



Service Manual – GC1K 2018 and later

Section 1 – General Information

1. INTRODUCTION

This detailed Service Manual covers most of the significant jobs for the 2018 (and later) GC1K UTV's. The GC1K UTV is manufactured by Intimidator and is powered by a TGB 1000 cc gasoline engine. There are 3 models (with many configurations) which consists of the Classic, Truck, and Crew. Most of the jobs outlined in this manual pertain to all 3 models. Some differences in the models are noted in the Service Manual.

The jobs selected for this manual are the more detailed and critical jobs or those that may require special methods or techniques. The jobs or procedures are written for the experienced mechanic. Most simple “plug and play” or “bolt-off and bolt-on” jobs are *not* included. Most routine service jobs that are outlined in the Owner's Manual are also not included in the Service Manual. Additional jobs may be added in the future as needed.

Each procedure has a similar format with 2 columns on each page. The left-hand columns include pertinent photos with description boxes for each job. The right-hand columns include tools recommended and sequential Parts and Steps to complete a job. The procedures of routines tasks done for many jobs (such as removing a wheel) are often referred to rather than repeating all of the steps for that routine task.

A Table of Contents is provided at the front of the Service Manual to show what types of jobs are detailed and where they can be found. As shown in the Table of Contents the jobs are broken down into common sections with associated jobs under each section.

Each procedure will have separate paragraph(s) on pertinent *Safety* information to prevent personal injury to those servicing and operating the UTV. It is critical that these instructions be followed and the hazards recognized. Separate paragraphs titled *Notes* are given as useful information for performing and understanding the job.

Some torque values are called out in ft-lbs through out the procedures. For those torque values not provided in the manual use standard torque specifications for the size of bolt and type of thread.

Other general info is provided in the following items.



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2. Electrical System

The GC1K's sensors and engine management strategy are controlled by the engine control unit (ECU). An in-depth engine troubleshooting process, testing procedure and repair guide developed by TGB can be found at the following link (requires login credential given to all dealers).

<https://static.visionamp.org/rubix/20180124/24b218397cded3e5e7982255562eab61abbc1f52.pdf>.

Following is an explanation of how the ECU interacts with the various other electronic components of the vehicle.

Safety Features:

Starting the vehicle:

If the unit is in a gear that can propel the unit (reverse, high or low) the brake has to be depressed in order to start the unit. Conversely, if the unit is in a gear that will not allow the vehicle to move it will start without input from the brake pedal. The vehicle display shows what gear the unit is in. If the display shows an "!" then the gearbox is between gears. In this scenario, if the vehicle is not started, an "!" will not allow the vehicle to start. If the vehicle is started the "!" will limit the engine power to prevent damage. In either case, shifting the unit completely will remove the "!" and allowing starting and remove engine limitation.

The ECU is able to allow starting based on the brake pedal being depressed because of a pressure sensor in the brake master cylinder. This sensor also lights the brake lights. Knowing this can aid in troubleshooting a no start condition with the vehicle. For instance, if the vehicle starts in park and neutral but will not start in R, H or L and with key on the brake lights will not illuminate, an informed tech can be sure the brake switch is bad.

Seat Belt:

If the driver's seat belt is not buckled, the engine will not allow the vehicle to go more than 15 mph. Driving the vehicle for extended periods of time in this manner is harmful to the engine. The seat belt (when buckled) sends a signal to the display. This removes the "buckle seat belt" warning and sends a signal to the ECU to remove the engine limitation.

Roll Over Sensor:

In the unlikely event the vehicle is rolled over, the engine will die. This sensor is covered in more detail in the link provided above.



2. Electrical System Continued

Display Information:

3 options are possible for displays on the GC1K. A low cost (no color) 4", a color 4" and a 7" touch screen with GPS. Despite which display is used the basic operating principle is the same. Each display gives the operator various real time parameters of the engine and vehicle which include:

- Engine RPM
- Engine temperature
- Battery voltage
- Vehicle speed
- Gear position
- Engine trouble codes (P automotive codes)
- Engine hours
- Vehicle miles
- Fuel level (in-tank fuel pump module float provides this info)
- Time/date

The vast majority of these parameters are communicated to the display from the ECU via CAN-bus protocol. A detailed description of the protocol is beyond the scope of this document. What is important to know is the information collected by the ECU is communicated to the display via two twisted wires (to eliminate interference). By using the protocol, it not only simplifies the wiring but it also eliminates unnecessary circuits. In addition, it allows added features to the end user.

One such feature is displaying specific engine trouble codes that the ECU encounters. Most vehicles (including the cars and trucks we drive) will have a check engine light that will be activated if the engine detects a sensor out of parameters. The light just tells the operator that there is a problem detected in the EFI system. In the GC1K display, it tells the operator the specific P automotive code (standard way of communicating the various sensors that can have issues that all vehicle manufactures use) without the need for a scan tool.

The display software has the ability to be flashed with a USB drive. Intimidator recommends the latest software be downloaded to the display when it is brought in to be serviced.

Since the scope of this write up was to explain how the vehicle electronics work with the engine controller (ECU) in a broad sense, specific information regarding the vehicle wire schematic, in-depth display information and specific engine repair and troubleshooting information were intentionally left out. This information can be found on the Intimidator website. The information is accessed by clicking on the Dealer Zone Login at the top of the page. This page requires permission to access given to all Intimidator dealers. Dealers without login credentials should contact Intimidator Marketing Department at marketing@intimidatorutv.com. The website link is <https://intimidatorutv.com>.



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3. Engine Sensors and ECU

Engine management systems developed as a way to control every aspect of the internal combustion engine (ICE). To this day small engines (lawn mowers) still operate as a mechanical engine. As a mechanical engine they are cheaper to produce and to understand and work on which is an advantage from an engine manufacturer's perspective. Mechanical engines suffer from a few disadvantages as well. Emissions are greater with mechanical engines. Durability is also more of a problem with mechanical engines especially with the popularity of high ethanol content in fuel these days.

Working Principle:

Electronically controlled engines sometimes referred to Electronic Fuel Injection (EFI) share a lot of similar components regardless of application. The heart of an EFI system is the “computer” (actually microprocessor), often referred to as an ECU or ECM. The ECU is able to adjust fuel trims to maintain an optimal fuel air mixture. Mechanical engines use a carburetor to mix the fuel and air. Depending on elevation above sea level, the carburetors need a different needle valve to account for less oxygen in the air. In EFI engines the carb is replaced with fuel injectors controlled by the ECU and a throttle body (controls how much air is being consumed by engine). In order to know how much fuel is needed the ECU needs to know information about the air being taken in by the throttle body.

Correct fuel to air mixtures are dependent upon the ambient air temperatures and ambient atmospheric pressures. When ambient temperature increases, adjustments need to be made to the fuel - air mixture to keep it at optimal level. Similarly, when pressure changes (due to altitude) the mixture needs adjusting.

The ECU is able to adjust accordingly due to an absolute pressure and temperature sensor coupled with a device to measure volume or amount of air being consumed (MAP sensor). This is an input sensor into the ECU. Based on the measured values the ECU can trigger the injector and allow the proper amount of fuel into a cylinder. At this point, the fuel air mixture should be adjusted correctly if all of the assumptions the ECU makes are correct. These assumptions are; the fuel pump has pressurized the fuel system to proper psi, the coils are working and firing the spark plug and the spark plug is operational. Most EFI systems have no feedback if the above-mentioned assumptions are accurate.

The lambda (O₂) sensor provides feedback to the ECU. This sensor measures the amount of oxygen in the exhaust and adjust fuel trims accordingly. EFI systems also have a crankshaft position sensor so the plugs can be fired when the piston is at the top of its stroke, a temperature sensor and a throttle position sensor.

Since the ECU controls the parameters of the engine it was a natural progression to program a microprocessor to limit the engine output based on external forces. These forces include such items as engine overheating, low oil pressure, gearbox being in between gears, or the driver's seat belt being unbuckled.



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4. Fuel System

There are several ways to identify different fuel systems. The two main ways are by type (i.e. gas vs diesel) or by pressure (such as high pressure and low pressure). Each gasoline engine that Intimidator uses is high pressure due to the engine being EFI or electronic fuel injection. A more in depth explanation of the EFI system is covered under the *Electrical System* section above.

Working Principle:

One of the major advancements in the internal combustion engine (ICE) has been the computerized assistance of the ICE. Prior to EFI, engines were purely mechanical. Carburetors mixed the fuel and air to the correct ratio, distributors and rotors facilitated the firing of the spark plugs. Due to the push to develop more environment friendly technology and the improvement in microprocessors the electronic fuel injected engine was born.

It is important to realize the impact on the fuel system to electronically control the engine. In an EFI system the computer is constantly adjusting the fuel to air ratio to improve efficiency and limit pollution. The computer samples the exhaust gas to determine if the fuel air mixture was lean (not enough fuel) or rich (too much fuel) so adjustments can be made.

To do this an EFI engine uses an injector. Based on the programmed fuel trims the computer can adjust how much fuel is being injected to the piston by changing the time the injector is switched on. In order to predict how much fuel was injected in a certain time the pressure has to be constant. This is why a carbureted engine only needs 3-5 psi of fuel pressure and an engine that is electronically controlled uses anywhere from 40-60 psi.

Fuel Pump Module (FPM):

The FPM consists of an electronic fuel pump, a pressure regulator and usually a fuel level sending unit. The Intimidator 1000 cc gas TGB engine has its FPM in the fuel tank. The fuel line uses a quick connect fitting to connect the pump to the injector via high pressure fuel lines. When troubleshooting an EFI engine fuel pressure can sometimes get overlooked. This is because the ECU does not have a way to verify the fuel pressure nor through a code. The pressure is assumed to be correct. Checking the pressure of the fuel system is always recommended at the first sign of a runnability issue.



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5. Charging System

The GC1K charging system consists of a stator and magneto system. As the crankshaft turns a magneto mounted on the end of the shaft rotates inside the stator. The stator is a series of windings mounted to the engine cover. When the permanent magnets are passed through the coil windings AC voltage is produced. The AC voltage goes to the regulator/rectifier (r/r). The r/r does what the name implies, it converts the AC voltage to DC voltage (rectifier) and it regulates the voltage to around 14 V.

The r/r takes the AC voltage in via 3 yellow wires. The r/r also has a second plug with 3 wires. One wire goes to battery positive (red), one wire goes to battery negative (black) and the last wire is the battery sensing wire (orange). The orange wire tells what voltage the battery is at so the r/r can adjust charge accordingly.

There are 2 regulator/rectifier's (r/r) on the UTV. The orange sensing wire is fused (IGN 1 and 2 on wire diagram). Each r/r also has a relay IGN 1 relay and IGN 2 relay. When the key is turned on the relay allows the fused battery input to reach the r/r. If the fuse is blown or the relay is bad the r/r will not charge.

The r/r generates a lot of heat during operation. The housing has heat sink fins on it to allow the heat to dissipate. If the heat sink fins are coated with mud or debris the units will fail prematurely due to loss of heat dissipating ability.



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A wealth of information is available in the **SERVICE** section of the **DEALER ZONE** on the Intimidator web site. The majority of this information is *not* included in the GC1K Service Manual. The following tabs provide useful information on the GC1K models under the **SERVICE** section.

SERVICE MANUALS –

- *Intimidator GC1K Owner's Manual*
- *1000 cc TGB Engine Service Manual*
- *1000 cc TGB Engine Maintenance Info*
- *1000 cc TGB Engine Wiring Schematic*
- *GC1K 4" Display Manual*
- *GC1K 7" Display Manual*

PARTS MANUALS –

- *Intimidator GC1K Parts Manual*
- *Intimidator GC1K Crew Parts Manual*

In addition the **TECHNICAL DOCUMENTS** and **SERVICE BULLETINS** tabs provide useful info on replacing / adjusting shift cables and throttle cables, trouble shooting, etc.

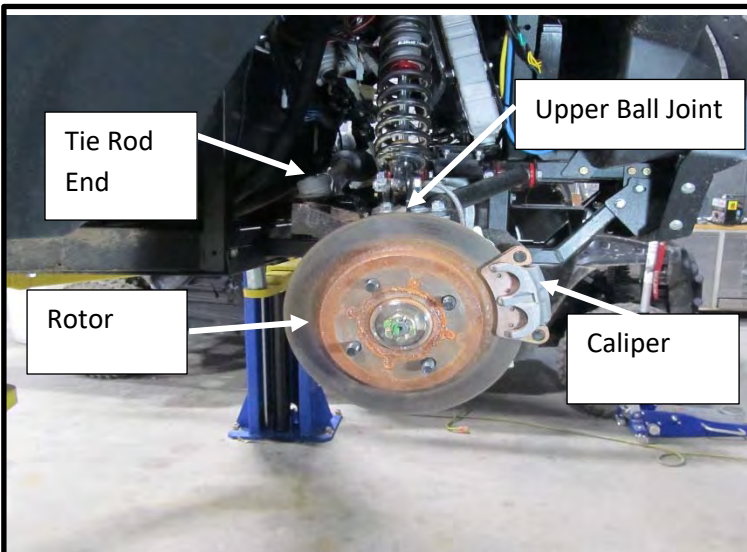
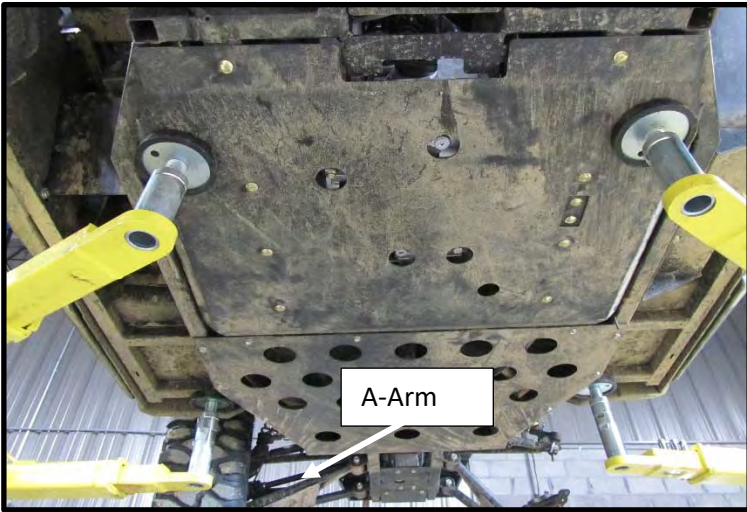


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Section 3 – Wheels & Suspension

3.1 Removing Wheel & Front Spindle

Part 1 – Removing Wheel, Caliper, and Rotor



This section covers replacing the wheels, front / rear suspensions and their bearings and hubs, and the Elka and basic shocks.

Tools: 17 mm socket, 11/16" wrench

Safety:

- Place the UTV in Park on level ground and turn off the ignition.

1. Elevate the UTV with a lift or jack along with jack stands.

Note: Place the lift or the jack on the frame or skid plates as shown. Do **not** lift under the front or rear A-Arms.

2. Using a 17 mm socket remove the 4 lug nuts holding the wheel in place.

3. Remove the wheel and set it to the side.

4. Note the front brake and suspension items shown.

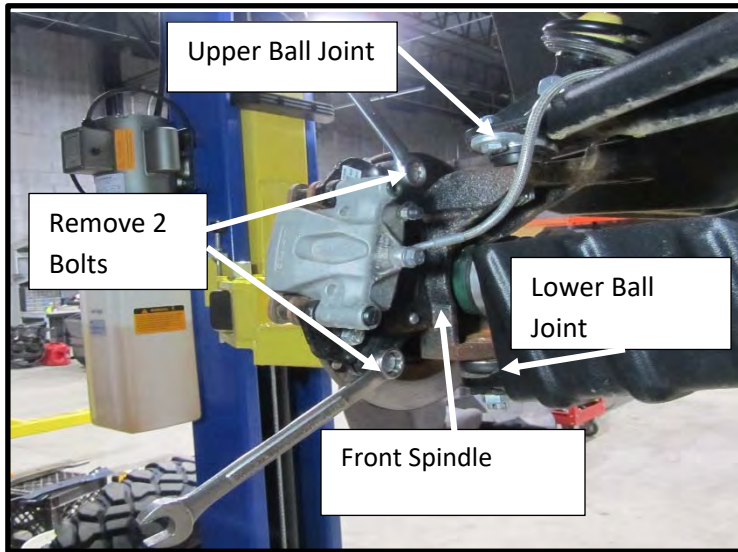


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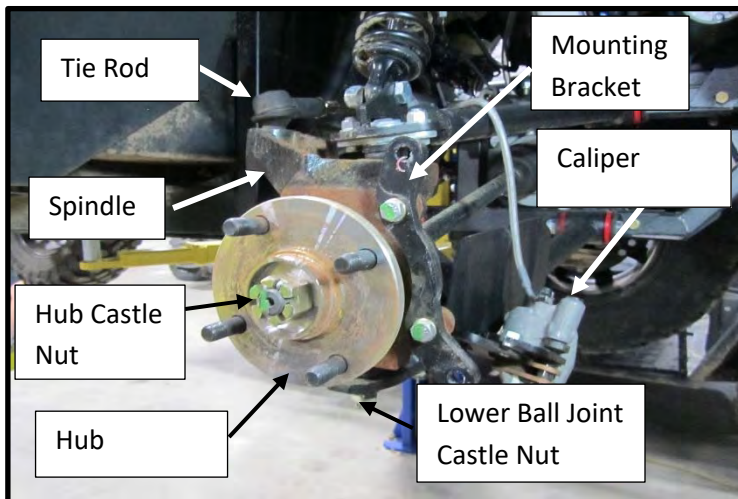
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Part 1 Cont.– Removing Wheel, Caliper, and Rotor



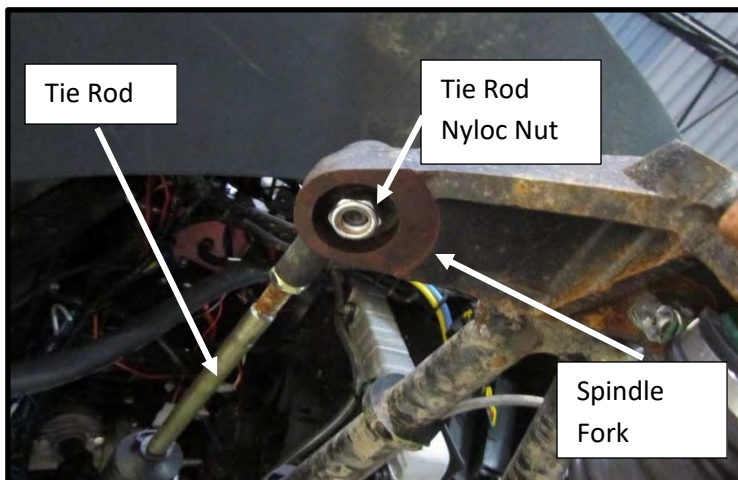
5. Using a 11/16 "wrench remove the 2 outside bolts at the rear of the caliper as shown.
6. Remove the caliper from the rotor and place it out of way. The caliper bracket and shim will remain with the caliper.
7. Remove the rotor and set it to the side.



8. Note the components of the front suspension after caliper and rotor is removed.

Note: Newer spindles have a black coating for better protection and have the mounting bracket cast into the spindle. These pictures show the older spindles with the separate mounting bracket. This procedure is the same for either type of spindle.

Part 2- Removing Front Spindle



Tools: 3/4"socket, 1 – 13/16" socket, pliers

1. Use a 3/4" socket to loosen and remove the nylock nut from the tie rod as shown.
2. Remove the tie rod from the spindle. If the tie rod will not come out then use a few gentle taps with a hammer on the top of the spindle fork to loosen the tie rod for easier removal. However, do **not** hammer on the tie rod itself as it may be damaged.

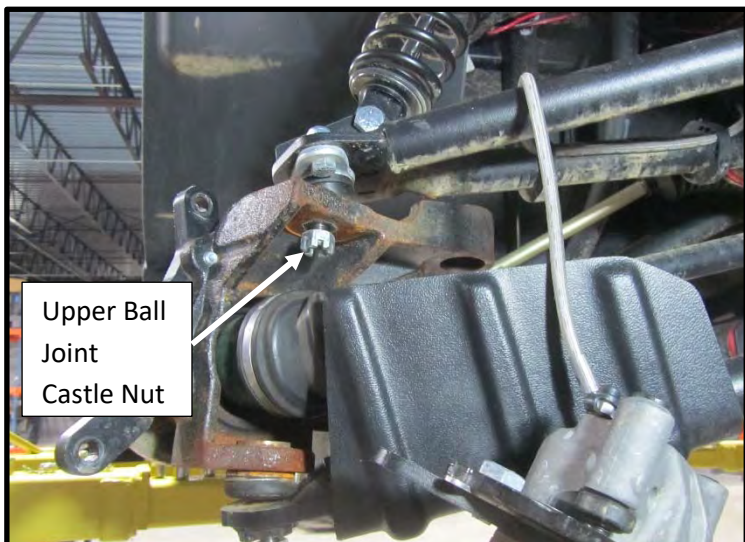
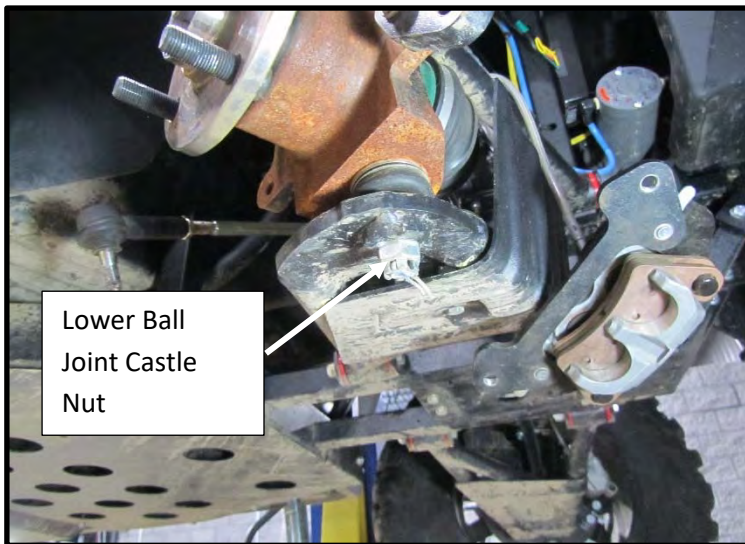
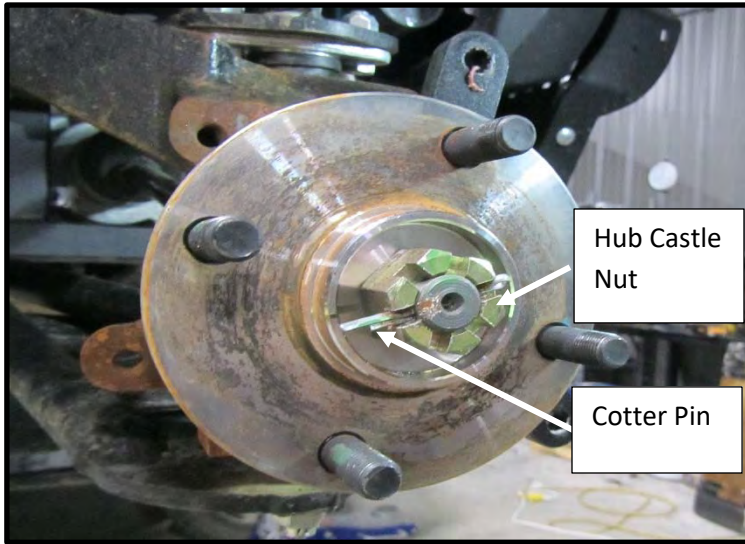


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Section 3 – Wheels & Suspension

3.1 Removing Wheel & Front Spindle

Part 2 Cont. - Removing Front Spindle



3. Remove the cotter pin with pliers on the front hub castle nut.
4. Remove the front hub castle nut with a 1 – 13/16" socket.
5. With pliers and a 3/4" socket remove the cotter pin and loosen the castle nut from the lower ball joint. It is important to leave the castle nut loosely attached to support the spindle at this point.
6. With pliers and a 3/4" socket remove the cotter pin and loosen the castle nut from the upper ball joint. It is important to leave the castle nut loosely attached to support the spindle at this point.

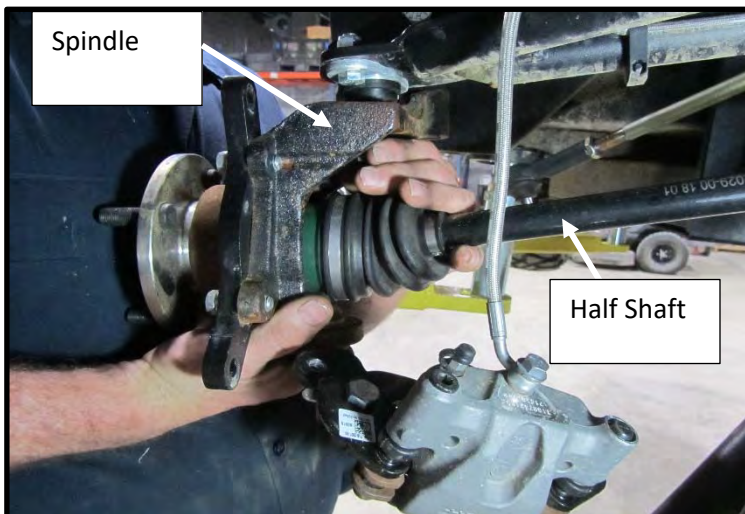
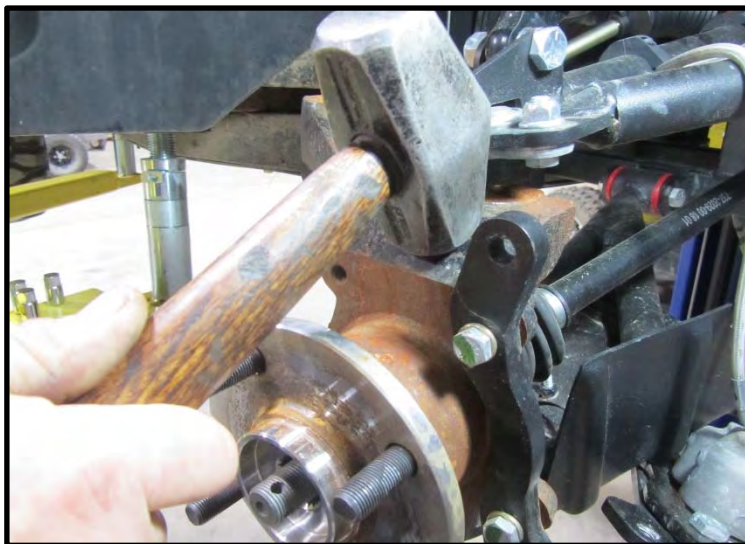
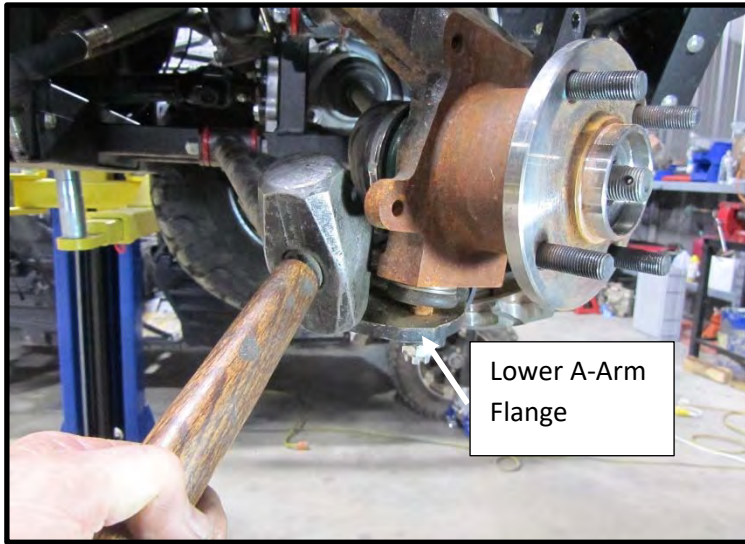


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Section 3 – Wheels & Suspension

3.1 Removing Wheel & Front Spindle

Part 2 Cont. - Removing Front Spindle



7. Moderately tap on the flange of the lower A-Arm assembly as shown to loosen it from the spindle. Continue to leave lower castle nut in place until ready to remove it later.
8. Moderately tap on the top of spindle as shown to loosen the upper A-Arm assembly from the spindle. Continue to leave upper castle nut in place until ready to remove it later.
9. Remove the lower castle nut and swing the lower A-Arm assembly down.
10. While supporting the spindle as shown remove the upper castle nut and slowly disengage the spindle from the half shaft. Remove the spindle and set it to the side.

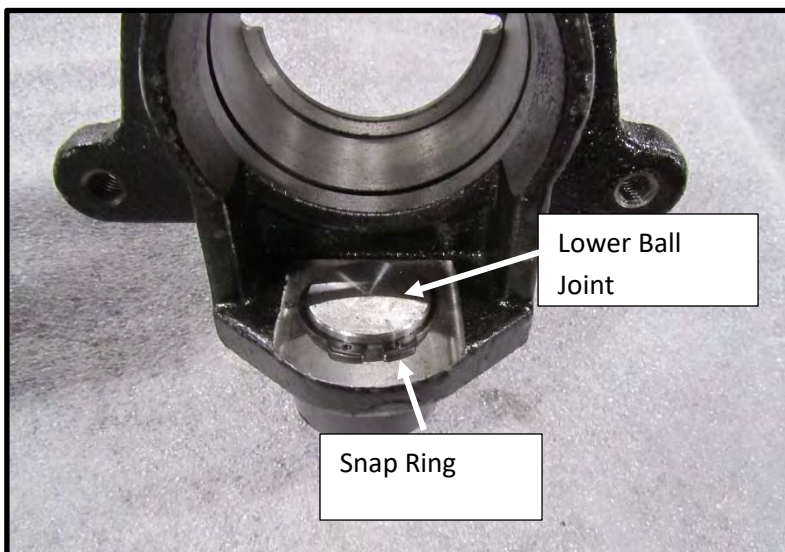
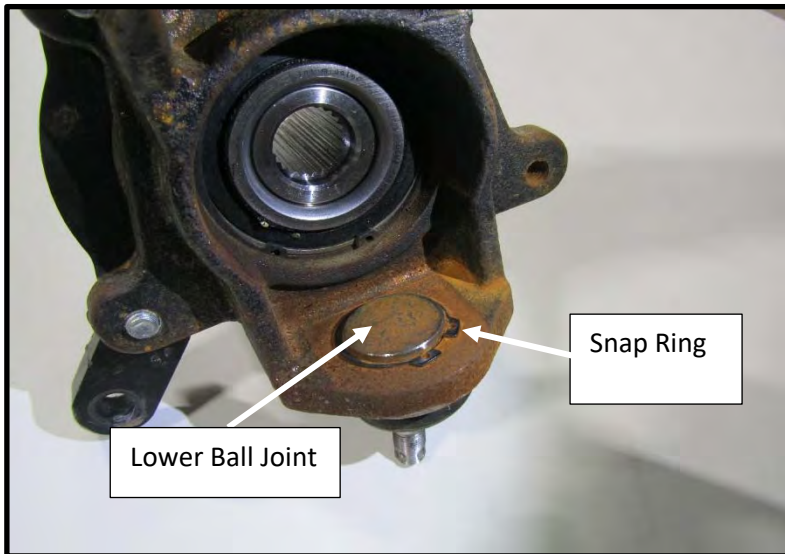
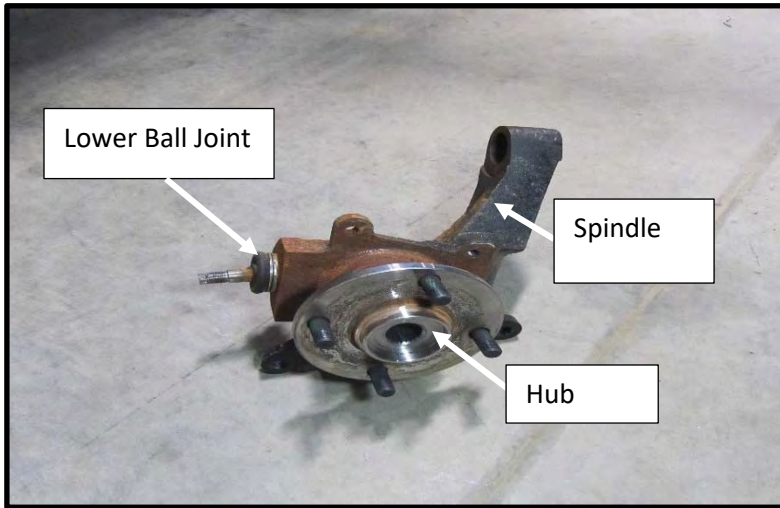


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Section 3 – Wheels & Suspension

3.2 Replacing Lower & Upper Spindle Ball Joints

Part 1 – Replacing Lower Ball Joint



Tools: snap ring pliers

1. Remove the appropriate front spindle using procedure 3.1 *Removing Wheel and Front Spindle*.
 2. Note the parts shown on the spindle.
 3. Using snap ring pliers remove the lower ball joint snap ring as shown.
 4. Push the ball joint out the bottom of the spindle.
 5. Install the new lower ball joint up through the bottom of the spindle.
- Note: The attached picture shows a new spindle and ball joint for easier identification.
6. Secure the ball joint in place with a snap ring and pliers.

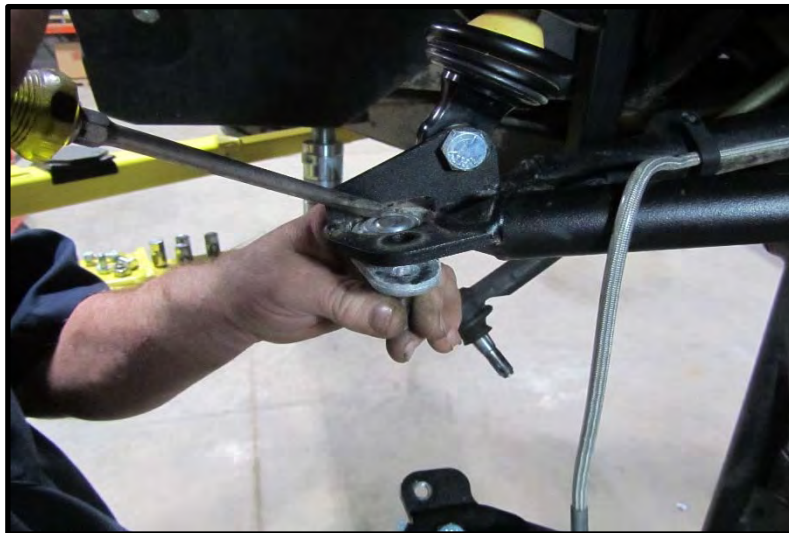
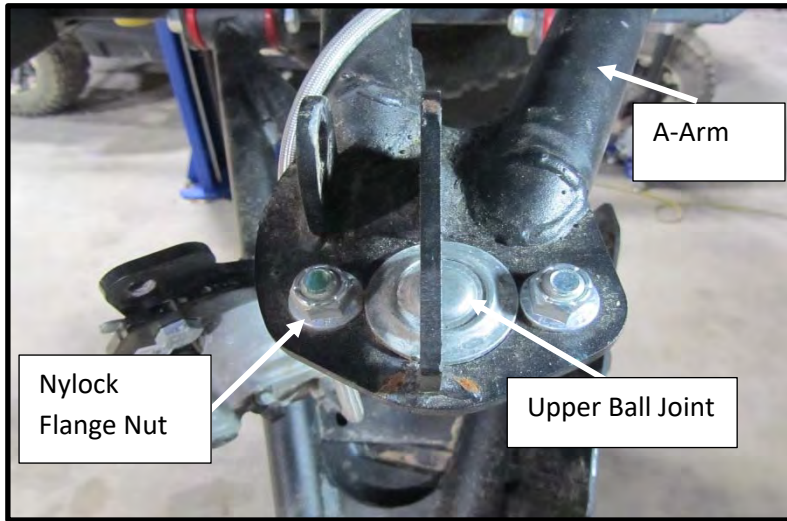


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Section 3 – Wheels & Suspension

3.2 Replacing Lower & Upper Spindle Ball Joints

Part 2 – Replacing Upper Ball Joint



Tools: 9/16" socket and wrench, flat blade screw driver

1. With the spindle removed in Part 1 locate the upper ball joint on the upper A-Arm. Note the 2 bolts and nylock flange nuts on top holding the ball joint in place.
2. Using a 9/16" socket and wrench remove the 2 nuts and bolts.
3. Using a large flat head screw driver pry the upper ball joint from the A-Arm as shown. Note that the ball joint flange that mates up to lower part of A-Arm has a cut-out on the inner flange. The new one has to go back in the same way.
4. Insert a new identical upper ball joint through the bottom of the A-Arm with the cut-out portion of bottom flange toward inside of UTV as shown.
5. With the nylock flange nuts on top insert the bolts and nuts and tighten with 9/16" socket and wrench to 30 ft-lbs.

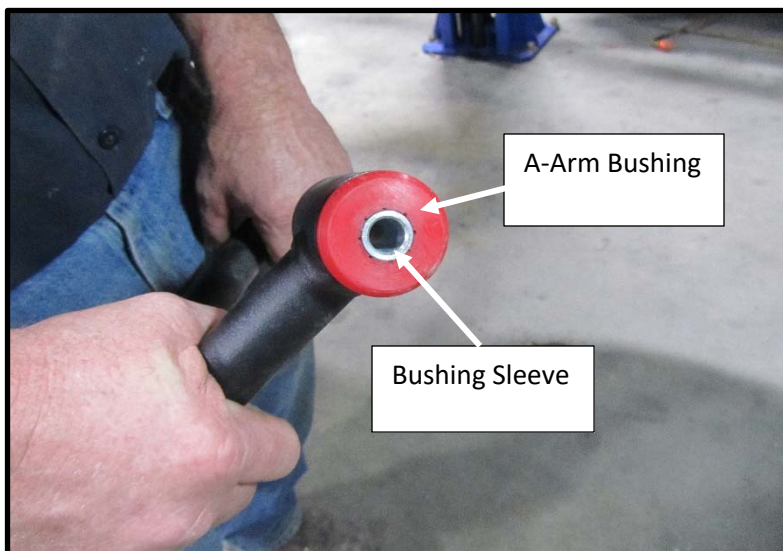
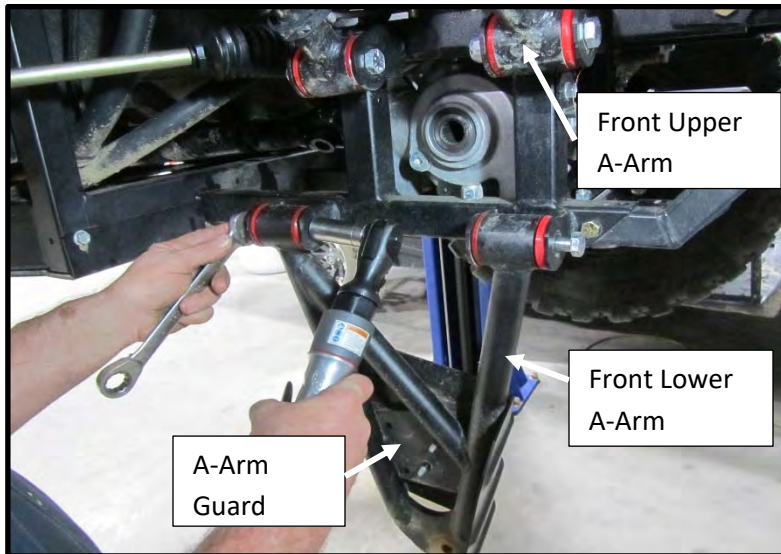
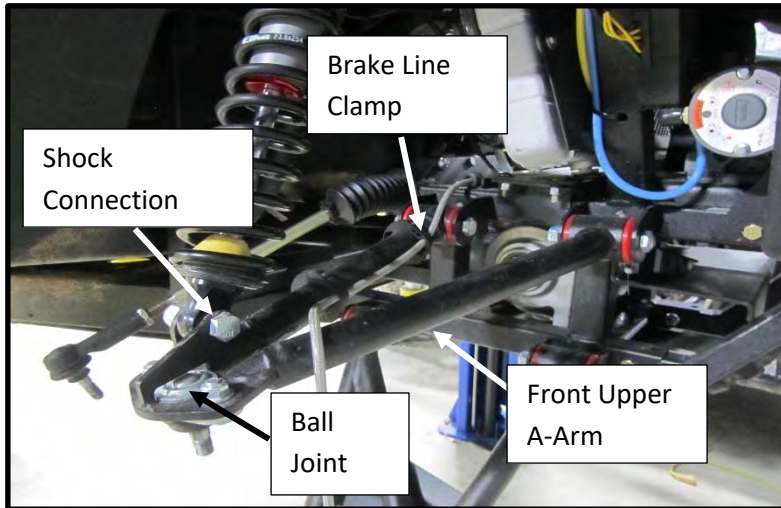


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Section 3 – Wheels & Suspension

3.3 Replacing Front A-Arm & Guard and Rear A-Arm

Part 1 – Replacing Front A-Arm & Guard



Tools: 3/4" socket and wrench, 11/16" socket and wrench, 7/16" socket

1. Remove the appropriate front wheel and spindle using procedure 3.1 *Removing Wheel and Front Spindle*.
2. Using a 3/4" socket and wrench remove the bolt and nut holding the lower end of shock to the front upper arm.
3. Remove the 2 clamps holding the brake line and set the caliper and brake line out of way. Keep the clamps for reinstallation.
4. If reusing the upper spindle ball joint then remove it from the upper A-Arm per procedure 3.2 *Replacing Lower & Upper Spindle Ball Joints*.
5. Using an 3/4" wrench and socket remove the 2 bolts and nuts securing each arm to the frame. Removing the upper and lower A-Arms from the frame are the same.
6. Replace either of the arms as needed with a new arm, red bushings, bushing sleeve, and bolts/nylock nuts. Torque to 45 ft-lbs.
7. Reattach the brake line to the upper A-Arm using the clamps removed earlier.
8. Reinstall the bottom of the shock to the upper A-Arm. Be sure the O-rings and spacers are in good shape and installed in proper order. See 3.8 *Replacing & Adjusting Elka Shock*. With the shock bolt head toward the front of the UTV and the nylock nut toward the rear tighten with a 3/4" socket and wrench to 45 ft-lbs.

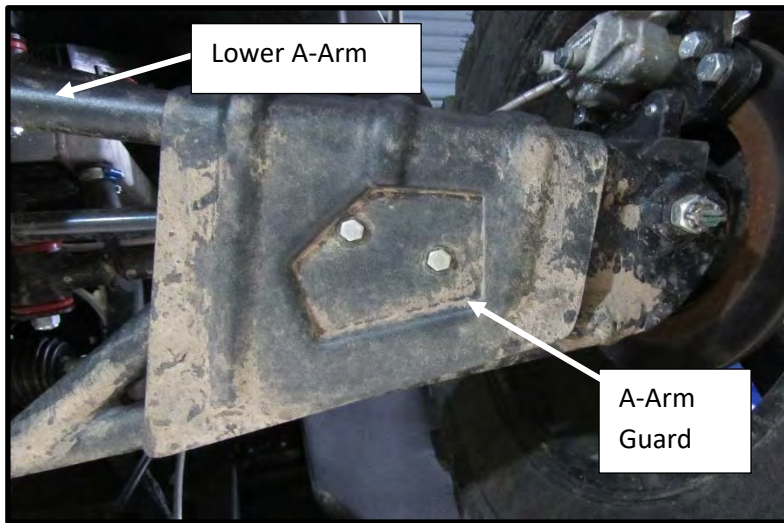


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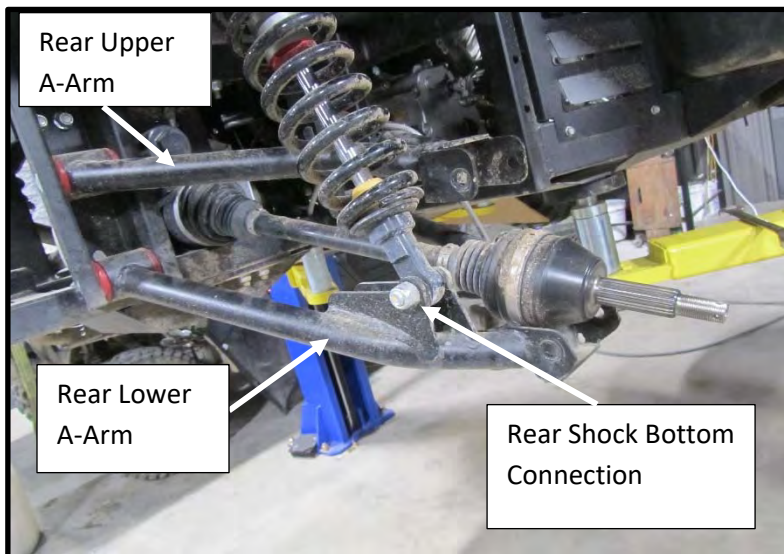
3.3 Replacing Front A-Arm & Guard and Rear A-Arm

Part 1 Cont. – Replacing Front A-Arm & Guard



9. If the lower A-Arm guard needs replacing use a 7/16" socket to remove the bolts and the old guard.
10. Replace with a new guard and tighten the bolts with a 7/16" socket.

Part 2 – Replacing Rear A-Arm



Tools: 3/4" socket and wrench, 11/16" socket and wrench, 7/16" socket

1. Remove the appropriate rear wheel and independent rear suspension using procedure 3.6 *Removing Wheel and Independent Rear Suspension*.
2. The significant differences between the rear and front A-Arms is that the rear has no arm guard and the bottom of the rear shock is attached to the rear lower A-Arm. In terms of replacing the rear A-Arms everything else is the same.
3. Follow Part 1 steps 2 – 8 to replace a rear A-Arm.

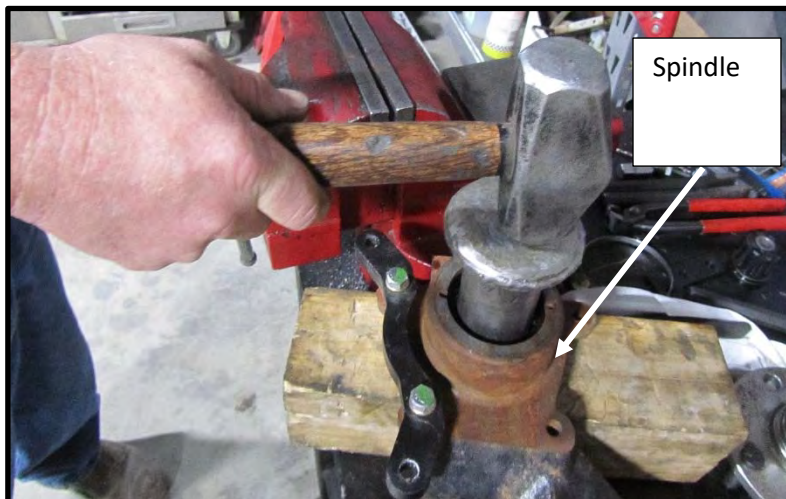
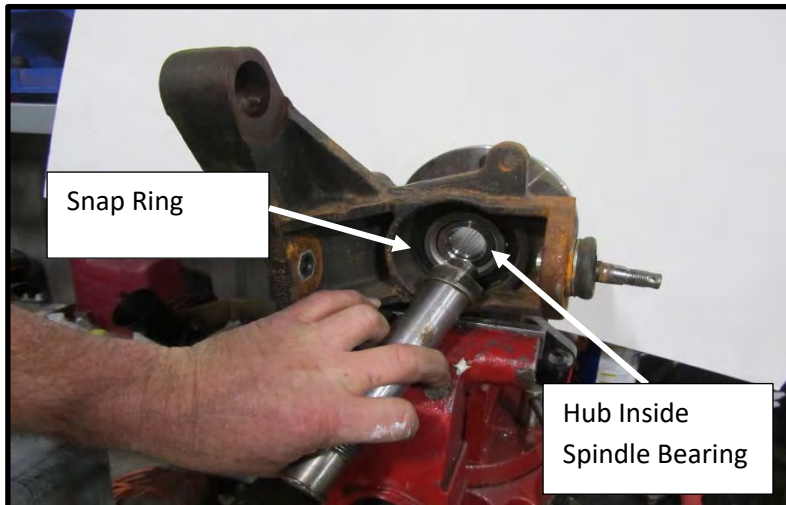
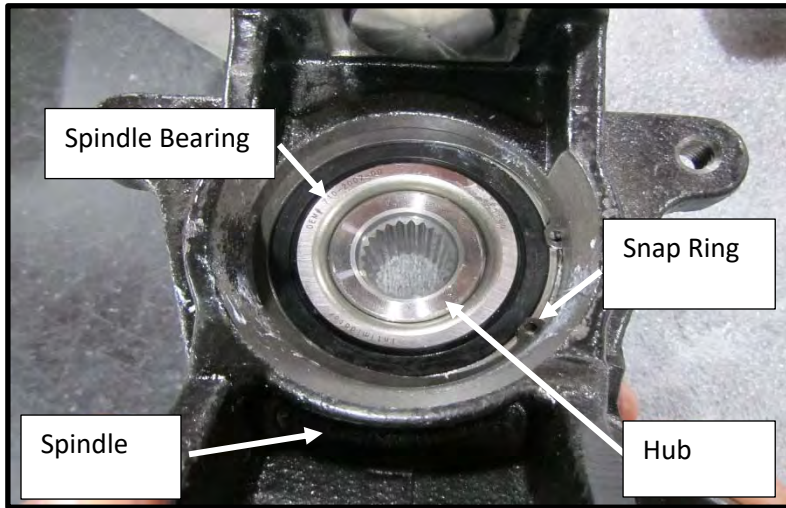


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Section 3 – Wheels & Suspension

3.4 Replacing Front Spindle Bearing & Hub

Part 1 – Removing Hub and Bearing



Tools: snap ring pliers, vice, hammer, punches

Note: This procedure shows how to replace the spindle bearing and hub from an existing spindle using vice, hammer, and punches. A hydraulic press is recommended to remove and install the bearing and hub if one is available. However the method shown will work. For easier identification of parts some of the pictures are of a new spindle.

1. Remove the appropriate wheel and front spindle using procedure *3.1 Removing Wheel and Front Spindle*.
2. Note the parts shown on the spindle.
3. Place spindle in vice as shown and using a hammer and punch knock the hub out of the spindle bearing.
4. Remove the snap ring using pliers on the inside of the spindle.
5. Turn the spindle over and place on a wooden block as shown.
6. Using a large punch and hammer remove the bearing.

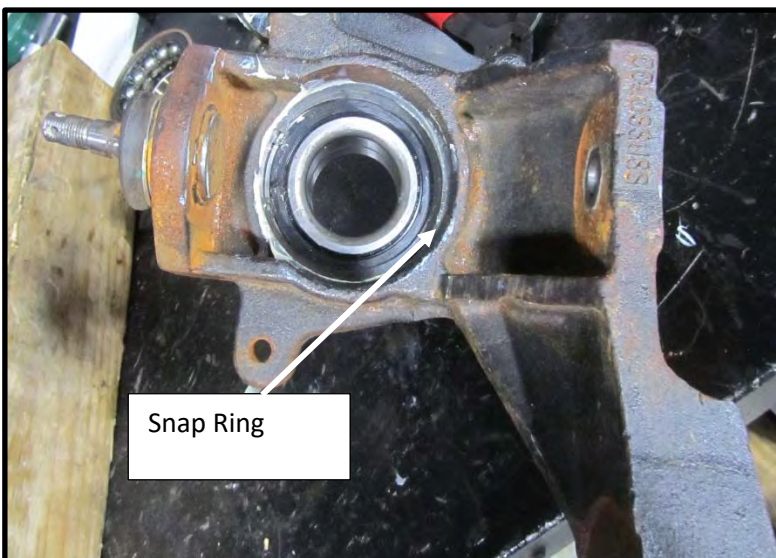
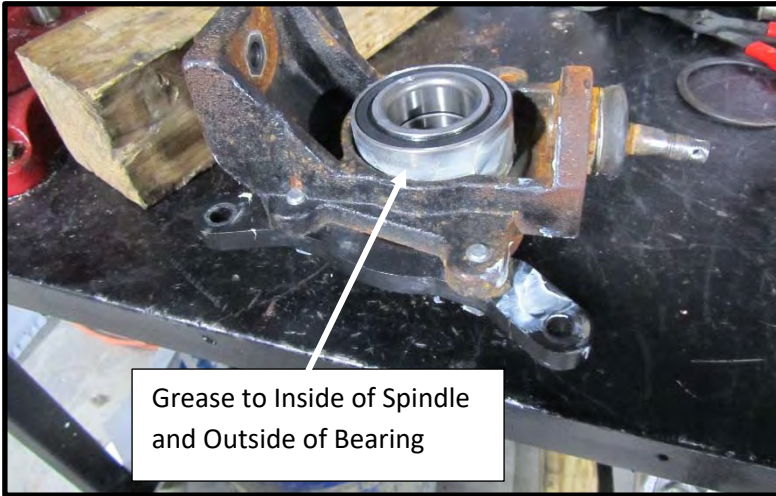


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Section 3 – Wheels & Suspension

3.4 Replacing Front Spindle Bearing & Hub

Part 2 – Installing New Bearing



Tools: snap ring pliers, vice, hammer, punches

1. Using a new identical bearing and snap ring add white lithium grease to inside of spindle and to outside of bearing.
2. Insert new bearing into the spindle and begin lightly tapping with a hammer to get the bearing started.
3. Once the bearing has been started, finish installing it with a large punch and hammer (as shown) until the snap ring groove is exposed.
4. Install the new snap ring into groove with snap ring pliers.

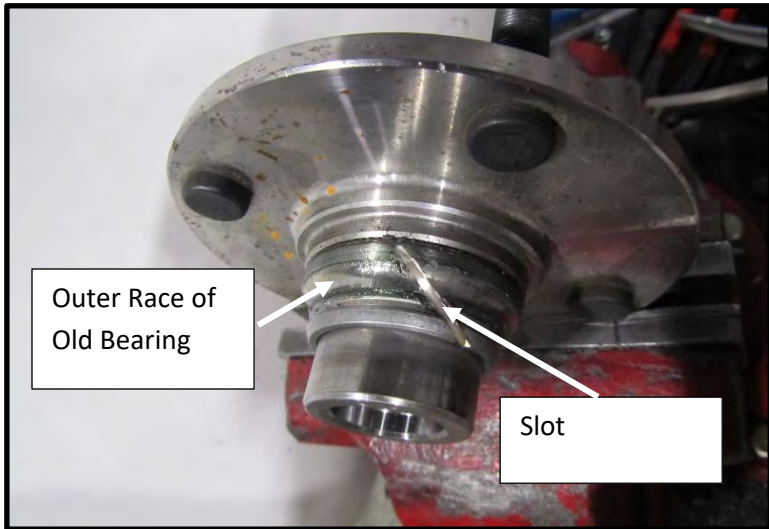


Service Manual – GC1K 2018 and later

Section 3 – Wheels & Suspension

3.4 Replacing Front Spindle Bearing & Hub

Part 3 – Installing Hub



Tools: snap ring pliers, vice, hammer, punches, chisel, angle grinder

1. The existing hub removed in the earlier steps should still be good. If not a new one will be required.
2. Sometimes the outer race of the old bearing previously removed will be stuck to the hub as shown. If so remove the outer race by placing the hub in a vice and **carefully** cutting a slot with an angle grinder. Be careful not to cut into the hub.

Safety: Wear a face shield when using an angle grinder.

Note: A wheel puller may can be used if there is enough clearance to grab the race with the puller.

3. Use a chisel and hammer to separate and completely remove the race.
4. Apply white lithium grease to outside of hub.
5. Place a punch in the vice to support the new bearing inner race.

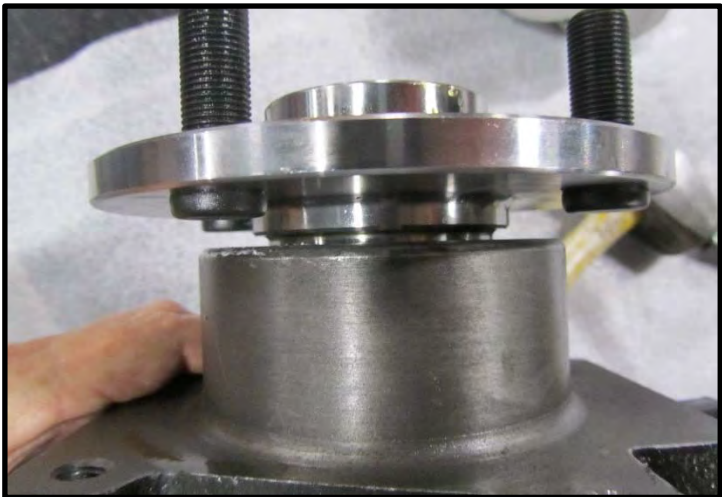
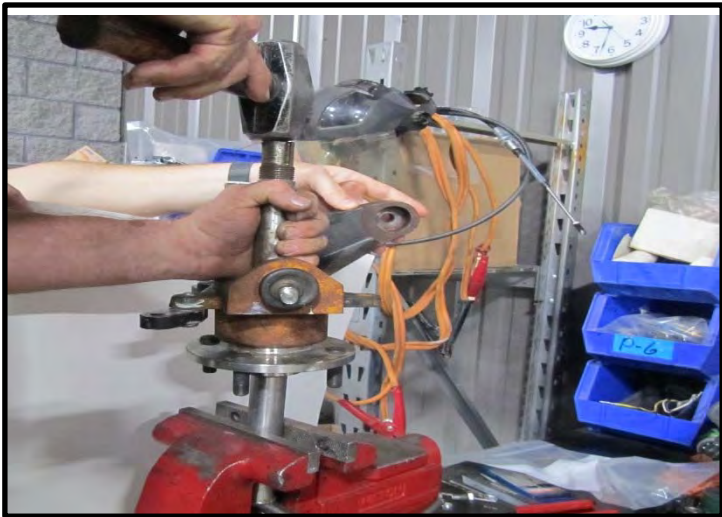


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Section 3 – Wheels & Suspension

3.4 Replacing Front Spindle Bearing & Hub

Part 3 Cont. – Installing Hub



6. Next place hub on the support punch followed by the spindle as shown.

7. Using a large punch and a hammer drive the spindle bearing onto the hub until it seats.

8. Note position of spindle to hub for proper seating.

9. The spindle is now ready for installing on the front of the UTV.

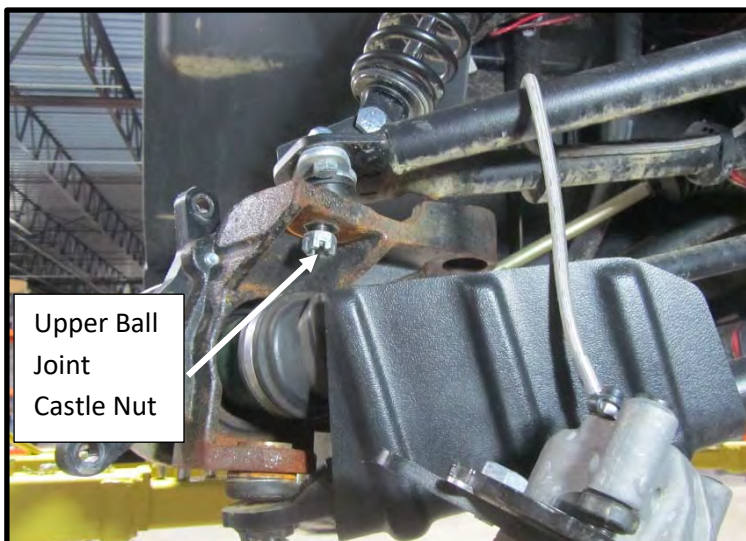
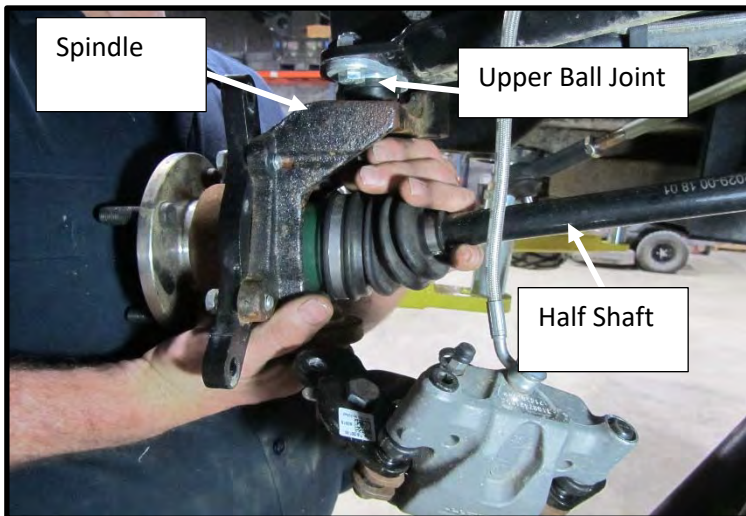
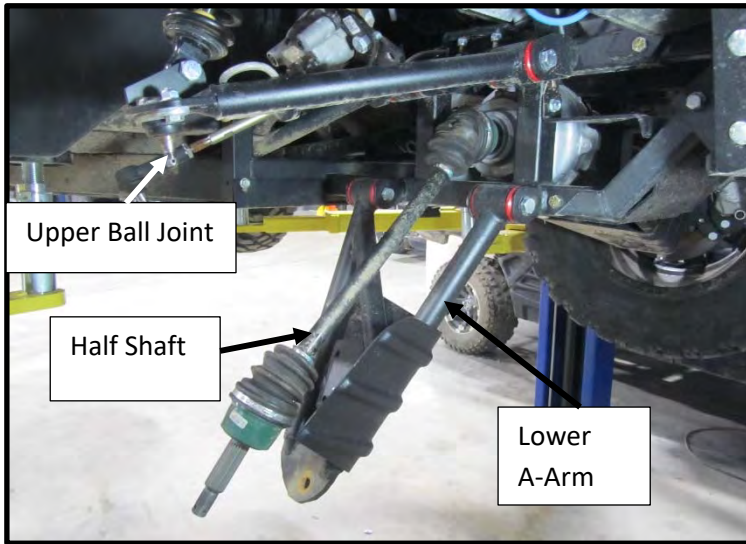


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Section 3 – Wheels & Suspension

3.5 Installing Front Spindle

Part 1 – Installing Spindle



Tools: 3/4"socket, 1 – 13/16" socket, pliers

1. This procedure assumes that the UTV is elevated and that the front wheel and spindle were earlier removed per procedure 3.1 *Removing Wheel and Front Spindle*. It also assumes that the half shaft, A-Arms, tie rod, spindle ball joints and bearing are all in good working condition, in place, and ready for installation of the spindle.
2. Apply Loctite to the upper ball joint threads.
3. Insert the spindle over the outer end of the front half shaft.
4. While continuing to support the spindle as shown connect the upper ball joint to the top of the spindle and add the castle nut. Tighten finger tight to support the spindle while making the other connections.

Note: The lower and upper castle nuts on the spindle are different. The lower is tapered whereas the upper is not.

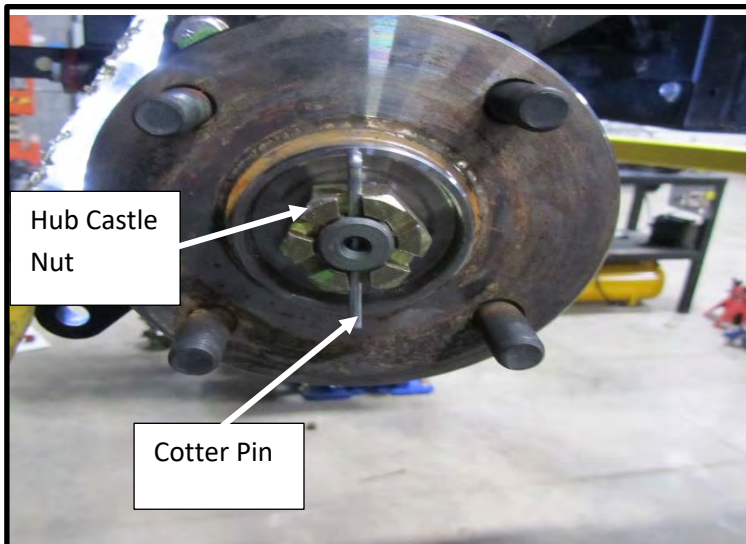
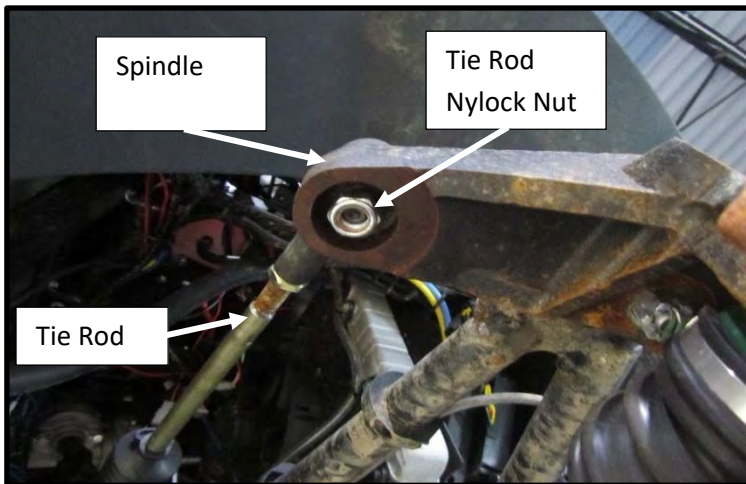
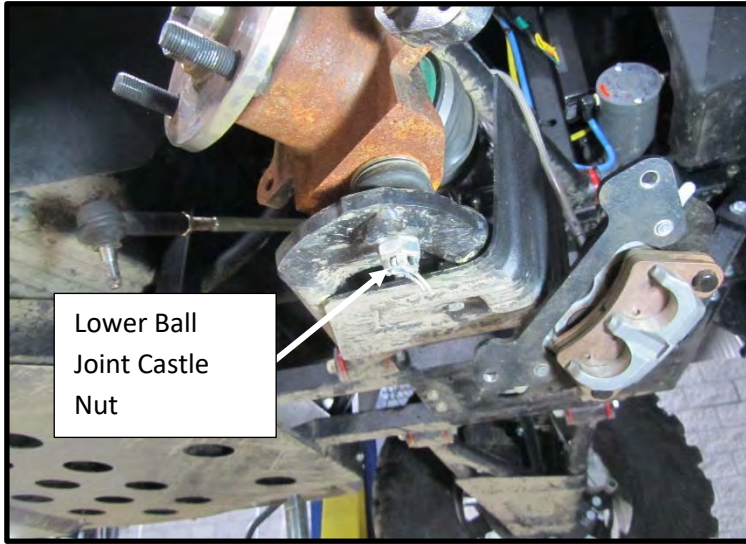


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Section 3 – Wheels & Suspension

3.5 Installing Front Spindle

Part 1 Cont. – Installing Spindle



5. Apply Loctite to both the lower ball joint threads and the tie rod threads.
6. Insert the lower ball joint through the lower A-Arm and secure with the tapered castle nut (finger tight).

