CHAPTER 2
MAINTENANCE

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PERIODIC MAINTENANCE CHART

Periodic Maintenance Overview

Inspection, adjustment and lubrication of important components are explained in the periodic maintenance chart.

Inspect, clean, lubricate, adjust and replace parts as necessary. When inspection reveals the need for replacement parts, use genuine Pure Polaris parts available from your Polaris dealer.

NOTE: Service and adjustments are critical. If you're not familiar with safe service and adjustment procedures, have a qualified dealer perform these operations.

Maintenance intervals in the following chart are based upon average riding conditions and an average vehicle speed of approximately 10 miles per hour. Vehicles subjected to severe use must be inspected and serviced more frequently.

Severe Use Definition

- Frequent immersion in mud, water or sand
- Racing or race-style high RPM use
- Prolonged low speed, heavy load operation
- Extended idle
- Short trip cold weather operation

Pay special attention to the oil level. A rise in oil level during cold weather can indicate contaminants collecting in the oil sump or crankcase. Change oil immediately if the oil level begins to rise. Monitor the oil level, and if it continues to rise, discontinue use and determine the cause or see your dealer.

Break-In Period

The break-in period consists of the first 25 hours of operation, or the time it takes to use 14 gallons (53 liters) of fuel. Careful treatment of a new engine and drive components will result in more efficient performance and longer life for these components.

- Drive vehicle slowly at first while varying the throttle position. Do not operate at sustained idle.
- Pull only light loads.
- Perform regular checks on fluid levels and other areas outlined on the daily pre-ride inspection checklist.
- Change both the engine oil and filter after 25 hours or one month.
- See "Owner's Manual" for additional break-in information.

Maintenance Chart Key

The following symbols denote potential items to be aware of during maintenance:

■ = **CAUTION: Due to the nature of these adjustments, it is recommended this service be performed by an authorized Polaris dealer.**

◗ = **SEVERE USE ITEM: See information provided above.**

E = **Emission Control System Service (California).**

NOTE: Inspection may reveal the need for replacement parts. Always use genuine Polaris parts.

⚠ WARNING
Improperly performing the procedures marked ■ could result in component failure and lead to serious injury or death. Have an authorized Polaris dealer perform these services.

Pre-Ride - 25 Hour Maintenance Interval

Item		Maintenance Interval (whichever comes first)			Remarks
		Hours	Calendar	Miles (KM)	
■	Steering	-	Pre-Ride	-	Make adjustments as needed. See Pre-Ride Checklist on Page 2.10.
▶	Front Suspension	-	Pre-Ride	-	
▶	Rear Suspension	-	Pre-Ride	-	
	Tires	-	Pre-Ride	-	
▶	Brake Fluid Level	-	Pre-Ride	-	
▶	Brake Pedal Travel	-	Pre-Ride	-	
	Brake Systems	-	Pre-Ride	-	
	Wheels / Fasteners	-	Pre-Ride	-	
	Frame Fasteners	-	Pre-Ride	-	
▶ **E**	Engine Oil Level	-	Pre-Ride	-	
▶ **E**	Air Filter / Pre-Filter	-	Daily	-	Inspect;clean often
▶ **E**	Air Box Sediment Tube	-	Daily	-	Drain deposits when visible
	Coolant Level	-	Daily	-	Check level daily, change coolant every 2 years
	Head Lamp / Tail Lamp	-	Daily	-	Check operation; apply dielectric grease if replacing
▶ **E**	Air Filter, Main Element	-	Weekly	-	Inspect; replace as needed
▶ ■	Brake Pad Wear / Inspect Parking Brake Pads	10 H	Monthly	100 (160)	Inspect periodically
	Battery	20 H	Monthly	200 (320)	Check terminals; clean; test
▶ ■	Parking Brake Cable Adjustment	25 H	-	-	Inspect; adjust tension after first 25 hours

▶ Perform these procedures more often for vehicles subjected to severe use.
E Emission Control System Service (California)
■ Have an authorized Polaris dealer perform these services.

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25 - 100 Hour Maintenance Interval

	Item	Maintenance Interval (whichever comes first)			Remarks
		Hours	Calendar	Miles (KM)	
▶	Front Gearcase Lubricant	25 H	Monthly	250 (400)	Inspect level; change yearly; change demand drive fluid every 25 hours if exposed to extreme use
▶	Mid Gearcase Lubricant (6x6)	25 H	Monthly	250 (400)	Inspect level; change yearly
▶	Rear Gearcase Lubricant (6x6)	25 H	Monthly	250 (400)	Inspect level; change yearly
▶	Transmission Lubricant	25 H	Monthly	250 (400)	Inspect level; change yearly
▶ E	Engine Breather Filter (if equipped)	25 H	Monthly	250 (400)	Inspect; replace if necessary
▶ E	Engine Oil Change (Break-In Period)	25 H	1 M	-	Perform a break-in oil change after the first 25 hours or one month of operation
▶	General Lubrication	50 H	3 M	500 (800)	Lubricate all grease fittings, pivots, cables, etc.
	Shift Linkage	50 H	6 M	500 (800)	Inspect, lubricate, adjust
■	Steering	50 H	6 M	500 (800)	Lubricate (if applicable)
▶	Front Suspension	50 H	6 M	500 (800)	Lubricate (if applicable)
▶	Mid Suspension (6x6)	50 H	6 M	500 (800)	Lubricate (if applicable)
▶	Rear Suspension	50 H	6 M	500 (800)	Lubricate (if applicable)
■ E	Throttle Cable / Throttle Pedal	50 H	6 M	500 (800)	Inspect; adjust; lubricate; replace if necessary
E	Throttle Body Air Intake Ducts / Flange	50 H	6 M	500 (800)	Inspect ducts for proper sealing/air leaks
	Drive Belt	50 H	6 M	500 (800)	Inspect; adjust; replace as needed
	Cooling System	50 H	6 M	500 (800)	Inspect coolant strength seasonally; pressure test system yearly
▶ ■	Parking Brake Cable Adjustment	100 H	6 M	1000 (1600)	Inspect; adjust tension as needed
▶ E	Engine Oil Change	100 H	6 M	1000 (1600)	Perform a break-in oil change after the first 25 hours or one month of operation
▶ E	Oil Filter Change	100 H	6 M	1000 (1600)	Replace with oil change
■ E	Fuel System	100 H	12 M	1000 (1600)	Check for leaks at tank cap, fuel lines, fuel pump, and fuel rail; replace fuel lines every two years.
▶	Radiator	100 H	12 M	1000 (1600)	Inspect; clean external surfaces

▶ Perform these procedures more often for vehicles subjected to severe use.
E Emission Control System Service (California)
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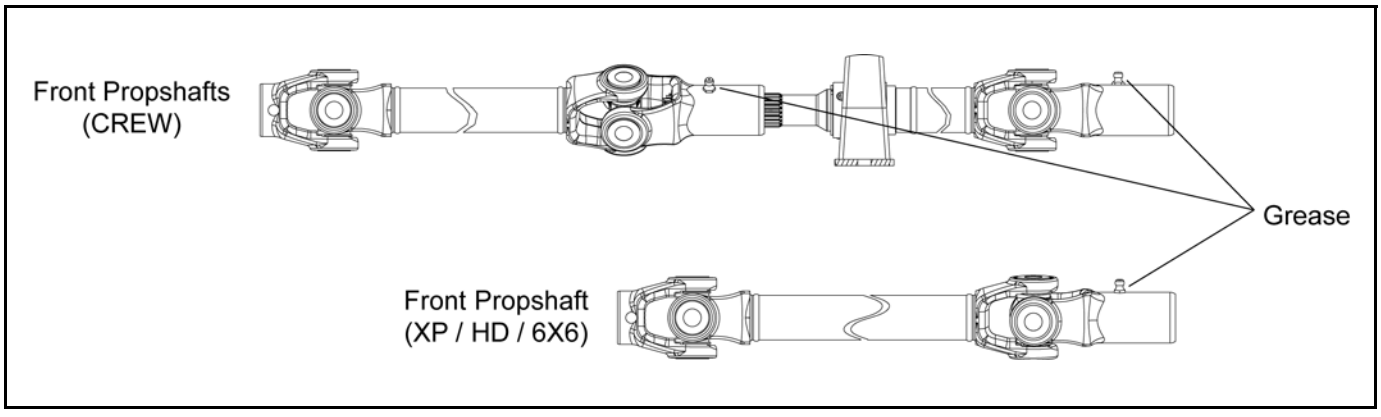
100 - 500 Hour Maintenance Interval

Item		Maintenance Interval (whichever comes first)			Remarks
		Hours	Calendar	Miles (Km)	
▶	Cooling Hoses	100 H	12 M	1000 (1600)	Inspect for leaks
▶	Engine Mounts	100 H	12 M	1000 (1600)	Inspect
	Exhaust Silencer / Pipe	100 H	12 M	1000 (1600)	Inspect
■ E	Spark Plug	100 H	12 M	1000 (1600)	Inspect; replace as needed
▶	Wiring	100 H	12 M	1000 (1600)	Inspect for wear, routing, security; apply dielectric grease to connectors subjected to water, mud, etc.
■	Clutches (Drive and Driven)	100 H	12 M	1000 (1600)	Inspect; clean; replace worn parts
■	Front Wheel Bearings	100 H	12 M	1000 (1600)	Inspect; replace as needed
▶	Shocks	100 H	-	-	Visually inspect shock seals
■	Brake Fluid	200 H	24 M	2000 (3200)	Change every two years (DOT 4)
	Spark Arrestor	300 H	36 M	3000 (4800)	Clean out
▶ ■	Shocks (Walker Evans)	500 H	12 M	-	Change shock oil and replace seals
■	Toe Adjustment	-			Inspect periodically; adjust when parts are replaced
	Headlight Aim	-			Adjust as needed

▶ Perform these procedures more often for vehicles subjected to severe use.
E Emission Control System Service (California)
■ Have an authorized Polaris dealer perform these services.

Grease Lubrication Points

Item	Recommended Lube	Method	Frequency
Front Propshaft Yoke	Polaris Premium U-Joint Grease	Grease fittings (3 pumps maximum)	Grease before long periods of storage, and after pressure washing or submerging the vehicle.



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SERVICE PRODUCTS AND LUBRICANTS

Polaris Lubricants, Maintenance and Service Products

Part No.	Description
Engine Lubricant	
2870791	Fogging Oil (12 oz. Aerosol)
2876244	PS-4 Plus Performance Synthetic 4-Cycle Engine Oil (Quart)
2876245	PS-4 Plus Performance Synthetic 4-Cycle Engine Oil (Gallon)
Gearcase / Transmission Lubricants	
2877922	Demand Drive Plus (Quart)
2877923	Demand Drive Plus (2.5 Gallon)
2878068	AGL Plus Gearcase Lubricant (1 Qt.) (12 Count)
2878069	AGL Plus Gearcase Lubricant (1 Gal.) (4 Count)
2878070	AGL Plus Gearcase Lubricant (2.5 Gal.) (2 Count)
2876160	ATV Angle Drive Fluid (Quart) (12 count)
2872276	ATV Angle Drive Fluid (2.5 Gallon) (2 Count)
2870465	Oil Pump for 1 Gallon Jug
Grease / Specialized Lubricants	
2871322	Premium All Season Grease (3 oz. cartridge) (24 Count)
2871423	Premium All Season Grease (14 oz. cartridge) (10 Count)
2871460	Starter Drive Grease (12 Count)
2871515	Premium U-Joint Lube (3 oz.) (24 Count)
2871551	Premium U-Joint Lube (14 oz.) (10 Count)
2871312	Grease Gun Kit
2871329	Dielectric Grease (Nyogel™)
Coolant	
2871323	60/40 Coolant (Gallon) (6 Count)
2871534	60/40 Coolant (Quart) (12 Count)

NOTE: Each item can be purchased separately at your local Polaris dealer.

Part No.	Description
Additives / Sealants / Thread Locking Agents / Misc.	
2871950	Loctite™ Threadlock 242 (6 ml.) (12 count)
2871326	Premium Carbon Clean (12 oz.) (12 count)
2870652	Fuel Stabilizer (16 oz.) (12 count)
2872189	DOT 4 Brake Fluid (12 count)
2871557	Crankcase Sealant, 3-Bond 1215 (5 oz.)

NOTE: The number count indicated by each part number in the table above indicates the number of units that are shipped with each order.

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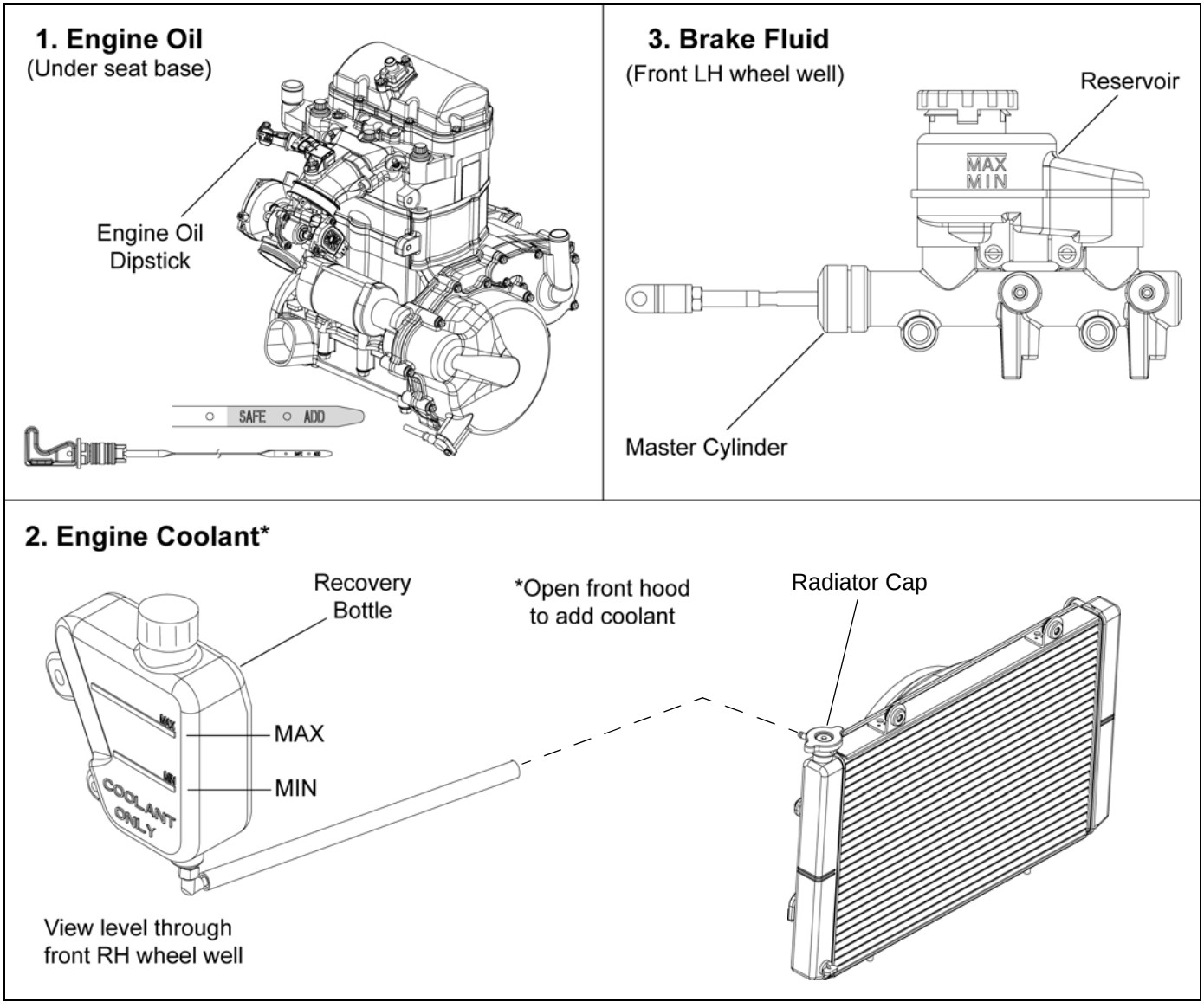
FLUID MAINTENANCE REFERENCES

Component Quick Reference

Ill. #	Item	Lube Rec.	Method	Frequency*
1	Engine Oil	Polaris PS-4 Plus Performance Synthetic 4-Cycle Engine Oil	Add oil to proper level on dipstick	Change after 1st month or first 25 hours of operation, 100 hours thereafter; Change more often (25 hours) in severe duty conditions or short trip cold weather operation
2	Engine Coolant	Polaris 60/40 Coolant	Maintain coolant level in coolant reservoir bottle.	Check level daily, change coolant every 2 years
3	Brake Fluid	Polaris DOT 4 Brake Fluid	Maintain fluid level between “MAX and “MIN” lines on the master cylinder reservoir	Check level during pre-ride inspection; change fluid every two years

