

**2017**



**POLARIS®**

***RANGER® 1000 Diesel***  
***RANGER® 1000 Diesel EPS***  
***RANGER CREW® 1000 Diesel***  
**Owner's Manual**  
**for Maintenance and Safety**

**⚠ WARNING**

Read, understand, and follow all of the instructions and safety precautions in this manual and on all product labels. Failure to follow the safety precautions could result in serious injury or death.

**⚠ WARNING**

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.



*For videos and more information about a safe riding experience with your Polaris vehicle, scan this QR code with your smartphone.*

# WELCOME

Thank you for purchasing a POLARIS vehicle, and welcome to our world-wide family of POLARIS enthusiasts. Be sure to visit us online at [www.polaris.com](http://www.polaris.com) for the latest news, new product introductions, upcoming events, career opportunities and more.

- Snowmobiles
- All-terrain vehicles (ATVs)
- Low emission vehicles (LEVs)
- *RANGER*® utility vehicles
- BRUTUS® work vehicles
- SLINGSHOT® three wheel motorcycles
- *RZR*® sport vehicles
- GEM® electric vehicles
- VICTORY® motorcycles
- INDIAN® motorcycles
- POLARIS POWER® generators
- POLARIS DEFENSE® combat vehicles

We believe POLARIS sets a standard of excellence for all utility and recreational vehicles manufactured in the world today. Many years of experience have gone into the engineering, design, and development of your POLARIS vehicle, making it the finest machine we've ever produced.

For safe and enjoyable operation of your vehicle, be sure to follow the instructions and recommendations in this owner's manual.

Your manual contains instructions for minor maintenance, but information about major repairs is outlined in the POLARIS Service Manual and can be performed by a factory certified Master Service Dealer® (MSD) Technician.

Your POLARIS dealer knows your vehicle best and is interested in your total satisfaction. Your POLARIS dealership can provide for all of your service needs during, and after, the warranty period.



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The original instructions for this vehicle are in English. Other languages are provided as translations of the original instructions.

Printed in U.S.A.

2017 *RANGER* Diesel / *RANGER CREW* Diesel Owner's Manual

P/N 9927175



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# INTRODUCTION

The *RANGER* is an off-road vehicle. Familiarize yourself with all laws and regulations concerning the operation of this vehicle in your area.

The following signal words and symbols appear throughout this manual and on your vehicle. Your safety is involved when these words and symbols are used. Become familiar with their meanings before reading the manual.



The safety alert symbol indicates a potential personal injury hazard.

## **DANGER**

A **DANGER** indicates a hazardous situation that, if not avoided, will result in death or serious injury.

## **WARNING**

A **WARNING** indicates a hazardous situation that, if not avoided, could result in death or serious injury.

## **CAUTION**

A **CAUTION** indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

## **NOTICE**

A **NOTICE** indicates a situation that could result in property damage.



The Prohibition Safety Sign indicates an action **NOT** to take in order to avoid a hazard.



The Mandatory Action Sign indicates an action that **NEEDS** to be taken to avoid a hazard.

## WARNING

Failure to follow the warnings contained in this manual can result in severe injury or death.

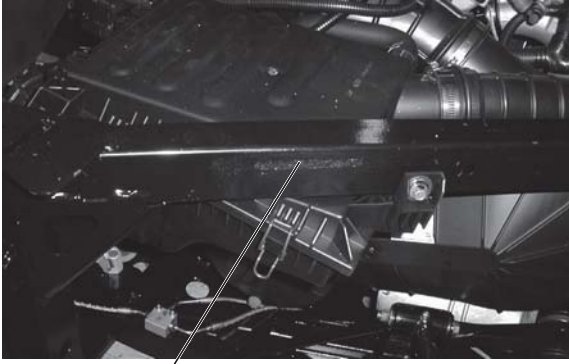
Your POLARIS *RANGER* is not a toy and can be hazardous to operate. This vehicle handles differently than other vehicles, such as cars, trucks or other off-road vehicles. A collision or rollover can occur quickly, even during routine maneuvers like turning, or driving on hills or over obstacles, if you fail to take proper precautions.

- Read this owner's manual and review the safety DVD that came with your vehicle. A free extra copy of the DVD can be obtained by contacting your local POLARIS dealer. Understand all safety warnings, precautions and operating procedures before operating the vehicle. Keep this manual with the vehicle.
- Review the safety DVD and take the free online Recreational Off-Highway Vehicle Association (ROHVA) training course at [www.rohva.org](http://www.rohva.org).
- This vehicle is an ADULT VEHICLE ONLY. You MUST be at least age 16 and have a valid driver's license to operate this vehicle.
- No person under the age of 12 may ride as a passenger in this vehicle. All riders must be able to sit with backs against the seat, both feet flat on the floor and both hands on the steering wheel (if driving) or on a passenger hand hold.
- Never permit a guest to operate this vehicle unless the guest has read this manual and all product labels.
- Always use the cab nets (or doors) while riding in this vehicle. Always keep hands, feet and all other body parts inside the vehicle at all times.
- Always wear a helmet, eye protection, gloves, long-sleeve shirt, long pants and over-the-ankle boots.
- Never use this vehicle with drugs or alcohol, as these conditions impair judgment and reduce operator reaction time.

# INTRODUCTION

## Vehicle Identification Numbers

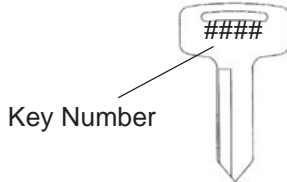
Record your vehicle's identification numbers and key number in the spaces provided. Remove the spare key and store it in a safe place. An ignition key can be duplicated only by ordering a POLARIS key blank (using your key number) and mating it with one of your existing keys. The ignition switch must be replaced if all keys are lost.



VIN



Engine Serial Number



Key Number

Vehicle Model Number: \_\_\_\_\_

Frame VIN: \_\_\_\_\_

Engine Serial Number: \_\_\_\_\_

Key Number: \_\_\_\_\_

## European Vibration and Noise

The driver-perceived noise and hand/arm and whole body vibration levels of this machinery is measured per prEN 15997.

The operating conditions of the machinery during testing:

The vehicles were in like-new condition. The environment was controlled as indicated by the test procedure(s).

The uncertainty of vibration exposure measurement is dependent on many factors, including:

- Instrument and calibration uncertainty
- Variations in the machine such as wear of components
- Variation of machine operators such as experience or physique
- Ability of the worker to reproduce typical work during measurements
- Environmental factors such as ambient noise or temperature

# SAFETY

## Safe Riding Gear

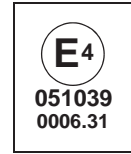
The driver and all passengers must wear helmet, eye protection, gloves, long-sleeve shirt, long pants, over-the-ankle boots and seat belt at all times. Protective gear reduces the chance of injury.

### Helmet

Wearing a helmet can prevent a severe head injury. Whenever riding this POLARIS vehicle, always wear a helmet that meets or exceeds established safety standards.

Approved helmets in the USA and Canada bear a U.S. Department of Transportation (DOT) label.

Approved helmets in Europe, Asia and Oceania bear the ECE 22.05 label. The ECE mark consists of a circle surrounding the letter E, followed by the distinguishing number of the country which has granted approval. The approval number and serial number will also be displayed on the label.



## Safe Riding Gear

### Eye Protection

Do not depend on eyeglasses or sunglasses for eye protection. Whenever riding this POLARIS vehicle, always wear shatterproof goggles or use a shatterproof helmet face shield. POLARIS recommends wearing approved Personal Protective Equipment (PPE) bearing markings such as VESC 8, V-8, Z87.1, or CE. Make sure protective eye wear is kept clean.

### Gloves

Wear gloves for comfort and for protection from sun, cold weather and other elements.

### Boots

Wear sturdy over-the-ankle boots for support and protection. Never ride a POLARIS vehicle with bare feet or sandals.

### Clothing

Wear long sleeves and long pants to protect arms and legs.

### Rider Comfort

Under certain operating conditions, heat generated by the engine and exhaust system can elevate temperatures in the driver and passenger cab area. The condition occurs most frequently when a vehicle is being operated in high ambient temperatures at low speeds and/or high load conditions for an extended period of time. The use of certain windshield, roof and/or cab systems may contribute to this condition by restricting airflow. Any discomfort due to heat buildup in this area can be minimized by wearing proper riding apparel and by varying speeds to increase airflow.

# SAFETY

## Safety Labels and Locations

Warning labels have been placed on the vehicle for your protection. Read and follow the instructions of the labels on the vehicle carefully. If any of the labels depicted in this manual differ from the labels on your vehicle, always read and follow the instructions of the labels *on the vehicle*.

If any label becomes illegible or comes off, contact your POLARIS dealer to purchase a replacement. Replacement *safety* labels are provided by POLARIS at no charge. The part number is printed on the label.



Proper Use  
Warning



Seat Belt/Drive  
Responsibly  
Warning

Payload Warning  
Shift Caution

### Proper Use Warning (Diesel)

Require Proper Use of Your Vehicle

Do your part to prevent injuries:

- Do not allow careless or reckless driving.
- Make sure operators are 16 or older with a valid driver's license.
- Do not let people drive or ride after using alcohol or drugs.
- Do not allow operation on public roads (unless designated for off-highway vehicle access) - collisions with cars and trucks can occur.
- Do not exceed seating capacity: 3 occupants.

7179979

### Proper Use Warning (CREW Diesel)

Require Proper Use of Your Vehicle

Do your part to prevent injuries:

- Do not allow careless or reckless driving.
- Make sure operators are 16 or older with a valid driver's license.
- Do not let people drive or ride after using alcohol or drugs.
- Do not allow operation on public roads (unless designated for off-highway vehicle access) - collisions with cars and trucks can occur.
- Do not exceed seating capacity: 6 occupants.

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## Safety Labels and Locations

### Fuel Transport Warning

This label can be found in the rear cargo box.

#### WARNING

NEVER carry fuel or other flammable liquids on this vehicle. Failure to follow this instruction could lead to serious burn injuries or death.

7185278



### Payload Warning/Shift Caution

#### WARNING

<b>Diesel</b>	Never exceed 20 MPH (32.2 Km/h) if total payload is greater than 1080 lbs. (490 kg).
<b>CREW Diesel</b>	Never exceed 35 MPH (56.3 Km/h) if total payload is greater than 1490 lbs. (676 Kg).

#### CAUTION

To avoid transmission damage, shift only when vehicle is stationary and at idle. When vehicle is stopped, place shift in parked position.

### Seat Belt/Drive Responsibly Warning

#### WARNING

Improper vehicle use can result in SEVERE INJURY or DEATH

#### Be Prepared

- Fasten seat belts.
- Wear an approved helmet and protective gear.
- ALWAYS use cab nets and/or doors.
- Each rider must be able to sit with back against seat, feet flat on the floor, and hands on steering wheel or hand holds. Stay completely inside the vehicle.



#### Drive Responsibly

Avoid loss of control and rollovers:

- Avoid abrupt maneuvers, sideways sliding, skidding or fishtailing, and never do donuts.
- Slow down before entering a turn.
- Avoid hard acceleration when turning, even from a stop.
- Plan for hills, rough terrain, ruts and other changes in traction and terrain. Avoid paved surfaces.
- Avoid sidehilling (riding across slopes).



Rollovers have caused severe injuries and death, even on flat, open areas.

#### Be Sure Riders Pay Attention and Plan Ahead

If you think or feel the vehicle may tip or roll, reduce your risk of injury:

- Keep a firm grip on the steering wheel or hand holds and brace yourself.
- Do not put any part of your body outside of the vehicle for any reason.

LOCATE AND READ OWNER'S MANUAL. FOLLOW ALL INSTRUCTIONS AND WARNINGS. ALWAYS REVIEW SAFETY VIDEO AND TAKE ROHVA TRAINING (rohva.org).

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# SAFETY

## Safety Labels and Locations

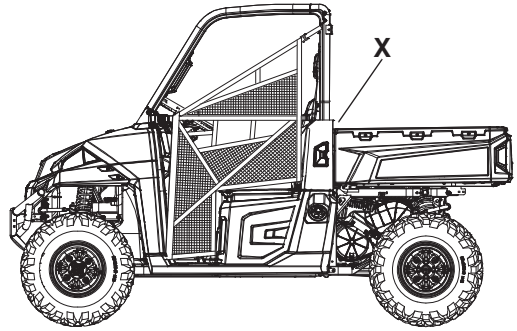
### Load/Passenger/Tire Pressure Warning

#### WARNING

- Never carry passengers in cargo box.
- Passengers can be thrown off. This can cause serious injury or death.
- If total payload is greater than 500 lbs., the vehicle must be operated in LOW range.

**IMPROPER TIRE PRESSURE OR OVERLOADING CAN CAUSE LOSS OF CONTROL RESULTING IN SERIOUS INJURY OR DEATH.**

- Reduce speed and allow greater distance for braking when carrying cargo.
- Overloading or carrying tall, off-center, or unsecured loads will increase your risk of losing control. Loads should be centered and carried as low as possible in box.
- For stability on rough or hilly terrain, reduce speed and cargo.



<b>RANGER Diesel</b>	<b>4x4</b>	<b>4x4 CA</b>	<b>CREW</b>	<b>CA CREW</b>
<b>MAXIMUM CARGO BOX LOAD</b>	1000 lbs. (454 kg)	600 lbs. (272 kg)	1000 lbs. (454 kg)	600 lbs. (272 kg)
<b>TIRE PRESSURE IN PSI (KPa)</b>	FRONT 10 (69) REAR 12 (83)	FRONT 10 (69) REAR 12 (83)	FRONT 14 (96) REAR 16 (110)	FRONT 14 (96) REAR 16 (110)
<b>MAXIMUM WEIGHT CAPACITY</b> INCLUDES WEIGHT OF OPERATOR, PASSENGER, CARGO AND ACCESSORIES	1500 lbs. (682 kg)	1100 lbs. (499 kg)	1750 lbs. (795 kg)	1350 lbs. (612 kg)

Read Operation and Maintenance Manual for more detailed loading information.

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## Clutch Cover Warning

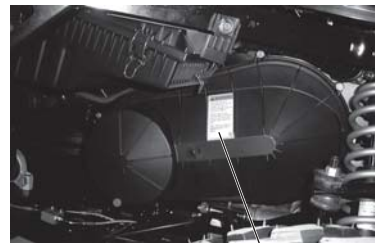
#### WARNING

Improper service or maintenance of this PVT system can result in vehicle damage, SEVERE INJURY or DEATH.

Always look for and remove debris inside and around clutch and vent system when replacing belt.

Read owner's manual or see authorized POLARIS dealer.

7177469



Clutch Cover Warning

## Operator Safety

### **⚠ WARNING**

Serious injury or death can result if you do not follow these instructions and procedures, which are outlined in further detail within your owner's manual.

- Read this entire manual and all labels carefully. Follow the operating procedures described.
- Never allow anyone under the age of 16 to operate this vehicle and never allow anyone without a valid driver's license to operate this vehicle.
- Do not carry a passenger until you have at least two hours of driving experience with this vehicle.
- No person under the age of 12 may ride as a passenger in this vehicle. All riders must be able to sit with backs against the seat, both feet flat on the floor and both hands on the steering wheel (if driving) or on a passenger hand hold.
- The driver and all passengers must wear helmet, eye protection, gloves, long-sleeve shirt, long pants, over-the-ankle boots and seat belt at all times.
- Always use the cab nets (or doors) while riding in this vehicle.
- Always keep hands and feet inside the vehicle at all times.
- Always keep both hands on the steering wheel and both feet on the floorboards of the vehicle during operation.
- Never permit a guest to operate this vehicle unless the guest has read this manual and all product labels.
- To reduce rollover risk, be especially careful when encountering obstacles and slopes and when braking on hills or during turns.
- This vehicle is for off road use only. Never operate on public roads (unless marked for off-road use). Always avoid paved surfaces.
- Never consume alcohol or drugs before or while operating this vehicle.
- Never operate at excessive speeds. Always travel at a speed proper for the terrain, visibility and operating conditions, and your experience.
- Never attempt jumps or other stunts.
- Always inspect the vehicle before each use to make sure it's in safe operating condition. Always follow the inspection procedures described in this manual.

# SAFETY

## Operator Safety

- Always travel slowly and use extra caution when operating on unfamiliar terrain. Be alert to changing terrain.
- Never operate on excessively rough, slippery or loose terrain.
- Always follow proper procedures for turning. Practice turning at slow speeds before attempting to turn at faster speeds. Never turn at excessive speeds.
- Always have this vehicle checked by an authorized POLARIS dealer if it has been involved in an accident.
- Never operate this vehicle on hills too steep for the vehicle or for your abilities. Practice on smaller hills before attempting larger hills.
- Always follow proper procedures for climbing hills as described in this manual. See page 47. Check the terrain carefully before attempting to climb a hill. Never climb hills with excessively slippery or loose surfaces. Never apply throttle suddenly. Never make sudden gear changes. Never go over the top of a hill at high speed.
- Always follow the proper procedures outlined in this manual for traveling downhill and for braking on hills. See page 47. Check the terrain carefully before descending a hill. Never travel downhill at high speed. Avoid going downhill at an angle, which would cause the vehicle to lean sharply to one side. Travel straight down the hill where possible.
- Always check for obstacles before operating in a new area. Never attempt to operate over large obstacles such as large rocks or fallen trees. Always follow the proper procedures outlined in this manual when operating over obstacles. See page 45.
- Always be careful of skidding or sliding. On slippery surfaces such as ice, travel slowly and exercise caution to reduce the chance of skidding or sliding out of control.
- Never operate your vehicle in fast-flowing water or in water deeper than that specified in this manual. See page 48. Wet brakes may have reduced stopping ability. Test your brakes after leaving water. If necessary, apply them lightly several times to let friction dry out the pads.
- Always be sure there are no obstacles or people behind your vehicle when operating in reverse. When it's safe to proceed in reverse, move slowly. Avoid turning at sharp angles in reverse.

## Operator Safety

- Always use the proper size and type of tires specified in this manual. Always maintain proper tire pressure as specified on safety labels.
- Never modify this vehicle through improper installation or use of non-POLARIS approved accessories.
- Never exceed the stated load capacity for this vehicle. Cargo should be properly distributed and securely attached. Reduce speed and follow the instructions in this manual for hauling cargo or pulling a trailer. Allow a greater distance for braking.
- Always place the transmission in PARK before getting out of the vehicle.
- Always stop the engine before refueling. Remove flammable material containers from the box before filling them with fuel. Make sure the refueling area is well ventilated and free of any source of flame or sparks.
- Always remove the ignition key when the vehicle is not in use to prevent unauthorized use by someone under the age of 16 or without a driver's license and proper training, or accidental starting.

**FOR MORE INFORMATION ABOUT SAFETY,  
call POLARIS at 1-800-342-3764.**

## Equipment Modifications

Do not install any non-POLARIS approved accessory or modify the vehicle for the purpose of increasing speed or power. Any modifications or installation of non-POLARIS approved accessories could create a substantial safety hazard and increase the risk of bodily injury.

The POLARIS limited warranty on your POLARIS vehicle will be terminated if any non-POLARIS approved equipment and/or modifications have been added to the vehicle that increase speed or power.

The addition of certain accessories, including (but not limited to) mowers, blades, tires, sprayers, or large racks, may change the handling characteristics of the vehicle. Use only POLARIS-approved accessories, and familiarize yourself with their function and effect on the vehicle.

# SAFETY

## Operator Safety

### **⚠ WARNING**

Failure to operate the *RANGER* properly can result in a collision, loss of control, accident or rollover, which may result in serious injury or death. Heed all safety warnings outlined in this section of the owner's manual. See the OPERATION section of the owner's manual for proper operating procedures.

### Age Restrictions

This vehicle is an **ADULT VEHICLE ONLY**. NEVER operate this vehicle if you are under age 16 and NEVER operate without a valid driver's license.

Never operate with a passenger under the age of 12. All riders must be able to sit with backs against the seat, both feet flat on the floor and both hands on the steering wheel (if driving) or on a passenger hand hold.

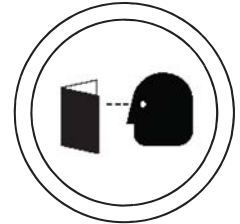


### Operating Without Instruction

Operating this vehicle without proper instruction increases the risk of an accident. The operator must understand how to operate the vehicle properly in different situations and on different types of terrain.

All operators must read and understand the Owner's Manual and all warning and instruction labels before operating the vehicle.

All operators should review the safety DVD provided with this vehicle and take a ROHVA training course ([www.rohva.org](http://www.rohva.org)).



### Using Alcohol or Drugs

Operating the vehicle after consuming alcohol or drugs could adversely affect operator judgment, reaction time, balance and perception.

Never drink alcohol or use drugs or medications before or while operating this vehicle.



### Seat Belts

Riding in this vehicle without wearing the seat belt increases the risk of serious injury in the event of rollover, loss of control, other accident or sudden stop. Seat belts may reduce the severity of injury in these circumstances.

All riders *must* wear seat belts at all times.

### Protective Apparel

Riding in this vehicle without wearing an approved helmet and protective eyewear increases the risk of a serious injuries in the event of an accident.

Operator and all passengers *must* always wear an approved helmet that fits properly and eye protection (goggles or face shield).

## Operator Safety

### Cab Nets

Riding in this vehicle without using the cab nets (or doors, if equipped) increases the risk of serious injury or death in the event of an accident or rollover. Always use the cab nets (or doors) while riding in this vehicle.

*Always keep hands and feet inside the vehicle at all times.*

### Failure to Inspect Before Operating

Failure to inspect and verify that the vehicle is in safe operating condition before operating increases the risk of an accident. Always perform the pre-ride inspection before each use of your *RANGER* to make sure it's in safe operating condition. See page 36.

Always follow all inspection and maintenance procedures and schedules described in this owner's manual. See page 65.

### Operating With a Load on the Vehicle

The weight of both cargo and passengers impacts vehicle operation. For your safety and the safety of others, carefully consider how your vehicle is loaded and how to safely operate the vehicle. Follow the instructions in this manual for loading, tire pressure, gear selection and speed.

- **Do not exceed vehicle weight capacities.** The vehicle's maximum weight capacity is listed in the specifications section of this manual and on a label on the vehicle. When more passenger weight is added, cargo weight may need to be reduced accordingly.
- The recommended tire pressures are listed in the specifications section of this manual and on a label on the vehicle.

***Always follow these guidelines:***

Under ANY of these conditions:	Do ALL of these steps:
Passenger and/or cargo exceeds half the maximum weight capacity	<ol style="list-style-type: none"> <li>1. Slow down.</li> <li>2. Verify tire pressure.</li> <li>3. Use extra caution when operating.</li> </ol>
Operating in rough terrain	
Operating over obstacles	
Climbing an incline	
Towing	

# **SAFETY**

## **Operator Safety**

### **Exposure to Exhaust**

Engine exhaust fumes are poisonous and can cause loss of consciousness or death in a short time. Never start the engine or let it run in an enclosed area.

The engine exhaust from this product contains chemicals known to cause cancer, birth defects or other reproductive harm. Operate this vehicle only outdoors or in well-ventilated areas.

### **Hot Exhaust Systems**

Exhaust system components are very hot during and after use of the vehicle. Hot components can cause burns and fire. Do not touch hot exhaust system components or brake system components. Always keep combustible materials away from the exhaust system. Use caution when traveling through tall grass, especially dry grass, to avoid debris build-up around the exhaust system.

### **Improper Tire Maintenance**

Operating this vehicle with improper tires or with improper or uneven tire pressure could cause loss of control or accident. Always use the size and type of tires specified for your vehicle. Always maintain proper tire pressure as described in the owner's manual and on safety labels.

### **Unauthorized Use of the Vehicle**

Leaving the keys in the ignition can lead to unauthorized use of the vehicle by someone under the age of 16, without a drivers license, or without proper training. This could result in an accident or rollover. Always remove the ignition key when the vehicle is not in use.



## Operator Safety

### Turning Improperly

Turning improperly could cause loss of traction, loss of control, accident or rollover. Always follow proper procedures for turning as described in this owner's manual. Never turn abruptly or at sharp angles. Never turn at high speeds. Practice turning at slow speeds before attempting to turn at faster speeds.

