Pantone 426C

POLARIS®

The Way Out.

600RR
and
600 IQ Racer

Snowmobile Owner's Manual
for Maintenance and Safety

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Pantone 426C

POLARIS
The Way Out.

For your nearest Polaris dealer,
call 1-800-POLARIS
or visit www.polarisindustries.com
Polaris Sales Inc.,
2100 Hwy. 55, Medina, MN 55340
Phone 1-888-704-5290
Part No. 9921089 Rev 01
Printed in USA

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⚠WARNING

Read, understand, and follow all of the instructions and safety precautions in this manual and on all product labels.

Failure to follow the safety precautions could result in serious injury or death.

⚠WARNING

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

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WELCOME

Thank you for purchasing a Polaris vehicle, and welcome to our world-wide family of Polaris owners. We proudly produce an exciting line of utility and recreational products.

- Snowmobiles
- All-terrain vehicles (ATVs)
- *RANGER* utility vehicles
- Victory motorcycles

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 should be performed only by a Factory Certified Master Service Dealer (MSD) Technician.

Your Polaris dealer knows your vehicle best and is interested in your total satisfaction. Be sure to return to your dealership for all of your service needs during, and after, the warranty period.

We also take great pride in our complete line of apparel, parts and accessories, available through our online store at www.purepolaris.com. Have your accessories and clothing delivered right to your door!

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Printed in U.S.A.

2008 600 IQ Racer/600RR Owner's Manual P/N 9921089

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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.

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.

Follow the maintenance program outlined in this manual. Preventive maintenance ensures that critical components of the snowmobile are inspected by your dealer at specific mileage intervals.

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.

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Preservation of the Environment

Polaris is committed to supporting an environmental education campaign. We encourage governments 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.

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INTRODUCTION

Vehicle Identification Numbers

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

Vehicle Model Number: _____

Tunnel VIN: _____
(lower right side of the tunnel)

Engine Serial Number: _____
(right front side of engine crankcase)

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Operator Safety

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



The *safety alert symbol*, on your vehicle or in this manual, alerts you to the potential for injury.



WARNING

The *safety alert warning* indicates a potential hazard that may result in serious injury or death.



CAUTION

The *safety alert caution* indicates a potential hazard that may result in minor injury or damage to the vehicle.

CAUTION

A *caution* indicates a situation that may result in damage to the vehicle.

NOTE:

A *note* will alert you to important information or instructions.

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SAFETY

Operator Safety

Follow the recommended maintenance program outlined beginning on page 60 of this manual to ensure that all critical components on the snowmobile are thoroughly inspected by your dealer at specific mileage intervals.

⚠ 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.

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Operator Safety

Riding Apparel

Be prepared, be warm and be comfortable when riding. Be aware of the weather forecast, especially the windchill, and dress accordingly. See the chart on page 19.



⚠ WARNING

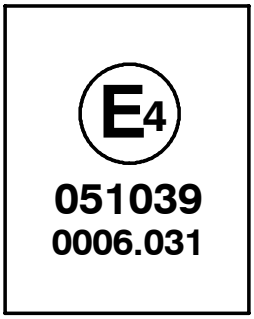
Avoid wearing loose clothing or long scarves, which can become entangled in moving parts and cause serious injury. Always wear an approved helmet and eye protection.

Helmet

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

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

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



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.

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SAFETY

Operator Safety

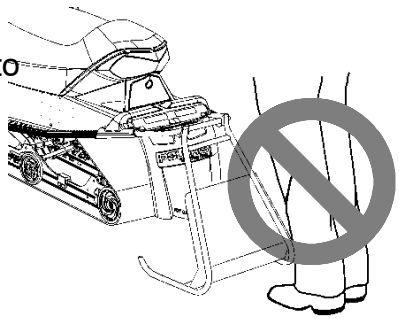
Stay Clear of Track

Your snowmobile is propelled by a revolving track that must be partially exposed for proper operation.

⚠ 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. Stop the engine, raise the hood, make the adjustment, secure shields and guards, secure the 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; but under most 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.

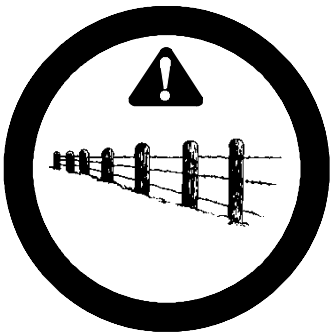
⚠ WARNING

Improper riding position may reduce control and could result in serious injury or death. Always be properly seated and in position to control your vehicle.

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Operator Safety

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 machine will drown out the sound of approaching vehicles. 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. Always check with local residents or authorities for general information on conditions when traveling on lakes and streams that are strange to you. Before riding your machine on a frozen body of water, be sure the ice is thick enough to support the machine and its operator, as well as the force created by a moving vehicle. You may drown if you and the snowmobile break through the ice.

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.

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SAFETY

Operator Safety

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.

Rider Capacity

Your Polaris snowmobile is designed for a single rider only. Do not carry a passenger.

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.

For added protection, carry the following items on your snowmobile at all times:

- Spare Drive Belt
- Tow Rope
- Fuel Deicer
- Trail Map
- First Aid Kit
- Extra Set of Spark Plugs
- Extra Oil
- Winter Survival Kit
- Owner's Manual

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Operator Safety

Avalanches



Snowmobilers should always be properly trained and equipped before traveling in mountainous terrain:

- Take an avalanche class
- Travel with experienced people
- Travel on designated trails
- Make sure each person is equipped with a shovel, probe and avalanche beacon.

You don't have to be snowmobiling on a slope for an avalanche to occur. Be aware that all of the snow is connected. You may be riding on a flat slope or snow covered road, but if the snowpack above is unstable enough you can trigger an avalanche on a steeper slope above you. Always be aware of snow conditions above you as you travel in mountainous terrain.

Before riding in mountainous terrain, call or log on to your local avalanche advisory to get current weather and snow stability information.

For more information about avalanche training and avalanche conditions, contact local law enforcement in your area, or visit the American and Canadian online avalanche centers at www.avalanche.org.

Ice and Snow Build-up

⚠ WARNING

Ice and snow build-up may interfere with the steering of your machine, 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.

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SAFETY

Operator Safety

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 laws governing snowmobile operation and speed limits. Always be alert and pay attention to the trail ahead. Multiplying speed (MPH) by 1.5 will equal the approximate number of feet per second your machine travels. If your speed is 40 MPH, your machine is traveling about 60 feet per second. If you look back for only two seconds, your machine will travel about 120 feet. If your speed is 60 MPH, your machine will travel about 180 feet 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 machine to a stop in the distance illuminated by the headlight.

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.

Driving Downhill

When riding downhill, shift your weight to the rear of the machine 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 machine 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.

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Operator Safety

Driving in Hilly Terrain

⚠ WARNING

Climbing a hill or crossing the face of a slope may result in loss of balance and machine roll-over, 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 machine 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 machine 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 machine, pull the rear of the snowmobile around and point the front end and skis downhill. Remount the machine, restart the engine, release the parking brake, and descend the hill carefully.

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SAFETY

Operator Safety

Drive Belt

Do not operate the engine with the drive belt removed.

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

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 must 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 machine into motion, but always operate within safety limits.

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 for lighter operators or machines designed to carry a load.

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Operator Safety

Inadequate Snow Conditions

⚠ WARNING

Do not drive for prolonged periods on blacktop, gravel, or ice. Doing so could cause irreversible track damage and lead to serious injury.

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

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

⚠ CAUTION

When operating on icy surfaces or hard-packed snow, avoid overheating the slide rail and track. Lack of lubrication and cooling will cause overheating of the slide rail and track, resulting in premature wear and failure. If frequently operating in low cooling conditions, see your dealer for an optional wheel kit that will reduce the wear from overheating.

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SAFETY

Operator Safety

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 machine and with what it will and won't do under various conditions. Even seasoned drivers should spend some time getting the feel for a machine 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.

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Operator Safety

Windchill/Temperature Charts

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

WIND CHILL 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.							

WIND CHILL CHART (°C)

Wind Speed in KPH	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	-	-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.							

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SAFETY

Safety Decals and Locations

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

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

Clutch Cover Warning

This warning decal is found under the hood on the clutch cover:



Pressure Cap Warning

This warning decal is found on the coolant bottle cover of liquid cooled models.



Reverse Warning (if equipped)

The reverse warning decal is located on the console, either beside the steering post or below the windshield (on equipped models):

WARNING

Reverse operation, even at low speeds, can cause loss of control resulting in serious injury or death. To avoid loss of control, always:

Look behind before and while backing up. Avoid sharp turns. Shift to or from reverse only when stopped. Apply throttle slowly.

NOTE: For more information, see Owner's Manual.

If electric reverse:

Machine stopped and engine at idle, push red button on LH control to reverse. Flashing light on dash indicates reverse operation. Push button again to return to forward.

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Safety Decals and Locations

Track Warning

The track warning decal is located on the rear of the tunnel:







Passenger Warning

This snowmobile is designed for one operator only. A "No Passenger" warning decal is located on the lower console:





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SAFETY

Safety Decals and Locations

Operation Warning

⚠ WARNING

To avoid serious injury or death, read and understand all warnings and the Owner's Manual before operation. If manual is missing, contact a Polaris dealer for a replacement.

- This vehicle is capable of high speeds. Buried objects or uneven terrain can cause loss of control. Reduce speed and use extreme caution when operating in unfamiliar terrain.
- Excessive speed, especially at night or with limited visibility, can result in insufficient time for you to react to terrain changes, to avoid unexpected obstacles, or to stop safely.
- Never consume alcohol or drugs before or while operating this vehicle.
- In an emergency, push down the Auxiliary Shut-Off Switch, located on the top of the throttle control assembly, to stop the engine. Then pull the brake lever to stop.
- Always wear an approved helmet, eye protection, and adequate clothing while operating this vehicle.
- This vehicle is designed for adult use only. Check local laws for age requirements.
- When operating with a passenger (on approved models only), reduce speed and allow extra space for steering and stopping. A passenger reduces your ability to control the vehicle.
- When operating on hard-packed snow, ice, or when crossing roads, steering and braking ability are greatly reduced. Reduce speed and allow extra space to turn or stop.
- To maintain vehicle control on ice or hard-packed surfaces, you should have a proper balance of ski carbides to track studs. See Owner's Manual for proper use of traction products.
- Repeated stops from high speed may cause fading or sudden loss of braking ability.
- Parking brake may relax when used for long periods. Do not leave brake engaged for more than five minutes.
- Before starting engine, check throttle, brake, and steering for proper operation. Make sure hood is latched. Be seated and in position to control the vehicle.

Oil injection system: Use unmixed fuel only. Check oil level when refueling.

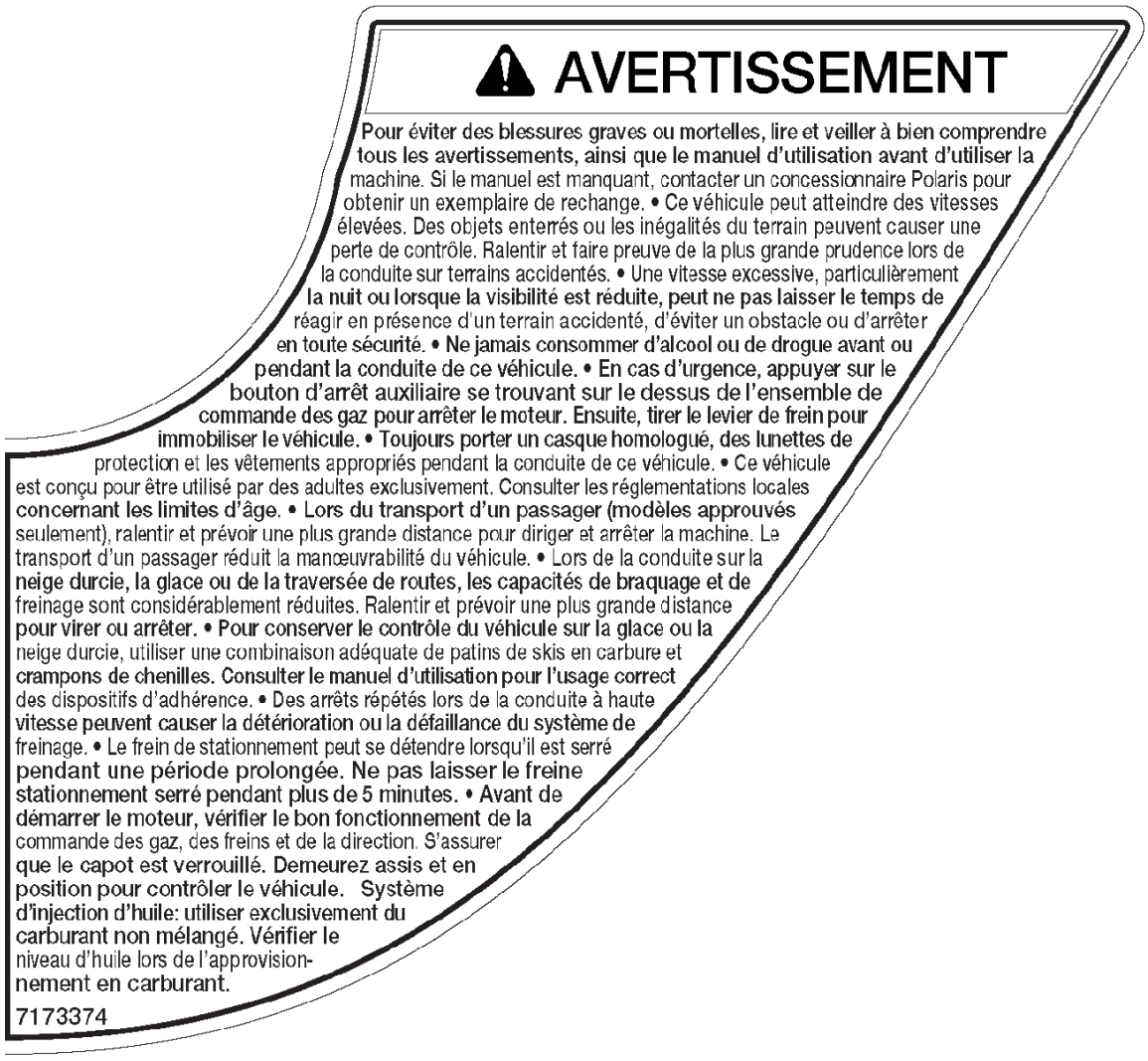


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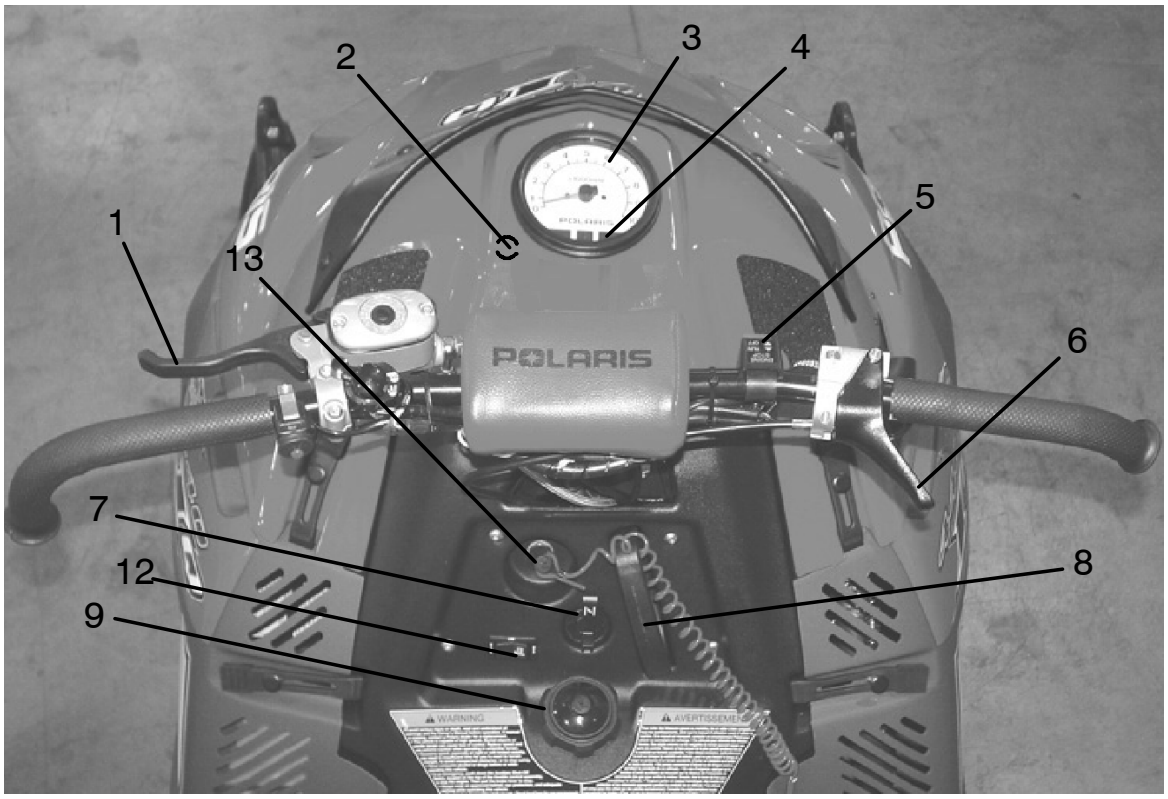
Safety Decals and Locations