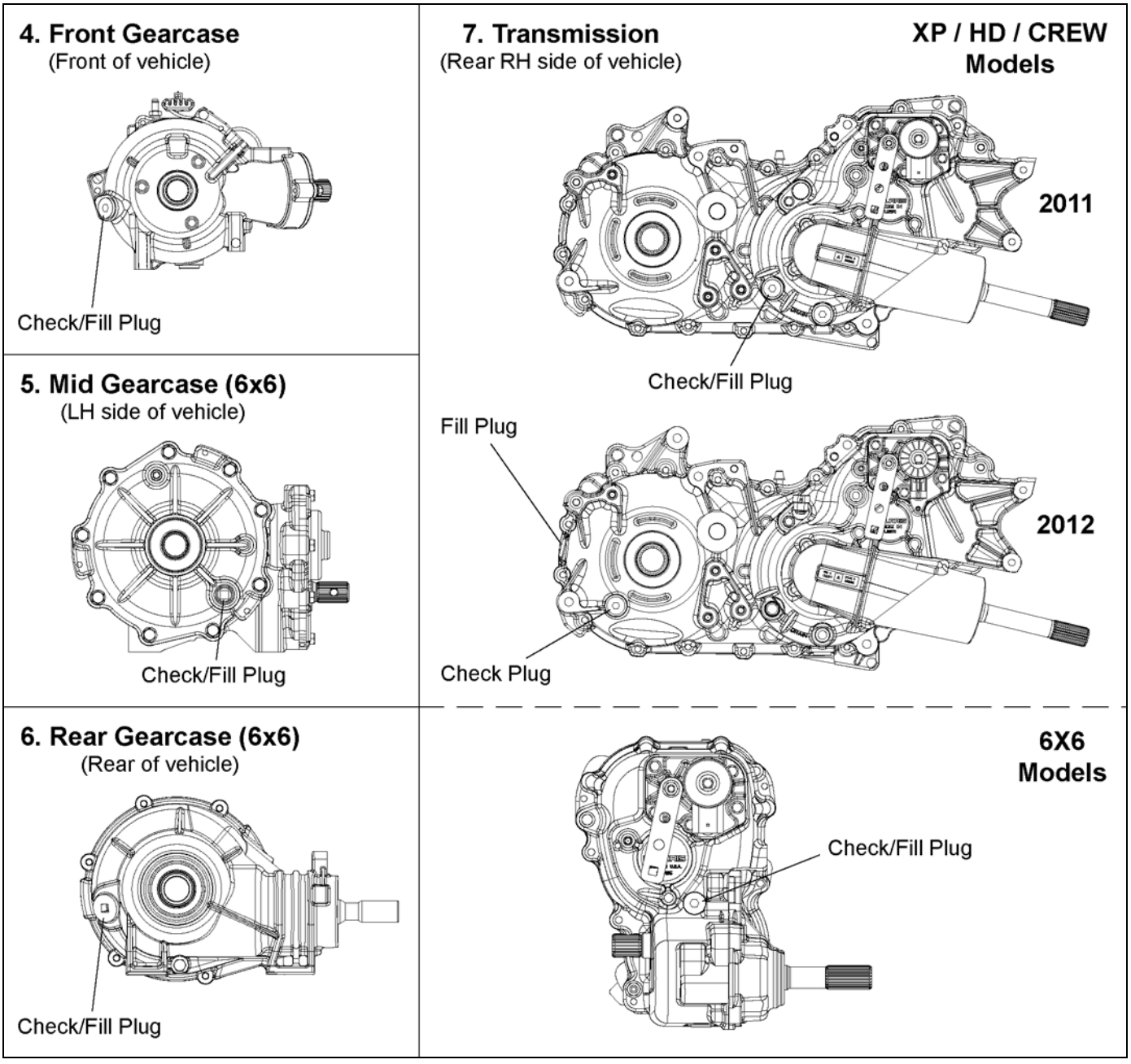
* More often under severe use, such as operated in water or under severe loads.



Component Quick Reference, Continued.....

Ill. #	Item	Lube Rec.	Method	Frequency*
4	Front Gearcase	Polaris Demand Drive Plus	Add lubricant until it is visible at the fill hole threads	Check level every 25 hours; change according to intervals
5	Mid Gearcase	Polaris ATV Angle Drive Fluid (ADF)	Add lubricant until it is visible at the fill hole threads	Check level every 25 hours; change fluid yearly
6	Rear Gearcase	Polaris ATV Angle Drive Fluid (ADF)	Add lubricant until it is visible at the fill hole threads	Check level every 25 hours; change fluid yearly
7	Transmission	Polaris AGL Plus Gearcase Lubricant	Add lubricant until it is visible at the check plug hole threads	Check level every 25 hours; change lubricant yearly

***** More often under severe use, such as operated in water or under severe loads.



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GENERAL VEHICLE INSPECTION AND MAINTENANCE

Pre-Ride / Daily Inspection

Perform the following pre-ride inspection daily, and when servicing the vehicle at each scheduled maintenance.

- Tires - check condition and pressures
- Fuel tank - fill tank to proper level
- All brakes - check operation, fluid level and adjustment (includes parking brake)
- Throttle - check for free operation and closing
- Headlight/Taillight/Brakelight - check operation of all indicator lights, instrument cluster and switches
- Ignition switch - check for proper function
- Wheels - check for tightness of wheel nuts and axle nuts; check to be sure axle nuts are secured by cotter pins
- Air cleaner element - check for dirt; clean or replace
- Steering - check for free operation noting any unusual looseness in any area
- Loose parts - visually inspect vehicle for any damaged or loose nuts, bolts or fasteners
- Engine coolant - check for proper level at the recovery bottle
- Check all suspension components for wear or damage

Frame, Nuts, Bolts, and Fasteners

Periodically inspect the torque of all fasteners in accordance with the maintenance schedule. Check that all cotter pins are in place. Refer to specific fastener torques listed in each chapter.

Shift Cable Inspection

Shift cable adjustment is necessary when symptoms include:

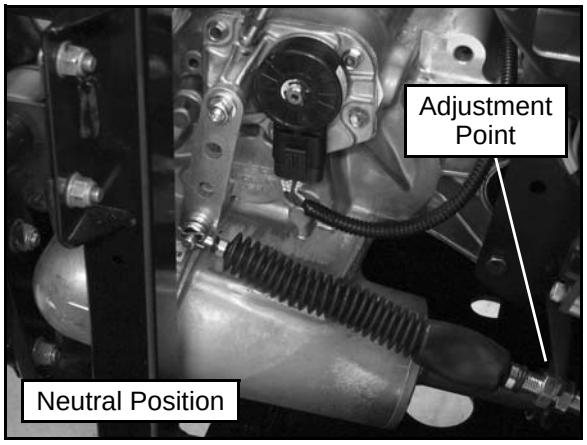
- Noise on deceleration
- Inability to engage a gear
- Excessive gear clash (noise)
- Gear selector is moving out of desired range

Inspect shift cable, clevis pins, and pivot bushings and replace if worn or damaged.

Shift Cable Adjustment (XP / HD / CREW)

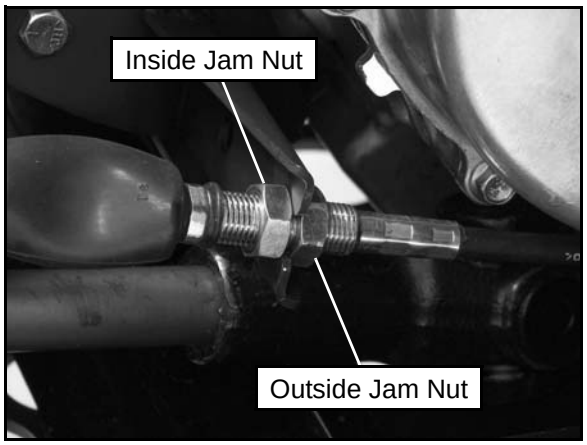
NOTE: The shift cable should be adjusted at the rear adjustment point located near the transmission. If adjustment is needed beyond that, remove the dash panel to access the shift cable adjustment point located underneath the shift lever.

1. Place gear selector in neutral. Make sure the transmission bell crank is engaged in the neutral position detents.



2. Locate the shift cable adjustment point at the engine-to-transmission mount bracket.

3. With two open-end wrenches, loosen the outside jam nut counterclockwise. Turn the outside jam nut 1 1/2 turns.



4. After turning the outside jam nut 1 1/2 turns. Hold the outside jam nut with a wrench and tighten the inside jam nut clockwise, until it is tight against the bracket.

5. Repeat Step 3 and Step 4 until the proper adjustment is made to the shift cable.

6. Use this procedure to loosen or tighten the shift linkage cable as needed.

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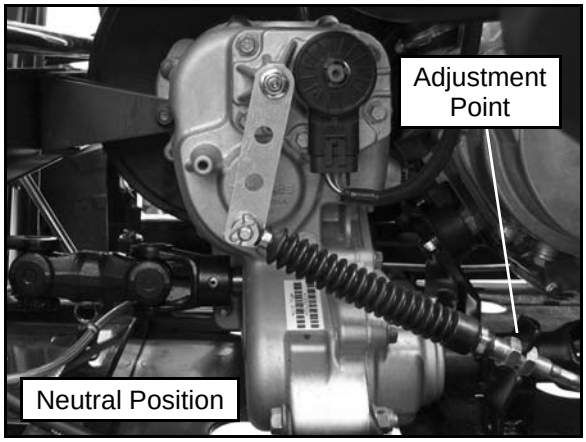
Shift Cable Adjustment (6x6)

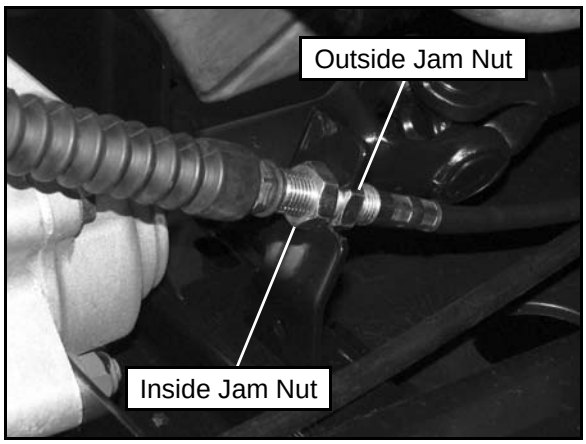
NOTE: The shift cable should be adjusted at the rear adjustment point located near the transmission. If adjustment is needed beyond that, remove the dash panel to access the shift cable adjustment point located underneath the shift lever.

1. Place gear selector in neutral. Make sure the transmission bell crank is engaged in the neutral position detents.



2. Locate the shift cable adjustment point attached to the frame in front of the transmission.

3. With two open-end wrenches loosen the outside jam nut counterclockwise. Turn the outside jam nut 1 1/2 turns.



4. After turning the outside jam nut 1 1/2 turns. Hold the outside jam nut with a wrench and tighten the inside jam nut clockwise, until it is tight against the bracket.

5. Repeat Step 3 and Step 4 until the proper adjustment is made for the transmission cable.

6. Use this procedure to loosen or tighten the shift linkage cable as needed.

FUEL SYSTEM AND AIR INTAKE

Fuel System

⚠ WARNING

Gasoline is extremely flammable and explosive under certain conditions.
Always stop the engine and refuel outdoors or in a well ventilated area.
Do not smoke or allow open flames or sparks in or near the area where refueling is performed or where gasoline is stored.
Do not overfill the tank. Do not fill the tank neck.
If you get gasoline in your eyes or if you swallow gasoline, seek medical attention immediately.
If you spill gasoline on your skin or clothing, immediately wash it off with soap and water and change clothing.
Never start the engine or let it run in an enclosed area. Engine exhaust fumes are poisonous and can result in loss of consciousness or death in a short time.
Never drain the fuel when the engine is hot. Severe burns may result.

Fuel Lines

1. Check fuel lines for signs of wear, deterioration, damage or leakage. Replace if necessary.
2. Be sure fuel lines are routed properly and secured with cable ties. **CAUTION:** Make sure lines are not kinked or pinched.
3. Replace all fuel lines every two years.

Vent Lines

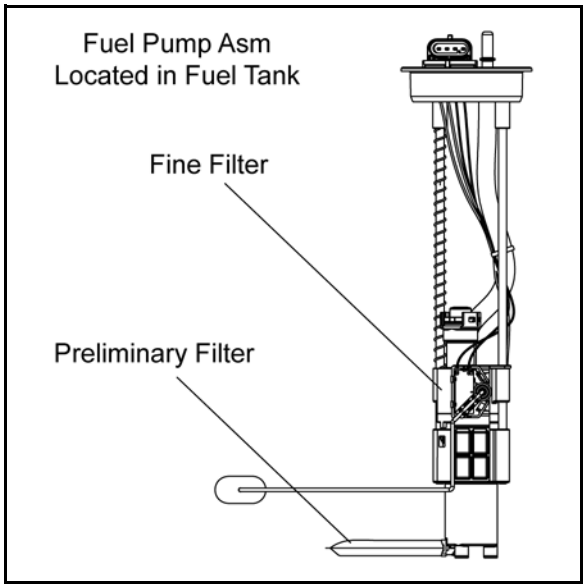
1. Check fuel tank vent lines for signs of wear, deterioration, damage or leakage. Replace every two years.
2. Be sure vent lines are routed properly and secured with cable ties.

IMPORTANT: Ensure lines are not kinked or pinched.

Fuel Pump / Fuel Filters

The *RANGER* 800 EFI engine uses a serviceable, high-volume, high-pressure, fuel pump that includes a preliminary filter and an internal fine filter located before the pump regulator.

NOTE: Neither filter is servicable individually. Must replace the fuel pump as an assembly.



NOTE: Refer to Chapter 4 for fuel pump replacement and all other information related to the EFI System.

Throttle Pedal Inspection

If the throttle pedal has excessive play due to cable stretch or cable misadjustment, it will cause a delay in throttle speed and the throttle may not open fully. If the throttle pedal has no play, it may be hard to control, and the idle speed may be erratic.

Check the throttle pedal play periodically in accordance with the Periodic Maintenance Chart and adjust the play if necessary.

Throttle Freeplay Adjustment

Inspection

1. Apply the parking brake.
2. Put the gear shift lever in the N (Neutral) position.
3. Start the engine, and warm it up thoroughly.
4. Measure the distance the throttle pedal moves before the engine begins to pick up speed. Free play should be 1/16” - 1/8” (1.5 - 3 mm).

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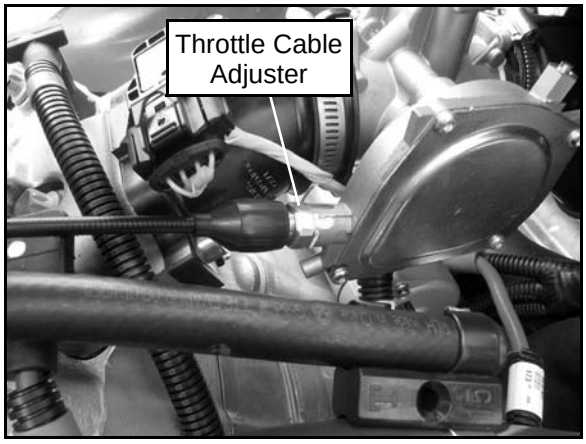
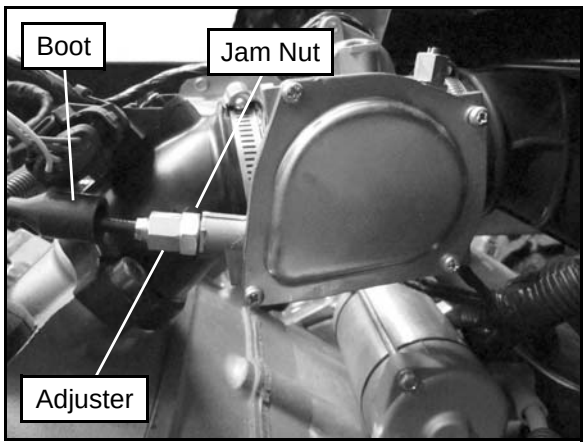
Adjustment

1. Remove the lower seat base.
2. Locate the throttle cable adjustment at the throttle body.



3. Slide back the cable adjuster boot.
4. Using a 14 mm open-end wrench, loosen the adjustment jam nut. Using a 12 mm open-end wrench, move the cable adjuster until 1/16" to 1/8" (1.5 - 3 mm) of freeplay is achieved at the throttle pedal.



NOTE: While adjusting, lightly move the throttle pedal in and out.

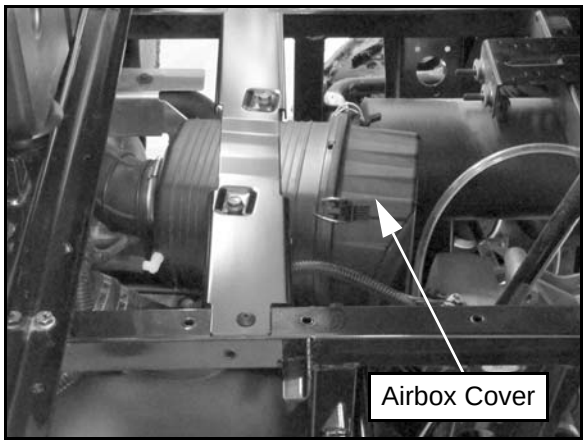
5. Re-tighten the jam nut after final adjustment is made.
6. Apply a small amount of grease to the inside of the boot and slide it over the cable adjuster to its original position.
7. Reinstall the lower seat base.
8. Start the engine.
9. Disengage the parking brake and field test unit to ensure proper throttle operation.

Air Filter Service

It is recommended the air filter be replaced annually. When riding in extremely dusty or wet conditions, or at wide open throttle for extended periods, replacement is required more often. The filter should be inspected periodically (see "Periodic Maintenance Chart").

