



POLARIS[®]
The Way Out.



FS IQ[®] Widetrak
Snowmobile Owner's Manual
for Maintenance and Safety

 WARNING

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

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

 WARNING

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



The text is printed on 100% recycled
with 40% post-consumer waste (PCW).



POLARIS
The Way Out.

For your nearest Polaris dealer,
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2100 Hwy. 55, Medina, MN 55340
Phone 1-888-704-5290
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Printed in USA



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®
- Low emission vehicles (LEVs)

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!



POLARIS®
The Way Out.

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

Printed in U.S.A.

2012 FS IQ® Widetrak Owner's Manual P/N 9923390

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INTRODUCTION

Important Notes for Owners and Drivers

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

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

Follow the maintenance program outlined in this manual. Preventive maintenance ensures that critical components of the snowmobile are inspected 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.

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.

INTRODUCTION

Preservation of the Environment

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

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

Noise Level

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

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

INTRODUCTION

Vehicle Identification Numbers

Record your snowmobile's identification numbers and key number in the spaces provided. Remove the spare key and store it in a safe place. Your key can be duplicated only by mating a POLARIS key blank with one of your existing keys, so if both keys are lost, the ignition switch must be replaced.

Vehicle Model Number: _____

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

Engine Serial Number (on valve cover): _____

Key Number: _____

SAFETY

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 indicates a potential personal injury hazard.

WARNING

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

CAUTION

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

NOTICE

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

Operator Safety

Follow the recommended maintenance program outlined beginning on page 81 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.

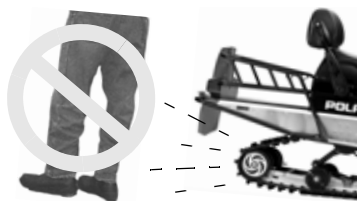
The warranty on your entire machine is terminated if any equipment has been added, or any modifications have been made, to increase the speed or power of the snowmobile.

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. Turn off the ignition, 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.

Operator Safety

Riding Position

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

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

Survival Preparation

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

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

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

SAFETY

Operator Safety

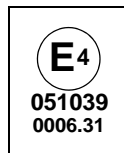
Riding Apparel

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.

Clothing

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 23.

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.



Operator Safety Rider Capacity

Your snowmobile is designed for up to two riders. A decal on the *console* indicates that the vehicle is designed for one operator and one passenger only.

WARNING! Operating improperly with a passenger could cause loss of control and result in serious injury or death. Control becomes more difficult with two people on board. More space is required to make turns, and longer distances are needed for stopping. Make sure the passenger remains seated behind the driver, facing forward, with both feet placed firmly on the running boards. Slow down and avoid “jumping” the snowmobile.

Snowmobiles designed for two riders should never be operated with more than two people on board. *Slow down!* Control becomes more difficult with two people on board. More space is required to make turns, and longer distances are necessary for stopping.

SAFETY

Operator Safety

Cargo Capacity

See page 32 for cargo loading information.

WARNING! Overloading the cargo carrier can cause loss of control resulting in severe injury or death. The maximum cargo carrier capacity is 75 lbs. (34 kg). Never exceed the cargo carrier capacity.

Disabled Operators

Safe operation of this rider-active vehicle requires good judgement and physical skills.

WARNING! Operators with cognitive or physical disabilities have an increased risk of loss of control, which could result in serious injury or death. Do not allow disabled persons to operate this vehicle.

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

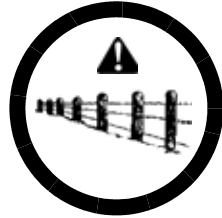
Traveling at night requires extra caution. Check headlight and taillight to ensure proper operation, and don't over-drive your headlight beam. Always be able to bring your snowmobile to a stop in the distance illuminated by the headlight.

SAFETY

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 snowmobile 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.



Variations 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 snowmobile on a frozen body of water, be sure the ice is thick enough to support the snowmobile 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.

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.

SAFETY

Operator Safety

Ice and Snow Build-up

WARNING! Ice and snow build-up may interfere with the steering of your snowmobile, resulting in serious injury or death. Keep the 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.

Driving Downhill

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

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

Operator Safety

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 in Hilly Terrain

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

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

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

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

SAFETY

Operator Safety

Drive Belt

Do not operate the engine with the drive belt removed.

CAUTION! Operation of the engine with the belt removed may result in personal injury or damage to the engine.

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

Intake Silencer

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

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

Clutches

Do not attempt to service the clutches.

All clutch service 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. Warm the drive belt by allowing the engine to idle in neutral for several minutes. Apply the throttle with enough authority to put the snowmobile into motion, but always operate within safety limits and, on 2-up machines, with respect for a passenger.

Maneuverability

While much control and maneuverability is achieved through the steering system and skis, maximum control is achieved by the shifting of your body weight. Maneuverability will change for lighter operators or snowmobiles designed to carry a load or a passenger.

Operator Safety

Inadequate Snow Conditions

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

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

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

Operating in Deep Snow

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

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.
- Remove the key from the ignition when you leave the snowmobile unattended.

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

SAFETY

Safety Decals and Locations

Warning decals have been placed on the snowmobile for your protection. Read and follow the instructions of the decals and other warnings 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 Warning

This warning decal is found under the hood on the air plenum:

WARNING

Do not operate with hood open.

Do not attempt adjustment with engine running.

Do not operate engine with plenum/belt guard removed.

Never run engine with drive belt removed.

Never service clutches yourself. See your dealer.

Pressure Cap Warning

This warning decal is found under the hood on the pressure cap of applicable liquid cooled models:

WARNING

Do not open hot. Test or replace when changing coolant. Press down and turn to release cap. 13 PSI

Safety Decals and Locations

Passenger Warning

Snowmobiles designed for an operator and one passenger have a warning decal on the console. For more information on operating with a passenger, see page 13.

WARNING

This vehicle is designed for operator and “ONE” passenger only.

Track Warning

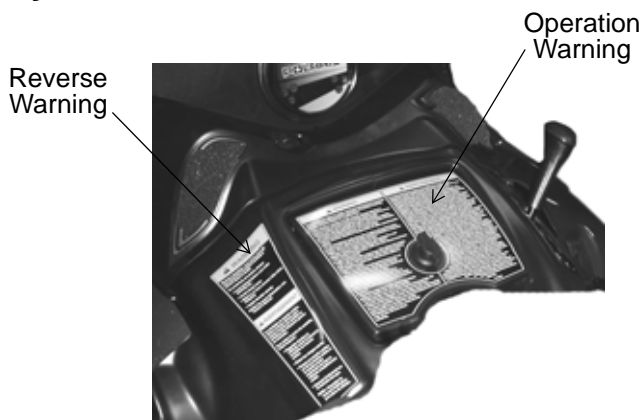
WARNING

Stay clear of track. Do not sit on seat back. Entanglement with the track or a fall from seat back may result in severe injury or death.



SAFETY

Safety Decals and Locations



Reverse Warning

POLARIS snowmobiles equipped with standard reverse and will have this decal on the console:

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.

Safety Decals and Locations

Operation Warning

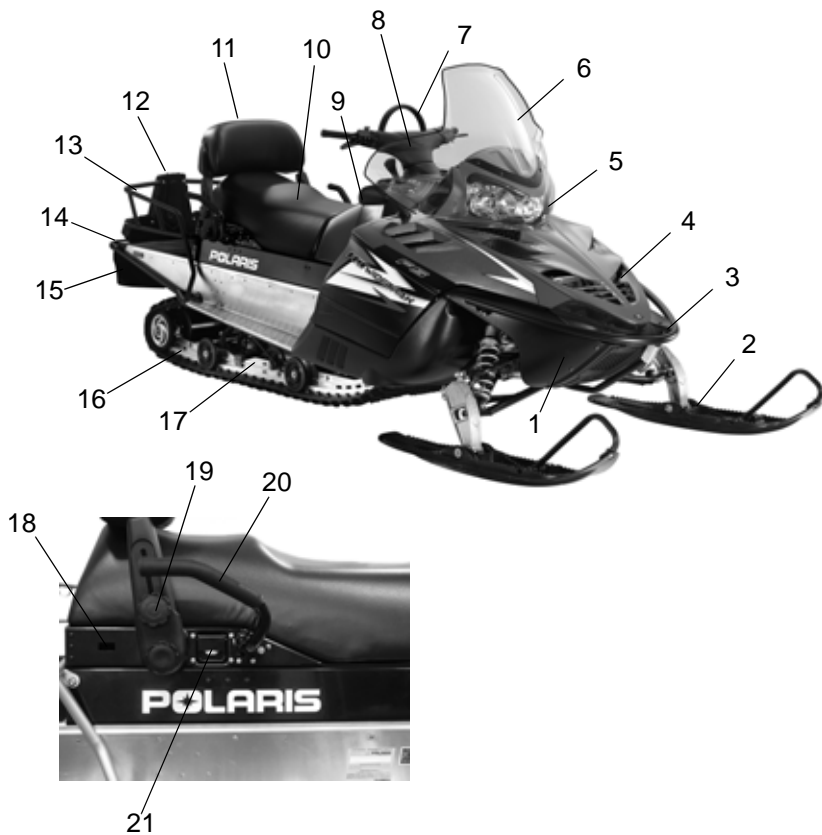
An operation warning decal is present on the console of all POLARIS snowmobiles:

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 the engine, check throttle, brake, and steering for proper operation. Make sure hood is latched. Be seated and in position to control the vehicle.

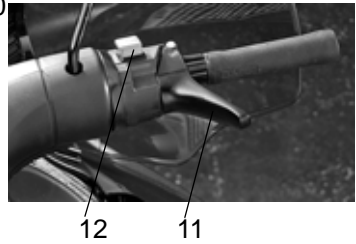
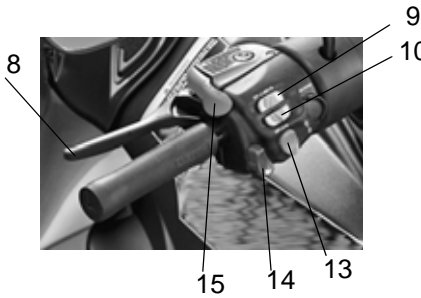
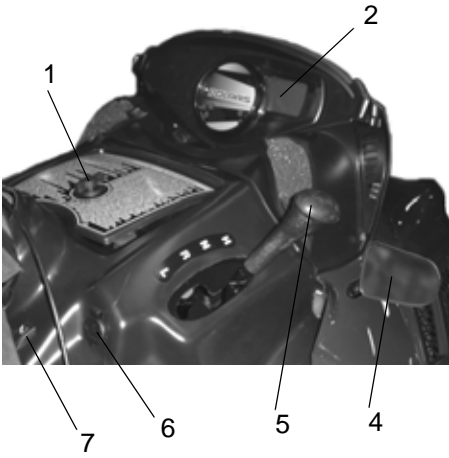
Oil injection system: Use unmixed fuel only. Check oil level when refueling.

FEATURES



1. Nosepan
2. Skis
3. Front Bumper
4. Hood
5. Headlight
6. Windshield
7. Mountain Bar
8. Handlebar
9. Fuel Filler Cap
10. Seat
11. Backrest
12. Taillights
13. Cargo Carrier
14. Rear Bumper
15. Snow Flap
16. Track
17. Suspension
18. Grab Handle Heater Switch
19. Backrest Adjustment Knob
20. Passenger Grab Handle
21. Seat Latch

FEATURES



1. Glove Box
2. MFD Display
3. Ignition Switch
4. Mirror
5. Shifter
6. 12-Volt DC Outlet
7. Work Light Switch
8. Brake Lever

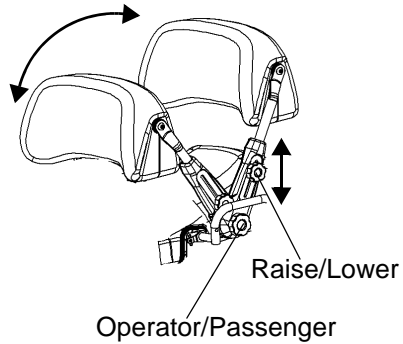
9. Handlebar Grip Warmer Switch
10. Thumbwarmer Switch
11. Throttle Control
12. Engine Stop Switch
13. MFD Control Switch
14. Headlight Dimmer Switch
15. Parking Brake Lock

FEATURES

Backrest

The backrest is adjustable for either operator or passenger use.

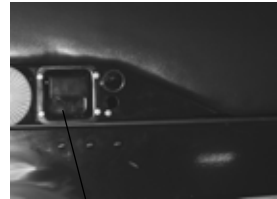
1. Loosen the upper adjustment knobs to raise or lower the backrest.
2. Loosen the lower adjustment knobs to move the backrest forward for operator use or rearward for passenger use.
3. Always tighten the knobs securely after adjusting.



Seat Latch

Release the seat latch and raise the seat to access the battery and under-seat storage area.

Check the seat latch before each use of the snowmobile. Push downward on the seat near the seat latch, then attempt to raise the seat by pulling upward on the right-hand passenger grab handle. Make sure the latch is secure before riding.



Seat Latch

Under-Seat Storage

When using the under-seat storage area to transport supplies and other items, pack the items securely to prevent them from moving around in the storage area. Smaller items should be placed in bags or containers to keep them secure.



Storage Area

Adjustable Headlights

Move the headlight adjuster to raise or lower the headlight beam.

- Move the adjuster to the left to lower the beam.
- Move the adjuster to the right to raise the beam.



Block Heater

Your snowmobile is equipped with an engine block heater. When plugged into an electrical power source, the heater warms the engine, which results in easier cold-weather starting.

The heater installed at the factory will be either a 110-volt heater with the appropriate plug (for use in North America) or a 220-volt heater with no plug (for international users).

Note: See your POLARIS dealer for installation of the appropriate heater plug for your 220-volt heater.

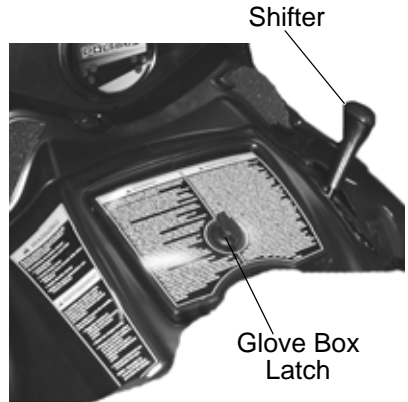
Glove Box

The glove box is a heated dry storage area intended for drying wet gloves. *Do not use the glove box for items that could be damaged by heat.*

Turn the knob to release the glove box cover latch and open the cover.