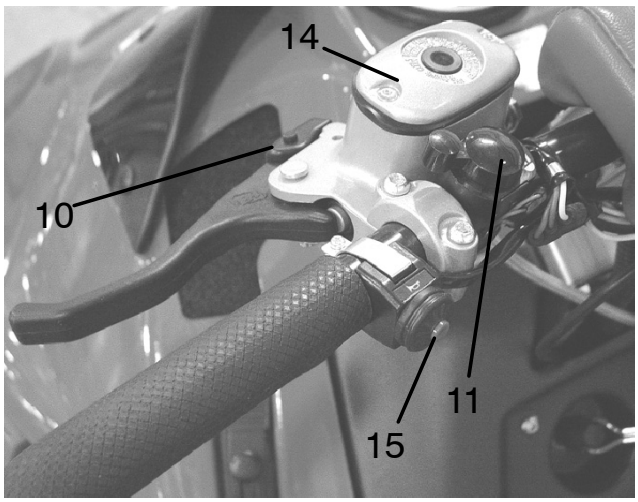
Operation Warning



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FEATURES AND CONTROLS





1. Brake Lever
2. Oil Light (600RR only)
3. Tachometer
4. Temperature Light
5. Engine Stop Switch
6. Throttle Control
7. Choke Control
8. Recoil Starter Handle
9. Fuel Filler Cap
10. Park Brake Lock
11. Headlight Dimmer Switch
12. Handlebar Grip Warmer/ Thumbwarmer Switch
13. Tether Switch
14. Master Cylinder
15. Dragon™ Ignition System Switch (600 IQ Racer) or Electronic Reverse Button (600RR)

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FEATURES AND CONTROLS



1. Handlebar
2. Windshield
3. Headlight
4. Hood
5. Nosepan
6. Skis
7. Track
8. Suspension
9. Snow Flap
10. Taillights
11. Seat

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FEATURES AND CONTROLS

Polaris DRAGON Ignition System (600 IQ Racer)

Your snowmobile is equipped with an ignition system feature that improves competition performance by increasing exhaust system temperature. The DRAGON Ignition System provides maximum "holeshot" performance for racing applications.

⚠ WARNING

DRAGON mode increases the exhaust system temperature and causes engine misfire and backfire. Flammable materials and vapors may ignite and result in fire and explosion, which may cause serious injury, death or property damage. Read the Owner's Manual. Always follow all instructions and warnings.

DRAGON Mode Facts

- The DRAGON Ignition System is intended for competition use on closed courses by experienced riders only.
- There is no benefit to using DRAGON mode for normal trail riding.
- Unnecessary, extended or excessive use of DRAGON mode can result in severe engine damage, which is excluded from Polaris warranty coverage.
- DRAGON mode usually heats up the exhaust system within 5 to 20 seconds, depending upon the initial temperature of the exhaust system.
- Two different sounds may be heard when using DRAGON mode. One sound is an erratic misfire that may be heard when the exhaust system is heating up. The other sound is a consistent misfire (with a slight rise in engine RPM) when the exhaust system is at target operating temperature.
- DRAGON mode maintains the engine speed between 4500 and 5100 RPM.
- Be sure that the clutch engages at 5300 RPM or above to prevent forward creep of the vehicle. See your dealer if the clutch needs adjustment.
- Please refer to the Polaris jetting chart and use the recommended jet for current temperatures as this system is sensitive to jet changes.

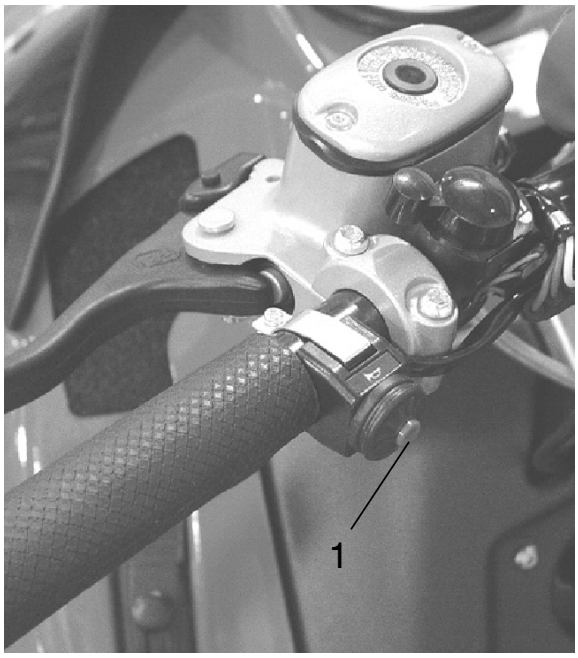
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Polaris DRAGON Ignition System (600 IQ Racer)

DRAGON Mode Operation

1. Warm up the engine and track. See page 54.
2. When staged at the starting line, depress and hold the DRAGON button on the left handlebar (1).
3. Slowly advance the throttle to the wide-open position while keeping the button depressed.
4. Release the button when the start flag drops.

NOTE: The vehicle will launch forward at wide-open throttle.



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FEATURES AND CONTROLS

Electronic Reverse (PERC™) (600RR)

Electronic reverse will activate only if the engine RPM is below 4000. If your machine is running at an altitude of over 6000 feet, adjust the ignition setting as described below. Always make sure the vehicle is stopped and the engine is running at idle before shifting to reverse.

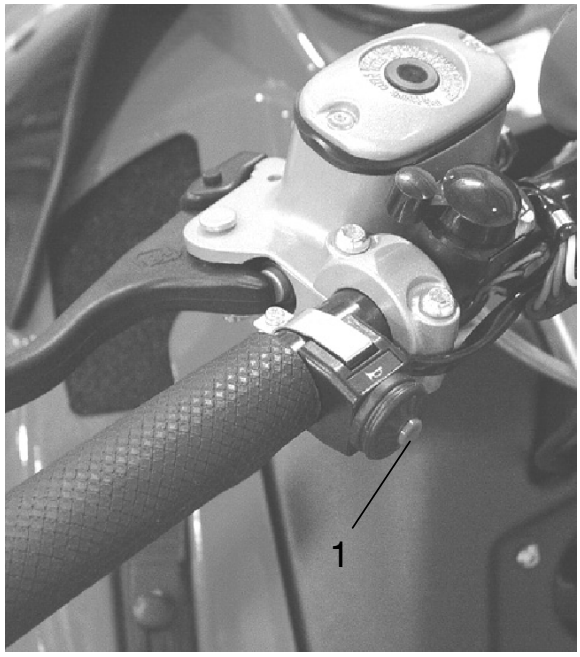
⚠ WARNING

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.

Engaging Reverse

1. Stop the snowmobile and leave the engine idling.
2. Make sure the area behind your vehicle is clear.
3. Push the reverse button (1) 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 tachometer will indicate that the transmission is in reverse.
4. Apply the throttle slowly to make sure the transmission is in reverse.



NOTE: The maximum engine RPM will be 6000 when in reverse.

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

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Electronic Reverse (PERC™) (600RR)

Disengaging Reverse

1. Stop the snowmobile and leave the engine idling.
2. Push the reverse button for one second and release. The engine will slow and begin to rotate forward. The light on the tachometer will shut off.
3. Apply the throttle slowly to make sure the transmission is in forward.

Altitude Setting

At higher altitudes (above 6000 feet), the engine will require a different ignition setting to improve the success of the reverse system. To set for a higher altitude, start the engine and hold the button down until the light on the tachometer flashes rapidly, then release the button.

To set the reverse for lower elevations, continue holding the button down until the reverse indicator light blinks slowly. Once set, it's stored in memory until changed, whether the engine is running or not.

Reverse Kit Maintenance

If your snowmobile is equipped with reverse, or if you have a reverse kit installed, it's especially important to maintain track tension as specified on page 88.

⚠ WARNING

Improper track tension can cause serious damage to the snowmobile, which can result in loss of vehicle control and serious injury or death. Always maintain the track tension as specified.

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THE PERFECT FIT

IQ Front Suspension Adjustments

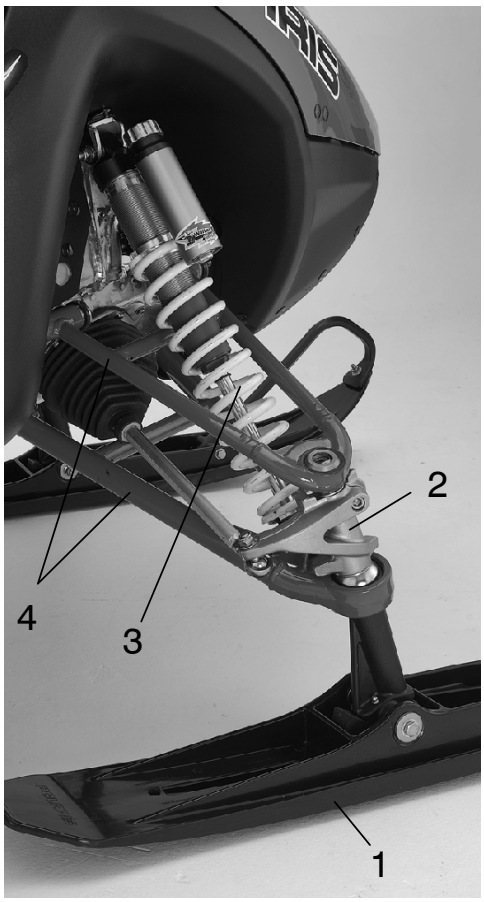
Independent Front Suspension (IFS)

Break in the suspension for about 150 miles (240 km) before making any fine-tuning adjustments.

Settings will vary from rider to rider, depending on rider weight, vehicle speed, riding style, and trail conditions. We recommend starting with factory settings and then customizing each adjustment individually to suit rider preference. The machine should be methodically tested, one change at a time, under the same conditions (trail and snow conditions, vehicle speed, riding position, etc.) after each adjustment until the best ride is achieved.

IFS Components

1. Skis
2. Spindles
3. Front shocks and springs
4. Control arms



IFS Adjustment Options

- Front shock spring preload
- Compression damping (see page 32)
- Optional springs
- Optional shock valving (if equipped with Walker/Evans shocks)
- Toe (ski alignment) (see page 92)

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IQ Front Suspension Adjustments

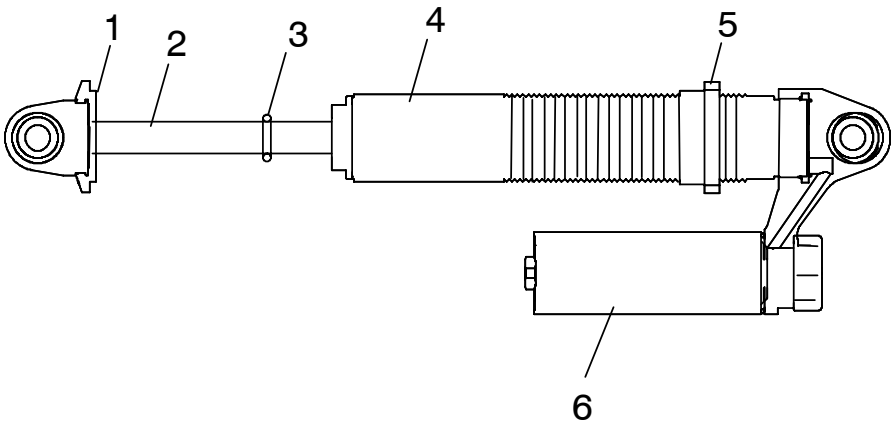
⚠ WARNING

Always verify ski alignment before making adjustments to the IFS. See page 92 to check alignment. If the skis are misaligned, see your dealer, as the camber adjustment may also be affected.

The tension at which the shock coil spring is set is called spring preload. For the best ride, the spring preload should be set as low as possible to use the full travel of the ski shock, with occasional light bottoming. To determine if your machine is using full travel of the ski shock, push the o-ring travel indicator down as far as it will go on the shock rod and test ride the machine. The o-ring will move up on the rod in direct relation to the amount of travel. If the shock travel is full, the bumper will be seated at the top of the shock.

Shock Absorber Components

1. Retainer
2. Shock Rod
3. O-Ring Travel Indicator
4. Body
5. Threaded Spring Preload Adjuster Nut
6. Reservoir

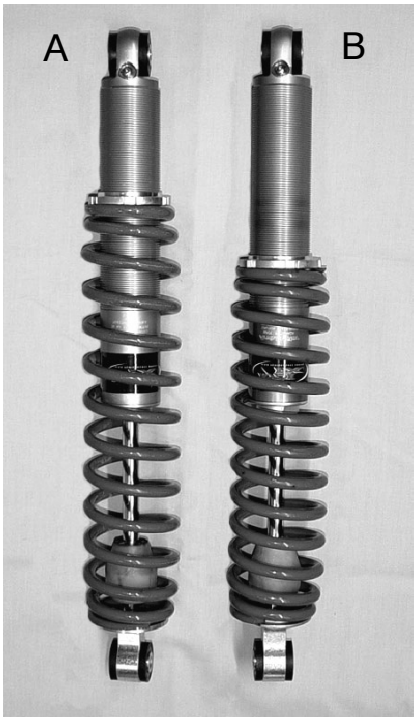


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THE PERFECT FIT

IQ Front Suspension Adjustments

Front Shock Spring Preload



Increasing spring preload will increase ski-to-ground pressure. Decreasing spring preload will decrease ski-to-ground pressure. When adjusting, be sure the springs on both the left and right sides of the machine are at the same adjustment.

A = Low preload

B = High preload

Increasing the spring preload too much may adversely affect the handling of the snowmobile and the performance of the rear suspension.

Decreasing the spring preload too much may allow the upper spring retainer to fall off.

NOTE: Always leave at least one thread showing above the nut.

1. Grasp the spring and turn it to the left to increase preload.
2. Turn the spring to the right to decrease preload.

Shock Damping (Walker/Evans Shock)



Turn the adjuster (1) clockwise to increase stiffness. Turn the adjuster counterclockwise to decrease stiffness.

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IQ Front Suspension Adjustments

Shock Valving

Walker/Evans shocks can be revalved if spring preload alone isn't sufficient and further adjustment is desired to control suspension stiffness.

⚠ WARNING

Changing shock valving on Walker/Evans shocks requires special tools and a sound knowledge of mechanical theory, tool use, and shop procedures to perform the work safely and correctly. Shocks contain high-pressure nitrogen gas. Use extreme caution when handling high-pressure service equipment. We recommend that this work be performed by a Polaris dealer.

Front Springs

For models without externally adjustable or revalvable shocks, the front springs can be changed if spring preload alone isn't sufficient and further adjustment is desired to control suspension stiffness. See your Polaris dealer for more information.

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THE PERFECT FIT

Rear Suspension Adjustments

Rider weight, riding style, trail conditions, and vehicle speed all affect suspension action.

Each rear suspension can be adjusted to suit rider preference and deliver excellent performance for a given set of conditions. However, all suspension designs and adjustments involve a compromise, or trade-off. For example, a suspension set up for snow-cross racing would provide a very stiff ride on the trail. A suspension set up for trail riding would bottom out harshly on a snow-cross course.

A decal outlining rear suspension set-up options is located either under the hood or on the clutch cover. It provides a guideline for initial suspension set-up. Additional adjustments can be made from this point. Make adjustments to one area at a time so you can evaluate the change. For further assistance, see your dealer.

Suspension Performance Tips

- Rider weight usually determines the position at which the spring pre-load should be set. However, this may vary with riding style. With a little experimentation, each rider can find a preferred set-up. These adjustments are easy to make, involve very little time or effort, and greatly affect the ride.
- A new rail slide will offer improved performance over a worn rail slide. It can also improve top speed.
- When riding on ice or hard-packed snow, adding a set of bogie wheels to the rail may enhance the machine's performance. Bogie wheel kits are available from your dealer.
- Polaris offers track kits for improved flotation in deep snow. See your dealer for assistance.

NOTE: Keep the suspension pivot points lubricated. This will reduce moisture and rust build-up and ensure proper function of the suspension components. Grease rear suspension pivots before adjusting the rear suspension. Refer to Suspension Maintenance beginning on page 94.

