



POLARIS[®]
The Way Out.

2002

Frontier

Owner's Manual

for

Vehicle 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.

PROPOSITION 65 WARNING

Snowmobile engines discharge fuel and exhaust, which contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm, onto the snow on which they operate. Keep this engine properly tuned and avoid unnecessary idling and spillage during fueling.

WARNING

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

What's the hottest thing on snow?

Our new web site. And it's designed just for YOU!

- Technical tips
- New product introductions
- Event schedules
- Parts and Service Manual information
- Exciting details about The Way Out

Check it out...

www.polarisindustries.com/owner



All information in this manual is based on the latest product data and specifications available at the time of printing. Polaris Industries Inc. reserves the right to make product changes and improvements that may affect illustrations or explanations.

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WELCOME

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

Polaris Recreational Vehicles

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

Polaris Professional Series Workmobiles™

- Utility Task Vehicles™ (UTVs)
- Personal Task Vehicles™ (PTVs)
- All-Surface Loaders (ASLs)

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 Parts Apparel and Accessories (PAA) products, available through our online store at www.purepolaris.com. Have your accessories and clothing delivered right to your door!

Polaris, Polaris The Way Out, and Workmobiles are registered trademarks of Polaris Industries Inc.

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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 sold.
- ✓ The illustrations and photos used in this manual may be 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.

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.

**Respect your snowmobile;
respect your environment;
and you will earn
the respect of everyone.**

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

The tunnel vehicle identification number (VIN) and engine serial number are important for model identification when registering your snowmobile, when obtaining insurance, and when ordering replacement parts. In the event your snowmobile is stolen, these numbers are essential to its recovery and identification.

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. If both keys are lost, the ignition switch must be replaced. See your Polaris dealer.

NOTE: Record your snowmobile's ID numbers and key number in the spaces provided.

Tunnel VIN (lower right side of the tunnel) :

Vehicle Model Number:

Engine Serial Number (right side of engine cylinder head):

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*, on your vehicle or in this manual, alerts you to the potential for personal injury.

WARNING

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

CAUTION

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

CAUTION

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

NOTE:

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

Operator Safety

WARNING

Driving a snowmobile requires your full attention. **DO NOT** drink alcohol or use drugs or medications before or while driving. They will reduce your alertness and slow your reaction time. In most states and provinces, it's prohibited by law to drive while intoxicated or under the influence of drugs.

Polaris produces high performance snowmobiles capable of traveling at high speeds. Extra caution must be observed to ensure operator safety. Make sure your snowmobile is in excellent operating condition at all times. We strongly recommend that the operator check major and vital safety components before every ride.

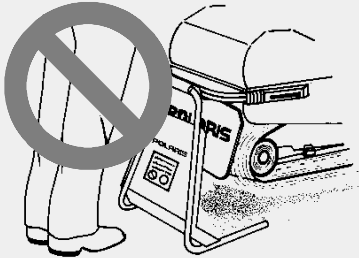
All Polaris snowmobiles are designed and tested to provide safe operation when used as directed. Failure of critical machine components may result from operation with any modifications, especially those that increase speed or power. **DO NOT MODIFY YOUR MACHINE.** The snowmobile may become aerodynamically 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 Away From Moving Parts



⚠️ WARNING

Never hold the snowmobile up or stand behind it while warming up the track. A loose track or flying debris could cause serious personal injury or death.

We recommend having your dealer perform track service and alignment procedures.

Be alert when riding, and remain properly seated to stay clear of the track. Your snowmobile is propelled by a revolving track that must be partially exposed for proper operation. Serious injuries may result if hands, feet, or clothing become entangled in the track.

⚠️ WARNING

If fingers or clothing contact the moving parts of an engine, serious injury can result. Always stop the engine before attempting adjustments.

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.

Operator Safety

Riding Position

WARNING

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

Operating a snowmobile requires skill and balance for proper control. Rider positions may vary from person to person as each becomes more skilled; but under most conditions, the proper position is to be seated with feet on the running boards, and comfortably positioned for proper throttle, brake, and steering control.

WARNING

Use of a backrest may hinder your weight shifting ability. This could affect your ability to control this rider-active vehicle in certain extreme driving situations.

Survival Equipment

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.

SAFETY

Operator Safety

Cargo Overload

Too much weight on the rear of the machine may reduce your ability to steer. Do not exceed carrier and rack weight limits, and do not allow a passenger to sit on the seat back or the cargo carrier.

WARNING

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” your snowmobile.

Riding Apparel

WARNING

Loose clothing or long scarves may easily become entangled in moving parts and cause serious personal injury. Avoid wearing loose clothing and long scarves while riding a snowmobile. Always wear an approved helmet and eye protection.

Be aware of the weather forecast, especially the wind chill. A wind chill table is provided on page 22 for your reference. To better enjoy your ride, be prepared, be warm and be comfortable.



Disabled Operators

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

Operator Safety

Excessive Speed

WARNING

High speed driving, especially at night, could result in serious personal injury or death. Obey local traffic laws pertaining to snowmobile use and avoid using excessive speed.

Observe all state and local laws governing snowmobile operation. They've been established for your protection.

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

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

SAFETY

Operator Safety

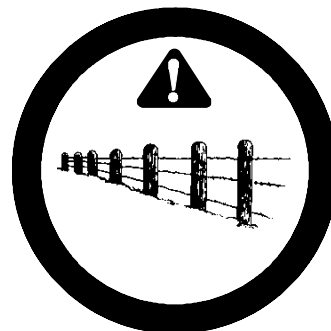
Driver Awareness

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 machine will drown out the sound of approaching vehicles. Look ahead, behind, and to both sides before turning or crossing railroad tracks or highways. Steep embankments may also hide your view. Always leave yourself a way out.

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

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



Operator Safety

Ice and Snow Build-up

WARNING

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

Before driving, manually turn the skis to the left and right to be sure ice and snow are not interfering with full left and right steering. If difficulty is encountered, check for ice and snow build-up that may be obstructing the steering linkage. Snow screens and bib kits are available through your dealer to help reduce snow and ice build-up.

Driving on Slippery Surfaces

WARNING

Driving on ice or hard-packed snow reduces steering and braking control, which may result in serious injury or death. Slow down and use caution.

Excessive shifting of operator body weight when turning on hard-packed snow or ice may lead to loss of vehicle control and result in serious injury or death. Slow down to maintain control under these conditions.

It's dangerous to drive on ice or other slippery surfaces. If it's unavoidable, use extreme caution and operate at speeds no faster than a walk. Never attempt an abrupt change of direction. The chance of "spin-out" increases under these conditions.

SAFETY

Operator Safety

Driving in Hilly Terrain

WARNING

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

Operating in hilly terrain requires extreme caution to maintain balance and avoid roll-over. If climbing a hill is unavoidable, keep all your weight low and forward.

If you must cross the face of a slope, keep your weight on the uphill side of the machine to maintain proper balance and avoid possible roll-over.

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

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

Operator Safety

Driving Downhill

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

WARNING

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

Excessive or repetitive use of the brakes for high speed stops will also cause an overheated brake system. This condition may lead to a sudden loss of brakes and/or fire and may result in serious injury or death.

Do Not Operate Engine With Clutch Guard Removed

The clutch guard is designed to protect the operator from metal parts if the clutch should fail. Although the chance of failure is extremely remote, don't defeat the purpose of the guard by removing it. It's provided for your safety.

Do Not Operate Engine With Drive Belt Removed

Any servicing that requires operation without a belt must be performed by your dealer. Operation of the engine with the belt removed may result in personal injury or damage to the engine.

SAFETY

Operator Safety

Intake Silencer

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

Clutches

Do not attempt to service the clutches.

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

Cold Weather Drive-Away

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

Maneuverability

Control and maneuverability comes not only through the steering and skis, maximum control is achieved by shifting of body weight. Maneuverability will change for lighter operators or machines designed to carry a load or a passenger.

Operator Safety

Powder Snow Operation

WARNING

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

Since snow provides the only lubrication for the power slide suspension and cooling for the engine, adequate snow cover is a requirement for operation of your machine. Driving in too little snow will result in excessive wear and damage to the slide rail, track and/or engine.

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

CAUTION

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

SAFETY

Operator Safety

Your Polaris snowmobile is a well-engineered and well-constructed recreational vehicle. Follow the recommended maintenance program (beginning on page 67) to ensure that all critical components on the snowmobile are thoroughly inspected by your dealer at specific mileage intervals.

Rider Capacities

The Polaris Frontier snowmobile is designed for two riders. A decal on the console indicates that the vehicle is designed for one operator and one passenger only. See page 25 for decal location.

Machines designed for two riders should never be operated with more than two people on board. When traveling with a passenger, it's the driver's responsibility to operate the machine safely.

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.

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 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. Jumping may injure your back because of spinal compression. 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. Your snowmobile is equipped with a high output headlamp system that may cause discomfort to operators of oncoming vehicles when on high beam.
- When traveling in a group of snowmobiles, don't tailgate (follow too closely). Allow ample stopping distances, and keep track of those following you. Drive defensively to avoid accidents.
- Remove the key from the ignition when leaving the snowmobile unattended.

SAFETY

Operator Safety

Windchill/Temperature Charts

The following charts will help you determine when temperatures become dangerous for riding.

WIND CHILL CHART (°F)

Estimated Wind Speed in MPH	Actual Thermometer Reading (°F)											
	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
	Equivalent Temperature (°F)											
Calm	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-21	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-36	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	-124
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-20	-35	-49	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-148
Wind Speeds Greater Than 40 MPH Have Little Added Effect	Little Danger (For Properly Clothed Person)			Increasing Danger				Great Danger				
	Danger From Freezing of Exposed Flesh											

WIND CHILL CHART (°C)

Estimated Wind Speed in KPH	Actual Thermometer Reading (°C)										
	5	0	-5	-10	-15	-20	-25	-30	-35	-40	
	Equivalent Temperature (°C)										
0	5	0	-5	-10	-15	-20	-25	-30	-35	-40	
10	1	-4	-11	-16	-22	-27	-33	-38	-45	-50	
20	-4	-9	-17	-23	-29	-36	-42	-48	-54	-61	
30	-7	-13	-21	-28	-35	-42	-48	-55	-63	-69	
40	-9	-16	-24	-32	-39	-47	-53	-61	-69	-76	
50	-11	-18	-26	-34	-41	-49	-57	-64	-73	-80	
60	-12	-19	-27	-35	-43	-51	-59	-66	-75	-82	
70	-13	-20	-28	-36	-44	-52	-60	-68	-76	-84	
Wind Speeds Greater Than 70 KPH Have Little Added Effect	Little Danger (For Properly Clothed Person)			Increasing Danger				Great Danger			
	Danger From Freezing of Exposed Flesh										

Safety Decals and Locations

NOTE: Warning decals have been placed on the vehicle for your protection. Read and follow the instructions on each decal carefully. If any safety decal becomes illegible or comes off, contact your Polaris dealer for a free replacement. The part number is printed on the decal.

Clutch Cover Warning Decal

The clutch cover warning decal (PN 7075350) is found under the hood on the clutch cover:

- Do not operate engine with hood open.
- Do not attempt adjustment with engine running.
- Do not operate engine with this guard open.
- Never run engine with drive belt removed.
- Never service clutches yourself - see your dealer.

Airbox Warning Decal

The airbox warning decal (PN 7075351) is found under the hood:

- Do not operate above 40 mph with hood-to-airbox foam removed or engine failure will result.

Pressure Cap Warning Decal

The water bottle cap warning decal (PN 7170063) is found on the water bottle pressure cap:

- WARNING
- DO NOT OPEN HOT
- Test or replace when changing coolant.
- Press down and turn to release cap.
- 13 PSI

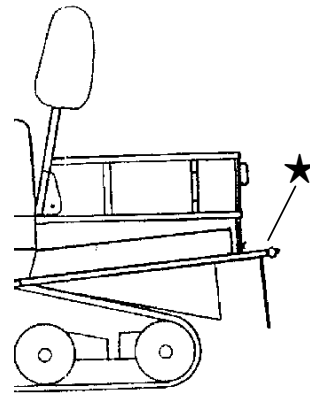
SAFETY

Safety Decals And Locations

Track Warning Decal

The track warning decal (PN 7076360) is located on the rear tunnel:

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.



Cargo Carrier Warning Decal

The cargo carrier warning decals (PN 7072225 English and PN 7072266 French) is located on the side of the rear rack:

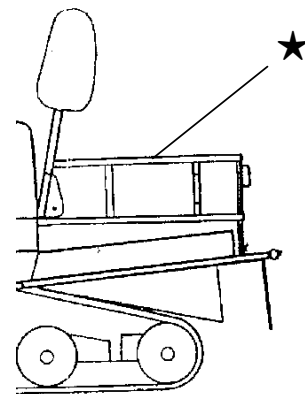
Do not sit in or on cargo area.

Cargo load should not exceed 40 lbs. (18 kg).

Cargo load affects machine steering and response.

Never allow person(s) to use carrier as a means of hand support, (skiing, skidding or dragging).

Severe injury may result due to track entanglement, falling off, or loss of steering control if warnings are not followed.

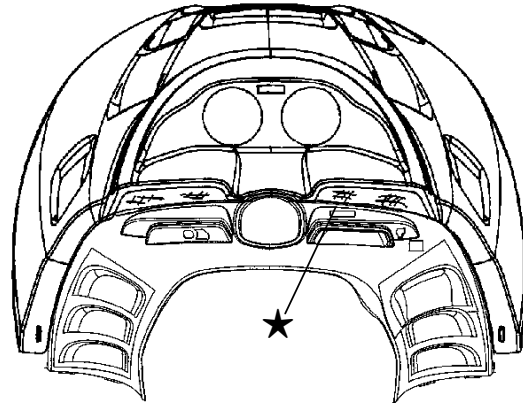


Safety Decals And Locations

Passenger Warning

The Frontier snowmobile is designed for the operator and one passenger. The passenger warning decal (PN 7075439) is located on the right side of the console. For more information on operating capacities, see page 20.

This vehicle is designed for operator and ONE passenger only.



Caution Decal

A caution decal (PN 7078363) is located on the center console of the snowmobile:

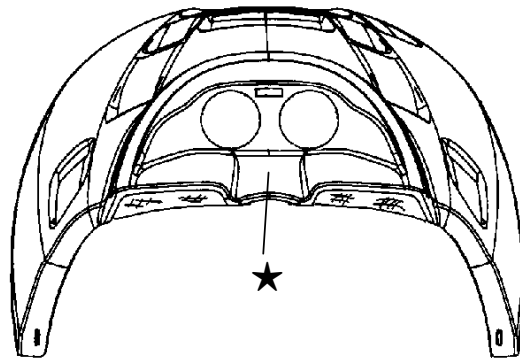
BEFORE STARTING ENGINE:
Check throttle and brake for proper operation. Check to see that hood is securely latched. Check surroundings to verify clear operation area. Determine that steering is free and functional.

BRAKE LEVER LOCK: May relax when used for long periods. Do not leave brake engaged for more than five minutes.

ALWAYS: Be seated and in position to control vehicle. Stop engine before attempting adjustments. Know the limitations of the vehicle and your skills as a driver. Understand your Owner's Manual. Wear clothing designed for snowmobiling. Stops from high speed may cause fading or unexpected loss of braking ability.

OIL INJECTION SYSTEM: Unmixed fuel only. Check oil level when refueling.

If Owner's Manual is missing, contact a Polaris dealer for a replacement.

