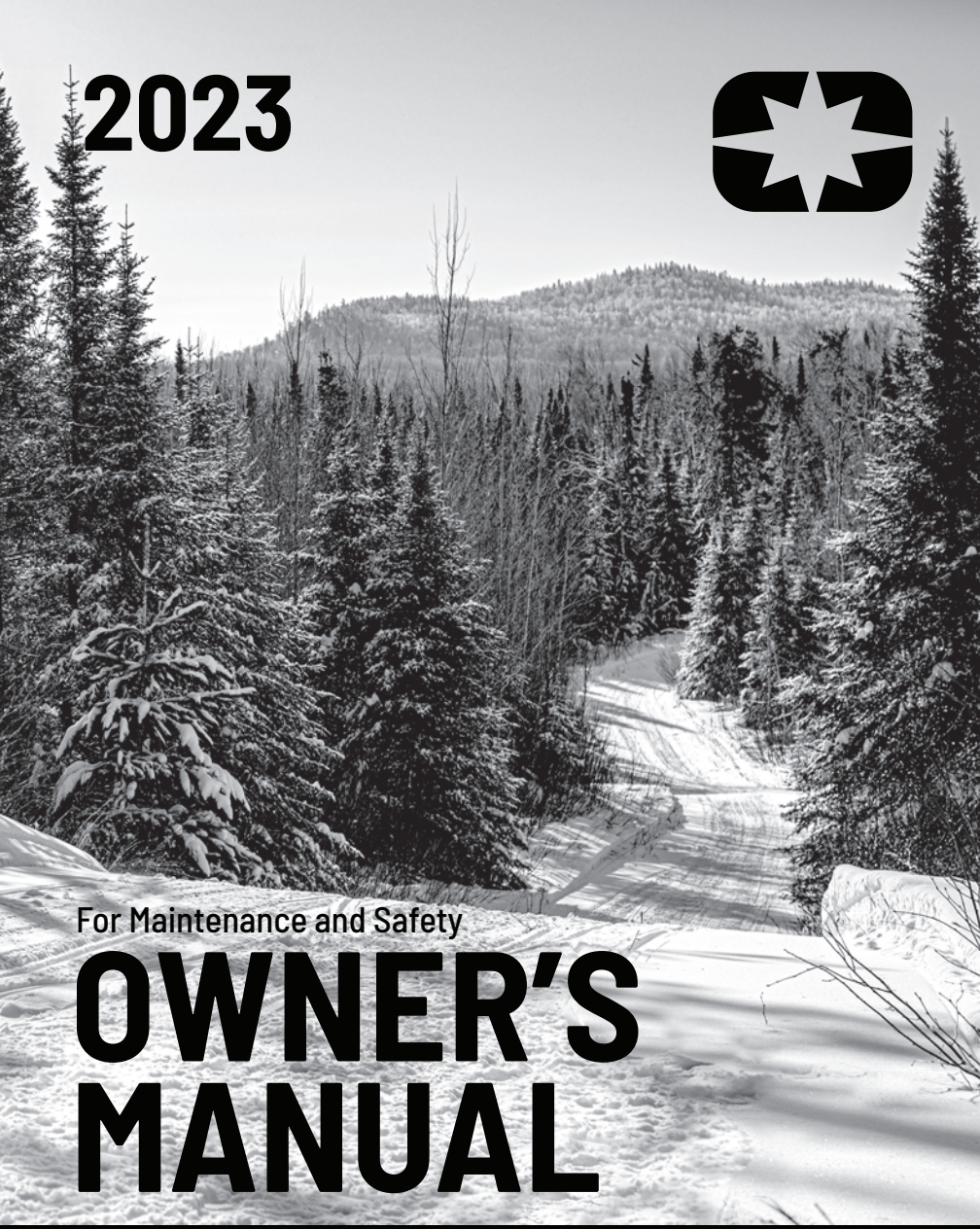
2023



For Maintenance and Safety

OWNER'S MANUAL

650, 850, PATRIOT 9R, & PATRIOT BOOST
PRO RMK & RMK KHAOS
MATRYX & MATRYX SLASH

POLARIS
Think Outside

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

Operating, servicing, and maintaining a passenger vehicle or off-road vehicle can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle in a well-ventilated area and wear gloves or wash your hands frequently when servicing your vehicle.

For more information go to www.P65Warnings.ca.gov/passenger-vehicle.

For videos and more information about a safe riding experience with your Polaris vehicle, scan this QR Code® with your smartphone or visit: www.polaris.com/en-us/safety/

POLARIS

2023 Owner's Manual

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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.

9940799 Rev 03



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* for the latest news, new product introductions, upcoming events, career opportunities and more.

Here at POLARIS we proudly produce an exciting line of utility and recreational products. 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 perform all of your service needs during and after the warranty period.

For the most up-to-date owner's manual visit *https://www. polaris. com/en-us/owners-manuals*.

SAFETY SYMBOLS AND SIGNAL WORDS

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.

DANGER

DANGER indicates a hazardous situation which, if not avoided, WILL result in death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, COULD result in death or serious injury.

CAUTION

CAUTION indicates a hazardous situation which, if not avoided, COULD result in minor to moderate injury.

NOTICE

NOTICE provides key information by clarifying instructions.

IMPORTANT

IMPORTANT provides key reminders during disassembly, assembly, and inspection of components.

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.



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INTRODUCTION

IMPORTANT NOTES FOR OWNERS AND DRIVERS

After reading this manual, store it in the snowmobile for convenient reference. It should remain with the snowmobile when the snowmobile is sold.

Some of the illustrations and photos used in this manual are general representations. Your model may differ.

Follow the maintenance program outlined in this manual. Preventive maintenance ensures that critical components of the snowmobile are inspected at specific mileage intervals. This service can be performed by your authorized POLARIS dealer.

You and your dealer must complete the registration form included with your snowmobile and forward it to us. This completed form is necessary to ensure warranty coverage.

Protect and preserve your right to ride by joining your local trail riding clubs.

When teaching inexperienced operators to ride, set up a predetermined course for practice. Make sure they know how to drive and control the snowmobile before allowing them to make longer trips. Teach them proper snowmobile courtesy, and enroll them in driver's training and safety courses sponsored by local or state organizations.

PRESERVATION OF THE ENVIRONMENT

POLARIS is committed to supporting an environmental education campaign. We encourage state and provincial governments across the snowbelt to adopt rigorous safety training programs that encourage protection of our environment, including wildlife and vegetation.

Snowmobile clubs and other organizations are working together to protect our environment. Please support their efforts and operate your snowmobile with consideration for the protection and preservation of our environment.

NOISE LEVEL

One of the most publicized issues about snowmobiles is noise. The Society of Automotive Engineers (SAE®), the standard-setting body for snowmobile development, recommends that snowmobiles conform to prescribed sound levels.

POLARIS snowmobiles are engineered to conform to these SAE® standards. Our muffler systems are designed to reduce noise levels and must not be altered or removed. The sound of your snowmobile may not be welcome to non-snowmobilers, so you have a responsibility to operate your snowmobile with concern for others. We do our part by manufacturing quieter machines; we ask your help to further reduce the impact of noise by operating your snowmobile safely and responsibly.

AIR POLLUTION

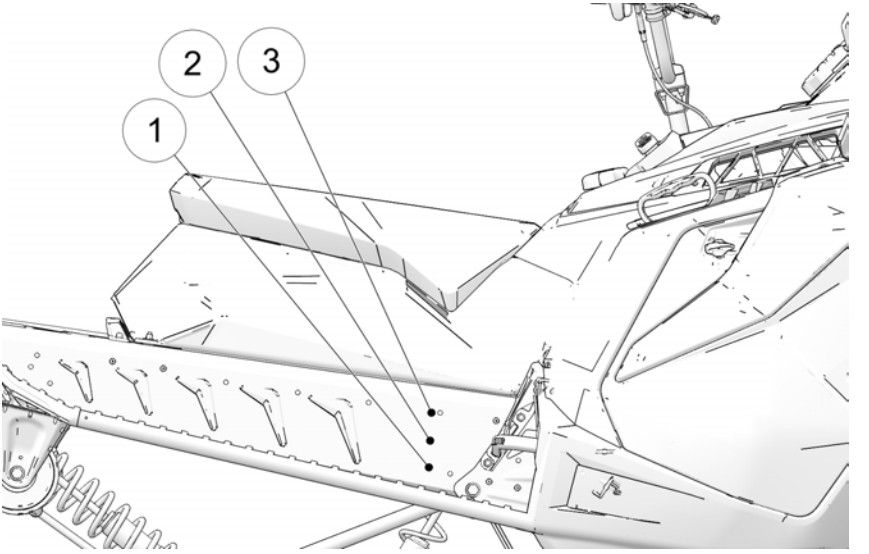
POLARIS engineers continuously investigate ways to reduce emission levels of two-stroke engines. We expect our efforts to lead to the reduction of potential air pollution.

In addition to our technological research, we encourage government agencies, manufacturers, distributors, dealers, ecologists, and other interested parties to work together to develop data on environmental topics.

VEHICLE IDENTIFICATION NUMBERS

Record your snowmobile's identification numbers and key number in the spaces provided.

NOTICE
If installing an aftermarket tunnel wrap, do not cover the tunnel certification, tunnel VIN or emissions certification labels with the wrap. If the tunnel wrap doesn't provide an opening for these labels, remove the section of wrap where the labels are located.



① Certification Label

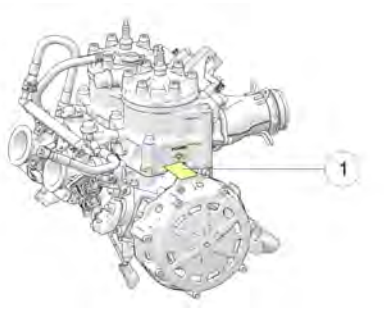
② Tunnel VIN

③ Emission Certification Label

VEHICLE MODEL NUMBER:	
TUNNEL VIN (RIGHT SIDE OF TUNNEL):	
ENGINE SERIAL NUMBER (ON RECOIL HOUSING):	
KEY NUMBER:	

ENGINE SERIAL NUMBER

The engine serial number ① is located on the identification label on the engine recoil cover.



KEY IDENTIFICATION

The ignition keys are etched with an identification number. Remove the spare key and store it in a safe place. Your key can be duplicated only by mating a POLARIS key blank using the same identification number with one of your existing keys, so if both keys are lost, the ignition switch assembly must be replaced.



RADIO COMPLIANCE STATEMENTS

USA RADIO COMPLIANCE

This vehicle may contain the following radio equipment or components that contain radio equipment:

COMPONENT	COMPONENT ID	MANUFACTURER
9200 Series Display	RC-7W	Polaris Industries Inc.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

CANADA RADIO COMPLIANCE

This vehicle may contain the following radio equipment or components that contain radio equipment:

COMPONENT	COMPONENT ID	MANUFACTURER
9200 Series Display	RC-7W	Polaris Industries Inc.

This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS (s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

IMPORTANT

For applications that use vehicle-to-vehicle (V2V) communication, radio transmitter IC 5966A-RC7W has been approved by Innovation, Science and Economic Development Canada (ISED) to operate with Polaris antenna (part number 4019211) with gain of 3 dBi. Any antenna that has a gain greater than 3 dBi is prohibited for use with this device.

EUROPEAN UNION (EU) RADIO COMPLIANCE

This vehicle may contain the following radio equipment or components that contain radio equipment:

COMPONENT	9200 Series Display
COMPONENT ID	RC-7W
MANUFACTURER	Polaris Industries Inc.
TRANSMITTING FREQUENCY*	2402–2480 MHz
MAX RF TRANSMITTING PWR	0.2432 W
* Other transmitting radio frequencies may exist outside of EU markets.	

Hereby, Polaris Industries Inc. declares that the above radio equipment is in compliance with Directive 2014/53/EU.

The full text of the EU declaration of conformity is available at the following internet address:

https://www.polaris.com/en-us/radio-conformity/

REPORTING SAFETY DEFECTS (CANADA)

To report a safety defect to Transport Canada, you may either fill out an online defect complaint form at their website (English: http://www/tc/gc/ca/recalls, French: http://www.tc.gc.ca/rappels) or contact their Defect Investigations and Recalls Division by calling toll-free 1-800-333-0510 (Canada) or 819-994-3328 (Ottawa-Gatineau area / International).

SAFETY

OPERATOR SAFETY

Follow the recommended maintenance program in the Maintenance chapter of this manual to ensure that all critical components on the snowmobile are thoroughly inspected at specific mileage intervals. Your dealer can perform this service.

⚠ WARNING

Driving a snowmobile requires your full attention. DO NOT drink alcohol or use drugs or medications before or while driving or riding as a passenger. They will reduce your alertness and slow your reaction time.

Snowmobiles are capable of traveling at high speeds. Use extra caution to ensure operator safety. Make sure your snowmobile is in excellent operating condition at all times. Always check major and vital safety components before every ride.

All POLARIS snowmobiles are designed and tested to provide safe operation when used as directed. Failure of critical machine components may result from operation with any modifications, especially those that increase speed or power. DO NOT MODIFY YOUR MACHINE. The snowmobile may become aerodynamically unstable at speeds higher than those for which it is designed. Loss of control may occur at higher speeds. Modifications may also create a safety hazard and lead to bodily injury.

The warranty on your entire machine is terminated if any equipment has been added, or any modifications have been made, to increase the speed or power of the snowmobile.

STAY CLEAR OF TRACK

Your snowmobile is propelled by a revolving track that must be partially exposed for proper operation. Do not stand on the plastic flap.

⚠ WARNING

Serious injuries may result if hands, feet, or clothing become entangled in the track. Be alert when riding, and remain properly seated to stay clear of the track. Never hold the snowmobile up or stand behind it while warming up the track. A loose track or flying debris could cause serious injury or death. We recommend having your dealer perform all track service and alignment procedures.

STAY CLEAR OF ENGINE

Never attempt adjustments with the engine running. Turn off the ignition, open the side panels or hood, make the adjustment, secure shields and guards, secure the side panels and hood, and then restart the engine to check its operation.

⚠ WARNING

Serious injury can occur if fingers or clothing contact the moving parts of an engine. Always stop the engine before attempting adjustments.

RIDING POSITION

Operating a snowmobile requires skill and balance for proper control. Rider positions may vary with experience and the features available on some snowmobiles, but under many conditions, the proper position is to be seated with both feet on the running boards and both hands on the handlebar grips for proper throttle, brake and steering control.

⚠ WARNING

Improper riding position may reduce control and could result in serious injury or death. Always ride in a position that allows for control of your vehicle.

RIDER CAPACITY

This snowmobile is designed for a single rider only. Never carry a passenger on this snowmobile.

RIDING APPAREL

HELMET

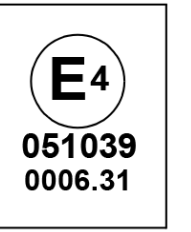
Wearing a helmet can prevent a severe head injury. Whenever riding this POLARIS vehicle, always wear a helmet that meets or exceeds established safety standards. Clasp the buckle and pull each strap tight to ensure the helmet is properly secured to the head.

Parents should verify that young operators have a helmet that fits, and should obtain one of proper size if it does not fit before allowing operation.

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.



EYE PROTECTION

Do not depend on eyeglasses or sunglasses for eye protection. Whenever riding a 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.

CLOTHING

WARNING

Avoid wearing loose clothing or long scarves, which can become entangled in moving parts and cause serious injury. Always wear an approved helmet and eye protection.

Be prepared, be warm and be comfortable when riding. Be aware of the weather forecast, especially the windchill, and dress accordingly. See page 29.



SURVIVAL PREPARATION

For your safety, always ride in a group of other snowmobilers. Always tell someone where you're going and how long you expect to be gone. If it isn't possible to ride with others, and you must travel into remote areas, always carry survival equipment that's appropriate to the conditions you may encounter. Such equipment may include, but is not limited to: extra clothing, a sleeping bag, a flashlight, food and water, a signaling mirror, a means of building a fire, and a two-way radio or cellular telephone.

Always carry the owner’s manual on your snowmobile. For added protection, purchase and carry the following items on your snowmobile as well:

- Spare Drive Belt
- Extra Set of Spark Plugs
- Tow Rope
- Fuel Deicer
- Winter Survival Kit
- Trail Map
- First Aid Kit
- Tool Kit

EXCESSIVE SPEED

⚠ WARNING

High speed driving, especially at night, could result in serious injury or death. Always reduce speed when driving at night or in inclement weather.

Always observe all state and local laws governing snowmobile operation and speed limits. Always be alert and pay attention to the trail ahead. If your speed is 40 MPH (64 km/h), your snowmobile is traveling about 60 feet (18 m) per second. If you look back for only two seconds, your snowmobile will travel about 120 feet (36 m). If your speed is 60 MPH (96 km/h), your snowmobile will travel about 180 feet (55 m) in two seconds.

Traveling at night requires extra caution. Check headlight and taillight to ensure proper operation, and don't over-drive your headlight beam. Always be able to bring your snowmobile to a stop in the distance illuminated by the headlight.

DRIVER AWARENESS

Slow down when traveling near poles, posts, or other obstacles. Be especially alert if you're snowmobiling after dark. Always be on the alert for wire fences. Single strands are especially dangerous, since there may be a great distance between posts. Guy wires on utility poles are also difficult to distinguish.

Make sure the way is clear before crossing railroads and other roads and highways. The noise of your snowmobile will drown out the sound of approaching vehicles and bare roads limit the effectiveness of the steering system. Look ahead, behind, and to both sides before turning or crossing railroad tracks or highways. Steep embankments may also hide your view. Always leave yourself a way out.



Variances in snow depth and/or water currents may result in uneven ice thickness. You may drown if you break through the ice. Never travel on frozen bodies of water unless you have first verified that the ice is sufficiently thick to support the weight and moving force of the snowmobile, you 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. Snowmobile operators assume all risk associated with ice conditions on frozen bodies of water.

When teaching inexperienced operators to ride, set up a predetermined course for practice. Make sure they know how to drive and control the snowmobile before allowing them to make longer trips. Teach them proper snowmobile courtesy, and enroll them in driver's training and safety courses.

DISABLED OPERATORS

Safe operation of this rider-active vehicle requires good judgement and physical skills. Operators with cognitive or physical disabilities have an increased risk of loss of control, which could result in serious injury or death.

MOUNTAINOUS TERRAIN RIDING

Mountainous terrain operation, even for experienced riders, can present conditions and situations that could result in serious injury or death. Please review all of the information about riding in mountainous terrain on the following pages of this manual.

⚠ WARNING

An avalanche can occur at any time, in any conditions and on any slope.

The avalanche information provided in this manual should be considered basic information and is not intended to replace your participation in an avalanche safety training course. After reviewing the avalanche information in this manual, be sure to participate in an avalanche safety training course before riding in mountainous terrain. The training course will provide more information as well as the opportunity to practice riding and using proper search and recovery techniques.

For more information, education, training courses, and links to additional resources, visit:

- *www.avalanche.org* for North American riders.
- *www.avalanche.ca* for Canadian riders.
- *www.lavinprognoser.se* for Swedish riders.
- *www.avalanches.org* for European riders.

GET THE SAFETY GEAR

In addition to carrying a spare belt, spark plugs and tools on each snowmobile, each person in your riding group should wear the recommended snowmobile riding apparel and carry (on their person) the following survival items when riding in mountainous terrain:

- A digital avalanche beacon with new “fresh” alkaline batteries
- An avalanche probe
- A compact shovel and hand saw
- A backpack (preferably an avalanche air bag backpack)
- Emergency provisions, including the following items:
  - Small first aid kit
  - Extra pair of gloves
  - Extra dry socks
  - Tow rope, map, compass/GPS
  - Lighter or waterproof matches
  - Signal mirror and whistle
  - Bottled water
  - High calorie snack food
  - Compact emergency blanket

GET TO KNOW YOUR SAFETY GEAR

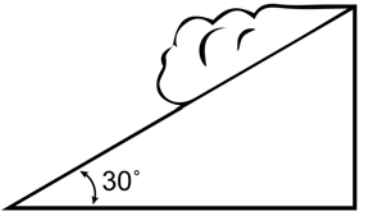
Following the safety gear and apparel recommendations will increase your chances of survival if you encounter an avalanche or become stranded in the backcountry, but even experienced and properly-equipped snowmobilers, hikers and skiers perish in avalanches or succumb to hypothermia. Using a beacon or probe for the first time during an avalanche recovery operation, or not knowing how to deploy your avalanche air bag backpack during a slide, should be considered UNACCEPTABLE to you and all members of your riding group. It's critical that you *and all members of your riding group* know how to use the safety gear.

While you may know how to use your gear, you may have to rely on your riding group to find you in an avalanche. Make sure they know how to use their gear.

- Dress in layers. Multiple layers of clothing provide the best barrier to cold and wind. Layers can be removed, but if you start out without enough layers, they cannot be added later. Avoid cotton materials, which will freeze if they get wet.
- Wear highly visible gear.
- Try on all gear and equipment to make sure it fits and doesn't interfere with your riding capabilities. Place all survival aids in your backpack and wear the backpack at all times. Non-essential items can be stored on the snowmobile in an accessory bag.
- Read and follow the manufacturer's user and maintenance instructions for all gear. If you have questions about how your gear works, contact the manufacturer for more information.
- Practice using your beacons, shovels and probes with your riding group in real-world conditions wearing all of your gear. Have someone hide an active "transmitting" beacon by throwing it (not walking it) into a snowbank and timing your group's search for it.
- Test deploying your gear. If you own an avalanche air bag backpack, check with the manufacturer's test deployment guidelines and bottle weight replacement specifications. Most air bag backpack manufacturers recommend testing the pack once a year so you know it works and feel comfortable with the bag and deployment time.
- Make sure your probe and shovel are in good condition and that you know how to assemble them.

GET THE PICTURE

Slopes steeper than 30º are more prone to avalanches, but any slope should be considered avalanche terrain, even small slopes with trees. Low-angle slopes are also avalanche terrain if they have steeper slopes above them.



NOTICE

The 30º slope graphic is for illustration purposes only. The risk of an avalanche is always present in mountainous terrain, regardless of slope angle.

Always look for the following warning signs of unstable snow. If you see or hear any of these signs, riding on or below any slope is dangerous and should be avoided:

- Recent avalanches
- A “whumpfing” sound under a snowpack
- Cracks across the top of a snowpack
- A recent heavy snowfall
- Blowing snow
- Rain
- Rapid warming

GET OUT OF HARM’S WAY

- Before riding, always tell a responsible person (i.e. at the lodge or gas station) where your group is going.
- Never ride alone. Always ride in a small, manageable group. Riding in a large group makes it more difficult to track riders or find missing members.
- Go “one at a time”. Only one snowmobile at a time should cross, ascend or highmark a slope. Other riders should watch from a safe location until the previous rider exits the slope.
- Never park at the base of a slope or at the bottom of a gully or valley. When parking to take a break or watch other riders, park at the sides of the slope with the front of your snowmobile pointed away from the slope.

GET TO KNOW YOUR MOUNTAIN SNOWMOBILE

The following information pertains to a deep snow/mountain snowmobile. This type of snowmobile is longer and narrower and has a higher center of gravity when compared to a typical trail snowmobile. These features make riding the backcountry a safer and more enjoyable experience.

The mountain snowmobile is slower, has a larger turning radius and will overturn more easily than a trail snowmobile. The skis are designed to float and provide more lift than trail skis. The track features paddles that pack and shovel snow rather than dig in and grip the snowpack.

Because POLARIS mountain snowmobiles feature tall track paddles, the rear suspension rails and sliders will sit above the snowpack on a groomed trail. *Always deploy the scratchers and limit high speed operation when trail riding.* Do not rely on the engine temperature gauge to determine when to deploy rail scratchers. The rail sliders and track can overheat well before the engine temperature indicates the need for more cooling.

Always practice riding your mountain snowmobile in a safe, open, flat area before attempting your first ride in mountainous terrain. This is especially important for low-elevation riders who are not accustomed to riding a snowmobile designed for deep snow.

Do not ride in mountainous terrain until you are comfortable riding and controlling your snowmobile in deep snow.

- Practice turning, leaning and braking, both on the trail and off the trail. When you're comfortable with these maneuvers, practice more advanced maneuvers in deep flat snow.
- Learn techniques from more experienced riders.
- Practice placing your feet in different locations on the floorboards to learn where your balance point is while performing turns and other maneuvers.
- Practice traversing through deep snow, which is when you will often need to steer by leaning your body weight in the desired direction while turning the skis slightly in the opposite direction.
- Practice using proper throttle control to maintain vehicle momentum and adequate track speed in deep snow. Everyone gets stuck at some point in time. If you know your snowmobile is becoming stuck, try to turn downhill as much as you can before the snowmobile comes to a stop.

GET THE FORECAST

Make a riding plan based on the current avalanche and weather forecast. It is important to remember that overnight weather conditions may have created unsafe riding terrain that was considered safe the day before.

Follow the page links below to locate current avalanche reports and conditions for your area of operation.

- *www.avalanche.org* for North American riders.
- *www.avalanche.ca* for Canadian riders.
- *www.lavinprognoser.se* for Swedish riders.
- *www.avalanches.org* for European riders.

GET AVALANCHE SAFETY TRAINING

POLARIS recommends you and all members of your riding group participate in an avalanche safety course. Visit the education section of the Avalanche website for your region.

AVALANCHE AWARENESS

Avalanches are a matter of timing. A steep slope can be safe one day, but unsafe the next day due to changing weather and wind conditions.

- Always review the user instructions provided with your safety equipment and follow the recommendations for maintenance, testing and use. Always test your safety equipment to ensure it works properly before riding in mountainous terrain.
- Always store your survival gear in your backpack and wear the backpack. Do not store your survival gear on the snowmobile.
- Always research current avalanche conditions in your area of operation before riding. Check with local law enforcement, resort or lodging personnel, gas station attendants and other riders to learn about current conditions and any advisories in the area.
- Read and understand the avalanche danger scale. Pay attention to any danger level warnings issued for your area of operation.
- Always remain alert while riding in mountainous terrain. Be aware of snowpack conditions above you as you ride. Avalanches can occur at any time regardless of current condition reports.

North American Public Avalanche Danger Scale

Avalanche danger is determined by the likelihood, size and distribution of avalanches.

DANGER LEVEL		TRAVEL ADVICE	LIKELIHOOD OF AVALANCHES	AVALANCHE SIZE AND DISTRIBUTION
5 Extreme		Avoid all avalanche terrain.	Natural and human-triggered avalanches certain.	Large to very large avalanches in many areas.
4 High		Very dangerous avalanche conditions. Travel in avalanche terrain not recommended.	Natural avalanches likely; human-triggered avalanches very likely.	Large avalanches in many areas; or very large avalanches in specific areas.
3 Considerable		Dangerous avalanche conditions. Careful snowpack evaluation, cautious route-finding and conservative decision-making essential.	Natural avalanches possible; human-triggered avalanches likely.	Small avalanches in many areas; or large avalanches in specific areas; or very large avalanches in isolated areas.
2 Moderate		Heightened avalanche conditions on specific terrain features. Evaluate snow and terrain carefully; identify features of concern.	Natural avalanches unlikely; human-triggered avalanches possible.	Small avalanches in specific areas; or large avalanches in isolated areas.
1 Low		Generally safe avalanche conditions. Watch for unstable snow on isolated terrain features.	Natural and human-triggered avalanches unlikely.	Small avalanches in isolated areas or extreme terrain.

Safe backcountry travel requires training and experience. You control your own risk by choosing where, when and how you travel.

ICE AND SNOW BUILD-UP

⚠ WARNING

Ice and snow build-up may interfere with the steering of your snowmobile, resulting in serious injury or death. Keep the under-hood area free of snow and ice.

Before driving, manually turn the skis to the left and right to be sure ice and snow are not interfering with full left and right steering. If difficulty is encountered, remove ice and snow build-up that may be obstructing the steering linkage.

Excessive ice and snow build up can increase vehicle weight and may cause contact of moving components, resulting in reduced braking performance and component damage.

DRIVING ON SLIPPERY SURFACES

⚠ WARNING

Never attempt an abrupt change of direction when operating on slippery surfaces. Proceed slowly and use extra caution. Driving on ice or hard-packed snow reduces steering and braking control, which may result in loss of control and serious injury or death. Slow down and use extra caution when operating on slippery surfaces.

INADEQUATE SNOW CONDITIONS

Since snow provides the only lubrication for the power slide suspension and, on liquid cooled models, cooling for the engine, adequate snow cover is a requirement for operation of your snowmobile.

NOTICE

Driving in too little snow will result in excessive wear and damage to the slide rail, track and/or engine.

⚠ WARNING

Inadequate cooling and lubrication will lead to overheating of the slide rail and track, causing premature wear, damage and failure, which can result in serious injury. Reduce speeds and frequently drive into fresh snow to allow adequate cooling and polishing of the slide rail and track surfaces. Avoid operating for prolonged periods on ice, hard-packed surfaces or roads.

OPERATING IN DEEP SNOW

If the snowmobile becomes stuck in snow, clear the running board area of snow, then step down the snow in front of the snowmobile so that when the throttle is opened, the snowmobile will be able to climb up and over the snow.

DRIVING DOWNHILL

When riding downhill, shift your weight to the rear of the snowmobile and reduce your speed to a minimum. Apply just enough throttle to keep the clutch engaged, allowing the engine's compression to help slow the snowmobile and keep it from rolling freely downhill.

⚠ WARNING

When driving on long downhill stretches, pump the brakes. Riding the brakes may cause the brake system to overheat, which may result in brake failure. Excessive or repetitive use of the brakes for high speed stops will also cause an overheated brake system. This condition may lead to a sudden loss of brakes and/or fire and may result in serious injury or death.

DRIVING IN HILLY TERRAIN

⚠ WARNING

Climbing a hill or crossing the face of a slope may result in loss of balance and snowmobile rollover, causing serious injury or death. Use caution and good judgement when driving in hilly terrain.

Use extra caution when operating in hilly terrain. If climbing a hill is unavoidable, keep your weight low and forward. If you must cross the face of a slope, keep your weight on the uphill side of the snowmobile to maintain proper balance and avoid possible roll-over.

Slow down when reaching the crest of a hill. Be prepared to react to obstacles, sharp drops or other people or vehicles that may be on the other side of the hill.

If you're unable to continue up a hill, turn the snowmobile downhill before it loses momentum. If this isn't possible, spin the track just enough to dig in to prevent it from rolling back down the hill. Stop the engine and set the parking brake (if equipped). Keeping away from the downhill side of the snowmobile, pull the rear of the snowmobile around and point the front end and skis downhill. Remount the snowmobile, restart the engine, release the parking brake, and descend the hill carefully.

DRIVE BELT

Do not operate the engine with the drive belt removed.

Any servicing that requires operation without a belt can be performed by your dealer.

⚠ WARNING
Operation of the engine with the belt removed may result in injury or damage to the engine.

INTAKE SILENCER

Do not operate the engine with the intake silencer or filter removed.

NOTICE
Damage to the engine may occur if the intake silencer or filter are removed.

CLUTCHES

Do not attempt to service the clutches.

All clutch service can be performed by your dealer. The clutch is a complex mechanism that rotates at high speeds. Each clutch is dynamically balanced before installation. Any tampering may disrupt this precision balancing and create an unstable condition.

COLD WEATHER DRIVE-AWAY

Whenever your snowmobile has been parked for a length of time, especially overnight, always make sure the skis and track are loosened from ice and snow before attempting to drive. Apply the throttle with enough authority to put the snowmobile into motion, but always operate within safety limits.

On 2-up machines, always operate with respect for a passenger.

MANEUVERABILITY

While much control and maneuverability is achieved through the steering system and skis, maximum control is achieved by the shifting of your body weight. Maneuverability will change based on rider weight and foot position on running boards.

DRIVING RESPONSIBLY

Every snowmobile handles differently, and even the most docile conditions may become dangerous if operators drive improperly. If you're new to snowmobiling, acquaint yourself with the snowmobile and with what it will and won't do under various conditions. Even seasoned drivers should spend some time getting the feel for a snowmobile before attempting ambitious maneuvers.

- A snowmobile depends on the rider's body position for proper balance in executing turns, traversing hills, etc. Always start on a smooth, level area to begin building your operating experience.
- Before allowing someone else to use your snowmobile, know the extent of their operating skills. Check to see if they've taken a snowmobile safety course and have an operator's certificate. For their protection, as well as yours, make sure they take a snowmobile safety course. Everyone can benefit from the course.
- Don't “jump” your snowmobile over large drifts or similar terrain. Jumping may injure your back because of spinal compression that could occur when the snowmobile impacts the ground. The seat and suspension of your snowmobile have been designed to provide protection under normal riding conditions. Your snowmobile is not intended for this kind of use.
- Be courteous to oncoming traffic by dimming your headlights and reducing your speed.
- When traveling in a group of snowmobiles, don't tailgate (follow too closely). Leave enough distance between snowmobiles to provide ample stopping room and to provide protection from flying snow and debris. Allow even more distance when driving on slippery surfaces or when driving in darkness or other low visibility conditions. Be aware of any snowmobile traffic around your vehicle. Drive defensively to avoid accidents.
- Remove the key from the ignition when you leave the snowmobile unattended.

WINDCHILL/TEMPERATURE CHARTS

The following information is provided to help you determine when temperatures become dangerous for riding.

WINDCHILL CHART (°F)

Wind Speed in MPH	Actual Thermometer Reading (°F)																	
	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
	Equivalent Temperature (°F)																	
Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98
Frostbite in >>							30 min.		10 min.		5 min.							

WINDCHILL CHART (°C)

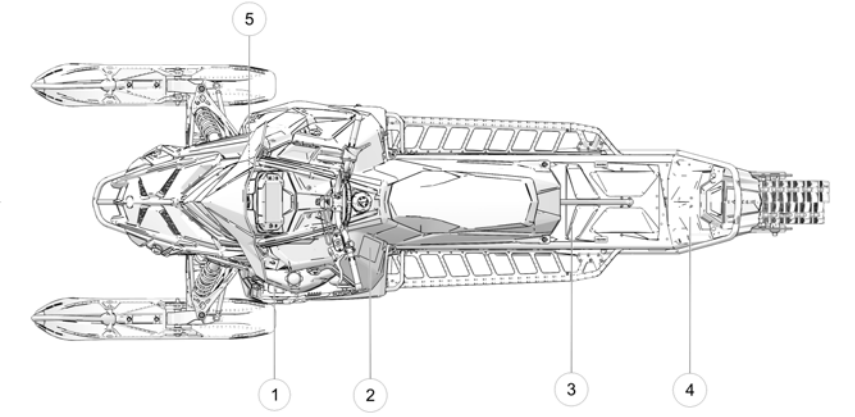
Wind Speed in Km/h	Actual Thermometer Reading (°C)																	
	5	2	-1	-4	-7	-10	-13	-16	-19	-22	-25	-28	-31	-34	-37	-40	-43	-46
	Equivalent Temperature (°C)																	
Calm	5	2	-1	-4	-7	-10	-13	-16	-19	-22	-25	-28	-31	-34	-37	-40	-43	-46
8	3	0	-4	-7	-11	-14	-18	-22	-25	-29	-32	-36	-39	-43	-46	-50	-53	-57
16	2	-2	-6	-10	-13	-17	-21	-24	-28	-32	-36	-39	-43	-47	-50	-54	-58	-62
24	1	-3	-7	-11	-15	-19	-22	-26	-30	-34	-38	-42	-45	-49	-53	-57	-61	-65
32	0	-4	-8	-12	-16	-20	-24	-28	-32	-36	-39	-43	-47	-51	-55	-59	-63	-67
40	-1	-5	-9	-13	-17	-21	-25	-29	-33	-37	-41	-45	-49	-53	-57	-61	-65	-69
48	-1	-5	-9	-13	-18	-22	-26	-30	-34	-38	-42	-46	-50	-54	-58	-62	-66	-70
56	-2	-6	-10	-14	-18	-22	-26	-31	-35	-39	-43	-47	-51	-55	-59	-64	-68	-72
64	-2	-6	-10	-15	-19	-23	-27	-31	-35	-40	-44	-48	-52	-56	-61	-65	-69	-73
72	-2	-7	-11	-15	-19	-23	-28	-32	-36	-40	-45	-49	-53	-57	-61	-66	-70	-74
80	-3	-7	-11	-15	-20	-24	-28	-33	-37	-41	-45	-50	-54	-58	-62	-67	-71	-75
88	-3	-7	-12	-16	-20	-24	-29	-33	-37	-42	-46	-50	-55	-59	-63	-67	-72	-76
96	-3	-8	-12	-16	-21	-25	-29	-34	-38	-42	-47	-51	-55	-60	-64	-68	-73	-77
Frostbite in >>							30 min.		10 min.		5 min.							