7. Insert the tie rod through the upper spindle as shown and finger tighten the nylock nut.

Note: If the tie rod or rack and pinion has been worked on or replaced then follow procedure 5.3 *Adjusting the Front Toe & Steering* to adjust tie rod before connecting to spindle.

8. Using a 3/4" socket tighten both the lower and upper ball joint castle nuts to 60 ft-lbs. Then add a cotter pin to each nut and spread the pin with pliers.
9. Using a 3/4" socket tighten the nylock nut to the tie rod to 60 ft-lbs.

10. Apply Loctite to the end of the front half shaft and install the castle nut as shown.

11. Tighten with a 1 – 13/16" socket to 80 ft-lbs.

Note: For models with the newer spindles (build date of 12-4-2019) tighten to 45 ft-lbs.

12. Add a cotter pin to the nut as shown and spread the pin with pliers.

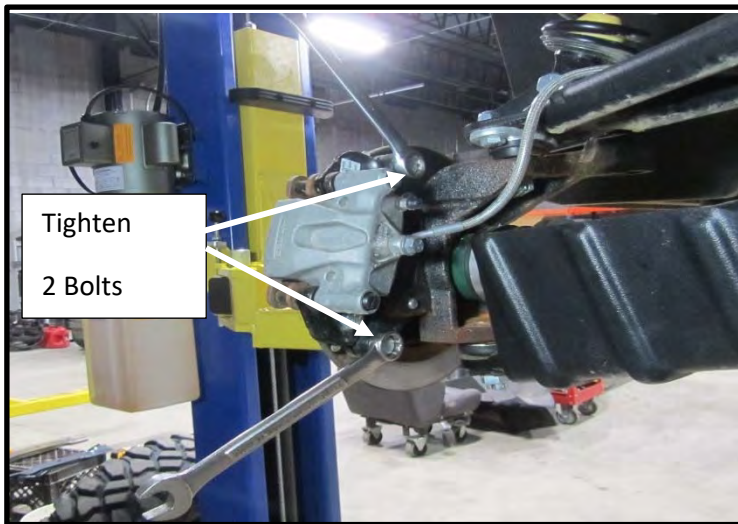
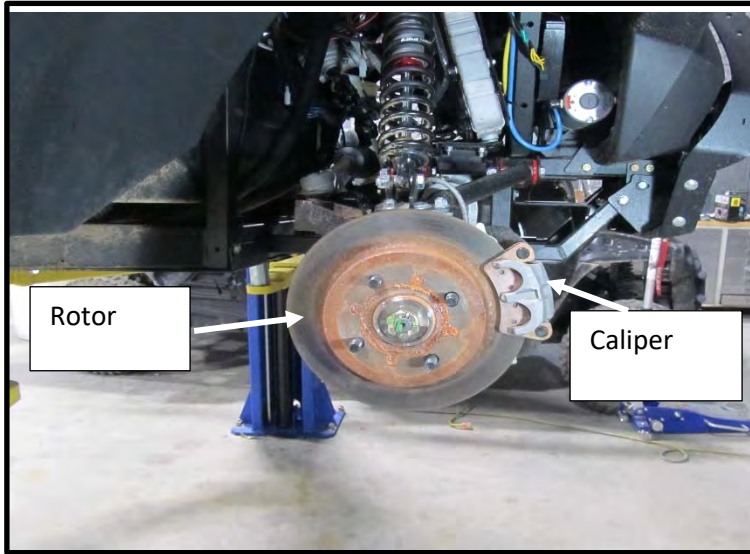


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Section 3 – Wheels & Suspension

3.5 Installing Front Spindle

Part 2 – Completing the Job



Tools: 17 mm socket, 11/16" wrench

1. Slide the rotor over the 4 hub bolts.
2. Mount the caliper over the rotor as shown.
3. Using a 11/16 "wrench tighten the 2 outside bolts to 45 ft-lbs at the rear of the caliper as shown.
4. Mount the wheel and install / tighten the 4 lug nuts with a 17 mm socket to 65 ft-lbs.

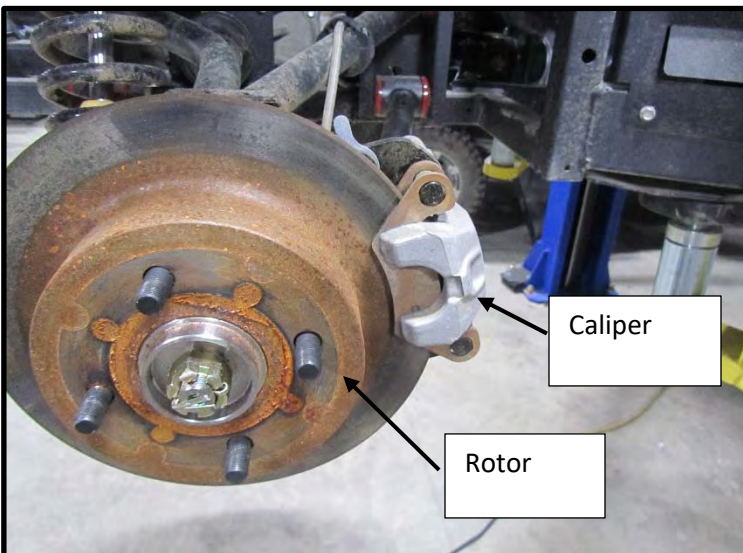
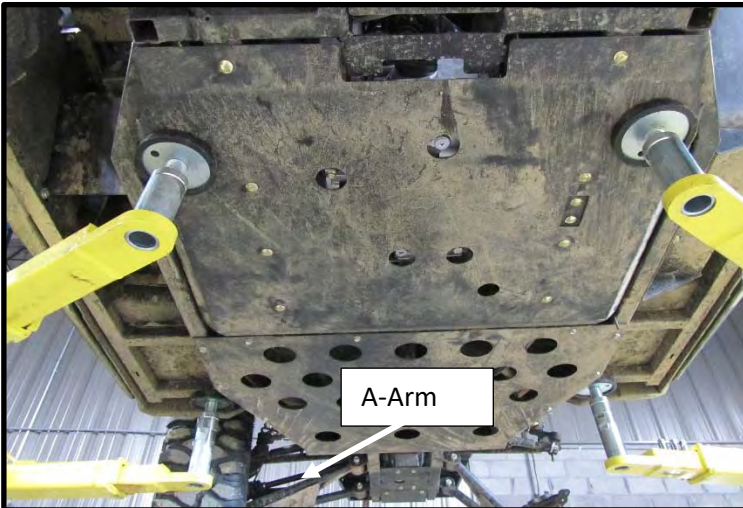


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Section 3 – Wheels & Suspension

3.6 Replacing Independent Rear Suspension

Part 1 – Removing Wheel, Caliper, and Rotor



Tools: 17 mm socket, 11/16" wrench

Safety:

- Place the UTV in Park on level ground and turn off the ignition.

1. Elevate the UTV with a lift or jack along with jack stands.

Note: Place the lift or the jack on the frame or skid plates as shown. Do **not** lift under the front or rear A-Arms.

2. Using a 17 mm socket remove the 4 lug nuts holding the wheel in place.
3. Remove the wheel and set it to the side.
4. Note the rear brake items shown.

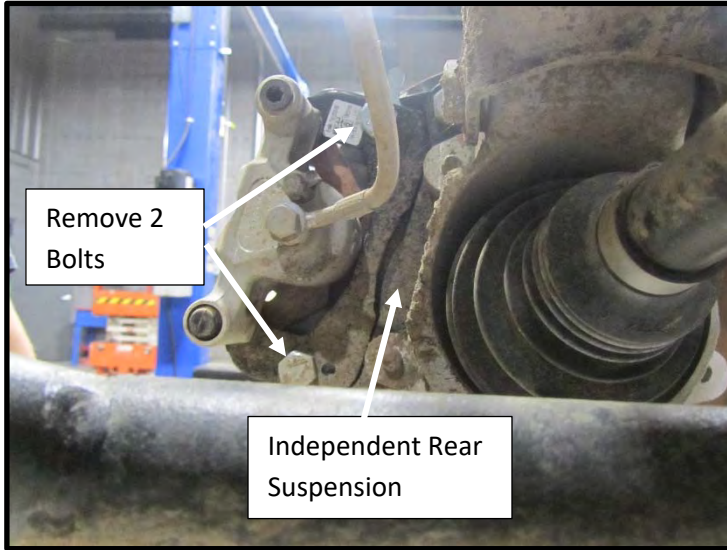


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Section 3 – Wheels & Suspension

3.6 Replacing Independent Rear Suspension

Part 1 Cont. – Removing Wheel, Caliper, and Rotor



5. Using a 11/16 "wrench remove the 2 bolts at the rear of the caliper as shown.
6. Remove the caliper from the rotor and place it out of way.
7. Remove the rotor from the hub and set it to the side.

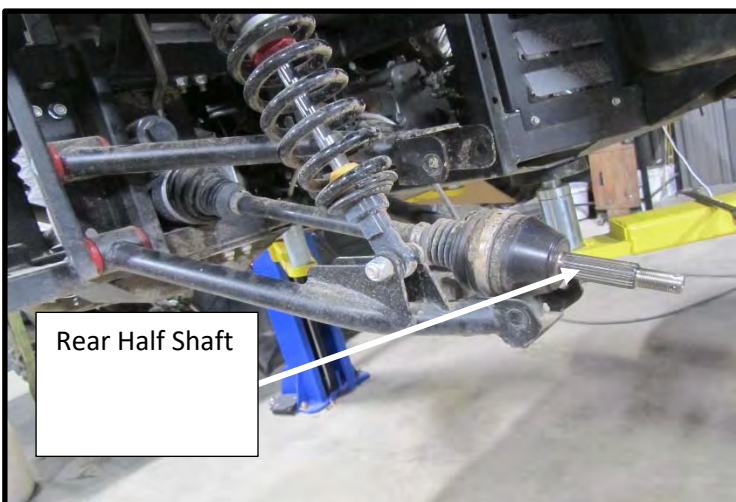
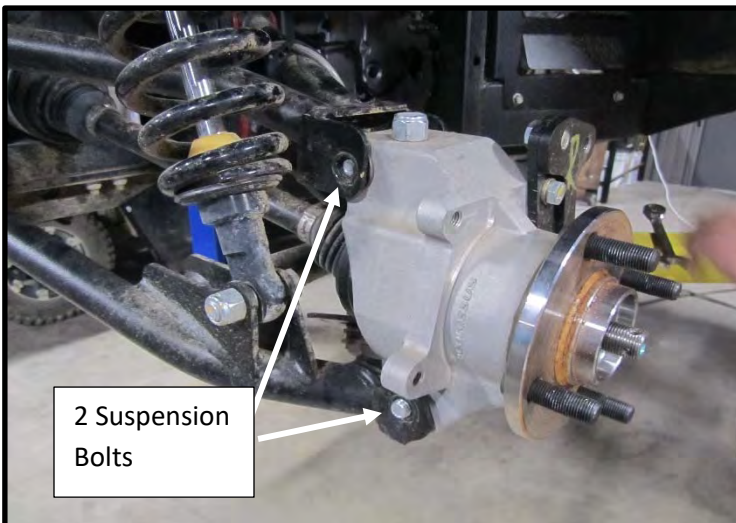
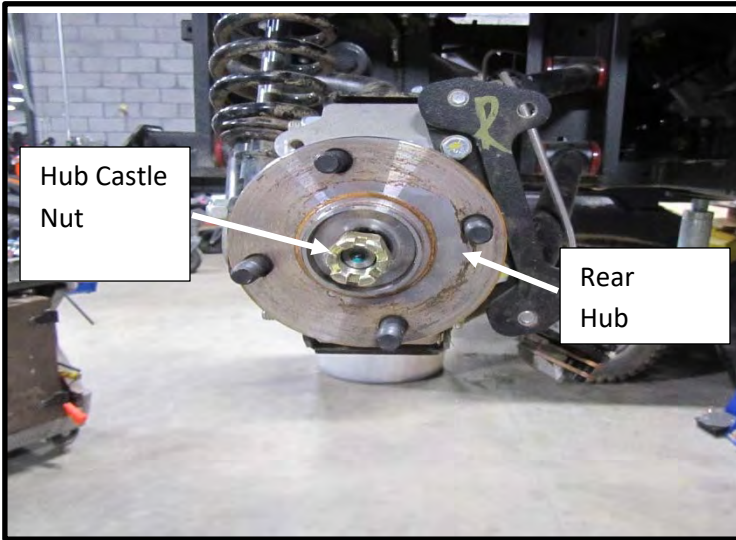


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Section 3 – Wheels & Suspension

3.6 Replacing Independent Rear Suspension

Part 2- Removing Rear Independent Suspension



Tools: 3/4" socket, 1 – 13/16" socket, pliers

1. Remove the cotter pin with pliers on the hub castle nut.
2. Remove the hub castle nut with a 1 – 13/16" socket.
3. Using a 3/4" socket and wrench remove the 2 bolts and nylock nuts as shown that hold the independent rear suspension to the rear upper and lower A -Arms.

Note: The lower bolt is longer than the upper bolt. Also observe the arrangement of spacers and flange bushings around the bolts. They will need to be installed in same manner later.

4. Pull the independent rear suspension from the rear half shaft.

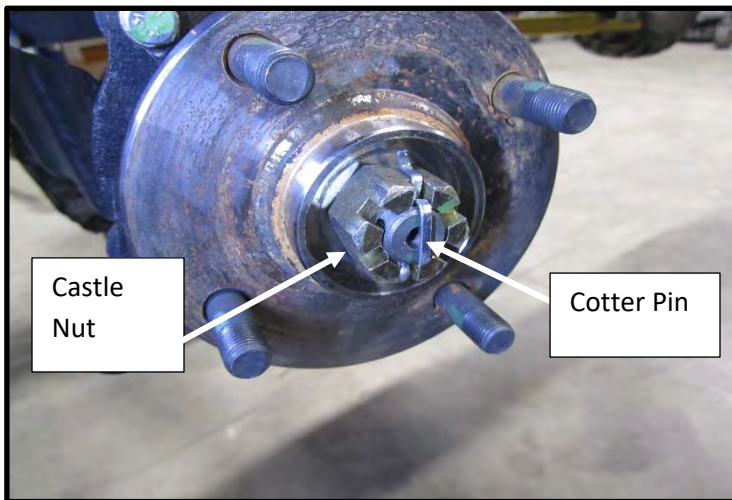
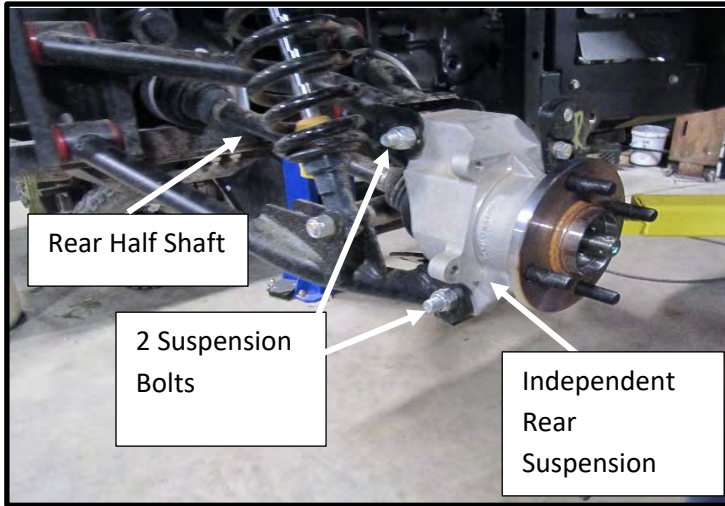


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Section 3 – Wheels & Suspension

3.6 Replacing Independent Rear Suspension

Part 3 – Installing the Independent Rear Suspension & Completing the Job



Tools: 3/4" socket, 1 – 13/16" socket, pliers, 17 mm socket, 11/16" wrench

The installation of the rear suspension is the exact opposite of the removal.

1. Place independent rear suspension over the rear half shaft.
2. Insert bolts through the rear upper and lower A-Arms and the independent rear suspension. Be sure spacers and flange bushings are in proper place. Note that the lower bolt is longer than the upper one.
3. Add the nylock nut with Loctite to each bolt and tighten with a 3/4" socket / wrench to 60 ft-lbs.
4. Tighten the castle nut on the end of the rear half shaft with a 1-3/16" socket to 80 ft-lbs.

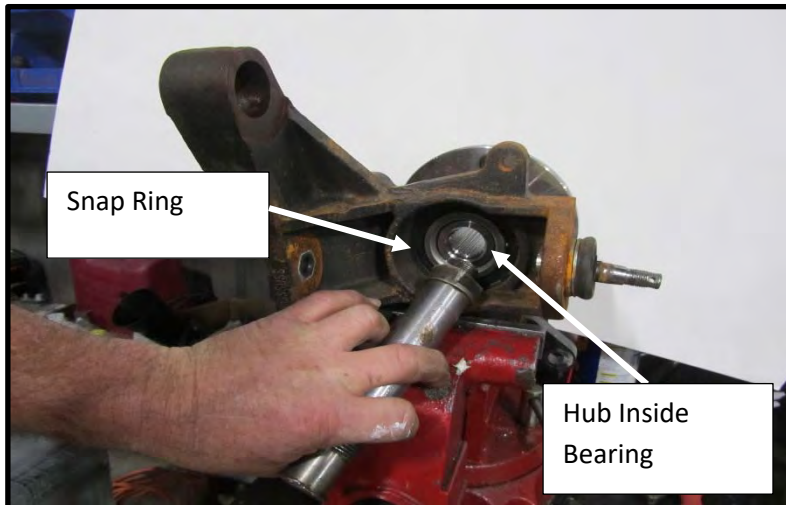
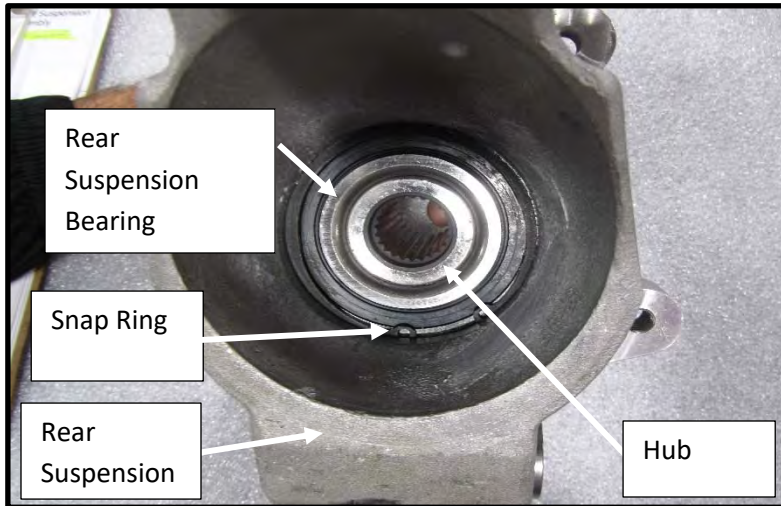
Note: For models with the newer independent rear suspension (build date of 12-4-2019) tighten to 45 ft-lbs.

5. Install a new cotter pin in the end of the half shaft. Separate and bend the cotter pin in place with pliers as shown.
6. Slide the rotor over the 4 hub bolts.
7. Mount the caliper over the rotor as shown.
8. Using a 11/16 "wrench tighten the 2 bolts to 45 ft-lbs at the rear of the caliper as shown previously.
9. Mount the wheel and install / tighten the 4 lug nuts with a 17 mm socket to 65 ft-lbs.



3.7 Replacing Independent Rear Suspension Bearing & Hub

Part 1 – Removing Hub and Bearing



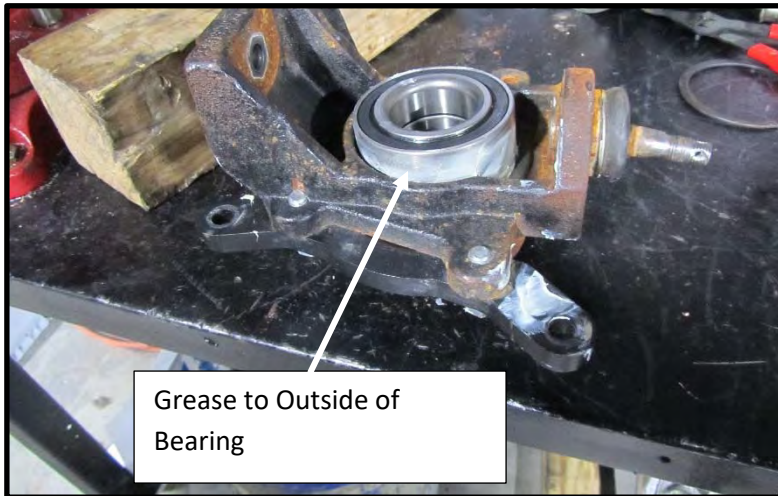
Tools: snap ring pliers, vice, hammer, punches

Note: This procedure shows how to replace the rear suspension bearing and hub from an existing rear suspension using vice, hammer, and punches. A hydraulic press is recommended to remove and install the bearing and hub if one is available. However, the method shown will work. For easier identification of parts some of the pictures are of a new rear suspension.

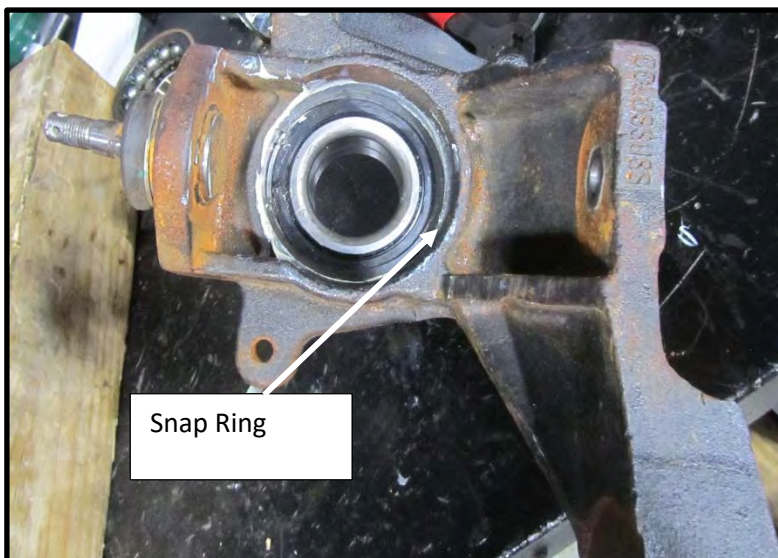
1. Remove the appropriate wheel and independent rear suspension using procedure 3.6 *Removing Wheel and Independent Rear Suspension*.
2. Note the parts shown on the independent rear suspension.
3. Place rear suspension in vice as shown and using a hammer and punch knock the hub out of the rear suspension bearing. **(This picture is of the front spindle but the method is same for the rear.)**
4. Remove the snap ring using pliers on the inside of the rear suspension.
5. Turn the rear suspension over and place on a wooden block as shown. **(This picture is of the front spindle but the method is same for the rear.)**
6. Using a large punch and hammer remove the bearing.



Part 2 – Installing New Bearing



Grease to Outside of Bearing



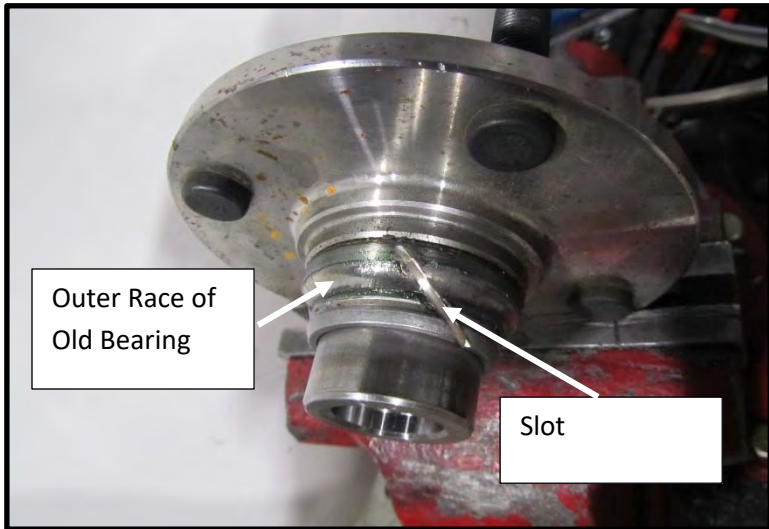
Snap Ring

Tools: snap ring pliers, vice, hammer, punches

1. Using a new identical bearing and snap ring add white lithium grease to inside of rear suspension and to outside of bearing. **(This picture is of the front spindle but the method is same for the rear.)**
2. Insert new bearing into the rear suspension and begin lightly tapping with a hammer to get the bearing started.
3. Once the bearing has been started, finish installing it with a large punch and hammer (as shown) until the snap ring groove is exposed. **(This picture is of the front spindle but the method is same for the rear.)**
4. Install the new snap ring into groove with snap ring pliers. **(This picture is of the front spindle but the method is same for the rear.)**



Part 3 – Installing Hub



Tools: snap ring pliers, vice, hammer, punches, chisel, angle grinder

1. The existing hub removed in the earlier steps should still be good. If not a new one will be required.
2. Sometimes the outer race of the old bearing previously removed will be stuck to the hub as shown. If so, remove the outer race by placing the hub in a vice and **carefully** cutting a slot with an angle grinder. Be careful not to cut into the hub.

Safety: Wear a face shield when using an angle grinder.

3. Use a chisel and hammer to separate and completely remove the race.
4. Apply white lithium grease to outside of hub.
5. Place a punch in the vice to support the new bearing inner race.

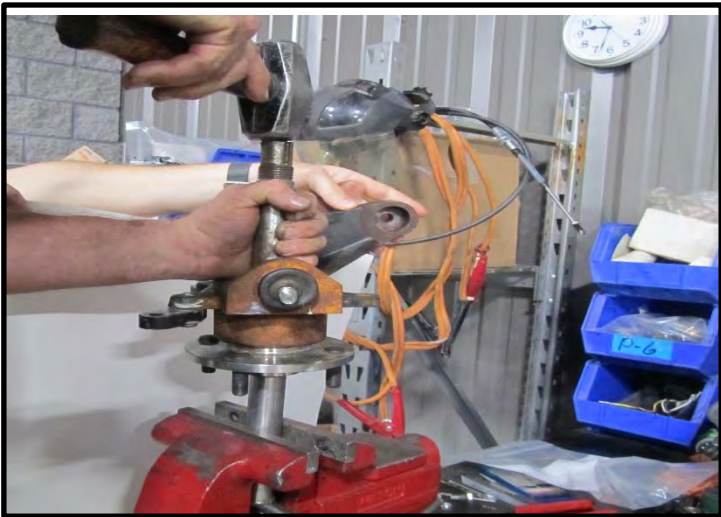


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Section 3 – Wheels & Suspension

3.7 Replacing Independent Rear Suspension Bearing & Hub

Part 3 Cont. – Installing Hub



6. Next place hub on the support punch followed by the rear suspension as shown. **(This picture is of the front spindle but the method is same for the rear.)**

7. Using a large punch and a hammer drive the rear suspension bearing onto the hub until it seats. **(This picture is of the front spindle but the method is same for the rear.)**

8. Note position of rear suspension to hub for proper seating.

9. The rear suspension is now ready for installing on the rear of the UTV.

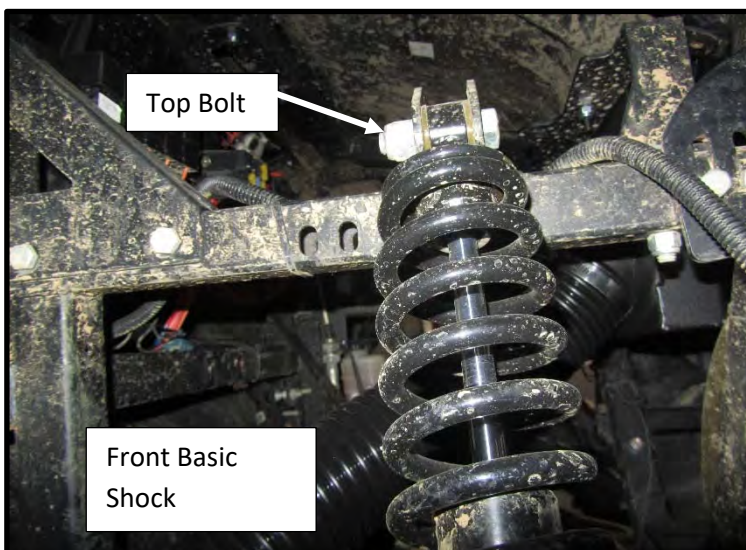
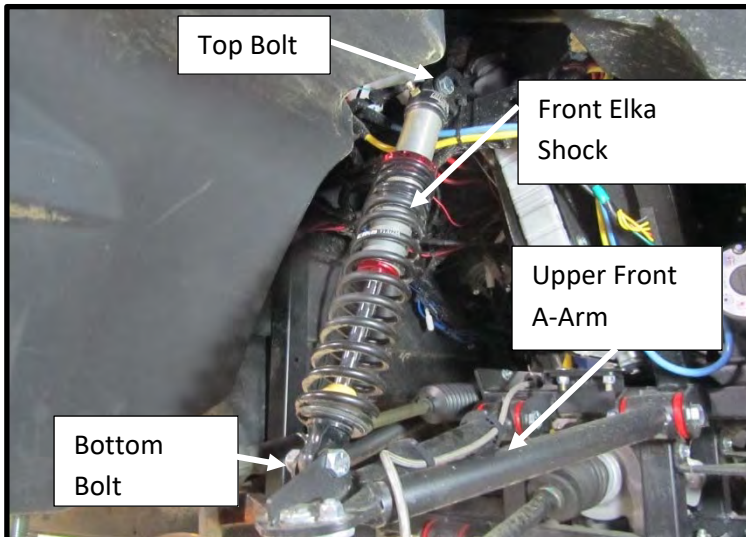
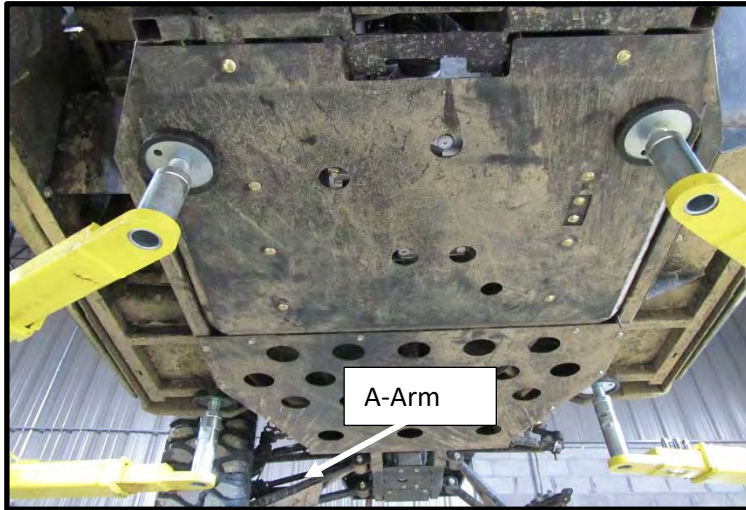


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Section 3 – Wheels & Suspension

3.8 Replacing & Adjusting Shocks

Part 1 – Replacing Shock



The GC1K UTV's are equipped from the factory with either basic shocks or Elka shocks. This procedure covers the replacement and adjustment of both types of shocks. It should be used for both the front and rear shocks.

Safety:

- Place the UTV in Park on level ground and turn off the ignition.

Tools: 3/4" socket /wrench

1. Elevate the UTV with a lift or jack along with jack stands.

Note: The weight of the UTV has to be taken off the wheel in order to work on the shock. Place the lift or the jack on the frame or skid plates as shown. Do **not** lift under the front or rear A-Arms.

2. Note the orientation of the connecting bolts on top and bottom of both front and rear shocks. The bolt heads are toward the front of the UTV and the nuts are toward the rear of the UTV. This is critical that these bolts go back in the same orientation when reinstalling the shock(s). to protect brake lines from the end of the bolts.

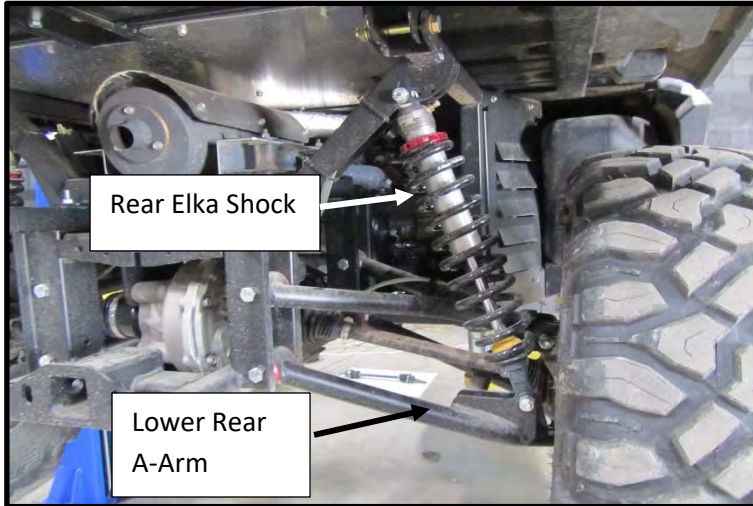


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Section 3 – Wheels & Suspension

3.8 Replacing & Adjusting Shocks

Part 1 Cont. – Replacing Shock



3. The only difference between the front and rear shocks is that the lower connection is on the upper front A-Arm in the front whereas the lower connection is on the lower A-Arm in the rear.
4. To remove the shock use a 3/4" socket / wrench on both the upper and lower bolts.
5. Also note that the valve at top of each Elka shock is for **factory use only**. Do **not** remove or test the pressure, etc. or the shock performance can be compromised.

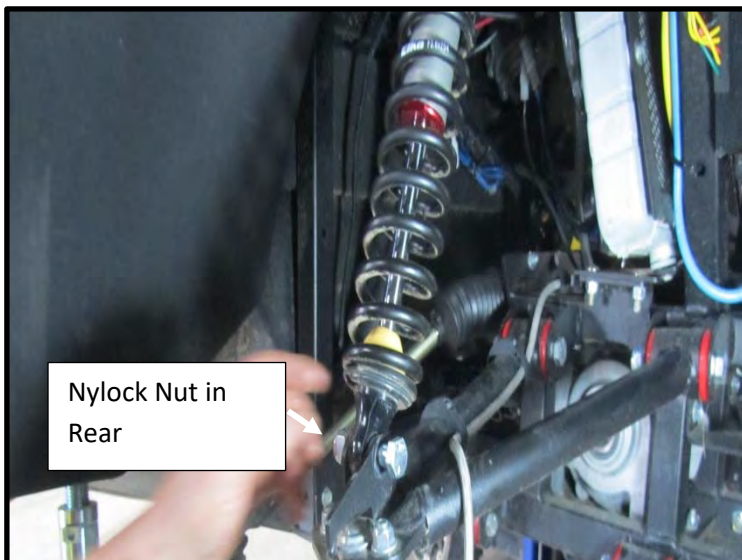
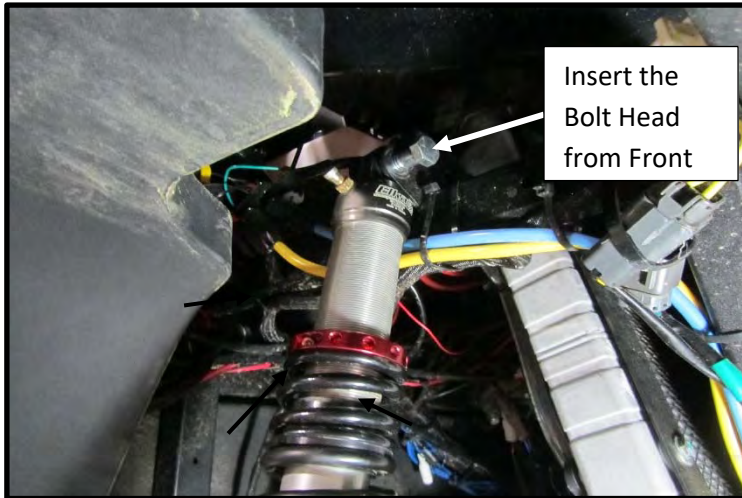
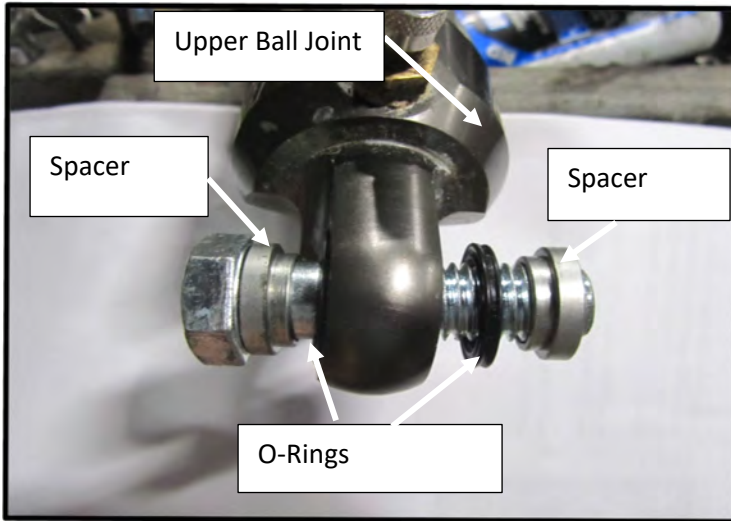


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Section 3 – Wheels & Suspension

3.8 Replacing & Adjusting Shocks

Part 1 Cont. – Replacing Shock



6. Use an identical new shock to replace the old one. Be sure the O-rings and spacers are in good shape and installed in proper order on each end of shock as shown.
7. Place the top of the shock in the frame and insert the bolt and nut with bolt head towards the front and the nylock nut in the rear for both type of shocks.
8. Place the bottom of the shock in the upper A-Arm for the front shock (and lower A-Arm for the rear shock) and insert the bolt with head toward front and nylock nut in the rear.
9. Tighten both with 3/4" socket and wrench to 45 ft-lbs.
10. Repeat this procedure for the other shocks as needed.

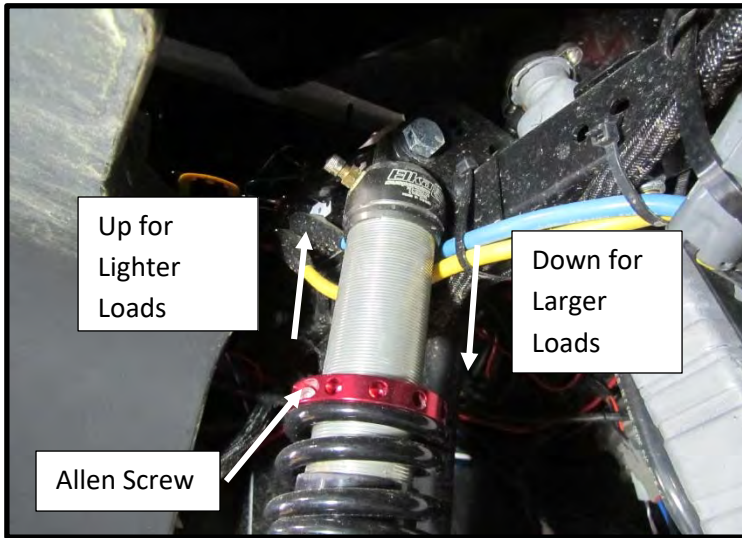


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Section 3 – Wheels & Suspension

3.8 Replacing & Adjusting Shocks

Part 2- Adjusting the Elka Shock



All 4 Elka shock absorbers have adjustable features that increase or decrease their stiffness. In addition the 2 rear shock absorbers have 3 mounting positions to further adjust the stiffness of the ride by changing the angle of the shock mounting.

Tools: Allen wrench, Elka adjustment tool

1. Adjustment of any of the 4 shocks must be made with the load off the wheel. Use a lift or jack / jack stands to elevate the UTV as shown in Part 1 of this procedure.
2. Loosen the allen screw with an allen wrench on the red ring at the top of the shock both front and rear.
3. To accommodate larger loads screw the red ring down toward the ground to compress the springs using the adjustment tool as shown.
4. For lighter loads and a smoother ride screw the red ring up to allow the springs to expand.
5. Once adjusted tighten the allen screw.
6. Repeat this procedure on the other three shocks as needed. It is recommended that the shocks for the front or the rear be adjusted close to the same on each side.
7. The 2 rear shocks can be adjusted for heavier or lighter loads based on mounting position at top of shock as shown. Mount the shock in the top hole for the heaviest load and stiffest ride. The factory setting is shown in the picture for the smoothest ride. See the Owner's Manual for additional information.



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Section 3 – Wheels & Suspension

3.8 Replacing & Adjusting Shocks

Part 3 – Adjusting the Basic Shock



All 4 basic shock absorbers have adjustable features that increase or decrease their stiffness. In addition the 2 rear shock absorbers have 4 mounting positions to further adjust the stiffness of the ride by changing the angle of the shock mounting.

Tools: Adjustment tool (See picture)

1. This first adjustment step can be made with the load on the wheel. Insert the adjustment tool in the bottom of adjustment ring as shown. To accommodate larger loads rotate the ring to compress the ring.
2. For lighter loads rotate the ring to allow the springs to expand.
3. Due to the design of the adjustment ring over tightening is not possible.
4. Repeat this procedure on the other three shocks as needed. It is recommended that the shocks for the front or the rear be adjusted close to the same on each side.
5. The 2 rear shocks can be adjusted for heavier or lighter loads based on mounting position at top of shock as shown. Mount the shock in the top hole for the heaviest load and stiffest ride. The factory setting is shown in the picture for the smoothest ride. See the Owner's Manual for additional information.

Note 1: This adjustment must be made with the load off the wheel. Use a lift or jack / jack stands to elevate the UTV as shown in Part 1 of this procedure.

Note 2: The picture shows 3 mounting holes for bottom of rear shock. Newer models only have one hole on bottom A-Arm.

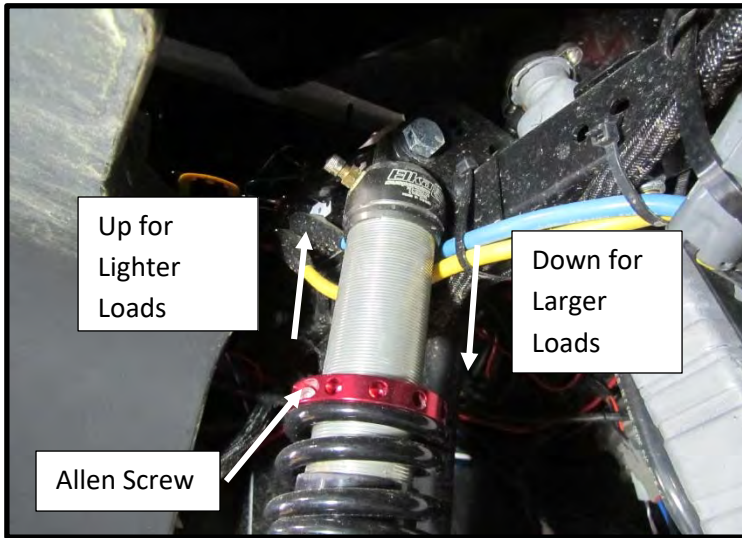


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Section 3 – Wheels & Suspension

3.8 Replacing & Adjusting Shocks

Part 2- Adjusting the Elka Shock



All 4 Elka shock absorbers have adjustable features that increase or decrease their stiffness. In addition the 2 rear shock absorbers have 3 mounting positions to further adjust the stiffness of the ride by changing the angle of the shock mounting.

Tools: Allen wrench, Elka adjustment tool

1. Adjustment of any of the 4 shocks must be made with the load off the wheel. Use a lift or jack / jack stands to elevate the UTV as shown in Part 1 of this procedure.
2. Loosen the allen screw with an allen wrench on the red ring at the top of the shock both front and rear.
3. To accommodate larger loads screw the red ring down toward the ground to compress the springs using the adjustment tool as shown.
4. For lighter loads and a smoother ride screw the red ring up to allow the springs to expand.
5. Once adjusted tighten the allen screw.
6. Repeat this procedure on the other three shocks as needed. It is recommended that the shocks for the front or the rear be adjusted close to the same on each side.
7. The 2 rear shocks can be adjusted for heavier or lighter loads based on mounting position at top of shock as shown. Mount the shock in the top hole for the heaviest load and stiffest ride. The factory setting is shown in the picture for the smoothest ride. See the Owner's Manual for additional information.



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Section 3 – Wheels & Suspension

3.8 Replacing & Adjusting Shocks

Part 3 – Adjusting the Basic Shock



All 4 basic shock absorbers have adjustable features that increase or decrease their stiffness. In addition the 2 rear shock absorbers have 4 mounting positions to further adjust the stiffness of the ride by changing the angle of the shock mounting.

Tools: Adjustment tool (See picture)

1. This first adjustment step can be made with the load on the wheel. Insert the adjustment tool in the bottom of adjustment ring as shown. To accommodate larger loads rotate the ring to compress the ring.
2. For lighter loads rotate the ring to allow the springs to expand.
3. Due to the design of the adjustment ring over tightening is not possible.
4. Repeat this procedure on the other three shocks as needed. It is recommended that the shocks for the front or the rear be adjusted close to the same on each side.
5. The 2 rear shocks can be adjusted for heavier or lighter loads based on mounting position at top of shock as shown. Mount the shock in the top hole for the heaviest load and stiffest ride. The factory setting is shown in the picture for the smoothest ride. See the Owner's Manual for additional information.

Note 1: This adjustment must be made with the load off the wheel. Use a lift or jack / jack stands to elevate the UTV as shown in Part 1 of this procedure.

Note 2: The picture shows 3 mounting holes for bottom of rear shock. Newer models only have one hole on bottom A-Arm.

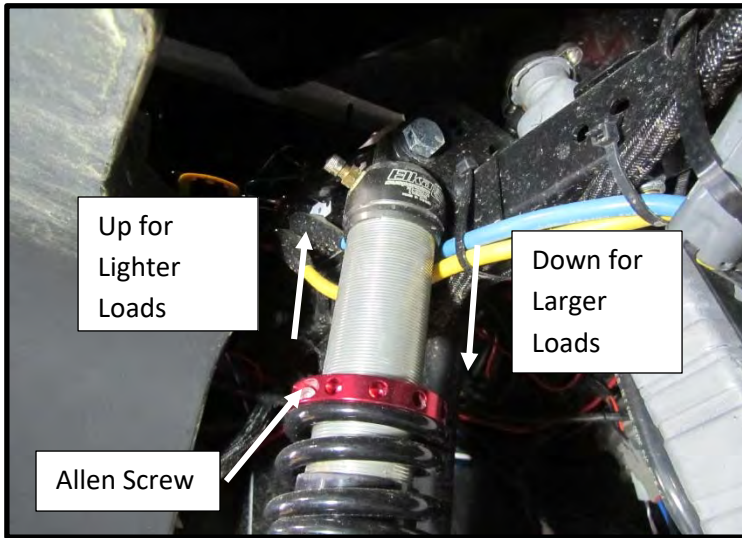


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Section 3 – Wheels & Suspension

3.8 Replacing & Adjusting Shocks

Part 2- Adjusting the Elka Shock



All 4 Elka shock absorbers have adjustable features that increase or decrease their stiffness. In addition the 2 rear shock absorbers have 3 mounting positions to further adjust the stiffness of the ride by changing the angle of the shock mounting.

Tools: Allen wrench, Elka adjustment tool

1. Adjustment of any of the 4 shocks must be made with the load off the wheel. Use a lift or jack / jack stands to elevate the UTV as shown in Part 1 of this procedure.
2. Loosen the allen screw with an allen wrench on the red ring at the top of the shock both front and rear.
3. To accommodate larger loads screw the red ring down toward the ground to compress the springs using the adjustment tool as shown.
4. For lighter loads and a smoother ride screw the red ring up to allow the springs to expand.
5. Once adjusted tighten the allen screw.
6. Repeat this procedure on the other three shocks as needed. It is recommended that the shocks for the front or the rear be adjusted close to the same on each side.
7. The 2 rear shocks can be adjusted for heavier or lighter loads based on mounting position at top of shock as shown. Mount the shock in the top hole for the heaviest load and stiffest ride. The factory setting is shown in the picture for the smoothest ride. See the Owner's Manual for additional information.



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Section 3 – Wheels & Suspension

3.8 Replacing & Adjusting Shocks

Part 3 – Adjusting the Basic Shock



All 4 basic shock absorbers have adjustable features that increase or decrease their stiffness. In addition the 2 rear shock absorbers have 4 mounting positions to further adjust the stiffness of the ride by changing the angle of the shock mounting.

Tools: Adjustment tool (See picture)

1. This first adjustment step can be made with the load on the wheel. Insert the adjustment tool in the bottom of adjustment ring as shown. To accommodate larger loads rotate the ring to compress the ring.
2. For lighter loads rotate the ring to allow the springs to expand.
3. Due to the design of the adjustment ring over tightening is not possible.
4. Repeat this procedure on the other three shocks as needed. It is recommended that the shocks for the front or the rear be adjusted close to the same on each side.
5. The 2 rear shocks can be adjusted for heavier or lighter loads based on mounting position at top of shock as shown. Mount the shock in the top hole for the heaviest load and stiffest ride. The factory setting is shown in the picture for the smoothest ride. See the Owner's Manual for additional information.

Note 1: This adjustment must be made with the load off the wheel. Use a lift or jack / jack stands to elevate the UTV as shown in Part 1 of this procedure.

Note 2: The picture shows 3 mounting holes for bottom of rear shock. Newer models only have one hole on bottom A-Arm.

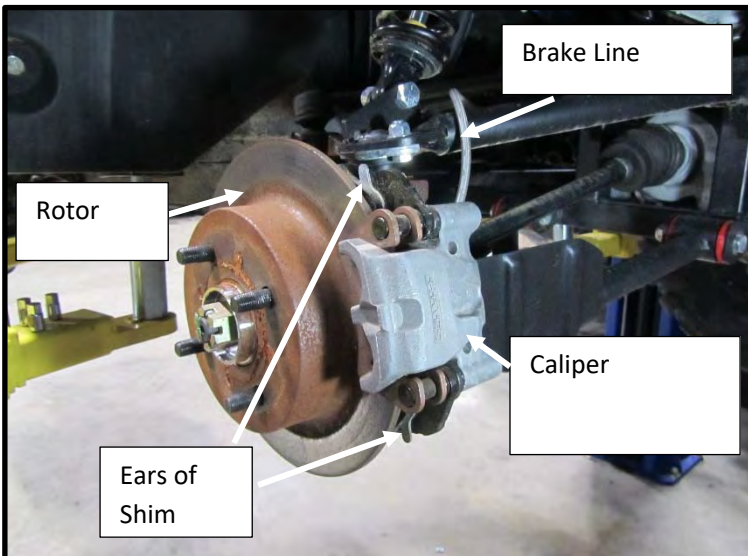


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Section 4 - Brakes

4.1 Replacing Brake Pads

Part 1 – Removing Tire, Caliper & Rotor



Intimidator UTV's use the Hayes brake system which includes the master cylinder, brake switch, calipers, and the connecting hydraulic lines and fittings. The overall brake system also includes the rotor on each wheel and the brake pedal. This procedure describes how to replace various components of the brake system and how to bleed the brake system of air.

Tools: 17 mm socket, 11/16" wrench, T-45 torx bit

Safety:

- Place the UTV in Park on level ground and turn off the ignition.
- For access to the brake calipers and rotors use a lift or jack along with jack stands.
- Use eye protection and nitrile disposable gloves when being exposed to brake fluid.
- Brake fluid is corrosive. Take extra precaution when handling so that it doesn't damage any painted surfaces.

Note: The majority of brake jobs are the same for the front and rear and both sides and also for single piston / double piston calipers. Any differences are noted in this procedure. The pictures presented are for the front passenger brake side but the procedure should be used for any wheel location.

1. Using a 17 mm socket remove the 4 lug nuts holding the wheel in place.
2. Remove the wheel and set it to the side.
3. Locate the brake components as shown.

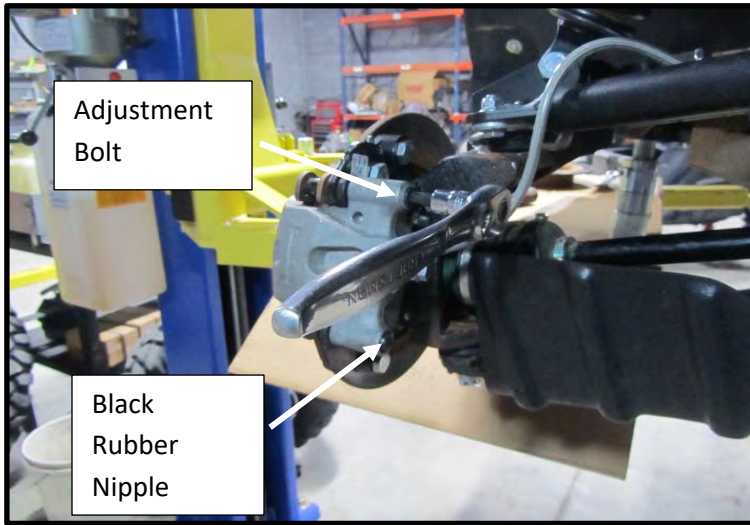


Service Manual – GC1K 2018 and later

Section 4 - Brakes

4.1 Replacing Brake Pads

Part 1 Cont. – Removing Tire, Caliper & Rotor



4. If replacing the brake pads then remove the adjustment bolt on the back of the caliper with a T-45 torx bit as shown. If not replacing the brake pads then omit this step and proceed to next step for removing caliper then rotor.

Note 1: This bolt rests against the back of the brake pad guide post. Removal is necessary to allow room when compressing to remove the old pads and insert the new brake pads.

Note 2: Leave the black rubber nipple in place.

5. To remove the caliper from the rotor use a 11/16" wrench to remove the two tap bolts at the rear of the caliper as shown.

Note: The shim between the caliper and the caliper mounting bracket is held in place by these two tap bolts. Note how the shim is positioned when removing the caliper. It has to go back the same way when reinstalling.

6. If the caliper needs replacing use a 1/2" socket on the banjo bolt to remove its brake line. Use a drain pan to catch any brake fluid leaks. Position the brake line up to minimize spills.

7. Use an identical caliper to replace the old one.

Note: The banjo bolt at the caliper has 2 copper crush washers that will need to be replaced with new ones during reinstallation to prevent leaks.

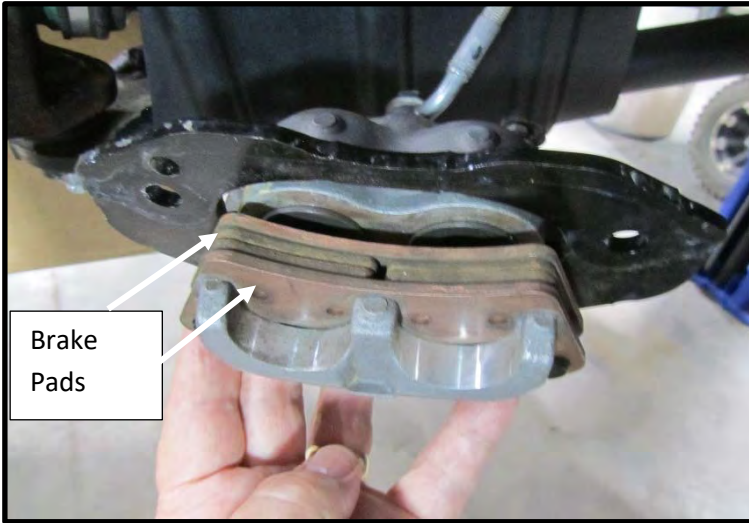
8. Follow procedure 4.5 *Bleeding Air From Brakes* to refill brake line and caliper with brake fluid and to bleed the brakes.

9. If needed the rotor can be removed at this time for turning or replacing with a new one.



4.1 Replacing Brake Pads

Part 2- Removing Brake Pads



Tools: None

1. Note the orientation and positioning of the brake pads.
2. Remove the worn brake pads.
3. If there is not enough room to remove the pad then compress the caliper plate by hand toward rear as shown to allow more room. This is why the adjustment bolt on the back of caliper was removed earlier.

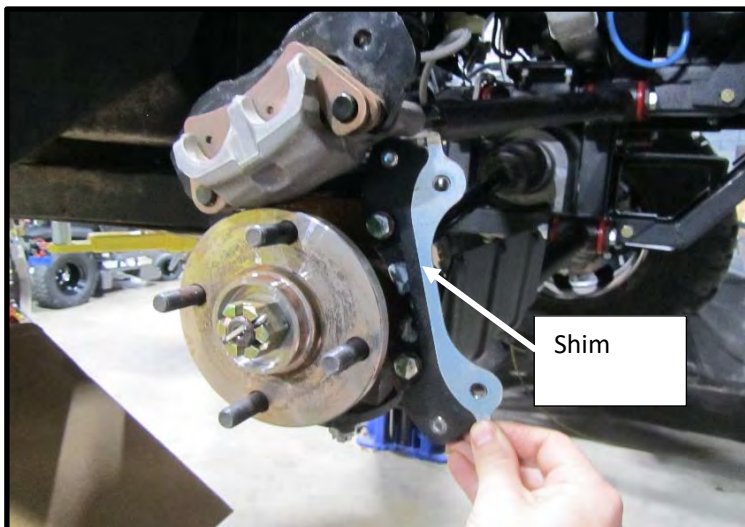
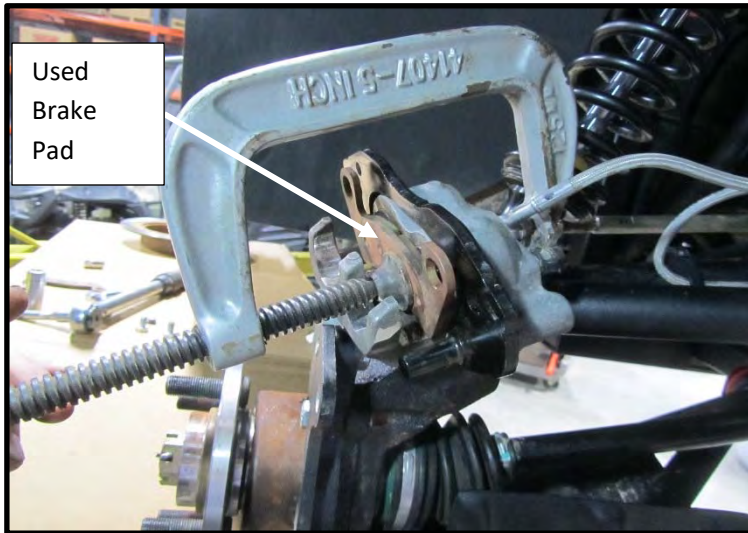


Service Manual – GC1K 2018 and later

Section 4 - Brakes

4.1 Replacing Brake Pads

Part 3 – Replacing Pads and Completing Job



Tools: 17 mm socket, 11/16" wrench, T-45 torx bit, C-Clamp

1. To allow room for the new (thicker) brake pads the hydraulic piston(s) may need to be pushed back into the caliper. This is accomplished by turning one of the used brake pads around with the pad side facing the piston(s) and tightening a C-clamp as shown. After tightening then remove the clamp. The piston(s) will remain in the retracted position.
2. Using the same type brake pads as removed install the new brake pads by compressing the caliper plate by hand toward rear as shown. Install both brake pads with the pads facing each other.
3. Install caliper on the rotor with each brake pad on the surface of the rotor and align the holes with the caliper bracket.
4. Insert the shim (in the same orientation that it was removed) between the two brackets that was removed earlier.
5. Add Loctite to the two bolts for the caliper bracket. Install the bolts and tighten with a 11/16" wrench to 45 ft-lbs.

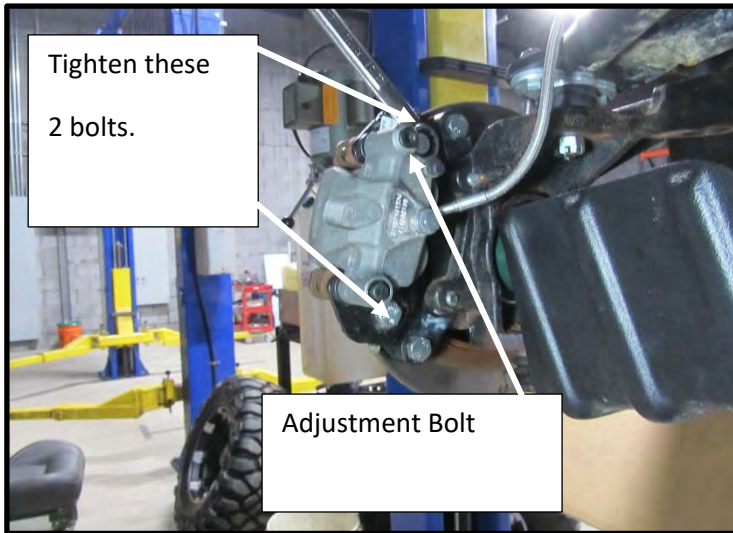
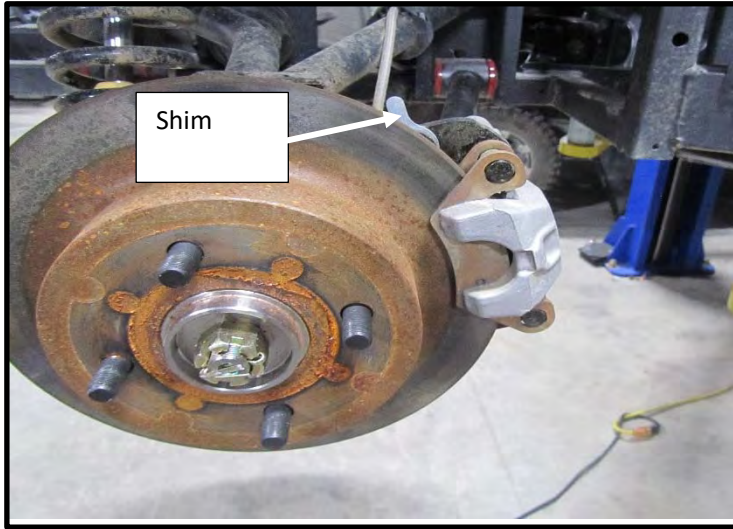


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Section 4 - Brakes

4.1 Replacing Brake Pads

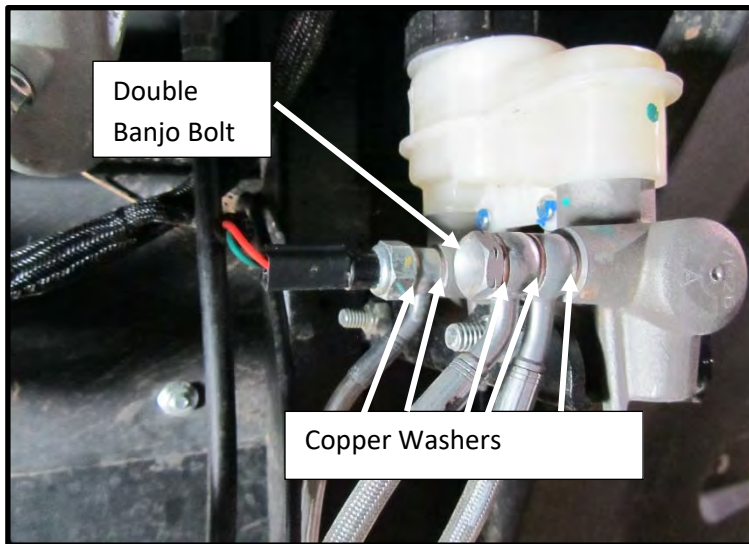
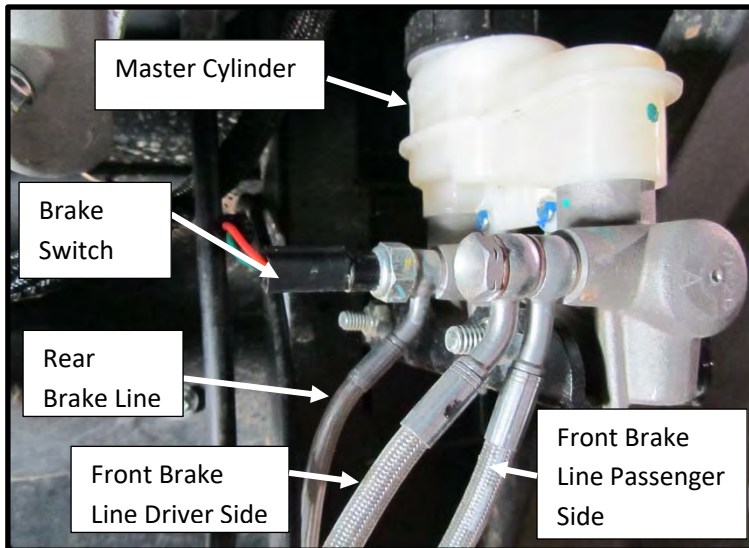
Part 3 Cont. – Replacing Pads and Completing Job



6. Install the adjustment bolt and tighten with a T-45 torx bit.
7. If complete with this brake reinstall the tire. Tighten the 4 lug nuts to 65 ft-lbs.
8. As needed repeat this procedure for the other three wheels and brakes.



Part 1 – Removing Brake Master Cylinder, Switch, and Pedal



Tools: 3/4" socket, 9/16" socket, pliers, 1/2" socket

Safety:

- Place the UTV in Park on level ground and turn off the ignition. The brake lines, calipers, and master cylinder can be accessed when UTV is on the ground and this is the recommended position when working on these components.
- Use eye protection and nitrile disposable gloves when being exposed to brake fluid.
- Brake fluid is corrosive. Take extra precaution when handling so that it doesn't damage any painted surfaces.

1. Locate the master cylinder under the front hood on the driver's side. The master cylinder is a dual cylinder with two compartments (for front and rear ends) in its reservoir.
2. To remove and replace the master cylinder note all the connections as shown. The front brakes have separate lines to each brake. A single line tied in with the brake switch goes to a tee at the rear before splitting to each of the rear brakes.

