



2018

OPERATOR MANUAL

ZR[®] 120



2261-657

Limited Warranty

Arctic Cat Inc. (hereinafter referred to as Arctic Cat) extends a limited warranty as described below on each new Arctic Cat Snowmobile it assembles and on each genuine Arctic Cat Snowmobile part and accessory assembled and sold by an authorized Arctic Cat Snowmobile dealer. The limited warranty on an Arctic Cat Snowmobile is extended to the original retail purchaser for the time periods described below; however, the balance of the remaining warranty may be transferred to another party unless the purchase is for commercial use (see below). Warranty coverage is only available in the country in which the original retail purchase occurs to the original retail purchaser resident in that country or to a transferee resident in that country of the balance of the remaining warranty.

Arctic Cat warrants only the products it assembles and/or sells and does not warrant that other products will function properly when used with an Arctic Cat Snowmobile or will not damage the Arctic Cat Snowmobile. Arctic Cat does not assume any liability for incidental or consequential damages.

Arctic Cat will repair or replace, at its option, free of charge (including any related labor charges), any parts that are found to be warrantable in material or workmanship. This repair work MUST be done by an authorized Arctic Cat Snowmobile dealer. No transportation charges, rental charges, or inconvenience costs will be paid by Arctic Cat. The warranty is validated upon examination of said parts by Arctic Cat or an authorized Arctic Cat Snowmobile dealer. Arctic Cat reserves the right to inspect such parts at its factory for final determination if warranty should apply.

The warranty periods are as follows:

1. For snowmobiles used for recreational purposes:
 - If purchased between May 1 and November 30, warranty expires ONE (1) YEAR from December 1 of the current year.
 - If purchased between December 1 and April 30, ONE (1) YEAR from the date of sale.
2. For snowmobiles used for commercial purposes (including rental operations), ONE (1) YEAR from the date of invoice and/or 5000 MILES whichever comes first (non-transferable).
3. THIRTY (30) DAYS from date of sale of snowmobile on Arctic Cat supplied batteries.

Exclusions to this warranty include normal wear, abuse (i.e. a track run on marginal snow conditions without proper lubrication or additional idler wheels), and the following parts:

Fuel Filter	Light Bulbs	Windshield	Drive Belt	Wear Strips
Wear Bars	Brake Pads	Spark Plugs	Drive Clutch/Driven Pulley	Wear Parts
Torn or Punctured Upholstery	Shock Absorber(s)*			

* Limited to one (1) year of "normal" riding conditions - replace for defective or leaking shock, corroded or pitted shaft, peeling chrome.

■NOTE: Snowmobiles that are factory equipped with Fox, Elka, or JRI shocks and experience a shock failure of workmanship or material within the factory warranty period must not be tampered with. Only the air pressure valve (p/n 2603-511 - Fox shocks only) is serviceable during the warranty period. Any other tampering with the shock will void warranty.

The following will VOID Arctic Cat's warranty:

1. Failure to perform the proper break-in procedure and all related maintenance, storage procedures (if stored for extended periods), and/or service as recommended in the Operator's Manual.
2. Repairs and/or adjustments by anyone other than an authorized Arctic Cat Snowmobile dealer.
3. Use of an improper fuel mixture ratio.
4. Use of improper carburetor jets.
5. Use of improper gasoline, lubricating oils, or spark plugs.
6. An accident or subjecting the snowmobile to misuse, abuse, or negligent operation.
7. Any modification, addition, or removal of parts unless instructed to do so by Arctic Cat.
8. Use of the snowmobile in any way for racing purposes.
9. Removal of the engine for use in another vehicle.
10. Removal or mutilation of the Vehicle Identification Number or Engine Serial Number.
11. Use of parts not sold or approved by Arctic Cat.
12. Track and tunnel damage resulting from either ice stud or hooker plate installation.
13. Damage due to improper transportation.

Arctic Cat shall not be responsible for and this limited warranty excludes recovery of economic, punitive, consequential and incidental damages, lost profits, and loss of use. Some states or provinces do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you. Arctic Cat's aggregate liability may not exceed the price of the product. The law of the State of Minnesota shall apply to all claims or disputes, exclusive of its conflicts of law provisions.

IMPLIED WARRANTY EXCLUSION AND DISCLAIMER

To the fullest extent permitted by law, Arctic Cat excludes and disclaims all implied warranties of merchantability and fitness for a particular purpose.

If you are not satisfied with warranty service or repairs, you should contact Arctic Cat at (U.S.) 1-218-681-9851 or (Canada) 1-204-982-1656.

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Reference Information

Write the appropriate information for your Arctic Cat Snowmobile in the spaces below. Always use these numbers when referring to your snowmobile.

Model: _____

Date of Purchase: _____

Vehicle Identification Number: _____

Engine Serial Number: _____

Your Arctic Cat Dealer: _____

Address: _____

Phone: _____

Parts and Accessories

When in need of replacement parts, oil, or accessories for your Arctic Cat snowmobile, be sure to use only GENUINE ARCTIC CAT PARTS, OIL, AND ACCESSORIES. Only genuine Arctic Cat parts, oil, and accessories are engineered to meet the standards and requirements of your Arctic Cat snowmobile. For a complete list of accessories, refer to the current Arctic Cat Accessory Catalog.

To aid in service and maintenance procedures on this snowmobile, a Service Manual and an Illustrated Parts Manual are available through your local Arctic Cat Snowmobile dealer.

Foreword

The ZR 120 Snowmobile is intended to be a learning/recreational snowmobile for a responsible child at least 6 years of age under adult supervision. This snowmobile is intended to be ridden by the operator only; there should be no passenger. Also, this snowmobile is intended for daylight use in restricted off-road areas, primarily on snow. Use of this snowmobile on public streets, roads, and highways can be hazardous and is prohibited by law in most cases. As a parent or guardian, one must accept the responsibility of training the child in the safe operation of the snowmobile. Teach all operators the basic principles of operation, snowmobile rules and regulations, and especially how to stop the snowmobile in case of an emergency. Impress upon the child a sense of snowmobile courtesy and responsibility.

This snowmobile is a quality Arctic Cat product designed, engineered, and assembled to give dependable service. Be sure, as the owner, to become thoroughly familiar with its basic operation, maintenance, and storage procedures. Read this manual and the accompanying Snowmobile Safety Handbook to ensure safe and proper use of the snowmobile.

This manual is divided into sections. The sections Getting Ready to Operate the ZR 120 Safely and Operating the ZR 120 must be read and explained to the child/operator. The other sections are for the owner/parent/guardian and contain information on snowmobile identification, safe operating instructions, lubrication, maintenance, storage, and after-storage preparation. If repair or service is ever required, contact an authorized Arctic Cat Snowmobile dealer for professional service.