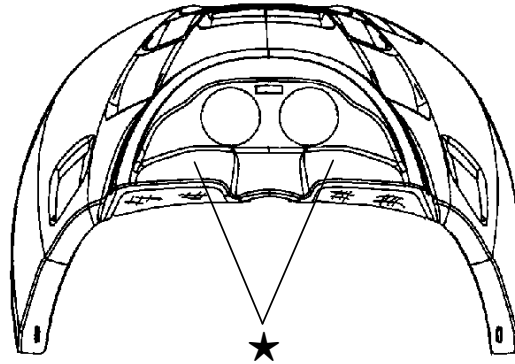


SAFETY

Safety Decals And Locations

Operation Warning Decal

An operation warning decal is present on the console of the Polaris Frontier snowmobile in both English (PN 7078056) and French (PN 7078057):



- Read and understand warnings and the Owner's Manual before operation. Severe injury or death can result from not heeding the warnings.
- Never consume alcohol or drugs before or while operating this vehicle.
- Night riding, limited visibility, or excessive speeds may cause overdriving of headlights resulting in insufficient time to react to terrain changes or avoid unexpected obstacles.
- This vehicle is capable of high speeds. Buried objects or uneven terrain can cause loss of control. Exercise extreme caution when operating in unfamiliar terrain.
- This vehicle is designed for adult use only. The vehicle size, speed capabilities and control requirement prohibit operation by children.
- Operating this vehicle with a passenger (on approved models only) reduces your ability to control the vehicle due to the added weight and change in weight distribution. Reduce vehicle speeds and allow extra space for maneuvering since steering control may be reduced.
- Always wear an approved helmet, eye protection, and adequate clothing while operating this vehicle.
- The Auxiliary Shut-Off Switch is the primary means of stopping this vehicle in case of an emergency and is located on the top of the throttle control assembly. Depress the switch to stop the engine and vehicle. Routinely check this switch for proper function with the engine idling.
- Steering and braking ability are greatly reduced when operating on hard-packed snow, ice, or when crossing roads. Reduced speed and extra care are required to maintain vehicle control.
- Carbide skags and studs enhance vehicle control on ice or hard-packed surfaces. Care must be taken to maintain a proper balance of ski carbides to track studs to maintain proper vehicle control. (See the Owner's Manual for proper use of traction accessories.)
- Never permit a guest to operate this vehicle unless the guest has read the Owner's Manual and warnings.

Safety Decals And Locations

Standard Reverse Warning Decal

The reverse warning decal (PN 7079002) is located above the instrument housing:

CAUTION

Do not attempt to shift until machine has come to a complete stop or chaincase damage may occur.

WARNING

VEHICLE CAPABLE OF EXCESSIVE REVERSE SPEED!

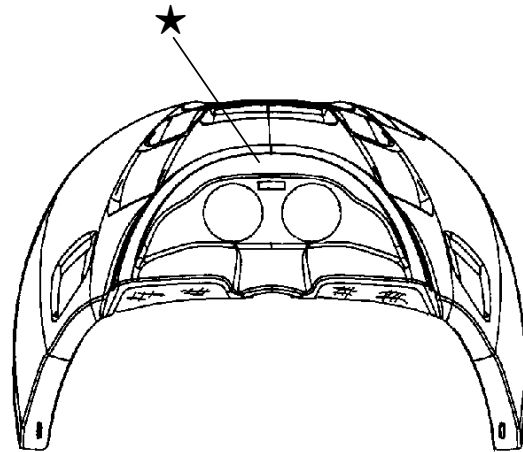
Reverse operation may be dangerous even at low speeds. Steering control becomes difficult in reverse.

Misuse of reverse may result in injury. Avoid turning at sharp angles in reverse.

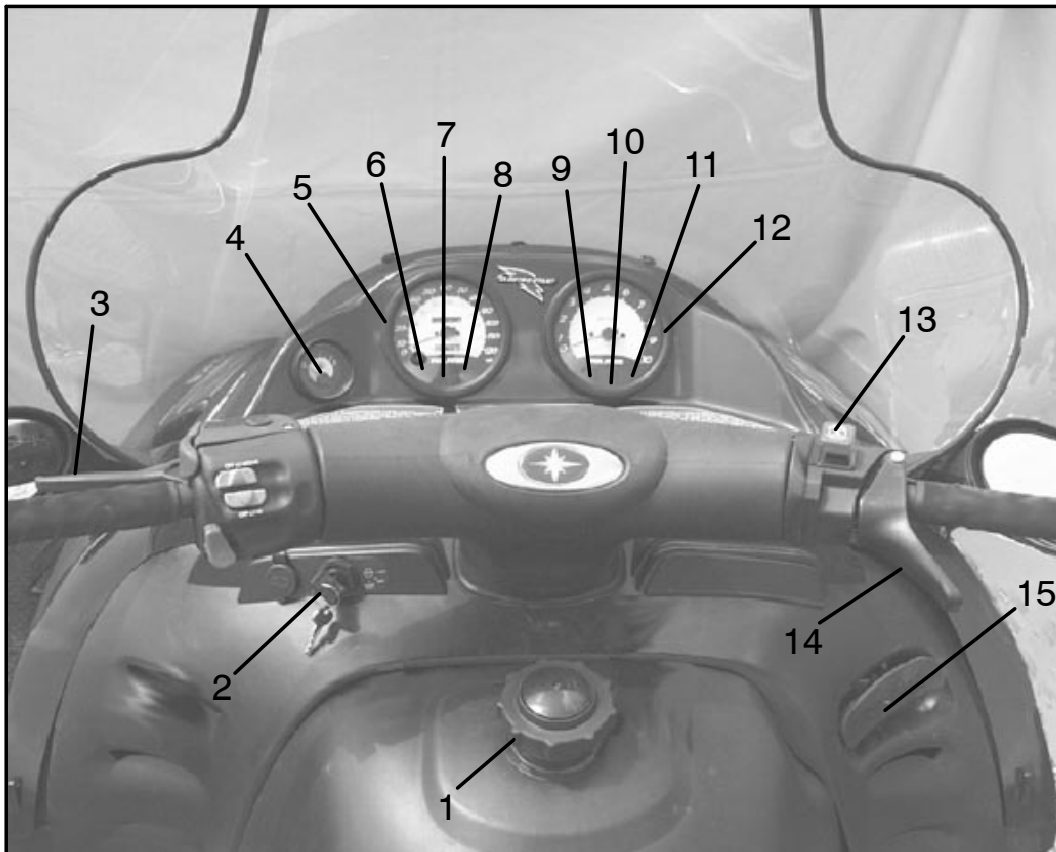
Transmission may not always be in the gear indicated by the shift lever. Always apply throttle slowly.

On machines with reverse it is especially important to maintain track tension as specified in the Owner's Manual. If specified track tension is not maintained severe damage to the machine may occur, which may result in loss of vehicle control. Loss of vehicle control may result in severe personal injury or death.

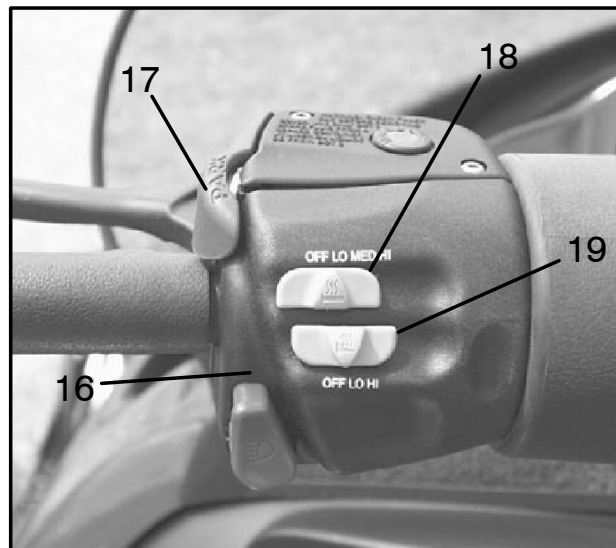
For more information: See Operator's Safety and Maintenance Manual supplied with reverse kit.



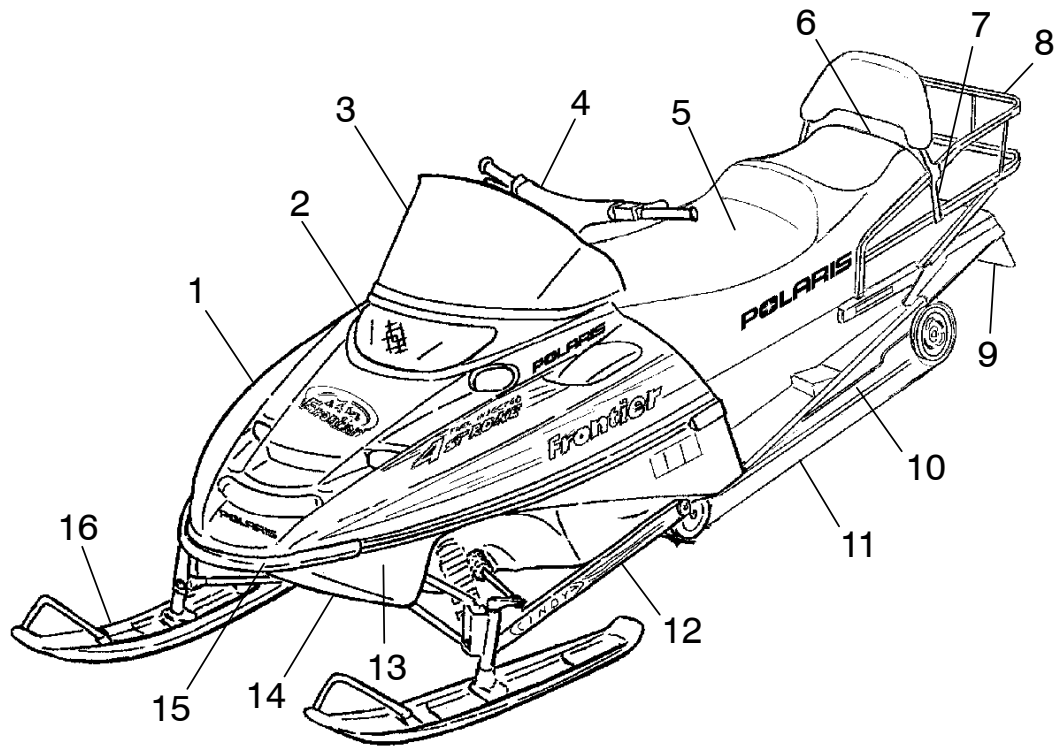
FEATURES AND CONTROLS



1. Fuel Filler Cap
 2. Ignition Switch
 3. Brake Lever
 4. Electronic Fuel Gauge
 5. Speedometer
 6. Headlight High Beam Light
 7. Low Oil Pressure Light
 8. Brake Light
 9. Check Engine Light
 10. Reverse Indicator Light
 11. Temperature Light
 12. Tachometer
 13. Engine Stop Switch
 14. Throttle Control
 15. Reverse Lever
16. Headlight Dimmer Switch
 17. Park Brake
 18. Handlebar Grip Warmer Switch
 19. Thumbwarmer Switch



FEATURES AND CONTROLS

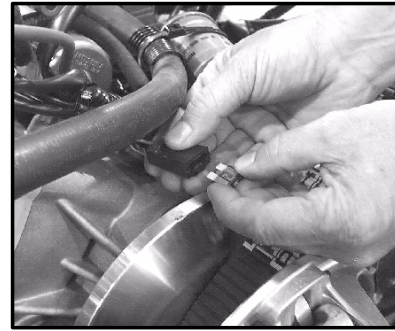


- | | |
|------------------|-------------------------------|
| 1. Hood | 9. Snow Flap |
| 2. Headlight | 10. Suspension |
| 3. Windshield | 11. Track |
| 4. Handlebar | 12. Trailing Arm |
| 5. Seat | 13. Block Heater (under hood) |
| 6. Storage/Rear | 14. Nosepan |
| 7. Taillights | 15. Front Bumper |
| 8. Cargo Carrier | 16. Skis |

FEATURES AND CONTROLS

Malfunction Indicator Lamp (MIL)

The Frontier is equipped with a malfunction indicator lamp (CHECK ENGINE light) to assist your Polaris dealer in diagnosing problems. The MIL codes are for reference only. Full diagnostics must be performed by a Polaris dealer trained to service EFI systems.



When enabled, the CHECK ENGINE light will blink in numerical sequences to indicate the type of failure. For example: two blinks, pause, one blink is the sequence for code 21. To enable the blink codes, put a 30 amp automotive fuse in the ACS bypass three times within 2 1/2 seconds, leaving it in the third time. **NOTE:** Disconnect the negative battery lead for 10 seconds to clear the code.

CAUTION

If the ACS 30 AMP bypass fuse is left in, electrical drainage will occur. To avoid electrical drainage, always remove the fuse from the ACS bypass AFTER the End of Sequence message (61) appears.

MIL Diagnostic Code Summary

CODE	MIL	Description
21	Yes	Lost synchronization Synchronization of crankshaft position lost
22	Yes	Throttle position sensor circuit error Sensor signal is shorted to ground or at battery potential
23	Yes	RAM error Hardware failure or serial EEPROM not initialized or failure
24	Yes	Speed circuit / sensor error Crankshaft position sensor failure (if MIL stays on when cranking there is no speed sensor input)
31	Yes	System too lean Lambda sensor shorted to ground or battery voltage
32	Yes	O2 Sensor circuit error Short to battery or no activity detected
33	No	System too rich Short term adaption at upper or lower limit.
34	No	Maximum adaption limit reached Long-term adaption at upper or lower limit
42	Yes	Temperature sensor circuit error Sensor short to ground/battery voltage/implausible signal
61	NA	End of sequence message

FEATURES AND CONTROLS

Check Engine Light

Your EFI system has an Electronic Control Unit (ECU), which is pre-coded for any potential problems your EFI system will have. If a problem with your EFI system occurs, a code is triggered and the CHECK ENGINE light will come on. If the light comes on, take your Frontier to a qualified Polaris dealer for diagnostic service.

Low Oil Pressure Light

CAUTION

Operating the snowmobile without proper engine lubrication can result in serious engine damage. Always check the oil level on the dipstick when the low oil pressure light illuminates. Add the recommended oil to maintain the oil level between the *SAFE* and *ADD* marks on the dipstick.

A low oil pressure indicator light will alert you to a low oil condition. When the low oil pressure indicator light is on, visually check the oil level on the dipstick. If the oil level is below the *SAFE* mark, continued operation will cause serious engine damage. Add the recommended oil before further operation of the snowmobile. See page 113 for the part numbers of Polaris-recommended products.

CAUTION

Mixing brands or using a non-recommended oil may cause serious engine damage. We recommend the use of Polaris Premium 4 Synthetic 0W-40 engine oil for your snowmobile. Never mix brands.

FEATURES AND CONTROLS

Block Heater

To improve cold-weather starting, a block heater has been installed on the engine of your snowmobile. When connected to a 110V electrical outlet, the block heater warms the engine, making it easier to start in subzero temperatures. We recommend the use of this block heater whenever temperatures drop below -20° F. (-30° C.).

Open the hood to access the block heater plug-in (see page 29 for location). Plug the cord into a 110 V outlet when the snowmobile will be parked in subzero temperatures overnight or for more than a few hours. Unplug the cord and return it to its storage area before starting and operating the snowmobile.

CAUTION

Driving the snowmobile before unplugging the block heater could result in damage to the heater and other components. Always unplug the block heater before operating the snowmobile.

THE PERFECT FIT

Front Suspension Adjustments

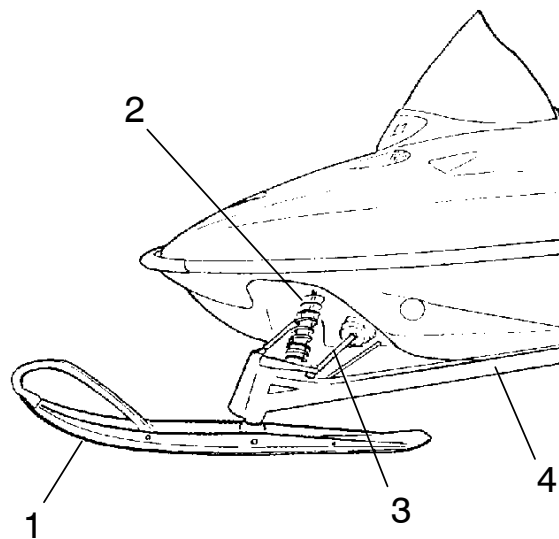
Before fine-tuning adjustments are made, break in the suspension for approximately 150 miles (240 km) and re-grease all suspension parts.

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

All snowmobile suspensions have a front and a rear suspension, each of which has adjustment options.

Independent Front Suspension (IFS)

The IFS is made up of the skis (1), front shocks and springs (2), and the components that connect these parts to both the steering, such as the tie rods (3), and to the machine itself, such as the trailing arms (4). Front suspension adjustments include shocks, springs, toe, and camber.