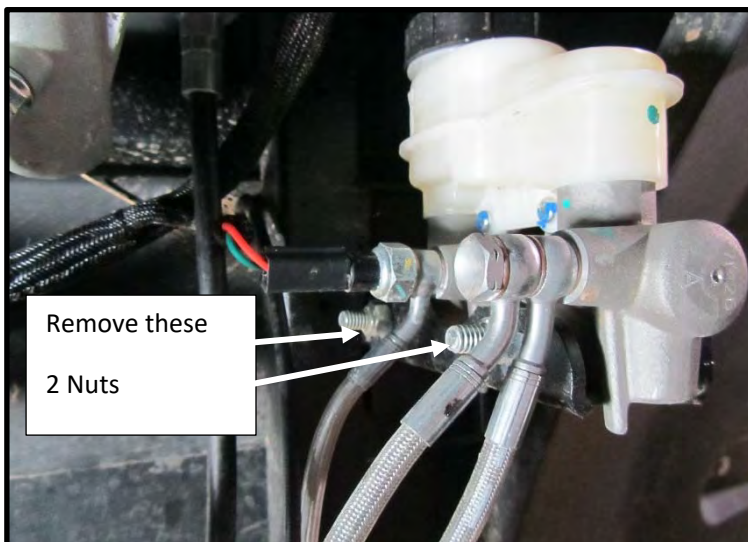
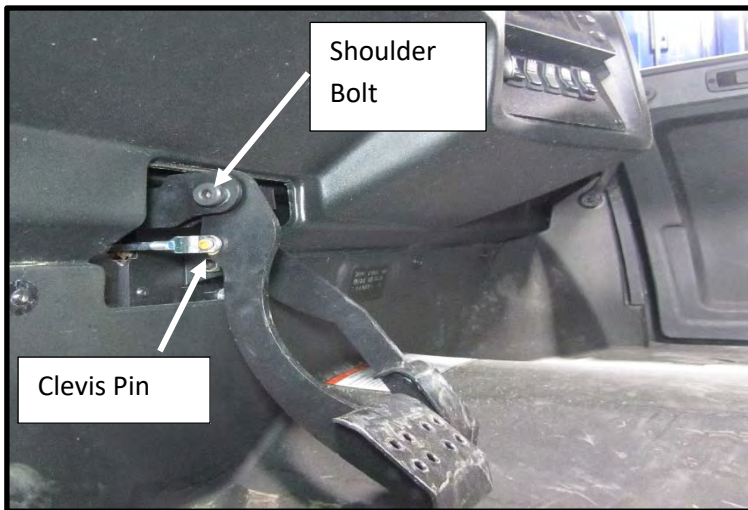
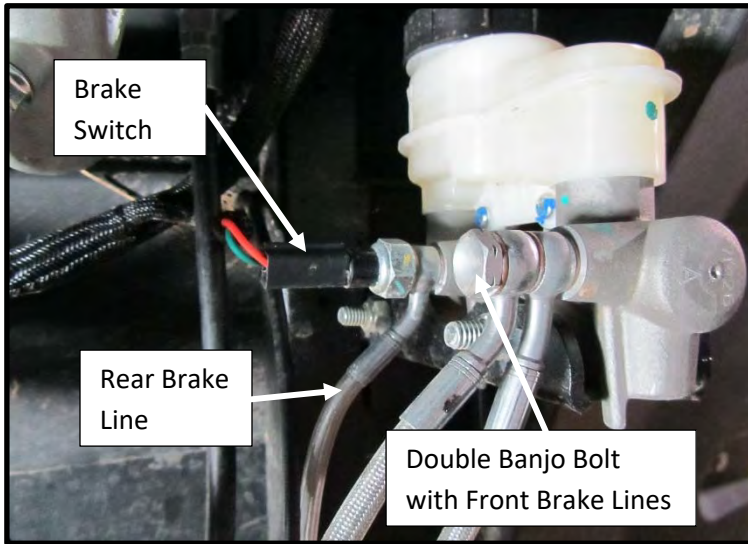
Note: Take note of the 2 copper washers around the line to rear brakes and the 3 copper washers on the front line connections. These are copper crush washers and should not be reused when reinstalling the master cylinder. **New** ones must be used to prevent leaks.

3. Disconnect the wiring from the brake switch.
4. Position a drain pan under the master cylinder to catch brake fluid leaks.



4.2 Replacing Brake Master Cylinder, Brake Switch, and Brake Pedal

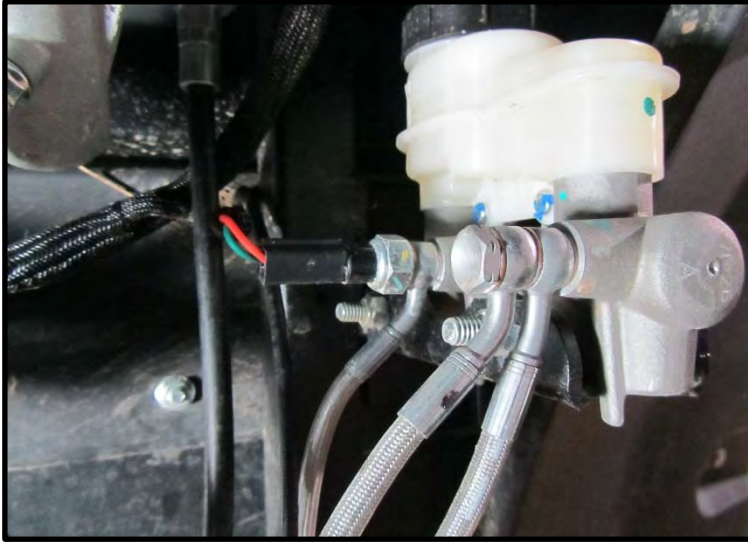
Part 1 Cont. – Removing Brake Master Cylinder, Switch, and Pedal



5. Using a 3/4" deep socket remove the brake switch and banjo bolt connection. Separate the rear brake line and place it up and out of the way. Secure it in a way with cable ties to prevent the fluid from spilling out of the line.
6. Remove the double banjo bolt on the front brake lines with a 9/16" socket and place them up and out of the way. Secure them in a way with cable ties to prevent the fluid from spilling out of the lines.
7. Remove the bow tie clip and clevis pin connecting the front of cylinder to the brake pedal.
8. If needed replace the brake pedal by removing the shoulder bolt, two bushings, and nylock nut to separate the pedal from its brackets. Replace with an exact duplicate brake pedal.
9. Using a 1/2" socket remove the 2 nuts holding the master cylinder in place and remove the master cylinder assembly.



Part 2- Replacing The Master Cylinder and Brake Switch



Tools: 3/4"socket, 9/16"socket, pliers, 1/2" socket

1. When installing a new master cylinder it is recommended that it be placed on a bench and prefilled with the recommended brake fluid. Use a specialized syringe to bench bleed the master cylinder. A link to the procedure and the tool is <https://techtalk.mpbrakes.com/how-to-series/bench-bleeding-a-master-cylinder>
2. Reinstall the new master cylinder using the exact opposite steps and using **new** copper crush washers for connection on the front brake lines and the rear brake line / brake switch connections.
3. If needed replace the old brake switch with an identical new one.
4. Wipe up any brake fluid spills and properly dispose of any collected fluid.
5. Bleed the air from each of the brakes per procedure 4.5 *Bleeding Air From Brakes*.

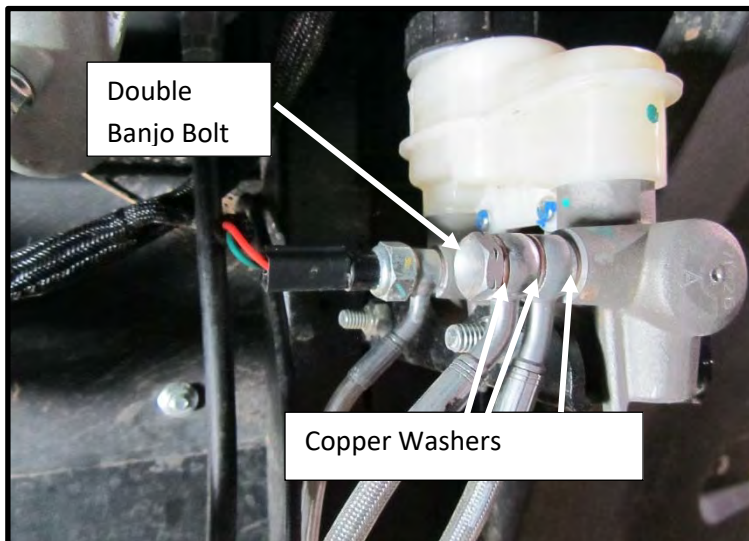
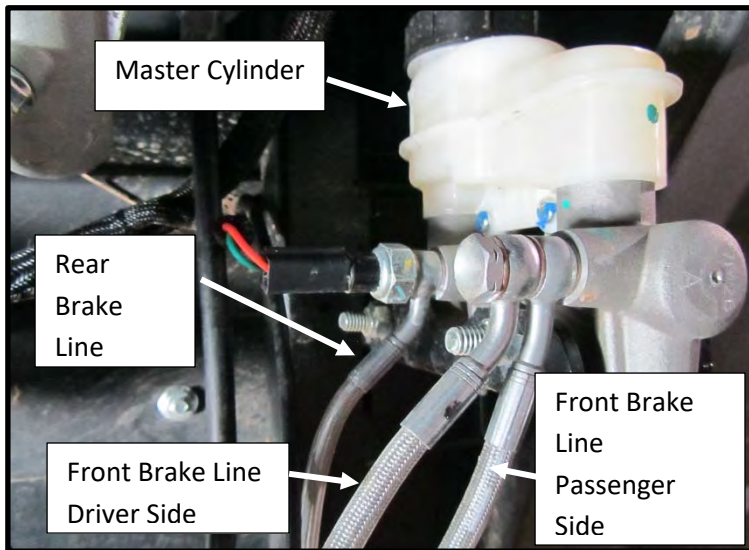


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Section 4 - Brakes

4.3 Replacing Front Brake Line(s)

Part 1 – Removing Front Brake Line(s)



Tools: 3/4" socket, 9/16" socket, pliers, 1/2" socket

Safety:

- Place the UTV in Park on level ground and turn off the ignition. The brake lines, calipers, and master cylinder can be accessed when UTV is on the ground and this is the recommended position when working on these components.
- Use eye protection and nitrile disposable gloves when being exposed to brake fluid.
- Brake fluid is corrosive. Take extra precaution when handling so that it doesn't damage any painted surfaces.

1. Locate the master cylinder under the front hood on the driver's side. The master cylinder is a dual cylinder with two compartments (for front and rear ends) in its reservoir. The front brakes have separate lines to each brake. Due to location of the master cylinder the line to the driver side front brake is shorter than the other front line.

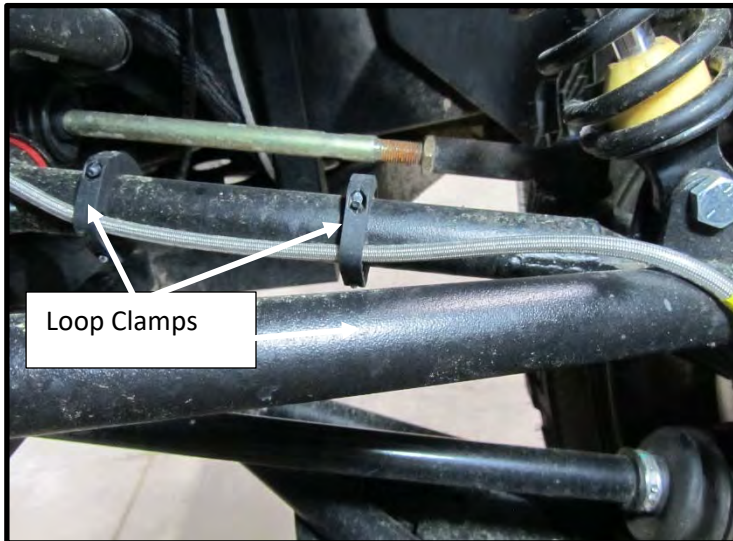
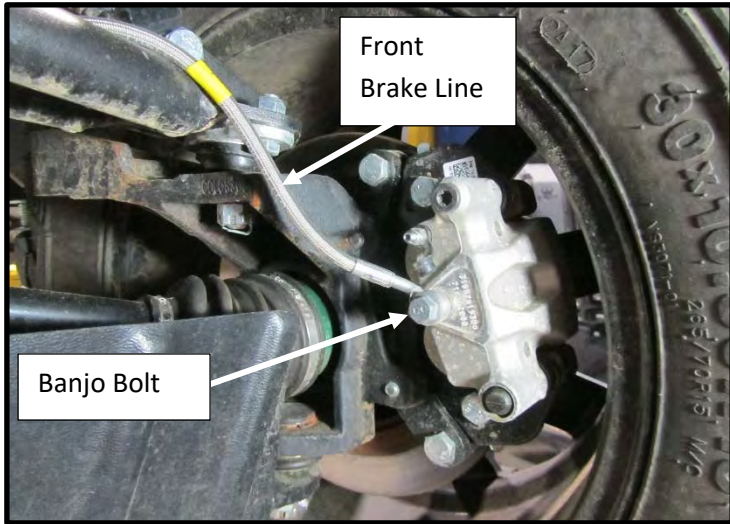
Note: Take note of the 3 copper washers on the front line connections. These are copper crush washers and should not be reused when reinstalling the master cylinder. **New** ones must be used to prevent leaks.

2. Position drain pans under the master cylinder and the appropriate front caliper to catch brake fluid leaks.
3. To remove and replace one of the front brake lines remove the double banjo bolt at the master cylinder on the front brake lines with a 9/16" socket and place them up and out of the way.



4.3 Replacing Front Brake Line(s)

Part 1 Cont. – Removing Front Brake Line(s)



4. Remove the banjo bolt on the appropriate front caliper using a 1/2" socket.

Note: The banjo bolt at the caliper has 2 copper crush washers that will need to be replaced with **new** ones during reinstallation to prevent leaks.

5. Drain the brake line into a drain pan.

6. Note the location of any cable ties or loop clamps holding the brake line in place. Cut the cable ties and unhook any loop clamps.

7. Remove the brake line.

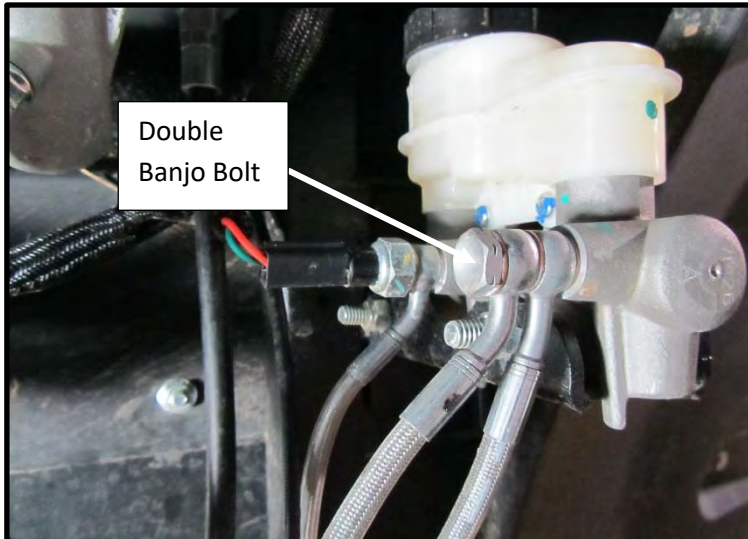
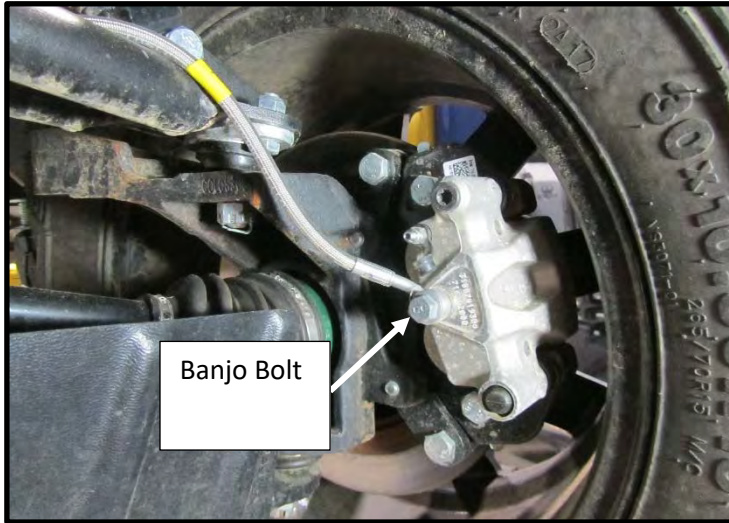


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Section 4 - Brakes

4.3 Replacing Front Brake Line(s)

Part 2- Replacing The Front Brake Line(s)



Tools: 3/4"socket, 9/16"socket, pliers, 1/2" socket

1. Replace the brake line with an identical size and length routing it through the same path the old one came from. Both ends of the front brake line are the same.

Note: The driver side front brake line is shorter than the passenger side front brake line.

2. Connect the new brake line to any loop clamps used previously in the same location.
3. Using 2 **new** copper washers connect the brake line to the caliper by tightening the banjo bolt with a 1/2" socket to 14 ft-lbs.
4. Using 3 **new** copper washers mount both front brake lines through the double banjo bolt and tighten it into the master cylinder with a 9/16" socket to 14 ft-lbs.
5. Add cable ties to support the new brake line in identical locations where they were earlier removed.
6. Wipe up any brake fluid spills and properly dispose of any collected fluid.
7. Bleed the air from each of the brakes per procedure *4.5 Bleeding Air From Brakes*.

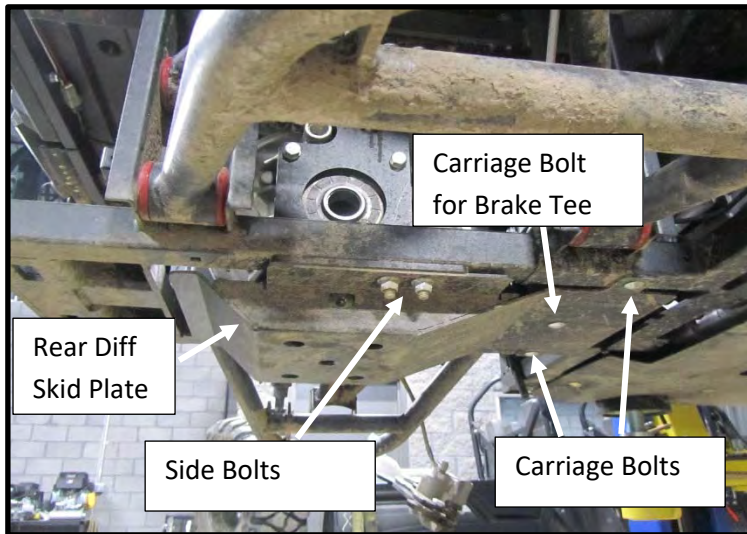


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Section 4 - Brakes

4.4 Replacing Rear Brake Line(s) and Tee

Part 1 – Removing Rear Diff Skid Plate



Unlike the front brake lines there is only one brake line (MC to rear) from the master cylinder to the rear tee before splitting and going to each of the rear brakes. The connection of the MC to rear brake line at the rear tee is a pressed fitting which requires both the tee and this brake line from the master cylinder to be replaced together. The 2 brake lines splitting from the tee to each of the rear calipers can be replaced separately.

Tools: 1/2" socket

Safety:

- Place the UTV in Park on level ground and turn off the ignition. The brake lines, calipers, and master cylinder can be accessed when UTV is on the ground and this is the recommended position when working on these components.
- Use eye protection and nitrile disposable gloves when being exposed to brake fluid.
- Brake fluid is corrosive. Take extra precaution when handling so that it doesn't damage any painted surfaces.

1. To work on the rear brake tee and the rear brake lines the rear diff skid plate can be removed for easiest access to the tee. When working on the rear brake line(s) to the caliper(s) some prefer accessing from the top by lifting the bed.
2. To free up the rear diff skid plate use a 1/2" socket / wrench on the 4 bolts (2 on each side) on the sides and the 3 carriage bolts toward front of plate to remove the nuts. Note that the middle carriage bolt in the front is for securing the rear brake tee which needs to be free from the plate in order to remove the plate. The brake lines should remain intact with the tee.

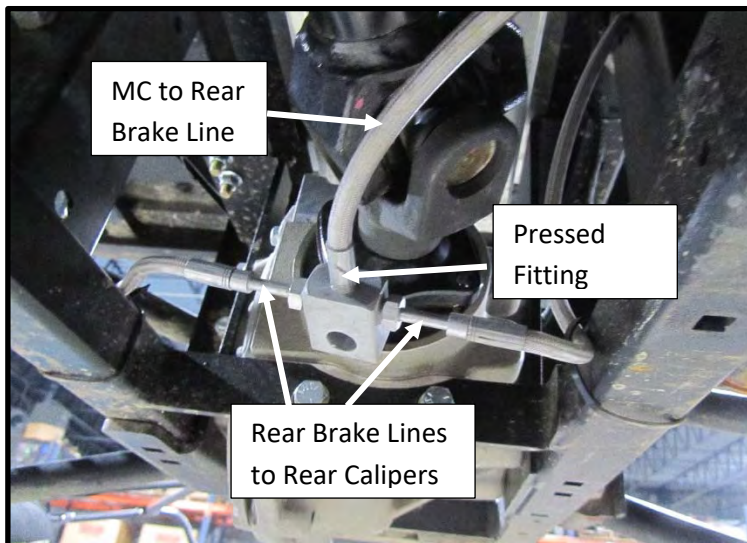
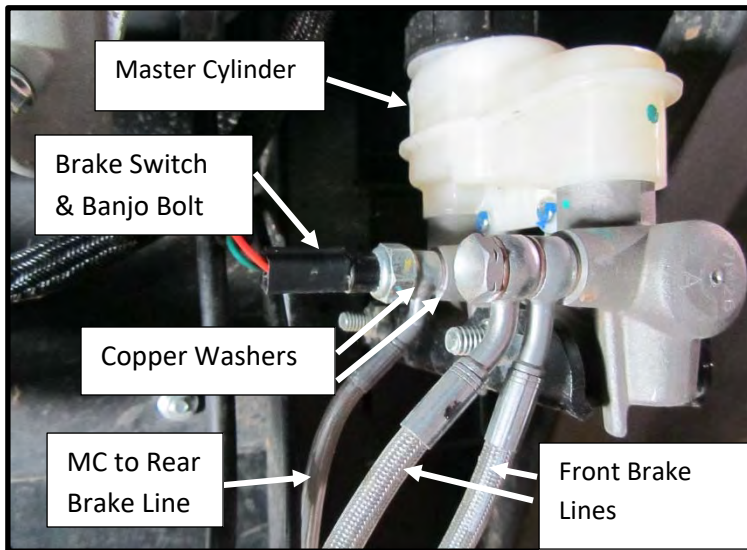


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Section 4 - Brakes

4.4 Replacing Rear Brake Line(s) and Tee

Part 2 – Replacing MC to Rear Brake Line and Tee



Tools: 3/4" deep socket, 7/16" wrench

3. Locate the master cylinder under the front hood on the driver's side. The master cylinder is a dual cylinder with two compartments (for front and rear ends) in its reservoir. Locate the single MC to rear brake line and the brake switch / banjo bolt connection.

Note: Take note of the 2 copper washers on the brake switch / banjo bolt connection. These are copper crush washers and should not be reused when reinstalling this brake line. **New** copper washers must be used to prevent leaks.

4. Place drain pans under the master cylinder and the rear brake tee to catch any brake fluid spills.
5. Disconnect the wiring from the brake switch at the master cylinder.
6. Using a 3/4" deep socket remove the brake switch and separate the rear brake line.
7. Insert a large screw driver or punch into the tee hole to prevent it from twisting when removing the nuts. Using a 7/16" wrench remove the nuts on each rear brake line at the tee as shown and move the rear brake lines out of the way.

Note: The MC to rear brake line has a pressed fitting at the rear tee and has to be replaced as one part.

8. Note the location of any cable ties or loop clamps holding the brake line in place. Cut the cable ties and unhook any loop clamps.
9. Drain and then remove the MC to rear brake line and tee.
10. Replace the brake line and tee with an identical Tee and brake line routing it through the same path the old one came from.

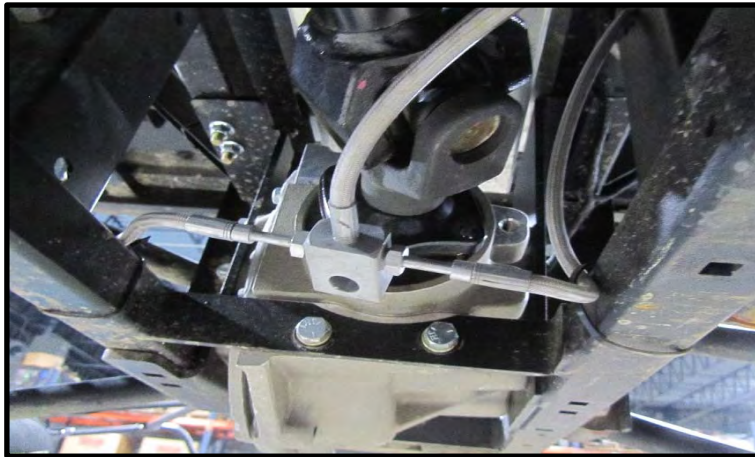
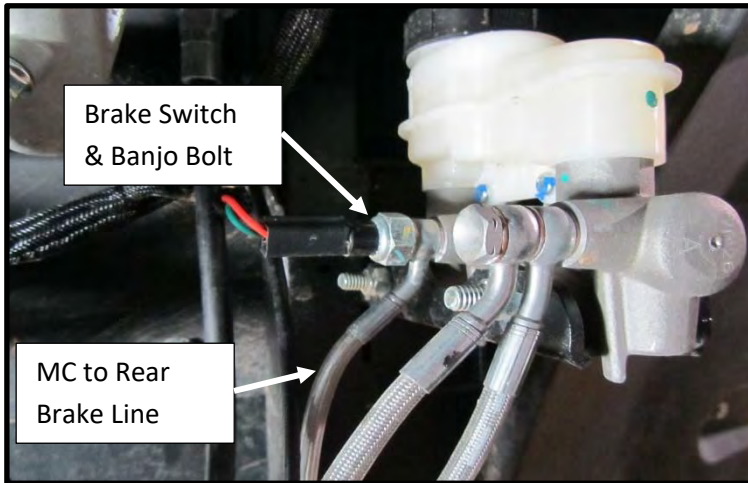


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Section 4 - Brakes

4.4 Replacing Rear Brake Line(s) and Tee

Part 2 Cont. – Replacing MC to Rear Brake Line and Tee



11. Connect the new brake line with any cable ties or loop clamps used previously in the same location.

12. Position the brake switch / banjo connection through the front end of new brake line into the master cylinder with 2 **new** copper washers. Tighten the switch banjo bolt with a 3/4" deep socket to 14 ft-lbs.

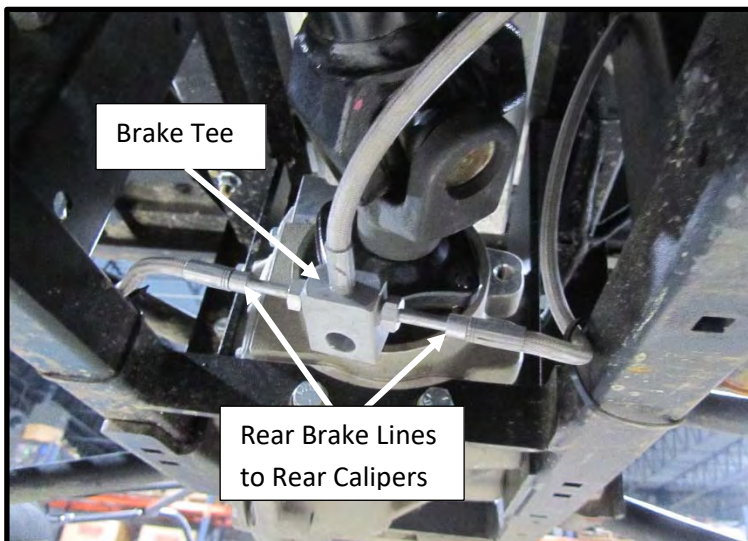
Note: If either of rear brake lines need replacing then proceed directly to Step 3 below.

13. Connect the rear brake lines to the tee with the nuts removed earlier and tighten with a 7/16" wrench to 10-10 ft-lbs (applying a torque wrench is difficult). Use Loctite on the nuts. Insert a large screw driver or punch into the tee hole to prevent it from twisting when removing the nuts.

14. If the job is complete then reinstall the rear diff skid plate in the same manner as removing it earlier. Use Loc Tite on the nuts.

15. Bleed the air from each of the brakes per procedure *4.5 Bleeding Air From Brakes*.

Part 3- Replacing The Rear Brake Line(s)



Tools: 7/16" socket, 1/2" socket

1. If needed remove the rear diff skid plate as done in the previous step. Otherwise the tee can be accessed from the top with the bed raised.
2. To replace either of the rear brake lines from the tee to the rear brakes start with placing drain pans under the tee and the appropriate rear caliper to catch brake fluid leaks.
3. Using a 7/16" wrench remove the nut on the appropriate rear brake line at the tee and move the rear brake line out of the way. Insert a large screw driver or punch into the tee hole to prevent it from twisting when removing the nuts.

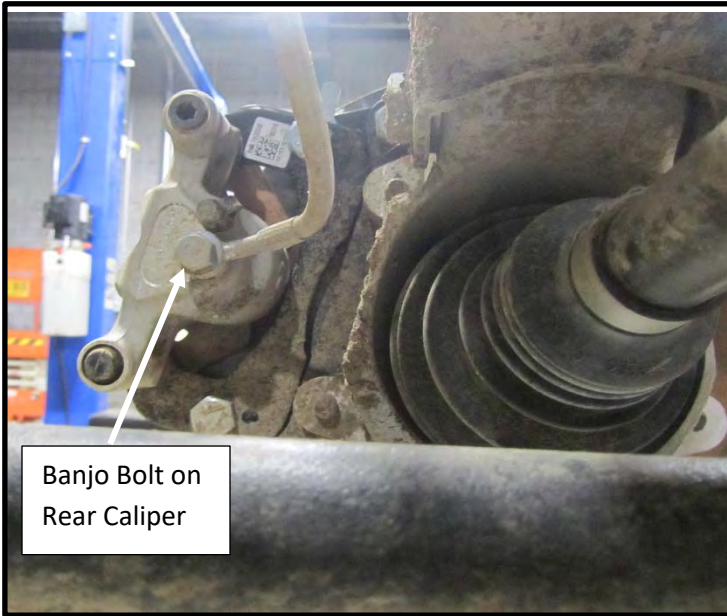


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Section 4 - Brakes

4.4 Replacing Rear Brake Line(s) and Tee

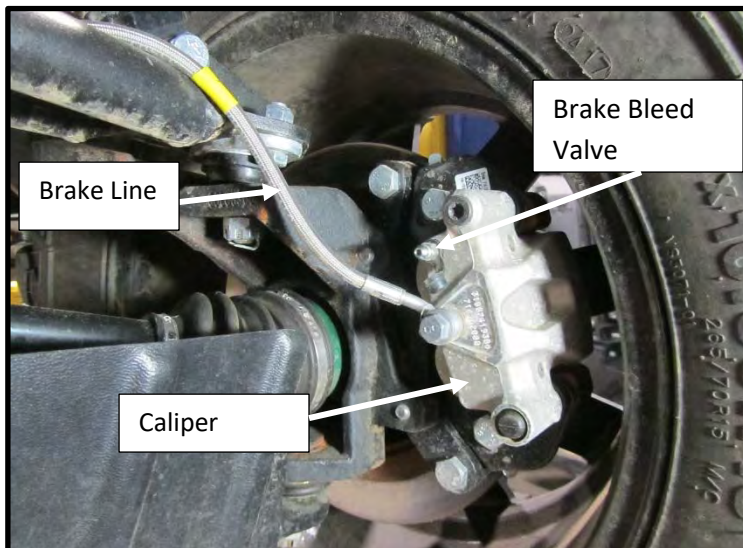
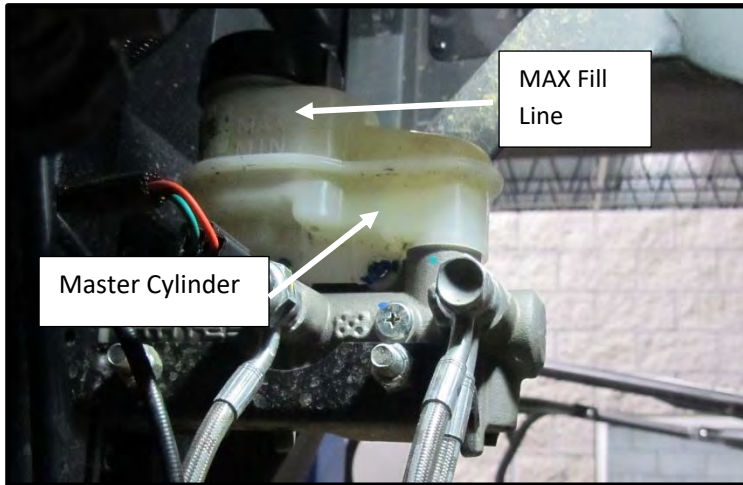
Part 3 Cont. - Replacing The Rear Brake Line(s)



4. Remove the banjo bolt on the appropriate rear caliper using a 1/2" socket.
5. Drain the rear brake line.
6. Note the location of any cable ties or loop clamps holding the brake line in place. Cut the cable ties and unhook any loop clamps. Remove the brake line.
7. Replace the brake line with an identical size and length routing it through the same path the old one came from.
8. Connect the new brake line to the frame with new cable ties and the loop clamps used previously in the same location.
9. Using 2 **new** copper washers connect the brake line to the caliper by tightening the banjo nut with a 1/2" socket to 14 ft-lbs.
10. Using a 7/16" wrench tighten the nut on the appropriate rear brake line at the tee. Insert a large screw driver or punch into the tee hole to prevent it from twisting when tightening the nuts.
11. Wipe up any brake fluid spills and properly dispose of any collected fluid.
12. Add brake fluid to master cylinder to max level and bleed the air from the lines at each of the brakes per procedure *4.5 Bleeding Air From Brakes*.
13. If needed install the rear diff skid plate in the same manner as removing it in Part 1 earlier. Use Loc Tite on the nuts and tighten.



Part 1 – Bleeding Air From Brakes



Anytime a component of the brake system that contains brake fluid has leaked or has been replaced the brakes must be bled properly in order to ensure proper braking of the UTV. **All** four brakes (not just the brake line or component that has leaked or been replaced) should be bled sequentially to remove any air in the system.

There are different techniques that can be used to bleed air from the brake systems. This is one that works well. Two persons are required to complete this task.

Tools: 5/16" deep socket

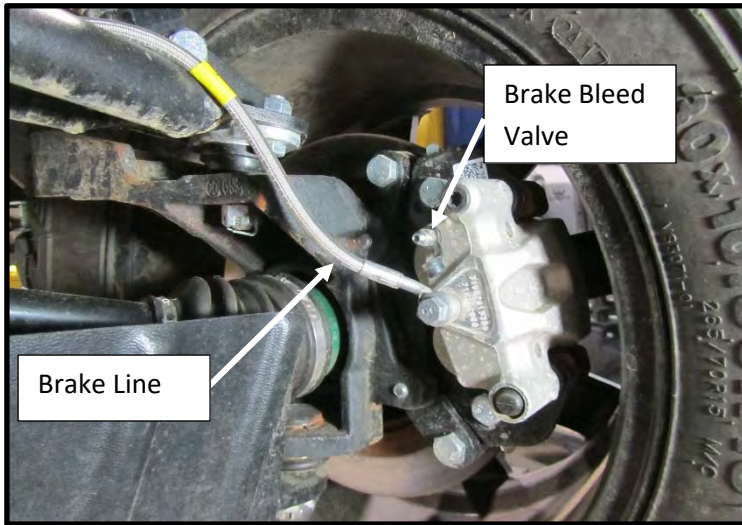
Safety:

- Place the UTV in Park on level ground and turn off the ignition. The brake lines, calipers, and master cylinder can be accessed when UTV is on the ground and this is the recommended position when working on these components.
 - Use eye protection and nitrile disposable gloves when being exposed to brake fluid.
 - Brake fluid is corrosive. Take extra precaution when handling so that it doesn't damage any painted surfaces.
1. Locate the master cylinder under the front hood on the driver's side. The master cylinder is a dual cylinder with two compartments (for front and rear ends) in its reservoir. If needed, fill to max level with recommended brake fluid.
 2. If the master cylinder was replaced follow the procedure *4.2 Replacing Brake Master Cylinder, Brake Switch, and Brake Pedal* to prefill the reservoir on a bench and to bleed air from the cylinder before installing.



4.5 Bleeding Air From Brakes

Part 1 Cont. – Bleeding Air From Brakes



3. Starting with the caliper farthest from the master cylinder locate the brake bleed valve on the inside of the brake caliper as shown and pull of the rubber cover.
 4. Position a drain pan under the bleed valve to catch any brake fluid drips.
 5. Have one person in the driver's seat and the other at the brake bleed valve.
 6. Pump the brakes 5 times and hold in on the brake pedal.
 7. Using a 5/16" deep socket loosen the brake bleed valve so that it is movable with the fingers.
 8. Finish opening the brake bleed valve by hand and allow air to be expelled then close the bleed valve.
 9. Check for brake fluid leaks at the connections. Tighten any connections where leaks exist.
- Note: If leaks persist the copper crush washers around the banjo bolt may need to be replaced.
10. Repeat steps 6 – 9 for a total of 5 times.
 11. The brake should be firm when the pedal is pressed down. If not check for any leaks and repeat this procedure.
 12. Once all the air is bled from this caliper tighten the bleed valve with a 5/16" deep socket and add the rubber cap.
 13. Repeat steps 3 – 12 for the other 3 calipers. Continue with the next farthest caliper from the master cylinder and finish with the closest caliper to the master cylinder.



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Section 4 - Brakes

4.5 Bleeding Air From Brakes

Part 1 Cont. – Bleeding Air From Brakes

14. Wipe up any brake fluid spills and properly dispose of any collected fluid.
15. Add brake fluid to the MAX fill line in the master cylinder as needed.

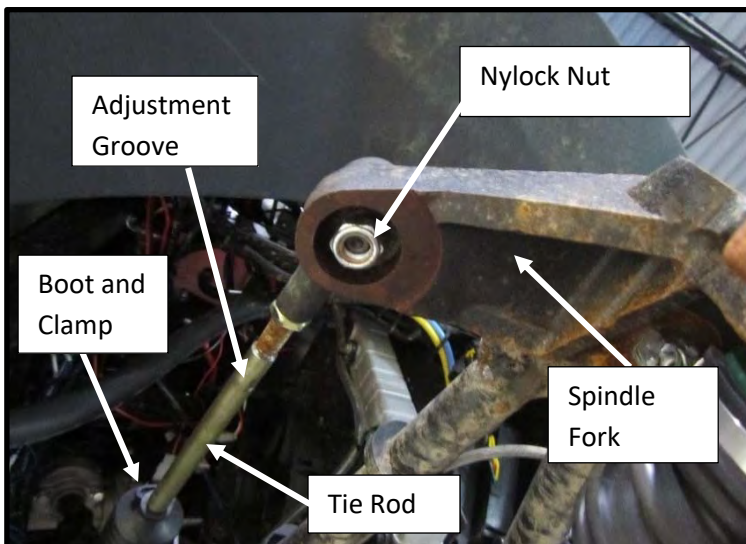
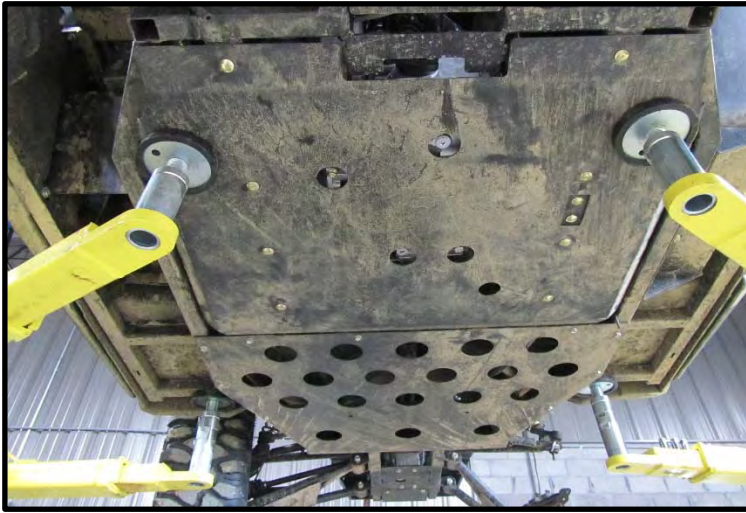


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Section 5 – Steering

5.1 Replacing Tie Rod End and Rack & Pinion Boot

Part 1 – Disconnect Tie Rod from Spindle



This section covers replacing the tie rod ends, rack and pinion plus its boot, and checking the front toe / steering alignment.

Tools: 17 mm socket, 3/4" socket

Safety: Place the UTV in Park on level ground and turn off the ignition.

1. Elevate the UTV with a lift or jack along with jack stands.

Note: It is much easier to access the tie rods and rack and pinion with the UTV elevated and the front wheels off the ground.

2. Be sure to rotate wheels to point directly straight ahead to ensure proper alignment of the steering system when reinstalling later on.
3. Using a 17 mm socket remove the 4 lug nuts holding the appropriate front wheel in place. If the rack and pinion will be removed then both front wheels need to be removed.
4. Remove the wheel(s) and set it to the side.
5. Use a 3/4" socket to loosen and remove the nylock nut from the tie rod end as shown.
6. Remove the tie rod end from the spindle. If the tie rod end will not come out then use a few gentle taps with a hammer on the top of the spindle fork to loosen the tie rod for easier removal. However, **do not** hammer on the tie rod itself as it may be damaged.
7. To protect the threads on the tie rod end place the nylock nut on the end once it is removed from the spindle.
8. If the tie rod end or the rack and pinion boot needs removing and replacing then proceed.

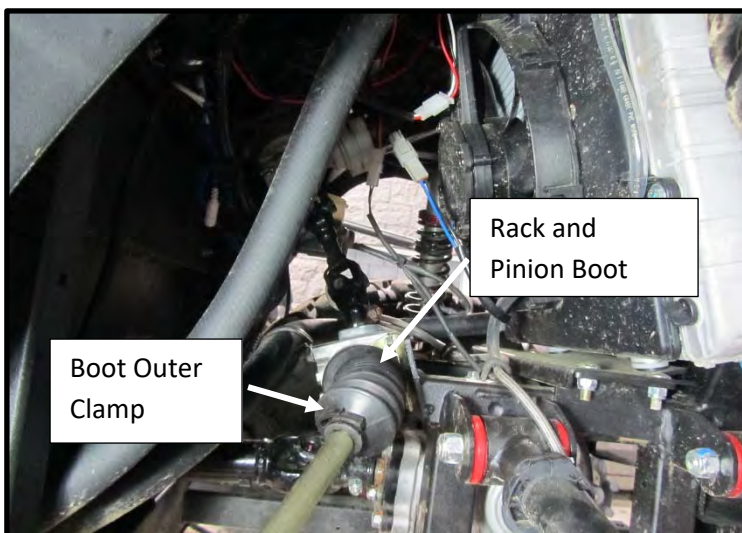
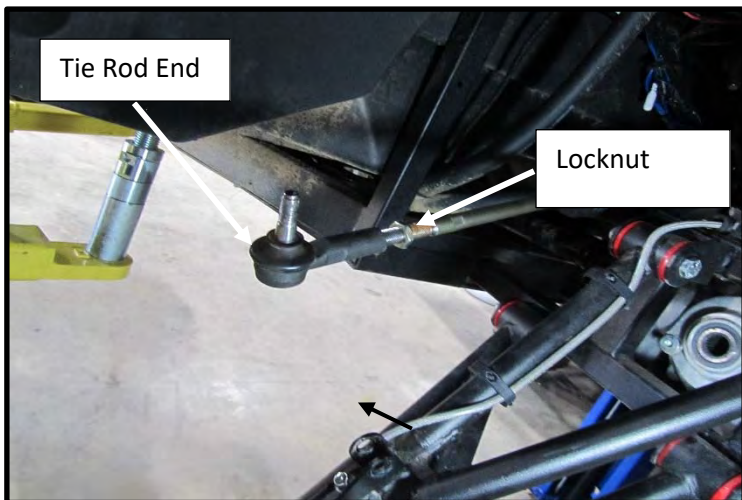
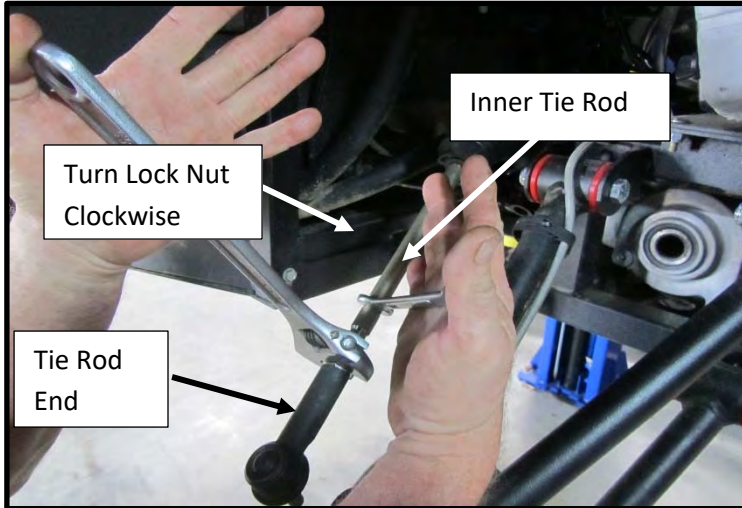


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Section 5 – Steering

5.1 Replacing Tie Rod End and Rack & Pinion Boot

Part 2 – Removing Tie Rod End and Boot



Tools: 9/16" wrench, 7/8" wrench, 3/4" socket, pliers

1. With the tie rod end removed from the spindle place a 9/16" wrench on the flat groove on inner tie rod shaft and a 7/8" wrench on the lock nut. Loosen the lock nut by turning it clockwise as shown.

2. Remove the tie rod end by screwing it off (counter clockwise) of the tie rod by hand.

Note: It is important for reinstallation to count (and record) the number of revolutions to the nearest $\frac{1}{2}$ when removing the tie rod end. *For example 21 $\frac{1}{2}$ revolutions to completely remove the tie rod end.* An alternative way is to measure the exposed threads from the tie rod to the tie rod end with a tape measure.

3. Screw the lock nut off by hand to remove the rack and pinion boot.
4. Remove the clamp using pliers on the outer end of boot
5. Cut the cable tie on the pinion side of the boot and pull the boot off the end of the tie rod.

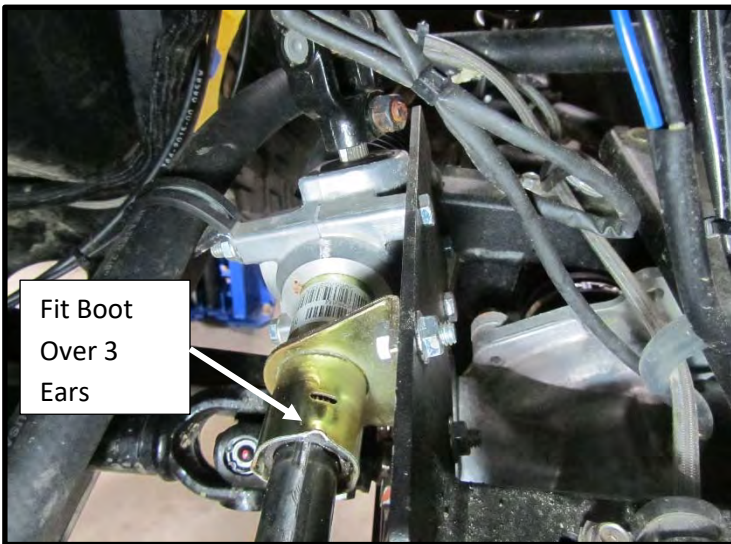


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Section 5 – Steering

5.1 Replacing Tie Rod End and Rack & Pinion Boot

Part 3 - Installing the Boot and Tie Rod End



Tools: 3/4"socket, 17 mm socket

1. Replace the boot with a new kit which includes the boot, clamp, and cable tie.
2. It is a tight fit to install the pinion end of boot over the tie rod components. Spray the inside of the large end of the new boot with a lubricant to assist in this process. Note the three ears close to the pinion that will hold this end of boot in place.
3. Loosely install the cable tie over the pinion end of the boot and work it over the ears as shown previously.
4. Once end of boot is *just over* the three ears tighten the cable tie and clip off the excess.

Note: It is important *not* to push the boot end any farther than necessary past the ears to allow for proper length on the boot outer end when turning the vehicle.

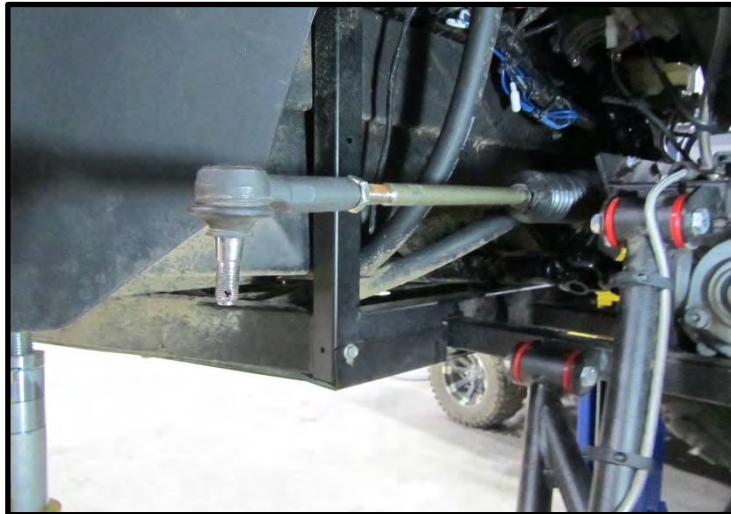
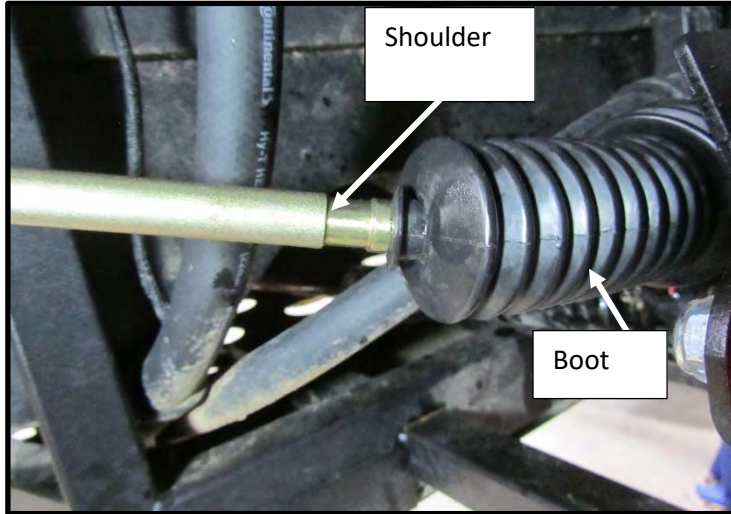


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Section 5 – Steering

5.1 Replacing Tie Rod End and Rack & Pinion Boot

Part 3 Cont. – Installing the Boot and Tie Rod End



5. Note the shoulder on the tie rod. Push the small end of boot up to this shoulder as shown. *Loosely* install the clamp on the outer end of the boot.

Note: **Do not** tighten the clamp at this time or the new boot could be damaged during the rest of the installation and checking the toe. It will be tightened after the toe-in is properly set.

6. Add the locknut.
7. Install the tie rod end using the same number of revolutions as noted when removing it (21 ½ revolutions in the example in Part 2) or leaving the same length of threads exposed if using this method.

Note: Another critical measurement is the distance from the center of the pinion spline to the center of the tie rod end bolt. The factory setting for this is 19 ¾" on the driver side and 21 ¾" on the passenger side. Procedure 5.2 *Replacing Rack and Pinion* covers this. It is easier to make this adjustment at this point by positioning the tie rod end as needed to be within the recommended range before installing to the spindle.

8. **Do not** tighten locknut at this time. It will be tightened after the toe-in is properly set.
9. With the hubs/wheels still pointed straight ahead install the tie rod end into the spindle. Using Loctite install the nylock nut using a 3/4" socket to 60 ft-lbs torque.
10. Install wheel(s) and tighten the 4 lugs nuts with a 17 mm socket to 65 ft-lbs.
11. It is important to complete the job by following the procedure *Section 5.3 Adjusting the Front Toe & Steering* to check the front toe and the steering alignment.

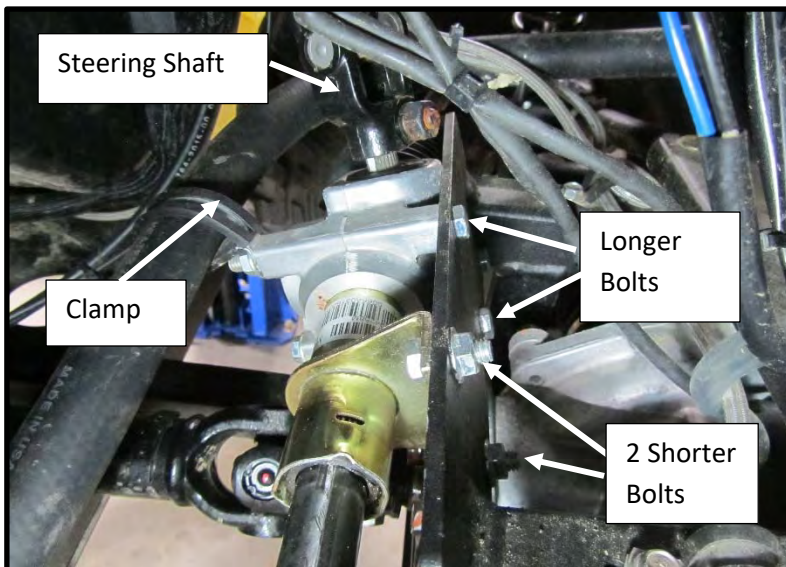
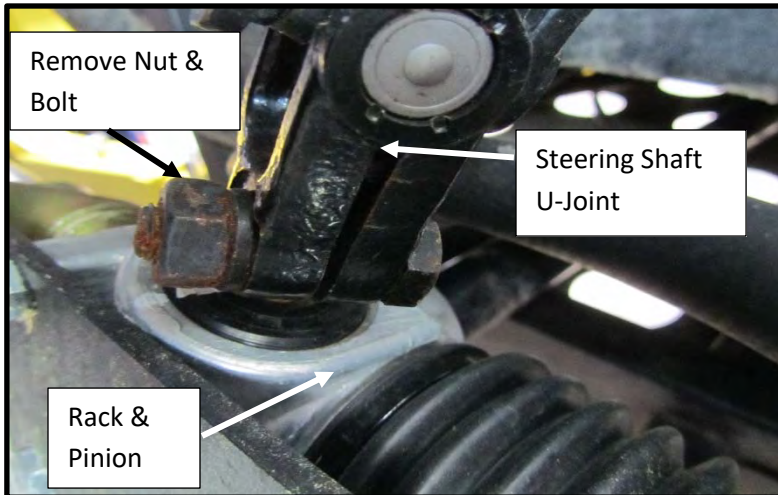
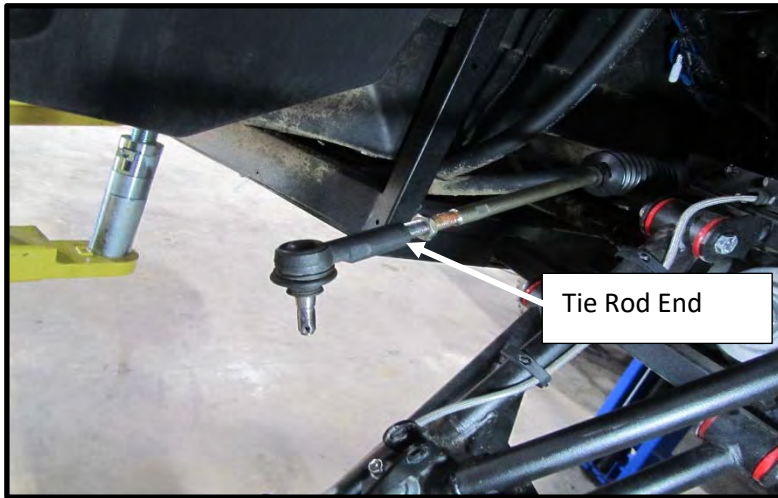


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Section 5 – Steering

5.2 Replacing Rack and Pinion

Part 1 – Removing the Rack and Pinion



Tools: 5/8" wrench and socket, 1/2" wrench and socket

1. Be sure to rotate wheels to point directly straight ahead to ensure proper alignment of the steering system when reinstalling later on.
2. Remove both front tires and the tie rod ends from both front spindles as described in the first step of Section 5.1 *Replacing Tie Rod End and Rack & Pinion Boot*. Be sure to install each nut back onto tie rod ends to protect the threads.

Note: Once removed from the spindles and the steering shaft the whole rack and pinion assembly can be removed as a unit with tie rods and tie rod ends still in place.

3. Disconnect the rack and pinion from the u-joint of the steering shaft using a 5/8" wrench and socket to remove bolt and then separate the two.

Note: it is important for proper steering wheel alignment that the flat groove on the steering shaft u-joint remain in the same location throughout this procedure for correct alignment upon reinstallation. **Do not** rotate the steering shaft or steering wheel until reconnecting in the next step.

4. Using a 1/2" wrench and socket remove the three long bolts and the loop clamp and two short bolts as shown to free up the rack and pinion.

Note: One of long bolts attaches the loop clamp which secures radiator hose.

5. Once the rack and pinion is free pull the whole assembly out from passenger side.

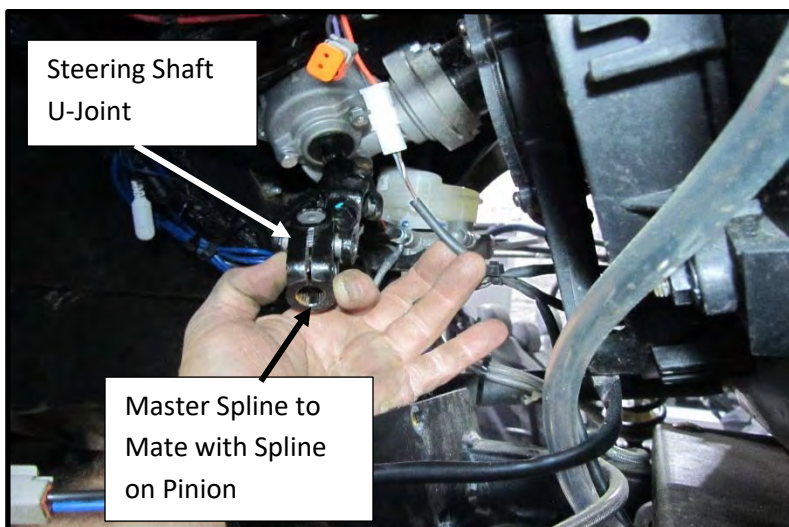
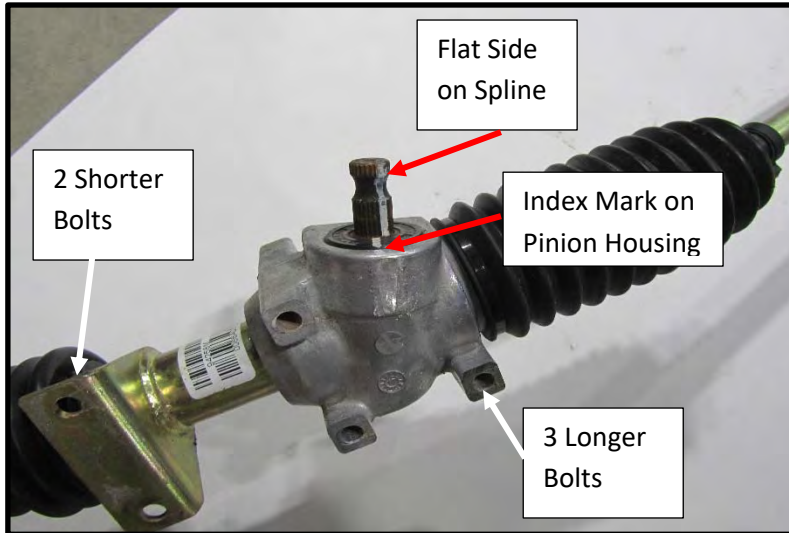
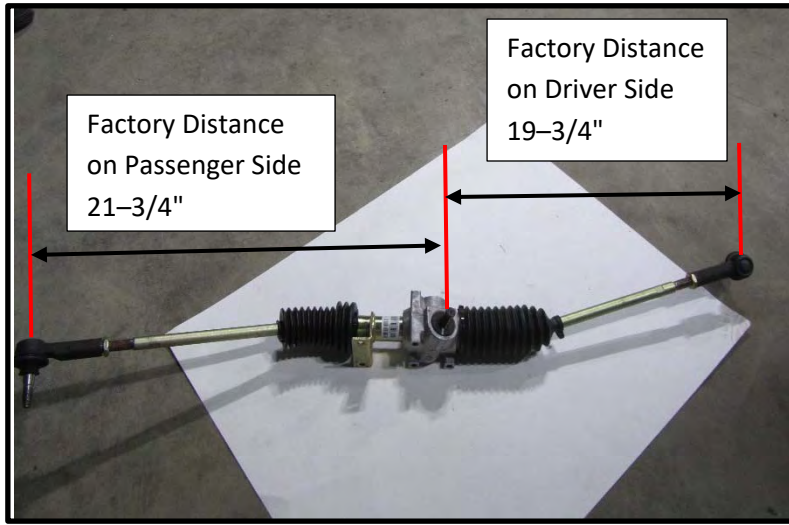


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Section 5 – Steering

5.2 Replacing Rack and Pinion

Part 2 – Installing the Rack and Pinion



Tools: tape measure, 1/2" wrench and socket, 5/8" wrench and socket, 3/4" socket

1. Note the factory settings on each side of rack and pinion and that the pinion is offset to the driver's side. Measure the distance as shown for each side of the rack and pinion to be installed. Adjust as closely as needed by moving the appropriate tie rod end. This adjustment can be done before installing the rack and pinion.

Note 1: In order to limit the amount of adjustment of the front toe it is important that the distance between the center line of the pinion spline to the center line of the tie rod end bolt be within the factory setting as shown.

Note 2: The tie rod should be straight and in-line with the pinion when measuring.

2. To reinstall the rack and pinion repeat the above steps of Part 1 in reverse order. Note the marks on the flat side of pinion spline and on the pinion housing (red arrows). These marks need to line up to center the rack so that the rack can travel equal amounts in both directions.
3. Note the flat side on the spline on top of rack and pinion and how this mates to master spline (flat groove) in the lower end of the steering shaft u-joint as shown.
4. Insert the rack and pinion from the passenger side.
5. Be sure the wheels / hubs are pointing directly straight ahead and the steering wheel is centered. Slide the rack and pinion spline into the master spline on the steering shaft u-joint matching up the flat grooves on each part.



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Section 5 – Steering

5.2 Replacing Rack and Pinion

Part 2 Cont. – Installing the Rack and Pinion



6. Next attach the rack and pinion to the frame with the 3 long bolts and 2 short bolts. Be sure to attach the loop clamp that secures the radiator hose.
7. Add Loctite to the 5 nuts and tighten to 10 ft-lbs with a 1/2" wrench and socket.
8. Add the bolt to the steering shaft u-joint and Loctite to the nut and tighten to 20 ft-lbs with a 5/8" wrench and socket.
9. Secure each tie rod end to the front spindles by adding Loctite to the nut and tighten with a 3/4" socket to 60 ft-lbs.
10. Install wheels and tighten the 4 lugs nuts on each wheel with a 17 mm socket to 65 ft-lbs.
11. It is important to complete the job by following the procedure *Section 5.3 Adjusting the Front Toe & Steering* to check the front toe and the steering alignment.

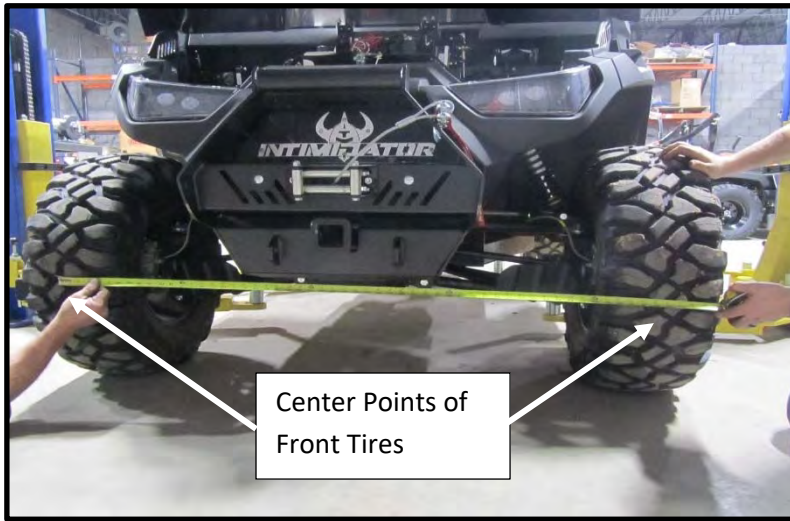


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Section 5 – Steering

5.3 Adjusting the Front Toe & Steering

Part 1 – Measurement of the Front Toe



Tools: Wide Tape Measure

Safety: Place the UTV in Park on level ground and turn off the ignition.

Note 1: Two people are needed to perform this job.

Note 2: The procedure in its entirety needs to be followed each time any component of steering system is removed or adjusted.

Note 3: In order to minimize adjustment for proper toe it is important that the rack be close to the recommended factory distance provided in 5.2 *Replacing the Rack and Pinion* Part 2 step 1. Follow this procedure before proceeding.

1. The tires need to be on the ground supporting full weight of UTV to check and adjust the toe on the front wheels of UTV.
2. If the UTV has been elevated for work such as tie rod end replacement, etc., lower the UTV to the ground and rotate the tires back and forth to ensure steering system has “settled in”.
3. With the tires pointed directly in front locate the center point on the front of each front tire. A seam in the tire shows the center point. At a distance of about 10” from floor measure from center-line to center-line at the front of each front tire and record this number. For example record 55”.

Note 1: The exact distance from the floor to the measurement point on the tire is not critical but it is critical that the distance from the floor be the same on each side.

Note 2: The toe setting can also be measured between the inner wheel rims at their front and rear edges. It is critical that they be measured the same exact location at both front edge and rear edge of the front wheels.