### Jumps and Stunts

Attempting wheelies, jumps and other stunts increases the risk of an accident or rollover. Never attempt wheelies, jumps, or other stunts. Avoid exhibition driving.

### Improper Hill Climbing

Climbing hills improperly can cause loss of control or vehicle rollover. Always follow proper procedures for climbing hills as described in this owner's manual. See page 47.

### Descending Hills Improperly

Improperly descending a hill could cause loss of control or rollover. Always follow proper procedures for traveling down hills as described in this owner's manual. See page 47.

### Stalling While Climbing a Hill

Stalling or rolling backwards while climbing a hill could cause a rollover. Always maintain a steady speed when climbing a hill.

*If all forward speed is lost:*

- Apply the brakes.
- Place the transmission in reverse and slowly allow the vehicle to roll straight downhill while applying light brake pressure to control speed.

*If you begin rolling downhill:*

- Never apply engine power.
- Apply the brakes gradually until the vehicle is fully stopped.
- Place the transmission in reverse and slowly allow the vehicle to roll straight downhill while applying light brake pressure to control speed.

# **SAFETY**

## **Operator Safety**

### **Operating on Slippery Terrain**

Failure to use extra caution when operating on excessively rough, slippery or loose terrain could cause loss of traction, loss of control, accident or rollover. Do not operate on excessively slippery surfaces. Always slow down and use additional caution when operating on slippery surfaces.

Skidding or sliding due to loss of traction can cause loss of control or rollover (if tires regain traction unexpectedly). Always follow proper procedures for operating on slippery surfaces as described in this owner's manual. See page 46.

### **Operating on Frozen Bodies of Water**

Severe injury or death can result if the vehicle and/or the operator fall through the ice. Never operate the vehicle on a frozen body of water unless you have first verified that the ice is sufficiently thick to support the weight and moving force of the vehicle, you and your passengers, and your cargo, together with any other vehicles in your party.

Always check with local authorities and residents to confirm ice conditions and thickness over your entire route. Vehicle operators assume all risk associated with ice conditions on frozen bodies of water.

### **Operating a Damaged Vehicle**

Operating a damaged vehicle can result in an accident. After any rollover or other accident, have a qualified service dealer inspect the entire machine for possible damage, including (but not limited to) seat belts, rollover protection devices, brakes, throttle and steering systems.

### **Operating at Excessive Speeds**

Operating this vehicle at excessive speeds increases the operator's risk of losing control. Always operate at a speed that's appropriate for the terrain, the visibility and operating conditions, your skills and experience and your passengers' skills and experience.

### **Operating on Pavement**

This vehicle's tires are designed for off-road use only, not for use on pavement. Operating this vehicle on paved surfaces (including sidewalks, paths, parking lots and driveways) may adversely affect the handling of the vehicle and may increase the risk of loss of control and accident or rollover. Avoid operating the vehicle on pavement. If it's unavoidable, travel slowly, travel short distances and avoid sudden turns or stops.

### **Operating on Public Roads**

Operating this vehicle on public streets, roads or highways could result in a collision with another vehicle. Never operate this vehicle on any public street, road or highway, including dirt and gravel roads (unless designated for off-highway use).

### **Operating in Unfamiliar Terrain**

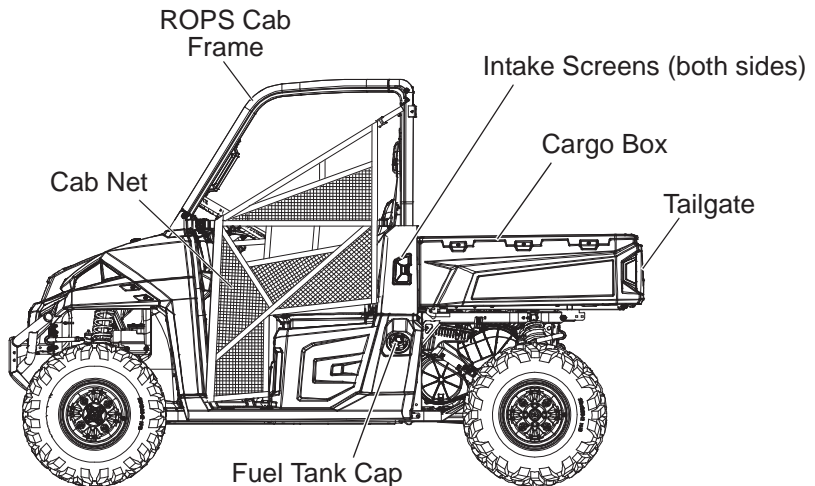
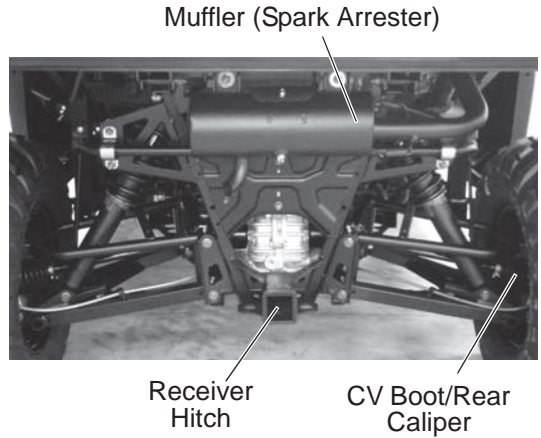
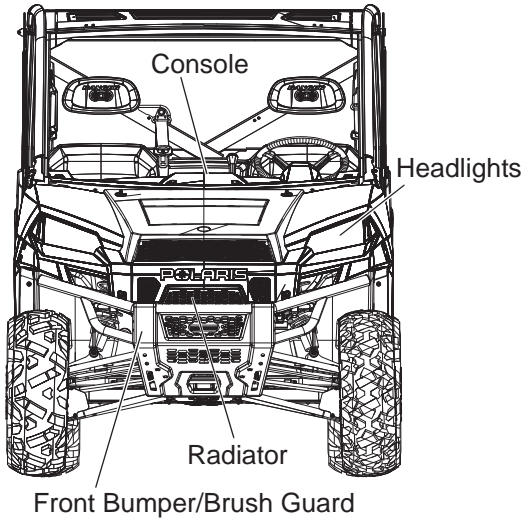
Failure to use extra caution when operating on unfamiliar terrain could result in an accident or rollover. Unfamiliar terrain may contain hidden rocks, bumps, or holes that could cause loss of control or rollover. Travel slowly and use extra caution when operating on unfamiliar terrain. Always be alert to changing terrain conditions.

# FEATURES AND CONTROLS

## Component Locations

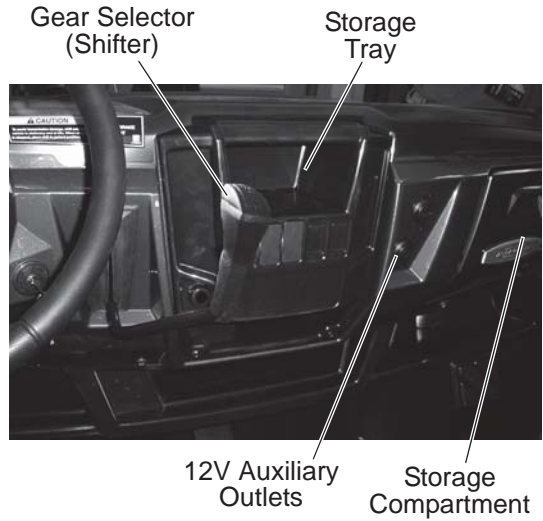
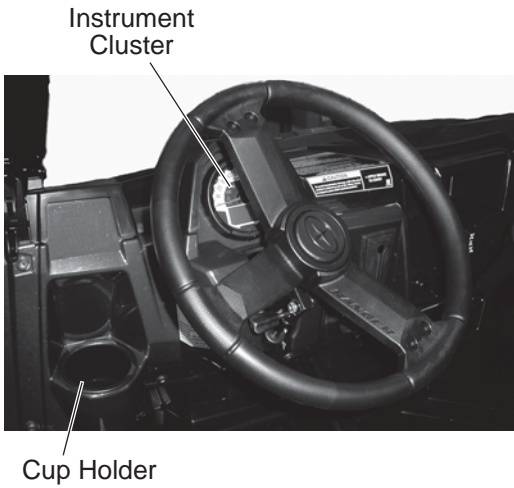
Your vehicle is equipped with cab nets on both sides of the vehicle. Cab nets (or doors, if equipped) must be used by both operator and passengers at all times. Any illustrations without cab nets are only to allow component identification. Always use the cab nets (or doors).

Not all models come with all features. Refer to the specifications section on page 100.



# FEATURES AND CONTROLS

## Console



### Auxiliary Outlets

The 12-volt receptacles have spade connections on the back that may be used to power an auxiliary light or other optional accessories or lights. The connections are behind the console, under the dash.

### Gear Selector

- H: High Gear
- L: Low Gear
- N: Neutral
- R: Reverse
- P: Park

Low gear is the primary driving range for the *RANGER*. High gear is intended for use on hard-packed surfaces with light loads.

To shift gears, brake to a complete stop. When the engine is idling, move the lever to the desired gear.

**NOTICE:** Shifting gears with the engine speed above idle or while the vehicle is moving could cause transmission damage. Always shift when the vehicle is stationary and the engine is at idle.

**Tip:** Maintaining shift linkage adjustment is important to assure proper transmission function. Your POLARIS dealer can assist in resolving any shifting problems.

### Using Low Range

Always shift into low gear for any of the following conditions.

- Operating in rough terrain or over obstacles
- Loading the vehicle onto a trailer
- Towing heavy loads

## Switches

### Ignition Switch

The ignition switch is a three-position, key-operated switch. The key can be removed from the switch when it is in the OFF position.

OFF	The engine is off. Electrical circuits are off, except Acc, 12V.
ON	Electrical circuits are on. Electrical equipment can be used.
START	After the glow plug indicator light turns off, turn the key to the START position to engage the starter. The key returns to the ON position when released.

Ignition Switch

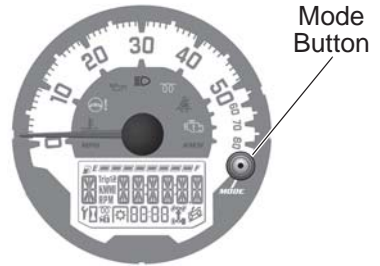


### Mode Button

The MODE button is located on the instrument cluster. Use the MODE button to toggle through mode options available in the instrument cluster. See pages 30-34.

### Light Switch

The ignition switch key must be in the ON/RUN position to operate the headlights. Press the top of the rocker switch toward the dash to place the headlights on high beam. Move the rocker switch to the center position to place the headlights on low beam. Press the bottom of the rocker switch to turn off the headlights.



### AWD/Differential Lock Switch

The AWD/Differential Switch has three positions:

- All Wheel Drive (AWD)
- Differential Lock (2WD)
- Differential Unlock

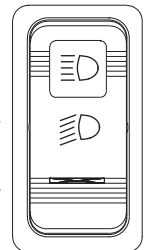
Press the top of the rocker switch to engage All Wheel Drive (AWD). See page 54 for operating instructions.

Move the rocker switch to the center position to lock the differential and operate in rear wheel drive. Press the bottom of the switch to unlock the differential and allow the two rear drive wheels to operate independently. See page 55 for differential lock operating instructions.

HIGH

LOW

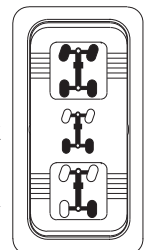
OFF



AWD

Differential Lock

Differential Unlock



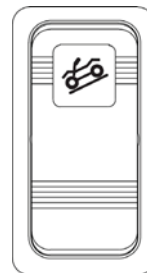
# FEATURES AND CONTROLS

## Switches

### ADC Switch (if applicable)

The ADC switch has two positions (ON/OFF). ADC will activate when all of the following conditions are met:

- AWD mode is engaged.
- No throttle applied.
- Vehicle speed is between 1-12.5 MPH.
- ADC switch is in ON position.



ADC Switch

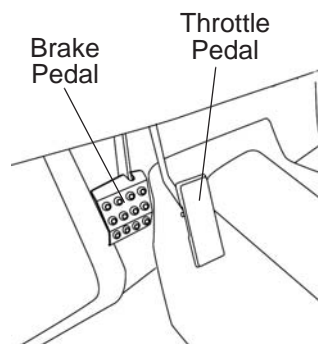
## Brake Pedal

Depress the brake pedal to slow or stop the vehicle. Apply the brakes while starting the engine.

## Throttle Pedal

Push the throttle pedal down to increase engine speed. Spring pressure returns the pedal to the rest position when released. Always check that the throttle pedal returns normally before starting the engine.

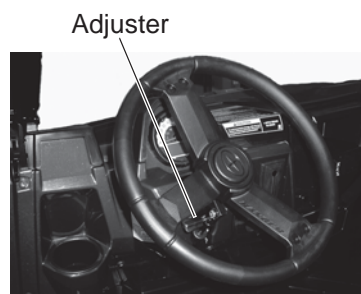
**Tip:** If the throttle pedal and brake pedal are applied simultaneously, engine power may be limited.



## Adjustable Steering Wheel

The steering wheel can be tilted upward or downward for rider preference.

Lift and hold the adjustment lever toward you while moving the steering wheel upward or downward. Release the lever when the steering wheel is at the desired position.



## Electronic Power Steering (EPS)

Electronic power steering (if equipped) engages when the ignition key is turned to the ON position. EPS remains engaged whether the vehicle is moving or idle.

To conserve battery power, the EPS will shut down 5 minutes after the engine is stopped if the key remains in the ON position. The EPS warning indicator will illuminate to indicate the EPS has shut down. Turn the key off and on to reset the unit.

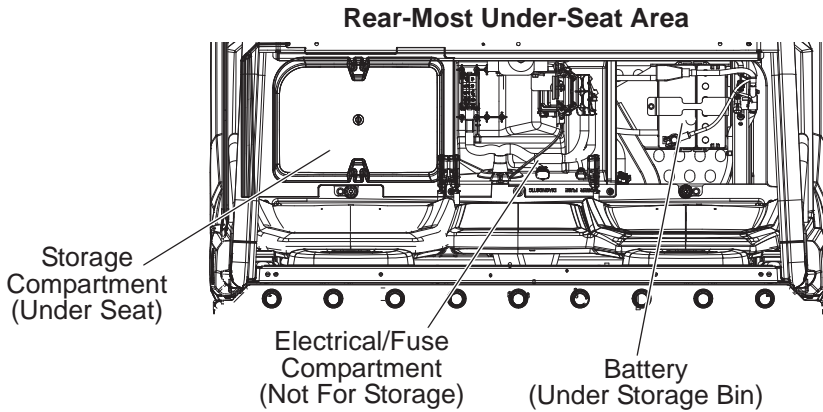
# FEATURES AND CONTROLS

## Seat and Storage Compartments

The electrical compartment is located under the center rear-most seat. Never use this area for storage. Storage compartments are located under all other seats. Remove the storage bin under the right rear-most passenger seat to access the battery.

Pull the rear edge of a seat upward to release the latch pins from the grommets. Roll the seat forward to access the under-seat area. To completely remove a seat, roll the seat forward and lift the seat tabs from the seat base mounts.

Always make sure all seats are properly installed and securely latched before operating. Push down firmly on the rear of each seat until the latch pins are fully seated into the grommets.



# FEATURES AND CONTROLS

## Fuel Cap

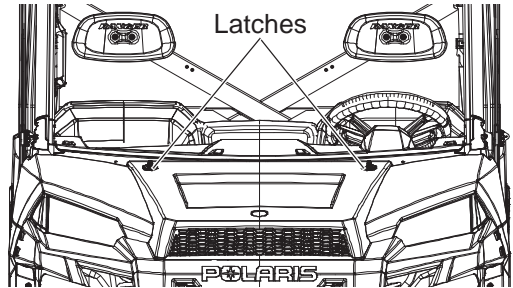
The fuel tank filler cap is located on the left side of the vehicle near the driver's seat. Use only the recommended diesel fuel. See page 37.



## Hood Latches

Remove the hood to access the coolant overflow bottle, the radiator cap and the headlight adjustment screws.

To remove the hood, rotate the hood latches 1/4-turn and lift the hood away from the vehicle.





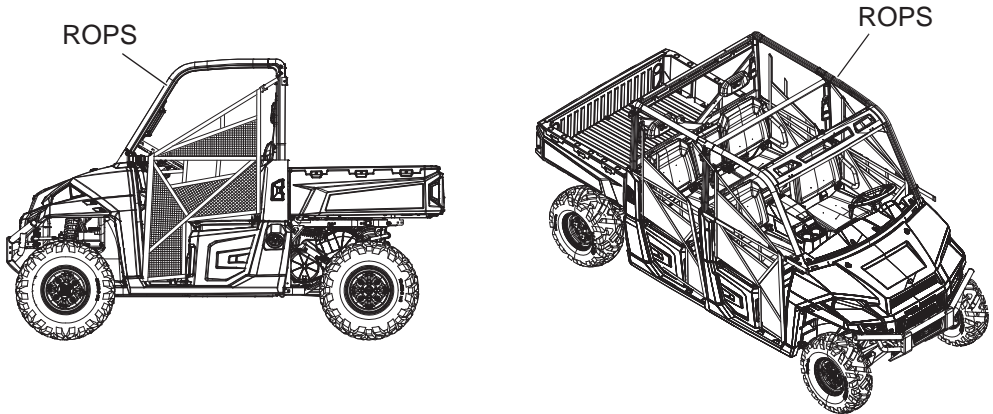
# FEATURES AND CONTROLS

## Rollover Protective Structure (ROPS)

The Rollover Protective Structure (ROPS) on this vehicle meets OSHA 1928.53 rollover performance requirements. Always have your authorized POLARIS dealer thoroughly inspect the ROPS if it ever becomes damaged in any way.

*No device can assure occupant protection in the event of a rollover.* Always follow all safe operating practices outlined in this manual to avoid vehicle rollover.

**WARNING!** Vehicle rollover could cause severe injury or death. Always avoid operating in a manner that could result in vehicle rollover.



## Trailer Hitch Bracket

This vehicle is equipped with a receiver hitch bracket for a trailer hitch. To avoid injury and property damage, always heed the warnings and towing capacities outlined on pages 51-52.

# FEATURES AND CONTROLS

## Cab Nets

Riding in this vehicle without using the cab nets (or doors, if equipped) increases the risk of serious injury or death in the event of an accident or rollover. Cab nets (or doors) must be used by both operator and passengers at all times. Make sure all latches are secure before operating the vehicle.

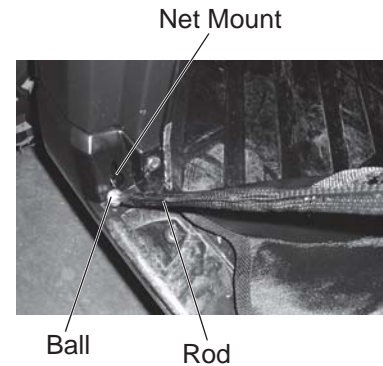
Always inspect cab nets and latches for tightness, wear and damage before each use of the vehicle. Use the strap adjusters to tighten any loose straps. Promptly replace worn or damaged cab nets and latches with new cab nets and latches. Please see your authorized POLARIS dealer.

### Securing a Net

1. After entering the vehicle, insert the lower net rod into the net mount on the floor. Make sure the ball at the end of the rod is properly secured in the mount.
2. Connect the latch at the top edge of the net to the receiver latch mounted on the front frame.

### Opening a Net

1. To exit the vehicle, release the latch at the top front edge of the cab net.
2. Rotate the net rearward and pull upward on the lower net rod to remove it from the mount.
3. Allow the net to hang freely outside the vehicle while dismounting.



# FEATURES AND CONTROLS

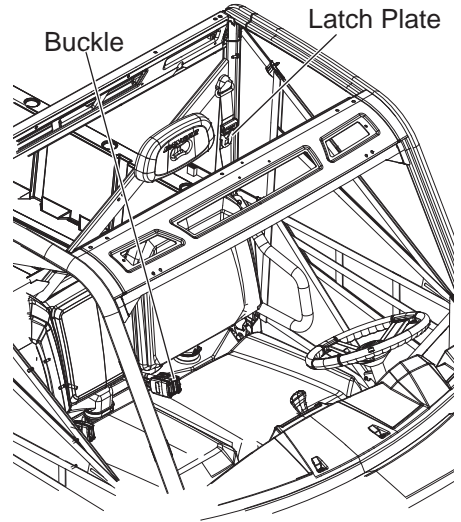
## Seat Belts

This POLARIS vehicle is equipped with three-point lap and diagonal seat belts on all seats. Always make sure the seat belts are secured for all riders before operating.

**WARNING!** Falling from a moving vehicle could result in serious injury or death. Always fasten your seat belt securely before operating or riding in the *RANGER*.

To wear the seat belt properly, follow this procedure:

1. For 3-point belts, pull the seat belt latch downward and across your chest toward the buckle at the inner edge of the seat. The belt should fit snugly across your hips and diagonally across your chest. Make sure the belt is not twisted.
2. Push the latch plate into the buckle until it clicks.
3. Release the strap, it will self-tighten.
4. To release the seat belt, press the square red button in the buckle's center.



## Seat Belt Inspection

Inspect all seat belts for proper operation before each use of the vehicle.

1. Push the latch plate into the buckle until it clicks. The latch plate must slide smoothly into the buckle. A click indicates that it's securely latched.
2. Push the red release latch in the middle of the buckle to make sure it releases freely.
3. Pull each seat belt completely out and inspect the full length for any damage, including cuts, wear, fraying or stiffness. If any damage is found, or if the seat belt does not operate properly, have the seat belt system checked and/or replaced by an authorized POLARIS dealer.
4. To clean dirt or debris from the seat belts, sponge the straps with mild soap and water. Do not use bleach, dye or household detergents.

# FEATURES AND CONTROLS

## Instrument Cluster

Your vehicle is equipped with an instrument cluster that senses vehicle speed from the transmission. In addition to showing vehicle speed, the speedometer needle flashes when a warning condition exists.

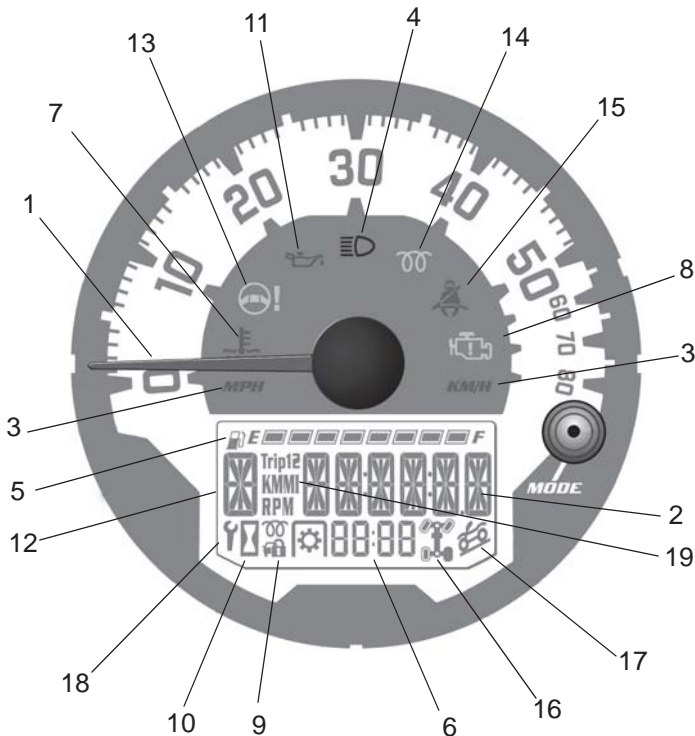
**NOTICE:** High water pressure may damage components. Wash the vehicle by hand or with a garden hose using mild soap.

Certain products, including insect repellents and chemicals, will damage the instrument cluster lens and other plastic surfaces. Do not use alcohol to clean the instrument cluster. Do not allow insect sprays to contact the lens. Immediately clean off any fuel that splashes on the instrument cluster.