Shifter

For normal operation, place the transmission in high gear. Whenever towing or operating with a heavy load, place the transmission in low gear. See page 79. When operating in low gear, vehicle speed will be limited to protect the drive train.



FEATURES

Cargo Carrier

WARNING! Overloading or towing improperly can alter vehicle handling and can cause loss of control.

- Whenever towing or operating with a heavy load, place the transmission in low gear. See page 79.
- Do not exceed the cargo carrier capacity.
- Always reduce speed and allow greater distance for braking and turning when carrying cargo or a passenger, or when towing.
- Always secure cargo before operating vehicle.
- Overloading or carrying tall, off-center, or unsecured loads will increase your risk of losing control. Loads should be centered, carried as low as possible, and firmly secured to the carrier.
- Be careful if load extends over the side of the carrier.

The maximum weight capacity for the cargo carrier is 75 lbs. (34.1 kg). Do not allow a passenger to sit on the seat back or in the cargo carrier.

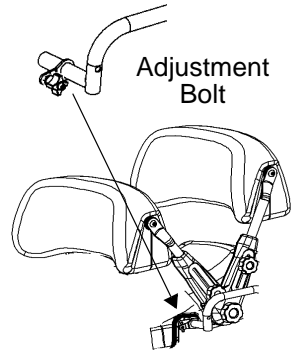
NOTICE: Do not drive aggressively or jump your vehicle when operating with heavy loads in the cargo carrier. This may cause vehicle damage.



Passenger Grab Handle

The position of the passenger grab handles can be adjusted for rider preference.

1. Remove the adjustment bolt.
2. Reposition the grab handles to one of the two adjustment positions on the grab handle tube between the operator seat and the passenger seat.
3. Reinstall the adjustment bolt and tighten securely.



12-Volt DC Outlet

Use the 12-volt DC outlet to power a global positioning sensor (GPS), heated helmet shield, utility light, cell phone or other accessories.

The 12-volt DC outlet is located on the console near the shift lever.



12-Volt DC
Outlet

FEATURES

Engine Management System

Malfunction Indicator Lamp (MIL)

Illuminated MIL

The MIL (Check Engine Indicator) will *illuminate* when a problem with engine management system components is detected.

1. Turn the engine off and restart it. If the light goes off, continued operation is permissible.
2. If the light illuminates again, determine whether engine RPM or vehicle speed is limited, then check the charts on page 35 to identify the cause.

Tip: If you are unable to determine the cause of an illuminated MIL, please see your POLARIS dealer.

Engine Management System

To protect the engine, the engine management system will limit engine RPM, vehicle speed or turbo boost (if equipped) if the following conditions are encountered. Under extreme overheating conditions, the system will also stop the engine entirely to prevent engine damage.

Vehicle Speed is Limited

Cause	Function	Maximum Speed MPH (km/h)	Result
Defective rollover switch	Rollover	37 (59)	Engine will misfire at higher vehicle speed
Throttle stuck, throttle lever depressed	Throttle stuck, throttle safety switch high	18 (29)	
Maximum vehicle speed	Max speed limiter	186 (299)	

Engine Speed is Limited

Cause	Function	Maximum RPM	Result
Reverse is selected, speed sensor error	Reverse	5300	Engine will misfire at higher engine speed
Defective rollover switch, speed sensor error	Rollover	6000	
Throttle stuck, throttle lever depressed, speed sensor error	Throttle stuck, throttle safety switch high	5450	
Throttle stuck, throttle lever at idle position	Throttle stuck, throttle safety switch low	2400	
Maximum vehicle speed, speed sensor error	Max speed limiter	8800	

FEATURES

Engine Management System

The engine management system is programmed to alert the rider when coolant temperatures reach higher-than-normal levels. The system responds by taking the following sequential steps to alert the rider.

1. The High Temperature Indicator on the MFD will flash.

To cool the engine, drive the snowmobile into soft snow so that it comes into contact with the heat exchangers on the snowmobile. Alternately, you can stop the snowmobile and pack snow or ice onto the heat exchangers to bring the temperature of the engine down.

2. The High Temperature Indicator on the MFD will flash and the engine will misfire or "stutter".

If you do not notice the flashing indicator on the MFD or do not sufficiently cool the snowmobile, the engine will misfire to alert you to look at the MFD and take action. Again, driving the snowmobile into soft snow or packing snow onto the heat exchangers should cool the engine.

3. The engine will stop.

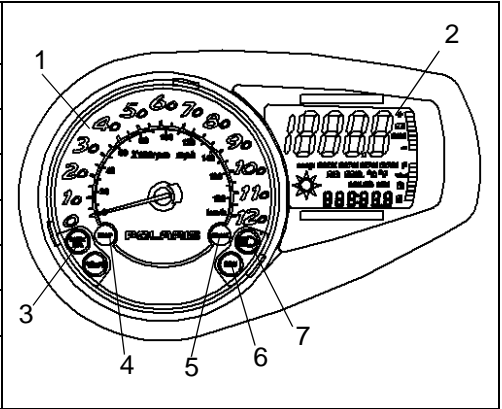
If the engine reaches an extreme temperature where damage becomes possible, the system will stop the engine. This condition will occur only after the system has taken both previous steps to alert the rider to the extreme engine temperature. If the engine stops and you attempt to restart it while before it has cooled sufficiently, the engine will restart and run for two seconds but will immediately stop again.

Tip: The engine management system will also turn the engine off if the engine reaches an extreme temperature while idling.

Instrumentation

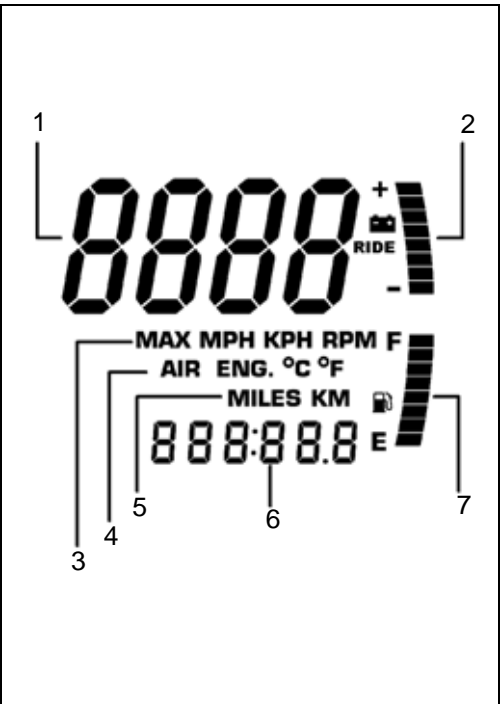
MFD Component Identification

Item	
1	Analog Gauge (if equipped)
2	Digital Gauge
3	Check Engine Indicator
4	High Temp Indicator
5	Brake Indicator
6	Reverse Indicator
7	High Beam Indicator



Digital Display Identification

Item	
1	RPM or Speed Altitude (if equipped) Service Interval
2	Electrical System Voltage Level
3	MAX - Maximum MPH/ KPH or RPM MPH - Miles per hour KPH - Kilometers per hour RPM - Engine crankshaft revolutions per minute
4	Air Temp (if equipped) Engine Temp Degrees Celsius Degrees Fahrenheit
5	Miles/Kilometers
6	Hours Trip 1/Trip 2/Trip F Service Label Altitude Label
7	Fuel Level



FEATURES

Instrumentation

MFD Settings

The MFD control switch allows you to set the MFD display to your preferences. The rocker switch has a MODE button (top) and a SET button (bottom). Specific instructions are outlined on the following pages.

MFD settings can be made with the engine running or with the engine off. If the engine is off, make sure the stop switch is pressed down, and turn the ignition key to the START position briefly to activate the gauge. The gauge will illuminate for about 90 seconds.



MFD
Control
Switch



Standard vs. Metric

The MFD will display either standard or metric units of measurement. While viewing a screen that displays measurements (MPH, km/h or temperatures), press and hold the MODE switch until the unit of measurement changes (about 10 seconds).



Instrumentation

MFD Settings

Speedometer/Tachometer

If your model is equipped with both analog and digital displays, the speedometer and tachometer can be viewed in either display. If the analog display is set to show speedometer readings, the digital screen will automatically display the tachometer (option 1). If the analog is set to show the tachometer, the digital screen will show the speedometer (option 2).

To change viewing preferences, press and hold the MODE button for three seconds. When the button is released, the new setting becomes active and screen colors change. See table below.

Option	Analog Display	Digital Display	Analog Screen	Digital Screen
1	Speed	RPM	Blue "MPH"	Blue Backlight
2	RPM	Speed	Red "X100RPM"	Red Backlight

FEATURES

Instrumentation

MFD Digital Display Programs

Press and release the MODE button to cycle through the three MFD programs: Performance, Engine and History. Each program remains active until you cycle to the next program. While any program is active, press and release the SET button to cycle through the program's screens.

Performance Program

Press and release the MODE button until the performance program screen is active. The default display for this screen includes electrical system voltage (unless equipped with ACE suspension adjustment), fuel level (if equipped) and either speed or tachometer, whichever is selected. See page 39.

Press and release the SET button to cycle through the following screens: odometer, trip 1 odometer, trip 2 odometer, fuel trip odometer (if fuel is low) and clock (if equipped). Use the following procedures to make changes to these screens.

Odometer Setting

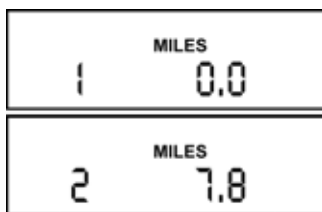
The odometer records the vehicle's total distance traveled since manufacture. The odometer cannot be reset.



Trip Settings

Trip 1 and Trip 2 are odometers used to check fuel mileage or to keep track of distance traveled. Both odometers can be reset to zero.

1. Enter the Performance Program.
2. Press and release the SET button until the desired trip screen is active.
3. Press and hold the SET button for two seconds to reset the trip odometer to zero.
4. Press and release the SET button to cycle through additional screens.



Instrumentation

MFD Digital Display Programs

Performance Program

Trip Settings

Trip F automatically displays when the fuel level is low if the snowmobile is equipped with an electronic fuel gauge. The fuel symbol and the last fuel bar on the MFD gauge (if equipped) will blink when the fuel level reaches 1/8 of a tank.

The Trip F odometer records distance traveled, and the fuel symbol continues to blink, until enough fuel is added to raise the level above 1/4 of a tank. The Trip F odometer will automatically reset to zero after refueling.



FEATURES

Instrumentation

MFD Digital Display Programs

Performance Program

Clock Setting (if equipped)

1. Enter the Performance Program.
2. Press and release the SET button until the clock screen is active.
3. Press and hold the SET button for five seconds.
4. When the hour starts flashing, press the SET switch *once* to advance one hour. (*Press and hold the SET button to advance the hours quickly.*)
5. Press and release the MODE button to save the hour. The minutes will begin flashing.
6. Set the minutes in the same manner.
7. When finished, press and release the MODE button to save the new setting. If the MODE button is not pressed within ten seconds, the gauge will automatically save the new entry.



Instrumentation

MFD Digital Display Programs

Engine Program

Press and release the MODE button until the engine program screen is active. The default display for this screen includes engine hours, electrical system voltage level, fuel level (if equipped) and either engine coolant temperature, air temperature (accessory) or altimeter (accessory).

Press and release the SET button to cycle through the following screens: hour meter, engine temperature, air temperature (available as an accessory), altimeter (available as an accessory) and turbo boost (if equipped).

Hour Meter

The hour meter records the total hours of engine operation since manufacture. This meter cannot be reset.

Engine Temperature

A thermometer measures water temperature, giving an indication of engine temperature.

Air Temperature (if equipped)

The MFD displays actual air temperature in either standard or metric units.

1. Enter the Engine Program.
2. Press and hold the MODE switch for ten seconds to switch between standard and metric units of measurement.



FEATURES

Instrumentation

MFD Digital Display Programs

Engine Program

Altitude (if equipped)

The rider can calibrate the altimeter for current atmospheric conditions. Altimeter accuracy will be +/-300 ft. (91 m) after adjustment.



1. Enter the Engine Program.

Tip: Press and hold the MODE switch for ten seconds to switch between standard and metric units of measurement. When "ALT" displays, the program is in the metric mode.

2. Press and release the SET button until the altimeter screen is active.
3. Press and hold the SET button for five seconds. When the digits begin to flash, release the button.
4. Press and release the SET button *once* to advance 50 feet (15 m).

Tip: *Press and hold* the SET button to advance quickly by 100-foot (30 m) increments.

5. Adjust the altitude display to within 50 ft. (15 m) of current altitude.

Tip: The gauge reads barometric pressure and allows the rider to compensate for daily fluctuations in air pressure. The gauge can adjust the displayed altitude to +/- 1300 ft. (396 m) from the preset value. It will adjust up to +1300 ft. (396 m) above the calibrated altitude. Once the +1300 ft. (396 m) offset has been reached, the next adjustment is -1300 ft. (396 m) from the calibrated altitude, and 50 ft. (15 m) will be added to the altitude each time the SET button is pressed.

6. Press and release the MODE button to set the reading at the adjusted value. If the MODE button is not pressed within ten seconds, the gauge will automatically save the new entry.

Instrumentation

MFD Digital Display Programs

History Program

Press and release the MODE button until the history program screen is active. This screen will always display electrical system voltage level and fuel level (if equipped).

Press and release the SET button to cycle through the Maximum Vehicle Speed, Maximum Engine RPM and Service Interval Reminder screens.

Maximum Speed/Maximum RPM

The gauge automatically logs the maximum speed and engine RPM even if the history program is not active in the display.

1. Enter the History Program.
2. Press and release the SET button until one of the two screens is active.

Tip: The MPH and RPM values are both reset at the same time. Reset the values before each run to obtain accurate readings.

3. Press and hold the SET button for three seconds to reset the recorded maximum values for both MPH and RPM.

Tip: Due to electrical noise, the MFD may occasionally display MAX MPH/RPM values that are not representative of actual values.