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Section 5 – Steering

5.3 Adjusting the Front Toe & Steering

Part 1 Cont. – Measurement of the Front Toe



4. Locate the center points on the rear side of each rear tire. Measure from center-line to center-line on the rear of each front tire using the exact same distance from floor to tire measurement point as was used in step 3. Record the measurement. For example record 55-1/4".
5. Proper toe for the UTV is to have a slight front toe-in of 1/16" to 1/4". This means the front measurement of the front tires needs to be 1/16" to 1/4" **less** than the rear measurement of the front tires. The examples given above would indicate the toe-in is accurate and no adjustment is needed. If this is the case then skip Step 2 – Adjusting the Toe-in and go to Step 3 – Adjusting the Steering.
6. If the rear measurement done in step 4 above is the same or different than the recommended 1/16" to 1/4" range as the front end measurement then an adjustment of the tie rod is needed.

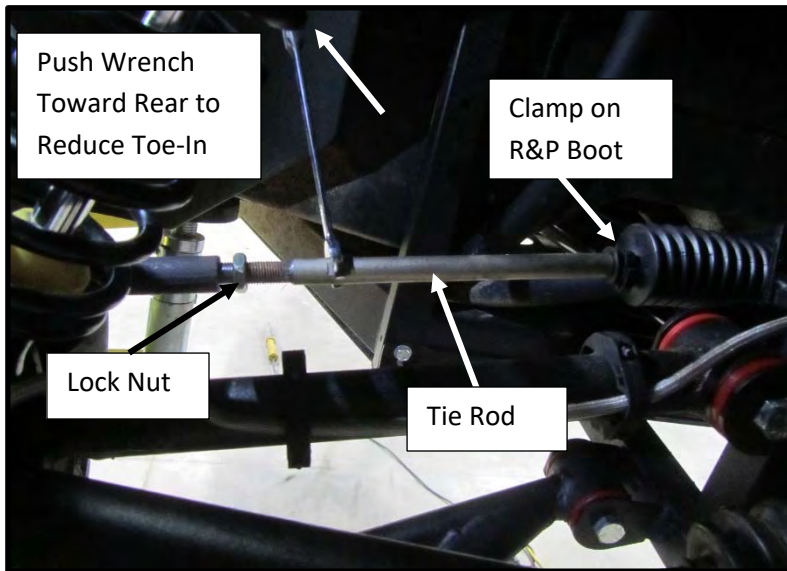


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Section 5 – Steering

5.3 Adjusting the Front Toe & Steering

Part 2 – Adjusting the Toe-In



Note: The picture illustrates the tie rod on the passenger side of the UTV. For the driver side tie rod adjustment the wrench would need to be turned to the front of the UTV to shorten the tie rod.

Tools: Wide Tape Measure, 7/8" Wrench, 9/16" Wrench

1. If the measurement of the rear side of front tires is greater than 1/4" (55-5/16" or greater in the example given above) of the front side of front tires then the toe-in needs to be **reduced**.
2. The toe-in is reduced by shortening the tie rod on both sides *equally*. Each tie rod is adjusted equally to maintain proper steering.
3. To reduce the toe-in loosen the lock nut with a 7/8" wrench and 9/16" wrench on the tie rod being careful not to turn the tie rod. Remove the clamp with pliers on the outer end of the rack and pinion boot.

Note: Not removing the boot clamp and turning the tie rod could ruin the boot.

4. Place 9/16" wrench on the flat side on the tie rod as shown and push the wrench 1/2 a turn toward the rear of the UTV to shorten the tie rod (and reduce the toe-in).
5. Shorten the other front tie rod by 1/2 turn and then check the measurements to see if within the desired range. If not continue adjusting each side equal amounts until the desired range is met.

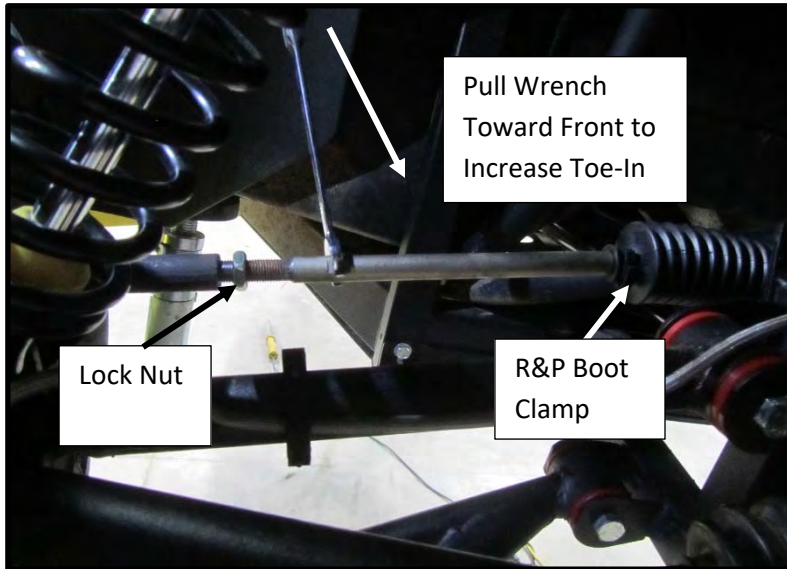


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Section 5 – Steering

5.3 Adjusting the Front Toe & Steering

Part 2 Cont. – Adjusting the Toe-In



Note: The picture illustrates the tie rod on the passenger side of the UTV. For the driver side tie rod adjustment the wrench would need to be turned to the rear of the UTV to lengthen the tie rod.

6. If the measurement of the rear side of front tire is the same or less (55" or less in the example given above) than the front side of front tire then the toe-in needs to be **increased** to meet the recommended range.
7. The toe-in is increased by lengthening the tie rod on both sides *equally*. Each tie rod is adjusted equally to maintain proper steering.

8. To increase the toe-in loosen the lock nut with a 7/8" wrench and 9/16" wrench on the tie rod being careful not to turn the tie rod. Remove the clamp with pliers on the outer end of the rack and pinion boot.

Note: Not removing the boot clamp and turning the tie rod could ruin the boot.

9. Place 9/16" wrench on the flat side on the tie rod as shown and pull the wrench 1/2 a turn toward the front of the UTV to lengthen the tie rod (and increase the toe-in).
10. Lengthen the other front tie rod by 1/2 turn and then check the measurements to see if within the desired range. If not continue adjusting each side equal amounts until the desired range is met.
11. Once proper adjustment is completed secure the outer end of rack and pinion boot with its clamp and pliers. Add Loctite to the lock nut on the tie rod end then tighten it with a 7/8" wrench and a 9/16" wrench on tie rod being careful to not turn the tie rod.
12. Go to next Part to complete this procedure.

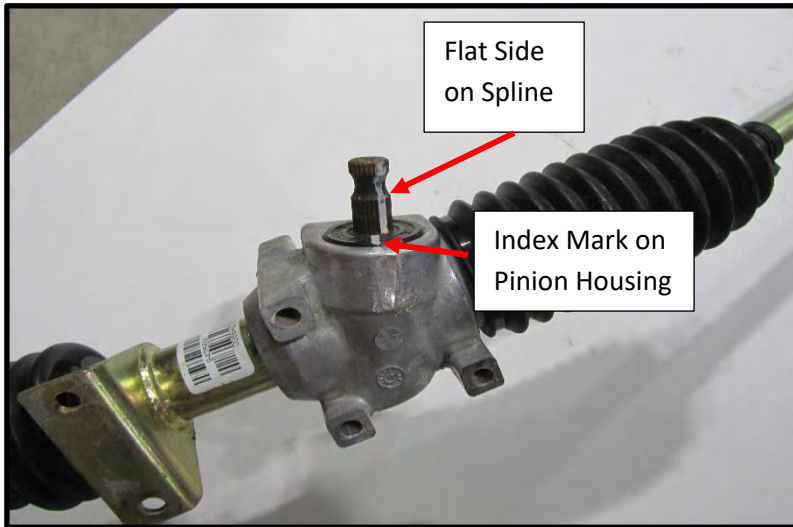


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Section 5 – Steering

5.3 Adjusting the Front Toe & Steering

Part 3 – Adjusting the Steering



Tools: 5/8" wrench / socket, 17 mm socket

1. After completion of the toe-in adjustment it is important to verify that the steering is properly set.
2. As mentioned in procedure 5.2 *Replacing Rack & Pinion* it is important that the rack is centered so it can travel equal amounts in both directions when turning the UTV. This is done by aligning the flat side on the pinion spline with the mark on the pinion housing before connecting to the steering column u-joint. These two marks are referenced by the red arrows in the picture.

Note: The rack and steering are centered upon leaving the factory. As long as the master spline and rack and pinion are left in same position when disconnecting as described in procedure 5.2 *Replacing Rack & Pinion* then the steering will normally *not* need to be adjusted.

3. Upon replacing the rack and pinion or any time the steering column u-joint has been removed from the pinion spline be sure the wheels/ hubs are pointed straight ahead and the steering wheel is centered. Then with the rack centered as described above mate the master spline in the u-joint to the pinion spline. Install the bolt and Loctite the nut. Tighten with a 5/8" wrench and socket to 20 ft-lbs.
4. After installation turn the steering wheel to the far right and to far left ensuring there are an equal number of turns both ways. If the steering is off much more than an 1/8 of a turn then repeat the above steps to achieve equal turning to both sides.

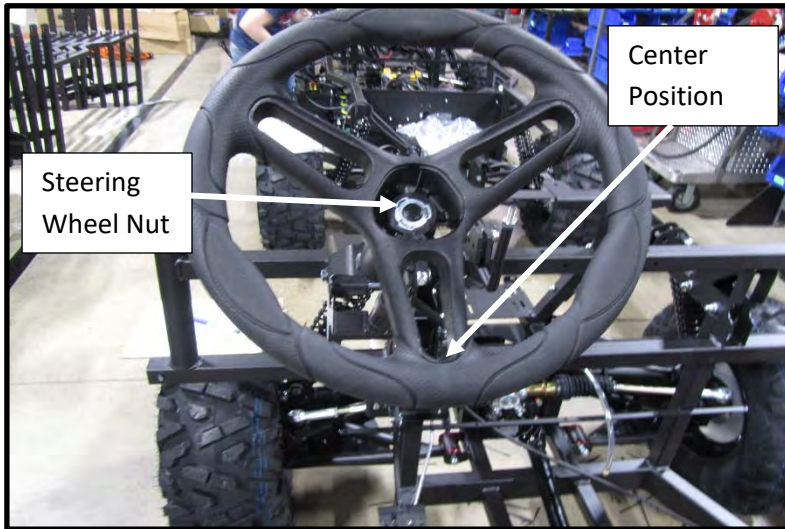


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Section 5 – Steering

5.3 Adjusting the Front Toe & Steering

Part 3 Cont. – Adjusting the Steering



5. If the steering is equal to both sides but the steering wheel is off slightly then the steering wheel can be adjusted to center as follows.
6. Remove the steering wheel cap to expose the steering wheel nut.
7. Remove the nut with the appropriate size socket.
8. With your hands or a rubber mallet, gently knock the back of steering wheel towards the seat until it is removed.

Note 1: Do not use excessive force to prevent damage to the wheel or sudden unexpected removal of steering wheel.

Note 2: Do not turn the steering wheel or allow the wheels to turn when removing the steering wheel.

9. Reinstall the steering wheel to its center position as shown. Small adjustments can be made due to the number of splines on column.
10. Install the steering wheel nut and tighten and then install the steering cap.

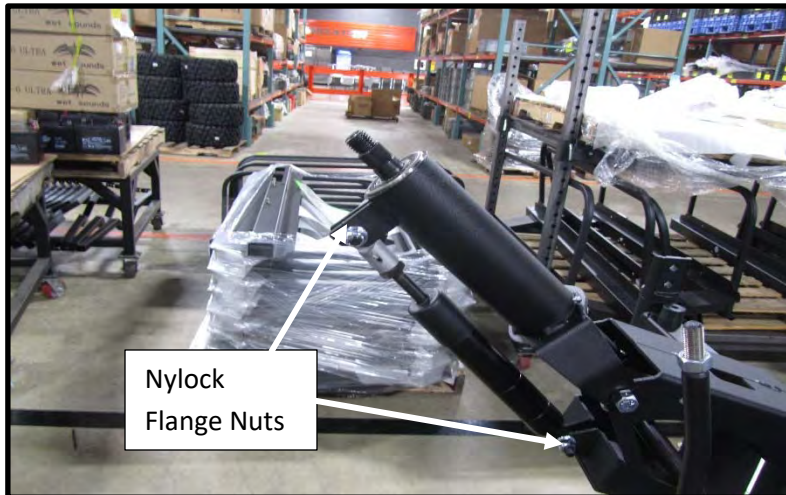
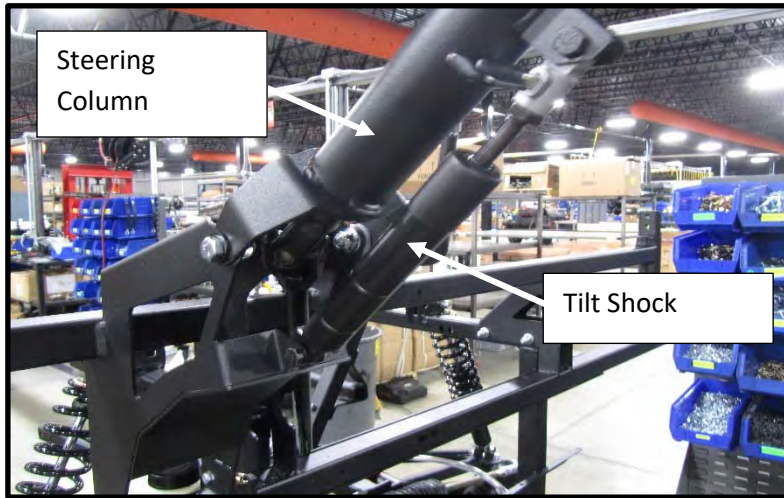


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Section 5 – Steering

5.4 Replacing & Adjusting the Tilt Steering Shock

Part 1 – Replacing the Tilt Steering Gas Spring



Tools: 1/2" wrench and socket

1. The tilt steering shock is located behind the steering column as shown.
2. To remove the gas spring use a 1/2" wrench and socket to take off the nylock flange nuts as shown.
3. Remove the two bolts and take out the tilt shock.
4. Using the same identical part install a new tilt shock and secure with the 2 bolts and nylock flange nuts.
5. Tighten with a 1/2" wrench and socket.

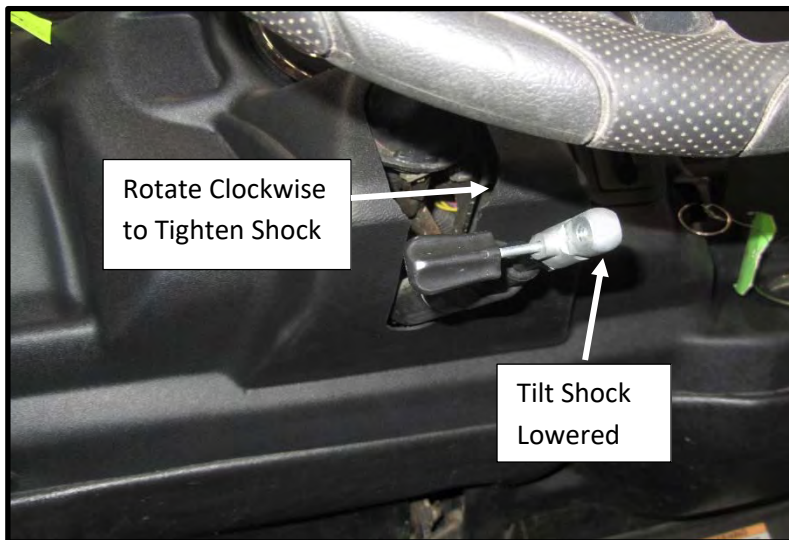
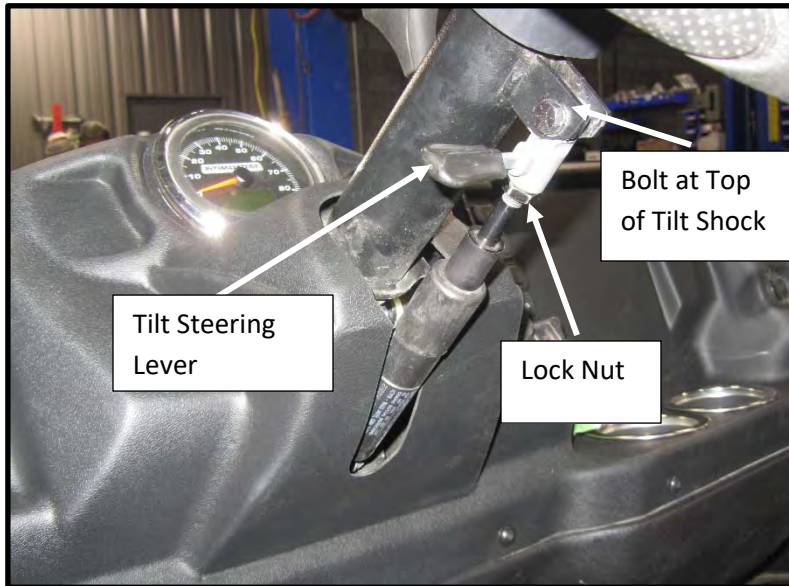


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Section 5 – Steering

5.4 Replacing & Adjusting the Tilt Steering Shock

Part 2 – Adjusting the Tilt Steering



Tools: 11/16" wrench, 1/2" socket & wrench

The tilt steering can require adjusting if the steering wheel moves down when pressure is applied and the steering lever is in normal position. Such as when the arms are resting on the steering wheel and it travels down unexpectedly. It can also need adjusting if when the steering lever is pulled toward the driver and the steering wheel does not pull down or is very difficult to pull down.

1. To adjust the tilt steering loosen the lock nut under the tilt lever with a 11/16" wrench.
2. Using a 1/2" socket and wrench remove the top bolt and nut securing the tilt shock. Note that the bolt head is on the driver's left side and will need to be reinstalled later in the same direction.
3. Lower the tilt shock as shown.
4. To prevent the steering wheel from unintentionally lowering down turn the tilt shock *clockwise* to tighten the spring and make it stiffer.

Note: The adjusting of the tilt shock needs to be done in full revolutions. The lever needs to be in the 9:00 position as shown in the picture.

5. If it is too hard to lower the steering wheel when the lever is pulled back then turn the steering shock *counter clockwise* in full revolutions to decrease the resistance of the spring.
6. Adjust the tilt steering so that the steering wheel is firm and only moves down when the steering lever is pulled in toward driver.
7. Once adjusted properly install the top bolt with head on driver's left side. Then tighten the lock nut.

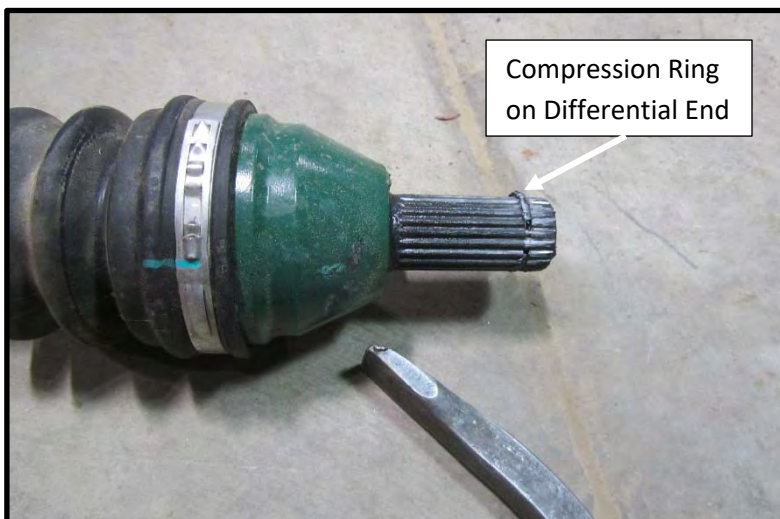
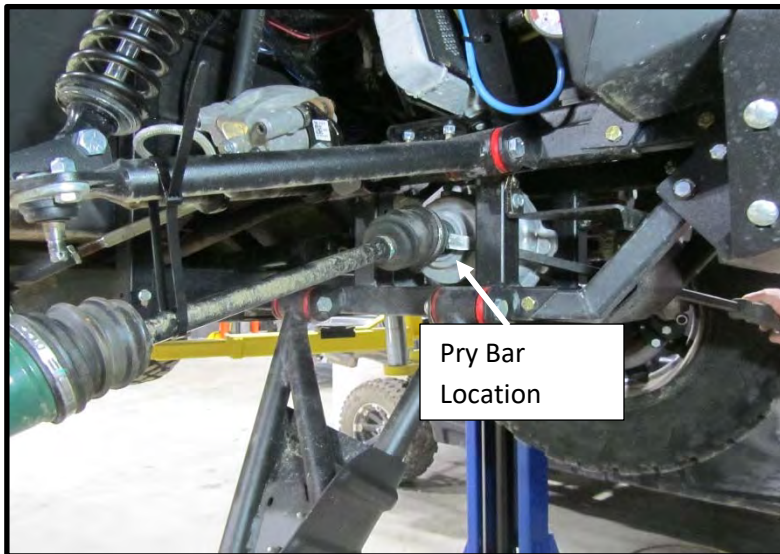
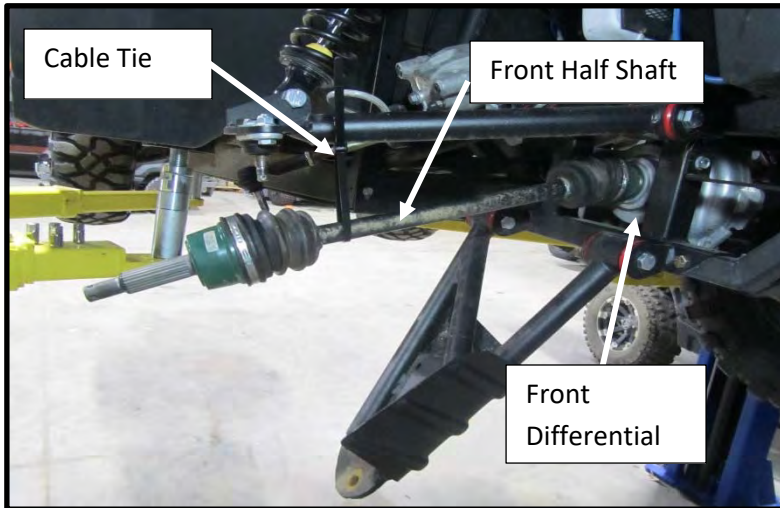


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Section 6 – Front Drive Train

6.1 Replacing Front Half Shaft & CV Boot

Part 1 – Removing the Front Half Shaft



This section covers replacing the front half shaft, half shaft CV boot, front differential, and the front drive shaft.

Tools: Cable Tie, Pry Bar, Hammer

Safety:

- Place the UTV in Park on level ground and turn off the ignition.
1. Following procedure *3.1 Removing Wheel and Front Spindle* remove the appropriate front wheel, brake caliper, rotor, hub, and spindle.
 2. Support the half shaft with a cable tie as shown to protect the half shaft boot and prevent shaft from falling to floor during removal.
 3. Place a pry bar on the inner CV joint surface as shown and lightly tap with a hammer to loosen it from the differential.
- Note: This is required sometimes due to the compression ring on the differential end of half shaft.
4. To remove the front half shaft grab the shaft with both hands and pull to separate it from the front differential as shown.

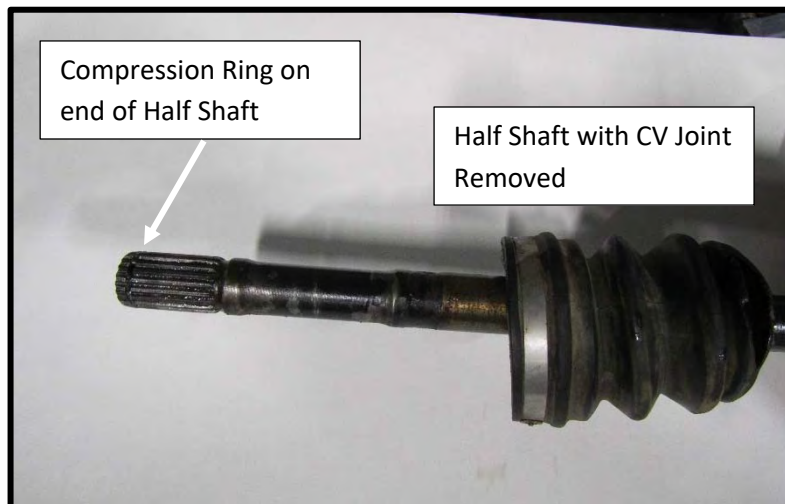
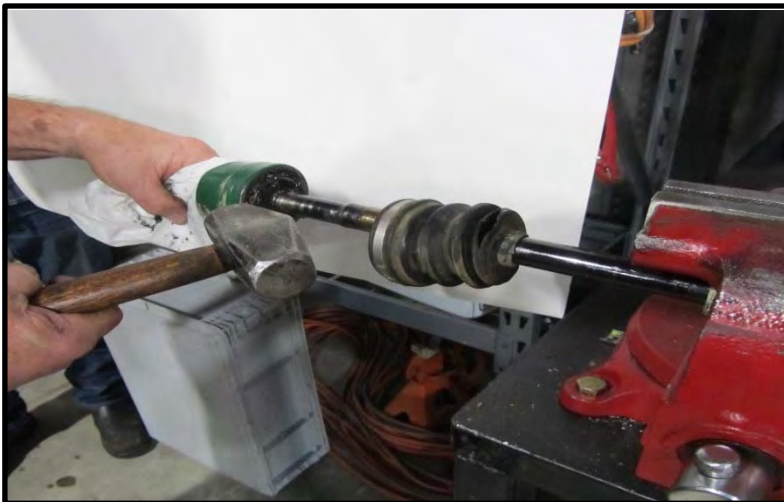
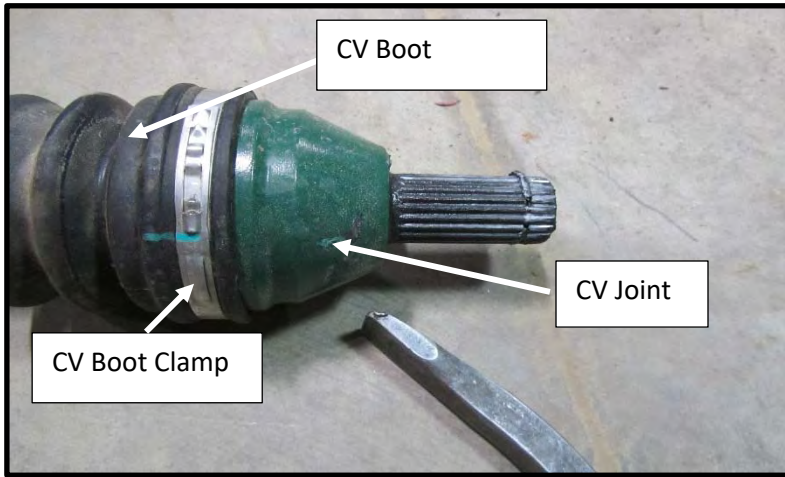


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Section 6 – Front Drive Train

6.1 Replacing Front Half Shaft & CV Boot

Part 2 – Replacing Half Shaft CV Boot



Tools: Hammer, Pliers

1. If the CV boot needs replacing on either end of the half shaft then place the shaft in a vice.

Note: It is important that the boots remain in good shape with no tears or cracks to protect the CV joints from dirt and debris.

2. Using pliers remove the larger boot clamp and pull boot away from CV joint.

3. Using a hammer separate the CV joint from the half shaft as shown.

Note: Sometimes the compression ring will not allow removal of the CV joint. Or the hammer will damage the CV joint. If either is the case then a *new* half shaft will need to be installed.

4. Remove the old boot and clamps and replace with new ones using a Half Shaft CV Boot Kit.

5. If dirt has entered the CV joint then remove as much of old grease as possible and replace with new grease.

6. Reinstall the CV joint and attach to the new boot.

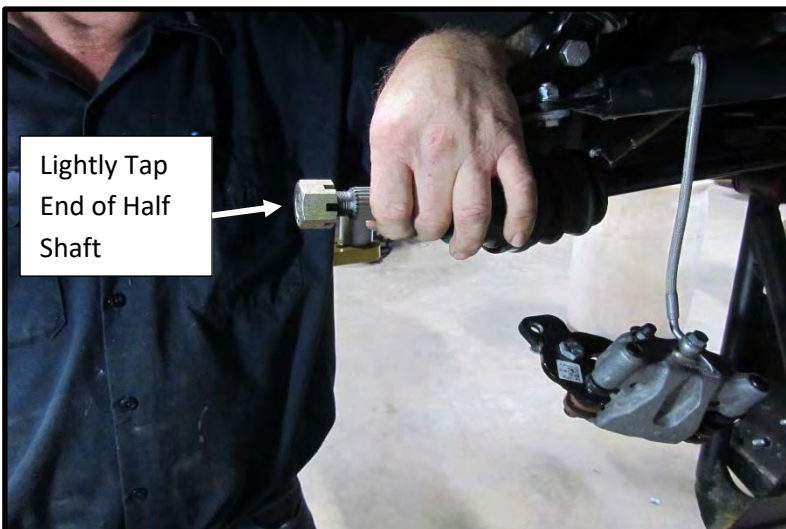
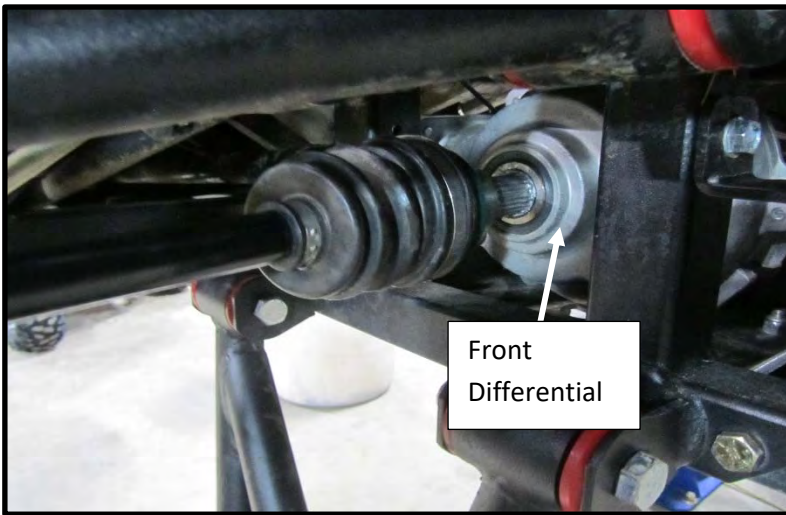
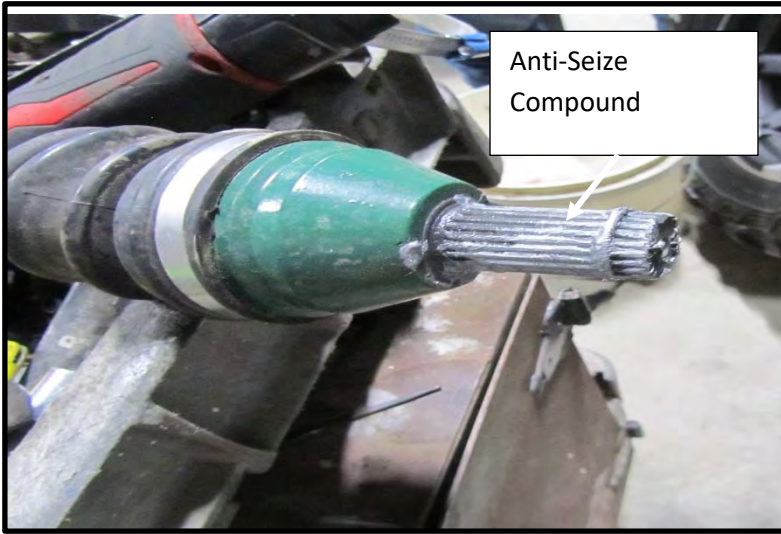


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Section 6 – Front Drive Train

6.1 Replacing Front Half Shaft & CV Boot

Part 3 – Installing the Front Half Shaft



Tools: Hammer

1. Brush on an anti-seize compound on the differential end of the front half shaft.

Note: The front half shaft is designed to fit on either front side. It is a standard duty shaft and is smaller diameter than the heavy duty *rear* half shaft that some models use.

2. Place the end of the half shaft into the front differential and rotate slightly until it slides in.

3. Screw on the castle nut backwards on the outer end of the half shaft by hand. This will prevent the teeth of castle nut from being damaged in the next step.

4. Use a hammer to *lightly* tap the front half shaft into the front differential until it seats. Then remove the castle nut.

5. To ensure the half shaft is properly installed give a slight pull with your hands on the half shaft. If it is properly seated a slight pull on shaft should not release it.

6. Install the spindle, hub, rotor, caliper, and wheel per procedure 3.5 *Installing Front Spindle*.

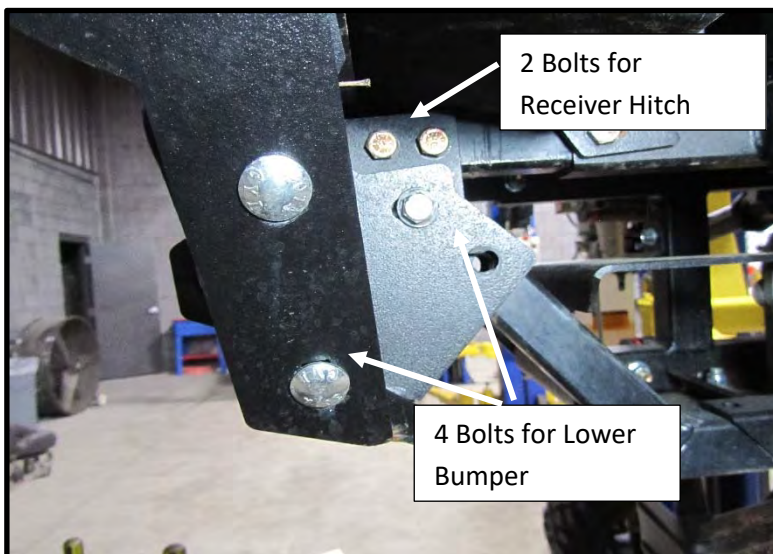
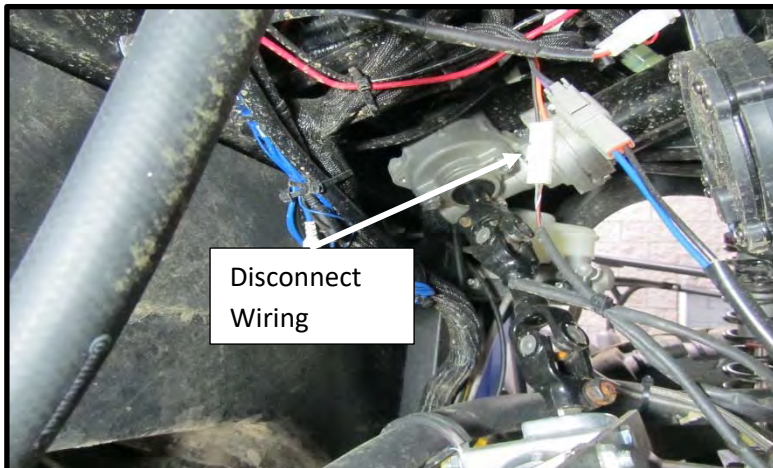
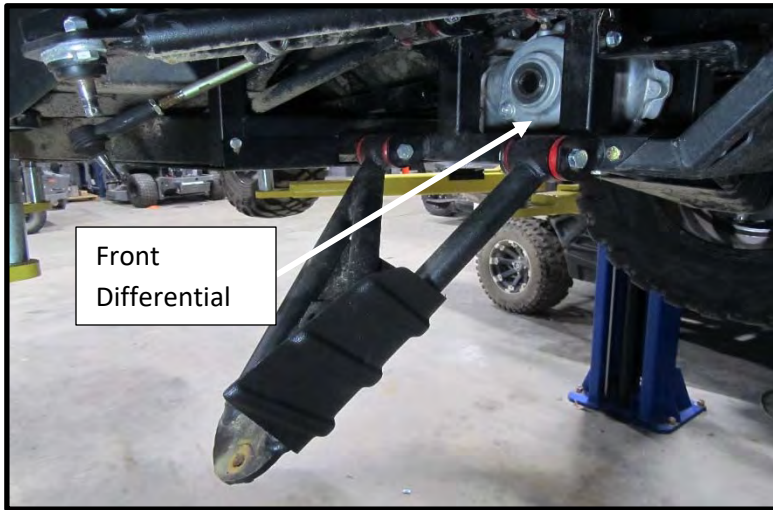


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Section 6 – Front Drive Train

6.2 Replacing Front Differential

Part 1 – Removing the Front Differential



Tools: 9/16" wrench /socket, 1/2" wrench / socket, Pliers, Pry Bar, Hammer

Safety:

- Place the UTV in Park on level ground and turn off the ignition.
1. Following procedure *3.1 Removing Wheel and Front Spindle* remove the front wheel, brake caliper, rotor, hub, and spindle on both sides.
 2. Remove both front half shafts as described in procedure *6.1 Replacing Front Half Shaft & CV Boot*.
 3. On the rear side of the front differential disconnect its wiring as shown and place out of the way.
 4. Remove 4 bolts on each side of lower bumper as shown with a 9/16" wrench /socket.

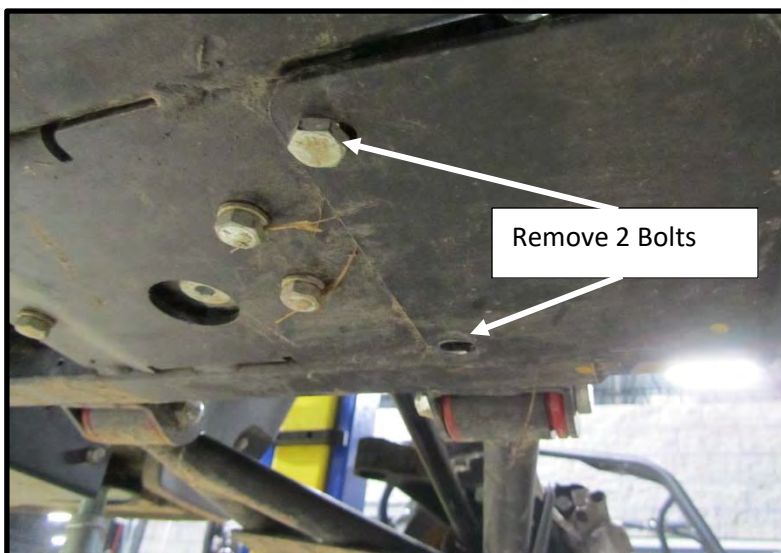
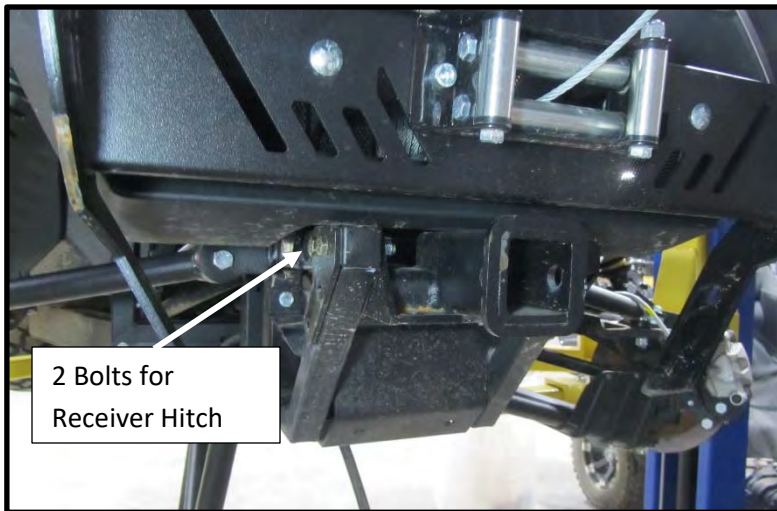
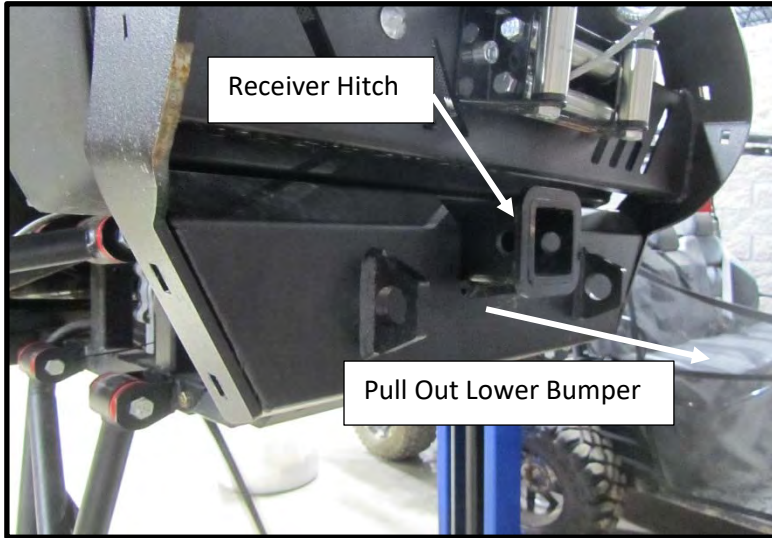


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Section 6 – Front Drive Train

6.2 Replacing Front Differential

Part 1 Cont. – Removing the Front Differential



5. Remove the receiver pin from the hitch and pull lower bumper straight out.

6. Using the 9/16" wrench /socket remove the 2 bolts on each side as shown and remove the receiver hitch.

7. Remove 2 bolts on bottom as shown holding the brush guard skid plate in place with 9/16" socket.

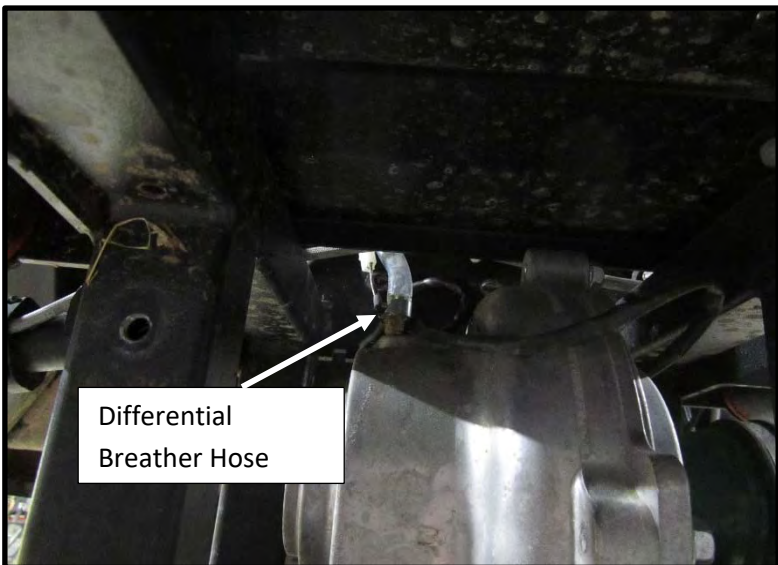
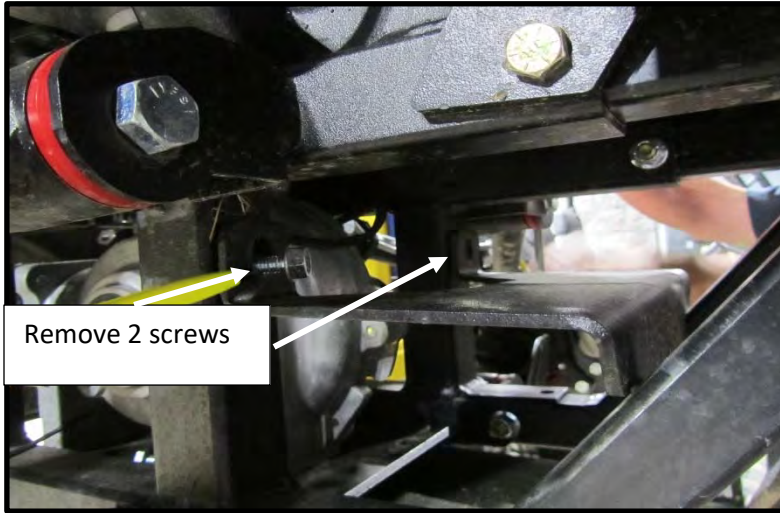


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Section 6 – Front Drive Train

6.2 Replacing Front Differential

Part 1 Cont. – Removing the Front Differential



8. Remove the 2 screws as shown holding the brush guard skid plate assembly in place with a 1/2" socket.
9. Pull the brush guard skid plate out through front end.
10. Using pliers remove the clamp on the breather tube and place the tube out of the way.

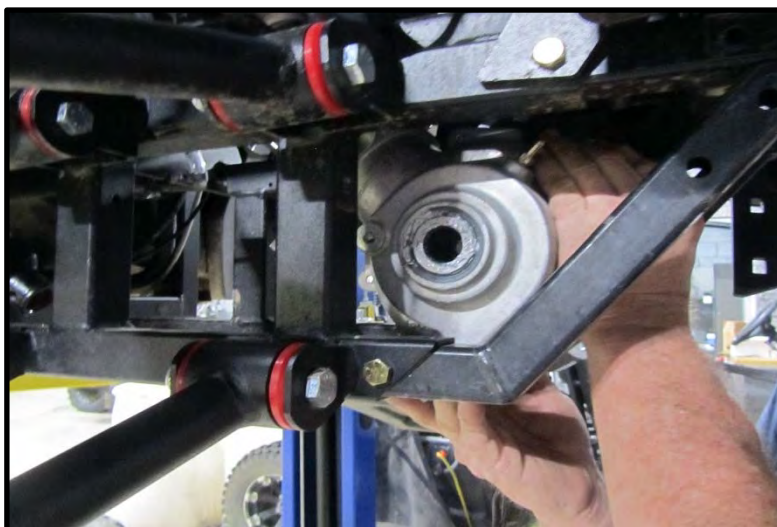
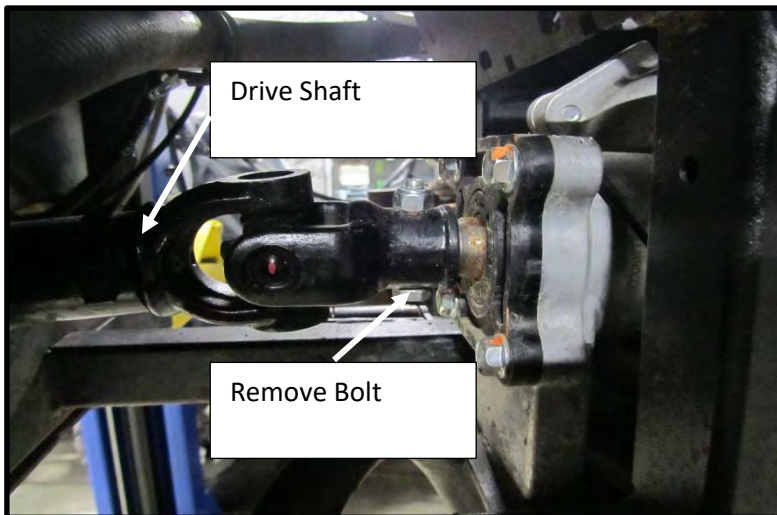
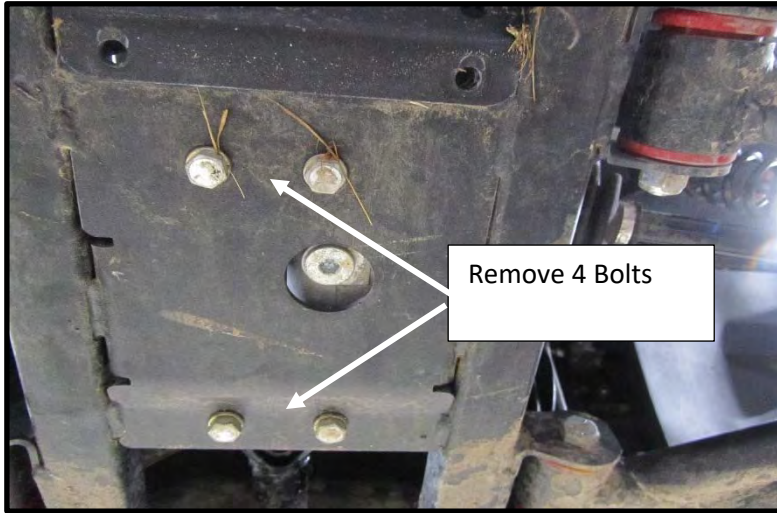


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Section 6 – Front Drive Train

6.2 Replacing Front Differential

Part 1 Cont. – Removing the Front Differential



11. Using a 9/16" socket remove the 4 bolts and lock washers from the bottom of the frame holding the differential in place.

12. Use a 1/2" socket and wrench to remove the bolt attaching the drive shaft to the rear of the differential as shown.

13. Use a pry bar to loosen the differential spline from the drive shaft connector.

14. Pull the differential out through the front.

15. If needed now is the time to remove / replace the front drive shaft. Follow procedure 6.3 *Replacing the Front Drive Shaft* as needed.

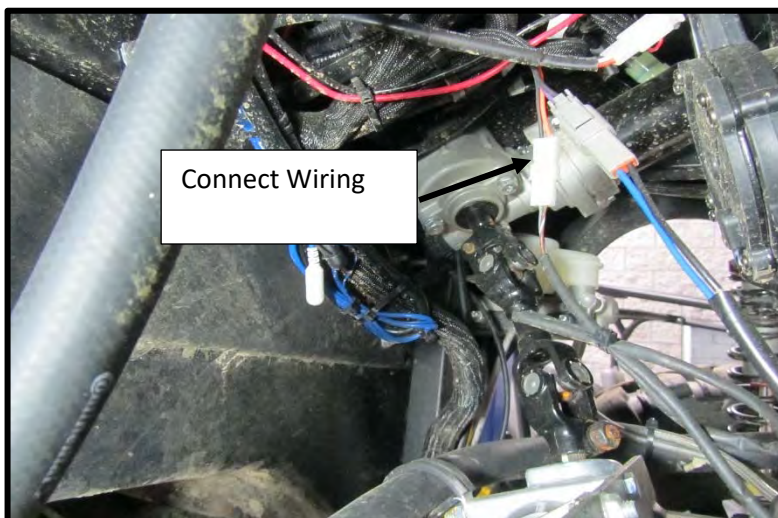
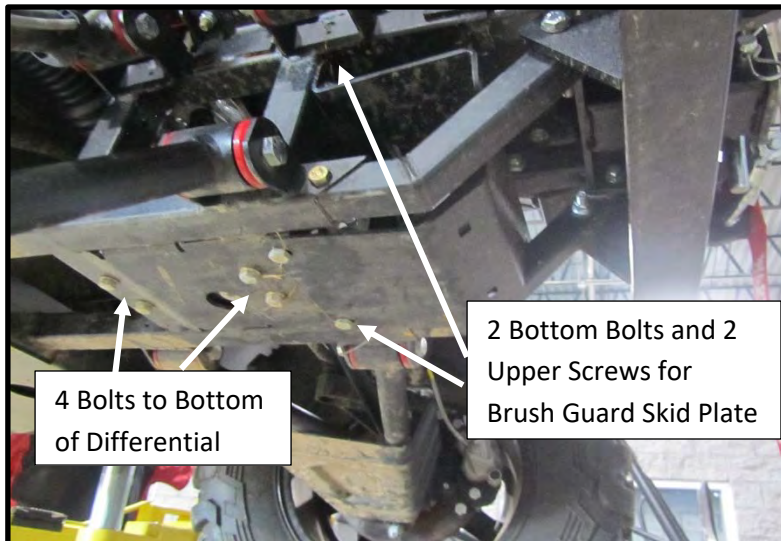
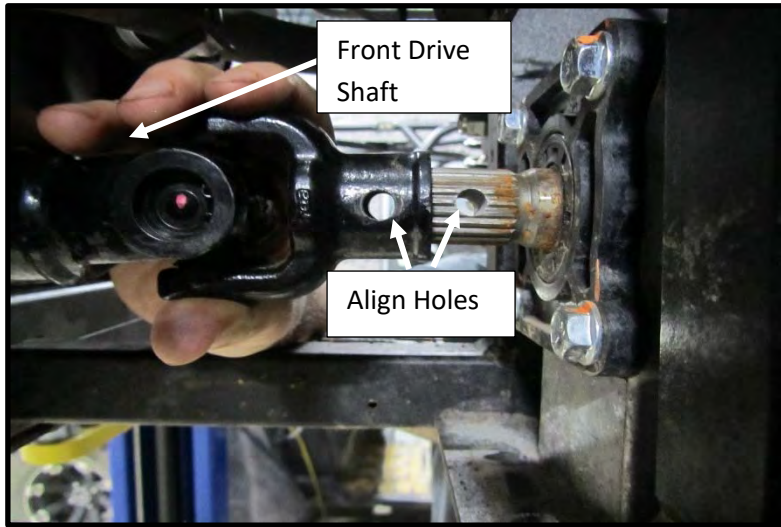


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Section 6 – Front Drive Train

6.2 Replacing Front Differential

Part 2 – Installing the Front Differential



Tools: 9/16" wrench /socket, 1/2" wrench / socket, Pliers

1. When installing the differential follow the same steps in the exact opposite order as the removal outlined in the above Part 1.
2. Install the differential through the front end of UTV being sure to align the holes in the drive shaft connector and differential spline to allow the bolt to pass through. Any location of these two components in relation to each other is OK as long as the holes line up.
3. Insert and tighten the Nylock nut and bolt for the drive shaft with a 1/2" wrench / socket to 125 in-lbs. Verify the drive shaft is still inserted into transmission by turning the drive shaft. The rear wheels will rotate.
4. Secure the bottom of the differential by inserting the 4 bolts (add Loctite) and lock washers from the bottom of the frame. Tighten the bolts using a 9/16" socket to 25-30 ft-lbs.
5. Install the brush guard skid plate through the front end. Apply Loctite on the 2 bolts and 2 screws and secure the plate to the frame using a 9/16" socket on the bottom and a 1/2" socket on the top.
6. Attach the breather tube to the top of the differential using clamp and pliers.
7. Connect the differential wiring as shown.

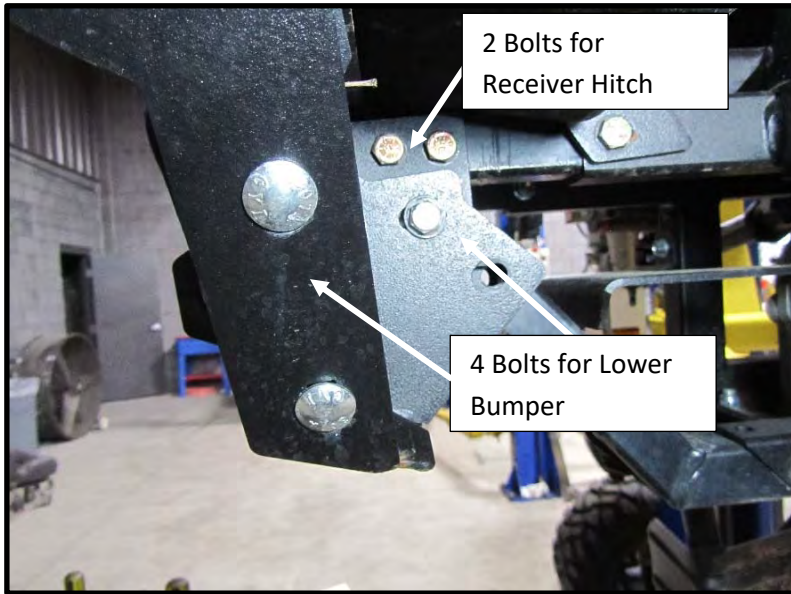


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Section 6 – Front Drive Train

6.2 Replacing Front Differential

Part 2 Cont. – Installing the Front Differential



8. Install the receiver hitch assembly into front end. Install bolts only at this time.
9. Install the front lower bumper and add bolts as shown.
10. Loctite all nuts and tighten all bolts for both the receiver hitch and lower bumper.
11. Follow procedure *6.1 Replacing Front Half Shaft & CV Boot* to install the half shafts.
12. Install the front wheel, brake caliper, rotor, hub, and spindle on both sides by following procedure *3.5 Installing Front Spindle*.

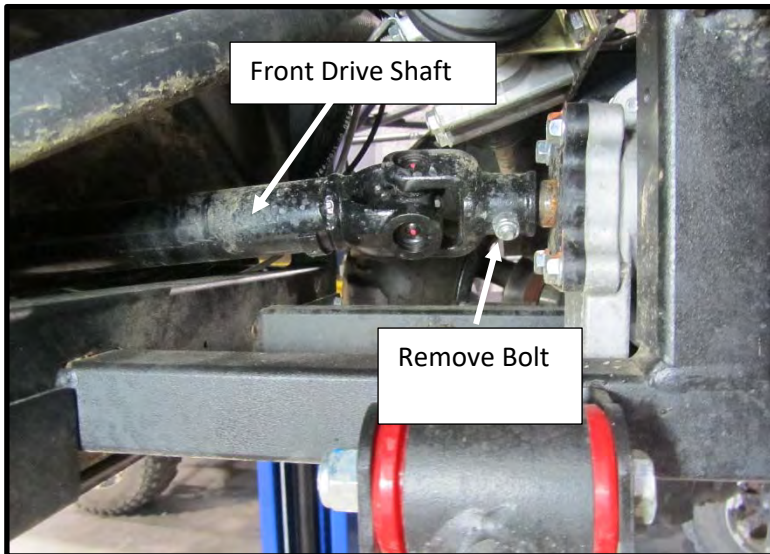
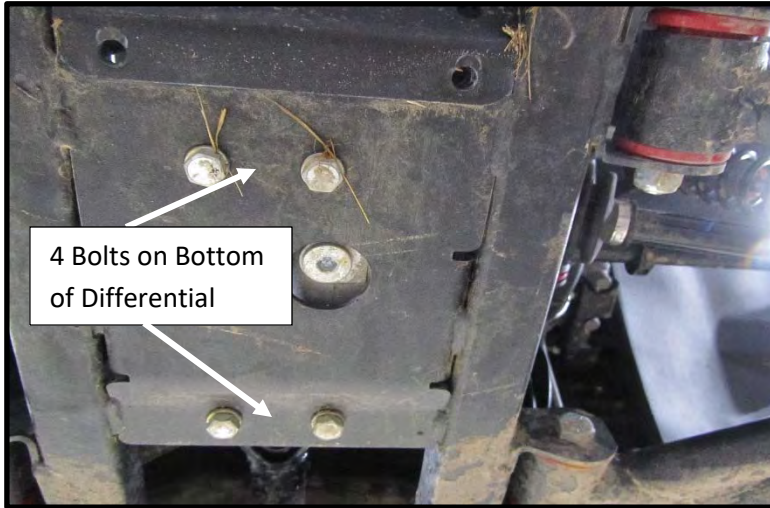


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Section 6 – Front Drive Train

6.3 Replacing Front Drive Shaft & U-Joints

Part 1 – Removing the Front Drive Shaft



Tools: 9/16" socket, 1/2" socket/wrench, Pry Bar

Safety:

- Place the UTV in Park on level ground and turn off the ignition.

Note: The front differential does *not* have to be removed in order to remove the front drive shaft.

1. Following procedure *3.1 Removing Wheel and Front Spindle* elevate the UTV and remove the passenger side front wheel.
2. Using a 9/16" socket loosen the 4 bolts on the bottom of the frame holding the differential in place. This will allow enough movement of the differential to disconnect from the drive shaft.
3. Use a 1/2" socket and wrench to remove the bolt attaching the drive shaft to the rear of the differential as shown.
4. Use a pry bar to loosen the differential spline from the drive shaft connector.

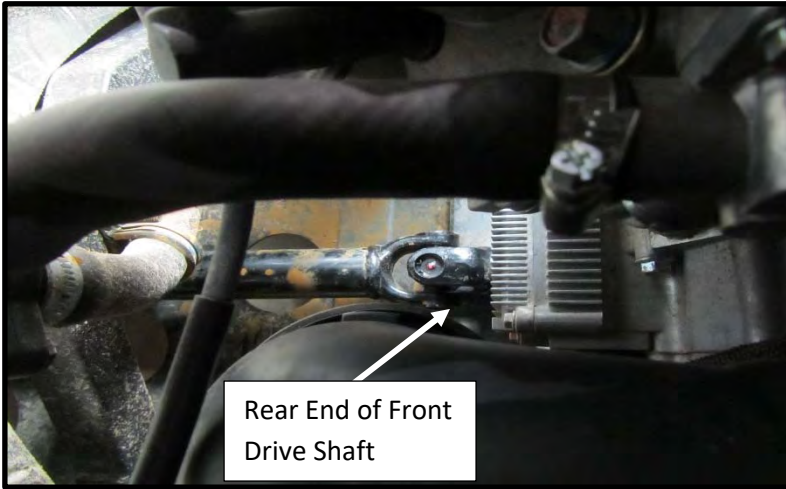


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Section 6 – Front Drive Train

6.3 Replacing Front Drive Shaft & U-Joints

Part 1 Cont. – Removing the Front Drive Shaft



5. Using both hands pull the front of the front drive shaft out from its rear connection to the transmission.



6. Pull the drive shaft out on the front passenger side as shown.

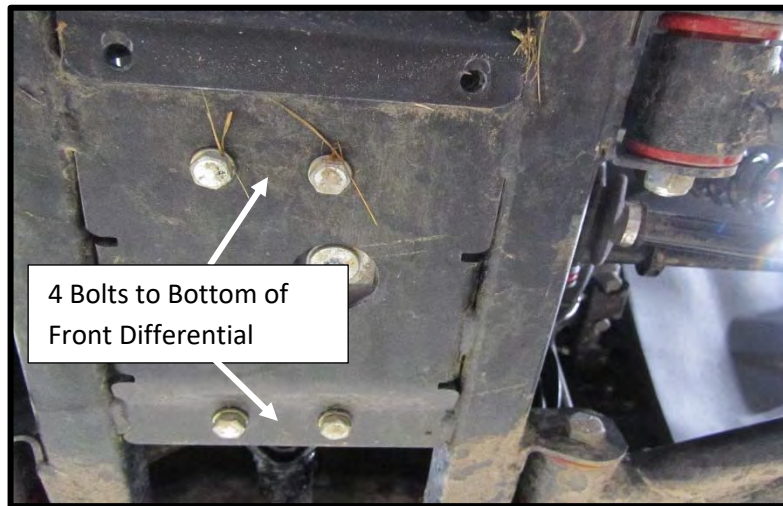
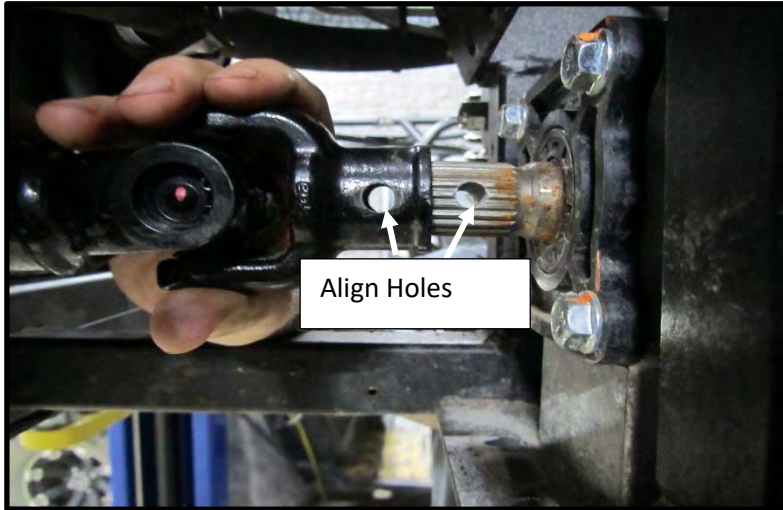


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Section 6 – Front Drive Train

6.3 Replacing Front Drive Shaft & U-Joints

Part 2 – Installing Front Drive Shaft



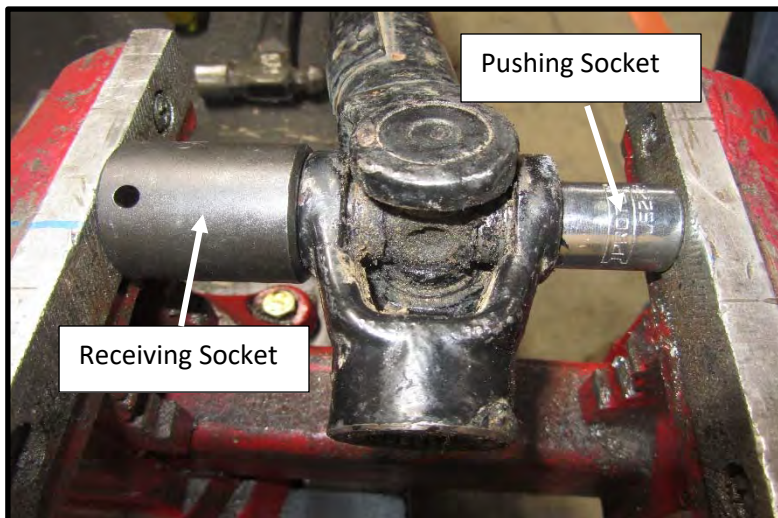
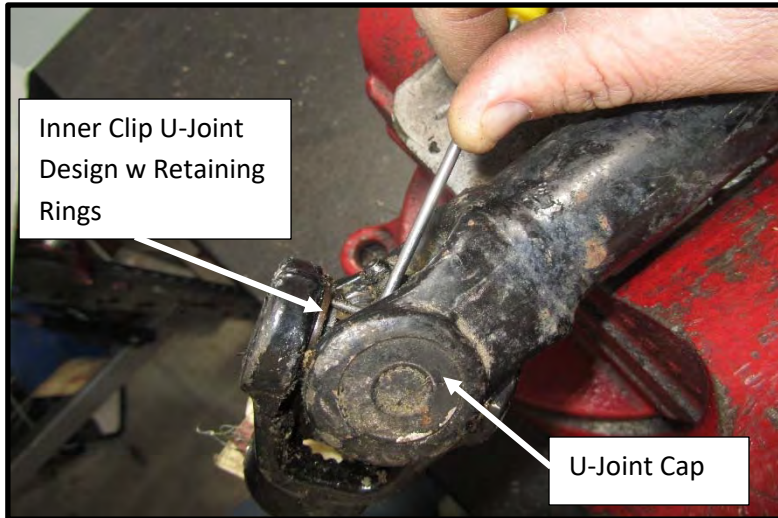
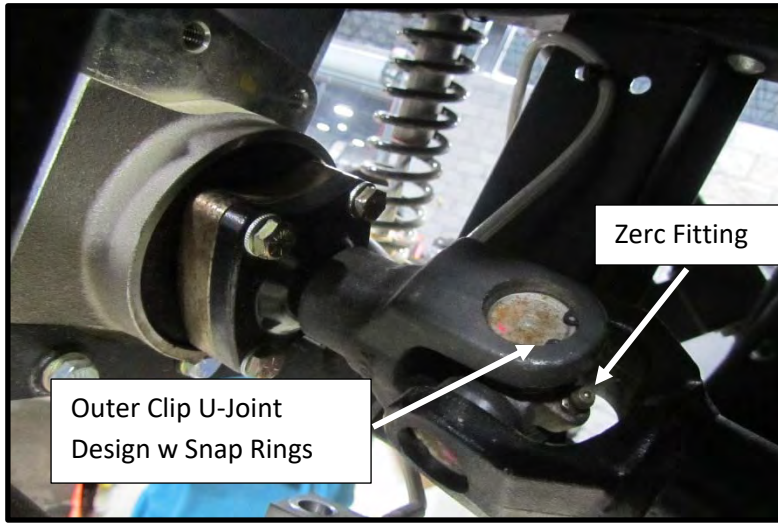
Tools: Hammer, Pliers

1. To install the drive shaft follow the exact opposite order of Part 1 above.
2. Install the drive shaft through the front end by the passenger side and slide it back to the rear into the transmission connection.
3. Align the holes in the front of drive shaft connector and differential spline to allow the bolt to pass through. Any location of these two components in relation to each other is OK as long as the holes line up.
4. Insert the drive shaft over the differential spline.
5. Install the Nylock nut and bolt for the drive shaft and tighten with a 1/2" wrench / socket to _____ ft-lbs. Verify the drive shaft is still inserted into transmission by turning the drive shaft. The rear wheels will rotate.
6. Secure the bottom of the differential by tightening the 4 bolts and lock washers from the bottom of the frame using a 9/16" socket to _____ ft-lbs.