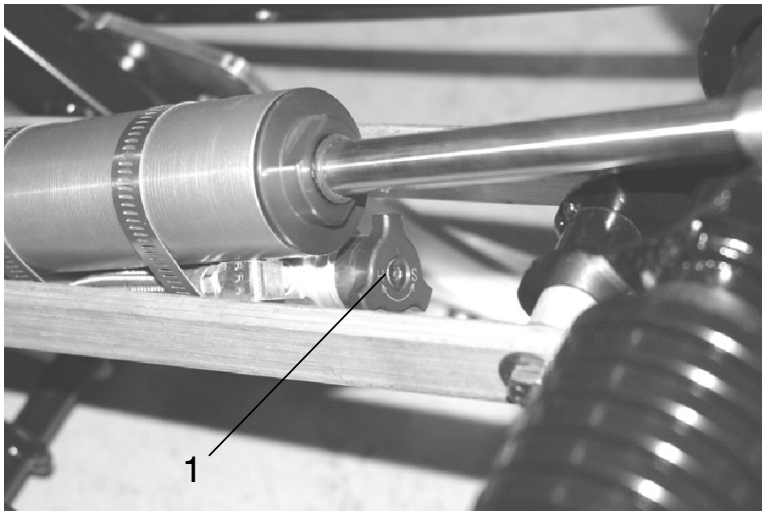
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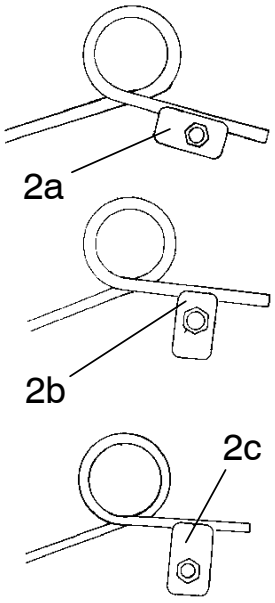
IQ Rear Suspension Adjustments

Rear Torsion Spring Tension

To adjust rear torsion spring tension, rotate the three-position cam using the engine spark plug tool. Different rate torsion springs are available if a firmer ride is desired. Contact your dealer for more information.

The following information is provided only as a guideline to be used for initial suspension set-up. Your set-up may vary based on your desired riding style.





1 - Turn the knob toward the “S” for a softer ride
Turn the knob toward the “H” for a stiffer ride

2a - **Soft Tension** - long end of cam to front

2b - **Medium tension** - short end of cam up

2c - **Firm tension** - long end of cam up

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IQ Rear Suspension Adjustments

Suspension Coupling

On all Polaris snowmobile rear suspensions, there are two torque arms that control the movement of the rail beam. Prior to the advent of suspension coupling, these torque arms could move independently of each other. Rear suspension coupling links the movement of the front and rear torque arms to each other. There are two types of rear suspension coupling.

Front Rear Scissor Stop (FRSS)

The front rear scissor stop (FRSS) couples the movement of the front torque arm with the rear torque arm and limits the amount of independence between the movement of the front torque arm and the rear torque arm.

When hitting a bump, the front torque arm starts to compress. The FRSS links that movement to the rear torque arm, causing it to compress and raise the rear suspension up as one, allowing the suspension to hit the bump only once and eliminating kickback. Your FRSS is preset at the factory.

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IQ Rear Suspension Adjustments

Rear Rear Scissor Stop (RRSS)

The rear rear scissor stop (RRSS) couples the movement of the rear torque arm with the front torque arm and limits the amount of independent movement between the rear torque and the front torque arm.

Adjusting the RRSS either allows more weight to transfer to the rear for more traction, or allows less weight to transfer to the rear, resulting in improved cornering performance. An adjustment dot is located on the RRSS. This dot is on the longest end of the scissor stop.

Rear Rear Scissor Stop - Attributes

Moving the RRSS to a higher position, or forward hole, will have the following effects on the suspension:

- Reduced weight transfer.
- Improved chatter bump ride.
- Improved cornering performance.

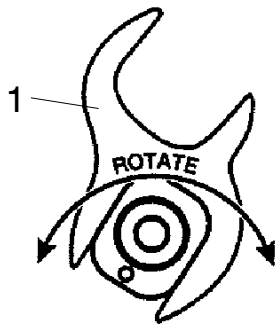
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IQ Rear Suspension Adjustments

Weight Transfer During Acceleration

IQ Rear Rear Scissor Stop (RRSS)



The preferred method for controlling weight transfer during acceleration of the IQ rear suspension is by adjusting the RRSS. Use the scissor stop tool (1) located in your tool kit to make the adjustments.

To decrease weight transfer under acceleration (for improved cornering), rotate the RRSS to a higher position.

To increase weight transfer or ski lift during acceleration, move the RRSS to the rearward upper position. The RRSS may also be rotated to a lower position for even more weight transfer if desired.

A - Low Position - This setting will increase weight transfer.

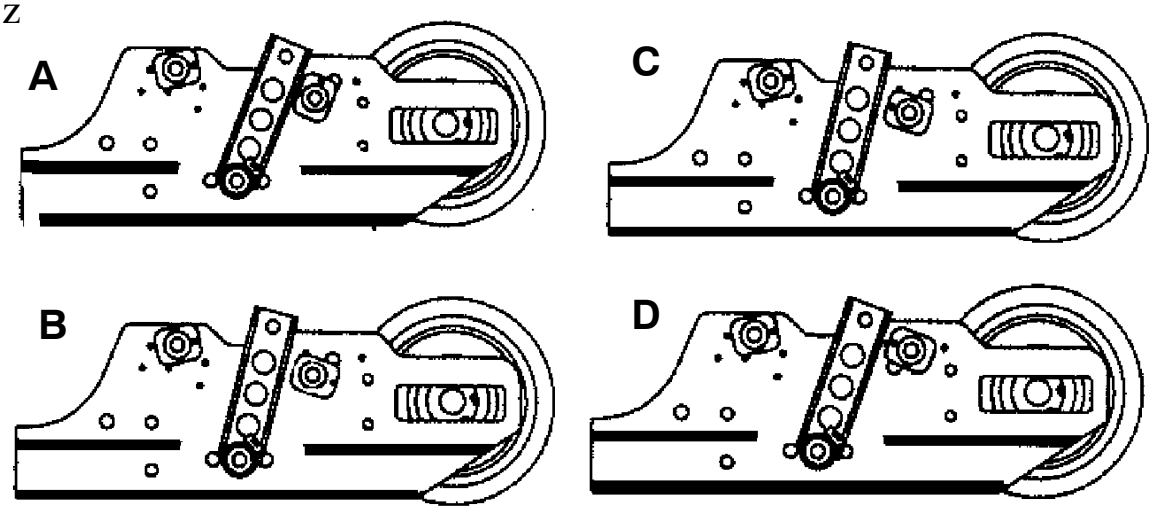
B - Medium Position - This setting is the production setting and will provide the best overall trail riding.

C - High Position - This setting will decrease weight transfer.

D - Rearward Upper Position (optional hole location) - This setting will increase weight transfer.

NOTE: Your dealer can help you with initial set-up and additional set-up instructions to help you achieve an optimum ride.

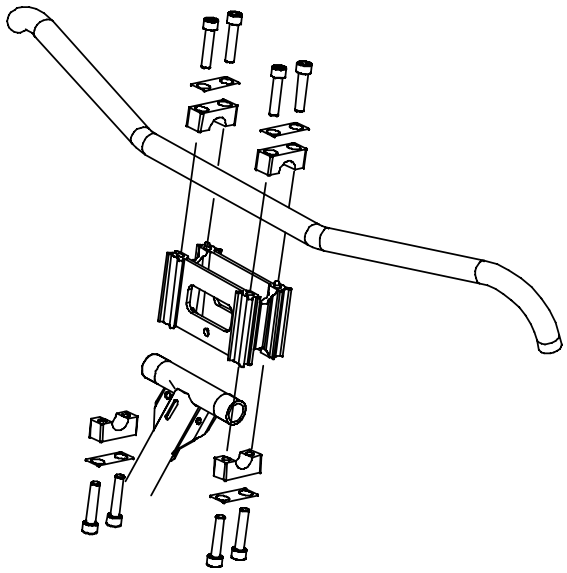
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Handlebar Adjustments

Handlebar with Riser Block



1. Remove the handlebar cover to expose the handlebar mounting hardware.
2. Using a 1/4” Allen wrench, loosen the two bolts on the bottom of the riser or the two bolts on the top of the riser, depending on the type of adjustment required.
3. Adjust the handlebar to the desired angle. Be sure the handlebar, brake lever and throttle lever operate smoothly and do not hit the gas tank, windshield or any other part of the machine when the handlebar is turned fully to the left or right.
4. Torque the handlebar adjuster block bolts to 11-13 ft. lbs. (15-17.6 Nm).
5. Replace the handlebar cover.

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THE PERFECT FIT

Accessories

Polaris offers a wide range of accessories for your snowmobile to help make each ride more enjoyable. See your dealer for a complete list of accessories.

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
- Personal injury to self or others

This applies to, but is not limited to brakes, clutches, fuel systems, and exhaust systems.

NOTE: Exhaust systems are critical safety areas that *must* use approved Polaris parts. Please see your Polaris dealer for service.

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Accessories

Traction Products

Another way to tailor your machine is to install traction products. See your dealer about installing studs and/or carbides. Many tracks with deep lug designs cannot be studded, but your dealer will be able to offer advice and assistance.

NOTE: Before equipping your machine with traction products, be aware of the laws in your area pertaining to the use of traction products.

Track studding will enhance braking control on hard-packed snow or ice, but extreme caution is still required on such surfaces. Steering ability may be reduced on hard-packed snow or ice.

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. The addition of carbide skags is recommended with studded tracks to help maintain proper vehicle steering and control. Similarly, if your machine is equipped with carbide skags or you're adding them, it may be necessary to add track studs to maintain proper vehicle control. Proper balance must be maintained between the number of studs and the length of carbide on skags. The more studs used, the longer the carbide on the skags should be. See your dealer's track studding chart for recommended studding and skags.

Inspect skags and studs frequently. Worn studs or skags may reduce steering and braking control on hard-packed snow and ice. Replace worn studs and skags to maintain proper balance and vehicle control.

When studded tracks are used, increased wear to the brake pads will result from increased braking. Extended-wear brake pad kits are available. See your dealer for more information.

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THE PERFECT FIT

Accessories

CAUTION

Aggressive studding patterns may require grinding protruding stud bolts flush to prevent idler wheel damage. Maintain track tension on studded tracks on the tight side of the spec to prevent heat exchanger damage. Center of stud must be at least 1 1/8″ (2.86 cm) from outside edge of the track.

CAUTION

If traction products are added to the track, wear strips must be installed in the tunnel to avoid excessive wear.

Never add shims to the wear strip. Track damage will result because of lack of clearance between upper carrier wheels and track.

Use of studs longer than the recommended length on machines equipped with center coolers will result in center cooler damage or damage to the tunnel.

Use only Polaris traction products on your snowmobile. Track warranties are void if track damage or failure results from improper or excessive stud installation or the use of non-Polaris traction products.

⚠ WARNING

Loss of control can result in serious personal injury or death. Proper balance of traction products on the skis and track must be maintained to obtain proper vehicle control on hard-packed snow or ice. See your dealer for assistance.

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Accessories

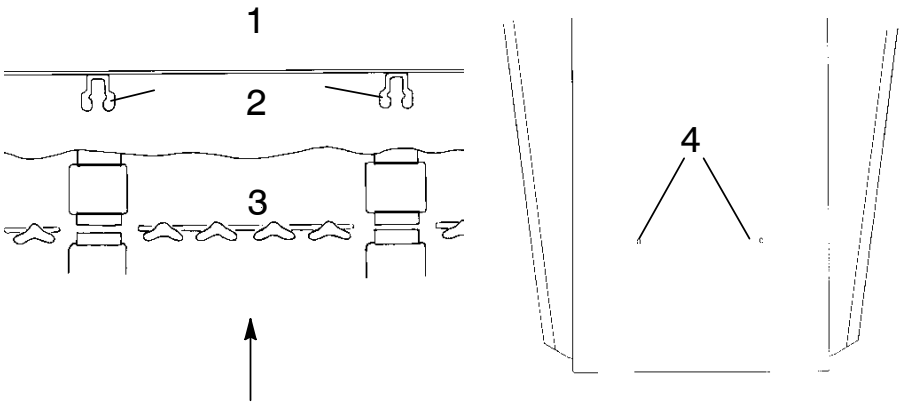
Wear Strips

Polaris IQ models are manufactured with tunnel wear strips or wear strip coolers installed. To avoid excessive tunnel wear, tunnel wear strips *must* be installed whenever track studding is used.

Wear strips are designed for a specific stud length. See your dealer's studding chart for recommended traction accessories.

Components as viewed from the rear of the track:

1. Top of tunnel
2. Wear strip
3. Track
4. Wearstrip mounting holes



CAUTION

Whenever wear strips are relocated, be sure there's adequate stud clearance to the heat exchangers. Lack of clearance may result in damage to heat exchangers.

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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 on the referenced pages. Look for a checkmark (✓) on the referenced pages to locate the pre-ride inspection items.

Item	See Page
Drive Belt Condition	84, 85
Steering System	48
Recoil Rope	48
Coolant Level	73
Park Brake Lock/Brake Lever/Brake System	47, 77
Auxiliary Shut-Off Switch (Engine Stop Switch)	49
Taillight/Brakelight/Headlight	49
Suspension Mounting Bolts	-
Skags (Wear Bars)	41, 93
Hood Straps/Latches	48
Seat Latches (if equipped)	-
Throttle Lever	45
Rear Wheel Idler Bolts	89, 94
Tether Switch/Strap	49
Track Alignment/Condition	89, 90
Rail Slide Condition	94
Chaincase Oil Level	66
Injection Oil Level (600RR)	55

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Before Starting the Engine

⚠ WARNING

Worn, damaged, or malfunctioning components may cause serious injury or death. Before starting the engine, check all 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. We've attempted to provide as much information as possible to alert you to the safety requirements of snowmobiling.

✓ Check Throttle and Brake for Proper Operation

The throttle and brake are the primary controls of your snowmobile. If either should malfunction, loss of control could result.

Make sure the throttle lever compresses evenly and smoothly. The lever should immediately return to the idle position without binding or hesitation. If the throttle does not function smoothly, DO NOT start the engine. Have the throttle serviced immediately.

The need for a properly functioning brake is critical. Your snowmobile is equipped with the highest quality brake system available. Check the brakes for correct operation before starting the engine.

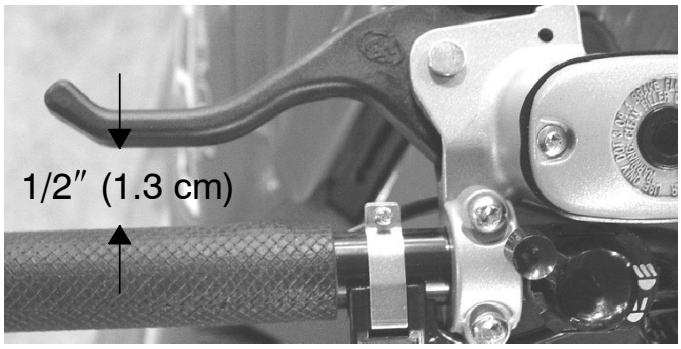
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PRE-RIDE INSPECTIONS

Before Starting the Engine

Hydraulic Brakes

Always check the following items to assure proper operation before starting the engine.



Brake Lever Travel

Squeeze the brake lever. It should move no closer to the handgrip than 1/2″ (1.3 cm). A smaller distance indicates low brake fluid level or air in the hydraulic system. Refer to the brake bleeding information on page 80.

Lever Feel

If the brake lever feels “spongy” when squeezed, check the brake fluid level and condition. Add fluid as needed. See page 79.

Check for the presence of air in the fluid system. See page 80 for more information, or see your dealer for service.

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.

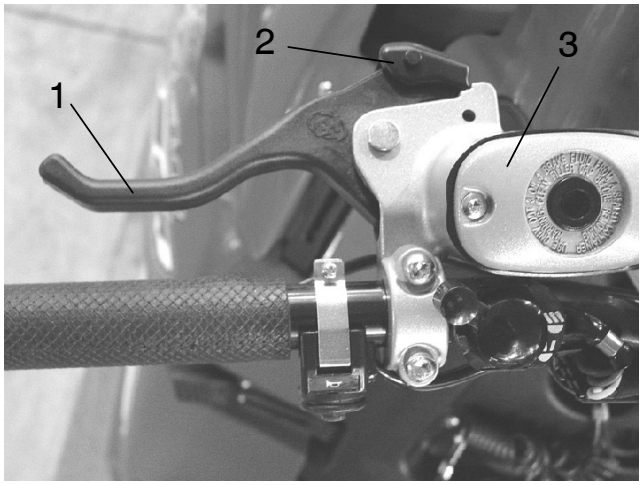
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Before Starting the Engine

Parking Brake Lever Lock

Your snowmobile may have a parking brake lever lock located over the brake lever. Use the parking brake lever lock only when you want the machine 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



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.

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

The brake light on the console will light up when the parking brake lever lock is set and 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 and release it. 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.