SAFETY LABELS AND LOCATIONS

Warning labels are placed on the snowmobile for your protection. Read and follow the instructions of the labels and warnings on the snowmobile carefully. If any of the labels depicted in this manual differ from the labels on your snowmobile, always read and follow the instructions of the labels on the snowmobile.

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

PRO RMK
RMK KHAOS



① Clutch Warning
② General Warning
③ Hot Surface Caution
④ Moving Parts Warning
⑤ Fuel Transport Warning

CLUTCH WARNING

⚠ WARNING

Belt Removal – All Units

1. For electric reverse models, engine must be stopped in forward to allow clutch opening.
2. Install L-wrench from fender into the open threaded hole in the driven clutch.
3. Turn the L-wrench clockwise to open the sheaves and replace the belt. Return the L-wrench to the fender.

See Owner's Manual for sheave width adjustment procedure.

Recommended oil: VES Full Synthetic 2-Cycle Engine Oil or VES Extreme Full Synthetic 2-Cycle Engine Oil.

Part Number: 7300329.

GENERAL WARNING

⚠ WARNING

This snowmobile is designed for one (1) operator and as many passengers as there are seats with handgrips installed on the snowmobile.

- Read and understand all warnings and Owner's Manual before operation.
- Never consume alcohol or drugs before or while operating this vehicle.
- Sharp turns could destabilize vehicle.
- Always wear DOT approved helmet and proper riding gear while operating this vehicle.
- Set parking brake before removing key from ignition.
- Do not attempt adjustment with engine running.

Part Number: 7300286.

HOT SURFACE CAUTION

⚠ WARNING

Hot Surface. DO NOT touch. Burns may result.

Part Number: 7300117.

MOVING PARTS WARNING

⚠ WARNING

- Read owner's manual.
- Moving parts can crush and cut.
- Keep hands clear.
- Do not operate with guards or side panels removed.

Part Number: 7300297.

FUEL TRANSPORT WARNING

⚠ WARNING

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

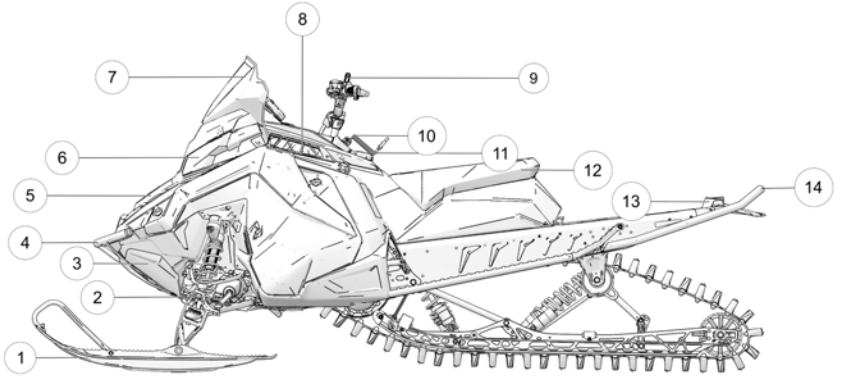


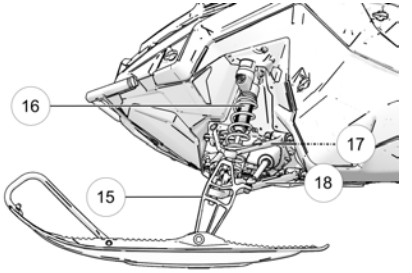
Part Number: 7300679.

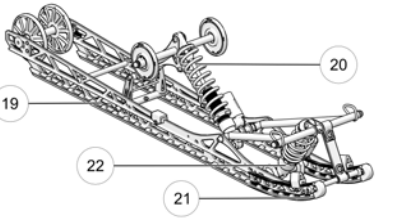
FEATURES
COMPONENT LOCATIONS

NOTICE

The figures below are for reference only. Your model may differ slightly.

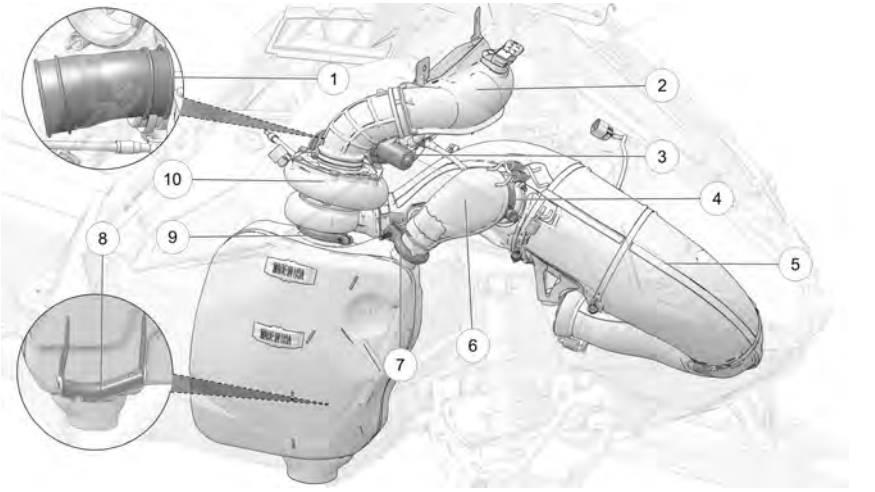






① Skis
② Independent Front Suspension (IFS)
③ Nosepan
④ Front Bumper
⑤ Hood
⑥ Headlight
⑦ Windshield
⑧ Intake Screens
⑨ Handlebar
⑩ Tether and Key Switch
⑪ Fuel Cap
⑫ Operator Seat
⑬ Taillight
⑭ Rear Bumper
⑮ Spindle
⑯ IFS Shock
⑰ Upper Control Arm
⑱ Lower Control Arm
⑲ Rail Scratcher
⑳ Rear Track Shock
㉑ Rail
㉒ Front Track Shock

PATRIOT BOOST SYSTEM COMPONENTS (IF EQUIPPED)



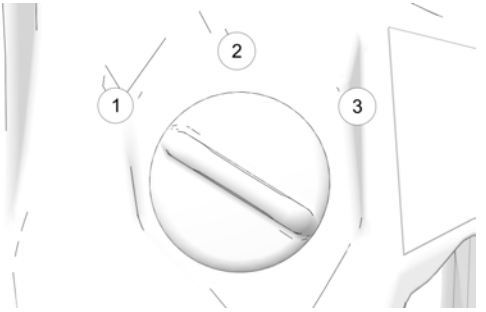
① Intake Boost Tube
② Turbo Intake Tube
③ Smart Boost Wastegate Actuator
④ Upper Bypass V-Band Clamp
⑤ Exhaust Tune Pipe/Heat Shields
⑥ Exhaust Bypass Tube
⑦ Lower Bypass V-Band Clamp
⑧ Exhaust Silencer
⑨ Turbo V-Band Clamp
⑩ Turbocharger

IGNITION SWITCH

The ignition switch has three positions: OFF, RUN, and START.

OFF Vehicle / Display power off
RUN Vehicle / Display power on
START Activates starter motor (if equipped)

If equipped with electric start, turn the key to START to crank the engine. When released, the key automatically returns to the RUN position.



NOTICE

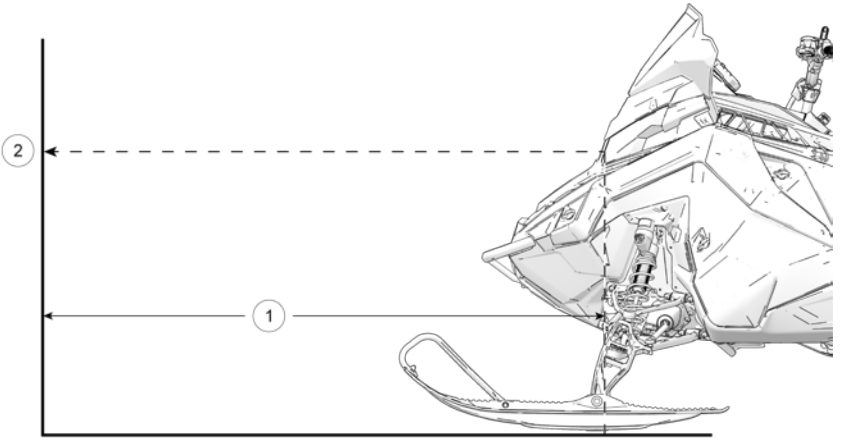
If the key remains in the RUN position after using the engine stop switch to stop the engine, the 7S Display will remain active. The screen will turn off after several minutes of inactivity, but if a battery is installed, the display will continue to draw a small amount of current from the battery until the key is turned off. This feature is useful for accessing Ride Command without starting the engine, but turn the key off when the display is not in use.

The 7S Display is not dependent on a battery while the engine is running. This allows the 7S to remain fully powered and retain GPS lock during a successful PERC event (forward/reverse transition). When the engine is shut off, the display will immediately power down.

For vehicles equipped with a battery, the 7S Display will remain fully powered (battery installed) for 60 seconds when the key remains in the RUN position after Engine Stop Switch is depressed. The display will power off automatically after 10 minutes of inactivity.

ADJUSTABLE HEADLIGHT

NOTICE
The image below is for reference only. Your model may differ slightly.



HEADLIGHT INSPECTION

It is very crucial to correctly complete the steps below in order to achieve optimal headlight performance. The headlight can be inspected for vertical aim using the following procedure.

1. In a well-ventilated area, position the snowmobile on a level surface with the headlight approximately 25 ft (7.6 m) from a wall ①.
2. Place the rider or the approximate weight of the rider on the seat or tunnel floorboards.
3. Measure the distance from the floor to the center of the headlight and make a mark on the wall at the same height ②.
4. Start the engine. Move the headlight switch to low beam.
5. Observe the headlight aim on the wall. There should be a distinct horizontal line on the wall from the low beam. That line should align with the mark on the wall ②.

HEADLIGHT ADJUSTMENT

1. Shut off engine.

WARNING

To prevent serious injury, NEVER attempt to adjust the headlight while the engine is running.

2. If adjustment is necessary, an adjuster knob is located on the back of the headlight, which can be accessed by removing the vehicle's left side panel.

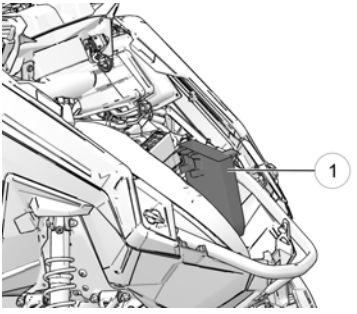
NOTICE

The adjuster knob is located at the rear of the light above the plug.

3. To LOWER the beam, turn the adjuster knob CLOCKWISE.
4. To RAISE the beam, turn the adjuster knob COUNTERCLOCKWISE.

TOOLS

Remove the hood assembly to access the spare drive belt container ①. The spare drive belt container is attached to the front bumper and holds the spare belt, spare spark plugs, and spark plug wrench.

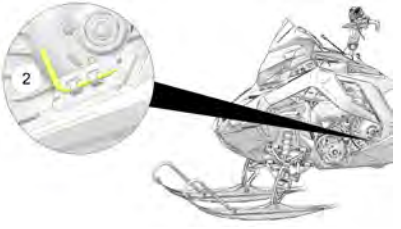


NOTICE

Spare belt and spark plugs are not provided with the snowmobile.

L-WRENCH

When properly engaged in the bracket, the L-wrench ② secures the fender to the console. To retrieve the L-wrench, rotate it counter-clockwise and slide it upward from the bracket. Return the L-wrench to the bracket and rotate it clockwise when not in use.



SPARK PLUG WRENCH

The spark plug wrench secures to the spare drive belt container on the front bumper. Remove the container to add or access a spare spark plug or belt.

REPLACEMENT DRIVE BELT

A replacement drive belt can be stored in the spare drive belt container ① located under the hood.

QUICKDRIVE

The QUICKDRIVE drive system utilizes a drive belt that exhibits extraordinary performance and service life when the belt is handled properly before and during installation. Improper handling of this belt can result in a shortened service life.

Inspect and change the belt at the intervals outlined in the *Maintenance* chapter.

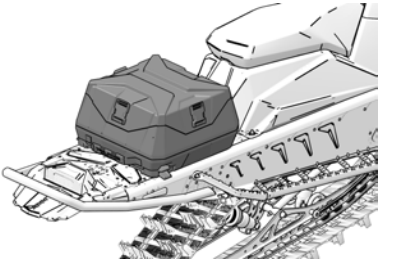
Special tools are required to remove and install the QUICKDRIVE belt. Your POLARIS dealer can assist with this service.

BELT HANDLING

- Store a new belt in original packaging. Remove only when ready for installation.
- Avoid belt contact with solvents, oils or chemical cleaners.
- Do not crimp or bend the belt to a diameter less than the upper sprocket.
- Do not back-bend the belt.
- Do not twist or flip the belt.
- Do not use a pry bar or screwdriver to remove or install the belt.
- Always break in a new belt properly. See page 117 for belt break-in procedures.

CARGO STORAGE

Never hang heavy items or fuel containers from the rear of the tunnel. Cargo may be stowed only in the tunnel storage bag (if equipped) or under the seat.



The maximum weight capacity for the tunnel is 15 lb (7 kg). Include the weight of the cargo bag when determining cargo weight.

NOTICE
Exceeding the tunnel cargo weight capacity could result in tunnel and or suspension pad damage. Do not exceed the weight limit.

RAIL SCRATCHERS

Matryx RMK models are equipped with rail scratchers to help prevent overheating when riding on ice or hard-packed snow.

NOTICE
Do not install accessory bogie wheels on the inside of the rail beams if your model is equipped with a remote reservoir rear track shock or damage will occur. The rail scratchers must be removed as they interfere with the accessory bogie wheels.

ACCESSORIES

POLARIS offers a wide range of accessories for your snowmobile to help make each ride more enjoyable.

Use only POLARIS parts and accessories on your POLARIS snowmobile. Use of unapproved parts and accessories may result in:

- Non-compliance with government/industry requirements
- Voiding of warranty
- Injury to self or others

This applies to, but is not limited to the following areas: brakes, clutches, fuel systems, and exhaust systems. Exhaust systems are critical safety areas that *must* use approved POLARIS parts. Please see your POLARIS dealer for service.

DETONATION ELIMINATION TECHNOLOGY (DET)

When DET senses and takes action to reduce detonation, the driver may notice a drop in engine RPM and/or reduced performance.

The ECU will illuminate the check engine LED and display “DETONATION” on the LCD screen whenever the DET system is active.

If the ECU determines the detonation cannot be controlled by normal means, and further operation may cause engine damage, the check engine LED will flash, the instrument clusters will display “DETONATION” and the ECU will either limit the maximum engine speed or turn off the engine.

If the ECU limits RPM, the limit will remain active until the driver stops and restarts the engine.

NOTICE
The most likely causes of severe detonation are outlined in the troubleshooting table on page 222.

DETONATION PROTECTION MODES	
Check Engine LED/Gauge Display	**Protection Mode**
Matryx RMK Models	
LED illuminated / “DETONATION” displayed	Slight drop in engine RPM/power
LED flashing / “DETONATION” displayed	Exhaust valves close to reduce engine RPM/power. Restart engine to reset.





NOTICE
The instrument cluster alert indicates which cylinder is experiencing detonation.

OIL PUMP FAILURE PROTECTION

If the ECU determines there is a problem with the electronic oil pump control circuit, the engine management system will limit engine speed to approximately 4500 RPM and illuminate the check engine indicator light on the instrument cluster. For Patriot Boost models, if only the turbo oil pump fails, engine speed will limit to approximately 7000 RPM.

EXTENDED IDLE ENGINE SHUTOFF

The Extended Idle Engine Shutoff feature causes the ECU to shut down the engine when engine temperature reaches a specific temperature (see table below) and there is no throttle lever input for 11 minutes.

MODEL	ENGINE TEMP.
Matryx RMK models	95° F (35° C)

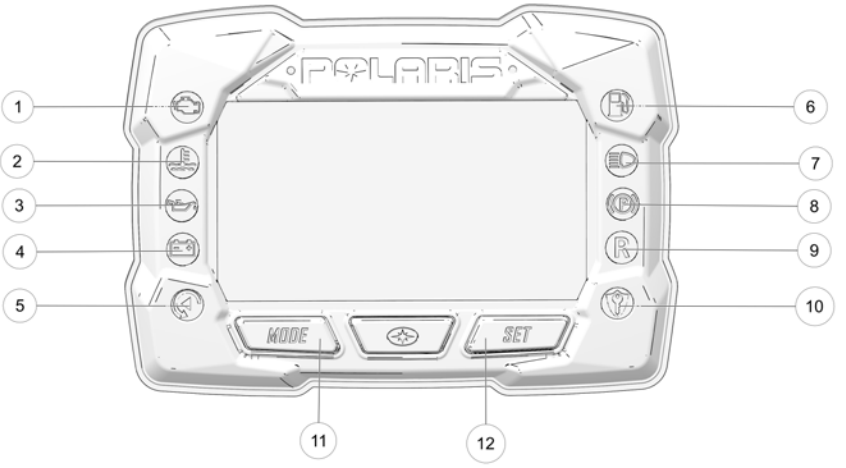
NOTICE
The 7S display (if equipped) will remain on when the key is in the ON position. After 60 seconds, the display backlight will dim and then fully shut down after 10 minutes of inactivity.

SECURITY SYSTEM (IGNITION LOCK SYSTEM)

Your snowmobile has an optional security function that can be activated by an authorized Polaris dealer. If you have this feature activated, you can lock the ignition to prevent unauthorized use when leaving the snowmobile unattended. A locked system will limit engine speed to 3000 RPM, which prevents clutch engagement, and the snowmobile will not move when throttle is applied.

GAUGE

STANDARD INSTRUMENT CLUSTER



① Check Engine	⑤ Playback	⑨ Reverse
② Engine Hot	⑥ Low Fuel	⑩ Security
③ Low Oil	⑦ High Beam	⑪ MODE Button
④ Low Battery Voltage	⑧ Parking Brake	⑫ SET Button

NOTICE
Certain products will damage the lens and other plastic surfaces. Do not use alcohol to clean the instrument cluster. Immediately clean off any gasoline that splashes on the instrument cluster.

The instrument cluster contains indicator lights and the rider information center. The information center can be controlled by the MODE button ⑪ and SET button ⑫ on the instrument cluster.

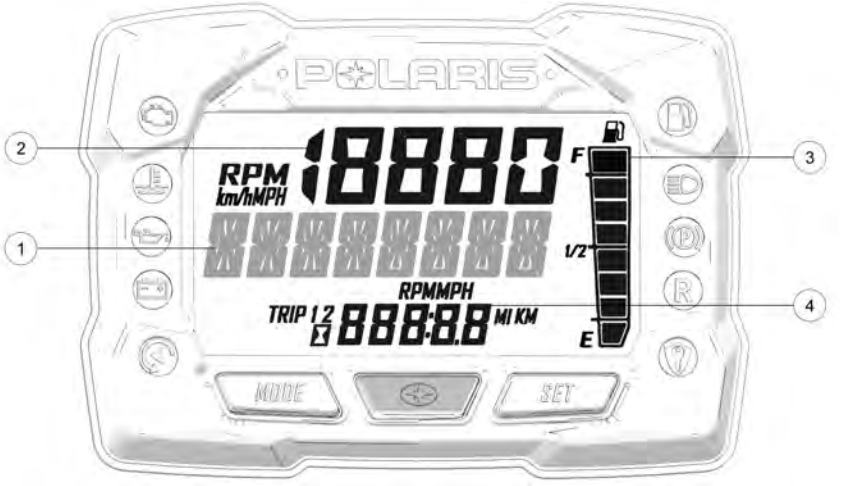
INDICATOR LAMPS

INDICATOR	CONDITION
	This indicator appears if an EFI-related fault occurs. Do not operate the snowmobile if this warning appears. Serious engine damage could result. Your dealer can assist.
	The over-temperature indicator will ***illuminate*** when the engine is overheating. Take action to cool the engine. The indicator will ***flash*** when engine temperature reaches critical levels. ***Stop the engine immediately.***
	The low oil indicator light may flicker at times due to oil movement in the bottle, but when the light comes on and remains on, add the recommended oil before further operation.
	The low battery voltage indicator illuminates when the battery voltage is low.
	The playback indicator illuminates when the gauge is in playback mode.
	The low fuel indicator illuminates when there is 2 gal (7.5 L) of fuel remaining in the tank.
	The high beam indicator illuminates when the lights are set to high beam.
	The parking brake Indicator illuminates when the parking brake is engaged. It will also illuminate when the service brake is in use.
	The reverse indicator flashes when the transmission is in reverse.
	The security indicator illuminates when the security system is activated.

RIDER INFORMATION CENTER

The rider information center is located in the instrument cluster. The center displays vehicle speed, engine speed, odometer, trip meters (2), total engine hours of operation, fuel level, engine temperature, and a diagnostic display mode.

Setting changes must be made with the engine running or with the vehicle powered by an external DC power supply connector. The information center is set to display standard units of measurement for distance and temperature.



① **Information Display Area** - Displays engine speed or vehicle speed (whichever is not displayed in the speed display), engine temperature and maximum vehicle speed.

② **Speed Display** - Displays vehicle speed or engine speed.

③ **Fuel Gauge** - The segments of the fuel gauge show the level of fuel in the fuel tank. When the last segment clears, a low fuel warning is activated. All segments including the fuel icon will flash. Refuel immediately.

TIP
If the fuel icon fails to display, an open or short circuit has occurred in the fuel sensor circuit. See your dealer.

④ **Odometer/Engine Hour Display** - This area displays the odometer, Trip A, Trip B and engine hours.

INFORMATION DISPLAY AREA

This area displays either engine speed or vehicle speed (whichever is not displayed in the speed display), engine temperature, maximum vehicle speed, and speed or RPM. To change the display, *press and release* the MODE button or the MODE switch until the desired item is displayed.

SPEED DISPLAY AREA

The speed display area displays either vehicle speed or engine speed. Vehicle speed is displayed in either miles per hour (MPH) or kilometers per hour (km/h). Engine speed is displayed in revolutions per minute (RPM).

1. To change which item displays, first make sure the information display area is set to display either engine speed or vehicle speed.
2. *Press and release* the center button.

FUEL GAUGE

The segments of the fuel gauge show the level of fuel in the fuel tank. When the last segment clears, a low fuel warning is activated. All segments including the fuel icon will flash. Refuel immediately.

TIP
If the fuel icon fails to display, an open or short circuit has occurred in the fuel sensor circuit. See your dealer.

ODOMETER/ENGINE HOUR DISPLAY AREA

This area displays the odometer, Trip 1 meter, Trip 2 meter, CLOCK, and Engine Hours meter.

The odometer displays the total distance traveled by the vehicle since manufacture. Each trip meter records the distance traveled by the vehicle on a trip if the meter is reset before each trip. The CLOCK displays the time, and the engine hour meter displays the total hours the engine has been in operation since manufacture.

To change the display, *press and release* the SET button or SET switch until the desired item is displayed.

To reset a trip meter, *press and hold* the SET button or SET switch until the meter resets to zero.

PLAYBACK FUNCTION

The playback function allows the rider to record and play back engine speed, vehicle speed and throttle position sensor information for up to three minutes.

TO RECORD

1. *Press and hold* the center button on the instrument cluster to enter the Options Menu.
2. *Press and release* the MODE button until PLAYBACK appears in the information display area.



3. *Press and release* the SET button.

   RECORD will appear in the information display area.



4. To begin recording, *Press and release* the SET button.

   The playback indicator will flash while recording is in progress. Recording is complete when the light stops flashing.

NOTICE
To stop recording at any time during the recording process, *press and release* the SET button.

TO PLAYBACK

1. To play back the recorded data, stop the vehicle and wait for engine speed to drop below clutch engagement.
2. *Press and hold* the center  button on the instrument cluster to enter the Options Menu.
3. *Press and release* the MODE button until PLAYBACK appears in the information display area.



4. *Press and release* the SET button twice.

   PLAY will appear in the information display area.



5. *Press and release* the SET button to play the recorded data.

   Once playback has concluded, REPLAY will appear in the information display area.

6. *Press and release* the SET button to REPLAY recorded data.
7. *Press and release* the MODE button to end playback and return to the Options Menu.

STANDARD/METRIC DISPLAY

The odometer and temperature displays can be viewed in either standard or metric units of measurement. Both displays change if units are changed. The new settings will remain until changed by the operator.

Change Method 1

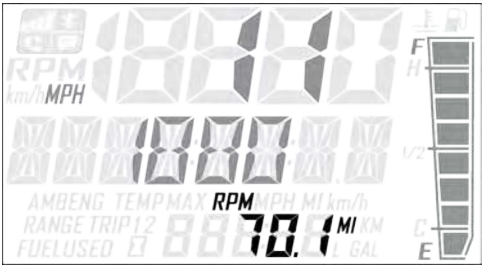
1. *Press and hold* the center button on the instrument cluster to enter the Options Menu.
2. *Press and release* the MODE button until engine temperature appears in the information display area.



3. *Press and release* the SET button or SET switch to change units.

Change Method 2

1. *Press and release* the SET button or SET switch until the odometer appears in the information display area.



2. *Press and hold* the SET button or SET switch until the units change.

SECURITY SYSTEM (IGNITION LOCK SYSTEM)

This system is an optional feature and will not function until it has been activated by your authorized POLARIS dealer. If you have this feature activated, you can lock the ignition to prevent unauthorized use when leaving the snowmobile unattended. A locked system will limit engine speed to 3000 RPM, which prevents clutch engagement, and the snowmobile will not move when throttle is applied.

If you wish to use this feature, you must complete all four tasks on the following pages to have your system activated and to change the security code to one of your own choosing.

FIRST TIME USE OF YOUR SECURITY SYSTEM

Perform all tasks in the order shown if you wish to activate and use the optional security system.

TASK 1: Activate the security system

See your authorized POLARIS dealer to have the optional security system feature activated in the electronic control unit (ECU).

TASK 2: Lock the System the First Time

NOTICE
To lock the system for the first time, use code 000.

1. *Press and hold* the center button on the instrument cluster to enter the Options Menu.
2. *Press and release* the MODE button until SECURITY OFF appears in the information display area.



3. *Press and release* the SET button.

   ENTER CODE will appear in the information display area.



4. *Press and release* the SET button to increase the 1st digit.
5. *Press and hold* the SET button to accept the 1st digit and advance to the 2nd digit.



6. *Press and release* the SET button to increase the 2nd digit.

7. *Press and hold* the SET button to accept the 2nd digit and advance to the 3rd digit.



8. *Press and hold* the SET button to accept the 3rd digit and submit code.

   If code is correct, SECURITY ON will appear in the information display area. The system is now locked. Proceed immediately to Task 3.



   If code is incorrect, BAD CODE will appear in the information display area. Return to step 3 to re-enter code.



TASK 3: Unlock the System

NOTICE
To unlock the system for the first time, use code 000.

1. While the engine is running, *Press and release* the SET button.

   ENTER CO will appear in the information display area.



2. *Press and release* the SET button to increase the 1st digit.
3. *Press and hold* the SET button to accept the 1st digit and advance to the 2nd digit.



4. *Press and release* the SET button to increase the 2nd digit.

5. *Press and hold* the SET button to accept the 2nd digit and advance to the 3rd digit.



6. *Press and release* the SET button to increase the 3rd digit.
7. *Press and hold* the SET button to accept the 3rd digit and submit code.

   If code is correct, SECURITY OFF will appear in the information display area



NOTICE
The system is now *unlocked*.

   If code is incorrect, BAD CODE will appear in the information display area. Return to step 1 to re-enter code.



8. You must now enter a new security code. Proceed immediately to TASK 4.

TASK 4: Enter Your New Security Code

1. Immediately after locking and unlocking the system, and while SECURE OFF is displayed, simultaneously *press and hold* the MODE and SET buttons.

   SET NEW CODE will appear on the information display area.



2. *Press and release* the SET button to increase the 1st digit.
3. *Press and hold* the SET button to accept the 1st digit and advance to the 2nd digit.



4. *Press and release* the SET button to increase the 2nd digit.
5. *Press and hold* the SET button to accept the 2nd digit and advance to the 3rd digit.



6. *Press and release* the SET button to increase the 3rd digit.
7. *Press and hold* the SET button to accept the 3rd digit.

   CODE SET will appear in the information display area, and then the new code will blink three times in the information display area



NOTICE
Your new code is now set. The system is NOT locked.

8. Record your new security code in a safe place for future reference.

Record your new personal security code here: _____

TIP
If you lose your personal security code, see your dealer to have the code reset to “000”. Then perform TASK 2 through TASK 4 to change the code to one of your own choosing.

LOCKING SYSTEM WITH PERSONAL SECURITY CODE

1. Start the engine.
2. *Press and hold* the center button on the instrument cluster to enter the Options Menu.
3. *Press and release* the MODE button until SECURITY OFF appears in the information display area.



4. *Press and release* the SET button.

   ENTER CODE will appear in the information display area.



5. *Press and release* the SET button to increase the 1st digit.
6. *Press and hold* the SET button to accept the 1st digit and advance to the 2nd digit.



7. *Press and release* the SET button to increase the 2nd digit.
8. *Press and hold* the SET button to accept the 2nd digit and advance to the 3rd digit.



9. *Press and hold* the SET button to accept the 3rd digit and submit code.

   If code is correct, SECURITY ON will appear in the information display area. The system is now locked. Proceed immediately to Task 3.



   If code is incorrect, BAD CODE will appear in the information display area. Return to step 3 to re-enter code.



UNLOCKING SYSTEM WITH PERSONAL SECURITY CODE

1. While the engine is running, *Press and release* the SET button.

   ENTER CODE will appear in the information display area.



2. *Press and release* the SET button to increase the 1st digit.
3. *Press and hold* the SET button to accept the 1st digit and advance to the 2nd digit.



4. *Press and release* the SET button to increase the 2nd digit.
5. *Press and hold* the SET button to accept the 2nd digit and advance to the 3rd digit.



6. *Press and release* the SET button to increase the 3rd digit.
7. *Press and hold* the SET button to accept the 3rd digit and submit code.

   If code is correct, SECURITY OFF will appear in the information display area



NOTICE
The system is now *unlocked*.

If code is incorrect, BAD CODE will appear in the information display area. Return to step 1 to re-enter code.



CHANGING TO A NEW SECURITY CODE

Any time you wish to change your current security code to a new code, perform TASK 2 through TASK 4 of the First Time Use of Your Security System procedure. Instead of using the factory default code “000” in TASK 2 and TASK 3, use your current security code.

SECURITY SYSTEM ACCESS QUICK REFERENCE

Now that you have become familiar with the procedure for locking and unlocking the system, use the chart below as a quick reference.

SECURITY SYSTEM ACCESS QUICK REFERENCE CHART	
ACTION	**RESULT**
1. Start engine 2. *Press and hold* the center button 3. *Press and release* the SET button until SECURITY appears in information display area. 4. *Press and release* SET button.	Displays ENTER CODE (to lock the system)
Press and release the SET button	Advances a digit on the ENTER CODE screen
Press and hold the SET button	Accepts a digit and displays the next digit position (if any remain) on the ENTER CODE screen
While SECURITY OFF is shown on the information display area, simultaneously *Press and hold* the MODE and SET button.	Allows user to change security code.

DIAGNOSTIC DISPLAY MODE



The diagnostic display mode is for informational purposes only. Your POLARIS dealer can perform all major repairs.

The diagnostic mode is accessible only when the check engine warning indicator is illuminated *and* a diagnostic code is active.

Do not stop the engine if you want to view the active code (failure code). Active codes cannot be retrieved if power is interrupted to the instrument cluster. The codes will become inactive codes if power is interrupted. Inactive codes are stored in the history of the unit. Please see your POLARIS dealer can help retrieve inactive codes.

Use the following procedure to view active codes.

1. Do not stop the engine.
2. *Press and hold* the center button on the instrument cluster to enter the Options Menu.
3. *Press and release* the MODE button until DIAGCODE appears in the information display area. The Diagnostic display mode will appear in the Options Menu if there is an active trouble code.

TIP
When the diagnostic mode is displayed, the check engine warning indicator will begin to flash.

4. A set of two numbers will appear in the display.
   - The 2-6 digit suspect parameter number (SPN) in the information display area indicates which component is generating the fault code.
   - The 1-2 digit failure mode indicator (FMI) number in the odometer area indicates the fault mode, such as open or short circuit.
5. More than one fault may be active. Press and hold the SET button or SET switch for two seconds to toggle to the next active code. Repeat until all codes are retrieved.
6. See Diagnostic Trouble Codes for code definitions and failure descriptions.

FUEL TYPE SELECTION

When using the recommended 91 non-ethanol gasoline, always select the 91 NON-ETHANOL setting. When using ethanol, MTBE, or other forms of oxygenated gasoline, the fuel type must be changed to NON-PREMIUM/ETHANOL in the gauge.



IMPORTANT
Whenever in doubt of your fuel purchase, use the NON-PREMIUM / ETHANOL mode.

Use the following procedure to change the fuel type designation in the gauge. Refer to the fuel type selection label located inside the left side panel.

1. Start the engine.
2. *Press and hold* the center button to enter the Options Menu.
3. *Press and release* the MODE button until FUEL TYPE is displayed in the information display area.
4. *Press and release* the SET button to toggle through available options until the desired fuel type is displayed in the information display area.
5. To exit Options Menu, *Press and release* the MODE button until EXIT appears in the information display area.
6. *Press and release* the SET button to exit. The fuel type being displayed is the active fuel type.

HEATED GRIPS

The heated handlebar grips can be operated using the Heated Grips switch on the console.

To activate the warmers in the handlebars, use the Heated Grips switch on the console above the gas cap. Choose from three heat settings:

① High
② Off
③ Low



ENGINE OVERHEAT INDICATOR

The over-temperature indicator on the standard instrument cluster will *illuminate* when the engine is overheating. Take action to cool the engine. See page 64. The indicator will *flash* when engine temperature reaches critical levels. *Stop the engine immediately.*



FLASHING INDICATOR

Flashing indicators indicate continued operation could result in serious engine damage. The engine management system will automatically reduce engine power and create a misfire condition. Stop the engine *immediately*. Allow the engine to cool down.

NOTICE
If engine overheating seems to be caused by something other than poor cooling conditions, your dealer or other qualified technician can perform a diagnosis.

ENGINE-COOLING ACTIONS

If the engine is overheating, promptly take action to cool the engine.

- Drive in loose snow.
- Stop the engine and allow it to cool down.
- View the coolant level. *Do not open the pressure cap while the engine is hot*.
- Add coolant if the level is low. *Do not add coolant while the engine is hot. Wait for the engine to cool before adding coolant.*
- If snowmobile is equipped with rail scratchers, make sure they are deployed.

NOTICE
If you must continue to operate while the indicator light is *illuminated*, drive slowly and stop the engine frequently to allow it to cool down.

RIDE COMMAND DISPLAY

OVERVIEW

Welcome to Polaris Ride Command. This intuitive software includes a variety of interactive features and access to your snowmobile's custom information.

For a safe and enjoyable riding experience with your new display, be sure to read your vehicle's owner's manual and this user's guide. Should you need additional assistance with display operation or software updates, please see your Polaris dealer or visit *ridecommand.polaris.com*.