## Rider Information Center

The rider information display is located in the instrument cluster. All segments will light up for 1 second at start-up. If the instrument cluster fails to illuminate, a battery over-voltage may have occurred and the instrument cluster may have shut off to protect the electronic speedometer. If this occurs, your POLARIS dealer can provide proper diagnosis.

1. **Vehicle Speed (Speedometer) Display** - Analog display of vehicle speed in MPH or km/h.
2. **Information Display Area - Odometer / Trip Meter / Tachometer / Engine Temperature / Engine Hours / Service Info** - LCD display of the service hour interval, total vehicle miles or km., total engine hours, a trip meter, engine RPM and engine temperature.



# FEATURES AND CONTROLS

## Instrument Cluster

### Rider Information Center

3. **MPH / KM/H Display** - MPH is displayed when the instrument cluster is in the *Standard* mode. KM/H is displayed when the instrument cluster is in the *Metric* mode.
4. **High Beam Indicator** - LED icon illuminates whenever the Headlamp switch is in the high beam position.
5. **Fuel Level Indicator** - LCD bar graph indicating current fuel level. All segments will flash when the last segment is cleared indicating a low fuel warning.
6. **Clock** - Displays current time in either 12-hour or 24-hour formats.
7. **Engine Temperature Indicator** - LED icon illuminates when the ECM determines the engine is overheating. The indicators will initially flash to indicate the engine is overheating. The indicators will stay lit and not flash if a severe overheating condition exists.
8. **Check Engine MIL** - Illuminated when the ECM has detected a Diagnostic Trouble Code in the engine management system.
9. **Unit Lock** - N/A on this model.
10. **Hour Meter** - Illuminates when the display (2) is showing hours.
11. **Low Oil Pressure Indicator** - LED icon illuminates low engine oil or hydraulic fluid pressure is sensed.
12. **Gear Position Indicator** - Displays gear selector position.
  - H = High
  - L = Low
  - N = Neutral
  - R = Reverse Gear
  - P = Park
  - = Gear Signal Error (shifter stuck between gears)
13. **Power Steering System MIL** - N/A on this model.
14. **Glow Plug Indicator** - Illuminated when the glow plugs are active. Light goes out when the engine is ready to start.
15. **Seat Belt Indicator** - LED icon illuminates for 10 seconds when the key is turned to the ON position. The lamp is a reminder to the operator to ensure all riders are wearing seat belts before operating the vehicle. The driver's seat belt is equipped with a seat belt interlock. Vehicle speed will be limited to 15 MPH (24 km/h) if the seat belt is not secured.
16. **AWD/TURF Indicator** - Illuminate to indicate how many drive wheels are active. This will tell you if you are in AWD, 2WD, or Turf.
17. **ADC Indicator** - N/A on this model.
18. **Service Interval Indicator** - Preset at the factory and adjustable by the user, a flashing wrench symbol alerts the operator that the preset service interval has been reached and maintenance should be performed. The wrench icon will flash for 10 seconds upon start-up once it reaches 0.
19. **Unit of Measurement** - Indicates the measurement (Trip 1, Trip 2, KM, MI, RPM) being displayed in the Information Display Area (2).

# FEATURES AND CONTROLS

## Instrument Cluster

### Information Display Area

The LCD portion of the instrument cluster is the information display area which displays the following information: odometer, trip meter, RPM, battery voltage, engine temperature, air temperature, engine hours, trouble codes, service interval, and clock.

### Units of Measurement

<b>Distance</b>	Miles (MPH)	Kilometers (KM/H)
<b>Temperature</b>	Fahrenheit	Celsius
<b>Time</b>	12-Hour Clock	24-Hour Clock

To change between Standard and Metric units of measurement, follow these steps:

1. Turn the key to the OFF position.
2. Press and hold the MODE button while turning the key to the ON position.
3. When the display flashes the distance setting, tap the MODE button to advance to the desired setting.
4. Press and hold the MODE button to save the setting and advance to the next display option.
5. Repeat the procedure to change remaining display settings.



### Odometer

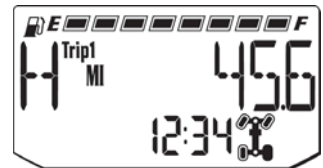
The odometer records and displays the total distance traveled by the vehicle. The odometer can not be reset.



### Trip Meter

The trip meter records the miles traveled by the vehicle on each trip. To reset the trip meter:

1. Toggle the MODE button to TRIP 1.
2. To reset to 0, push and hold the MODE button until the distance display changes to 0.



### Engine Hours

1. Engine hours are logged anytime the engine is running. Total hours can not be reset.

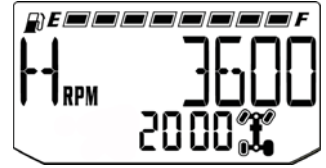


# FEATURES AND CONTROLS

## Instrument Cluster Information Display Area

### Tachometer (RPM)

Engine RPM can be displayed digitally.



### Engine Temperature

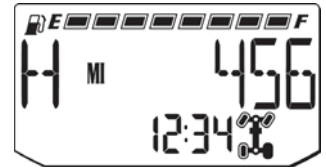
Engine temperature can be displayed in °F or °C. Refer to “Units of Measurement” to change the format.



### Clock

The clock displays the time in a 12-hour or 24-hour format. Refer to “Units of Measurement” to change the format (Standard 12-hour / Metric 24-hour). To set the clock, follow these steps:

1. Toggle the MODE button until the odometer is displayed.
2. Press and hold the MODE button until the hour segment flashes. Release the button.
3. With the segment flashing, tap the MODE button to advance to the desired setting.
4. Press and hold the MODE button until the next segment flashes. Release the button.
5. Repeat steps 3-4 twice to set the 10 minute and 1 minute segments. After completing the 1-minute segment, step 4 will save the new settings and exit the clock mode.



### Battery Under / Over Voltage

This warning usually indicates that the vehicle is operating at an RPM too low to keep the battery charged. It may also occur when the engine is at idle and a high electrical load is applied (lights, cooling fan or other accessories).

### Battery Voltage Low

If battery voltage drops below 11 volts, a warning screen will display “Lo” and provide the present battery voltage. If voltage drops below 8.5 volts, LCD back-lighting and icons will turn off.





# FEATURES AND CONTROLS

## Instrument Cluster

### Information Display Area

#### Programmable Service Interval

The initial factory service interval setting is 50 hours. Each time the engine is started, the engine hours are subtracted from the service interval hours. When the service interval reaches 0, the LCD wrench icon will flash for approximately 10 seconds each time the engine is started.



To change the hour setting or reset the function, follow these steps:

1. Toggle the MODE button until the wrench icon is displayed in the information area.
2. Press and hold the MODE button until the information display area begins to flash.
3. Toggle the MODE button to increase the service interval hours in 5 hour increments to a maximum of 100 hours.
4. To turn off the service interval function, toggle the MODE button until “OFF” is displayed.

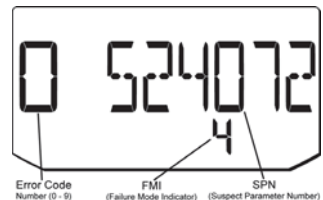
#### Check Engine / Trouble Code Display

The diagnostic mode is accessible only when the check engine MIL has been activated.

Use the following procedure to display diagnostic trouble codes that were activated during current ignition cycle causing the MIL to illuminate. Diagnostic trouble codes will remain stored in the gauge (even if MIL turns off) until the key is turned off.



1. If the trouble codes are not displayed, use the MODE button to toggle until “CK ENG” displays on the information display area.
2. Press and hold the MODE button to enter the diagnostics code menu.
3. A set of three numbers will appear in the information area.
4. The first number (located far left) can range from 0 to 9. This number represents the total number of trouble codes present (example: 3 means there are 3 codes present).
5. The second number (located top right) can be 2 to 6 digits in length. This number equates to the suspected area of fault (SPN).
6. The third number (located bottom right) can be 1 to 2 digits in length. This number equates to the fault mode (FMI).
7. See your dealer for Diagnostic Trouble Codes.
8. If more than one code exists, press the MODE button to advance to the next trouble code.
9. To exit the diagnostic mode, press and hold the MODE button or turn the ignition key OFF once the codes are recorded.





## **⚠ WARNING**

Failure to operate the vehicle properly can result in a collision, loss of control, accident or rollover, which may result in serious injury or death. Read and understand all warnings outlined in the safety section of this manual.

## **Break-In Period**

The break-in period for your new *RANGER* is the first 50 hours of operation. No single action on your part is as important as a proper break-in period. Careful treatment of a new engine will result in more efficient performance and longer life for the engine. Perform the following procedures carefully.

**NOTICE:** Excessive heat build-up during the first three hours of operation will damage close-fitted engine parts. Do not operate at full throttle or high speeds for extended periods during the first three hours of use.

## **Engine and Drivetrain Break-in**

1. Fill the fuel tank with clean, fresh fuel.
2. Check the oil level. Add the recommended oil as needed to maintain the oil level in the normal (safe) operating range.
3. Drive slowly at first. Select an open area that allows room to familiarize yourself with vehicle operation and handling.
4. Vary throttle positions. Do not operate at sustained idle.
5. Perform regular checks on fluid levels, controls and areas outlined on the daily pre-ride inspection checklist. See page 36.
6. During the break-in period, change both the oil and the filter at 50 hours.
7. Check fluid levels of transmission and all gearcases after the first 25 hours of operation and every 100 hours thereafter.
8. Pull only light loads.

## **PVT Break-in (Clutches/Belt)**

A proper break-in of the clutches and drive belt will ensure a longer life and better performance. Break in the clutches and belt by operating at slower speeds during the break-in period as recommended. Pull only light loads. Avoid aggressive acceleration and high speed operation during the break-in period.

If a belt fails, always clean any debris from the clutch air duct and from the engine compartment. See page 77.

# OPERATION

## Pre-Ride Inspection

Failure to inspect and verify that the vehicle is in safe operating condition before operating increases the risk of an accident. Always inspect the vehicle before each use to make sure it's in safe operating condition.

<b>Item</b>	<b>Remarks</b>	<b>Page</b>
Brake system/pedal travel	Ensure proper operation	24 86
Brake fluid	Ensure proper level	86
Front suspension	Inspect, lubricate if necessary	68
Rear suspension	Inspect, lubricate if necessary	68
Steering	Ensure free operation	87
Tires	Inspect condition and pressure	89
Wheels/fasteners	Inspect, ensure fastener tightness	89
Frame nuts, bolts, fasteners	Inspect, ensure tightness	-
Fuel and oil	Ensure proper levels	31 69
Coolant level	Ensure proper level	75
Coolant hoses	Inspect for leaks	-
Throttle Pedal	Ensure proper operation	-
Indicator lights/switches	Ensure operation	23
Intake Screens (2)	Inspect, clean	81
Air filter	Inspect	81
Headlamp	Verify proper operation	
Brake light/tail lamp	Verify proper operation	
Seat Belts	Check length of belt for damage, check latches for proper operation	29
Cab Nets	Check for wear or damage, ensure proper installation	28
PVT	Inspect and drain if any water	79

## Fuel Recommendations

**NOTICE:** For the best engine performance, to prevent engine damage and to comply with EPA/CARB warranty requirements, use **ONLY** the recommended diesel fuels. Use only **CLEAN** diesel fuel.

POLARIS recommends the following diesel fuels for use in this vehicle:

- Ultra Low Sulfur #2
- #1 Diesel Fuel containing no more than 20% bio-diesel (see page 38)

See page 40 for cold weather fuel blend recommendations. For more information about recommended diesel fuels and the consequences of using bio-diesel fuel exceeding 20% bio-diesel, see *Additional Technical Fuel Requirements* below.

Diesel fuel should comply with the following world-wide specifications.

Diesel Fuel Specification	Location
ASTM D975 No. 1D S15, S500 No. 2D S15, S500	USA
EN590:96	European Union
ISO 8217 DMX	International
BS 2869-A1 or A2	United Kingdom
JIS K2204 Grade No. 2	Japan
KSM-2610	Korea
GB252	China

### Additional Technical Fuel Requirements

- The fuel cetane number should be equal to 45 or higher.
- The sulfur content must not exceed 0.5% by volume. Less than 0.5% is preferred. Especially in the U.S.A. and Canada, Ultra Low Sulfur fuel should be used.
- Bio-Diesel fuels: see pages 38-39.
- NEVER mix kerosene, used engine oil or residual fuels with diesel fuel.
- Water and sediment in the fuel should not exceed 0.05% by volume.
- Keep the fuel tank and fuel-handling equipment clean at all times.
- Poor quality fuel can reduce engine performance and/or cause engine damage.
- Fuel additives are not recommended. Some fuel additives may cause poor engine performance.
- Ash content must not exceed 0.01% by volume.
- Carbon residue content must not exceed 0.35% by volume. Less than 0.1% is preferred.
- Total aromatics content should not exceed 35% by volume. Less than 30% is preferred.
- PAH (polycyclic aromatic hydrocarbons) content should be below 10% by volume.
- Metal content of Na, Mg, Si and Al should be equal to or lower than 1 mass ppm (test analysis method JPI-5S-44-95).
- Lubricity: Wear mark of WS1.4 should be Max. 0.018 in. (460µm) at HFRR test.

# OPERATION

## Fuel Recommendations

### Bio-Diesel Fuels

In Europe and in the United States, as well as some other countries, non-mineral oil based fuel resources such as RME (Rapeseed Methyl Ester) and SOME (Soybean Methyl Ester), collectively known as FAME (Fatty Acid Methyl Esters), are being used as extenders for mineral oil derived diesel fuels.

KOHLER approves the use of bio-diesel fuels that do not exceed a blend of 20% (by volume) of FAME with 80% (by volume) of approved mineral oil derived diesel fuel. Such bio-diesel fuels are known in the marketplace as B20 diesel fuels.

#### ***These B20 diesel fuels must meet certain requirements:***

1. The bio-fuels must meet the minimum specifications for the country in which they are used.
  - In Europe, bio-diesel fuels must comply with the European Standard EN14214.
  - In the United States, bio-diesel fuels must comply with the American Standard ASTM D-6751.2.
2. Bio-fuels should be purchased only from recognized and authorized diesel fuel suppliers.

#### ***Precautions and concerns regarding the use of bio-fuels:***

1. Free methanol in FAME may result in corrosion of aluminum and zinc FIE components.
2. Free water in FAME may result in plugging of fuel filters and increased bacterial growth.
3. High viscosity at low temperatures may result in fuel delivery problems, injection pump seizures and poor injection nozzle spray atomization.
4. FAME may have adverse effects on some elastomers (seal materials) and may result in fuel leakage and dilution of the engine lubricating oil.
5. Even bio-diesel fuels that comply with a suitable standard as delivered will require additional care and attention to maintain the quality of the fuel in the equipment or other fuel tanks. It is important to maintain a supply of clean, fresh fuel. Regular flushing of the fuel system and/or fuel storage containers may be necessary.
6. The use of bio-diesel fuels that do not comply with the standards as agreed to by the diesel engine manufacturers and the diesel fuel injection equipment manufacturers, or bio-diesel fuels that have degraded as per the precautions and concerns above, may affect the warranty coverage of your engine.

## Fuel Recommendations

### Bio-Diesel Fuels

#### *B21 To B100 Bio-diesel Fuel Blend Usage*

B21 to B100 bio-diesel is not approved for this POLARIS application.

#### *Approved Engines*

Only the KOHLER KDW engine series listed below may operate with bio-diesel fuel concentrations up to B20 for POLARIS applications.

**NOTICE:** Do not exceed bio-diesel fuel blend B20 for this POLARIS application.

- KDW 1003

#### *Approved Fuel*

**NOTICE:** Raw pressed vegetable oils are not considered bio-diesel, and are unacceptable for use as fuel in any concentration in KOHLER engines.

Bio-diesel fuel blends up to B20 must comply with the following standards:

- EN14214 (European standard) and/or ASTM D-6751 (American standard).
- All applicable engines may operate with bio-diesel fuel up to a maximum B20 (20% bio-diesel blend) concentration.

#### *Operating Conditions with B20 Bio-diesel Fuel Blends*

### Engine Warranty

Damages, performance or service concerns determined to be caused by the use of bio-diesel fuel not meeting the specifications outlined above are not considered to be defects in material or factory workmanship and are not covered under warranty. The same applies to damages or other concerns induced by not complying with the recommended operating conditions of KOHLER engines with bio-diesel fuel.

### Handling Fuel

**WARNING!** Diesel fuel is flammable and explosive under certain conditions.

- NEVER refuel with the engine running.
- Always refuel outdoors or in a well ventilated area.
- Fill the fuel tank with diesel fuel ONLY. Filling the fuel tank with gasoline may result in a fire and will damage the engine.
- Remove flammable material containers from the box before filling them with fuel.
- Do not smoke or allow open flames or sparks in or near the area where refueling is performed or where fuel is stored.
- Wipe up all spills immediately.
- Keep sparks, open flames or any other form of ignition (match, cigarette, static electricity source) well away when refueling.
- NEVER remove the fuel cap while the engine is running.
- NEVER overfill the fuel tank. Do not fill the tank neck.
- If fuel spills on your skin or clothing, immediately wash it off with soap and water and change clothing.

# OPERATION

## Fuel Recommendations

### Refueling

The fuel tank filler cap is located on the right side of the vehicle near the passenger seat. Remove the cap and add the recommended fuel to the bottom of the filler neck. Do not overfill.



### Cold Weather Operation

Cold weather operation can result in fuel gelling if the incorrect fuel type is used. Use the following fuel blending guideline to prevent this from occurring.

Fuel Blending Guideline		
Temperature	No. 2	No. 1
+15° F (-9° C)	100%	0%
Down to -20° F (-29° C)	50%	50%
Below -20° F (-29° C)	0%	100%

Cold Starting Guidelines				
Temperature	+20° F to +15° F (-7° C to -9° C)	+15° F to +5° F (-9° C to -15° C)	+5° F to -20° F (-15° C to -29° C)	-20° F to -25° F (-29° C to -32° C)
Fuel	#2 Diesel	50/50 mix #1/#2 diesel		#1 Diesel
5W-40 Synthetic Diesel Engine Oil	Optional	Recommended	Required	
Block heater	Optional	Recommended	Required	
Throttle (apply throttle 75%-100% during cranking)	Optional		Required	
Battery condition/connections	Charged battery (12.8 VDC)			
Proper glow plug usage (wait for the light)	Wait for light at all temps			
Oil pan heater	Not needed		Optional (helps to reduce cranking)	

### Block Heater Use

If this vehicle will be operated when temperatures are in the +5° to -25° F. (-15° to -32° C) range, a block heater must be installed. Please see your dealer to purchase a block heater kit.

**NOTE:** Block heater is not recommended when the vehicle is operated above 25° F temperature.

## Cold Weather Operation

### Bio-Diesel Blended Fuel

**NOTICE:** Never use bio-diesel blended fuel containing more than 20% bio-diesel in this vehicle. See page 38.

***Bio-diesel blended fuel has unique qualities that should be considered before using it in this vehicle:***

- Cold weather conditions can lead to plugged fuel system components and hard starting.
- Bio-diesel blended fuel is an excellent medium for microbial growth and contamination which can cause corrosion and plugging of fuel system components.
- Use of bio-diesel blended fuel may result in premature failure of fuel system components, such as plugged fuel filters and deteriorated fuel lines.
- Shorter maintenance intervals may be required, such as cleaning the fuel system and replacing fuel filters and fuel lines.
- Using bio-diesel blended fuels containing more than 20% bio-diesel can affect engine life and cause deterioration of hoses, tubes, injectors, injector pump and seals.

***Use the following guidelines if bio-diesel blended fuel is used:***

- Never use bio-diesel blended fuel containing more than 20% bio-diesel in this vehicle.
- Ensure the fuel tank is as full as possible at all times to prevent moisture from collecting in the fuel tank.
- Ensure that the fuel tank cap is securely tightened.
- Clean up any spilled fuel immediately to prevent damage to painted surfaces.
- Drain all water from the fuel filter daily before operating the vehicle.
- Do not exceed the engine oil change interval. Extended intervals can result in engine damage.
- Before vehicle storage, drain the fuel tank, refill with 100% petroleum diesel fuel, add fuel stabilizer and run the engine for at least 30 minutes.

**NOTICE:** Bio-diesel blended fuel does not have long term stability and should not be stored for more than three months.

# OPERATION

## Operating Conditions

**NOTICE:** Observe the following environmental operating conditions to maintain engine performance and avoid premature engine wear.

- Avoid operating in the presence of chemical gases or fumes.
- Avoid operating in a corrosive atmosphere such as salt water spray.
- NEVER operate the engine in a floodplain unless proper precautions are taken to avoid being subject to a flood.
- NEVER expose the engine to the rain.
- The standard range of ambient temperatures for the normal operation of KOHLER engines is from +5° F (-15° C) to +104° F (+40° C).
- If the ambient temperature exceeds +104° F (+40° C), the engine may overheat and cause the engine oil to break down.
- If the ambient temperature is between +5° F (-15° C) and -25° F (-32° C), POLARIS recommends the use of a block heater. See page 40.



## Starting the Engine

**NOTICE:** NEVER use an engine starting aid such as ether. Engine damage will result.

Before operating this vehicle in cold weather, review the cold weather operation information beginning on page 40.

Always wait for the glow plug indicator light to turn off before cranking the engine.

1. Always start the engine outdoors or in a well-ventilated area.
2. Sit in the driver's seat and fasten the seat belt. Secure the cab nets (or doors).
3. Place the transmission in PARK.
4. Apply the brakes. Do not press the throttle pedal while starting the engine.
5. Turn the ignition switch to the ON position and wait for the glow plug indicator light to turn off.
6. Turn the ignition key past the ON/RUN position to START. Engage the starter for a maximum of five seconds. Release the key when the engine starts.
7. If the engine does not start within five seconds, release the ignition switch and wait five seconds. Repeat steps 6 and 7 until the engine starts.

**NOTICE:** Operating the vehicle immediately after starting could cause engine damage. Allow the engine to warm up for several minutes before operating the vehicle.



## Stopping the Engine

For maximum engine life, allow the engine to idle, without load, for 5 minutes. This will allow the engine components that operate at high temperatures, such as the exhaust system, to cool slightly before the engine is shut down.

1. Release the throttle pedal completely and brake to a complete stop.
2. Place the transmission in PARK.
3. Turn the engine off and remove the key to prevent unauthorized use.
4. Slowly release the brake pedal and make sure the transmission is in PARK before exiting the vehicle.

**WARNING!** A rolling vehicle can cause serious injury. Always place the transmission in PARK when stopping the engine.

## Braking

1. Release the throttle pedal completely.

**Tip:** When the throttle pedal is released completely and the engine speed drops near an idle, the vehicle has no engine braking.

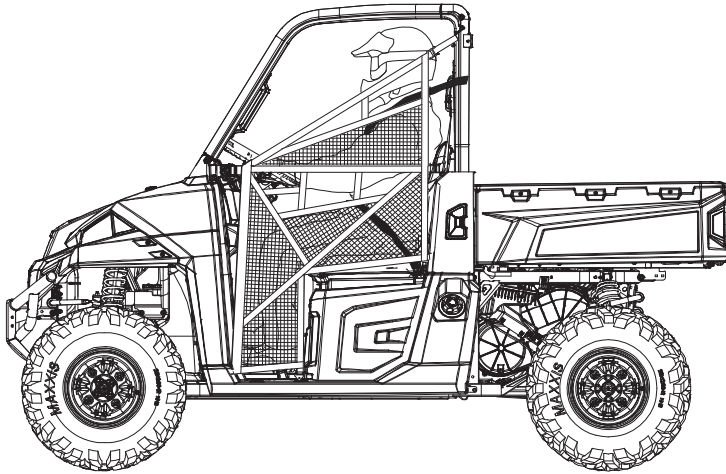
2. Press on the brake pedal evenly and firmly.