IFS Adjustment Options

- Front shock spring preload
- Optional springs
- Optional valving (if equipped with Fox™, RYDE FX™ or Walker/Evans™ shocks)
- Indy Select (if equipped)

THE PERFECT FIT

Front Suspension Adjustments

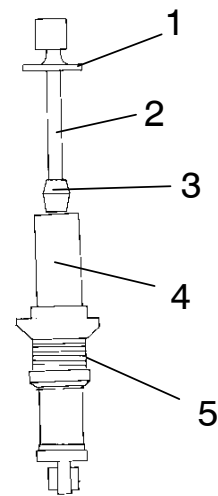
⚠️ WARNING

Always verify ski alignment before making adjustments to the IFS. See page 103 to check alignment. If the skis are misaligned, see your dealer, as the camber adjustment may also be affected.

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

Shock Absorber Components

1. Retainer
2. Shock Rod
3. Jounce Bumper
4. Body
5. Threaded Spring Preload Adjuster Nut



THE PERFECT FIT

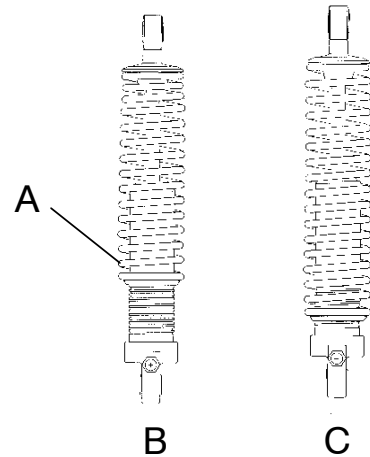
Front Suspension Adjustments

Adjusting Front Shock Spring Preload

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

To increase front shock spring preload, grasp the spring and turn it to the right. Turn it to the left to decrease preload. In the illustrations at right, B indicates high preload and C indicates low preload.

Increasing the spring preload too much may adversely affect the handling of the snowmobile and the performance of the rear suspension. Decreasing the spring preload too much may allow the upper spring retainer to fall off. Always leave at least one thread showing above the nut (A).



⚠ CAUTION

Always leave one thread showing above the adjuster nut. On models equipped with a plastic adjuster nut, if the nut is unscrewed from the threaded body, the nut will break.

THE PERFECT FIT

Front Suspension Adjustments

If the spring preload is at its maximum and you want more adjustment:

- Remove the existing spring and install the next highest rate spring,
or
- Increase compression damping on Indy Select shocks (PE 52)

See your dealer for details.

THE PERFECT FIT

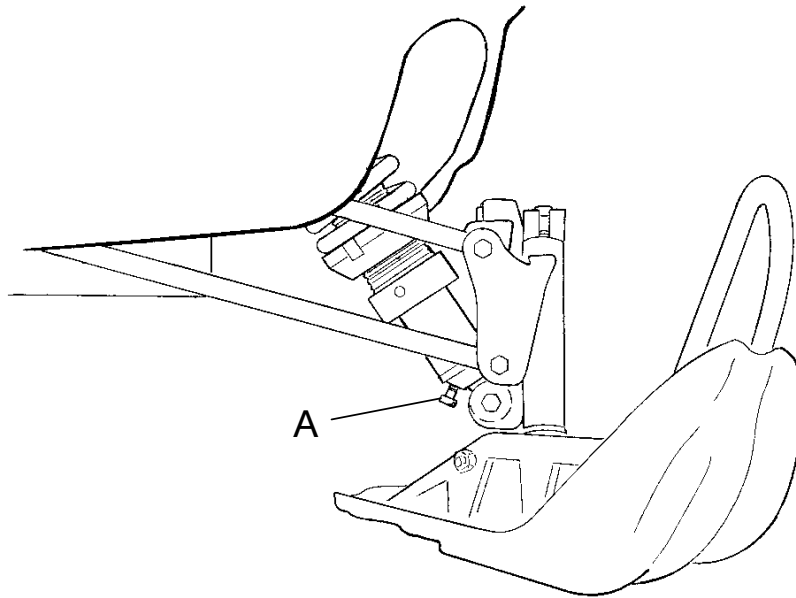
Front Suspension Adjustments

Indy Select IFS Shock

Some snowmobiles are equipped with Indy Select IFS shocks, which allow you to make adjustments to the compression valving of the front shocks by turning adjustment screws (A) located near the base of the shocks.

By turning the screw clockwise, the compression of the shock increases, stiffening the ride. By turning counterclockwise, the compression decreases, softening the ride.

The factory setting is in the softest position (screw all the way out - counterclockwise). If bottoming occurs, the Indy Select feature should be used to achieve the desired ride effect. One-half turn will affect the ride considerably. There are about three turns of adjustment available. If experimenting with this adjustment feature, turn the screw only 1/4 turn at a time. And always adjust both shocks equally.



THE PERFECT FIT

Rear Suspension Adjustments

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

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

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

Suspension Performance Tips

- Rider weight usually determines the position at which the spring 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 Hi-fax will offer improved performance over worn Hi-fax. It can also improve top speed.
- When riding on ice or hard-packed snow, adding a set of bogie wheels to the rail may enhance the machine's performance. Bogie wheel kits are available from your dealer.
- Polaris offers track kits for improved flotation in deep snow. See your dealer for assistance.

NOTE: Keep the suspension pivot points lubricated. This will reduce moisture and rust build-up and ensure proper function of the suspension components. Grease rear suspension pivots before adjusting the rear suspension. Refer to Suspension Maintenance on pages 105-106.

THE PERFECT FIT

Rear Suspension Adjustments

Rear Spring Tension

To adjust rear torsion spring tension, rotate the three-position cam using the engine spark plug tool.

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

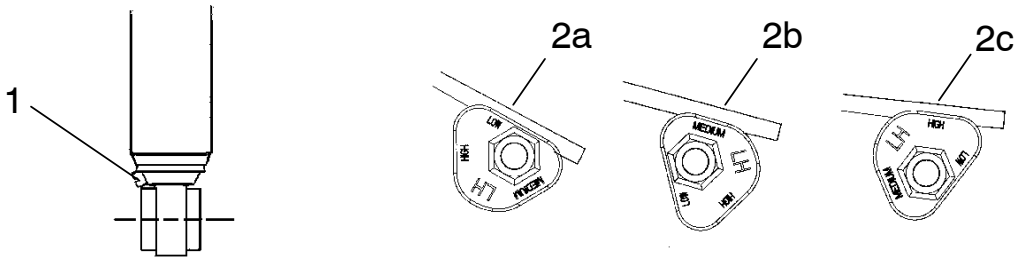
The following information is provided only as a guideline to be used for initial suspension set-up. Your set-up may vary based on your desired riding style.

1 - Turn screw clockwise to stiffen compression.

2a - Low tension

2b - Medium tension

2c - High tension



THE PERFECT FIT

Rear Suspension Adjustments

Initial Spring Preload Setting (Sag Method)

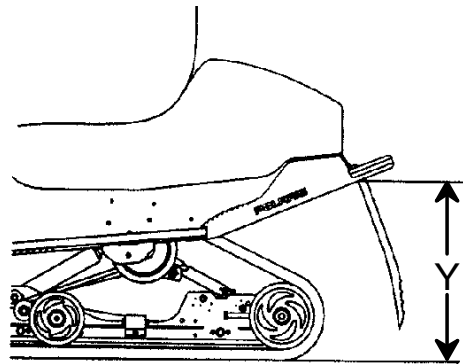
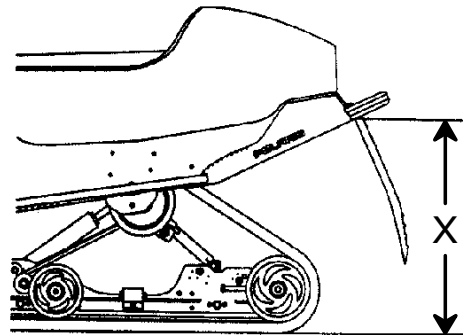
To set up the EDGE rear suspension torsion spring preload, measure the distance between the ground and rear bumper. This is measurement X.

Take the first measurement with no rider and with the rear suspension at full extension. **NOTE:** The rear bumper may need to be lifted upward 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. Use the illustration or the decal found under the hood for reference. The ideal amount of Sag for the EDGE rear suspension is four inches ($X - Y = 4$).

If the rear suspension rides in less than three inches or more than five inches with the torsion spring preload cams at their maximum range of adjustment, optional torsion springs (softer or stiffer, respectively) may be required. This is only an initial set-up, and final spring preload may vary based on rider preference and riding conditions.

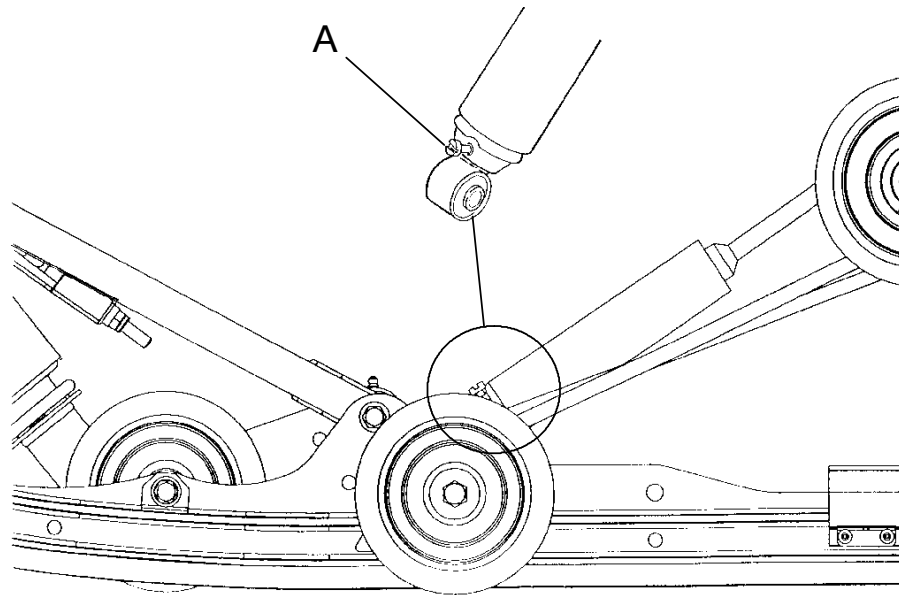


Rear Suspension Adjustments

Indy Select Rear Shock

The Indy Select rear shock allows for adjustments to the compression valving. Locate the adjustment screw (A) near the base of the shock. In half-turn increments, turn the screw clockwise to increase compression valving and stiffen the ride, or counterclockwise to reduce compression and soften the ride. There are approximately three full turns of adjustment available.

If bottoming continues after the screw has been turned fully clockwise, the torsion spring should be adjusted (see page 39). Return the screw to its original starting position after the torsion spring has been tightened.



THE PERFECT FIT

Rear Suspension Adjustments

Optional Coil Springs

Different rate coil springs are available for some shocks if a firmer ride is desired. Contact your dealer for more information.

Suspension Coupling

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

Front To Rear Coupling and the Front Rear Scissor Stop (FRSS)

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

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

Rear Suspension Adjustments

Rear To Front Coupling and the Rear Rear Scissor Stop (RRSS)

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

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

RRSS Attributes

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

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

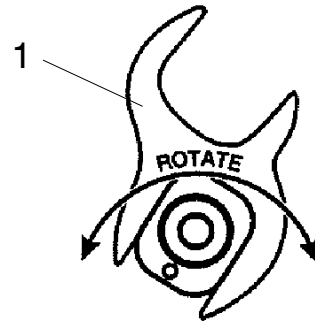
THE PERFECT FIT

Rear Suspension Adjustments

Weight Transfer During Acceleration

Rear Rear Scissor Stop (RRSS)

The preferred method for controlling weight transfer during acceleration of the EDGE rear suspension is by adjusting the RRSS. The RRSS is located in the best overall trail riding position when delivered from the factory.



To decrease weight transfer under acceleration (for improved cornering), rotate the RRSS to a higher position with the scissor stop tool (1) located in your tool kit.

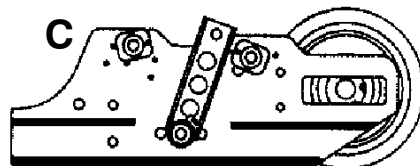
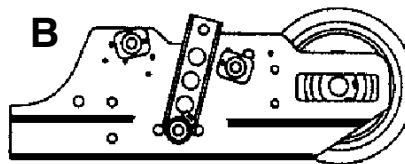
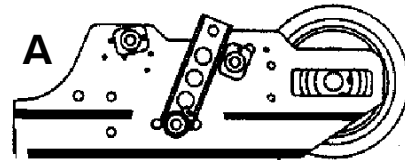
To increase weight transfer or ski lift during acceleration, move the RRSS to the rearward hole on high position. The RRSS may also be rotated to a lower position for even more weight transfer if desired.

A - Stock Position - This setting is most desirable for trail riding.

B - Medium or High Position (standard hole location) - This setting will decrease weight transfer.

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

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



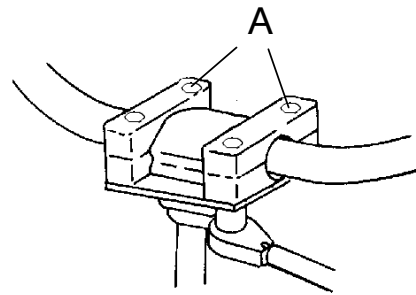
Handlebar Adjustments

⚠ WARNING

Improper adjustment of the handlebars or incorrect torquing of the adjuster block tightening bolts can cause limited steering or loosening of the handlebars, resulting in loss of control and possible serious personal injury or death. Follow the adjustment procedures exactly, or see your Polaris dealer for service.

Follow these steps to adjust the handlebars for a personal fit.

1. Remove the handlebar cover to expose the handlebar and the four adjuster block bolts (A).
2. Using a $7/16''$ (11 mm) wrench, loosen the four nuts on the bottom of the adjuster block (turn handlebar to left or right for access to back nuts).



NOTE: It may be necessary to pry the adjuster blocks apart with a screw driver.

3. Adjust the handlebar to the desired height. Be sure handlebars, 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.
4. Torque the handlebar adjuster block bolts to 11-13 ft. lbs. (15-18 Nm).
5. Replace the handlebar cover.

THE PERFECT FIT

Accessories

Polaris offers a wide range of accessories for your snowmobile. From map light to saddlebags, Polaris has the accessories that will help make each ride more enjoyable. See your dealer for a list of accessories.

NOTE: The accessory tether switch is available for all models. Order PN 2870668.

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

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

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

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

Traction Products

CAUTION

Use of traction products such as studs, ice growers, etc. will damage the rear close-off cooler of the Frontier. Never install traction products on your Frontier snowmobile.

PRE-RIDE INSPECTION

Before starting the engine, always check all of the items outlined on the following pages.

WARNING

Worn, damaged, or malfunctioning components may cause serious injury or death. Before starting the engine, check all Pre-Ride Inspection components to be sure of proper operation.

Read and Understand Your Owner's Manual

Read the Owner's Manual completely and refer to it often. We've attempted to provide as much information as possible to ensure a safe and enjoyable snowmobiling experience.

Throttle Lever

The throttle is one of the primary controls of your snowmobile. If it should malfunction, loss of control could result.

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

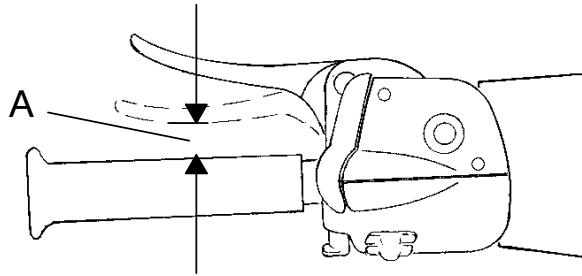
Throttle Safety Switch

Test the throttle safety switch system daily, before the machine is operated. See page 60.

PRE-RIDE INSPECTION

Hydraulic Brakes

Properly functioning brakes are critical to your safety. Always check the following items to assure proper operation before starting the engine.



Brake Lever Travel

When the brake lever is squeezed, it should move no closer to the handgrip than 1/2" (1.3 cm) (A). A distance less than this indicates low brake fluid level or air in the hydraulic system. Refer to the brake bleeding information on page 88.