For the latest Ride Command information, including software, maps, and trails updates, please visit *ridecommand.polaris.com*.

⚠ WARNING

Do not enter information while operating your vehicle. Failure to pay attention to the operation of your vehicle could result in loss of control, injury, or death. You assume all risks associated with using this device. Read your user's guide thoroughly and always drive with the latest maps and road data from *ridecommand.polaris.com*.

BEFORE YOU DRIVE

Before driving with your new display, please complete the following:

- Read this manual in its entirety.
- Familiarize yourself with the features and operations of the display while the vehicle is stationary.
- Download the Polaris Ride Command application from your phone's app store and create your personalized account.
- Check your display to ensure you have the appropriate maps and roads visible for your area. For instructions on updating the maps on your display, see page 88.
- When updating software, be sure you are using a compatible USB flash drive. See page 90 for more information.
- Check *https://www.polaris.com/en-us/owners-manuals* for the latest updates to the owner's manual.

NOTICE

Using the display for an extended period of time while the vehicle's engine is off can drain the battery.

SPEED LIMITATION

Various aspects of the display such as the front and rear cameras, phone contacts, and call logs may be unavailable while driving at high speeds.

DEVICE OPERATING REQUIREMENTS

Phone functionality, in pairing with this display, is dependent on the capabilities of your cell phone.

NOTICE
Some cell phones or operating systems will not work as shown in this manual.

RIDE COMMAND BUTTONS



BUTTON	DESCRIPTION	FUNCTION
	① 5-Way User Interface (UI) Control	Moves the cursor and pans the focus on the map screen.
	② Up Button	Zooms in when using the map and scrolls up through lists of features.

BUTTON	DESCRIPTION	FUNCTION
	③ Polaris Button	Opens and closes the Badge Panel.
	④ Down Button	Zooms out when using the map and scrolls down through lists of features.
	⑤ Back Button	Cycles all screens and backs user out of menus.

GAUGE SCREEN

The Gauge Screen is the screen that will appear upon vehicle start-up and displays a customizable view of vehicle information including speed, RPM, fuel level, engine temperature, engine hours, trip meter, battery voltage, and compass.



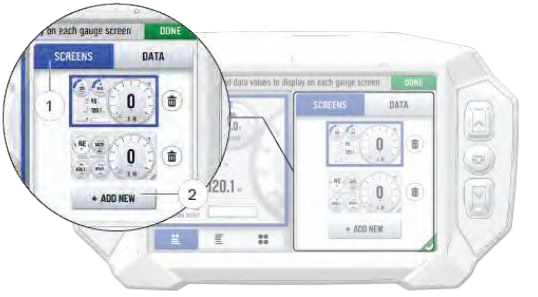
CONFIGURE GAUGE SCREEN

The display allows up to four customized gauge screens. All but one screen can be deleted; one will always remain as the default.

NOTICE
In the gauge configuration panel, display buttons and hand controls will not work. You must use the touchscreen to change screen settings and layouts.

Follow the instructions below to create customized gauge screens.

1. Press the **Gear** icon in the bottom right corner of the touchscreen.
2. On the right side of the configuration panel, press the **Screens** tab ① followed by the **Add New** button ②.

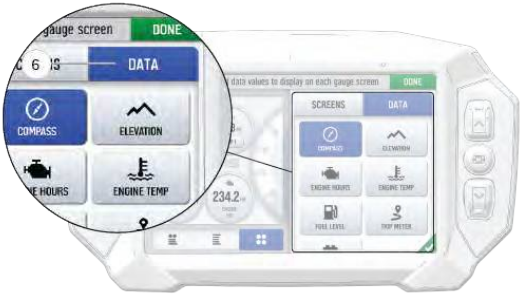


3. In the left side panel, choose a gauge layout from the three provided options.



ICON	DESCRIPTION
③	Two circular widgets and up to three linear widgets.
④	Up to five linear widgets.
⑤	Four circular widgets.

4. Select the **Data** tab ⑥. As the widget slots on the left are selected, the selection of what data item to populate that widget slot with is selected on from the list on the right. For single value slots, choose 1 data item. For list slots, choose up to 3 or up to 5 data items, depending on the configuration of the gauge layout as selected above.



TIP
Keep your display software up-to-date as more widget options become available. For more information, see page 88.

5. Reorder the widgets by pressing and holding down on the widget and sliding the widget up or down into the desired position.



6. Click the green check mark or **Done** to close the configuration panel.

GAUGE VIEW MODE

Press ① to toggle between the two available gauge view modes, analog and digital.



ICON BAR

The Icon Bar is located across the top of the touchscreen and displays cell phone, headset, and wireless internet connectivity, fuel level, compass heading and local time.

NOTICE
The Icon Bar will not appear when the Badge Panel is open.



ICON	DESCRIPTION	FUNCTION
①	Mobile Device Indicator	Displays icon if mobile device is connected
②	Headset Indicator	Displays icon if headset is connected
③	Cellular Signal Strength	Displays current cellular signal strength
④	Wireless Internet Signal Strength (if equipped)	Displays current wireless internet signal strength (if equipped)
⑤	Engine Temperature	Displays current engine temperature
⑥	Fuel Level	Displays current fuel capacity percentage
⑦	Vehicle Direction	Displays vehicle direction
⑧	Clock	Displays current time

BADGE PANEL

The Badge Panel provides easy access to frequently used features, basic display and vehicle controls, and a list of recent notifications.

ACCESSING THE BADGE PANEL

There are two ways to open the Badge Panel, press the **Badge Panel** button (Polaris Logo) ① at the top of the touchscreen or the **Polaris Menu** hard button ② on the right of the display.



FEATURES

NOTICE
PRESS and HOLD the **Polaris Menu** hard button for 2 seconds to disable the touchscreen.



① Controls Tab
② App Tray
③ Display Mode
④ Display Brightness
⑤ Badge Panel Button
⑥ Notifications Tab
⑦ Heated Grips (if equipped)
⑧ Fuel Type
⑨ Lock Vehicle Button (activated by dealer)
⑩ All Settings Button

APP TRAY

The App Tray provides easy access to key features on the display screen. Tap on any of the listed icons to navigate to that display screen. For example, tap the **Maps** button to navigate to the Map Screen, or press the **Music** button to navigate to the Audio Screen.

CONTROLS TAB

Press the **Controls** tab to change display mode, display brightness, activate heated grips, and change fuel type.

DISPLAY MODE

From the Controls tab, select the **Display Mode** from the available options. The display mode can be set to Day, Night, or AUTO mode.

Day Mode



Night Mode



DISPLAY BRIGHTNESS

From the Controls tab, select **Display Brightness** by moving the touchscreen slider to the left or right. Press the AUTO check box to allow the screen to adjust automatically based on ambient light conditions.

FUEL SETTING

Change the fuel type in the Badge Panel by opening the Controls tab and pressing the **Fuel Type** button.

You can also navigate to the fuel type selection from the Vehicle Info category by pressing the **All Settings** button. See page 76 for more information.

There are two fuel options available. Choose the fuel description that best fits the fuel type in your vehicle's tank.

- *91+ E0 Fuel* = 91 PREMIUM MODE
- *ANY E10 OR UNSURE Fuel* = 87 ETHANOL MODE

NOTICE
If 7S guage is not fully booted before riding, the FUEL MODE will default to ETHANOL MODE.

For specific fuel recommendations for your vehicle, reference your Owner's Manual.

LOCK VEHICLE BUTTON

If your vehicle is equipped with a pin activated security system (P.A.S.S.), the **Lock Vehicle** button will appear on the Badge Panel. Press this button to lock the vehicle before powering off the engine. To unlock your vehicle, you will be prompted to enter a preset passcode. To set up P.A.S.S., see page 78.

NOTICE
The P.A.S.S. feature must be activated by your dealer using Polaris Digital Wrench. See dealer for setup and activation.

NOTIFICATIONS TAB

Press the **Notifications** tab to view DTC codes, installed software, and vehicle warnings.

ENGINE OVERHEAT INDICATOR

If the engine goes over temperature, a red banner will appear at the top of your display stating: ENGINE OVERHEATING – STOP IMMEDIATELY.

The appearance of this banner indicates continued operation of your snowmobile could result in serious engine damage. The engine management system will automatically reduce engine power and set a fault. Stop the engine immediately. Allow the engine to cool down.



NOTICE
If engine overheating seems to be caused by something other than poor cooling conditions, see your dealer or other qualified technician for service.

WARNING FEATURES

Safety and proper vehicle usage are key to having your snowmobiles run for many years to come. The following safety and ownership tools have been added through the 7S display.

ENGINE BREAK-IN PERIOD

The display provides a status of how far along you are in your engine break-in process. Park Brake Warning – The display provides a warning if you accelerate for a period of time with the parking brake set on the vehicle

TIP-OVER WARNING

The display provides a warning when a vehicle tip-over event is detected and provides an alert indicating a delayed vehicle start.

ALL SETTINGS

From All Settings, you can view important details about your vehicle and personalize your touchscreen display. The settings menu is comprised of four categories: Vehicle Info, General, Time, and Vehicle Settings.

To open Settings, press the **Badge Panel** button on the display and then the **All Settings** button ① from the touchscreen.



INFORMATION

From the Info tab you can view the following:

- Vehicle Identification Number (VIN)
- Model Number
- Installed Software Version
- Mileage
- Total Engine Hours
- Next Service Interval



GENERAL

From the General tab you can do the following:

- Connect to Ride Command account
- Manage wireless internet connections (if equipped)
- Manage Bluetooth® devices
- Change the display language
- Set the speed units of measure (mph or km/h)
- Set the temperature units (F or C)
- System information
- Update software
- Update maps and trails



TIME

From the Time tab you can do the following:

- Set time from internal GPS location
- Set time zone
- Set time (if GPS time is not enabled)
- Set date
- Enable GPS Time (automatically sets the time to the time zone you are currently in)
- Set the time format (12-hour or 24-hour)



VEHICLE

From the Vehicle tab you can do the following:

- Access vehicle diagnostics
- GPS Status
- Set fuel type
- Customize heated grip temperatures



PIN ACTIVATED SECURITY SYSTEM (P.A.S.S.) (IF EQUIPPED)

NOTICE
The P.A.S.S. feature must be activated by your dealer using Polaris Digital Wrench. See your dealer for setup and activation.

Snowmobiles equipped with a 7S display have the ability to lock the snowmobile into a low power mode until a security passcode is entered. Locking the snowmobile using the Lock Vehicle button will limit the vehicle's RPM so the vehicle will remain motionless.

NOTICE
The vehicle can be locked only when the engine is running and the vehicle is not in motion. If the engine is OFF, the Lock Vehicle button will be disabled.

CHANGING YOUR PASSCODE

The default passcode is available at the time of vehicle purchase. Changing the passcode will always require the old passcode. To change the security passcode, do the following:

1. Go the Settings menu by pressing the **Badge Panel** button followed by the **All Settings** button.
2. Select **Vehicle Settings** from the left toolbar.
3. Select **Change Passcode**.
4. Enter the existing/old passcode.
5. Enter the new passcode.

6. Enter the new passcode again.
7. A popup box should appear confirming your passcode has changed.

ENABLE P.A.S.S.

NOTICE
After activating P.A.S.S. for the first time you must power down the vehicle and allow the electronic control module (ECM) to fully shutdown before restarting. This may take up to three minutes.

1. Go the Settings menu by pressing the **Badge Panel** button followed by the **All Settings** button.
2. Select **Vehicle Settings** from the left toolbar.
3. Select **Passcode Unlock**.
4. Turn off the vehicle using the key ignition switch.

DISABLE P.A.S.S.

1. Go the Settings menu by pressing the **Badge Panel** button followed by the **All Settings** button.
2. Select **Vehicle Settings** from the left toolbar.
3. Select **Passcode Unlock**.
4. Enter passcode code to disable P.A.S.S.

LOCKING YOUR SNOWMOBILE

To lock your vehicle, do the following:

1. Stop vehicle completely. Keep the engine running.
2. Press the **Badge Panel** button to open the Badge Panel.
3. Press the Lock Vehicle button.
4. Enter your 4-digit passcode.

UNLOCKING YOUR SNOWMOBILE

To unlock your vehicle, do the following:

1. Start the engine.
2. A banner will appear that top of the display screen prompting you to enter your passcode. Click on the ribbon or the **Unlock Vehicle** button from the Badge Panel.
3. Enter your 4-digit passcode.

AUDIO SCREEN

NOTICE
Your snowmobile is not equipped with a speaker system. Audio can only be transmitted through a Bluetooth® media device or headset. Only one device and one headset can be connected at a time.

Audio playback through USB or Bluetooth® devices are compatible with your Ride Command display. The Music Screen allows you to access music stored on your smartphone or other music device. You can pair your device using Bluetooth®, or by connecting it to the display's USB port.



DEVICE REQUIREMENTS

Audio playback is only available on USB flash drives formatted to ex-FAT or FAT32 and operating systems iOS® 10 and Android® 5.0 or newer.

PHONE SCREEN

Connect a smart phone and headset to listen to audio, make and receive calls and text messages, access a phone's contact list, and call history.

When a smartphone is connected to the display, users are able to make phone calls from the display through the keypad, recent calls, or their contacts by pressing the phone icon in the device manager screen or through the pull down menu.



The Ride Command display is compatible with Android® and iOS®. Go to *https://ridecommand.polaris.com/en-us/supported-devices* for latest operating system compatibility.

NOTICE

There is no built-in microphone in the display. Phone call audio will play through the phone speakers or a Polaris approved headset if connected. Some dial options may be unavailable at speeds greater than 3 mph (5 km/h).

MAP SCREEN

Press the **Map** button from the App Tray in the Badge Panel or press the **Back** button to cycle to the map screen. The map will center you based on the location of the in-vehicle GPS.



NOTICE

Controls on the map surface disappear after 10 seconds of inactivity, return with a tap anywhere on the map.

ZOOM

Use the **Plus** and **Minus** buttons ① on the left side of the screen, the 5–way user interface (UI) control, or pinch the screen with your fingers to zoom in and out on the map.



The waypoint icon appears when navigation is in use and the GPS is routed to a specific waypoint. Press the **Waypoint** icon ② to focus on the destination point. To set the focus back to your location, press the **Target** icon in the bottom right corner of the screen.

- Pinch zoom
- Plus / Minus button
- Auto-zoom to way-point while navigating
- Current zoom level relative to maximum and minimum zoom

MAP ORIENTATION

The compass icon on the right side of the screen toggles how the map orients itself during navigation. There are two orientation options: North Up and Course Up. Pressing the **Compass** icon will also re-center your vehicle if not already centered.



MAP ORIENTATION	MAP ICON
North Up view locks the maps orientation so that North is always at the top of the screen, regardless of your vehicle's position or direction.	
Course Up view rotates the map to match the direction of your vehicle.	

POINTS OF INTEREST (POI)

Points of interest (POI), such as restaurants, gas stations, hotels, dealers, and more, are available from the map screen. POI will display on the Map Screen as you zoom in and out of the map. Tap on the **POI** icon to view more information about the location.

GO TO NAV

Go to Nav is available from the Map Screen when viewing a waypoint or point of interest (POI). Pressing **Go to Nav** will display the distance and directional bearing of the POI.

NOTICE
Go to Nav does not provide turn-by-turn directions to a POI.

SNAP TO TRAIL

Easily plan rides on your Ride Command mobile app (iOS/Android) and on the Ride Command website. Select your start point, end point, and any stops in between and the tool will automatically snap your route to the optimal route on trails or your previously tracked or planned rides. The tool also allows you to easily adjust and reorder stops.

GROUP RIDE



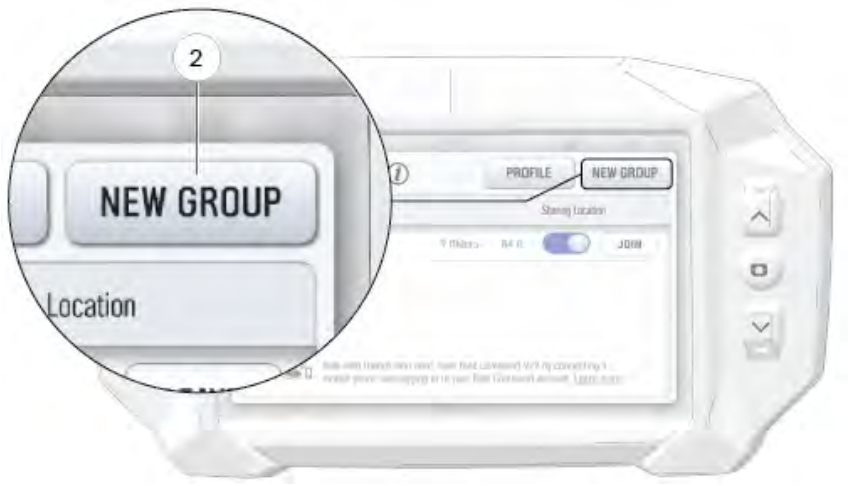
Invite your friends to a group to see their live location on the map of your smartphone, tablet, or in-vehicle Ride Command display.

For information on how Group Ride works and for instructions on how to set up Group Ride using your smartphone, or with a vehicle-to-vehicle (V2V) antenna, tap the ***i*** icon ① beside the title from the Group Ride Panel.



For a video on setting up a Group Ride, please visit: *https://youtu.be/ZCWIOXLGYUY*.

CREATING A RIDE GROUP



To create a Ride Group, do the following:

1. From the Map Menu, tap the **Map Menu** icon at the bottom of the screen and select the **Group Ride** button.
2. On the Group Ride Panel, tap the **New Group** button ② to create a group for others to join.
3. Enter a name in the **Group Name** field.
4. Select whether to enable a passcode. When enabled, you will be prompted to enter a 4–digit passcode.

NOTICE
If **Passcode Required** is left unselected, any rider can freely join your Ride Group.

5. Select the **Create Group** button.

Your newly created group is now shown. If your ride group has the passcode enabled, other riders must enter your chosen passcode to join the group. .

NOTICE
After a second rider joins, the map will switch to zoom-to-group and as you ride it will automatically zoom to keep all riders in view. Tap the zoom control to return to manual zoom mode.

JOINING A RIDE GROUP

NOTICE
The display requires a GPS lock, indicated by a blue a navigation arrow marker, before you are able to setup or join a group ride.

To join a group, do the following:

1. From the Map Menu, tap the **Map Menu** icon at the bottom of the screen and select the **Group Ride** button.
2. Nearby ride groups will display in order of distance.
3. Tap the **Join** button ③ to join a group.



NOTICE
You can only be active in one ride group at a time.

Close the pop-up to show the map view of your chosen ride group. Other riders appear as dots on the map. If a rider is moving, the dot includes a heading arrow pointing in the direction they are riding. The Ride Group Panel on the side of the screen shows the name of the group and lists all group members with their name, icon color, distance and bearing from you to that rider.

NOTICE
The map is set to zoom-to-group and as you ride it will automatically zoom to keep all riders in view. Tap the zoom control to return to manual zoom mode.

DISPLAY MAINTENANCE

CARE AND MAINTENANCE

To clean the display shell, use a soft cloth with mild soap and water. Do not use harsh or abrasive cleaners. For best results, use a micro-fiber towel to clean the screen.

NOTICE
Certain products will damage the screen and other plastic surfaces. Do not use alcohol to clean the display. Immediately clean off any gasoline that splashes on the display.

CREATE ACCOUNT

You can create a personalized Ride Command account either by computer at *https://ridecommand.polaris.com* or in the Polaris Ride Command app, which can be downloaded to your personal device through your phone's application store.

ON YOUR COMPUTER

Create Account

1. Open your preferred internet browser and navigate to *https://ridecommand.polaris.com*.
2. From the top menu bar, click **Create Account**.
3. In the pop-up, type your email address and password.
4. Accept the Terms of Service agreement.
5. You should receive a confirmation email from Polaris within 24 hours of creation.

Add Your Vehicle

6. After signing into your Ride Command account, click on **Garage** from the top menu bar.
7. Press the **+** button to add vehicle.
8. Type in your vehicle's VIN number.
9. Add a vehicle nickname, such as "My Snowmobile".
10. Press the **Add My Vehicle** button.

ON YOUR DEVICE

Create Account

1. Download and install the Polaris Ride Command app from your phone's application store.
2. You may receive a prompt that "Ride Command" wants to access to location information. Click **Continue**.
3. Tap the menu button and select **Log In or Sign Up** from the dropdown menu.

4. Select the **Sign Up** tab.
5. Type your email address and password.
6. Accept the Terms of Service agreement.
7. You should receive a confirmation email from Polaris within 24 hours of creation.

Add Your Vehicle

8. Press the **More** button on the home screen.
9. Select **Garage** from the options menu.
10. Press the **+** button.
11. Connect your phone to your vehicle via Bluetooth® or press the **Enter Your VIN** button.
12. Add a vehicle nickname, such as “My Snowmobile”. This is optional.
13. Type in your vehicle’s VIN number.
14. Press **Next** from the top ribbon.

SOFTWARE & MAP UPDATES

OVER-THE-AIR (IF EQUIPPED)

Displays equipped with Wi-Fi connectivity will check for updates automatically once the display is successfully connected to a network. When a software update is available, a notification will be shown on the display. The notification will prompt you to download and install the update.

USB DRIVE

NOTICE
Before updating the display, always export your existing rides and waypoints to a secondary USB drive to avoid losing them. Do not save them to the same USB used for installing the software update. You must use an empty USB drive for all software and map updates.

To update the display software, complete the following steps:

ON YOUR PERSONAL COMPUTER

NOTICE
For optimal download speed and connection stability, it is recommended to have a wired internet connection to your personal computer while downloading updates to your USB flash drive.

1. Go to *ridecommand.polaris.com*.
2. Log in to your account, or create a new account.
3. Click **Garage** on the menu bar and select **Map & Software Updates** from the menu.
4. From the list of displays, click **7" Snow (7S)** from the list.
5. Follow the on-screen direction on how to download the latest software or map to a USB flash drive (8+ GB).

ON YOUR SNOWMOBILE

NOTICE
The USB port is located in the storage compartment behind the display.

1. Plug the USB drive into your vehicle's USB port and turn on the display.
2. On the Ride Command display, press the **Badge Panel** button at the top of the screen, followed by **All Settings**.
3. Select **General** from the tabs on the left, and scroll down to **Update Software** or **Update Maps / Trails**.
4. Select the file you wish to load (the latest will be automatically displayed next to the newest version detected on the USB drive for software updates).
5. The display will reboot and install the software or map updates.
6. After your display has restarted and you've determined the update to be successful, power down your vehicle before disconnecting your USB flash drive from the vehicle.

ERROR MESSAGES

If an error occurs while updating your software or map, perform one or all of the following measures to resolve the issue:

1. Ensure you are using a Tier 1 USB flash drive. For more information on USB requirements, see page 90.
2. Remove and reconnect the USB flash drive securely.
3. Ensure display files are not inside a folder on the flash drive.
4. Only Polaris display files should be on the flash drive while performing updates. Remove other files, if necessary.
5. Format the USB drive on your personal computer using FAT32 or exFAT® formatting systems.
6. Try a different USB flash drive.

USB HARDWARE

SOFTWARE UPDATES

For software update, POLARIS recommends using a SanDisk®, Kinston℠, or similar USB flash drive with a minimum of 4GB in available memory, formatted using the FAT32 or exFAT® file systems. For best results remove all files from the flash drive before starting the update process.

MAP UPDATES

For Map updates, a 32GB USB drive is required (USB 3.0 drive is highly recommended) USB drive must be formatted to exFAT® before copying the map file onto it.

TRAIL UPDATES

For Trail updates, a 4GB drive formatted to FAT32 can be used.

THE PERFECT FIT
SUSPENSION QUICK SET-UP GUIDE

⚠ WARNING

Suspension systems contain moving components that can crush or cut. Keep hands clear of the suspension while the engine is running, someone is sitting on the seat, or the suspension is in motion. NEVER adjust the suspension while vehicle is in operation.

The front and rear suspensions on your MATRYX RMK snowmobile are easy to adjust. Just remember three simple steps:

1. Ride your snowmobile.
2. Adjust the *rear track shock spring* to tune *vehicle balance* (ski pressure and weight transfer).
3. Adjust *shock clickers* (if equipped) to tune *ride quality* (stiffer or softer ride).

Step 1: Ride your snowmobile.

Ride the snowmobile in various terrain to fully experience the existing suspension settings before making any adjustments.

Step 2: Adjust the rear spring to tune vehicle balance.

After riding, you should be able to determine if the snowmobile needs more or less transfer.

- For more transfer, *decrease* the rear track spring preload.
- For less transfer, *increase* the rear track spring preload.

For lighter steering, decrease the rear track spring preload or increase the front track shock spring preload.

Step 3: Adjust shock clickers (if equipped) for ride quality.

For models equipped with monotube shocks, always adjust the rear track shock spring preload to enhance bottoming resistance.

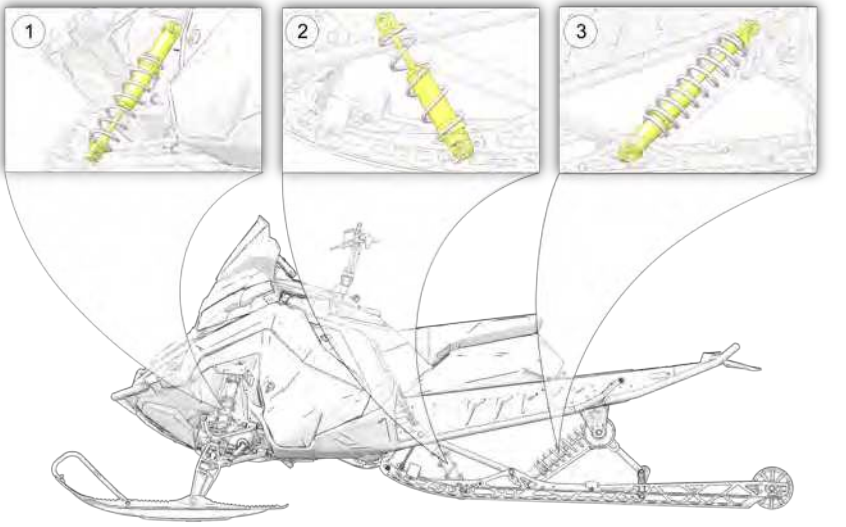
Walker Evans Velocity Racing® shocks come equipped with an inside clicker (low-speed) and an outside clicker (high-speed). These clickers adjust shock compression for high- and low-speed trail events. Adjust the clickers to control bottoming and adjust ride comfort.

- Turn clicker counter-clockwise to decrease damping for a softer ride.
- Turn clicker clockwise to increase damping for a stiffer ride and less bottoming.
- Always adjust the low-speed adjustment control first. If desired ride is not achieved, adjust the high-speed adjustment control to improve ride.

NOTICE
Always adjust the clicker at least one click below full stiff (full clockwise) or shock damage will occur.

Test ride the snowmobile and continue making spring and clicker adjustments until you achieve the perfect ride.

SHOCK LOCATIONS



① Front (IFS) shocks

② Front track shock

③ Rear track shock

SHOCK COMPRESSION DAMPING

Shock compression damping is available for RMK KHAOS, and optional for PRO-RMK.

The primary adjustment for overall vehicle balance is RTS spring preload. Always perform the this adjustment first. After adjusting RTS spring preload to your satisfaction, compression damping adjustments can be made to control ride quality and bottoming resistance.

Compression damping can be adjusted on both the front and rear suspension. Make adjustments in 2-click increments, then test ride. When adjusting the front suspension, always adjust both clickers equally.

To stop bottoming of the front or rear suspension (stiffer ride), rotate the clicker (s) clockwise two clicks (as viewed from the top of the clicker), then test ride. Repeat the adjustment until bottoming stops and the desired ride quality is achieved.

For a more plush ride at the front or rear suspension, rotate the clicker(s) counter-clockwise two clicks, then test ride. Repeat the adjustment until the desired ride quality is achieved.

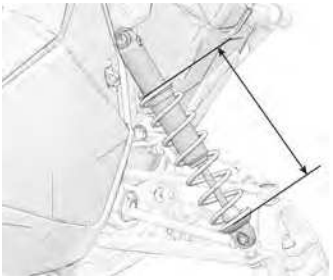
INDEPENDENT FRONT SUSPENSION (IFS)

IFS SHOCK ADJUSTMENTS

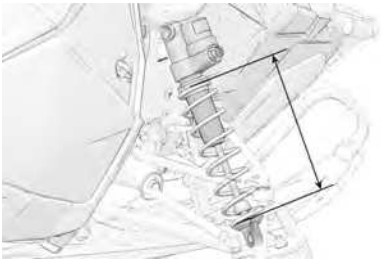
Always perform shock spring preload adjustments with the weight of the vehicle removed from the shock and with the shock at full extension.

FACTORY PRELOAD SETTINGS

IMPORTANT
The factory installed length of the IFS Shock Spring is equal to the maximum installed free length.



MONOTUBE



VELOCITY

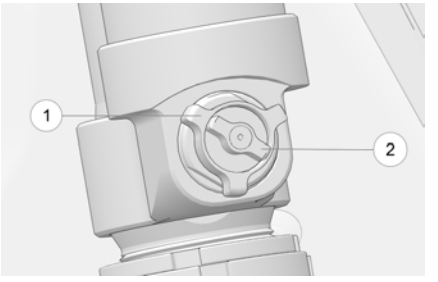
FACTORY SPRING	FACTORY INSTALLED LENGTH	MINIMUM INSTALLED LENGTH
PRO RMK Monotube	10.25 in (26 cm)	9.5 in (24.13 cm)
PRO RMK (Velocity)	10.25 in (26 cm)	10 in (25.4 cm)
RMK KHAOS Lightweight Spring	10.34 in (26.26 cm)	10 in (25.4 cm)
RMK KHAOS Standard Spring	10.25 in (26 cm)	9.78 in (24.8 cm)

FACTORY CLICKER SETTINGS (IF EQUIPPED)

RMK KHAOS models come factory-equipped with Walker Evans Racing® Velocity shocks. Velocity shocks utilize dual shock clickers to control bottoming and ride comfort. To reset IFS clickers, rotate the clicker to full stiff, and then back off the same number of clicks for each shock. PRO RMK models equipped with Velocity shocks do not have dual shock clickers.

NOTICE
Speed refers to the rate of shock compression, not speed of vehicle.

- *The outside clicker ① adjusts shock compression during high speed compression events.* Turn clicker clockwise to increase compression and counterclockwise to decrease compression.
- *The inside clicker ② adjusts shock compression during low speed compression events.* Turn clicker clockwise to increase compression and counterclockwise to decrease compression.



RMK KHAOS



PRO RMK

MODEL	CLICKER SETTING (FROM FULL STIFF)
PRO RMK (Velocity)	6
RMK KHAOS	High-Speed: 4 Low-Speed: 6

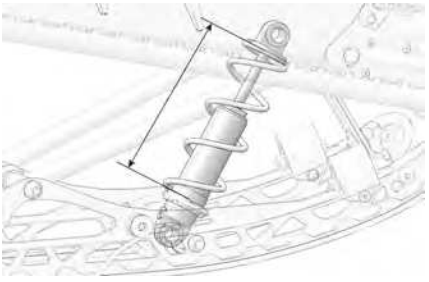
REAR SUSPENSION

FRONT TRACK SHOCK SETTINGS

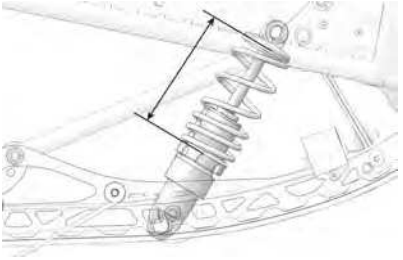
Factory settings, combined with user adjustments to the rear track shock spring (RTSS), should be all that's necessary to provide the best riding experience for most riders. The primary adjustment for overall vehicle balance is RTSS preload. Perform this adjustment first.
For models equipped with high/low speed compression adjustment, see page 97.

FACTORY SPRING SETTINGS

Always perform shock spring preload adjustments with the weight of the vehicle removed from the shock and with the shock at full extension. Limiter straps should be disconnected in order to obtain an accurate preload measurement.



MONOTUBE



VELOCITY

NOTICE

Never adjust spring preload to an installed length longer than the factory length or shorter than the minimum length as shown in the following chart. Damage to the suspension could result. When decreasing preload, make sure at least two turns of preload are holding the retainer against the spring.

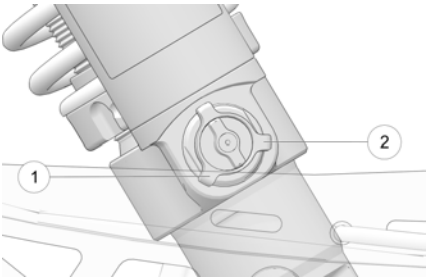
FACTORY SPRING	FACTORY INSTALLED LENGTH	MINIMUM INSTALLED LENGTH
PRO RMK	8.5 in (21.59 cm)	8.5 in (21.59 cm)
RMK KHAOS	6.45 in (16.38 cm)	6.1 in (15.49 cm)
PRO RMK (Velocity)	6.34 in (16.1 cm)	5.84 in (14.83 cm)

CLICKER SETTINGS (IF EQUIPPED)

RMK KHAOS models come factory-equipped with Walker Evans Racing® Velocity shocks. Velocity shocks utilize dual shock clickers to control bottoming and ride comfort. To reset front track shock clickers, rotate the clicker to full stiff, and then back off the same number of clicks for each shock. PRO RMK models equipped with Velocity shocks do not have dual shock clickers.

NOTICE
Speed refers to the rate of shock compression, not speed of vehicle.

- *The outside clicker ① adjusts shock compression during high speed compression events.* Turn clicker clockwise to increase compression and counterclockwise to decrease compression.
- *The inside clicker ② adjusts shock compression during low speed compression events.* Turn clicker clockwise to increase compression and counterclockwise to decrease compression.



RMK KHAOS



PRO RMK

MODEL	CLICKER SETTING (FROM FULL STIFF)
PRO RMK (Velocity)	6
RMK KHAOS	High-Speed: 4 Low-Speed: 6

REAR TRACK SHOCK SETTINGS

For riders who weigh 160-220 lbs. (73-100 kg), test ride at factory settings, then make fine-tuning adjustments. See the following initial RTS Shock Preload Settings table.

For riders outside the 160-220 lbs. (73-100 kg) weight range, adjust the factory-set preload to the following installed lengths as a starting point, then test ride before making fine-tuning adjustments. Do not exceed the minimum and maximum installed length requirements. See the following initial RTS Shock Preload Settings table.

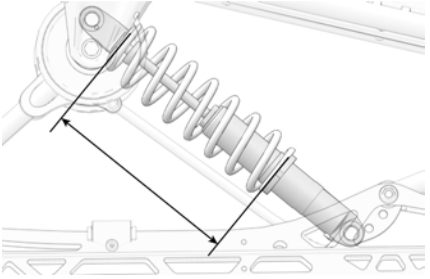
Always perform shock spring preload adjustments with the weight of the vehicle removed from the shock and with the shock at full extension. If adjustments to the factory-installed springs are not sufficient for riders over 300 lbs. (136 kg), optional stiffer springs are available. Your POLARIS dealer can assist.

NOTICE

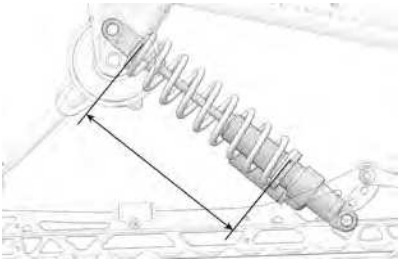
Do not install accessory bogie wheels on the inside of the rail beams if your model is equipped with a remote reservoir rear track shock or damage will occur. The rail scratchers must first be removed as they interfere with the accessory bogie wheels.