**Tip:** If the throttle pedal and brake pedal are applied simultaneously, engine power may be limited.

3. Practice starting and stopping (using the brakes) until you're familiar with the controls.

# OPERATION

## Driving Procedure



1. Wear a helmet, eye protection, gloves, long-sleeve shirt, long pants and over-the-ankle boots.
2. Perform the pre-ride inspection. See page 36.
3. Sit in the driver's seat and fasten the seat belt.
4. Always use the cab nets (or doors) while riding in this vehicle.
5. Place the transmission in PARK.
6. Start the engine and allow it to warm up.
7. Apply the service brakes and shift the transmission into gear.
8. Check your surroundings and determine your path of travel.
9. Keeping both hands on the steering wheel, slowly release the brakes and slowly depress the throttle with your right foot to begin driving.
10. Drive slowly. Practice maneuvering and using the throttle and brakes on level surfaces.
11. Do not carry a passenger until you have at least two hours of driving experience with this vehicle.

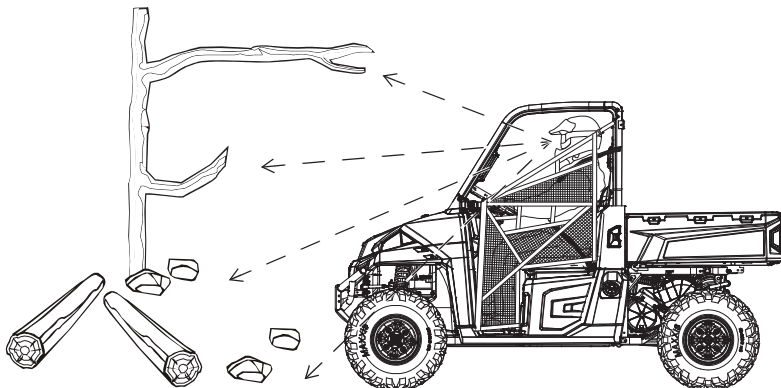
## Driving with a Passenger

1. Perform the pre-ride inspection. See page 36.
2. Make sure all passengers are at least 12 years of age and tall enough to comfortably and safely sit in a passenger seat with the seat belt secured, put both feet on the floor and grasp the hand hold.
3. Make sure all passengers are wearing an approved helmet, eye protection, gloves, long-sleeve shirt, long pants and over-the-ankle boots.
4. Make sure all passengers secure their seat belt.
5. Make sure all cab nets (or doors) are properly secured.
6. Do not carry more than the recommended number of passengers for your vehicle. See page 10.
7. Allow a passenger to ride only in a passenger seat.
8. Slow down. Always travel at a speed appropriate for your skills, your passengers' skills, and operating conditions. Avoid unexpected or aggressive maneuvers that could cause discomfort or injury to a passenger.
9. Vehicle handling may change with a passenger and/or cargo on board. Allow more time and distance for braking.
10. Always follow all operating guidelines as outlined on safety labels and in this manual.

## Driving Over Obstacles

Follow these precautions when operating over obstacles:

1. Always check for obstacles before operating in a new area.
2. Look ahead and learn to read the terrain. Be constantly alert for hazards such as logs, rocks and low hanging branches.
3. Travel slowly and use extra caution when operating on unfamiliar terrain. Not all obstacles are immediately visible.
4. Avoid operating over large obstacles such as large rocks and fallen trees. If unavoidable, use extreme caution and operate slowly.
5. Always have all passengers dismount and move away from the vehicle before operating over an obstacle that could cause a rollover.



# OPERATION

## Driving on Slippery Surfaces

### ⚠ WARNING

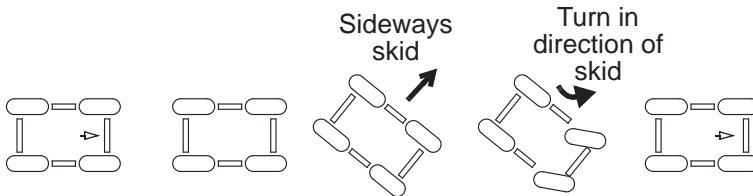
Skidding or sliding can cause loss of control or rollover (if tires regain traction unexpectedly). When operating on slippery surfaces such as ice or loose gravel, reduce speed and use extra caution to reduce the chance of skidding or sliding out of control. Do not operate on excessively slippery surfaces.

Whenever riding on slippery surfaces such as wet trails or loose gravel, or during freezing weather, follow these precautions:

1. Do not operate on excessively rough, slippery or loose terrain.
2. Slow down before entering slippery areas.
3. Maintain a high level of alertness, reading the trail and avoiding quick, sharp turns, which can cause skids.
4. Engage all-wheel drive before wheels begin to lose traction.

**NOTICE:** Severe damage to the drive train may occur if the AWD is engaged while the wheels are spinning. Always allow the wheels to stop spinning before engaging AWD.

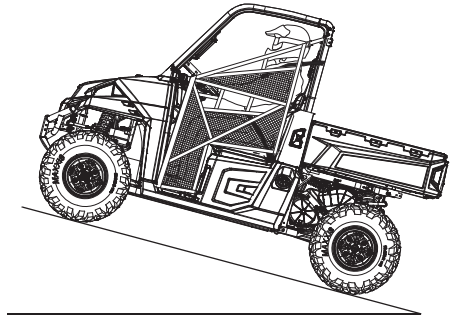
5. Correct a skid by turning the steering wheel in the direction of the skid. *Never apply the brakes during a skid.*



## Driving Uphill

Whenever traveling uphill, follow these precautions:

1. Always travel straight uphill.
2. Avoid excessively steep hills.
3. Keep both feet on the floor.
4. Always check the terrain carefully before ascending any hill. Never climb hills with excessively slippery or loose surfaces.
5. Proceed at a steady rate of speed and throttle pedal position. Never apply throttle suddenly.
6. Never go over the crest of a hill at high speed. An obstacle, a sharp drop, or another vehicle or person could be on the other side of the hill.



## Driving on a Sidehill (Sidehilling)

Driving on a sidehill is not recommended. Improper procedure could cause loss of control or rollover. Avoid crossing the side of any hill unless absolutely necessary.

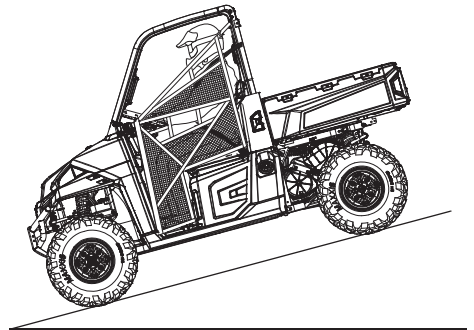
If crossing a sidehill is *unavoidable*, follow these precautions:

1. Slow down.
2. Exercise extreme caution.
3. Avoid crossing the side of a steep hill.

## Driving Downhill

When driving downhill, follow these precautions:

1. Avoid excessively steep hills.
2. Drive straight downhill. Avoid descending a hill at an angle, which would cause the vehicle to lean sharply to one side. Travel straight downhill when possible.
3. Slow down.
4. Apply the brakes *slightly* to aid in slowing.
5. When transporting heavy loads and/or when towing, always operate the vehicle in low gear and have ADC activated (if equipped).



# OPERATION

## Driving Through Water

Your POLARIS *RANGER* can operate through water up to a maximum recommended depth equal to the floorboards.

**NOTICE:** If your vehicle becomes immersed or is operated in water that exceeds the floor level, *service is required before starting the engine*. Your POLARIS dealer can provide this service. If it's impossible to bring the vehicle in before starting the engine, perform the service outlined on page 80, and take the vehicle in for service at the first opportunity.

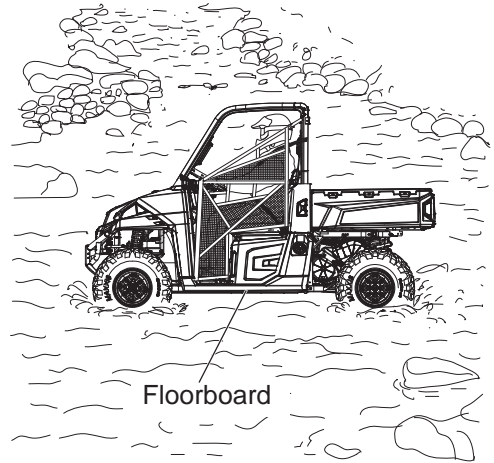
Follow these procedures when operating through water:

1. Determine water depths and current before entering water.
2. Choose a crossing where both banks have gradual inclines.
3. Proceed slowly, avoiding rocks and obstacles.
4. Avoid operating through deep or fast-flowing water.

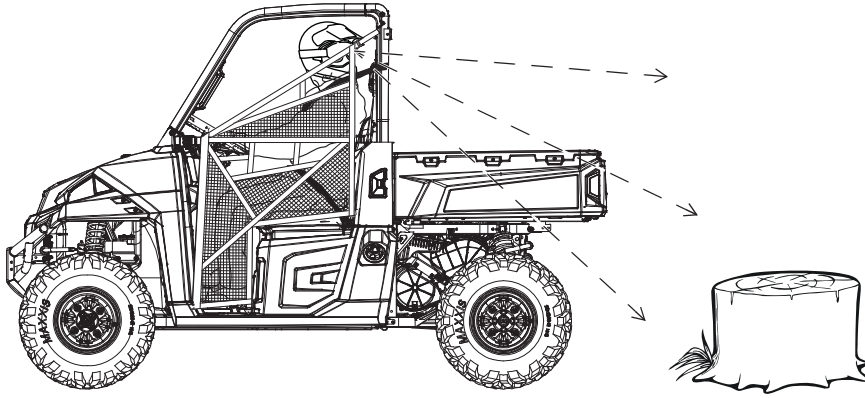
**WARNING!** The large tires on your *RANGER* may cause the vehicle to float in deep or fast-flowing water, which could result in loss of control and lead to serious injury or death. Never cross deep or fast-flowing water with your *RANGER*.

5. After leaving water, always dry the brakes by applying light pressure to the pedal repeatedly until braking action is normal. Avoid applying brake and throttle at the same time.

**NOTICE:** After running your vehicle in water, it's critical that you perform the services outlined in the Periodic Maintenance Chart beginning on page 65. Give special attention to engine oil, transmission oil, all gearcase fluids, and all grease fittings.



## Driving in Reverse



Follow these precautions when operating in reverse:

1. Always check for obstacles or people behind the vehicle. Always inspect left and right fields of vision before backing.
2. Always avoid backing downhill.
3. Back slowly.
4. Apply the brakes *lightly* for stopping.
5. Avoid turning at sharp angles.
6. Apply only *light* throttle. Never apply throttle suddenly.

# OPERATION

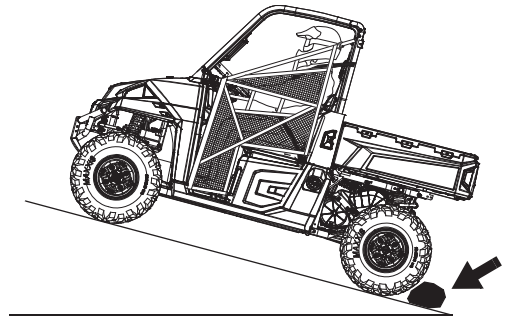
## Parking the Vehicle

1. Apply the brakes. Stop the vehicle on a level surface.
2. When parking inside a garage or other structure, be sure that the structure is well ventilated and that the vehicle is not close to any source of flame or sparks, including any appliance with pilot lights.
3. Place the transmission in PARK.
4. Turn the engine off.
5. Slowly release the brake pedal and make sure the transmission is in PARK before exiting the vehicle.
6. Remove the ignition switch key to prevent unauthorized use.

## Parking on an Incline

Avoid parking on an incline if possible. If it's unavoidable, follow these precautions:

1. Apply the brakes.
2. Place the transmission in PARK.
3. Turn the engine off.
4. Slowly release the brake pedal and make sure the transmission is in PARK before exiting the vehicle.
5. Block the rear wheels on the downhill side.





## Hauling Cargo

### ⚠ WARNING

Hauling cargo improperly can alter vehicle handling and may cause loss of control or brake instability, which can result in serious injury or death. Always follow these precautions when hauling cargo:

Never exceed the maximum weight capacity of the vehicle. When determining the weight you are adding to the vehicle, include the weight of the operator, passenger, accessories, loads in the rack or box and the load on the trailer tongue. The combined weight of these items must not exceed the maximum weight capacity.

**REDUCE SPEED AND ALLOW GREATER DISTANCES FOR BRAKING WHEN HAULING CARGO.**

Always load the cargo box with the load as far forward and as low as possible.

When operating over rough or hilly terrain, reduce speed and cargo to maintain stable driving conditions.

Always operate the vehicle with extreme care when hauling or towing loads.

Slow down and drive in the lowest gear available. Always use LOW gear when towing or hauling heavy loads. When transporting heavy loads and/or when towing, always operate the vehicle in low gear and have ADC activated (if equipped).

**SECURE ALL LOADS BEFORE OPERATING.** Unsecured loads can create unstable operating conditions, which could result in loss of control of the vehicle.

**OPERATE ONLY WITH STABLE AND SAFELY ARRANGED LOADS.** When handling off-centered loads that cannot be centered, securely fasten the load and operate with extra caution. Always attach the tow load to the hitch point designated for your vehicle.

**HEAVY LOADS CAN CAUSE BRAKING AND CONTROL PROBLEMS.** Use extreme caution when applying brakes with a loaded vehicle. Avoid terrain or situations that may require backing downhill.

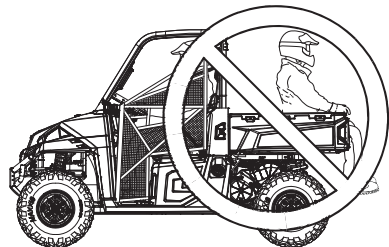
**USE EXTREME CAUTION** when operating with loads that extend over the rack sides. Stability and maneuverability may be adversely affected, causing a rollover.

**DO NOT TRAVEL FASTER THAN THE RECOMMENDED SPEEDS.** Vehicle should never exceed 10 MPH (16 km/h) while towing a load on a level grass surface. Vehicle speed should never exceed 5 MPH (8 km/h) when towing loads in rough terrain, while cornering, or while ascending or descending a hill.

## Load Capacity

The *RANGER* has been designed to carry or tow specific capacities. Always read and understand the load distribution warnings listed on the warning labels. The total load (operator, passenger, accessories, cargo and weight on hitch) must not exceed the maximum weight capacity of the vehicle. See page 12.

**WARNING!** Driving with passengers in the cargo box can result in severe injury or death. Never allow passengers to ride in the cargo box. Passengers must always ride in the cab with seat belts fastened securely.



# OPERATION

## Towing Loads

Towing improperly can alter vehicle handling and may cause loss of control or brake instability. Always follow these precautions when towing:

1. Never load more than 150 lbs. (68.1 kg) tongue weight on the towing bracket.
2. When transporting heavy loads and/or when towing, always operate the vehicle in low gear and have ADC activated (if equipped).
3. When towing a disabled *RANGER* vehicle, place the disabled vehicle's transmission in neutral. Do not operate the vehicle faster than 10 MPH (16 km/h) when towing.
4. Towing a trailer increases braking distance. Do not operate the vehicle faster than 10 MPH (16 km/h) when towing. See page 51. Towing a trailer increases braking distance.
5. Do not tow more than the recommended weight for the vehicle. See the towing capacity chart below and the specifications charts beginning on page 100.
6. Attach a trailer to the trailer hitch bracket only. Do not attach a trailer to any other location or you may lose control of the vehicle.
7. Never tow a trailer on a grade steeper than 15°.

Model	Total Towed Load Weight (Level Ground)	Total Towed Load Weight (15° grade)	Total Hitch Vertical Weight	Maximum Towing Speed
<i>RANGER</i> Diesel	2000 lbs. (907 kg)	850 lbs. (386 kg)	150 lbs. (68.1 kg)	10 MPH 16 km/h
<i>RANGER</i> CREW Diesel	2000 lbs. (907 kg)	850 lbs. (386 kg)	150 lbs. (68.1 kg)	10 MPH (16 km/h)

### Belt Life

To extend belt life, use the lowest gear possible when hauling or towing heavy cargo.

### Towing a RANGER

Towing this vehicle is not recommended. Always transport the vehicle on a trailer or flatbed with all four wheels off the ground. See page 99.

If towing a disabled vehicle is unavoidable, place the disabled vehicle's transmission in neutral. Tow the shortest distance possible. Do not operate faster than 10 MPH (16 km/h).

## Dumping the Cargo Box

1. Select a level site to dump the cargo box. Do not attempt to dump or unload the vehicle while parked on an incline.
2. Apply the brakes. Place the transmission in PARK.
3. Ensure that the cargo is positioned evenly or toward the front of the cargo box.
4. Release the tailgate by pulling up on the tailgate latch.

**WARNING!** If the weight distribution on the box is located toward the rear of the box when the release lever is pulled forward, the box may dump unexpectedly and cause serious injury to the operator or bystanders. Never operate the dump lever without ensuring that the load is positioned evenly or at the front of the box.

5. Stand clear and pull up on the cargo box release lever. Lift the front of the cargo box to dump the cargo.
6. Lower the cargo box and push down securely to latch.

**WARNING!** Operating the vehicle while the cargo box is raised could result in severe injury. The box could close unexpectedly and cause injury to the driver or passenger. The rear tires could also catch the rear of a raised box, damaging the vehicle and creating hazardous driving conditions. Never operate this vehicle with the cargo box in the raised position.



# OPERATION

## All Wheel Drive (AWD)

### Engaging AWD

Press the top of the switch to engage All Wheel Drive (AWD). The 4X4 indicator illuminates in the rider information center to indicate that the vehicle is in AWD. See page 31.

When the AWD switch is on, the front wheels will automatically engage any time the rear wheels lose traction. When the rear wheels regain traction, the front wheels will automatically disengage. There is no limit to the length of time the vehicle may remain in AWD.

**Tip:** The AWD switch may be turned on or off while the vehicle is moving.

Engage the AWD before getting into conditions where front wheel drive may be needed. If the rear wheels are spinning, release the throttle before switching to AWD.

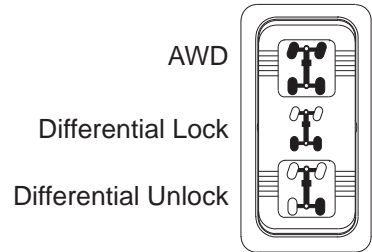
**NOTICE:** Switching to AWD while the rear wheels are spinning may cause severe drive shaft and clutch damage. Always switch to AWD while the rear wheels have traction or are at rest.

### Disengaging AWD

Move the AWD switch to the center or bottom position to disengage AWD. If the switch is turned off while the front hubs are driving, they will not release until the rear wheels regain traction.

In some situations, the front gearcase may remain locked after turning the AWD switch off. If this occurs, you may notice increased steering effort and some vehicle speed restriction. Perform the following procedure to unlock the front gearcase.

1. Stop the vehicle.
2. Operate in reverse for at least 10 feet (3 m).
3. Stop completely.
4. Shift into low gear and drive forward.
5. If the front gearcase remains locked after following these instructions, see your dealer for service.



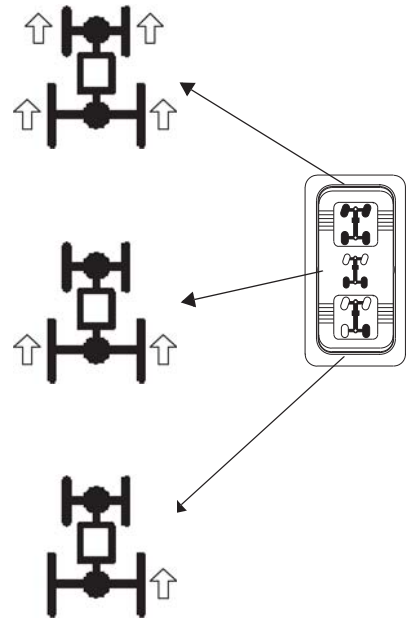
## All Wheel Drive (AWD)

### Locking the Differential

**NOTICE:** Damage to the differential can occur if it is engaged while the vehicle is traveling at high speeds or while the rear wheels are spinning. Slow the vehicle to nearly stopped before engaging the differential.

Locking the differential in slippery or low traction conditions helps improve traction. Move the rocker switch to the center position (2WD) to lock the differential and operate in rear wheel drive.

Press the bottom of the switch to unlock the differential and allow the rear drive wheels to operate independently. This mode of operation is well suited to turf driving or whenever aggressive traction is not required.



# WINCH GUIDE

These safety warnings and instructions apply if your vehicle came equipped with a winch or if you choose to add an accessory winch to your vehicle.

## **⚠ WARNING**

Improper winch use can result in SEVERE INJURY or DEATH. Always follow all winch instructions and warnings in this manual.

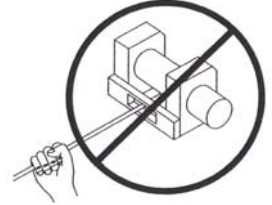
Your winch may have a cable made of either wire rope or specially designed synthetic rope. The term “winch cable” will be used for either unless noted otherwise.

## Winch Safety Precautions

1. Read all sections of this manual.
2. Never use alcohol or drugs before or while operating the winch.
3. Never allow children under 16 years of age to operate the winch.
4. Always wear eye protection and heavy gloves when operating the winch.
5. Always keep body, hair, clothing and jewelry clear of the winch cable, fairlead and hook when operating winch.
6. Never attempt to “jerk” a load attached to the winch with a moving vehicle. See the *Shock Loading* section on page 62.
7. Always keep the area around the vehicle, winch, winch cable and load clear of people (especially children) and distractions while operating the winch.
8. Always turn the vehicle ignition power OFF when it and the winch are not being used.
9. Always be sure that at least five (5) full turns of winch cable are wrapped around the winch drum at all times. The friction provided by this wrapped cable allows the drum to pull on the winch cable and move the load.
10. Always apply your vehicle’s park brake and/or park mechanism to hold the vehicle in place during winching. Use wheel chocks if needed.
11. Always align the vehicle and winch with the load directly in front of the vehicle as much as possible. Avoid winching with the winch cable at an angle to the winching vehicle’s centerline whenever possible.
12. If winching at an angle is unavoidable, follow these precautions:
  - A. Look at the winch drum occasionally. Never let the winch cable “stack” or accumulate at one end of the winch drum. Too much winch cable at one end of the winch drum can damage the winch and the winch cable.
  - B. If stacking occurs, stop winching. Follow step 15 on page 61 to feed and rewind the cable evenly before continuing the winch operation.

## Winch Safety Precautions

13. Never winch up or down at sharp angles. This can destabilize the winching vehicle and possibly cause it to move without warning.
14. Never attempt to winch loads that weigh more than the winch's rated capacity.
15. The winch motor may become hot during winch use. If you winch for more than 45 seconds, or if the winch stalls during operation, stop winching and permit the winch to cool down for 10 minutes before using it again.
16. Never touch, push, pull or straddle the winch cable while winching a load.
17. Never let the winch cable run through your hands, even if wearing heavy gloves.
18. Never release the clutch on the winch when the winch cable is under load.
19. Never use the winch for lifting or transporting people.
20. Never use the winch to hoist or suspend a vertical load.
21. Never immerse or submerge your winch in water. Your dealer can provide service on your winch if this occurs.
22. Always inspect your winch and winch cable before each use.
23. Never winch the hook fully into the winch. This can cause damage to winch components.
24. Unplug the remote control from the vehicle when the winch is not in use to prevent inadvertent activation and use by unauthorized persons.
25. Never grease or oil the winch cable. This will cause the winch cable to collect debris that will shorten the life of the cable.



# WINCH GUIDE

## Winch Operation

Read the *Winch Safety Precautions* in the preceding pages before using your winch.

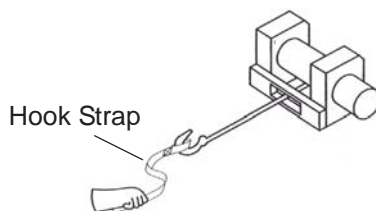
**Tip:** Consider practicing the operation and use of your winch before you actually need to use it in the field.

### **⚠ WARNING**

Improper winch use can result in SEVERE INJURY or DEATH. Always follow all winch instructions and warnings in this manual.

Each winching situation is unique.