6.3 Replacing Front Drive Shaft & U-Joints

Part 3 – Replacing Drive Shaft U-Joints



Tools: Snap ring pliers, appropriately sized sockets, bench vice, 90-degree pick, pliers, hammer, flat blade screw drivers

This procedure should be used for replacing the universal joint (u-joint) in both the front and rear drive shafts. The Intimidator UTVs will have u-joints with either inner clips or outer clips. While the clip removal and replacement are different for these two types the replacement of the u-joint is the same. This procedure primarily covers the replacement of a u-joint with an inner clip. An example of an outer clip is shown.

1. With the drive shaft removed determine the type of mounting clip securing the u-joint to the drive shaft and yoke. Use a penetrating oil to help remove the clips.
2. For the outer clip design use snap ring pliers to remove all 4 snap rings on the u-joint.
3. For the inner clip design grease may need to be removed with a pick or screw driver to access the retaining ring. Remove all 4 inner retaining rings with a 90-degree pick as shown.
4. A u-joint removal tool can be used or this method using a bench vice to remove the u-joint.
5. Place the u-joint into the bench vice with 2 sockets as shown. The pushing socket should be just slightly smaller diameter than the u-joint cap. The receiving socket should be larger than the cap yet fit onto flange to allow the cap to be driven into this socket. Positioning of both of these sockets is critical for this method to work.
6. Tighten the vice pushing the u-joint into the receiving socket until the cap is exposed and can be remove with pliers.

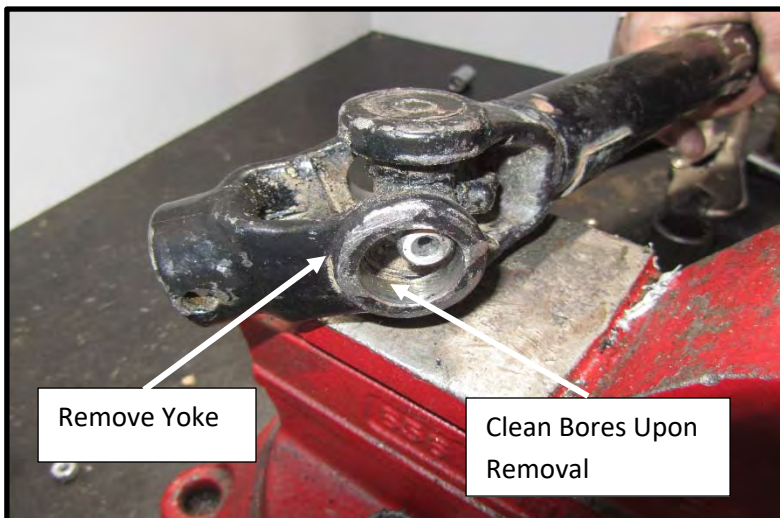
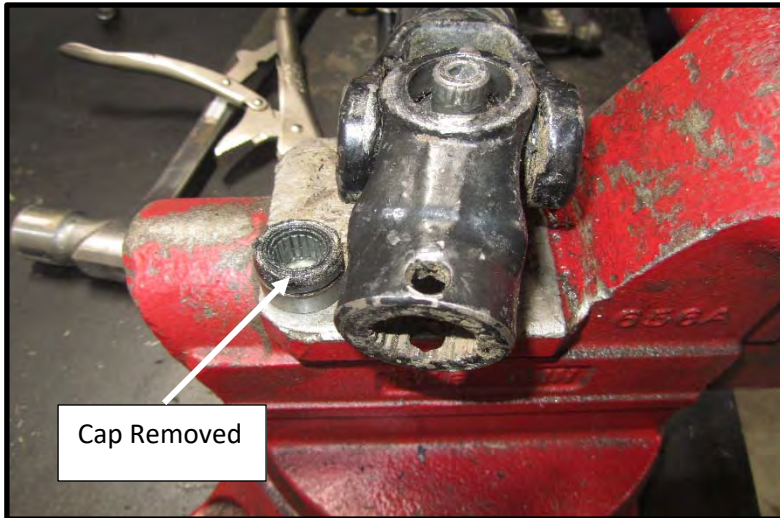
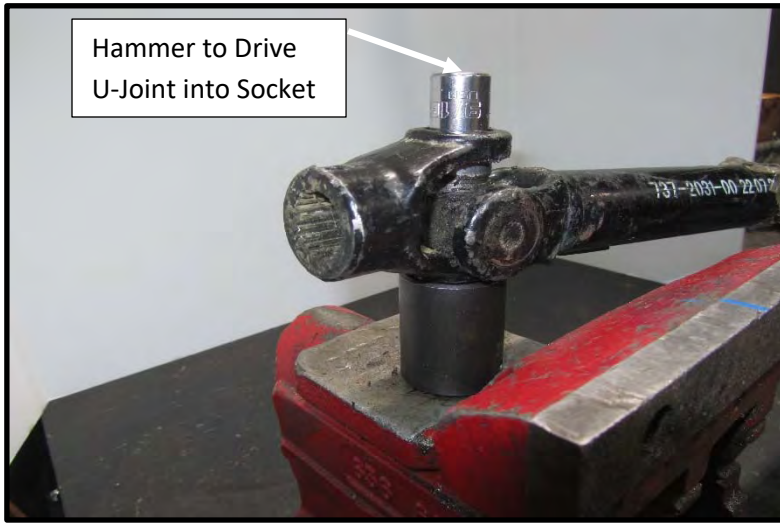


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Section 6 – Front Drive Train

6.3 Replacing Front Drive Shaft & U-Joints

Part 3 Cont. – Replacing Drive Shaft U-Joints



7. Sometimes the u-joint is hard to break free and a hammer and sockets are needed as shown to drive the cap through the opposite end of the yoke.

Note: Be careful when using a hammer especially with the outer clip design that the edge of flange is not rolled down with the hammer. This can make it very difficult to install the snap rings.

8. Once the cap is exposed adequately remove it with pliers.

9. Repeat steps 5 – 8 for the opposite end of the u-joint and remove its cap.

10. Using a large flat blade screw driver work the yoke off of the u-joint.

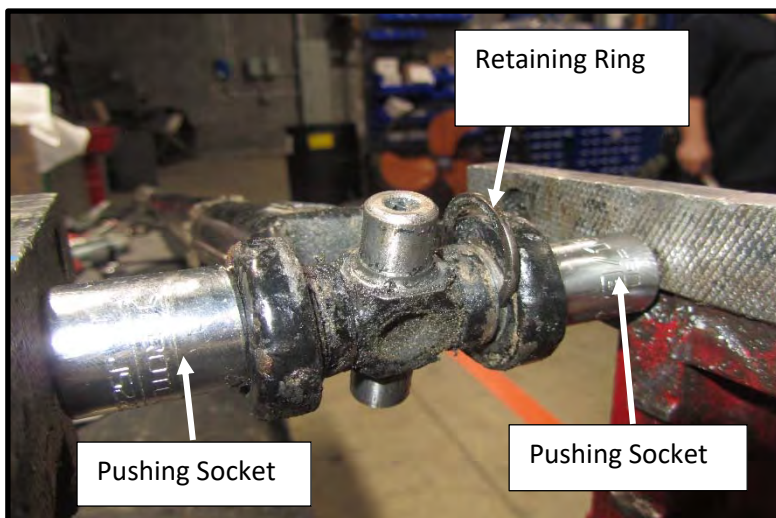
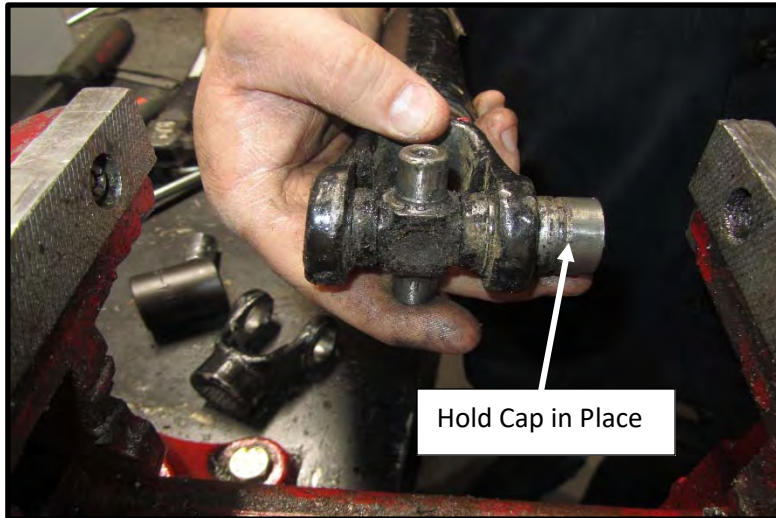
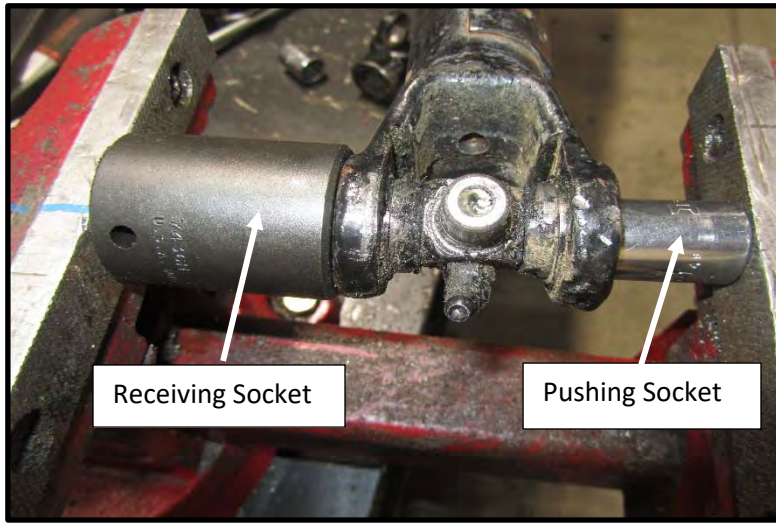


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Section 6 – Front Drive Train

6.3 Replacing Front Drive Shaft & U-Joints

Part 3 Cont. – Replacing Drive Shaft U-Joints



11. Repeat steps 5 – 9 for both ends of the remaining u-joint attached to the drive shaft as shown.
12. Clean the inside of the 4 bores on the drive shaft and yoke flanges with emory or crocus cloth to remove grit and buildup.
13. Obtain an identical size *new* u-joint.
14. Remove the 4 caps and set to the side being very careful to not drop the caps or spill the needle bearings out.
15. Place the new u-joint without caps into the drive shaft. Be sure to have the zerc fitting pointed to the axle for access when lubricating.
16. Holding one cap in place with your hand as shown place into bench vice and press cap into bore over u-joint. The opposite end does not have a cap at this point.
17. Add the cap to the opposite end by repeating step 16.
18. With both caps on add 2 pushing sockets on each side and place in the vice. Tighten the vice until the retaining ring groove is exposed on each side.
19. Using a hammer and small flat blade screw driver install the retaining ring into its groove. Make sure it is seated well. Repeat for the opposite side.
20. Install the yoke over the 2 remaining exposed u-joint ends and repeat steps 16 – 19 to complete installation.
21. Once u-joint is installed add a quality multipurpose marine grade grease through the zerc fitting.

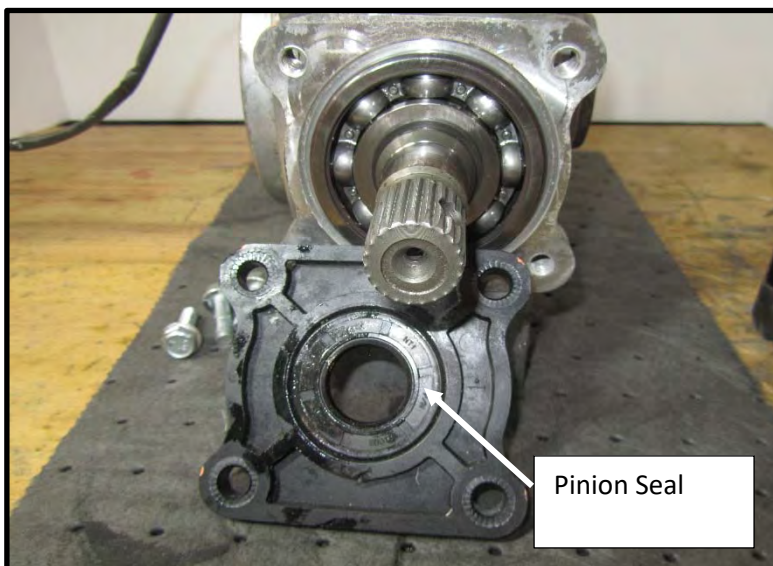
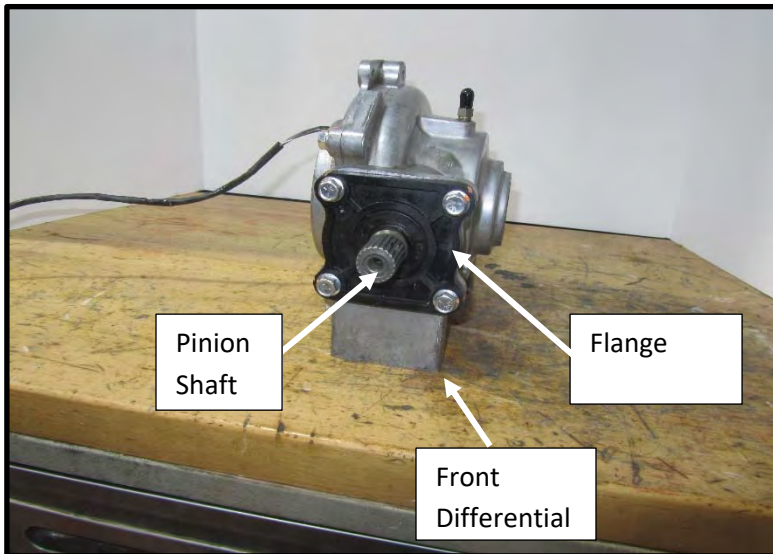
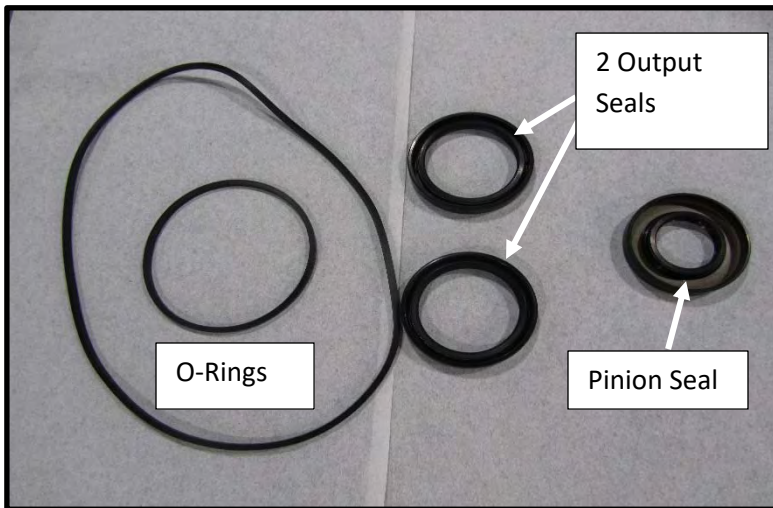


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Section 6 – Front Drive Train

6.4 Replacing Front Differential Seals

Part 1 – Replacing the Pinion Seal



Tools: 1/2" socket, seal puller or 90-degree pick, hammer, large socket, small punch

The front differential repair kit consists of 3 seals (1 for the pinion shaft and 2 output shafts) and 2 O-rings as shown.

1. Remove the front differential and place it on a flat working surface using the procedure 6.2 *Replacing Front Differential*.
2. Using a 1/2" socket remove the 4 bolts in the flange around the pinion shaft on the front differential as shown.
3. Using a seal puller or a 90-degree pick remove the pinion seal.
4. Apply white lithium grease or a silicone spray to the external circumference of a *new* pinion seal. Position the seal in the opening on the flange.
5. Using a large socket or large punch gently tap the seal into opening until it is seated.
6. Install the flange and seal around the pinion shaft. Add Loctite to the 4 bolts and secure to the front differential. Tighten with a 1/2" socket to 125 int-lbs.



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Section 6 – Front Drive Train

6.4 Replacing Front Differential Seals

Part 2 – Replacing the Output Seals



Tools: seal puller or 90-degree pick, hammer, large socket, small punch

Note 1: The following steps are for removing and replacing the output seals. These pictures show the right or passenger side output seal. However, the steps are the same for either side.

Note 2: The output seals are the same diameters for the two sides.

1. Similar to removal of the pinion seal use a seal puller or a 90-degree pick to remove the output seal from the front differential.
2. Apply white lithium grease or a silicone spray to the external circumference of a *new* output seal. Position the seal in the opening.
3. Using a large socket or large punch gently tap the seal into opening until it is seated.
4. Proceed to replace the output seal on the driver's side using these same steps.

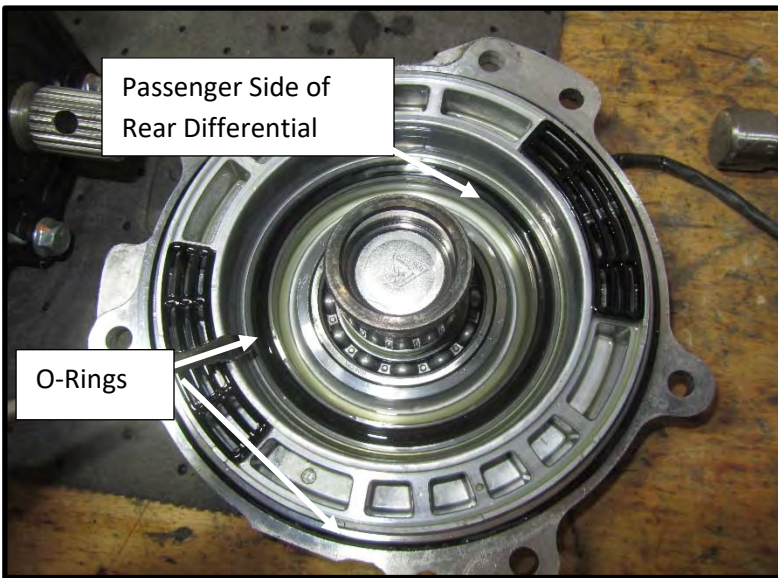
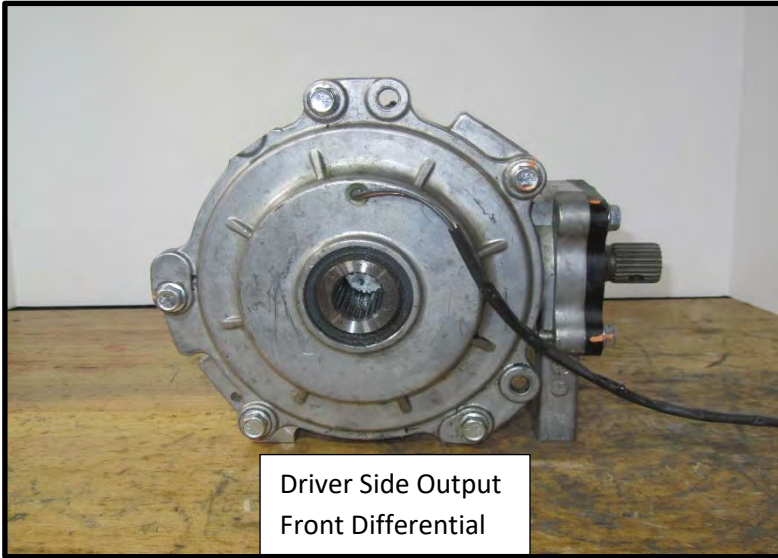


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Section 6 – Front Drive Train

6.4 Replacing Front Differential Seals

Part 3 – Replacing the O-Rings



Tools: 1/2" socket

1. If there is a need to access the inside of the front differential the 2 O-rings can be replaced by removing the cover on the driver side of front differential.
2. Using a 1/2" socket remove the 5 bolts securing the driver side output cover.
3. Using the 2 O-rings in the repair kit replace these with new ones as shown.
4. Install the cover and add Loctite to the bolts. Tighten to 125 in-lbs with a 1/2" socket.

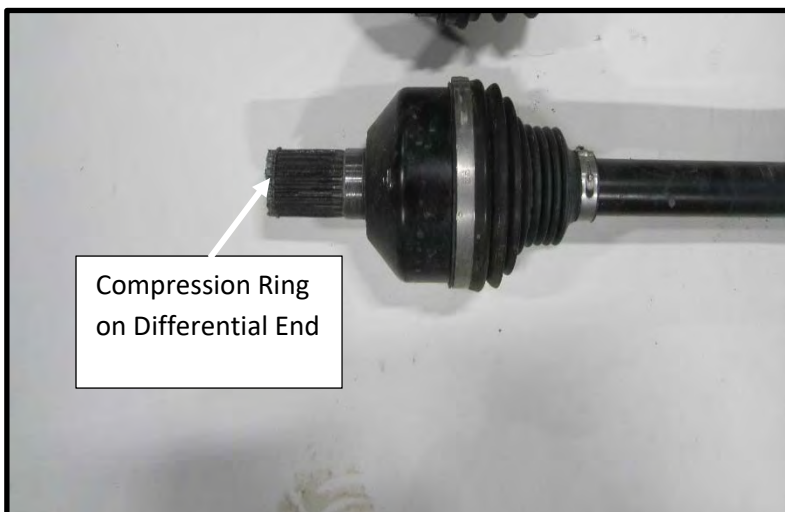
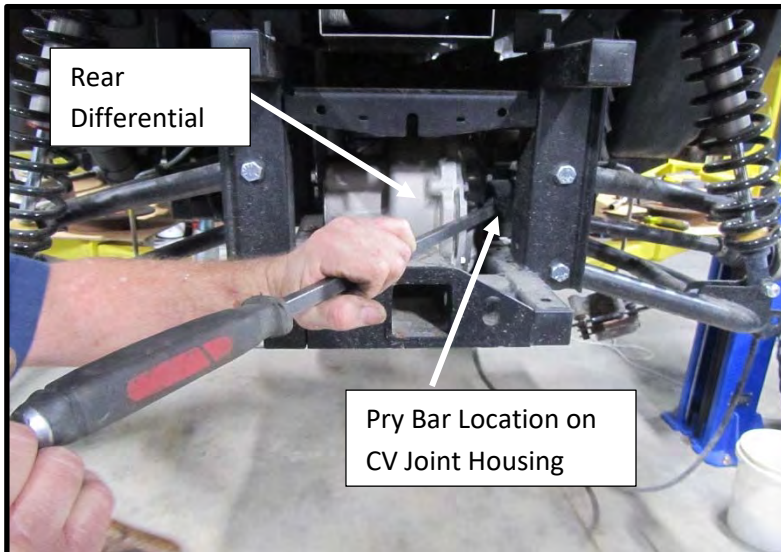
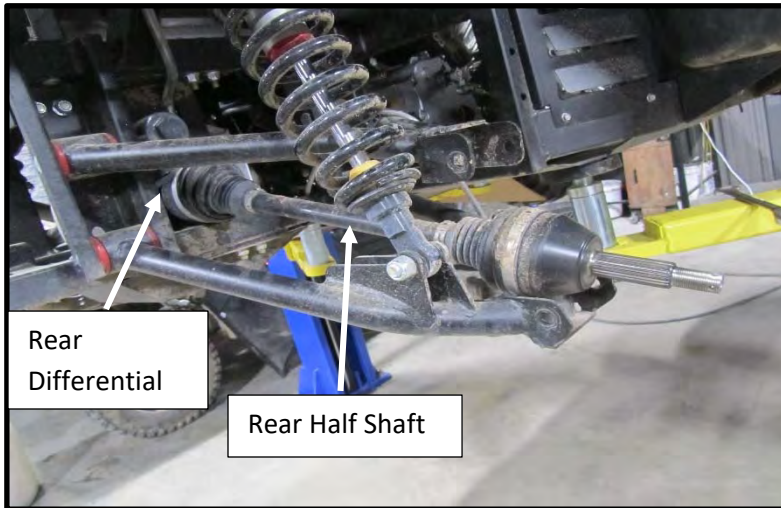


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Section 7 – Rear Drive Train

7.1 Replacing Rear Half Shaft & CV Boot

Part 1 – Removing the Rear Half Shaft



This section covers replacing the rear half shaft, half shaft CV boot, rear differential and its seals, and the rear drive shaft.

Tools: Cable Tie, Pry Bar, Hammer

Safety:

- Place the UTV in Park on level ground and turn off the ignition.

1. Following procedure 3.6 *Replacing the Independent Rear Suspension* remove the appropriate rear wheel, brake caliper, rotor, hub, and rear suspension.
2. Loosen the rear half shaft from the rear differential as shown with a slight tap of hammer on the pry bar.

Note 1: This is required sometimes due to the compression ring on the differential end of half shaft.

Note 2: To prevent the rear half shaft from accidentally falling to the ground it is best to secure it with a cable tie around the outer end to the upper A-Arm. Alternatively 2 persons can be used for this step.

3. Pull the rear half shaft from the rear differential using both hands.

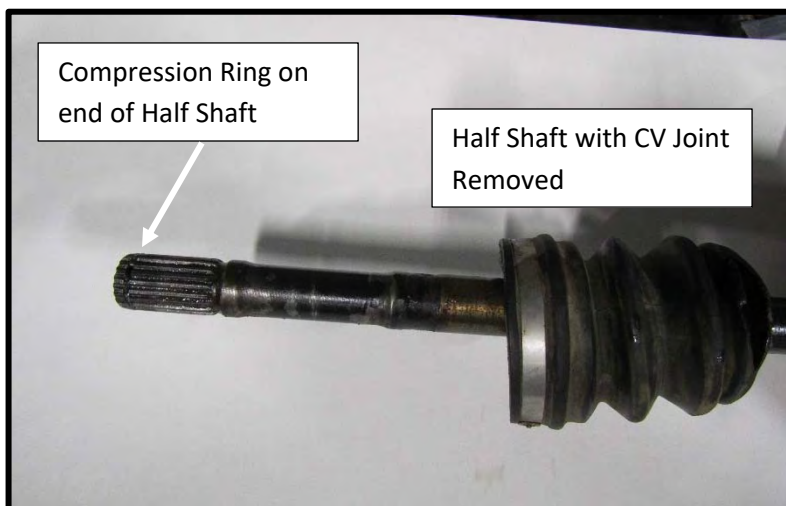
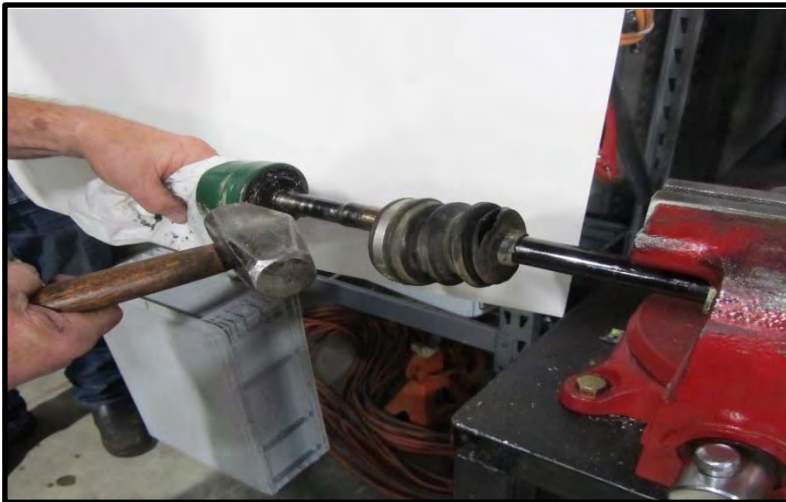
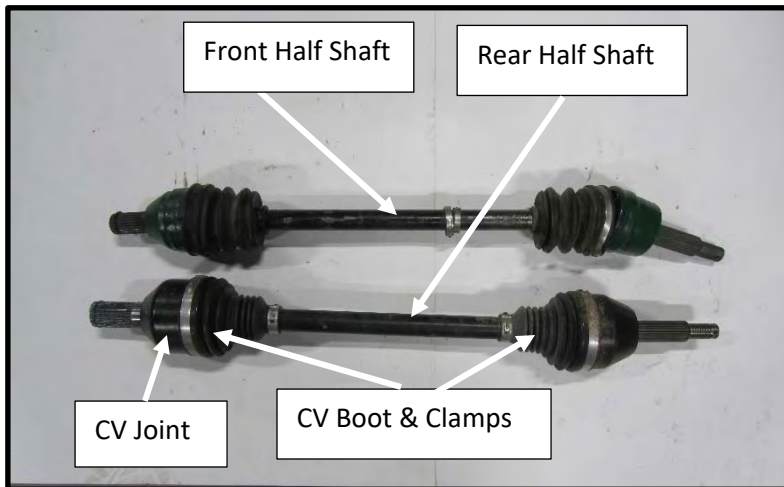


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Section 7 – Rear Drive Train

7.1 Replacing Rear Half Shaft & CV Boot

Part 2 – Replacing Half Shaft CV Boot



Tools: Hammer, Pliers

1. If the CV boot needs replacing on either end of the half shaft then place the shaft in a vice.

Note 1: It is important that the boots remain in good shape with no tears or cracks to protect the CV joints from dirt and debris.

Note 2: Some Intimidator UTVs use the standard duty rear half shaft and others use a heavy duty one. The heavy duty one is larger diameter than the standard duty half shaft. The attached picture is shown as a reference for the two half shafts. Also the rear half shaft is designed to fit on either rear side.

2. Using pliers remove the larger boot clamp and pull boot away from CV joint.
3. Using a hammer separate the CV joint from the half shaft as shown.

Note 1: The picture shows removal of the CV joint for a front half shaft but the same method is used for the rear half shaft.

Note 2: Sometimes the compression ring will not allow removal of the CV joint. Or the hammer will damage the CV joint. If either is the case then a *new* half shaft will need to be installed.

4. Remove the old boot and clamps and replace with new ones using a Half Shaft CV Boot Kit.
5. If dirt has entered the CV joint then remove as much of old grease as possible and replace with new grease.
6. Reinstall the CV joint and attach to the new boot.

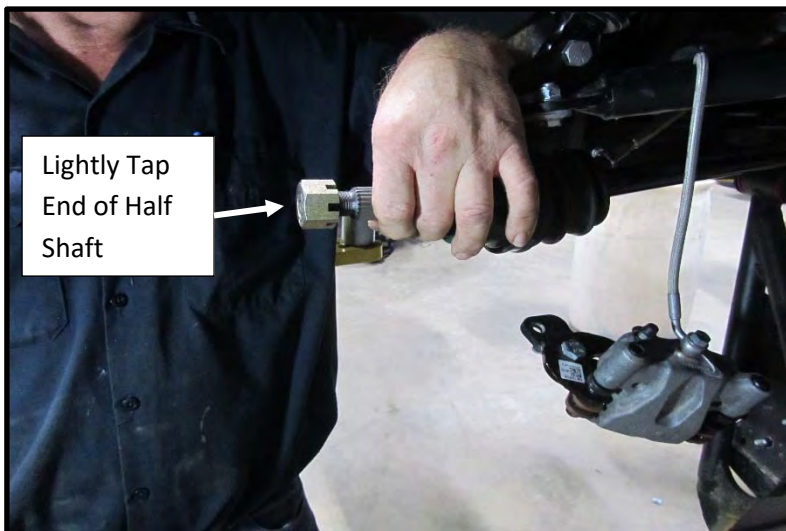
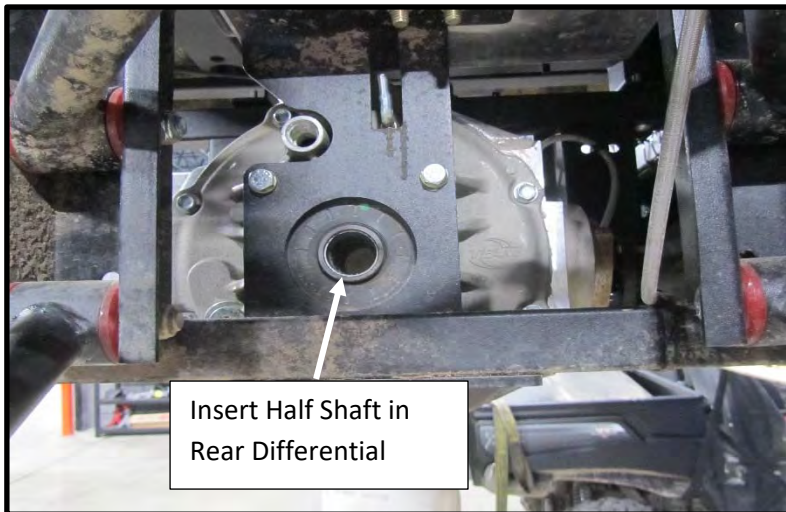
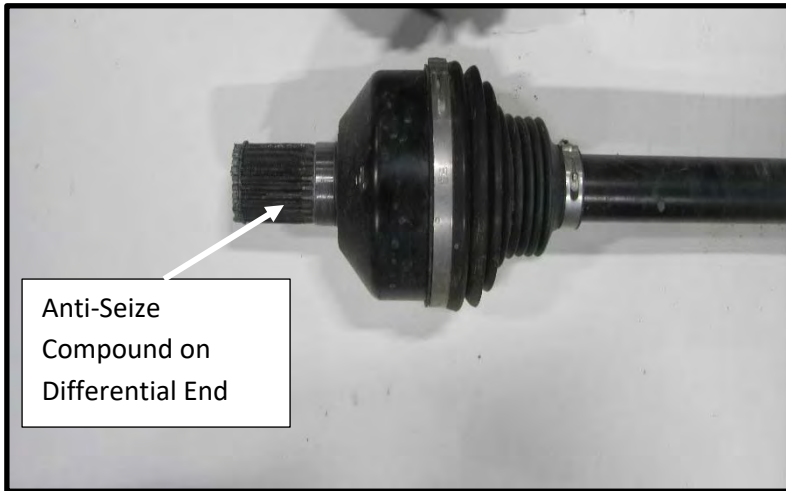


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Section 7 – Rear Drive Train

7.1 Replacing Rear Half Shaft & CV Boot

Part 3 – Installing the Rear Half Shaft



Tools: Hammer

1. Brush on an anti-seize compound on the differential end (larger diameter than the outer end) of the rear half shaft.

Note: The rear half shaft is designed to fit on either rear side.

2. Place the end of the half shaft into the rear differential and rotate slightly until it slides in.
3. Screw on the castle nut backwards on the outer end of the half shaft by hand. This will prevent the teeth of castle nut from being damaged in the next step.
4. Use a hammer to *lightly* tap the front half shaft into the front differential until it seats. Then remove the castle nut for installation of the independent rear suspension.
5. To ensure the half shaft is properly installed give a slight pull with your hands on the half shaft. If it is properly seated a slight pull on shaft should not release it.
6. Install the independent rear suspension, hub, rotor, caliper, and wheel per procedure 3.6 *Replacing the Independent Rear Suspension*.

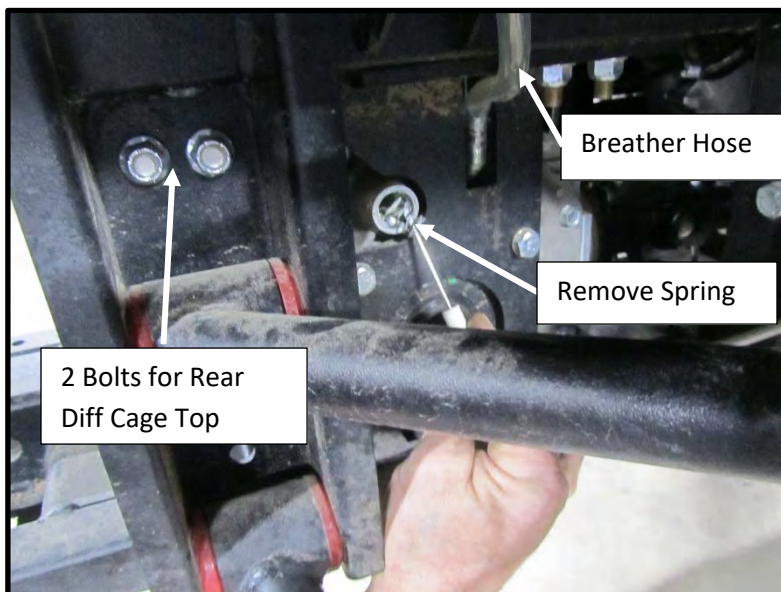
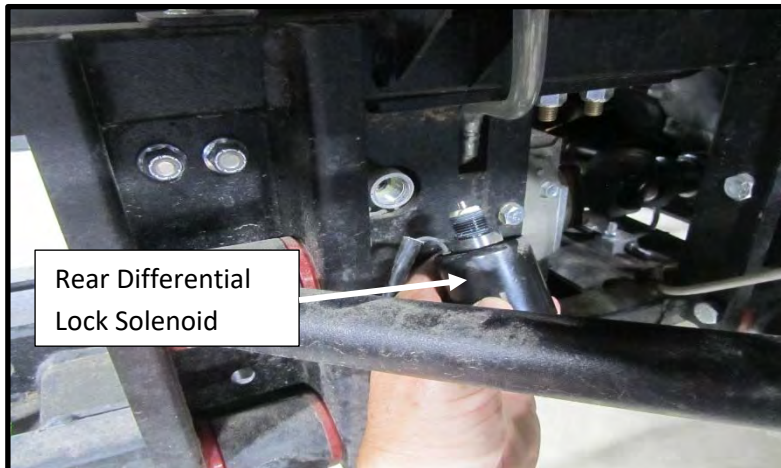
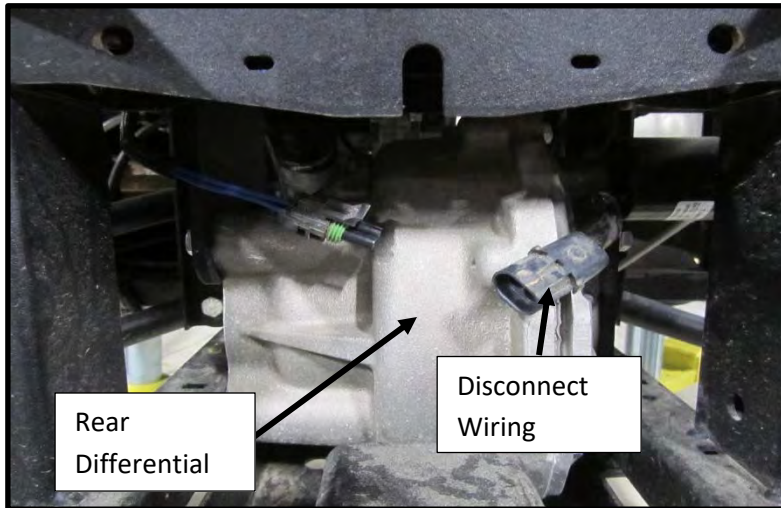


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Section 7 – Rear Drive Train

7.2 Removing Rear Differential

Part 1 – Removing the Rear Differential



Tools: 1-3/16" socket, Pliers, 9/16" wrench /socket, 1/2" wrench / socket

Safety:

- Place the UTV in Park on level ground and turn off the ignition.
- Two people are needed for this procedure.

1. Following procedure 3.6 *Replacing the Independent Rear Suspension* remove the rear wheel, brake caliper, rotor, hub, and rear suspension on both sides.
2. Remove both rear half shafts as described in procedure 7.1 *Replacing Rear Half Shaft & CV Boot*.
3. In the back of the rear differential disconnect the wiring from the rear diff lock solenoid as shown.
4. Using a 1-3/16" socket remove the rear diff lock solenoid on the passenger side of the rear differential as shown.
5. Remove the spring from the hole with a small screw driver. Set the rear differential lock solenoid and its spring to the side for installation later.
6. Remove the clamp using pliers from the breather hose on passenger side of rear differential. Place the hose out of the way.
7. With a 9/16" socket and wrench remove the 4 bolts (2 on each side) that holds the rear diff cage top brace in place.

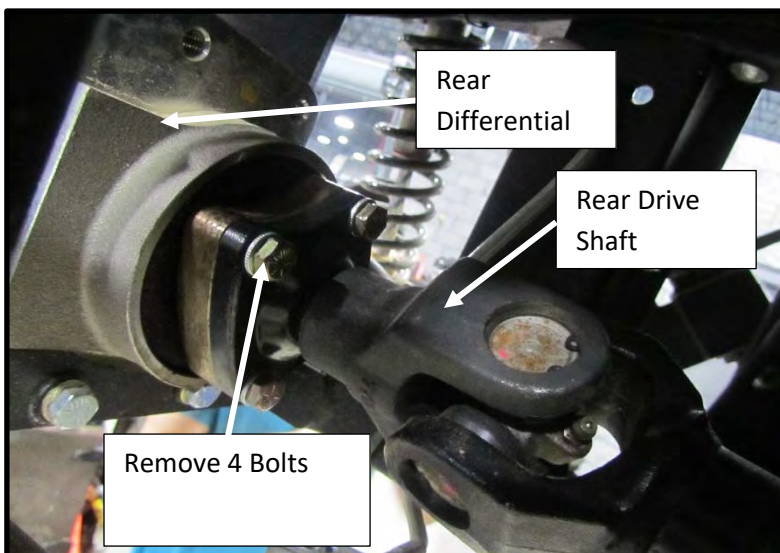
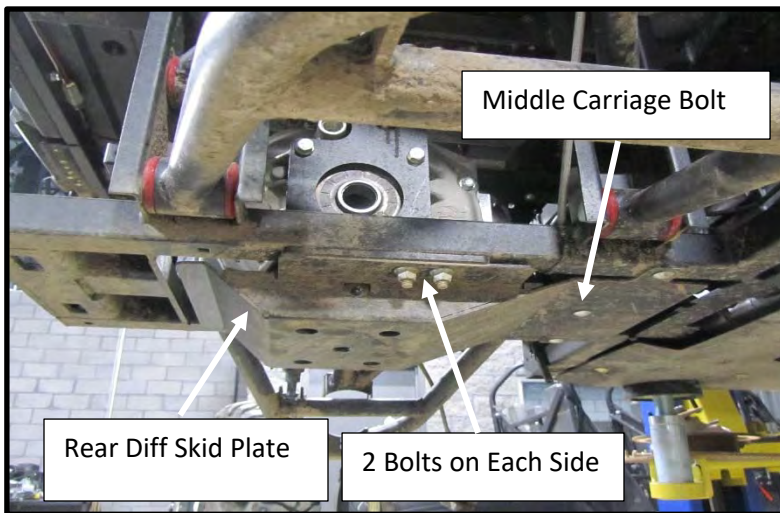
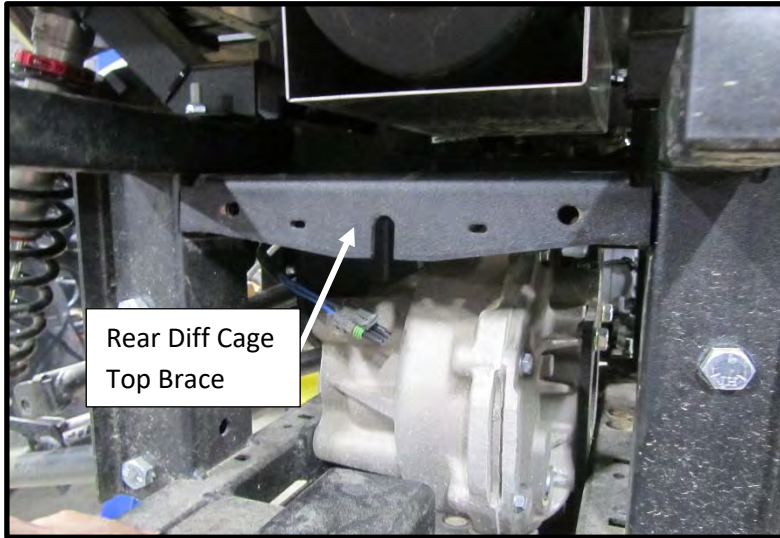


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Section 7 – Rear Drive Train

7.2 Removing Rear Differential

Part 1 Cont. – Removing the Rear Differential



8. Remove this brace from back of UTV.

9. Remove the rear diff skid plate using a 1/2" socket / wrench on the 4 bolts (2 on each side) on the sides and the 3 carriage bolts toward front of plate. Note that the middle carriage bolt in the front is for securing the brake tee which needs to be free from the plate in order to remove the plate. The brake lines should remain intact with the tee.

10. Disconnect the rear drive shaft by removing the 4 bolts with a 1/2" wrench at the front of the rear differential. A heat gun may be required for loosening up these bolts.

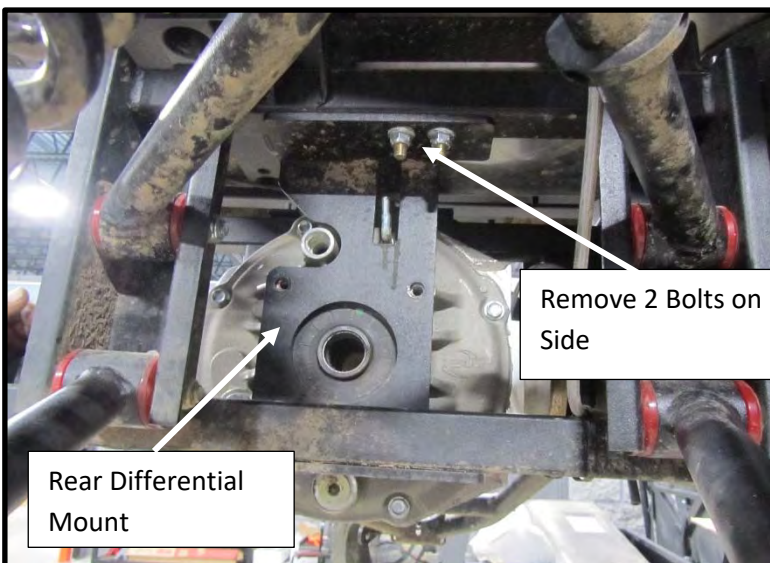
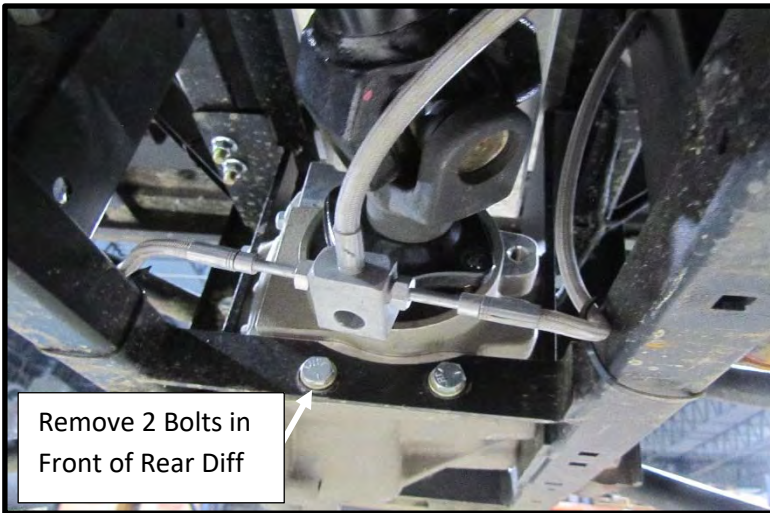
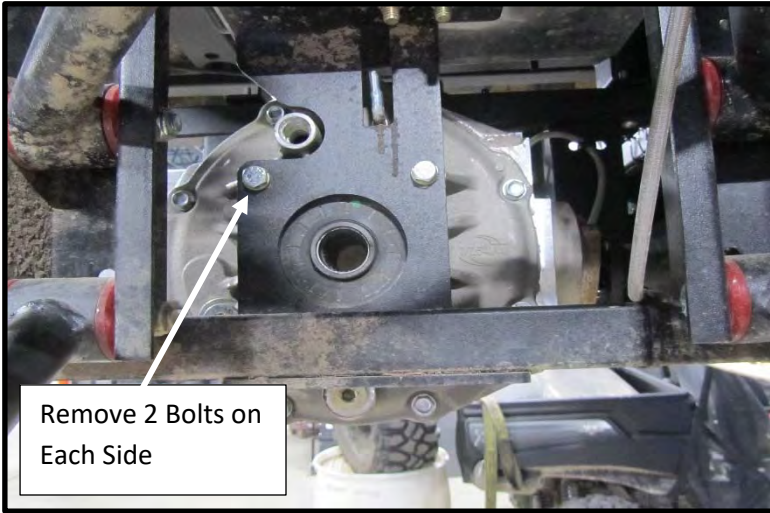


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Section 7 – Rear Drive Train

7.2 Removing Rear Differential

Part 1 Cont. – Removing the Rear Differential



11. Using a 1/2" socket / wrench remove the 6 bolts (2 on each side and 2 in the front) holding the rear differential to frame as shown in the two pictures.

Note: The 2 bolts in the front each have both a flat washer and lock washer where the 4 bolts on the sides only have lock washers.

12. Free the rear differential mount on the passenger side by removing the locknuts on the 2 bolts with a 1/2" socket and wrench as shown. These 2 carriage bolts can be left hanging down from the frame.

13. Two people are needed to remove the differential and its mount. With one person lifting and moving the differential the other person should work the rear differential mount out the bottom of frame.

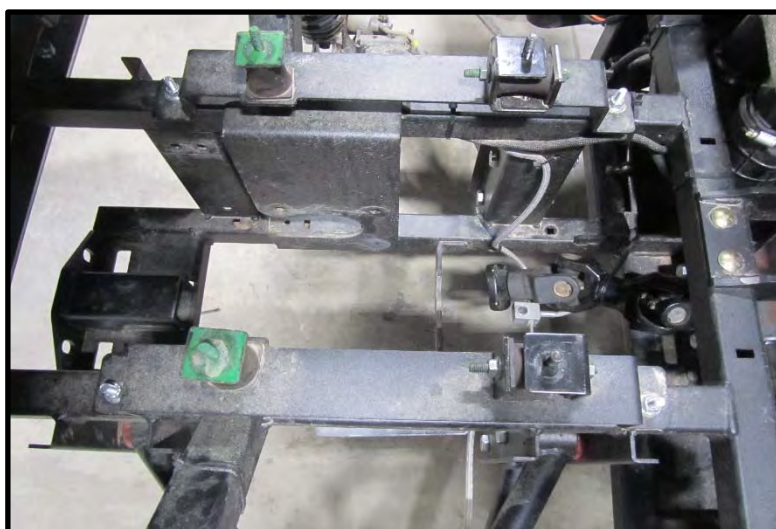
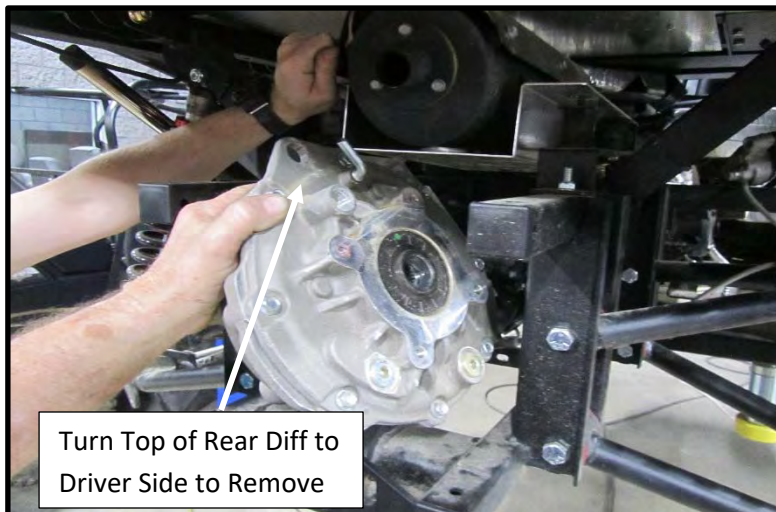
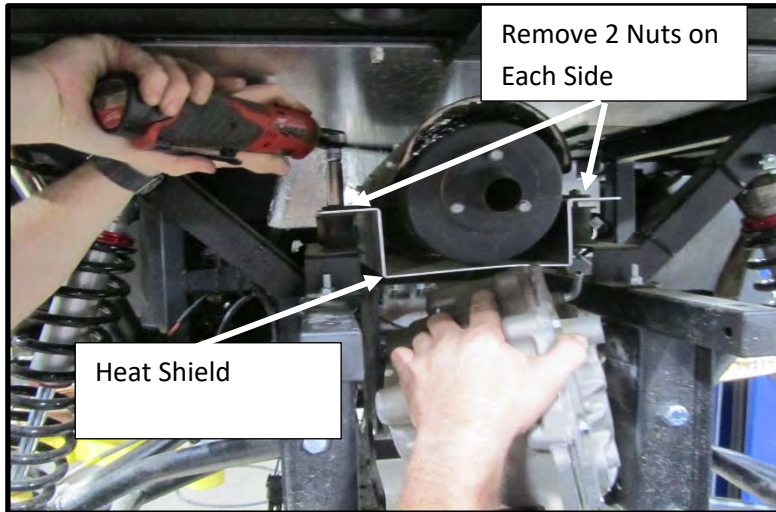


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Section 7 – Rear Drive Train

7.2 Removing Rear Differential

Part 1 Cont. – Removing the Front Differential



14. At this point the rear differential can be removed through the top or through the rear of the UTV. Steps 14 – 15 are for removing the differential from the rear. Proceed straight to step 16 to remove from the top.

15. With a 1/2" socket remove 2 nuts on each side of muffler heat shield as shown. The heat shield can stay in place but removal of these 4 nuts allows room for removing the rear differential.

16. With one person pushing up on the muffler the other should lift up on the differential and turn the top of it to the driver side as shown. Then pull it out from the rear of the UTV.

17. To remove the rear differential from the top follow procedure *10.1 Replacing Muffler & Spark Arrester* to lift bed and gain access from the top. Once this is done the rear differential can be lifted up and out the top.

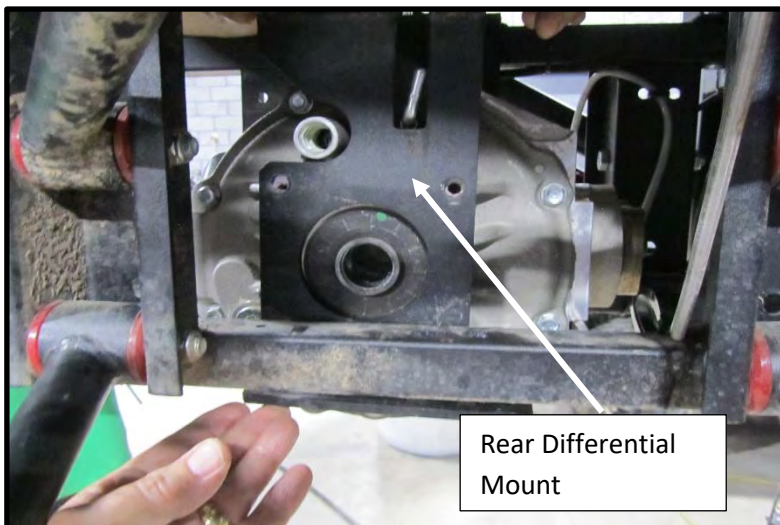
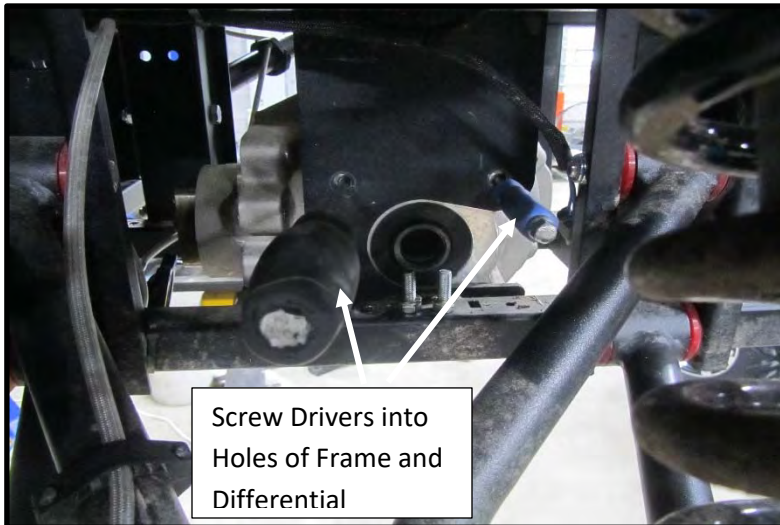
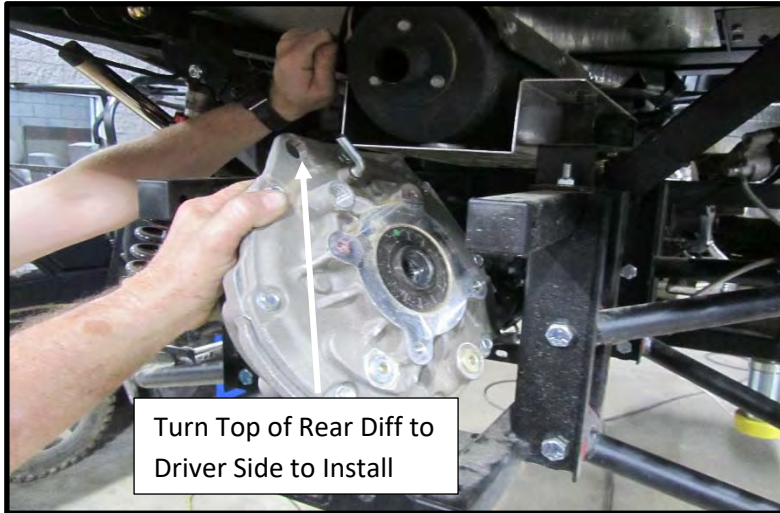


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Section 7 – Rear Drive Train

7.3 Installing Rear Differential

Part 1 – Installing the Rear Differential



Tools: 2 medium phillips head screw drivers, 1/2" wrench/socket, pliers, 1-3/16" socket, 9/16" wrench/socket

Safety:

- Place the UTV in Park on level ground and turn off the ignition.
- Two people are needed for this procedure until the differential is tightened to the frame.

Note 1: The steps to install the rear differential will be done in "similar" reverse order of the procedure *7.2 Removing Rear Differential*.

Note 2: The following installation steps assume the rear differential will be installed from the rear of the UTV. If installing from the top with the muffler removed start at step 2 below once rear differential is in place.

1. Install the differential from the rear of the UTV. With one person pushing up on the muffler and the other insert the differential and turn the top of it to the driver side as shown.
2. Once the differential is lined up have a second person to insert 2 medium phillips head screw drivers through the frame mount on the driver side into holes of differential as shown. This allows alignment of the holes and the bolts into differential.
3. With one person holding up the differential have the other to work into place the rear differential mount on the passenger side. Do not install bolts at this time. Allow the mount to hang loose. It is important for a proper fit to tighten the differential to the fixed frame before tightening to the rear differential mount.

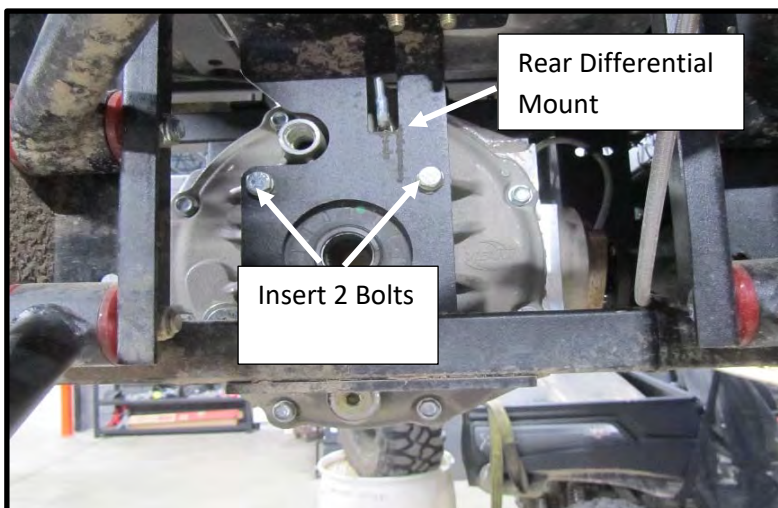
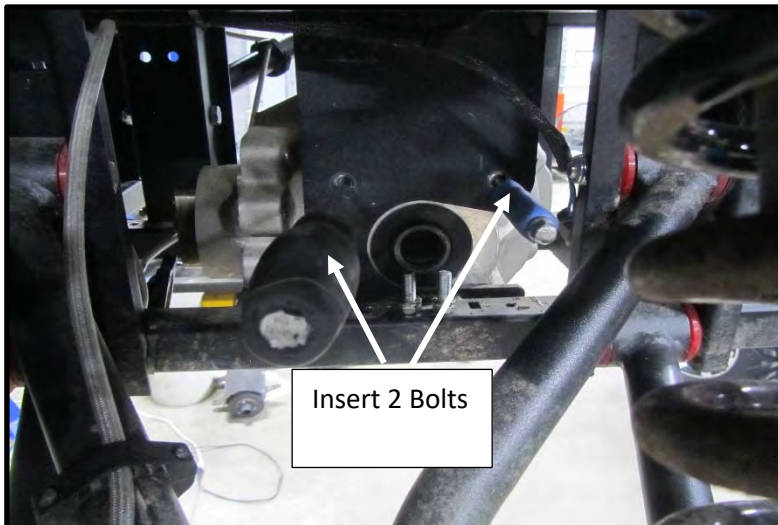
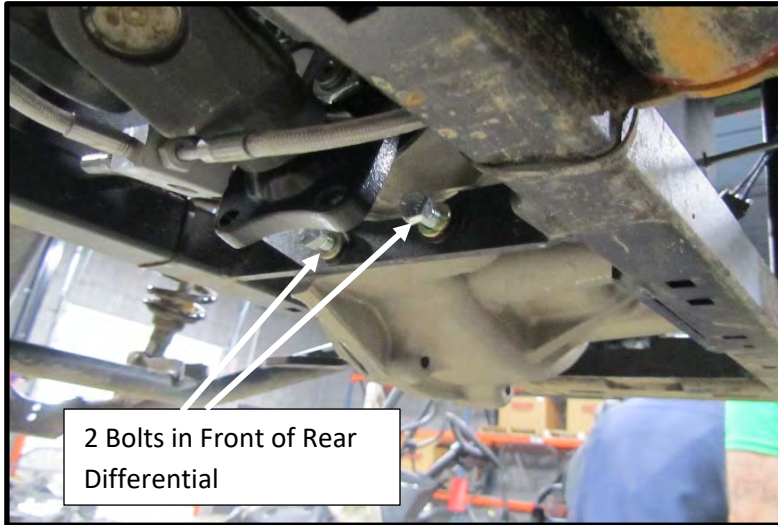


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Section 7 – Rear Drive Train

7.3 Installing Rear Differential

Part 1 Cont. – Installing the Rear Differential



4. Using new flat and lock washers add Loctite to the 2 front bolts and thread into front of differential as shown. Do not tighten yet.
5. With *new* lock washers add Loctite to the 2 bolts on the driver side of differential. Remove one screwdriver and install bolt before doing the same with the second bolt and screw driver. Only hand tighten at this point.
6. Using Loctite and *new* lock washers on the 2 bolts on the passenger side of differential, install these through the rear differential mount into the rear differential. Only hand tighten at this point.
7. Once all 6 bolts are hand threaded into the differential then *first* tighten the 4 bolts installed on the driver side and front side of differential with a 1/2" socket / wrench to 25 ft-lbs.
8. Next tighten the 2 bolts on passenger side through the rear differential mount with a 1/2" socket / wrench to 25 ft-lbs.