Brake Lever Feel

A hydraulic system multiplies the force of your hand squeezing the brake lever. Proper operation depends on an adequate supply of air and moisture-free hydraulic brake fluid in the system. If the brake lever feels “spongy” when squeezed, check the level and condition of the fluid. Also check for the presence of air in the fluid system. Refer to page 88 for more information, or see your dealer for service.

Replace brake fluid at least every two years with Polaris DOT 3 high temperature brake fluid. All DOT 3 brake fluid is not alike. We recommend that you use only Polaris brake fluid. See page 113 for the part numbers of Polaris-recommended products.

⚠️ 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.

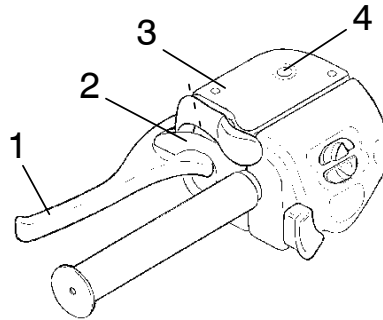
PRE-RIDE INSPECTION

Park Brake Lever Lock

Your snowmobile has a park brake lever lock located over the brake lever. Use the brake lever lock when you want the machine to remain stationary; for example, when parked on an incline for a period of five minutes or less. To apply the lock, squeeze the brake handle and push forward on the brake lever lock. Hold the lock forward and release the brake handle.

If the brake handle is squeezed tightly enough, the lock will move freely into place. Do not force the lock or it may break. To release the lock, squeeze and release the brake lever. The lever will return to the unlocked position. The brake light on the console will light up when the park brake lever is locked and the engine is running. It will also be lit when the service brake is in use. If the brake light does not come on when the park brake or service brake is in use, have it serviced by your dealer.

1. Brake Lever
2. Park Brake Lever Lock
3. Master Cylinder Reservoir / Cover
4. Fluid Level Indicator



⚠️ WARNING

If the park brake lever lock is partially or entirely engaged while riding, overheating of the brakes could occur, resulting in brake damage. In extreme cases it could cause a fire, which could result in serious injury or death. Always release the park brake lock before operating the snowmobile.

PRE-RIDE INSPECTION

Steering System

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

Track Condition

Driving at high speeds for extended periods of time in marginal lubrication could severely damage track rods, break track edges, and cause other track damage. Examples of marginal lubrication would include frozen bodies of water without snow cover, icy trails, and no-snow conditions.

NOTE: Track damage or failure caused by operation on ice or in poor lubrication conditions is not covered by warranty.

WARNING

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

Hood Latches

The hood of the snowmobile protects the operator from moving parts and aids in sound emission control and other functions. *Under no circumstances* should your snowmobile be operated with the hood open or removed.

Oil Level

Always check the oil level on the dipstick before each ride and when refueling. The dipstick is located on the lower left side of the engine. Maintain the oil level between the *SAFE* and *ADD* marks on the dipstick. See page 59.

PRE-RIDE INSPECTION

The following items must be checked before each use of the vehicle. Check these items after starting the engine (see page 52), but before putting the machine into motion.

Transmission

Make sure the reverse is not engaged before squeezing the throttle.

Engine Stop Switch

Check the auxiliary shut-off switch for proper operation. Push down to stop the engine. Pull up to release and start the engine. See page 60.

Tether Switch

If your machine has a tether switch, make sure the engine shuts off when the tether is removed from the switch. See page 60.

Lights

Check the headlight (high and low beam), taillight, and brake light for normal operation.

Mirrors

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

Operating Area

Make sure you have a clear area all around your snowmobile, including an area clear of bystanders. There's always the possibility of some sideways vehicle movement, of applying a little more throttle than intended, or of debris being thrown by the track. If the surrounding area is clear you before you start, you can devote your full attention to operating the snowmobile.

OPERATION

Starting the Engine

WARNING

Before starting the engine, always refer to all safety warnings pertaining to snowmobile operation. Never start your snowmobile without checking all components to be sure of proper operation. See *Pre-Ride Inspection* section beginning on page 47.

Do not depress the throttle until the engine starts.

1. Pull the kill switch (shut-off switch) up to the *RUN* position.
2. Turn the key to *START* and crank the engine. **NOTE:** There will be a half second delay before the starter engages to allow the ACS system to “wake up.”
3. After the engine starts, release the key to the *ON* position.

NOTE: The Frontier is equipped with a recoil for emergency starting. See page 62.

Engine Break-In

No single action on your part is as important to long, trouble-free machine life as proper break-in of a new or rebuilt engine. During the first three hours of operation, operate the snowmobile as outlined in the Engine Break-In section.

CAUTION

Failure to follow the procedures outlined in the Engine Break-In section of the owner's manual could result in serious damage to the snowmobile. Follow all procedures as outlined.

Avoid Heat Build-Up

Excessive heat build-up during the first few hours of operation will damage close-fitted engine parts. Do not operate at full throttle or high speeds for extended periods during the first 100 miles (160 km) of use. Vary the throttle openings and machine speeds to reduce friction on all close-fitting machined parts, allowing them to break in slowly without damage.

Perform Fluid Checks

Perform regular checks on fluid levels, lines, and all other important areas of the machine. Perform the first oil and filter change at 1000 miles (1600 km). See page 79.

OPERATION

Engine Break-In

Lubrication

CAUTION

Serious engine damage can occur without the proper lubrication. Check the oil level often during the first tankful of fuel. Maintain the oil level between the *SAFE* and *ADD* marks on the dipstick.

Always check the oil level when refueling. Oil must be maintained between the *SAFE* and *ADD* marks on the dipstick. See page 59.

CAUTION

Mixing brands or using a non-recommended oil may cause serious engine damage. We recommend the use of Polaris Premium 4 Synthetic 0W-40 engine oil for your snowmobile. Never mix brands.

We highly recommend the use of only Polaris products for your snowmobile. We're continuously testing lubricants and provide the highest performance products available for your snowmobile's engine. See page 113 for the part numbers of Polaris-recommended products.

CAUTION

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

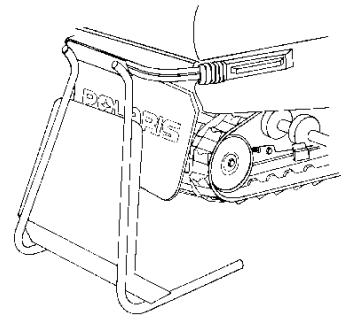
⚠️ WARNING

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

Track Warm-Up

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

1. Use an appropriate stand to securely support the rear of the snowmobile at the rear bumper. The track should be approximately 4" (10 cm) off the ground.
2. Start the engine and allow it to warm up two to three minutes.
3. Depress the throttle abruptly and allow the track to rotate several revolutions. **NOTE:** It will take longer to warm up the track sufficiently during colder outdoor temperatures.
4. Release the throttle, apply the brakes, shut off the engine and lower the machine to the ground.
5. Grasp the skis by their front loops and move them from side to side. This will loosen frozen snow from the ski bottoms, allowing the machine to move forward more easily.
6. The engine, drive system and track are now properly warmed up and the machine may be driven following normal safety practices.



OPERATION

Fuel

WARNING

Gasoline is highly flammable and explosive under certain conditions.

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

WARNING

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

Operate this vehicle only outdoors or in well-ventilated areas.

Fuel

The fuel used in your Polaris engine is as important to engine life and performance as the lubricant. Your Polaris engine is designed to run on a minimum of 87 octane non-oxygenated or 89 octane oxygenated pump gasoline. There's a great deal of variability in the quality of the 87 octane gasoline available across the country, so we encourage the use of premium fuel when possible.

CAUTION

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

OPERATION

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 milliliters per liter) of gasoline to prevent engine damage resulting from fuel system icing and lean fuel mixtures. *Never use deicers or additives containing methanol.* See page 113 for the part numbers of Polaris-recommended products.

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

CAUTION

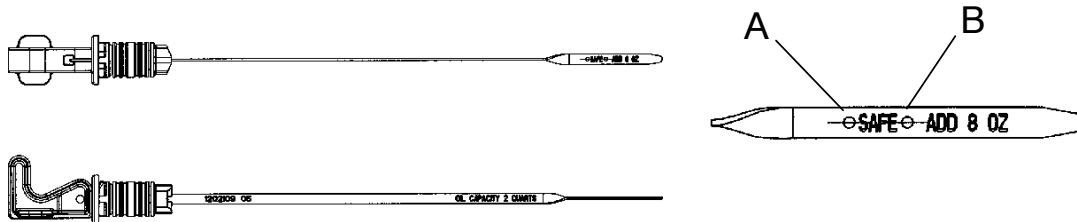
Prolonged exposure to petroleum based products may damage paint. Always protect painted surfaces when handling fuel.

Oil

Oil Level

Always check the oil level on the dipstick before each ride and when refueling. The dipstick is located on the lower left side of the engine.

When the oil reaches the *ADD* mark, add 8 fl. oz. of recommended oil to the engine. Maintain the oil level between the *SAFE* (A) and *ADD* (B) marks on the dipstick.



Throttle Position Sensor (TPS)

⚠ CAUTION

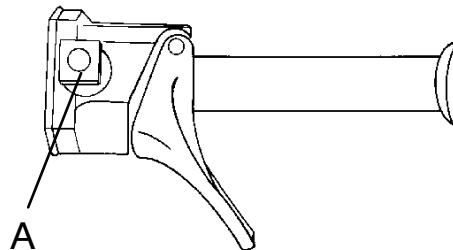
Any attempt to adjust the TPS without proper tools and training WILL result in deteriorated engine performance and could result in SEVERE engine damage. NEVER attempt to adjust the TPS. Always have your Polaris dealer perform any service on the TPS.

All throttle bodies have been preset at the factory for adequate fuel supply at all altitudes. No adjustment is required. Any service must be performed by a Polaris dealer trained to service EFI systems.

OPERATION

Engine Stop Switch

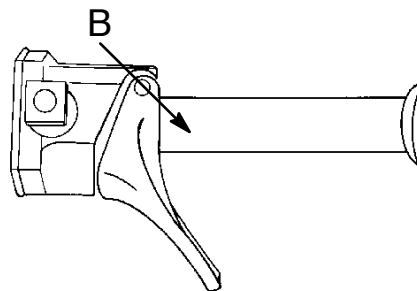
Push down on the engine stop switch (A) to stop the engine in an emergency. This will ground out the ignition and bring the engine to a quick stop. To restart the engine, the switch must be pulled up to the *ON* position.



Throttle Safety Switch

Test the throttle safety switch system daily before operation.

While seated in a normal riding position, and with the engine idling, hold the throttle lever pin stationary by exerting pressure on the pivot pin in the direction shown in the illustration (B). Apply a slight amount of throttle. A properly functioning switch *must* shut down the engine.



The throttle safety switch is designed to stop the engine whenever all pressure is removed from the throttle lever and the throttle cable or valves do not return to the normal closed position.

⚠️ WARNING

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

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 stops abruptly 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.

Excessive free play in the throttle cable may cause the safety switch to activate, preventing the engine from starting. If this occurs, see your authorized Polaris dealer for service.

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

OPERATION

Emergency Stopping

The following chart lists methods for stopping the snowmobile in the event of an emergency. Refer to page 60 for more information about the engine stop switch and throttle safety switch.

SYSTEM	WHAT IT DOES	THROTTLE CONDITION
Ignition Switch	Interrupts ignition circuit	All
Brake	Slows jackshaft	All
Engine Stop Switch	Interrupts ignition circuit	All
Throttle Safety Switch	Interrupts ignition circuit	All
Tether Switch (Option)	Interrupts ignition circuit	All

WARNING

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

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

Emergency Starting

Your machine is equipped with a recoil under the hood for emergency starting.

1. Turn the key to *ON*.
2. Pull the kill switch (shut-off switch) up to *RUN*.
3. Grasp the starter handle and pull slowly until the recoil engages.
4. Slowly pull the recoil handle, rotating the engine until it becomes harder to pull. The engine is now near top dead center.
5. Allow the rope to partially retract into the recoil (until a comfortable stance for starting is achieved).
6. Pull the handle abruptly to start the engine.

Reverse Operation

WARNING

Improper reverse operation, even at low speeds, may cause loss of control, resulting in serious injury or death.

- Always look behind the vehicle before and while backing.
- Always avoid sharp turns.
- Shift to or from reverse only when stopped.
- Always apply throttle slowly.

Make sure the shift lever is shifted completely into forward or reverse position. 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.

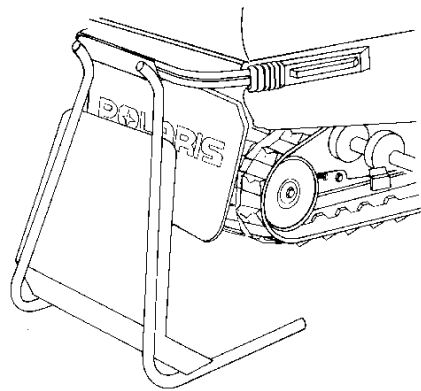
OPERATION

Daily Storage

At the end of each ride, park the snowmobile on a level surface and support it at the rear with an appropriate track stand. The track should be suspended approximately 4" (20 cm) off the ground.

Remove the key and cover the machine.

NOTE: Polaris has accessory covers and track stands available to fit all models. See your dealer for more information.



Towing

For your safety, do not attempt to use the 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.

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

CAUTION

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

- NOTES -

MAINTENANCE

Polaris Recommended Maintenance Program

To ensure many trouble-free miles of snowmobiling enjoyment, follow recommended regular maintenance and service checks outlined in this manual.

The recommended maintenance schedule on your snowmobile calls for service and maintenance inspections at 150 miles (240 km), 1000 miles (1600 km) and 2000 miles (3200 km). These inspections should be performed by a qualified service technician. For continued optimum performance and component life, continue maintenance checks at 1000 mile (1600 km) intervals. Have your dealer perform a throttle body adjustment at 4000 miles (3200 km).

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

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

EFI System

There are no maintenance adjustments required for the EFI system. Any service to the EFI system must be performed by an authorized Polaris dealer with training in EFI systems.

MAINTENANCE

Maintenance Chart

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

Item	Weekly or before long trip	150 M. (240 km)	1000 M. (1600 km)	2000 M. (3200 km)	See Page
Check brake operation and adjustment	Daily				48, 85
Test engine stop switch	Daily				51
Test tether strap	Daily				51
Check track condition	Daily				50
Test throttle safety switch	Daily				60
Check throttle lever operation	Daily				47, 61
Check operation of headlights, taillight, brakelight	Daily				51, 89
Check park brake function	Daily				49
Check oil level	Daily				59
Check coolant level	Daily				82
Check track alignment	X				100
Steering arm and tie rod ends	X				102
Check throttle cable condition	X				-
Check battery fluid level	X				109
Check track tension	X				99
Check chaincase oil level	X				75
Check gearcase oil level	X				75
Check drive chain tension	X				84
Check drive belt condition	X				93
Check for and tighten loose suspension mounting bolts	X				106
Tighten ski saddle/spindle bolts	X				-
Check front limiter strap condition, tighten bolts	X				-
Check ski skags- replace when worn to half original diameter	X				104
Check Hi-fax thickness, have dealer replace when worn	X				105
Tighten rear idler wheel bolts	X				100

MAINTENANCE

Maintenance Chart

Item	Weekly or before long trip	150 M. (240 km)	1000 M. (1600 km)	2000 M. (3200 km)	See Page
Tighten idler adjust bolt jam nuts	X				100
Check spark plug condition, replace annually	X				77
Inspect coolant filter, replace if necessary		X	X	X	83
Grease ski pivots		X	X	X	72
Grease ski spindles		X	X	X	72
Grease center steering arm(s)		X	X	X	72
Lubricate steering post support bracket and pivot (aerosol)		X	X	X	72
Grease lower steering post pivot		X	X	X	72
Change oil and oil filter (annually)			X	X	79
Grease driveshaft bearing (always perform before storage)			X	X	74
Flush chaincase		500 mi.	X	X	75
Grease rear suspension pivot shafts		500 mi.	X	X	73
Grease jackshaft bearing (always perform before storage)			X	X	72
Lubricate throttle cable			X	X	74
Check clutch alignment and offset			X	X	92
Check cooling system level, specific gravity			X	X	82
Inspect oil filter and replace			X	X	79
Inspect oil line condition				X	-
Inspect fuel filter and replace			X	X	78
Check brake fluid level			X	X	87
Inspect fuel lines and replace				X	78
Inspect exhaust system for weak or missing retaining springs				X	80
Inspect exhaust pipe for cracks or damage				X	80
Inspect clutch sheaves for damage, wear, belt residue				X	91

MAINTENANCE

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.