- Take your time to think through the winching you are about to do.
  - Proceed slowly and deliberately.
  - Never hurry or rush during winching.
  - Always pay attention to your surroundings.
  - You may need to change your winching strategy if it is not working.
  - Always remember that your winch is very powerful.
  - There are simply some situations that you and your winch will not be able to deal with. Do not be afraid to ask others to help when this happens.
1. Always inspect the vehicle, winch, winch cable and winch controls for any signs of damage or parts in need of repair or replacement before each use. *Pay particular attention to the first 3 feet (1 meter) of winch cable if the winch is being used (or has been used) for lifting an accessory plow assembly.* Promptly replace any worn or damaged cable.
  2. Never operate a winch or a vehicle in need of repair or service.
  3. Always apply your vehicle's park brake and/or park mechanism to hold the vehicle in place during winching. Use wheel chocks if needed.





## Winch Operation

4. Always use the hook strap when handling the hook.

**WARNING!** Never put your fingers into the hook. This could lead to SEVERE INJURY.

- A. Attach the hook itself onto the load or use a tow strap or chain to secure the load to the winch cable.

**Tip:** A “tow strap” is NOT intended to stretch. A “recovery strap” is designed to stretch.

**WARNING!** Never use a recovery strap when winching due to the excessive energy that can be released if the winch cable breaks. This can result in SEVERE INJURY or DEATH. See the *Shock Loading* section on page 62.

- B. Never hook the winch cable back onto itself. This will damage the winch cable and may result in winch cable failure.

**WARNING!** Replace the winch cable at the first sign of damage to prevent SEVERE INJURY or DEATH in the event of failure. For your safety, always replace POLARIS winch parts (including the cable) with genuine POLARIS replacement parts available at your authorized POLARIS dealer.

- C. If possible, keep the winch cable aligned with the centerline of the winching vehicle. This will help the spooling of the winch cable and reduce the load on the fairlead.
- D. If freeing a stuck vehicle by attaching to a tree, use an item such as a tow strap to avoid damaging the tree during winch operation. Sharp cables and chains can damage and even kill trees. Please remember to TreadLightly® (treadlightly.org).
- E. Before operating the winch, be sure that the safety latch on the winch cable hook is fully seated when the load is attached.
- F. Never operate your winch with a damaged hook or latch. Always replace damaged parts before using the winch.

- 5. Never remove the hook strap from the hook.
- 6. Release the winch clutch and pull out the winch cable.
- 7. Pulling out as much cable as possible maximizes the winch’s pulling capacity. Always be sure that at least five (5) full turns of winch cable are wrapped around the winch drum at all times. The friction provided by this wrapped cable allows the drum to pull on the winch cable and move the load.



**NO**



**YES**



**YES**



**NO**

# WINCH GUIDE

## Winch Operation

8. Read and adhere to the following information for winch damping to ensure safe winch use.
  - A. In order to absorb energy that could be released by a winch cable failure, always place a “damper” on the winch cable. A damper can be a heavy jacket, tarp, or other soft, dense object. A damper can absorb much of the energy released if a winch cable breaks when winching. Even a tree limb can help as a damper if no other items are available to you.
  - B. Lay the damper on top of the mid-point of the winch cable length that is spooled out.
  - C. On a long pull, it may be necessary to stop winching so that the damper can be repositioned to the new mid-point of the winch cable. Always release the tension on the winch cable before repositioning the damper.
  - D. Avoid being directly in line with the winch cable whenever possible. Also, never permit others to stand near or in line with the winch cable during winch operation.
9. Never hook the winch cable back onto itself. This will damage the winch cable and may result in winch cable failure.
10. Never use straps, chains or other rigging items that are damaged or worn.
11. The **ONLY** time a winch-equipped vehicle should be moving when using the winch is when that vehicle itself is stuck. The winch-equipped vehicle should **NEVER** be in motion to “shock” load the winch cable in an attempt to move a second stuck vehicle. See the *Shock Loading* section on page 62. For your safety, always follow these guidelines when winching a vehicle free:
  - A. Release the winch clutch and spool out the necessary length of winch cable.
  - B. Align the winch cable as close as possible to the winching vehicle’s centerline.
  - C. Attach the winch cable hook to the anchor point or the stuck vehicle’s frame following instructions in this manual.
  - D. Re-engage the clutch on the winch.
  - E. Slowly winch in the slack in the winch cable.
  - F. Select the proper vehicle gear to propel the stuck vehicle in the direction of winching.
  - G. Shift to the lowest gear available on the stuck vehicle.
  - H. Slowly and carefully apply vehicle throttle and winch together to free the vehicle.
  - I. Stop winching as soon as the stuck vehicle is able to propel itself without the help of the winch.
  - J. Detach the winch cable hook.
  - K. Rewind the winch cable evenly back onto the winch drum following the instructions in this manual.
12. Never attempt to winch another stuck vehicle by attaching the winch cable to a suspension component, brush guard, bumper or cargo rack. Vehicle damage may result. Instead, attach the winch to a strong portion of the vehicle frame or hitch.
13. Extensive winching will run down the battery on the winching vehicle. Let the winching vehicle’s engine run while operating the winch to prevent the battery from running low if winching for long periods.

## Winch Operation

14. The winch motor may become hot during winch use. If you winch for more than 45 seconds, or if the winch stalls during operation, stop winching and permit the winch to cool down for 10 minutes before using it again.
15. After winching is complete, especially if winching at an angle, it may be necessary to re-distribute the winch cable across the winch drum. You will need an assistant to perform this task.
  - A. Release the clutch on the winch.
  - B. Feed out the winch cable that is unevenly bunched up in one area.
  - C. Re-engage the winch clutch.
  - D. Have an assistant pull the winch cable tightly with about 100 lbs. (45 kg) of tension using the hook strap.
  - E. Slowly winch the cable in while your assistant moves the end of the winch cable back and forth horizontally to evenly distribute the winch cable on the drum.
  - F. Doing this reduces the chances of the winch cable “wedging” itself between lower layers of winch cable.

## Winch Cable Care

For your safety, always replace POLARIS winch parts (including the cable) with genuine POLARIS replacement parts available at your authorized POLARIS dealer.

**WARNING!** Use of worn or damaged cable could lead to sudden failure and SEVERE INJURY.

1. Always inspect your winch before each use. Inspect for worn or loose parts including mounting hardware. Never use the winch if any part needs repair or replacement.
2. Always inspect your winch cable before each use. Inspect for worn or kinked winch cable.

- A. A kinked winch cable made of wire rope is shown at right. Even after being “straightened out,” this cable has already been permanently and severely damaged. Promptly discontinue use of a winch cable in this condition.
- B. A kinked winch cable made of wire rope that has been “straightened out” is shown at right. Even though it may look usable, the cable has been permanently and severely damaged. It can no longer transmit the load that it could prior to kinking. Promptly discontinue use of a winch cable in this condition.
- C. A winch cable made of synthetic rope should be inspected for signs of fraying. Replace the cable if fraying is observed (shown at right). Promptly discontinue use of a winch cable in this condition.
- D. Also replace the winch cable if there are fused or melted fibers. Such an area of the synthetic rope will be stiff and appear smooth or glazed. Promptly discontinue use of a winch cable in this condition.



# WINCH GUIDE

## Shock Loading

**WARNING!** Your winch cable is very strong but it is NOT designed for dynamic, or “shock” loading. Shock loading may tension a winch cable beyond its strength and cause the cable to break. The end of a broken winch cable under such high loading can cause SEVERE INJURY or DEATH to you and other bystanders.

Winch cables are designed to NOT absorb energy. This is true of both wire-rope and synthetic-rope winch cables.

1. Never attempt to “jerk” a load with the winch. For example, never take up slack in the winch cable by moving the winching vehicle in an attempt to move an object. This is a dangerous practice. It generates high winch cable loads that may exceed the strength of the cable. Even a slowly moving vehicle can create large shock loads in a winch cable.

**WARNING!** SEVERE INJURY or DEATH can result from a broken winch cable.

2. Never quickly turn the winch ON and OFF repeatedly (“jogging”). This puts extra load on the winch, winch cable, and generates excessive heat from the motor. This is a form of shock loading.
3. Never tow a vehicle or other object with your winch. Towing an object with a winch produces shock loading of the cable even when towing at slow speeds. Towing from a winch also positions the towing force high on the vehicle. This can cause instability of the vehicle and possibly lead to an accident.
4. Never use recovery straps with your winch. Recovery straps are designed to stretch and can store energy. This stored energy in the recovery strap is released if a winch cable fails making the event even more hazardous. Similarly, never use elastic “bungie” cords for winching.
5. Never use the winch to tie down a vehicle to a trailer or other transportation vehicle. This type of use also causes shock loading that can cause damage to the winch, winch cable, or vehicles used.

**Your winch cable is designed and tested to withstand the loads produced by the winch motor when operated from a stationary vehicle. Always remember that the winch and winch cable are NOT designed for shock loading.**

## Winch Maintenance and Service Safety

**WARNING!** Improper or lack of winch maintenance and service could lead to SEVERE INJURY or DEATH. Always follow all winch instructions and warnings in this manual.

1. Always inspect your winch before each use. Inspect for worn or kinked winch cable. Also inspect for worn or loose parts including mounting hardware.
2. Permit your winch motor to cool down prior to servicing your winch.
3. Never work on your winch without first disconnecting the battery connections to prevent accidental activation of the winch.
4. For your safety, always replace POLARIS winch parts (including the cable) with genuine POLARIS replacement parts available at your authorized POLARIS dealer.
5. Some winch models use wire rope as the winch cable. Other winches use a specially designed synthetic rope as the winch cable.
6. Never replace a synthetic-rope winch cable with a consumer-grade polymer rope such as can be purchased in a hardware store. Although they may look similar, they are NOT alike. A polymer rope not designed for winch use will stretch and store excessive energy when winching.

**WARNING!** Failure of a stretched rope under winching conditions will release all of the stored energy. This will increase the chances of SEVERE INJURY or DEATH.

# **EMISSION CONTROL SYSTEMS**

## **Noise Emission Control System**

Do not modify the engine, intake or exhaust components, as doing so may affect compliance with U.S.A. EPA noise control requirements (40 CFR 205) and local noise level requirements.

### **Operation on Public Lands in the U.S.A.**

Your POLARIS vehicle has a spark arrester that was tested and qualified to be in accordance with the USFS standard 5100-1c. Federal law requires that this spark arrester be installed and functional when the vehicle is operated on public lands.

Operation of off-road vehicles on public lands in the U.S.A. is regulated by 43 CFR 420. Violations are subject to monetary penalties. Federal regulations can be viewed online at [www.gpoaccess.gov/ecfr/](http://www.gpoaccess.gov/ecfr/).

### **Exhaust Emission Control System**

Exhaust emissions are controlled by engine design. A fuel injection system controls fuel delivery. The engine and fuel injection components are set at the factory for optimal performance and are not adjustable.

Your engine is designed to operate on ultra low sulfur diesel fuel only. Use of any other fuel may result in your engine no longer operating in compliance with emissions requirements.

### **Electromagnetic Interference**

This vehicle complies with the EMC requirements of European directives 97/24/EC and 2004/108/EC.

### **Non-ionizing Radiation**

This vehicle emits some electromagnetic energy. People with active or non-active implantable medical devices (such as heart monitoring or controlling devices) should review the limitations of their device and the applicable electromagnetic standards that apply to this vehicle.

## Periodic Maintenance Chart

Any qualified repair shop or person may maintain, replace or repair the emission control devices or systems on your vehicle. An authorized POLARIS dealer can perform any service that may be necessary for your vehicle. POLARIS also recommends POLARIS parts for emissions-related service, however equivalent parts can be used.

It is a potential violation of the Clean Air Act if a part supplied by an aftermarket parts manufacturer reduces the effectiveness of the vehicle's emission controls. Tampering with emission controls is prohibited by federal law.

Owners are responsible for performing the scheduled maintenance identified in this owner's manual.

Careful periodic maintenance will help keep your vehicle in the safest, most reliable condition. 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, genuine POLARIS parts are available from your POLARIS dealer. Equivalent parts may be used for emissions-related service.

Record maintenance and service in the Maintenance Log beginning on page 113.

**Tip:** Service and adjustments are important for proper vehicle operation. If you're not familiar with safe service and adjustment procedures, a qualified dealer can perform these operations.

Vehicles subjected to heavy or severe use patterns must be inspected and serviced more frequently.

## Severe Use Definition

- Frequent immersion in mud, water or sand
- Frequent or prolonged operation in dusty environments
- Racing or race-style high RPM use
- Prolonged low speed, heavy load operation
- Extended idle
- Frequent short trip operation in cold weather (engine frequently does not operate long enough to reach full operating temperature)

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. Your POLARIS dealer can assist.

## Maintenance Chart Key

► Perform these operations more often for vehicles subjected to severe use.

**D** Have an authorized POLARIS dealer or other qualified person perform these services.

**WARNING!** Improperly performing the procedures marked with a “**D**” could result in component failure and lead to serious injury or death. Have an authorized POLARIS dealer or other qualified person perform these services.

# MAINTENANCE

## Periodic Maintenance Chart

Perform all services at whichever maintenance interval is reached first.

Item	Maintenance Interval (whichever comes first)			Remarks
	Hours	Calendar	Miles (Km)	
Steering	Pre-Ride			Make adjustments as needed. See Pre-Ride Checklist on page 36.
Front suspension				
Rear suspension				
Tires				
Brake fluid level				
Brake pedal travel				
Brake system				
Wheels/fasteners				
Frame fasteners				
Engine oil level				
Air filter				
PVT				
Intake Screens				
Coolant	-	Daily	-	Check level
▶ Power steering unit (if equipped)	-	Daily	-	Inspect daily; clean often
Headlamp/tail lamp	-	Daily	-	Verify proper operation
▶ D Brake pad wear	10 H	Monthly	100 (160)	Inspect periodically
Battery	25 H	Monthly	200 (320)	Check terminals; clean; test
▶ Air filter	25 H	Monthly	200 (320)	Inspect; replace as needed
▶ Front gearcase oil	25 H	1 M	-	Perform a break-in oil level check
▶ Transmission oil	25 H	1 M	-	Perform a break-in oil level check
▶ Engine oil change (break-in)	50 H	-	-	Perform a break-in oil change
Fuel System	50 H	Monthly	-	Inspect; cycle key to pressurize fuel pump; check lines and fittings for leaks and abrasion
▶ General lubrication	50 H	3 M	500 (800)	Lubricate all fittings, pivots, cables, etc.
Fuel filter/water separator	50 H	3 M	-	Drain every 50 hours (normal conditions with quality fuel) or daily (severe conditions with poor fuel quality)
Shift Linkage	50 H	6 M	500 (800)	Inspect, lubricate, adjust
D Steering	50 H	6 M	500 (800)	Lubricate
▶ Front Suspension	50 H	6 M	500 (800)	Lubricate
▶ Rear Suspension	50 H	6 M	500 (800)	Lubricate

▶ Perform these procedures more often for vehicles subjected to severe use.

D Have an authorized POLARIS dealer or other qualified person perform these services.



## Periodic Maintenance Chart

Item		Maintenance Interval (whichever comes first)			Remarks
		Hours	Calendar	Miles (Km)	
D	Throttle pedal	50 H	6 M	500 (800)	Inspect for free movement; replace pedal as needed
	Throttle body air intake ducts/ flange	50 H	6 M	500 (800)	Inspect duct for proper sealing/air leaks
	Drive belt	50 H	6 M	500 (800)	Inspect; adjust; replace as needed
	Cooling system (if applicable)	50 H	6 M	500 (800)	Inspect coolant strength seasonally; pressure test system yearly
▶	Oil lines, fasteners	50 H	6 M	1000 (1600)	Inspect for leaks and loose fittings
▶	Engine oil and filter change	100 H	6 M	1000 (1600)	Change the oil and filter
▶	Front gearcase oil	100 H	12 M	1000 (1600)	Change fluid
▶	Transmission oil	100 H	12 M	1000 (1600)	Change fluid
D	Fuel system	100 H	12 M	1000 (1600)	Cycle key to pressurize fuel pump; check for leaks at fill cap, fuel lines/rail and fuel pump; replace lines every two years
▶	Radiator (if applicable)	100 H	12 M	1000 (1600)	Inspect; clean external surfaces
▶	Cooling Hoses (if applicable)	100 H	12 M	1000 (1600)	Inspect for leaks
▶	Engine mounts	100 H	12 M	1000 (1600)	Inspect
	Exhaust muffler/pipe	100 H	12 M	1000 (1600)	Inspect
	Drive shafts	100 H	12 M	1000 (1600)	Remove and grease
▶	Wiring	100 H	12 M	1000 (1600)	Inspect for wear, routing, security; apply dielectric grease to connectors subjected to water, mud, etc.
D	Clutches (drive and driven)	100 H	12 M	1000 (1600)	Inspect; clean; replace worn parts
▶					
D	Front wheel bearings	100 H	12 M	1000 (1600)	Inspect; replace as needed
	Fuel filter/water separator	150 H	12 M	-	Replace fuel filter / water separator
D	Alternator belt	250 H	-	-	Inspect; check tension
D	Brake fluid	200 H	24 M	2000 (3200)	Change every two years
	Suspension bushings	250 H	24 M	2000 (3200)	Inspect; replace if necessary
	Spark arrester	300 H	36 M	3000 (4800)	Clean out
D	Alternator belt	500 H	-	-	Replace
D	Timing belt	4000 H	-	-	Replace
▶	Coolant	-	60 M	-	Replace coolant
D	Valve clearance	-	-	5000 (8000)	Inspect; adjust as needed
D	Toe adjustment	-			Inspect periodically; adjust when parts are replaced
D	Auxiliary brake (if equipped)	-			Inspect daily; adjust as needed
▶		-			
	Headlight aim	-			Adjust as needed

▶ Perform these procedures more often for vehicles subjected to severe use.

D Have an authorized POLARIS dealer or other qualified person perform these services.

# MAINTENANCE

## Lubrication Recommendations

Check and lubricate all components at the intervals outlined in the Periodic Maintenance Chart beginning on page 65, or more often under severe use, such as wet or dusty conditions. Items not listed in the chart should be lubricated at the general lubrication interval.

Item	Lube	Method
Engine Oil	POLARIS Diesel Oil (SAE 15W-40)	Add to proper level on dipstick. See page 69.
Brake Fluid	DOT 4 Brake Fluid	Maintain level between fill lines. See page 86.
Main Gearcase Oil (Transmission)	AGL Gearcase Lubricant & Transmission Fluid	See page 72.
Front Gearcase Oil	Demand Drive Fluid	See pages 72-73.
Front Prop Shaft Yoke	U-Joint Grease	Locate fittings and grease (3 pumps maximum).
Front Control Arm Pivot Bushings	All Season Grease or grease conforming to NLGI No. 2	Grease 3 fittings on each side of the vehicle.
Rear Control Arm Pivot Bushings		Grease 4 fittings on each side of the vehicle.
Rear Stabilizer Bar Bushings		Grease one fitting on each side of the vehicle.

## Engine Oil

Always check and change the engine oil at the intervals outlined in the Periodic Maintenance Chart beginning on page 65. Always change the oil filter whenever changing oil.

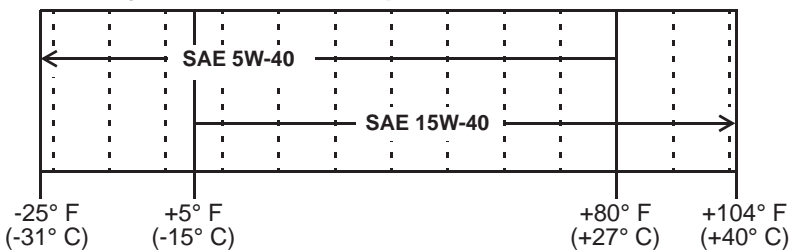
**WARNING!** Vehicle operation with insufficient, deteriorated, or contaminated engine oil will cause accelerated wear and may result in engine seizure, accident, and injury. Always perform the maintenance procedures as outlined in the Periodic Maintenance Chart.

## Oil Recommendations

POLARIS recommends the use of semi-synthetic or full synthetic POLARIS Diesel Oil (SAE 15W-40) or equivalent oil for this vehicle. Always use the correct viscosity grade based on the ambient temperature expected during operation. See the chart below.

**NOTICE:** Mixing brands or using a non-recommended oil may cause serious engine damage. Always use the recommended oil. Never substitute or mix oil brands.

## Oil Viscosity/Ambient Air Temperature Chart



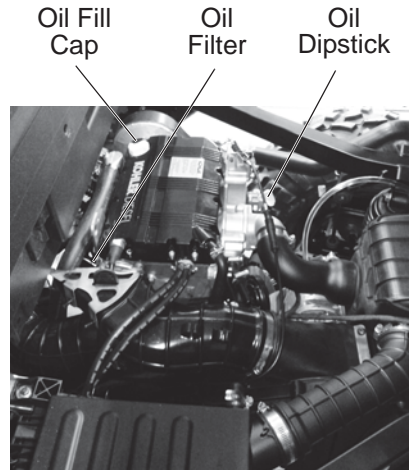
## Engine Oil Oil Check

Always check the oil when the engine is cold. If the engine is hot when the oil is checked, the level will appear to be overfull.

**CAUTION!** Always remove all cargo from the cargo box before lifting the box to access engine components.

Access the oil fill cap, dipstick and filter under the cargo box.

1. Remove all cargo from the cargo box. See page 53.
2. Position the vehicle on a level surface.
3. Place the transmission in PARK.
4. Stop the engine.
5. Stand clear and pull up on the cargo box release lever. Lift the front of the cargo box.
6. Remove the dipstick. Wipe it dry with a clean cloth.
7. Reinstall the dipstick completely. Remove the dipstick and check the oil level.
8. Remove the oil fill cap to add the recommended oil as needed. Maintain the oil level between the minimum and maximum marks on the dipstick. Do not overfill.
9. Reinstall the fill cap. Reinstall the dipstick.
10. Lower the cargo box and push down securely to latch.



# MAINTENANCE

## Engine Oil

### Oil and Filter Change

Always change the oil and filter at the intervals outlined in the Periodic Maintenance Chart beginning on page 65. Always change the oil filter whenever changing oil.

The crankcase drain plug is located on the bottom of the crankcase. Access the drain plug through the access hole in the skid plate under the crankcase (see next page).

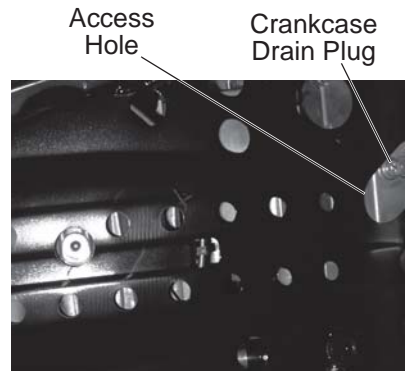
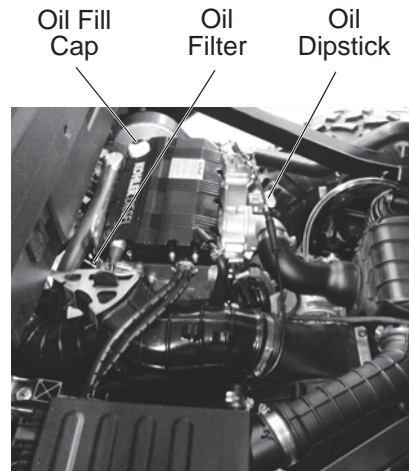
**CAUTION!** Always remove all cargo from the cargo box before lifting the box to access engine components.

Access the oil fill cap, dipstick and filter under the cargo box.

1. Remove all cargo from the cargo box. See page 53.
2. Position the vehicle on a level surface.
3. Place the transmission in PARK.
4. Stand clear and pull up on the cargo box release lever. Lift the front of the cargo box.
5. Locate the crankcase drain plug access hole in the skid plate.
6. Clean the area around the crankcase drain plug.

