot shaft (133).
7. Install the clutch bell (80) onto the pilot shaft (133) making sure the bearing fully seats into the clutch bell (80).
8. Install the second 5x8mm flanged bearing (103) into the end of the clutch bell (80). Again, make sure the bearing is fully seated into the clutch bell (80).
9. Install a 5mm washer (X) onto the end of the pilot shaft (133). Secure the clutch assembly with a 4mm e-clip (DD).

1. Secure the engine onto the engine mount (3) using (4) 4-40x3/8" socket head screws (C) and (4) 3mm lock washers (P). **NOTE: Make sure a generous amount of thread locking compound is applied to the screws before installing them.**
2. Secure the engine mount (3) to the chassis (1) using (6) 3x8mm socket head screws (A).

MAINTENANCE TIPS

BEFORE EACH RUN

- 1. Check to make sure that all screws are tight and there are not any screws missing.
- 2. Before running always check the condition of your radio system batteries and replace/recharge if necessary.
- 3. Check to make sure that all of the moving parts of the Nitro Evader move freely and do not bind.
- 4. Check the fuel tank and fuel lines for leaks.
- 5. Before starting the engine, turn on the radio and make sure the servos move easily and in the proper direction.
- 6. Inspect the air cleaner for a torn or damaged element. Also look for dirt in the air cleaner element and wash it if necessary.
- 7. Check for broken or damaged parts. Replace any broken or damaged parts before running the Nitro Evader. Running of the Nitro Evader with broken or damaged parts could result in damage to other parts.
- 8. Check to make sure that all wires are properly connected.

AFTER EACH RUN

- 1. Clean any large globs of dirt or debris from the chassis and moving parts.
- 2. Drain the fuel tank of any leftover fuel. DO NOT return the fuel to your fuel jug.
- 3. Check for any broken or damaged parts. This way parts may be replaced before the next run.
- 4. Put some after-run oil in the carburetor and turn the flywheel several times to work the oil into the engine. This will protect the engine from rusting, especially when stored for a long period of time.

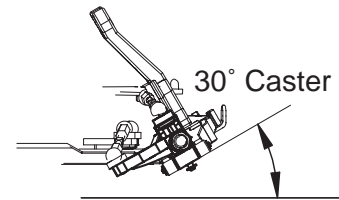
AFTER EVERY 10 RUNS

- 1. Check to make sure that the bearings are free of dirt and debris, and roll smoothly.
- 2. Check the shocks for oil leakage. If the shocks have leaked any shock fluid out, you should properly refill the shocks for best performance.
- 3. Make sure the servo saver moves freely and does not bind. This will help prevent stripping of the servo during running.
- 4. Check for proper gear mesh between the spur and clutch bell.

TUNING GUIDE

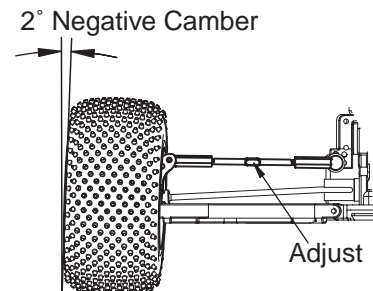
When tuning the Nitro Evader make sure that you have equal lengths from one side to the other on the shocks, camber rods and steering rods. Also, make sure to have the shock pre-load adjusters at the same setting from left to right. They do not have to be the same front to rear.

CASTER



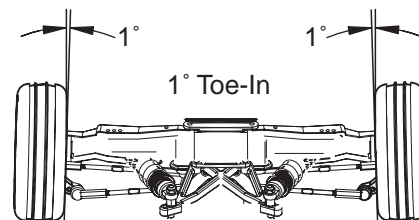
Caster refers to the angle at which the kingpin is at in relation to the surface when viewed from the side. 0 degrees of caster means that the kingpin is straight up and down. The Nitro Evader BX comes stock with 30 degrees of caster and is not adjustable.

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 degrees of camber. Never put in positive camber. Make sure that both sides are equal.

FRONT TOE-IN AND TOE-OUT



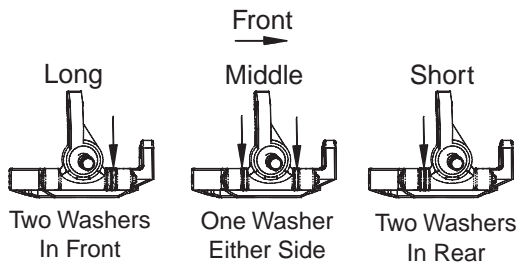
Front wheels pointed towards each other.

Toe-in and toe-out refers to the angle at which the tire is at when view 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 degrees of toe-in.

REAR TOE-IN

Rear toe-in affects the traction of both the front and rear of the buggy. Rear toe-in increases the amount of traction in the rear, but decreases steering. Decreasing rear toe-in will increase steering, but will give less rear traction. The Nitro Evader comes pre-set with 3 degrees of rear 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 of the Nitro Evader increases steering, but decreases rear traction as a result of increased weight distribution to the front wheels. Decreasing the wheel base of the Nitro Evader will increase rear traction, but decrease steering.

RIDE HEIGHT

The ride height of the Nitro Evader affects how it jumps and handles. The ride height of the Nitro Evader is adjustable through the threaded pre-load adjusters on the shock bodies. To measure the ride height of the Nitro Evader, set the buggy up as if you are ready to run. Push the front of the buggy down all of the way and release it. When the buggy returns the front arms should be parallel with the surface. The rear ride height is set up the same except that the drive shafts are parallel with the surface. Lowering the front ride height will increase steering response due to more weight on the front wheels. Lowering the rear ride height will increase rear traction and reduce steering response due to more weight on the rear wheels.

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 handling. Shortening the link positioning will increase handling, but decrease traction.

SLIPPER ADJUSTMENT

The slipper clutch is designed to help prevent gear breakage during jumping. The slipper should not be over tightened. This could cause damage to the differential gears. The slipper should be set so that it slips for 1-2 feet from a stop with a fully charged battery.

FRONT SHOCK ADJUSTMENT

Moving the tops of the shocks out will increase steering and produce quicker reaction. Moving the tops of the shocks in will result in slower steering reaction, but will be smoother over bumps. Mounting the bottoms of the shocks in the inside hole 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 buggy more steering and enable it to handle large jumps better.

SHOCK OILS AND SHOCK SPRINGS

Many different combinations can be used between the shock oils and shock springs. Some basic guidelines when setting up the Nitro Evader are that if the rear end is stiff it will give the buggy more steering and have less rear traction. Hardening the front will result in less steering and more rear traction. (Changing the position of the threaded shock pre-load adjusters results in ride-height change. It does not change the spring tension).

Thinner shock oil makes the shocks react faster, but makes the buggy less stable and may cause the buggy to bottom out over large jumps. Thicker shock oil makes the buggy smoother over large jumps and in straights, but less reactive over rough sections.