FACTORY SPRING SETTINGS

Always perform shock spring preload adjustments with the weight of the vehicle removed from the shock and with the shock at full extension.



MONOTUBE



VELOCITY

NOTICE

Never adjust spring preload to an installed length longer than the factory length or shorter than the minimum length as shown in the following chart. Damage to the suspension could result. When decreasing preload, make sure at least two turns of preload are holding the retainer against the spring.

Initial RTS Shock Preload Settings
(Measure spring length with suspension off the ground)

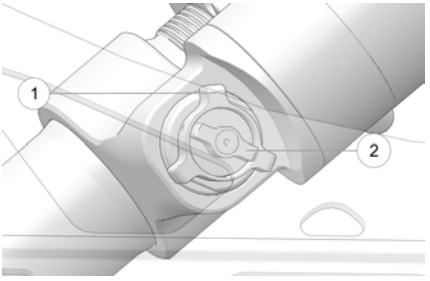
Rider Weight	Model	Factory Installed Length	Minimum Installed Length
For Factory-Installed Springs			
<160 lb (<73 kg)	PRO RMK	10.75 in (27.3 cm)	9.8 in (24.9 cm)
	RMK KHAOS	10.375 in (26.3 cm)	9.8 in (24.9 cm)
160-220 lb (73-100 kg)	PRO RMK & RMK KHAOS	*10.5 in (26.7 cm)	9.8 in (24.9 cm)
	PRO RMK (Velocity)	*10.25 in (26 cm)	9.8 in (24.9 cm)
220-280 lb (100-127 kg)	PRO RMK	10.125 in (25.7 cm)	9.8 in (24.9 cm)
	RMK KHAOS	10.125 in (25.7 cm)	9.8 in (24.9 cm)
280-340 lb (127-154 kg)	PRO RMK	9.8 in (24.9 cm)	9.8 in (24.9 cm)
	RMK KHAOS	10 in (25.4 cm)	9.8 in (24.9 cm)
***Factory Setting**			
For Optional 250 lb./in. Stiff Springs (see your dealer)			
250-300 lb (113-136 kg)	ALL	10.25 in (26 cm)	10 in (25.4 cm)
300-350 lb (136-159 kg)	ALL	10 in (25.4 cm)	

FACTORY CLICKER SETTINGS (IF EQUIPPED)

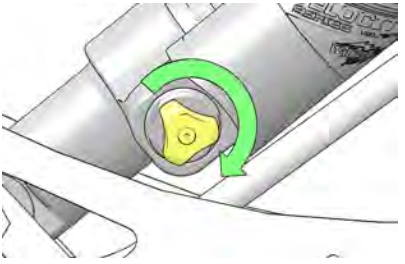
RMK KHAOS models come factory-equipped with Walker Evans Racing® Velocity shocks. Velocity shocks utilize dual shock clickers to control bottoming and ride comfort. To reset rear track shock clickers, rotate the clicker to full stiff, and then back off the same number of clicks for each shock. PRO RMK models equipped with Velocity shocks do not have dual shock clickers.

NOTICE
Speed refers to the rate of shock compression, not speed of vehicle.

- *The outside clicker ① adjusts shock compression during high speed compression events.* Turn clicker clockwise to increase compression and counterclockwise to decrease compression.
- *The inside clicker ② adjusts shock compression during low speed compression events.* Turn clicker clockwise to increase compression and counterclockwise to decrease compression.



RMK KHAOS



PRO RMK

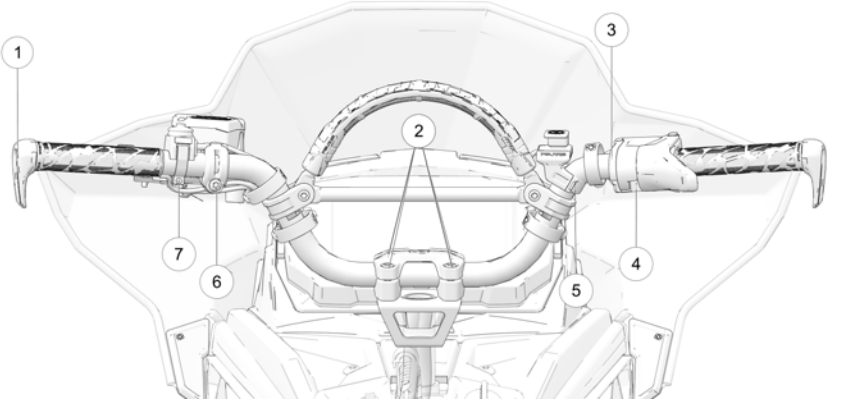
MODEL	CLICKER SETTING (FROM FULL STIFF)
PRO RMK (Velocity)	6
RMK KHAOS	High-Speed: 4 Low-Speed: 6

HANDLEBAR COMPONENT ALIGNMENT

Always loosen the mounting screws before moving a handlebar component. Moving a component without first loosening its mounting screws may cut grooves into the handlebar, making it difficult to secure the component.

⚠ CAUTION

Take care to avoid damaging hand warmer/brake switch wires when moving components.



COMPONENT TORQUE VALUES

IMPORTANT

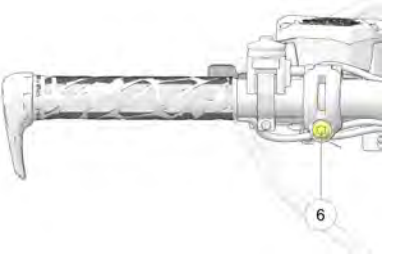
Do not over-torque the components listed below. Overtightening can lead to component damage.

COMPONENT		TORQUE
①	Handlebar Hook Screw	Aluminum: 10 ft-lbs (13.5 N·m) Steel: 18 ft-lbs (24 N·m)
②	Handlebar Clamp Screws	35 in-lbs (4 N·m)
③	Throttle Block Cover Screws	6 in-lbs (0.7 N·m)
④	Throttle Block Set Screw	27 in-lbs (3 N·m)

COMPONENT		TORQUE
⑤	Engine Stop Switch Mounting Screw	12 in-lbs (1.4 N·m)
⑥	Brake Master Cylinder Mounting Screw	70 in-lbs (8 N·m)
⑦	PERC Button Mounting Screw	35 in-lbs (4 N·m)

BRAKE MASTER CYLINDER ALIGNMENT

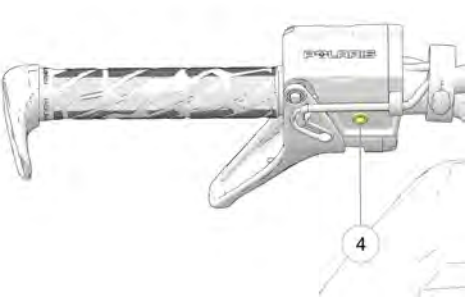
1. Loosen the mounting screw.
2. Move the master cylinder to desired position.
3. Torque screw ⑥ to specification. Do not over-torque.



TORQUE
Brake Cylinder Mounting Screw **70 in-lbs (8 N·m)**

THROTTLE BLOCK ALIGNMENT

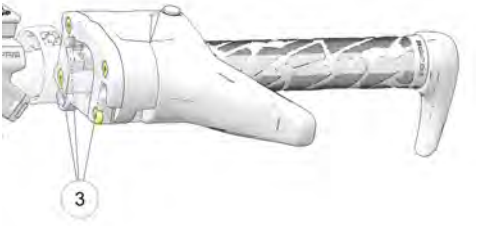
1. Slightly loosen the set screw ④ on the bottom of the throttle block housing.
2. Move the control block to desired position.
3. Torque the set screw to specification. Do not over-torque.
4. With the engine off, test throttle lever movement after tightening the screw.



TORQUE
Throttle Block Set Screw **27 in-lbs (3 N·m)**

THROTTLE BLOCK COVER

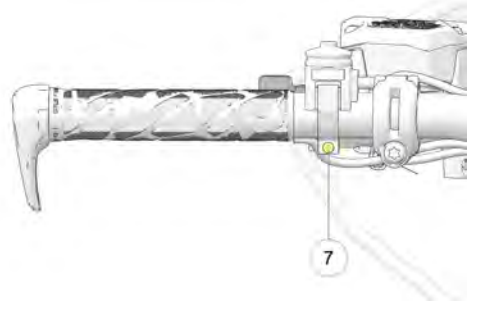
Adjusting the throttle block cover screws is not required to align the position of the throttle block. Removing the cover screws should only be necessary if replacing or removing the throttle block from the handlebar assembly. See your Polaris dealer or certified technician for throttle replacement information.



TORQUE
Throttle Block Cover Screws **6 in-lbs (0.7 N·m)**

PERC BUTTON ALIGNMENT

1. Loosen the mounting screw ⑦.
2. Move the PERC button to the desired position.
3. Torque screw to specification. Do not over-torque.



TORQUE
PERC Button Mounting Screw **35 in-lbs (4 N·m)**

ENGINE STOP SWITCH ALIGNMENT

⚠ CAUTION
The stop switch must be positioned in an easily accessible location.

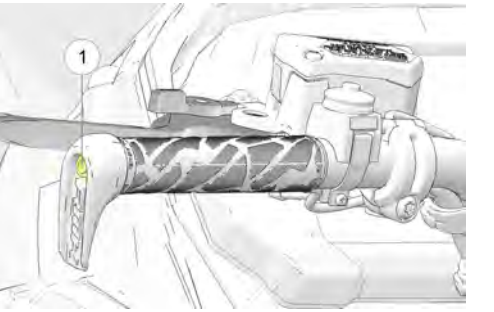
1. Slightly loosen the set screw ⑤ on the bottom of the housing.
2. Move the switch to the desired position.
3. Tighten the screw to specification. Do not over-torque.



TORQUE
Engine Stop Switch Mounting Screw **12 in-lbs (1.4 N·m)**

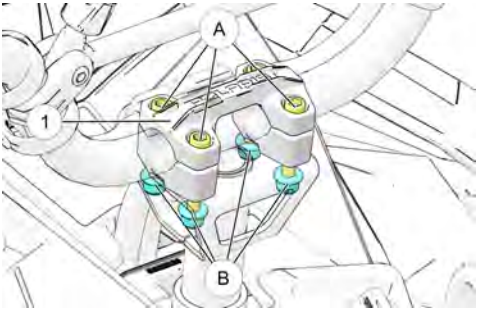
HANDLEBAR HOOK ALIGNMENT

1. Slightly loosen the hook mounting screw ①. Do not remove the screw.
2. Rotate hook to the desired position.
3. Torque screw to specification. Do not over-torque.



TORQUE
Handlebar Hook Screw **10 ft-lbs (13.5 N·m)**

HANDLEBAR ANGLE ADJUSTMENT



1. Locate the handlebar clamp ① at the top of the steering post.
2. Secure the clamp bolts Ⓐ with an Allen® wrench, and loosen each of the four nuts Ⓑ.
3. Move the handlebar forward or backward to desired angle.
4. Ensure that the handlebars and all components DO NOT touch the gas tank, windshield or other part of the machine when handlebars are turned fully left or right.
5. Torque handlebar clamp nuts to specification. Do not over-torque.

TORQUE
Handlebar Clamp Nuts **35 in-lbs (4 N·m)**

CARBIDE SKAGS

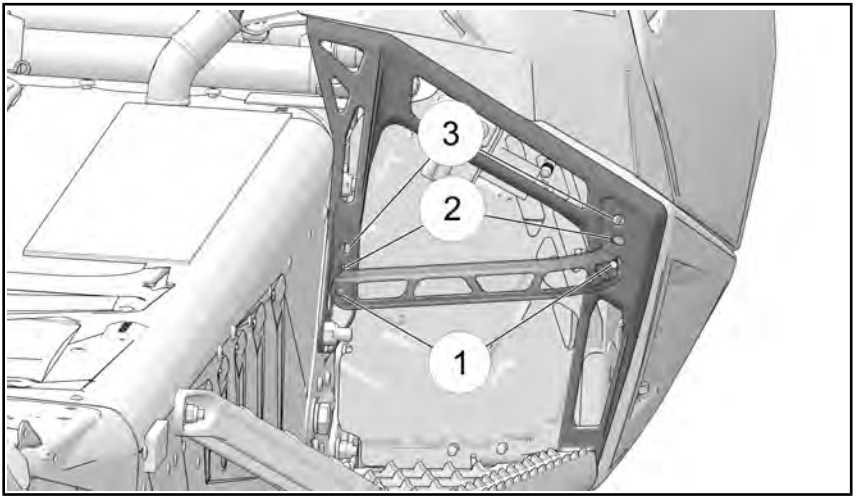
A skag is a replaceable bar attached to the underside of the ski to assist in turning the snowmobile and to prevent ski wear caused by contact with roads and other bare terrain. See page 159.

NOTICE
Do not install studs on this snowmobile. Damage will occur.

TOE HOLD POSITION ADJUSTMENT

1. Locate two toe hold mounting bolts toward the front of the tunnel and running boards.
2. Select the mounting position that best fits the rider's boot or riding style.
   a. Option ①: Low
   b. Option ②: Mid
   c. Option ③: High
   d. Option 4: Completely removed

NOTICE
Toe hold partially hidden for clarity.



3. Reinstall two toe hold mounting bolts. Torque bolts to specification.

TORQUE
Toe Hold Mounting Bolts: **8.9 ft-lbs (12 N·m)**

⚠ CAUTION

In a crash or rollover, a rider's footwear can get caught on the toe hold and cause injury. To avoid injury, ensure toe hold is mounted high enough to allow a rider's boot to evacuate in a crash or rollover. Install toe hold in highest position if unsure on mounting location. Do not install toe hold if rider's boot is large enough to prevent evacuation when the toe hold is in the highest position.

PRE-RIDE INSPECTIONS

PRE-RIDE CHECKLIST

Inspect all items on the checklist for proper operation or condition before each use of the snowmobile. Procedures are outlined in the referenced sections.

ITEM	SEE SECTION
Drive Belt and QUICKDRIVE Belt	page 145
Steering System	page 109
Recoil Rope	page 112
Coolant Level	page
Injection Oil Level	page 123
Parking Brake Lock/Brake Lever/Brake System	page 110, page 111, and page 145
Auxiliary Shut-Off Switch (Engine Stop Switch)	page 113
Ignition Switch	page 113
Headlight/Taillight/Brakelight	page 113
Suspension Mounting Bolts	page 108
Skags (Wear Bars)	page 159
Ski Saddle and Spindle Bolts	page 108
Hood and Side Panel Fasteners	page 139
Throttle Lever/Safety Switch	page 124
Rear Wheel Idler Bolt	page
Tether Switch/Strap (if equipped)	page 113
Track Alignment/Condition	page 153 and page 156
Rail Slide Condition	page 161

PRE-RIDE SUSPENSION INSPECTION

Loose nuts and bolts can reduce your snowmobile's reliability and cause needless repairs and down time. Before beginning any snowmobile trip, a visual inspection will uncover potential problems. Check the following items on a weekly basis or before any long trip.

ITEM	SEE SECTION
Check suspension mounting bolts for tightness.	-
Check rear idler wheel bolt for tightness.	page
Check rear idler adjusting bolt locknuts for tightness.	-
Check front torque arm limiter strap condition.	-
Check rail slide condition.	page 161
Check track tension.	page
Check ski runner/skag condition.	page 159
Check ski spindle bolts for tightness.	-
Check tie rod end nuts for tightness.	-

BEFORE STARTING THE ENGINE

Before starting the engine, always refer to all safety warnings pertaining to snowmobile operation. Never start the engine without checking all vehicle components to be sure of proper operation.

⚠ WARNING

Operating the vehicle with worn, damaged, contaminated, or malfunctioning components could result in serious injury or death. Never start the engine without checking all vehicle components to be sure of proper operation.

READ AND UNDERSTAND YOUR OWNER'S MANUAL

Read the Owner's Manual completely and refer to it often. The manual is your guide to safe and enjoyable snowmobiling experience.

STEERING SYSTEM

⚠ WARNING

Ice and snow build-up may interfere with the steering of your snowmobile, resulting in serious injury or death. Keep the underhood area free of snow and ice.

Before driving, manually turn the skis to the left and right to be sure ice and snow are not interfering with full left and right steering. If difficulty is encountered, remove ice and snow build-up that may be obstructing the steering linkage.

THROTTLE LEVER

The throttle and brake are the primary controls of your snowmobile. Always make sure both are functioning properly.

Squeeze the throttle lever to make sure it compresses evenly and smoothly. When released, the lever should immediately return to the idle position without binding or hesitation. If the throttle does not function smoothly, or if you discover excessive lever freeplay, DO NOT start the engine. Have the throttle serviced immediately.

THROTTLE SAFETY SWITCH

Test the throttle safety switch system before the snowmobile is operated.

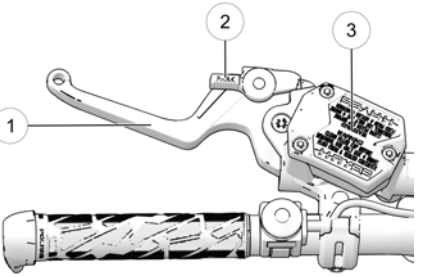
BRAKES

Always check the following items for proper operation before starting the engine.

PARKING BRAKE LEVER LOCK

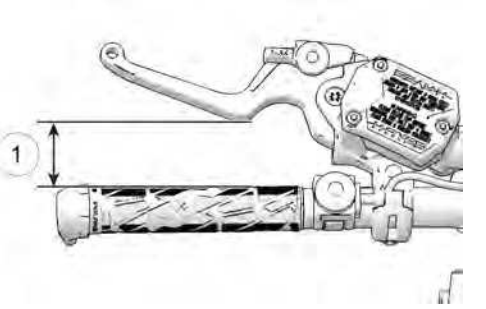
Use the parking brake lever lock only when you want the snowmobile to remain stationary; for example, when parked on an incline for a period of five minutes or less.

1. Brake Lever
2. Parking Brake Lever Lock
3. Master Cylinder Reservoir/Cover



BRAKE LEVER TRAVEL

Squeeze the brake lever. It should move no closer to the handgrip than 0.5 in (1.3 cm) ①. A smaller distance indicates low brake fluid level or air in the hydraulic system. Refer to the brake bleeding information on page 147. A dealer or other qualified technician can assist.



LEVER FEEL

If the brake lever feels “spongy” after a rollover or other event, squeeze the lever 10 times. If correct lever travel is not achieved, check the brake fluid level and condition. Add fluid as needed. See the Brake Fluid section for details.

⚠ WARNING

Continued use of “spongy” brakes may cause a complete loss of brakes, which could result in serious injury or death. Always have the brakes serviced at the first sign of sponginess.

PARKING BRAKE LEVER LOCK

Use the parking brake lever lock only when you want the snowmobile to remain stationary; for example, when parked on an incline for a period of five minutes or less.

LOCK ENGAGEMENT

To engage the lock, squeeze the brake lever tightly and push forward on the lock. Hold the lock forward while releasing the brake lever.

NOTICE
If the brake lever is squeezed tightly enough, the lock will move freely into place. Do not force the lock or it may break.

The parking brake light on the gauge will light up if the parking brake lever lock is set while the engine is running. It will also be lit when the service brake is in use. If the parking brake light does not come on when the parking brake or service brake is in use, have it serviced by your dealer.

LOCK RELEASE

To release the lock, squeeze the brake lever tightly. The lock will return to the unlocked position.

⚠ WARNING
If the parking brake lever lock is partially or entirely engaged while riding, the brakes may overheat, resulting in brake damage. In extreme cases it could cause a fire, which could result in serious injury or death. Always ensure that the lever lock is completely disengaged before operating the snowmobile.

TRACK

Track damage or failure caused by operation on ice, poor lubrication conditions, or excessive speed voids the track warranty.

⚠ WARNING
Operating the snowmobile with a damaged track increases the possibility of track failure, which could cause loss of control resulting in serious injury or death. Always inspect the track for damage before using the vehicle.

WARNING

Use of traction products such as studs increases the possibility of track damage and/or failure. Driving at high speeds for extended periods of time in marginal lubrication could severely damage track rods, break track edges, and cause other track damage. Examples of marginal lubrication would include frozen bodies of water without snow cover, icy trails, and no-snow conditions.

HOOD AND SIDE PANEL FASTENERS

CAUTION

The hood and side panels of the snowmobile protect the operator from moving parts. Never operate a snowmobile with the hood or side panels open or removed. Always ensure that the hood and side panels are securely in place before starting the engine.

RECOIL ROPE

Inspect the recoil rope and handle for excessive wear, and make sure the knot securing the rope inside the handle is secure. If excessive wear is found, your POLARIS dealer can provide a replacement.

START THE ENGINE AND CHECK

Before starting the engine, always refer to all safety warnings pertaining to snowmobile operation. Never engage the starter when the engine is running. Never start the engine without checking all vehicle components to be sure of proper operation. See page 109.

ENGINE STOP SWITCH

Check the auxiliary shut-off switch for proper operation. Push the switch down to stop the engine. Pull it up to allow restarting.

IGNITION SWITCH

Make sure the engine stops when the ignition switch is turned to OFF.

TETHER SWITCH

Remove the tether from the switch to ensure the engine stops immediately.

LIGHTING

Check the headlight (high and low beam), taillight, and brake light. Replace burned out lamps before operating.

OPERATING AREA

Before driving away, check your surroundings. Be aware of obstacles and make sure bystanders are a safe distance from the snowmobile.

OPERATION

STARTING THE ENGINE

IMPORTANT

Engaging the starter when the engine is running WILL result in serious engine damage, especially if the engine is in reverse. Never engage the starter when the engine is running.

1. Install the tether switch by securing the tether cap to the base on the console. Clip the end of the tether securely to your clothing.
2. Turn the key to the ON position.
3. Pull the engine stop switch up to the RUN position.
4. If equipped with electric start, turn the key to START to crank the engine. Release the key to the ON position when the engine starts.
5. If not equipped with electric start, grasp the starter handle and pull slowly until the recoil engages; then pull abruptly to crank the engine.

TIP

Don't pull the starter rope to the fully extended position and don't allow it to snap back into the housing. Damage may result.

6. If the engine does not start after several attempts, slightly depress the throttle no more than 0.25 in (2.54 cm) open while cranking the engine. When the engine starts, *immediately* release the throttle.

⚠ CAUTION

To avoid injury and/or engine damage, do not operate the electric starter or pull-rope starter while the engine is running.

NOTICE

Operating the vehicle immediately after cold starting could cause engine damage. Allow the engine to warm up for several minutes before operating the vehicle. If cold drive-away is attempted, the engine RPM may stumble slightly to protect the engine.

RESTARTING THE ENGINE

If the engine has been stopped using the engine stop switch, restart the engine using the normal starting procedure. If the engine fails to start, do the following:

1. Re-install the tether switch by securing the tether cap to the base on the console. Ensure the end of the tether is secured to your clothing.
2. Push the engine stop switch down to the OFF position.
3. Turn the key to the OFF position.
4. Pull the recoil rope handle several times to clear the engine.
5. Restart the engine using the normal starting procedure.

BREAK-IN PERIOD

ENGINE BREAK-IN

IMPORTANT
Engines equipped with an electronic oil pump do not require initial fuel premix.

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. Vary the throttle openings and vehicle speeds to reduce friction on all close-fitting machined parts, allowing them to break in slowly without damage.

⚠ CAUTION
Never mix brands of oil. Serious chemical reactions can cause injection system blockage, resulting in serious engine damage. Oils may also be incompatible and the result could be sludge formation, filter blockage, and reduced cold weather flow rates. All Polaris oils are compatible with each other.

Drive with extra caution during the break-in period. Perform regular checks on fluid levels, lines, and all other important areas of the snowmobile.

AUTOMATIC ENGINE BREAK-IN TIMERS

NOTICE
The Patriot engine management system utilizes both a fuel injector break-in period and oil pump enrichment program. The duration of these break-in programs are independent of each other and are timed-out based on engine run-time at and above a specified engine RPM.

BREAK-IN FUNCTION	ENGINE RUN TIME DURATION	DESCRIPTION
Fuel Injectors	2 hours *	2% additional fuel
Patriot Engine Oil Pump Enrichment Period	10 Hours *	15% additional enriched oil supply to engine
** = Total engine run time above 3,500 RPM*		

OIL INJECTION SYSTEM

Always check and fill the oil bottle during pre-ride inspection and refueling.

NOTICE
Serious engine damage can occur without the proper lubrication. Check the oil bottle level often during the first tank of fuel. If the oil level doesn't go down, contact your dealer or other certified technician immediately.

DRIVE BELT BREAK-IN

The break-in period for a new drive belt is 30 miles (48 km). During this time, vary the throttle position under 50% and limit full throttle use.

New drive belts should be washed with warm, soapy water and allowed to air dry prior to use.

Always take time to warm up the belt and driveline prior to operating the snowmobile. Free the track and skis from the ground before engaging throttle.

QUICKDRIVE BELT BREAK-IN

The break-in period for a new QUICKDRIVE belt is 100 miles (160 km). During the 100 miles of belt break-in, the rider will hear a sound made by the drive system. After the break-in period, the sound will become similar to that of a traditional chaincase.

Improper track tension can result in track ratcheting, which will affect QUICKDRIVE belt durability. Always maintain proper track tension.

During the break-in period, this belt sheds a fiber-type material in and around the drive system. Use a dry shop towel to clean the residue.

Stop occasionally and allow the snowmobile to cool after high throttle/high track load events. This will help the QUICKDRIVE belt achieve maximum performance and it will also break in the engine, drive belt and sprockets properly.

On-trail break-in should be performed at speeds no more than 50 MPH (80 km/h).

Always be cautious when jumping and landing a snowmobile. Avoid “power-on” landings. Damage caused to any component due to improper use or abuse is not covered by warranty.

TRACK BREAK-IN

It is very important to inspect and adjust track tension after every ride for the first 150 miles (240 km) of use to ensure the proper tension during the break-in period. Aggressive riders in certain snow conditions may need to adjust track tension as early as 20 miles (32 km). After the break-in period track tension should be inspected every 150 miles (240 km).

IMPORTANT

Track tension must be kept at specification – neither too loose nor too tight. Overly loose track tension is inefficient and overly tight tension causes premature wear or drive train system failures.

NOTICE

Ratcheting occurs when the drive shaft drivers slip on the track. A ratcheting event typically produces extreme vibration and is often experienced when the track is subjected to heavy loads.

Early wear can be caused by two conditions – improper track tension and/or sustained trail riding at high speeds without scratchers. Neither condition results from a defect in the track, and wear caused by either or both of these conditions is not covered by warranty.

Loose tracks reduce drive system efficiency because:

- Track tension constantly varies on snowmobiles as the rear suspension extends and compresses.
- Loose track tension increases the chance for the drive shaft to ratchet in high load driving modes. Track ratcheting may damage the track and drive nubs.
- Loose track tension decreases rail slider life and can cause uneven slider wear.
- The slack in a loose track bows out in front of the rail tips. This bowing effect significantly reduces drive system efficiency, creates drag, and changes the approach angle of the rear suspension, which decreases the snowmobile's ability to get on top of the deep snow.

TRACK WARM-UP

⚠ WARNING

A loose track or flying debris could cause serious injury or death. Stand clear of the front of the snowmobile and the moving track. Never hold the snowmobile up or stand behind it while warming up the track. Do not use excessive throttle during warm-up or when the track is free-hanging. Use a stable rear support.

WARNING

Use of traction products such as studs, ice growsers, etc. will increase the possibility of track damage and/or failure. This could cause loss of control, resulting in serious injury or death. Always inspect for track damage before operating the snowmobile.

Follow these steps to ensure proper warm-up of the engine, drive train and track.

1. Use an appropriate stand to securely support the rear of the snowmobile at the rear bumper. The track should be about 4 inches (10 cm) off the ground.
2. Start the engine and allow it to warm up two to three minutes.
3. Depress the throttle abruptly and allow the track to rotate several revolutions.

TIP

It will take longer to warm up the track sufficiently during colder outdoor temperatures.

4. Release the throttle, apply the brakes, shut off the engine and lower the snowmobile to the ground.
5. Grasp the skis by their front loops and move them from side to side to loosen snow and ice.

SLIDE RAIL AND TRACK COOLING

NOTICE

Inadequate cooling and lubrication will lead to overheating of the slide rail and track, resulting in premature wear and failure. Reduce speeds and frequently drive into fresh snow to allow adequate cooling and polishing of the slide rail and track surfaces. Avoid operating on ice, hard-packed surfaces or roads.

RAIL SCRATCHERS

Some models are equipped with rail scratchers to help prevent overheating when riding on ice or hard-packed snow.

NOTICE

Do not install accessory bogie wheels on the inside of the rail beams if your model is equipped with a remote reservoir rear track shock or damage will occur. The rail scratchers must be removed as they interfere with the accessory bogie wheels.

DEEP LUG TRACK OPERATION

Deep lug tracks are designed specifically for operation in deep snow conditions. Operating with deep lug tracks on low snow, on hard-packed trails, on ice or at sustained high speeds may cause track overheating, lug separation and/or rail slider damage. *Track damage attributed to track overheating and/or lug separation is not covered under the POLARIS limited warranty policy.*

Never exceed the maximum recommended sustained vehicle speeds listed for the following deep lug tracks.

Deep Lug Track Type	Maximum Sustained Speed
2.0 Crossover Track	70 MPH (110 km/h)
Series 6 (2.6 in)	60 MPH (95 km/h)
Series 7 (3.0 in)	60 MPH (95 km/h)
Series 8 (2.75 in)	60 MPH (95 km/h)

FUEL

⚠ WARNING

Gasoline is highly flammable and explosive under certain conditions.

- Always exercise extreme caution whenever handling gasoline.
- Always refuel outdoors or in a well-ventilated area.
- Always turn off the engine before refueling.
- Do not overfill the tank. Do not fill the tank neck.
- Do not smoke or allow open flames or sparks in or near the area where refueling is performed or where gasoline is stored.
- If gasoline spills on your skin or clothing, immediately wash it off with soap and water and change clothing.
- Never start the engine or let it run in an enclosed area. Engine exhaust fumes are poisonous and can cause loss of consciousness or death in a short time.

⚠ WARNING

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.

FUEL RECOMMENDATION

NOTICE
Prolonged exposure to petroleum based products may damage paint. Always protect painted surfaces when handling fuel.

NORTH AMERICAN FUEL

For peak performance, POLARIS recommends the use of fresh quality, non-oxygenated 91 octane level fuel or above. Although 87 octane fuel is usable, some engine performance will be lost and fuel economy will decrease. NEVER use unleaded fuels with an ethanol rating of E15 or E85 as severe engine damage may occur.

The tables below indicate the recommended fuel for your Patriot engine. Use the indicated fuel setting with your gauge when choosing fuel.

IMPORTANT
NEVER use fuel containing more than 10 percent ethanol, including E85 or 88 E15 fuel, in your snowmobile.

650 MODELS		
ETHANOL CONTENT	**87 (R+M)/2**	**91 (R+M)/2**
Non-Ethanol Fuel	ETHANOL/NON-PREMIUM MODE	PREMIUM MODE
Up to 10% Ethanol	ETHANOL/NON-PREMIUM MODE	ETHANOL/NON-PREMIUM MODE
Shaded cells indicate the optimum fuel recommendation for this engine.		

850 MODELS		
ETHANOL CONTENT	**87 (R+M)/2**	**91 (R+M)/2**
Non-Ethanol Fuel	ETHANOL/NON-PREMIUM MODE	PREMIUM MODE
Up to 10% Ethanol	ETHANOL/NON-PREMIUM MODE	ETHANOL/NON-PREMIUM MODE
Shaded cells indicate the optimum fuel recommendation for this engine.		

PATRIOT BOOST AND 9R MODELS	
ETHANOL CONTENT	**91 (R+M)/2**
Non-Ethanol Fuel	PREMIUM MODE
Up to 10% Ethanol	ETHANOL/NON-PREMIUM MODE
Shaded cells indicate the optimum fuel recommendation for this engine.	

INTERNATIONAL FUEL

For peak performance, POLARIS recommend the use of 98 octane E0 gasoline or higher octane. If lower octane is used, some engine performance will be lost and fuel economy will decrease. Do not use gasoline with higher ethanol rating than E10.

650 MODELS		
ETHANOL CONTENT	**95 RON**	**98 RON**
Non-Ethanol	ETHANOL/NON-PREMIUM MODE	PREMIUM MODE
1-10% Ethanol or MTBE	ETHANOL/NON-PREMIUM MODE	ETHANOL/NON-PREMIUM MODE
Shaded cells indicate the optimum fuel recommendation for this engine.		

850 MODELS		
ETHANOL CONTENT	**95 RON**	**98 RON**
Non-Ethanol	ETHANOL/NON-PREMIUM MODE	PREMIUM MODE
1-10% Ethanol or MTBE	ETHANOL/NON-PREMIUM MODE	ETHANOL/NON-PREMIUM MODE
Shaded cells indicate the optimum fuel recommendation for this engine.		

PATRIOT BOOST AND 9R MODELS	
ETHANOL CONTENT	**98 RON**
Non-Ethanol	PREMIUM MODE
1-10% Ethanol or MTBE	ETHANOL/NON-PREMIUM MODE
Shaded cells indicate the optimum fuel recommendation for this engine.	

FUEL SYSTEM DEICERS

If you use non-ethanol fuel (sometimes labeled “non-oxygenated”), POLARIS recommends the regular use of isopropyl-based fuel system deicer. Add 1-2 ounces per gallon (8-16 ml per liter) of gasoline to prevent damage resulting from fuel system icing. Never use deicers or additives containing methanol. POLARIS recommends the use of Carbon Clean.

IMPORTANT
If you use fuel with up to 10% ethanol (sometimes labeled “oxygenated”) do not add deicers or additives that contain any form of alcohol. Adding deicer to oxygenated fuels could result in severe engine damage.

OIL

OIL RECOMMENDATION

IMPORTANT
Some non-recommended two-cycle engine oils, especially those formulated for warm weather product use, may not provide adequate cold weather pour point properties. These oils may increase the recoil rope pull effort in cold / sub-zero temperatures, resulting in excess fuel injection and subsequent plug fouling. NEVER mix oil brands or use non-recommended oil. Mixing oil or using non-recommended oil may result in engine damage.

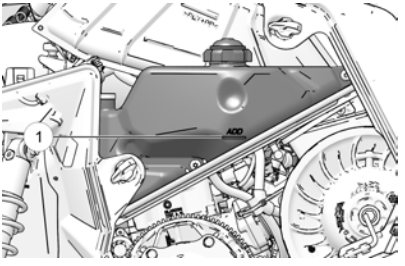
Oil Recommendation
VES Extreme Highest Performance Full Synthetic 2-Cycle Oil

LOW OIL LEVEL

NOTICE
The oil level indicator lamp will not engage unless engine is fully started.

Always maintain the oil level between the “add” mark ① and the bottle neck. Do not fill the bottle neck.

1. Immediately stop the engine if the low oil indicator light comes on.
2. Open the left side panel.
3. View the oil level in the oil bottle.
4. Add oil as needed before operating.



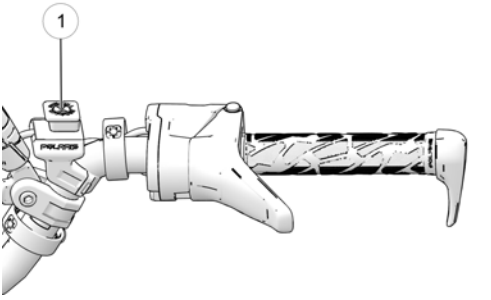
NOTICE

Operating the snowmobile without adequate engine lubrication can result in serious engine damage. Always check the oil level when refueling. Add oil as needed.

The oil bottle cap is vented to allow proper oil flow. Your POLARIS dealer can assist with recommended replacement parts.