**CAUTION!** Hot oil can cause burns to skin. Do not allow hot oil to contact skin.

7. Place a drain pan under the engine crankcase and remove the drain plug. Allow the oil to drain completely.
8. Using an oil filter wrench, turn the filter counter-clockwise to remove it.
9. Using a clean dry cloth, clean the filter sealing surface on the crankcase.
10. Lubricate the o-ring on the new filter with a film of fresh engine oil. Check to make sure the o-ring is in good condition.
11. Install the new filter and turn by hand until the filter gasket contacts the sealing surface, then turn an additional 1/2 turn.



Bottom View of Skid Plate

## Engine Oil

### Oil and Filter Change

12. Reinstall the drain plug. Torque the drain plug to 29.5 ft. lbs. (40 Nm).
13. Remove the oil fill cap and add 3 quarts (2.8 l) of recommended oil. Reinstall the fill cap.
14. Start the engine and check for leaks.
15. Stop the engine and wait 15 seconds before removing the dipstick.
16. Remove the dipstick. Wipe it dry with a clean cloth.
17. Reinstall the dipstick completely. Remove the dipstick and check the oil level.
18. Remove the oil fill cap and add oil as needed to bring the level to the upper mark on the dipstick. Do not overfill.
19. Reinstall the fill cap. Reinstall the dipstick.
20. Lower the cargo box and push down securely to latch.
21. Dispose of used filter and oil properly.

# MAINTENANCE

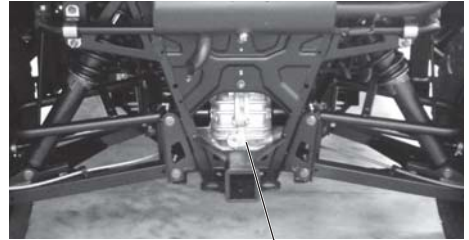
## Gearcases

### Gearcase Specification Chart

<b>RANGER Diesel/RANGER CREW Diesel Gearcase Specifications</b>				
<b>Gearcase</b>	<b>Lubricant</b>	<b>Capacity</b>	<b>Fill Plug Torque</b>	<b>Drain Plug Torque</b>
Main Gearcase (Transmission)	AGL Gearcase Lubricant & Transmission Fluid	40.6 oz. (1200 ml)	12 ft. lbs. (16.3 Nm)	12 ft. lbs. (16.3 Nm)
Front Gearcase	Demand Drive Fluid	6.76-7.6 oz. (200-225 ml)	8-10 ft. lbs. (11-13.6 Nm)	8-10 ft. lbs. (11-13.6 Nm)

### Transmission (Main Gearcase)

Always check and change the transmission oil at the intervals outlined in the Periodic Maintenance Chart beginning on page 65. Refer to the Gearcase Specifications Chart for recommended lubricants, capacities and torque specifications. See page 104 for the part numbers of POLARIS products.



Gearcase

### Oil Check

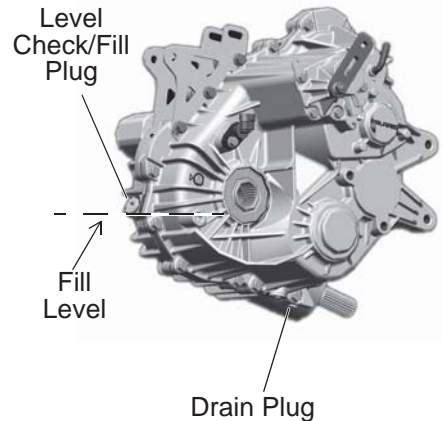
The level check/fill plug is located on the rear of the gearcase. Maintain the oil level even with the bottom of the level check/fill plug hole threads.

1. Position the vehicle on a level surface.
2. Place the transmission in PARK.
3. Remove the level check/fill plug. Check the oil level.
4. Add the recommended oil as needed.
5. Reinstall the fill plug. Torque to specification.

### Oil Change

The drain plug is located near the bottom of the gearcase.

1. Remove the level check/fill plug.
2. Place a drain pan under the gearcase.
3. Remove the drain plug. Allow the oil to drain completely.
4. Clean and reinstall the drain plug. Torque to specification.
5. Add the recommended oil.
6. Reinstall the fill plug. Torque to specification.
7. Check for leaks. Dispose of used oil properly.



## Gearcases

### Front Gearcase

Always check and change the front gearcase oil at the intervals outlined in the Periodic Maintenance Chart beginning on page 65. Maintain the oil level even with the bottom thread of the fill plug hole.

Refer to the Gearcase Specifications Chart on page 72 for recommended lubricants, capacities and torque specifications. See page 104 for the part numbers of POLARIS products.

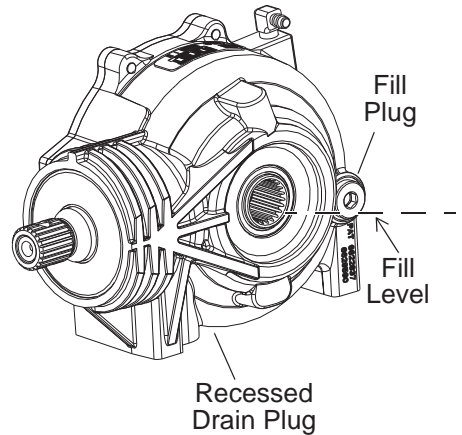
### Oil Check

The front gearcase fill plug is located on the right side of the front gearcase.

1. Position the vehicle on a level surface.
2. Place the transmission in PARK.
3. Remove the fill plug. Check the oil level.
4. Add the recommended oil as needed.
5. Reinstall the fill plug. Torque to specification.

### Oil Change

1. Support the vehicle securely with a jackstand.
2. Remove the fill plug.
3. Place a drain pan under the drain plug.
4. Remove the drain plug. Allow the oil to drain completely.
5. Clean and reinstall the drain plug. Torque to specification.
6. Add the recommended oil.
7. Reinstall the fill plug. Torque to specification.
8. Check for leaks. Dispose of used oil properly.



# MAINTENANCE

## Cooling System

The engine coolant level is controlled or maintained by the recovery system. The recovery system components are the overflow 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 overflow 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.

Some coolant level drop on new vehicles is normal as the system is purging itself of trapped air. Observe coolant levels and maintain as recommended by adding coolant to the overflow bottle.

### Adding or Changing Coolant

POLARIS recommends the use of POLARIS Antifreeze 50/50 Premix. This antifreeze is already premixed and ready to use. Do not dilute with water. See page 104 for the part numbers of POLARIS products.

To ensure that the coolant maintains its ability to protect the engine, we recommend that the system be completely drained every five (5) years and fresh Antifreeze 50/50 Premix added.

Any time the cooling system has been drained for maintenance or repair, replace the coolant with fresh Antifreeze 50/50 Premix.

### Radiator and Cooling Fan

Always check and clean the screen and radiator fins at the intervals outlined in the Periodic Maintenance Chart beginning on page 65. Do not obstruct or deflect air flow through the radiator by installing unauthorized accessories in front of the radiator or behind the cooling fan. Interference with the radiator air flow can lead to overheating and consequent engine damage.

**NOTICE:** Washing the vehicle with a high-pressure hose could damage the radiator fins and impair the radiator's effectiveness. Using a high-pressure system is not recommended.



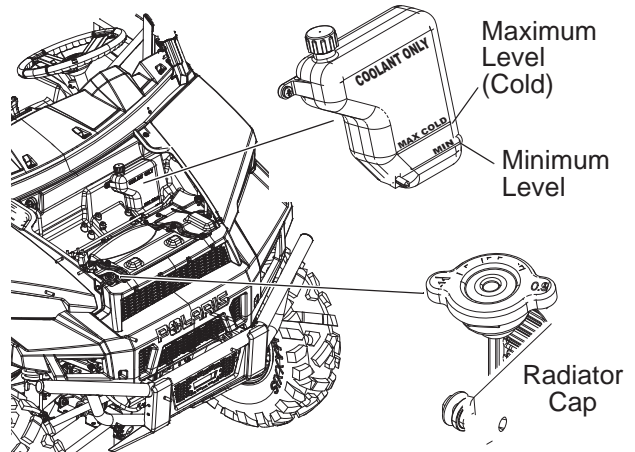
## Cooling System

### Overflow Bottle Coolant Level

Always check and change the coolant at the intervals outlined in the Periodic Maintenance Chart beginning on page 65. Maintain the coolant level between the minimum and maximum marks on the bottle (when the fluid is cool).

1. Position the vehicle on a level surface.
2. Place the transmission in PARK.
3. Remove the hood. See page 26.
4. View the coolant level in the overflow bottle.
5. If the coolant level is below the safe operating range, use a funnel to add coolant through the filler opening. Reinstall the cap.

**Tip:** If coolant must be added often, or if the overflow bottle runs completely dry, there may be a leak in the system. Your POLARIS dealer can inspect the cooling system.



### Radiator Coolant Level/Changing Procedure

1. Remove the hood. See page 26.

**CAUTION!** Escaping steam can cause burns. Never remove the pressure cap while the engine is warm or hot. Always allow the engine to cool before removing the pressure cap.

2. Slowly remove the radiator cap.
3. View the coolant level through the opening.
4. Use a funnel and slowly add coolant as needed.

**Tip:** This procedure is required only if the cooling system has been drained for maintenance and/or repair. But if the overflow bottle has run dry, the level in the radiator should also be inspected.

5. Reinstall the pressure cap. Use of a non-standard pressure cap will not allow the recovery system to function properly. Your POLARIS dealer can provide the correct replacement part.

# MAINTENANCE

## POLARIS Variable Transmission (PVT) System

### **⚠ WARNING**

Failure to comply with the instructions in this warning can result in severe injury or death.

Do not modify any component of the PVT system. Doing so may reduce its strength so that a failure may occur at a high speed. The PVT system has been precision balanced. Any modification will cause the system to be out of balance, creating vibration and additional loads on components.

The PVT system rotates at high speeds, creating large amounts of force on clutch components. As the owner, you have the following responsibilities for your own safety and the safety of others:

- Always follow all recommended maintenance procedures. Always look for and remove debris inside and around the clutch and vent system when replacing the belt.
- See your dealer as outlined in the owner's manual.
- This PVT system is intended for use on POLARIS products only. Do not install it in any other product.
- Always make sure the PVT housing is securely in place during operation.

## POLARIS Variable Transmission (PVT) System Belt Replacement/Debris Removal

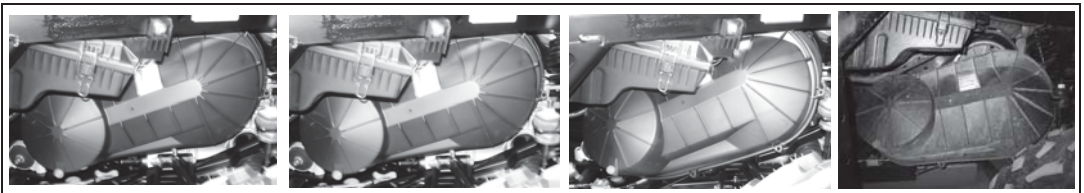
If a belt fails, always clean any debris from the duct and from the clutch and engine compartments when replacing the belt.

**WARNING!** Failure to remove ALL debris when replacing the belt could result in vehicle damage, loss of control and severe injury or death.

1. Position the vehicle on a level surface. Block the wheels to prevent vehicle movement. Place the transmission in neutral.
2. Lift the cargo box.
3. Remove the clutch cover screws using an 8mm socket with ratcheting wrench and extension.
4. Push the cover upward and then pull the bottom of the cover outward and over the suspension to remove it.



Step 3



Step 4

5. Make sure the cover gasket does not fall out of the groove when removing the cover.
6. Squeeze the belt together so that it submerges further into the driven clutch, creating slack in the belt between the clutches.
7. Remove the belt by using the slack to pull part of the belt off the driven clutch.



Step 5



Step 6



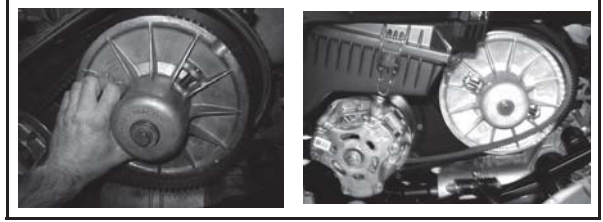
Step 7

# MAINTENANCE

## POLARIS Variable Transmission (PVT) System

### Belt Replacement/Debris Removal

8. Rotate the driven clutch by hand until the belt is completely off.



Step 8

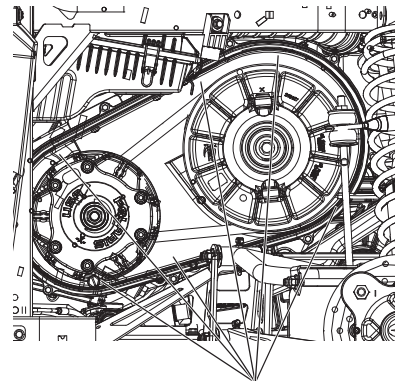
9. Slide the front of the belt out from between the drive clutch and inner clutch cover to completely remove it.
10. Remove all debris wrapped in and around the PVT system.
11. Remove all debris from the entire clutch air duct passage.
12. Check for signs of damage to seals on the transmission and engine. If any seals appear to be damaged, your vehicle requires prompt service. Your POLARIS dealer can assist.



Step 9

**Tip:** Belt slip is responsible for creating excessive heat that destroys belts, wears clutch components and causes outer clutch covers to fail. Switch to low range while operating at slower speeds to extend the life of the PVT components (belt, cover, etc.).

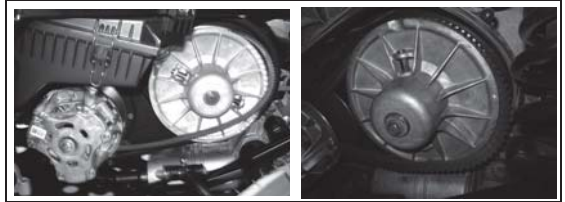
13. To install a belt, place one end of the belt over the driving clutch. Route the belt over the top of the driven clutch and down into the groove of the clutch to allow slack in the belt. Rotate the driven clutch by hand until the belt falls into place.



Remove ALL Debris

## POLARIS Variable Transmission (PVT) System Belt Replacement/Debris Removal

14. Reinstall the clutch cover in the reverse order of removal, fitting the top of the cover into place, then working the bottom of the cover over the suspension.
15. Install all clutch cover screws.  
Torque to 4-5 ft. lbs. (5.5-6.5 Nm).



Step 13

### PVT Drying

There may be some instances when water is accidentally ingested into the PVT system. Use the following instructions to dry it out before operating.

1. Position the vehicle on a level surface. Place the transmission in PARK. Stop the engine.
2. Remove the clutch cover drain plug. Allow the water to drain completely. Reinstall the drain plug.
3. Start the engine.
4. Apply varying throttle for 10-15 seconds to expel the moisture and air-dry the belt and clutches. Do not apply heavy throttle for more than 10 seconds.
5. Allow the engine RPM to settle to idle speed. Apply the brakes. Shift the transmission to the lowest available range.
6. Test for belt slippage. If the belt slips, repeat the process.
7. Your vehicle requires service as soon as possible. Your POLARIS dealer can assist.



Drain Plug

# MAINTENANCE

## Vehicle Immersion

**NOTICE:** If your vehicle becomes immersed, major engine damage can result if the machine is not thoroughly inspected. Take the vehicle in for service before starting the engine. Your POLARIS dealer can provide this service.

If it's impossible to take your *RANGER* in for service before starting it, follow the steps outlined below.

1. Move the vehicle to dry land or at the very least, to water below the floorboard.
2. Inspect the air box for water.

**NOTICE:** Do not attempt to start the engine if water is present in the air box. Engine damage will result. Take the vehicle in for service before starting the engine.

3. If the air box is wet but has no visible water, dry the air box.
4. Thoroughly dry the air pre-cleaner located under the hood.
5. Take the vehicle in for service as soon as possible, whether you succeed in starting it or not. Your POLARIS dealer can provide the required service.
6. If water has been ingested into the PVT follow the procedure on page 79 for drying.

## Filter Systems

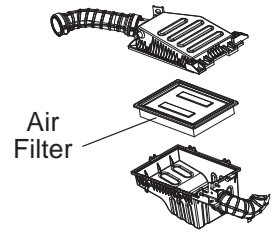
### Air Filter

Always change the air filter at the intervals outlined in the Periodic Maintenance Chart beginning on page 65. Service the air filter more frequently if the vehicle is operated in wet or dusty conditions or at high throttle for extended periods.

1. Lift the cargo box to access the air box.
2. Release the five (5) air box cover latches and lower the bottom to expose the air filter.
3. Remove the air filter.
4. Inspect the air box for oil or water deposits. Wipe away any deposits with a clean cloth.
5. Install a new filter if needed. Do not attempt to clean the air filter with water.



Left Side View

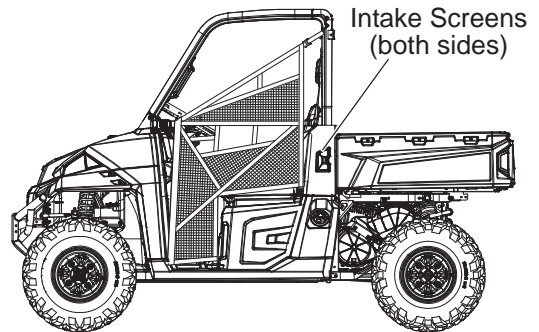


Right Side View

### Intake Screens

An engine intake screen is located on the driver's side of the vehicle. A clutch intake screen is located on the passenger side of the vehicle.

Inspect the screens before each use of the vehicle. Wipe away any deposits with clean cloth.



# MAINTENANCE

## Spark Arrester

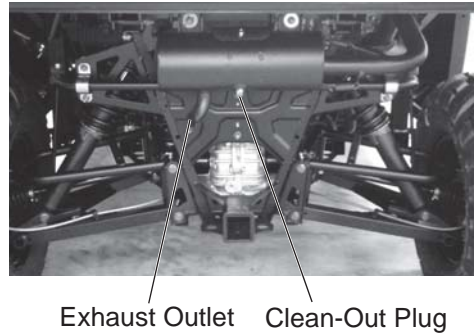
### **⚠ WARNING**

Failure to heed the following warnings while servicing the spark arrester could result in serious injury or death.

- Do not perform service on the spark arrester while the system is hot. Exhaust system temperatures can reach 1000° F. Allow components to cool sufficiently before proceeding.
- Remove any combustible materials from the area.
- Wear eye protection and gloves.
- Do not stand behind or in front of the vehicle while purging.
- Never run the engine in an enclosed area. Exhaust can cause loss of consciousness or death in a very short time.
- Never go under the vehicle while it's inclined.

Use the following procedure to periodically purge accumulated carbon from the exhaust pipe.

1. Remove the arrester clean-out plug located on the bottom of the muffler.
2. Place the transmission in Park. Start the engine.
3. Press the brake pedal and then press the treadle pedal to increase engine RPM. Purge accumulated carbon from the system by momentarily revving the engine several times.
4. If carbon is expelled, *partially* cover the exhaust outlet and rap on the pipe around the clean-out plug while revving the engine several more times.
5. If particles are still suspected to be in the muffler, elevate the rear of the vehicle one foot higher than the front. Block the wheels.
6. Repeat steps 3 and 4 until no more particles are expelled when the engine is revved.
7. Stop the engine. Allow the arrester to cool.
8. Reinstall the arrester plug and remove the partial outlet cover.



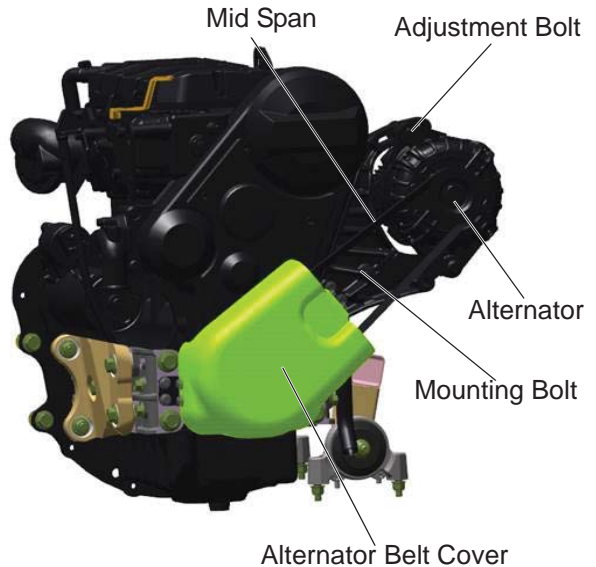


## Alternator Belt Belt Adjustment

Check the alternator belt at the correct service interval as outlined in the Periodic Maintenance Chart beginning on page 65.

Stop the machine on a flat level surface. Put the gear selector in Park, stop the engine and exit the vehicle. See page 43.

1. Raise the cargo box.
2. The belt tension is correct with  $5/16$ - $1/2$  in. (7-10 mm) of belt deflection at the mid span of the belt, when 20 lbf (89 N) is applied to the belt.
3. If the belt tension is not correct, loosen the mounting bolt and adjustment bolt.
4. Move the top of the alternator to tighten the belt.
5. Tighten the mounting bolt to 18 ft-lbs (25 Nm).
6. Tighten the adjustment bolt to 18 ft-lbs (25 Nm).
7. Lower the cargo box.



# MAINTENANCE

## Fuel Filter/Water Separator

The fuel filter/water separator is located under the seat on the right side of the vehicle, between the engine and fuel tank.

Inspect the separator *daily* for leaks. Drain water and replace the separator at the intervals outlined in the Periodic Maintenance Chart beginning on page 65. Service the separator more frequently if the vehicle is operated with inferior fuel.

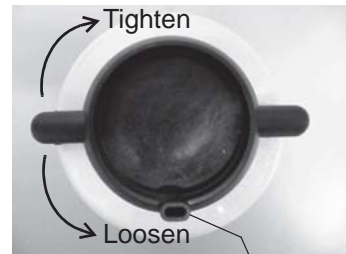
**CAUTION!** Both fuel and water will drain from the separator during the following procedure. Use caution and observe all fuel safety precautions when handling fuel.

1. Remove the seat. Disconnect the battery.
2. Place an appropriate container under the fuel filter drain to catch fluids (water and fuel).
3. Slightly loosen the bleed screw to relieve fuel pressure in the filter. Do not tighten the screw at this time.
4. Reach under the fuel filter and slightly loosen the drain valve until the fluids drain from the drain hole. Do not completely unscrew the drain valve.
5. When fluids stop draining from the valve, tighten the valve firmly (by hand only).
6. Reconnect the battery.
7. Turn the ignition key on to engage the fuel pump. Leave the key on only until fuel begins to spit from the bleed screw, then tighten the screw.
8. Clean up any spilled fuel and soiled shop towels properly.
9. Cycle the key switch from OFF to ON six times, waiting three seconds at each "ON" cycle to allow the fuel pump to cycle.
10. Start the engine and check for fuel leaks.
11. Reinstall the seat.



Drain Valve

Bleed Screw



Drain Hole  
(viewed from bottom)

## Throttle System

### ⚠ WARNING

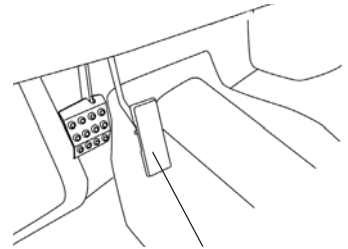
Failure to check or maintain proper operation of the throttle system can result in an accident and lead to serious injury or death if the throttle pedal sticks during operation.

Always check the pedal for free movement and return before starting the engine and occasionally during operation. Never start or operate this vehicle if it has a sticking or improperly operating throttle pedal. Immediately take your vehicle in for service if throttle problems arise.

### Throttle Freeplay

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

Check the throttle pedal freeplay at the intervals outlined in the Periodic Maintenance Chart beginning on page 65. Adjust the freeplay if necessary.



Throttle Pedal

### Throttle Freeplay Inspection

1. Apply the brakes. Engage the park brake. Shift the transmission to neutral.
2. Start the engine. Allow it to warm up thoroughly.
3. Measure the distance the throttle pedal moves before the engine begins to pick up speed. Freeplay should be 1/16 to 1/8 inches (1.6-3.2 mm).