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PRE-RIDE INSPECTIONS

Before Starting the Engine

Check for Proper Operation of Steering System

Manually turn the skis completely to the right and to the left. If any difficulty is encountered, check for ice and snow build-up that may be obstructing the steering linkage. Make sure all greasable components are properly lubricated.

Track Inspection

⚠ WARNING

Always inspect the track for damage before using the vehicle. 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.

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.

NOTE: Track damage or failure caused by operation on ice or poor lubrication conditions voids the track warranty.

Check Hood Latches

The hood of the snowmobile protects the operator from moving parts as well as aiding in sound emission control and other functions. *Under no circumstances* should your snowmobile be operated with the hood open or removed. Always ensure that the hood straps are in good condition and that the latches are securely in place before operating the snowmobile.

Check 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, see your Polaris dealer for replacement.

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Start the Engine and Check

Before starting the engine, always refer to all safety warnings pertaining to snowmobile operation. Never start your snowmobile without checking all components to be sure of proper operation. See *Before Starting the Engine* beginning on page 45.

- **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.
- **Tether Switch:** Make sure the engine shuts off when the tether is removed from the switch.
- **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 machine.

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OPERATION

Engine Break-In

No single action on your part is as important to long, trouble-free machine life as proper break-in of a new or rebuilt engine.

Always premix the initial fuel and future fuel as outlined in the tables on page 51.

CAUTION

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 machine speeds to reduce friction on all close-fitting machined parts, allowing them to break in slowly without damage.

Use of any lubricants other than those recommended by Polaris may cause serious engine damage. We recommend the use of Polaris lubricants for your vehicle.

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

Oil Recommendations

Never mix brands of oil. Serious chemical reactions can cause system blockage, resulting in serious engine damage. They 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. See page 99 for the part numbers of Polaris products.

Recommended Oils	
600 IQ Racer	2-Cycle Racing Oil
600RR	VES II 2-Cycle Oil or 2-Cycle Racing Oil

600 IQ Racer

The only source of engine lubrication for this engine comes from lubrication added to the fuel. *Always premix the fuel.*

600RR

Engine lubrication comes from oil added to the fuel and oil injection systems. Always check and fill the oil tank when refueling. See page 55.

CAUTION

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

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Engine Break-In

Fuel Recommendations

CAUTION

Using fuels with a lower than recommended octane or operating with obstructed fuel systems will result in serious and costly engine damage. Always use the recommended fuels for your machine.

600 IQ Racer Fuel

Always use premium non-oxygenated (92 octane) fuel.

600RR Fuel

Polaris recommends the use of 91 octane or higher fuel. Although 87 octane fuel is usable, some engine performance will be lost and fuel economy will decrease. Do not use lower than 87 octane fuel. *Do not use fuel containing more than 10% ethanol (including E85).*

Fuel Premix

	Initial Tankful of Fuel		
	Fuel	**Oil**	**Ratio**
600 IQ Racer	3.5 gal (13.2 l)	16 oz. (473 ml)	28:1
600RR	5 gal (19 l)	16 oz. (473 ml)	40:1

	Future Fuel		
	Fuel	**Oil**	**Ratio**
600 IQ Racer	3.5 gal (13.2 l)	14 oz. (414 ml)	32:1
600RR	All	None	None

Fuel System Deicers

When using non-oxygenated fuel, use an isopropyl-based fuel system deicer. Add one to two ounces per gallon (8-16 ml per liter) of gasoline to prevent engine damage resulting from fuel system icing and lean fuel mixtures. *Never use deicers or additives containing methanol.* Polaris also recommends the use of Carbon Clean Plus. See page 106 for the part numbers of Polaris products.

NOTE: When using oxygenated fuel containing ethanol, additional alcohol deicers or water absorbing additives should not be used.

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OPERATION

Engine Break-In

Fuel Recommendations

⚠ WARNING

Gasoline is highly flammable and explosive under certain conditions.

- Always exercise extreme caution whenever handling gasoline.
- Always refuel with the engine stopped, and outdoors or in a well ventilated area.
- 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.
- Turn the fuel valve off whenever the snowmobile is stored or parked.

⚠ 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.

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Starting the Engine

Starting a Cold Engine

Do not depress the throttle until the engine starts.

1. Attach the tether cord to the tether switch.
2. Pull the kill switch (shut-off switch) up to *RUN*.
3. Flip the choke toggle to *FULL CHOKE*.
4. Grasp the starter handle and pull slowly until the recoil engages, then pull abruptly to start the engine.

⚠ CAUTION

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

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

5. After the engine starts, flip the choke toggle to the *OFF* position. If the engine slows or wants to stop, use intermittent choking to the *HALF CHOKE* position.
6. Warm up the engine before operating. See page 54.

Starting a Warm Engine

1. Attach the tether cord to the tether switch.
2. Pull the kill switch (shut-off switch) up to *RUN*.
3. Grasp the starter handle and pull slowly until the recoil engages; then pull abruptly to start the engine.

If the engine does not start on the first pull, slightly depress the throttle with your left hand (no more than 1/4″ open), and pull the rope with your right hand. When the engine starts, *immediately* release the throttle.

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OPERATION

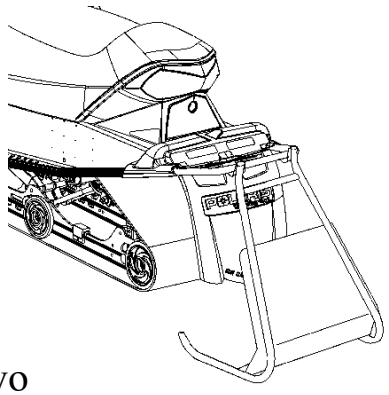
Engine and Track Warm-Up

⚠ WARNING

A loose track or flying debris could cause serious personal injury or death. Stand clear of the front of the machine 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. Be sure the rear support is stable.

⚠ 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 approximately 4″ (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.

NOTE: 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 machine to the ground.
5. Grasp the skis by their front loops and move them from side to side. This will loosen frozen snow from the ski bottoms, allowing the machine to move forward more easily.
6. The engine, drive system and track are now properly warmed up and the machine may be driven following normal safety practices.

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Slide Rail and Track Cooling

CAUTION

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.

Injection Oil Level (600RR)

The low oil indicator light will alert the operator if the oil level is low. Visually check for oil in the tank (bottle). Add oil before further operation of the snowmobile. See page 50 for oil recommendations.

Maintaining the proper oil level will prevent system aeration and possible loss of pumping action, which could result in engine damage. This is especially important when the machine is operated in mountainous terrain.

CAUTION

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

Always maintain a visible level of oil in the tank. If oil is not visible, continued operation may cause serious engine damage. See page 50 for oil recommendations.

The Polaris oil cap on the oil bottle is vented to allow proper oil flow. See your Polaris dealer for recommended replacement parts.

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OPERATION

Carburetion

Proper carburetor adjustment is critical. A lean mixture (too much air, too little fuel) may result in piston burning, bearing failure, or complete engine failure. A rich mixture (too much fuel, too little air) may foul plugs and cause generally poor engine performance.

A lean mixture may be caused by things like fuel line restrictions, foreign matter in the carburetor or clogged fuel filters. A rich mixture may be caused by snow build-up on the pre-filter in the air intake system. Either condition may be caused by improper carburetor adjustment.

⚠ WARNING

Improper carburetor adjustments may result in operator safety hazards as well as serious engine damage. Always have your Polaris dealer perform any carburetor adjustments.

Jetting Guidelines

Changes in altitude and temperature affect air density, which is the amount of oxygen available for combustion. In low elevations and cold temperatures, the air has more oxygen. In higher elevations and higher temperatures, the air is less dense.

Carburetors on most Polaris models are calibrated for an altitude of 0-2000 ft. (0-600 meters) and ambient temperatures between -10 to +10 F (-23 to -12 C). All carburetors must be re-calibrated if operated outside this production temperature and/or altitude range. The main jet installed in production is not correct for all altitudes and/or temperatures.

CAUTION

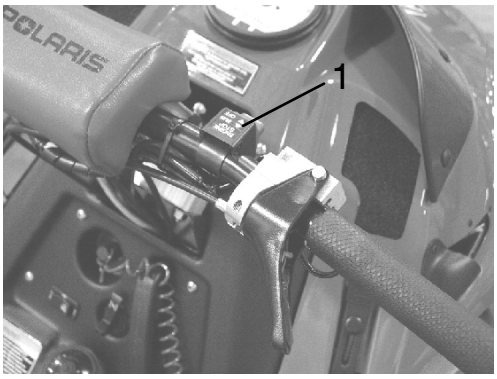
A main jet that's too small will cause a lean operating condition and may cause serious engine damage. Jet the carburetors carefully for elevation and temperature according to the jetting charts in your Owner's Manual Supplement.

NOTE: It's the owner's responsibility to ensure that the correct jets are installed in the machine for a geographical area. Be very careful when jetting down in warm weather. As the weather turns colder it will be necessary to re-jet upward to prevent engine damage. When selecting the proper main jet always use the lowest elevation and temperature that is likely to be encountered.

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Engine Stop Switch

Push down on the engine stop switch (1) to stop the engine in an emergency. To restart the engine, pull the switch up to the *ON* position.



Emergency Stopping

The following chart lists methods for stopping the snowmobile in the event of an emergency. Refer to page 57 for more information about the engine stop switch.

SYSTEM	WHAT IT DOES	THROTTLE CONDITION
Brake	Slows jackshaft	All
Choke	Floods engine	Half throttle or less
Engine Stop Switch	Interrupts ignition circuit	All
Tether Switch	Interrupts ignition circuit	All

WARNING

Excessive or repetitive use of brakes for high speed stops will cause an overheated brake system. This overheated condition could cause sudden loss of brakes and/or fire, resulting in serious injury or death.

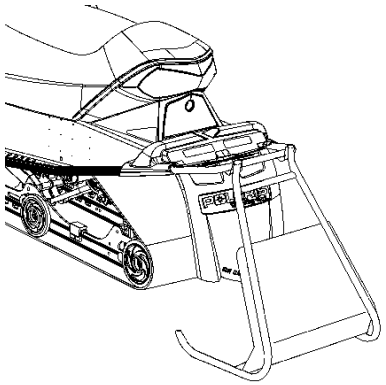
When traveling on long downhill stretches, pump the brakes. Riding the brakes may cause the brake system to overheat and result in brake failure.

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OPERATION

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″ (10 cm) off the ground. Cover the machine with an appropriate cover.



Towing

⚠ WARNING

Objects towed with a rope have no braking power and can easily collide with the rear of the snowmobile or other objects, resulting in serious injury or death. DO NOT tow toboggans, sleds, saucers, or any type of vehicle with a rope. Only a stiff metal pole connecting the towed object and the tow hitch on the snowmobile should be used. If passengers are to be towed on a toboggan or sled, make sure the pole is at least four feet (1.2 meters) long to prevent any possibility of contact between the snowmobile's track and a person riding in the towed object.

Braking distances increase when towing loads. Slow down to maintain control of the snowmobile.

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 a rider on the towed snowmobile to operate the brake and steering when necessary.

CAUTION

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.

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Emission Control Information

Any qualified repair shop or qualified person may maintain, replace, or repair the emission control devices or systems on your snowmobile.

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 91 (R+M)/2 for the 600 IQ Racer and 87 (R+M)/2 for the 600RR. The emission control system designation per SAE J1930 is EM. 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 on page 111, 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 to perform any service that may be necessary.

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MAINTENANCE

Polaris Recommended Maintenance Program

To ensure many trouble-free miles of snowmobiling enjoyment, follow recommended regular maintenance and service checks outlined in this manual. Record services performed in the Maintenance Record at the rear of this manual.

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 adjust 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, contact an authorized Polaris dealer for service.

CAUTION

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.

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Periodic Maintenance Interval Table

The following chart is a guide based on average riding conditions. You may need to increase frequency based on riding conditions. When inspection reveals the need for replacement parts, always use genuine Polaris parts, available from your Polaris dealer.

Item	See Page	Frequency				
		150 mi. (240 km)	500 mi. (800 km)	1000 mi. (1600 km)	2000 mi. (3200 km)	Pre-Season
Clutch						
Clutch Offset Alignment (without belt)	83		I	I	I	
Drive Belt Condition	84		I	I	I	I
Clutches (disassemble)	83		C	C	C	
Belt Tension	-		I	I	I	I
Clutch Sheaves	83		I	I	I	I
Engine						
Engine Mounts	-		I	I	I	I
Recoil Rope	-		I	I	I	I
Engine Mounting Plate	-		I	I	I	
Engine Torque Stop	86		I	I	I	I
Cylinder Head Bolts	-		I	I	I	
Cylinder Base Nuts	-	I	I	I	I	
Ignition Timing BTDC	-		I	I	I	
VES System	-		C	C	C	I
Coolant Level	73		I	I	R	I
Water Pump Drive Belt	N/A		I	I	I	
Coolant Hose	-		I	I	I	I
Heat Exchangers	74	I	I	I	I	I
Coolant Circulation	-		I	I	I	
Coolant Leaks	-		I	I	I	I
Spark Plug Condition	68	I	I	I	I	I
Exhaust Pipe	72				I	I
Exhaust Retaining Springs	72		I	I	I	I

I - Inspect (clean, adjust, tighten, lubricate, replace if necessary)
C - Clean **R** - Replace **L** - Lubricate

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MAINTENANCE

Periodic Maintenance Interval Table

Item	See Page	Frequency				
		150 mi. (240 km)	500 mi. (800 km)	1000 mi. (1600 km)	2000 mi. (3200 km)	Pre-Season
Brakes						
Hose Routing	-		I	I	I	I
Hose Condition	-		I	I	I	I
Fluid Leaks	-		I	I	I	I
Brake Pads	77		I	I	I	I
Brake Disc	-		I	I	I	I
Parking Brakes	47		I	I	I	I
Brake System	45, 77					I
Brake fluid	79				R	
Fuel Management						
Pilot Air Screws	-		I	I	I	
Carburetor (synchronize)	56		I	I	I	
Idle RPM	-		I	I	I	
Throttle Lever	45	I	I	I	I	I
Oil Pump Lever (600RR) (synchronize)	-		I	I	I	
Throttle Cable	65		L	L	L	
Choke Cable	65		L	L	L	
Vent Lines	-		I	I	I	I
Throttle Position Sensor	-		I	I	I	
Choke	65		I	I	I	
Fuel Filter	70			R	R	
Fuel Lines	70	I	I	I	I	I
Oil Filter (600RR)	69			R	R	
Oil Lines (600RR)	69			R	R	
Air Box	-	I	I	I	I	I
Drain and Water Traps	71					
Electrical						
Auxiliary Shut-Off Switch	49	I	I	I	I	I
Taillight	49	I	I	I	I	I
Brakelight	49	I	I	I	I	I
Headlight	49	I	I	I	I	I

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Periodic Maintenance Interval Table

Item	See Page	Frequency				
		150 mi. (240 km)	500 mi. (800 km)	1000 mi. (1600 km)	2000 mi. (3200 km)	Pre-Season
Chassis						
Ski Toe Alignment	-		I	I	I	
Suspension Mounting Bolts	-	I	I	I	I	I
Steering Fasteners	-	I	I	I	I	C
Rear Suspension Fasteners	-	I	I	I	I	I
Suspension Shock Oil	-		I	I	I	I
Cooling Fins and Shroud	-		I	I	I	I
Skags (Wear Bars)	41	I	I	I	I	I
Ski Saddle/Spindle Bolts	64	I	I	I	I	I
Ski Pivots	65	L	L	L	L	I
Ski Spindle	65	L	L	L	L	I
Steering Post U-Joint	65	L	L	L	L	L
Steering Arm(s)	64	L	L	L	L	I
Upper / Lower Steering Post Support Bracket	64	L	L	L	L	I
Drive Chain Tension	76	I	I	I	I	I
Hood Straps	48	I	I	I	I	I
Rear Wheel Idler Bolts	89	I	I	I	I	I
Idler Bolt Jam Nut	88	I	I	I	I	I
Camber Alignment	-		I	I	I	
Radius Rod Bushings	-					I
Handlebar Centering	-					I
Tether Switch and Strap	49	I	I	I	I	I
Track Alignment	89	I	I	I	I	I
Track Tension	88	I	I	I	I	I
Front Limiter Strap	-	I	I	I	I	I
Rail Slide Condition	94					I
Chaincase Oil	66	I	I	I	R	I
Gearcase Oil	N/A	I	I	I	R	I

I - Inspect (clean, adjust, tighten, lubricate, replace if necessary)
C - Clean **R** - Replace **L** - Lubricate

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MAINTENANCE

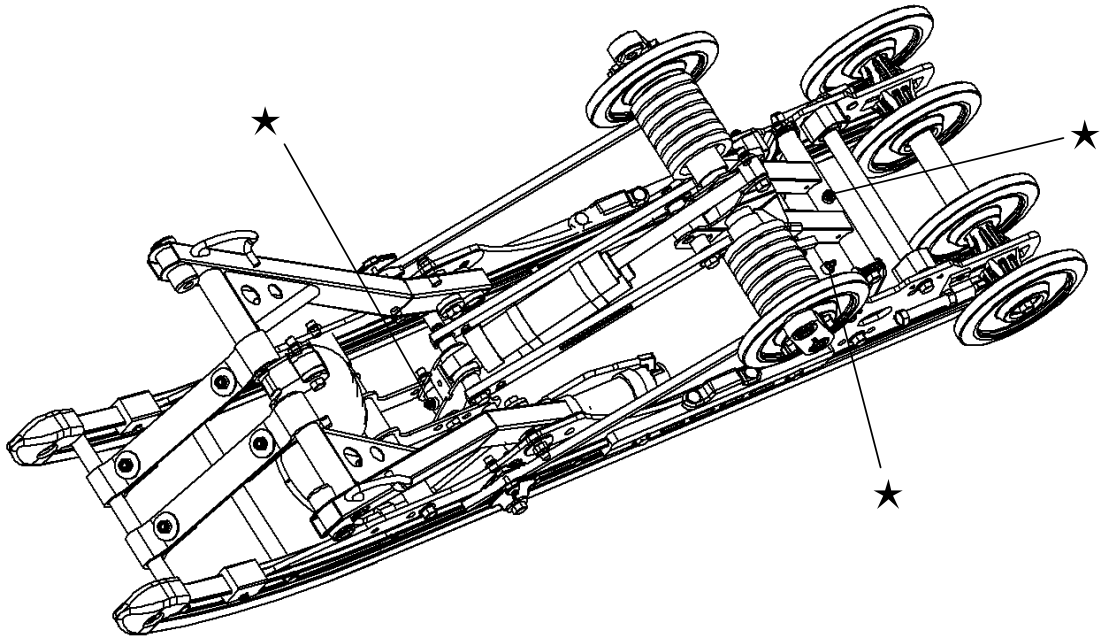
Lubrication

Lack of lubrication will adversely affect your ride and the life of components. Lubricate with Polaris Premium All Season Grease at 500 miles (800 km) initially, every 1000 miles (1600 km) after that, and before off-season storage each year. A grease gun kit, complete with grease and adaptors, is available to lubricate all fittings on Polaris snowmobiles. See page 99 for the part numbers of Polaris products.