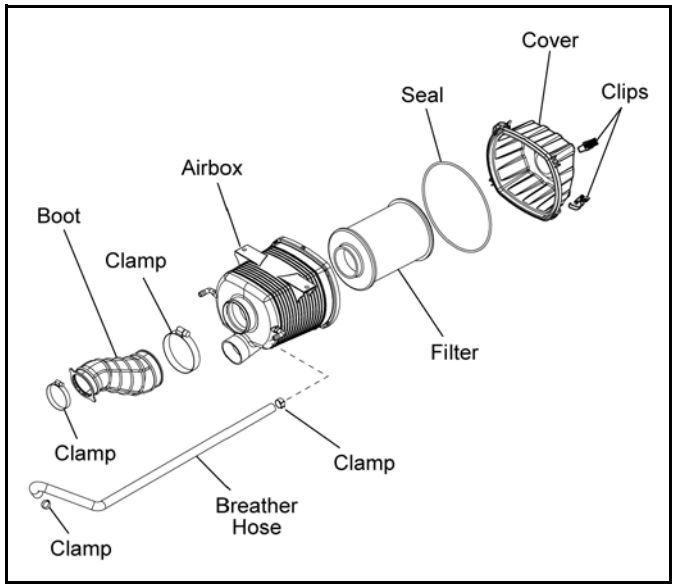
Removal

1. Lift the rear cargo box to access the airbox cover.



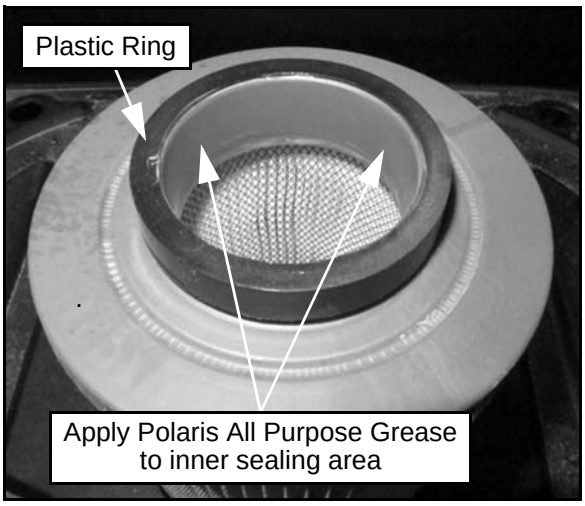
2. Unhook the (4) clips from airbox cover and remove cover. Inspect the cover seal. It should adhere tightly to the cover.
3. Remove air filter assembly by using a pulling/twisting motion. Be sure not to damage the filter element.
4. Inspect the air filter element and replace if necessary. Do not attempt to clean the air filter.

IMPORTANT: If the filter has been soaked with fuel or oil it must be replaced. Do not attempt to wash the air filter. If cleaning is required, replace the filter.

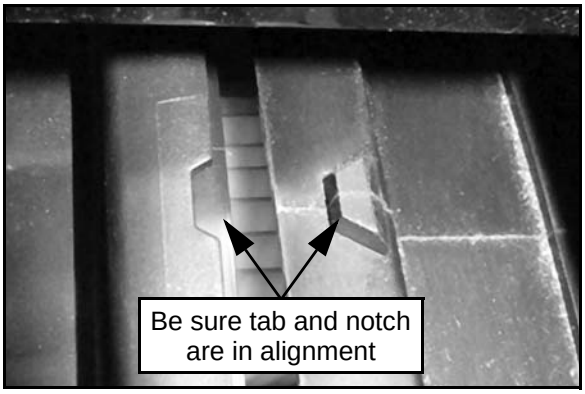


Installation

1. Clean airbox of any oil or water deposits and apply a small amount of grease to the sealing surfaces of the filter. Verify plastic sealing ring is installed on filter sealing area.

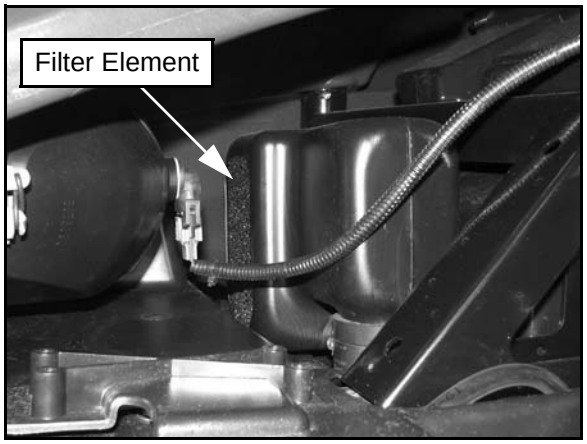


2. Reinstall the air filter cover into the airbox container. Align tab and notch for proper fit. Be sure the filter cover fits tightly to the air box and engage the 4 clips onto the airbox.



Engine Air Intake Inspection

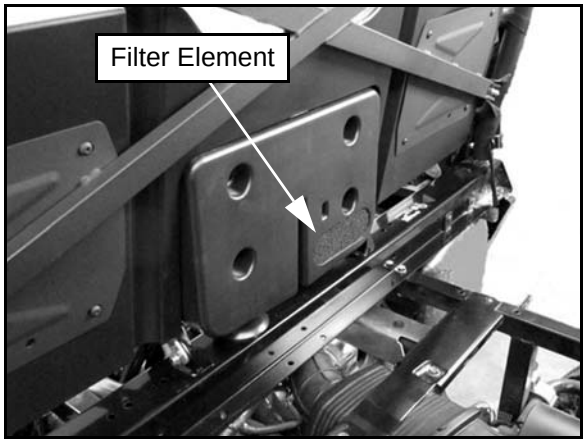
1. Open the hood to access the engine intake air baffle box.
2. Remove the filter element from the baffle box.



3. If the filter element is dirty, clean it with a high flash point solvent, followed by hot soapy water. Rinse and dry the filter element thoroughly. Inspect element for tears or damage. Replace if necessary.
4. Reinstall the filter element into the air baffle box.

PVT Air Intake Inspection

1. Lift the cargo box to access the PVT air intake baffle box.
2. Remove the filter element from the baffle box.



3. If the filter element is dirty, clean it with a high flash point solvent, followed by hot soapy water. Rinse and dry the filter element thoroughly. Inspect element for tears or damage. Replace if necessary.
4. Reinstall the filter element into the air baffle box.

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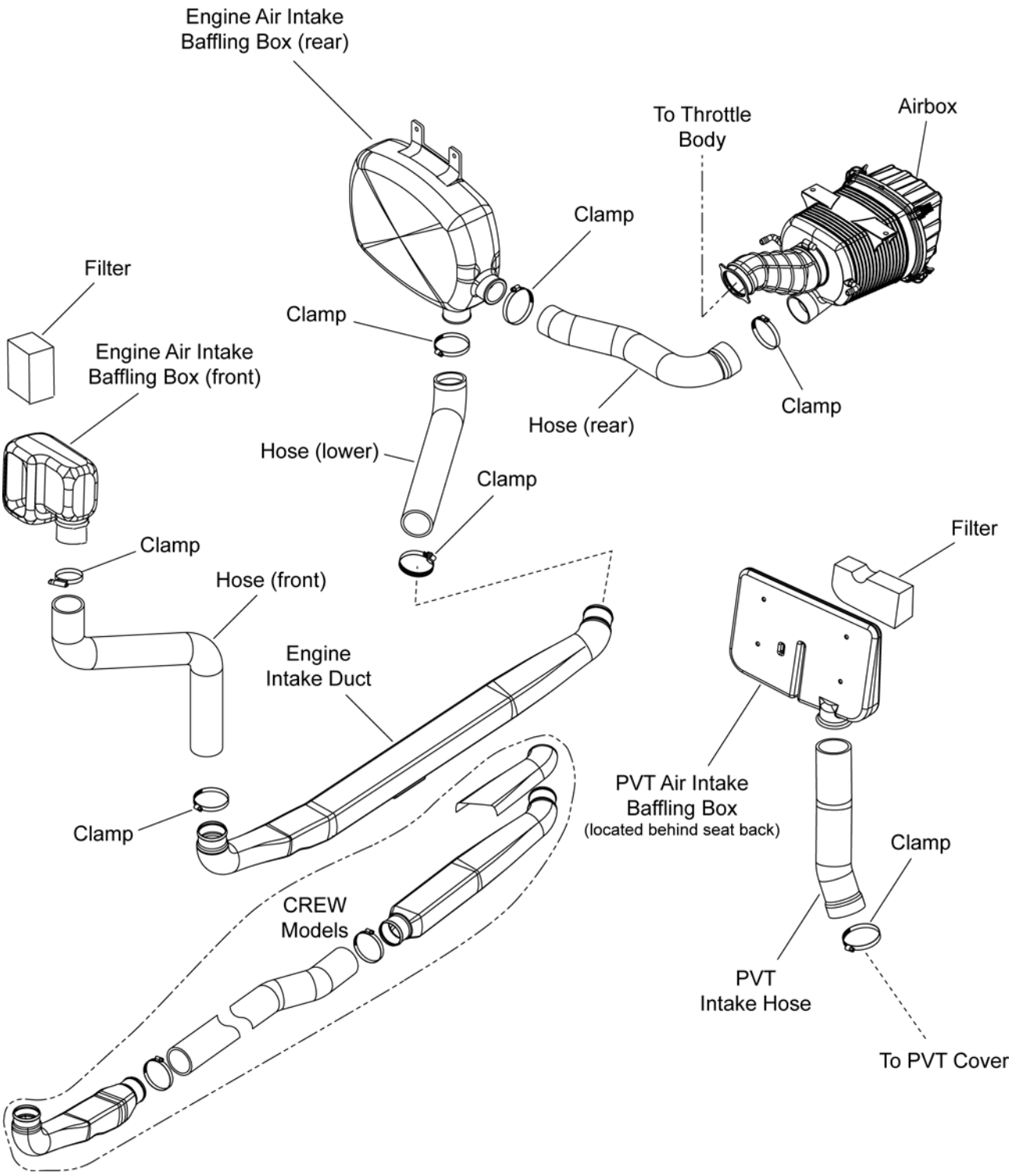
Air Intake Exploded View



ENGINE

Compression and Leakdown Test

NOTE: This engine does NOT have decompression components. Compression readings will vary in proportion to cranking speed during the test. Average compression (measured) is about 165-185 psi during a compression test.

A smooth idle generally indicates good compression. Low engine compression is rarely a factor in running condition problems above idle speed. Abnormally high compression can be caused by carbon deposits in the combustion chamber or worn, damaged exhaust cam lobes. Inspect camshaft and combustion chamber if compression is abnormally high.

A cylinder leakdown test is the best indication of engine condition. Follow manufacturer's instructions to perform a cylinder leakage test (never use high pressure leakage testers, as crankshaft seals may dislodge and leak).

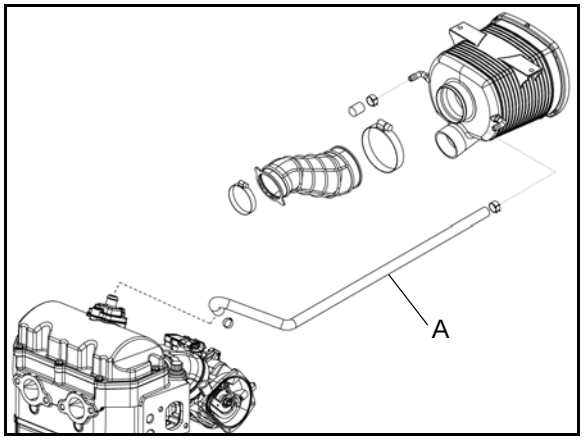
Cylinder Compression
Standard: 165-185 PSI

Cylinder Leakdown
Service Limit 15%

(Inspect for cause if test exceeds 15%)

Breather Hose Inspection

The engine is equipped with a breather hose (A). Inspect the breather hose for possible kinks or wear. The hose is formed for a proper fit. Follow the breather hose from the side of the airbox to the engine valve cover.



NOTE: Make sure line is not kinked or pinched.

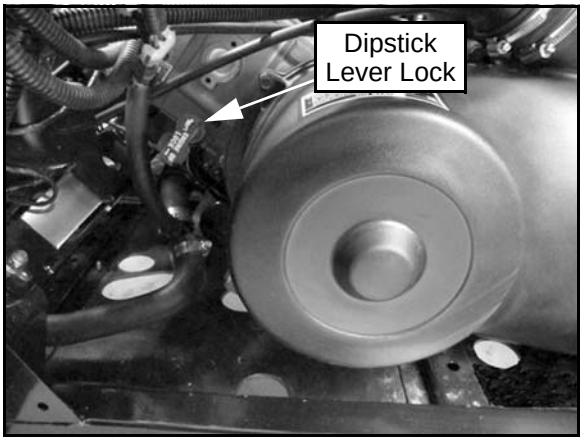
Engine Oil Level

The twin cylinder domestic engine is a wet-sump engine, meaning the oil is contained in the bottom of the crankcase. To check the oil level follow the procedure listed below:

1. Set machine on a level surface and set the parking brake.
2. Stop the engine and allow it to cool down before removing the dipstick.

IMPORTANT: Do not run the machine and then check the dipstick.

3. Remove the seat base and storage container.
4. Unlock the dipstick lever. Remove dipstick and wipe dry with a clean cloth.



5. Reinstall dipstick and push it into place. Do not lock the dipstick.

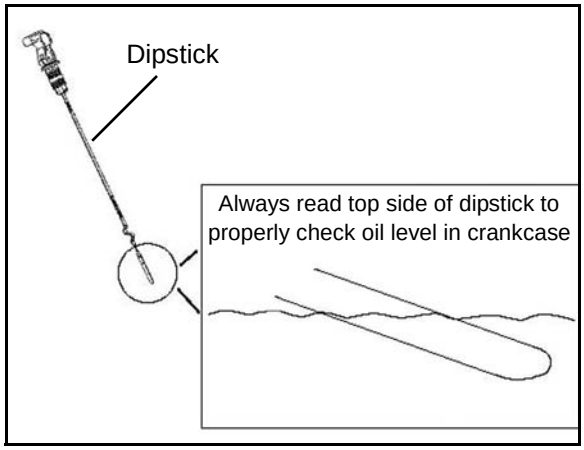
NOTE: Make certain the dipstick is inserted all the way into the filler tube to keep the angle and depth of dipstick consistent. When reinstalling the dipstick, make certain to seat the lever lock.

6. Remove dipstick and check to see that the oil level is in the SAFE range. Add oil as indicated by the level on the dipstick. Do not overfill (see NOTE below!).

Maintain Oil Level In SAFE Range

DO NOT Overfill the Engine

NOTE: Due to the dipstick entry angle into the crankcase, the oil level will read higher on the bottom side of the dipstick. Proper level indication is determined on the upper surface of the dipstick as it is being removed, regardless of the level marks being on top or on bottom (see the next illustration).



NOTE: A rising oil level between checks in cool weather driving can indicate contaminants such as gas or moisture collecting in the crankcase. If the oil level is over the full mark, change the oil immediately.

7. Reinstall the dipstick and lock the lever.

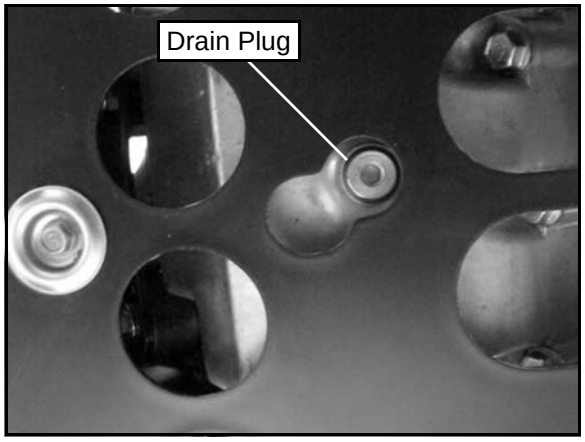
Engine Oil and Filter Change

Recommended Engine Oil:

PS-4 Plus Synthetic 4-Cycle Engine Oil (PN 2876244) (Quart)

Capacity: 2 Quarts (1.9 L)

1. Place vehicle on a level surface and allow the engine to run for two to three minutes until warm. Stop engine.
2. Clean the area around the drain plug at the bottom of the crankcase. Drain plug is accessible through the skid plate.



WARNING

Personal injury can occur when handling used oil. Hot oil can cause burns or skin damage.

3. Place a drain pan beneath the crankcase and remove drain plug. **CAUTION:** Oil may be hot. Do not allow hot oil to come into contact with skin as serious burns may result.
4. Allow oil to drain completely.
5. Replace the sealing washer on the drain plug.

NOTE: The sealing surface on the drain plug should be clean and free of burrs, nicks or scratches.

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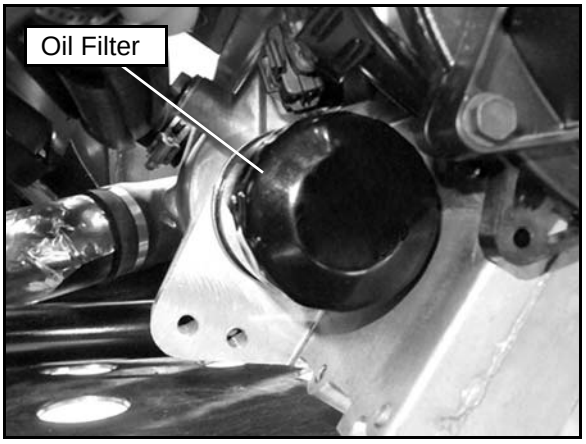
6. Reinstall drain plug and torque to specification.

= T
Engine Crankcase Drain Plug: **16 ± 2 ft. lbs. (21.7 ± 2.7 Nm)**

7. Remove the lower seat base.

8. Remove the storage container located under the driver's side of the seat.

9. Place shop towels beneath oil filter. Using Oil Filter Wrench (PU-50105), turn the filter counter-clockwise to remove it.



Oil Filter Wrench: **PU-50105: 2.5" (64 mm)**

10. Using a clean, dry cloth, clean filter sealing surface on crankcase.

11. Lubricate O-ring on new oil filter with a film of fresh engine oil. Check to make sure the O-ring is in good condition.

12. Install new filter and turn by hand until filter gasket contacts the sealing surface, then turn an additional 1/2 turn.

= T
Oil Filter Torque: Turn by hand until filter gasket contacts sealing surface, then turn an additional 1/2 turn.

13. Remove the dipstick and fill the sump with 2 quarts (1.9 L) of Polaris PS-4 Plus Synthetic Engine Oil (PN 2876244).

14. Place gear selector in neutral and set parking brake.

15. Start the engine and let it idle for one to two minutes. Stop the engine and inspect for leaks.

16. Re-check the oil level on the dipstick and add oil as necessary to bring the level to the upper mark on the dipstick.