150 Mile (240 km) Initial Maintenance Inspection

Authorized Polaris Servicing Dealer _____

Servicing Technician _____

Date _____ Mileage _____

1000 Mile (1600 km) Maintenance Inspection

Authorized Polaris Servicing Dealer _____

Servicing Technician _____

Date _____ Mileage _____

2000 Mile (3200 km) Maintenance Inspection

Authorized Polaris Servicing Dealer _____

Servicing Technician _____

Date _____ Mileage _____

3000 Mile (4800 km) Maintenance Inspection

Authorized Polaris Servicing Dealer _____

Servicing Technician _____

Date _____ Mileage _____

4000 Mile (6400 km) Maintenance Inspection

Authorized Polaris Servicing Dealer _____

Servicing Technician _____

Date _____ Mileage _____

MAINTENANCE

Maintenance Log

Additional Services Performed

Authorized Polaris Servicing Dealer _____

Servicing Technician _____

Date _____ Mileage _____

Type of Service _____

Additional Services Performed

Authorized Polaris Servicing Dealer _____

Servicing Technician _____

Date _____ Mileage _____

Type of Service _____

MAINTENANCE

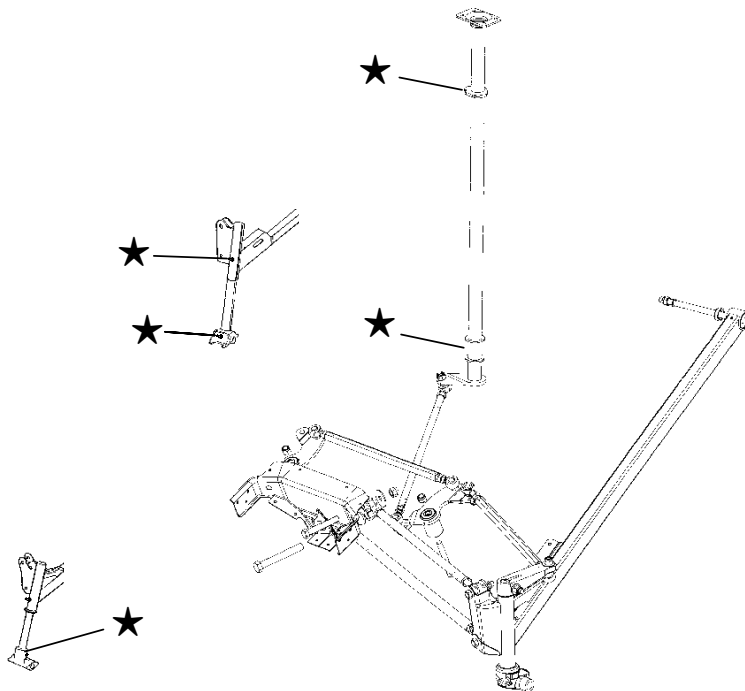
Lubrication

Lubricate the suspension and steering components with Polaris Premium 4 all season grease annually or about every 1000 miles (1600 km). See page 113 for the part numbers of Polaris-recommended products.

The illustration shows the location of suspension and steering components. A ★ indicates a grease point or fitting.

- Grease the left and right spindles. Raise the front end of the machine to permit better grease entry into the spindle area.
- Lubricate both of the front ski pivots at the fittings as shown.
- Grease the jackshaft and driveshaft clutch side bearings.
- Use an aerosol lubricant on the steering post support bracket.
- Grease the center steering arms.
- Grease the steering post lower pivot.
- Grease the rear suspension pivot shafts (raise the rear of unit).

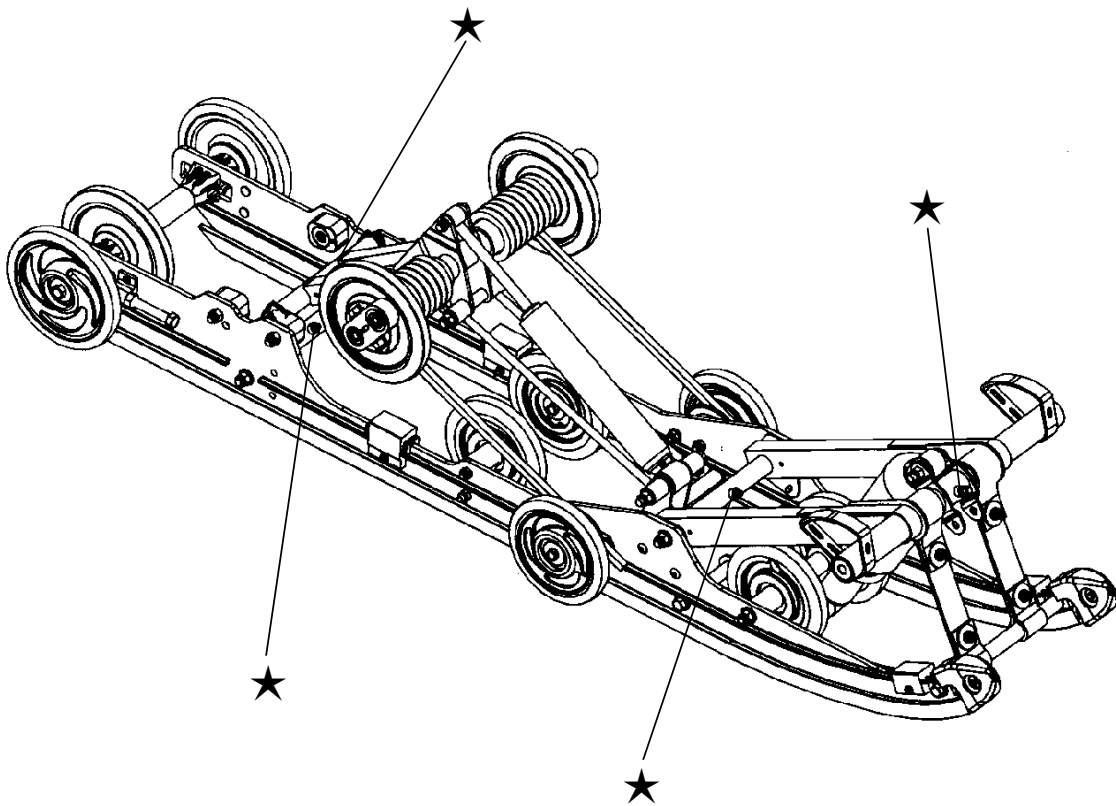
A grease gun kit, complete with grease and adaptors, is available to lubricate all fittings on Polaris snowmobiles. See page 113.



Lubrication

The suspension pivot shafts should be lubricated with Polaris Premium All Season Grease at 500 miles (800 km) initially, every 1000 miles (1600 km) after that, and before off-season storage each year. Lack of lubrication will adversely affect your ride and the life of the suspension. For detailed information about suspension lubrication and adjustments, see your Polaris dealer.

NOTE: Lubrication points are indicated by a ★.

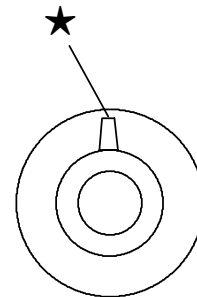


MAINTENANCE

Lubrication

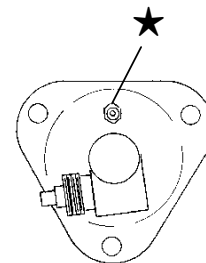
Jackshaft Bearing

Loosen the driven clutch retaining bolt and pull the clutch outward to expose the bearing and grease fitting. Inject grease into the grease fitting in the flangette until grease purges from inside or outside the bearing seal (may take only two pumps). Push the clutch back onto the shaft and replace the clutch retaining bolt. Torque to 18 ft. lbs. (24 Nm).



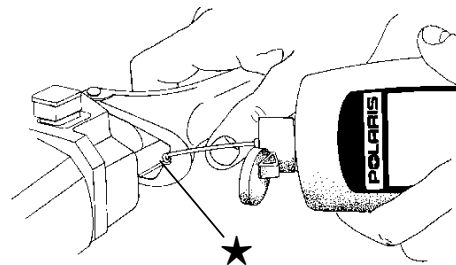
Driveshaft Bearing

Inject grease into the fitting on the speedometer drive adaptor until grease purges from inside or outside the bearing seal (approximately two 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.



Lubrication

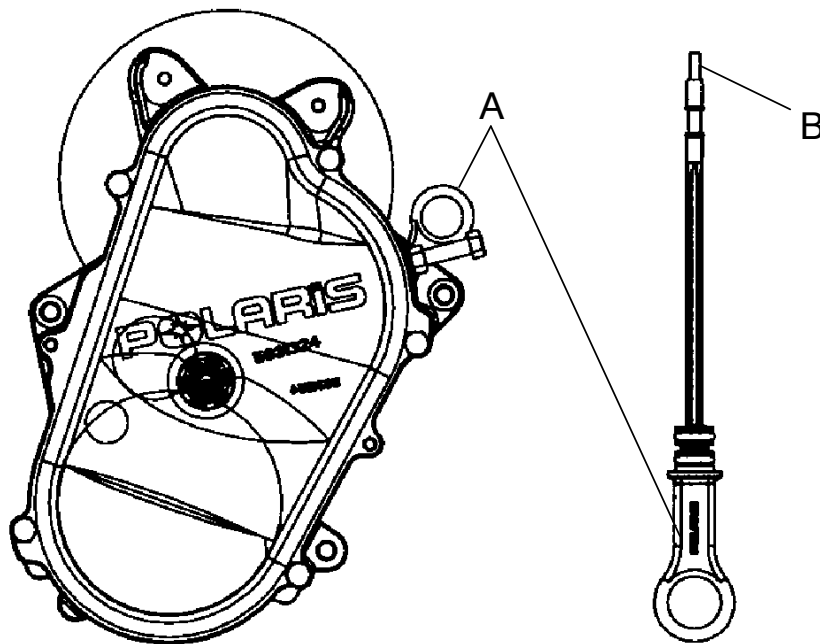
Chaincase Oil

Check the chaincase oil level weekly and before any long trips.

Place the machine on a level surface.

Remove the dipstick (A) and read the oil level. The oil level should be between the SAFE marks on the dipstick. Add Polaris chaincase oil through the dipstick opening if needed. *Do not overfill.* See page 113 for the part numbers of Polaris-recommended products.

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



MAINTENANCE

General Maintenance

Spark Plugs

CAUTION

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

- Use Champion RC7YC spark plugs.
- Proper electrode gap is .035" (.9 mm)
- Spark plug torque is 18-22 ft. lbs. (24-30 Nm).

Change spark plugs annually and whenever inspection reveals fouled or damaged plugs. Always use the recommended spark plugs for your machine. A spark plug with a heat range too high will cause engine damage. A spark plug with a heat range too low will cause excessive fouling and engine malfunctioning.

NOTE: Always carry spare spark plugs in case of an emergency.

General Maintenance

Spark Plugs

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

⚠️ WARNING

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

Normal

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

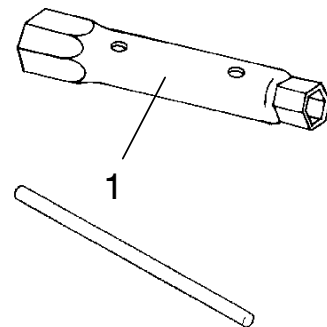
NOTE: The tip should not be white. A white insulator tip indicates overheating, caused by use of an improper spark plug or incorrect carburetion adjustments.

Wet Fouled

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

Spark Plug Removal and Replacement

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



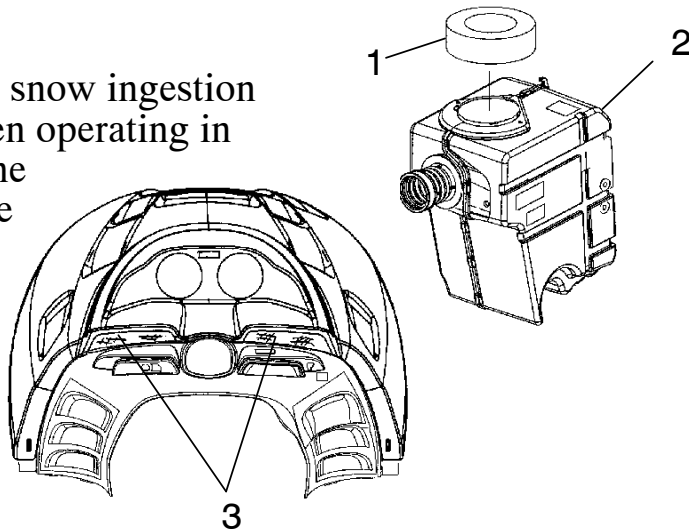
MAINTENANCE

General Maintenance

Intake Filter

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

1. Airbox foam filter
2. Air intake box
3. Hood foam filters



CAUTION

Operating the snowmobile without the intake filters may cause throttle body icing and result in poor fuel economy or throttle body malfunction. Always reinstall the filters before operating.

Fuel Filter

The best way to check the fuel filter is with fuel pressure. If fuel pressure is low, remove the filter and check pump pressure. If pressure is still low, the pump may need replacement. See your dealer. But if the pump pressure is good after removing the filter, then the fuel filter is plugged and must be replaced. The fuel filter should last the life of the machine if the fuel used is always of good quality.

Fuel Lines

Inspect the fuel lines regularly. Give special attention to the system's fuel line condition after periods of storage. Normal deterioration from weather and fuel compounds may occur.

CAUTION

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

General Maintenance

Oil and Filter Change

The Frontier does not have a crankcase drain. The oil in the crankcase must be drawn out through the dipstick hole using a Polaris oil vacuum pump (PN PU-46219) or similar tool from another manufacturer. This type of tool is commonly used in the marine industry.

1. Position the vehicle on a level surface and run the engine for 2-3 minutes to slightly warm the oil. **NOTE:** Running the engine any longer may cause engine overheating. It may also cause the oil to become too hot for safe removal with the oil vacuum pump.
2. Remove the dipstick and draw out the oil, following the instructions provided with the oil vacuum pump. Fish the vacuum tube around in the crankcase to remove as much oil as possible.
3. Place shop towels beneath the oil filter to catch spills. Using an appropriate oil filter wrench, such as Polaris PN PV-43527), turn the filter counterclockwise to remove. Dispose of the used oil and filter properly.
4. Clean the filter sealing surface on the crankcase with a clean, dry cloth.
5. Lubricate the o-ring on the new filter with a film of new engine oil. Check to make sure the o-ring is in good condition.
6. Install the new filter and turn by hand until the filter gasket contacts the sealing surface, then turn an additional half turn.
7. Add 2 quarts (1.9 ltr) of Polaris Premium 4 synthetic oil through the dipstick hole. Reinstall the dipstick.
8. Start the engine and allow it to idle for one to two minutes. Stop the engine and inspect for leaks.
9. Check the oil level on the dipstick and add oil as needed to bring the level to the SAFE mark on the dipstick.

MAINTENANCE

General Maintenance

Exhaust System

Check the exhaust system for wear or damage at approximately 2000 miles (3200 km). To inspect, allow the engine and exhaust system to cool completely. Open the hood and inspect the muffler and pipes for cracks or damage. Check for weak or missing retaining springs or damper/support grommets.

WARNING

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

Engine Cooling

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

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

General Maintenance

Coolant Mixture

The coolant supplied in the system is a 50/50 mixture of ethylene-glycol and distilled water. This mixture provides protection against freezing at temperatures to -34° F (-37° C). If greater protection is required, the percentage of antifreeze to water may be increased. Use Premium 60/40 anti-freeze coolant, which is already premixed and ready to use. Do not dilute with water. See page 113 for the part numbers of Polaris-recommended products.

Never exceed a 60% antifreeze/40% water mixture. Contact you dealer if greater protection is required.