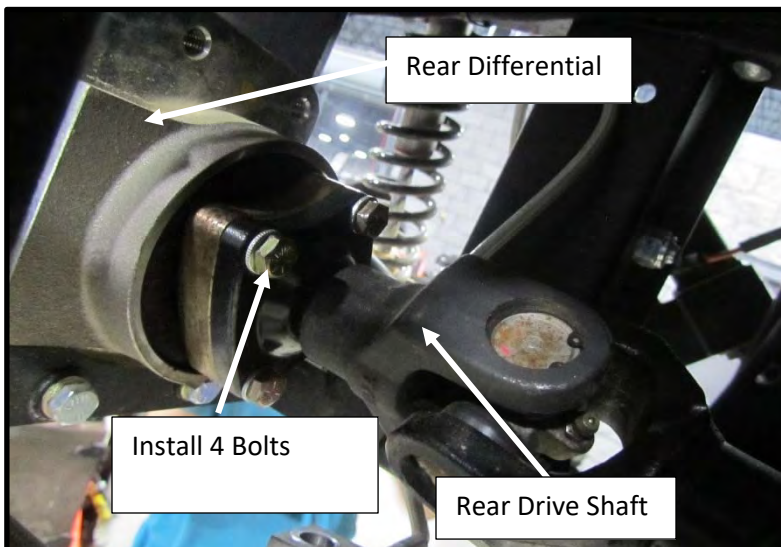
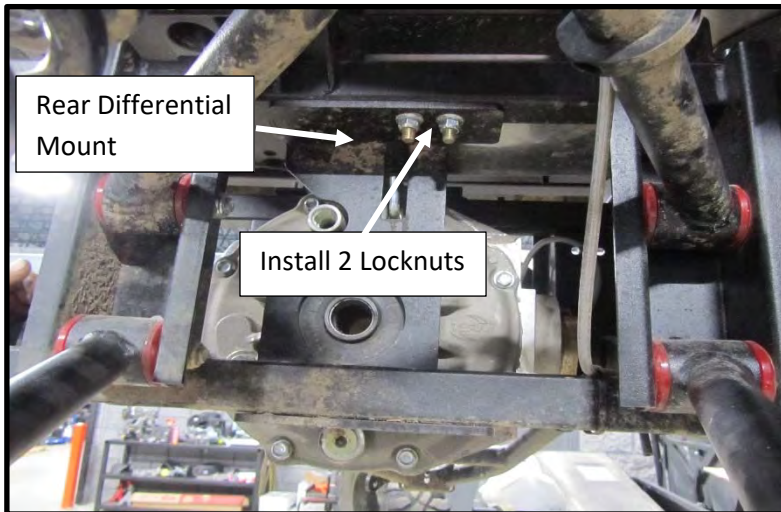
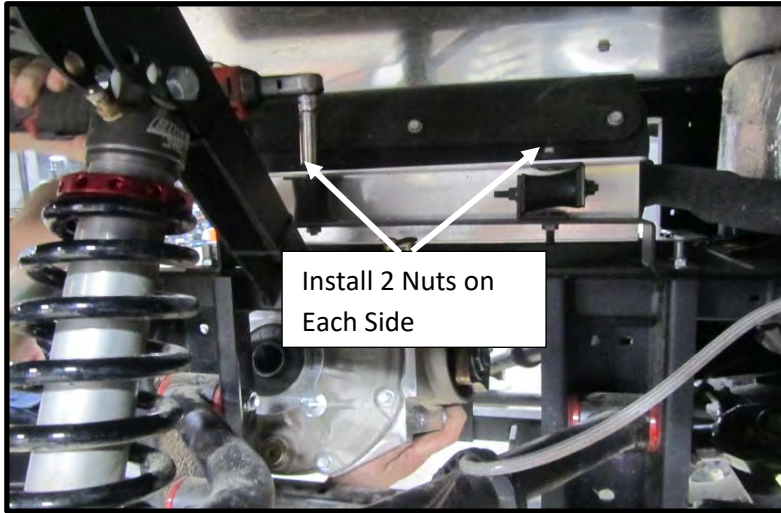


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Section 7 – Rear Drive Train

7.3 Installing Rear Differential

Part 1 Cont. – Installing the Rear Differential



9. Install the 2 nuts on each side of muffler heat shield as shown and tighten with a 1/2" socket.

10. Secure the rear differential mount on the passenger side to the frame by installing the locknuts on the 2 carriage bolts and then tighten with a 1/2" socket and wrench as shown.

11. Connect the rear drive shaft by adding Loctite to the 4 bolts and installing them with *new* lock washers when attaching to the front of the rear differential. Tighten each of 4 bolts with a 1/2" wrench to 25 - 30 ft-lbs.

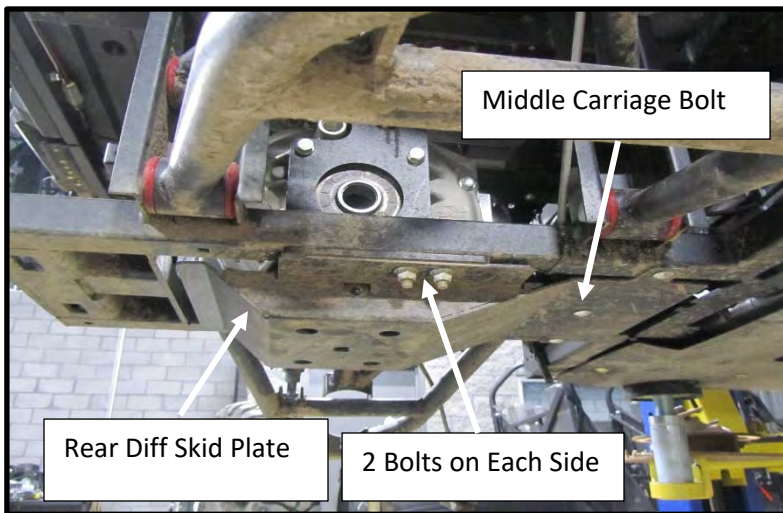


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Section 7 – Rear Drive Train

7.3 Installing Rear Differential

Part 1 Cont. –Installing the Rear Differential



12. Install the rear diff skid plate by first inserting the front middle carriage bolt through the plate and then the brake tee as shown. Tighten the nylock nut using a 1/2" socket / wrench.

13. Next install the 2 remaining carriage bolts and nylock nuts on the front of the rear differential skid plate and the 4 bolts and nylock nuts (2 on each side) on the sides. Tighten each with a 1/2" socket / wrench.

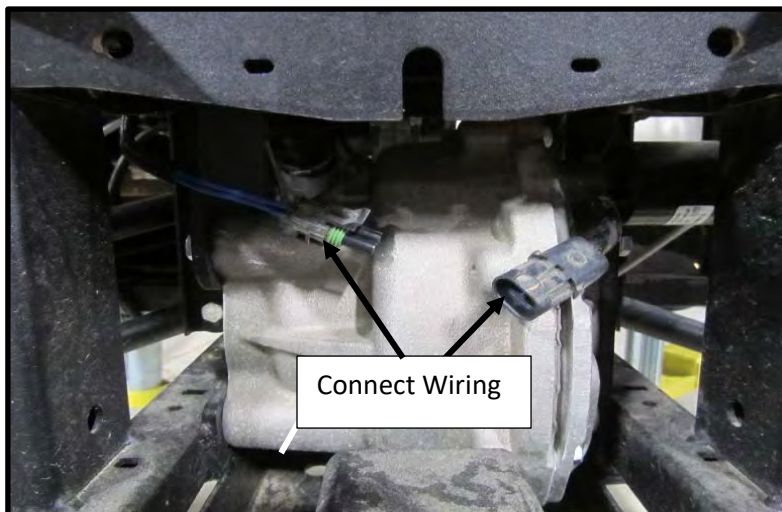
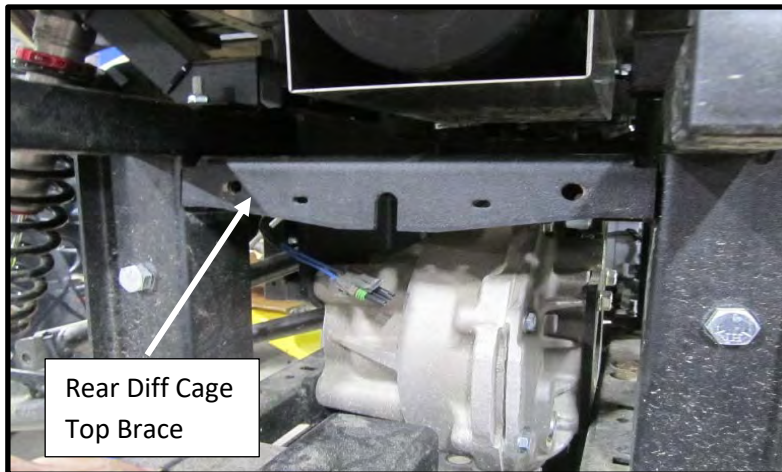
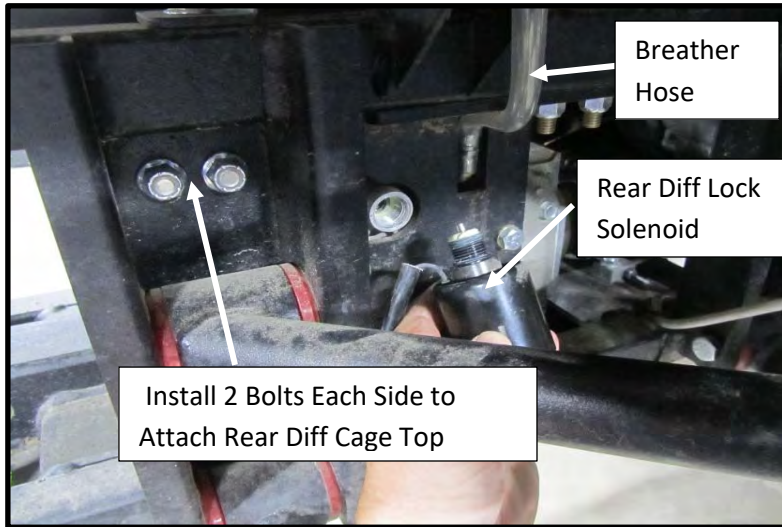


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Section 7 – Rear Drive Train

7.3 Installing Rear Differential

Part 1 Cont. – Installing the Rear Differential



14. Install the clamp and breather hose using pliers on passenger side of rear differential.
15. Install the spring followed by the rear diff lock solenoid on the passenger side of the rear differential as shown. Tighten using a 1-3/16" socket.
16. Install the rear diff cage top brace in place as shown. Install the 4 bolts and nylock nuts (2 on each side) and tighten with a 9/16" socket or wrench.
17. Next connect the rear diff lock solenoid wiring at the rear of the UTV.
18. Follow procedure *7.1 Replacing Rear Half Shaft & CV Boot* to install the rear half shaft, the independent rear suspension, hub, rotor, caliper, and wheel on both sides of the UTV.

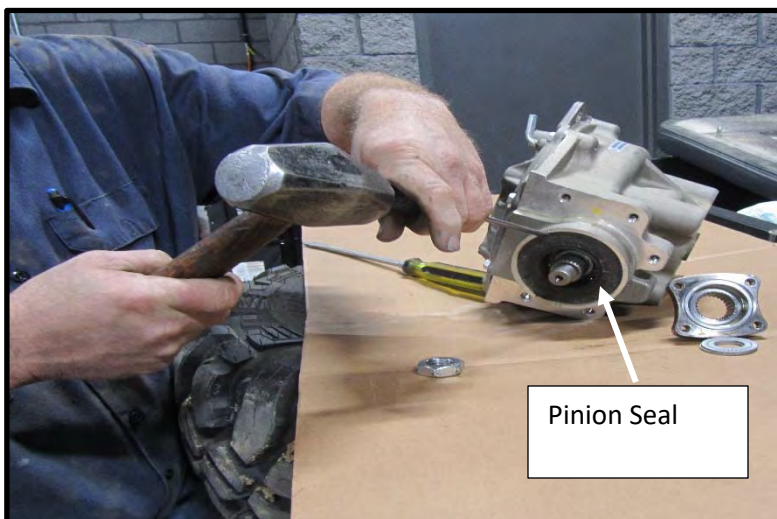
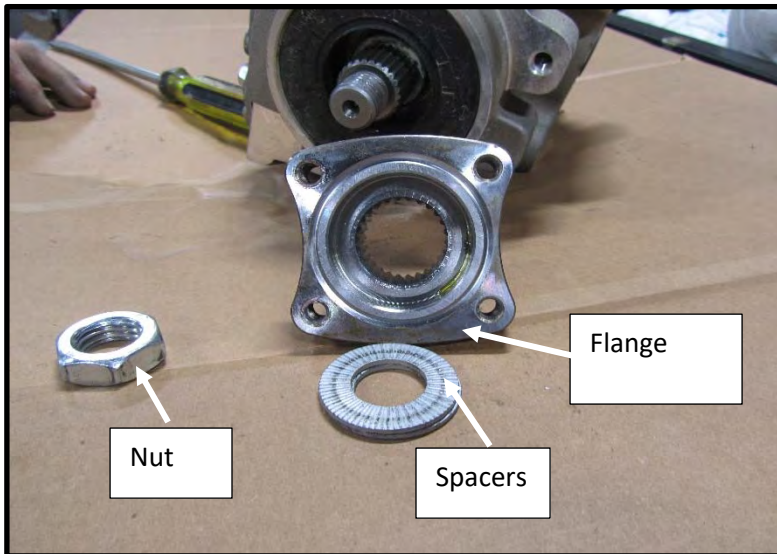
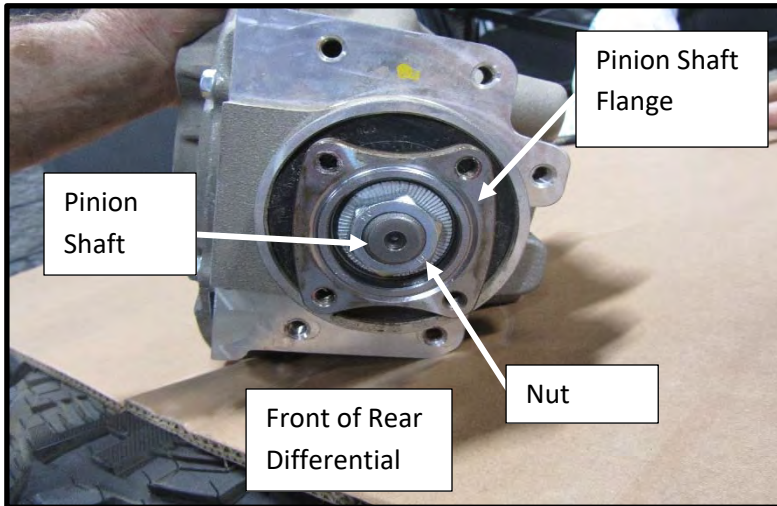


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Section 7 – Rear Drive Train

7.4 Replacing Rear Differential Seals

Part 1 – Replacing the Pinion Seal



Tools: 1-3/16" socket, large & small flat blade screw drivers, hammer, large socket, small punch

1. Remove the rear differential using the procedure *7.2 Removing Rear Differential* and place it on a flat working surface.
2. Using a 1-3/16" socket remove the nut on the front end of rear differential that holds the rear pinion shaft flange as shown.
3. Using a small pry bar or a large flat blade screw driver pry the drive shaft flange spacers from the rear differential as shown.
4. Using a small flat blade screw driver and hammer pry the pinion seal from the rear differential.



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Section 7 – Rear Drive Train

7.4 Replacing Rear Differential Seals

Part 1 Cont. – Replacing the Pinion Seal



5. Apply white lithium grease or a silicone spray to the external circumference of a *new* pinion seal. Position the seal in the opening around the shaft.
6. Using a large socket or a punch gently tap the seal into opening until it is seated.
7. Replace the drive shaft flange, spacers, and nut on front end of rear differential. Add Loctite to the nut and tighten with a 1-3/16" socket to 195-215 ft-lbs.

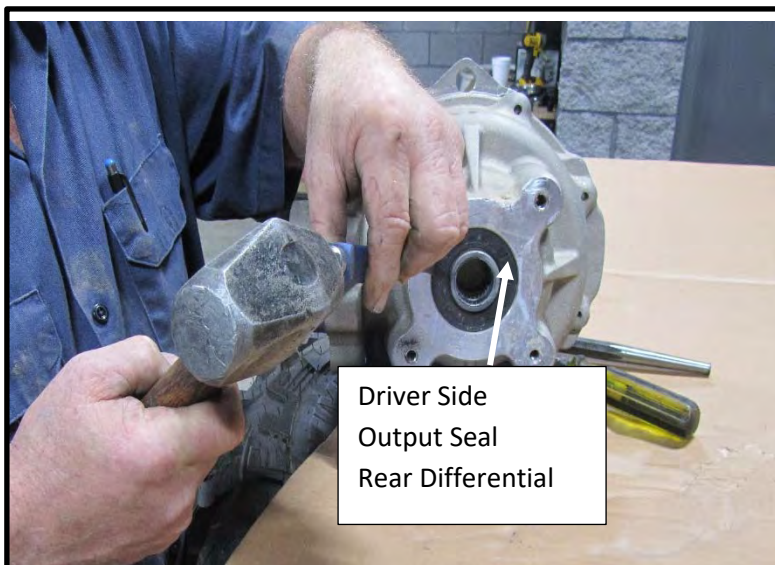
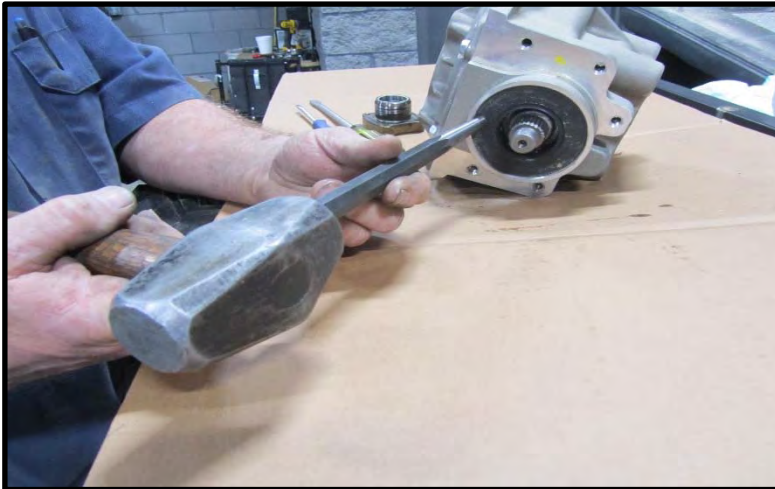
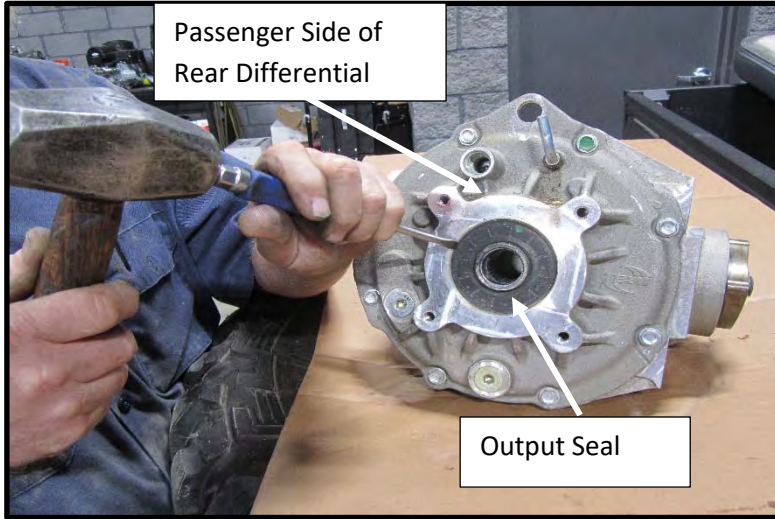


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Section 7 – Rear Drive Train

7.4 Replacing Rear Differential Seals

Part 2 – Replacing the Output Seals



Tools: 9/16" socket and wrench, flat blade screw driver

Note 1: The following steps are for removing and replacing the output seals. The picture shows the right or passenger side output seal. However, the steps are the same for either side.

Note 2: The output seals are different diameters for the two sides.

1. Similar to removal of the pinion seal use a small flat screw driver and hammer to pry out the output seal of the rear differential.
2. Apply white lithium grease or a silicone spray to the external circumference of a *new* output seal. Position the seal in the opening.
3. Using a large socket or a punch gently tap the seal into opening until it is seated.
4. Proceed to replace the output seal on the driver's side using these same steps.

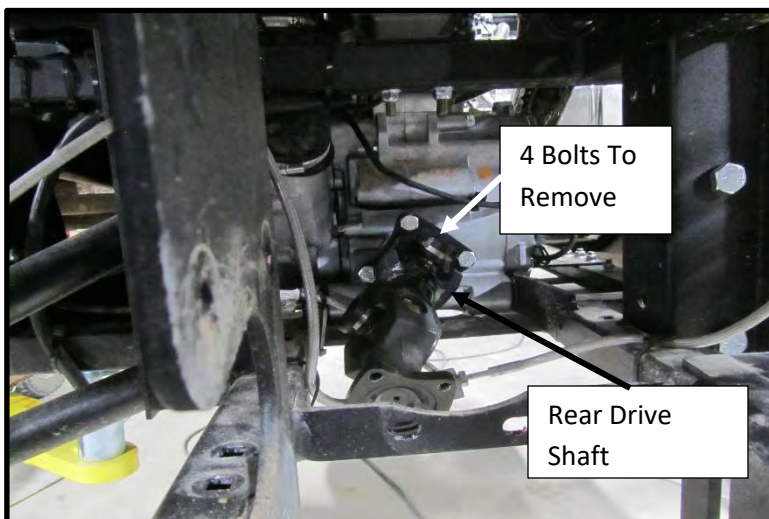
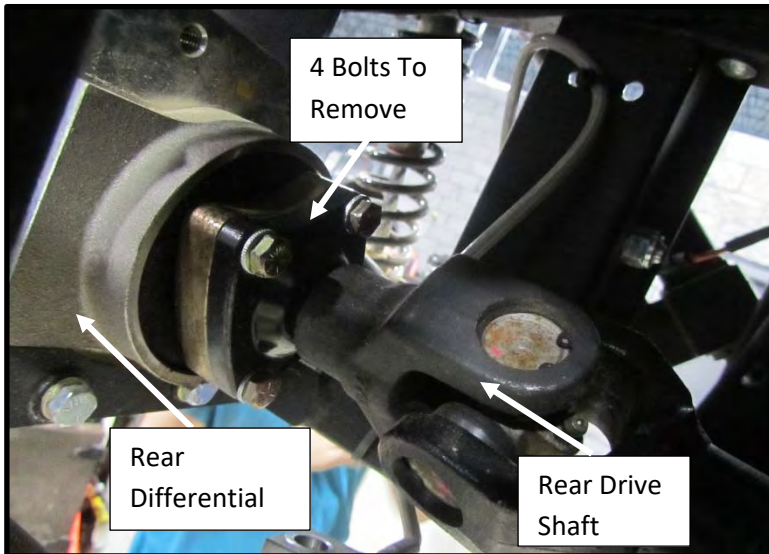
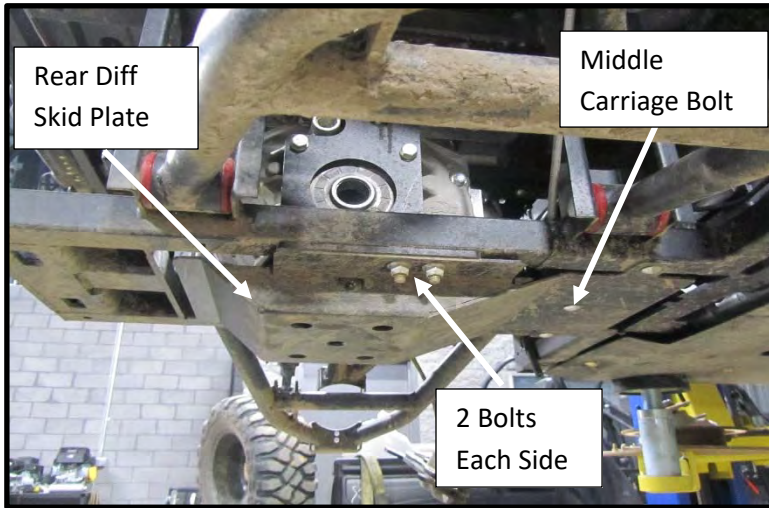


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Section 7 – Rear Drive Train

7.5 Replacing Rear Drive Shaft

Part 1 – Remove the Rear Drive Shaft



Tools: 1/2" socket / wrench, 3/8" socket / wrench

Safety:

- Place the UTV in Park on level ground and turn off the ignition.
1. The rear drive shaft can be accessed from the side of the UTV or from the bottom. If working from side proceed to step 4.
 2. To access the rear drive shaft from bottom then elevate the UTV on a lift or jack and jack stands.
 3. To gain access of the rear drive shaft remove the rear diff skid plate using a 1/2" socket / wrench on the 4 bolts on the sides (2 on each side) and the 3 carriage bolts toward front of plate.

Note: The middle carriage bolt in the front is for securing the brake tee which needs to be free from the plate in order to remove the plate. The brake lines should remain intact with the tee.

4. Remove the rear drive shaft by first removing the 4 bolts at the rear of the drive shaft that connect to the rear differential with a 1/2" wrench as shown. A heat gun may be required for loosening up these bolts.
5. To completely free up the rear drive shaft remove the 4 bolts at the front of the drive shaft that connect to the transmission with a 3/8" socket / wrench. A heat gun may be required for loosening up these bolts.

Note: The picture shows the rear differential removed for clarity sake but it does not have to be removed to remove the drive shaft.

6. Remove the drive shaft. If new u-joints are needed go to procedure 6.3 *Replacing Front Drive Shaft & U-Joints*.

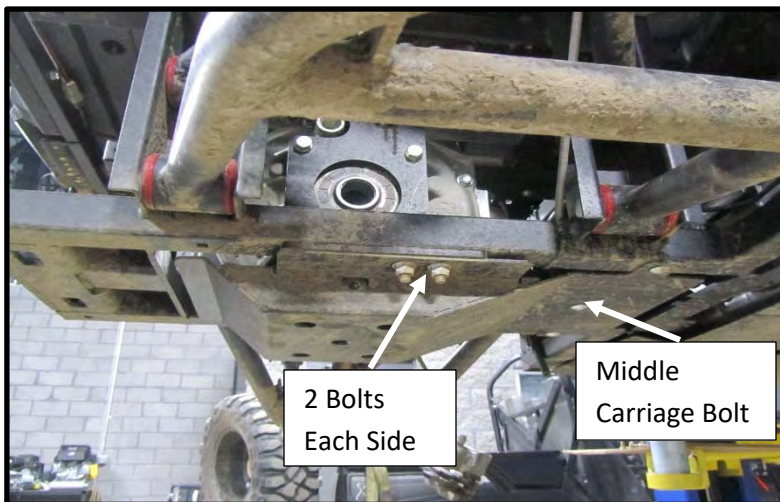
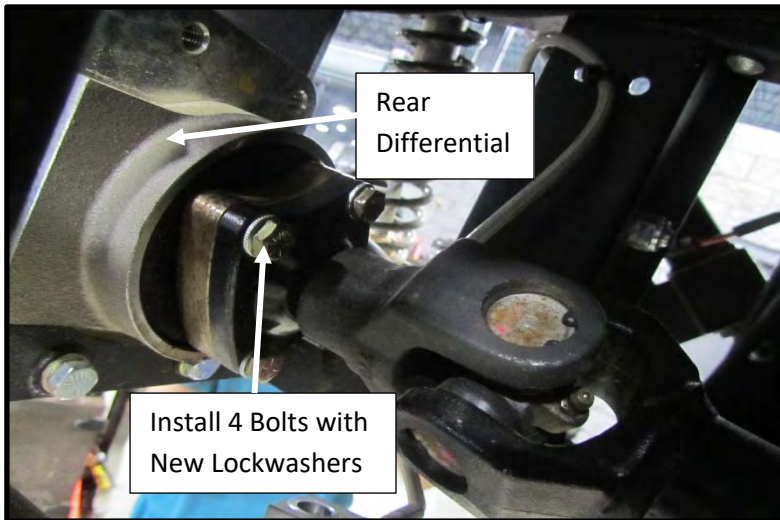
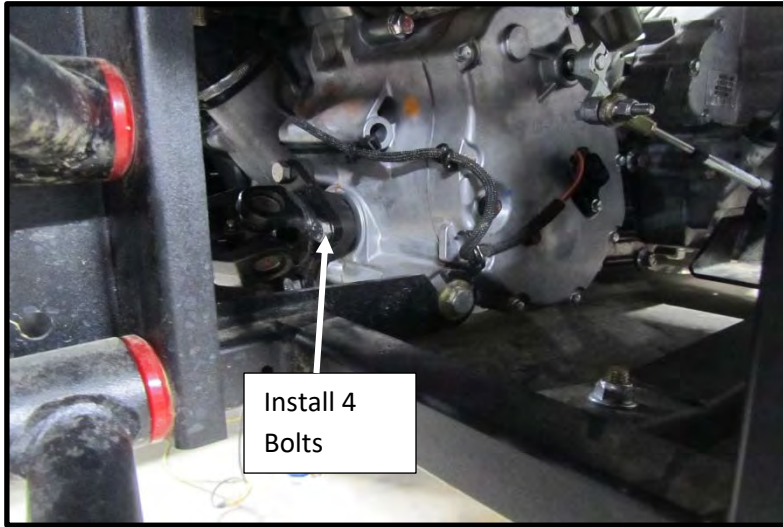


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Section 7 – Rear Drive Train

7.5 Replacing Rear Drive Shaft

Part 2 – Installing the Drive Shaft



Tools: 3/8" socket / wrench, 1/2" socket / wrench

1. To reinstall the rear drive shaft use Loctite on the 4 bolts and connect the front of drive shaft to the transmission with a 3/8" socket or wrench. Tighten to 25 ft-lbs.
2. Complete installation of the rear drive shaft by adding Loctite to the 4 rear bolts and installing them with *new* lock washers when connecting to the rear differential. Tighten each of these bolts with a 1/2" wrench to 25 - 30 ft-lbs.
3. If removed earlier install the rear diff skid plate by first inserting the front middle carriage bolt through the plate and then the brake tee as shown. Tighten the nylock nut using a 1/2" socket / wrench.
4. Next install the 2 remaining carriage bolts and nylock nuts on the front of the rear differential skid plate and the 4 bolts and nylock nuts (2 on each side) on the sides. Tighten each with a 1/2" socket / wrench.

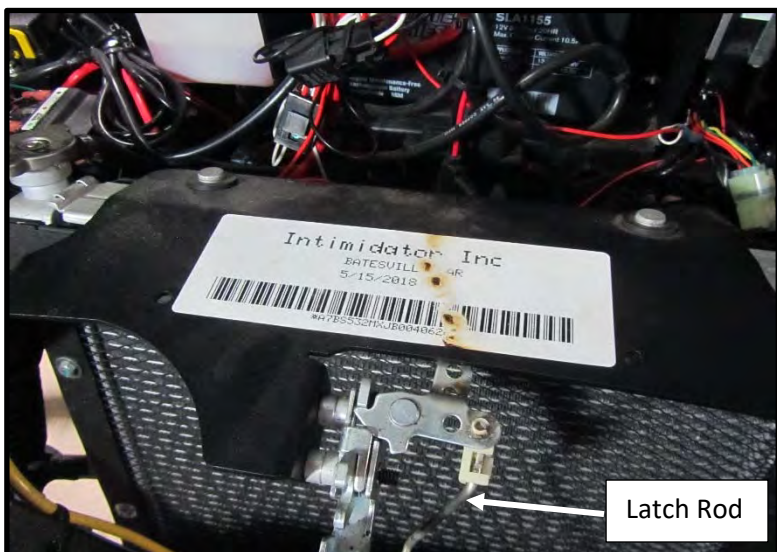
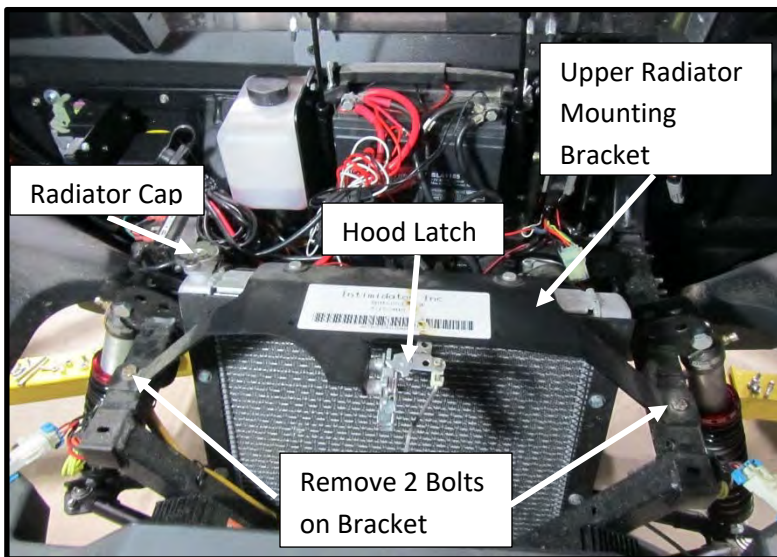
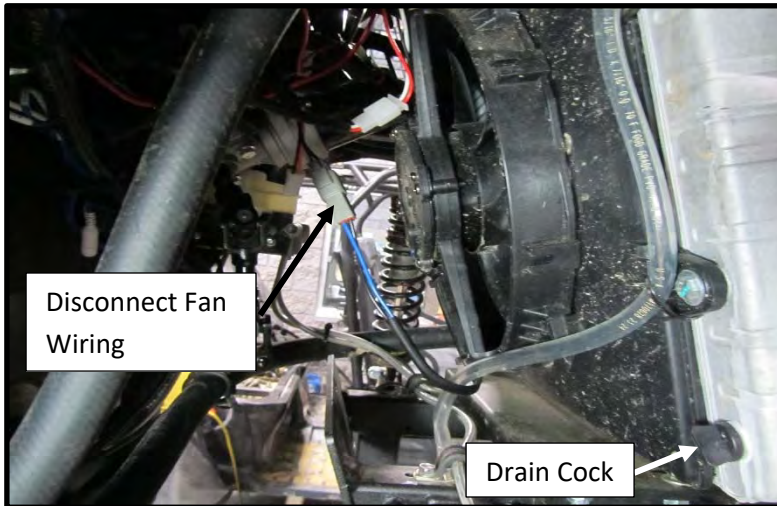


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Section 8 – Cooling System

8.1 Replacing Radiator & Fan

Part 1 – Replacing the Radiator



Tools: 9/16" socket, 1/2" socket / wrench

Safety 1: Be sure radiator has cooled sufficiently before doing this procedure.

Safety 2: Use nitrile disposable gloves and eye protection when draining the radiator and handling radiator coolant. Never let antifreeze come into contact with eyes, skin, or painted surfaces on the UTV. Rinse all spills with large amounts of water.

Safety 3: Note that antifreeze is highly toxic if ingested and can be harmful to people and pets. It is important that the antifreeze never be left in puddles on floor or in open containers. It must be properly disposed of.

1. Place the UTV in park on level ground and turn off the ignition.
2. Drain the radiator coolant into a suitable container by opening up the radiator cap and the drain cock as shown. The drain cock is located at the back and passenger side of the radiator.
3. Disconnect the blue fan wiring from harness by unplugging the two-pin connector as shown.
4. On the top of radiator note location of the upper radiator mounting bracket and the hood latch.
5. Using a 9/16" socket remove the 2 bolts securing the upper radiator bracket to the frame.
6. Disconnect the latch rod from the hood latch bracket.

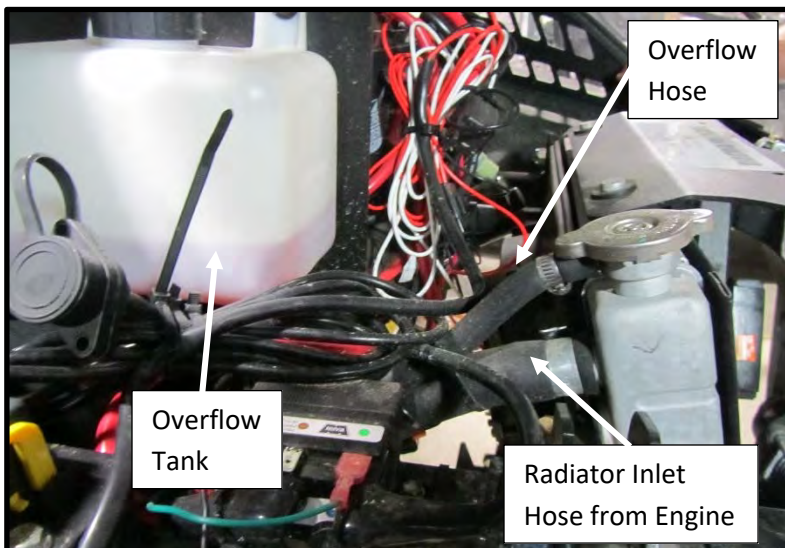
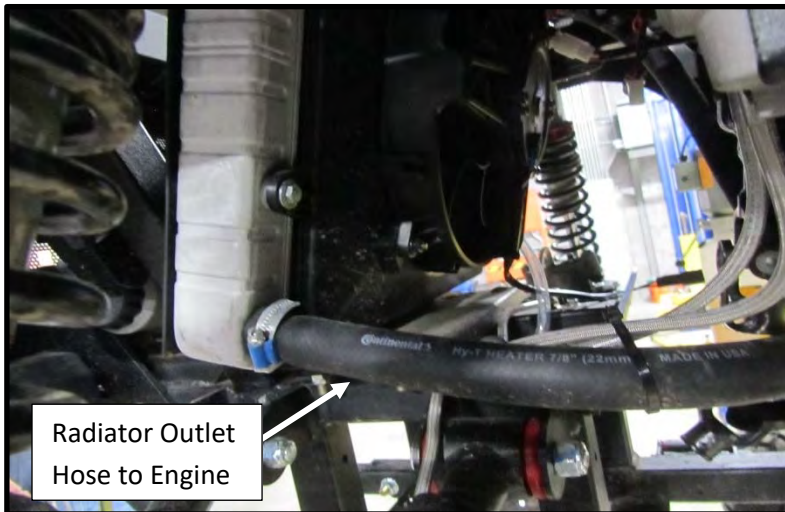
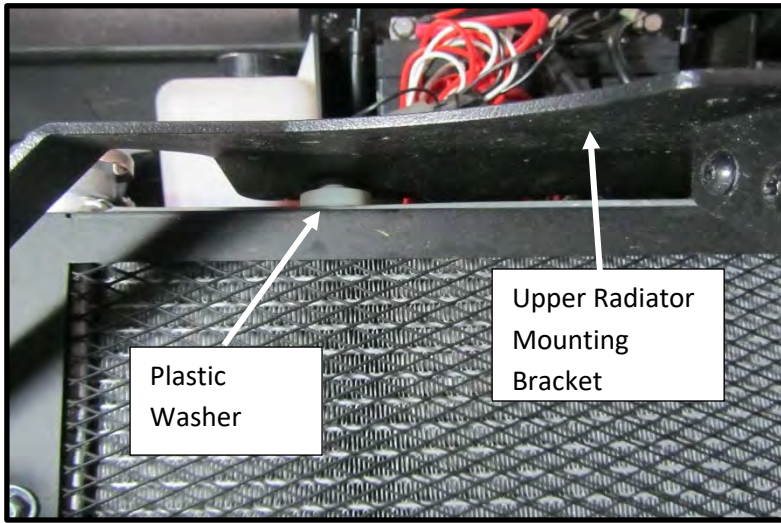


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Section 8 – Cooling System

8.1 Replacing Radiator & Fan

Part 1 Cont. – Replacing the Radiator



7. Remove the upper radiator mounting bracket. Remove the plastic washers and rubber grommets in the bracket holes and save for reinstallation.
8. Locate a drain pan under the outlet hose of the radiator on the driver side to catch coolant spills. Loosen the clamp from inlet hose and pull the hose from the radiator.

Note: A blunt hose clamp can be installed on the hoses and tightened to minimize any coolant spills.

9. Locate a drain pan under the radiator outlet hose on the passenger side to catch coolant spills. Loosen the clamps on the 2 hoses (inlet and overflow) and disconnect the hoses from the radiator.

Note: A blunt hose clamp can be installed on the inlet hose and tightened to minimize any coolant spills.

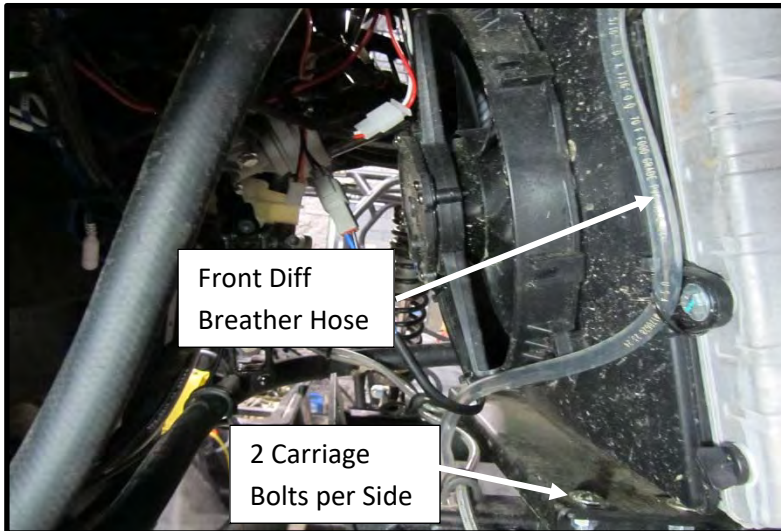
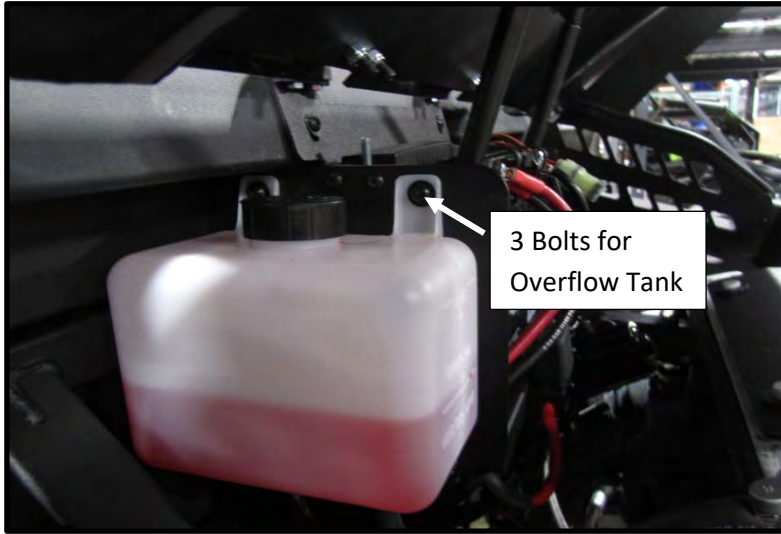


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Section 8 – Cooling System

8.1 Replacing Radiator & Fan

Part 1 Cont. – Replacing the Radiator



10. The overflow line goes to the bottom of the radiator overflow tank at the firewall. To remove this overflow tank if needed use an appropriate driver to remove the 3 bolts as shown.
11. Properly dispose of any antifreeze collected.
12. Disconnect the front differential breather hose from the rear of the radiator.
13. Pull the radiator up and out of UTV. Note that it can still contain some coolant.
14. Note that there are 2 plastic washers on each of the bottom radiator pegs that rest on plastic grommets on top of the lower radiator mounting brackets. These plastic washers and grommets are needed for reinstallation of radiator.
15. To remove the lower radiator mounting bracket if needed use a 1/2" socket / wrench to remove the 4 carriage bolts in the bracket.
16. Installation steps for the radiator should be done in the exact reverse order as described here for removal.
17. Proceed to procedure *8.2 Bleed Air from Radiator* to fill the radiator and to bleed air from cooling system.

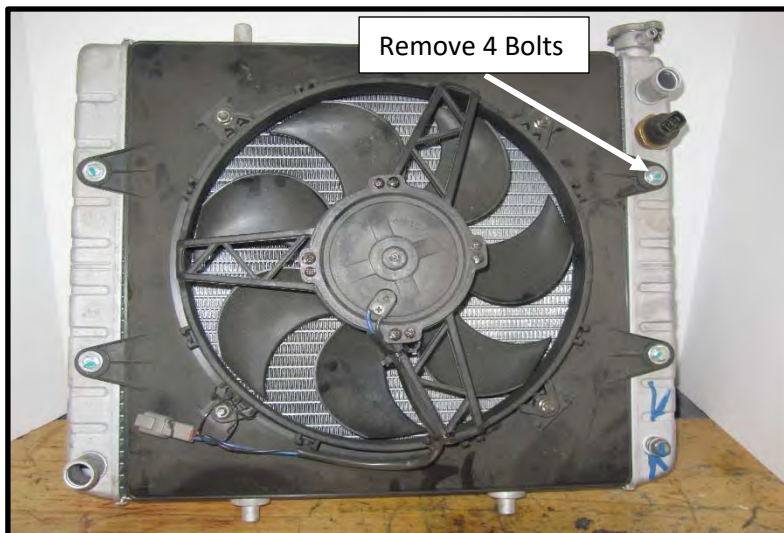
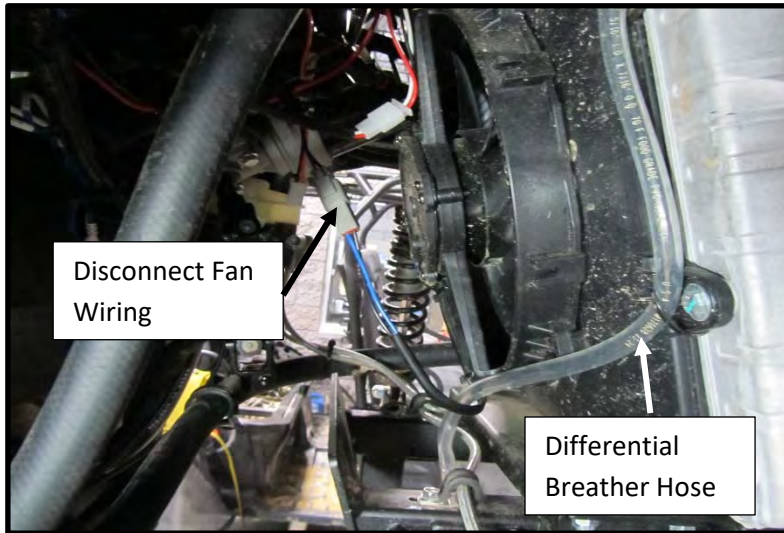


Service Manual – GC1K 2018 and later

Section 8 – Cooling System

8.1 Replacing Radiator & Fan

Part 2 – Replacing Radiator Fan



Tools: 3/8" wrench

The radiator fan can be removed without having to remove or drain the radiator.

Safety: Allow the radiator to cool to room temperature before doing this procedure.

1. Disconnect the blue fan wiring from harness by unplugging the two-pin connector as shown.
2. Using a 3/8" wrench remove the 4 bolts at the rear of the radiator.
3. Disconnect the front differential breather hose from the fan.
4. Pull the fan out from the top.
5. Install a new identical fan at the rear of the radiator.
6. Using Loctite on the 4 bolts install and tighten them to 61 in-lbs.
7. Attach the front differential breather hose to radiator fan.
8. Connect the fan wiring.
9. Start the engine and let it run to ensure the fan is cycling on and off as it should and that the fan is pulling air through the radiator (not pushing air through the radiator).

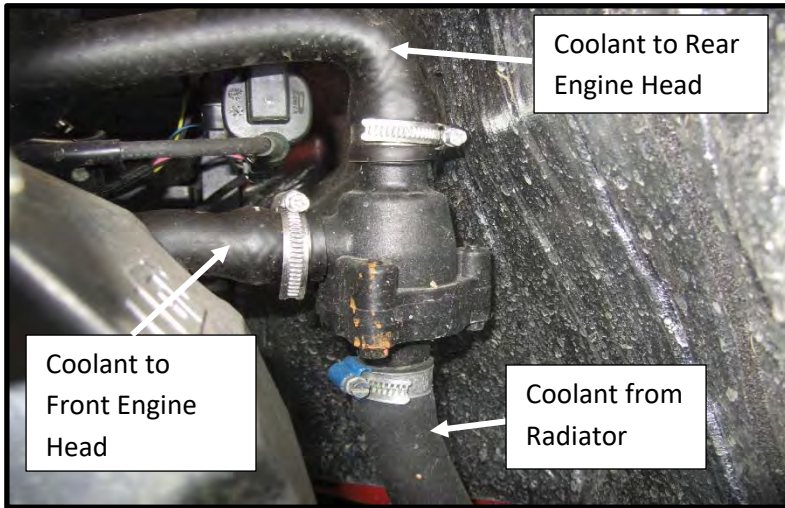


Service Manual – GC1K 2018 and later

Section 8 – Cooling System

8.2 Purging Air From Radiator System

Part 1 – Purging Air



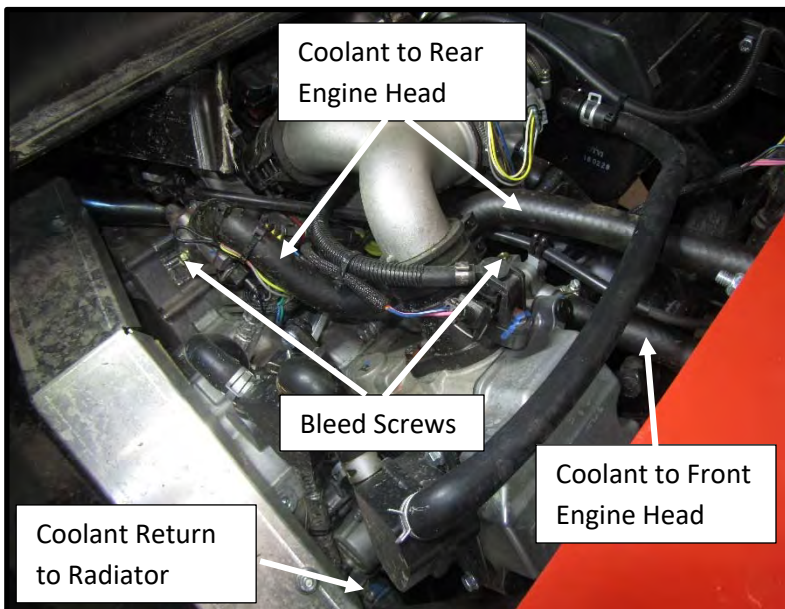
Tools: Infrared temperature gun, 3/8" wrench

Coolant from the radiator splits at the front of the engine and goes to the rear engine head and to the front engine head in 2 separate hoses as shown. When air is present in the coolant system it tends to accumulate in one of these hoses and has to be bled off for the cooling system to work properly. Use this procedure anytime air is introduced into the system such as when an engine, radiator, or hose is replaced.

Safety 1: Because the cooling system has to be at operating temperatures (above 190 F) it is important to protect yourself from thermal burns when bleeding the air or touching the hoses.

Safety 2: Use nitrile disposable gloves and eye protection when bleeding air from the coolant system. Never let antifreeze come into contact with eyes, skin, or painted surfaces on the UTV. Rinse all spills with large amounts of water.

Safety 3: Note that antifreeze is highly toxic if ingested and can be harmful to people and pets. It is important that the antifreeze never be left in puddles on floor or in open containers. It must be properly disposed of.



1. With the UTV on level ground place the transmission in PARK. Allow the UTV to run at normal operating temperature.
2. Remove the front seat.
3. Locate the coolant hoses from the radiator to the front and rear engine heads.

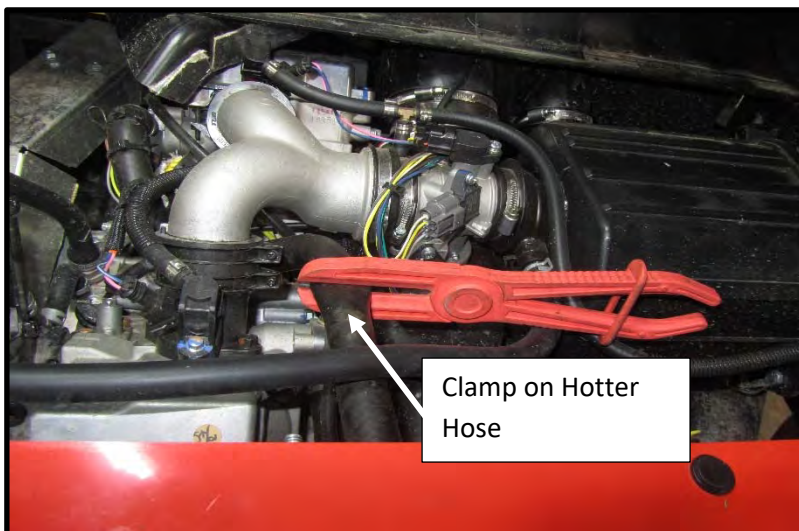
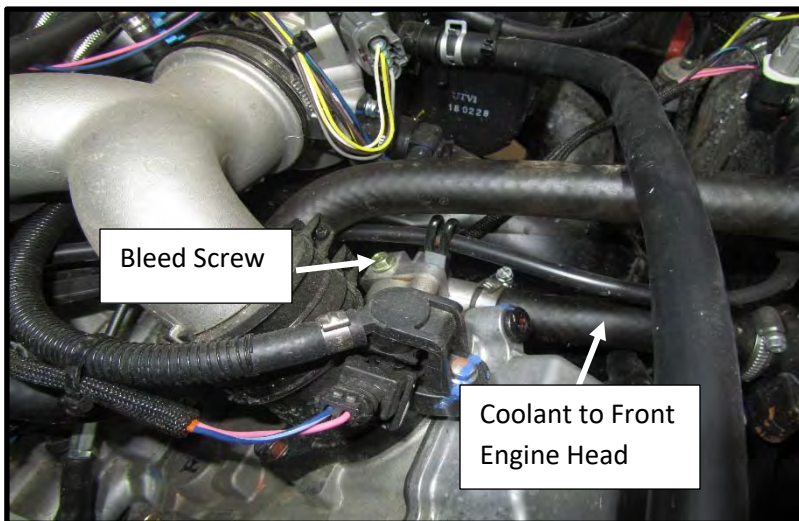
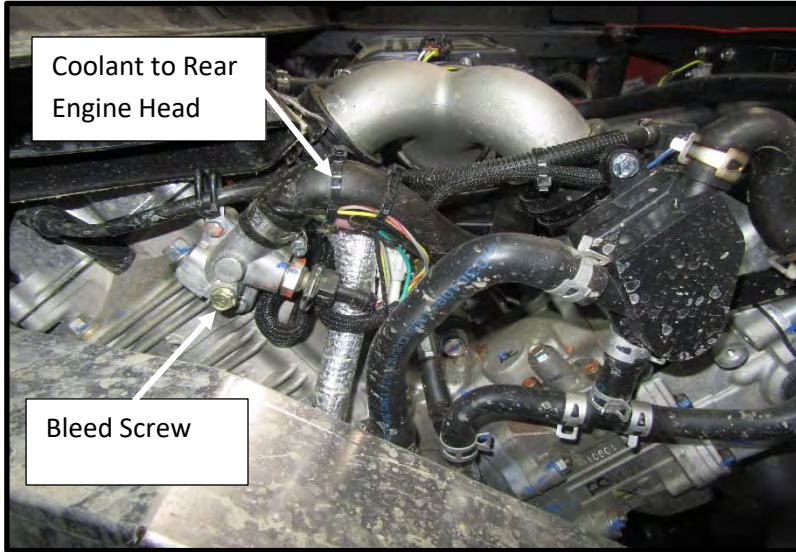


Service Manual – GC1K 2018 and later

Section 8 – Cooling System

8.2 Purging Air From Radiator System

Part 1 Cont. – Purging Air



4. Locate the bleed screws on each of the heads as shown.
5. Using an infrared temperature gun check the temperature of the 2 hoses going to the engine heads. An air pocket in one of the hoses will result in it being cooler than the one without an air pocket. The temperature difference in the 2 hoses should be significant – at least 5 – 10 degrees F.
6. Add a blunt radiator hose clamp to the *hotter* hose as shown. Close the clamp to about 75 – 80 % closed.

Note: The picture shows the clamp on the rear head hose but either one could be the *hotter* hose.

7. Open the bleed screw using a 3/8" wrench on the *cooler* hose slightly to bleed air off until a solid stream is exiting the bleed valve.

Note: Use rags or paper towels to catch the coolant bled off.

8. Once air is bled off tighten the bleed screw and remove the clamp.
9. Allow engine to run and observe the temperature and fan performance on the dash display. The fan should kick on at ~196 F and kick off at ~173 F. Allow the fan to go through a couple of cycles to ensure all the air is removed. If it does not cool down properly then this procedure needs to be repeated.
10. Once the air is purged turn off the engine and clean up and dispose properly of any coolant.

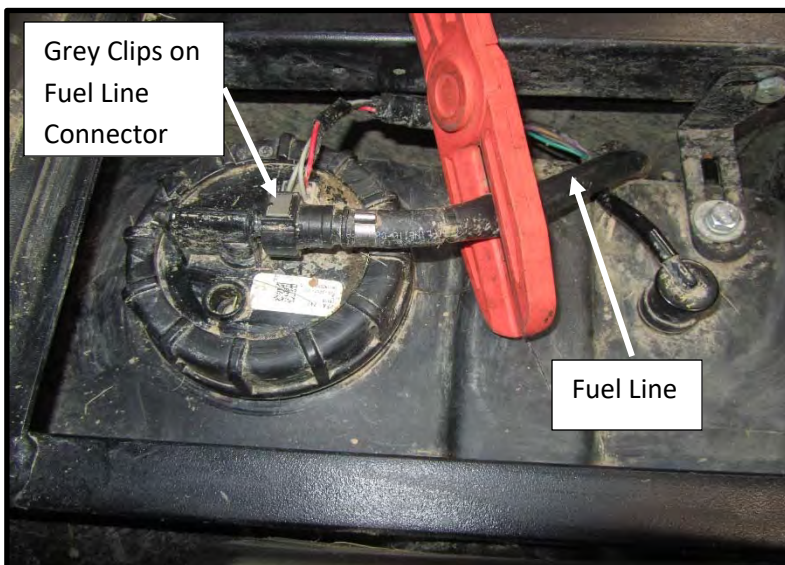
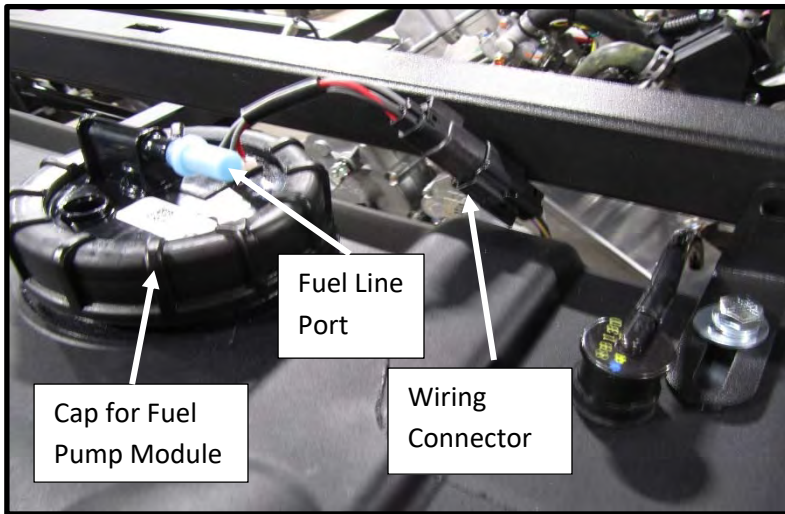
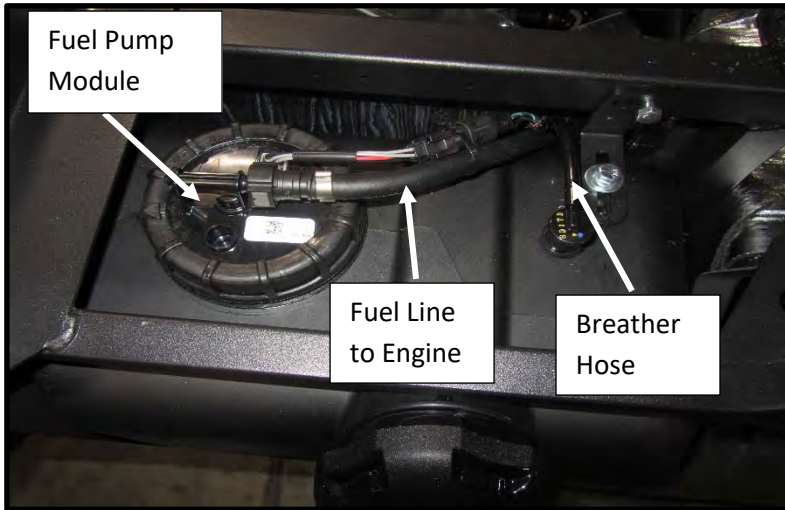


Service Manual – GC1K 2018 and later

Section 9 – Fuel System

9.1 Replacing Fuel Pump Module

Part 1 – Replacing Fuel Pump Module



Tools: blunt edge hose clamp, pliers, large channel lock pliers

Safety:

- Place the UTV in Park on level ground and turn off the ignition.
- No open flames (including smoking) or area heaters should be present when opening up the fuel tank.
- Have the new fuel pump module ready and available to install before ever removing the existing module.

1. Locate the fuel pump module which is mounted on the fuel tank on the passenger side of the UTV.
2. Disconnect the fuel pump module wiring by unplugging its two-pin connector.
3. The fuel line needs to be relieved of its pressure by starting the engine and let it run for a few seconds.
4. Place a blunt edge hose clamp on the fuel line and clamp it closed completely as shown.
5. Note the two quick connect (grey clips) on each side of the fuel line clamp.

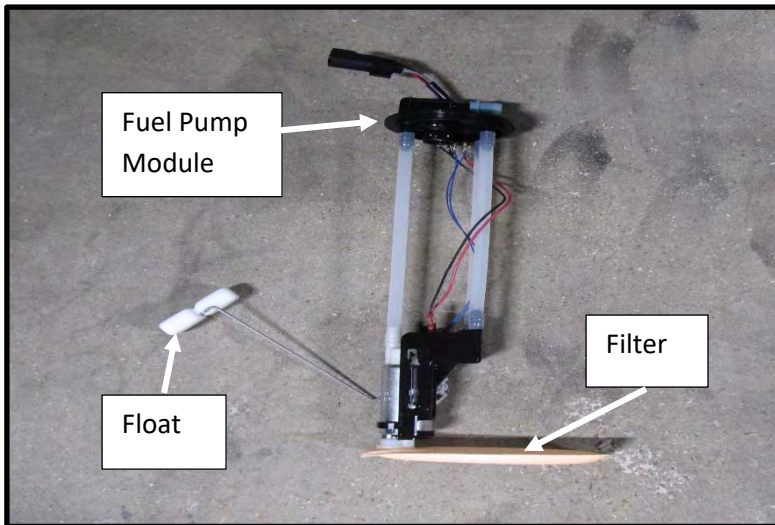


Service Manual – GC1K 2018 and later

Section 9 – Fuel System

9.1 Replacing Fuel Pump Module

Part 1 Cont. – Replacing Fuel Pump Module



6. Using pliers as shown place them on the grey clips and press down to release the fuel line clamp.
7. Pull the hose off. Some fuel will still be present. Be prepared to clean up with a rag.
8. Using large channel locks or a cap removal tool loosen and remove the cap from the fuel pump module. Note the gasket in the top of cap.
9. Remove the fuel pump module.
10. **Immediately** install an identical new one into the fuel tank being careful to not bend the float and that the filter stays in place.
11. Making sure the gasket is in top of cap place the cap on top of fuel pump module and hand tighten.
12. Once the cap is threaded on properly and hand tightened then finish tightening with channel locks. Be careful to not tighten too much and damage the plastic threads.
13. Push the fuel line clamp onto the fuel line port on top of module.
14. Remove the blunt edge hose clamp.
15. Plug in the wiring connector.
16. Start the engine to ensure the module works properly and that the fuel line connection does not leak.

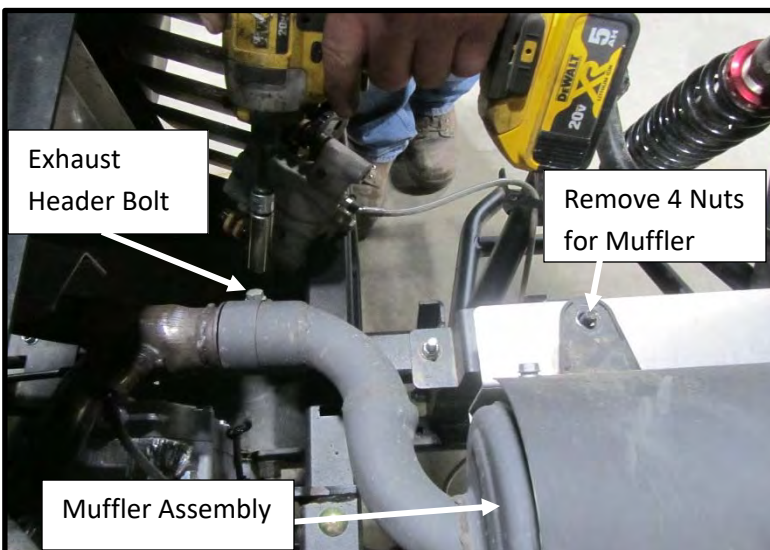
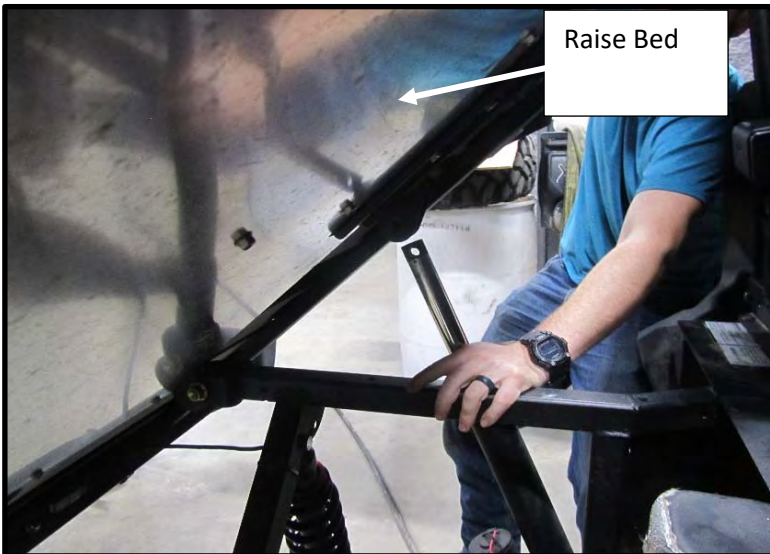
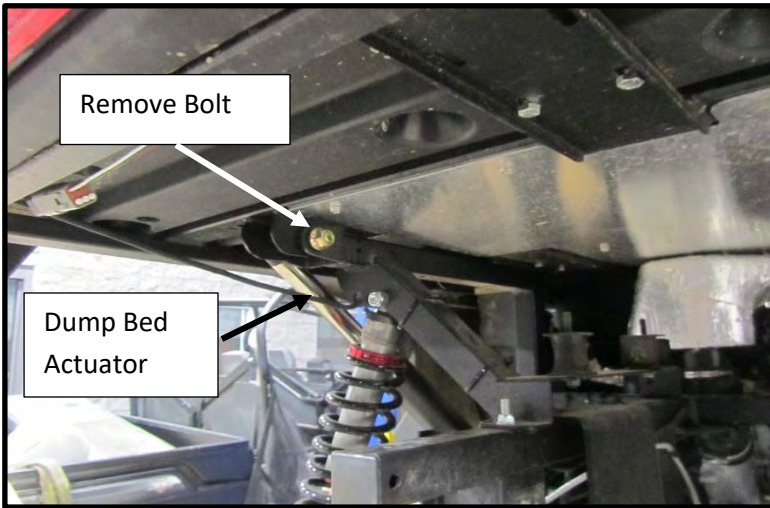


Service Manual – GC1K 2018 and later

Section 10 – Exhaust System

10.1 Replacing Muffler & Spark Arrester

Part 1 – Replacing Muffler & Spark Arrester



Tools: 3/4 "socket /wrench, 1/2" socket, 3/8" socket

Safety:

- Place the UTV in Park on level ground and turn off the ignition.
1. Remove any items in the bed then raise the dump bed.
 2. Using a 3/4 "socket remove the bolt at the end of the dump bed actuator that connects to the bed as shown.
 3. Place the bed in the vertical position to allow more room to UTV components below.
 4. Using a 1/2" socket remove the 4 nuts that hold the muffler assembly in place.
 5. With a 1/2" socket / wrench remove the nut on bottom holding the exhaust header as shown. Slide the pipe from the exhaust connection and lift the muffler assembly out.