FEATURES

Instrumentation

MFD Digital Display Programs

History Program

Service Interval Reminder

The gauge logs the number of engine hours accumulated between service reminders. When the logged hours reaches the designated service interval (set by the user), the gauge provides a reminder that service is due. "SErVCE" will flash in the odometer area and "ENG" will flash in the icon area for five seconds each time the engine is started (until the service reminder is reset.) Use the following procedures to reset the reminder.



To reset the reminder at the existing interval:

1. Enter the History Program.
2. Press and release the SET button until the service interval screen is active.
3. Press and hold the SET button for *ten* seconds, continuing to hold even after the display begins to flash.
4. When the display stops flashing, release the button. The service interval has been reset.

Instrumentation

MFD Digital Display Programs

History Program

Service Interval Reminder

To reset the reminder at a new interval:

1. Enter the History Program.
2. Press and release the SET button until the service interval screen is active.
3. Press and hold the SET button for *five* seconds, until the hours begin to flash. Immediately release the button.
4. Press the button again, up to five times, to advance the reminder in 50-hour increments.

Tip: The maximum interval is 250 hours.

5. Press and release the MODE button to save the new settings.

To disable the service interval reminder:

1. Press the SET button once after reaching 250 hours on the display. The gauge will display "OFF".

FEATURES

Instrumentation

MFD Battery Replacement

Models equipped with the clock feature have a battery to power the clock. If the clock function of the MFD isn't working properly, replace the battery. Replacement batteries are available from your dealer.

1. Remove the plenum from the underside of the hood.
2. Locate the black battery compartment. It has a red wire and a brown wire with a white stripe. It's located about three inches down the main harness from the point where the harness connects to the MFD.
3. Cut the plastic cable tie from the outside of the compartment.
4. Carefully cut the bottom of the compartment (opposite the wires) to separate the heat-sealed seams. Squeeze the corners of the compartment inward so the battery is visible.

Tip: Note the orientation of the battery before removing it. An incorrectly installed battery will not maintain the clock.



Instrumentation

MFD Battery Replacement

5. Using needle-nose pliers, grasp the battery and rotate it so the leading edge of the battery is raised away from the battery holder. Pull the battery out gently.

Tip: The battery will not come out of the holder unless the leading edge of the battery is raised. Hold the battery compartment, not the wires, while removing the battery. Pulling on the wires will separate them from the battery holder.

6. Install a new battery with fingers only.
7. Seal the end of the battery compartment using high strength double-sided tape between the two compartment halves or high strength single-sided tape around the outside of the compartment.
8. Make sure the taped seam of the compartment faces the downward side of the wire harness.
9. Install a cable tie to secure the compartment to the wire harness in the same location where the previous cable tie was located. Make sure the battery wires are not stretched tight.

Gauge Cleaning

1. Wipe the gauge face as needed using a clean cloth and a mild soap and water solution. Wipe dry with clean, soft cloth.
2. Clean the back side of the gauge using a clean cloth and a mild soap and water solution. Do not remove the electrical connectors or protective rubber boot. Do not spray the back side of the gauge or the wire harness with a pressure washer or other water source.

NOTICE: To prevent damage to the lens, do not use alcohol for cleaning. Do not allow chemicals or sprays to contact the lens. Immediately clean off any gasoline that splashes on the gauge during refueling.

THE PERFECT FIT

IQ Front Suspension Adjustments

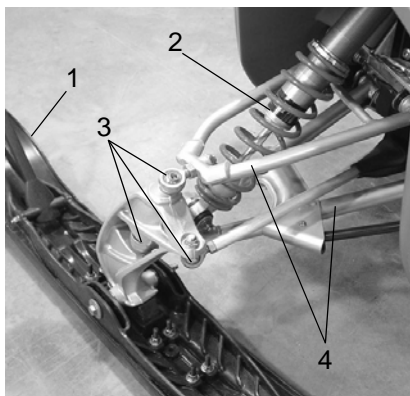
Independent Front Suspension (IFS)

Break in the suspension for approximately 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 snowmobile 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. Front shocks and springs
3. Rod ends
4. A-arms



General Representation

IFS Adjustment Options

- Front shock spring preload
- Optional springs
- Toe (ski alignment) (see page 128)
- Camber (see your dealer)

Front Shock Spring Preload

The factory preload setting should be appropriate for most riders and conditions. Please see your POLARIS dealer for assistance before attempting to adjust 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 lower spring retainer to fall off.

Rear Suspension Adjustments

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

Each rear suspension can be adjusted to suit rider preference and deliver the best 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.

Make adjustments to one area at a time so you can evaluate the change. For further assistance, please see your POLARIS dealer.

Suspension Performance Tips

- Rider weight usually determines the position at which the spring preload 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.
- In deep snow, a new rail slide will offer improved performance over a worn slide. It can also improve top speed.
- POLARIS offers track kits for improved flotation in deep snow. See your dealer for assistance.

Tip: 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 the suspension lubrication information beginning on page 95.

THE PERFECT FIT

Rear Suspension Adjustments

Initial Spring Preload Setting (Sag Method)

To set up the rear suspension torsion spring preload, measure the distance between the ground and rear bumper. This is measurement X.

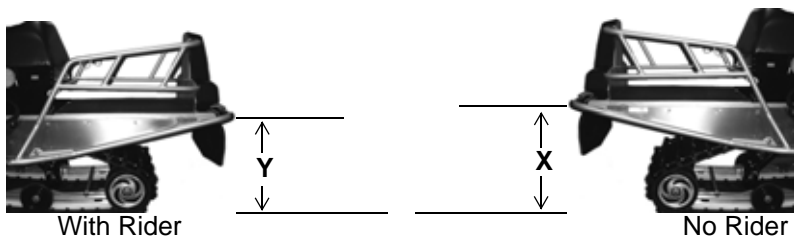
Take the first measurement with no rider and with the rear suspension at full extension.

Tip: The rear bumper may need to be raised slightly to fully extend the rear suspension.

Next, have the rider drop down hard on the seat and bounce up and down several times, collapsing the rear suspension. With the rider seated, measure the distance between the ground and the rear bumper at the exact location used for measurement X. This is measurement Y.

To determine sag, commonly referred to as ride-in, subtract measurement Y from X ($\text{sag} = X - Y$). Adjust sag by rotating the torsion spring preload cams located on the rear torque arm. See page 53.

The ideal amount of sag for this rear suspension is 2.5 inches (6.4 cm) ($X - Y = 2.5 \text{ in.} / 6.4 \text{ cm}$).



THE PERFECT FIT

Rear Suspension Adjustments

Torsion Spring Preload

To adjust rear torsion spring preload, rotate the three-position cam using the engine spark plug tool. This adjustment is easier to make if tension is relieved from the spring. Exercise extreme caution if you use this method of adjustment, and follow the steps below carefully.

WARNING! A sudden release of tension from a spring could result in serious injury. Wear eye protection and maintain a firm grip on the spring when removing and installing it.

1. Grasp the spring firmly with both hands.
2. Maintain a firm grip on the spring and carefully remove the long leg from the guide block. Be prepared for a sudden release of tension.
3. Carefully allow the leg to unwind and relieve tension from the cam.
4. Rotate the cam to the desired setting.
5. Rewind the long leg of the spring. Maintain a firm grip on the spring while reinstalling it into the guide block.

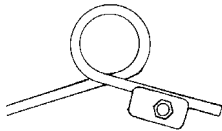
Tip: Different rate torsion springs are available if a firmer ride is desired. Contact your dealer for more information.

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.

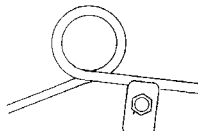
Soft (long end of cam to front)

Medium (short end of cam up)

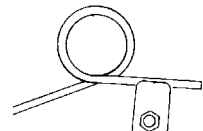
Firm (long end of cam up)



Soft



Medium



Firm

THE PERFECT FIT

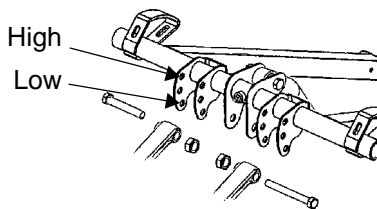
Rear Suspension Adjustments

Limiter Strap Position (Ski Pressure)

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.

High: Limiter strap in high position increases ski pressure

Low: Limiter strap in low position decreases ski pressure



Rear Suspension Adjustments **Shock Compression Valving**

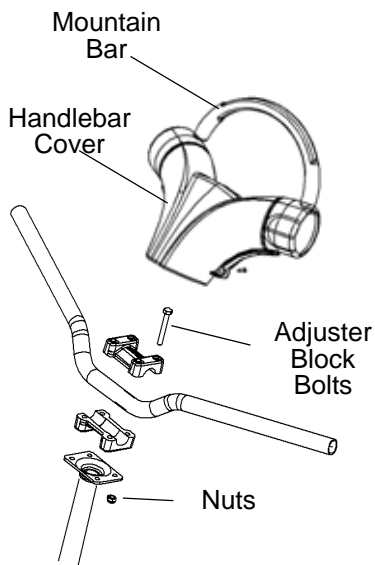
The rear track shocks for this model are gas charged shocks. The valving on the gas charged shocks is pre-set.

THE PERFECT FIT

Handlebar Adjustments

Use the following steps to adjust handlebar angle at the handlebar block.

1. Remove the mountain bar.
2. Remove the handlebar cover.
3. Using a 7/16" wrench, loosen the four nuts on the bottom of the adjuster block. Turn the handlebar to the left or right for access to the back nuts. If necessary, pry the blocks apart with a screwdriver.
4. Adjust the handlebar to the desired height. 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 turned fully to the left or right.
5. Torque the front bolts first, then torque the rear bolts. Torque the bolts to 15-17 ft. lbs. (20-23 Nm).
6. Reinstall the handlebar cover.
7. Reinstall the mountain bar.



Accessories

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

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

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

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

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	118
Steering System	60
Brake Fluid	61
Brake Lever/Parking Brake Lock	61, 62
Brake System	110
Throttle Lever	59
Throttle Safety Switch	59
Auxiliary Shut-Off Switch (Engine Stop Switch)	65, 76
Ignition Switch	65, 73
Taillight/Brakelight/Headlight	65
Coolant Level	105
Gearcase Oil Level	97
Engine Oil Level	86
Radiator/Cooling Fins (clean and remove any debris)	--
Foam Oil Breather Element	94
Suspension Mounting Bolts	64
Skags (Wear Bars)	64, 129
Ski Saddle and Spindle Bolts	64
Hood Straps/Latches	60
Seat Latches	59
Rear Wheel Idler Bolts	64, 125
Track Alignment/Condition	63, 126
Rail Slide Condition	126
Oil Level (check before operating if vehicle was tipped over)	66

PRE-RIDE INSPECTIONS

Before Starting the Engine

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

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

Read and Understand Your Owner's Manual

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

n Throttle Lever

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

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

n Throttle Safety Switch

Test the throttle safety switch system before the snowmobile is operated. See page 76 for procedure.

n Seat Latch

Check the seat latch before each use of the snowmobile. Push downward on the seat near the seat latch, then attempt to raise the seat by pulling upward on the right-hand passenger grab handle. Make sure the latch is secure before riding.

PRE-RIDE INSPECTIONS

Before Starting the Engine

▮ 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.

▮ Steering System

WARNING! Ice and snow build-up may interfere with the steering of your snowmobile, which could cause loss of control 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.

PRE-RIDE INSPECTIONS

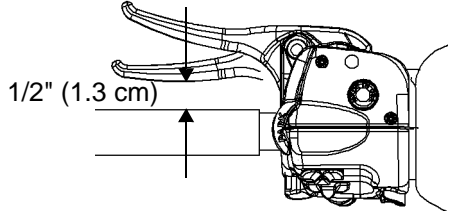
Before Starting the Engine

n Brakes

Always check the following items for 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. See pages 110-113 or see your dealer for service.



Brake Lever Feel

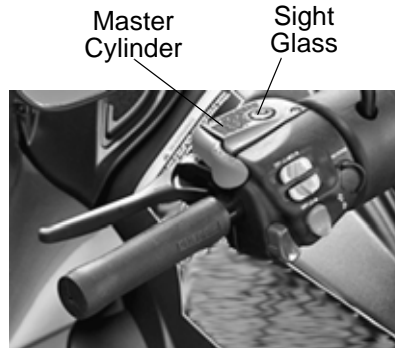
If the brake lever feels “spongy” when squeezed, check the brake fluid level and condition. Check for the presence of air in the fluid system. See pages 110-113 or see your dealer for service.

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.

n Brake Fluid

Check the brake fluid in the master cylinder before each ride.

View the brake fluid level through the sight glass on the top of the master cylinder. The eye will appear dark when the fluid level is full. If the sight glass is any color other than black, add brake fluid. See page 111.



PRE-RIDE INSPECTIONS

Before Starting the Engine

▮ Parking Brake Lever Lock

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

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.

Brake Lever Parking Brake Lever Lock



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

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

Lock Release

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

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

PRE-RIDE INSPECTIONS

Before Starting the Engine

n Track Inspection

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

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

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

PRE-RIDE INSPECTIONS

Before Starting the Engine

n Suspension Inspection

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

Item	Check	Page
Suspension mounting bolts	Tightness	--
Rear idler wheel bolts	Tightness	125
Rear idler adjusting bolt locknuts	Tightness	--
Torque arm bolts	Tightness	--
Carrier and bogie wheel bolts	Tightness	--
Front torque arm limiter strap	Condition	--
Rail slide	Condition	126
Track	Tension	124
All rear suspension components	Lubrication	96
Ski runner/skag	Condition	--
Ski spindle bolts	Tightness	--
Tie rod end nuts	Tightness	--

PRE-RIDE INSPECTIONS

Start the Engine and Check

n **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.

n **Ignition Switch**

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

n **Lighting**

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

n **Mirror Adjustment**

If equipped, adjust your mirrors so they can be used to their full advantage.

n **Operating Area**

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

PRE-RIDE INSPECTIONS

n Tip-Over Inspections

In the event of a tip-over or rollover, check the oil level before operating the snowmobile.

NOTICE: Failure to check the oil after a tip-over can result in serious engine damage. Always check the oil level before operating a snowmobile that has tipped over or rolled over.

Inspect the foam oil breather element any time the snowmobile has been tipped onto its left side. Clean the element if oil is present. See page 94.

NOTICE: Operating the snowmobile with a clogged foam oil breather element can result in severe engine damage. Always clean or replace the element as recommended.