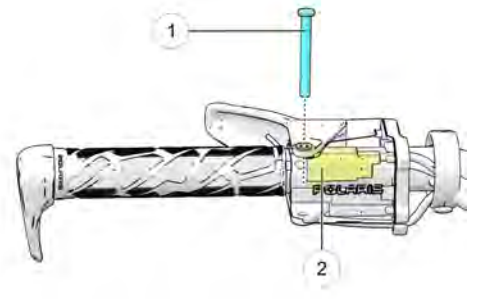
ENGINE STOP SWITCH

Push down on the engine stop switch ① to ground out the ignition and stop the engine quickly. Pull the switch up to the ON position to allow restarting.



THROTTLE SAFETY SWITCH

When working properly, the throttle safety switch is designed to stop the engine whenever all pressure is removed from the throttle lever and the throttle cable or valves do not return to the normal closed position. The throttle lever pin ① releases pressure to the safety switch ② and stops the engine.

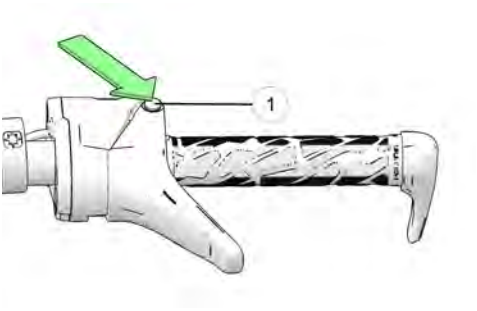


⚠ WARNING

Operating the snowmobile with a faulty throttle safety switch can result in serious injury or death in the event of an accident. If the throttle safety switch does not shut off the engine during a carburetor/throttle system malfunction, immediately push down the engine stop switch. Do not start the engine again until the malfunction has been corrected by your dealer.

To test the throttle safety switch, do the following:

1. Sit on the seat.
2. Start the engine and allow it to idle.
3. Hold the throttle lever pin ① stationary by exerting pressure in the direction shown in the illustration.
4. Apply a slight amount of throttle. A properly functioning switch must shut down the engine.



THROTTLE LEVER

WARNING

An improperly functioning throttle lever may cause erratic snowmobile behavior and loss of control, which could result in serious injury or death. If the throttle lever does not work properly, DO NOT start the engine.

If the engine stops abruptly when the throttle lever is released:

1. Turn the ignition switch to OFF.
2. Visually inspect the throttle cable and carburetor/throttle body to determine what caused the safety switch to activate.
3. Test the throttle lever by compressing and releasing it several times. The lever and cable must return to the idle position quickly and completely.
4. If the throttle lever operates properly, turn the ignition switch on and go through normal starting procedures.
5. If the engine doesn't start, your authorized POLARIS dealer can perform this service.

Excessive freeplay in the throttle cable may cause the safety switch to activate, preventing the engine from starting. If this occurs, return the snowmobile to an authorized POLARIS dealer for service.

If an emergency exists and it's necessary to start the engine, the throttle safety switch and engine stop switch may be disconnected from the wire harness. When these switches are disconnected, the ignition key switch must be used to shut off the engine. DO NOT continue to operate the snowmobile with the throttle safety switch disconnected. Return the snowmobile to an authorized POLARIS dealer for service as soon as possible.

VEHICLE CONTROL SYSTEM

The vehicle control system on your vehicle helps to limit excessive operational temperatures of the vehicle brake system. If the brake and throttle system are operated at the same time and either of the following conditions are triggered, check the brake system to ensure that there are no obstructions that would prevent the lever from moving freely and returning to its disengaged position. The two step warning and performance reduction sequence will engage when the following conditions are met:

Step One–

- The engine speed is above 4500 RPM
- The brake is engaged
- The throttle is engaged

After 4 consecutive seconds, the power output from the engine will be decreased. A warning message will also appear on your display. To clear the display message and regain full power, restart the vehicle.

Step Two–

- The engine speed is above 2500 RPM
- The brake is engaged
- The throttle is engaged

After 15 consecutive seconds, the vehicle will shut down. If shutdown occurs, check the brake system to ensure the parking brake is not engaged.

POLARIS ELECTRONIC REVERSE CONTROL (PERC)

⚠ WARNING

Improper reverse operation, even at low speeds, may cause loss of control, resulting in serious injury or death. Damage will occur to the chaincase or transmission if shifting is attempted when the engine is operating above idle speed.

- Shift to or from reverse only when the snowmobile is stopped and when engine speed is at idle.
- Look behind the vehicle before and while backing.
- Avoid sharp turns.
- Apply throttle slowly.

Electronic reverse will activate only if the engine RPM is below 3000.

CAUTION

Engaging the starter when the engine is running WILL result in serious engine damage, especially if the engine is in reverse. Never engage the starter when the engine is running.

IMPORTANT

If equipped, secure rail scratchers to rail beams so they do not bend when in reverse.

ENGAGING REVERSE

1. Stop the snowmobile and leave the engine idling.
2. Make sure the area behind your vehicle is clear.
3. Push the yellow button on the left-hand control for one second, then release. The engine will automatically reduce RPM and start a reverse rotation. A flashing reverse light on the instrument panel will indicate that the transmission is in reverse.
4. Apply the throttle slowly to make sure the transmission is in reverse. The maximum engine RPM will be 5000 when in reverse.

TIP

If the engine stops running, the snowmobile will be in forward gear when it's restarted.

DISENGAGING REVERSE

1. Stop the snowmobile and leave the engine idling.

CAUTION

Engaging the starter when the engine is running WILL result in serious engine damage, especially if the engine is in reverse. Never engage the starter when the engine is running.

2. Push the reverse button for one second and release. The engine will slow and begin to rotate forward. The light on the instrument panel will shut off.
3. Apply the throttle slowly to make sure the vehicle is in forward.

EMERGENCY STOPPING

The following chart lists methods for stopping the snowmobile in the event of an emergency.

SYSTEM	WHAT IT DOES
Ignition Switch	Interrupts ignition circuit
Brake	Slows jackshaft
Engine Stop Switch	Interrupts ignition circuit
Throttle Safety Switch	Interrupts ignition circuit
Tether Switch	Interrupts ignition circuit

DAILY STORAGE

At the end of each ride, park the snowmobile on a level surface and support it at the rear with an appropriate track stand. The track should be suspended approximately 4 inches (10 cm) off the ground.

Remove the key and cover the snowmobile.

TOWING

NOTICE

This snowmobile is not designed for towing disabled snowmobiles or other objects. Do not tow with this snowmobile. Damage will occur.

If the snowmobile becomes inoperable and must be towed, and if it isn't possible to use a rigid tow bar, attach the tow rope to the ski spindles (not to the ski loops) to prevent damage to the steering components. Remove the drive belt before towing, and have someone ride on the towed snowmobile to operate the brake and steering when necessary.

NOTICE

Towing a disabled snowmobile with the drive belt in place can result in serious damage to the engine and drive system. Always remove the drive belt from a disabled snowmobile before towing.

EMISSIONS CONTROL SYSTEMS

EMISSION CONTROL INFORMATION

Any qualified repair shop or qualified person may maintain, replace, or repair the emission control devices or systems on your snowmobile. 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 may be used for such service. 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.

EMISSION CONTROL LABEL

Your snowmobile is equipped at the time of sale with an emission control information (ECI) label and a factory-installed emissions information hangtag. These items are required by U.S. Environmental Protection Agency regulations. The ECI label is permanently affixed to either the right side of the tunnel or the engine recoil cover. The ECI label should not be removed, even after you purchase the snowmobile. You may remove the factory-installed emissions information hangtag, which is intended solely for your use in making a purchasing decision.

EMISSION CONTROL MAINTENANCE REQUIREMENTS

Your snowmobile is certified to operate on gasoline with a minimum octane level of 87 (R+M)/2. If your snowmobile is equipped with a check engine light and it comes on, you must take your snowmobile to a qualified dealer for diagnostic service. Specifications and adjustments for engine tune-ups are located in the Service Manual, which is available to your qualified service technician. Reverse (if equipped) must not be engaged during engine tune-ups.

OWNER'S RESPONSIBILITIES

Please read the Snowmobile Engine Emissions Limited Warranty, and read the maintenance section of your owner's manual. You are responsible for ensuring that the specified maintenance is performed. POLARIS recommends that you contact an authorized POLARIS dealer, or other qualified person, to perform any service that may be necessary.

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 and directives that apply to this vehicle.

MAINTENANCE

POLARIS RECOMMENDED MAINTENANCE PROGRAM

NOTICE

Hot components can cause damage to plastic. Always make sure the exhaust system and engine have cooled before tipping the snowmobile on its side for service or inspection.

To ensure many trouble-free miles of snowmobiling enjoyment, follow recommended regular maintenance and perform service checks as outlined in this manual. Record maintenance and service in the Maintenance Log beginning on page 233.

The recommended maintenance schedule on your snowmobile calls for service and maintenance inspections at 150 miles (240 km), 500 miles (800 km) and 1000 miles (1600 km). These inspections should be performed by a qualified service technician. For continued optimum performance and component life, continue maintenance checks at 1000 mile (1600 km) intervals.

All necessary replacement parts and labor incurred, with the exception of authorized warranty repairs, become the responsibility of the registered owner. If, during the course of the warranty period, part failures occur as a result of owner neglect in performing recommended regular maintenance, the cost of repairs are the responsibility of the owner.

Personal safety is critical when attempting to service or make adjustments to your snowmobile. If you're not familiar with safe service or adjustment procedures and the use of tools, or if you don't feel comfortable performing these tasks yourself, your authorized POLARIS dealer can provide any needed service.

WARNING

Take precaution and wear appropriate PPE (gloves and safety glasses) when servicing or inspecting areas under the hood, exhaust components, chassis components, or rear suspension components for any items that could be sharp.

PRE-SEASON MAINTENANCE

The chart below outlines inspection procedures that should be performed before the start of each riding season.

Air Box / Intake Ducts / Intake Tubes	Inspect
Bogie / Wheel Condition / Fastener Bolts	Inspect or Adjust
Brake Fluid Level / Leaks / Fluid Condition	Inspect or Adjust
Brake Hose Condition / Routing	Inspect or Adjust
Brake Lever	Inspect or Adjust
Brake Pads / Brake Disc	Inspect as needed
Controls	Inspect or Adjust the following: • Auxiliary Shut-Off • Throttle Release Switch • Ignition Switch • Headlights / Brake light / Taillights • Hand / Thumbwarmers • PERC Reverse System
Coolant Level	Inspect or Adjust
Cooling Hoses / Pipes	Inspect or Adjust
Drive / Driven Clutch Condition	Inspect or Adjust; Clean if needed
Drive Belt Condition / Ride Out	Inspect or Adjust
Drive Chain Tension (If Equipped)	Inspect or Adjust
Engine Mounts	Inspect or Adjust
Exhaust System / Retaining Springs / Heat Shields	Inspect or Adjust

Front / Rear Suspension Mounting Bolts	Inspect or Adjust
Front Limiter Strap	Inspect or Adjust
Fuel / Vent Hoses	Inspect or Adjust
Hood / Seat / Chassis / Engine Compartment	Clean if needed
Oil Hoses	Inspect or Adjust
QUICKDRIVE Belt (If Equipped)	Inspect or Adjust
Rail Slide Condition	Inspect or Adjust
Rear Idler Wheel Bolts / Adjuster Bolt Jam Nuts	Inspect or Adjust
Recoil Handle / Rope / Function	Inspect or Adjust
Shocks / Springs	Inspect or Adjust
Ski Fasteners	Inspect or Adjust; Clean if needed
Ski Skags	Inspect or Adjust
Ski Toe Alignment / Handlebar Centering	Inspect or Adjust
Spark Plugs	Inspect or Adjust
Steering Fasteners / Linkage / Handlebars	Inspect or Adjust
Throttle Lever / Throttle Cable	Inspect or Adjust
Track Alignment / Track Tension	Inspect or Adjust
Transmission Oil (If Equipped)	Inspect or Adjust

POLARIS MAINTENANCE SCHEDULE

The intervals shown in this table are based on vehicles operated under normal conditions.

Each interval is given in miles (kilometers). Service the components or systems at that interval.

Continue to follow the maintenance schedule as miles/kilometers increase on the vehicle. For example, after the 2000 miles (3200 km) service has been completed, do the service every 2000 miles (3200 km).

Vehicles subjected to severe use must be serviced at 50% of the stated interval. Examples of severe use include: constant high RPM use; prolonged low-speed or heavy load operation; extended idle; short trips.

150 MILES (240 KM)

Brake Pads / Brake Disc	Inspect or Adjust
Chaincase Oil (If equipped)	Inspect or Adjust
Drive Chain Tension (If equipped)	Inspect or Adjust
Rail Slide Condition	Inspect or Adjust
Ski Skags	Inspect or Adjust
Spark Plugs	Inspect or Adjust
Track Alignment / Track Tension	Inspect or Adjust

Vehicles subjected to severe use must be serviced at 50% of the stated interval. Examples of severe use include: constant high RPM use; prolonged low-speed or heavy load operation; extended idle; short trips.

500 MILES (800 KM)

Brake Pads / Brake Disc	Inspect or Adjust
Chaincase Oil (If equipped)	Replace
Drive Chain Tension (If equipped)	Inspect or Adjust
Rail Slide Condition	Inspect or Adjust
Ski Skags	Inspect or Adjust
Spark Plugs	Inspect or Adjust
Track Alignment / Track Tension	Inspect or Adjust

Vehicles subjected to severe use must be serviced at 50% of the stated interval. Examples of severe use include: constant high RPM use; prolonged low-speed or heavy load operation; extended idle; short trips.

1000 MILES (1600 KM)

Brake Pads / Brake Disc	Inspect or Adjust
Chaincase Oil (If equipped)	Inspect or Adjust
Drive Chain Tension (If equipped)	Inspect or Adjust
Rail Slide Condition	Inspect or Adjust
Ski Skags	Inspect or Adjust
Spark Plugs	Inspect or Adjust
Track Alignment / Track Tension	Inspect or Adjust

Vehicles subjected to severe use must be serviced at 50% of the stated interval. Examples of severe use include: constant high RPM use; prolonged low-speed or heavy load operation; extended idle; short trips.

EVERY 2000 MILES (3200 KM)

Brake Fluid	Replace
Brake Pads / Brake Disc	Inspect or Adjust
Chaincase Oil (If equipped)	Replace
Clutch Alignment / Offset	Inspect or Adjust
Drive Chain Tension (If equipped)	Inspect or Adjust
QUICKDRIVE Belt (If equipped)	Replace
Rail Slide Condition	Inspect or Adjust
Shocks (If serviceable)	Replace oil and recharge; Rebuild if needed.
Ski Skags	Inspect or Adjust
Spark Plugs	Replace
Track Alignment / Track Tension	Inspect or Adjust

ADDITIONAL MAINTENANCE INTERVALS

Every 60 months / 5 years	50/50 Extended Life Coolant	Replace Fluid

HOOD/SIDE PANEL

The hood and side panels of the snowmobile protect the operator from moving parts. Never operate a snowmobile with the hood or side panels open or removed. Always ensure that the hood and side panels are securely in place before starting the engine.

To open a side panel, rotate the two 1/4-turn fasteners at the upper edges of the side panel. Release the side panel strap at the lower edge of the panel.

To remove an open side panel, pull the panel outward to release the tabs at the lower edge of the panel.

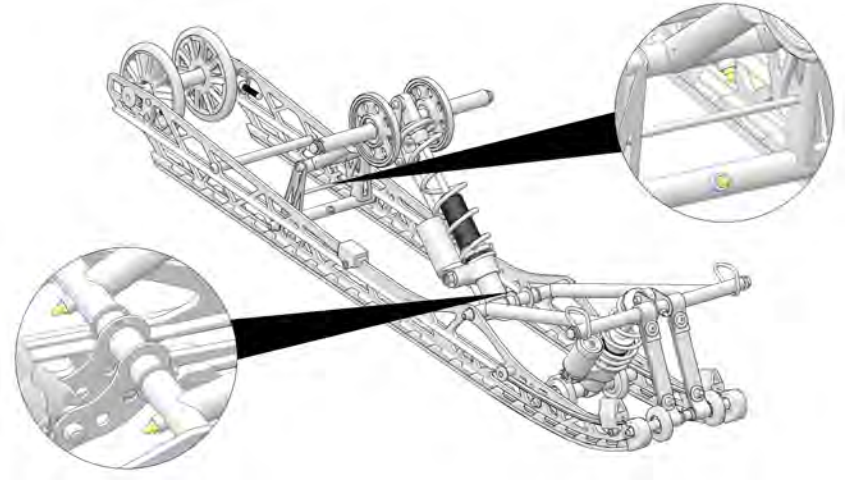
Removing the hood is not recommended. Any service requiring the removal of the hood should be performed by an authorized POLARIS dealer, or equivalent person.

LUBRICATION

REAR SUSPENSION LUBRICATION

Lubricate the suspension pivot shafts with POLARIS All Season Grease at the intervals outlined in the *Maintenance* chapter and before seasonal storage. When operating in heavy, wet snow conditions, lubricate every 500 miles (800 km).

Lack of lubrication will adversely affect your ride and the life of the suspension. For more information about suspension lubrication and adjustments, your POLARIS dealer can assist.



SPARK PLUGS

SPARK PLUG RECOMMENDATIONS

NOTICE

Using non-recommended spark plugs can result in serious engine damage. A spark plug with a heat range too high will always cause engine damage if the engine is operated in conditions more severe than intended for that plug. Always use the spark plugs recommended for your snowmobile.

A new engine can cause temporary spark plug fouling due to the lubricant added during the assembly process. Avoid prolonged idle speeds, which cause plug fouling and carbonization.

Refer to the Specifications chapter for the specific spark plug to be used in your snowmobile.

Change the spark plugs at the intervals outlined in the Periodic Maintenance section.

- Use recommended spark plugs with the proper gap. Refer to the specifications section for the specific spark plug to be used in your snowmobile.
- Use only resistor-type spark plugs.
- Torque spark plugs to specification.

TORQUE
Spark Plug **18-22 ft-lbs (24-30 N·m)**

- Always carry spare spark plugs.

SPARK PLUG INSPECTION

Spark plug condition is indicative of engine operation. The spark plug firing end condition should be read after the engine has been warmed up and the vehicle has been driven at higher speeds. Immediately check the spark plug for correct color.

⚠ WARNING

A hot exhaust system and engine can cause burns. Wear protective gloves when removing a spark plug for inspection.

1. Remove the left side panel and hood.
2. Remove the spark plug cap.

3. Using the spark plug wrench provided in the tool kit, rotate the spark plug counter-clockwise to remove it.
4. Reverse the procedure for spark plug installation. Torque to specification.
5. Reinstall the spark plug cap. Verify an “audible” click is heard when installing the plug cap.

SPARK PLUG CONDITION

NORMAL PLUG

The normal insulator tip is gray, tan or light brown. There will be few combustion deposits. The electrodes are not burned or eroded. This indicates the proper type and heat range for the engine and the service.

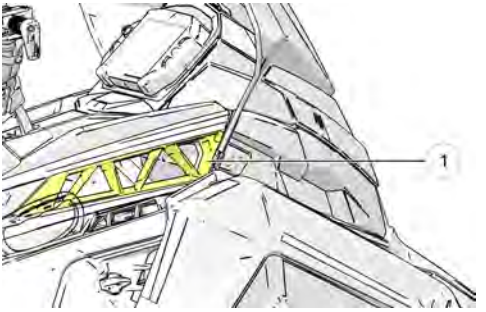
TIP
The tip should not be white. A white insulator tip indicates overheating, caused by use of an improper spark plug or incorrect carburetor/throttle body adjustments.

WET FOULED PLUG

The wet fouled insulator tip is black. A damp oil film covers the firing end. There may be a carbon layer over the entire nose. Generally, the electrodes are not worn. General causes of fouling are excessive oil or use of non-recommended injection oil.

INTAKE FILTERS

The intake filters ① limit snow ingestion into the intake system. When operating in loose powder snow, check the filters periodically for damage and to remove any accumulation of snow.



FUEL PUMP

All fuel pump service must be performed by an authorized POLARIS dealer. Do not attempt to service the fuel pump.

FUEL FILTER / FUEL LINES

This snowmobile is not equipped with an in-line fuel filter. The fuel pump uses a sock-type pickup filter located within the fuel tank. This filter should only require maintenance if debris or foreign material enters the fuel tank. An authorized dealer can provide service.

Contaminated or poor quality fuel may shorten the life of fuel system components and result in poor engine performance. Always store fuel in clean fuel containers. If low fuel pressure or reduced engine performance occurs, the filter may need replacement. An authorized dealer can assist.

Inspect the fuel lines regularly for signs of deterioration or damage. Always check fuel line condition after periods of storage. Normal deterioration from weather and fuel compounds may occur. Replace worn or damaged fuel lines promptly.

NOTICE
Kinking the fuel lines or using a pliers or similar tools to remove fuel lines may cause damage to the lines. If a fuel line has been damaged or kinked, replace it promptly.

COOLING SYSTEM

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. If the vehicle will be stored or operated at extremely low temperatures, greater protection may be required. An authorized dealer can assist.

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

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

NOTICE
If coolant flow becomes restricted or plugged, coolant loss, air lock, or engine damage may result. Most cooling systems are equipped with a filter that should be periodically inspected or replaced.

COOLANT LEVEL

The engine coolant level is controlled by the recovery system. The recovery system components are:

- Coolant bottle/overflow tank
- Pressure cap
- Connecting hoses
- In-bottle Thermostat (650, 850, 9R and 850 Boost models only)

Always maintain the coolant level at or slightly above the FULL COLD mark on the coolant bottle (when the engine is cold).

1. Stop the engine.
2. Open the right side panel.
3. View the coolant level in the coolant bottle. Add coolant as needed.

NOTICE
Operating the snowmobile with insufficient coolant will result in overheating and serious engine damage. Always maintain the coolant level as recommended.

FLUSHING THE COOLING SYSTEM

To ensure that the coolant maintains its ability to protect the engine, Polaris recommend that the system be completely drained every five (5) years and fresh Antifreeze 50/50 Premix added. This service must be performed when the engine is cold. Your POLARIS dealer can check the coolant when performing the fall tune-up on your snowmobile.

BLEEDING THE COOLING SYSTEM

The cooling system is a self bleeding system.

⚠ CAUTION
Cooling system under pressure. Steam and hot liquids will cause burns to your skin. Never bleed the cooling system or remove the pressure cap when the engine is warm or hot. Wear eye protection when servicing the cooling system.

NOTICE
Pressure cap rated at 13 PSI (0.9 BAR). Use of a non-standard pressure cap will not allow the recovery system to function properly.

CAUTION

Perform this procedure in a well-ventilated area. Use the recommended 50/50 Extended-Life Antifreeze.

1. Remove right side panel.
2. Fill the coolant bottle to the COLD FILL mark.
3. Install the coolant bottle cap to the half lock position. Do not tighten to the fully seated position.
4. Lock the parking brake.
5. Start the engine and allow it to run at a fast idle for several minutes, until the tunnel coolers are warm to the touch.

CAUTION

Keep the coolant level in the coolant bottle at or near the COLD FILL mark when engine is running. The engine may suck the coolant down quickly which my require coolant to be added a few times to stabilize the coolant level.

6. When all tunnel cooler extrusions are warm to the touch, stop the engine.
7. Allow the engine and cooling system to cool.
8. Fill the coolant bottle to the COLD FILL mark. Reinstall the bottle cap securely.
9. Reinstall the right side panel.

EXHAUST SYSTEM

Check the exhaust system for wear or damage at approximately 2000 miles (3200 km). Always allow the engine and exhaust system to cool completely before inspecting.

WARNING

Hot exhaust system parts can cause burns. Allow adequate time for the exhaust system to cool. Never perform this procedure with the engine running.

1. Open the side panels and remove the hood. See page 139.
2. Inspect the muffler and pipes for cracks or damage.
3. Check for weak or missing retaining springs or damper/support grommets.
4. Check for loose clamps on the pipe covers.

ELECTRONIC VARIABLE EXHAUST SYSTEM (E-VES) MAINTENANCE

NOTICE
Improper cleaning or valve assembly installation may cause severe engine damage! The ECU must be programmed by an authorized dealer if any component in the E-VES system is replaced or improperly serviced.

The engine in your Polaris snowmobile is equipped with E-VES. Periodic valve inspection and cleaning is not required or recommended as the exhaust valves do not rely on combustion pressure for operation. The E-VES system is designed to work when oil and carbon deposits form on the valves.

At the time of assembly, the valve range of travel is programmed into the engine management system. If blade travel is restricted for any reason, the engine management system will alert the rider and turn on the check engine MIL. E-VES service should only be performed by an authorized Polaris snowmobile dealer who has the tools and diagnostic software to properly service and program the system.

NOTICE
During engine break-in, E-VES diagnostic codes may appear during engine operation as the valves wear into their cylinder slots. Contact your authorized dealer if the check engine MIL remains illuminated after the break-in period.

QUICKDRIVE

QUICKDRIVE BELT CONDITION

Periodically check the condition of the QUICKDRIVE belt. Inspect the belt for signs of excessive wear, frayed edges, missing cogs and cracks.

Replace the QUICKDRIVE belt every 2000 miles (3200 km) and whenever inspection reveals excessive wear or damage. Special tools are required to remove and install the QUICKDRIVE belt. A Polaris dealer or other qualified technician can assist with this service, or refer to the instructions provided with the purchase of a new belt.

Improper track tension can result in track ratcheting, which will affect QUICKDRIVE belt durability. Always maintain proper track tension.

BRAKES

HYDRAULIC BRAKE INSPECTION

Inspect the brake lever reserve before each use of the snowmobile. See the Brake Lever Travel section for procedure.

Brake pads must be replaced when the brake pad material becomes thinner than 1/16 inch (1.5 mm). A kit is available for replacing brake pads. Your POLARIS dealer can assist.

⚠ WARNING

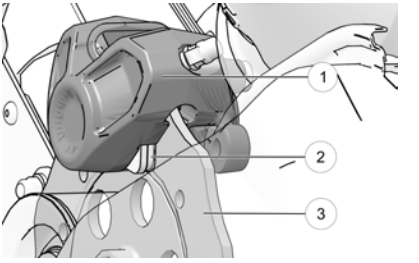
Brake failure during operation can result in serious injury or death. Properly functioning brakes are vital to your safety. Be sure the brake pads do not drag on the disc and that brake lever travel is not excessive. Always replace brake pads when the brake pad material becomes thinner than 1/16 inch (1.5 mm).

BRAKE COMPONENTS

① Brake Caliper

② Brake Pad Material - *Replace when thickness is less than 1/16 inch (1.5 mm).*

③ Brake Disc



EXCESSIVE LEVER TRAVEL

Hydraulic brakes are self-adjusting, but if excessive brake pad clearance develops, bring the snowmobile to an authorized POLARIS dealer for inspection and adjustment.

TIP

The lightweight brake discs have vent holes that may cause a high-pitched sound during operation.

BRAKE FLUID

Replace brake fluid at least every two years with POLARIS DOT 4 high temperature brake fluid, or an equivalent product.

⚠ 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 serious injury.

WARNING

Keep the master cylinder cover free of dirt and debris. The vent slits allow for diaphragm movement, and if they become plugged, movement of brake fluid below the diaphragm may be restricted, altering brake function.

NOTICE

Brake fluid will damage labels, paint and some plastics. Always wipe up spills immediately.

BLEEDING THE HYDRAULIC BRAKE SYSTEM

Air in the hydraulic brake system will cause spongy brake lever action. Bleed the system before operating the snowmobile.

WARNING

Operating the vehicle with a spongy brake lever can result in loss of brakes, which could cause an accident and lead to serious injury or death. Never operate the vehicle with a spongy-feeling brake lever.

During the bleeding procedure, keep the brake handle as level as possible. The reservoir must be in this position to minimize the possibility of air entering the system through the reservoir vent.

1. Remove the brake master cylinder reservoir cover and gasket.
2. Fill the master cylinder reservoir to between the MIN and MAX marks or 1/4-5/16 inch (.6-.8 cm) below the lip of the reservoir opening. Reinstall the gasket and cover.
3. Slip a rubber tube over the ball of the bleeder valve and direct the flow of fluid into an approved container.
4. Squeeze the brake lever a full stroke. Then unscrew the bleeder valve 3/4 of a turn to release air.
5. Close the bleeder valve and release the brake lever.
6. Repeat steps 4–5 until fluid flows from the bleeder valve in a solid stream free of air bubbles.

WARNING

Overfilling the master cylinder leaves no room for fluid expansion and may cause the brakes to lock, resulting in serious injury or death. Always add brake fluid to the fill line as recommended.

7. After bleeding is complete, refill the reservoir to the proper level. See page 146.
8. Reinstall the gasket and cover.

TORQUE
Master Reservoir Gasket **6-8 in-lbs (0.7-0.9 N·m)**

LIGHTS

The headlight and taillight assemblies feature LED elements and are not serviceable. If an LED fails to illuminate in either the headlight or taillight, the entire assembly must be replaced. Please see your POLARIS dealer.

FUSE REPLACEMENT

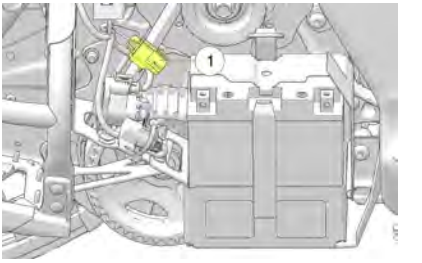
The brake system and ACC 2-amp fuses are located in the protective bag above the clutch cover.

NOTICE
Always replace a blown fuse with a new fuse having the same amperage rating of the blown fuse. Never replace a fuse with a fuse of a higher amperage rating.

CONSTANT POWER FUSE

Models equipped with electric start have a battery/electric start wire harness. The 2 amp constant power fuse ① is located in the electric start wiring harness.

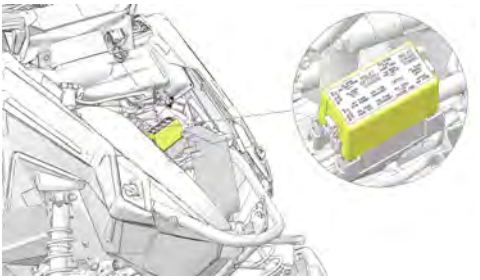
This fuse protects KEY ON power at the ignition switch. KEY ON power supplies battery voltage to the PIDD and GPS puck.



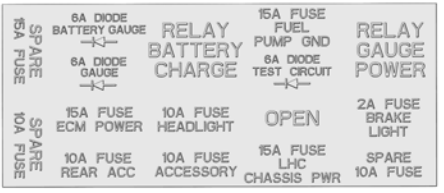
If the PIDD does not turn on when the key is in the ON position, check for a blown fuse. If the fuse is blown, inspect the constant power circuit. Repair or replace any damaged components before replacing the fuse.

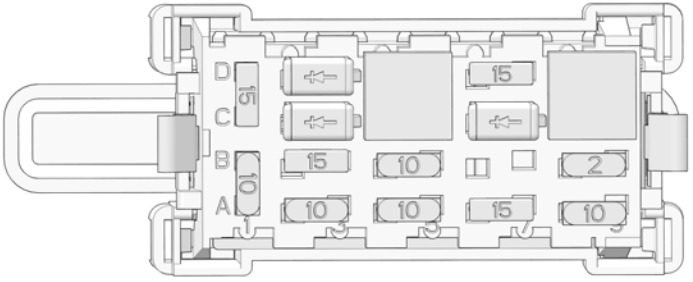
LOAD CENTER

The load center is located on a bracket secured to the front cross tube. To access the fuse box, remove the side panels and hood.



LOAD CENTER DETAILS





CIRCUIT	PIN	FUNCTION
Spare 10A Fuse	A1	—
	B1	—
Spare 15A Fuse	C1	—
	D1	—
Battery 6A Diode	D2	Power In
	D3	Power Out
Gauge 6A Diode	C2	Power In
	C3	Power Out
Battery Charge Relay	D4	Coil High

CIRCUIT	PIN	FUNCTION
	C4	Power In
	D5	Power Out
	C5	Coil Low
Fuel Pump 15A Fuse	D6	Power In
	D7	Power Out
Test Circuit 6A Diode	C6	Power In
	C7	Power Out
Gauge Power Relay	D8	Coil High
	C8	Power In
	D9	Power Out
	C9	Coil Low
ECM Power 15A Fuse	B2	Power In
	B3	Power Out
Headlight 10A Fuse	B4	Power In
	B5	Power Out
EV Control 5A Fuse	B6	Power In
	B7	Power Out
Brake Light 2A Fuse	B8	Power In
	B9	Power Out
Rear Acc 10A Fuse	A2	Power In
	A3	Power Out
Accessory 10A Fuse	A4	Power In
	A5	Power Out
LHC Chassis 15A Fuse	A6	Power In
	A7	Power Out
Spare 10A Fuse	A8	Not Applicable
	A9	Not Applicable

CLUTCH SYSTEM

Periodically inspect clutch sheaves for damage, wear or belt residue. To maintain optimum performance, clean with non-oil based cleaners such as isopropyl alcohol.

⚠ WARNING

If you become aware of higher than normal clutch engagement or an unusual vibration or shift pattern, see your dealer or qualified person immediately. Do not operate the snowmobile until repairs have been made.

All clutch maintenance and repairs can be performed by an authorized POLARIS dealer. Any unauthorized modifications to clutches, such as adding or removing weights, will void the warranty.

NOTICE

The bushings in the weights and rollers of POLARIS clutches are made of a material that may be damaged if lubricated. Do not lubricate clutch bushings.

CLUTCH ALIGNMENT OFFSET

Clutch alignment offset is important for maintaining optimum performance. Your dealer can assist with service and adjustments. A special tool is required to check for proper alignment.

DRIVE BELT CONDITION

Periodically check the condition and tension of the drive belt. Inspect the belt for signs of excessive wear (frayed edges, missing cogs, cracks) and excessive looseness. Replace the belt if any of these conditions exist. See page 220.

Always carry a spare drive belt. Store the spare belt in the belt holder. When placing the belt in the holder, orientate the belt to match the profile of the hood.

For improved drive-away during extremely cold temperatures, remove the belt and warm it to room temperature. Reinstall it before starting the snowmobile.

DRIVE BELT DEFLECTION ADJUSTMENT (PATRIOT 650/850 MODELS)

NOTICE

Patriot Boost models feature self-adjusting belt deflection and do not require belt deflection adjustments.

To adjust the drive belt, do the following:

1. Loosen the driven clutch set screw with 7/16 wrench.
2. Using an 1/8 in Allen® wrench, adjust set screw until belt deflection meets specification.
3. Holding set screw with Allen® wrench, lightly tighten nut.
4. Using the L-wrench, open driven clutch sheaves 0.5 in.
5. Tighten deflection screw nut to specification.

TORQUE
Deflection Screw Nut **145 in-lbs (16.4 N·m)**

6. Rotate belt clockwise while removing L-wrench.

DRIVE BELT REMOVAL

NOTICE
Do not attempt to remove the drive belt after operating in reverse. The snowmobile must be stopped after forward motion to prevent damage to components during belt removal. Rotate the driven clutch counter-clockwise 1/4 turn by hand to ensure forward engagement before attempting to remove the belt.

1. Stop the engine after operating in a forward motion.
2. Turn the ignition key off. Wait for the engine to come to a complete stop.
3. Lock the parking brake.
4. Remove the left side panel.
5. Rotate the driven clutch counter-clockwise 1/4 turn by hand to ensure forward engagement.
6. Locate the L-wrench in the tool kit. Install the wrench into the open threaded hole in the outer sheave of the clutch.
7. Turn the wrench clockwise until the sheaves open far enough to remove the belt. If the wrench does not turn readily, rotate the driven clutch counter-clockwise an additional 1/4 turn by hand and try again.
8. Remove the belt from the driven clutch.

DRIVE BELT INSTALLATION

1. With the L-wrench inserted into the threaded hole and the sheaves in the open position, install the drive belt.

IMPORTANT

Install the belt so that the numbers can be read correctly on the left side of the vehicle, or in the direction in which the belt was originally installed.

2. Rotate the belt clockwise to remove slack while removing the L-wrench.
3. Reinstall the side panel.
4. Break in the new belt. See page 117.