### Idle RPM

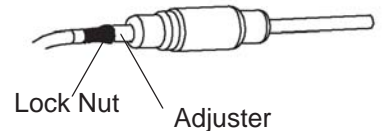
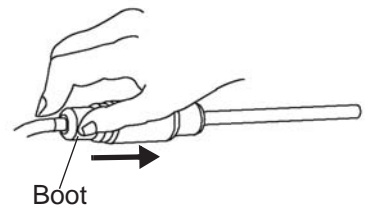
Idle RPM is preset by the manufacturer. If the engine idle speed is not satisfactory, please see your POLARIS dealer or other qualified service person for adjustment.

### Throttle Freeplay Adjustment

1. Unlatch the cargo box.
2. Locate the throttle cable adjuster.
3. Squeeze the end of the rubber boot and slide it far enough to expose the end of the inline cable adjuster.
4. Loosen the adjuster lock nut.
5. Rotate the boot to turn the adjuster until 1/16 to 1/8 inches (1.6-3.2 mm) of freeplay is achieved at the throttle pedal.

**Tip:** While adjusting, lightly flip the throttle pedal up and down.

6. Tighten the lock nut.
7. Squeeze the end of the rubber boot and slide it over the cable adjuster to its original position.



# MAINTENANCE

## Brakes

### WARNING

Do not perform maintenance immediately after the vehicle has been operated, as the brake system may become very hot. Serious burns could result from contact with hot brake components. Allow components to cool before proceeding.

- Wear eye protection and gloves.

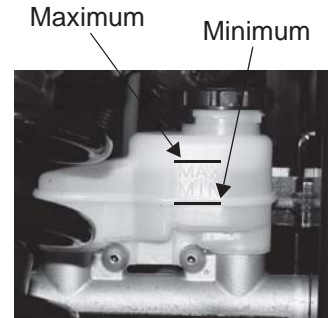
### Brake Fluid

Inspect the brake system routinely. Inspect the level of the brake fluid before each operation.

**WARNING!** After opening a bottle of brake fluid, always discard any unused portion. Never store or use a partial bottle. Brake fluid is hygroscopic, meaning it rapidly absorbs moisture from the air. The moisture causes the boiling temperature of the brake fluid to drop, which can lead to early brake fade and the possibility of accident or severe injury.

Change the brake fluid every two years and any time the fluid becomes contaminated, the fluid level is below the minimum, or if the type and brand of the fluid in the reservoir are unknown.

1. Position the vehicle on a level surface.
2. Place the transmission in PARK.
3. View the brake fluid level at the reservoir in the driver's side wheel well.
4. The level should be between the upper (MAX) and lower (MIN) level lines.
5. If the fluid level is lower than the upper level line, add brake fluid to the upper (MAX) line.
6. Apply the brake forcefully for a few seconds and check for fluid leakage around the fittings.



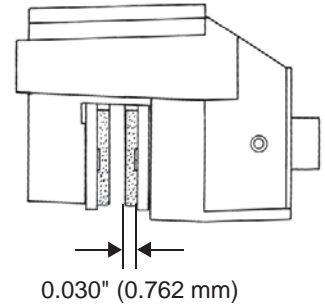
## Brakes

### Brake Inspection

1. Check the brake system for fluid leaks.
2. Check the brake pedal for excessive travel or a spongy feel.
3. Check the friction pads for wear, damage and looseness.
4. Check brake discs for signs of cracks, excessive corrosion, warping or other damage. Clean any grease using an approved brake cleaner or alcohol.

**WARNING!** Do not apply WD-40 or any petroleum product to brake discs. These types of products are flammable and may also reduce the friction between the brake pad and caliper.

5. Inspect the brake disc spline and pad wear surface for excessive wear. Change pads when worn to 0.030" (0.762 mm).



### Steering Wheel Inspection

Check the steering wheel for specified freeplay and smooth operation at the intervals outlined in the Periodic Maintenance Chart beginning on page 65.

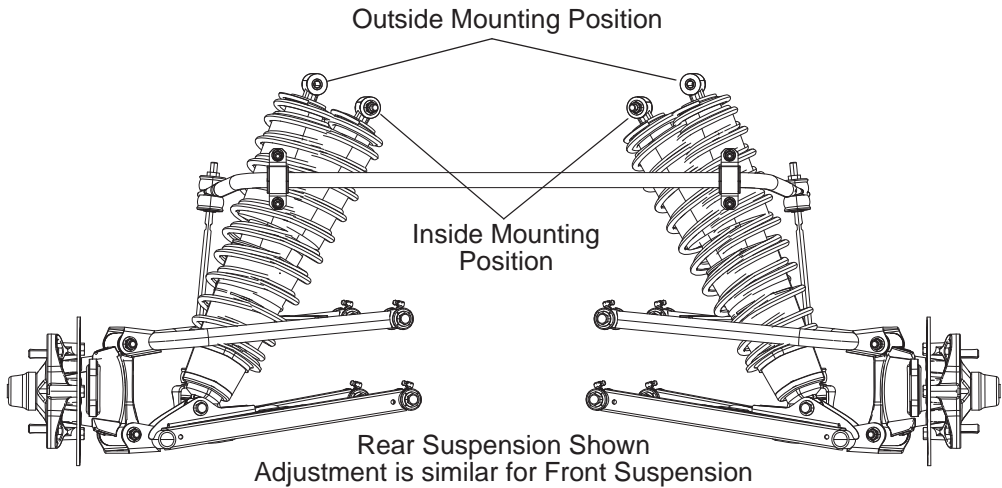
1. Position the vehicle on a level surface.
2. Place the transmission in PARK.
3. Lightly turn the steering wheel left and right. There should be 0.8"-1.0" (20-25 mm) of freeplay.
4. If there is excessive freeplay or strange noises, or the steering feels rough or "catchy," have the steering system inspected by an authorized POLARIS dealer.

# MAINTENANCE

## Suspension Adjustments

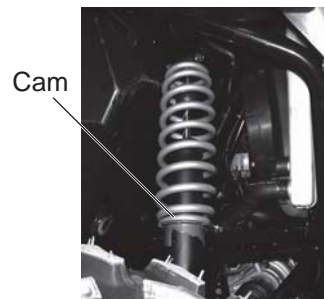
The front and rear suspensions can be adjusted to provide a stiffer suspension, if necessary.

1. Remove the top shock mounting bolts from the inside mounting positions.
2. Reposition the shocks to the outside mounting holes.
3. Reinstall the shock mounting bolts. Torque to 40 ft. lbs. (54.2 Nm).



## Spring Adjustment

Adjust the front and rear shock absorber springs by rotating the adjustment cam either clockwise or counter-clockwise to increase or decrease spring tension.



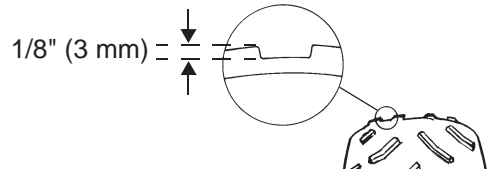
## Tires

### ⚠ WARNING

Operating your vehicle with worn tires, improperly inflated tires, non-standard tires or improperly installed tires will affect vehicle handling and could cause an accident resulting in serious injury or death. Always follow all tire maintenance procedures as outlined in this manual and on the labels on the vehicle. Always use POLARIS-approved size and type of tires for this vehicle when replacing tires.

### Tire Tread Depth

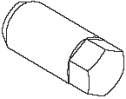

Always replace tires when tread depth is worn to 1/8" (3 mm) or less.



### Axle and Wheel Nut Torque Specifications

Inspect the following items occasionally for tightness, and if they've been loosened for maintenance service.

Do not lubricate the stud or the lug nut.

Nut Type	Location	Nut Torque
Lug Nut (Aluminum Wheels) 	Front and Rear	120 ft. lbs. (163 Nm)
Lug Nut (Tapered) 	Front and Rear	60 ft. lbs. (81 Nm)
Spindle Nut	Front	75 ft. lbs. (102 Nm)
Hub Retaining Nuts	Rear	110 ft. lbs. (150 Nm)

# MAINTENANCE

## Tires

### Wheel Removal

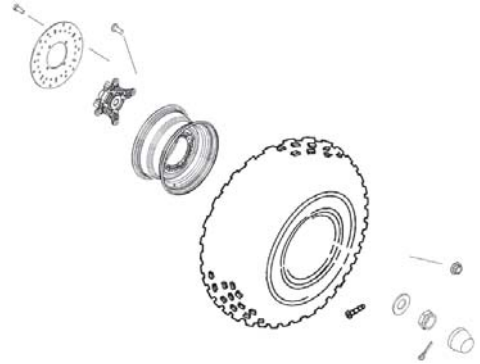
1. Position the vehicle on a level surface.
2. Place the transmission in PARK. Stop the engine.
3. Loosen the wheel nuts slightly.
4. Elevate the side of the vehicle by placing a suitable stand under the frame.
5. Remove the wheel nuts and washers. Remove the wheel.

### Wheel Installation

1. Place the transmission in PARK.
2. 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.

**WARNING!** Improperly installed wheels can adversely affect tire wear and vehicle handling, which can result in serious injury or death. Always ensure that all nuts are torqued to specification. Do not service axle nuts that have a cotter pin installed. Your POLARIS dealer can assist.

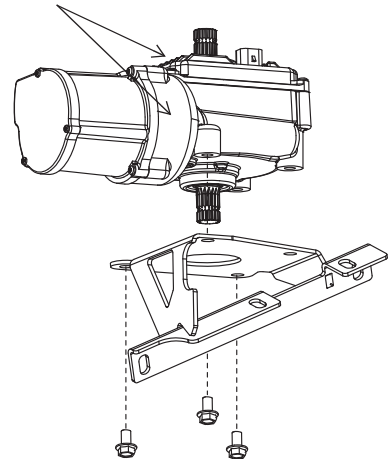
3. Attach the wheel nuts and washers and finger tighten.
4. Carefully lower the vehicle to the ground.
5. Torque the wheel nuts to specification. See page 89.



### Power Steering Unit

If your model is equipped with power steering, frequently clean the areas around and on the power steering unit to allow proper cooling. Clean these areas thoroughly.

Clean Often





## Lights

Poor lighting can result in reduced visibility when driving. Headlight and taillight lenses become dirty during normal operation. Clean lights frequently and replace burned out lamps promptly. Do not operate this vehicle at night or in low light conditions until the headlight is replaced. Always make sure lights are adjusted properly for best visibility.

When servicing a halogen lamp, don't touch the lamp with bare fingers. Oil from your skin leaves a residue, causing a hot spot that will shorten the life of the lamp.

### Headlight Lamp Replacement

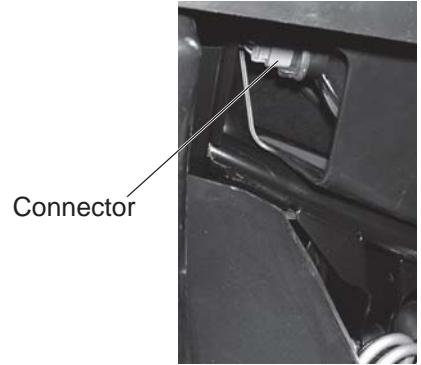
Access a headlamp wiring harness through the front wheel well.

**CAUTION!** Hot components can cause burns to skin. Allow lamps to cool before servicing.

1. Unplug the headlamp from the wiring harness. Be sure to pull on the connector, not on the wiring.
2. Turn the lamp counter-clockwise to remove it.
3. Install the new lamp.

**Tip:** Make sure the tab on the lamp locates properly in the housing.

4. Reinstall the harness assembly into the headlight assembly.



### Brake Lights

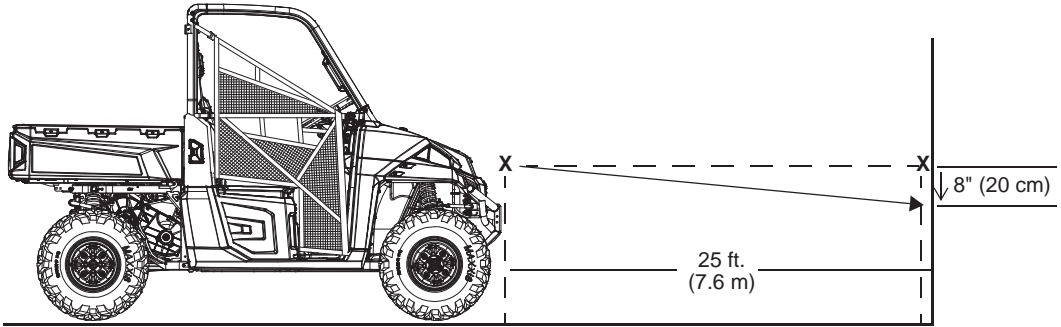
When the brake pedal is depressed, the brake light comes on. Check the brake light before each ride.

1. Turn the ignition switch to the ON position.
2. Depress the brake pedal. The brake light should come on after about 10 mm (0.4 in.) of pedal travel.

# MAINTENANCE

## Lights

### Headlight Beam Adjustment



1. Place the vehicle on a level surface with the headlight approximately 25 ft. (7.6 m) from a wall.
2. Place the transmission in PARK.
3. Measure the distance from the floor to the center of the headlight and make a mark on the wall at the same height.
4. Apply the brakes. Start the engine. Turn on the headlights.
5. Observe the headlight aim. The most intense part of the headlight beam should be aimed 8" (20 cm) below the mark placed on the wall. Include the weight of a rider on the seat while performing this step.
6. If a headlight needs adjustment, locate the adjustment screw on the side of the headlight.
7. Loosen the screw. Adjust the headlight, then tighten the screw.
8. Repeat steps 5-7 until the lamp is properly adjusted.

## Fuses

If the engine stops or will not start, or if you experience other electrical failures, a fuse may need replacement. Locate and correct any short circuits that may have caused the blown fuse, then replace the fuse. Raise the passenger seat to access the fuses. Spare fuses are provided in the fuse box. The power steering fuse (if equipped) is located on the power steering wiring harness near the fuse box.

If you suspect that a fuse or relay may not be working properly, please see your POLARIS dealer.

Fuse	Feature Supported
5A	Brake Lights
15A	Fuel Pump
15A	Drive System
20A	Accessories, 12V Power Receptacle
30A	Engine Control Module
15A	Lights
30A	Power Steering (if equipped)



Power Steering Fuse  
(if equipped)

HVAC 30A (OPT)	DRIVE 15 A	BRAKE LIGHT 5A	COND. FAN 20A CB (OPT)	ALTERNATOR CONTROL RELAY	
EPS 30A	FUEL PUMP HOLD SOL. 15A	ALT. 15A	ENGINE FAN 20A CB		
CHASSIS 30A	LIGHTS 15A	ALT. RELAY	COND. FAN RELAY (OPT)	AC CLUTCH RELAY	HVAC RELAY (OPT)
ECU 30A	ACCESS. 20A				
CHASSIS RELAY	ECU RELAY	FUEL HOLD, PUMP RELAY	FAN	START	EPS

# MAINTENANCE

## Battery

Your vehicle has a sealed battery, which requires little maintenance. Always 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.

## Battery Removal

### **⚠ WARNING**

Improperly connecting or disconnecting battery cables can result in an explosion and cause serious injury or death. When removing the battery, always disconnect the negative (black) cable first. When reinstalling the battery, always connect the negative (black) cable last.

1. Remove the storage bin under the passenger seat to access the battery.
2. Disconnect the black (-) battery cable first. Disconnect the red (+) battery cable last.
3. Lift the battery out of the vehicle.

## 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 instructions on page 95 before installing the battery.

1. Ensure that the battery is fully charged.
2. Place the fully charged battery in the battery holder. Make sure the positive terminal is toward the driver's side of the vehicle.
3. Coat the terminals with dielectric grease or petroleum jelly.
4. Connect and tighten the red (+) cable first. Connect and tighten the black (-) cable last.
5. Install the hold-down strap.
6. Reinstall the storage bin and seat.

## 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. See page 95.

POLARIS recommends maintaining battery charge by using a POLARIS Battery Tender charger or by charging about once a month to make up for normal self-discharge. Battery Tender can be left connected during the storage period, and will automatically charge the battery if the voltage drops below a pre-determined point. See page 104 for the part numbers of POLARIS products.

## Battery

### Battery Charging

The following battery charging instructions apply only to the installation of a sealed battery. Read all instructions before proceeding with the installation of this battery.

The sealed battery is already filled with electrolyte and has been sealed and *fully charged* at the factory. *Never* pry the sealing strip off or add any other fluid to this battery.

The single most important thing about maintaining a sealed battery is to keep it fully charged. Since the battery is sealed and the sealing strip cannot be removed, you must use a voltmeter or multimeter to measure DC voltage.

**WARNING!** An overheated battery may explode, causing severe injury or death. Always watch charging times carefully. Stop charging if the battery becomes very warm to the touch. Allow it to cool before resuming charging.

For a refresh charge, follow all instructions carefully.

1. Check the battery voltage with a voltmeter or multimeter. A fully charged battery will register 12.8 V or higher.
2. If the voltage is less than 12.8 volts, recharge the battery at 1.2 amps or less until battery voltage is 12.8 or greater.
3. When using an automatic charger, refer to the charger manufacturer's instructions for recharging. When using a constant current charger, use the guidelines below for recharging.

Always verify battery condition before and 1-2 hours after the end of charging.

State of Charge	Voltage	Action	Charge Time (Using constant current charger @ standard amps specified on top of battery)
100%	12.8-13.0 volts	None, check at 3 mos. from date of manufacture	None required
75%-100%	12.5-12.8 volts	May need slight charge, if no charge given, check in 3 months	3-6 hours
50%-75%	12.0-12.5 volts	Needs charge	5-11 hours
25%-50%	11.5-12.0 volts	Needs charge	At least 13 hours, verify state of charge
0%-25%	11.5 volts or less	Needs charge with desulfating charger	At least 20 hours

# MAINTENANCE

## Cleaning and Storage

### Washing the Vehicle

Keeping your POLARIS vehicle clean will not only improve its appearance but it can also extend the life of various components.

**NOTICE:** High water pressure may damage components. POLARIS recommends washing the vehicle by hand or with a garden hose, using mild soap.

**NOTICE:** Certain products, including insect repellents and chemicals, will damage plastic surfaces. Do not allow these types of products to contact the vehicle.

The best and safest way to clean your POLARIS vehicle is with a garden hose and a pail of mild soap and water.

1. Use a professional-type washing cloth, cleaning the upper body first and the lower parts last.
2. Rinse with clean water frequently.
3. Dry surfaces with a chamois to prevent water spots.

### Washing Tips

- Avoid the use of harsh cleaners, which can scratch the finish.
- Do not use a power washer to clean the vehicle.
- Do not use medium to heavy duty compounds on the finish.
- Always use clean cloths and pads for cleaning and polishing. Old or reused cloths and pads may contain dirt particles that will scratch the finish.
- Grease all zerk fittings immediately after washing. Allow the engine to run for a while to evaporate any water that may have entered the engine or exhaust system.

If a high pressure water system is used for cleaning (not recommended), exercise extreme caution. The water may damage components and could remove paint and labels. Avoid directing the water stream at the following items:

- Wheel bearings
- Brakes
- Switches and controls
- Radiator
- Cab and body panels
- Electrical components and wiring
- Transmission seals
- Labels and decals

If an informational or graphic label becomes illegible or comes off, contact your POLARIS dealer to purchase a replacement. Replacement *safety* labels are provided by POLARIS at no charge.

## Cleaning and Storage

### Polishing the Vehicle

POLARIS recommends the use of common household aerosol furniture polish for polishing the finish on your POLARIS vehicle. Follow the instructions on the container.

- Avoid the use of automotive products, some of which can scratch the finish of your vehicle.
- Always use clean cloths and pads for cleaning and polishing. Old or reused cloths and pads may contain dirt particles that will scratch the finish.

### Storage Tips

**NOTICE:** Starting the engine during the storage period will disturb the protective film created by fogging and damage could occur. Never start the engine during the storage period.

### Clean the Exterior

Make any necessary repairs and clean the vehicle as recommended. See page 96.

### Oil and Filter

Change the oil and filter. See page 70.

### Air Filter / Air Box

1. Replace the air filter. See page 81.
2. Clean the air box.

# **MAINTENANCE**

## **Cleaning and Storage**

### **Storage Tips**

#### **Inspect and Lubricate**

Inspect all cables and lubricate all areas of the vehicle as recommended in the Periodic Maintenance Chart beginning on page 65.

#### **Battery Maintenance**

See page 94 for storage and charging procedures.

#### **Fluid Levels**

Inspect the fluid levels. Add or change fluids as recommended in the Periodic Maintenance Chart beginning on page 65.

- Front gearcase fluid
- Transmission fluid
- Brake fluid (change every two years and any time the fluid looks dark or contaminated)
- Coolant (test strength/fill)

#### **Storage Area/Covers**

Be sure the storage area is well ventilated. Cover the vehicle with a genuine POLARIS cover. Do not use plastic or coated materials. They do not allow enough ventilation to prevent condensation, and may promote corrosion and oxidation.



## Removal from Storage

1. Charge the battery if necessary. Install it in the vehicle.
2. Fill the fuel tank with fuel.
3. Check all the points listed in the Daily Pre-Ride Inspection section on page 36. *Tightness of the bolts, nuts and other fasteners should be checked by an authorized POLARIS dealer.*
4. Lubricate at the intervals outlined in the Periodic Maintenance Chart beginning on page 65.

## Transporting the *RANGER*

Follow these procedures when transporting the vehicle.

1. Place the transmission in PARK.
2. Stop the engine.
3. Slowly release the brake pedal and make sure the transmission is in PARK before exiting the vehicle.
4. Secure the fuel cap, hood and cargo box. Ensure that the seats are attached correctly and are not loose.

**WARNING!** Cargo and other loose vehicle parts may fly off while transporting this vehicle. Secure or remove all cargo, and inspect the unit for loose parts prior to transport.

5. Always tie the frame of the *RANGER* to the transporting unit securely with suitable straps or rope. Do not attach tie straps to the front A-arm bolt pockets.
6. Remove the key to prevent loss during transporting.

# SPECIFICATIONS

<b>RANGER Diesel</b>	
Maximum Weight Capacity	1500 lbs. (681 kg) (including operator, passenger, cargo, accessories)
Dry Weight	1430 lbs. (649 kg)
Test GVW - Rollover Protection System (ROPS)	3400 lbs. (1542 kg) per OSHA 29 CFR 1928.53
Fuel Capacity	10 gal. (37.8 l)
Engine Oil Capacity	3 qts. (2.8 l)
Coolant Capacity	5.4 qts. (5.11 l)
Towing Capacity	2000 lbs. (907 kg)
Hitch Tongue Capacity	150 lbs. (68 kg)
Max. Cargo Box Load*	1000 lbs. (454 kg)
Overall Length	116 in. (295 cm)
Overall Width (box)	60 in. (152.4 cm)
Overall Width (tires)	58 in. (147.3 cm)
Overall Height	76 in. (193 cm)
Wheelbase	81 in. (205.7 cm)
Cargo Box Dimensions (Inside)	36.5 x 54 x 11.5 in. (93 x 137 x 29 cm)
Ground Clearance	12 in. (30.5 cm)
Min. Turning Radius	161 in. (409 cm)
Engine	KOHLER liquid-cooled 3 cylinder diesel
Displacement	1028 cc
Bore x Stroke	75mm x 77.6mm
Alternator Output	12V DC 110A
Compression Ratio	22.8:1
Starting System	Electric
Fuel System	Mechanical fuel injection
Front Suspension	Dual A-arm w/10 in. (25.4 cm) of travel
Rear Suspension	Independent w/10 in. (25.4 cm) of travel
Lubrication System	Full pressure with full flow filter

# SPECIFICATIONS

<b>RANGER Diesel</b>	
Driving System Type	PVT, 4-wheel independent shaft, lockable differential
Shift Type	Single Lever (H/L/N/R/P)
Transmission Gear Ratio - High	Front 3.10:1 / Rear 9.26:1
Transmission Gear Ratio - Low	Front 7.62:1 / Rear 22.79:1
Transmission Gear Ratio - Reverse	Front 6.83:1 / Rear 20.41:1
Front Drive Ratio	3.818:1
Tire Size - Front	25 x 10 - 12 (26 x 9 - 12 for select models)
Tire Size - Rear	25 x 11 - 12 (26 x 11 - 12 for select models)
Tire Pressure - Front	10 psi (69 kPa)
Tire Pressure - Rear	12 psi (83 kPa)
Brakes, Front/Rear	Foot Activated, 4 wheel hydraulic disc
Hood Headlight	2 single beam, 50W, quartz/halogen
Taillights	10 L.E.D. (.28W)
Brake Light	10 L.E.D. (3.1W)

## Clutching

See your POLARIS dealer for clutching specifications.