In the event of a tip-over or rollover, the engine will stop. To restart the engine, turn the key to the OFF position, then restart.

WARNING! Operating a snowmobile with accident damage can result in serious injury or death. Do not operate the snowmobile if components have been damaged in a collision or tip-over. Have the snowmobile inspected by an authorized POLARIS dealer.

Fuel Safety

WARNING

Gasoline is highly flammable and explosive under certain conditions.

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

WARNING

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

OPERATION

Break-In Period

Engine Break-In

The break-in period for engine is the first 500 miles (800 km) of operation. No single action on your part is as important as following the procedures for a proper break-in. Careful treatment of a new engine and drive components will result in more efficient performance and longer life for these components.

NOTICE: Excessive heat build-up during the first 500 miles (800 km) of operation will damage close-fitting engine parts. Do not operate at full throttle or high speeds for extended periods during the break-in period.

POLARIS recommends the use of Performance Synthetic 4-Stroke oil (PS-4 or PS-4 Plus) for this engine. See page 85.

NOTICE: Use of non-recommended oil may cause serious engine damage. Always use the recommended oil for your POLARIS snowmobile.

1. Fill the fuel tank with the recommended fuel. See page 74.
2. Check the oil level in the oil tank. See page 86. Add oil if necessary to maintain at the recommended level.
3. Drive slowly at first. Vary the throttle positions. Do not operate at sustained idle.
4. Perform regular checks on fluid levels, controls and areas outlined on the daily pre-ride inspection checklist. See page 58.
5. During the break-in period, change both the oil and the filter at 500 miles (800 km) or before seasonal storage, whichever comes first.

Drive Belt Break-In

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

New drive belts that feature a sanded finish should be first washed with warm, soapy water and allowed to air dry prior to use.

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

Starting the Engine

1. Turn the key to the ON position.

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

2. Pull the engine stop switch up to the RUN position.
3. Do not apply throttle when starting the engine unless extremely cold temperatures (below $-15^{\circ}\text{F}/-26^{\circ}\text{C}$) prevent the engine from starting.

Tip: Under these conditions, attempt to start the engine without using the throttle. If two to three attempts are unsuccessful, apply 1/8 to 1/4 throttle while cranking the engine. *Ease off the throttle immediately* when the engine starts. Continue to apply just enough throttle to keep the engine running until it idles smoothly.

4. Turn the key to START to crank the engine. Release the key to the ON position when the engine starts.
5. Repeat the cranking procedure as needed until the engine starts.

Tip: Always allow the engine to warm up to full operating temperature ($150^{\circ}\text{F}/65^{\circ}\text{C}$) before shutting it down. Avoid starting and stopping the engine with less than 5 minutes of run time when the engine is cold.

OPERATION

Emergency Starting

If the battery is too weak to start the engine, and a battery charger is not available, the engine can be started using jumper cables and a charged battery from another vehicle. Carefully read and follow the instructions on the following pages.

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

WARNING! Loose-fitting clothing can get caught in the engine when the vehicle is running with the hood open. This can cause serious injury or death. Remove or control all items that could catch in the engine, including scarves, gloves, jackets and clothing straps and hooks.

NOTICE: If a car or truck battery will be used to jump start the snowmobile, turn the engine off. A running engine will put out too much electrical current for the snowmobile battery. Never attempt to jump start a discharged battery that is frozen.

Emergency Starting

1. *Always wear eye protection* when jump starting your vehicle.
2. Keep bystanders away from the vehicles.
3. Perform the emergency starting procedure in a well-ventilated area.
4. Position the vehicles close enough for the jumper cables to reach easily between the batteries, but do not allow the vehicles to touch each other.
5. Lock the parking brakes on both vehicles to prevent accidental movement.
6. Release the seat latch and raise the seat to access the battery.
7. Decide which of the jumper cables will be positive (usually red or yellow) and which will be negative (usually black).

WARNING! Never connect a jumper cable to the fuel system or fuel lines.

8. Pull back the red plastic boot covering the positive terminal of the weak battery. Connect one end of the positive jumper cable to the positive terminal of the weak battery.
9. Connect the other end of the positive jumper cable to the positive terminal of the charged battery.

NOTICE: Make sure that the end of the negative cable by the weak battery is not contacting the snowmobile battery or chassis.

10. Connect the other negative end of the jumper cable to the negative terminal of the charged battery.
11. Connect the end of the negative jumper cable by the weak battery to the CHASSIS of the snowmobile. There may be a small spark when this is done, but this is normal.

NOTICE: Always be sure that the jumper cables do not interfere with the belts, pulleys or clutches on either vehicle.

OPERATION

Emergency Starting

12. Make sure that the engine stop switch is in the UP position.
13. Attempt to start the vehicle.
14. If the engine does not turn over (crank over), wait 30 to 60 seconds and attempt to start the engine again. If the engine does not start, wait another 1 to 2 minutes and attempt to start the engine again.
15. If the engine still does not start, try adjusting the clips on the jumper cable ends to ensure that they have a good electrical connections. Repeat step 14.
16. If the engine still does not start, remove the jumper cables as outlined in step 17 and transport the snowmobile to an authorized POLARIS dealer for service.
17. Carefully remove the jumper cables in this order:
 - A. Remove the negative end of the jumper cable from the snowmobile chassis.
 - B. Remove the negative end of the jumper cable from the charged battery.
 - C. Remove the positive end of the jumper cable from the charged battery.
 - D. Remove the positive end of the jumper cable from the weak battery.
18. Lower the seat and secure the latch.

n Stopping the Snowmobile

The following chart lists methods for stopping the snowmobile. See page 76 for more information about the engine stop switch.

SYSTEM	WHAT IT DOES	THROTTLE CONDITION
Ignition Switch	Interrupts ignition circuit	All
Brake	Slows jackshaft	All
Engine Stop Switch	Interrupts ignition circuit	All

OPERATION

Fuel

NOTICE: Damage to the fuel pump will occur if the snowmobile is operated with an empty fuel tank. Do not allow the snowmobile to run out of fuel. Always refuel when the level is low.

For peak performance, 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).*

NOTICE: Operating with obstructed fuel systems will result in serious engine damage. Always perform maintenance as recommended.

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

Fuel Level

The fuel symbol and the last fuel bar on the MFD gauge will blink when the fuel level reaches 1/8th tank. There will be approximately one gallon of fuel remaining. Refuel as soon as possible. *Do not allow the snowmobile to run out of fuel.*

Fuel System Deicers

If you use non-oxygenated fuel, POLARIS recommends the regular use of 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 135 for the part numbers of POLARIS products.

If you use oxygenated fuel containing ethanol, additional alcohol deicers or water absorbing additives should not be used.

Track Warm-Up

WARNING

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

WARNING

Use of traction products such as studs, ice growers, 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.

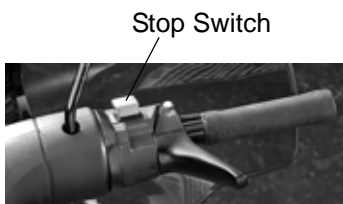
Tip: It will take longer to warm up the track sufficiently during colder outdoor temperatures.

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

OPERATION

n Engine Stop Switch

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



n Throttle Safety Switch

The throttle safety switch is designed to limit engine speed to 2400 RPM whenever all pressure is removed from the throttle lever and the throttle cable or throttle valves do not return to the normal closed position. If the throttle lever is depressed with a throttle valve error, the Malfunction Indicator Lamp will come on and vehicle speed will be limited to 18 MPH (29 km/h).

See page 35 for more information about conditions that will cause vehicle speed and engine speed to be limited.

WARNING! Operating the snowmobile with a faulty throttle safety switch can result in serious injury or death in the event of an accident. If the throttle safety switch does not limit engine speed to 2400 RPM when all pressure is removed from the throttle lever during a throttle malfunction, immediately push down the engine stop switch. Do not start the engine again until the malfunction has been corrected by your dealer.

This four-stroke snowmobile has a self-diagnostic check of the throttle safety switch. The switch operation is checked through the engine control unit for correct operation. If a defective switch is detected by the self diagnostics system, the MIL will illuminate. Take your snowmobile to an authorized POLARIS dealer for diagnosis and repair if the MIL is illuminated.

n Throttle Lever

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

If the engine speed limits at 2400 RPM when the throttle lever is released:

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

OPERATION

Reverse Operation

WARNING! Improper reverse operation, even at low speeds, may cause loss of control, resulting in serious injury or death. Damage will occur to the gearcase 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 snowmobile before and while backing.
- Avoid sharp turns.
- Apply throttle slowly.

Mechanical Reverse

Make sure the shift lever is shifted completely into forward or reverse position. The reverse indicator light in the gauge will illuminate when the lever is in the reverse position.

NOTICE: Do not force the shift lever into reverse if resistance is felt. The gears may not always be aligned for shifting into reverse, and forcing the lever may cause damage. If resistance is felt, gently apply the throttle to move the gears to a different position and try to shift again.

The transmission may not always be in the gear indicated by the shift lever. Apply the throttle slowly until you're sure which gear is engaged.

Sometimes the drive belt will drag in the drive clutch, causing slight tension in the transmission and making it hard to shift. Shutting the engine off will remove this tension and ease shifting. This should only happen during the break-in of a new belt or when the drive/driven clutch center distance is too long. If this is the case, belt tension adjustments should be made by your dealer.

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.

Remove the key and cover the snowmobile.

Towing

For your safety, do not attempt to use a tow hitch until you've read the following warnings and understand the proper hitch functions.

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.

Whenever towing or operating with a heavy load, place the transmission in low gear. Towing in high gear can result in belt damage. When operating in low gear, vehicle speed will be limited to protect the drive train.

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. Place the transmission in neutral, and have someone ride on the towed snowmobile to operate the brake and steering when necessary.

NOTICE: Towing a disabled snowmobile with the transmission in gear can result in serious damage to the engine and drive system. Always place the transmission of the disabled snowmobile in neutral before towing.

MAINTENANCE

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

Owner's Responsibilities

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

Non-ionizing Radiation

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

MAINTENANCE

POLARIS Recommended Maintenance Program

To ensure many trouble-free miles of snowmobiling enjoyment, follow recommended regular maintenance and perform service checks as outlined in this manual. Record maintenance and service in the Maintenance Log beginning on page 151.

The recommended maintenance schedule on your snowmobile calls for service and maintenance inspections at 150 miles (240 km), 500 miles (800 km) and 1500 miles (2400 km). These inspections should be performed by a qualified service technician. For continued optimum performance and component life, continue maintenance checks at 1500 mile (2400 km) intervals.

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

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

POLARIS does not recommend tipping the snowmobile onto its side for service. In the event of a tip-over or rollover, check the oil level before operating the snowmobile. Inspect the foam oil breather element any time the snowmobile has been tipped onto its left side. Clean the element if oil is present. See page 94.

NOTICE: Hot components can cause damage to plastic. Always make sure the exhaust system and engine have cooled if you must tip the snowmobile on its side for service or inspection.

MAINTENANCE

Periodic Maintenance Interval Table

O = Perform Service X = Replace			DAILY or PRE-RIDE	INITIALLY Miles (km)		YEARLY or EVERY Miles (km)
Item	Pg	Instructions (see referenced pages)		150 (240)	500 (800)	
Engine Stop Switch	65	Test for proper operation. Do not operate if switches fail, see your dealer for ser- vice.	O			
Ignition Switch	65		O			
Throttle Safety Switch	76		O			
Taillight	65	Test for proper operation, replace bulbs as needed	O			
Brakelight	65		O			
Headlight	65		O			
Skags (Wear Bars)	129	Inspect for wear or damage, replace when worn	O			
Fluid Leaks	--	Inspect for fluid leaks	O			
Parking Brake	62	Test for proper engage- ment and release, see your dealer for service	O			
Brake Lever	61	Check lever travel and lever "feel"	O			
Coolant	105	Inspect level, add as needed	O			
Brake fluid	61		O	CHANGE EVERY 2 YEARS		
Hood Latches	60	Secure properly, replace if damaged	O			
Seat Latches	59		O			
Rail Slide	126	Inspect for wear or damage, replace when worn	O			
Radiator/Cooling Fins	--	Inspect for debris, clean	O	O	O	O
Foam Oil Breather Element	94	Check pre-ride, clean or replace with each oil change. Check/clean after tipping onto left side.	O	O	O	O
Front and Rear Suspension and Steering Fasteners	64	Inspect for missing or loose bolts and fasteners, tighten or replace as needed	WEEKLY / BEFORE LONG TRIPS			
Front Limiter Strap	--	Inspect for wear, damage and missing or loose fasten- ers, replace as needed	WEEKLY / BEFORE LONG TRIPS			
Oil Lines	--	Inspect, replace if worn or damaged	O	O	O	O
Alternator Belt	102	Check tension and condi- tion, replace if worn or dam- aged	O	O	O	O
Throttle Lever	59 77	Verify smooth and proper operation	O	O	O	O
Track Alignment	126	Verify alignment, adjust as needed	O	O	O	O

MAINTENANCE

Periodic Maintenance Interval Table

O = Perform Service X = Replace			DAILY or PRE-RIDE	INITIALLY Miles (km)		YEARLY or EVERY Miles (km)
Item	Pg	Instructions (see referenced pages)		150 (240)	500 (800)	1500 (2400)
Coolant Hoses	--	Inspect, replace if worn or damaged		O	O	O
Heat Exchangers	--	Inspect, replace if damaged		O	O	O
Fuel Lines	101	Inspect, replace if worn or damaged		O	O	O
Battery	130	Clean terminals, test voltage		O	O	O
Track Tension	124	Verify tension, adjust as needed		O	O	O
Handlebars	--	Verify alignment, adjust as needed		O	O	O
Rear Track Shock	--	Inspect covers and caps for wear or damage, replace as needed			EVERY	
Gearcase Oil	97	Check at 500 mi. (800 km), change every 1000 mi. (1600 km)			O	EVERY 1000 (1600)
Rear Suspension	96	Lubricate pivot shafts (more often in wet snow conditions)			O	O
Bearings	95 133	Lubricate drive shaft bearings			O	O
Throttle Cable	95	Lubricate			O	O
Clutches	117	Verify offset alignment, inspect for wear, residue, loose bushings, see your dealer for all service			O	O
Drive Belt	118	Check tension and condition, replace if worn or damaged			O	O
Oil Change	90 94	Replace oil and clean the foam oil breather element			X	X

MAINTENANCE

Periodic Maintenance Interval Table

O = Perform Service X = Replace			DAILY or PRE-RIDE	INITIALLY Miles (km)		YEARLY or EVERY Miles (km)
Item	Pg	Instructions (see referenced pages)		150 (240)	500 (800)	
Engine Mounts	--	Inspect, replace if worn or damaged		O	O	
Spark Plugs	99	Inspect condition/gap, replace as needed		O	O	
Exhaust System	103	Check muffler and pipe condition, replace damaged or missing components, clean plastic surfaces		O	O	
Hoses	--	Inspect for wear, damage and proper routing, replace as needed		O	O	
Brake Pads/Disc	110	Inspect, replace if worn or damaged		O	O	
Fuel Vent Lines	101	Inspect, replace if worn or damaged		O	O	
Ski Toe	128	Verify alignment, see your dealer for adjustments		O	O	
Driveshaft Coupler	95	Lubricate			O	
Valve Lash	--	Intake: 0.08 - 0.15 mm Exhaust: 0.15 - 0.20 mm			1500 (2400) INITIALLY EVERY 10,000 (16,000) THEREAFTER	
Cooling System	107	Bleed the cooling system, inspect for leaks and proper circulation			EVERY 2000 (3200)	
Fuel Filter	101	Inspect, replace as needed			EVERY 2000 (3200) or EVERY 2 YEARS	

Engine Oil

Always check and change the engine oil at the intervals outlined in the Periodic Maintenance Table beginning on page 82. Always change the oil filter whenever changing oil. See page 135 for the part numbers of POLARIS products.