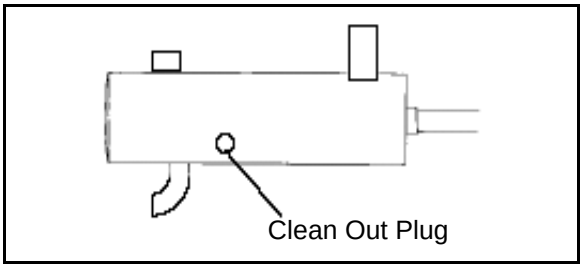
17. Dispose of used oil and oil filter properly.

Exhaust Pipe

WARNING
Do not perform clean out immediately after the engine has been run, as the exhaust system becomes very hot. Serious burns could result from contact with exhaust components. To reduce fire hazard, make sure that there are no combustible materials in the area when purging the spark arrestor. Wear eye protection. Do not stand behind or in front of the vehicle while purging the carbon from the spark arrestor. Never run the engine in an enclosed area. Exhaust contains poisonous carbon monoxide gas. Do not go under the machine while it is inclined. Set the hand brake and block the wheels to prevent roll back. Failure to heed these warnings could result in serious personal injury or death.

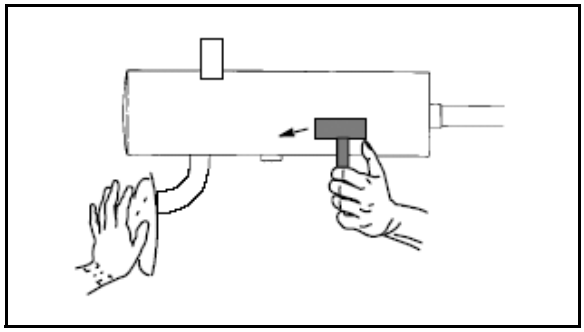
The exhaust pipe must be periodically purged of accumulated carbon as follows:

1. Remove the clean out plug(s) located on the bottom of the muffler as shown below.

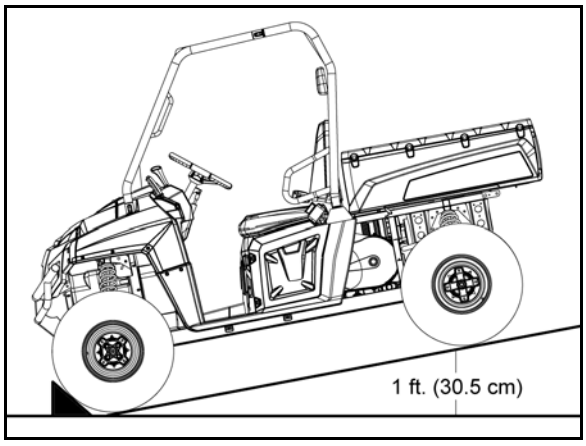


2. Set the parking brake and start the engine. Purge accumulated carbon from the system by momentarily revving the engine several times.

3. If some carbon is expelled, cover the exhaust outlet and lightly tap on the pipe around the clean out plugs with a rubber mallet while revving the engine several more times.



4. If particles are still suspected to be in the muffler, back the machine onto an incline so the **rear** of the machine is one foot higher than the front. Set the parking brake, block the wheels and repeat Steps 2 and 3.



5. If particles are still suspected to be in the muffler, drive the machine onto the incline so the **front** of the machine is one foot higher than the rear. Set the parking brake, block the wheels and repeat Steps 2 and 3.

6. Repeat steps 2 through 5 until no more particles are expelled when the engine is revved.

7. Stop the engine and allow the arrestor to cool.

8. Reinstall the clean out plugs.

TRANSMISSION AND GEARCASES

2011 Transmission Lubrication (XP / HD / CREW)

NOTE: It is important to follow the transmission maintenance intervals described in the Periodic Maintenance Chart. Regular fluid level inspections should be performed as well.

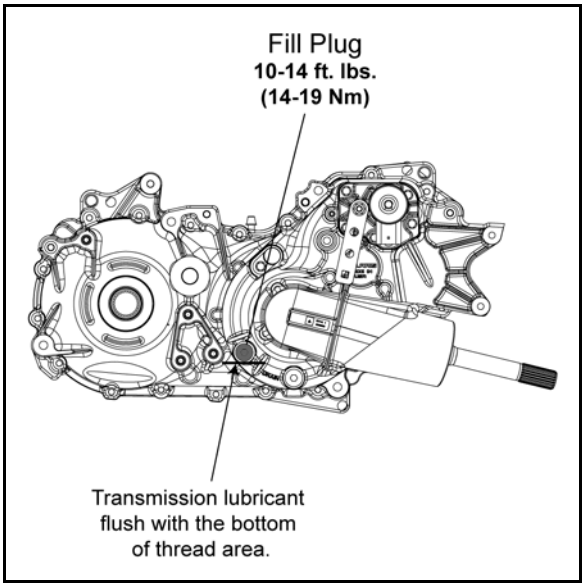
The transmission lubricant level should be checked and changed in accordance with the maintenance schedule.

- Be sure vehicle is positioned on a level surface when checking or changing the lubricant.
- Check vent hose to be sure it is routed properly and unobstructed.

Transmission Lubricant Level Check (2011)

The fill plug is located on the right side of the transmission. Access the fill plug from the rear right-hand side of the vehicle. Maintain the fluid level even with the bottom threads of the fill plug hole.

1. Position vehicle on a level surface.
2. Remove the fill plug and check the lubricant level.



3. If lubricant level is not even with bottom threads, add recommended lubricant as needed. Do not overfill.
4. Reinstall the fill plug and torque to specification.

= T
Drain / Fill Plug: **10-14 ft. lbs. (14-19 Nm)**

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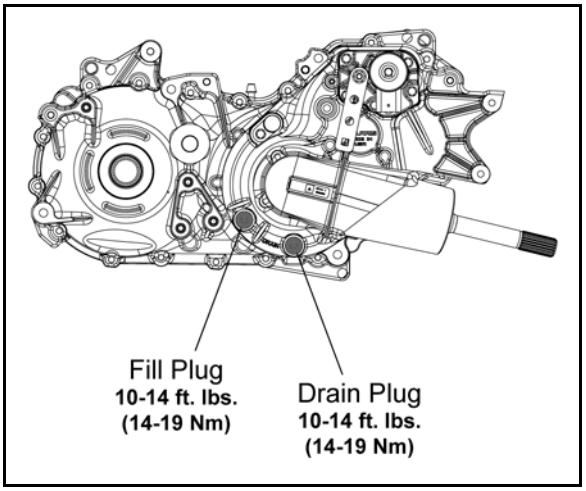
Transmission Lubricant Change (2011)

The drain plug is located on the right side of the transmission. Access the drain plug from the rear right-hand side of the vehicle.

1. Remove the fill plug (refer to “Transmission Lubricant Level Check”).
2. Place a drain pan under the transmission drain plug.
3. Remove the drain plug and allow lubricant to drain completely.



4. Clean the drain plug magnetic surface. Reinstall drain plug with a new O-ring and torque to specification.
5. Add the recommended amount of lubricant through the fill plug hole. Maintain the lubricant level at the bottom of the fill plug hole when filling the transmission. Do not overfill.

=
Recommended Transmission Lubricant: AGL Plus (PN 2878068) (Quart) **Capacity:** 33.8 oz. (1000 ml)

6. Reinstall fill plug with a new O-ring and torque to specification.

= T
Drain / Fill Plug: **10-14 ft. lbs. (14-19 Nm)**

7. Check for leaks. Dispose of used lubricant properly.

2012 Transmission Lubrication (XP / HD / CREW)

NOTE: It is important to follow the transmission maintenance intervals described in the Periodic Maintenance Chart. Regular fluid level inspections should be performed as well.

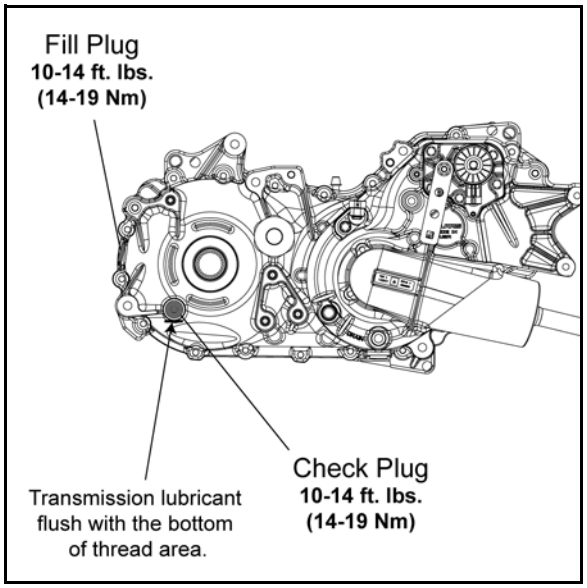
The transmission lubricant level should be checked and changed in accordance with the maintenance schedule.

- Be sure vehicle is positioned on a level surface when checking or changing the lubricant.
- Check vent hose to be sure it is routed properly and unobstructed.

Transmission Lubricant Level Check (2012)

The fill plug is located at the rear of the transmission. The check plug is located on the right side of the transmission. Maintain the fluid level even with the bottom threads of the check plug hole.

1. Position vehicle on a level surface.
2. Remove the check plug and check the lubricant level.



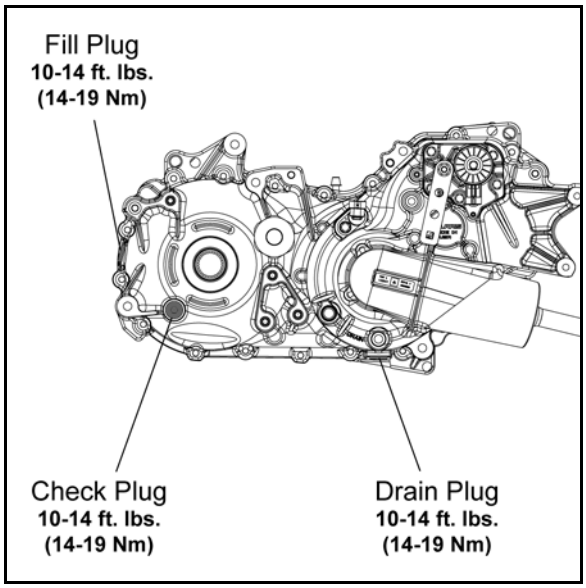
3. If lubricant level is not even with the bottom threads, remove the fill plug and add the recommended lubricant as needed. Do not overfill.
4. Reinstall the fill plug and check plug. Torque the plugs to specification.

= T
Fill / Check Plug: **10-14 ft. lbs. (14-19 Nm)**

Transmission Lubricant Change (2012)

The drain plug is located on the bottom of the transmission. Access the drain plug through the skid plate.

1. Remove the fill plug.
2. Place a drain pan under the transmission drain plug.
3. Remove the drain plug and allow lubricant to drain completely.



4. Clean the drain plug magnetic surface. Reinstall drain plug with a new O-ring and torque to specification.
5. Remove the check plug.
6. Add the recommended amount of lubricant through the fill plug hole. Maintain the lubricant level at the bottom of the check plug hole when filling the transmission. Do not overfill (refer to “Transmission Lubricant Level Check”).

=
Recommended Transmission Lubricant: AGL Plus (PN 2878068) (Quart) **Capacity:** 33.8 oz. (1000 ml)

7. Reinstall fill plug and check plug with new O-rings. Torque the plugs to specification.

= **T**
Fill / Check / Drain Plug: **10-14 ft. lbs. (14-19 Nm)**

8. Check for leaks. Dispose of used lubricant properly.

Transmission Lubrication (6x6)

NOTE: It is important to follow the transmission maintenance intervals described in the Periodic Maintenance Chart. Regular fluid level inspections should be performed as well.

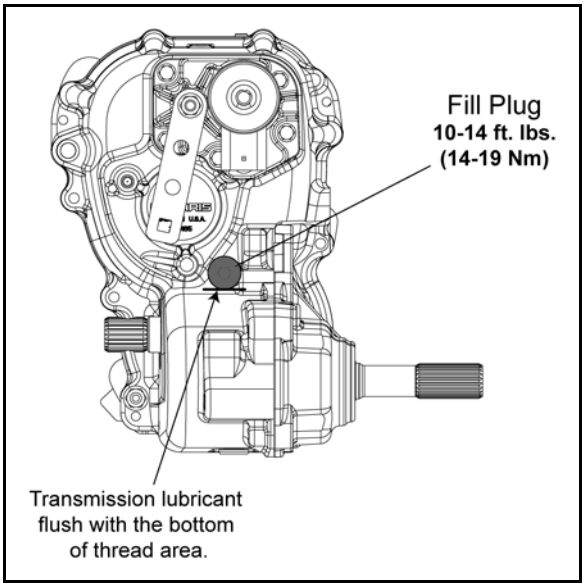
The transmission lubricant level should be checked and changed in accordance with the maintenance schedule.

- Be sure vehicle is positioned on a level surface when checking or changing the lubricant.
- Check vent hose to be sure it is routed properly and unobstructed.

Transmission Lubricant Level Check

The fill plug is located on the right side of the transmission. Access the fill plug from the rear right-hand side of the vehicle. Maintain the fluid level even with the bottom threads of the fill plug hole.

1. Position vehicle on a level surface.
2. Remove the fill plug and check the lubricant level.



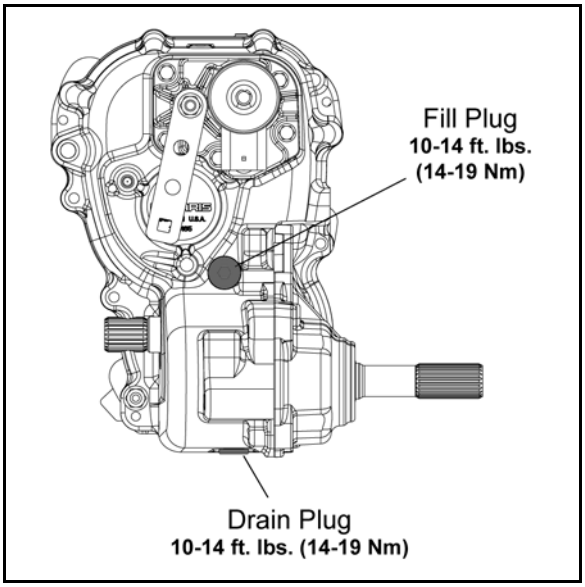
3. If lubricant level is not even with the bottom threads, add the recommended lubricant as needed. Do not overfill.
4. Reinstall the fill plug and torque to specification.

= **T**
Drain / Fill Plug: **10-14 ft. lbs. (14-19 Nm)**

Transmission Lubricant Change

Access the drain plug on the right-hand side of the vehicle through the skid plate.

1. Remove the fill plug (refer to “Transmission Lubricant Level Check”).
2. Place a drain pan under the transmission drain plug.
3. Remove the drain plug and allow lubricant to drain completely.



4. Clean the drain plug magnetic surface. Reinstall drain plug with a new O-ring and torque to specification.
5. Add the recommended amount of lubricant through the fill plug hole. Maintain the lubricant level at the bottom of the fill plug hole when filling the transmission. Do not overfill.

=
Recommended Transmission Lubricant: AGL Plus (PN 2878068) (Quart) **Capacity:** 43.6 oz. (1290 ml)

6. Reinstall fill plug with a new O-ring and torque to specification.

= T
Drain / Fill Plug: **10-14 ft. lbs. (14-19 Nm)**

7. Check for leaks. Dispose of used lubricant properly.

Front Gearcase Lubrication

NOTE: It is important to follow the front gearcase maintenance intervals described in the Periodic Maintenance Chart. Regular fluid level inspections should be performed as well.

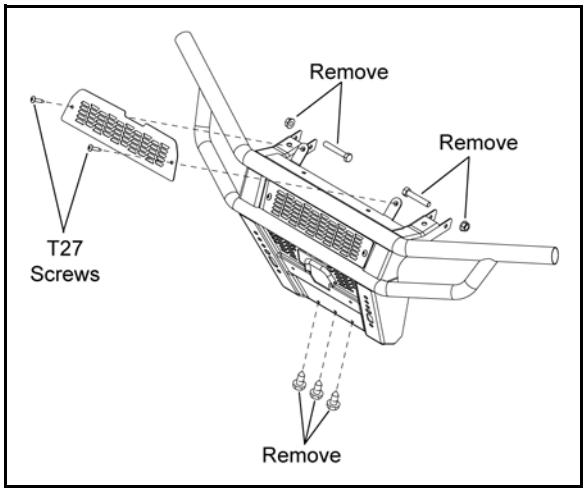
The front gearcase fluid level should be checked and changed in accordance with the maintenance schedule.

- Be sure vehicle is positioned on a level surface when checking or changing the fluid.
- Check vent hose to be sure it is routed properly and unobstructed.

Front Gearcase Fluid Level Check

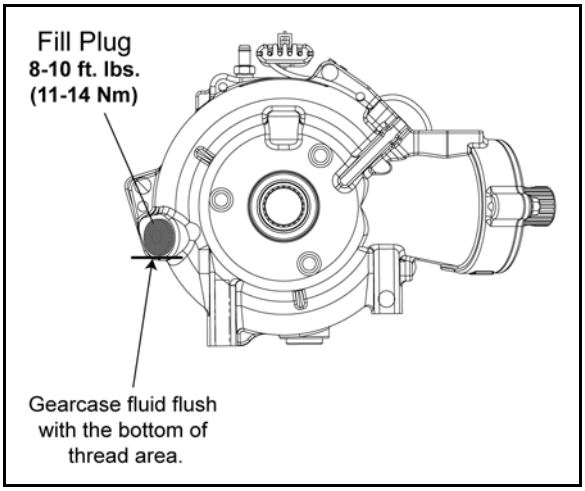
The fill plug is located on the front left side of the front gearcase. Access the fill plug from the front of the vehicle. Maintain the fluid level even with the bottom threads of the fill plug hole.