The Operator's Manual, Snowmobile Safety Handbook, and snowmobile decals display the words Warning, Caution, and Note to emphasize important information. The symbol  **WARNING** identifies personal safety-related information. Be sure to follow the directive because it deals with the possibility of severe personal injury or even death. A **CAUTION** identifies unsafe practices which may result in snowmobile-related damage. Follow the directive because it deals with the possibility of damaging part or parts of the snowmobile. The symbol  **NOTE:** identifies supplementary information worthy of particular attention.

At the time of publication, all information and illustrations were technically correct. Because Arctic Cat Inc. constantly refines and improves its products, no retroactive obligation is incurred.

This Arctic Cat Operator's Manual should be considered a permanent part of the snowmobile and must remain with the snowmobile at time of resale. If the snowmobile changes ownership, contact Arctic Cat Inc., Product Service and Warranty Department, P. O. Box 810, Thief River Falls, MN 56701, for proper registration information. This manual was prepared by the Product Service and Warranty Department of Arctic Cat Inc.

Every Arctic Cat snowmobile meets or exceeds the standards of the Snowmobile Safety and Certification Committee and displays the SSCC decal. Arctic Cat endorses and encourages the safe use of all snowmobiles. Always wear a helmet and eye protection. Drive with caution, observe all state and local laws, and respect the rights of others. International Snowmobile Manufacturers Association (ISMA) members like Arctic Cat do their part to improve trails, sponsor events, and generally support the sport of snowmobiling. As a member of the National Snowmobile Foundation, Arctic Cat promotes snowmobiling through education, charity, and research programs.

Specifications

ENGINE AND DRIVE	
Type	Forced Air Cooled/4-Cycle
Bore x Stroke	56 x 50 mm (2.2 x 1.97 in.)
Valve Arrangement	Overhead
Displacement	123 cc (7.5 cu in.)
Lighting Coil Output	12V/55W
Compression Ratio	8.3:1
Lubrication	Forced Splash
Cooling System	Forced Air
Drive Clutch	Centrifugal
Drive Chain Tensioner	Automatic
Brake Type	Band
Ignition Type	Transistorized
Track Width	25.4 cm (10 in.)
Track Length	170.1 cm (67 in.)
Track Tension (Range)	6.4-9.5 mm (1/4-3/8 in.)
Track Style	Cobra
Spark Plug Type	NGK BPR4ES
Spark Plug Gap	0.7-0.8 mm (0.028-0.031 in.)
Ignition Timing (Fixed)	24° BTDC @ 3600 RPM
CARBURETOR	
Type	Mikuni BV18-11-84Z1
CHASSIS	
Overall Length	185.4 cm (73 in.)
Overall Height	86.3 cm (34 in.)
Overall Width	91.4 cm (36 in.)
Ski Center-to-Center Distance (Stance)	77.4 cm (30.5 in.)
MISCELLANY	
Gasoline (Recommended)	87 Minimum Octane Regular Unleaded
Gas Tank Capacity (Rated)	1.7 L (0.45 U.S. gal.)
Engine Oil (Recommended)	Synthetic 0W-40
Crankcase Oil Capacity	600 ml (20.3 fl oz)
Air Cleaner	Semi-Dry Polyurethane Foam Element
Taillight (p/n)	0609-934
Headlight Bulb (p/n)	0609-991
Starting System	Manual Recoil
Dry Weight	75.0 kg (167 lb)

Specifications subject to change without notice.

Getting Ready to Operate the ZR 120 Safely

■ **NOTE:** This section and Operating the ZR 120 section must be read and explained to the child/operator by the owner/parent/guardian. Refer to Control Locations or the snowmobile while explaining this section.

Like most boys and girls, you are anxiously waiting to drive the snowmobile. Remember that the snowmobile is not a toy. It must be driven carefully at all times!

First, you must understand the controls, know where the controls are, and know how to use them correctly.

- A. **BRAKE LEVER** — To slow down or stop the snowmobile, the brake lever should be pulled (squeezed) toward the handlebar grip.

■ **NOTE:** When the brake is being used, the throttle lever must be in the idle (released) position.

- B. **THROTTLE LEVER** — Controls the speed of the snowmobile. The closer the throttle control lever is to the handlebar grip (the more it is squeezed), the faster the snowmobile will go.
- C. **IGNITION SWITCH** — When the key is in the OFF position, the engine will neither start nor run. If the key is in the RUN position, the engine will start and run.
- D. **EMERGENCY STOP SWITCH** — If something happens that you do not understand or if there is an emergency, move the emergency stop switch to the OFF (down) position to immediately stop the engine.
- E. **TETHER SWITCH** — The engine will neither start nor run unless the tether switch cap is connected to the tether switch located on the top right-hand side of the console. The tether cord **MUST BE** clipped to the operator's right wrist before attempting to start the engine.

Second, you must check several things every time before the engine is started.

- A. Make sure the brake lever works properly (moves freely) by pulling (squeezing) the brake lever and releasing it several times.
- B. Make sure the throttle lever works properly (moves freely) and that it snaps back to the idle position quickly when it is released. The idle position is when the throttle lever is farthest away from the handlebar grip. If the throttle lever does not snap back quickly, the engine must not be started and the throttle system must be repaired.
- C. Make sure that you have enough clothes on to keep yourself warm but **NEVER** wear clothes such as long or loose scarves or long shoe laces that could get caught in a moving part of the snowmobile.

Third, make sure that you can answer yes to all of the following questions before each ride.

- A. Do you have permission from the owner or parent or guardian to operate the snowmobile?
- B. Do you have an approved safety helmet on?
- C. Are you wearing something to protect your eyes (such as goggles or a visor)?
- D. Are you dressed warmly enough?
- E. Has your parent or guardian checked to make sure you have enough gasoline?
- F. Do the throttle lever and brake lever move freely?
- G. Are all shields and covers in the right place and is the hood securely latched?
- H. Do you have a safe area to ride in? Is the area free of rocks, wires, trees, traffic, etc.?