Oil Recommendations

POLARIS recommends the use of Performance Synthetic 4-Stroke oil (PS-4 or PS-4 Plus) for this engine. PS-4 has been specially formulated for use in POLARIS 4-cycle snowmobile engines. It's a fully synthetic, high performance, multi-viscosity oil designed to provide the ultimate in lubrication performance and protection.

Oil may need to be changed more frequently if POLARIS PS-4 oil is not used. Follow the manufacturer's recommendations for ambient temperature operation.

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

MAINTENANCE

Engine Oil

n Oil Level Check

Note: Read the entire oil check procedure before checking the oil level.

The oil level will rise as engine temperature increases. The oil level will be lower when the engine is cold. To obtain a proper oil level reading, the snowmobile must be on a level surface, and the engine coolant temperature must be between 145 and 160° F. (63-71° C).

Always check the oil level before operating a snowmobile that has tipped over.

NOTICE: Severe engine damage may occur if procedures for checking the oil level are not followed precisely. Always check the oil with the snowmobile positioned on a level surface. Always check the oil level when the coolant temperature is within the specified range.

Engine Oil

n Oil Level Check

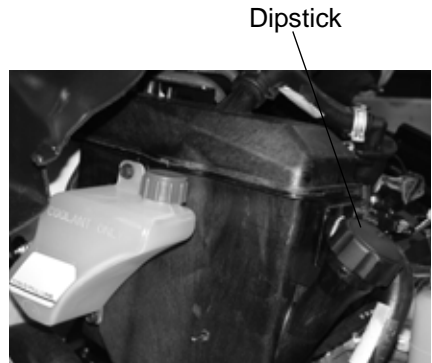
The oil level in the oil bottle may drain below the level of the dipstick if the engine has not run for more than a week. If you're not sure if there is oil in the system, you must first check to make sure oil is in the system before checking the oil level. Perform the "Oil in System Check" procedure on page 89 before performing the oil level check.

1. Position the vehicle on a level surface.
2. If the engine is cold, start the engine and allow it to idle until the engine coolant temperature reaches the specified range. Proceed to step 4.
3. If the engine has been running, stop the engine and verify that coolant temperature is within the specified range for performing the oil check. Allow the engine to cool if necessary. When the coolant is within the specified range, restart the engine and allow it to idle for no more than 20 seconds to circulate the oil back into the tank.
4. Turn the engine off.

Tip: Check the oil level within three minutes, before the coolant temperature (and oil level) begin to drop.

5. Remove the dipstick from the oil tank.
6. Clean the dipstick with a clean shop towel and reinstall it, screwing it in completely.
7. Remove the dipstick and view the oil level.

Tip: The oil level reading will be accurate for only one to three minutes after turning off the engine. If the oil check isn't completed within three minutes, reinstall the dipstick. Restart the engine and allow it to idle for no more than 20 seconds to circulate the oil back into the tank.



MAINTENANCE

Engine Oil

n Oil Level Check

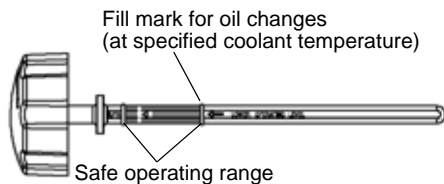
8. Maintain the oil level in the safe operating range, between the upper and lower marks on the dipstick. If the level is low, add the recommended oil in small increments, about 2 ounces (60 ml), and recheck the level.

Tip: If the level is low, or when changing the oil, add only enough oil to bring the level to the bottom of the safe operating range on the dipstick.

9. If the level is high, remove 2 ounces (60 ml) and recheck the level.

NOTICE: Do not overfill the oil tank. Engine damage may occur. Always add oil in small increments and recheck the level to avoid overfilling.

10. Recheck the oil level if oil was added or removed, making sure the coolant temperature is within the specified range. If necessary, continue adding or removing oil until the level is in the safe operating range.



Engine Oil

Oil in System Check

1. Position the vehicle on a level surface. Start the engine and allow it to idle 3-5 seconds (no more than 5 seconds). Turn the engine off.
2. Remove the dipstick. Clean the dipstick with a clean shop towel and reinstall it, screwing it in completely. Remove the dipstick and verify that oil is present anywhere on the dipstick.
3. If oil is present, continue with the oil level check procedure beginning on page 86.
4. If oil is not present, add 1/2 quart (.47 l) of the recommended oil. Reinstall the dipstick, start the engine for no more than 5 seconds, stop the engine, and recheck for the presence of oil.
5. If oil is present, continue with the oil level check procedure beginning on page 86.
6. If oil is not present, add another 1/2 quart (.47 l) of oil. Reinstall the dipstick, start the engine for no more than 5 seconds, stop the engine, and recheck for the presence of oil.
7. If no oil is present on the dipstick, check the oil system for leaks and proper operation or see your POLARIS dealer.

MAINTENANCE

Engine Oil

Oil Change

Always change the oil at the intervals outlined in the Periodic Maintenance Table beginning on page 82. Clean the foam oil breather element with each engine oil change. See page 94.

Always use the recommended oil. See page 86, or see your POLARIS dealer about oil change kits, which contain a new filter and the recommended oil.

Tip: A special jumper harness is required for changing the oil on this vehicle. Please see your POLARIS dealer to purchase the harness, which will allow you to use the ignition key to turn over the engine without starting it. You may also need an assistant to help with the oil change.

1. Position the vehicle on a level surface.
2. Make sure the engine coolant temperature is between 145 and 160 degrees F. (63-71 degrees C). If necessary, start the engine and allow it to idle until the coolant temperature is within the specified range.
3. Turn the engine off.

CAUTION! Hot oil and a hot exhaust system and engine can cause burns. Do not allow hot oil or hot components to contact skin.

4. Open the hood and remove the right side panel.

Tip: Clamp orientation is critical to the proper operation of the system. Be aware of clamp placement and orientation when removing hose clamps. Always reinstall hose clamps in the same location and position.

Engine Oil Oil Change

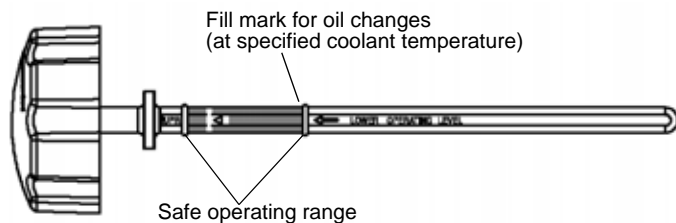
5. Remove the oil return hose from the oil tank. Have an assistant place the end of the hose into a drain pan.
6. Disconnect the 2-pin WHITE/RED and GREEN/WHITE starter motor solenoid control switch harness connector located near the battery.
7. Rotate the plug 90 degrees and reinstall it with the WHITE/RED wire connected.
8. Insert the male pin of the jumper harness into the starter solenoid's female port.
9. Open the handlebar cover. Locate the 3-pin connector with the BROWN and RED/WHITE wires. Plug this connector into the 3-pin connector of the jumper harness.
10. Open the fuse box and remove the 20A EFI fuse from the fuse block.
11. Reinstall the right side panel.
12. Have an assistant use the ignition key to turn over the engine. Crank the engine for 15 seconds.
13. Wait 30 seconds to allow the starter motor to cool down.
14. Repeat steps 12 and 13 four more times for a total of five cycles.
15. Reconnect the oil return line to the oil tank. Make sure the hose and clamp are properly seated. Make sure the clamp is in the correct orientation. Refer to the NOTE following step 4.
16. To prevent oil spillage, wait 3 to 5 minutes to allow any oil in the oil filter cap to drain out before removing it. While waiting, remove the foam oil breather element from the airbox. See page 94.
17. Inspect the foam element. Clean it with soap and water and let it dry. Reinstall it, or install a new element if the existing element is damaged or degraded and unable to absorb liquid.

MAINTENANCE

Engine Oil

Oil Change

18. Remove the oil filter cap, then remove the oil filter. Inspect the o-ring and replace it if it's worn or damaged.
19. Install a new filter, then reinstall the cap. Tighten the cap to 18.5 ft. lbs. (25 Nm).
20. Remove the jumper from the starter motor wiring harness. Reconnect the solenoid and the originally-installed harness. Reinstall the 20A EFI Fuse.
21. Remove the dipstick from the oil tank. Add 2 quarts (1.9 liters) of the recommended oil. Reinstall the dipstick.
22. Start the engine and allow it to idle for 3-5 minutes. Make sure the engine coolant temperature is between 145 and 160 degrees F. (63-71 degrees C).
23. Stop the engine.
24. Remove the dipstick from the oil tank. Clean the dipstick with a clean shop towel and reinstall it, screwing it in completely.
25. Remove the dipstick and view the oil level.



Engine Oil Oil Change

26. Add additional oil to bring the level slightly above the lower mark (in the safe operating range) on the dipstick. See the chart for approximate amounts to add at this step. **DO NOT OVERFILL.**

MODEL	OIL TO ADD AT STEP 26	
	Ounces	Milliliters
FS IQ Widetrak	4 to 16	118 to 473

Tip: Check the oil level often during the fill procedure to avoid overfilling. If the filling and checking procedure is not completed within three minutes, reinstall the dipstick. Restart the engine and allow it to idle for *no more than 20 seconds* to circulate the oil back into the tank. Continue adding and checking the oil until the level is slightly above the lower mark (in the safe operating range) on the dipstick. Do not overfill.

27. Reinstall the dipstick.

MAINTENANCE

n Foam Oil Breather Element

The foam oil breather element absorbs small amounts of liquid to protect sensors within the intake system from damage due to oil ingestion. Check the element before each ride. Clean or replace the breather element at each engine oil change. Inspect the foam oil breather element any time the snowmobile has been tipped onto its left side. Clean the element if oil is present.

NOTICE: Operating the snowmobile with a clogged foam oil breather element can result in severe engine damage. Always clean or replace the element as recommended.

The foam oil breather element is located inside the airbox.

1. Open the hood.
2. Release the airbox cover retaining clips and remove the cover.
3. Remove the foam breather element.
4. Wash the foam element in soapy water, then rinse thoroughly and let dry.



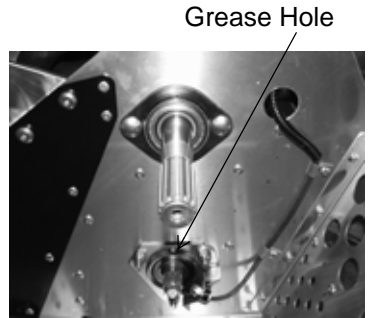
Size and shape may vary between models

- Tip:** If soap and water are not readily available, remove as much liquid as possible by pressing the foam element in paper towels or a similar absorbent material.
5. Reinstall the dry foam element, or install a new foam element.
- Tip:** Always replace a foam element that is brittle, cracked, crumbling or otherwise damaged. For best performance, routinely replace the foam element with every other engine oil change.
6. Reinstall the airbox cover. Secure all retaining clips.

Lubrication

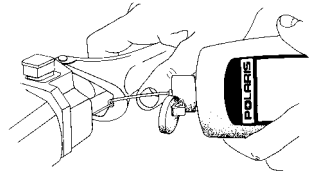
Driveshaft Bearing

Using a needle-nose grease gun, inject grease into the grease hole on the top edge of the bearing flange until grease purges from the seal on the inside of the tunnel. This should take approximately two pumps each. Do not use more than four pumps.



Throttle Cable

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

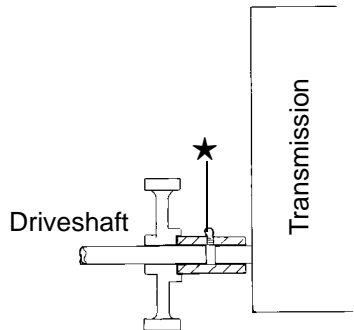


Front Suspension

The front suspension and steering components do not require lubrication.

Coupler Lubrication

Grease the *driveshaft* coupler only. The jackshaft on this model is a one-piece jackshaft that requires no lubrication.



MAINTENANCE

Lubrication

Rear Suspension

Lubricate the suspension pivot shafts with POLARIS Premium All Season Grease at the intervals outlined in the Periodic Maintenance Table beginning on page 82 and before seasonal storage. When operating in heavy, wet snow conditions, lubricate every 500 miles (800 km).

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

Gearcase Oil

Check and change the gearcase oil at the intervals outlined in the Periodic Maintenance Table beginning on page 82.