1. Position vehicle on a level surface.
2. Begin by removing the front bumper to gain access to the gearcase fill plug.
3. Remove the (2) T27 Torx-head screws retaining the fascia screen and remove the screen.



4. Remove the (3) bolts from the lower portion of the bumper.
5. Remove the fasteners from each side of the upper portion of the bumper.
6. Carefully remove the bumper from the vehicle.

7. Remove the fill plug and check the fluid level.



8. If fluid level is not even with the bottom threads, add the recommended fluid as needed. Do not overfill.

9. Reinstall the fill plug and torque to specification.

= T
Drain / Fill Plug: **8-10 ft. lbs. (11-14 Nm)**

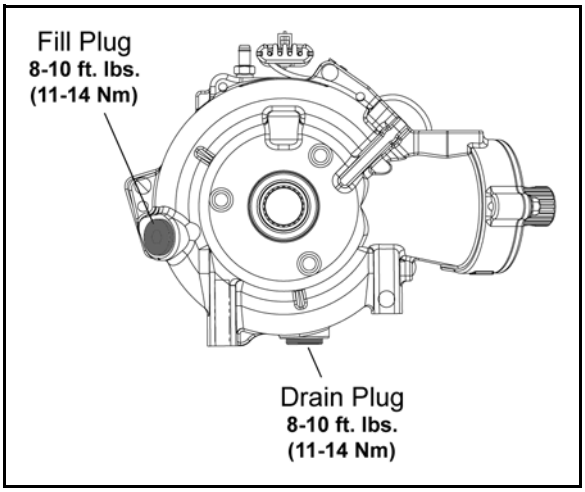
Front Gearcase Fluid Change:

The drain plug is located on the bottom side of the front gearcase. Access the drain plug through the skid plate.

1. Remove the fill plug (refer to “Front Gearcase Fluid Level Check”).

2. Place a drain pan under the front gearcase drain plug.

3. Remove the drain plug and allow fluid to drain completely.



4. Clean the drain plug magnetic surface.

5. Reinstall drain plug with a new O-ring and torque to specification.

6. Add the recommended amount of fluid through the fill hole. Maintain the fluid level even with the bottom threads of the fill plug hole.

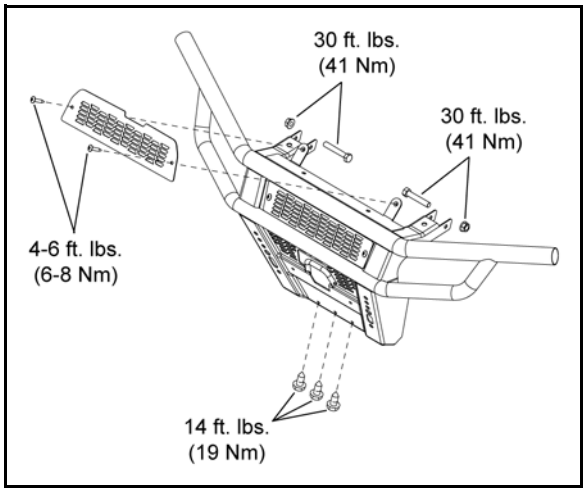
=
Recommended Front Gearcase Fluid: Polaris Demand Drive Plus (PN 2877922) (Quart) **Capacity:** 9 oz. (265 ml)

7. Reinstall fill plug with a new O-ring and torque to specification.

= T
Drain / Fill Plug: **8-10 ft. lbs. (11-14 Nm)**

8. Check for leaks. Dispose of used fluid properly.

9. Reinstall the front bumper.



10. Install the fasteners on each side of the upper portion of the bumper. Torque fasteners to **30 ft. lbs. (41 Nm)**.

11. Install the (3) bolts in the lower portion of the bumper. Torque bolts to **14 ft. lbs. (19 Nm)**.

12. Install the (2) T27 Torx-head screws retaining the fascia screen. Torque screws to **4-6 ft. lbs. (6-8 Nm)**.

Mid Gearcase Lubrication (6x6)

NOTE: It is important to follow the mid gearcase maintenance intervals described in the Periodic Maintenance Chart. Regular fluid level inspections should be performed as well.

The gearcase lubricant level should be checked and changed in accordance with the maintenance schedule.

- Be sure vehicle is level with parking brake on before proceeding.
- Check vent hose to be sure it is routed properly and unobstructed.

Mid Gearcase Lubricant Level Check:

The fill plug is located on the left side of the mid gearcase. Maintain the lubricant level even with the bottom threads of the fill plug hole.

1. Position the vehicle on a level surface.
2. Remove the fill plug and check the lubricant level (see “Side View”).
3. If lubricant level is not even with the bottom threads, add the recommended lubricant as needed. Do not overfill.
4. Reinstall fill plug and torque to specification.

= T
Fill Plug: **14 ft. lbs. (19 Nm)**

Mid Gearcase Lubricant Change:

The drain plug is located on the bottom right side of the mid gearcase. Access the drain plug through the skid plate.

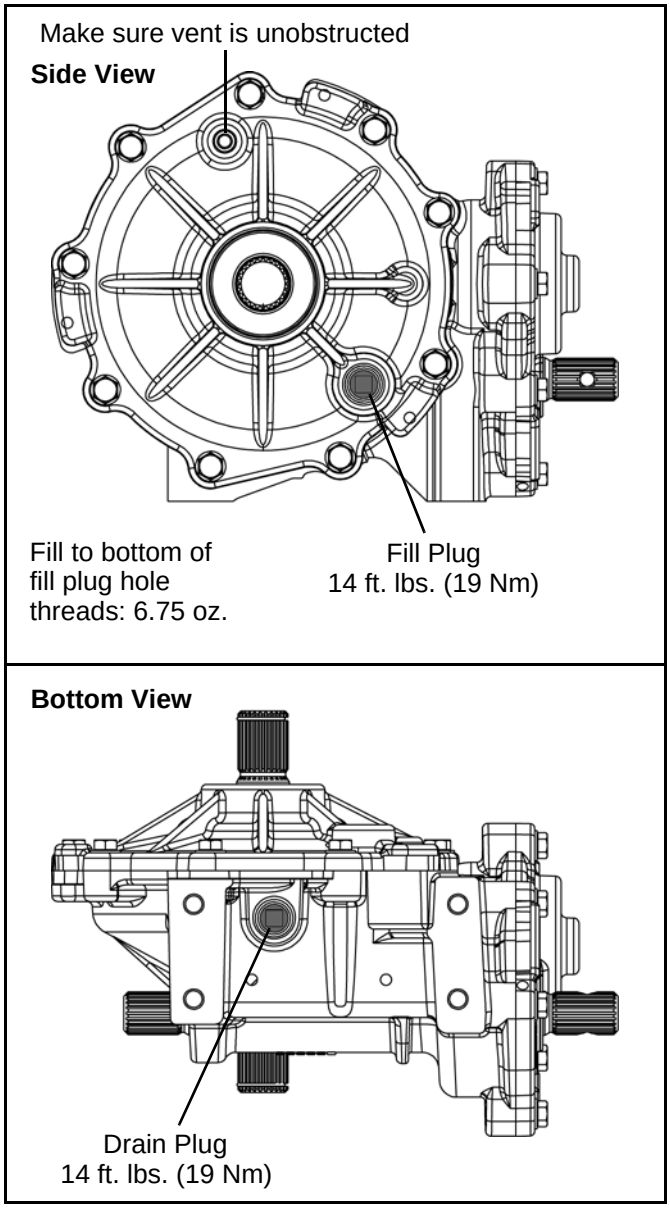
1. Remove the fill plug (refer to “Mid Gearcase Lubricant Level Check”).
2. Place a drain pan under the mid gearcase drain plug.
3. Remove the drain plug and allow the lubricant to drain completely (see “Bottom View”).
4. Clean and reinstall drain plug. Torque to specification.

= T
Drain Plug: **14 ft. lbs. (19 Nm)**

5. Add the recommended amount of lubricant through the fill hole. Maintain the lubricant level even with the bottom threads of the fill plug hole.

=
Recommended Mid Gearcase Lubricant: ATV Angle Drive Fluid (PN 2876160) **Capacity:** 6.75 oz. (200 ml)

6. Reinstall fill plug and torque to specification.
7. Check for leaks. Dispose of used lubricant properly.



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Rear Gearcase Lubrication (6x6)

NOTE: It is important to follow the rear gearcase maintenance intervals described in the Periodic Maintenance Chart. Regular fluid level inspections should be performed as well.

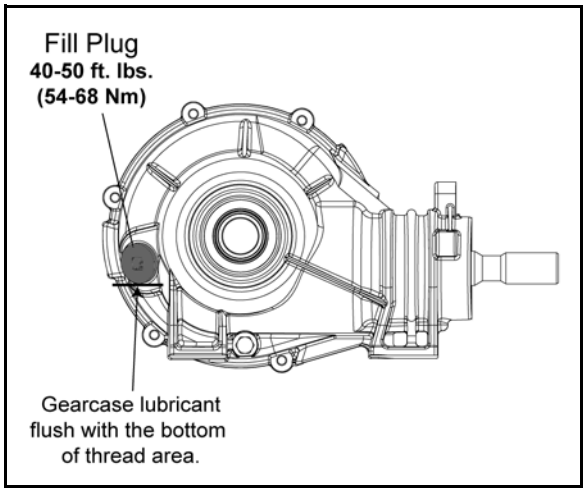
The rear gearcase lubricant level should be checked and changed in accordance with the maintenance schedule.

- Be sure vehicle is positioned on a level surface when checking or changing the lubricant.
- Check vent hose to be sure it is routed properly and unobstructed.

Rear Gearcase Lubricant Level Check:

The fill plug is located on the right side of the rear gearcase. Maintain the lubricant level even with the bottom threads of the fill plug hole.

1. Position the vehicle on a level surface.
2. Remove the fill plug and check the lubricant level.



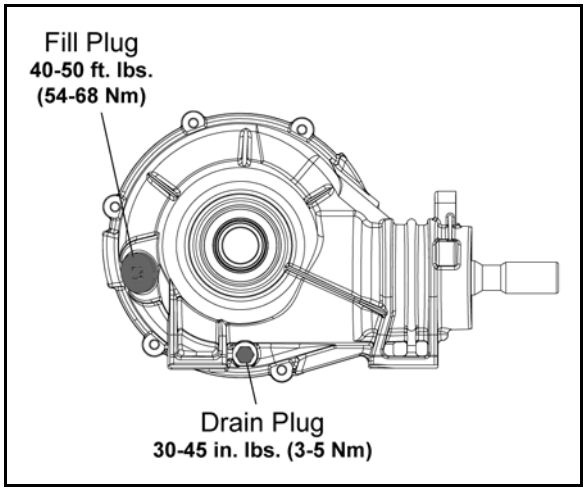
3. If lubricant level is not even with the bottom threads, add the recommended lubricant as needed. Do not overfill.
4. Reinstall fill plug and torque to specification.

= T
Fill Plug: **40-50 ft. lbs. (54-68 Nm)**

Rear Gearcase Lubricant Change:

The drain plug is located on the bottom right side of the rear gearcase. Access the drain plug from the rear of the vehicle through the skid plate.

1. Remove the fill plug (refer to “Rear Gearcase Lubricant Level Check”).
2. Place a drain pan under the rear gearcase drain plug.
3. Remove the drain plug and allow the lubricant to drain completely.



4. Clean the drain plug magnetic surface.
5. Reinstall drain plug with a new O-ring and torque to specification.

= T
Drain Plug: **30-45 in. lbs. (3-5 Nm)**

6. Add the recommended amount of lubricant through the fill hole. Maintain the lubricant level even with the bottom threads of the fill plug hole.

=
Recommended Rear Gearcase Lubricant: ATV Angle Drive Fluid (PN 2876160) **Capacity:** 18 oz. (532 ml)

7. Reinstall fill plug with a new O-ring and torque to specification.
8. Check for leaks. Dispose of used lubricant properly.

COOLING SYSTEM

Liquid Cooling System Overview

The engine coolant level is controlled or maintained by the recovery system. The recovery system components are the recovery bottle, radiator filler neck, radiator pressure cap and connecting hose.

As coolant operating temperature increases, the expanding (heated) excess coolant is forced out of the radiator past the pressure cap and into the recovery bottle. As engine coolant temperature decreases the contracting (cooled) coolant is drawn back up from the tank past the pressure cap and into the radiator.

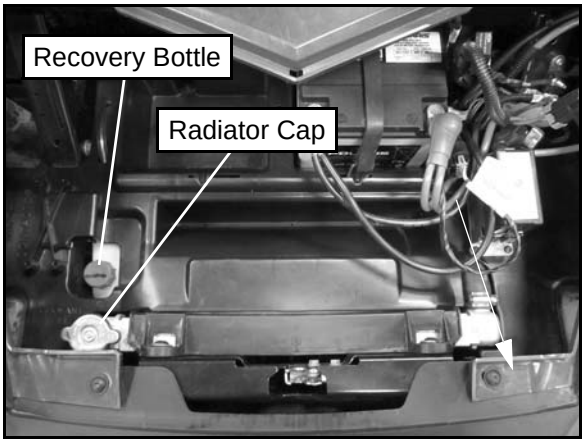
NOTE: Some coolant level drop on new machines is normal as the system is purging itself of trapped air. Observe coolant levels often during the break-in period.

Overheating of engine could occur if air is not fully purged from system.

Polaris Premium 60/40 coolant is already premixed and ready to use. Do not dilute with water.

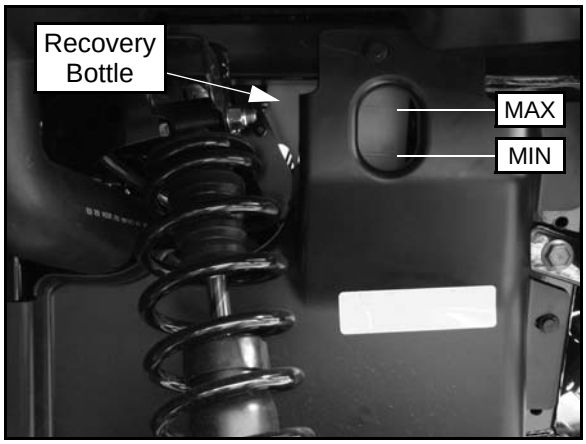
Coolant Level Inspection

The recovery bottle and radiator pressure cap are located under the hood.



With the engine at operating temperature, the coolant level should be between the “MAX” and “MIN” marks on the recovery bottle. If not, perform the following:

1. Position the vehicle on a level surface
2. Check the coolant level in the recovery bottle, located on the ride side of the machine. The coolant level must be maintained between the “MAX” and “MIN” levels indicated on the recovery bottle



3. If the coolant level is below the “MIN” mark, open the hood to access the radiator pressure cap and recovery bottle cap.

NOTE: If overheating is evident, allow system to cool completely and check coolant level in the radiator and inspect for signs of trapped air in system.

WARNING

Never remove the pressure cap when the engine is warm or hot. Escaping steam can cause severe burns. The engine must be cool before removing the pressure cap.

4. Remove the pressure cap. Using a funnel, add coolant to the top of the radiator filler neck.
5. Reinstall the pressure cap.

NOTE: Use of a non-standard pressure cap will not allow the recovery system to function properly.

6. Remove the recovery bottle cap.
7. Fill the recovery bottle to the “MAX” mark with Polaris Premium 60/40 Anti-Freeze/Coolant or a 50/50 mixture of antifreeze/coolant and distilled water as required for freeze protection in your area.
8. Reinstall the recovery bottle cap.
9. If coolant was required, start engine and check for leaks. Make sure radiator fins are clean to prevent overheating.

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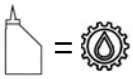
Coolant Strength / Type

Test coolant strength by using an antifreeze hydrometer.

Antifreeze Hydrometer

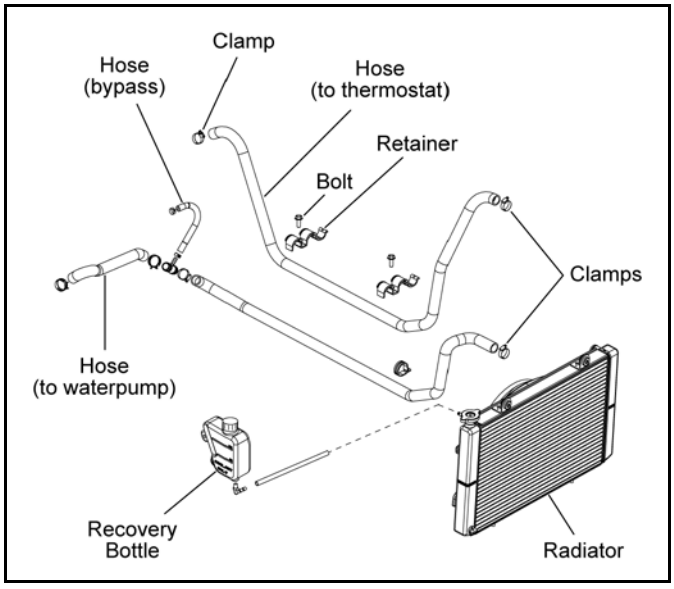
- A 50/50 or 60/40 mixture of antifreeze and distilled water will provide the optimum cooling, corrosion protection, and antifreeze protection.
- Do not use tap water, straight antifreeze, or straight water in the system. Tap water contains minerals and impurities which build up in the system. Straight water or antifreeze may cause the system to freeze, corrode, or overheat.