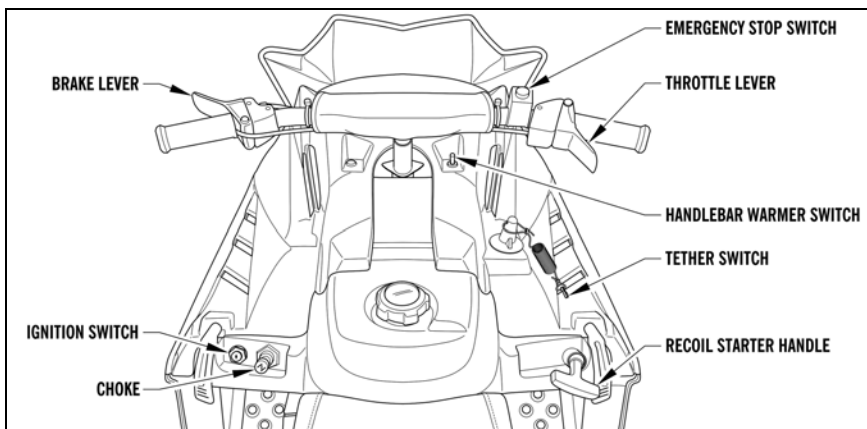
Operating the ZR 120

You must be a responsible, careful, and considerate snowmobile operator at all times. Your safety is our concern and must always be yours.

- A. When you are learning how to operate the snowmobile, have a parent or guardian take you to an open area to practice figure eights, starting, and stopping. This practice is important and will give you a good “feel” of the snowmobile. You will also be able to learn how the snowmobile handles under different conditions (deep snow, hard-packed snow, etc.).
- B. Always sit on the seat and keep both feet on the running boards when operating the snowmobile. Do not get off the snowmobile until it has come to a complete stop.
- C. Never drive the snowmobile faster than a safe speed. Do not drive too close to roads, buildings, trees, other snowmobiles, or people. Never show off!
- D. Never operate the snowmobile unless the headlight and taillight are in working order.
- E. The snowmobile is designed for your enjoyment. DO NOT give rides to your friends. It is made to carry only one person.
- F. Do not pull sleds, sleighs, etc., behind the snowmobile.
- G. If you get stuck, shut the engine off and get help.

General Information

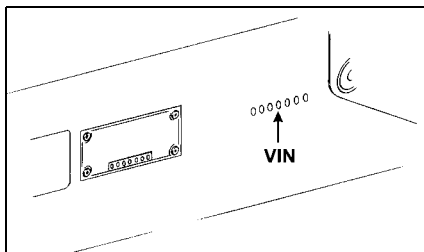
Control Locations



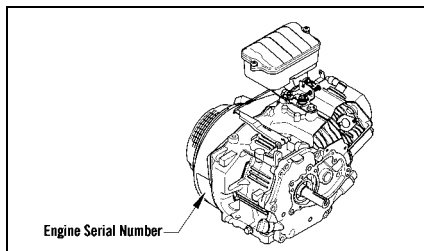
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Snowmobile Identification

This snowmobile has two identification numbers: The Vehicle Identification Number (VIN) is stamped into the right side of the tunnel and the Engine Serial Number (ESN) is stamped into the front side of the crankcase.



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These numbers are required by the dealer to complete warranty claims properly. No warranty will be allowed by Arctic Cat if either the ESN or VIN is removed or mutilated in any way.

Always provide the snowmobile model name, VIN, and engine serial number when contacting an authorized Arctic Cat Snowmobile dealer for parts, service, accessories, or warranty. If the complete engine must be replaced, ask the dealer to notify Arctic Cat for correct registration information.

Gasoline - Oil

This snowmobile has a four-cycle engine; therefore, it is unnecessary to premix gasoline and oil.

Recommended Gasoline

The recommended gasoline to use in this snowmobile is 87 minimum octane regular unleaded. Oxygenated gasolines are acceptable gasolines. Do not use gasolines containing methanol.

CAUTION

Do not use white gas or gasolines containing methanol. Only Arctic Cat approved gasoline additives may be used.

■ **NOTE:** If not satisfied with gasoline economy of the engine when using a gas/alcohol blend, switch to unleaded gasoline without alcohol.

Since gasoline expands as its temperature increases, the gas tank must be filled to its rated capacity only. Expansion room must be maintained in the tank particularly if the tank is filled with cold gasoline and then moved to a warm area.

WARNING

Always fill the gas tank in a well-ventilated area. Never add gasoline to the gas tank near any open flames or with the engine running. **DO NOT SMOKE** while filling the gas tank.

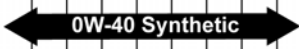
Recommended Oil

■ **NOTE:** This snowmobile comes from the factory with SAE 0W-40 synthetic oil installed.

The recommended oil to use in the engine is 0W-40 Synthetic oil. See the viscosity chart for details.

CAUTION

Any oil used in place of the recommended oil may cause serious engine damage.

Multi-Grade Engine Oil										
ENGINE OIL										
	°C	-30	-20	-10	0	10	20	30	40	
	°F	-22	-4	14	32	50	68	86	104	

OILCHARTJ

Engine Break-In

The engine requires a short break-in period (approximately 10 operating hours) before being subjected to heavy load conditions or full-throttle operation. Strict adherence to the break-in procedure will contribute to optimum performance and longevity of the engine.

During break-in, a maximum of 1/2 throttle is recommended; however, brief full-throttle accelerations and variations in driving speeds contribute to good engine break-in. After the 10 hour break-in period, the snowmobile may be taken to an authorized Arctic Cat Snowmobile dealer for a checkup and oil change. This service is at the discretion and expense of the snowmobile owner.

Muffler

The muffler is designed to reduce engine noise and improve the total performance of the engine. If the muffler is removed from the engine, severe engine damage will result.

Operating Instructions

Starting and Stopping Engine

WARNING

Never allow anyone to stand in front of the snowmobile at any time, especially when starting the engine.

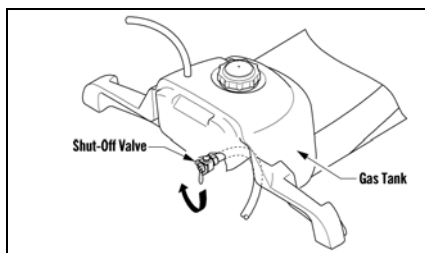
It is imperative that all safety checks found in the accompanying Snowmobile Safety Handbook be performed before attempting to start the engine.

This snowmobile is equipped with a recoil starter. The recoil starter handle is located on the lower right-hand side of the console.

■ **NOTE:** If the recoil starter rope should break or if the recoil starter should malfunction, take the snowmobile to an authorized Arctic Cat Snowmobile dealer for service.

To start the engine, use the following procedure:

1. Test the throttle lever by completely compressing and releasing it several times. The lever **MUST** return to the idle position quickly and completely.
2. Open the gas tank shut-off valve located under the gas tank by rotating the valve counterclockwise. Open the valve completely; otherwise, it may close during operation of the snowmobile due to engine vibration.



0744-944

3. Insert the key into the ignition switch; then rotate the key to the RUN position.

■ **NOTE:** Make sure the emergency stop switch is in the ON (up) position and the tether cap is connected to the tether switch.