Safety: Ensure that the gasket in the end of the exhaust header (not shown in photograph) is in good shape. If not replace with a new one when reinstalling the muffler assembly.

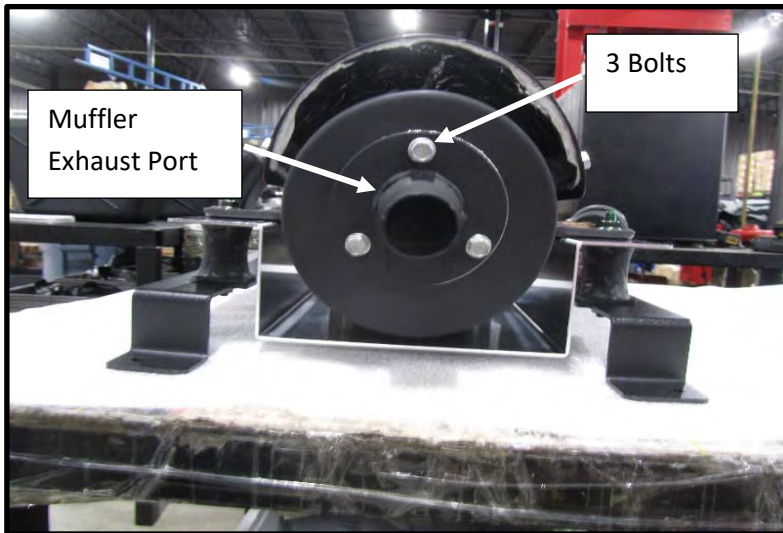
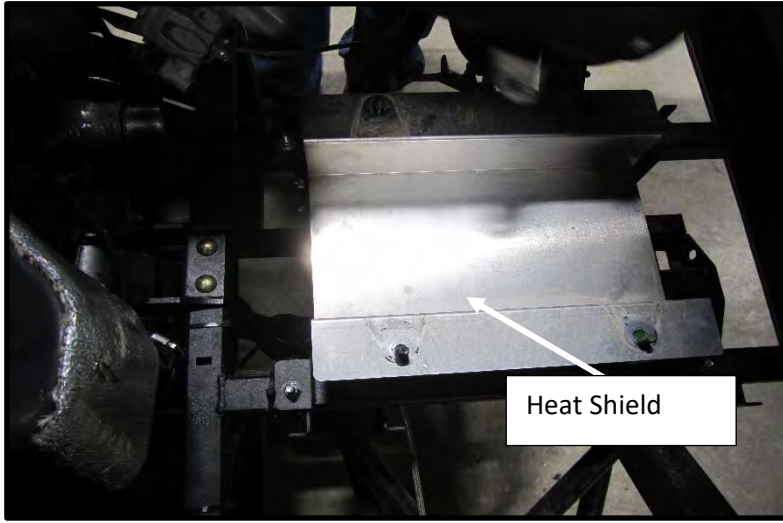


Service Manual – GC1K 2018 and later

Section 10 – Exhaust System

10.1 Replacing Muffler & Spark Arrester

Part 1 Cont. – Replacing Muffler & Spark Arrester



6. If needed the heat shield can be removed and replaced at this time.
7. Reinstall the heat shield, the muffler assembly, and the dump bed in exact reverse order.
8. The muffler exhaust port and spark arrester are located at the very rear of muffler. If needed these can be replaced at any time by using a 3/8" socket to remove the 3 bolts as shown.
9. Replace any parts as needed with identical parts and install into muffler as shown. Tighten the 3 bolts.

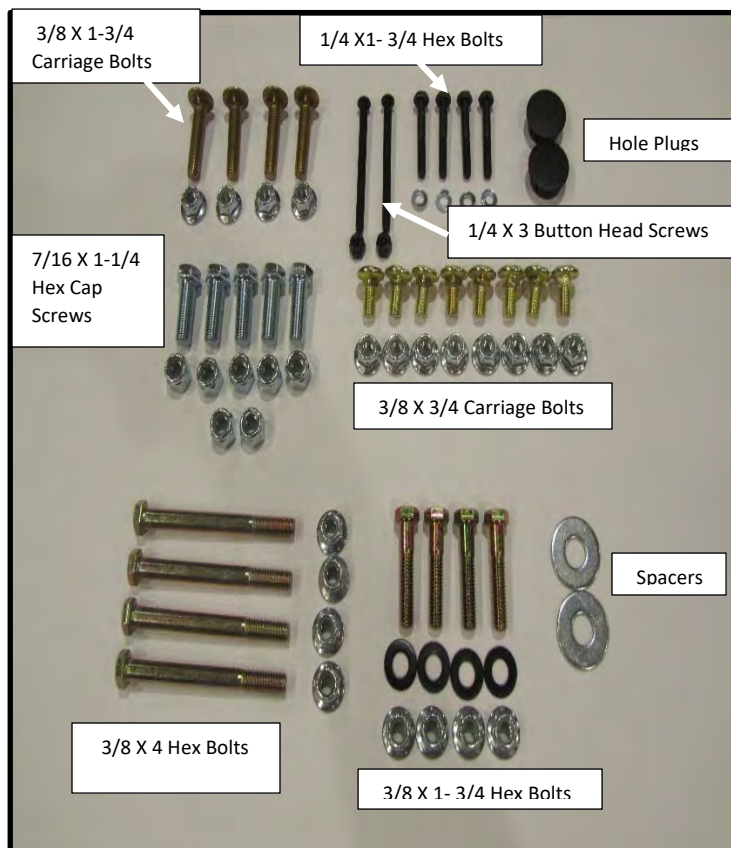


Service Manual - Intimidator 2016 - GC1K 2018 and later

Section 11 – ROPS

11.1 Standard & Truck Roll Cage Installation

Part 1 – Getting Started & Installing Seat Belt Latches



This procedure was originally written for and describes how to install the roll cage, seats and belts, and safety nets on Intimidator Classic model UTV and on a Truck Model UTV. While it is still accurate for these models it is also applicable to the GC1K Classic roll cage installations. While there are some differences between the styles they all use the same connecting hardware and same basic methods for installation. The main difference is the GC1K does not utilize safety nets. Additional info may be helpful from the ROPs Assembly and Safety Net Assemblies pages in the associated Parts Manuals.

Note: The majority of the steps in this procedure are identical for the GC1K, Standard, and Truck installations. *Where there are differences the Truck instructions are shown in italics and the GC1K are shown in BOLD.*

Safety:

- Place the UTV in Park on level ground and turn off the ignition.

1. Open the parts package (PN 618-2088-00) and locate the hardware as shown in the picture.

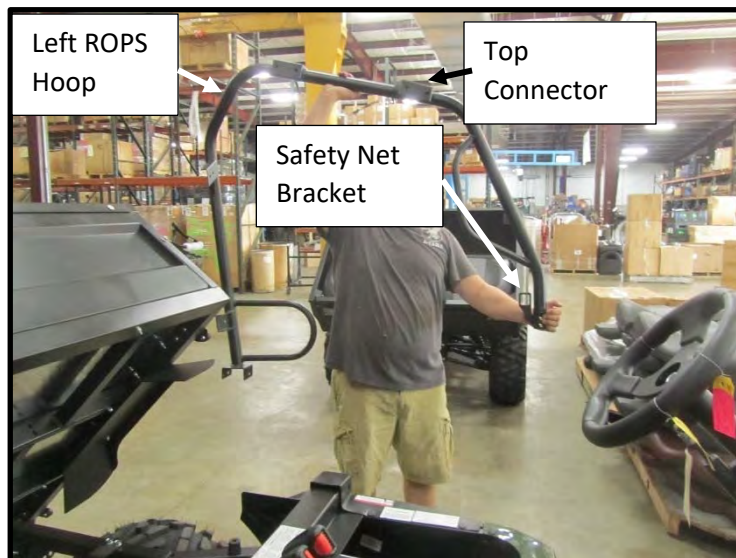
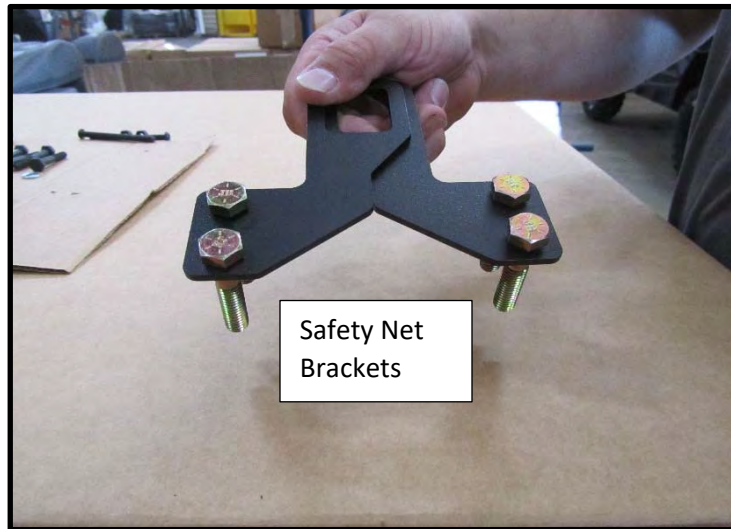
Note: All the 3/8" bolts use 3/8" Nylock flange nuts and the 7/16" and 1/4" screws use regular Nylock nuts.

2. Install the 3 seat belt latches pointed toward the front as shown. Secure with 7/16" X 1-1/4" hex cap screws, flat washers, and Nylock nuts and tighten with a 5/8" socket and wrench.

Note: The GC1K driver side seat belt has a sensor used to limit the engines power if the seat belt is not buckled. This seat belt latch needs to be connected to wiring harness.



Part 2- Install the ROPS Hoop Assemblies



1. Locate the 2 Safety Net Brackets and place the 4 hex bolts (3/8 X 1-3/4) through both of the brackets as shown.

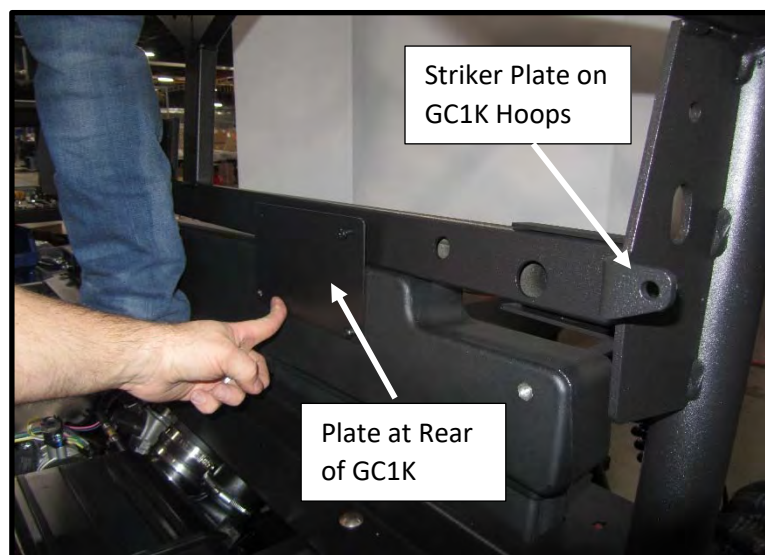
Note: The GC1K does not have these brackets. For the GC1K complete all the steps as described in this part but without these brackets.

2. Place the 4 black flat washers onto the hex bolts on back side of Safety Net Brackets. Insert one of the Brackets and its bolts/washers into the flat side of the Left ROPS Hoop as shown. The washers should be located between the Safety Net Bracket and the Hoop.

Note 1: The Left ROPS Hoop will have its top connectors pointing inward as shown in the picture.

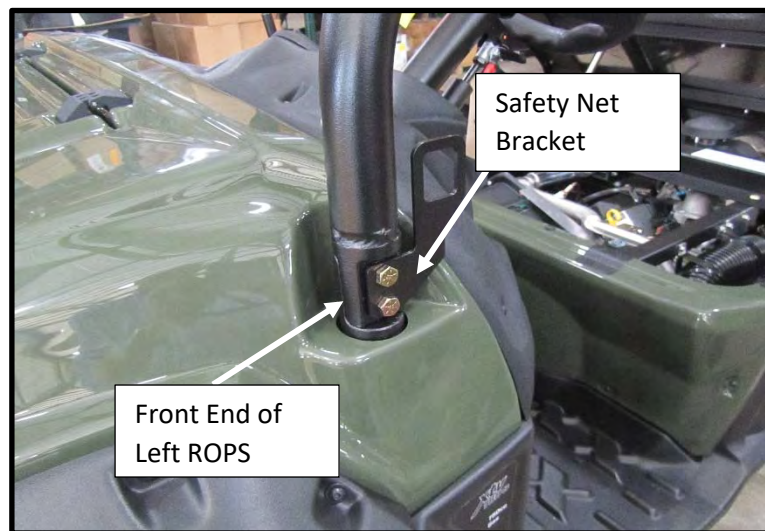


Part 2 Cont. – Install the ROPS Hoop Assemblies



Note 2: The GC1K ROPS Hoop has a striker plate at the rear of the hoop that the older Intimidator models do not have. The hardware connection points are still in the same locations for both styles of hoops.

Also, the picture shows a plate for GC1K models that attaches the Air Intake Housing with the rear K brace.



3. Holding the Safety Net Bracket in place install the front end of the Left ROPS Hoop into its connector as shown.

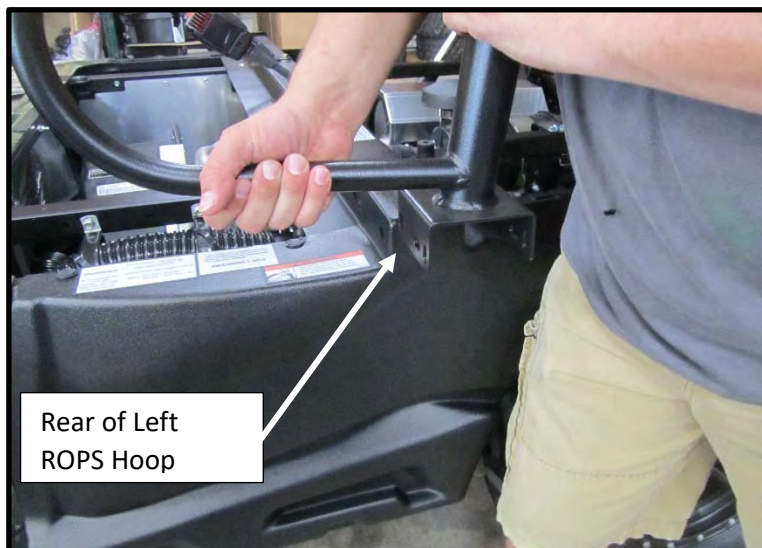


4. Add two nylock flange nuts to the hex bolts. Due to limited space a good way to do this is holding the nut between your fingers as shown to get it started.

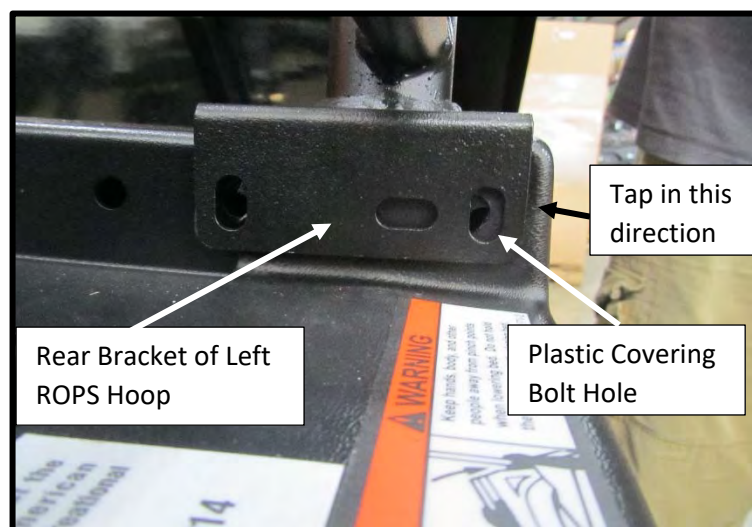
Note: Only install nuts hand tight at this point. They will be tightened later.



Part 2 Cont. – Install the ROPS Hoop Assemblies



5. Pull out back of Left ROPS Hoop then push it forward as shown and slide it over rear channel to where the holes match up.



6. Using a hammer lightly tap the plastic toward middle of UTV.



7. Sometimes the side plastic piece covers the bolt hole and needs to be drilled out using a 3/8" drill bit as shown.



11.1 Standard & Truck Roll Cage Installation

Part 2 Cont. – Install the ROPS Hoop Assemblies



8. Insert 2 hex bolts (3/8 X 4) through the rear bracket but do not install the nuts at this time. These bolts are used for installing the seat belts also.

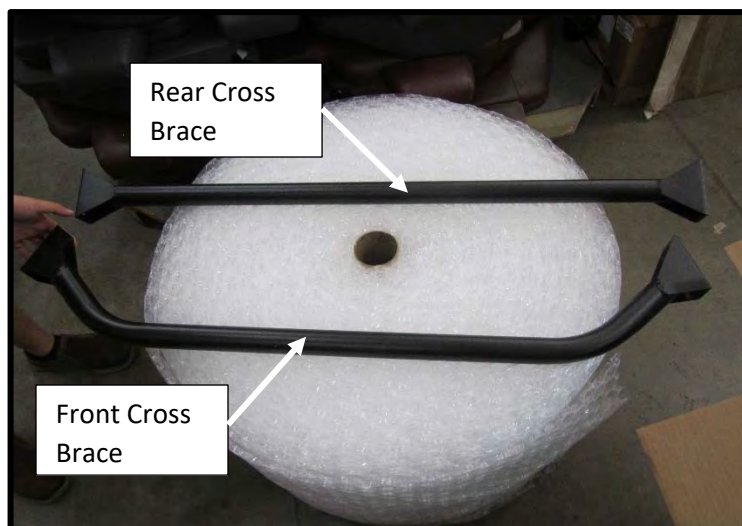
Note: Installing the inside bolt first is usually the easiest way.

For the Truck model only install the outside 3/8 X 4 Hex bolt at this time using a hammer to drive it through as shown. Add a Nylock flange nut onto the bolt on back side of bracket. Hand tighten.

Note: The picture shows a right ROPS Hoop being installed on a Truck model.

9. Repeat Part 2 to install the opposite ROPS Hoop in the same manner.

Part 3 – Install the Cross Brace Assemblies



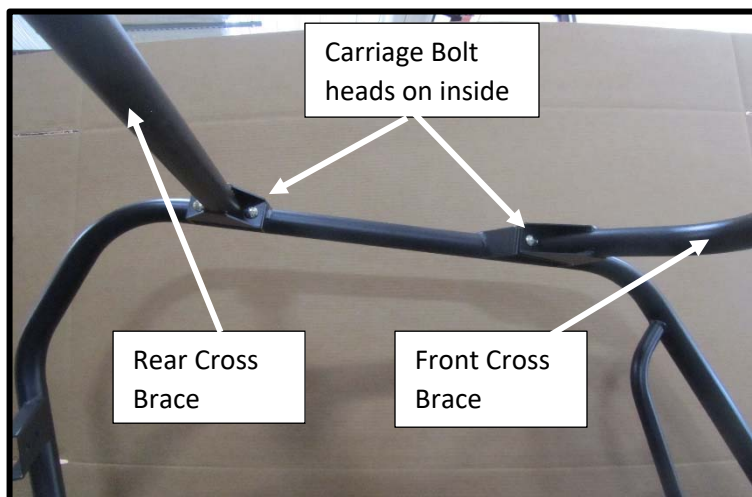
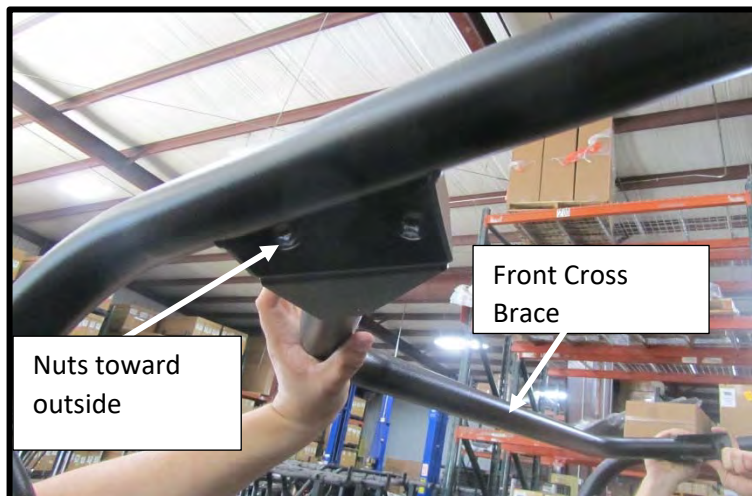
Note: This step is a two-person job.

1. Note the Front Cross Brace is curved while the Rear Cross Brace is straight as shown.



11.1 Standard & Truck Roll Cage Installation

Part 3 Cont. – Install the Cross Brace Assemblies



2. Install the Front Cross brace first with its curved portion pointing toward the front of the UTV as shown.
3. Secure the Front Cross Brace with 4 carriage bolts (3/8 X 3/4). The carriage bolts are installed with the heads on the inside of the UTV. Add the nylock flanged nuts and only hand tighten at this point.
4. Install the Rear Cross Brace in the same manner as the Front Brace with 4 identical carriage bolts and nylock flange nuts. Only hand tighten the nuts at this time.

Part 4 – Install Rear K Brace

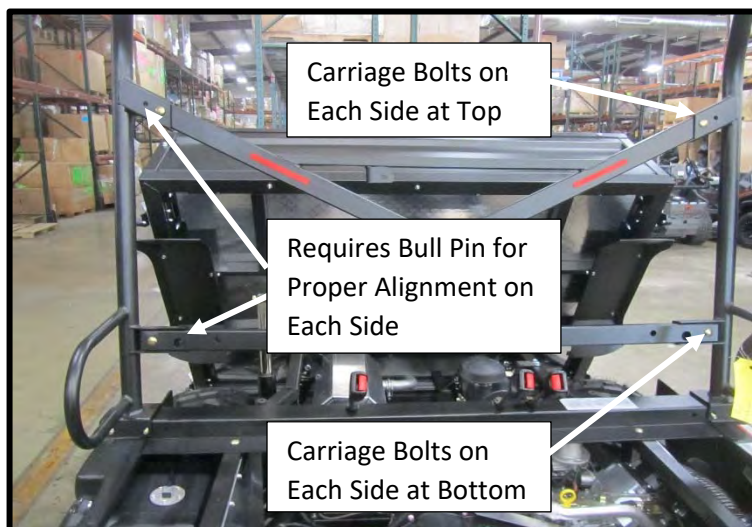


1. The K Brace is installed at the rear of the UTV and connects the ROPS Hoops.



11.1 Standard & Truck Roll Cage Installation

Part 4 Cont. – Install Rear K Brace



2. Position the K Brace as shown by inserting the bottom bracket first into the connecting bracket on the ROPS Hoops. Then insert the upper brackets of the K Brace in place.

Note: Two persons are needed to perform this part and the next part of this step.

3. Insert 4 carriage bolts (3/8 X 1-3/4) toward the outside as shown. The heads of the bolts are on the inside of the UTV. Add nylock flange nuts and hand tighten.
4. Note the two bottom holes beside the carriage bolts just installed and the two top holes require a bull pin and hammer to properly align holes. Always insert the bull pin into the larger hole first. The larger holes are on the inside on bottom and toward the rear on the upper part of K brace.
5. Center and insert the bull pin through the larger hole first on bottom of K Brace as shown and hit 2-3 times to center the smaller hole inside the larger hole.



Part 4 Cont. – Install Rear K Brace



6. With bull pin in place using an impact gun with a 9/16" socket tighten the adjacent carriage bolt installed earlier as shown.

Note 1: The aligned holes using the bull pin will be used later when installing the seat belts.

Note 2: For a Truck model a ratchet wrench instead of an impact gun will be required to tighten this carriage bolt due to space limitations.

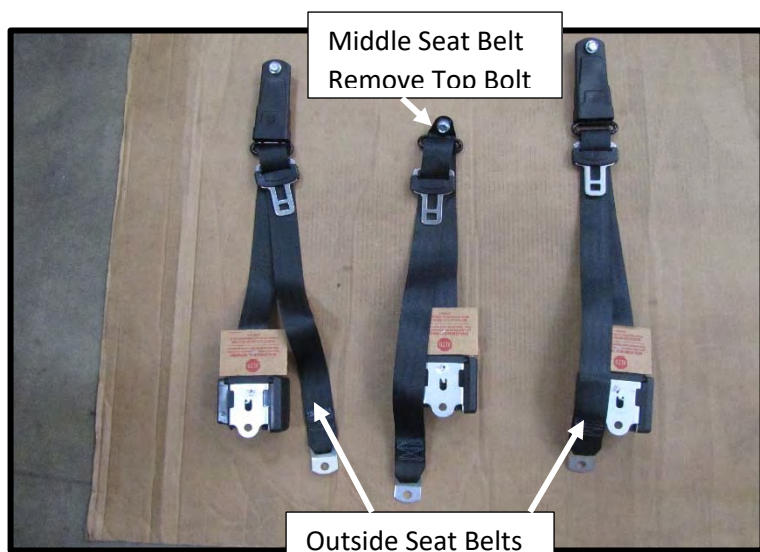


7. Move to the top of K Brace just tightened and insert the bull pin from the back side. Align the holes with hammer and bull pin and then tighten adjacent carriage bolt as shown and as done previously.
8. Repeat this procedure to align and tighten the bolts on other side of K Brace for both top and bottom



11.1 Standard & Truck Roll Cage Installation

Part 5 – Install the Seat Belts



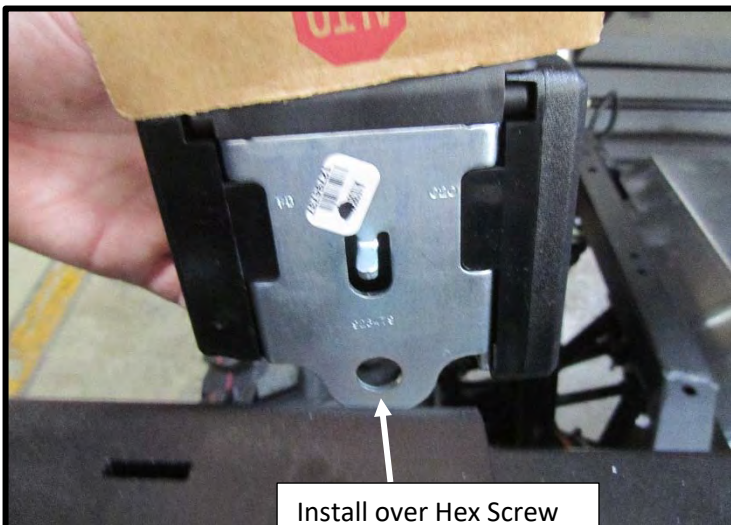
1. Locate the two outside seat belts and the one middle seat belt. Note that each belt has 3 points for connection to the UTV. The outside seat belts can be used on either side of the UTV.

Note: Do not remove the cardboard until instructed to do so later in the procedure. The cardboard keeps the belt from retracting into the reel and possibly damaging the belt.

2. If a bolt is present in the top of the middle seat belt it needs to be removed by pressing it down on a hard surface. Discard the bolt.
3. Take one of the outside seat belts and insert the existing top shoulder bolt into top of K Brace as shown.
4. Insert the 7/16" nylock nut (not flanged) from the rear and holding the nut in place with finger as shown barely tighten at this point with an impact gun and 5/8" socket.



Part 5 Cont. – Install the Seat Belts



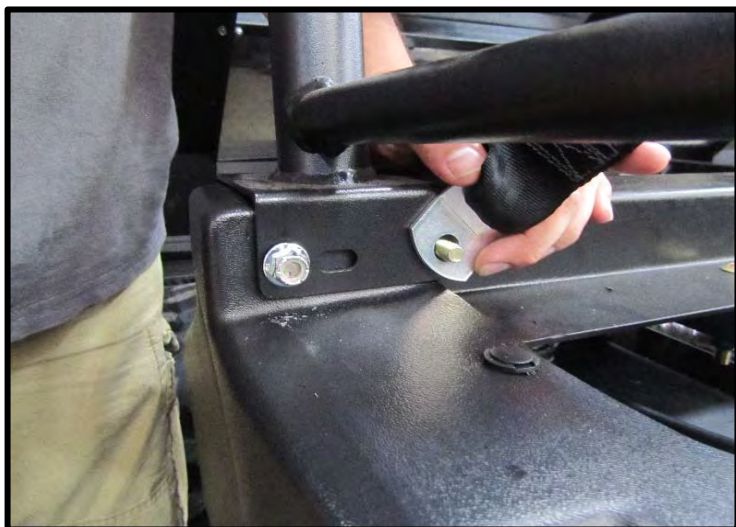
5. Install a hex cap screw (7/16 X 1-1/4) into bottom of K Brace as shown toward rear of UTV.

6. Position the bottom of the seat belt over back of K Brace as shown and through the screw just installed.

7. Install a 7/16" nylock nut over the hex screw and hand tighten at this point.



Part 5 Cont. – Install the Seat Belts



8. Place end of outside seat belt as shown over the hex bolt previously installed on the ROPS hoop bracket. Install a 3/8" flanged nylock nut and hand tighten.



For Truck model use a hammer to drive the 3/8 X 4" hex bolt through the outside seat belt and channel as shown. Add a 3/8" flanged nylock nut on back side and hand tighten.

9. Repeat these steps to install the other outside belt on the opposite side of UTV.

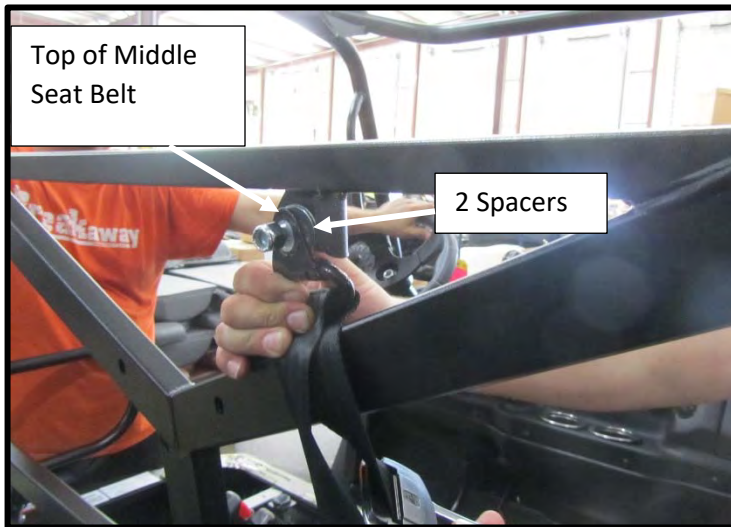


10. Place hex cap screw (7/16 X 1-1/4) into top of K Brace as shown.



11.1 Standard & Truck Roll Cage Installation

Part 5 Cont. – Install the Seat Belts



11. Install 2 spacers on the backside of the frame onto the hex cap screw and then place the top of middle seat belt as shown over the 2 spacers. Add a 7/16" nylock nut and hand tighten.



12. Be sure the center seat belt is routed as shown.

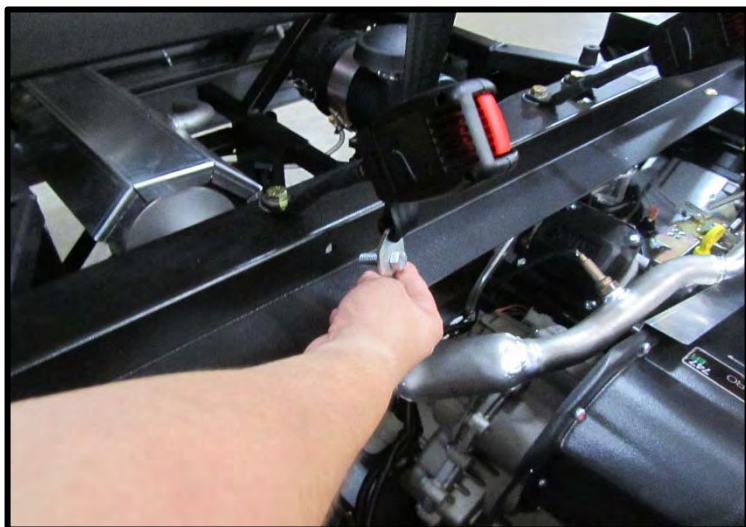


13. Position the middle seat bracket as shown and insert a hex cap screw (7/16 X 1-1/4) and a nylock nut at rear. Hand tighten the nut.



11.1 Standard & Truck Roll Cage Installation

Part 5 Cont. – Install the Seat Belts



14. Insert a hex cap screw (7/16 X 1-1/4) through bottom connector on the middle seat belt as shown. Place the screw through the frame and attach a nylock nut to back side of frame. Hand tighten the nut.

Part 6 – Tighten the Hardware



1. Using an impact gun with a 5/8" socket and a 5/8" wrench tighten the top of the outside seat belts. This shoulder bolt should allow some movement from side to side for the top of belt but should not be too loose to allow movement toward front and rear of UTV.

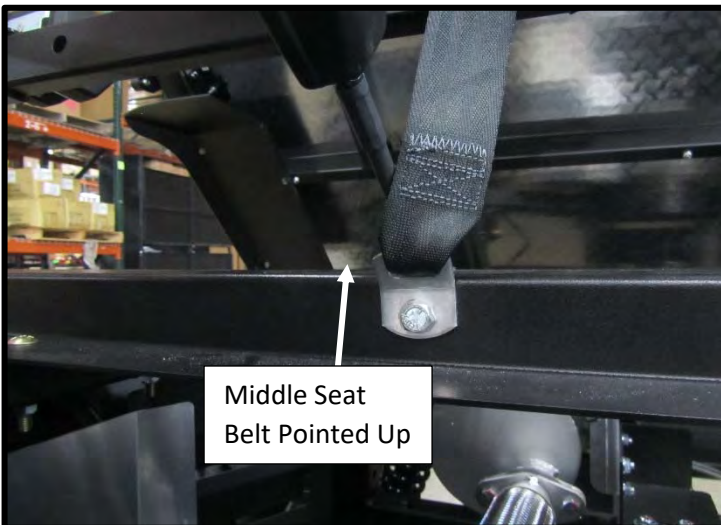


2. Using the same socket and wrench tighten the mid-point connection on the outside seat belt as shown.
3. Complete the previous 2 steps on the other outside seat belt.



11.1 Standard & Truck Roll Cage Installation

Part 6 Cont. – Tighten the Hardware



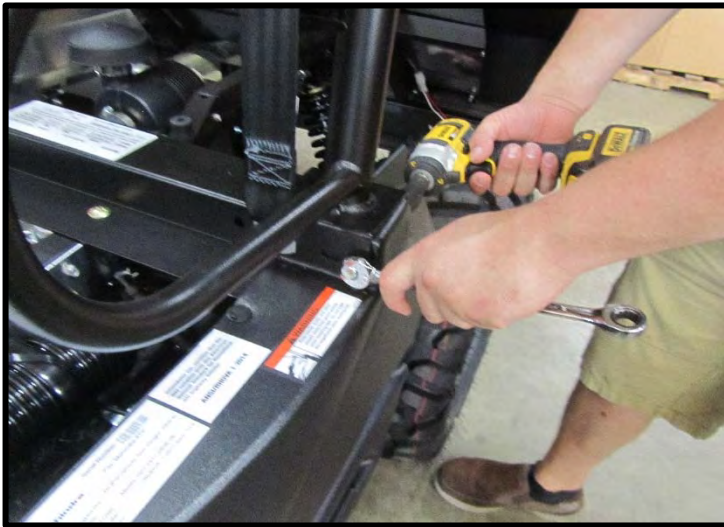
4. Using the same 5/8" socket and wrench tighten all three connection points on the middle seat belt as shown in next two pictures.

5. Note the direction of the bottom of the middle seat belt after tightening. Use a 5/8" wrench over the bottom bolt head for the middle belt and rotate until the belt is pointed up as shown. This is needed for each of the belts after they are tightened.



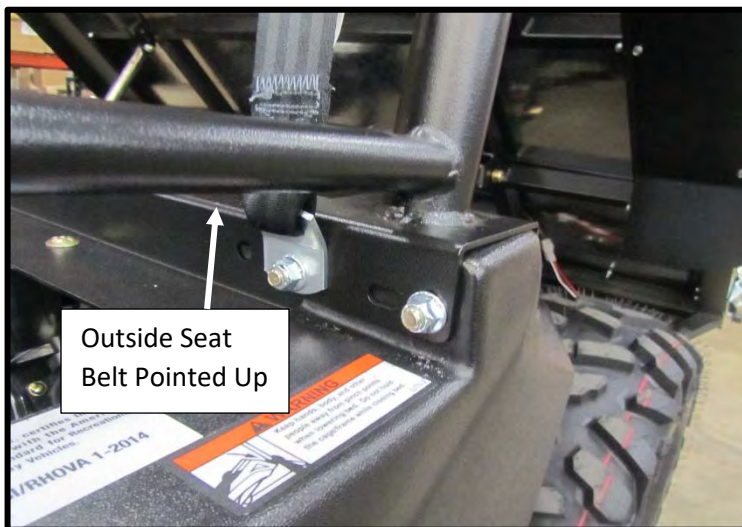
11.1 Standard & Truck Roll Cage Installation

Part 6 Cont. – Tighten the Hardware



6. Switch to a 9/16" socket and wrench and tighten outside bolt at Rear of ROPS Hoop bracket as shown.

Note: For the Truck model place impact gun on cab side of 3/8" bolt and wrench on back side.



7. Continue using the 9/16" socket and wrench to tighten the inside bolt on the ROPS Hoop bracket. Using a wrench adjust the seat belt where it is pointing up as shown.

Note: Do not overtighten these and bend the channel of the Hoop bracket.

8. Tighten these 2 bolts on the ROPS Hoop bracket on the opposite side of UTV.



9. Using the 9/16" socket and wrench tighten the bolts on the front of each of the Hoop brackets as shown.



Part 6 Cont. – Tighten the Hardware



10. Tighten so that the seam lines up as shown. No gap should be visible.



11. Use a 9/16" ratchet wrench and tighten the carriage bolts on each end of the Front Cross Brace and Rear Cross Brace as shown.

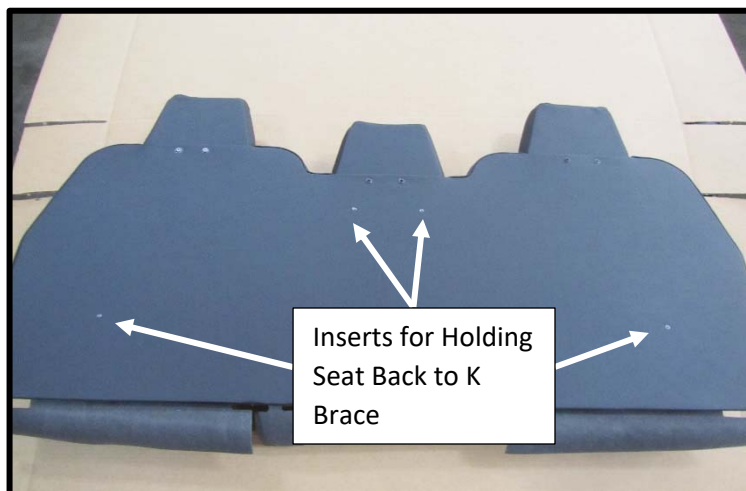
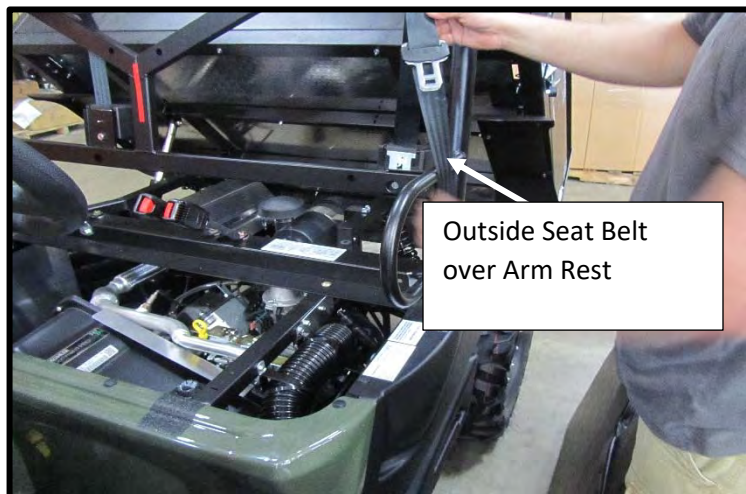
12. Remove the cardboard from all three of the seat belts. Also be sure to remove all plastic ties connecting cardboard to the belt to prevent possible damage to seat belt.



13. Install two hole plugs on outside on back of K Brace as shown.



Part 7 – Install Seat



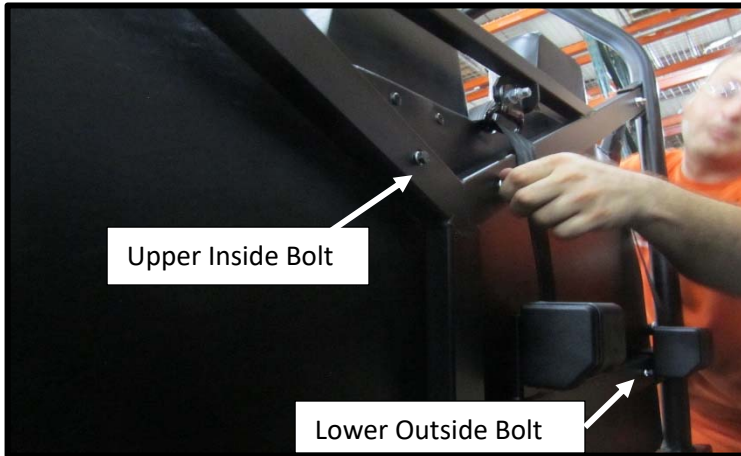
1. Place both of the outside seat belts over their arm rests as shown.

2. Have one person open up the middle seat belt to allow the second person to insert the seat back from the driver's side through the opened belt and into place as shown. Be sure the three flaps on bottom of back are not pinned under the back.

3. Place 1/4" lock washers over 4 hex bolts (1/4 X 1-3/4). Note the 4 inserts in the back of the seat as shown.



Part 7 Cont. – Install Seat



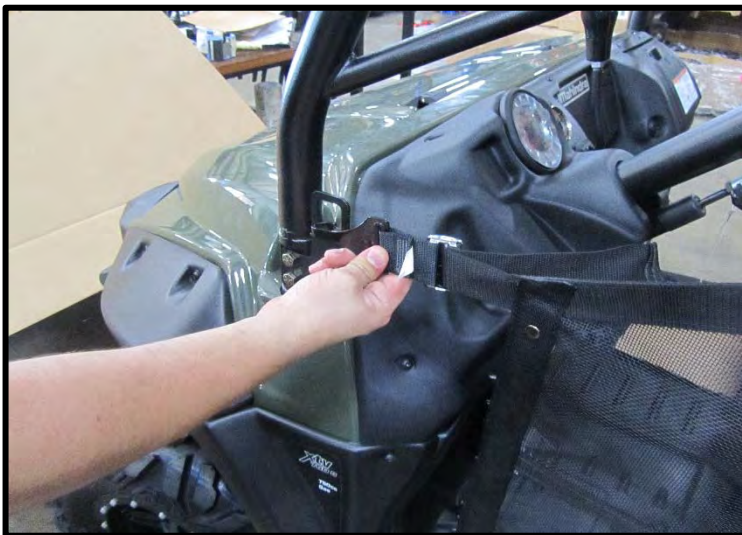
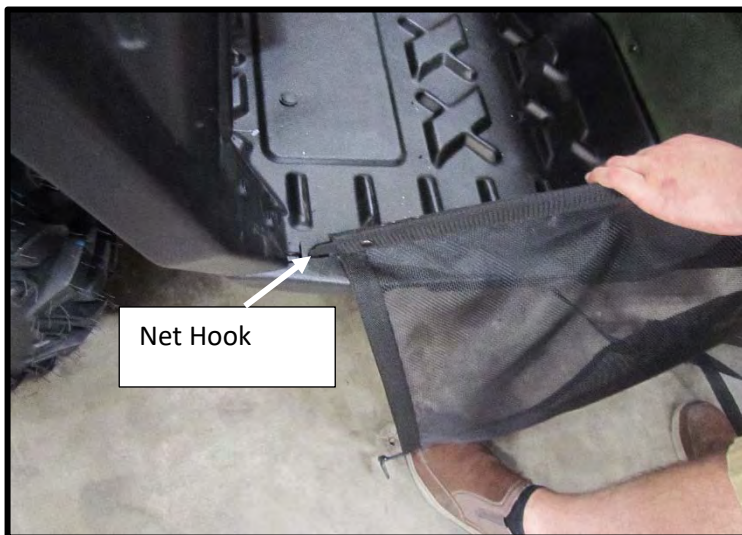
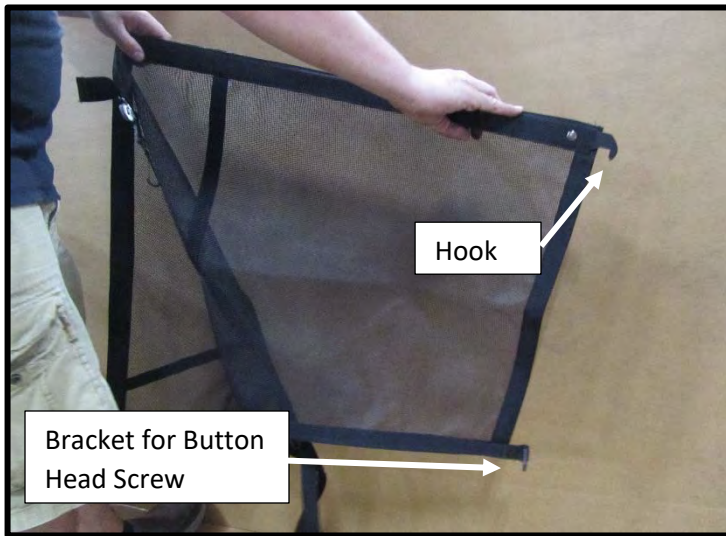
4. Install 2 of these bolts/washers into lower back and toward outside of frame from rear as shown. Hand tighten the 2 screws at this point.
5. Install the other 2 bolts /washers into upper inside from the rear as shown and hand tighten.
6. Using a 7/16" ratchet wrench tighten the Lower Outside bolts first. Only tighten enough to press the back of the seat against the frame. Then tighten the Upper Inside bolts in the same manner

Caution: Overtightening can cause the seat back insert to strip out. Do not use an impact gun.

7. Lubricate each of the seat grommets as shown with a good quality water resistant marine grease.
8. Position seat bottom in place as shown and press into the lubricated grommets.
9. Return the outside seat belts to their normal position.



Part 8 – Install Safety Net



1. Note the hook and bracket for the button head screw on the safety net. Also note the clip and three buckles with straps.

Note: This whole part does not apply for the GC1K.

2. Grab the net by the metal bar and insert the hook into the front floor board as shown.

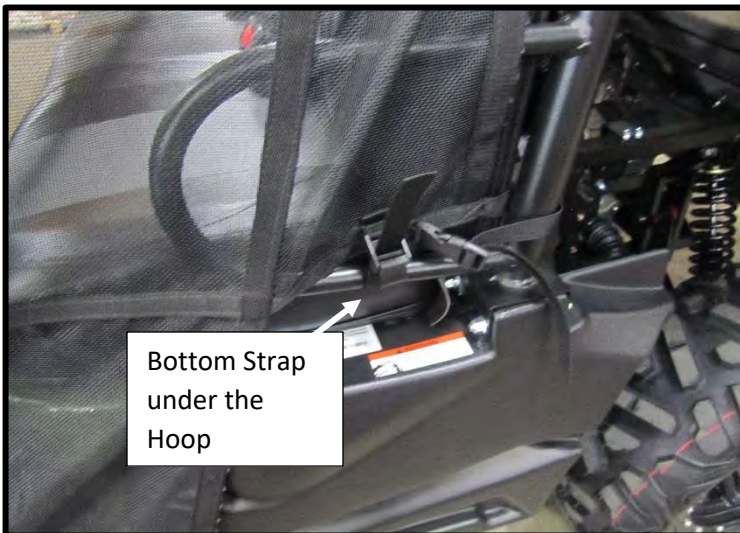
3. Clip the top of the net to the net bracket installed earlier as shown.



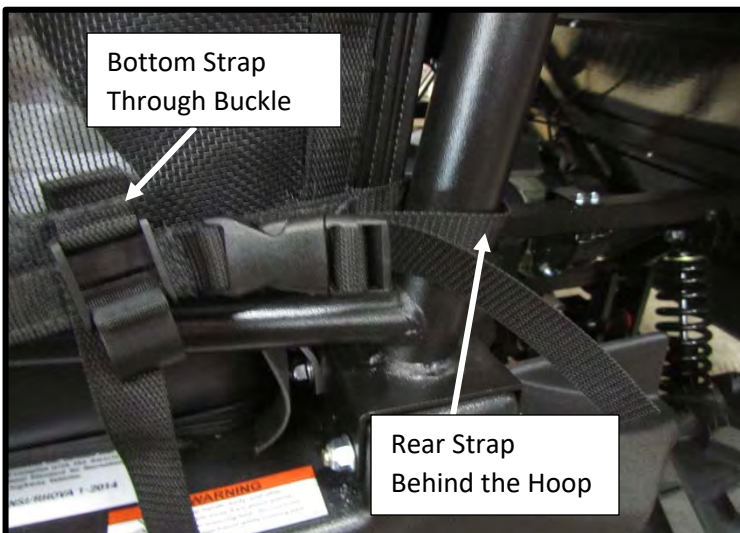
Part 8 Cont. – Install Safety Net



4. Route the top strap around the K Brace in rear and through the buckle as shown.



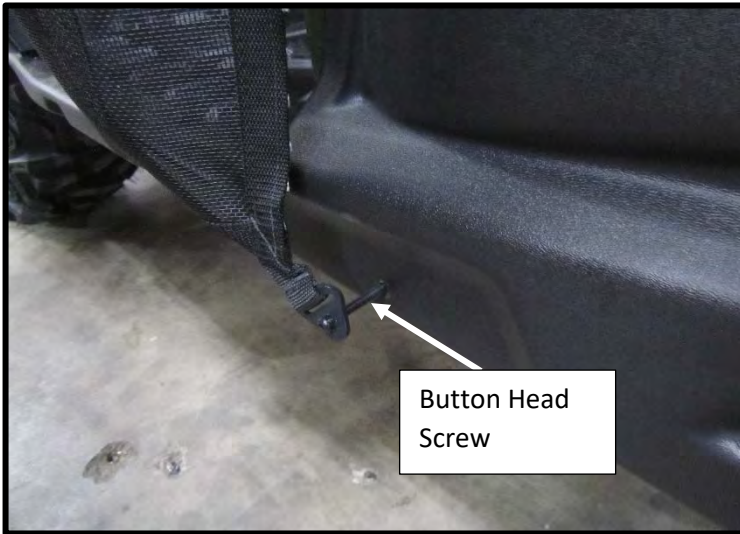
5. Route the bottom strap under the ROPS hoop and up through the buckle as shown.



6. Route the rear strap around the back of the ROPS hoop as shown and through the buckle.



Part 8 Cont. – Install Safety Net



7. Insert the button head screw (1/4 X 3) through the bracket and into the bottom side frame as shown. Sometimes paint will partially fill the hole and using an impact gun and a 5/32" allen bit is needed to drive the screw through the frame. Secure with a 1/4" nylock nut on opposite side of frame and hand tighten.



8. Loosen the straps at the three buckles and tighten at the front clip to provide a firm net with no pockets or droops.



9. A properly installed and tightened net is shown.



Part 8 Cont. – Install Safety Net



10. The net should be tight but yet able to be opened easily at front clip.



11. Using a 5/32" bit in the button head screw and a 7/16" wrench on the nut tighten the screw at bottom of net.

Caution: Be sure the bit fits firmly in the button head to prevent stripping out.

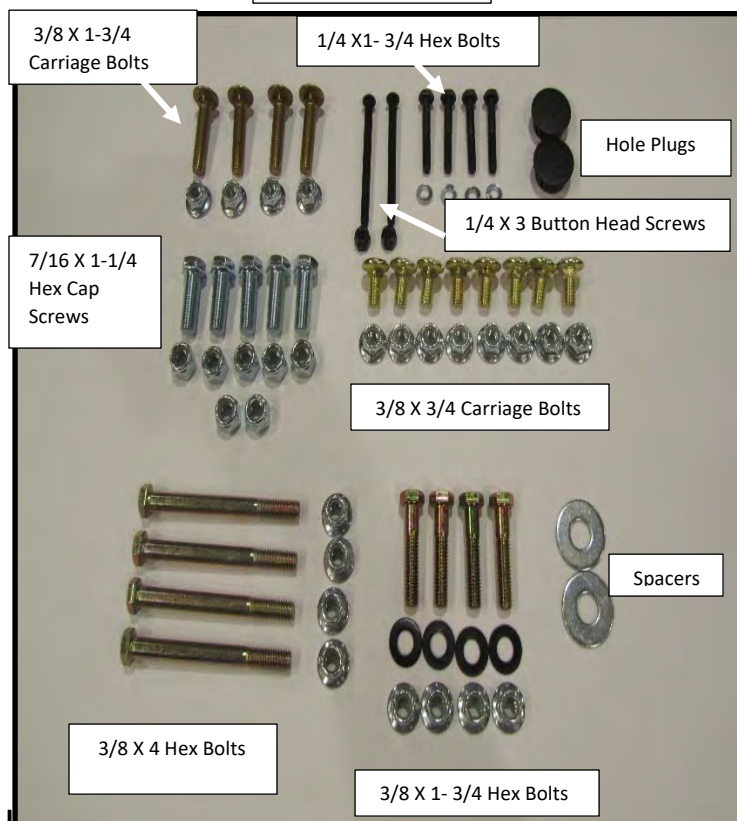
12. Repeat the above steps for installation of net on opposite side of UTV.



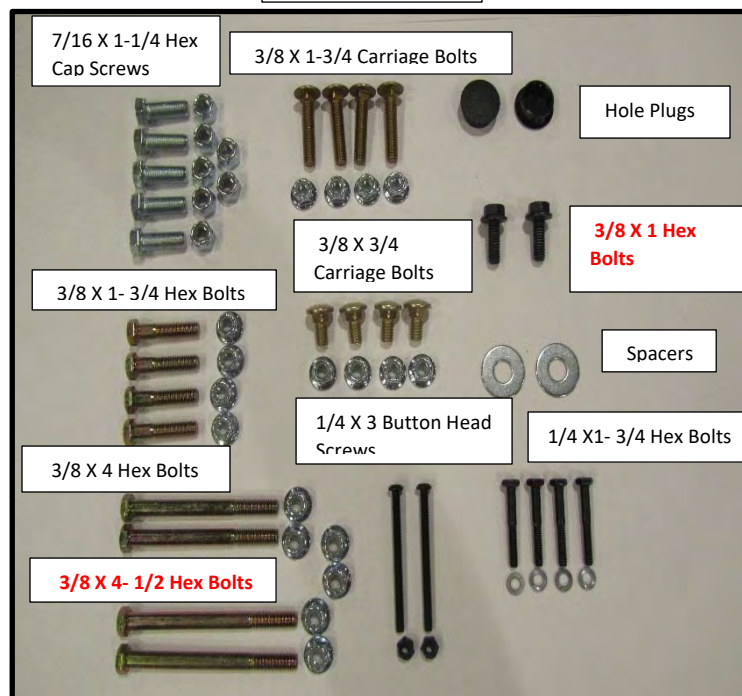
11.2 Crew Cab Roll Cage Installation

Part 1 – Getting Started & Installing Seat Belt Latches

Package 2088



Package 2087



This procedure was originally written for and describes how to install the roll cage, seats and belts, and safety nets on an Intimidator Crew Cab model UTV. While it is still accurate for this model it is also applicable to the GC1K Crew Cab roll cage installation. While there are some differences between the styles they all use the same connecting hardware and same basic methods for installation. The main difference is the GC1K does not utilize safety nets. Differences between the Intimidator Crew Cab and GC1K Crew cab **are shown in BOLD for the GC1K**. Many steps in the procedure are identical or very similar to procedure *11.1 Standard & Truck Roll Cage Installation*. Additional info may be helpful from the ROPs Assembly and Safety Net Assemblies pages in the Crew Cab Parts Manual.

Safety:

- Place the UTV in Park on level ground and turn off the ignition.

- Open the parts packages (PN 618-2088-00 and PN 618-2087-00) and locate the hardware as shown in the pictures.

Note 1: PN 618-2088-00 is the package used for the Standard, Truck, and GC1K model ROPS installation. PN 618-2087-00 are the additional parts needed for the Crew Cab. Both are needed for the Crew Cab.

Note 2: Package 2087 has 2 different size bolts (3/8" X 1" hex bolts & 3/8" X 4 1/2" hex bolts – shown in *red* in the picture) than the Package 2088. All the rest of the hardware in Package 2087 is the same size hardware as in Package 2088. This procedure will note when the 2 different size bolts from Package 2087 are needed. Otherwise there will be no mention of which package to use for the common size hardware. All the 3/8" bolts use 3/8" Nylock



11.2 Crew Cab Roll Cage Installation

Part 1 Cont. – Getting Started & Installing Seat Belt Latches

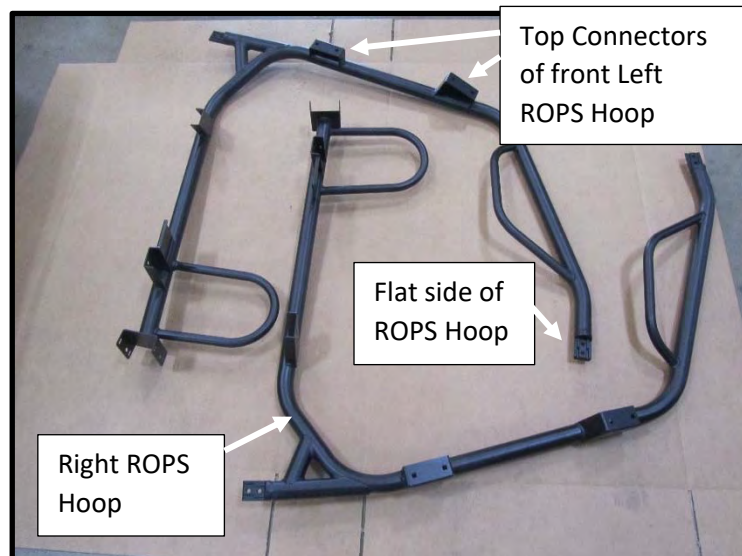


flange nuts and the 7/16" and 1/4" screws use regular Nylock nuts.

2. Install the 3 seat belt latches pointed toward the front as shown. Secure with 7/16" X 1-1/4" hex cap screws, flat washers, and Nylock nuts and tighten with a 5/8" socket and wrench.

Note: The GC1K driver side seat belt has a sensor used to limit the engines power if the seat belt is not buckled. This seat belt latch needs to be connected to wiring harness.

Part 2- Install the Front ROPS Hoop Assemblies



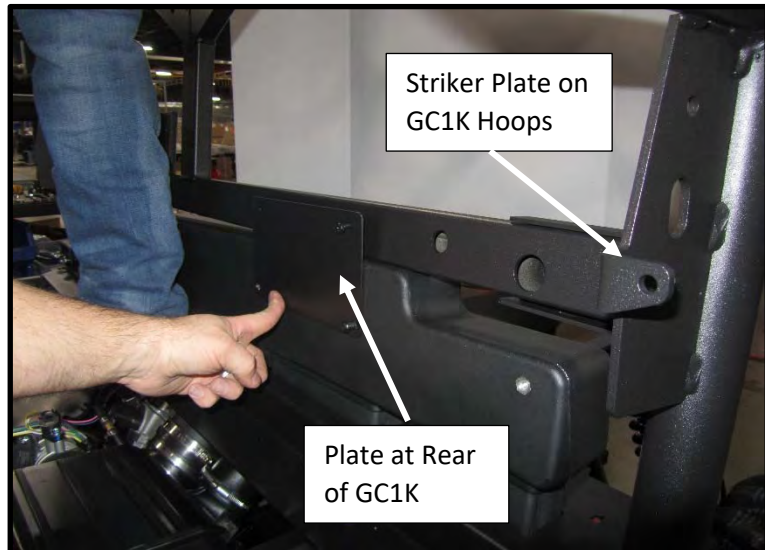
1. Locate the 2 front ROPS hoops and note the flat sides on front end for connection of the Safety Net Brackets.

Note 1: Each ROPS Hoop will have its top connectors pointing inward when installing.



11.2 Crew Cab Roll Cage Installation

Part 2 Cont. – Install the Front ROPS Hoop Assemblies



Note 2: The GC1K ROPS Hoop has a striker plate at the rear of the hoop that the older Intimidator models do not have. The hardware connection points are still in the same locations for both styles of hoops.

Also, the picture shows a plate for GC1K models that attaches the Air Intake Housing with the rear K brace.

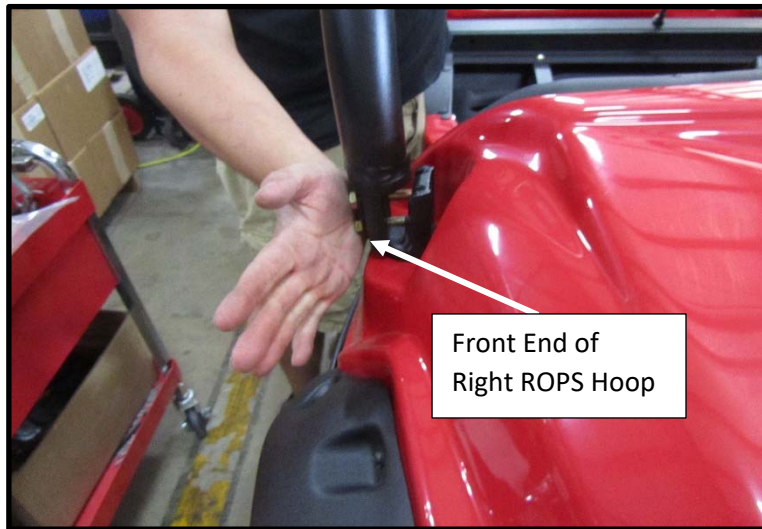
2. Place the 4 hex bolts (3/8 X 1-3/4) through both of the Safety Net Brackets as shown. Place the 4 black flat washers onto the hex bolts on back side of Safety Net Brackets.

Note 1: The GC1K does not have Safety Nets or these brackets. For the GC1K complete all the steps as described in this part but without these brackets.

3. Insert each of the Brackets and its bolts/washers into the flat side of each of the ROPS Hoops as shown. The washers should be located between the Safety Net Bracket and the Hoop.



Part 2 Cont. – Install the Front ROPS Hoop Assemblies



4. Holding the Safety Net Bracket in place install the front end of the Right ROPS Hoop into its connector as shown. An impact driver with a 9/16" socket may be required to insert the bolts.

Note: This procedure describes installing the front Right ROPS Hoop followed by the Left one. Either order is OK.



5. Add two Nylock flange nuts to the hex bolts. Due to limited space a good way to do this is holding the nut between your fingers as shown to get it started.

Note: Only install nuts hand tight at this point. They will be tightened later.



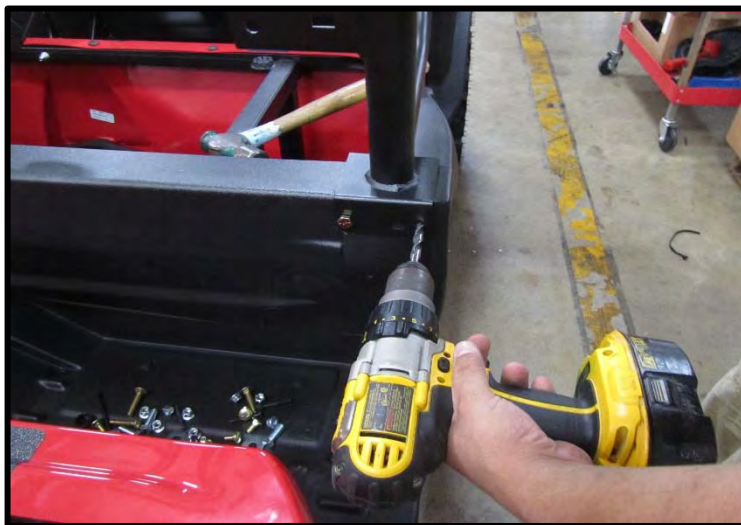
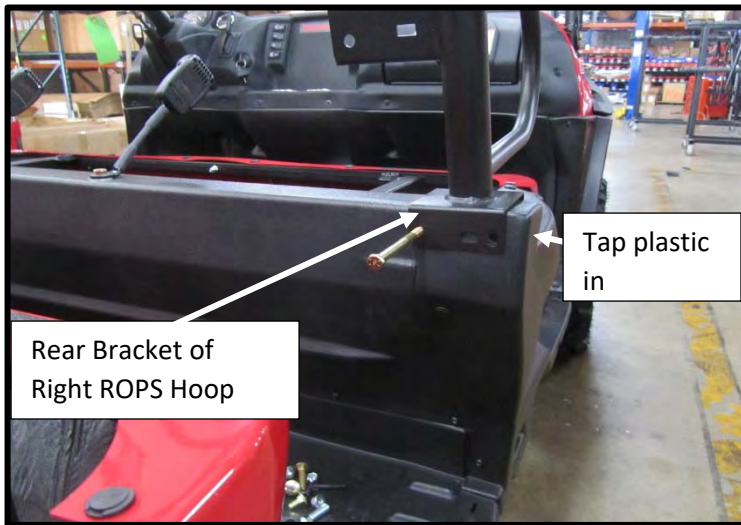
6. Pull out back of Right ROPS Hoop then push it forward and slide it over rear channel to where the holes match up.