For more information about suspension lubrication and adjustments, see your Polaris dealer.

NOTE: Lubrication points are indicated by a ★ in the following illustrations.

Rear Suspension



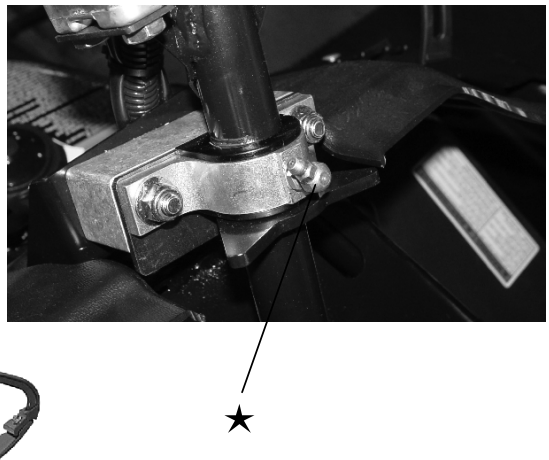
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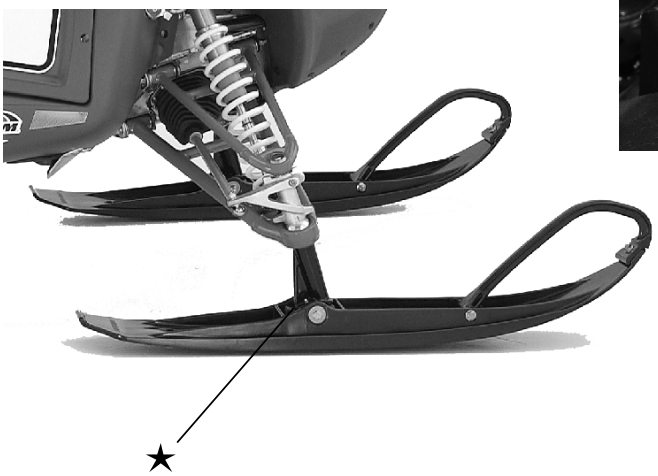
Lubrication

Front Suspension

Two components of the IQ front suspension and steering require lubrication.

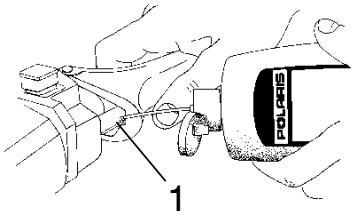
- Grease the left and right spindles. Raise the front end of the machine to permit better grease entry into the spindle area.
- Lubricate the steering post U-joint.





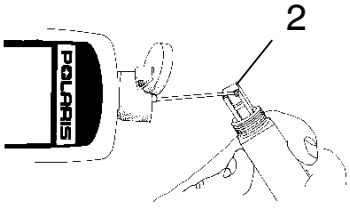
Throttle Cable

Lubricate the throttle cable (1) lightly with grease or oil. With the engine off, turn the handlebars to the left and lubricate liberally as shown.



Choke and Cable

Lubricate the choke slide (2) and cables lightly with oil or grease. Before turning the engine off, operate the choke intermittently to draw moisture out of the choke plunger area and reduce the possibility of the choke becoming frozen.



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MAINTENANCE

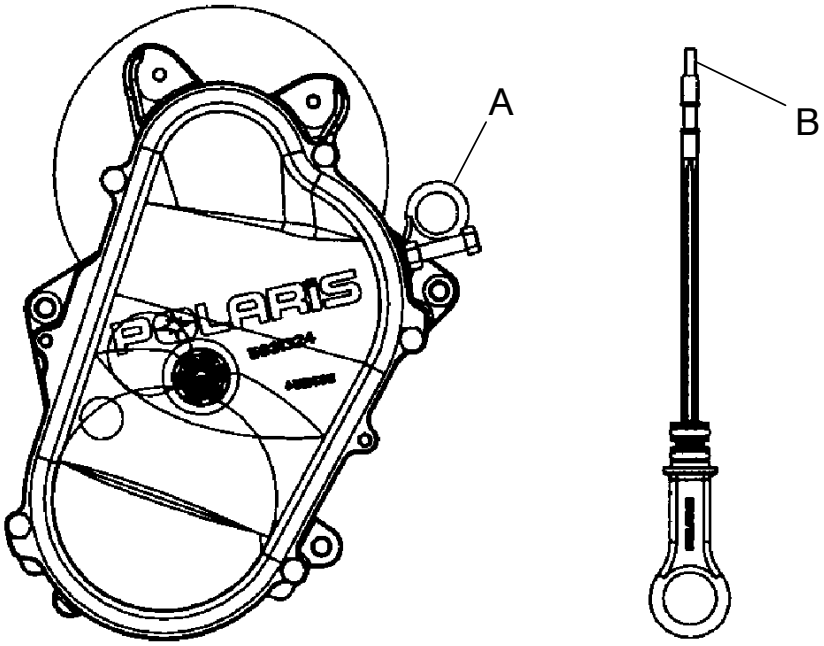
Lubrication

Chaincase Oil Level

Check the chaincase oil level at the intervals outlined in the maintenance charts beginning on page 60.

To check the oil level, place the machine on a level surface. The oil level should be between the “safe” marks on the dipstick (A). Add Polaris synthetic chaincase oil through the dipstick opening. *Do not overfill.* See page 99 for the part numbers of Polaris products.

Flush the chaincase after the first 500 miles, then every 1000 miles or seasonally. Clean the magnetic plug (B) whenever checking or changing lubricant.



CAUTION

Mixing brands or using non-recommended lubricants could result in excessive wear to internal components. Always use Polaris-recommended products for your vehicle.

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Spark Plugs

A spark plug with a heat range too high will cause engine damage. A spark plug with a heat range too low will cause excessive fouling and engine malfunctioning.

In selecting a spark plug heat range for production, a manufacturer assumes that the engine will be operated under extreme heavy duty conditions and selects a spark plug that will protect the engine from internal damage if the purchaser actually does operate the engine in this manner. This selection could cause the customer who normally operates the engine under medium or light duty to have spark plug failure. Refer to your Owner's Manual Supplement for the specific spark plug to be used in your machine.

CAUTION

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. See your Owner's Manual Supplement.

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

- Use recommended spark plugs with the proper gap. Refer to your Owner's Manual Supplement for specific information.
- Spark plug torque is 18-22 ft. lbs. (24-30 Nm).
- Always carry spare spark plugs in case of an emergency.

CAUTION

Using non-recommended spark plugs can result in serious engine damage. Always use Polaris-recommended spark plugs.

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MAINTENANCE

Spark Plugs

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 serious burns. Wear protective gloves when removing a spark plug for inspection.

NOTE: Incorrect fuel mixture can often cause a spark plug to appear too dark or too light in color. Before changing spark plug heat ranges, be sure the correct main jet is installed in the carburetor(s). Refer to the Owner's Manual Supplement or see your dealer.

1. Normal

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.

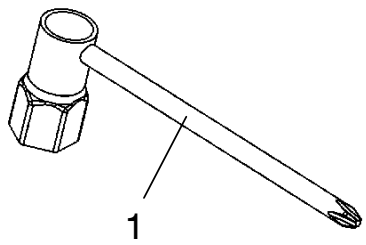
NOTE: The tip should not be white. A white insulator tip indicates overheating, caused by use of an improper spark plug or incorrect carburetion adjustments.

2. Wet Fouled

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, use of non-recommended injection oil, improper use of the choke, or incorrect carburetion adjustments.

Spark Plug Removal and Replacement

1. Remove the spark plug cap.
2. Using the special wrench provided in the tool pouch, rotate the spark plug counterclockwise to remove.
3. Reverse the procedure for spark plug installation.
4. Torque to 18-22 ft. lbs. (24-30 Nm).
5. Install spark plug cap.



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Intake Filter

The intake foam filters limit snow ingestion into the intake system. When operating in loose powder snow, check the top of the foam filters periodically to remove any accumulation of snow.



CAUTION

Operating the snowmobile with the intake filters removed may cause carburetor icing. The result will be poor fuel economy or carburetor malfunction. Always reinstall the intake filters before operating the snowmobile.

Oil Lines (600 RR)

Inspect oil line condition every 1000 miles (1600 km).

Oil Filter (600 RR)

The oil filter is located at the side of the oil tank. Have your dealer change the oil filter and bleed the system annually or every 1000 miles (1600 km).

The direction of the arrows indicates the direction of flow through the filter.

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MAINTENANCE

Variable Exhaust System (VES)

Maintenance of the VES is limited to a periodic inspection and cleaning of system components. Every 1000 to 2000 miles (800-1600 km), bring the machine to an authorized Polaris dealer to have the VES disassembled, inspected, and cleaned.

NOTE: To ensure maximum performance and minimize required maintenance, follow the oil recommendations on page 50. The use of other lubricants may cause improper function of the valve mechanism and increase the frequency of required cleaning due to excessive build-up of carbon deposits.

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

See your Polaris dealer for replacement of the in-tank fuel filter every 1000 miles (or annually).

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.

CAUTION

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.

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Carburetor

The number stamped in the end of the main jet indicates the jet size. The jet installed at the time of manufacture is not necessarily correct for your elevation. It's your dealer's responsibility to make sure the correct main jet is installed.

CAUTION

Operating the snowmobile with incorrect jetting can result in serious engine damage. Have your Polaris dealer perform all carburetor adjustments to ensure all adjustments are done correctly.

Carburetor Adjustments

The frequency at which the carburetors are synchronized or balanced is important. Properly adjusted carburetors can greatly improve engine performance, fuel economy, engine life, and reliability.

If you notice any of the following conditions, the carburetor may need adjustment:

- Hard starting
- Poor idle
- Overheated pistons and cylinder walls
- Plug fouling
- Poor engine response to various throttle valve openings

Carburetor Water/Sediment Trap

Drain the water/sediment traps located at the bottom of each carburetor about every 1000 miles (1600 km). Inspect for contamination.

⚠ WARNING

When draining the traps, fuel spillage will occur. Always work in a well ventilated area away from anything that may cause the fuel to ignite, such as open flames, sparks, heaters, trouble lights, cigarettes, etc. Review the fuel warnings on page 55.

1. Turn the fuel valve off.
2. Place a container or shop towels below the plug to catch drained fuel.
3. Slide the clamp away from the drain plug and remove the drain plug from the sediment tube.
4. Wipe residue from the plug and reinstall it. Reposition and tighten the clamp.
5. Repeat the draining procedure for any remaining traps.

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MAINTENANCE

Exhaust System

Check the exhaust system for wear or damage at approximately 1000 miles (1600 km). To inspect, allow the engine and exhaust system to cool completely. Open the hood and inspect the muffler and pipes for cracks or damage. Check for weak or missing retaining springs or damper/support grommets.

⚠ WARNING

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

Engine Cooling

The cooling system on liquid cooled models consists of the following major components:

- Coolant bottle
- Water pump
- Cylinders
- Heads
- Inlet and outlet manifolds
- Pressure cap
- Heat exchangers

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Engine Cooling

Coolant Mixture

The coolant supplied in the system is a 50/50 mixture of ethylene-glycol and distilled water. This mixture provides protection against freezing at temperatures to -34° F (-37° C). If greater protection is required, the percentage of antifreeze to water may be increased. Use Premium 60/40 anti-freeze coolant, which is already premixed and ready to use. Do not dilute with water. Never exceed a 60% antifreeze/40% water mixture. Contact you dealer if greater protection is required.

NOTE: Never add tap water to the cooling system. Minerals cause deposits and may react adversely with the metals in the engine and cooling system.

Coolant High Temperature Indicator Light

The high temperature indicator light is controlled by a switch in the engine cooling system on liquid cooled models. If the engine coolant reaches a certain temperature, the switch completes a circuit that turns the light on. If you must drive your machine after the high temperature indicator light has come on, drive slowly and stop frequently to allow the engine to cool down. See your dealer.

Coolant Level

Maintain the coolant level at the “full cold” line on the coolant bottle when the engine is cold.

CAUTION

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

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

- Coolant bottle or overflow tank
- Engine filler neck
- Pressure cap (on some models)
- Connecting hoses

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MAINTENANCE

Engine Cooling

Flushing the Cooling System

To ensure that the coolant maintains its ability to protect the engine, the system should be completely drained every two years and a fresh 50/50 or 60/40 mixture of antifreeze and distilled water should be added. This service must be done when the engine is cold. Ask your Polaris dealer to check the coolant when he performs the fall tune-up on your snowmobile.

⚠ WARNING

Steam and hot liquids will cause serious burns to your skin. Never bleed the cooling system or remove the pressure cap when the engine is warm or hot.

If the pressure cap needs replacement, contact your dealer for the correct part. Use of a non-standard pressure cap will not allow the recovery system to function properly.

Bleeding the Cooling System

CAUTION

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.

If coolant becomes low in the tank, bleed the system of trapped air using the following procedure:

1. Allow the system to cool completely, then loosen the bleed screw and fill the reservoir to the *FULL COLD* mark. Tighten the screw.
2. Apply the parking brake and run the engine at idle RPM until the thermostat opens (5 to 8 minutes) *and stays open*.

NOTE: As the thermostat draws in cold coolant from the heat exchangers, the cold coolant may close the thermostat. Make sure it opens and stays open.

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Engine Cooling

Bleeding the Cooling System

3. Tip the snowmobile slightly onto its right side. Cycle the RPM from idle to enough RPM (4000) to get coolant to flow, but not enough to engage the clutch. This allows air to bleed from the rear crossover tube.

NOTE: There must be enough coolant flow to purge the air from the crossover hose or rear cooler so you can observe this air reaching the bottle.

4. Tilt the machine slightly onto its left side so that the *coolant bottle* is the *highest point in the cooling system*. Cycle the RPM as outlined in step 3.

NOTE: There must be enough coolant flow to purge the air from the front close-off cooler so you can observe the air reaching the bottle.

5. Return the snowmobile to its upright position and loosen the bleed screw at the top of the water outlet manifold. When all trapped air has been purged, tighten the screw.
6. Turn off the engine and release the parking brake. Allow the system to cool completely.

NOTE: After cool-down, three (3) or more ounces of coolant may have to be added.

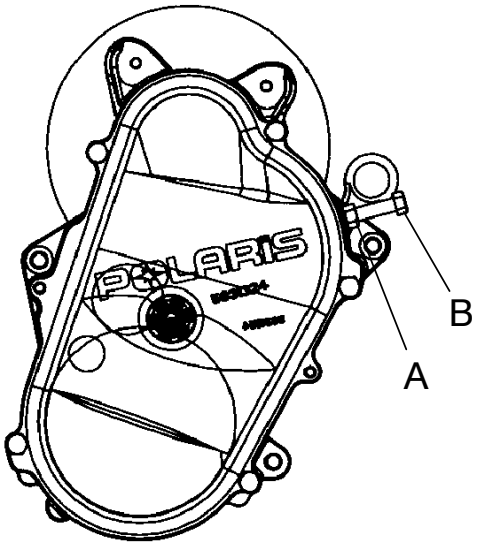
7. Remove the pressure cap and check the coolant level. Add coolant to the fill line if necessary.