4. For a cold engine, pull the choke out completely. If the engine is warm, choking is not normally necessary.
5. Pull the recoil starter handle slowly until resistance is felt; then give a short quick pull. The engine should start; however, if the engine does not start, repeat this step.

CAUTION

To avoid damaging the recoil starter, DO NOT pull the recoil starter rope to its limit or release the recoil starter handle from an extended position. Allow recoil rope to rewind slowly.

6. When the engine starts, push the choke approximately half way in. Allow a cold engine to "warm up" for approximately 2-3 minutes. The choke should be pushed in completely after the "warm up."
7. Flooding - If the engine does not start when the choke is being used but seems ready to start, push the choke in completely.

■ **NOTE:** Continued choking will only cause the engine to flood more.

■ **NOTE:** If the engine fails to start during the attempt with the throttle lever compressed, remove the spark plug and clean and dry it thoroughly or install a new, properly gapped, recommended spark plug.

8. To shut the engine off, turn the ignition key to the OFF position, move the emergency stop switch to the OFF (down) position, or pull the tether cap from the tether switch.

■ **NOTE:** Unless the engine will be started within a short period of time, close the gas tank shut-off valve (located under the gas tank) by rotating the valve clockwise.

CAUTION

If the snowmobile is not to be used for an extended period of time, be sure to close the gas tank shut-off valve.

Periodic Maintenance/Tune-Up Chart

	Daily	1st 10 Hours (2 Weeks)	Every 20 Hours (1 Month)	Every 50 Hours (3 Months)	Every 100 Hours (6 Months)	Every 300 Hours (12 Months)
Valve Clearance						IA
Engine Compression						I
Spark Plug					I	
Fuel Supply Hose	I-R					Replace every 3 years
Gas Tank Shut-Off Valve	I				IC*	
Carburetor Float Chamber	I				C*	
Engine Oil	I	R*			R*	
Nuts/Screws/ Cap Screws	I			T		
Rear Suspension			IC			
Recoil Starter	I					I-IC-IL-*
Air Filter			I*	C*		
Carburetor						IC
Pilot Air Screw						IA
In-Line Fuel Filter			I			

C = Clean

I = Inspect

R = Replace

T = Tighten

IA = Inspect and adjust (if necessary)

IC = Inspect and clean (replace if necessary)

IL = Inspect and lubricate (replace if necessary)

* = Service more frequently if used in adverse conditions

Maintenance

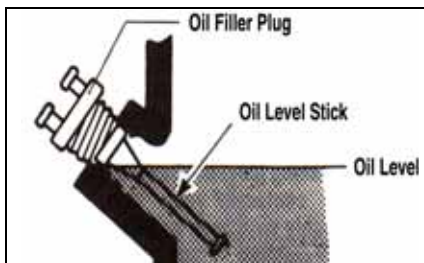
Engine Oil

■ **NOTE:** After the engine break-in period, the engine oil should be changed every 100 operating hours (6 months) and before prolonged storage.

Checking

The engine oil level should be checked each day before operating the snowmobile. To check the engine oil level, use the following procedure:

■ **NOTE:** The front of the snowmobile must be elevated until the bottom of the front bumper is approximately 47 cm (18.5 in.) off the floor when checking the oil level. Also, assure the engine is “cooled down” to room temperature to allow the oil to drain into the sump.



740-330A

1. Release the two hold-down straps and open the hood.
2. Rotate the oil level stick counter-clockwise; then remove the stick from the crankcase and wipe it clean.

CAUTION

Clean the area around the fill hole to keep dirt, debris, etc., out of the engine.

3. Insert the stick into the crankcase and remove and check oil level on the stick.

CAUTION

Seeing oil in the crankcase does not mean the level is in the safe operating range. Always use the oil level stick to check engine oil. Never operate the engine with the oil level below the point of overflowing the fill hole.

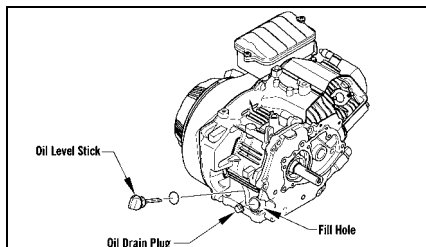
■ **NOTE:** If the oil level is below the oil level mark, add recommended oil until it reaches the oil level mark.

4. Insert the oil level stick into the crankcase; then rotate the stick clockwise until snug.
5. Close the hood and secure with the straps.

Changing

To change the engine oil, use the following procedure:

■ **NOTE:** The front of the snowmobile must be elevated until the engine is in a level position when changing the oil.

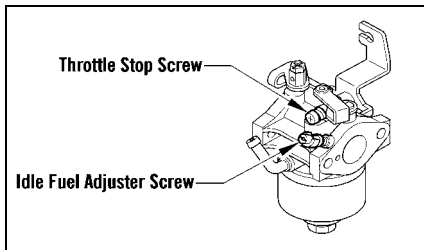


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1. Remove the access plug; then place a drain pan beneath the engine.
2. Release the two hold-down straps and open the hood.
3. Loosen the oil level stick; then remove the oil drain plug from the crankcase and allow the oil to drain.
4. Install the drain plug.
5. Remove the oil level stick; then pour 600 ml (20.3 fl oz) of recommended oil into the fill hole.
6. Install the oil level stick; then tighten until snug. Install the access plug.
7. Close the hood and secure with the straps.

Carburetor

The carburetor has been calibrated for average riding conditions; however, altitude, temperature, and general wear may necessitate certain carburetor adjustments. Since carburetor adjustments critically affect engine performance, Arctic Cat recommends that any changes in internal carburetor calibration be made by an authorized Arctic Cat Snowmobile dealer; however, three external adjustments can be made on the carburetor. These are the throttle stop screw, idle fuel adjuster screw, and throttle cable.



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Throttle Stop Screw

This screw controls the seating position of the throttle valve which in turn determines the proper idle speed. Rotate the screw clockwise to increase engine idle speed and counterclockwise to decrease engine idle speed.

Idle Fuel Adjuster Screw

This adjuster screw determines the fuel/air mixture for idling. To adjust, use the following procedure:

1. Start the engine and allow to run at half throttle 5-10 minutes to warm up.
2. Place the throttle in the idle position; then rotate the idle fuel adjuster screw/cap in or out within the adjustment range to obtain smooth low speed performance.

Throttle Cable

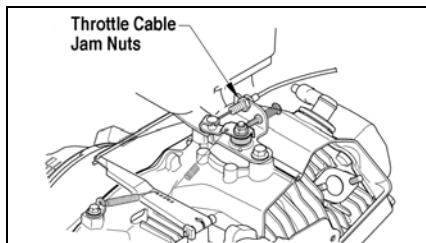
The correct throttle cable adjustment is when (with the engine OFF) the carburetor throttle is completely open (against its limit) while the throttle lever lightly contacts the handlebar grip. The throttle arm on the carburetor should also contact the speed control screw when the throttle lever is released.