TRACK MAINTENANCE

TRACK INSPECTION

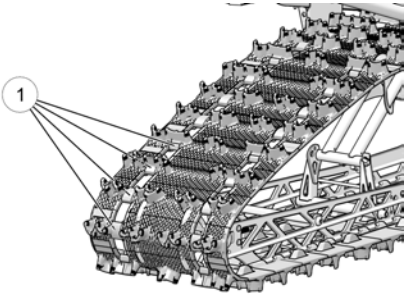
⚠ WARNING

Broken track rods can cause a rotating track to come off the snowmobile, which could cause serious injury or death. Never operate with a damaged track. Never rotate a damaged track under power.

NOTICE

The figures below are for reference only. Your model may differ slightly.

1. Using a hoist, safely lift and support the rear of the snowmobile off the ground.
2. Rotate the track by hand to check for damage.
3. Carefully examine the track along the entire length of each rod ①. Bend the track to check for breakage.



4. Replace the track if any rod damage is found.

TRACK LUBRICATION

The slide rail needs snow for lubrication. Excessive wear indicates insufficient lubrication. A new rail slide can cause faster heat build-up in limited lubrication, resulting in excessive wear.

⚠ WARNING

Operating with insufficient lubrication between the rail slide and track guide clips can cause track failure, loss of vehicle control and loss of braking ability, which can result in serious injury or death. Avoid operating for extended periods on ice and other surfaces that have little or no snow for lubrication.

If excessive rail slide wear occurs due to poor snow conditions, additional wheel kits are available. Your dealer can provide more information.

Track damage or failure caused by operation on ice or under other poor lubrication conditions will void the track warranty.

TRACK TENSION

⚠ WARNING

Moving parts can cut and crush body parts. When performing the checks and adjustments recommended on the following pages, stay clear of all moving parts. Never perform track measurement or adjustments with the engine running.

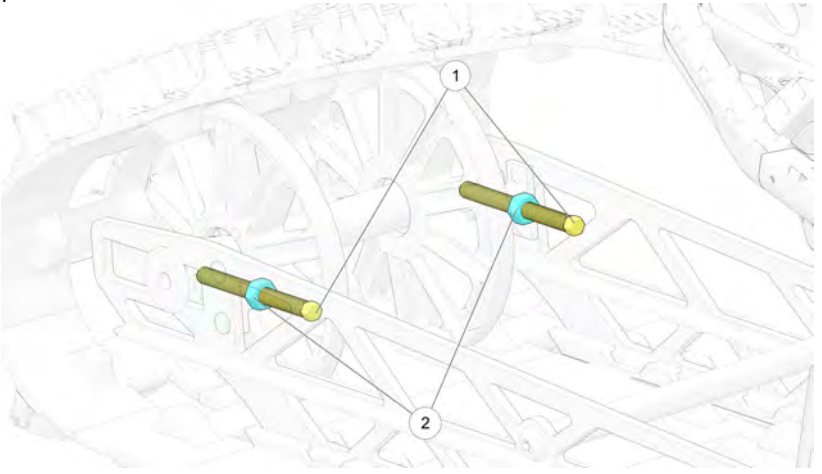
Track adjustment is critical for proper handling. Always maintain correct tension and alignment.

TRACK TENSION DATA CHART

Deep Lug Track Type	Slack Measurement	Weight	Measurement/ Weight Location
Series 6 (2.6 in)	5/8-3/4 in (1.6-1.9 cm)	10 lb (4.54 kg)	16 in (40 cm) ahead of rear idler shaft
Series 7 (3 in)			
Series 8 (2.75 in)	1-1.25 in (2.5-3.2 cm)		
2.0 Crossover	5/8-3/4 in (1.6-1.9 cm)		

TIP
Tension adjustments should be made only after the track is warmed up and limber.

1. Turn the engine off.
2. Lift the rear of the snowmobile and safely support it off the ground.
3. Place the recommended weight or downward pressure on the track at the specified distance (see chart) ahead of the center of the rear idler wheel.
4. Measure at the point where the weight is hanging.
5. Check for specified slack between the wear surface of the track clip and the plastic slider. Refer to the Track Tension Data Chart above.



If the track needs adjustment:

6. Loosen the rear idler shaft bolt ①.
7. Loosen the locknuts ②.
8. Tighten or loosen the track adjusting screws to provide equal adjustment on both sides of the track.
9. Repeat the measurement on the other side of the track.

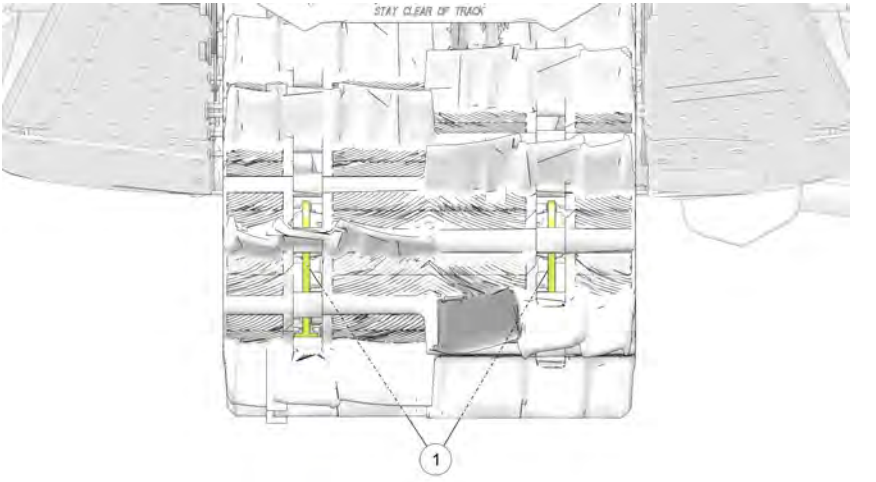
TIP
Check more frequently when the snowmobile is new.

10. Start the engine and slowly rotate the track at least five revolutions. Let the track come to a stop (do not apply brakes).
11. Check track alignment and adjust as necessary.
12. Tighten the locknuts.
13. Tighten the idler shaft bolt.

TORQUE
Idler Shaft Bolt **55 ft-lbs (75 N·m)**

TRACK ALIGNMENT

Periodically check that the track is centered and running evenly on the slide rails ①. Misalignment will cause excessive wear to the track and slide rail.



1. Safely support the rear of the snowmobile with the track off the ground.
2. Start the engine and apply a small amount of throttle until the track turns slowly at least five complete revolutions. Stop the engine and let the track come to a stop (do not apply brakes).
3. Inspect track alignment by looking through the track window to make sure the rails are evenly spaced on each side. If the track runs to the left, loosen the idler shaft bolt, then loosen the left locknut and tighten the left adjusting bolt. If the track runs to the right, loosen the idler shaft bolt, then loosen the right locknut and tighten the right adjusting bolt.

4. After adjustments are complete, tighten the locknuts and torque the idler shaft bolt to specification.

TORQUE
Idler Shaft Bolt **35 ft-lbs (47 N·m)**

5. Repeat steps 2-3 to verify proper alignment.

STEERING SYSTEM

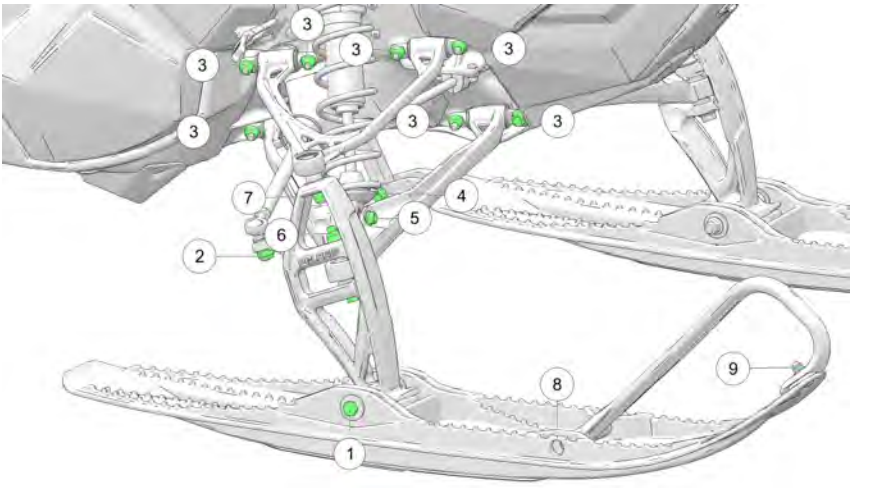
The steering systems on POLARIS snowmobiles can be adjusted with ski toe alignment. Improper toe alignment can cause erratic steering. Your dealer can assist with adjustments.

⚠ WARNING
Improper alignment or adjustment may cause loss of steering control, resulting in serious injury or death. Do not attempt to change the ski alignment. Your POLARIS dealer can assist.

FRONT SUSPENSION INSPECTION

⚠ WARNING
Improper fastener torque or front suspension component damage may cause loss of steering control, resulting in serious injury or death. Your POLARIS dealer can assist.

Each week, or before a long ride, check the following items. If component damage or loose fasteners are found, your POLARIS dealer can provide service.

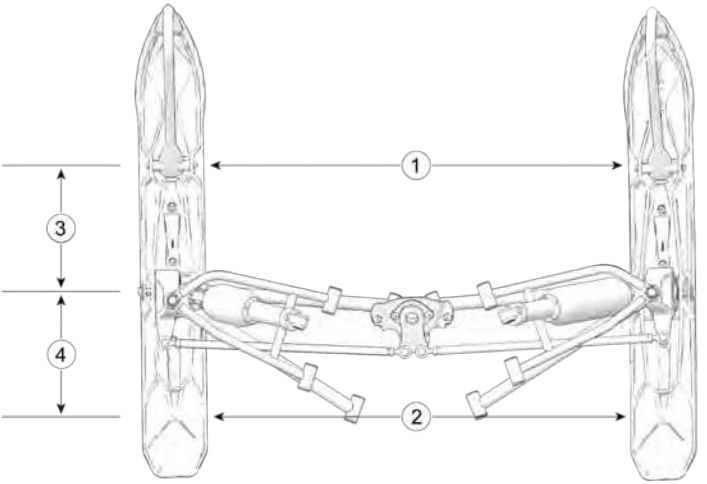


① Ski Bolt and Nuts
② Tie Rod End Nuts
③ Upper/Lower Control Arm Nuts (8 per side)
④ Sway Bar Fasteners
⑤ Shock Mounting Fasteners
⑥ Lower Control Arm Spindle Nuts
⑦ Upper Control Arm Spindle Nuts
⑧ Ski Loop Rear Fasteners
⑨ Ski Loop Front Fasteners

SKI ALIGNMENT

WARNING

Improper ski alignment or adjustment may cause loss of steering control, resulting in serious injury or death. Do not attempt to change the ski alignment or camber adjustment. Your POLARIS dealer can assist.



To align skis, do the following:

1. Place the handlebars in a straight-ahead position.
2. With only vehicle weight compressing the suspension, measure 10 in (25.4 cm) ③ forward from the center of the ski mounting bolt. From this point, measure the distance between the skis ①.
3. Measure 10 in (25.4 cm) ④ rearward from the center of the ski mounting bolt. From this point, measure the distance between the skis ②.
4. Measurement ① should be 1/8 in (3 mm) greater than measurement ②.

SKI SKAGS

WARNING

Worn skis and/or skags will adversely affect handling. Loss of vehicle control may result, causing serious injury or death. See your dealer's studding chart for recommended skags.

Check skags before each use of the snowmobile to ensure positive steering characteristics. Skags must be replaced when worn to half their original diameter. Replace if carbide is damaged or worn away.

TIP
Carbide skags must be replaced if any abnormal wear or chipping is found.

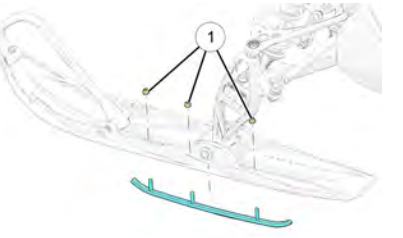
SKAG REPLACEMENT

⚠ WARNING
Worn skis and/or skags will adversely affect handling. Loss of vehicle control may result, causing serious injury or death. See your dealer's studding chart for recommended skags. If you install longer or more aggressive carbide skags than the original equipment, it may also be necessary to add track studs to maintain proper vehicle control while turning on hard-packed snow or ice.

NOTICE
Always replace ski skags in pairs.

To replace ski skags, do the following:

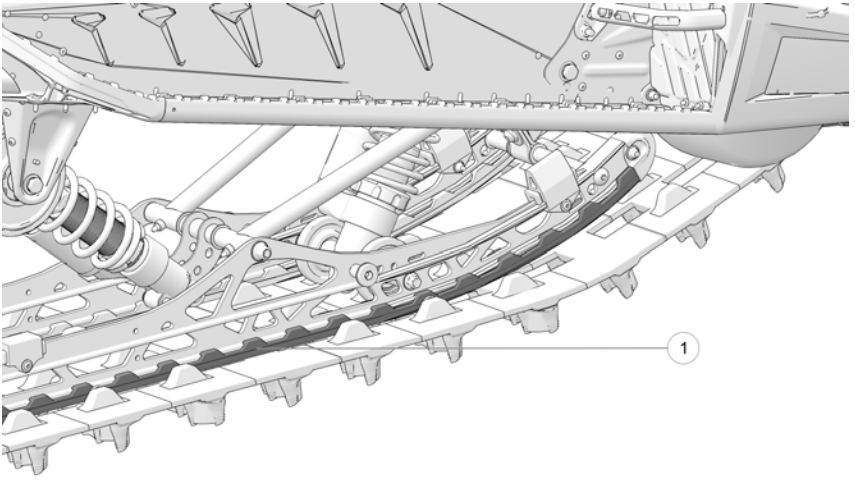
1. Raise and support the front of the snowmobile so the skis are approximately 6 inches (15.2 cm) from the ground.
2. Remove the attaching nuts ① and pry the skag downward.
3. Reverse the steps to install a skag. Tighten nuts to specification.



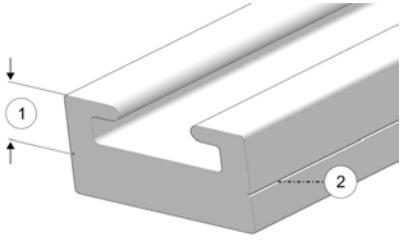
TORQUE
Ski Skag Nuts **7 ft-lbs (10 N·m)**

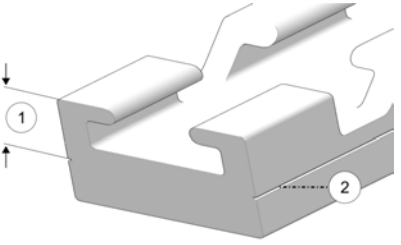
RAIL SLIDE WEAR INSPECTION

Polaris rail slides ① run along the bottom of the rail to prevent track wear. The rail slide should be inspected periodically and replaced when necessary.



For ease of inspection, all POLARIS rail slides have a wear limit indicator groove ② to indicate the minimum permissible slide thickness ①. Replace the rail slides if they are worn to the top of the groove at any point along their length. Failure to do so may result in permanent damage to the track or rails.





BATTERY MAINTENANCE

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

WARNING

CALIFORNIA PROPOSITION 65 WARNING:

Batteries, battery posts, terminals and related accessories can expose you to chemicals including lead, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

WARNING

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

- **External:** Flush with water.
- **Internal:** Drink large quantities of water or milk. Follow with milk of magnesia, beaten egg, or vegetable oil. Call physician immediately.
- **Eyes:** Flush with water for 15 minutes and get prompt medical attention.

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

BATTERY IDENTIFICATION

It is important to properly identify the type of battery installed in your snowmobile as different battery types require different service procedures. Proper servicing and battery maintenance is crucial for battery longevity.

The four types of batteries are:

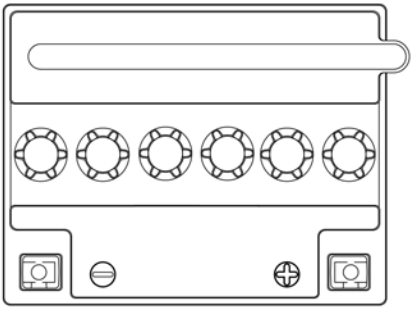
- Lead Acid Conventional
- Dry Shipped Absorbed Glass Mat (AGM)
- Lead Acid Low Maintenance
- AGM Low Maintenance

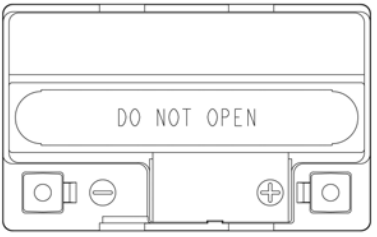
Refer to the following examples to identify the type of battery in your vehicle.

LEAD ACID CONVENTIONAL AND DRY SHIPPED AGM BATTERIES

These batteries are characterized by the following features:

- Battery is NOT activated when packaged
- Removable cap plugs and strip are found top-side of the battery
- *Lead Acid Conventional batteries ONLY:*
  - Distilled water is added, as needed
  - Vent tube is located on the side of the battery

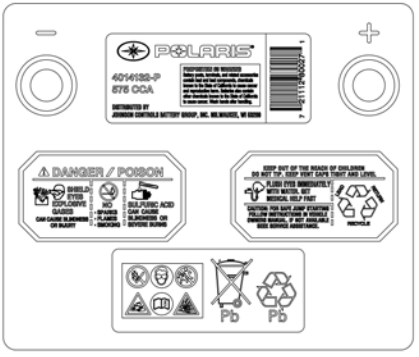


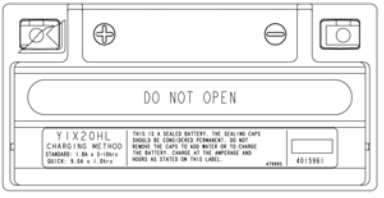


LOW MAINTENANCE BATTERIES

Low maintenance batteries are characterized by the following features:

- Battery is pre-activated when packaged
- Non removable cap(s) is located top-side of the battery
- Distilled water or electrolyte is NEVER added



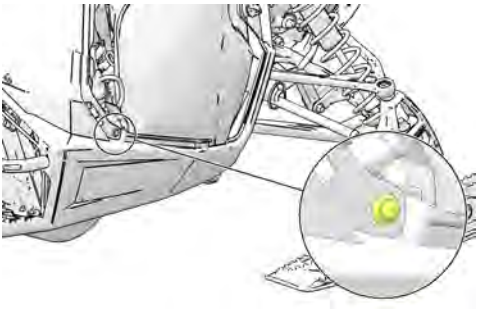


BATTERY REMOVAL (ELECTRIC START MODELS)

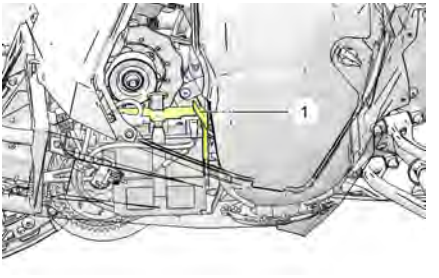
WARNING

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.

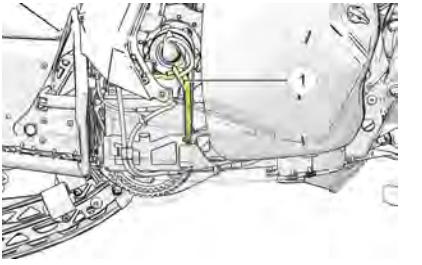
1. Remove the right side panel to access the battery.
2. Remove the plastic rivet securing the console panel to the chassis.



3. Disconnect the black (negative) battery cable first.
4. Disconnect the red (positive) battery cable last.
5. Remove the battery hold-down strap.
6. Remove the battery shield ①.



Non-Boost Models



Boost Models

7. Remove the battery from the battery bracket.

BATTERY INSTALLATION

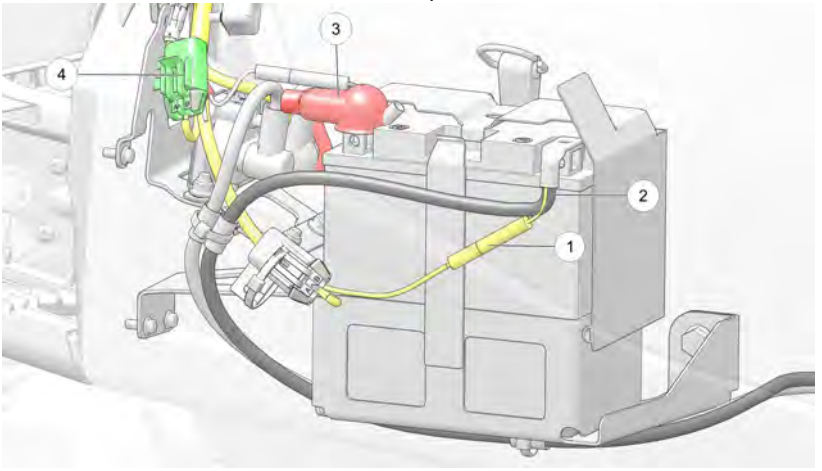
When installing a new battery, make sure it's fully charged prior to its initial use. Using a new battery that has not been fully charged can damage the battery and result in a shorter life. It can also hinder vehicle performance. Follow the battery charging instructions before installing the battery.

1. Ensure that the battery is fully charged.
2. Set the battery in the battery holder.
3. Place the battery shield on the battery bracket.
4. Install the battery hold-down strap.
5. Connect and tighten the red (positive) cable first.
6. Connect and tighten the black (negative) cable last.

⚠ CAUTION

Verify the battery cables and wiring harness do not come into contact with the brake disc. Move the wiring harness/cables behind the chassis tube and away from the brake disc.

7. Route the BROWN harness ground wires ① and BLACK main battery ground cable ② as shown in the image. Both are routed up and over the rubber strap. If the ground wires/cable are routed down the side of the battery, they may interfere with the rear side panel tab. Note the routing of the RED (positive) battery cable ③ and that the right fender is pulled away from the chassis. Item ④ is the constant power fuse connector.



8. Verify that cables are properly routed.

NOTICE

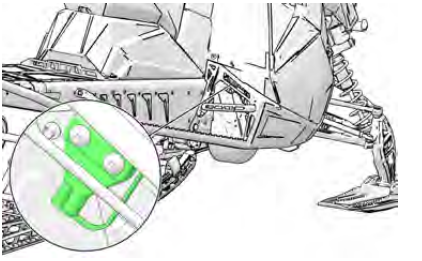
Ensure that the battery wires are routed in such a way that they cannot come into contact with the brake disc.

9. Secure the right fender using the plastic rivet.
10. Reinstall the console using the two plastic rivets. Reinstall the side panel.

BATTERY CHARGING

To ensure your battery maintains its level of charge, the battery should be connected to a battery trickle charger using the battery charge port ①.

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 the battery voltage is 12.8 or greater using the battery charge port ①.



RESTRICTION

When using an automatic charger, refer to the charger manufacturer's instructions for recharging. When using a constant current charger, use the following guidelines for recharging.

⚠ 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.

TIP

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

State of Charge	Voltage	Action	Charge Time*
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
*Using constant current charge @ standard amps specified on top of battery.			

BATTERY CHARGE RELAY CONTROL

Some models are equipped with a battery. The battery provides power for only two purposes:

- Engaging the electric starter motor to start the engine
- Powering the 7S Display with the ignition key when the engine is off

The engine management system turns on the battery charge relay and charges the battery only when the following conditions are met:

- The load shed relay is turned on by the engine management system
- Engine speed exceeds 2500 RPM
- Chassis DC voltage exceeds 13 volts

BATTERY MAINTENANCE

Keep battery terminals and connections free of corrosion. If cleaning is necessary, remove the corrosion with a stiff wire brush and 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 to prevent corrosion.

Never store a battery in a partially charged condition or hard, crystal sulfation will form on the plates resulting in reduced efficiency and shorter service life of the battery.

If you do not drive the vehicle for more than TWO weeks, maintain Absorbent Glass Mat (AGM) batteries with the BatteryMINDer® 2012 AGM - 2 AMP charger (or a similar charger).

BatteryMINDer® 2012 AGM - 2 AMP battery charger
PN 2830438

If you plan to store the vehicle for ONE month or longer, remove the battery from the vehicle and store in a cool, dry location. Batteries will self-discharge more rapidly when stored in extreme temperatures. Continue to maintain the battery with a 2-AMP charger and inspect the battery every 60 days.

BATTERY TYPE	RECHARGE FREQUENCY	GENERAL MAINTENANCE
Lead Acid Conventional	Every 30 to 60 days	NEVER add electrolyte to the battery once the battery is in service. If necessary, only add distilled water to the battery.
Dry Shipped AGM	Inspect every 60 days	NEVER add electrolyte or distilled water to the battery once the battery is in service.
Lead Acid Low Maintenance	Every 30 to 60 days	NEVER add electrolyte or distilled water to the battery. Doing so will damage the case and shorten the life of the battery.
AGM Low Maintenance	Inspect every 60 days	NEVER add electrolyte or distilled water to the battery. Doing so will damage the case and shorten the life of the battery.

TRANSPORTING THE SNOWMOBILE

Whenever the snowmobile is transported:

1. Be sure the fuel cap and oil cap are installed correctly.
2. Tie the snowmobile to the transporting unit securely using suitable straps.
3. Remove the ignition key to prevent loss.

NOTICE
Use of a cover is recommended when transporting your vehicle on an open trailer or sled deck.

SUMMER/LONG-TERM STORAGE GUIDE

TREATING THE FUEL SYSTEM

As the riding season draws to a close, Polaris recommends riders begin treating their snowmobile's fuel system with Polaris Carbon Clean or similar commercially-available fuel stabilizer.

Treating the fuel system with Carbon Clean during the last few rides of the season ensures the entire fuel system is treated. Then, when it comes time to store the snowmobile, all the rider has to do is completely fill the fuel tank with fresh, non-oxygenated fuel and treat the new fuel with Carbon Clean.
It is also recommended riders use non-oxygenated fuel during the last rides of the season as non-oxygenated fuel stores better than oxygenated fuel and resists water vapor absorption.
If the rider was unable to treat the fuel system and/or use non-oxygenated fuel at the end of the riding season, the rider should do the following:

1. The rider should consume as much fuel in the fuel tank as possible during the last rides of the season.
2. When performing the summerization storage procedures, fill the fuel tank completely with non-oxygenated fuel. Note that most oxygenated fuels contain ethanol. Since ethanol is hydroscopic, oxygenated fuel will absorb a small amount of water vapor during the storage season and more so in humid locations. Completely filling the tank with non-oxygenated fuel minimizes water vapor absorption during the storage period and limits the amount of air and water vapor that can accumulate in the tank.
3. Treat the fuel in the fuel tank with the recommend amount of Polaris Carbon Clean. The recommended mixing ratio is outlined on the bottle label.
4. Position the snowmobile outside in a well-ventilated area.
5. Start and run the engine for 10-15 minutes to distribute the treated fuel throughout the fuel system.

NOTICE
On Carbureted engines (550cc / 120 Youth), run the engine for 10-15 minutes and then turn the fuel shut off valve to 'OFF'. Continue to run the engine until the engine stalls and turns off. Doing this drains the carburetors of fuel.

FOGGING THE ENGINE

Fogging the engine with Polaris fogging oil or similar commercial alternative is probably the most important storage step a rider can do to ensure the internal parts of their snowmobile's engine do not rust and corrode during the storage season.

To fog the engine, do the following:

1. Remove the spark plugs from the engine.
2. Liberally spray fogging oil into each spark plug hole. If possible, have an assistant slowly pull on the recoil rope to rotate the engine while spraying the oil into each cylinder.
3. Loosely install the spark plugs.

NOTICE
Do not install new spark plugs after fogging the cylinders. Fogging oil prevents the formation of rust / corrosion by sticking to the internal engine components – including the spark plug electrodes. Replace these spark plugs the following season after all of the fogging oil has been burned out of the engine.

DRIVE BELT STORAGE

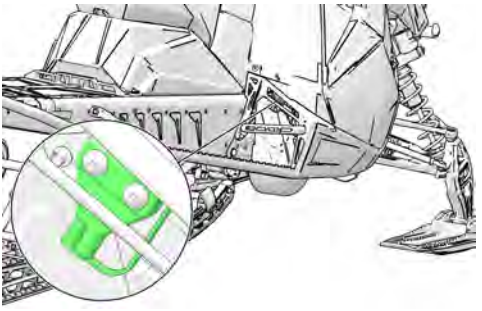
Never leave the drive belt installed in the clutches as oxidation may form where the belt contacts the aluminum clutch sheave faces.

To clean the drive and driven clutches, do the following:

1. Remove the primary and spare drive belt from the snowmobile.
2. Inspect the drive belt for wear and glazing. Compare the primary belt with the spare belt. Decide if a new belt is needed next season and note the primary belt can now be used as the spare belt next season.
3. Clean the drive and driven clutch sheaves with Isopropyl Alcohol. Allow the alcohol to air dry. Continue cleaning the sheave faces until all belt residue is removed.

BATTERY/ELECTRICAL SYSTEM STORAGE

Never leave a battery unattended during the storage season. Snowmobile batteries are small and cannot maintain their charge over the storage season. To ensure your battery maintains its level of charge, the battery should be connected to a battery trickle charger using the battery charge port.



1. While the battery can remain installed on the snowmobile, it is recommended the battery be removed from the snowmobile and stored in a cool, and dry location. Removing the battery from the snowmobile facilitates off-site storage of the snowmobile where electricity may not be available to connect a battery charger. In addition, removing the battery allows access to other maintenance items, such as the chaincase chain tensioner bolt.
2. Connect a Polaris battery charger or equivalent commercially available charger to the battery.
3. Inspect the electrical connections and wire harnesses throughout the snowmobile. If damage is found, make a note of the damage so that you and your authorized Polaris dealer can address the concern.

CLEANING THE SNOWMOBILE

Snowmobiles, especially those transported on sled decks and open trailers can accumulate a lot of water and road dirt / salt during the riding season. The snowmobile must be thoroughly washed and cleaned to prevent corrosion and rust formation.

Cleaning any Polaris snowmobile should ONLY be done with a mild soap and water solution. Any cleaning, buffing or waxing products containing colorant dye should be avoided. If using products with colorant dye in them, test on an inconspicuous area of the bodywork before applying, as a dye may stain the finish.

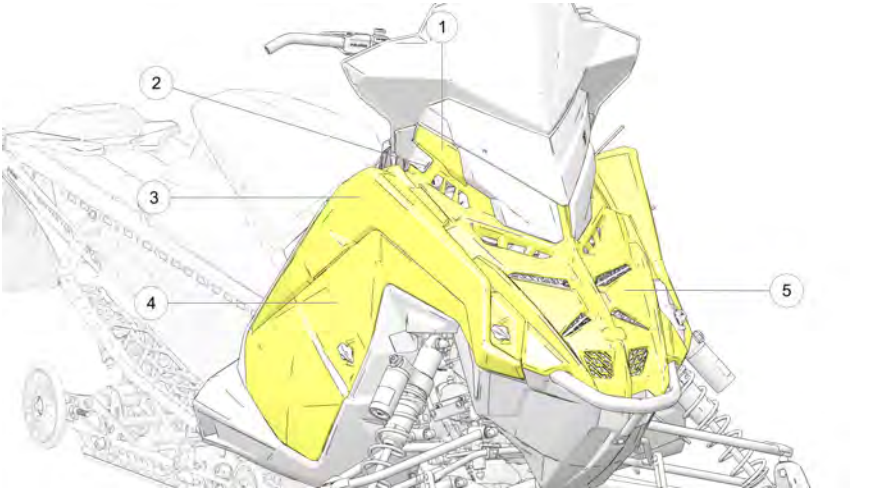
1. Wash the snowmobile with mild soap and water. Note that if a pressure washer is used, care should be taken to not point the pressure washer nozzle close to the snowmobile, which may force high pressure water into suspension / shock shaft seals and exposed electrical connectors.
2. Dry the snowmobile with a lint-free towel. Allow the entire snowmobile to air dry afterwards.
3. Clean the engine compartment. Use a shop vacuum if required to remove dirt, leaves, cat tails, etc. from within the engine compartment.

4. If choosing to apply a cleaner, wax or polish, make sure it does not contain a colorant dye and/or test on an inconspicuous area of the panel. Also make sure the product is safe to use on Molded Nylon 6 material with or without a painted finish.
5. Hand wash the exhaust system and dry the pipe and silencer with a clean shop towel.
6. Apply “spray” metal protectant on exposed metal components, such as the exhaust pipe, silencer, shock shafts, and suspension springs / pivots.

IMPORTANT
Do not spray metal protectant on the drive or driven clutches.

MOLDED NYLON 6 BODY PANELS

IMPORTANT
The use of a high speed/orbital polisher/buffer is not recommended on Molded Nylon 6 components and could result in color fading.



REFERENCE NUMBER	DESCRIPTION
①	Hood Trim, LH and RH
②	Console Trim, LH and RH
③	Side Panel Trim, LH and RH

REFERENCE NUMBER	DESCRIPTION
④	Side Panels, LH and RH
⑤	Hood

LUBRICATE THE PIVOTS

After washing the snowmobile, it is important to use Polaris Premium All Season grease to lubricate the various suspension / steering pivot points. Doing so forces any water accumulated within the joints out which prevents the formation of corrosion and rust.

1. Use a grease gun and Polaris Premium All Season Grease. Reference the appropriate Owner's Manual to locate any / all grease zerks on the steering and suspension systems.
2. Pump fresh grease into all zerks until the grease can be seen purging out of each joint.
3. Use a paper towel to clean up and remove all of the residual purged grease from the joints.

STORING THE SNOWMOBILE

Never store the snowmobile in a hot, humid location if possible. Try to store the snowmobile away from direct sunlight.

1. Cover the snowmobile with a Polaris cover or after-market equivalent cover.
2. Store in a location away from water, tall grass, and direct sunlight. The storage location should have some level of ventilation to prevent stagnant, humid air from accumulating in and around the snowmobile.

WINTER RIDE PREPARATION

Preparing a snowmobile for in-season service is basically performing some of the summer storage procedures in reverse order.

1. Move the snowmobile outside to a well-ventilated area. Raise the rear suspension up, off the ground. Remove the engine compartment side panel and hood.
2. Prep the primary and back up (secondary) belts for winter use. It is recommended the belts be washed with a solution of warm, soapy water and allowed to air dry.
3. If the snowmobile is equipped with electric start or a lightweight battery for the 7S display, remove the battery from the battery charger and re-install it back into the battery box. Follow the owner's manual for battery installation procedures.

4. Verify the spark plugs are installed and torqued. Re-install the spark plug wires.

NOTICE
Verify you hear an audible “click” when pushing the spark plug caps down onto the spark plugs. This ensures the plug caps are seated properly.

5. If you placed dryer sheets inside the engine compartment, remove them.
6. Using clean and dry shop towel, wipe down the exhaust pipe , silencer, and clutch sheaves.
7. Install the primary drive belt onto the clutches with the “Polaris” writing readable from the outside of the snowmobile.
8. Install the back-up (secondary) drive belt into the belt holder.
9. On carbureted snowmobiles, turn the fuel shut-off valve to the ON position.
10. With the track suspended up, off the ground, follow the track tension adjustment procedure as outlined in your owner’s manual.
11. Start and run the engine. Allow the engine to run for at least 15 minutes. Occasionally “blip” the throttle to rev the engine.

NOTICE
The exhaust may emit more smoke than usual as the fogging oil is burned out of the engine.

12. While the engine is running, verify there are no coolant leaks (on liquid cooled engines). After engaging the throttle a few times to spin the track, verify the track is aligned with the slide rails.
13. Turn off the engine. If the track requires, re-align the track at this time.
14. After adjusting the track or allowing the engine to cool down. Add coolant to reservoir bottle if required.
15. Re-start the engine and allow it to run for another 15 minutes. After 15 minutes, shutoff the engine and allow the exhaust pipe to cool.
16. Remove and discard the spark plugs. Install new spark plugs into the engine. Obtain two more new spark plugs and install them into the spark plug holders or storage bag.
17. Inspect the ski wear bars/carbides. Now is the time to replace the wear bars if damage if found or carbides are worn.
18. Add Carbon Clean to the fuel tank.