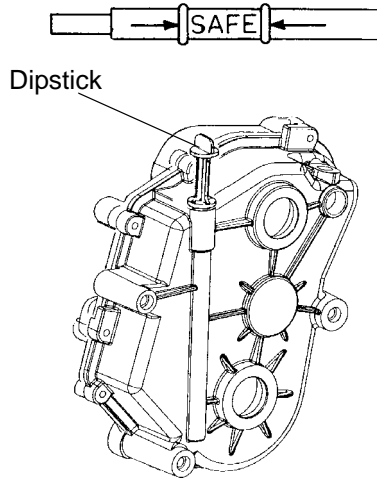
POLARIS recommends the use of POLARIS PS-4 PLUS engine oil for this gearcase. See page 135 for the part numbers of POLARIS products.

NOTICE: Mixing brands or using non-recommended lubricants could result in excessive wear to chain, sprockets and bearings. Always use POLARIS-recommended products for your vehicle.

n Gearcase Oil Check

Maintain the oil level in the safe operating range, between the upper and lower marks on the dipstick.

1. Position the vehicle on a level surface.
2. Remove the dipstick and wipe it dry with a clean cloth. Reinstall the dipstick.
3. Remove the dipstick and view the oil level.
4. Add the recommended oil as needed. Do not overfill.
5. Reinstall the dipstick.



MAINTENANCE

Gearcase Oil

Gearcase Oil Change

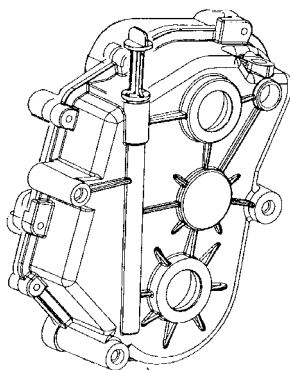
The drain plug is located on the bottom of the gearcase.

Tip: POLARIS does not recommend tipping the snowmobile onto it's side for service. Any time the snowmobile is tipped onto it's left side, always check the oil level and clean the foam oil breather element. See page 94.

1. Position the vehicle on a level surface.
2. Using a 3/16" Allen wrench, remove the drain plug.
3. Drain the oil into a drain pan. Allow the oil to drain completely.
4. Thoroughly clean the magnetic drain plug.

Tip: The sealing surfaces on the drain plug and the gearcase should be clean and free of burrs, nicks or scratches.

5. Reinstall the drain plug. Torque to 6-10 ft. lbs. (8-13 Nm).
6. Remove the dipstick.
7. Add 20 oz. (591 ml) of the recommended oil. See page 97. *Do not overfill.*
8. Reinstall the dipstick, making sure it is seated properly.



Magnetic
Drain Plug

Spark Plugs

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.

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

- Use recommended spark plugs with the proper gap.
- Use only resistor-type spark plugs.
- Torque spark plugs to 18-20 ft. lbs. (24-27 Nm).

Check the spark plug firing end condition after the engine has been warmed up and the vehicle has been driven at higher speeds. If a plug is fouled, replace the plug with a new plug.

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

MAINTENANCE

Spark Plugs

Normal Spark Plug

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

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

Wet Fouled Spark Plug

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

Intake Filters

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



Fuel Injectors

All fuel injector service must be performed by an authorized POLARIS dealer. Do not attempt to clean or service the fuel injectors.

Fuel Pump

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

Fuel Filter

See your POLARIS dealer for replacement of the fuel filter at the intervals outlined in the Periodic Maintenance Table beginning on page 82.

Contaminated or poor quality fuel will shorten the life of the fuel filter and result in poor engine performance. Always store fuel in clean fuel containers. If low fuel pressure or reduced engine performance occurs between the recommended fuel filter service intervals, the filter may need replacement. See your dealer.

Fuel Lines

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

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

MAINTENANCE

n Alternator Belt Inspection

Inspect the alternator belt condition and tension before each ride.

1. Stop the engine.
2. Open the hood.
3. Inspect the belt for wear, cracks or other damage. If the belt is worn or damaged, install a new belt.
4. Grasp the alternator belt and attempt to twist it.
5. If the belt rotates 1/4 turn (90°) or more (as shown), tighten the belt or install a new belt.



Foam Oil Breather Filter

Clean or replace the breather element at each engine oil change. Inspect the foam oil breather element any time the snowmobile has been tipped onto its left side. Clean the element if oil is present. See page 94.

Exhaust System

Check the exhaust system for wear or damage at the intervals outlined in the Periodic Maintenance Table beginning on page 82.

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

1. Allow the engine and exhaust system to cool completely.
2. Open the hood.
3. Inspect the muffler and pipes for cracks or damage. Check for weak or missing retaining springs or damper/support grommets.
4. Replace any damaged or missing components.
5. Clean the plastic surfaces next to the muffler with aerosol Carburetor and Throttle Body Cleaner. See page 135 for the part numbers of POLARIS products.
6. Close the hood.

MAINTENANCE

Cooling System

Coolant

The coolant supplied in the system is a 60/40 mixture of ethylene-glycol and distilled water. This mixture provides protection against freezing. Contact your dealer if greater protection is required.

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. See page 135 for the part numbers of POLARIS products.

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

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

CAUTION! Steam and hot liquids will cause burns to your skin. Never remove the pressure cap when the engine is warm or hot.

Cooling System

n Coolant Level

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

- Coolant recovery bottle
- Coolant reservoir
- Pressure cap
- Connecting hoses

Always maintain the coolant level at the “COLD FILL” mark on the coolant recovery bottle (when the engine is cold).

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

“COLD
FILL” Level



MAINTENANCE

Cooling System

Coolant High Temperature Indicator Light

The high temperature indicator light will illuminate when engine coolant temperature becomes too hot for safe continued operation of the engine. *Stop the snowmobile and allow the engine to cool.* To cool the engine, drive the snowmobile into soft snow so that it comes into contact with the heat exchangers on the snowmobile. Alternately, you can stop the snowmobile and pack snow or ice onto the heat exchangers to bring the temperature of the engine down.

If coolant is low in the coolant reservoir, add coolant to the coolant recovery bottle. Do not open the radiator pressure cap.

CAUTION! Steam and hot liquids will cause burns to your skin. Never remove the pressure cap when the engine is warm or hot, or if any part of the cooling system is warm or hot.

NOTICE: Operating the snowmobile when the high temperature indicator light is illuminated can result in serious engine damage. Always stop the snowmobile and cool the engine when the high temperature indicator light illuminates.

Drive in adequate snow to prevent overheating. If you must drive your snowmobile after the high temperature indicator light has illuminated, drive in deep snow. Drive slowly and stop frequently to allow the engine to cool down. Engine performance will be reduced if you continue operating when the high temperature light is illuminated.

Cooling System

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 mixture of antifreeze and distilled water should be added. Have your POLARIS dealer perform this service.

Bleeding the Cooling System

Bleed the cooling system at the intervals outlined in the Periodic Maintenance Table beginning on page 82. In addition, bleed the cooling system any time one or more of the following conditions exist.

- A component of the cooling system has been serviced or replaced (including coolers, radiator, engine, coolant lines and oil cooler)
- A cooling system failure occurs, resulting in coolant loss
- A coolant line has been disconnected for any reason
- A coolant leak occurs

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

1. Read and understand the entire coolant bleed procedure before beginning. *Do not start the engine until instructed to do so.*
2. Move the snowmobile into a well-ventilated area. Allow the engine to cool completely.
3. Place the transmission in neutral.
4. Raise and support the front of the snowmobile so the front bumper is at least 30 inches (76 cm) from the ground.

MAINTENANCE

Cooling System

Bleeding the Cooling System

5. Remove the bleed screw on the radiator. Do not lose the washer.
6. Remove the coolant pressure cap from the coolant reservoir.
7. Fill the coolant reservoir until coolant bleeds out the radiator bleed screw removed in step 4. Reinstall the bleed screw and washer and tighten.
8. Continue filling the coolant reservoir to 3/4 full. This may require adding coolant several times.

Tip: Monitor the coolant level throughout the following steps, adding coolant as needed.

9. Reinstall the coolant pressure cap onto the coolant reservoir to the first click only.
10. Disconnect the radiator fan power connector.
11. Ensure that the transmission is in neutral and start the engine.

Tip: Monitor engine coolant temperature on the MFD (press the mode button once to view the screen).

12. Refill the coolant reservoir to 3/4 full (as needed) while allowing the engine to reach 160° F. (71° C.).

Tip: Increase engine speed to 4000 RPM intermittently (1-2 seconds) throughout the following steps.

13. When coolant temperatures reach 185° F. (85° C.), pinch off the coolant hose to the radiator using a vice-grip pliers with the jaws covered (rubber hose or tape over the jaws) to prevent damage to the coolant hose. This will help push the air out of the rear coolers.

Cooling System

Bleeding the Cooling System

14. Monitor engine coolant temperature. When it reaches 195° F. (90 ° C.), remove the vice-grip pliers.
 15. Continue monitoring temperature until it reaches 205° F. (96 ° C.). Fill the reservoir completely full, then install and tighten the pressure cap securely.
 16. Fill the coolant recovery bottle to the top of the white label on the side of the bottle.
 17. Stop the engine. Leave the front bumper elevated and allow the engine to cool for one hour.
 18. Lower machine to the ground after the one-hour cool-down.
 19. Make sure the coolant reservoir is completely full (add coolant as needed).
 20. Add coolant to the recovery bottle to the “COLD FILL” level.
 21. Reconnect the power lead to the radiator fan.
 22. Monitor coolant levels during operation and add coolant as needed.
- Tip:** Air will continue to bleed from the system for several hundred miles and may require adding some coolant to maintain a "full" level.

MAINTENANCE

Brakes

Hydraulic Brake Inspection

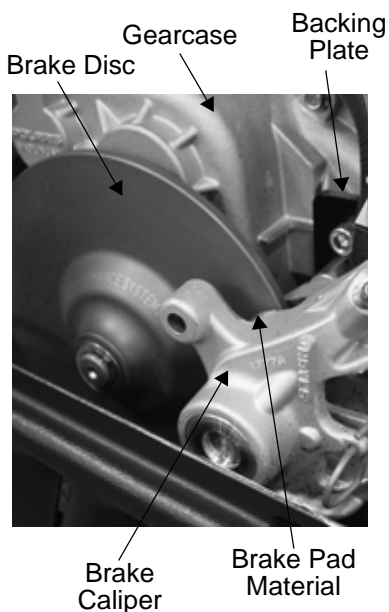
Inspect the brake lever reserve before each use of the snowmobile. See page 61.

Brake pads must be replaced when the brake pad material becomes thinner than the backing plate, approximately 1/16" (1.5 mm). A kit is available for replacing brake pads. See your dealer.

WARNING! Brake failure during operation can result in serious injury or death. 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" (1.5mm).

Brake Components

- Brake Caliper
- Gearcase
- Brake Disc
- Backing Plate
- Brake Pad Material -
Replace when thickness is less than 1/16" (1.5 mm).



Brakes

n 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 serious injury.

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

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

Check the brake fluid in the master cylinder before each ride.

View the brake fluid level through the sight glass on the top of the master cylinder. The eye will appear dark when the fluid level is full. If the sight glass is any color other than black, add brake fluid.

1. Position the handlebars so the master cylinder is level.
2. Remove the master cylinder cover.
3. Add DOT 4 brake fluid only. Do not overfill. See page 135 for the part numbers of POLARIS products.



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 or 1/4"-5/16" (.6-.8 cm) below the lip of the reservoir opening. Reinstall the gasket and cover.
3. Slip a rubber tube over the ball of the bleeder valve and direct the flow of fluid into an approved container.
4. Squeeze the brake lever a full stroke. Then unscrew the bleeder valve 3/4 of a turn to release air.

Brakes

Bleeding the Hydraulic Brake System

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 61.
8. Reinstall the gasket and cover.

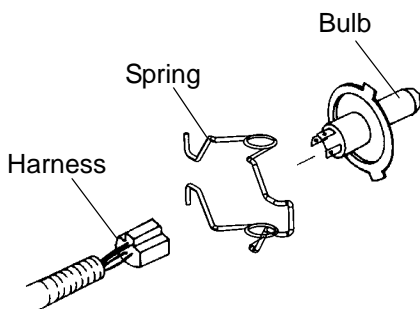
MAINTENANCE

Lights

Removing Halogen Bulbs

Tip: 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. If fingers do touch the bulb, clean it with an alcohol-moistened towel.

1. Remove the plenum covering from the headlight assembly. Lift the rubber boot to expose the bulb.
2. Push down on the spring to release it from the housing.
3. With the wire harness attached to the bulb, withdraw the bulb from the housing.
4. Grasp the bulb by its metal base and carefully separate the bulb from the harness.



Lights

Installing Halogen Bulbs

1. Hold the bulb by its metal base and install it into the wire harness.
2. Insert the bulb into the housing.
3. Connect the spring to the housing.
4. Carefully flip the spring back into the housing, placing it around the wire harness.
5. Reinstall the plenum covering on the headlight assembly.
6. Adjust headlight aim. See page 31.

Replacing Taillight Bulbs

1. Remove the screws securing the taillight cover and remove the cover.
2. Remove the taillight lens.
3. Push the bulb in and twist it counterclockwise to remove it.
4. Install the new bulb.
5. Reinstall the taillight lens.
6. Reinstall the taillight cover.

MAINTENANCE

Electrical System

RELAY LABEL	FUSE LABEL	ITEM POWERED	
START SOLENOID RELAY		Ground side of start solenoid	
CHASSIS RELAY	SPARE 20A	None	
	ACCESSORY EMERGENCY SPARE 30A	Accessory plugs	
	CHASSIS 30A		High beams
			Low beams
			Handwarmers
			Thumbwarmer
			Passenger handwarmers
			Work light
			Tail lamp
			Brake lamp
			Alternator coils
EFI RELAY	EX. SENSOR GAUGE 20A	Exhaust sensor	
		Gauge	
		Accessory projector beam relay	
		Diagnostic plug	
	IGNITION 20A	Ignition relay power	
	EFI 20A		Cam phase sensor
			ECU hold-on power
			Forward limit switch
			Start relay coil
			Chassis relay coil
			Ignition relay coil
			Fuel pump relay coil
			Fan relay coil
			Fuel pump relay power
			PTO injector
MAG injector			
IGNITION RELAY		PTO ignition coil	
		MAG ignition coil	
FUEL PUMP RELAY		Fuel pump	
FAN RELAY		Radiator fan	

Clutch System

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

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

WARNING! 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.

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

Clutch Alignment Offset

Clutch alignment offset is important for maintaining optimum performance. Please see your POLARIS dealer if you experience a decrease in performance.