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MAINTENANCE

Drive Chain Tension

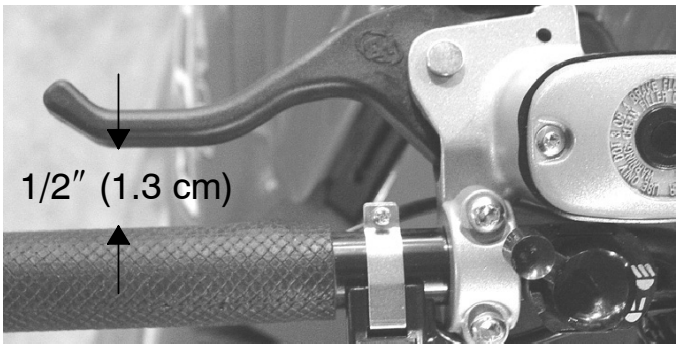
To obtain correct chain tension:



1. Rotate the driven clutch counterclockwise to move all chain slack to the tensioner side. Lock the brake lever lock, or have an assistant hold the brake lever firmly.
2. Loosen the adjuster bolt jam nut (A).
3. Finger tighten the adjuster bolt (B) until it can no longer be adjusted by hand, then back off 1/4 turn.
4. Tighten the jam nut while holding the adjuster bolt.
5. The chain is now tensioned. Release the brake lever lock.

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Hydraulic Brake Inspection



Frequently inspect the brake lever reserve. Squeeze the brake lever. It should move no closer to the handgrip than 1/2″ (1.3 cm). A smaller distance indicates low brake fluid level or air in the hydraulic system. Refer to the brake bleeding information on page 80.

Brake pads must be replaced when the brake pad material becomes thinner than the backing plate (approximately 1/16″/1.6 mm). A kit is available for replacing brake pads. See your dealer.

⚠ 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.

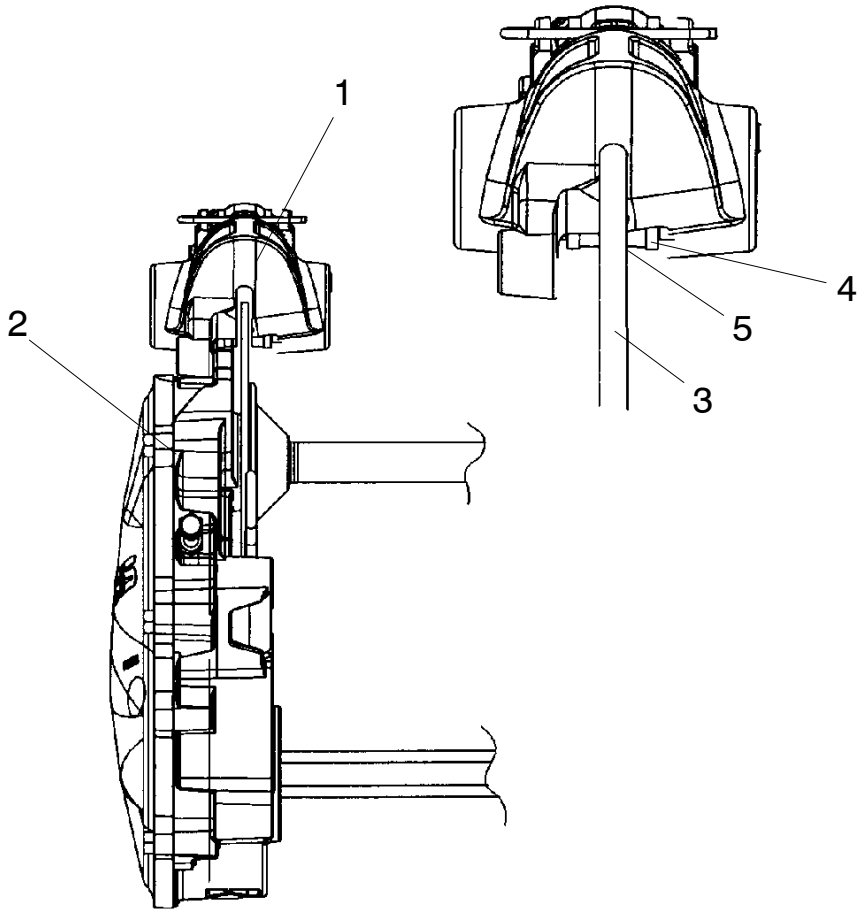
Always replace brake pads when the brake pad material becomes thinner than the backing plate (approximately 1/16″/1.6 mm).

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MAINTENANCE

Brakes

Brake Components



1. Brake Caliper
2. Chaincase
3. Brake Disc
4. Backing Plate
5. Brake Pad Material (Replace when thickness is less than 1/16″).

Excessive Brake Lever Travel

Hydraulic brakes are self-adjusting, but if excessive brake pad clearance develops, as described on page 77, the machine should be returned to an authorized Polaris dealer for inspection and adjustment.

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Brakes

Brake Fluid

WARNING

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

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.

CAUTION

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

Maintain the brake fluid level between the MIN and MAX marks on the master cylinder reservoir. Use only Polaris DOT 4 high temperature brake fluid. See page 99 for the part numbers of Polaris products.

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MAINTENANCE

Brakes

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 brake master cylinder reservoir cover and gasket.
2. Fill the master cylinder reservoir to between the MIN and MAX marks. 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 and 5 until fluid flows from the bleeder valve in a solid stream free of air bubbles.

⚠ WARNING

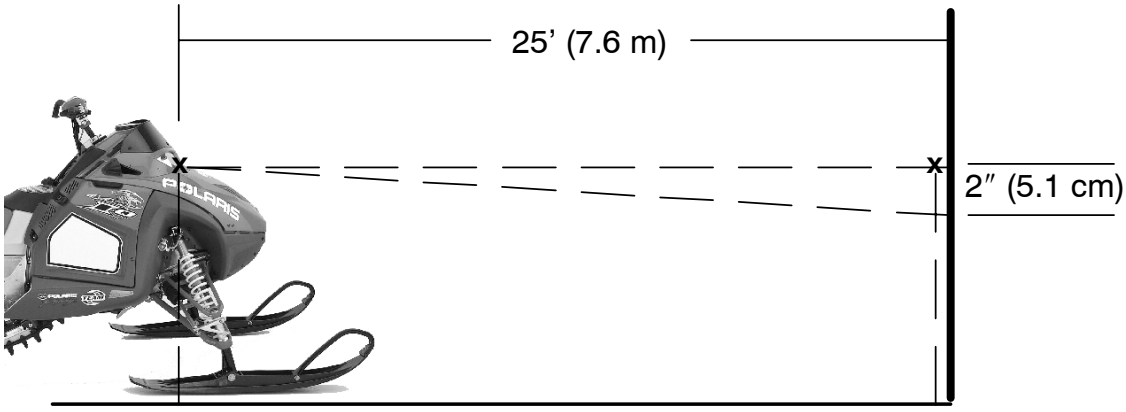
Overfilling the master cylinder leaves no room for fluid expansion and may cause the brakes to lock, resulting in serious injury or death. Always add brake fluid to the fill line as recommended.

7. After bleeding is complete, refill the reservoir to the proper level. See page 79.
8. Reinstall the gasket and cover.

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Headlights

Headlight Adjustment

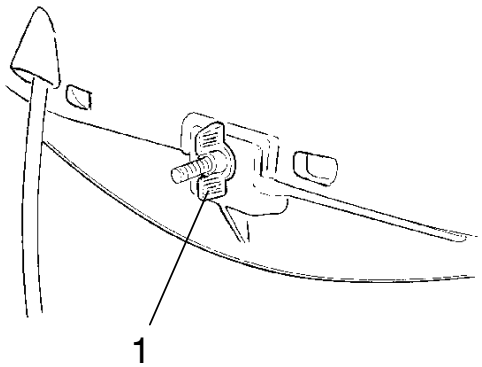


The headlight may be adjusted for vertical aim using the following procedure:

1. Place the snowmobile on a level surface with the headlight approximately 25 feet (7.6m) from a wall.
2. Measure the distance from the floor to the center of the headlight and make a mark on the wall.
3. Start the engine and turn the headlight switch to high beam.
4. Observe the headlight aim. The most intense part of the headlight beam should be aimed 2″ (5.1 cm) below the mark placed on the wall in step 2.

NOTE: Rider weight must be included on the seat.

5. Turn the adjustment nut (1), located inside the hood, just below the headlamp opening. Turn the knob in or out as needed for proper aim.



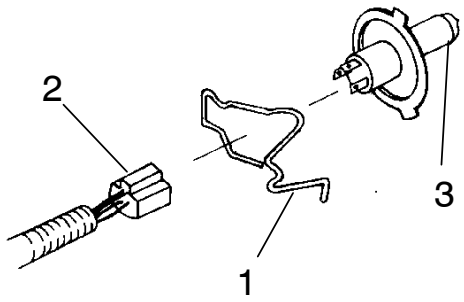
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MAINTENANCE

Headlights

NOTE: Do not touch a halogen bulb with bare fingers. Oil from skin leaves a residue, causing a hot spot that will shorten the life of the lamp.

Removing Halogen Bulbs - High/Low Beam



1. Pinch the ends of the spring (1) together and lift until it releases from the spring retainer.
2. Lift spring carefully around wire harness (2) and flip to outside of housing.
3. With the wire harness attached to the bulb (3), withdraw bulb from housing.
4. Grasp bulb by metal base and carefully separate bulb from harness.

Installing the Bulb

1. Hold bulb by metal base and install into wire harness.
2. Insert bulb into housing.
3. Carefully flip spring back into housing placing it around wire harness.
4. Squeeze spring together until it is over the spring retainer and release.
5. Verify headlight aim.

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Clutch System

Periodically inspect the 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 immediately. Do not operate the machine until repairs have been made.

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

CAUTION

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. See your dealer for service and adjustments. A special tool is required to check for proper alignment.

Clutch Center Distance

See your Owner's Manual Supplement for recommended center distance for your machine. If adjustment is necessary, see your dealer.

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MAINTENANCE

Clutch System

Drive Belt Condition

Periodically check the condition and tension of the drive belt, and always carry a spare belt. 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 Removal

CAUTION

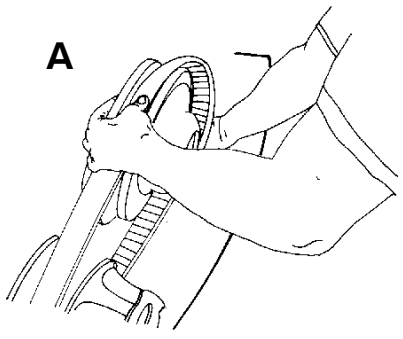
Do not attempt to remove the drive belt after operating in reverse. The snowmobile must be stopped after forward motion to prevent damage to components during belt removal. Rotate the driven clutch counterclockwise 1/4 turn by hand to ensure forward engagement before attempting to remove the belt.

1. Stop the engine after operating in a forward motion. Wait for the engine to come to a complete stop.
2. Apply the brake (or lock the parking brake if equipped).
3. Open the hood, remove the clutch guard retaining pin and open the clutch guard.
4. Rotate the driven clutch counterclockwise 1/4 turn by hand to ensure forward engagement.
5. Locate the L-wrench in the tool kit and install it into the open threaded hole in the outer sheave of the clutch. Rotate the wrench until the sheaves open far enough to remove the belt.

Drive Belt Installation

1. Drop the drive belt over the drive clutch and pull back the slack (A).

NOTE: To ensure satisfactory belt life, install belts so they operate in the same direction of rotation by positioning the identification numbers so that you can read them. If required, separate the sheaves as outlined in the belt removal procedures.

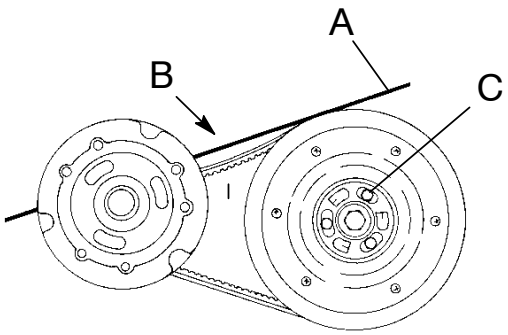


2. Rotate the L-wrench to tighten the sheaves. Remove the wrench and store in the tool kit.
3. Close the clutch guard and reinstall the retaining pin.
4. Close and secure the hood and release the parking brake.

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Clutch System

Drive Belt Deflection



Measure belt deflection with both clutches at rest and in their full neutral position.

Place a straight edge on the belt (A) and apply downward pressure while measuring at point B. This measurement should be 1 1/4”.

Drive Belt Adjustment

1. Loosen the 7/6” jam nut on the belt width adjuster.
2. Using a 1/8” Allen wrench, adjust the threaded set screw (C) as needed.

NOTE: Turn the set screw in (clockwise) to increase the distance between the sheaves and out (counterclockwise) to decrease the distance.

3. Tighten the jam nut.

Clutch Center Distance

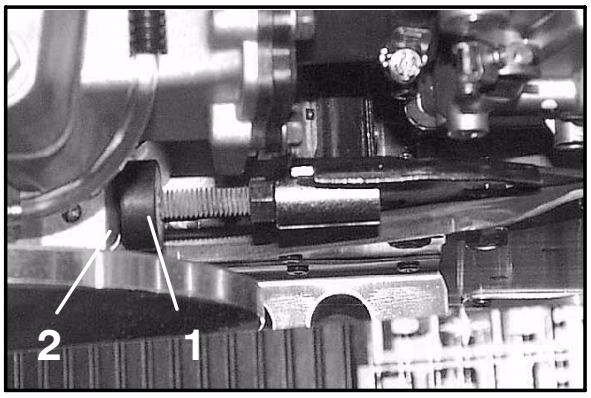
See your Owner’s Manual Supplement for recommended center distance for your machine. If adjustment is necessary, see your dealer. Due to tolerances in belt length, it may be necessary for your dealer to make minor adjustments in the driven clutch to achieve correct belt tension.

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MAINTENANCE

Torque Stop

If your snowmobile is equipped with an engine torque stop (1), periodically check torque stop clearance. With clutches in proper alignment, the torque stop clearance should be a minimum of .010″ to a maximum of .030″ from the engine case (2). Adjust if necessary, and lock the jam nut.



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Chain Tension

Maintain the proper chain tension as outlined on page 76.

Fall Tune-Up

For maximum performance, arrange for a fall service tune-up with your Polaris dealer. His experienced and trained service technician will keep your machine in peak operating condition.

Tool Kit

A tool kit is included with each machine for emergency and routine maintenance. *Always keep the tool kit with the snowmobile.*

NOTE: The tools and maintenance items mentioned in this book, as well as a long line of other Polaris accessories, are available at your Polaris dealer.

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MAINTENANCE

Track Maintenance

⚠ 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 Tension

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

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

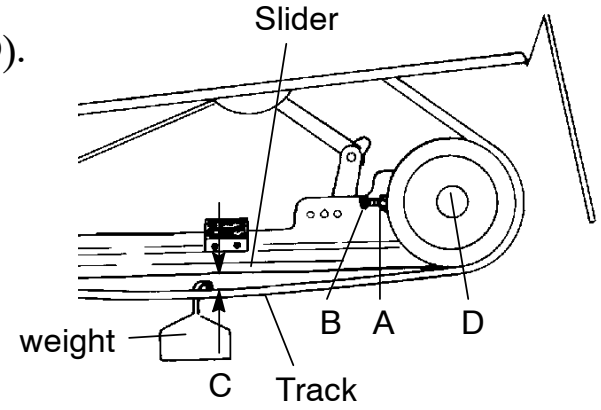
1. Turn the machine off.
2. Lift the rear of the machine and safely support it off the ground.
3. Place the recommended weight or downward pressure on the track at the specified distance (see Track Tension Data below) ahead of the center of the rear idler wheel.

NOTE: Measure at the point where the weight is hanging.

4. Check for specified slack between the wear surface of the track clip and the plastic slider (C).

If the track needs adjustment:

5. Loosen rear idler shaft bolt (D).
6. Loosen locknuts (A).
7. Tighten or loosen the track adjusting screws (B) as necessary to provide equal adjustment on both sides of the track.