To adjust the throttle cable, use the following procedure:

WARNING

Do not attempt to adjust the throttle cable with the engine running. Personal injury could result.

1. Loosen the throttle cable jam nuts.



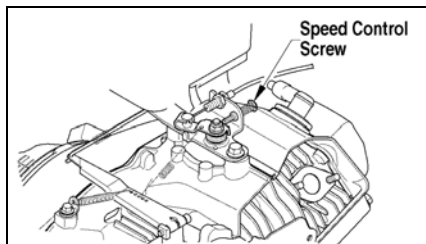
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2. Pull all slack from the throttle cable wire and exert slight tension on the wire.
3. Tighten the throttle cable jam nuts.

WARNING

DO NOT operate the snowmobile when any component in the throttle system is damaged, frayed, kinked, worn, or improperly adjusted. If the snowmobile is operated when the throttle system is not functioning properly, personal injury could result.

Speed Control Screw



0744-949

The maximum speed of the snowmobile can be reduced by adjusting the speed control screw.

To reduce the maximum speed, rotate the speed control screw clockwise. **DO NOT EVER INCREASE THE MAXIMUM SPEED BEYOND THE ORIGINAL 8 MPH MAXIMUM!**

In-Line Fuel Filter

WARNING

Whenever any maintenance or inspection is made on a fuel system when there may be fuel leakage, there should be no welding, smoking, open flames, etc., in the area.

Arctic Cat recommends that the in-line fuel filter be checked once a month. The filter is located in the fuel hose between the gas tank and carburetor. The only cleaning possible is to back-flush the filter using clean gasoline. To check, clean, or replace the filter, use the following procedure:

1. Turn the gas tank shut-off valve to the CLOSED position.
2. Remove and discard the clamps; then pry the fuel hoses off the in-line fuel filter and remove the filter.
3. Install the in-line fuel filter in the fuel hose so the arrow on the filter points toward the carburetor. Make sure the fuel hoses fit tightly on the filter. If a fuel hose does not fit tightly, cut 6 mm (1/4 in.) from the end of the fuel hose; then install on the filter. Install new clamps.

CAUTION

The fuel hoses must fit tightly on the fuel filter. If the fuel hose length doesn't permit this procedure, replace the fuel hose. Also, after installing the fuel hoses on the filter, check to be sure that the fuel hoses do not contact any hot or rotating components.

4. Turn the gas tank shut-off valve to the OPEN position.

Air Cleaner/Filter

The air filter inside the air cleaner housing must be kept clean to provide good engine power and gas mileage. If the snowmobile is used under normal conditions, service the filter at the intervals specified. If operated in adverse conditions, inspect and service the filter more frequently. Use the following procedure to remove the filter and to inspect and/or clean it.

CAUTION

Failure to inspect the air filter frequently if the snowmobile is used in adverse conditions can damage the engine.

1. Remove the two screws securing the air cleaner cover; then remove the cover.
2. Remove the foam filter from the housing.
3. Clean the foam filter in a non-flammable cleaning solvent; then allow the filter to dry.

■ **NOTE:** Foam Filter Cleaner (p/n 0436-892) and Foam Filter Oil (p/n 0436-891) are available from Arctic Cat.

4. Put the dry filter in a plastic bag; then pour in recommended air filter oil and work the oil into the filter.

CAUTION

A torn air filter can cause damage to the engine. Contaminants may get inside the engine if the filter is torn. Carefully examine the filter for tears before and after cleaning it. Replace the filter with a new one if it is torn.

5. Clean any debris from inside the air cleaner. Be sure no debris enters the carburetor.
6. Place the filter into the housing.
7. Place the air cleaner cover onto the housing; then secure with the two screws.

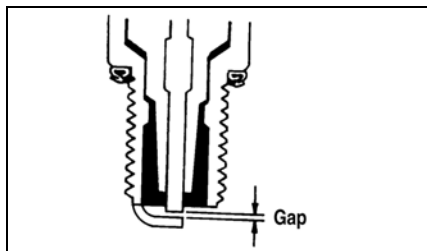
Spark Plug

This snowmobile comes equipped with a specified spark plug. See the specifications chart for the correct spark plug. A light brown insulator indicates that the plug is correct. A white or dark insulator indicates that the engine may need to be serviced or the carburetor may need to be adjusted. Consult an authorized Arctic Cat Snowmobile dealer if the plug insulator is not a light brown color. To help prevent cold weather fouling, make sure to thoroughly warm up the engine before operating.

To maintain a hot, strong spark, keep the plug free of carbon.

Before removing the spark plug, be sure to clean the area around the spark plug. If you do not, dirt could enter engine when removing or installing the spark plug.

Adjust the gap to specified amount (see specifications chart) for proper ignition. Use a feeler gauge to check the gap.



ATV0052B

When installing the spark plug, be sure to tighten it securely. A new spark plug should be tightened 1/2 turn once the washer contacts the cylinder head. A used spark plug should be tightened 1/8 - 1/4 turn once the washer contacts the cylinder head.

Brake

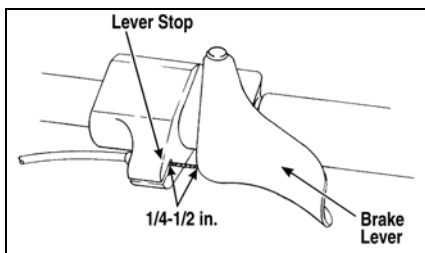
WARNING

DO NOT operate the snowmobile when any component in the brake system is damaged, worn, or adjusted improperly.

Arctic Cat recommends that the complete brake system be checked daily for wear or damage and for smooth operation. Periodically, the brake band should be inspected for cracks and to ensure the liner is intact and not worn excessively. Replace the brake band if cracked or worn excessively.

Checking Brake Lever Travel

1. Compress the brake lever fully.
2. Check the distance between the brake lever and the lever stop. The distance must be within the specified range of 6-13 mm (1/4-1/2 in.).



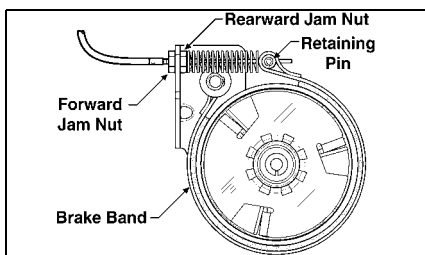
0725-565

3. If travel distance is not as specified, adjust the brake.

Adjusting Brake Lever Travel

To adjust the brake lever travel, use the following procedure:

1. Remove the drive chain shield.
2. Loosen the rearward brake cable jam nut; then tighten the forward jam nut to set up the brake.