Note: Picture shows Left ROPS Hoop just for clarity.



11.2 Crew Cab Roll Cage Installation

Part 2 Cont. – Install the Front ROPS Hoop Assemblies

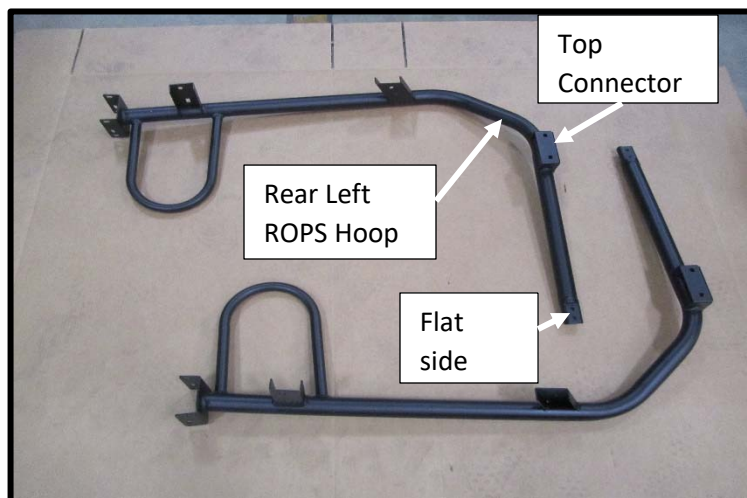


7. Insert a hex bolt (3/8 X 4-1/2 *Pkg 2087*) through the rear bracket as shown but do not install the nut at this time. This bolt is used for installing the seat belt also.
8. Using a hammer to lightly tap the plastic toward middle of UTV.
9. Sometimes the side plastic piece covers the outside bolt hole and needs to be drilled out using a 3/8" drill bit as shown.
10. Insert a hex bolt (3/8 X 4) through the rear bracket in the outside hole and install a flanged nylock nut as shown. Hand tighten.
11. Repeat Part 2 to install the opposite Front ROPS Hoop in the same manner.



11.2 Crew Cab Roll Cage Installation

Part 3 – Installing the Rear ROPS Hoop Assemblies



1. Locate the 2 Rear ROPS Hoops. Note the flat side of each. Also as in the Front Hoops the top connectors will point toward the inside of the UTV.

Note: The GC1K ROPS Hoop has a striker plate that the older Intimidator models do not have. The hardware connection points are still in the same locations for both styles of hoops. See picture of striker plate in Part 2 Step 2.



2. As shown install two 3/8 X 1-3/4 hex bolts into the ends of the Front ROPS Hoop assembly installed in previous step.

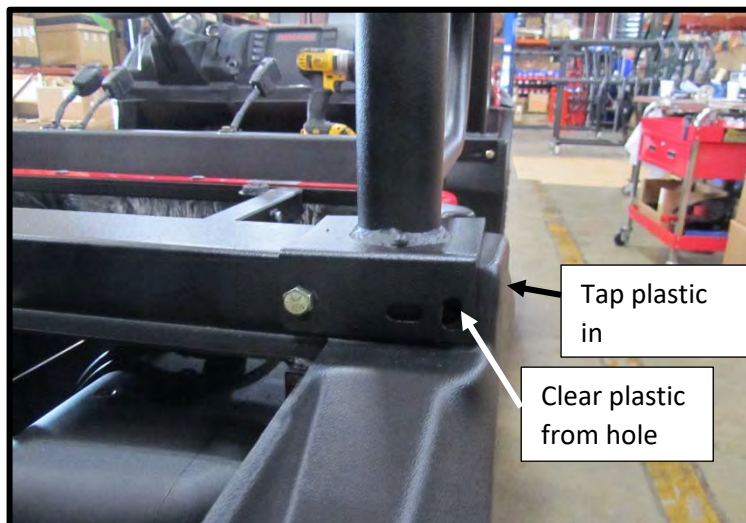
Note: The connector holes may need to be cleared with a 3/8" drill bit for both the front and rear ROPS Hoops.



3. Position the Rear Right ROPS Hoop over the Front Connector and using a 9/16" socket and impact gun drive the bolts into the connector.



Part 3 Cont. – Installing the Rear ROPS Hoop Assemblies



4. Add two 9/16" flanged nylock nuts and hand tighten.
5. Identical to Front ROPS Hoop installation pull out back of Rear Right ROPS Hoop then push it forward and slide it over rear channel to where the holes match up.
6. Insert a hex bolt (3/8 X 4) through the rear bracket as shown but do not install the nut at this time. This bolt is used for installing the seat belt also.
7. Using a hammer to lightly tap the plastic toward middle of UTV.
8. Sometimes the side plastic piece covers the outside bolt hole and needs to be drilled out using a 3/8" drill bit as shown.



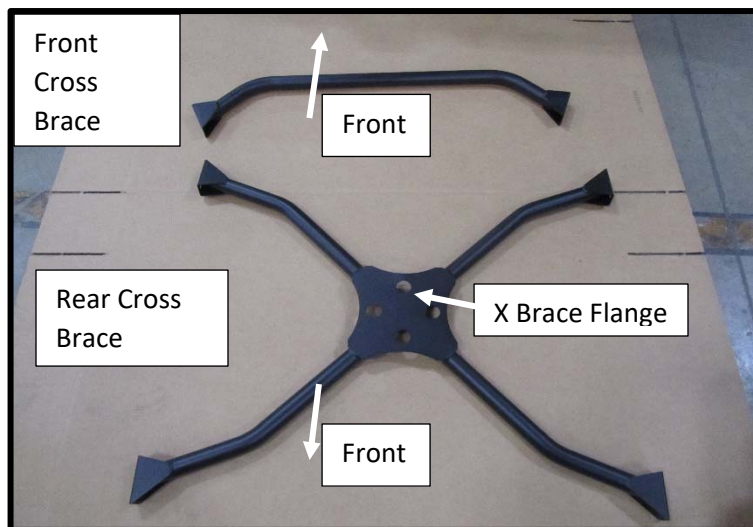
11.2 Crew Cab Roll Cage Installation

Part 3 Cont. – Installing the Rear ROPS Hoop Assemblies



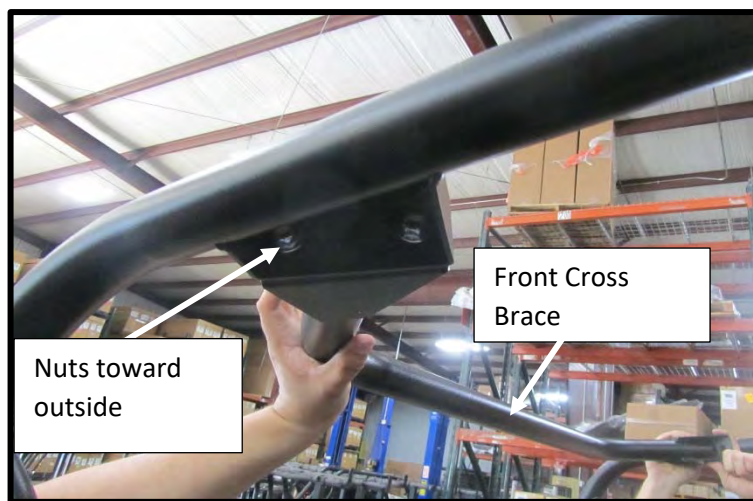
9. Insert a hex bolt (3/8 X 4) through the rear bracket in the outside hole and install a flanged nylock nut as shown. Hand tighten.
10. Repeat this Part to install the opposite Rear ROPS Hoop in the same manner.

Part 4 – Install the Top Cross Brace Assemblies



1. Locate the Front and Rear Cross Braces. Note the picture shows the direction toward the front on the UTV for each brace. Also the Rear Cross Brace is installed with X Brace Flange on top.

Note: This step is a two-person job.

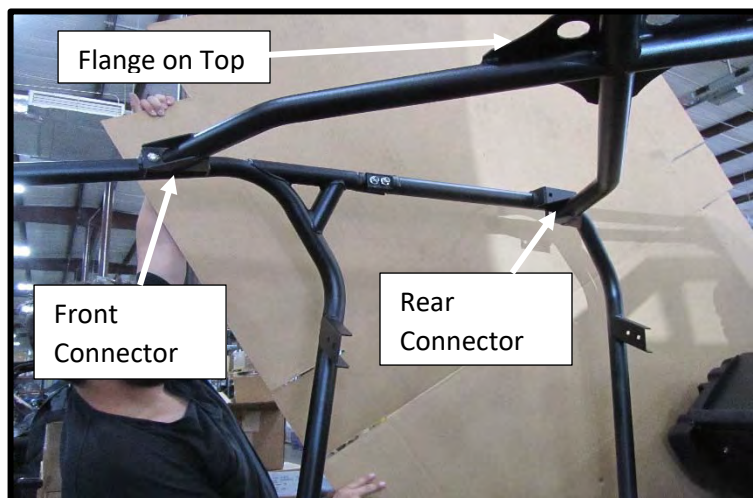


2. Install the Front Cross brace first with its curved portion pointing toward the front of the UTV as shown.
3. Secure the Front Cross Brace with 4 carriage bolts (3/8 X 3/4). The carriage bolts are installed with the heads on the inside of the UTV. Add the nylock flanged nuts and only hand tighten at this point.



11.2 Crew Cab Roll Cage Installation

Part 4 Cont. – Install the Top Cross Brace Assemblies



4. Install the Rear Cross Brace with the X flange on top as shown. Secure initially with one carriage bolt (3/8 X 3/4) with bolt head on cab side in the most forward hole on each side of the front connectors. Do the same with one bolt in each of the rear connectors. Add the remaining four carriage bolts for the front and rear connectors. Install 9/16 nylock flanged nuts on all 8 bolts and hand tighten.

Part 5 – Install K Braces



1. The K Braces are installed at the rear of the UTV seats and connect the ROPS Hoops. Both K Braces are identical, interchangeable, and installed the same way.
2. Position the rear K Brace as shown by inserting the bottom bracket first into the connecting bracket on the ROPS Hoops. Then insert the upper brackets of the K Brace in place.

Note: Two persons are needed to perform this part and the next part of this step.



3. Insert 1 carriage bolt (3/8 X 1-3/4) on each of the upper parts of K Brace in the inside hole with bolt head toward seat side as shown. Add nylock flange nuts and hand tighten.



11.2 Crew Cab Roll Cage Installation

Part 5 Cont. – Install K Braces



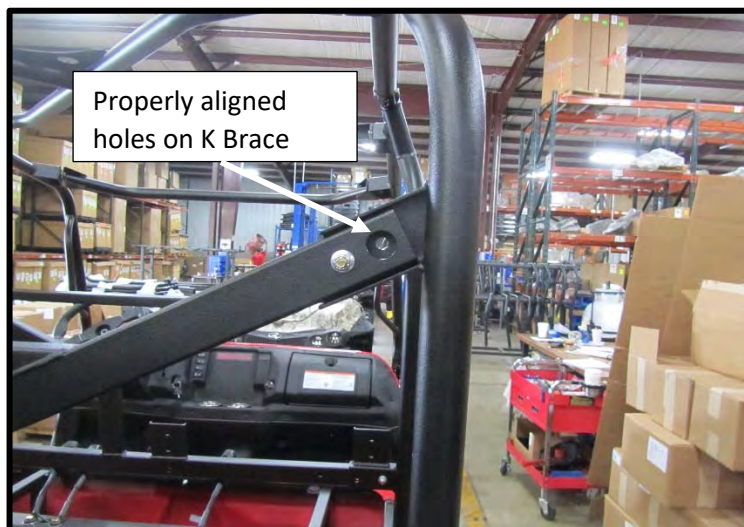
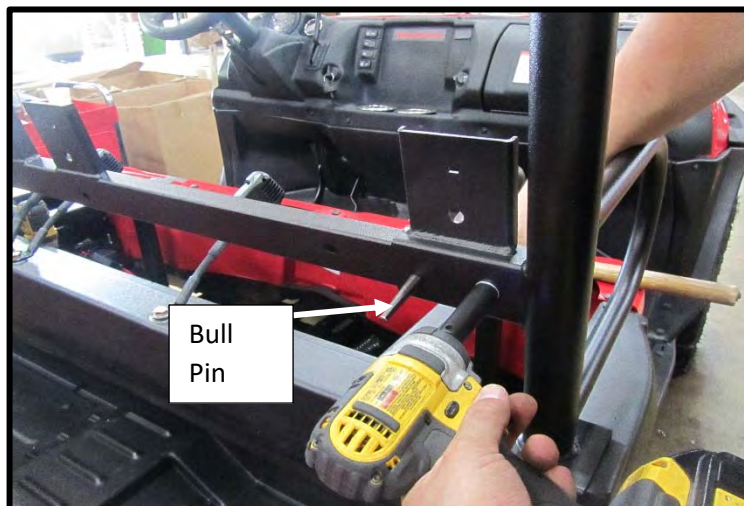
4. Use a bull pin on the lower part of K brace as shown to align the holes. Insert carriage bolt (3/8 X 1-3/4) on each side in the outside hole beside the bull pin as shown. Add nylock flanged nuts on each of the bolts and hand tighten.
5. Install the second K Brace behind the front seat in the same manner as the one just installed. Only hand tighten the nuts at this point.
6. Note the bottom holes and top holes beside the carriage bolts just installed on each of the K Braces require a bull pin and hammer to properly align holes before tightening the nuts. Always insert the bull pin into the larger hole first. The larger holes are on the seat side on bottom and toward the rear on the upper part of each K brace.
7. Center and insert the bull pin through the larger hole first on bottom of K Brace as shown and hit 2-3 times to center the smaller hole inside the larger hole.

Note: Either front or rear K Brace can be tightened first.



11.2 Crew Cab Roll Cage Installation

Part 5 Cont. – Install K Braces



8. With bull pin in place using an impact gun with a 9/16" socket tighten the adjacent carriage bolt installed earlier as shown.

Note: The aligned holes using the bull pin will be used later when installing the seat belts.

9. Move to the top of K Brace just tightened and insert the bull pin from the back side. Align the holes with hammer and bull pin and then tighten adjacent carriage bolt as shown and as done previously.

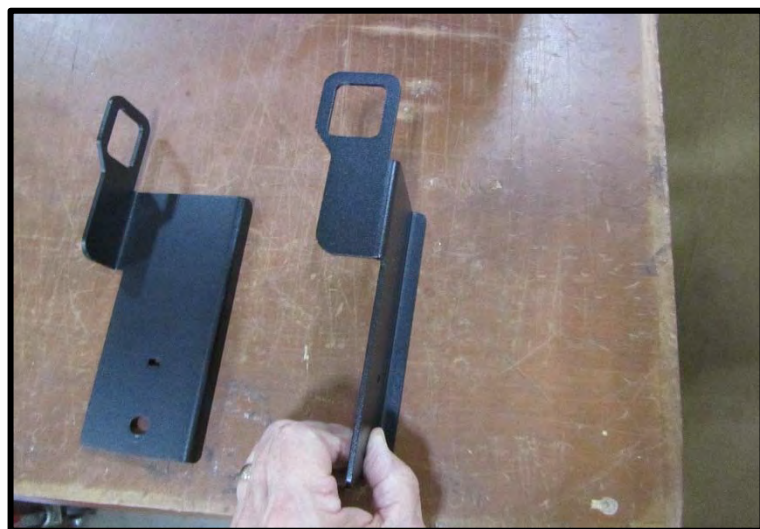
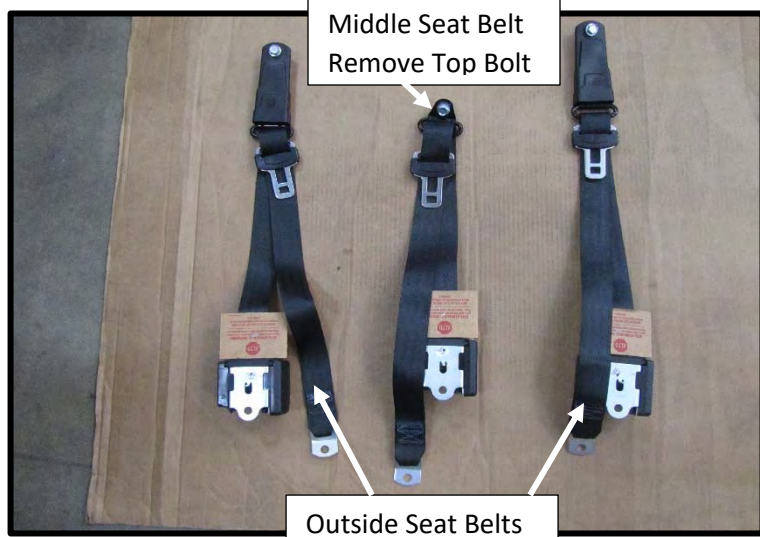
10. Repeat this procedure to align and tighten the bolts on other side of K Brace for both top and bottom.

11. Move to the next K Brace and align holes with a bull pin and hammer and tighten as just done on the first K Brace.



11.2 Crew Cab Roll Cage Installation

Part 6 – Install the Seat Belts



1. There are two identical sets of three seat belts. Each set is interchangeable and can be used for the front or rear seat.
2. Locate the two outside seat belts and the one middle seat belt for each set. Note that each belt has 3 points for connection to the UTV. The outside seat belts can be used on either side of the UTV.

Note: Do not remove the cardboard until instructed to do so later in the procedure. The cardboard keeps the belt from retracting into the reel and possibly damaging the belt.

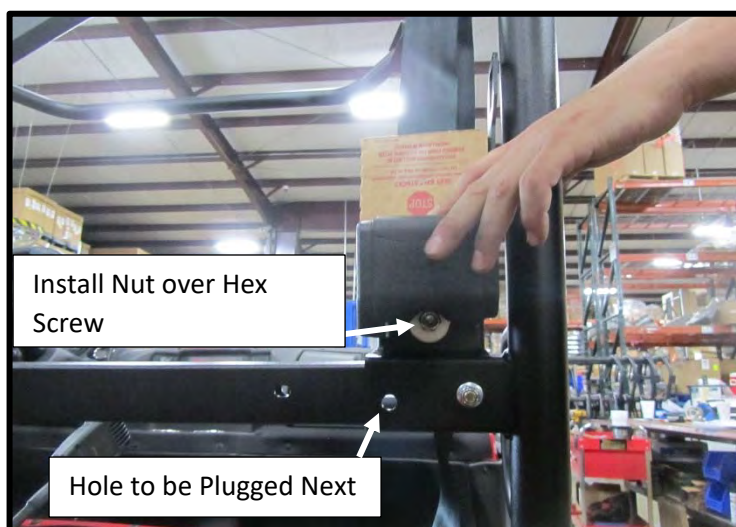
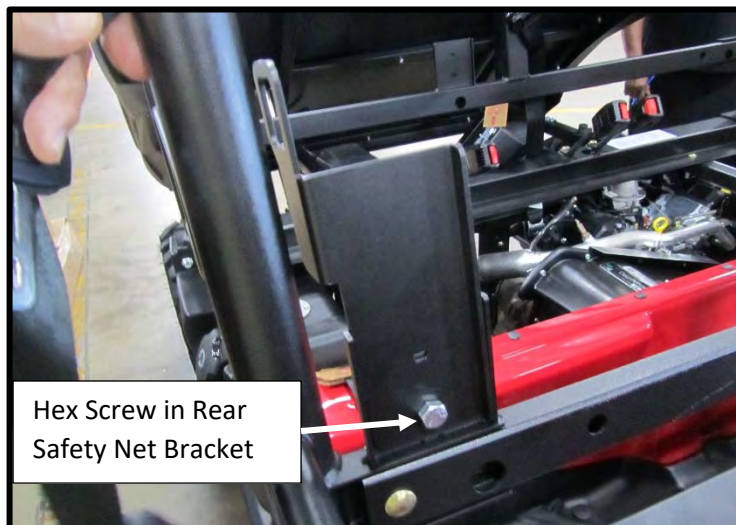
3. Remove the top bolt in both of the middle seat belts by pressing it down on a hard surface. Discard these two bolts.
4. Take one of the outside seat belts and insert the existing top shoulder bolt into top of front K Brace as shown.
5. Insert the 7/16" nylock nut (not flanged) from the rear and holding the nut in place with finger barely tighten at this point with an impact gun and 5/8" socket.
6. Locate the 2 Rear Safety Net Brackets as shown. **Not applicable for GC1K.**

Note: These 2 brackets are *only* installed at the rear of the *front* seat. These will be used in a later step for connecting the rear seat safety net.



11.2 Crew Cab Roll Cage Installation

Part 6 Cont. – Install the Seat Belts



7. Install a hex cap screw (7/16 X 1-1/4) through the Rear Safety Net Bracket into front ROPS HOOP as shown. **No Safety Net bracket for GC1K.**

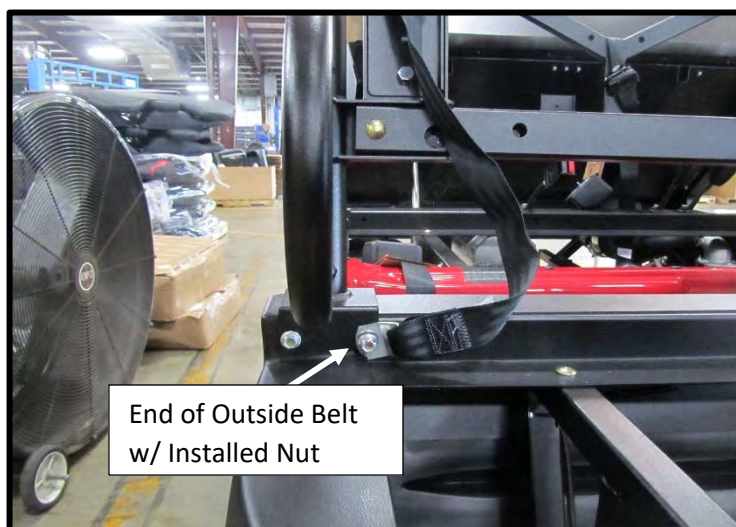
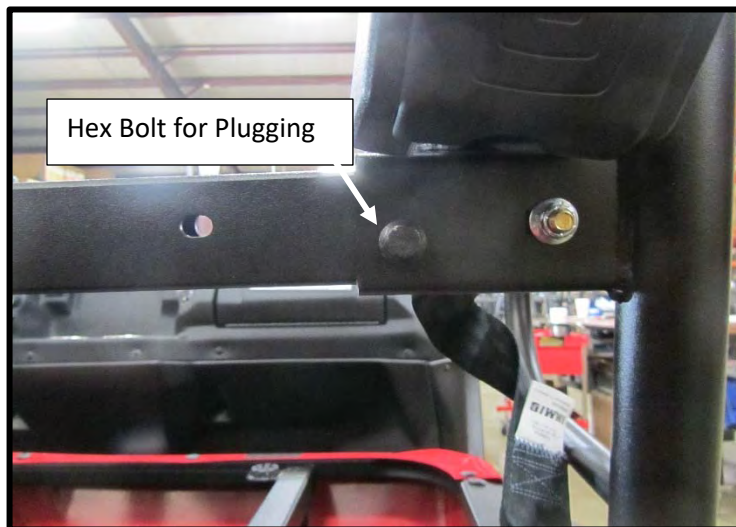
8. Position the seat belt reel over back of ROPS Hoop bracket as shown and through the screw just installed.

9. Install a 7/16" nylock nut over the hex screw and hand tighten at this point.



11.2 Crew Cab Roll Cage Installation

Part 6 Cont. – Install the Seat Belts



10. Use a black 3/8 X 1 Hex Bolt (*Pkg 2087*) to fill the hole in rear as shown. Install a flanged nylock nut on end of bolt and hand tighten.

Note: These two black bolts are used for plugging only on the *front* ROPS Hoop bracket.

11. Place end of outside seat belt as shown over the hex bolt previously installed on the ROPS hoop bracket. Install a 3/8" flanged nylock nut and hand tighten.

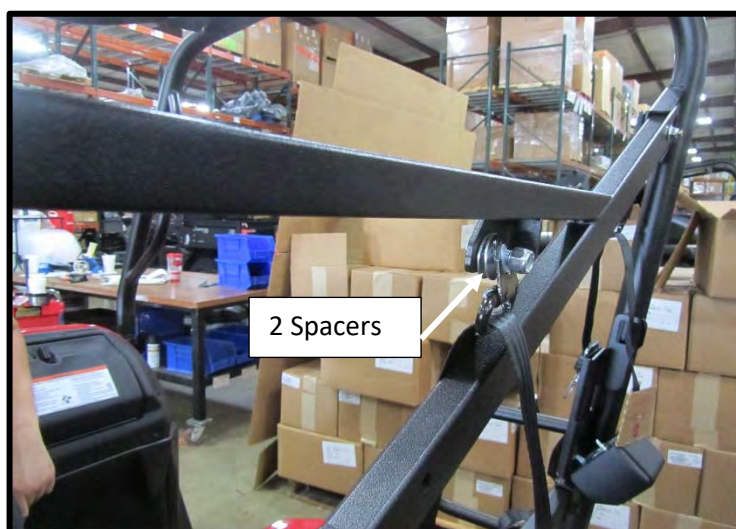
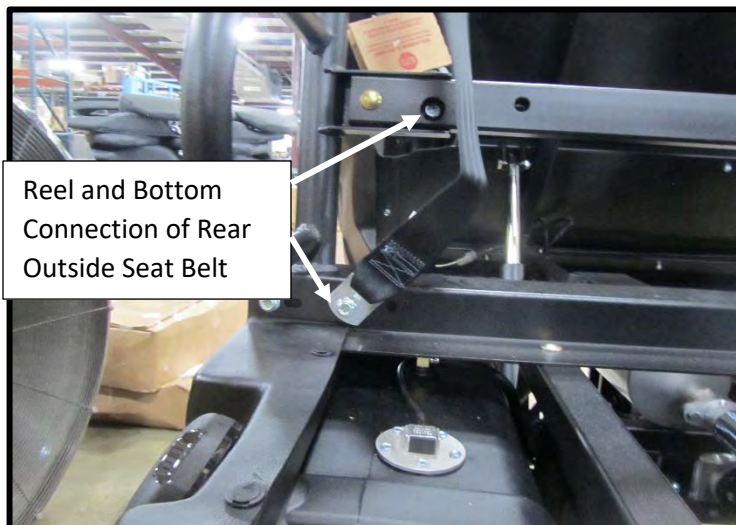
12. Repeat the above steps to install opposite outside seat belt for the front seat.

13. Move to rear seat and install the outside seat belts in same manner as front seat.



11.2 Crew Cab Roll Cage Installation

Part 6 Cont. – Install the Seat Belts



14. The only difference from the front seat is that there are no Rear Safety Net Brackets or hole to plug in the rear seat outside seat belts.

15. To install the middle seat belt on front seat insert hex cap screw (7/16 X 1-1/4) into top of K Brace as shown.

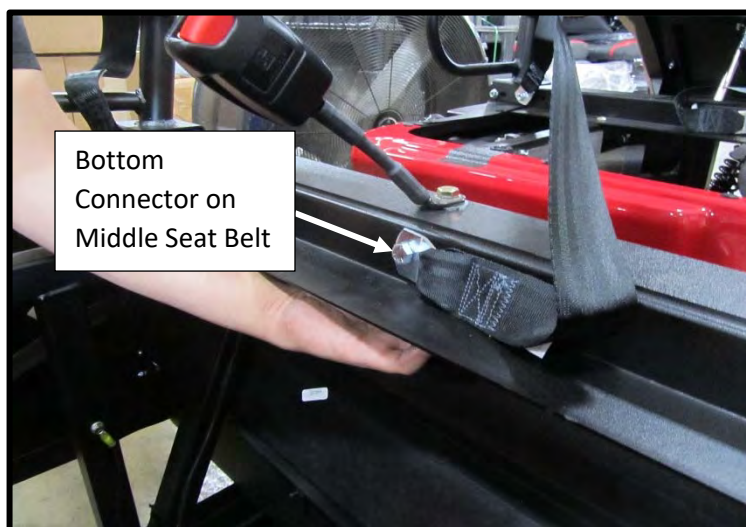
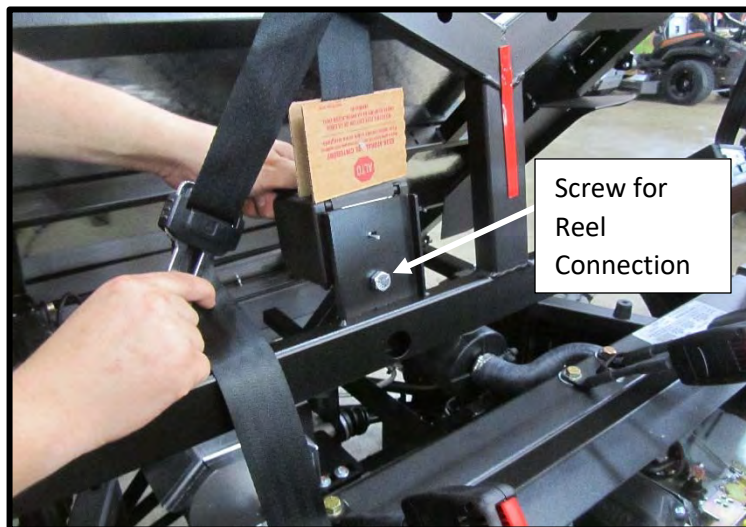
Note: Be sure the middle seat belt is routed as shown with reel behind the K Brace.

16. Install 2 spacers on the backside of the frame onto the hex cap screw and then place the top of middle seat belt as shown over the 2 spacers. Add a 7/16" nylock nut and hand tighten.



11.2 Crew Cab Roll Cage Installation

Part 6 Cont. – Install the Seat Belts



17. Position the middle seat bracket as shown and insert a hex cap screw (7/16 X 1-1/4) and a nylock nut at rear. Hand tighten the nut.

18. Insert a hex cap screw (7/16 X 1-1/4) through bottom connector on the middle seat belt as shown. Place the screw through the frame and attach a nylock nut to back side of frame. Hand tighten the nut.

19. Following the above steps install the middle seat belt over the rear seat. Only hand tighten the three nuts at this point.

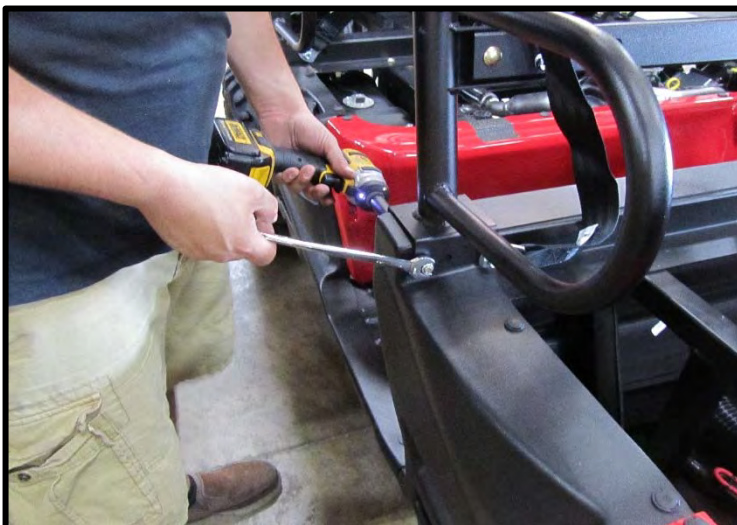


Part 7 – Tighten the Hardware

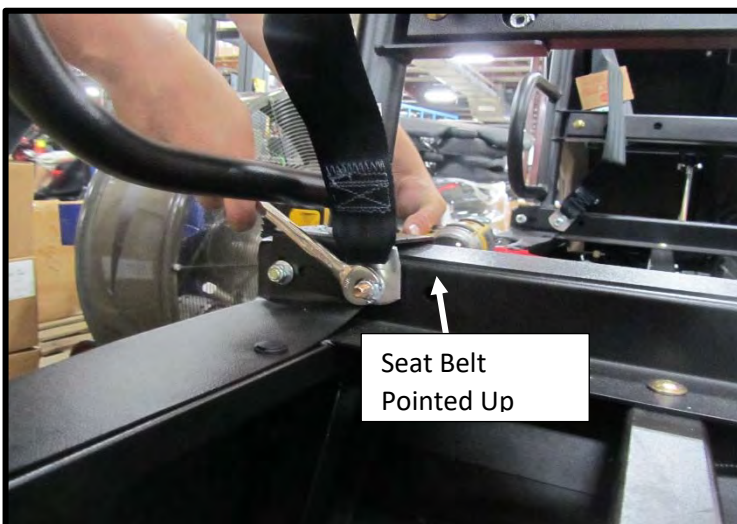


1. Using the 9/16" socket and wrench tighten the bolts on the front of each of the Hoop brackets as shown.

Note: Tighten so that the seam lines up. No gap should be visible.



2. Using the 9/16" socket and wrench tighten both bottom bolts on each side at the rear of the front ROPS Hoop bracket as shown.



3. Be sure the bottom of seat belt is pointed up as shown for proper seat belt operation.

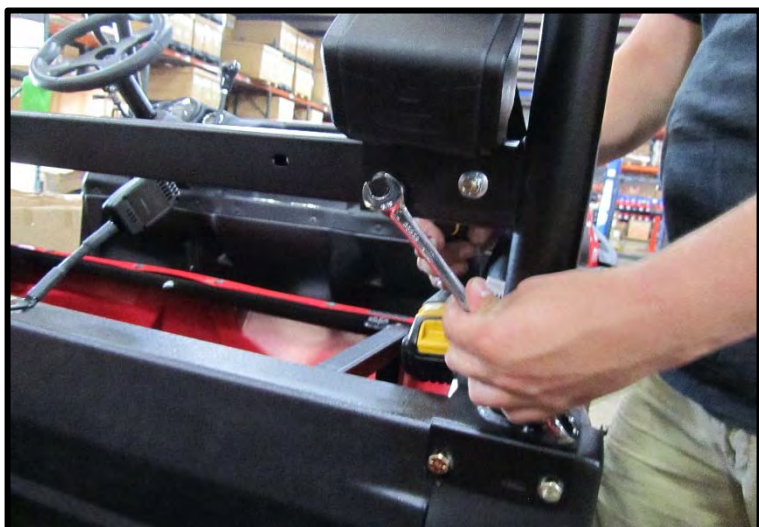


11.2 Crew Cab Roll Cage Installation

Part 7 Cont. – Tighten the Hardware



4. Using the 9/16" socket and wrench tighten both bottom bolts on each side at the rear of the back ROPS Hoop bracket as shown.



5. Using the 9/16" socket and wrench tighten the *black* hex bolt used as a plug on the rear of the front ROPS Hoop bracket as shown. Tighten the other side in like manner.

Note: These black hex bolts are used only on the front.



6. Using the 9/16" socket and wrench tighten two bolts on at the connector between the Front and Rear hoops as shown. Tighten the 2 bolts on the opposite connector in the same manner.



11.2 Crew Cab Roll Cage Installation

Part 7 Cont. – Tighten the Hardware



7. Using an impact gun with a 5/8" socket and a 5/8" wrench tighten the top of the outside seat belts. This shoulder bolt should allow some movement from side to side for the top of belt but should not be too loose to allow movement toward front and rear of UTV. Tighten the top bolt of the outside seat belts for both rear and front.



8. Using the 5/8" socket and wrench tighten the mid-point connection on the front outside seat belts as shown.



9. Using the 5/8" socket and wrench tighten the mid-point connection on both rear outside seat belts as shown.



Part 7 Cont. – Tighten the Hardware

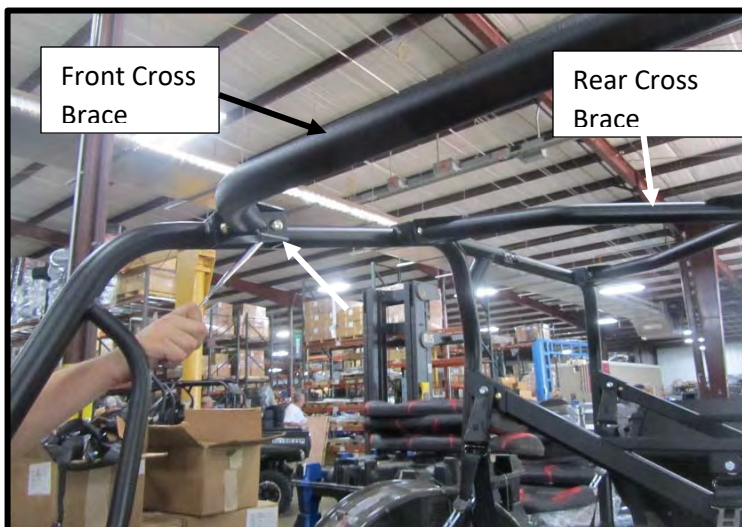
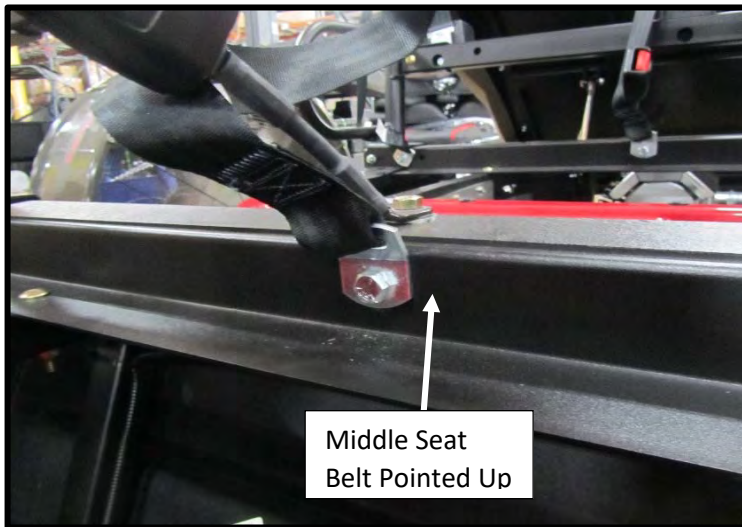


10. Using the 5/8" socket and wrench tighten all three connection points on the middle seat belt as shown in next three pictures for both front and rear belts.



11.2 Crew Cab Roll Cage Installation

Part 7 Cont. – Tighten the Hardware



11. Note the direction of the bottom of the middle seat belts after tightening. Use a 5/8" wrench over the bottom bolt head for the middle belt and rotate until the belt is pointed up as shown. This is needed for each of the belts after they are tightened.

12. Remove the cardboard from all six of the seat belts. Also be sure to remove all plastic ties connecting cardboard to the belt to prevent possible damage to seat belt.

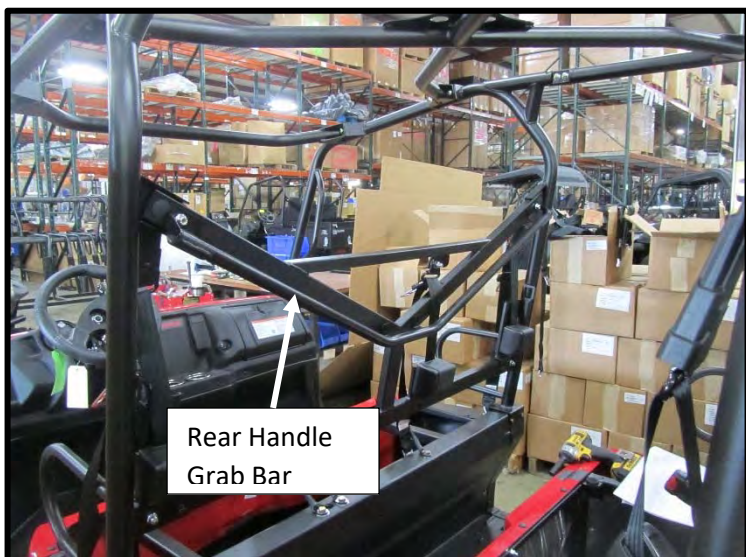
13. Using a 9/16" ratchet wrench tighten all the overhead carriage bolts on the Front and Rear Cross Braces.

Note: Be sure the square bolt shoulders fit well into square holes. Excess slag in the holes may need to be removed with a punch.

14. Install four black plastic hole plugs on outside on back of front and rear K Braces as shown.



Part 8 –Install Seats and Rear Handle Grab Bar

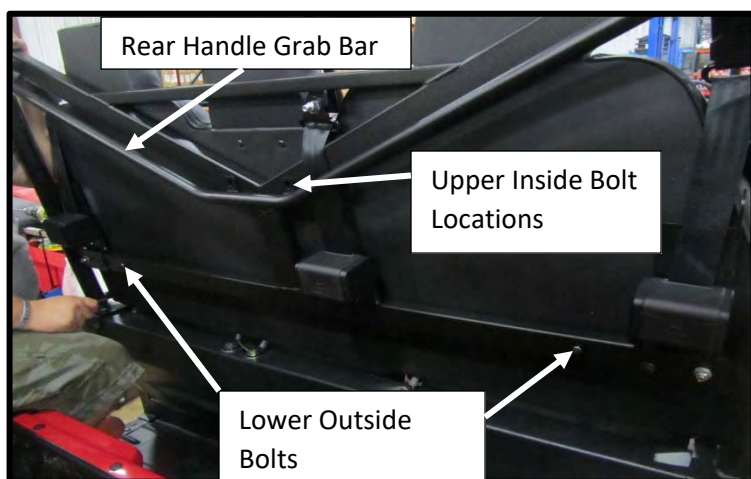
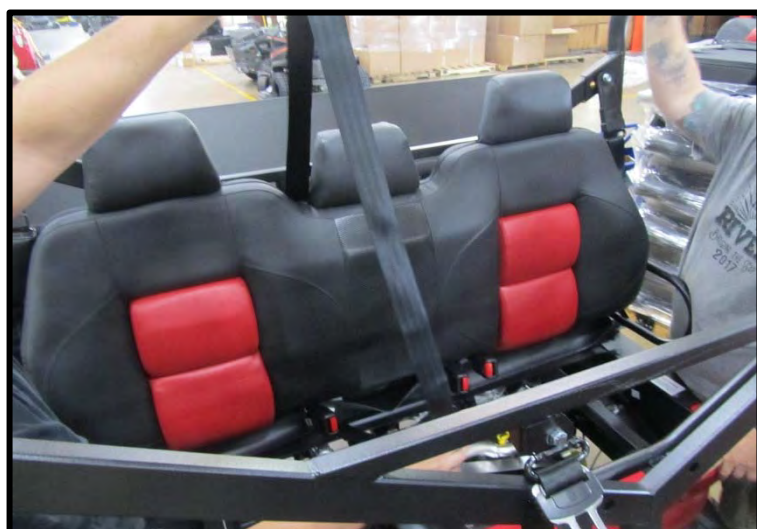
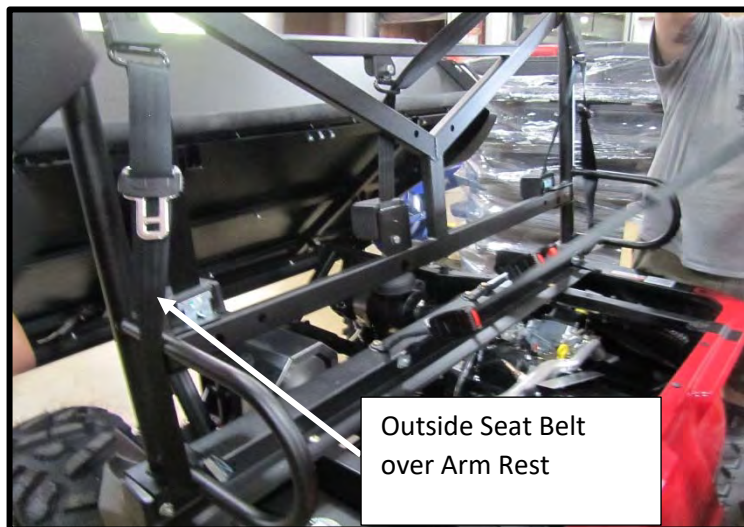


1. Locate the Rear Handle Grab Bar to be installed on back of front seat.
2. Using a 9/16" socket loosen the carriage bolt and remove the nut on each side of the front seat as shown.
3. Place the Rear Handle Grab Bar over the carriage bolts and install the nuts on each side on back of front seat as shown. Hand tighten the nuts at this point and allow the Bar to hang down.



11.2 Crew Cab Roll Cage Installation

Part 8 Cont. –Install Seats and Rear Handle Grab Bar



4. Starting at the rear place both of the outside seat belts over their arm rests as shown.

5. Have one person open up the middle seat belt to allow the second person to insert the seat back from the driver's side through the opened belt and into place as shown. Be sure the three flaps on bottom of back are not pinned under the back.

Note: That the two seat backs are interchangeable and can be used in either front or rear seats.

6. Complete the above 2 steps for the front seat back.

7. For each seat back - place 1/4" lock washers over 4 hex bolts (1/4 X 1-3/4). Note the 4 locations through the K Brace into the inserts in the back of each seat as shown.

8. Beginning with the front seat back install 2 of these bolts/washers into lower back and toward outside of frame from rear as shown. Hand tighten the 2 screws at this point.

9. Install the other 2 bolts /washers into upper inside through the Rear Handle Grab Bar as shown and hand tighten.



11.2 Crew Cab Roll Cage Installation

Part 8 Cont. –Install Seats and Rear Handle Grab Bar



10. Moving to the rear seat back install the 2 bolts/washers through the lower outside holes and then the 2 bolts/washers into the upper inside holes. Hand tighten.

Note: The rear seat does not have a Grab Bar.

11. Using a 7/16" ratchet wrench tighten the Lower Outside bolts first. Only tighten enough to press the back of the seat against the frame. Then tighten the Upper Inside bolts in the same manner. Repeat for the front seat back.

Caution: Overtightening can cause the seat back insert to strip out. Do not use an impact gun.

12. After tightening the seat backs to the K brace, use a 9/16" socket and impact gun and tighten the upper nuts on the Rear Handle Grab Bar as shown on each side.

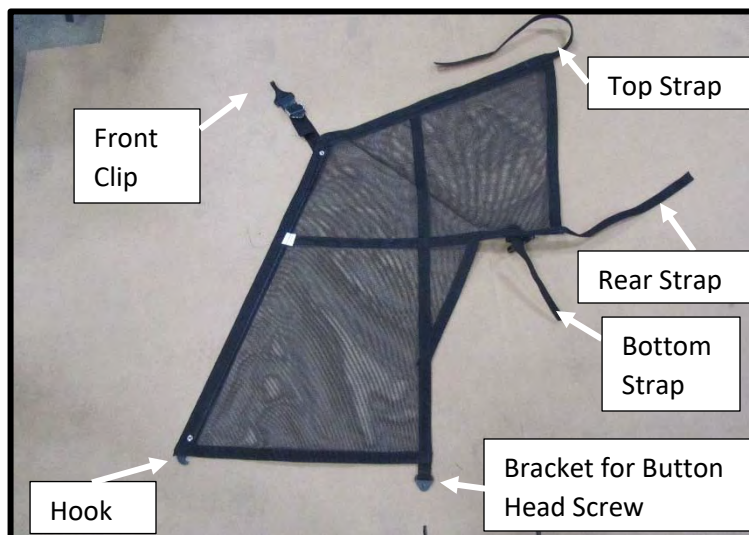
13. Lubricate each of the seat grommets (2 per seat) with a good quality water resistant marine grease.

14. Position seat bottom in place as shown and press into the lubricated grommets.

15. Repeat for installing of the rear seat bottom.



Part 9 – Install Safety Nets



1. Locate the 4 separate safety nets. Each one is identified Left or Right and Front or Rear and should only be installed in the correct location. Note the various connecting points for the nets as shown in the picture.

Note 1: This whole part does not apply for the GC1K.

Note 2: This procedure shows pictures for installation on the Front Right (Passenger) side. The net installations are the same for all locations and can be done in any order.

2. Grab the net by the metal bar and insert the hook into the front floor board as shown.
3. Connect the front clip of the net to the net bracket installed earlier as shown.



11.2 Crew Cab Roll Cage Installation

Part 9 Cont. – Install Safety Nets



4. Route the top strap around the K Brace in rear and through the buckle as shown.



5. Route the rear strap around the back of the ROPS hoop as shown and through the buckle.



6. Route the bottom strap under the ROPS hoop and up through the buckle as shown.

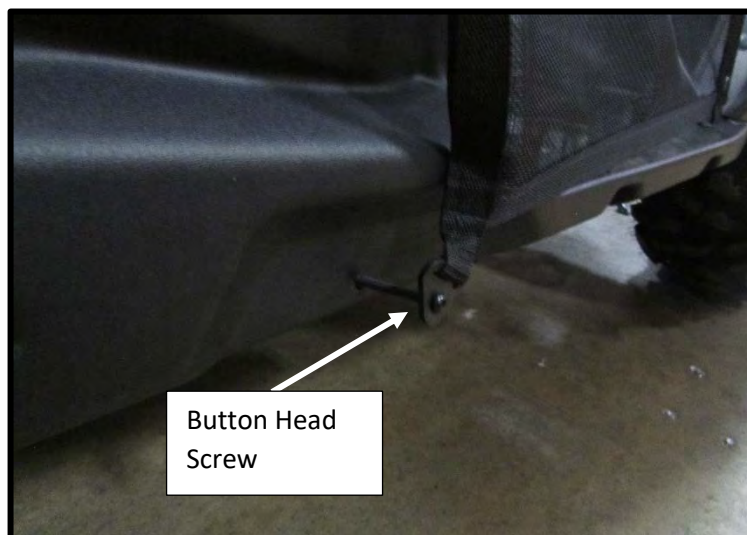


11.2 Crew Cab Roll Cage Installation

Part 9 Cont. – Install Safety Nets



7. Note the routing of the straps through the rear and bottom buckles as shown in picture. This particular one is showing the Right Rear Safety Net but it is the same for all 4 nets.



8. Insert the button head screw (1/4 X 3) through the bracket and into the bottom side frame as shown. Sometimes paint will partially fill the hole and using an impact gun and a 5/32" allen bit is needed to drive the screw through the frame. Secure with a 1/4" nylock nut on opposite side of frame and hand tighten.



9. Loosen the straps at the three buckles and tighten at the front clip to provide a firm net with no pockets or droops.

Note: The front bar of the net for the front seats should be almost true vertical. The net should be tight but yet able to be opened easily at front clip.



11.2 Crew Cab Roll Cage Installation

Part 9 Cont. – Install Safety Nets



10. Proper installation of the safety net for the rear seat has the front bar off of true vertical as shown in the picture.



11. Properly installed and tightened nets are shown in the picture.



12. Using a 5/32" bit in the button head screw and a 7/16" wrench on the nut tighten the screw at bottom of net.

Caution: Be sure the bit fits firmly in the button head to prevent stripping out.

13. Repeat this Part for installation of the safety nets at the other 3 locations on the UTV.

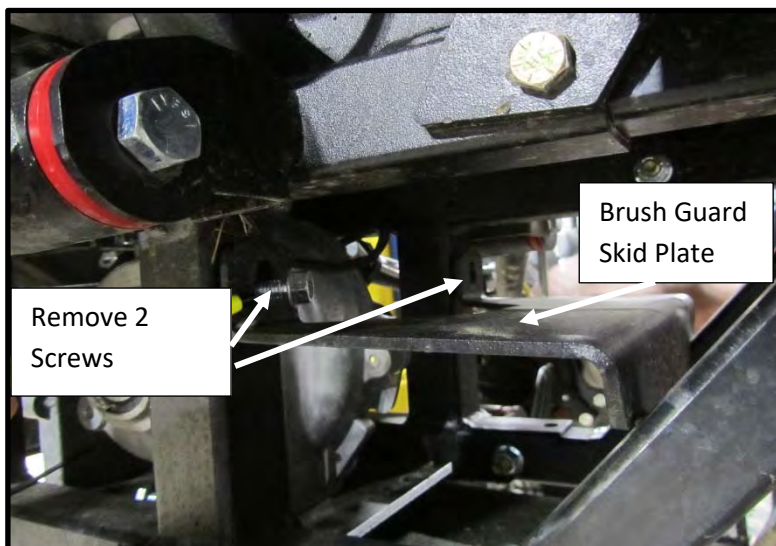
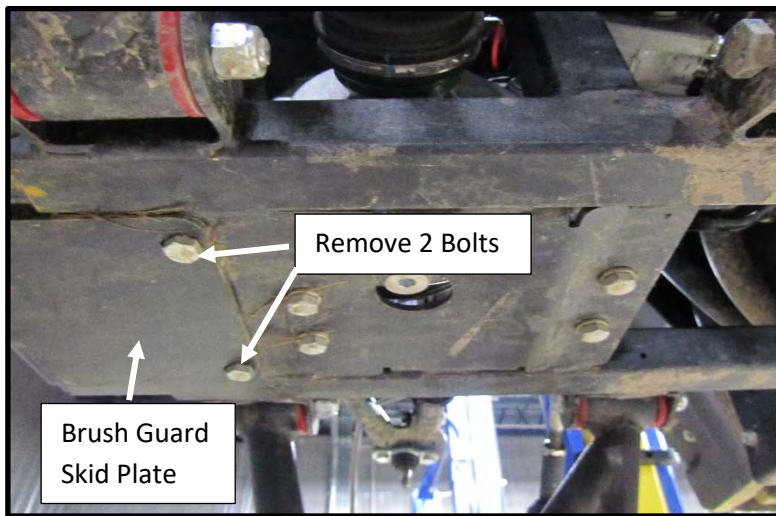
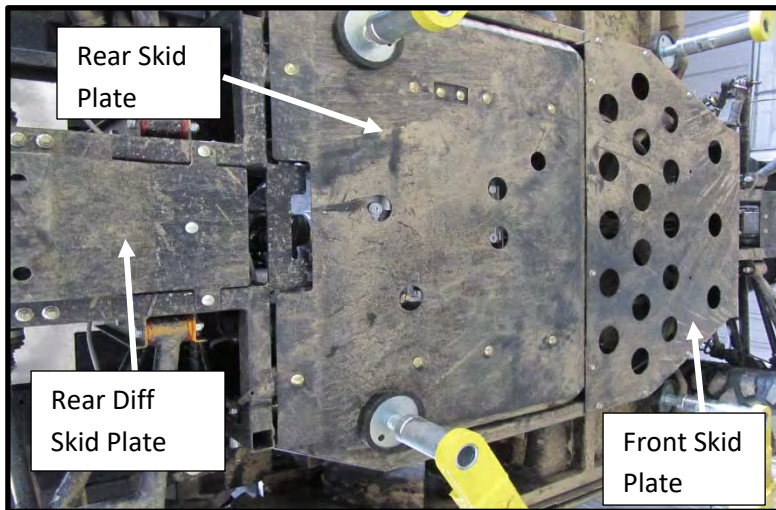


Service Manual – GC1K 2018 and later

Section 12 – Frame

12.1 Replacing Skid Plates

Part 1 – Replacing the Skid Plates



There are 4 separate and removable skid plates on the bottom of GC1K UTV's that protect the lower components. This procedure covers removing all 4 skid plates.

The brush guard skid plate (not shown in first picture but is in very front of UTV) and the rear differential skid plate may need to be removed to replace the front and rear differentials. The main skid plates (rear and front skid plates) have access holes cut out for routine maintenance and are not normally removed. However mud and debris can lodge underneath these skid plates and require removal for cleaning. Removal of the rear diff skid plate and the brush guard skid plate is *not* required to remove the main skid plates.

Tools: 9/16" socket, 1/2" socket / wrench, jack

Safety:

- Place the UTV in Park on level ground and turn off the ignition.

1. For easiest access to the brush guard skid plate and the rear differential skid plate jack up UTV and place on jack stands or use a lift (if one is available) to raise the UTV.

Note: The lift ends will need to be placed on frame and not on the rear skid plate as shown in top picture.

2. To remove the Brush Guard Skid Plate at the front of the UTV remove 2 bolts on bottom as shown with 9/16" socket.
3. Remove the 2 screws as shown holding the brush guard skid plate assembly in place with a 1/2" socket.
4. Pull the brush guard skid plate out through bottom.

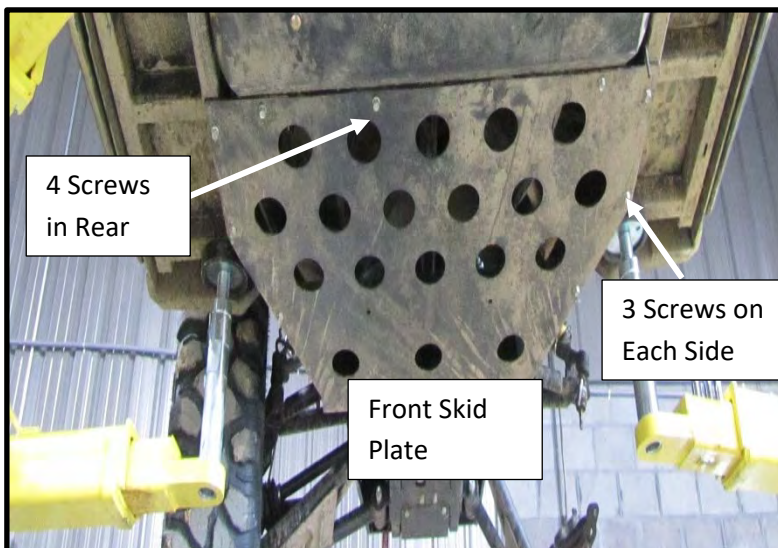
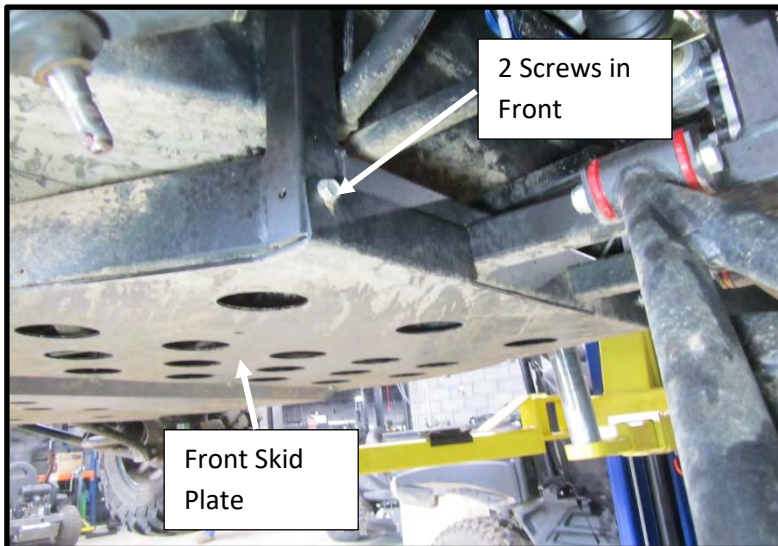
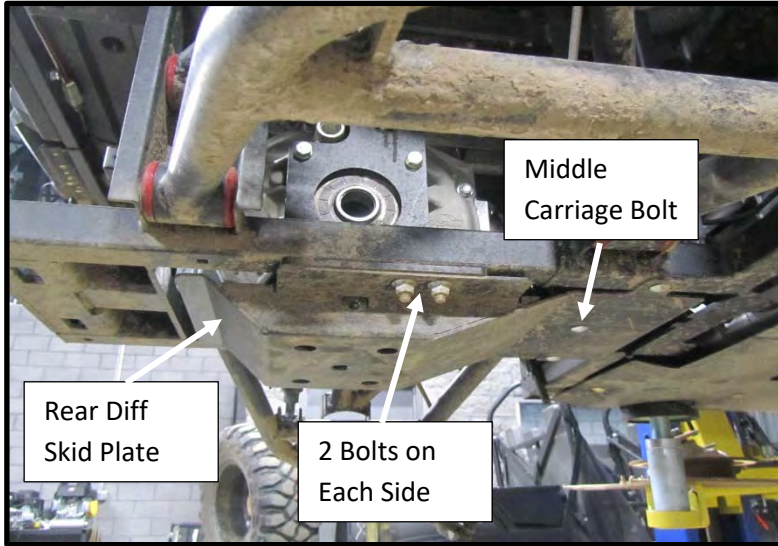


Service Manual – GC1K 2018 and later

Section 12 – Frame

12.1 Replacing Skid Plates

Part 1 Cont. – Replacing the Skid Plates



5. Remove the Rear Diff Skid Plate using a 1/2" socket / wrench on the 4 bolts (2 on each side) on the sides and the 3 carriage bolts toward front of plate.

Note that the middle carriage bolt in the front is for securing the brake tee which needs to be free from the plate in order to remove the plate. The brake lines should remain intact with the tee.

6. A jack is the easiest way to remove the Front Skid Plate and the Rear Skid Plate. Simply approximate the center of the skid plate and place the jack at this center point.
7. With the UTV on the ground raise the jack enough to put slight pressure on the skid plate.
8. To remove the Front Skid Plate use a 1/2" socket to take out the 12 screws holding it to the frame. There are 2 screws on the very front, 3 screws on each side, and 4 screws in the rear as shown.
9. Once all the screws are removed let the jack down slowly and lower the skid plate to the ground.

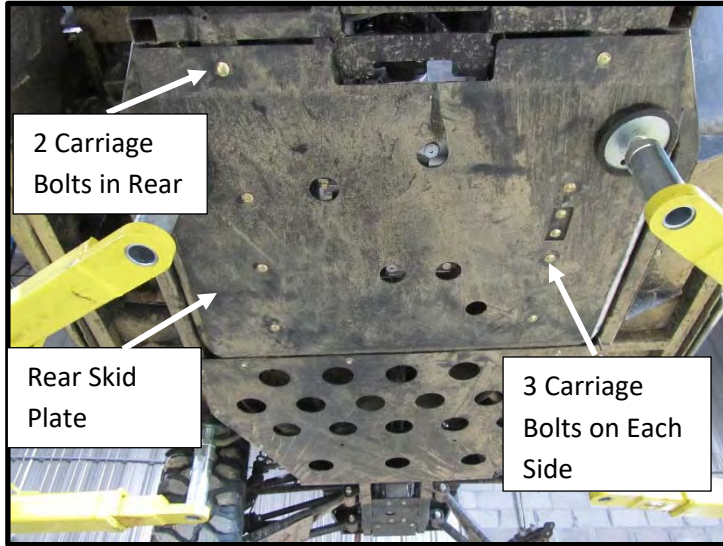


Service Manual – GC1K 2018 and later

Section 12 – Frame

12.1 Replacing Skid Plates

Part 1 Cont. – Replacing the Skid Plates



10. Once the Front Skid Plate has been removed the Rear Skid Plate can be taken off. Place the jack in the approximate center of the plate and raise to put slight pressure on the plate.
11. Use a 9/16" wrench to remove the Nylock nuts on the 8 carriage bolts (2 in the rear and 3 on each side) as shown.
12. Once all the bolts are removed let the jack down slowly and lower the skid plate to the ground.
13. When the work is complete reinstall the skid plates with the jack in the center of the plate. Add Loctite to the existing connectors and tighten. The rear skid plate has to be installed before the front skid plate. The other 2 plates are independent of the rear and front plates.

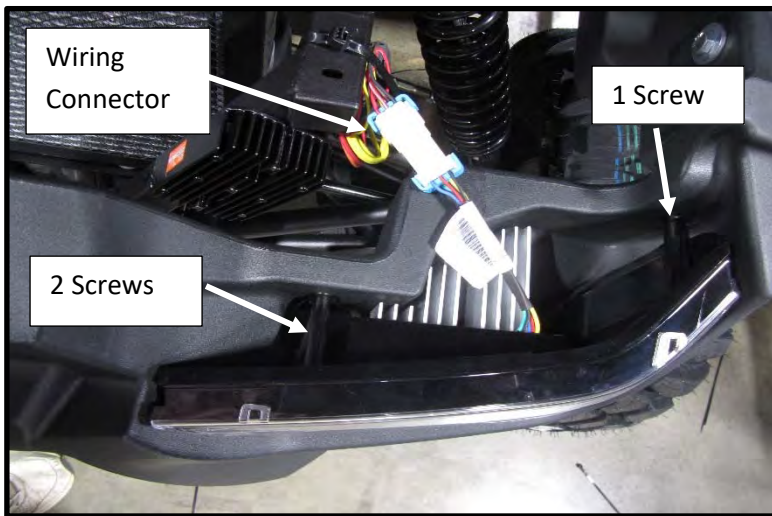
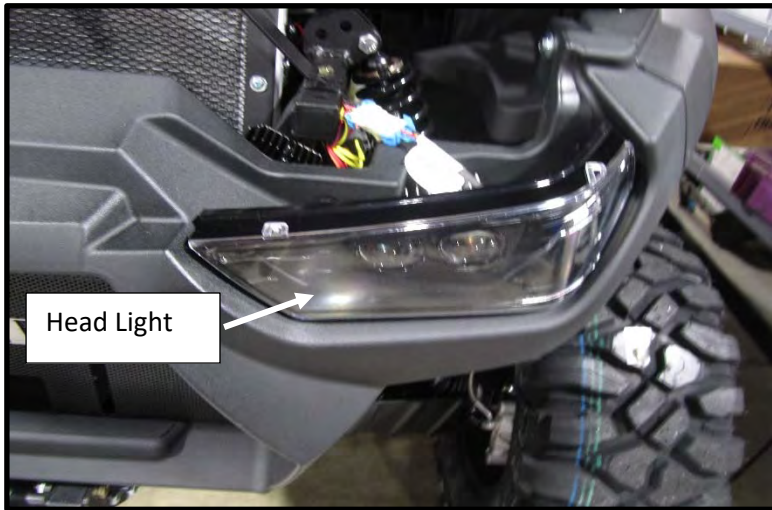


Service Manual – GC1K 2018 and later

Section 13 – Electrical & Instrumentation

13.1 Replacing Head Light

Part 1 – Replacing Head Light



Tools: phillips screw driver

Safety:

- Place the UTV in Park on level ground and turn off the ignition.

1. Open the front hood.
2. Locate the appropriate head light and its wiring connection. Disconnect the light wiring by unplugging two pin connector.
3. Note that the head light has 3 screws connecting it to the front plastic panel. Using a phillips screw driver from the rear of the light remove the 3 screws and then remove the head light.
4. Use an identical new head light and mount it in the opening.
5. Insert the 3 screws from the rear of the head light.

Note: The bottom screw toward the center of UTV needs a flat washer placed between light and UTV housing as shown (blue pen). This will provide a flush fitting of head light with outside panel of UTV.

6. Tighten with a phillips screw driver.
7. Plug in the wiring connector.