Track Tension Data

Model	Weight	Measurement Location	Measurement
600 IQ Racer	10 lbs. (4.54 kg)	16″ ahead of rear idler shaft	1 1/4 - 1 1/2” (3.2 - 3.8 cm)
600RR	10 lbs. (4.54 kg)	16″ ahead of rear idler shaft	1 1/4 - 1 1/2” (3.2 - 3.8 cm)

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Track Maintenance

If the track needs adjustment (continued):

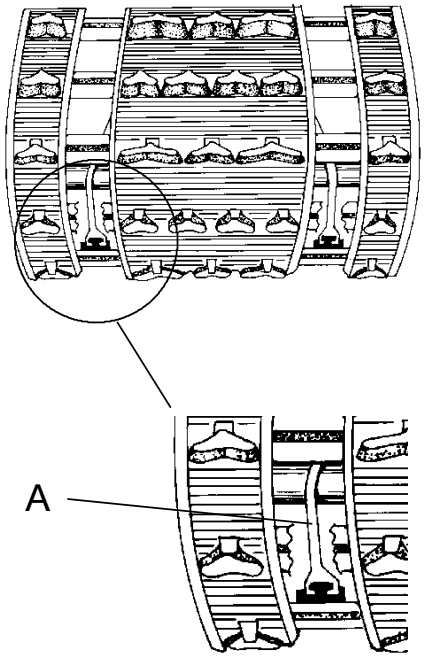
8. Repeat measurement on the other side of the track.

NOTE: Check more frequently when machine is new.

9. Start the machine and slowly rotate the track at least five revolutions. Let the track come to a stop (do not apply brakes).
10. Check track alignment (see page 89) and adjust as necessary.
11. Tighten locknuts (A).
12. Tighten idler shaft bolts (D) and torque to 35 ft. lbs. (47.5 Nm).

Track Alignment

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



1. Safely support the rear of the machine 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 (A) are evenly spaced on each side. If the track runs to the left, loosen left locknut and tighten the left adjusting bolt. If the track runs to the right, loosen right locknut and tighten the right adjusting bolt.
4. After adjustments are complete, tighten locknuts and torque idler shaft bolts to 35 ft. lbs. (47.5 Nm).
5. Repeat steps 2 and 3 to verify proper alignment.

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MAINTENANCE

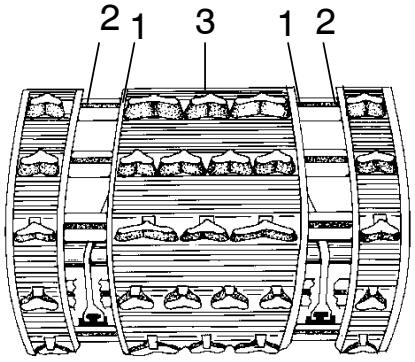
Track Maintenance

Track Inspection

⚠ WARNING

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

Using a hoist, safely lift and support the rear of the snowmobile off the ground. Rotate the track by hand to check for possible damage.



Carefully examine the track along the entire length of each rod, bending the track and inspecting for breakage. The three most common damage areas are shown in the illustration.

Replace the track if any rod damage is found.

Track Lubrication

⚠ 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.

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

NOTE: If excessive slide wear occurs due to poor snow conditions, additional wheel kits are available. See your dealer for more information.

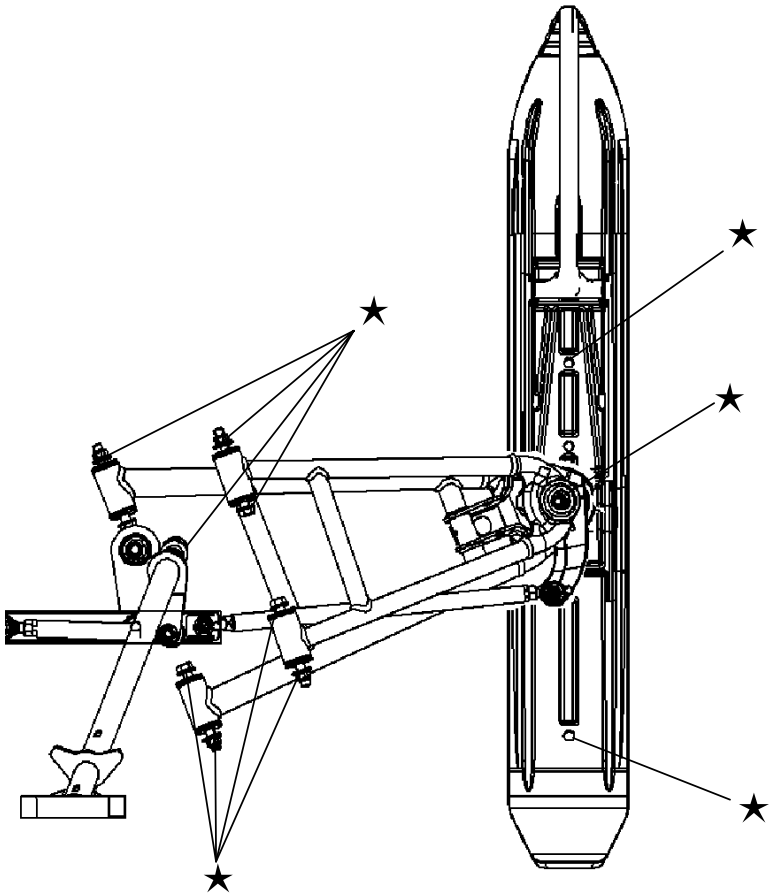
NOTE: Track damage or failure caused by operation on ice or under other poor lubrication conditions will void the track warranty.

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Steering System

Steering Inspection and Adjustment

Each week, or before a long ride, check all fasteners and tighten if necessary. Specifically check fasteners marked with a ★.



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MAINTENANCE

Steering System

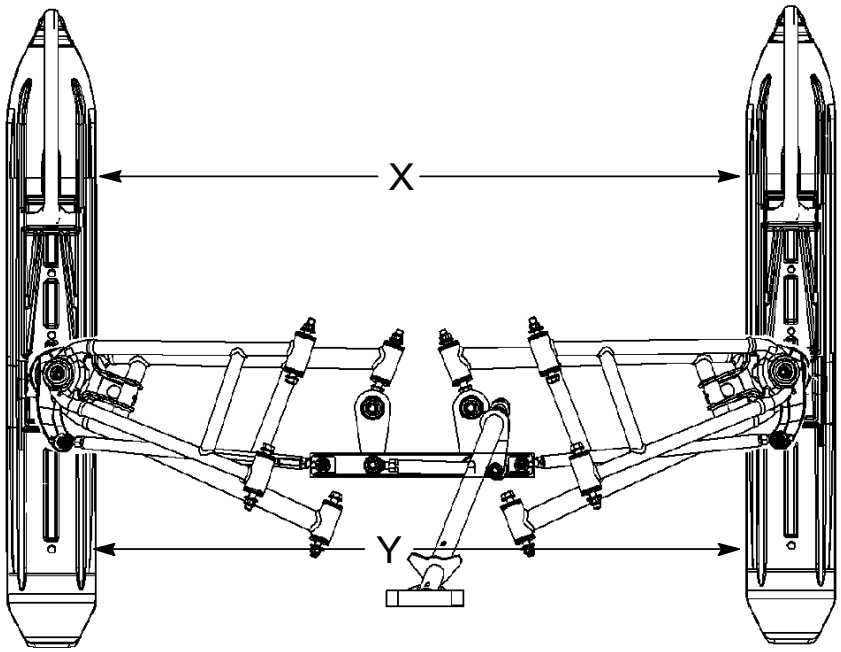
Ski Alignment

⚠ 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. See your Polaris dealer.

With the handlebars in a straight ahead position, and with vehicle weight compressing the suspension, measure from the straight edge of the skis at the center of the ski mounting bolt. The measurement between the skis at point X should be 1/8″ to 1/4″ greater than the measurement at point Y.

NOTE: If the skis are misaligned, we recommend that your dealer correct the alignment, since camber adjustment may also be affected.



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Steering System

Ski Skags

WARNING

Worn skis and/or skags will adversely affect handling. Loss of vehicle control may result, causing serious injury or death.

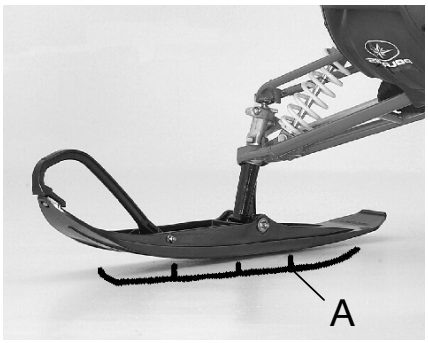
See your dealer's studding chart for recommended skags. If you install longer or more aggressive carbide skags than the original equipment, it may also be necessary to add track studs to maintain proper vehicle control while turning on hard-packed snow or ice.

Check skags weekly to maintain positive steering characteristics. Skags must be replaced when worn to half their original diameter.

NOTE: Carbide skags must be replaced if *any* abnormal wear or chipping is found.

Skag Replacement

1. Raise and support the front of the machine so the skis are approximately 6″ (15.2 cm) from the ground.
2. Remove the attaching hardware and pry the skag (A) downward.
3. Remove the forward portion of the skag.



Reverse this procedure for new skag installation.

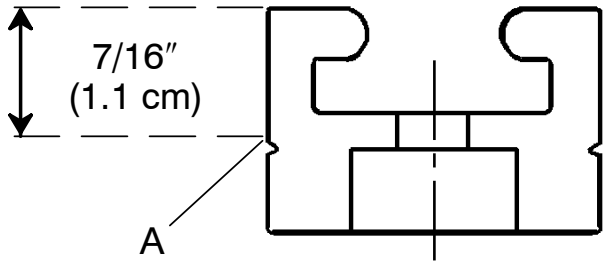
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MAINTENANCE

Suspension Maintenance

Rail Slide Wear

Measure slide thickness at several points along the rail. Have your dealer replace the slide when it's worn down to the top of the wear limit indicator groove (A). Do not operate the snowmobile if slide thickness measures less than 7/16″ (1.1 cm).



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:

- Check rear idler wheel bolts for tightness.
- Check rear idler adjusting bolt locknuts for tightness. See page 89 for torque specs.
- Check front torque arm limiter strap condition.
- Check rail slide condition - have your dealer replace when worn to minimum thickness.
- Check track tension (beginning on page 88).
- Lubricate/grease all suspension components (see page 64).
- Check ski runner/skag condition.

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Extended Storage

Off-season or extended storage of your snowmobile requires preventive measures to aid against deterioration and to prolong the useful life of many components.

Cleaning and Preservation

Proper storage starts with cleaning, washing, and waxing the hood, chassis, and plastic parts. Wipe down remaining surfaces with a damp cloth. Clean and touch up with paint any rusted or previously painted surfaces. Be sure that corrosive salt and acids are removed from surfaces before beginning preservation with waxes and rust inhibitors (grease, oil or paint).

The machine should be stored in a dry garage or shed, out of direct sunlight, and covered with a fabric snowmobile cover. Plastic tarp may cause condensation to form and damage snowmobile components.

Controls and Linkage

All bushings, spindle shafts, tie rod ends, and cables should receive a light coat of oil or grease.

Clutch and Drive System

Remove the drive belt and store in a cool dry location. Lubricate the sheave faces of the drive and driven clutches with a light coat of oil or Polaris Cable Lubricant. See page 99 for part numbers. Do not lubricate clutch components, except the driven clutch shaft bushing as outlined in the Master Repair Manual. See your dealer.

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MAINTENANCE

Extended Storage

Engine and Carburetor Protection

Proper preparation of the engine and fuel system is vital to the prevention of rust and corrosion on precision engine parts during storage. Whenever the machine is stored for a period of more than 60 days,the engine must be fogged with fogging oil. Follow the engine fogging instructions provided on the can. See page 99.

Always add Premium Carbon Clean or a fuel conditioner/stabilizer to the fuel tank. See page 99 for the part numbers of Polaris products. Follow the instructions on the can, running the engine for five minutes to get additives through the entire fuel system. Top off with fresh fuel (premixed for 600 IQ Racer).

If stabilizer is not used, drain the carburetors by removing the water trap drain plugs. See page 71.

Using a fuel stabilizer and topping off the fuel tank eliminates the need to drain the fuel system. If you prefer to drain the fuel tank, use the following procedure.

1. Transfer unused fuel from the fuel tank to an approved fuel container using a siphon pump. Do not re-use fuel after storage.
2. Securely support the front of the snowmobile with a jack stand so the machine is elevated and the engine is tilted rearward.
3. Remove the spark plug(s).
4. Rotate the engine slowly, watching the piston until it's at bottom dead center (BDC), the lowest position in the cylinder. On twin cylinder models, the opposite piston will be up.
5. Pour approximately two ounces of Polaris injection oil into the spark plug hole.
6. Wait one to two minutes and perform steps 3 to 5 on remaining cylinders.
7. Replace the spark plugs and lower the machine to the floor.

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Extended Storage

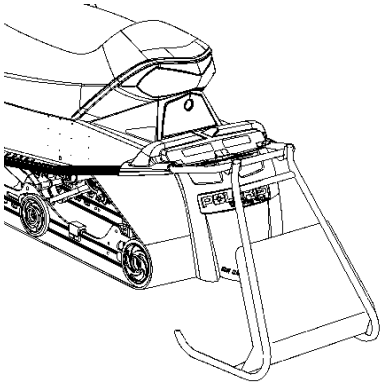
Electrical Connections

Separate electrical connector blocks and clean corrosive build-up from connectors. Lubricate or pack connector blocks with dielectric grease and re-connect. See page 99 for the part numbers of Polaris products.

Replace worn or frayed electrical wire and connectors. Be sure wiring harness is properly secured away from sharp edges, steering linkage, moving parts, and hot exhaust parts.

Track and Suspension

Moderate track tension should be maintained during summer storage. The machine should be supported off the ground to allow the track to hang freely.



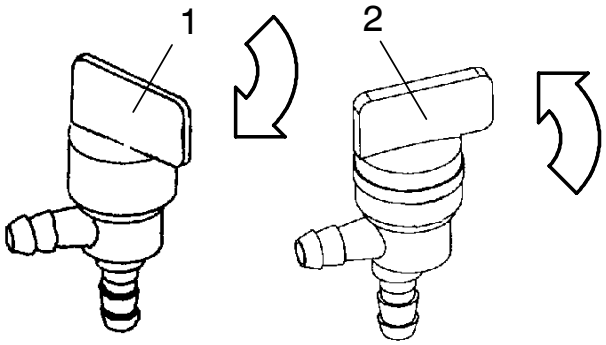
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MAINTENANCE

Transporting the Snowmobile

Whenever the snowmobile is transported:

1. Turn the fuel valve clockwise to *OFF* to shut off the fuel supply (1). Turn the valve counter-clockwise to *ON* to turn the fuel supply on (2).



NOTE: The fuel valve is located under the hood.

2. Be sure the fuel cap is installed correctly.
3. Always tie the snowmobile to the transporting unit securely using suitable straps.

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POLARIS PRODUCTS

Part No.	Description
	Engine Lubricants
2870791	Fogging Oil (12 oz. Aerosol)
2873023	Synthetic 2-Cycle Racing Oil (gal.)
2871098	Premium 2-Cycle Engine Oil (qt.)
2871097	Premium 2-Cycle Engine Oil (gal.)
2871240	Premium 2-Cycle Engine Oil (2.5 gal.)
2871721	Premium Gold Synthetic 2-Cycle Engine Oil (qt.)
2871722	Premium Gold Synthetic 2-Cycle Engine Oil (gal.)
2872347	Premium Gold Synthetic 2-Cycle Engine Oil (2.5 gal.)
2874438	VES II Synthetic 2-Cycle Engine Oil (qt.)
2874439	VES II Synthetic 2-Cycle Engine Oil (gal.)
2874443	VES II Synthetic 2-Cycle Engine Oil (2.5 gal.)
	Chaincase Lubricants
2873105	Synthetic Chaincase Lubricant (qt.)
2872951	Synthetic Chaincase Lubricant (12 oz.)
	Grease / Specialized Lubricants
2871312	Grease Gun Kit, Premium All Season (3 oz.)
2871322	Premium All Season Grease (3 oz. cartridge)
2871423	Premium All Season Grease (14 oz. cartridge)
2871329	Dielectric Grease (Nyogel™)
	Coolant
2871323	Anitfreeze, 60/40 Premix (gal.)
2871534	Anitfreeze, 60/40 Premix (qt.)
	Additives / Miscellaneous
2871326	Carbon Clean Plus (12 oz.)
2870652	Fuel Stabilizer (16 oz.)
2872189	DOT 4 Brake Fluid (12 oz.)
2872893	Engine Degreaser (12 oz.)
2870505	Isopropyl
2872889	Brake and Clutch Cleaner
2872890	Carb and Throttle Body Cleaner

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TROUBLESHOOTING

Engine Troubleshooting

CAUTION: Unless you have experience and training in two-cycle engine repair, see your dealer if technical problems arise.