0735-457

3. Check the brake lever travel distance periodically while tightening the forward jam nut. When the distance is within the specified range of 6-13 mm (1/4-1/2 in.), tighten the rearward jam nut to secure the adjustment.

Drive Chain

The drive chain should be lubricated every 10 operating hours with Arctic Cat Synthetic Chain Lube (p/n 0436-903) or with a suitable dry, graphite-based chain lubricant. By using the recommended chain lube or a dry, graphite-based chain lubricant, dirt buildup on the drive chain will be minimized. Before each lubrication, inspect the drive chain for dirt accumulation.

To lubricate the drive chain, shut the engine off and wait for all moving parts to stop, remove the drive chain shield, and lubricate the drive chain. After lubricating the drive chain, install the drive chain shield.

■ **NOTE:** If the recommended chain lube or a dry, graphite-based chain lubricant is not available, lubricate the drive chain with several drops of petroleum-based oil. If the snowmobile is operated in the summer with the optional wheel kit, the drive chain should be lubricated more frequently.

Drive Chain Tensioner

The drive chain tensioner is automatic; therefore, no adjustment is required by the snowmobile owner. The tensioner and chain should be checked annually for proper operation and excessive wear and replaced when necessary. Check the tensioner by pushing down on it and releasing it. It should immediately spring back and put tension on the drive chain.

Track Tension

■ **NOTE:** Track tension and track alignment are interrelated; therefore, always check both, even if only one adjustment seems necessary.

Track tension is directly related to the overall performance of the snowmobile. If the track is too loose, it may slap against the tunnel causing wear, or it may ratchet on the track drive sprockets. Arctic Cat recommends that the track tension be checked once a month and adjusted accordingly.

WARNING

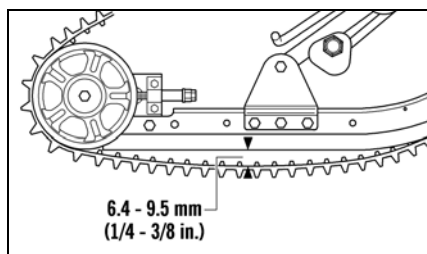
Track tension must be properly maintained. Personal injury could result if a track is allowed to become excessively loose.

Checking Track Tension

WARNING

DO NOT attempt to check or adjust track tension with engine running. Turn ignition key to the OFF position. Personal injury could result from contact with a rotating track.

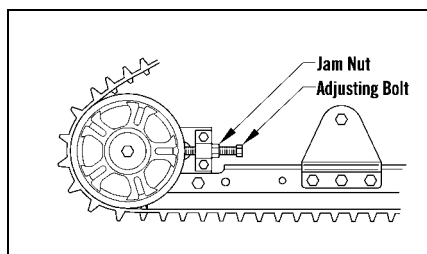
1. Remove excess ice and snow buildup from the track, track drive sprockets, and the inside of the skid frame.
2. Place the rear of the snowmobile up on a safety stand high enough so the track is free of the floor.
3. Without exerting any pressure on the track, measure the distance between the bottom of the wear strip and the inside surface of the track. The measurement must be within specifications of 6.4-9.5 mm (1/4-3/8 in.). If the measurement is not within specifications, an adjustment is necessary.



0744-945

Adjusting Track Tension

1. Loosen the idler wheel cap screws.
2. Loosen the rear idler wheel adjusting bolt jam nuts.



0744-947

■ **NOTE:** To ensure proper track tension adjustment, perform all adjustments on both sides of the snowmobile.

3. If the deflection (distance between the bottom of the wear strip and the inside of the track) exceeds specifications, tighten the adjusting bolts to take up excessive slack in the track.
4. If the distance between the bottom of the wear strip and the inside surface of the track is less than specified, loosen the adjusting bolts to increase the slack in the track.
5. Check track alignment (see Track Alignment section).
6. When proper track tension is obtained, tighten the adjusting bolt jam nuts against the axle housings.
7. Tighten idler wheel cap screws securely.

■ **NOTE:** Since track tension and track alignment are interrelated, always check both even if only one adjustment seems necessary.

⚠ WARNING

If jam nuts are not tightened properly, the adjusting bolts could loosen causing the track to become extremely loose and, under some operating conditions, allow the idler wheels to climb over the track lugs forcing the track against the tunnel causing the track to "lock." If a track "locks" during operation, severe personal injury could result.

Track Alignment

Proper track alignment is obtained when the rear idler wheels are equal distance from the inner track drive lugs. Excessive wear to the idler wheels, drive lugs, and track will occur if the track is improperly aligned. Arctic Cat recommends that the track alignment be checked once a week or whenever the track tension is adjusted.

Checking Track Alignment

⚠ WARNING

Make sure the ignition key is in the OFF position and the track is not rotating before checking or adjusting track alignment. Personal injury could result if contact is made with a rotating track.

1. Remove excess ice and snow buildup from the track, track drive sprockets, and the inside of the skid frame.
2. Position the tips of the skis against a wall; then using a shielded safety stand, raise the rear of the snowmobile off the floor making sure the track is free to rotate.

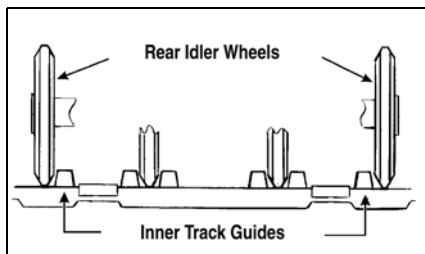
⚠ WARNING

The tips of the skis must be positioned against a wall or similar object for safety.

3. Start the engine and accelerate slightly. Use only enough throttle to turn the track several revolutions. SHUT ENGINE OFF.

■ **NOTE:** Allow the track to coast to a stop. DO NOT apply the brake because it could produce an inaccurate alignment condition.

4. When the track stops rotating, check the relationship of the rear idler wheels and the inner track drive lugs. If the distance from the rear idler wheels to the inner track drive lugs is the same on both sides, no adjustment is necessary.

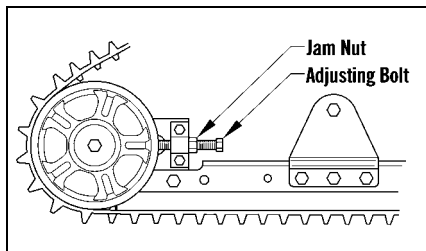


0727-729

5. If the distances from the rear idler wheels to the inner track drive lugs are not the same on both sides, an adjustment is necessary.