Recommended Anti-Freeze/Coolant:
Polaris 60/40 Anti-Freeze/Coolant
(PN 2871534) (Quart)

Cooling System Hoses

1. Inspect all hoses for cracks, deterioration, abrasion or leaks. Replace if necessary.



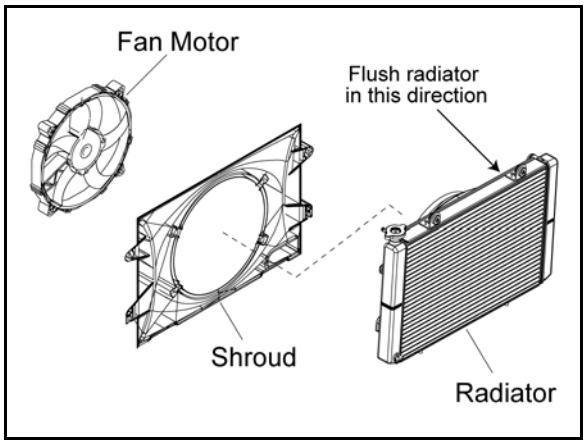
2. Check tightness of all hose clamps.

CAUTION

Do not over-tighten hose clamps at radiator, or radiator fitting may distort.
Radiator hose clamp torque is **36 in. lbs. (4 Nm)**.

Radiator Inspection / Cleaning

1. Check radiator air passages for restrictions or damage.



2. Carefully straighten any bent radiator fins.
3. Remove any obstructions with compressed air or low pressure water.

CAUTION

Washing the vehicle with a high-pressure washer could damage the radiator fins and impair the radiators effectiveness. Use of a high-pressure washer is not recommended.

Coolant Drain

1. Remove the push rivets and front LH wheel well panel to access the lower coolant hose at the radiator.
2. Place a suitable drain pan under the LH side of the radiator.
3. Allow the vehicle to cool down if recently operated.

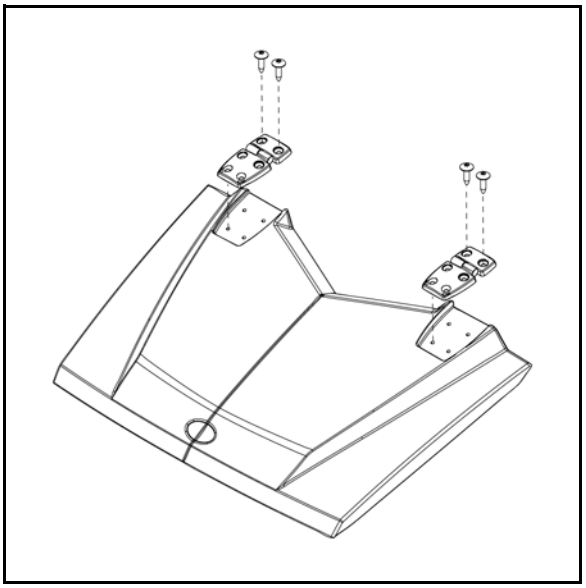
WARNING

Never remove the pressure cap when the engine is warm or hot. Escaping steam can cause severe burns. The engine must be cool before removing the pressure cap.

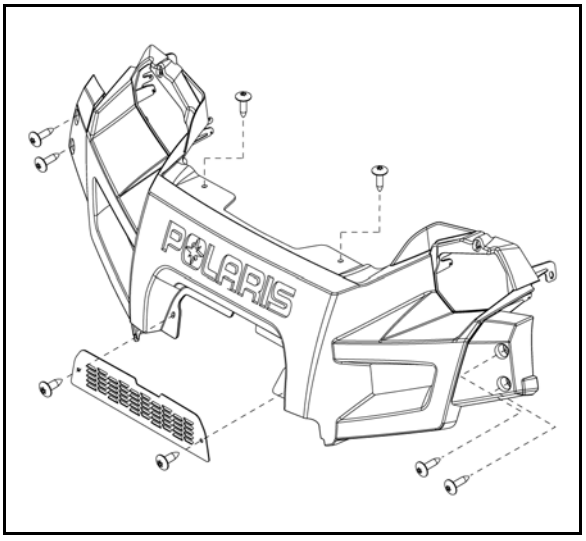
4. Open the hood and slowly open the radiator pressure cap to relieve system pressure.
5. Remove the lower coolant hose and drain the coolant from the radiator and hose. Allow the coolant to completely drain. Properly dispose of the used coolant.

Radiator Removal

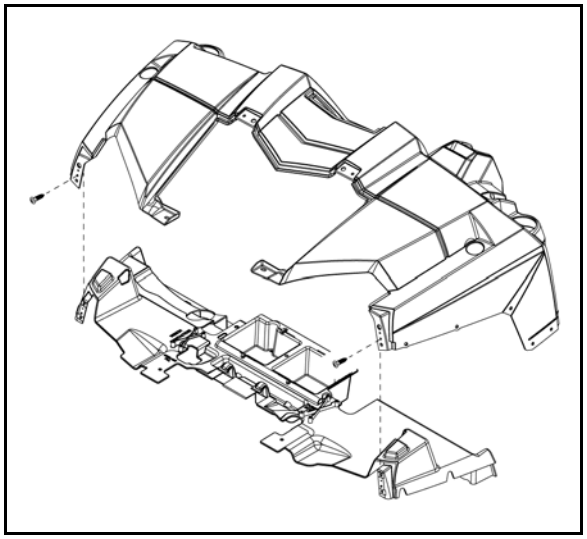
1. Open the hood and disconnect the headlights.
2. Remove the (4) upper screws that retain the hood to the frame.



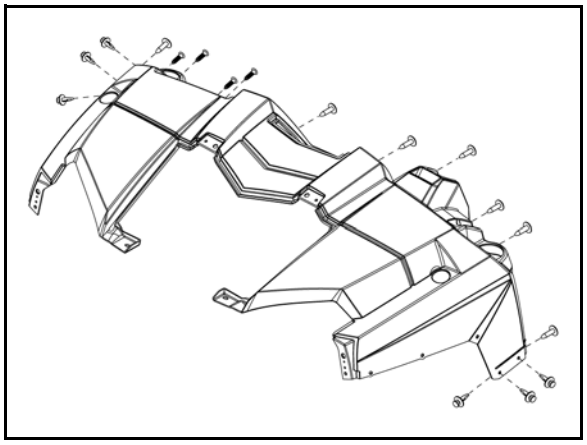
3. Remove the (8) fasteners retaining the front bumper assembly and remove the bumper from the vehicle.



4. Remove the (2) screws that retain the front cab assembly to the hood liner.

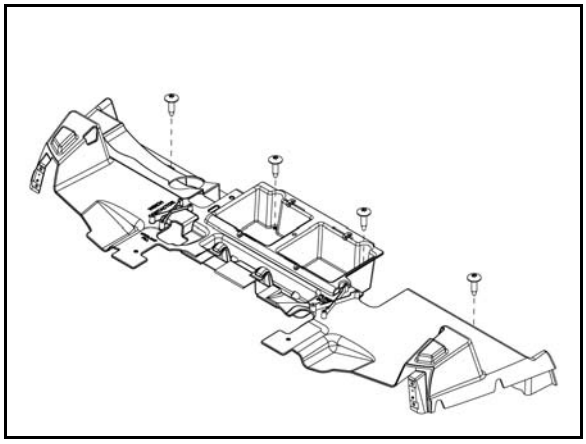


5. Remove the (11) remaining screws and (6) push rivets retaining the front cab.



6. Lift up on the front cab and slide it up the cab frame far enough to access the hood liner. Support the front cab to keep it from sliding down.
7. Disconnect and remove the battery from the vehicle.
8. Loosen the hose clamp and remove the engine air intake baffle box.

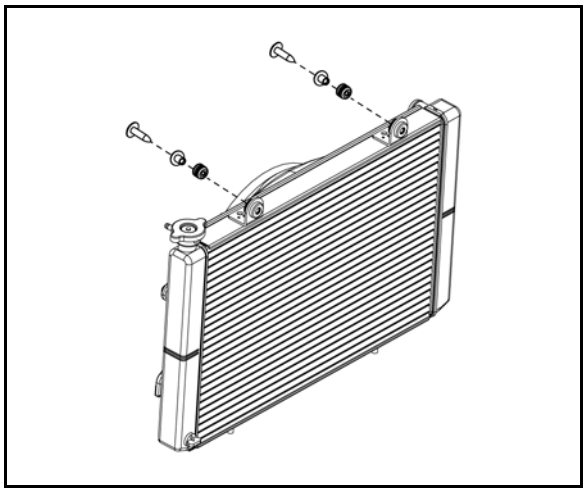
9. Remove the (4) screws that retain the hood liner to the frame.



10. Carefully lift up on the hood liner and lift it up far enough to allow radiator removal.

NOTE: Turn coolant pressure cap to allow the hood liner to clear the cap.

11. Remove the (2) screws retaining the upper portion of the radiator to the frame.



12. Remove the push rivets and front LH wheel well panel to access the lower coolant hose at the radiator.

13. Place a suitable drain pan under the LH side of the radiator.

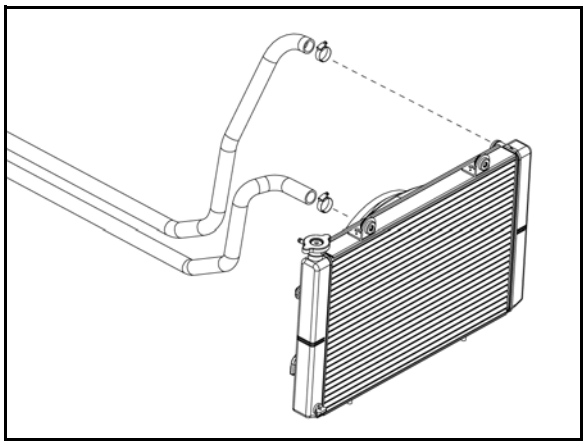
14. Allow the vehicle to cool down if recently operated.

⚠ WARNING

Never remove the pressure cap when the engine is warm or hot. Escaping steam can cause severe burns. The engine must be cool before removing the pressure cap.

15. Slowly open the radiator pressure cap to relieve system pressure.

16. Remove the lower coolant hose and drain the coolant from the radiator and hose. Allow the coolant to completely drain. Properly dispose of the used coolant.



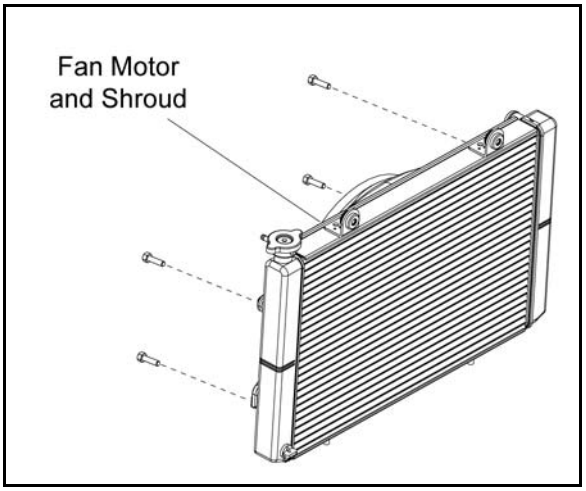
17. Remove the upper coolant hose.

18. Remove the recovery bottle return line from the radiator.

19. Disconnect the fan motor electrical connector.

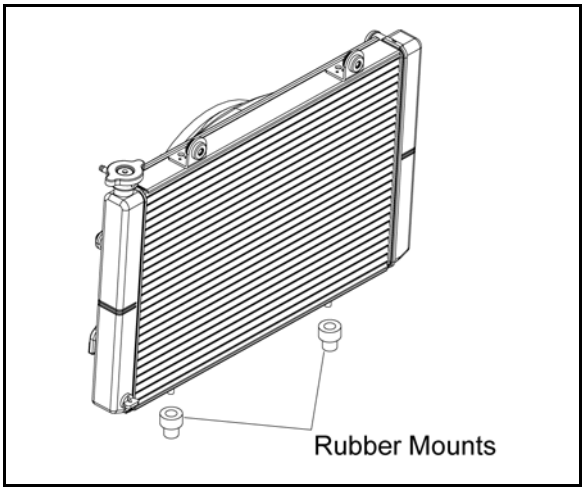
20. Carefully lift the radiator/fan motor from the vehicle as an assembly. Take care not to damage the cooling fins.

21. Remove the (4) bolts that retain the fan motor assembly and service radiator or fan as needed.



22. Reverse this procedure for installation.

23. Upon installation, be sure the lower radiator mounts are placed properly in the frame support.



24. After the radiator is installed, be sure the mounts have remained in place.

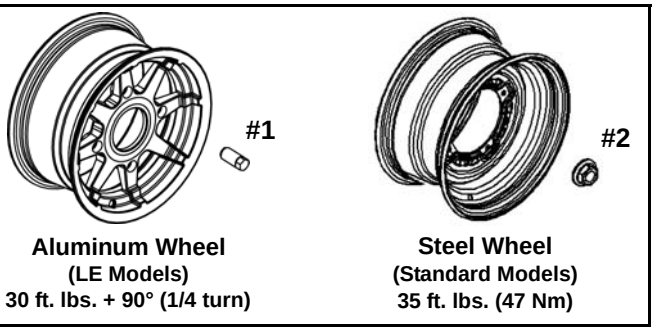
25. After installation and reassembly, remove the pressure cap and fill the radiator and recovery bottle with coolant.

26. Refer to the “Cooling System Bleeding Procedure” in Chapter 3.

FINAL DRIVE / WHEEL AND TIRE

Wheel and Hub Torque Table

Item	Nut Type	Specification
Aluminum Wheels (Cast)	Lug Nut #1	30 ft. lbs. + 90° (1/4 turn)
Steel Wheels (Black / Camo)	Flange Nut #2	35 ft. lbs. (47 Nm)
Front Hub Nut	-	80 ft. lbs. (108 Nm)
Mid / Rear Hub Retaining Nut	-	110 ft. lbs. (150 Nm)

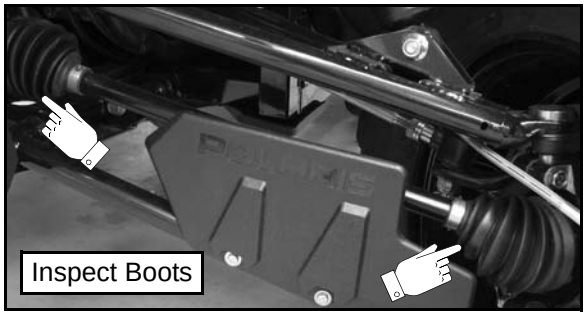


Aluminum Wheel
(LE Models)
30 ft. lbs. + 90° (1/4 turn)

Steel Wheel
(Standard Models)
35 ft. lbs. (47 Nm)

CV Shaft Boot Inspection

Inspect the CV shaft boots in the front and rear of the *RANGER* for damage, tears, wear, or leaking grease. If the rubber boot exhibits any of these symptoms, replace the boot. Refer to Chapter 7 for CV boot replacement.

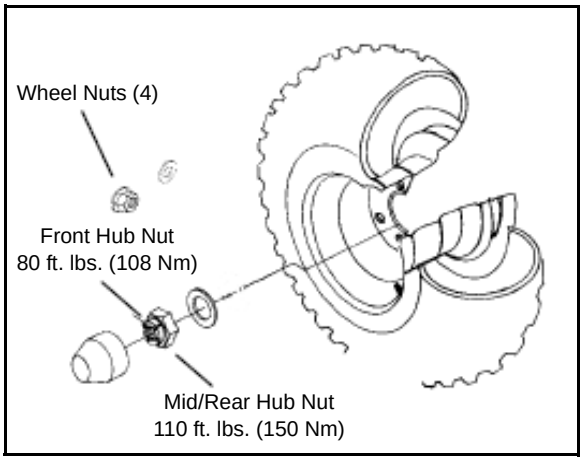


Wheel Removal

1. Stop the engine, place the transmission in gear and lock the parking brake.
2. Loosen the wheel nuts slightly.
3. Elevate the side of the vehicle by placing a suitable stand under the footrest frame.
4. Remove the wheel nuts and washers and remove the wheel.

Wheel Installation

1. With the transmission in gear and the parking brake locked, place the wheel in the correct position on the wheel hub. Be sure the valve stem is toward the outside and rotation arrows on the tire point toward forward rotation.
2. Install the washers (if applicable) and wheel nuts and finger tighten them.
3. Lower the vehicle to the ground.
4. Securely tighten the wheel nuts to the proper torque listed in the torque table at the beginning of this section.



⚠ CAUTION

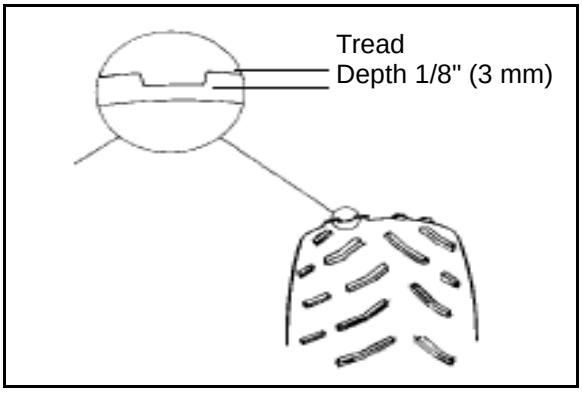
If wheels are improperly installed it could affect vehicle handling and tire wear. On vehicles with tapered rear wheel nuts, make sure tapered end of nut goes into taper on wheel.

Tire Inspection

- Improper tire inflation may affect vehicle maneuverability.
- When replacing a tire always use original equipment size and type.
- The use of non-standard size or type tires may affect vehicle handling.

Tire Tread Depth

Replace tires when tread depth is worn to 1/8" (3 mm) or less.



⚠ WARNING

Operating a *RANGER* with worn tires will increase the possibility of the vehicle skidding easily with possible loss of control.

Worn tires can cause an accident.

Always replace tires when the tread depth measures 1/8" (.3 cm) or less.