# SPECIFICATIONS

<b>RANGER CREW Diesel</b>	
Maximum Weight Capacity	1750 lbs. (795 kg) (including operator, passengers, cargo, accessories)
Dry Weight	1690 lbs. (767 kg)
Test GVW - Rollover Protection System (ROPS)	3700 lbs. (1678 kg) per OSHA 29 CFR 1928.53
Fuel Capacity	10 gal. (37.8 l)
Engine Oil Capacity	3 qts. (2.8 l)
Coolant Capacity	6.36 qts. (6.01 l)
Towing Capacity	2000 lbs. (907 kg)
Hitch Tongue Capacity	150 lbs. (68 kg)
Max. Cargo Box Load*	1000 lbs. (454 kg)
Overall Length	148 in. (376 cm)
Overall Width (box)	60 in. (152.4 cm)
Overall Width (tires)	58 in. (147.3 cm)
Overall Height	76 in. (193 cm)
Wheelbase	113 in. (287 cm)
Cargo Box Dimensions (Inside)	36.5 x 54 x 11.5 in. (93 x 137 x 29 cm)
Ground Clearance	12 in. (30.5 cm)
Min. Turning Radius	214 in. (543.5 cm)
Engine	KOHLER liquid-cooled 3 cylinder diesel
Displacement	1028 cc
Bore x Stroke	75mm x 77.6mm
Alternator Output	12V DC 110A
Compression Ratio	22.8:1
Starting System	Electric
Fuel System	Mechanical fuel injection
Front Suspension	Dual A-arm w/10 in. (25.4 cm) of travel
Rear Suspension	Independent w/10 in. (25.4 cm) of travel
Lubrication System	Full pressure with full flow filter

# SPECIFICATIONS

<b>RANGER CREW Diesel</b>	
Driving System Type	PVT, 4-wheel independent shaft, lockable differential
Shift Type	Single Lever (H/L/N/R/P)
Transmission Gear Ratio - High	Front 3.10:1 / Rear 9.26:1
Transmission Gear Ratio - Low	Front 7.62:1 / Rear 22.79:1
Transmission Gear Ratio - Reverse	Front 6.83:1 / Rear 20.41:1
Front Drive Ratio	3.818:1
Tire Size - Front	26 x 9 - 12
Tire Size - Rear	26 x 11 - 12
Tire Pressure - Front	14 psi (96 kPa)
Tire Pressure - Rear	16 psi (110 kPa)
Brakes, Front/Rear	Foot Activated, 4 wheel hydraulic disc
Hood Headlight	2 single beam, 50W, quartz/halogen
Taillights	10 L.E.D. (.28W)
Brake Light	10 L.E.D. (3.1W)

## Clutching

See your POLARIS dealer for clutching specifications.

# POLARIS PRODUCTS

Part Number	Description
<b>Engine Lubricant</b>	
2878473	15W-40 Diesel Oil (2 qt./1.9 l)
2879832	5W-40 Synthetic Diesel Oil (2 qt./1.9 l)
<b>Gearcase / Transmission Lubricants</b>	
2878068	AGL Full Synthetic Gearcase Lubricant & Transmission Fluid (qt./.95 l)
2878069	AGL Full Synthetic Gearcase Lubricant & Transmission Fluid (gal./3.8 l)
2877922	Demand Drive Fluid (qt./.95 l)
2877923	Demand Drive Fluid (gal./3.8 l)
2870465	Pump for Gallon (3.8 l) Jug
<b>Coolant</b>	
2880514	Antifreeze 50/50 Premix (qt./.95 l)
2880513	Antifreeze 50/50 Premix (gal./3.8 l)
<b>Grease / Specialized Lubricants</b>	
2871312	Grease Gun Kit, All Season Grease
2871322	All Season Grease (3 oz./89 ml cartridge)
2871423	All Season Grease (14 oz./414 ml cartridge)
2876160	ATV Angle Drive Fluid (qt./.95 l)
2872276	ATV Angle Drive Fluid (2.5 gal./9.5 l)
2871460	Premium Starter Grease
2871515	U-Joint Grease (3 oz./89 ml cartridge)
2871551	U-Joint Grease (14 oz./414 ml cartridge)
2871329	Dielectric Grease (Nyogel™)
<b>Additives / Miscellaneous</b>	
2872189	DOT 4 Brake Fluid
2871956	Loctite™ 565 Thread Sealant
2859044	POLARIS Battery Tender™ Charger

## Drive Belt Wear/Burn

Possible Cause	Solution
Driving onto a pickup or tall trailer in high range	Use low range during loading.
Starting out going up a steep incline	Use low range. See warnings on page 47.
Driving at low RPM or ground speed (3-7 MPH)	Drive at a higher speed or use low range more frequently.
Insufficient warm-up at low ambient temperatures	Warm the engine at least 5 minutes. With the transmission in neutral, advance the throttle to about 1/8 throttle in short bursts, 5 to 7 times. The belt will become more flexible and prevent belt burning.
Slow/easy clutch engagement	Use the throttle quickly and effectively.
Towing/pushing at low RPM/low ground speed	Use low range only.
Utility use/plowing	Use low range only.
Stuck in mud or snow	Shift the transmission to low range and carefully use fast, aggressive throttle application to engage clutch. <b>WARNING:</b> Excessive throttle may cause loss of control and vehicle rollover.
Climbing over large objects from a stopped position	Shift the transmission to low range and carefully use fast, brief, aggressive throttle application to engage clutch. <b>WARNING:</b> Excessive throttle may cause loss of control and vehicle rollover.
Belt slippage from water or snow ingestion into the PVT system	Dry out the PVT. See page 79. Inspect clutch seals for damage if repeated leaking occurs.
Clutch malfunction	Your POLARIS dealer can assist.
Poor engine performance	Check for clogged air filter, clogged fuel filter, water in the fuel or foreign material in fuel tank or fuel lines. Your POLARIS dealer can assist.
Slippage from failure to warm up belt	Always warm up the belt by operating below 30 MPH for one mile (5 miles or more when temperature is below freezing).
Wrong or missing belt	Install the recommended belt.
Improper break-in	Always break in a new belt and/or clutch. See pages 35 and 76.

# TROUBLESHOOTING

## Engine Doesn't Turn Over

Possible Cause	Solution
Low battery voltage	Recharge the battery to 12.8 VDC
Loose battery connections	Check all connections and tighten
Loose starter connections	Check all connections and tighten
Loose electronic control box connections	Inspect, clean, reinstall connectors

## Engine Turns Over, Fails to Start

Possible Cause	Solution
Out of fuel	Refuel
Clogged fuel filter/water separator	Replace
Clogged air filter	Replace
Water is present in fuel	Drain the fuel system and refuel, replace fuel filter/water separator
Old or non-recommended fuel	Replace with fresh recommended fuel
Water or fuel in crankcase	Your POLARIS dealer can assist.
Low battery voltage	Recharge the battery to 12.8 VDC
Mechanical failure	Your POLARIS dealer can assist.
Defective glow plug	Inspect and replace
Defective stop solenoid	Replace
Defective fuel pump	Replace

## Engine Backfires

Possible Cause	Solution
Old or non-recommended fuel	Replace with fresh recommended fuel
Loose ignition connections	Check all connections and tighten
Water present in fuel	Replace with fresh recommended fuel



# TROUBLESHOOTING

## Engine Runs Irregularly, Stalls or Misfires

Possible Cause	Solution
Poor fuel quality or incorrect fuel	Replace with recommended fuel
Low fuel level	Refuel
Clogged fuel filter	Replace
Clogged air filter	Replace
Loose ignition connections	Check all connections and tighten
Water present in fuel	Replace with new fuel
Kinked or plugged fuel tank vent line	Inspect and replace
Other mechanical failure	Your POLARIS dealer can assist.

## Engine Stops or Loses Power

Possible Cause	Solution
Poor fuel quality or incorrect fuel	Replace with recommended fuel
Clogged fuel filter	Replace
Clogged air filter	Replace
Loose ignition connections	Check all connections and tighten
Water present in fuel	Replace with new fuel
Kinked or plugged fuel tank vent line	Inspect and replace
Other mechanical failure	Your POLARIS dealer can assist.
Out of fuel	Refuel
Low battery voltage	Recharge the battery to 12.8 VDC
Overheated engine	Clean radiator screen and core, clean engine exterior, operate at lower load. Your POLARIS dealer can assist

# WARRANTY

## Limited Warranty

POLARIS Industries Inc., 2100 Highway 55, Medina, MN 55340, gives a SIX MONTH LIMITED WARRANTY on all components of the POLARIS vehicle against defects in material or workmanship. POLARIS further warrants that the spark arrestor in this product will meet the efficiency requirements of USFS standard 5100-1C for at least 1000 hours when subjected to normal use and when maintenance and installation are in accordance with POLARIS recommendations. POLARIS also gives a 12-month /1000-hours of engine operation limited warranty on the engine of this vehicle for failure due to defects. This warranty covers the parts and labor charges for repair or replacement of defective parts which are covered by this warranty. This warranty begins on the date of purchase. This warranty is transferable to another consumer during the warranty period through a POLARIS dealer.

## Registration

At the time of sale, the Warranty Registration Form must be completed by your dealer and submitted to POLARIS within ten days of purchase. Upon receipt of this registration, POLARIS will record the registration for warranty. No verification of registration will be sent to the purchaser as the copy of the Warranty Registration Form will be your proof of warranty coverage. If you have not signed the original registration and received the customer copy, please contact your dealer immediately. **NO WARRANTY COVERAGE WILL BE ALLOWED UNLESS YOUR VEHICLE IS REGISTERED WITH POLARIS.** Initial dealer preparation and set-up of your vehicle is very important in ensuring trouble-free operation. Purchasing a machine in the crate or without proper dealer set-up will void your warranty coverage.

## Warranty Coverage And Exclusions: Limitations Of Warranties And Remedies

This POLARIS limited warranty excludes any failures that are not caused by a defect in material or workmanship. **THIS WARRANTY DOES NOT COVER CLAIMS OF DEFECTIVE DESIGN.** This warranty also does not cover acts of God, accidental damage, normal wear and tear, abuse or improper handling. This warranty also does not cover any vehicle, component, or part that has been altered structurally, modified, neglected, improperly maintained, or used for purposes other than for which it was designed.

This warranty excludes damages or failures resulting from: improper lubrication; improper engine timing; improper fuel; surface imperfections caused by external stress, heat, cold or contamination; operator error or abuse; improper component alignment, tension, adjustment or altitude compensation; snow, water, dirt or other foreign substance ingestion/contamination; improper maintenance; modified components; use of aftermarket or unapproved components, accessories, or attachments; unauthorized repairs; or repairs made after the warranty period expires or by an unauthorized repair center.

This warranty excludes damages or failures caused by abuse, accident, fire, or any other cause other than a defect in materials or workmanship and provides no coverage for consumable components, general wear items, or any parts exposed to friction surfaces, stresses, environmental conditions and/or contamination for which they were not designed or not intended, including but not limited to the following items:

- Wheels and tires
- Suspension components
- Brake components
- Seat components
- Clutches and components
- Steering components
- Batteries
- Light bulbs/Sealed beam lamps
- Filters
- Lubricants
- Bushings
- Finished and unfinished surfaces
- Carburetor/Throttle body components
- Engine components
- Drive belts
- Hydraulic components and fluids
- Circuit breakers/Fuses
- Electronic components
- Spark plugs
- Sealants
- Coolants
- Bearings

## Warranty Coverage And Exclusions: Limitations Of Warranties And Remedies

### Lubricants and Fluids

1. Mixing oil brands or using non-recommended oil may cause engine damage. We recommend the use of POLARIS engine oil.
2. Damage or failure resulting from the use of non-recommended lubricants or fluids is not covered by this warranty.

This warranty provides no coverage for personal loss or expense, including mileage, transportation costs, hotels, meals, shipping or handling fees, product pick-up or delivery, replacement rentals, loss of product use, loss of profits, or loss of vacation or personal time.

**THE EXCLUSIVE REMEDY FOR BREACH OF THIS WARRANTY SHALL BE, AT POLARIS' OPTION, REPAIR OR REPLACEMENT OF ANY DEFECTIVE MATERIALS, COMPONENTS, OR PRODUCTS. THE REMEDIES SET FORTH IN THIS WARRANTY ARE THE ONLY REMEDIES AVAILABLE TO ANY PERSON FOR BREACH OF THIS WARRANTY. POLARIS SHALL HAVE NO LIABILITY TO ANY PERSON FOR INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES OF ANY DESCRIPTION, WHETHER ARISING OUT OF EXPRESS OR IMPLIED WARRANTY OR ANY OTHER CONTRACT, NEGLIGENCE, OR OTHER TORT OR OTHERWISE. THIS EXCLUSION OF CONSEQUENTIAL, INCIDENTAL, AND SPECIAL DAMAGES IS INDEPENDENT FROM AND SHALL SURVIVE ANY FINDING THAT THE EXCLUSIVE REMEDY FAILED OF ITS ESSENTIAL PURPOSE.**

**THE IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE IS EXCLUDED FROM THIS LIMITED WARRANTY. ALL OTHER IMPLIED WARRANTIES (INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTY OF MERCHANTABILITY) ARE LIMITED IN DURATION TO THE ABOVE SIX MONTH WARRANTY PERIOD. POLARIS DISCLAIMS ALL EXPRESS WARRANTIES NOT STATED IN THIS WARRANTY. SOME STATES DO NOT PERMIT THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES OR ALLOW LIMITATIONS ON THE DURATION OF IMPLIED WARRANTIES, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU IF INCONSISTENT WITH CONTROLLING STATE LAW.**

## 12-Month / 1000-Hour Engine Operation Limited Engine Warranty Terms and Exclusions

### *How long is the engine warranty period?*

The standard limited warranty on the engine of this vehicle runs for a period of twelve (12) months or 1000 engine operation hours, whichever occurs first. The warranty period on the engine (by duration or operation hours) begins on the date of delivery to the original retail purchaser and is valid only until the applicable warranted duration has passed or the operation hours are exceeded, whichever comes first.

### *What is NOT covered by this warranty?*

This warranty does not cover parts affected by or damaged by any reason other than defective materials or workmanship including, but not limited to, accident, misuse, abuse, "Acts of God", neglect, improper installation, improper maintenance, improper storage, the use of unsuitable attachments or parts, the use of contaminated fuels, the use of fuels, oils, lubricants or fluids other than those recommended in this manual, unauthorized alterations or modifications, ordinary wear and tear, and rust or corrosion.

This warranty does not cover the cost of parts and/or labor required to perform normal scheduled maintenance on your engine. This warranty does not cover consumable parts such as, but not limited to, filters, belts, hoses, fuel injector nozzles, lubricants and cleaning fluids. This warranty does not cover the cost of shipping the product to or from your POLARIS dealership.

# WARRANTY

## How To Obtain Warranty Service

If your vehicle requires warranty service, you must take it to a POLARIS Servicing Dealer. When requesting warranty service you must present your copy of the Warranty Registration Form to the dealer. (THE COST OF TRANSPORTATION TO AND FROM THE DEALER IS YOUR RESPONSIBILITY.) POLARIS suggests that you use your original selling dealer; however, you may use any POLARIS Servicing Dealer to perform warranty service.

### ***In the Country where your product was purchased:***

Warranty or Service Bulletin repairs must be done by an authorized POLARIS dealer. If you move or are traveling within the country where your product was purchased, Warranty and Service Bulletin repairs may be requested from any authorized POLARIS dealer that sells the same line as your product.

### ***Outside the Country where your product was purchased:***

If you are traveling temporarily outside the country where your product was purchased, you should take your product to an authorized POLARIS dealer. You must show the dealer photo identification from the country of the selling dealer's authorized location as proof of residence. Upon residence verification, the servicing dealer will be authorized to perform the warranty repair.

### ***If you move:***

If you move to another country, be sure to contact POLARIS Customer Assistance and the customs department of the destination country before you move. Product importation rules vary considerably from country to country. You may be required to present documentation of your move to POLARIS in order to continue your warranty coverage. You may also be required to obtain documentation from POLARIS in order to register your product in your new country. You should warranty register your product at a local POLARIS dealer in your new country immediately after you move to continue your warranty coverage and to ensure that you receive information and notices regarding your vehicle.

### ***If you purchase from a private party:***

If you purchase a POLARIS product from a private party, to be kept and used outside of the country in which the product was originally purchased, all warranty coverage will be denied. You must nonetheless register your product under your name and address with a local POLARIS dealer in your country to ensure that you receive safety information and notices regarding your product.

## Exported Products

EXCEPT WHERE SPECIFICALLY REQUIRED BY LAW, THERE IS NO WARRANTY OR SERVICE BULLETIN COVERAGE ON THIS PRODUCT IF IT IS SOLD OUTSIDE THE COUNTRY OF THE SELLING DEALER'S AUTHORIZED LOCATION. This policy does not apply to products that have received authorization for export from POLARIS. Dealers may not give authorization for export. You should consult an authorized dealer to determine this product's warranty or service coverage if you have any questions. This policy does not apply to products registered to government officials or military personnel on assignment outside the country of the selling dealer's authorized location. This policy does not apply to Safety Bulletins.

## Notice

If your product is registered outside of the country where it was purchased and you have not followed the procedure set above, your product will no longer be eligible for warranty or service bulletin coverage of any kind, other than *safety* bulletins. Products registered to government officials or military personnel on assignment outside of the country where the product was purchased will continue to be covered by the Limited Warranty.

Please work with your dealer to resolve any warranty issues. Should your dealer require any additional assistance, they will contact the appropriate person at POLARIS.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state or in different countries. If any of the above terms are void because of federal, state, local law, all other warranty terms will remain in effect.

### ***For questions call POLARIS Customer Assistance:***

United States & Canada: 1-800-POLARIS (1-800-765-2747)

French: 1-800-268-6334

# WARRANTY

*Kohler Co. provides the California and Federal emission control warranty on this vehicle. However, you may always utilize your Polaris dealer as a first point of contact for standard warranty or emissions warranty requests. While most inquiries can be resolved by working with your Polaris dealer, any unresolved emission-related concerns can be pursued further with Kohler Co. as described in the following emission control warranty statement.*

## **CALIFORNIA AND FEDERAL EMISSION CONTROL WARRANTY STATEMENT YOUR WARRANTY RIGHTS AND OBLIGATIONS**

The California Air Resources Board (ARB), U.S. Environmental Protection Agency (EPA) and Kohler Co. are pleased to explain the emission control system warranty on your MY 2014-2016 engine. In California (the State) and U.S. EPA regulated applications, new heavy-duty off-road engines must be designed, built and equipped to meet the State's and the U.S. EPA's stringent anti-smog standards. Kohler Co. must warrant the emission control system on your engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your engine.

Your emission control system may include parts such as the fuel injection system and the air induction system. Also included may be hoses, belts, connectors and other emission-related assemblies.

Where a warrantable condition exists, Kohler Co. will repair your heavy-duty off-road engine at no cost to you including diagnosis, parts and labor.

### **MANUFACTURER'S WARRANTY COVERAGE:**

The MY 2014-2016 heavy-duty off-road engines are warranted for the periods listed below. If any emission-related part on your engine is defective, the part will be repaired or replaced by Kohler Co.

<b>MY 2014-2016 KD, KDW and All TPEM Engines</b>	
<b>Engine Power</b>	<b>Duration</b>
kW < 19 (hp < 25)	3 years or 2,000 hours

### **OWNER'S WARRANTY RESPONSIBILITIES:**

- As the off-road engine owner, you are responsible for the performance of the required maintenance listed in your owner's manual. Kohler Co. recommends that you retain all receipts covering maintenance on your off-road engine, but Kohler Co. cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.
- As the off-road engine owner, you should however be aware that Kohler Co. may deny you warranty coverage if your off-road engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.
- Your engine is designed to operate on diesel fuel only. Use of any other fuel may result in your engine no longer operating in compliance with California's emissions requirements.
- You are responsible for initiating the warranty process. ARB suggests that you present your off-road engine to a Kohler Co. dealer as soon as a problem exists. The warranty repairs should be completed by the dealer as expeditiously as possible.
- If you have any questions regarding your warranty rights and responsibilities, you should contact Kohler Co. by visiting [www.KohlerEngines.com](http://www.KohlerEngines.com) or telephone 1-800-544-2444 (U.S.A. and Canada).

# WARRANTY

## COVERAGE

Kohler Co. will repair or replace emission control system parts, components and sub-assemblies found to be defective with respect to materials or workmanship at no cost to you including engine exhaust system related diagnosis, labor and parts. The choice and responsibility of the decision to repair or replace an emission control system defect will be solely that of Kohler Co. Emission control system parts/components covered by the Federal and California Emission Control Systems Limited Warranty are listed below.

- Fuel injector(s)
- Injection pump(s)
- Exhaust manifold
- Intake manifold
- Exhaust gas recirculation (EGR) tube
- Crankcase ventilation valve
- Electronic control unit (ECU) if equipped
- Sensors associated with ECU operation
- Emission control information labels
- Turbocharger (if equipped)
- Fuel limiting device

Parts/components that are scheduled to be replaced as part of the required maintenance schedule will be covered under the warranty provisions for a period of time up to the first scheduled replacement point for the subject parts/components. Subsequent damage to other engine components as a direct result of a warrantable failure on an exhaust emission part/component will be covered under the warranty provisions described herein.

As the heavy-duty off-road engine owner, you should however be aware that Kohler may deny you warranty coverage if your heavy-duty off-road engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications. Only due to the above reasons, the manufacturer may deny warranty coverage.

# MAINTENANCE LOG

Use the following chart to record periodic maintenance.

<b>DATE</b>	<b>MILES (KM) OR HOURS</b>	<b>TECHNICIAN</b>	<b>SERVICE PERFORMED / COMMENTS</b>

# MAINTENANCE LOG

DATE	MILES (KM) OR HOURS	TECHNICIAN	SERVICE PERFORMED / COMMENTS



<b>A</b>		<b>D</b>	
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<b>All Wheel Drive</b>	<b>54-55</b>	Display, Information	32-34
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# WARNING

Improper vehicle use can result in SEVERE INJURY or DEATH

## NEVER Operate:

- If you are under age 16 and without a valid driver's license.
- Without first viewing safety video and taking a ROHVA training course at [www.rohva.org](http://www.rohva.org).
- On excessively steep hills.
- On public roads (unless designated for off-road use).
- With a passenger who is not seated in a passenger seat, or with passengers under age 12 or who cannot comfortably reach the floor and hand holds.
- On paved surfaces - pavement may seriously affect handling and control.
- With non-Polaris approved accessories - they may seriously affect stability.

## ALWAYS:

- Wear your seat belt. Vehicle rollover can cause severe injury or death.
- Secure cab nets or doors and keep hands and feet inside vehicle at all times.
- Wear a helmet, eye protection, gloves, long-sleeve shirt, long pants and over-the-ankle boots.
- Reduce speed and use extra caution when carrying passengers.
- Avoid sharp turns or turns while applying heavy throttle.
- Operate slowly in reverse - avoid sharp turns or sudden braking.
- Make sure passengers read and understand all safety labels.



ALL RIDERS MUST WEAR AN APPROVED HELMET AND PROTECTIVE GEAR.  
ALL RIDERS MUST WEAR SEAT BELTS. NEVER USE ON PUBLIC ROADS.  
NEVER USE WITH DRUGS OR ALCOHOL.

READ OWNER'S MANUAL. FOLLOW ALL INSTRUCTIONS AND WARNINGS.



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