19. If equipped with a 7S Display, log onto www.ridecommand.com and download the software.
20. Grease the rear suspension grease zerks with Polaris Premium All Season grease just enough to push out any water that may have accumulated in the suspension pivot points.

SPECIFICATIONS

650 PRO RMK
650 RMK KHAOS

CAPACITIES AND DIMENSIONS	
Body Style	Matryx
Rider Capacity	1
Coolant Capacity	650 PRO RMK 5.34 qt (5.05 L) 650 RMK Khaos 6.16 qt (5.83 L)
Chaincase Oil Capacity	N/A
Fuel Tank Capacity	11 gal (41.6 L)
Gearcase Oil Capacity	N/A
Oil Capacity	3.9 qt (3.7 L)
Disc Brake Type	RMK LWT
Drive Clutch Center Distance	11.5 in (29 cm)
Drive Belt P/N	3211115
Drive Clutch	P-85
Driven Clutch	LW Team Roller Reverse
Reverse Transmission	Electronic Reverse

ENGINE AND COOLING	
Engine	S8829-6544-LA6R
Displacement	650 cc
Cylinders	2-monoblock
Bore x Stroke (mm)	74.8 x 74
Alternator Output	500 w @ 5,000 RPM
Throttle Body	1208674
Oil Injection	Electronic Oil Pump
Recommended Engine Oil	VES
Throttle Body Bore Size	(50 mm)
Idle RPM	1800 +/- 200
Rated Operating RPM	8250 +/- 150
Cooling	Liquid
Thermostat Opening Temp.	98.6 °F (37 °C)
Ignition Type	CDI
Spark Plug / Gap	NGK® BPR 9ES / .027 in (.7 mm)
87 recommended	
Recommended Fuel Octane	87 recommended
FEATURES	
Electronic Fuel Gauge	N/A
Electric Start	Optional / Accessory
Low Oil Light	Standard
Parking Brake	Standard
Speedometer	Standard
Tachometer	Standard

CLUTCHING CHART

<table>
<tr><th colspan="7">CLUTCH SETTINGS</th></tr>
<tr><th rowspan="2">ALTITUDE
meters (feet)</th><th colspan="2">DRIVE CLUTCH</th><th colspan="2">DRIVEN CLUTCH</th><th colspan="2">QUICK DRIVE
Gearing / Pitch</th></tr>
<tr><th>Shift Weight</th><th>Clutch Spring</th><th>Clutch Spring</th><th>Driven Helix</th><th>2.0 in & 2.6 in Track</th><th>2.75 in Track</th></tr>
<tr><td>0-900 (0-3000)*</td><td>10-66
(1321584)</td><td rowspan="2">BLACK/G-RN
120-340
(7042083)</td><td rowspan="2">BLACK
155-222
(7043063)</td><td rowspan="2">58/44/.36
(5143872)</td><td rowspan="6">22:43
69 Pitch</td><td rowspan="6">22:50
73 Pitch</td></tr>
<tr><td>900-1500
(3000-5000)</td><td>10-64
(1321585)</td></tr>
<tr><td>1500-2100
(5000-7000)</td><td>10-62
(1321586)</td><td rowspan="4">BLACK /
GRN
120-340
(7042083)</td><td rowspan="4">BLACK
155-222
(7043063)</td><td rowspan="4">STR 42
(5143881)</td></tr>
<tr><td>2100-2700
(7000-9000)**</td><td>10-60
(1321587)</td></tr>
<tr><td>2700-3300
(9000-11,000)</td><td>10-58
(1321588)</td></tr>
<tr><td>3300-3900
(11,000-13,000)</td><td>10-56
(1321684)</td></tr>
<tr><td colspan="7">Shaded cells indicate factory settings. Use 2 gram lighter shift weights when operating in temperatures above 40° F (5° C).
* = North American Low-Elevation and INTL Stock Setting
** = North American High-Elevation Stock Setting
Drive Clutch Bolt Torque: 80 ft-lbs (108 Nm) Re-torque after running engine.</td></tr>
</table>

850 PRO RMK
850 RMK KHAOS

CAPACITIES AND DIMENSIONS	
Body Style	Matryx
Rider Capacity	1
Coolant Capacity	Short: 5.33 qt (5.05 L) Long: 6.16 qt (5.83 L)
Chaincase Oil Capacity	N/A
Fuel Tank Capacity	11 gal (41.6 L)
Gearcase Oil Capacity	N/A
Oil Capacity	3.9 qt (3.7 L)
Disc Brake Type	RMK LWT
Drive Clutch Center Distance	11.5 in (29 cm)
Drive Belt P/N	3211216
Drive Clutch	P-85
Driven Clutch	LW Team Roller Reverse
Reverse Transmission	Electronic Reverse

ENGINE AND COOLING	
Engine	S8831-8444-LA8R
Displacement	840 cc
Cylinders	2-monoblock
Bore x Stroke (mm)	85 x 74
Alternator Output	500 w @ 5,000 RPM
Throttle Body	1208673
Oil Injection	Electronic Oil Pump
Recommended Engine Oil	VES
Throttle Body Bore Size	(50 mm)
Idle RPM	1800 +/- 200
Rated Operating RPM	8250 +/- 150
Cooling	Liquid
Thermostat Opening Temp.	98.6 °F (37 °C)
Ignition Type	CDI
Spark Plug / Gap	NGK® BPR 9ES / .027 in (.7 mm)
Recommended Fuel Octane	91 recommended (87 minimum)
FEATURES	
Electronic Fuel Gauge	N/A
Electric Start	Optional / Accessory
Low Oil Light	Standard
Parking Brake	Standard
Speedometer	Standard
Tachometer	Standard

CLUTCHING CHART

CLUTCH SETTINGS						
ALTITUDE meters (feet)	DRIVE CLUTCH		DRIVEN CLUTCH		QUICK DRIVE Gearing / Pitch	
	Shift Weight	Clutch Spring	Clutch Spring	Driven Helix	2.0 in & 2.6 in Track	2.75 in & 3.0 in Track
0-900 (0-3000)*	10-72 (1322428)	AL-MOND/G-LD 150-290 (7041645)	RED/BLU 140 - 200 (7043057)	60 / 44 / .36 (5143882)	22:43 69 Pitch	22:50 73 Pitch
900-1500 (3000-5000)	10-70 (1322414)					
1500-2100 (5000-7000)	10-70 (1322414)	BLACK 120-320 (7044537)	BLACK 155-222 (7043063)	STR 42 (5143881)		
2100-2700 (7000-9000)**	10-68 (1322427)					
2700-3300 (9000-11,000)	10-66 (1321584)					
3300-3900 (11,000-13,000)	10-64 (1321585)					

Shaded cells indicate factory settings. Use 2 gram lighter shift weights when operating in temperatures above 40° F (5° C).

*** = North American Low-Elevation and INTL Stock Setting**

**** = North American High-Elevation Stock Setting**

Drive Clutch Bolt Torque: 80 ft-lbs (108 Nm) Re-torque after running engine.

PATRIOT BOOST PRO RMK
PATRIOT BOOST RMK KHAOS

CAPACITIES AND DIMENSIONS	
Body Style	Matryx
Rider Capacity	1
Coolant Capacity	Short: 5.41 qt (5.12 L)
Chaincase Oil Capacity	N/A
Fuel Tank Capacity	11 gal (41.6 L)
Gearcase Oil Capacity	N/A
Oil Capacity	3.9 qt (3.7 L)
Disc Brake Type	RMK LWT
Drive Clutch Center Distance	11.5 in (29 cm)
Drive Belt P/N	3211216
Drive Clutch Type	P-22
Driven Clutch	LW Team Roller Reverse
Reverse Transmission	Electronic Reverse

ENGINE AND COOLING	
Engine	S8860-8444-LA8M
Engine (International Models)	S8948-8444-LA8M
Displacement	840 cc
Cylinders	2-monoblock
Bore x Stroke (mm)	85 x 74
Alternator Output	500 w @ 5,000 RPM
Throttle Body	1206249
Oil Injection	Electronic Oil Pump
Recommended Engine Oil	VES Extreme
Throttle Body Bore Size	48 mm
Idle RPM	1800 +/- 200
Rated Operating RPM	8250 +/- 150
Cooling	Liquid
Thermostat Opening Temp.	98.6 °F (37 °C)
Ignition Type	CDI
Spark Plug / Gap	NGK® BPR 9ES / .027 in (.7 mm)
Recommended Fuel Octane	91 octane minimum
FEATURES	
Electronic Fuel Gauge	N/A
Electric Start	Optional / Accessory
Low Oil Light	Standard
Parking Brake	Standard
Speedometer	Standard
Tachometer	Standard

CLUTCHING CHART

CLUTCH SETTINGS						
ALTITUDE meters (feet)	DRIVE CLUTCH		DRIVEN CLUTCH		QUICK DRIVE Gearing / Pitch	
	Shift Weight	Clutch Spring	Clutch Spring	Driven Helix	2.75 in Track	3.0 in Track
0-1500 (0-5000)*	14-76 (1327226)	BLK 165-310 (7045965)	BLK/PUR-P 160-240 (7043363)	46S (5144853)	22:43 69 Pitch	
1500-3900 (5000-13,000)**					22:50 73 Pitch	

Shaded cells indicate North American and INTL stock settings. Use 2 gram lighter shift weights when operating in temperatures above 40° F (5° C).

*** = North American and INTL Low-Elevation Stock Setting**

**** = North American and INTL High-Elevation Stock Setting**

Drive Clutch Bolt Torque: 110 ft-lbs (149 N·m). Re-torque after running engine.

PATRIOT 9R PRO RMK
PATRIOT 9R RMK KHAOS

CAPACITIES AND DIMENSIONS	
Body Style	Matryx
Rider Capacity	1
Coolant Capacity	Short: 5.33 qt (5.05 L) Long: 6.16 qt (5.83 L)
Chaincase Oil Capacity	N/A
Fuel Tank Capacity	11 gal (41.6 L)
Gearcase Oil Capacity	N/A
Oil Capacity	3.9 qt (3.7 L)
Disc Brake Type	RMK LWT
Drive Clutch Center Distance	11.5 in (29 cm)
Drive Belt P/N	3211216
Drive Clutch Type	P-22
Driven Clutch	LW Team Roller Reverse
Reverse Transmission	Electronic Reverse

ENGINE AND COOLING	
Engine	S8678-9044-LA9B
Displacement	899 cc
Cylinders	2-monoblock
Bore x Stroke (mm)	87.95 x 74
Alternator Output	500 w @ 5,000 RPM
Throttle Body	1208673
Oil Injection	Electronic Oil Pump
Recommended Engine Oil	VES
Throttle Body Bore Size	50 mm
Idle RPM	1800 +/- 200
Rated Operating RPM	8250 +/- 150
Cooling	Liquid
Thermostat Opening Temp.	98.6 °F (37 °C)
Ignition Type	CDI
Spark Plug / Gap	NGK® BPR 9ES / .027 in (.7 mm)
Recommended Fuel Octane	91 octane recommended (87 octane minimum)
FEATURES	
Electronic Fuel Gauge	N/A
Electric Start	Optional / Accessory
Low Oil Light	Standard
Parking Brake	Standard
Speedometer	Standard
Tachometer	Standard

CLUTCHING CHART

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<tr><th rowspan="2">ALTITUDE
meters (feet)</th><th colspan="2">DRIVE CLUTCH</th><th colspan="2">DRIVEN CLUTCH</th><th colspan="2">QUICK DRIVE
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<tr><th>Shift Weight</th><th>Clutch Spring</th><th>Clutch Spring</th><th>Driven Helix</th><th>2.0 in & 2.6 in Track</th><th>2.75 in & 3.0 in Track</th></tr>
<tr><td>0-900 (0-3000)*</td><td>14-80
(1327228)</td><td rowspan="2">150-310
(7041922)</td><td rowspan="6">160-240
(7043363)</td><td rowspan="2">60 / 42 /
.36
(5144848)</td><td rowspan="6">22:43
69Pitch</td><td rowspan="6">22:50
73 Pitch</td></tr>
<tr><td>900-1500
(3000-5000)</td><td>14-78
(1327227)</td></tr>
<tr><td>1500-2100
(5000-7000)</td><td>14-74
(1327225)</td><td rowspan="4">140-330
(7043829)</td><td rowspan="4">56 / 42 /
.36
(5144803)</td></tr>
<tr><td>2100-2700
(7000-9000)**</td><td>14-72
(1323741)</td></tr>
<tr><td>2700-3300
(9000-11,000)</td><td>14-70
(1327224)</td></tr>
<tr><td>3300-3900
(11,000-13,000)</td><td>14-68
(1327223)</td></tr>
<tr><td colspan="7">Shaded cells indicate North American and INTL stock settings. Use 2 gram lighter shift weights when operating in temperatures above 40° F (5° C).
* = North American Low Elevation and INTL stock setting.
** = North American High Elevation stock setting.
Drive Clutch Bolt Torque: 110 ft-lbs (149 N·m). Re-torque after running engine.</td></tr>
</table>

DIAGNOSTIC TROUBLE CODES (DTC)

DIAGNOSTIC TROUBLE CODES (DTCS)

DIAGNOSTIC TROUBLE CODES (DTCS) – MATRYX				
SPN = SUSPECT PARAMETER NUMBER / FMI = FAILURE MODE INDICATOR				
TROUBLE CODE	**SPN**	**FMI**	**P-COD-E**	**CONDITION**
Throttle Position Sensor 1 Voltage High	51	3	P0123	This Trouble Code sets if the Throttle Position Sensor Signal is above 4.61 Volts. Can be caused by Damaged Wiring, a faulty Throttle Position Sensor or ECU / Connections.
Throttle Position Sensor 1 Voltage Low	51	4	P0122	This Trouble Code sets if the Throttle Position Sensor Signal is below 0.7 Volts. Can be caused by Damaged Wiring, a faulty Throttle Position Sensor or ECU / Connections.
TPS Unrealistic Transition	51	10	P0120	This Trouble Code sets when the Throttle Position Sensor Signal changes too rapidly to be correct. The condition can be caused by intermittent connections causing the TPS voltage to jump around between readings. Check for damaged connectors or wiring.
Vehicle Speed Sensor Signal Fault	84	2	P0503	This Trouble Code Sets if the Vehicle Speed Signal is intermittent or missing. Can be caused by Damaged Wiring/Connections or a Faulty/Loose Vehicle Speed Sensor.
Intake Air Temp Sensor Circuit Voltage High	105	3	P0113	This Trouble Code sets if the Intake Air Temperature Sensor Signal is above 4.9 Volts. Can be caused by Damaged Wiring, a faulty Intake Air Temperature Sensor or ECU / Connections.
Intake Air Temp Sensor Circuit Voltage Low	105	4	P0112	This Trouble Code sets if the Intake Air Temperature Sensor Signal is below 0.19 Volts. Can be caused by Damaged Wiring, a faulty Intake Air Temperature Sensor or ECU / Connections.
IAT Sensor Abnormal Rate of Change	105	10	P0114	This Trouble Code sets if the Intake Air Temperature Sensor Signal indicates an Unrealistic Rate of Change. Can be caused by Damaged Wiring, a faulty Intake Air Temperature Sensor or ECU / Connections.
Barometric Sensor Circuit Voltage High	108	3	P2229	This Trouble Code Sets if the Barometric Pressure Sensor Signal Circuit is Open or Shorted to Battery Voltage. Can be

DIAGNOSTIC TROUBLE CODES (DTCS) – MATRYX				
SPN = SUSPECT PARAMETER NUMBER / FMI = FAILURE MODE INDICATOR				
TROUBLE CODE	**SPN**	**FMI**	**P-COD-E**	**CONDITION**
				caused by Damaged Wiring/Connections, a Faulty Ambient Pressure Sensor or ECU.
Barometric Sensor Circuit Voltage Low	108	4	P2228	This Trouble Code Sets if the Barometric Pressure Sensor Signal Circuit is Shorted to Ground. Can be caused by Damaged Wiring/Connections, a Faulty Ambient Pressure Sensor or ECU.
Engine Temperature Over-Temp Shutdown	110	0	P1217	This Trouble Code sets if the Engine Temperature indicates a Critical Over Temperature Condition and the engine is running in a limp-home mode to prevent damage. Can be caused by any failure that would cause the engine to overheat.
Engine Temperature Sensor Circuit Voltage High	110	3	P0118	This Trouble Code sets if the Engine Coolant Temperature Sensor Signal is above 4.8 Volts. Can be caused by Damaged Wiring, a faulty Coolant Temperature Sensor or ECU / Connections.
Engine Temperature Sensor Circuit Voltage Low	110	4	P0117	This Trouble Code sets if the Engine Coolant Temperature Sensor Signal is below 0.1 Volts. Can be caused by Damaged Wiring, a faulty Coolant Temperature Sensor or ECU / Connections.
Engine Temperature Abnormal Rate of Change	110	10	P0119	This Trouble Code sets if the Engine Coolant Temperature Sensor Signal is erratic. Can be caused by Damaged Wiring, a faulty Coolant Temperature Sensor or ECU / Connections.
Engine Over-temperature Fault	110	16	P0217	This Trouble Code sets if the Engine Temperature indicates a Severe Over Temperature Condition. Can be caused by any failure that would cause the engine to overheat. This Trouble Code Does Not indicate a problem with the Engine Temperature Sensor.
Fuel Rail Pressure Sensor Voltage High	157	3	P0193	This trouble code sets if the Fuel Pressure Sensor Voltage is above 4.85V. Can be caused by Damaged Wiring, a faulty Fuel Pressure Sensor or ECU / Connections.

DIAGNOSTIC TROUBLE CODES (DTCS) – MATRYX				
SPN = SUSPECT PARAMETER NUMBER / FMI = FAILURE MODE INDICATOR				
TROUBLE CODE	**SPN**	**FMI**	**P-COD-E**	**CONDITION**
Fuel Rail Pressure Sensor Voltage Low	157	4	P0192	This Trouble Code Sets if the Fuel Pressure Sensor Circuit is below 0.1V. Can be caused by Damaged Wiring, a faulty Fuel Pressure Sensor or ECU / Connections.
Fuel Rail Pressure Below Power Limit	157	18	P0196	This Trouble Code Sets if the Fuel Pressure drops below 3Bar (43.5PSI) for 10 seconds. Can be caused by a faulty Pump Flange Assembly (PFA).
Battery Voltage High	158	3	P1567	This Trouble Code Sets if the if the Battery Voltage is above 15.0V. Can be caused by Damaged Wiring, a faulty Battery or ECU / Connections.
Battery Voltage Low	158	4	P1566	This Trouble Code Sets if the if the Battery Voltage is below 10.0V. Can be caused by Damaged Wiring, a faulty Battery or ECU / Connections.
Exhaust Over-Temperature Shutdown	173	0	P1517	This Trouble Code Sets if the engine was shut down due to High Exhaust Temperature. Can be caused by a Faulty Exhaust Temperature Sensor/Connections or Lean Air/Fuel Ratio causing high exhaust temperature.
Exhaust Temp Sensor Signal High	173	3	P0546	This Trouble Code sets if the engine has been running above 3000 RPM for more than 2 minutes and the Exhaust Temperature Sensor Signal is above 4.90 Volts. Can be caused by Damaged Wiring, a faulty Engine Temperature Sensor or ECU / Connections.
Exhaust Temp Sensor Signal Low	173	4	P0545	This Trouble Code sets if the engine has been running above 3000 RPM for more than 2 minutes and the Exhaust Temperature Sensor Signal is below 0.06 Volts. Can be caused by Damaged Wiring, a faulty Engine Temperature Sensor or ECU / Connections.
Exhaust Temp Sensor Unrealistic Transition	173	10	P1546	This Trouble Code sets if the Exhaust Temperature Sensor Signal changes too quickly to be considered a Realistic Value. Can be caused by Damaged Wiring, a faulty Exhaust Temperature Sensor or ECU / Connections.

DIAGNOSTIC TROUBLE CODES (DTCS) – MATRYX				
SPN = SUSPECT PARAMETER NUMBER / FMI = FAILURE MODE INDICATOR				
TROUBLE CODE	**SPN**	**FMI**	**P-COD-E**	**CONDITION**
Fuel Temperature Sensor Voltage High	174	3	P1322	This trouble code sets if the Fuel Temperature Sensor Voltage is above 4.81V. Can be caused by Damaged Wiring, a faulty Fuel Pressure Sensor or ECU / Connections.
Fuel Temperature Sensor Voltage Low	174	4	P1323	This trouble code sets if the Fuel Temperature Sensor Voltage is Below 0.01V. Can be caused by Damaged Wiring, a faulty Fuel Pressure Sensor or ECU / Connections.
ECU Memory Checksum Error	628	13	P0601	This Trouble Code Sets if an Internal Memory Fault is detected in the Engine Controller. Can only be caused by a defective ECU.
Crankshaft Sensor Signal Fault	636	2	P0335	This Trouble Code sets if the Engine is Running and No Signal is Detected from the 5X Crankshaft Sensor. Can be caused by Damaged Wiring, a faulty Crankshaft Sensor or ECU / Connections.
Crankshaft Position Sensor Circuit Fault	636	8	P0336	This Trouble Code sets if the Engine is Running and the number of pulses from the 5X Crankshaft Sensor is not correct. Can be caused by Damaged Wiring, a faulty Crankshaft Sensor or ECU / Connections.
MAG Cylinder Port Injector Short to B+	651	3	P0262	This Trouble Code sets if a Short to Voltage is detected in the MAG Cylinder Port Injector Control Circuit. Can be caused by Damaged Wiring, a faulty Fuel Injector or ECU / Connections.
MAG Cylinder Port Injector Open Circuit	651	5	P0261	This Trouble Code sets if an Open Circuit Condition is detected in the MAG Cylinder Port Injector Control Circuit. Can be caused by Damaged Wiring, a faulty Fuel Injector or ECU / Connections.
PTO Cylinder Port Injector Short to B+	652	3	P0265	This Trouble Code sets if a short to Voltage is detected in the PTO Cylinder Port Injector Control Circuit. Can be caused by Damaged Wiring, a faulty Fuel Injector or ECU / Connections.
PTO Cylinder Port Injector Open Circuit	652	5	P0264	This Trouble Code sets if an Open Circuit Condition is detected in the PTO Cylinder Port Injector Control Circuit. Can be caused by Damaged Wiring, a faulty Fuel Injector or ECU / Connections.

DIAGNOSTIC TROUBLE CODES (DTCS) – MATRYX				
SPN = SUSPECT PARAMETER NUMBER / FMI = FAILURE MODE INDICATOR				
TROUBLE CODE	**SPN**	**FMI**	**P-COD-E**	**CONDITION**
Ignition Coil 1 (MAG) Driver Circuit Open	1268	5	P1351	This Trouble Code Sets if Ignition Coil 1 (MAG) Driver Circuit is Open. Can be caused by Damaged Wiring/Connections, a Faulty MAG Ignition Coil or ECU.
Ignition Coil 2 (PTO) Driver Circuit Open	1269	5	P1352	This Trouble Code Sets if Ignition Coil 2 (PTO) Driver Circuit is Open. Can be caused by Damaged Wiring/Connections, a Faulty PTO Ignition Coil or ECU.
Max. Detonation Correction Limit Reached, MAG Cylinder	1352	0	P1336	This Trouble Code Sets if the Engine Controller Reaches the Maximum Detonation Control Limit by Fuel Correction on the Mag Cylinder Can be caused by Incorrect Fuel (low octane or Ethanol content) or Low Fuel Pressure.
Cylinder 1 (MAG) Knock Level Critical	1352	16	P2336	This Trouble Code Sets if Cylinder 1 (MAG) Knock Sensor reaches a Critical Level. Can be caused by Excessive Knock (Fuel Problems), a Lean Running Condition or Engine Mechanical Problems.
Max. Detonation Correction Limit Reached, PTO Cylinder	1353	0	P1337	This Trouble Code Sets if the Engine Controller Reaches the Maximum Detonation Control Limit by Fuel Correction on the PTO Cylinder. Can be caused by Incorrect Fuel (low octane or Ethanol content) or Low Fuel Pressure.
Cylinder 2 (PTO) Knock Level Critical	1353	16	P2337	This Trouble Code Sets if Cylinder 2 (PTO) Knock Sensor reaches a Critical Level. Can be caused by Excessive Knock (Fuel Problems), a Lean Running Condition or Engine Mechanical Problems.
Sensor Supply Voltage 1 Low	3509	4	P06B1	This Trouble Code sets if the Sensor Supply 1 Voltage is below an acceptable limit (approx. 4.50 Volts). Can be caused by Damaged Wiring or Faulty/Shorted Sensors.
Sensor Supply Voltage 2 Low	3510	4	P06B4	This Trouble Code sets if the Sensor Supply 2 Voltage is below an acceptable limit (approx. 4.50 Volts). Can be caused by Damaged Wiring or Faulty/Shorted Sensors.

DIAGNOSTIC TROUBLE CODES (DTCS) – MATRYX				
SPN = SUSPECT PARAMETER NUMBER / FMI = FAILURE MODE INDICATOR				
TROUBLE CODE	**SPN**	**FMI**	**P-COD-E**	**CONDITION**
Vehicle Speed Sensor Supply Voltage Low	3511	4	P16B6	This Trouble Code sets if the Sensor Supply 3 Voltage is below an acceptable limit (approx. 4.5 Volts). Can be caused by Damaged Wiring or Faulty Sensor/shorted to ground.
Oil Pump Driver Circuit Open	3589	5	P16BA	This Trouble Code Sets if the Oil Pump Driver Circuit is Open. Can be caused by Damaged Wiring/Connections, a Faulty Oil Pump/Connections or Faulty ECU/Connections.
Oil Pump Driver Circuit Fault	3589	12	P16BC	This Trouble Code Sets if a Failure is Detected in the Oil Pump Driver Circuit. Can be caused by Damaged Wiring/Connections, a Faulty Oil Pump/Connections or Faulty ECU/Connections.
Injector Output Supply 2 Voltage High	3598	3	P16A9	This Trouble Code sets if the Injector Output Supply 2 Voltage is above an acceptable limit. Can be caused by Damaged Wiring or Faulty/Shorted Connectors.
Injector Output Supply 2 Voltage Low	3598	4	P16A8	This Trouble Code sets if the Injector Output Supply 2 Voltage is below an acceptable limit. Can be caused by Damaged Wiring or Faulty/Shorted Connectors.
Regulator: Critical Voltage Too Low	32523	4	P1609	This Trouble Code Sets if the Regulator has detected Low Voltage in the Critical Circuit. Can be caused by damaged Regulator wiring or connections, electrical modifications or faulty Regulator.
Regulator: Critical Open Circuit	32523	5	P160B	This Trouble Code Sets if the Regulator has detected an Open Circuit in the Critical Circuit. Can be caused by damaged wiring, faulty headlight, Fuel Pump or Regulator connections.
Regulator: Critical Short Circuit	32523	6	P160C	This Trouble Code Sets if the Regulator has detected Excessive Current in the Critical Circuit. Can be caused by damaged wiring, faulty headlight, Fuel Pump or Regulator connections.

DIAGNOSTIC TROUBLE CODES (DTCS) – MATRYX				
SPN = SUSPECT PARAMETER NUMBER / FMI = FAILURE MODE INDICATOR				
TROUBLE CODE	**SPN**	**FMI**	**P-COD-E**	**CONDITION**
Regulator: Critical Voltage Too High	32523	15	P160D	This Trouble Code Sets if the Regulator has detected Excessive Voltage in the Critical Circuit. Can be caused by damaged wiring, faulty headlight, Fuel Pump or Regulator connections.
Regulator: Chassis Voltage Too Low	32523	20	P160E	This Trouble Code Sets if the Regulator has detected Low Voltage in the Chassis Circuit. Can be caused by damaged wiring or faulty grip heaters.
Regulator: Chassis Short Circuit	32523	22	P160F	This Trouble Code Sets if the Regulator has detected Excessive Current Draw in the Chassis Circuit. Can be caused by damaged wiring or faulty grip heaters.
Regulator: Chassis Voltage Too High	32523	31	P1610	This Trouble Code Sets if the Regulator has detected Excessive Voltage in the Chassis Circuit. Can be caused by damaged wiring, Regulator connections or Regulator.
Regulator: Stator Output Low	32531	36	P1510	This Trouble Code Sets if the Regulator has detected a Low Voltage condition in the Stator. Can be caused by a Short to ground in the Stator or damaged Stator wiring.
Regulator: Stator Open Circuit	32531	37	P1511	This Trouble Code Sets if the Regulator has detected an Open Circuit condition in the Stator. Can be caused by an Open Circuit in the Stator or damaged Stator wiring.
Exhaust Temperature Sensor 2 - Temperature Too High	520173	0	P1487	This Trouble Code sets if the Exhaust Temperature 2 Signal is greater than 750C. Can be caused by a Faulty Exhaust Temperature Sensor/Connections or Lean Air/Fuel Ratio causing high exhaust temperature.
Exhaust Temperature Sensor 2 Voltage High	520173	3	P1484	This Trouble Code Sets if the if the Exhaust Temp Sensor 2 Voltage is above 4.96V. Can be caused by Damaged Wiring, a faulty Exhaust Temp Sensor or ECU / Connections.
Exhaust Temperature Sensor 2 Voltage Low	520173	4	P1485	This Trouble Code Sets if the if the Exhaust Temp Sensor 2 Voltage is Below 0.06V. Can be caused by Damaged Wiring, a faulty Exhaust Temp Sensor or ECU / Connections.

DIAGNOSTIC TROUBLE CODES (DTCS) – MATRYX				
SPN = SUSPECT PARAMETER NUMBER / FMI = FAILURE MODE INDICATOR				
TROUBLE CODE	**SPN**	**FMI**	**P-COD-E**	**CONDITION**
Exhaust Temperature Sensor 2 Abnormal Rate of Change	520173	10	P1486	This Trouble Code sets if the Exhaust Temperature Sensor Signal changes too quickly to be considered a Realistic Value. Can be caused by Damaged Wiring, a faulty Exhaust Temperature Sensor or ECU / Connections.
Exhaust Temperature Sensor 2 Mismatch with Sensor 1	520173	14	P1488	This Trouble Code Sets when Exhaust Temperature Sensor 2 signal is 250C greater than Exhaust Temp Sensor 1 signal. The condition can be caused by Damaged Wiring, faulty Exhaust Temperature Sensor or ECU / Connections.
ECU Supply Voltage High	520174	3	P1341	This Trouble Code sets if the ECU Supply Voltage is above 17.00V. Can be based by faulty wiring, faulty regulator or ECU / Connections
ECU Supply Voltage Low	520174	4	P1342	This Trouble Code sets if the ECU Supply Voltage is below 10.00V. Can be based by faulty wiring, faulty regulator or ECU / Connections.
Critical Supply Voltage High	520175	3	P1343	This Trouble Code sets if the Critical Supply Voltage is above 17.00V. Can be based by faulty wiring, faulty regulator or ECU / Connections.
Critical Supply Voltage Low	520175	4	P1344	This Trouble Code sets if the Critical Supply Voltage is below 10.00V. Can be cbased by faulty wiring, faulty regulator or ECU / Connections.
Chassis Supply Voltage High	520176	3	P1345	This Trouble Code sets if the Chassis Supply Voltage is above 18.00V. Can be based by faulty wiring, faulty regulator or ECU / Connections.
Chassis Supply Voltage Low	520176	4	P1346	This Trouble Code sets if the Chasssis Supply Voltage is below 14.00V. Can be based by faulty wiring, faulty regulator or ECU / Connections.
Peak Injector Voltage High	520177	3	P1347	This Trouble Code sets if the Peak Injector Supply Voltage is above 24.00V. Can be based by faulty wiring, faulty regulator or ECU / Connections.
Peak Injector Voltage Low	520177	4	P1348	This Trouble Code sets if the Peak Injector Supply Voltage is below 20.00V. Can be based by faulty wiring, faulty regulator or ECU / Connections.

DIAGNOSTIC TROUBLE CODES (DTCS) – MATRYX				
SPN = SUSPECT PARAMETER NUMBER / FMI = FAILURE MODE INDICATOR				
TROUBLE CODE	**SPN**	**FMI**	**P-COD-E**	**CONDITION**
EV Actuator Position High in Open Position	520178	16	P2627	This Trouble Code sets if the Exhaust Valve Actuator Position is greater than 80.0% when trying to achieve Open position. This can be caused by a faulty Exhaust Valve Actuator, Broken Cable or Broken Exhaust Valve Assembly.
EV Actuator Position Low in Open Position	520178	18	P2628	This Trouble Code sets if the Exhaust Valve Actuator Position is less than 70.0% when trying to achieve Open position. This can be caused by a faulty Exhaust Valve Actuator, Broken Cable or Broken Exhaust Valve Assembly.
EV Actuator Position High in Mid Position	520179	16	P2629	This Trouble Code sets if the Exhaust Valve Actuator Position is greater than 55.0% when trying to achieve Mid position. This can be caused by a faulty Exhaust Valve Actuator, Broken Cable or Broken Exhaust Valve Assembly.
EV Actuator Position Low in Mid Position	520179	18	P2630	This Trouble Code sets if the Exhaust Valve Actuator Position is less than 45.0% when trying to achieve Mid position. This can be caused by a faulty Exhaust Valve Actuator, Broken Cable or Broken Exhaust Valve Assembly.
EV Actuator Position High in Closed Position	520180	16	P2631	This Trouble Code sets if the Exhaust Valve Actuator Position is greater than 30.0% when trying to achieve Closed position. This can be caused by a faulty Exhaust Valve Actuator, Broken Cable or Broken Exhaust Valve Assembly.
EV Actuator Position Low in Closed Position	520180	18	P2632	This Trouble Code sets if the Exhaust Valve Actuator Position is less than 20.2% when trying to achieve Closed position. This can be caused by a faulty Exhaust Valve Actuator, Broken Cable or Broken Exhaust Valve Assembly.
Throttle Release Switch Signal Circuit Short to Voltage	520194	3	P1555	This Trouble Code Sets if the Throttle Release Switch Signal is Open Circuit or Shorted to Battery Voltage. Can be caused by Damaged Wiring/Connections, a Faulty Throttle Safety Switch or ECU.
Throttle Release Switch Signal Circuit Short to Ground	520194	4	P1554	This Trouble Code Sets if the Throttle Safety Switch Signal is Shorted to Ground. Can be caused by Damaged Wiring/Connections, a Faulty Throttle Safety Switch or ECU.