Tire Pressure

⚠ CAUTION

Maintain proper tire pressure.
Refer to the warning tire pressure decal applied to the vehicle.

Tire Pressure Inspection (PSI - Cold)	
Model	**Front / Rear**
XP / HD / 6X6	8-12 psi / 8-12 psi
CREW	12 psi / 16 psi

ELECTRICAL AND IGNITION SYSTEM

Battery Maintenance

Keep battery terminals and connections free of corrosion. If cleaning is necessary, remove the corrosion with a stiff wire brush. Wash with a solution of one tablespoon baking soda and one cup water. Rinse well with tap water and dry off with clean shop towels. Coat the terminals with dielectric grease or petroleum jelly.

Be careful not to allow cleaning solution or tap water into the battery.

⚠ WARNING

CALIFORNIA PROPOSITION 65 WARNING:
Batteries, battery posts, terminals and related accessories contain lead and lead compounds, and other chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.
WASH HANDS AFTER HANDLING.

⚠ WARNING

Battery electrolyte is poisonous. It contains sulfuric acid. Serious burns can result from contact with skin, eyes or clothing. Antidote:

External: Flush with water.

Internal: Drink large quantities of water or milk. Follow with milk of magnesia, beaten egg, or vegetable oil. Call physician immediately.

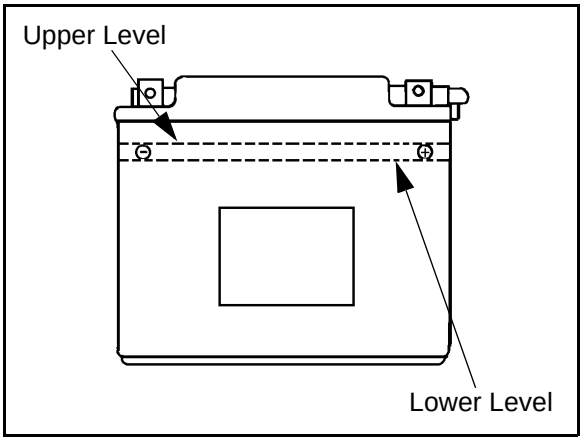
Eyes: Flush with water for 15 minutes and get prompt medical attention.

Batteries produce explosive gases.
Keep sparks, flame, cigarettes, etc. away.
Ventilate when charging or using in an enclosed space. Always shield eyes when working near batteries.
KEEP OUT OF REACH OF CHILDREN.

NOTE: Batteries must be fully charged before use or battery life will be reduced by 10-30% of full potential. Charge battery for 3-5 hours at a current equivalent of 1/10 of the battery's rated amp/hour capacity. Do not use the alternator to charge a new battery.

Battery Fluid Level (Conventional Battery)

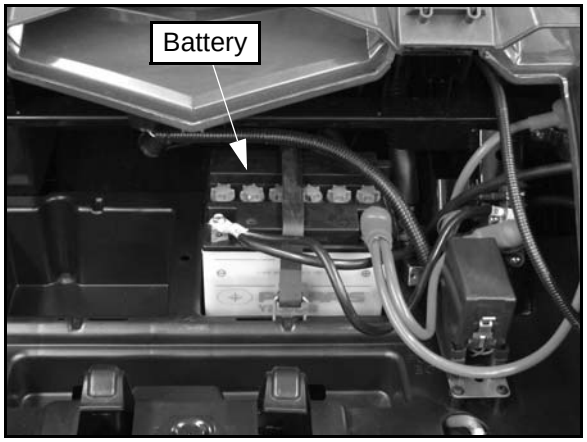
A poorly maintained battery will deteriorate rapidly. Check the battery fluid level often. Maintain the fluid level between the upper and lower level marks.



Add only distilled water. Tap water contains minerals that are harmful to a battery.

Battery Removal

1. Open the hood to access the battery.



2. Remove hold-down strap and vent tube from battery.
3. Disconnect the black (-) (negative) battery cable.
4. Disconnect the red (+) (positive) battery cable.
5. Lift the battery out of the vehicle, being careful not to tip it sideways and spill any electrolyte.

⚠ CAUTION

To reduce the chance of sparks: Whenever removing the battery, disconnect the negative (black) cable first. When reinstalling the battery, install the negative cable last.

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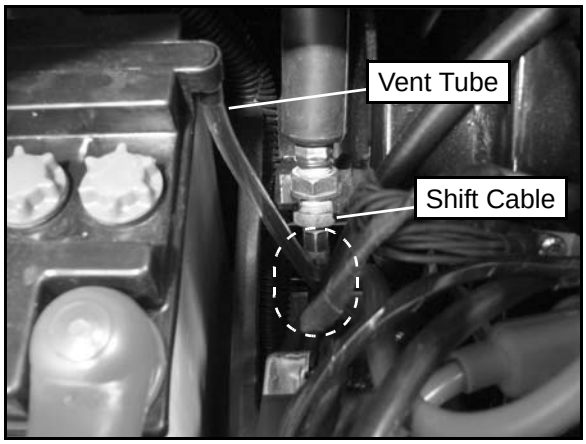
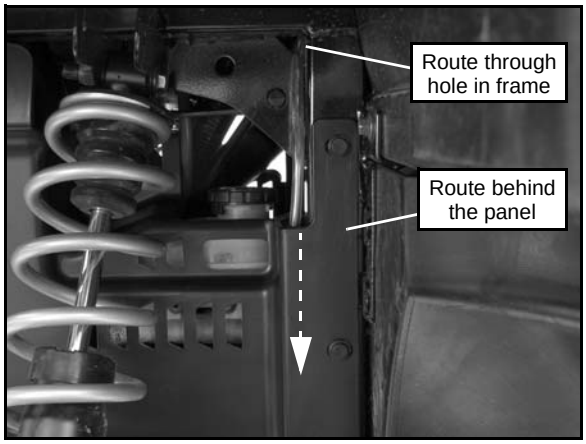
Battery Installation

Using a new battery that has not been fully charged can damage the battery and result in a shorter life. It can also hinder vehicle performance. Follow the battery charging procedure before installing the battery.

1. Ensure that the battery is fully charged.
2. Place the battery in the battery holder.
3. Install the battery vent tube and route it down in front of the shift cable, into the front left wheel well.



4. Route the vent tube through the triangular hole in the frame support from the back side and place it behind the panel.



IMPORTANT: Route vent tube as shown to prevent electrolyte from damaging critical components (i.e. wire harness, brake lines, throttle cable).

5. Coat terminals with dielectric grease or petroleum jelly.
6. Connect and tighten the red (+) (positive) cable first.
7. Connect and tighten the black (-) (negative) cable last.
8. Verify that cables are properly routed and install the hold-down strap.

Battery Storage

Whenever the vehicle is not used for a period of three months or more, remove the battery from the vehicle, ensure that it's fully charged, and store it out of the sun in a cool, dry place. Check battery voltage each month during storage and recharge as needed to maintain a full charge.

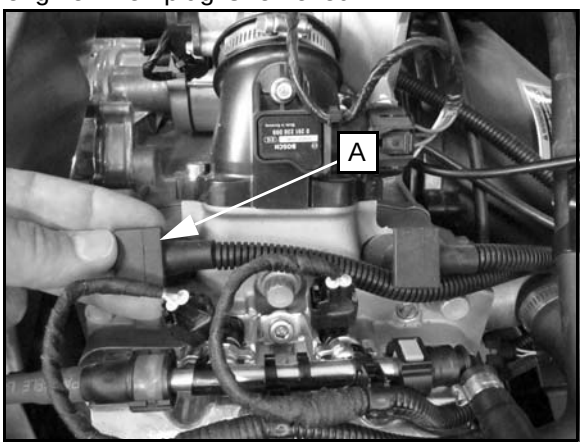
NOTE: Battery charge can be maintained by using a Polaris battery tender charger or by charging about once a month to make up for normal self-discharge. Battery tenders can be left connected during the storage period, and will automatically charge the battery if the voltage drops below a pre-determined point.

Battery Charging

1. Remove the battery from the vehicle to prevent damage from leaking or spilled electrolyte during charging.
2. Charge the battery with a charging output no larger than 1/10 of the battery's amp/hr rating. Charge as needed to raise the specific gravity to 1.270 or greater.
3. Reinstall the battery.

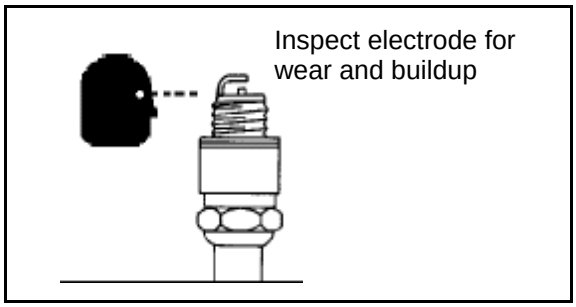
Spark Plug Service

1. Remove both spark plug high tension leads (A). Clean plug area so no dirt and debris can fall into engine when plug is removed.



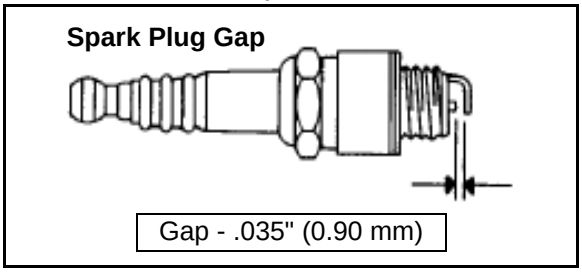
2. Remove spark plugs with proper socket.

3. Inspect electrodes for wear and carbon buildup. Outer edge should be sharp with no rounding or erosion of the electrodes.



4. Clean with electrical contact cleaner or a glass bead spark plug cleaner only. **CAUTION:** A wire brush or coated abrasive should not be used.

5. Measure gap with a wire gauge. Refer to specifications in picture below for proper spark plug type and gap. Adjust gap if necessary by bending the side electrode carefully.



6. If necessary, replace spark plug with proper type. **CAUTION:** Severe engine damage may occur if the incorrect spark plug is used.

7. Apply a small amount of anti-seize compound to the spark plug threads.

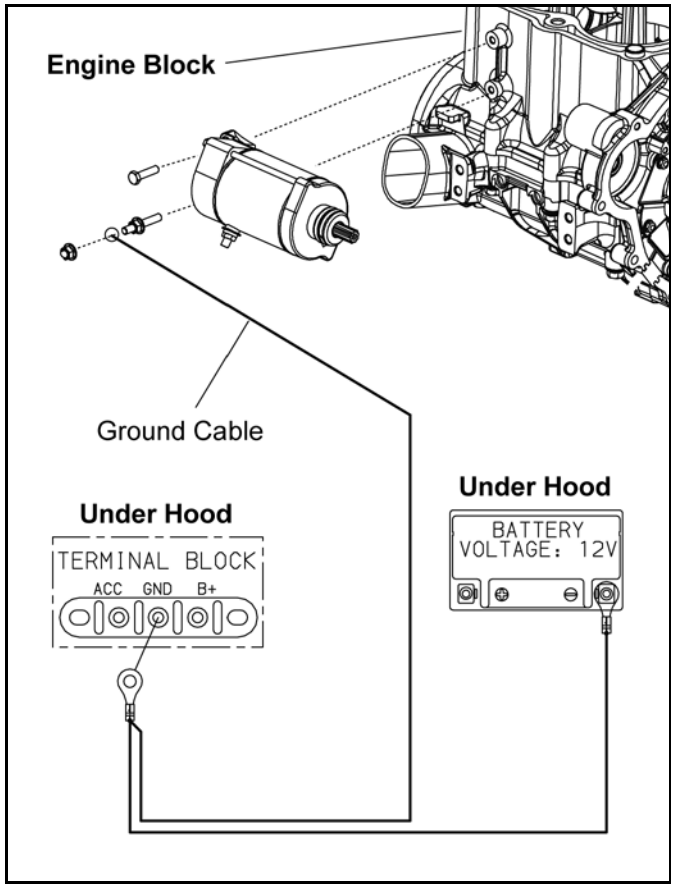
8. Install spark plug and torque to specification.

Recommended Spark Plug:
Champion RC7YC3

Spark Plug Torque:
18 ft. lbs. (24 Nm)

Engine To Frame Ground

Inspect engine ground cable connection. Be sure they are clean and tight. The ground cable runs from the engine to the terminal block located under the hood next to the battery.



STEERING

Steering Inspection

The steering components should be checked periodically for loose fasteners, worn tie rod ends, and damage. Also check to make sure all cotter pins are in place. If cotter pins are removed, they must not be re-used. Always use new cotter pins.

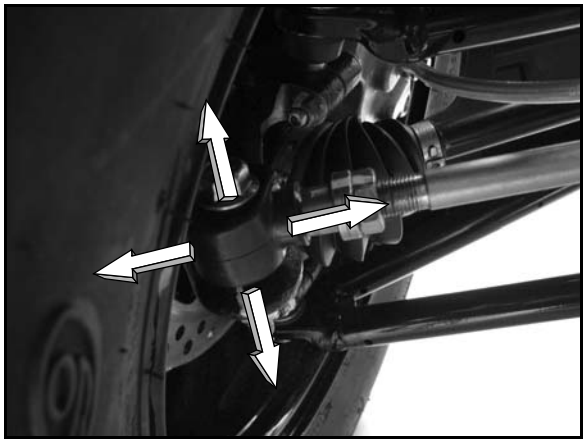
Replace any worn or damaged steering components. Steering should move freely through entire range of travel without binding. Check routing of all cables, hoses, and wiring to be sure the steering mechanism is not restricted or limited.

NOTE: Whenever steering components are replaced, check front end alignment. Use only genuine Polaris parts.

> **⚠ WARNING**
>
> Due to the critical nature of the procedures outlined in this chapter, Polaris recommends steering component repair and adjustment be performed by an authorized Polaris MSD-certified technician when replacing worn or damaged steering parts.
> Use only genuine Polaris replacement parts.

Tie Rod End / Steering Inspection

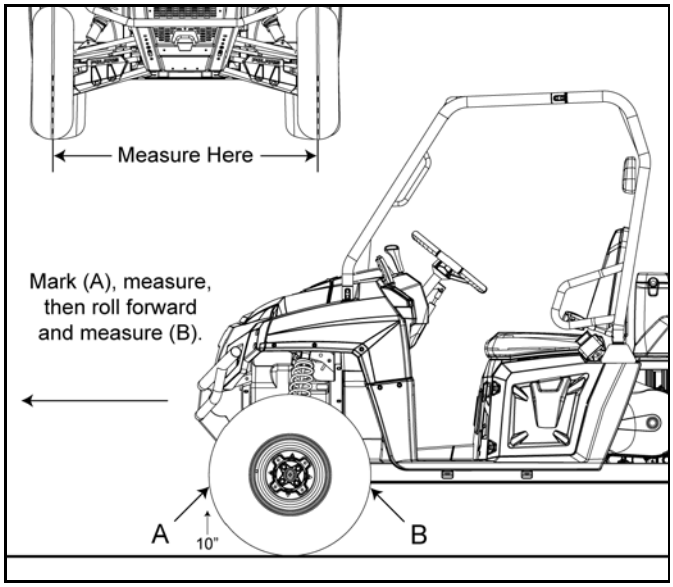
- To check for play in the tie rod end, grasp the steering tie rod, pull in all directions feeling for movement.
- Replace any worn steering components. Steering should move freely through entire range of travel without binding.



- Elevate front end of machine so front wheels are off the ground. Check for any looseness in front hub/wheel assembly by grasping the tire firmly at top and bottom first, and then at front and rear. Try to move the wheel and hub by pushing inward and pulling outward.
- If abnormal movement is detected, inspect the hub and wheel assembly to determine the cause (loose wheel nuts or loose front hub nut).
- Refer to the Body/Steering or Final Drive chapter for more information.

Wheel Toe Alignment Inspection

1. Place machine on a smooth level surface and set steering wheel in a straight ahead position. Secure the steering wheel in this position.
2. Place a chalk mark on the center line of the front tires approximately 10” (25.4 cm) from the floor or as close to the hub/axle center line as possible.



NOTE: It is important the height of both marks be equally positioned to get an accurate measurement.

3. Measure the distance between the marks and record the measurement. Call this measurement “A”.
4. Rotate the tires 180° by moving the vehicle forward. Position chalk marks facing rearward, even with the hub/axle center line.

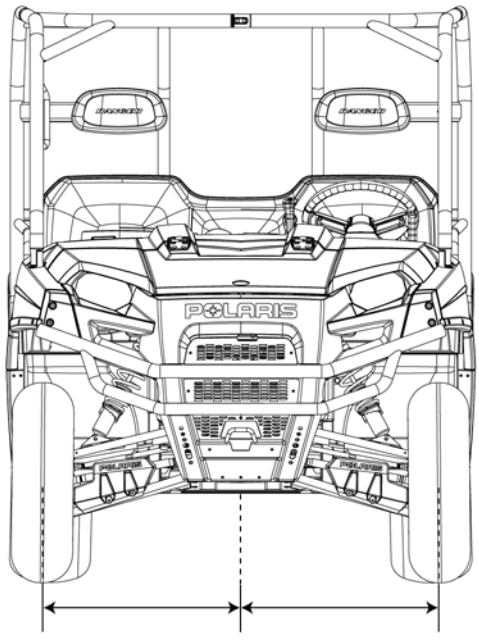
5. Again measure the distance between the marks and record. Call this measurement “B”. Subtract measurement “B” from measurement “A”. The difference between measurements “A” and “B” is the vehicle toe alignment. The recommended vehicle toe tolerance is 1/8” to 1/4” (.3 to .6 cm) toe out. This means the measurement at the front of the tire (A) is 1/8” to 1/4” (.3 to .6 cm) wider than the measurement at the rear (B).

= In. / mm.