Clutch Center Distance

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

MAINTENANCE

Clutch System

▮ Drive Belt Condition

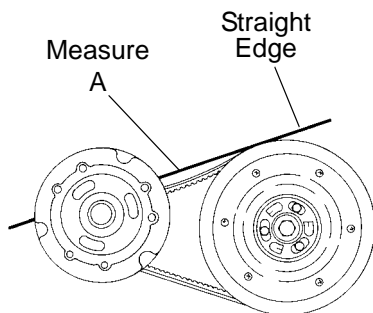
Periodically check the condition and tension of the drive belt, and always carry a spare. Inspect the belt for signs of excessive wear: frayed edges, missing cogs, cracks and excessive looseness. Replace the belt if any of these conditions exist. See Drive Belt Troubleshooting on page 141.

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

▮ Drive Belt Deflection

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

Place a straight edge on the belt and apply downward pressure while measuring at point A. This measurement should be $1 \frac{1}{4}$ " (3.2 cm).



Clutch System

Drive Belt Adjustment

Belt deflection should be adjusted without removing the clutch from the jackshaft.

1. Loosen the 7/16" jam nut on the belt width adjuster.
2. Using a 1/8" Allen wrench, adjust the threaded set screw as needed.
Tip: 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.

MAINTENANCE

Clutch System

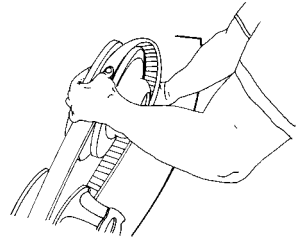
Drive Belt Removal

NOTICE: Do not attempt to remove the drive belt after operating in reverse. The snowmobile must be stopped after forward motion to prevent damage to components during belt removal.

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

Clutch System Drive Belt Installation

1. Drop the drive belt over the drive clutch and pull back the slack. The belt cord line should be flush with, or slightly above, the outer circumference of the driven clutch sheaves. The belt will seat itself in the driven clutch during the break-in period. Adjust the belt ride-out after the break-in period by readjusting belt deflection.



- Tip:** 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 counter-clockwise to tighten the sheaves while working the belt to the outer edge of the sheaves.
 3. Remove the wrench.
 4. Reinstall the side panel.
 5. Close and secure the hood.
 6. Break in the new belt. See page 68.

MAINTENANCE

Track Replacement

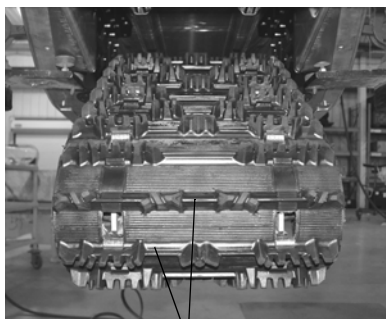
When replacing the track, always install a track having the lug size recommended for your model. See your POLARIS dealer.

NOTICE: Installing tracks with larger lugs on machines equipped with coolers will result in damage to the cooler or tunnel. Always install a track having the lug size recommended for your model.

Track Inspection

WARNING! Broken track rods 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.

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



Rods

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.

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

NOTICE: High speed use on hard-packed surfaces is not recommended for models equipped with a deep lug track. Track lug damage may occur. Keep high speed use to a minimum, including frequent slow-speed intervals for track cooling.

MAINTENANCE

Track Tension

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

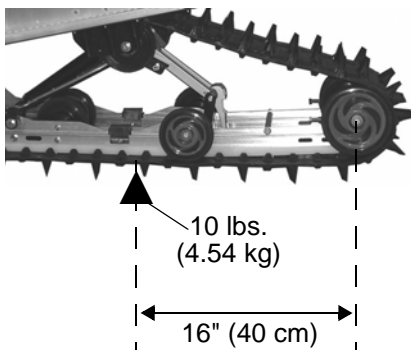
Track adjustment is critical for proper handling. Always maintain correct tension and alignment.

TRACK TENSION DATA CHART			
Suspension	Slack Measurement	Weight	Measurement Location
FS IQ Widetrak	1/2"-3/4" (12-19 mm)	10 lbs. (4.54 kg)	16" (40 cm) ahead of rear idler shaft

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

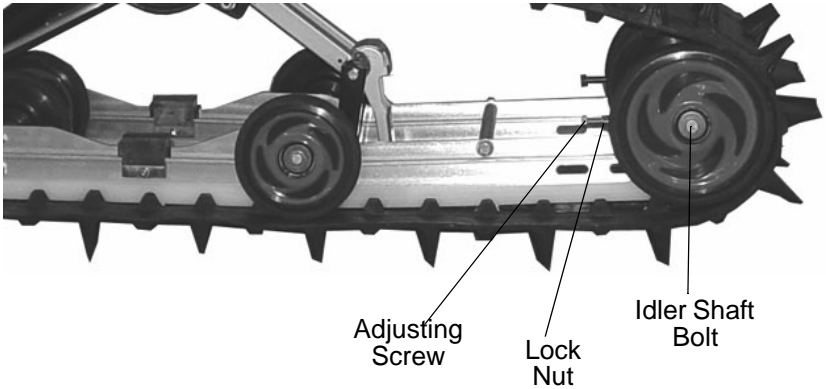
1. Turn the engine off.
2. Lift the rear of the snowmobile and safely support it off the ground.
3. Place the recommended weight or downward pressure on the track at the specified distance (see chart) ahead of the center of the rear idler wheel.

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



Track Tension

4. Check for specified slack between the wear surface of the track clip and the plastic rail slide.



If the track needs adjustment:

5. Loosen the rear idler shaft bolt.
6. Loosen the lock nuts.
7. Tighten or loosen the track adjusting screws as necessary to provide equal adjustment on both sides of the track.
8. Repeat the measurement on the other side of the track.

Tip: Check more frequently when the snowmobile is new.

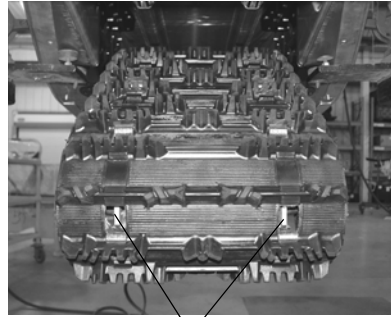
9. Start the engine and slowly rotate the track at least five revolutions. Let the track come to a stop (do not apply brakes).
10. Check track alignment (see page 126) and adjust as necessary.
11. Tighten the lock nuts.
12. Tighten the idler shaft bolts. Torque to 35 ft. lbs. (47.5 Nm).

MAINTENANCE

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

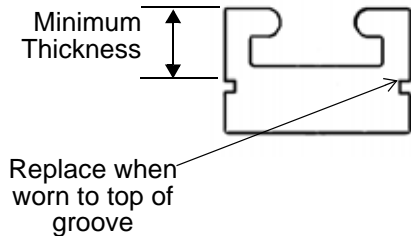


Rails

n Rail Slide Wear

For ease of inspection, all POLARIS rail slides have a wear limit indicator groove to indicate the minimum permissible slide thickness. Replace the rail slides if they are worn to the top of the groove at any point along their length.

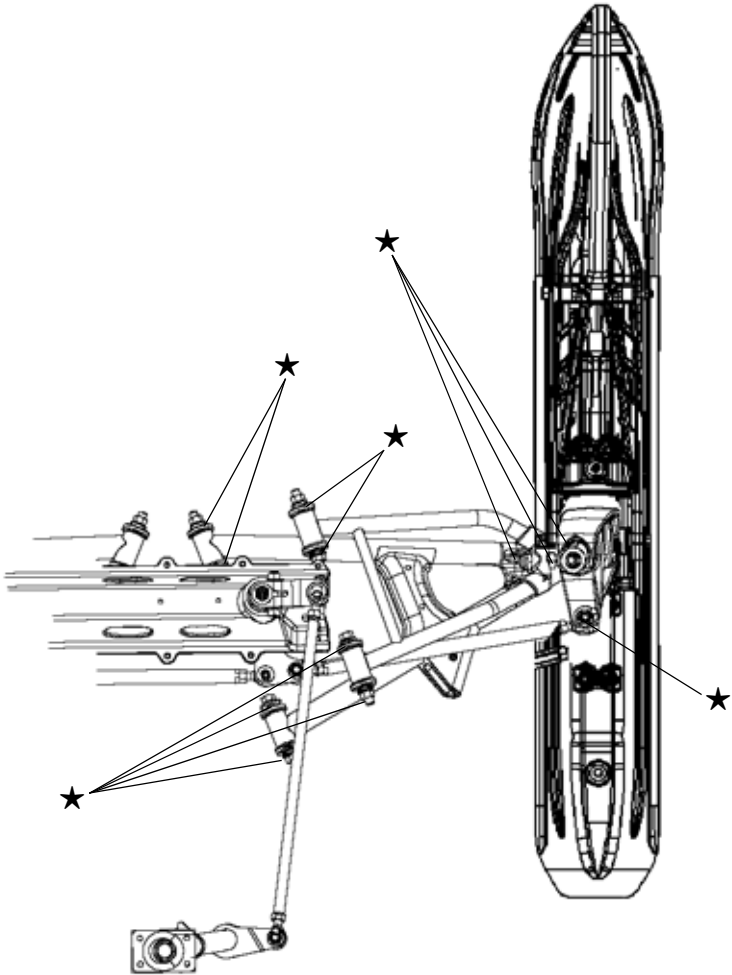
NOTICE: Failure to replace worn rail slides may result in permanent damage to the track or rails.



Steering System

Steering Inspection and Adjustment

Check all steering system fasteners weekly and before a long ride.
Tighten any loose fasteners.



MAINTENANCE

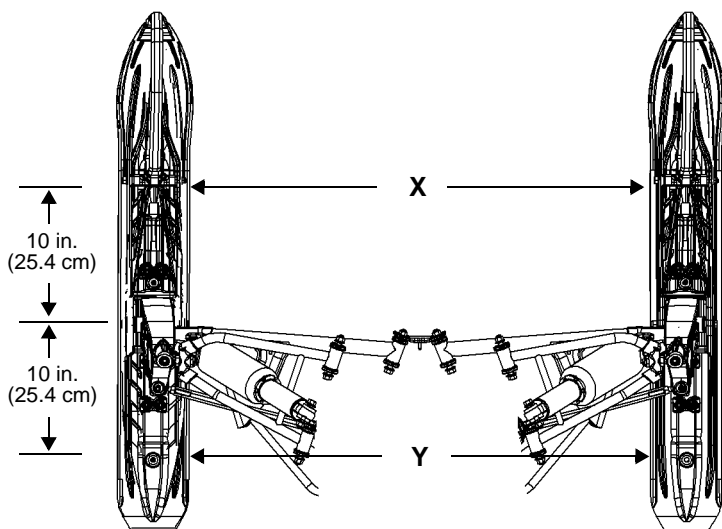
Steering System

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 $1/4"$ (3-6 mm) greater than the measurement at point Y.

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



Steering System

n Ski Skags

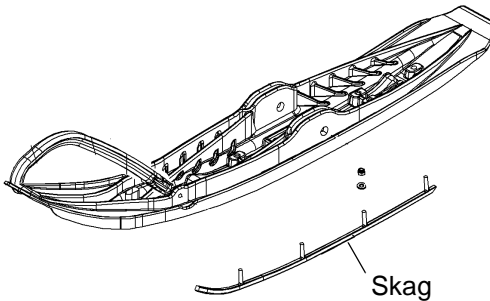
WARNING! Worn skis and/or skags will adversely affect handling. Loss of vehicle control may result, causing serious injury or death. See your dealer's studding chart for recommended skags. If you install longer or more aggressive carbide skags than the original equipment, it may also be necessary to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

Check skags before each use of the snowmobile to ensure positive steering characteristics. Skags must be replaced when worn to half their original diameter.

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

Skag Replacement

1. Raise and support the front of the snowmobile so the skis are approximately 6" (15 cm) from the ground.
2. Remove the attaching nuts and pry the skag downward.
3. Remove the front end of the skag.
4. Remove the rear end of the skag.
5. Reverse the steps to install a skag.



MAINTENANCE

Battery

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

Battery Removal

1. Release the seat latch and raise the seat to access the battery.
2. Disconnect the black (negative) battery cable first.
3. Disconnect the red (positive) battery cable last.
4. Remove the battery.

Battery Installation

When installing a new battery, make sure it's fully charged prior to its initial use. Using a new battery that has not been fully charged can damage the battery and result in a shorter life. It can also hinder vehicle performance. Follow the battery charging instructions on page 132 before installing the battery.

1. Ensure that the battery is fully charged.
2. Set the battery in the battery holder.
3. Connect and tighten the red (positive) cable first.
4. Connect and tighten the black (negative) cable last.
5. Verify that cables are properly routed.
6. Lower the seat and secure the latch.

Battery

Battery Storage

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

Tip: Battery charge can be maintained by using a POLARIS Battery Tender t charger (PN 2871076) or by charging about once a month to make up for normal self-discharge. Battery Tender t can be left connected during the storage period, and will automatically charge the battery if the voltage drops below a pre-determined point.

Battery Charging

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

The sealed battery is already filled with electrolyte and has been sealed and *fully charged* at the factory. *Do not ever pry the sealing strip off* or add any other fluid to this battery.

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

MAINTENANCE

Battery

Battery Charging

For a refresh charge, follow all instructions carefully.

1. Check the battery voltage with a voltmeter or multimeter. A fully charged battery will register 12.8 V or higher.
2. If the voltage is less than 12.8 volts, recharge the battery at 1.2 amps or less until the battery voltage is 12.8 or greater.

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

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

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

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

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. See page 135 for the part numbers of POLARIS products.

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 snowmobile 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.

Battery Maintenance

Remove the battery and recharge it as outlined on page 132. Store the battery in a cool, dry place.

Controls and Linkage

Lubricate all bushings and cables at the intervals outlined in the Periodic Maintenance Table beginning on page 82.

Bearings

Grease the jackshaft and drive shaft clutch side bearings with POLARIS Premium All-Season Grease or a similar high quality grease to prevent corrosion.

Clutch and Drive System

Remove the drive belt and store in a cool dry location. Do not lubricate clutch components, except the driven clutch shaft bushing as outlined in the service manual. See your dealer.

MAINTENANCE

Extended Storage

Engine Protection

Fogging the engine is not recommended for this model.

NOTICE: Fogging the engine improperly can result in damage to the sensors. Fogging is not recommended.