DIAGNOSTIC TROUBLE CODES (DTCS) – MATRYX				
SPN = SUSPECT PARAMETER NUMBER / FMI = FAILURE MODE INDICATOR				
TROUBLE CODE	**SPN**	**FMI**	**P-COD-E**	**CONDITION**
Throttle Stuck Error	520194	7	P1552	This Trouble Code Sets if the Throttle Release Switch Signal Indicates a Throttle Stuck Open. Can be caused by a Stuck Throttle or Misadjusted/Stuck Throttle Linkage.
Accessory Relay Driver Circuit Short to B+	520219	3	P1647	This Trouble Code Sets if the Accessory Relay Driver Circuit is Shorted to Voltage. Can be caused by Damaged Wiring/Connections, a Faulty Accessory Relay or ECU.
Accessory Relay Driver Circuit Open	520219	5	P1646	This Trouble Code Sets if the Accessory Relay Driver Circuit is Open. Can be caused by Damaged Wiring/Connections, a Accessory Ignition Relay or ECU.
Charge Relay Driver Circuit Short to B+	520220	3	P163D	This Trouble Code Sets if the Charge Relay Driver Circuit is Shorted to Voltage. Can be caused by Damaged Wiring/Connections, a Faulty Charge Relay or ECU.
Charge Relay Driver Circuit Open	520220	5	P163C	This Trouble Code Sets if the Charge Relay Driver Circuit is Open. Can be caused by Damaged Wiring/Connections, a Charge Relay or ECU.
Oil Pump or Fuel Injector Offset not Programmed	520241	13	P1278	This Trouble Code Sets if Either the Fuel Injector or Oil Injection Pump Calibration has Not Been Programmed. Update the Injector/Oil Pump Settings. WARNING: Do Not Operate the Vehicle with This Trouble Code Set!
Ground Speed Pulses Per Mile not Programmed	520242	13	P1279	This Trouble Code Sets if the Vehicle Speed Sensor Setting is Not Properly Programmed in the ECU. Reset the ECU Offset Values to Resolve this Fault Condition.
Exhaust Valve Position Out of Range (Open)	520325	31	P140A	This Trouble Code sets if: Valve UP position voltage out of range. Check the following: (1) Measure cable travel length, (2) Verify smooth valve operation by operating the cable by hand through its full travel, (3) Relearn EVIf no problem.
Exhaust Valve Position Out of Range (Mid)	520326	31	P140B	This Trouble Code sets if: Valve MID position voltage out of range. Check the following: (1) Measure cable travel length,

DIAGNOSTIC TROUBLE CODES (DTCS) – MATRYX				
SPN = SUSPECT PARAMETER NUMBER / FMI = FAILURE MODE INDICATOR				
TROUBLE CODE	**SPN**	**FMI**	**P-COD-E**	**CONDITION**
				(2) Verify smooth valve operation by operating the cable by hand through its full travel, (3) Relearn EVIf no problem.
Exhaust Valve Position Out of Range (Closed)	520327	31	P140C	This Trouble Code sets if: Valve DOWN position voltage out of range. Check the following: If occasional, this fault is nothing to be concerned about If persistent: Measure cable travel length and Verify smooth valve operation.
Riding With Brakes On Moderately Severe	520555	31	C2418	This Trouble Code Sets if the Sled has been driven with the brakes applied continuously for 10 seconds, 4500 RPM.
Riding With Brakes On Most Severe	520556	31	C2419	This Trouble Code Sets if the Sled has been driven with the brakes applied continuously for 20 seconds , 4500 RPM.
Regulator Near Thermal Shutdown	520660	31	P161B	This Trouble Code Sets if the Regulator is near the thermal shutdown point. Can be caused by excessive power consumption or insufficient cooling air flow.
Batch Fire Detection	523959	31	P3022	This Trouble Code Sets if the engine is in "Batch Fire Mode". Can be caused by Damaged Wiring, a faulty Crankshaft Sensor or ECU / Connections.
Exhaust Valve Actuator Short Circuit	523958	3	P3023	This trouble code sets if the ECU detects a short in the EV Actuator Drive circuit. Can be caused by Damaged Wiring, Faulty EV Actuator, or ECU / Connections. Inspect EV Actuator Drive wires. (White/Green & White/Blue).
Exhaust Valve Actuator Open Circuit	523958	5	P3024	This trouble code sets if the ECU detects low current or an open EV Actuator Drive circuit. Can be caused by Damaged Wiring, Faulty EV Actuator, or ECU / Connections. Inspect EV Actuator Drive wires. (White/Green & White/Blue).
Exhaust Valve Actuator Open Circuit	523958	4	P3025	This trouble code sets if the ECU detects low current or an open EV Actuator Drive circuit. Can be caused by Damaged Wiring, Faulty EV Actuator, or ECU / Connections. Inspect EV Actuator Drive wires. (White/Green & White/Blue).

DIAGNOSTIC TROUBLE CODES (DTCS) – MATRYX				
SPN = SUSPECT PARAMETER NUMBER / FMI = FAILURE MODE INDICATOR				
TROUBLE CODE	**SPN**	**FMI**	**P-COD-E**	**CONDITION**
Exhaust Valve Actuator Over Current	523958	6	P3026	This trouble code sets if the ECU detects high current on the EV Actuator Drive circuit. Can be caused by Damaged Wiring, Faulty EV Actuator, or ECU / Connections. Inspect EV Actuator Drive wires. (White/Green & White/Blue).
Exhaust Valve Actuator Internal IC Voltage High	523957	3	P3027	This trouble code sets if the ECU has detected a Exhaust Valve Actuator internal IC voltage above 6V. Can be caused by a faulty ECU.
Exhaust Valve Actuator Internal IC Voltage Low	523957	4	P3028	This trouble code sets if the ECU has detected a Exhaust Valve Actuator internal IC voltage Below 4V. Can be caused by a faulty ECU.
Exhaust Valve Actuator Internal IC Over Current / Over Temp	523957	6	P3029	This trouble code sets if the ECU has detected a Exhaust Valve Actuator internal IC current above 2A or 200C. Can be caused by a faulty ECU.
Exhaust Valve Actuator Internal IC Communication Loss	523957	19	P3032	This trouble code sets if the ECU loses communication with the Exhaust Valve Actuator IC. Can be cause by a faulty ECU.
Exhaust Valve Actuator Position Sensor Voltage High	523956	3	P3033	This trouble code sets if the Exhaust Valve Actuator Position Sensor voltage is greater than 4.5V for 1 sec. Can be caused by Damaged wiring, Faulty EV actuator, or ECU / Connections. Inspect EV Actuator Position Sensor wires. Power: Red/White. Ground: Brown/White. Feedback: Dark Green/Orange.
Exhaust Valve Actuator Position Sensor Voltage Low	523956	4	P3034	This trouble code sets if the Exhaust Valve Actuator Position Sensor voltage is Less than 0.4V for 1 sec. Can be caused by Damaged wiring, Faulty EV actuator, or ECU / Connections. Inspect EV Actuator Position Sensor wires. Power: Red/White. Ground: Brown/White. Feedback: Dark Green/Orange.
Exhaust Valve Actuator Abnomral Rate of Change	523956	10	P3035	This trouble code sets if the Exhaust Valve Actuator Position Sensor voltage is Less than 0.4V for 1 sec. Can be caused by Damaged wiring, Faulty EV actuator, or ECU / Connections. Inspect EV Actuator Position Sensor wires. Power: Red/White. Ground: Brown/White. Feedback: Dark Green/Orange.

DIAGNOSTIC TROUBLE CODES (DTCS) – MATRYX				
SPN = SUSPECT PARAMETER NUMBER / FMI = FAILURE MODE INDICATOR				
TROUBLE CODE	**SPN**	**FMI**	**P-COD-E**	**CONDITION**
Exhaust Valve Learning Default Position	520337	7	P3036	This trouble code sets if the Exhaust Valve Learn values are different from the Exhaust Valve Check Values. Can be caused by an obstruction in the Exhaust Valves, Broken Cable, or broken Exhaust Valve.
Water Temperature Unrealistic Transition	110	10	P0119	This trouble code sets if the water temperature changes by 20C in 1 sec 3 times. Can be caused by Faulty Wiring, Faulty Water Temperature Sensor, or Faulty ECU.

DIAGNOSTIC TROUBLE CODES (DTCS) – PATRIOT BOOST

DIAGNOSTIC TROUBLE CODES (DTCS) – MATRYX PATRIOT BOOST					
SPN = SUSPECT PARAMETER NUMBER / FMI = FAILURE MODE INDICATOR					
SPN	**FMI**	**P-CODE**	**DESCRIP-TION**	**FAULT SETTING**	**FAULT HEALING**
1127	10	P101F	Boost air pressure sensor abnormal rate of change	Difference between previous and current boost pressure data is greater than maximum expected value for certain number of detections	Voltage updates at normal rate after power cycle
	4		Boost air pressure sensor voltage too low	Boost air pressure sensor voltage drops below lower limit	Voltage returns to normal range
	0		Boost air pressure sensor over pressure - most severed	Filtered boost pressure exceeds upper limit for specified duration of time	ECU reset or power cycle
	3		Boost air pressure sensor voltage too high	Boost air pressure sensor voltage exceeds upper limit	Voltage returns to normal range
	16		Boost air pressure sensor over pressure - moderately severe	Filtered boost pressure exceeds upper limit for specified duration of time	Return to normal range
	17		Boost air pressure sensor under pressure - least severe	Boost air pressure sensor voltage falls below lower limit for	Voltage returns to normal range

DIAGNOSTIC TROUBLE CODES (DTCS) – MATRYX PATRIOT BOOST					
SPN = SUSPECT PARAMETER NUMBER / FMI = FAILURE MODE INDICATOR					
SPN	**FMI**	**P-CODE**	**DESCRIP-TION**	**FAULT SETTING**	**FAULT HEALING**
				specified duration of time	
1188	4	P1020	Wastegate actuator position sensor voltage too low	Wastegate actuator position sensor voltage falls below lower limit for specified duration of time	Voltage returns to normal range
	10		Wastegate actuator position sensor abnormal rate of change	Difference between previous and current wastegate actuator position sensor voltage exceeds maximum detected value for specified number of detections	Voltage updates at normal rate after power cycle
	3		Wastegate actuator position sensor voltage too high	Wastegate actuator position sensor voltage exceeds limit for specified duration of time	Voltage returns to normal range
523949	31	P1021	Boost actuator learn failure	ECU issues error information if the learn procedure fails	Contact your Dealer
	7		Boost actuator learn check failure	After specified duration of time after moving to	Contact your Dealer

DIAGNOSTIC TROUBLE CODES (DTCS) – MATRYX PATRIOT BOOST					
SPN = SUSPECT PARAMETER NUMBER / FMI = FAILURE MODE INDICATOR					
SPN	**FMI**	**P-CODE**	**DESCRIP-TION**	**FAULT SETTING**	**FAULT HEALING**
				open or closed, ECU detects wastegate position voltage and a fault is issued if the open or closed position is too far out of range	
523952	10	P1022	Boost air temperature sensor abnormal rate of change	Difference between previous and current boost air temp data is greater than upper limit for specified number of detections	Normal voltage rate of change after power cycle
	4		Boost air temperature sensor voltage too low	Boost air temperature sensor voltage is below lower limit for specified duration of time	Voltage returns to normal or power cycle
	16		Boost air temperature over temperature - moderately severe	Boost air temperature is above limit for specified duration of time	Return to normal temperature range
	3		Boost air temperature sensor voltage too high	Boost air temperature sensor voltage is greater than upper limit for specified duration of time	Voltage returns to normal or power cycle

DIAGNOSTIC TROUBLE CODES (DTCS) – MATRYX PATRIOT BOOST					
SPN = SUSPECT PARAMETER NUMBER / FMI = FAILURE MODE INDICATOR					
SPN	**FMI**	**P-CODE**	**DESCRIP-TION**	**FAULT SETTING**	**FAULT HEALING**
	0		Boost air temperature over temperature - most severe	Over temperature - moderately severe condition is detected more than maximum amount of detections	ECU reset or power cycle
523953	3	P1023	Wastegate Actuator H Bridge (+/-) short to battery	If injector voltage and engine DC voltage exceed respective limits, ECU communi-cates with internal driver IC and issues error	Conditions to issue error no longer met
	4		Wastegate Actuator H Bridge (+/-) short to ground	If injector voltage and engine DC voltage exceed respective limits, ECU communi-cates with internal driver IC and issues error	Conditions to issue error no longer met
523954	19	P1024	Wastegate Actuator H Bridge Internal IC no communica-tion	If injector voltage and engine DC voltage exceed respective limits, ECU communi-cates with internal driver IC and issues error	Conditions to issue error no longer met
523948	9	P1025	Boost actuator position not achieved	Boost actuator target position is not	Target position is achieved

DIAGNOSTIC TROUBLE CODES (DTCS) – MATRYX PATRIOT BOOST					
SPN = SUSPECT PARAMETER NUMBER / FMI = FAILURE MODE INDICATOR					
SPN	**FMI**	**P-CODE**	**DESCRIP-TION**	**FAULT SETTING**	**FAULT HEALING**
				within expected range after specified duration of time	
521373	3	P1386	Auxiliary injector MAG driver circuit shorted to B+	Smart IC driver detects short to B+	ECU detects normal status of injector for specified amount of time
	4	P1387	AUX Mag Injector Voltage Low	AUX injector voltage below lower limit	Voltage within normal range after power cycle
	5	P1388	Auxiliary injector MAG driver circuit open/ground-ed	Smart IC driver sends open/ground error	ECU detects normal status of injector for specified amount of time
521374	3	P1389	Auxiliary injector PTO driver circuit shorted to B+	Smart IC driver detects short to B+	ECU detects normal status of injector for specified amount of time
	4	P1390	AUX PTO Injector Voltage Low	AUX injector voltage below lower limit	Voltage within normal range after power cycle
	5	P1391	Auxiliary injector PTO driver circuit open/ground-ed	Smart IC driver sends open/ground error	ECU detects normal status of injector for specified amount of time

DIAGNOSTIC TROUBLE CODES (DTCS) – LEFT HAND CONTROLS

MATRYX LEFT HAND CONTROLS – DIAGNOSTIC TROUBLE CODES (DTCS)					
SPN = SUSPECT PARAMETER NUMBER / FMI = FAILURE MODE INDICATOR					
SPN	**FMI**	**P-CODE**	**DESCRIPTION**	**FAULT SETTING**	**FAULT HEALING**
516360	0	C1106	Left Grip Heater Driver Over Temp	The temperature at left grip heater driver is greater than 60 DegC for 5 seconds	The temperature at left grip heater driver is less than 60 DegC for 5 seconds
	5	C1107	Left Grip Heater Driver Under Current	The current at left grip heater driver is is less than 1A for 5 seconds	The current at left grip heater driver is is greater than 1.5A for 5 seconds
	6	C1108	Left Grip Heater Driver Over Current	The current at left grip heater driver is is greater than 7A for 5 seconds	The current at left grip heater driver is is less than 6A for 5 seconds
	31	C1109	Left Grip Heater Driver Internal Short	An internal short has been detected at the left grip heater driver. This would result in a 100% duty cycle output when not expected.	An internal short is not detected at the left grip heater driver.
516361	0	C110A	Right Grip Heater Driver Over Temp	The temperature at right grip heater driver is greater than 60 DegC for 5 seconds	The temperature at right grip heater driver is less than 60 DegC for 5 seconds
	5	C110B	Right Grip Heater Driver Under Current	The current at right grip heater driver is is less than 1A for 5 seconds	The current at right grip heater driver is is greater than 1.5A for 5 seconds
	6	C110C	Right Grip Heater Driver Over Current	The current at right grip heater driver is is greater than 7A for 5 seconds	The current at right grip heater driver is is less than 6A for 5 seconds

MATRYX LEFT HAND CONTROLS – DIAGNOSTIC TROUBLE CODES (DTCS)					
SPN = SUSPECT PARAMETER NUMBER / FMI = FAILURE MODE INDICATOR					
SPN	**FMI**	**P-CO-DE**	**DESCRIPTION**	**FAULT SETTING**	**FAULT HEALING**
	31	C110D	Right Grip Heater Driver Internal Short	An internal short has been detected at the right grip heater driver. This would result in a 100% duty cycle output when not expected.	An internal short is not detected at the right grip heater driver.
516362	0	C110E	Thumb Heater Driver Over Temp	The temperature at thumb heater driver is greater than 60 DegC for 5 seconds	The temperature at thumb heater driver is less than 60 DegC for 5 seconds
	5	C110F	Thumb Heater Driver Under Current	The current at thumb heater driver is is less than 0.2A for 5 seconds	The current at thumb heater driver is is greater than 0.25A for 5 seconds
	6	C1110	Thumb Heater Driver Over Current	The current at thumb heater driver is is greater than 1.4A for 5 seconds	The current at thumb heater driver is is less than 1.2A for 5 seconds
	31	C1111	Thumb Heater Driver Internal Short	An internal short has been detected at the thumb heater driver. This would result in a 100% duty cycle output when not expected.	An internal short is not detected at the thumb heater driver.

E-VES DIAGNOSTIC TROUBLE CODES (DTCS)

E-VES DIAGNOSTIC TROUBLE CODES (DTCS)						
SPN = SUSPECT PARAMETER NUMBER / FMI = FAILURE MODE INDICATOR						
P-CODE	**SPN**	**FMI**	**DESCRIP-TION**	**LIKELY CAUSE (S)**	**ECU RESPONSE**	**PRIMARY COURSE OF ACTION**
P1400	5203-24	3	Diagnostic voltage too high	Diagnostic line (Pink / Black in harness, Brown on signal converter) short to +12V Actuator power (Red / Black) removed	ECU will not allow UP state. Fuel according to actual position	Inspect PWM converter wiring for chaffing / broken wires Ensure no loose pins in converter connector Replace signal converter if no wire / connector issues are found
P1401		5	Diagnostic circuit open / grounded	Diagnostic line (Pink / Black in harness, Brown on signal converter) open circuit Command wire (Dark Blue / White) short to GND Command wire (Dark Blue / White) open Actuator power (Red / Black) removed		
P1402		13	Learn failure	Feedback voltage out of range during learn	ECU will force to DOWN state and fuel accordingly	Ensure battery is sufficient for relearn (maintains 11.5 volts during the entire procedure) Ensure Signal converter and / or actuator are not disconnected Ensure EV relay is connected, operational (clicks) and has no damage to terminal wiring Check for broken EV cable

E-VES DIAGNOSTIC TROUBLE CODES (DTCS)						
SPN = SUSPECT PARAMETER NUMBER / FMI = FAILURE MODE INDICATOR						
P-CODE	**SPN**	**FMI**	**DESCRIP-TION**	**LIKELY CAUSE (S)**	**ECU RESPONSE**	**PRIMARY COURSE OF ACTION**
						Perform cable measurement test per service manual Remove and inspect the valve assembly for causes for too little or too much travel.
P1403		12	Hardware fault	Actuator position sensor failed Voltage too high during EV learn		Replace EV Actuator
P1404		7	Position not achieved	Actuator does not reach commanded state Will also trigger one of the following: P140A / B / C	Fuel according to actual valve position	See actions for P140A / B / C
P1405		2	PWM set missing	Command wire (Dark Blue / White) to actuator open circuit Command wire (Dark Blue / White) short to GND	All valve positions allowed, Fuel according to actual position, When signal is returned, actuator will re-initialize	Inspect signal converter wiring for chaffing or broken wires Ensure no loose pins on converter connector Replace signal converter if no wire / connector issues are found
P1406	5203-35	3	Feedback position short to +12V	Feedback position (Dark Blue / Yellow on harness, Grey on signal converter) short to +12V Actuator power (Red / Black) removed	ECU will force to DOWN state and fuel accordingly	
P1407		5	Feedback position circuit open / grounded	Feedback position (Dark Blue/Yellow on harness, Grey on signal converter) short to GND		

E-VES DIAGNOSTIC TROUBLE CODES (DTCS)						
SPN = SUSPECT PARAMETER NUMBER / FMI = FAILURE MODE INDICATOR						
P-CODE	**SPN**	**FMI**	**DESCRIP-TION**	**LIKELY CAUSE (S)**	**ECU RESPONSE**	**PRIMARY COURSE OF ACTION**
				Feedback position (Dark Blue/Yellow on harness, Grey on signal converter) open Actuator power (Red / Black) removed		
P1408		10	Abnormal rate of change	Actuator achieves valve state too fast or resistance too low Actuator power (Red / Black) removed Command wire (Dark Blue / White) short to +12V Command wire (Dark Blue / White) short to GND	Position forced to last known state, fuel according to last known state	Inspect EV cable for damage or loose attachment at valve assembly
P1409	5203-34	31	Actuator overheat	Actuator Circuit board too hot Internal short circuit	ECU will not allow UP state, Fuel worst case valve UP state	Replace EV Actuator
P1410	5203-37	31	Learn default position	Actuator / Signal converter power (Red / Black) removed	ECU will not allow UP operation	Inspect Signal converter wiring for chaffing or broken wires Ensure no loose pins on converter connector Check actuator wiring for broken wires, loose pins on actuator connector Replace signal converter

E-VES DIAGNOSTIC TROUBLE CODES (DTCS)						
SPN = SUSPECT PARAMETER NUMBER / FMI = FAILURE MODE INDICATOR						
P-CODE	**SPN**	**FMI**	**DESCRIP-TION**	**LIKELY CAUSE (S)**	**ECU RESPONSE**	**PRIMARY COURSE OF ACTION**
P140A	5203-25	31	Valve OPEN position not achieved	Valve UP position voltage out of range	Fuel according to actual valve position	Measure cable travel length Verify smooth valve operation by operating the cable by hand through its full travel Perform EV relearn procedure Remove E-VES assembly and inspect for heavy carbon build-up and / or damage
P140B	5203-26	31	Valve MID position not achieved	Valve MID position voltage out of range		
P140C	5203-27	31	Valve DOWN position not achieved	Valve DOWN position voltage out of range		If occasional, this fault is nothing to be concerned about If persistent: Measure cable travel length Verify smooth valve operation by operating the cable by hand through its full travel Perform EV relearn procedure Remove E-VES assembly and inspect for heavy carbon build-up and / or damage
P140D	5203-28	5	EV relay circuit open / grounded	EV relay supply power line is open	ECU will force to DOWN state and fuel accordingly	Inspect EV relay for corrosion or loose terminals Replace EV relay
P140E		3	EV relay short to power	EV relay Grey / Yellow wire short to Power		

TROUBLESHOOTING

ENGINE TROUBLESHOOTING

Unless you have experience and training in two-cycle engine repair, your dealer can assist if technical problems arise.

PROBLEM	PROBABLE CAUSE	SOLUTION
Erratic engine operating RPM during acceleration or load variations	Drive clutch binding	Your dealer can perform this service.
	Driven clutch malfunction	Your dealer can perform this service
Harsh drive clutch engagement	Drive belt worn or too narrow	Replace the drive belt.
	Excessive belt/sheave clearance	Your dealer can perform this service.
Drive belt turns over	Wrong belt for application	Replace the drive belt.
	Clutch alignment out of spec	Your dealer can perform this service.
	Engine mount broken or loose	Inspect and replace. Your dealer can perform this service.
Machine fails to move	Clutch jammed	Check for twisted belt or broken spring. Your dealer can perform this service.
	Track jammed	• Foreign object may be caught or the rail slide melted to the track clips due to lack of lubrication. • Track may be iced up or frozen to the ground.
	Chaincase sprocket or chain jammed or broken	Chain is loose or broken or chain tightener is loose. Your dealer can perform this service.

PROBLEM	PROBABLE CAUSE	SOLUTION
Noise in drive system	Broken drive clutch components	Your dealer can perform this service.
	Bearing failure/ chaincase, jackshaft, or front drive shaft	Your dealer can perform this service.
	Drive belt surface flat spots	Inspect and replace as needed.
	Drive chain loose	Inspect and adjust (or replace).
	Drive chain worn, sprocket teeth broken	Your dealer can perform this service.
Poor low RPM performance	Worn drive belt	Inspect and replace as needed.
	Excessive belt/sheave clearance	Your dealer can perform this service.
	Sticky clutch	Your dealer can perform this service.
	Poor fuel quality	Use 87-91 octane fuel (or higher).
Engine doesn't turn	Seized engine	Your dealer can perform this service. Seizure is a result of poor lubrication, inadequate fuel supply, broken parts or improper cooling.
	Hydrostatic lock	Fuel may have entered the crankcase while the vehicle was standing or being transported. Drain plug(s) are located on the lower crankcase for emergency draining. Your dealer can perform this service

PROBLEM	PROBABLE CAUSE	SOLUTION
Engine turns but fails to start	Faulty ignition	Install new spark plug(s). If engine still fails to start, check for spark. If there's no spark, Your dealer can perform this service.
	No fuel to engine	• Make sure the fuel valve is on. • Make sure tank contains fuel. • Ice may be in the fuel line, filter or pump. Add isopropyl alcohol to the fuel system. • Your dealer can perform this service.
	Poor engine compression	This indicates a major engine problem that must be repaired before operating. Your dealer can perform this service.
Engine lacks power	Fouled or defective spark plug(s)	Replace the plug(s).
	Fuel filter (loss of high RPM power)	Your dealer can perform this service.
	Plugged fuel filter or tank pick-up sock	Your dealer can perform this service.
	Incorrect clutching	Your dealer can perform this service.
Engine continually backfires	Faulty plug(s)	Change plug(s), ensure caps are seated.
	Fuel System	Dirt or ice may be in the fuel system (deicer should be added to non-ethanol fuel at all times for assurance against fuel line icing).

PROBLEM	PROBABLE CAUSE	SOLUTION
	Incorrect throttle freeplay or faulty switch	Your dealer can perform this service.
Engine requires more than normal pulls to start	Poor fuel	Replace with fresh winter fuel.
	Not enough fuel getting to engine	Your dealer can perform this service.
	Plugged fuel filter or tank pick-up sock	Your dealer can perform this service.

DRIVE SYSTEM TROUBLESHOOTING

PROBLEM	PROBABLE CAUSE	SOLUTION
Machine fails to move	Clutch jammed	Check for twisted belt or broken spring. Your POLARIS dealer can assist.
	Track jammed	• Foreign object may be caught or the rail slide melted to the track clips due to lack of lubrication. • Track may be iced up or frozen to the ground.
	Chaincase sprocket or chain jammed or broken	Chain is loose or broken or chain tightener is loose. Your POLARIS dealer can assist.
	Sheared teeth on QUICKDRIVE belt	Replace QUICKDRIVE belt.
	Broken QUICKDRIVE belt	Replace QUICKDRIVE belt.
Ratcheting or jerky drive-away from slow speed	Sheared teeth on QUICKDRIVE belt	Replace QUICKDRIVE belt.
	Drive belt surface flat spots	Inspect and replace as needed.

PROBLEM	PROBABLE CAUSE	SOLUTION
Noise in drive system	Broken drive clutch components	Your POLARIS dealer can assist..
	Bearing failure/ chaincase, jackshaft, or front drive shaft	Your POLARIS dealer can assist..
	Drive belt surface flat spots	Inspect and replace as needed.
	Drive chain loose or worn, sprocket teeth broken	• Inspect and adjust, or replace. • Your POLARIS dealer can assist..
	Sheared teeth on QUICKDRIVE belt	Replace QUICKDRIVE belt.
Harsh drive clutch engagement	Worn or narrow belt	Replace the drive belt.
	Excessive belt/sheave clearance	Your POLARIS dealer can assist.
Drive belt turns over	Wrong belt	Replace the drive belt.
	Clutch alignment out of spec	Your POLARIS dealer can assist.
	Engine mount broken or loose	Inspect and replace. Your POLARIS dealer can assist..

DRIVE BELT TROUBLESHOOTING

BELT WEAR/BURN DIAGNOSIS	
CAUSES	**SOLUTIONS**
Driving at low RPM	Drive at higher RPMs. Gear the machine down. Check belt deflection.
Insufficient warm-up	Warm the engine at least five minutes. Put the transmission in neutral to warm belt. In extreme cold weather, take the drive belt off the snowmobile and warm it up. Break snowmobile loose from the snow.
Towing at low RPM	Do not tow in deep snow. Use fast, aggressive throttle to engage clutch.
Riding with high RPM and slow speed (8000 RPM/10 MPH/16 km/h)	Lower the gear ratio. Reduce RPM. Avoid riding in high ambient temperatures. Check for snow ingestion.
Ice and snow build-up between track and tunnel	Warm the engine at least five minutes. Take the drive belt off the snowmobile in extremely cold weather and warm it up. Break snowmobile loose from the snow.
Poor engine performance	Check for fouled plugs and water, ice or dirt in the fuel tank or fuel line.
Loading snowmobiles onto trailers	Skis may gouge into trailers and prevent the drivetrain from spinning properly. Use enough speed to drive the snowmobile completely onto the trailer. Push and pull it to finish loading if necessary.
Clutch malfunction	Inspect clutch components. Your dealer can perform this service.
Slow, easy clutch engagement	Use fast, aggressive throttle to engage clutch.

SUSPENSION TROUBLESHOOTING

PROBLEM	SOLUTION
Rear suspension bottoms too easily	• Refer to page 91. • Revalve rear track shock (see your dealer).
Rides too stiff in rear	• Refer to page 91. • Check for binding suspension shafts and grease all pivot points.
Too much weight transfer when climbing	Refer to page 91.
Too little weight transfer when climbing	Refer to page 91.
Machine darts from side to side	• Check ski alignment. • Make sure spindles and all steering components turn freely. • Check for excessive play in steering assembly (see your dealer). • Ensure skags are straight on skis.
Front end pushes	• Check for worn skags. • Check for binding front suspension shafts and steering components, grease all pivot points (elevate front of snowmobile). • Increase IFS preload (if equipped).
Steering is heavy	• Make sure spindles and all steering components turn freely. • Check ski alignment. • Check skags and skis for damage.

DET TROUBLESHOOTING

CAUSE OF DET ACTIVATION	SOLUTION
Poor quality fuel	Replace with higher quality fuel
Incorrect ethanol/non-ethanol fuel resistor installed	Check that the fuel setting is correct on gauge/display
Low fuel/no fuel in tank	Refuel with recommended fuel
Water in fuel	Replace with recommended fuel
Plugged fuel filter or tank pick-up sock	Your POLARIS dealer can assist
Alcohol-based fuel additive used with Ethanol fuel	Do not add deicers or additives that contain any form of alcohol while using up to 10% Ethanol fuel
Improper engine modifications	Do not modify the engine

WARRANTY

SERVICE AND WARRANTY INFORMATION

OBTAINING SERVICE AND WARRANTY ASSISTANCE

Read and understand the service data and the POLARIS warranty information contained in this manual. Contact your POLARIS dealer for replacement parts, service or warranty. Your dealer receives frequent updates on changes, modifications and tips on snowmobile maintenance, which may supersede information contained in this manual. Your dealer is also familiar with POLARIS policies and procedures and will be happy to assist you.

When contacting us about parts, service, or warranty, always provide the following information:

1. Serial number
2. Model number
3. Dealer name
4. Date of purchase
5. Details of trouble experienced
6. Length of time and conditions of operation
7. Previous correspondence

Use the page provided near the front of your owner's manual to record the identification numbers of your snowmobile and its engine.

POLARIS CUSTOMER SERVICE

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

French: 1-800-268-6334

LIMITED WARRANTY

POLARIS Industries Inc., 2100 Highway 55, Medina, MN 55340 (POLARIS) gives a 12 MONTH LIMITED WARRANTY on all components of your POLARIS vehicle against defects in material or workmanship. This warranty covers parts and labor charges for repair or replacement of defective parts and begins on the date of purchase by the original retail purchaser. This warranty is transferable to another owner during the warranty period through a POLARIS dealer, but any such transfer will not extend the original term of the warranty. The duration of this warranty may vary by international region based upon local laws and regulations.

THIS WARRANTY MAY BE VOIDED BY ANY UNAPPROVED MODIFICATIONS TO THIS VEHICLE THAT AFFECT POWERTRAIN, EXHAUST, CHASSIS OR SUSPENSION.

Promotional warranties are sometimes offered by POLARIS, including but not limited to:

- Two-year extended engine coverage
- Two-year powertrain coverage
- Extended service contract

See your dealer for details and separate terms and conditions for any promotional warranties.

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 racing, competition or purposes other than for which it was designed.

This warranty also excludes 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; failure due to snow, water, dirt or other foreign substance ingestion/contamination; improper maintenance; modified components; use of aftermarket components; unauthorized repairs; repairs made after the warranty period expires or by an unauthorized repair center; use of the product in competition or for commercial purposes. Warranty will not apply to any product which has been damaged by abuse, accident, fire or any other casualty not determined a defect of materials or workmanship.

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:

Skis
Tracks
Suspension components
Brake components
Seat components
Clutches and components
Steering components
Batteries
Light bulbs/Sealed beam lamps
Idler wheels
Sealants
Coolant
Fuel
Ski wear rods
Slide rails
Finished and unfinished surfaces
Carburetor/Throttle body components
Engine components
Drive belts
Hydraulic components
Circuit breakers/Fuses
Electronic components
Spark Plugs
Lubricants
Filters

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 CONSEQUENTAL, 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 12 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.

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

U.S.A. EPA EMISSIONS LIMITED WARRANTY

This Emissions Limited Warranty is in addition to the POLARIS standard Limited Warranty for your vehicle. POLARIS Industries Inc. warrants that at the time it is first purchased, this emissions-certified vehicle is designed, built and equipped so it conforms with applicable U.S. Environmental Protection Agency emission regulations. POLARIS warrants that the vehicle is free from defects in materials and workmanship that would cause it to fail to meet these regulations.

The warranty period for this emissions-certified vehicle starts on the date the vehicle is first purchased and continues for a period of 200 hours of engine operation; 4,000 kilometers (2,485 miles) of vehicle travel; or 30 calendar months from the date of purchase, whichever comes first.

This Emissions Limited Warranty covers components if their failure increases the vehicle's regulated emissions, and it covers components of systems if their only purpose is to control emissions. Repairing or replacing other components not covered by this warranty is the responsibility of the vehicle owner. This Emissions Limited Warranty does not cover components if their failure does not increase the vehicle's regulated emissions.

For exhaust emissions, emission-related components include any engine parts related to the following systems:

- Air-induction system
- Fuel system
- Ignition system
- Exhaust gas recirculation systems

The following parts are also considered emission-related components for exhaust emissions:

- Aftertreatment devices
- Crankcase ventilation valves
- Sensors
- Electronic control units

The following parts are considered emission-related components for evaporative emissions:

- Fuel Tank
- Fuel Cap
- Fuel Line
- Fuel Line Fittings
- Clamps*
- Pressure Relief Valves*
- Control Valves*
- Control Solenoids*
- Electronic Controls*
- Vacuum Control Diaphragms*
- Control Cables*
- Control Linkages*
- Purge Valves
- Vapor Hoses
- Liquid/Vapor Separator
- Carbon Canister
- Canister Mounting Brackets
- Carburetor Purge Port Connector

*As related to the evaporative emission control system.

The exclusive remedy for breach of this Limited Warranty shall be, at the exclusive option of POLARIS, repair or replacement of any defective materials, components or products. THE REMEDIES SET FORTH IN THIS LIMITED 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.

ALL IMPLIED WARRANTIES (INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE) ARE LIMITED IN DURATION TO THE WARRANTY PERIOD DESCRIBED HEREIN. POLARIS DISCLAIMS ALL EXPRESS WARRANTIES NOT STATED IN THIS WARRANTY. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply if it is inconsistent with the controlling state law.

This Limited Warranty excludes failures not caused by a defect in material or workmanship. This Limited Warranty does not cover damage due to accidents, abuse or improper handling, maintenance or use. This Limited Warranty also does not cover any engine that has been structurally altered, or when the vehicle has been used in racing competition. This Limited Warranty also does not cover physical damage, corrosion or defects caused by fire, explosions or other similar causes beyond the control of POLARIS.

Owners are responsible for performing the scheduled maintenance identified in the owner’s manual. POLARIS may deny warranty claims for failures that have been caused by the owner’s or operator’s improper maintenance or use, by accidents for which POLARIS has no responsibility, or by acts of God.

Any qualified repair shop or person may maintain, replace, or repair the emission control devices or systems on your vehicle. POLARIS recommends that you contact an authorized POLARIS dealer to perform any service that may be necessary for your vehicle. POLARIS also recommends that you use only POLARIS parts. 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.

If you have any questions regarding your warranty rights and responsibilities, please contact POLARIS Customer Assistance:

United States & Canada: 1-800-POLARIS (1-800-765-2747) or visit polaris.com.

French: 1-800-268-6334

MAINTENANCE LOG

MAINTENANCE LOG

Present this section of your manual to your dealer each time your snowmobile is serviced. This will provide you and future owners with an accurate log of maintenance and services performed on the snowmobile.

DATE	MILES (KM)	TECHNICIAN	SERVICE PERFORMED / COMMENTS
	150 mi. (240 km)		
	500 mi (800 km)		
	1000 mi (1600 km)		
	2000 mi (3200 km)		

DATE	HOURS	TECHNICIAN	SERVICE PERFORMED / COMMENTS

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