Wheel Toe-Out:
(A) - (B) = 1/8 to 1/4" (.3 to .6 cm)

Toe Adjustment

If toe alignment is incorrect, measure the distance between vehicle center and each wheel. This will tell you which tie rod needs adjusting.



Measure Distances
(measurements should be equal)

NOTE: Be sure steering wheel is straight ahead before determining which tie rod needs adjustment.

CAUTION

During tie rod adjustment, it is very important that the following precautions be taken when tightening tie rod end jam nuts.
If the rod end is positioned incorrectly it will not pivot, and may break.

To adjust toe alignment:

- Hold tie rod end to keep it from rotating.
- Loosen jam nuts at both end of the tie rod.
- Shorten or lengthen the tie rod until alignment is as required to achieve the proper toe setting as specified in “Wheel Toe Alignment”.
- **IMPORTANT:** When tightening the tie rod end jam nuts, the rod ends must be held parallel to prevent rod end damage and premature wear. Damage may not be immediately apparent if done incorrectly.
- After alignment is complete, torque jam nuts to specification.

= T

Tie Rod End Jam Nut:
12-14 ft. lbs. (16-19 Nm)

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SUSPENSION (STANDARD)

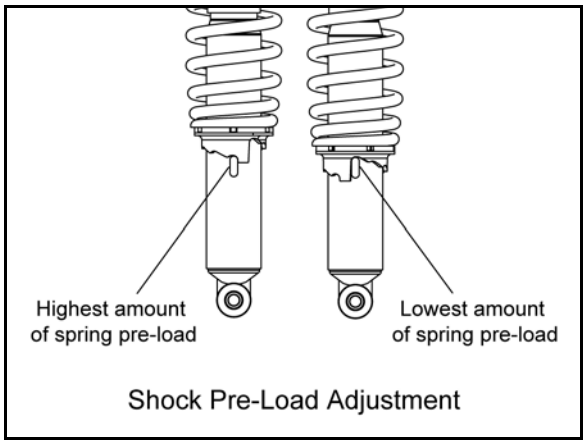
Suspension Inspection

Compress and release the suspension. Damping should be smooth throughout the range of travel.

- Check all suspension components and mounting fasteners for wear or damage.
- Inspect each shock body for leakage.

Spring Pre-Load Adjustment

The front and rear shock absorber springs are adjustable (front only on HD models). Rotate the adjuster cam either direction to increase or decrease spring tension. Always adjust both left and right sides equally.



Shock Pre-Load Adjustment

Vehicle loads effect suspension spring pre-load requirements. Use Spanner Wrench (PN 2871095) to adjust pre-load as necessary to avoid bottoming of the shocks.

Shock Spanner Wrench
(PN 2871095)

Shock Position Adjustment

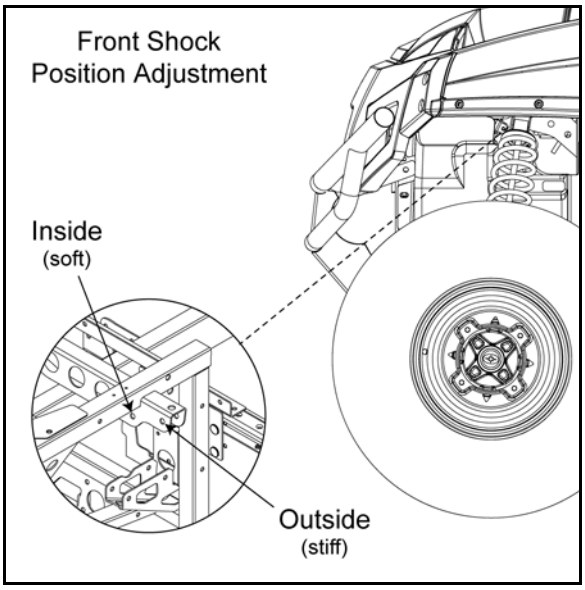
The front and rear shock position may be adjusted to provide a stiffer suspension if necessary.

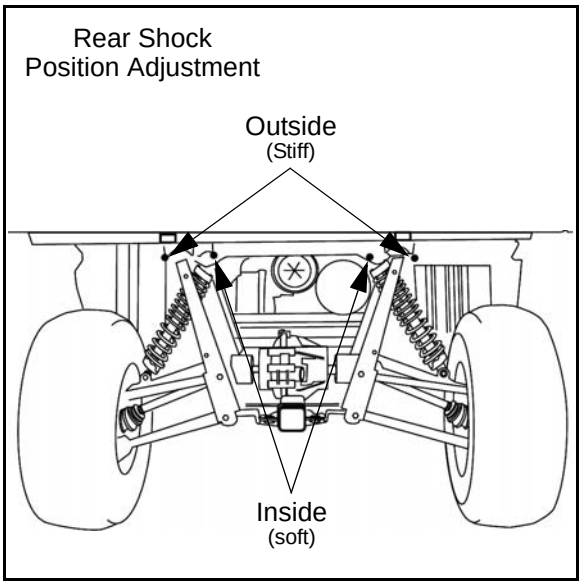
1. Elevate the vehicle and safely support the main frame.

⚠ CAUTION

Serious injury may result if machine tips or falls. Be sure machine is secure before adjusting.

2. Remove the top shock mounting bolts on each side.
3. Reposition the shocks to the outside mounting holes.





4. Reinstall the shock mounting bolts and torque to specification.

= T

Shock Mounting Bolts:
30 ft. lbs. (41 Nm)

SUSPENSION (WALKER EVANS™)

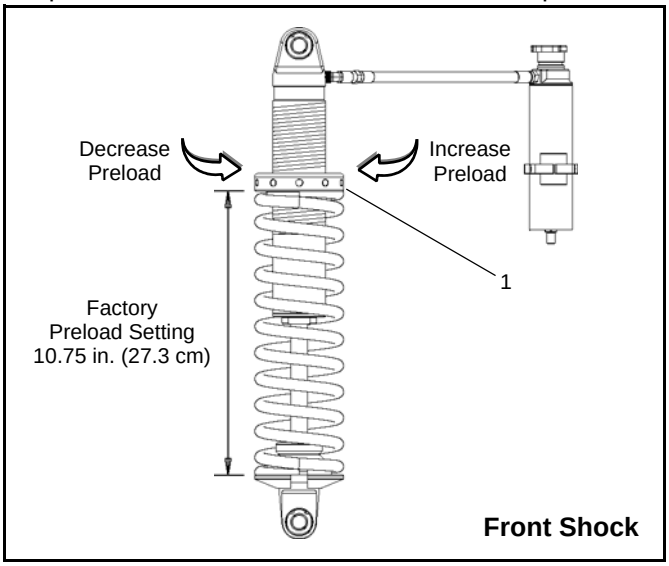
Spring Preload Adjustment

The front and rear shocks have a preload adjustment. Suspension spring preload may be adjusted to suit different riding conditions or vehicle payloads.

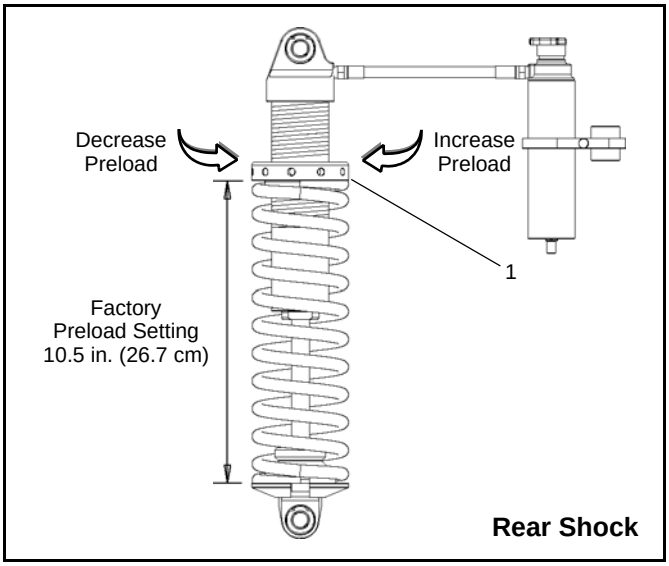
⚠ WARNING

Uneven adjustment may cause poor handling of the vehicle, which could result in an accident and serious injury or death. Always adjust both the left and right spring preloads equally.

1. Raise and safely support front or rear of the vehicle off the ground to allow the suspension to fully extend.
2. Turn the adjustment collar (1) clockwise to increase preload or counter-clockwise to decrease preload.



Front Shock



Rear Shock

Shock Spanner Wrench (PN 2870803)

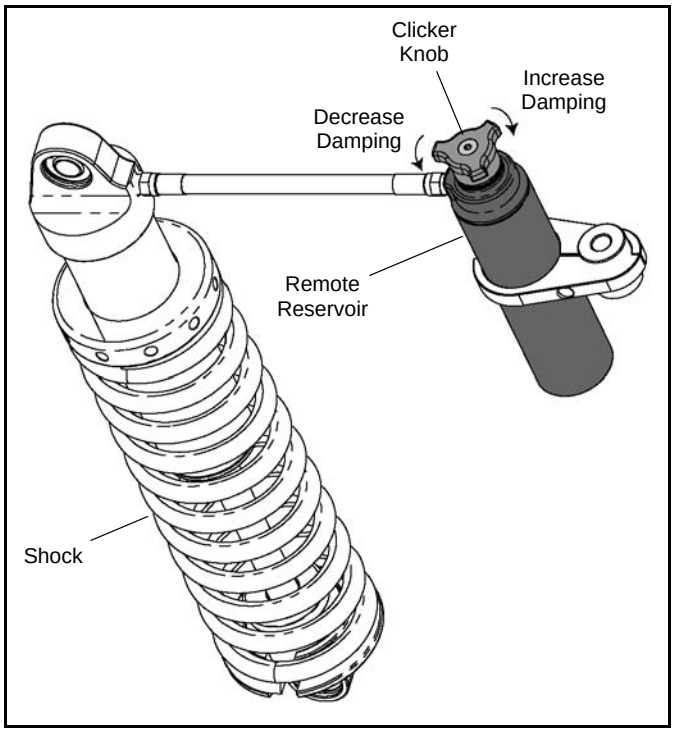
Shock Compression Adjustment

The compression damping adjustment is located on top of the remote shock reservoir on each shock. Damping adjustments can be made without using any tools.

NOTE: When the adjuster knob is turned counter-clockwise until it stops, the damping is in the fully open position (Soft).

Turn the clicker clockwise to increase compression damping. Turn the clicker counter-clockwise to decrease compression damping.

NOTE: The factory setting is 8 clicks clockwise from the softest position (see "Compression Adjustment Table").



Compression Adjustment Table

Setting	Compression Damping
Softest	Full counter-clockwise position
Factory	**8 clicks from softest position**
Firmest	Full clockwise position

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BRAKE SYSTEM

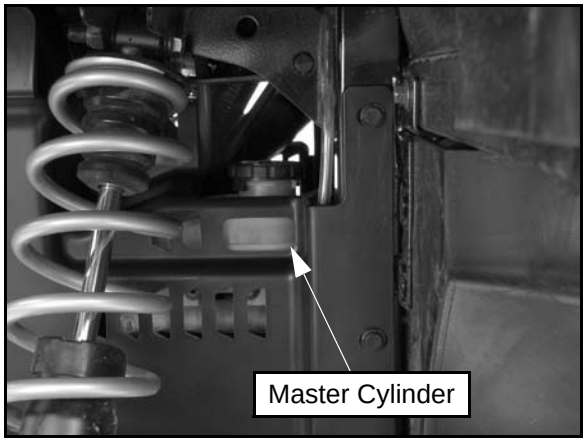
Brake Fluid Inspection

Always check the brake pedal travel and inspect the brake fluid reservoir level before each operation. If the fluid level is low, add DOT 4 brake fluid only.

Brake fluid should be changed every two years. The fluid should also be changed anytime the fluid becomes contaminated, the fluid level is below the minimum level, or if the type and brand of the fluid in the reservoir is unknown.

The brake master cylinder reservoir can be accessed through the front left wheel well.

1. Position the vehicle on a level surface.
2. Place the transmission in Neutral (N) and set the parking brake.
3. View the brake fluid level in the reservoir. The level should be between the MAX and MIN level lines.
4. If the fluid level is lower than the MIN level line, add brake fluid until it reaches the MAX level line.
5. Install the reservoir cap and apply the brake pedal forcefully for a few seconds and check for fluid leakage around the master cylinder fittings and the brake caliper fittings.

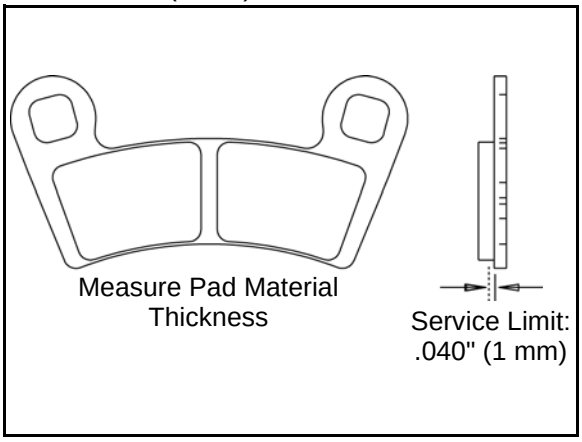


Brake Hose and Fitting Inspection

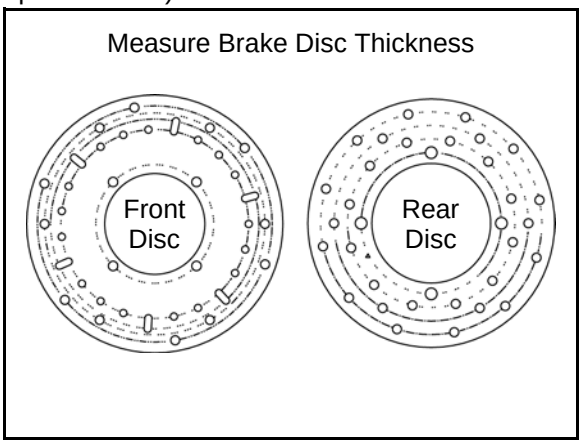
Check brake system hoses and fittings for cracks, deterioration, abrasion, and leaks. Tighten any loose fittings and replace any worn or damaged parts.

Brake Pad / Disc Inspection

1. Check the brake pads for wear, damage, or looseness.
2. Inspect the brake pad wear surface for excessive wear.
3. Pads should be changed when the friction material is worn to .040” (1 mm).



4. Check surface condition of the brake discs.
5. Measure the thickness of the front and rear brake discs.
6. The disc(s) should be replaced if thickness is less than the specified service limit (see Chapter 9 for specifications).



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Parking Brake Cable Adjustment

When the parking brake is fully engaged and the parking brake indicator is illuminated, engine speed is limited to 1300 RPM in all gears, including neutral. If throttle is applied, this limiting feature prevents operation, which protects the parking brake pads from excessive wear.

NOTE: Inspect the parking brake cable tension after the first 25 hours of operation and every 100 hours of operation afterwards to ensure proper cable tension.

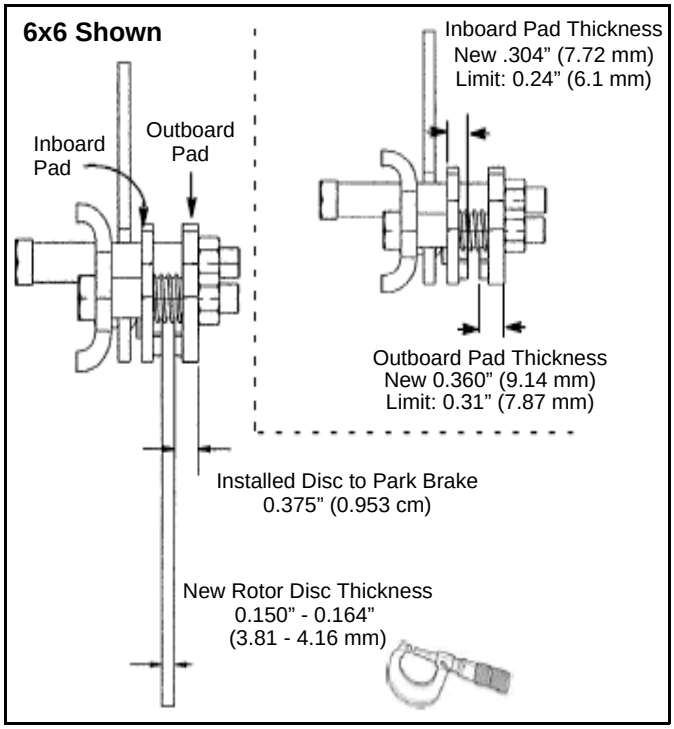
Loss of tension in the parking brake cable will cause illumination of the parking brake indicator and activation of the limiting feature. If this occurs, inspect and adjust parking brake cable tension. If performing this service is difficult due to conditions or location, open the hood and temporarily disconnect the parking brake connector. Reconnect the connector as soon as practicable and adjust the parking brake cable to proper tension.

1. Pull back on the parking brake lever (located in the dash).
2. After 3 to 4 clicks “BRAKE” should display on the instrument cluster and the wheels of the vehicle should not rotate when turning by hand. After 8 full clicks of lever travel, the vehicle should not roll while parked.
3. If the vehicle moves, adjustment is necessary.
4. Adjust the parking brake cable where the cable attaches to the caliper mount bracket. The mount bracket is located on the left-hand side of the transmission behind the outer PVT cover (4x4) or on the rear gearcase (6x6).

Adjustment Procedure: Refer to Chapter 9 “Brakes” for complete adjustment procedure.

Parking Brake Pad Inspection

Measure the thickness of the rear caliper parking brake pads. Replace assembly as needed. See illustration below for proper readings.



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MAINTENANCE LOG

Service Date	Hours / Miles (km)	Service Performed / Comments	Dealer / Technician

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NOTES