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

Coolant High Temperature Indicator Light

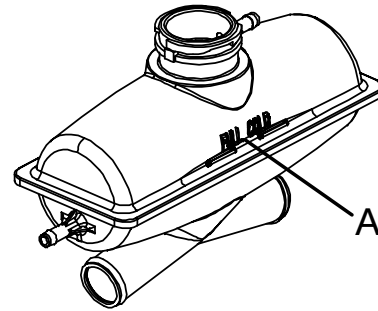
The high temperature indicator light is controlled by the electronic control unit (ECU). If the engine coolant reaches a certain temperature, the ECU completes a circuit that turns the light on. If you must drive your machine after the high temperature indicator light has come on, drive slowly and stop frequently to allow the engine to cool down. See your dealer.

MAINTENANCE

General Maintenance

Coolant Level

The coolant level in the coolant bottle must be maintained at the *FULL COLD* mark (A) to prevent overheating and serious engine damage.



CAUTION

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

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

- Coolant bottle
- Engine filler neck
- Pressure cap
- Connecting hoses

Flushing the Cooling System

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

General Maintenance

Bleeding the Cooling System

WARNING

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

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

CAUTION

If coolant flow becomes restricted, coolant loss, air lock or engine damage may result. Periodically inspect and/or replace the cooling system components as needed to prevent restricted coolant flow.

1. Remove the pressure cap and fill the coolant bottle with properly mixed coolant to the FULL COLD mark.
2. Elevate the front end of the machine slightly to aid in bleeding of the heat exchangers.
3. Add coolant to the coolant bottle to bring the level to the FULL COLD mark.
4. Start the engine and run at a fast idle for two to three minutes to allow further bleeding of air.
5. Stop the engine and check the coolant bottle level. Fill as required.
6. Feel the heat exchangers under the running boards. If the system is bled properly, they'll be warm to the touch. If they're not, repeat step 4. Lift the front of the machine slightly to assist in the bleeding.
7. Replace the pressure cap and carefully lower the front end of the machine.

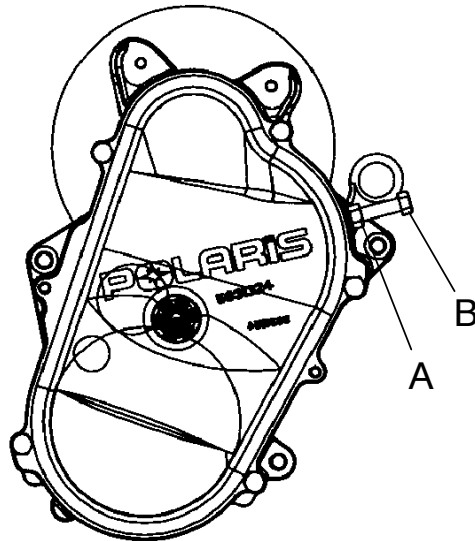
MAINTENANCE

General Maintenance

Drive Chain Tension

To obtain correct chain tension:

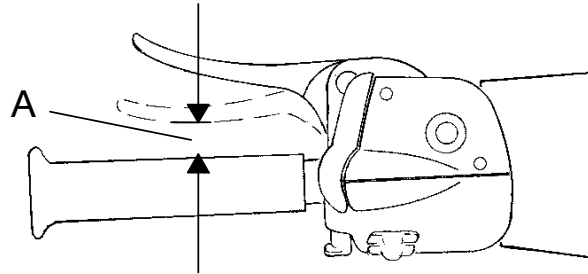
1. Rotate the driven clutch counterclockwise to move all chain slack to the tensioner side. Lock the brake lever lock, or have an assistant hold the brake lever firmly.
2. Loosen the adjuster bolt jam nut (A).
3. Finger tighten the adjuster bolt (B) until it can no longer be adjusted by hand, then back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



General Maintenance

Hydraulic Brake Inspection

Frequently inspect the brake lever reserve. Firmly depress the brake lever and measure the clearance between the lever and handlebar grip. This distance, called brake lever reserve (A), should be no less than 1/2" (1.3 cm).



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

⚠ WARNING

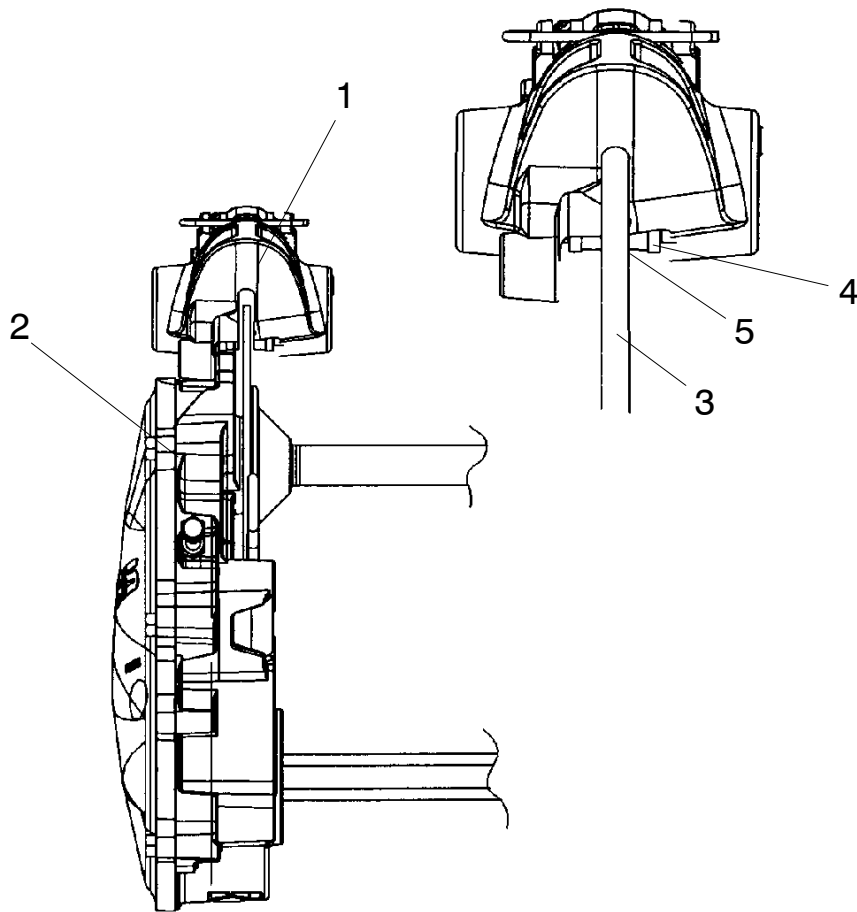
Brake failure during operation can result in serious injury or death. Properly functioning brakes are vital to your safety. Be sure the brake pads do not drag on the disc and that brake lever travel is not excessive.

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

MAINTENANCE

General Maintenance

Brake Components



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

Excessive Brake Lever Travel

Hydraulic brakes are self-adjusting, but if excessive brake pad clearance develops, as described on page 85, the machine should be returned to an authorized Polaris dealer for inspection and adjustment.

General Maintenance

Brake Fluid

WARNING

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

WARNING

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

CAUTION

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

All DOT 3 brake fluid is not the same. We recommend the use of only Polaris DOT 3 high temperature brake fluid. See page 113 for the part numbers of Polaris-recommended products.

The brake fluid level can be seen through a plastic sight glass in the brake reservoir. If the fluid is sufficient, the sight glass will be black. If the sight glass is any color other than black, add brake fluid. Maintain the brake fluid level between the MIN and MAX marks on the master cylinder reservoir.

MAINTENANCE

General Maintenance

Bleeding the Hydraulic Brake System

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

WARNING

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

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

1. Remove the brake master cylinder reservoir cover and gasket.
2. Fill the master cylinder reservoir to between the MIN and MAX marks or 1/4-5/16" (.6-.8 cm) below the lip of the reservoir opening. Reinstall the gasket and cover.
3. Slip a rubber tube over the ball of the bleeder valve and direct the flow of fluid into an approved container.
4. Squeeze the brake lever a full stroke. Then unscrew the bleeder valve 3/4 of a turn to release air.
5. Close the bleeder valve and release the brake lever.
6. Repeat steps 4 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 maintain the brake fluid level between the MIN and MAX marks on the reservoir as recommended.

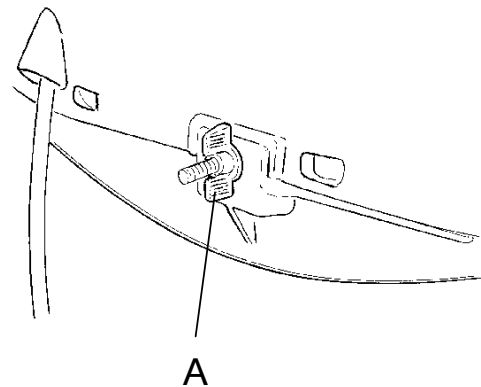
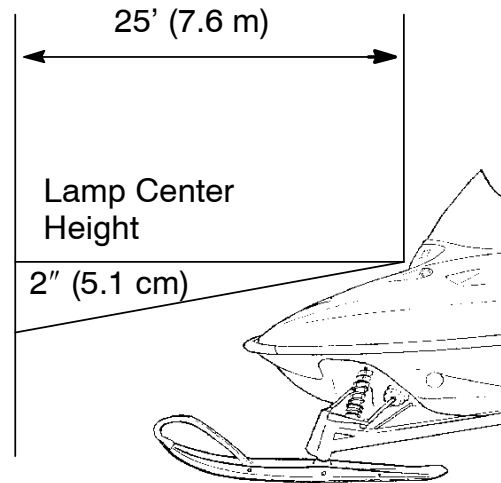
7. After bleeding is complete, refill the reservoir to the recommended level. See page 87.
8. Reinstall the gasket and cover.

General Maintenance

Headlight Adjustment

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

1. Place the snowmobile on a level surface with the headlight approximately 25 feet (7.6m) from a wall.
2. Measure the distance from the floor to the center of the headlight and make a mark on the wall.
3. Start the engine and turn the headlight switch to high beam.
4. Observe the headlight aim. The most intense part of the headlight beam should be aimed 2" (5.1 cm) below the mark placed on the wall in step 2. **NOTE:** Rider weight must be included on the seat.
5. Turn the adjustment nut (A), located inside the hood, just below the headlamp opening. Turn the knob in or out as needed to adjust aim.



MAINTENANCE

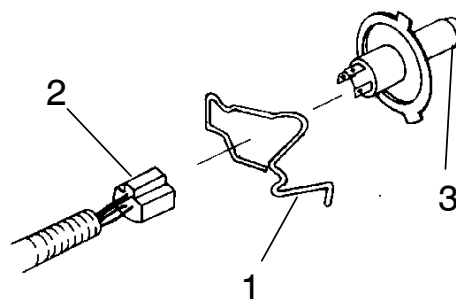
General Maintenance

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

Headlights

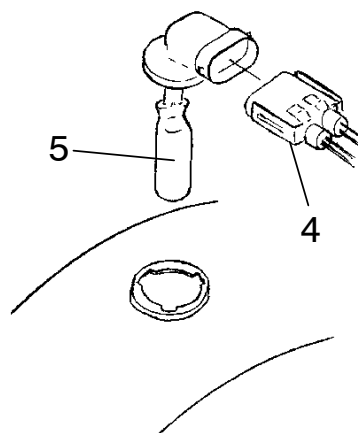
Removing Halogen Bulbs - High/Low Beam

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



Installing the Bulb

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



Removing Halogen Bulbs - High Beam

1. Remove the wire harness (4).
2. Gasp the bulb (5) firmly and twist it 1/2 turn counterclockwise.
3. Remove the bulb from the housing and replace it with a new bulb.
4. Place the bulb and housing back inside the hole and turn the housing 1/2 turn clockwise to lock into place.
5. Reinstall the wire harness to the housing.

General Maintenance

Clutch System

WARNING

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

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

CAUTION

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

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

MAINTENANCE

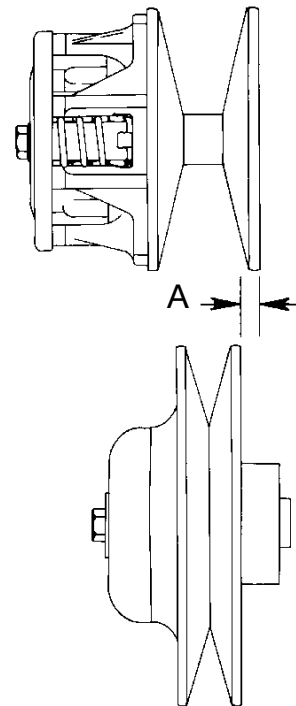
General Maintenance

Clutch Alignment and Offset

Clutch center distance and alignment (A) are crucial to maintaining optimum performance. See the specifications section on page 112 for the recommended offset between the drive and driven clutches with the belt removed.

The drive belt is a very important part of the drive system. Belt width and length must match the center distance of the clutches and sheave width of the drive clutch. For this reason, Polaris recommends that only O.E.M. belts be used. Other belts may match the dimensions, but can drastically change the shift pattern, resulting in poor performance. See your dealer for service and adjustments.

NOTE: A worn belt will continue to function, but will not deliver maximum performance. Always carry a spare belt in case of an emergency.



Clutching Chart

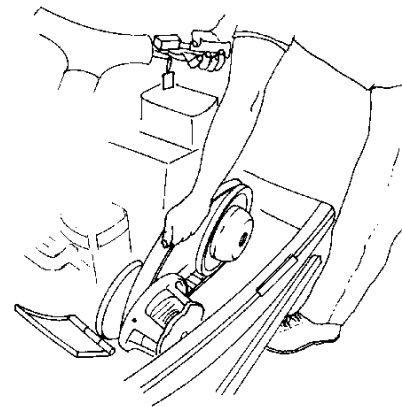
Altitude Meters (Feet)	Shift Weight	Drive Clutch Spring	Driven Clutch Spring	Driven Helix	Chaincase Gearing
0-900 (0-3000)	10-62	Yellow	Silver #2	R-11	20:41
900-1800 (3000-6000)	10-62	Yellow	Silver #2	R-11	20:41
1800-2700 (6000-9000)	10-58	Yellow	Silver #2	R-11	19:41
2700-3700 (9000-12000)	10-58	Yellow	Silver #2	R-11	19:41

General Maintenance

Periodically check the condition and tension of the drive belt, and always carry a spare belt. For improved drive-away during extremely cold temperatures, remove the belt and warm it to room temperature. Reinstall it before starting the snowmobile.

Drive Belt Removal

1. Be sure the key switch is off and the engine has come to a complete stop. Apply the brake and lock the parking brake.
2. Open the hood, remove the clutch guard retaining pin and open the clutch guard.
3. Firmly grasp the belt midway between the clutches and pull upward and rearward to remove. See illustration.

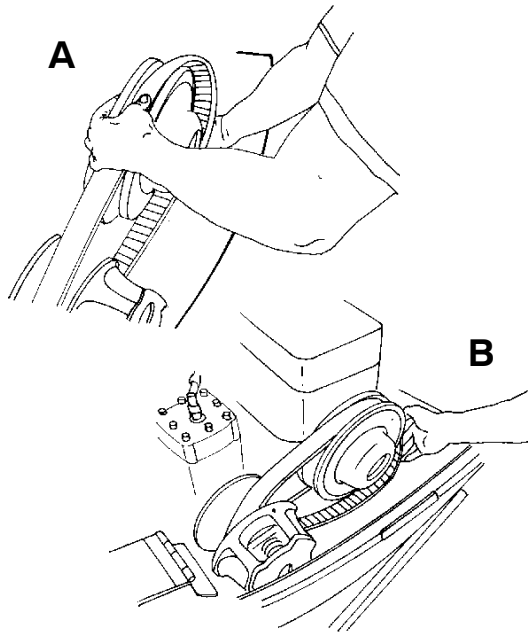


MAINTENANCE

General Maintenance

Drive Belt Installation

1. Drop the drive belt over the drive clutch and pull back the slack (A). **NOTE:** To ensure satisfactory belt life, install belts so they operate in the same direction of rotation by positioning the identification numbers so that you can read them. If required, separate the sheaves as outlined in the belt removal procedures.
2. Turn the driven clutch moveable sheave clockwise while pushing inward and forcing the belt down between the sheaves.
3. Hold the belt down between the sheaves and roll the bottom portion over the outer clutch sheave (B). Work the belt to the outer edge of the sheave.
4. Close the clutch guard and reinstall the retaining pin.
5. Close and secure the hood and release the parking brake.