Problem	Probable Cause	Solution
Erratic engine operating RPM during acceleration or load variations	Drive clutch binding	-Disassemble drive clutch to inspect shift weights for wear and free operation. SEE YOUR DEALER. -Clean and polish stationary shaft hub.
	Driven clutch malfunction	-Replace ramp buttons and rollers. SEE YOUR DEALER. -Inspect movable sheaves for excessive bushing clearance and replace if necessary. SEE YOUR DEALER.
Harsh drive clutch engagement	Drive belt worn or too narrow	-Replace drive belt.
	Excessive belt/sheave clearance	-SEE YOUR DEALER.
Drive belt turns over	Wrong belt for application	-Replace drive belt.
	Clutch alignment out of spec	-Adjust alignment offset.
	Engine mount broken or loose	-Inspect and adjust or replace. SEE YOUR DEALER.
Machine fails to move	Clutch jammed	-Belt twisted, spring broken, weights stuck, lubricated. SEE YOUR DEALER.
	Track jammed	-Foreign object caught or the rail slide melted to track clips due to lack of lubrication. -Machine may be frozen to ground. Track may be iced up.
	Chaincase sprocket or chain jammed or broken	-Chain is loose or broken, chain tightener is loose. SEE YOUR DEALER.

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Engine Troubleshooting

Problem	Probable Cause	Solution
Noise in drive system	Broken drive clutch components	-SEE YOUR DEALER.
	Bearing failure/ chaincase, jackshaft, or front drive shaft	-SEE YOUR DEALER.
	Drive belt surface flat spots	-Inspect and replace if necessary.
	Drive chain loose or worn, sprocket teeth broken	-Inspect and adjust or replace.
Poor low RPM performance	Worn drive belt	-Inspect and replace if necessary.
	Excessive belt/sheave clearance	-SEE YOUR DEALER.
	Loose torque stop	-Inspect and adjust.
	Sticky clutch	-SEE YOUR DEALER.
Engine doesn't turn	Seized engine	-SEE YOUR DEALER. Seizure is a result of poor lubrication, inadequate fuel supply, broken parts, or improper cooling.
	Hydrostatic lock	-Fuel may have entered crankcase while vehicle was standing or being transported. SEE YOUR DEALER to correct cause. Drain plug(s) are located on lower crank-case for emergency draining.
Engine requires more than normal pulls to start	Poor gasoline or not enough fuel getting to engine	-Replace with fresh winter fuel.

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TROUBLESHOOTING

Engine Troubleshooting

Problem	Probable Cause	Solution
Engine turns but fails to start	Faulty ignition	-Remove spark plug(s) and replace with new plug(s). If engine still fails to start, check for spark; if no spark SEE YOUR DEALER.
	No fuel to engine	-Make sure the fuel valve is "ON". Check tank level and fill up with correct fuel. -Ice in fuel line, filter, or pump. On the standard Polaris carburetor, the choke will not function with the throttle depressed. See second item under "Probable Cause" of "Engine continually backfires".
	Flooded engine (normal situation caused by too much choking)	-Hold throttle open, crank engine several times (may be necessary to change plug(s), however, the plug(s) may operate satisfactorily when dried).
	Poor engine compression	-Running too lean a mixture (too small a main jet will cause seizure resulting in loss of power). SEE YOUR DEALER. This indicates a major engine problem that must be repaired before engine is run.
Engine lacks power	Fouled or defective spark plug	-Change and test operation.
	Fuel filter (loss of high RPM power)	-Check fuel filter flow. Disconnect hose and drain about 1/2 cup. Fuel flow should be steady and encompass the entire diameter of fuel line. If not, replace filter.
	Incorrect clutching	-SEE YOUR DEALER.
	Carburetor and fuel pump	-There's no adjustment to change power output. SEE YOUR DEALER.
Engine continually backfires	Faulty plug(s)	-Change plug(s)
	Carburetor	-Dirt or ice in fuel system. (Deicer should be added to non-ethanol fuel at all times for assurance against fuel line icing.)

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Suspension Troubleshooting

Problem	Solution (perform only one change at a time)
Rear suspension bottoms too easily	-Increase torsion spring preload -Increase rear shock compression damping by turning screw clockwise -Increase torsion spring wire diameter (see your dealer)
Rides too stiff in rear	-Check for binding suspension shafts and grease all pivot points -Decrease torsion spring preload adjustments -Decrease rear shock compression valving by turning screw counterclockwise (if equipped with optional Indy Select shock) -Change to lighter valving if (if equipped with Fox™ shocks) -Check for proper track tension
Machine darts from side to side	-Make sure skis are aligned properly -Make sure spindles and all steering components are free turning -Make sure skags are straight on skis -Check rail slide and replace if worn -Reduce ski pressure: •Reduce IFS spring preload •Reduce rear torsion spring preload
Front end pushes	-Check for worn skags -Check for binding suspension shafts and grease all pivot points -Increase IFS spring preload by adjusting cam or threaded adjuster -Decrease front limiter strap length
Steering is heavy	-Check ski alignment -Check skags and skis for damage -Reduce ski pressure: •Increase front track spring preload •Reduce IFS spring preload by adjusting cam •Reduce rear torsion spring preload
Setting up for deep snow operation	-Change worn rail slide -Move front track shock assembly to upper position

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TROUBLESHOOTING

Belt Troubleshooting

Belt Wear/Burn

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. Take the drive belt off the machine in extremely cold weather and warm it up. Break machine 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)	Lower the gear ratio. Remove windage plates from the clutch. Reduce RPM. Avoid riding in high ambient temperatures.
Ice and snow build-up between track and tunnel	Warm the engine at least five minutes. Take the drive belt off the machine in extremely cold weather and warm it up. Break machine loose from the snow.
Poor engine performance	Check for carb and choke synchronization, fouled plugs, debris in the carbs, and water, ice, or dirt in gas tank or fuel line.
Loading machines onto trailers	Skis may gouge into trailers and prevent the drivetrain from spinning properly. Use enough speed to drive the machine completely onto the trailer. Push and pull it to finish loading if necessary.
Clutch malfunction	Inspect clutch components. See your dealer.
Slow, easy clutch engagement	Use fast, aggressive throttle to engage clutch.

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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: 1-888-704-5290

Canada: 1-204-925-7100

Polaris Anti-Theft System

The Polaris anti-theft system (PATS) monitoring program is designed to aid owners of registered snowmobiles in recovery of stolen machines.

Administration

1. Polaris snowmobile owner reports theft.
   A. In addition to notifying the proper law enforcement officials, the owner must call Polaris Customer Service.
   B. Owners must provide their name, address, telephone number and the model and serial number of stolen machines.
2. Polaris warranty will provide all dealerships with a monthly updated list of all stolen units to further monitor thefts.
3. Polaris warranty will aid in notifying the proper owner when a unit is recovered.

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WARRANTY

Limited Warranty

Polaris Sales Inc., 2100 Highway 55, Medina, MN 55340, provides a ONE YEAR LIMITED WARRANTY on all components of the Polaris snowmobile against defects in material or workmanship. This warranty covers the parts and labor charges for repair or replacement of defective parts that are covered by this warranty. The warranty begins on the date of purchase. This warranty is transferrable to another consumer, during the warranty period, through a Polaris dealer.

Registration

At the time of sale, the Warranty Registration Form must be completed by your dealer and submitted to Polaris within ten days. 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 the warranty entitlement. 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 THE SNOWMOBILE IS REGISTERED WITH POLARIS.

Initial dealer preparation and setup of your snowmobile is very important in ensuring trouble-free operation. Purchasing a snowmobile in the crate or without proper dealer setup will void your warranty coverage.

Warranty Coverage and Exclusions

Limitations of warranties and remedies

This warranty excludes any failures not caused by a defect in material or workmanship. The warranty does not cover accidental damage, normal wear and tear, abuse or improper handling. The warranty also does not cover any snowmobile that has been structurally altered, neglected, improperly maintained, used for racing or used for purposes other than for which it was manufactured. The warranty does not cover any damages that occur during trailer transit or as a result of unauthorized service or parts. In addition, this warranty does not cover physical damage to paint or finish, stress cracks, tearing or puncturing of upholstery material, corrosion or defects in parts, components or the snowmobile due to fire, explosions or any other cause beyond Polaris' control.

This warranty does not cover the use of unauthorized lubricants, chemicals, or fuels that are not compatible with the snowmobile.

The exclusive remedy for breach of this warranty shall be, at Polaris' exclusive option, repair or replacement of any defective materials, or 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. Some states do not permit the exclusion or limitation of incidental or consequential damages or implied warranties, so the above limitations or exclusions may not apply to you if inconsistent with controlling state law.

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Limitations of warranties and remedies

ALL IMPLIED WARRANTIES (INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE) ARE LIMITED IN DURATION TO THE ABOVE ONE YEAR WARRANTY PERIOD. POLARIS FURTHER 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 to you if inconsistent with controlling state law.

How to Obtain Warranty Service

If your snowmobile requires warranty service, you must take it to a Polaris dealer authorized to repair Polaris snowmobiles. 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 recommends that you use your original selling dealer; however, you may use any Polaris Servicing Dealer to perform warranty service.

Please work with your dealer to resolve any warranty issues. Your dealer will contact the appropriate personnel at Polaris if additional assistance is needed.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

If any of the above terms are void because of state or federal law, all other warranty terms will remain in effect.

Engine Oil

1. Mixing oil brands or using non-recommended oil may cause engine damage. We recommend the use of Polaris engine oil.

2. Damage resulting from the use of non-recommended lubricants may not be covered by warranty.

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WARRANTY

Conditions and Exclusions

In order to qualify for warranty, the product must have been properly set up and tested by a Polaris Dealer (if applicable). Failure of any dealer to perform the required vehicle Pre-Delivery Inspection, perform all applicable service bulletins and have the consumer sign the pre-delivery inspection (PDI) form prior to delivery may void the warranty. Failure to provide proof of required periodic maintenance upon request may result in denial of warranty coverage. Use of the recommended Polaris products for lubrication and maintenance as directed by the Owner's manual is highly recommended. Should a failure occur during the warranty period resulting from the use of non-recommended products, warranty coverage may be denied.

Warranty does not apply to parts exposed to friction surfaces, stresses, environmental conditions and/or contamination. The following items are excluded from warranty consideration if the failure was due to wear or not the direct result of a defect:

Skis	Ski wear rods
Tracks	Slide rails
Suspension components	Finished and unfinished surfaces
Brake components	Carburetor/Throttle body components
Seat components	Engine components
Clutches and components	Drive belts
Steering components	Hydraulic components
Batteries	Circuit breakers/Fuses
Light bulbs/Sealed beam lamps	Electronic components
Idler wheels	

Warranty applies to the product only and does not allow for coverage of personal loss. Some items are considered "consumable," meaning they are considered part of normal maintenance or part of completing an effective repair. The following items are excluded from warranty coverage in the event of a warranty claim:

Spark Plugs	Lubricants such as oil, grease, etc.
Filters	Batteries (unless defective)
Fuel	Cosmetic damage/repair
Sealants	Coolants
Hotel fees	Meals
Towing charges	Shipping/ handling fees
Mileage	Product pick-up/delivery
Rentals/Loss of product use	Loss of vacation/personal time

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 resulting in failure; 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.

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Polaris Second Year Engine Service Contract

Second Year Engine Service Contract is standard on all eligible new and unused snowmobiles that were Snow Checked through an authorized Polaris dealer during the March/April Snow Check promotion. The free Second Year Engine Service Contract is honored by all authorized Polaris snowmobile dealers in North America and is transferable 120 days after the original purchase date, free of charge, through any Polaris snowmobile dealer. Coverage on Snow Check units is automatic. Although you do not receive a warranty card, your dealership should have printed a copy of the warranty registration form. This form is your proof of warranty.

Consumer Exclusions

- Each repair visit after the first twelve months of standard warranty coverage is subject to a $50 deductible.
- The free Second Year Engine Service Contract applies to the first 5,000 miles or two (2) calendar years from date of purchase, whichever comes first. Tampering with the odometer shall void all warranties/service contracts. No extensions to coverage under this engine service contract can be given. Used snowmobiles are not eligible under this program.
- Snowmobiles used for commercial purposes or for racing are excluded from coverage.

Coverage

Coverage for second year engine failures due to defects in materials and workmanship will be determined by Polaris in its sole discretion. Coverage is automatic with no additional paperwork required. The free Second Year Engine Service Contract is subject to a $50 deductible per visit. Regular, documented service maintenance visits are required to validate this warranty.

A partial list of items excluded from coverage includes:

- Damage due to accident, fire, explosion, theft, or other causes beyond Polaris' control.
- Damage caused by the failure of other components of the snowmobile.
- Failures caused by improper fuel or oil.
- Piston seizures, unless caused by a defective engine component.
- Failures caused due to improper adjustments.
- Failure due to unauthorized service.
- Failures due to lack of service as required in the owner's manual or Polaris updates. This includes off-season storage as listed in the owner's manual.
- Failure due to use of unauthorized parts or modifications.
- Normal wear parts, including but not limited to spark plugs, hoses, batteries, controls, and recoil ropes are excluded from coverage. Gaskets are covered, as are intake and exhaust manifolds excluding paint coverage.
- Electrical coverage is limited to the ECU box, coils, stator plate, and sensors. Wiring and other electrical components are excluded from coverage.
- Cooling system coverage is limited to the water pump assembly and components, fan, fan bearings, temperature sensor, gasket and seals.
- Non wear related throttle body parts are covered. The fuel pump is covered.
- Clutches and related clutch parts, including but not limited to, the drive belt, are excluded from coverage.
- Electrical components are excluded from coverage.
- Gearcases and transmissions are excluded from coverage.

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WARRANTY

Exported Vehicles

EXCEPT WHERE SPECIFICALLY REQUIRED BY LAW, THERE IS NO WARRANTY OR SERVICE BULLETIN COVERAGE ON THIS VEHICLE IF IT IS SOLD OUTSIDE THE COUNTRY OF THE SELLING DEALER'S AUTHORIZED LOCATION.

This policy does not apply to vehicles that have received authorization for export from Polaris Industries. Dealers may not give authorization for export. You should consult an authorized dealer to determine this vehicle's warranty or service bulletin coverage if you have any questions.

This policy does not apply to vehicles 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 Recalls.

How to Get Service

In the Country where your vehicle 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 vehicle was purchased, Warranty or Service Bulletin repairs may be requested from any authorized Polaris dealer who sells the same line as your vehicle.

Outside the Country where your vehicle was purchased:

If you are traveling temporarily outside the country where your vehicle was purchased, you should take your vehicle 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. Vehicles importation rules vary considerably from country to country. You may be required to present documentation of your move to Polaris Industries in order to continue your warranty coverage. You may also be required to obtain documentation from Polaris Industries in order to register your vehicle in your new country.

If Purchased From A Private Party:

If you purchase a Polaris product from a private citizen outside of the country in which the vehicle was originally purchased, all warranty coverage will be denied.

Notice

If your vehicle is registered outside of the country where it was purchased, and you have not followed the procedure set out above, your vehicle will no longer be eligible for warranty or service bulletin coverage of any kind. (Vehicles registered to Government officials or military personnel on assignment outside of the country where the vehicle was purchased will continue to be covered by the basic warranty.)

For questions call Polaris Customer Assistance (see page 105).

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Snowmobile Engine Emissions Limited Warranty

This snowmobile engine emissions limited warranty is in addition to the Polaris standard limited warranty for snowmobiles.

Polaris Industries Inc. warrants that the new engine, including all parts of its emission-control system, is designed, built and equipped so it conforms to current U.S. Environmental Protection Agency regulations applicable to snowmobile emissions under 40 CFR1051, 1065 and 1068 at the time of sale to the ultimate purchaser. Polaris warrants that the engine is free from defects in materials and workmanship that may keep it from meeting these regulations.

The warranty period for this emissions certified snowmobile engine starts on the date when the engine is first purchased and continues for 4000 kilometers (2485 miles) of vehicle travel, 200 hours of operation, or 30 calendar months, whichever comes first.

This engine emissions limited warranty covers the parts and labor charges for repair or replacement of defective parts that are covered by this warranty. This includes components whose failure increases the snowmobile engine's emissions. To the extent they are present on your snowmobile engine, this includes electronic controls, fuel injection components, exhaust gas recirculation system components, and aftertreatment system components. Replacing or repairing other components not covered by this warranty is the responsibility of the snowmobile owner.

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. 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. 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 can deny an emissions warranty claim if any specified critical emissions-related maintenance is not performed. Performance of other scheduled maintenance is strongly recommended, but is not necessary to keep the emissions-related warranty valid. Any qualified repair shop or qualified person may maintain, replace, or repair the emission control devices or systems on your snowmobile. Polaris recommends that you contact an authorized Polaris dealer to perform any service that may be necessary.

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 and may result in civil penalties.

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MAINTENANCE RECORD

DATE	MILES/KM	TECHNICIAN	SERVICE PERFORMED / COMMENTS
	150 mi. (240 km)		
	500 mi. (800 km)		
	1000 mi. (1600 km)		
	2000 mi. (3200 km)		

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MAINTENANCE RECORD

DATE	MILES/KM	TECHNICIAN	SERVICE PERFORMED / COMMENTS

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