Adjusting Track Alignment

1. On the side of the track which has the inner track drive lugs closer to the rear idler wheel, loosen the idler wheel cap screw and the adjusting bolt jam nut; then rotate the adjusting bolt clockwise 1 to 1 1/2 turns.



2. Check track alignment and continue adjustment until proper alignment is obtained.

■ **NOTE:** Make sure correct track tension is maintained after adjusting track alignment (see Track Tension section).

3. After proper track alignment is obtained, tighten both the adjusting bolt jam nut and the idler wheel cap screw securely.

WARNING

If a jam nut is not tightened properly, the adjusting bolt could loosen causing the track to become dangerously loose.

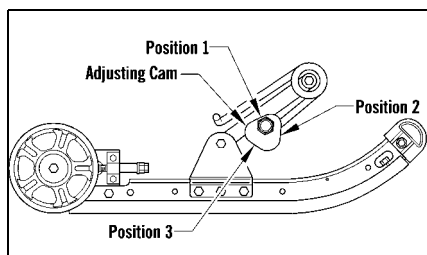
4. Field test the track under actual conditions.
5. After the field test, check the alignment of the track. If additional adjustment is necessary, repeat Adjusting Track Alignment procedure.

Adjusting Rear Spring Tension

Rear spring tension adjustment is accomplished by rotating the adjusting cams. Position 3 provides the stiffest ride, and position 1 is for the light driver or slow-speed trail riding. Position 2 is for the average operator under normal conditions. Always rotate the cam from the lighter position to the heavier position.

CAUTION

Never force the adjustment cams from the low position to the high position. Cam damage may occur.



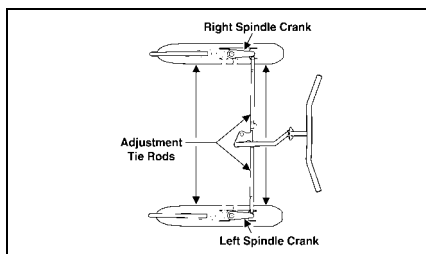
Using a 13/16 in. wrench, rotate the cam until it is in the desired position. To stiffen the ride, rotate the cam so as to raise the spring end. Make the adjustment on the other cam and be sure both cams are adjusted equally.

Ski Alignment

The skis have been aligned during setup of the snowmobile. Ski alignment usually will not change unless a rock or similar hard object is hit while the snowmobile is being operated. Arctic Cat recommends that the ski alignment be checked once a week.

Checking Ski Alignment

1. Turn the handlebar to the straight-ahead position.
2. Measure the distances to the inside edges of the skis. Make sure the measurements are taken behind the front mount bracket and ahead of the rear mount bracket.



0735-446

■ **NOTE:** Ski alignment is correct when the skis are parallel to each other (equal measurements front and rear) or when the skis have up to a maximum of 6 mm (1/4 in.) “toe out” (front measurement 6 mm (1/4 in.) more than rear measurement).

3. If ski alignment is not as specified, the snowmobile will have a tendency to wander and may be difficult to control; therefore, an adjustment is necessary.

Adjusting Ski Alignment

1. Make sure the ignition key is in the OFF position.
2. Visually examine the skis to determine which ski is out of alignment with respect to the handlebar.
3. Open the hood and loosen the jam nut on each end of the adjustment tie rod.
4. While holding the ski in position, rotate the adjustment tie rod until the measurement between the skis is within specifications.
5. When the ski alignment is correct, apply blue Loctite #243 to the jam nut threaded areas and tighten each jam nut securely against its adjustment tie rod.

WARNING

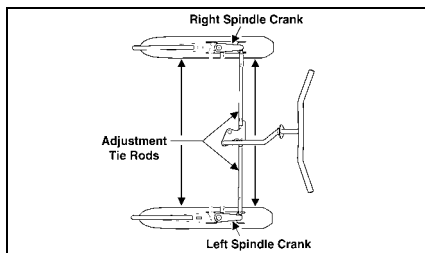
Neglecting to lock the tie rod by tightening the jam nuts against the adjustment tie rod may cause loss of snowmobile control and possible personal injury.

Steering Alignment

Visually examine the steering alignment by placing the handlebar in the straight-ahead position and checking to be sure the skis are pointing straight ahead. If the skis are not pointing straight ahead, adjust using the following procedure:

■ **NOTE:** The following procedure can be used to adjust the alignment of either ski.

1. Determine which ski is out of alignment; then unlock the adjustment tie rod by loosening the jam nuts.



0735-446

2. Adjust the ski alignment by rotating the adjustment tie rod.
3. When steering alignment is correct, apply blue Loctite #243 to the jam nut threaded areas and tighten each jam nut securely against its adjustment tie rod.

WARNING

Neglecting to lock the steering tie rod by tightening the jam nuts against the adjustment tie rod may cause loss of snowmobile control and possible personal injury.

Ski Wear Bar

The ski wear bar is a replaceable bar attached to the underside of the ski. The purpose of the wear bar is to assist in turning the snowmobile, to minimize ski wear, and to maintain good steering control. If the snowmobile is operated primarily in deep snow, ski wear bar wear will be minimal; however, if the snowmobile is operated on terrain where the snow cover is minimal, the ski wear bar will wear faster.

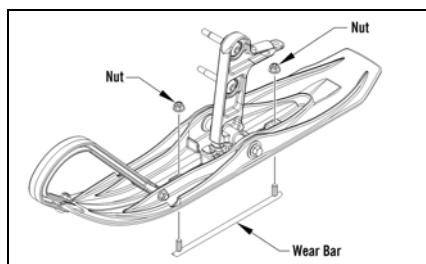
To maintain positive steering characteristics, Arctic Cat recommends that the ski wear bars be checked once a week and replaced if worn to 1/2 of original diameter. Ski wear bars are available from an authorized Arctic Cat Snowmobile dealer.

WARNING

Operating the snowmobile with excessively worn ski wear bars may result in a loss of steering control.

Removing Ski Wear Bar

1. Raise the front of the snowmobile.
2. Remove the lock nuts securing the wear bar to the ski.



0750-990

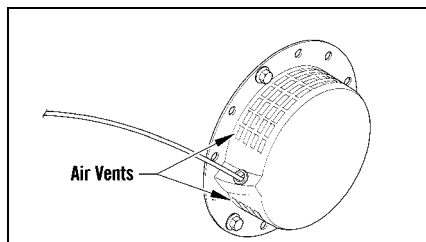
3. Remove the wear bar.

Installing Ski Wear Bar

1. Insert the wear bar studs into the holes in the ski.
2. Center the wear bar studs in the holes and install the lock nuts.
3. Tighten lock nuts securely.