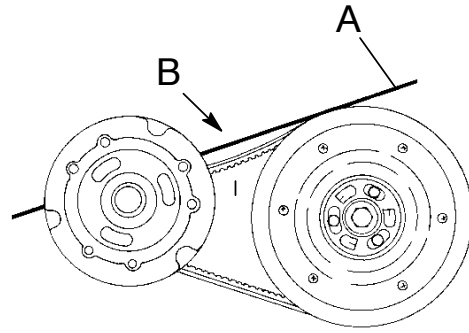
MAINTENANCE

General Maintenance

Drive Belt Deflection

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

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



Drive Belt Adjustment

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

1. Pull the belt into the driven clutch to slightly open the sheaves.
2. Loosen the three bolts on the adjustment cam and turn the cam counterclockwise to reduce the distance between the sheaves. *Do not rotate past the #1 position.*
3. Torque the bolts to 4-6 ft. lbs. (5.5-8 Nm)

Clutch Center Distance

See the specifications section on page 112 for recommended center distance for your machine. If adjustment is necessary, see your dealer. Due to tolerances in belt length, it may be necessary for your dealer to make minor adjustments in the driven clutch to achieve correct belt tension.

MAINTENANCE

General Maintenance

Reverse Kit Maintenance

Always maintain track tension as specified on page 99 when a snowmobile is equipped with reverse.

WARNING

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

Allow the engine to reach idle speed before attempting to shift into or out of reverse.

CAUTION

Damage will occur to the chaincase or transmission if shifting is attempted before the machine has come to a complete stop. Make sure the snowmobile has completely stopped and the engine has returned to idle speed before shifting gears.

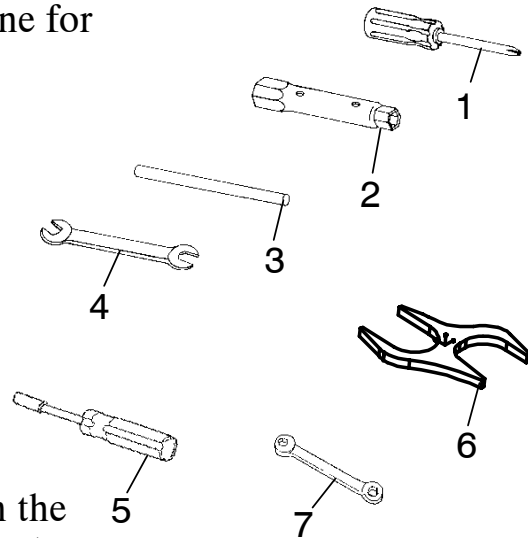
MAINTENANCE

General Maintenance

Tool Kit

A tool kit is included with each machine for emergency and routine maintenance.

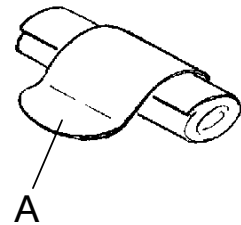
1. Phillips Screwdriver
2. Tubular Socket
3. Tubular Socket Handle
4. Wrench
5. Shielded Screwdriver
6. Scissor Stop Wrench
7. Box End Wrench



NOTE: Always keep the tool kit with the snowmobile. If necessary, a replacement tool kit may be purchased from your Polaris dealer.

Tool Pouch Clip

A tool pouch clip (A) is located inside the flap on the back of the seat. Use this clip to secure the tools and keep them from bouncing around during snowmobile use.



Chain Tension

Maintain the proper chain tension as outlined on page 84.

Oil Level

Maintain the oil level between the SAFE and ADD marks on the oil dipstick. See page 59.

MAINTENANCE

General Maintenance

Emergency Supplies

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

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

Fall Tune-Up

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

Maintenance Tools

The tools and maintenance items mentioned in this book, as well as other Polaris accessories, are available through your Polaris dealer.

Track Maintenance

⚠ WARNING

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

Track Tension

Track adjustment is critical for proper handling. Always maintain correct tension and alignment. Tension adjustments should be made only after the track is warmed up and limber.

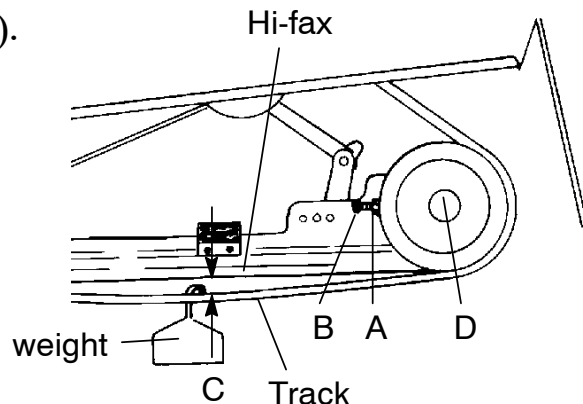
1. Turn the machine off.
2. Lift the rear of the machine and safely support it off the ground.
3. Place the recommended weight or downward pressure on the track at the specified distance (see chart below) ahead of the center of the rear idler wheel. **NOTE:** Measure at the point where the weight is hanging.
4. Check for specified slack between the wear surface of the track clip and the plastic Hi-fax (C).

Track Tension Data

Suspension	Weight	Measurement Location	Measurement
Edge 136"	10 lbs. (4.54 kg)	16" ahead of rear idler shaft	3/8 - 1/2" (1 - 1.3 cm)

If the track needs adjustment:

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



MAINTENANCE

Track Maintenance

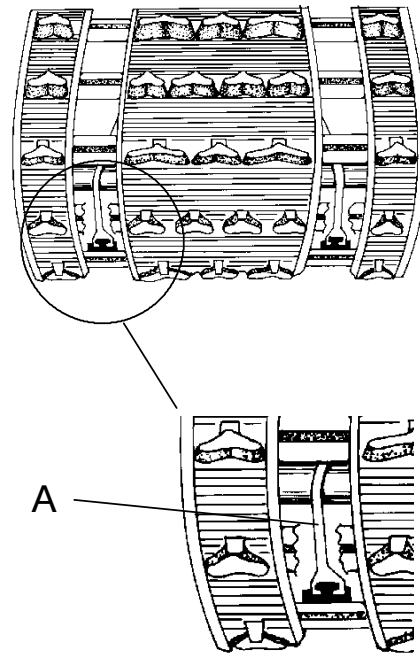
If the track needs adjustment (continued):

8. Repeat the measurement on the other side of the track. **NOTE:** Check more frequently when machine is new.
9. Start the machine and slowly rotate the track at least five revolutions. Let the track come to a stop (do not apply brakes).
10. Check the track alignment and adjust as necessary.
11. Tighten the locknuts (A).
12. Tighten the idler shaft bolts (D) and torque to 35 ft. lbs. (47 Nm).

Track Alignment

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

1. Safely support the rear of the machine with the track off the ground.
2. Start the engine and apply a small amount of throttle until the track turns *slowly* at least five complete revolutions. Stop the engine and let the track come to a stop (do not apply brakes).
3. Inspect track alignment by looking through the track window to make sure the rails (A) are evenly spaced on each side. If the track runs to the left, loosen the left locknut and tighten the left adjusting bolt. If the track runs to the right, loosen the right locknut and tighten the right adjusting bolt.
4. After adjustments are complete, tighten the locknuts and torque the idler shaft bolts to 35 ft. lbs. (47 Nm).
5. Repeat steps 2 and 3 to verify proper alignment.



Track Maintenance

Track Inspection

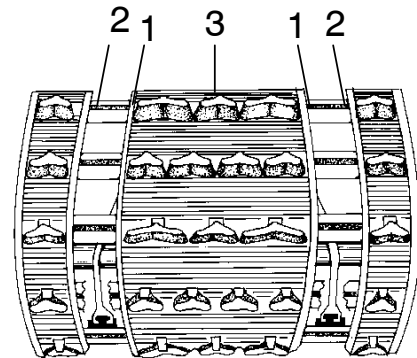
⚠ WARNING

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

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

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

Replace the track if any rod damage is found.



Track Lubrication

⚠ WARNING

Operating with insufficient lubrication between the Hi-fax 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 Hi-fax can cause faster heat build-up in limited lubrication, resulting in excessive wear. **NOTE:** If excessive Hi-fax wear occurs due to poor snow conditions, additional wheel kits are available. See your dealer for more information.

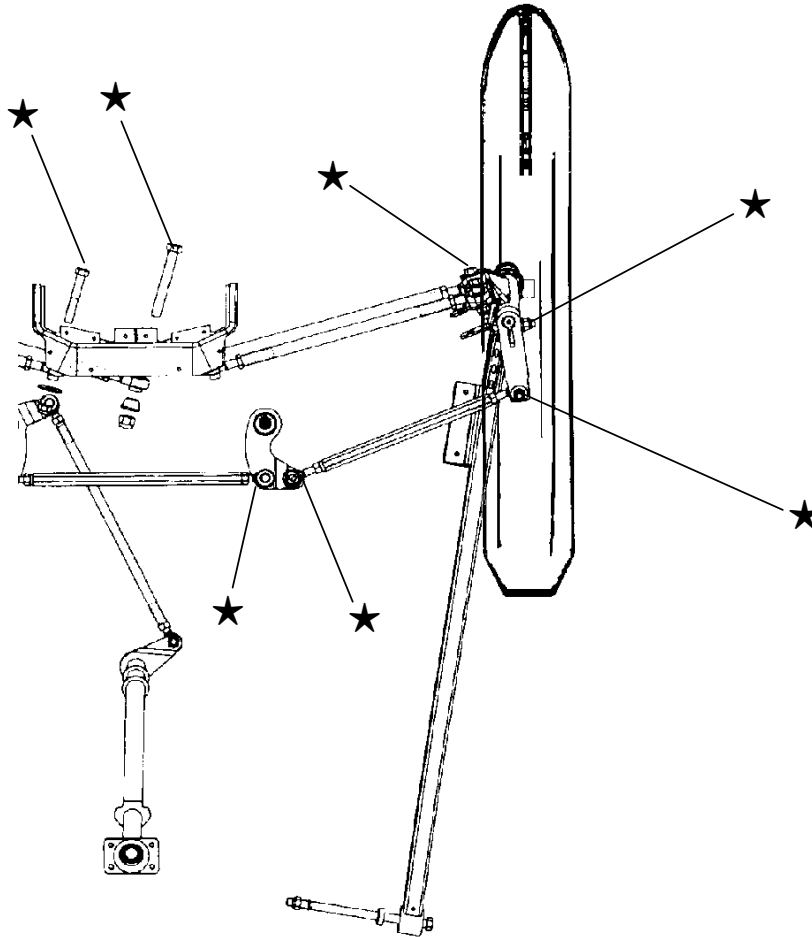
NOTE: Track damage or failure caused by operation on ice or under other poor lubrication conditions will void the track warranty.

MAINTENANCE

Steering System

Steering Inspection and Adjustment

Each week, or before a long ride, check fasteners and tighten if needed. Specific fasteners that should be checked are marked with a ★.



Steering System

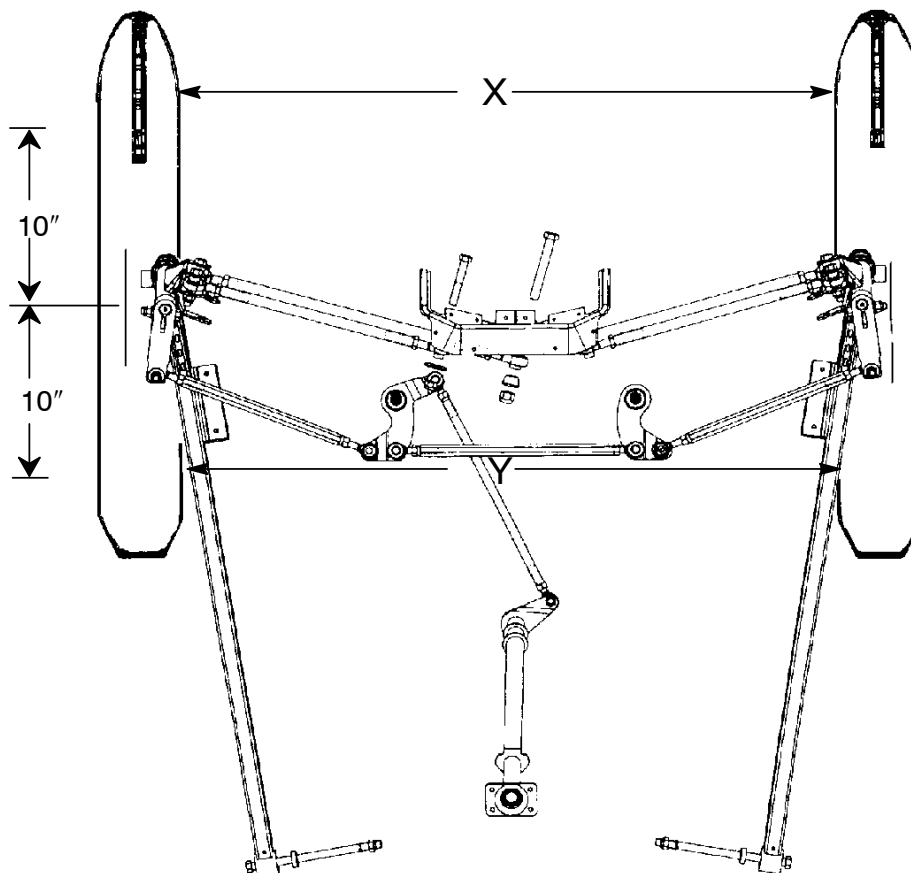
Ski Alignment

⚠ WARNING

Improper ski alignment or adjustment may cause loss of steering control, resulting in serious injury or death. Do not attempt to change the ski alignment or camber adjustment. See your Polaris dealer.

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

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



MAINTENANCE

Steering System

Ski Skags

⚠️ WARNING

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

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

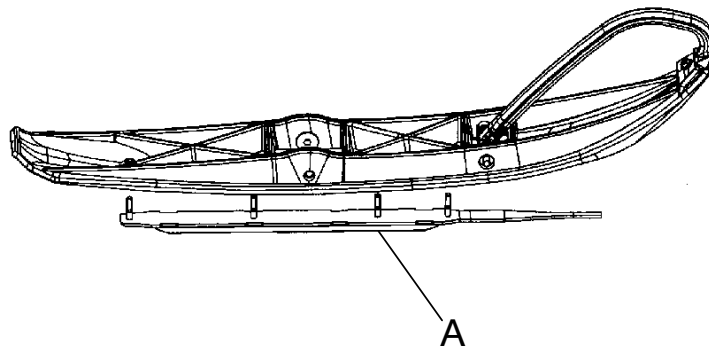
Check skags weekly to maintain positive steering characteristics. Skags must be replaced when worn to half their original diameter.

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

Skag Replacement

1. Raise and support the front of the machine so the skis are approximately 6" (15.2 cm) from the ground.
2. Remove the attaching nuts and pry the skag (A) downward.
3. Remove the forward portion of the skag first, then remove the entire skag.

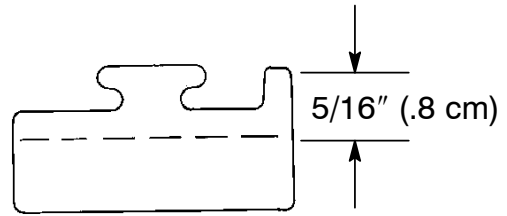
Reverse this procedure for new skag installation.



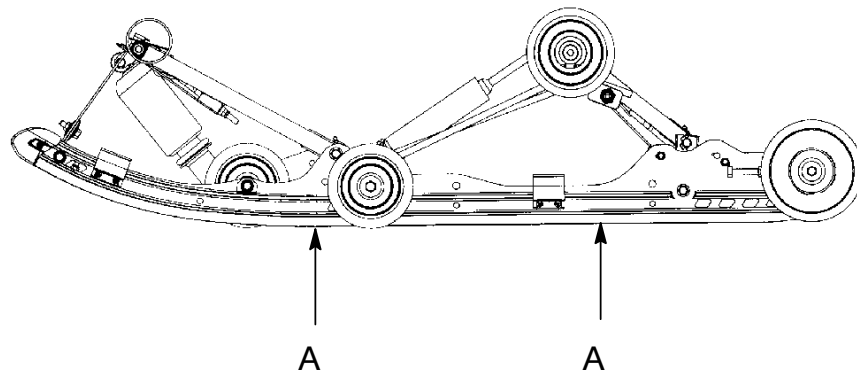
Suspension Maintenance

Hi-Fax Wear

Replace Hi-fax when a thickness of $5/16''$ (.8 cm) is reached. Check Hi-fax wear by measuring the thickness at several points along the rail (A). Take the machine to your dealer for Hi-fax replacement.