Electrical Connections

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 snowmobile should be supported off the ground to allow the track to hang freely.

Transporting the Snowmobile

Whenever the snowmobile is transported:

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

POLARIS PRODUCTS

Part No.	Description
Engine Lubricants	
2876244	Performance Synthetic 2W-50 4-Cycle Oil (PS-4 PLUS) (qt.)
2876245	Performance Synthetic 2W-50 4-Cycle Oil (PS-4 PLUS) (gal.)
Gearcase Lubricants	
	(use PS-4 PLUS Engine Oil for this gearcase)
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	DOT4 Brake Fluid (12 oz.)
2872893	Engine Degreaser (12 oz.)
2870505	Isopropyl
2872889	Brake and Clutch Cleaner
2872890	Carburetor and Throttle Body Cleaner

TROUBLESHOOTING

Engine and Drive Train Troubleshooting

Engine Speed, RPM or Boost is Limited

Probable Cause	Solution
Engine Management System RPM Reduction Mode is activated	See causes on page 35.
Jammed clutch	Check for twisted belt or broken spring. See your dealer.
Jammed track	Remove any foreign objects. Slider may be melted to the track clips due to lack of lubrication. Track may be iced up or frozen to the ground.
Jammed or broken gearcase sprocket or chain	See your dealer.
Mechanical failure	See your dealer.

Engine Doesn't Turn Over

Probable Cause	Solution
Low battery voltage	Recharge the battery to 12.8 VDC.
Loose battery connections	Check all connections and tighten.
Loose solenoid connections	Check all connections and tighten.
Engine stop switch is off	Lift the stop switch to the ON position.
Fusible link malfunction	See your dealer.
Fuse panel malfunction	Check condition of fuses. Replace blown fuses, then see your dealer.
Main relay panel malfunction	See your dealer.
Mechanical failure	See your dealer.

TROUBLESHOOTING

Engine and Drive Train Troubleshooting

Engine Turns Over, Fails to Start

Probable Cause	Solution
Out of fuel	Refuel.
Water is present in fuel	See your dealer.
Old or non-recommended fuel	Replace with fresh recommended fuel.
Fouled or defective spark plugs	Inspect plugs and replace if necessary.
No spark to spark plug	See your dealer.
Water or fuel in crankcase	See your dealer.
Clogged fuel filter	Replace the filter.
Low battery voltage	Recharge the battery to 12.8 VDC.
Poor engine compression	See your dealer.
Mechanical failure	See your dealer.

Engine Backfires

Probable Cause	Solution
Weak spark from spark plug	Inspect, clean and/or replace spark plugs.
Incorrect spark plug gap or heat range	Set gap to specs or replace plugs.
Old or non-recommended fuel	Replace with fresh recommended fuel.
Mechanical failure	See your dealer.
Loose ignition connections	Check all connections and tighten.
Water present in fuel	Replace with fresh recommended fuel.
Exhaust manifold leak	Inspect and repair, or see your dealer.

TROUBLESHOOTING

Engine and Drive Train Troubleshooting

Engine Runs Irregularly, Stops or Loses Power

Probable Cause	Solution
Engine Management System RPM Reduction Mode is activated	See causes on page 35.
Low battery voltage	Recharge the battery to 12.8 VDC.
Water is present in fuel	See your dealer.
Poor quality or low octane fuel	Replace with fresh recommended fuel.
Loose ignition connections	Check all connections and tighten.
Incorrect spark plug gap or heat range	Set gap to specs or replace plug.
Fouled or defective spark plug	Inspect, clean and/or replace spark plug.
Kinked or plugged fuel vent line	Inspect and replace.
Engine management system failure	See your dealer.
Engine overheating	Stop and cool the engine. See the "Engine Overheating" troubleshooting section on page 139.
Fuel in crankcase	See your dealer.
Drive clutch binding	See your dealer.
Incorrect clutching	See your dealer.
Driven clutch malfunction	See your dealer.
Worn drive belt	Replace with the recommended belt.
Excessive belt/sheave clearance	See your dealer.
Loose torque stop	Inspect and adjust.
Other mechanical failure	See your dealer.

TROUBLESHOOTING

Engine and Drive Train Troubleshooting

Engine Overheating

Probable Cause	Solution
Inadequate snow conditions	Stop and cool the engine. Drive into snow frequently to prevent overheating. See page 21.
Low coolant	Stop and cool the engine. Check the coolant level. See page 105. Check for leaks. Bleed the system if the coolant level is extremely low.
Restricted air flow to radiator	Stop and cool the engine. Clean snow and debris from the radiator.
Fan failure	If high temp light is on, check fan by stopping the engine. Fan should continue. Check fuse and/or see your dealer.

Harsh Drive Clutch Engagement

Probable Cause	Solution
Worn drive belt	Replace with the recommended belt.
Excessive belt/sheave clearance	See your dealer.

Drive Belt Turns Over

Probable Cause	Solution
Incorrect belt	Replace with the recommended belt.
Incorrect clutch alignment	See your dealer.
Broken or loose engine mount	See your dealer.

Drive System Noise

Probable Cause	Solution
Broken drive clutch components	See your dealer.
Bearing failure (gearcase, jackshaft or front drive shaft)	See your dealer.
Flat spots on drive belt surface	Inspect and replace as needed.
Worn drive chain/broken sprocket teeth	See your dealer.

TROUBLESHOOTING

Suspension Troubleshooting

Problem	Solution
Rear suspension bottoms too easily	<ul style="list-style-type: none"> • Set static sag (see page 52). Adjust torsion spring blocks or install optional torsion springs to achieve correct sag dimensions.
Rides too stiff in rear	<ul style="list-style-type: none"> • Check for binding suspension components and grease all pivot points. • Set static sag (see page 52). Adjust torsion spring blocks or install optional torsion springs to achieve correct sag dimensions.
Too much weight transfer when climbing	<ul style="list-style-type: none"> • Set static sag (see page 52). Adjust torsion spring blocks or install optional torsion springs to achieve correct sag. • Move limiter strap to high position (see page 54).
Too little weight transfer when climbing	<ul style="list-style-type: none"> • Set static sag (see page 52). Adjust torsion spring blocks or install optional torsion springs to achieve correct sag. • Move limiter strap to low position (see page 54).
Front end pushes	<ul style="list-style-type: none"> • Check for worn skags. • Check for binding front suspension shafts/steering components, grease all pivot points (elevate front of machine). • Set static sag (see page 52). Adjust torsion spring blocks or install optional torsion springs to achieve correct sag. • Increase IFS preload (if equipped) (see page 50). • Move limiter strap to high position (see page 54).
Steering is heavy	<ul style="list-style-type: none"> • Make sure spindles and all steering components turn freely. • Check ski alignment (see page 128). • Check skags and skis for damage. • Set static sag (see page 52).
Machine darts from side to side	<ul style="list-style-type: none"> • Check ski alignment (see page 128). • Check for binding front suspension shafts/steering components, grease all pivot points (elevate front of machine). • Check for excessive play in steering assembly (see dealer). • Ensure skags are straight on skis. • Set static sag (see page 52). • Check rail slide/replace if worn (see page 126).

TROUBLESHOOTING

Drive Belt Wear/Burn

Cause	Solution
Driving at low RPM	Drive at higher RPM. 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 high gear. 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. Reduce RPM. Avoid riding in high ambient temperatures. Check for snow ingestion.
Ice and snow build-up between track and tunnel	Warm the engine at least five minutes. Take the drive belt off the machine in extremely cold weather and warm it up. Break machine loose from the snow.
Poor engine performance	Check for fouled plugs or water, ice, or dirt in the 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.
Wrong or missing belt	Always use the recommended belt.
Improper break-in	Always break in a new belt and/or clutch by avoiding aggressive or high speed operation during the break-in period.

WARRANTY

Service And Warranty Information

Obtaining Service and Warranty Assistance

Read and understand the service data and the POLARIS warranty information contained in this manual. Contact your POLARIS dealer for replacement parts, service or warranty. Your dealer receives frequent updates on changes, modifications and tips on snowmobile maintenance, which may supersede information contained in this manual. Your dealer is also familiar with POLARIS policies and procedures and will be happy to assist you.

When contacting us about parts, service, or warranty, always provide the following information:

1. Serial number
2. Model number
3. Dealer name
4. Date of purchase
5. Details of trouble experienced
6. Length of time and conditions of operation
7. Previous correspondence

Use the page provided near the front of your Owner's Manual to record the identification numbers of your snowmobile and its engine.

POLARIS Customer Service

United States: 1-888-704-5290

Canada: 1-204-925-7100

Service And Warranty Information

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

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 transferable to another consumer, during the warranty period, through a POLARIS dealer.

Registration

At the time of sale, the Warranty Registration Form must be completed by your dealer and submitted to POLARIS within ten days. 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 set-up of your snowmobile is very important in ensuring trouble-free operation. Purchasing a snowmobile in the crate or without proper dealer set-up 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. THIS EXCLUSION OF CONSEQUENTIAL, INCIDENTAL, AND SPECIAL DAMAGES IS INDEPENDENT FROM AND SHALL SURVIVE ANY FINDING THAT THE EXCLUSIVE REMEDY FAILED OF ITS ESSENTIAL PURPOSE.** 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.

WARRANTY

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.

Promotional Warranties

Promotional warranties are sometimes offered by POLARIS. These warranties can be, but are not limited to:

- Two-year extended engine coverage
- Two-year powertrain coverage
- Extended service contract

If you selected any type of extended warranty coverage as part of a POLARIS retail program, please contact any authorized POLARIS dealer for additional information.

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.

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 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

Conditions and Exclusions

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.

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 142).

WARRANTY

U.S.A. EPA Emissions Limited Warranty

This emissions limited warranty is in addition to the POLARIS standard limited warranty for your vehicle. POLARIS Industries Inc. warrants that at the time it is first purchased, this emissions-certified vehicle is designed, built and equipped so it conforms with applicable U.S. Environmental Protection Agency emission regulations. POLARIS warrants that the vehicle is free from defects in materials and workmanship that would cause it to fail to meet these regulations.

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

This emissions limited warranty covers components whose failure increases the vehicle's regulated emissions, and it covers components of systems whose only purpose is to control emissions. Repairing or replacing other components not covered by this warranty is the responsibility of the vehicle owner. This emissions limited warranty does not cover components whose failure does not increase the vehicle's regulated emissions.

For exhaust emissions, emission-related components include any engine parts related to the following systems:

- Air-induction system
- Fuel system
- Ignition system
- Exhaust gas recirculation systems

The following parts are also considered emission-related components for exhaust emissions:

- Aftertreatment devices
- Crankcase ventilation valves
- Sensors
- Electronic control units

The following parts are considered emission-related components for evaporative emissions:

- Fuel Tank
- Fuel Cap
- Fuel Line
- Fuel Line Fittings
- Clamps*
- Pressure Relief Valves*
- Control Valves*
- Control Solenoids*
- Electronic Controls*
- Vacuum Control Diaphragms*
- Control Cables*
- Control Linkages*
- Purge Valves
- Vapor Hoses
- Liquid/Vapor Separator
- Carbon Canister
- Canister Mounting Brackets
- Carburetor Purge Port Connector

*As related to the evaporative emission control system.

WARRANTY

U.S.A. EPA Emissions Limited Warranty

The exclusive remedy for breach of this limited warranty shall be, at the exclusive option of POLARIS, repair or replacement of any defective materials, components or products. THE REMEDIES SET FORTH IN THIS LIMITED WARRANTY ARE THE ONLY REMEDIES AVAILABLE TO ANY PERSON FOR BREACH OF THIS WARRANTY. POLARIS SHALL HAVE NO LIABILITY TO ANY PERSON FOR INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES OF ANY DESCRIPTION, WHETHER ARISING OUT OF EXPRESS OR IMPLIED WARRANTY OR ANY OTHER CONTRACT, NEGLIGENCE OR OTHER TORT OR OTHERWISE. THIS EXCLUSION OF CONSEQUENTIAL, INCIDENTAL, AND SPECIAL DAMAGES IS INDEPENDENT FROM AND SHALL SURVIVE ANY FINDING THAT THE EXCLUSIVE REMEDY FAILED OF ITS ESSENTIAL PURPOSE.

ALL IMPLIED WARRANTIES (INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE) ARE LIMITED IN DURATION TO THE WARRANTY PERIOD DESCRIBED HEREIN. POLARIS DISCLAIMS ALL EXPRESS WARRANTIES NOT STATED IN THIS WARRANTY. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply if it is inconsistent with the controlling state law.

This limited warranty excludes failures not caused by a defect in material or workmanship. This limited warranty does not cover damage due to accidents, abuse or improper handling, maintenance or use. This limited warranty also does not cover any engine that has been structurally altered, or when the vehicle has been used in racing competition. This limited warranty also does not cover physical damage, corrosion or defects caused by fire, explosions or other similar causes beyond the control of POLARIS.

Owners are responsible for performing the scheduled maintenance identified in the owner's manual. POLARIS may deny warranty claims for failures that have been caused by the owner's or operator's improper maintenance or use, by accidents for which POLARIS has no responsibility, or by acts of God.

Any qualified repair shop or person may maintain, replace, or repair the emission control devices or systems on your vehicle. POLARIS recommends that you contact an authorized POLARIS dealer to perform any service that may be necessary for your vehicle. POLARIS also recommends that you use only Pure POLARIS parts. It is a potential violation of the Clean Air Act if a part supplied by an aftermarket parts manufacturer reduces the effectiveness of the vehicle's emission controls. Tampering with emission controls is prohibited by federal law.

If you have any questions regarding your warranty rights and responsibilities, please contact the POLARIS Warranty Department at 1-888-704-5290.

MAINTENANCE LOG

Present this section of your manual to your dealer each time your snowmobile is serviced. This will provide you and future owners with an accurate log of maintenance and services performed on the snowmobile.

DATE	MILES (KM)	TECHNICIAN	SERVICE PERFORMED / COMMENTS
	150 mi. (240 km)		
	500 mi. (800 km)		
	1000 mi. (1600 km)		
	1500 mi. (2400 km)		

MAINTENANCE LOG

DATE	MILES (KM)	TECHNICIAN	SERVICE PERFORMED / COMMENTS

MAINTENANCE LOG

DATE	MILES (KM)	TECHNICIAN	SERVICE PERFORMED / COMMENTS

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