Minimum Thickness



MAINTENANCE

Suspension Maintenance

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

- ✓ Check rear idler wheel bolts for tightness.
- ✓ Check rear idler adjusting bolt locknuts for tightness.
- ✓ Check front torque arm limiter strap condition.
- ✓ Check slide rail Hi-fax condition - have your dealer replace when worn to minimum thickness.
- ✓ Check track tension (beginning on page 99).
- ✓ Lubricate/grease all suspension components (beginning on page 72).
- ✓ Check ski runner/skag condition.

Extended Storage

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

Cleaning and Preservation of Hood, Chassis, and Trim

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

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

Controls and Linkage

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

Extended Storage

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. See page 113 for part numbers.

Clutch and Drive System

Remove the drive belt and store in a cool dry location. Lubricate the sheave faces of the drive and driven clutches with a light coat of oil or Polaris Cable Lubricant. See page 113 for part numbers. Do not lubricate clutch components, except the driven clutch shaft bushing as outlined in the Master Repair Manual. See your dealer.

Electrical Connections

CAUTION

Tampering with the EFI connections could result in damage to the vehicle. Do not remove the engine EFI connections. See your Polaris dealer for all EFI system service.

Separate the electrical connector blocks and clean any corrosive build-up from the connectors. Lubricate or pack the connector blocks with dielectric grease and re-connect. **NOTE:** Do not grease the TPS connector.

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

Battery

Always prepare and maintain the battery as outlined on page 111.

MAINTENANCE

Extended Storage

Engine Protection

Proper preparation of the engine and fuel system is vital to the prevention of rust and corrosion on precision engine parts during storage. Whenever the machine is stored for a period of more than 60 days, the engine must be fogged with fogging oil. Follow the engine fogging instructions provided on the can. See page 113.

Always add Premium Carbon Clean or a fuel conditioner/stabilizer to the fuel tank. Follow the instructions on the can, running the engine for five minutes to get additives through the entire fuel system. Top off with fresh fuel.

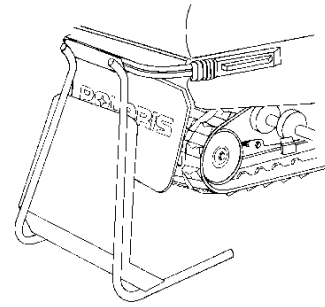
Using a fuel stabilizer and topping off the fuel tank eliminates the need to drain the fuel system. If you prefer to drain the fuel tank, use the following procedure:

1. Transfer unused fuel from the fuel tank to an approved fuel container using a siphon pump. Do not re-use fuel after storage.
2. Securely support the front of the snowmobile with a jackstand so the machine is elevated and the engine is tilted rearward.
3. Remove the spark plugs.
4. Rotate the engine slowly, watching the pistons until they're at bottom dead center (BDC), the lowest position in the cylinder.
5. Pour approximately one ounce of engine oil into each spark plug hole.
6. Repeat step 4, then replace the spark plugs and lower the machine to the floor.

Extended Storage

Track and Suspension

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



Battery

⚠️ WARNING

Battery electrolyte is poisonous. It contains acid! Serious burns can result from contact with the skin, eyes, or clothing. If contact occurs, seek immediate medical attention.

KEEP OUT OF REACH OF CHILDREN.

EXTERNAL: Flush with water.

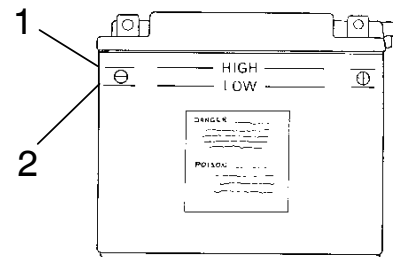
INTERNAL: Drink large quantities of water or milk. Call physician immediately.

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

Batteries produce explosive gases. Keep sparks, open flames, cigarettes, etc. away. Ventilate when charging or using in closed space. Always shield eyes when working near batteries.

Battery Fluid

A poorly maintained battery will deteriorate rapidly. Check the battery fluid level often. The fluid level should be kept between the upper (1) and lower (2) level marks.



MAINTENANCE

Battery

Battery Connections

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

CAUTION

Tap water contains minerals that will damage a battery and shorten its life. Use only distilled water to refill your battery. Never allow cleaning solution or tap water to enter the battery.

Battery Removal

WARNING

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

1. Disconnect the battery hold down straps.
2. Remove the battery vent tube from the battery.
3. Disconnect the black (negative) battery cable first, then disconnect the red (positive) battery cable.
4. Remove the battery box cover and tip the box forward.
5. Carefully lift the battery out of the snowmobile. Do not tip it sideways or spill electrolyte.

CAUTION

If electrolyte spills, immediately wash it off with a solution of one tablespoon baking soda and one cup water to prevent damage to the vehicle.

Battery

When your snowmobile is placed in storage for one month or more:

- Remove the battery.
- Charge it to the proper level.
- Store it in a cool dry place.
- Check and/or charge monthly.

Before using the battery, take it to your dealer for testing and recharging.

Batteries may freeze if not fully charged, resulting in cell damage.

Charge Condition	Will Freeze At
100%	-75° F (-59° C)
75%	-24° F 31° C)
50%	0° F (-18° C)
25%	+13° F (-11° C)
0%	+18° F (-8° C)

Battery Installation

WARNING

Batteries contain gases that can explode. If the battery vent tube is pinched or kinked, battery gases could accumulate. Whenever removing or installing the battery, disconnect the negative (black) cable first and reinstall the negative cable last to avoid the possibility of explosion.

Battery electrolyte contains acid. Avoid skin contact with electrolyte as severe burns may result.

1. Place the battery in its holder. Attach the battery box cover.
2. Install the battery vent line. It must be free from obstructions and securely installed. Route the vent line properly to prevent kinks and to allow for proper drainage.
3. Connect and tighten the red (positive) cable first, then connect and tighten the black (negative) cable.
4. Verify that cables and vent hose are properly routed.

SPECIFICATIONS

Capacities and Dimensions	
Body Style	EDGE
Rider Capacity	2
Dry Weight (Est.)	581 lbs/264 kg
Fuel Tank capacity	11.8 gal/44.7 ltr
Height	48.5 in/23 cm
Length	127.0 in/322.6 cm
Oil Capacity (Quarts)	2 qts/1.9 ltr
Ski Center Distance (in.)	42.5 in/108 cm
Width (in.)	47 in/119.4 cm
Brake Type	Hydraulic
Drive Clutch Center Distance	10 in/25.4 cm
Clutch Type	P-85
Track Length	136 in/345.4 cm
Track Width	15 in/38 cm
Drive Chain Length	72 in/183 cm
Sprocket Ratio	17:40
Suspension	
Front Type	Edge
IFS Shock Type	Nitrex
Rear Type	Edge 136
Front Track Shock	Nit Cell
Rear Track Shock	Select
Engine and Cooling	
Engine Model Number	S2220-7868PL7D
Alternator Output	416 watt
Bore x Stroke (mm)	80 X 78
Displacement	784 CCI
Idle RPM +/-200	1200
Cooling	Liquid
Cylinders	2
Ignition Timing °BTDC @ RPM	15° with diagnostic tool
Ignition Type	Inductive
Spark Plug	Champion RC7YC
Spark Plug Gap (mm / in)	.90 / .035
Features	
Electric Start	Standard
Low Oil Light	Standard
Parking Brake	Standard
Speedometer	Standard
Tachometer	Standard
Block Heater	Standard, 110 V

POLARIS RECOMMENDED PRODUCTS

Part No.	Description
Engine Lubricants	
2870791	Fogging Oil (12 oz. Aerosol)
2871281	Premium 4 Synthetic 0W-40 Engine Oil (4-Cycle)(qt.)
Chaincase Lubricants	
2873105	Synthetic Chaincase Lubricant (qt.)
2872951	Synthetic Chaincase Lubricant (12 oz.)
Grease / Specialized Lubricants	
2871312	Grease Gun Kit, Premium All Season (3 oz.)
2871322	Premium All Season Grease (3 oz. cartridge)
2871423	Premium All Season Grease (14 oz. cartridge)
2871329	Dielectric Grease (Nyogel™)
Coolant	
2871323	Antifreeze, 60/40 Premix (gal.)
2871534	Antifreeze, 60/40 Premix (qt.)
Additives / Miscellaneous	
2871326	Carbon Clean Plus (12 oz.)
2870652	Fuel Stabilizer (16 oz.)
2870990	DOT3 Brake Fluid (12 oz.)
2872893	Engine Degreaser (12 oz.)
2870505	Isopropyl
2872889	Brake and Clutch Cleaner
2872890	Carb and Throttle Body Cleaner

TROUBLESHOOTING

Suspension Troubleshooting

Problem	Solution (perform only one change at a time)
Rear suspension bottoms too easily	<ul style="list-style-type: none">-Increase torsion spring preload-Increase rear shock compression damping by turning screw clockwise-Increase torsion spring wire diameter (see your dealer)
Rides too stiff in rear	<ul style="list-style-type: none">-Check for binding suspension shafts and grease all pivot points-Decrease torsion spring preload adjustments-Decrease rear shock compression valving by turning screw counterclockwise (if equipped with optional Indy Select shock)-Change to lighter valving if (if equipped with Fox™ shocks)-Check for proper track tension
Machine darts from side to side	<ul style="list-style-type: none">-Make sure skis are aligned properly-Make sure spindles and all steering components are free turning-Make sure skags are straight on skis-Check Hi-fax and replace if worn-Reduce ski pressure:<ul style="list-style-type: none">•Reduce IFS spring preload•Reduce rear torsion spring preload
Front end pushes	<ul style="list-style-type: none">-Check for worn skags-Check for binding suspension shafts and grease all pivot points-Increase IFS spring preload by adjusting cam or threaded adjuster-Decrease front limiter strap length
Steering is heavy	<ul style="list-style-type: none">-Check ski alignment-Check skags and skis for damage-Reduce ski pressure:<ul style="list-style-type: none">•Increase front track spring preload•Reduce IFS spring preload by adjusting cam•Reduce rear torsion spring preload
Setting up for deep snow operation	<ul style="list-style-type: none">-Change worn Hi-fax-Move front track shock assembly to upper position

TROUBLESHOOTING

Belt Troubleshooting

Belt Wear/Burn

Belt Wear/Burn Diagnosis	
Causes	Solutions
Driving at low RPM	Drive at higher RPMs. Gear the machine down. Check belt deflection.
Insufficient warm-up	Warm the engine at least five minutes. Take the drive belt off the machine in extremely cold weather and warm it up. Break machine loose from the snow.
Towing at low RPM	Do not tow in deep snow. Use fast, aggressive throttle to engage clutch.
Riding with high RPM and slow speed (8000 RPM/10 MPH)	Lower the gear ratio. Remove windage plates from the clutch. Reduce RPM. Avoid riding in high ambient temperatures.
Ice and snow build-up between track and tunnel	Warm the engine at least five minutes. Take the drive belt off the machine in extremely cold weather and warm it up. Break machine loose from the snow.
Poor engine performance	Check for fouled plugs and water, ice, or dirt in gas tank or fuel line.
Loading machines onto trailers	Skis may gouge into trailers and prevent the drivetrain from spinning properly. Use enough speed to drive the machine completely onto the trailer. Push and pull it to finish loading if necessary.
Clutch malfunction	Inspect clutch components. See your dealer.
Slow, easy clutch engagement	Use fast, aggressive throttle to engage clutch.

TROUBLESHOOTING

Engine Troubleshooting

CAUTION: All engine service and repair should be performed by a qualified Polaris dealer with training in EFI engines.

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

TROUBLESHOOTING

Engine Troubleshooting

Problem	Probable Cause	Solution
Noise in drive system	Broken drive clutch components	-SEE YOUR DEALER.
	Bearing failure/chaincase, jack-shaft, or front drive shaft	-SEE YOUR DEALER.
	Drive belt surface flat spots	-Inspect and replace if necessary.
	Drive chain loose or worn, sprocket teeth broken	-Inspect and adjust or replace.
Poor low RPM performance	Worn drive belt	-Inspect and replace if necessary.
	Excessive belt/sheave clearance	-SEE YOUR DEALER.
	Loose torque stop	-Inspect and adjust.
	Sticky clutch	-SEE YOUR DEALER.
Engine doesn't start (electric start models)	Wire connections	-SEE YOUR DEALER.
Engine doesn't turn over	Seized engine	-SEE YOUR DEALER. Seizure is a result of poor lubrication, broken parts, or improper cooling.
	Dead battery	-Recharge battery or replace with new.

TROUBLESHOOTING

Engine Troubleshooting

Problem	Probable Cause	Solution
Engine turns but fails to start	Faulty ignition No fuel to engine Air in fuel line Poor engine compression	-Check for spark; if no spark SEE DEALER. -Check tank level and fill with correct fuel. -Ice in fuel line, filter, or pump. -SEE DEALER for fuel line bleeding. -SEE DEALER. This indicates a major engine problem that must be repaired before engine is run.
Engine lacks power	Fuel filter (loss of high RPM power) Incorrect clutching Fuel pump	-SEE DEALER. -SEE DEALER. -There's no adjustment to change power output. SEE DEALER.
Engine continually backfires	Faulty plug(s) Improperly set TPS	-Change plug(s) -SEE DEALER.
Engine crank time has increased	Poor gasoline or not enough fuel getting to engine	-Replace with fresh winter fuel.

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 the Polaris warranty department:
United States #763-542-0500
Canada #204-925-7100
 - 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.

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.

WARRANTY

Limited Warranty

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

Registration

At the time of sale, the Warranty Registration Form must be completed by your dealer and submitted to Polaris within ten days. Upon receipt of this registration, Polaris will record the registration for warranty. No verification of registration will be sent to the purchaser as the copy of the Warranty Registration Form will be the warranty entitlement. If you have not signed the original registration and received the customer copy, please contact your dealer immediately. **NO WARRANTY COVERAGE WILL BE ALLOWED UNLESS THE SNOWMOBILE IS REGISTERED WITH POLARIS.**

Initial dealer preparation and 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.** 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.

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	Tires
Slide Rails	Suspension components
Clutches and components	Drive Belts
Steering components	Hydraulic components
Batteries	Circuit Breakers/Fuses
Light bulbs/Sealed beam lamps	Electronic components
Finished and unfinished surfaces	Wheels
Brake components	Throttle body components
Seat components	Engine components

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 after market 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

Polaris Second Year Engine Service Contract

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

Consumer Exclusions

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

Coverage

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

A partial list of items excluded from coverage includes:

- Damage due to accident, fire, explosion, theft, or other causes beyond Polaris' control.
- Damage caused by the failure of other components of the snowmobile.
- Failures caused by improper fuel or oil.
- Piston seizures, unless caused by a defective engine component.
- Failures caused due to improper adjustments.

WARRANTY

Polaris Second Year Engine Service Contract

Coverage

- Failure due to unauthorized service.
- Failures due to lack of service as required in the owner's manual or Polaris updates. This includes off-season storage as listed in the owner's manual.
- Failure due to use of unauthorized parts or modifications.
- Normal wear parts, including but not limited to spark plugs, hoses, batteries, controls, and recoil ropes are excluded from coverage. Gaskets are covered, as are intake and exhaust manifolds excluding paint coverage.
- Electrical coverage is limited to the ECU box, coils, stator plate, and sensors. Wiring and other electrical components are excluded from coverage.
- Cooling system coverage is limited to the water pump assembly and components, fan, fan bearings, temperature sensor, gasket and seals.
- Non wear related throttle body parts are covered. Throttle body adjustments are excluded from coverage. The fuel pump is covered.
- Clutches and related clutch parts, including but not limited to, the drive belt, are excluded from coverage.
- Electrical components are excluded from coverage.
- The gearcase and transmission are excluded from coverage.

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