Recoil Starter Air Vents

It is important for proper engine cooling that the air vents located on the recoil starter are kept clean. These air vents should be checked periodically and cleaned if necessary.



0744-923

CAUTION

Serious overheating of the engine and engine damage will result if the air vents are not kept clean.

Lights

The correct headlight bulb is p/n 0609-991. The correct taillight is p/n 0609-934.

To change the headlight bulb, use the following procedure:

1. Open the hood; then disconnect the harness connector from the headlight bulb.
2. Remove the bulb from the housing by rotating it counterclockwise until loose.

CAUTION

Do not touch the glass portion of the bulb. If the glass portion is touched, it must be cleaned with a dry cloth before installing.

3. Install the new bulb into the housing; then rotate the bulb clockwise to lock it into place.

The headlight aim can be adjusted to provide maximum illumination for the operator. To adjust headlight aim, adjust the screw until maximum illumination for the operator is apparent.



0744-947

Preparation for Storage

Prior to storing the snowmobile, it is extremely important that it be properly serviced to prevent corrosion and component deterioration. Arctic Cat recommends the following procedure to prepare the snowmobile for storage.

1. Clean the seat cushion with Vinyl Protectant and a damp cloth.
2. Clean the snowmobile thoroughly by hosing dirt, oil, grass, and other foreign matter from the undercarriage, tunnel, hood, and belly pan. Allow the snowmobile to dry thoroughly. DO NOT get water into any part of the engine.
3. Drain all gas from the gas tank. Close the gas tank shut-off valve by rotating it clockwise; then drain the gasoline from the carburetor by loosening the drain screw on the carburetor float chamber.
4. Plug the muffler outlet with a clean cloth.
5. With the ignition key in the OFF position:
 - A. Disconnect the high tension wire from the spark plug; then remove the spark plug.
 - B. Pour 10 ml (approximately two teaspoons) of petroleum-based oil into the spark plug hole; then pull the recoil starter handle slowly about five times.
 - C. Install the spark plug and connect the high tension wire.
6. Remove the drive chain and clean thoroughly in a solvent. Install drive chain and lubricate with a dry, graphite-based chain lubricant.
7. Change the oil; then clean the air filter.
8. Tighten all screws, nuts, and cap screws securely.
9. Make sure all rivets holding components together are tight. Replace all loose rivets.
10. Clean and polish the hood, console, and chassis with Cat Cleaner (p/n 4639-371). DO NOT USE SOLVENTS. THE PROPELLANT WILL DAMAGE THE FINISH.
11. If possible, store the snowmobile indoors. Raise the rear of the snowmobile off the floor and block up the rear end. Cover the snowmobile with a snowmobile cover to protect it from dirt and dust.
12. If the snowmobile must be stored outdoors, block the entire snowmobile off the ground and cover it with a snowmobile cover to protect it from dirt, dust, and rain.

CAUTION

Never crank the engine over without grounding the spark plug. Damage to the transistorized ignition may result.

CAUTION

Avoid using a plastic cover as moisture will collect on the snowmobile causing corrosion.

Preparation after Storage

Taking the snowmobile out of storage and correctly preparing it for operation will assure many miles and hours of trouble-free snowmobiling. Arctic Cat recommends the following procedure to prepare the snowmobile.

1. Clean the snowmobile thoroughly. Polish the exterior of the snowmobile using the cleaner.
2. Clean the engine cooling fins and the recoil starter vents. Remove the cloth from the muffler.
3. Check all control wires and cables for signs of wear or fraying. Replace if necessary. Use cable ties or tape to route wires and cables away from hot or rotating parts.
4. Inspect the drive chain and drive chain tightener. Replace if necessary.
5. Lubricate the drive chain with recommended lube or with a dry, graphite-based chain lubricant.
6. Check brake-lever travel distance, all controls, ski alignment, track tension, track alignment, brake band, and ski wear bars; adjust or replace as necessary.
7. Examine the in-line fuel filter and clean or replace if necessary.
8. Fill the gas tank.
9. Clean the seat cushion with the vinyl protectant.
10. Check the spark plug (clean, gap, and/or replace as necessary); then start the engine and ensure proper carburetor adjustments.

U.S. EPA Emission Control Statement/Warranty Coverage - Snowmobile (U.S. Only)

STATEMENT/WARRANTY

Arctic Cat warrants to the original retail purchaser, and each subsequent purchaser, that all U.S. EPA-certified Arctic Cat snowmobiles are designed, built, and equipped to conform to all U.S. EPA Emission Control Regulations. Please read the following information completely.

Your authorized Arctic Cat snowmobile dealer will repair or replace any defective emission-related component at no cost to you during the warranty period. You may have non-warranty service performed by any repair establishment that uses equivalent components. The regulations provide significant civil penalties for tampering that causes your snowmobile to no longer meet U.S. EPA emission standards.

Arctic Cat further warrants that the engine and its emission-related components are free from defects in materials or workmanship that could cause the engine to fail to comply with applicable regulations during the warranty period.

If you have any questions about this information, or the emission warranty coverage statement, contact your local authorized Arctic Cat snowmobile dealer.

WARRANTY PERIOD

The emission warranty period for this snowmobile begins on the same date as the standard warranty coverage and continues for 30 months or 2500 miles, whichever comes first.

COMPONENTS COVERED

The emissions warranty covers major emissions control components and emission-related components listed as follows:

Engine Management and Sensors

Barometric Pressure Sensor
Camshaft Position Sensor
Engine Control Unit (ECU)
Engine Coolant Temperature Sensor
Intake Air Temperature Sensor
Manifold Absolute Pressure Sensor
Oxygen Sensor
Throttle Position Sensor

Ignition System

Ignition Coil
Knock Sensor System
Crankshaft Position Sensor
Exhaust Temperature Sensor
Capacitive Discharge Ignition (CDI) Module
Magnet Pick-Up

Fuel/Air System

Fuel Injectors
Fuel Pressure Regulator
Fuel Pump
Carburetor(s)
Turbocharger Assembly
Air Bypass Valve
Turbo Waste Gate Control Valve
Crankcase Ventilation System
ISC Valve

Miscellaneous Items Used in Aforementioned Systems

Connectors
Switches
Grommets
Clamps
Hoses
Ties
Gaskets
Wiring

OWNER'S RESPONSIBILITIES

The owner of any snowmobile warranted under this Arctic Cat Emission Control Statement is responsible for the proper maintenance and use of the snowmobile as stated in the Operator's Manual. Proper maintenance generally includes replacement and service, at the owner's choosing, such items as air filter, oil and oil filter, or any other part, item, or device related to emissions control as specified in the Operator's Manual. It is the owner's responsibility to ensure that the snowmobile is used in a manner for which it was designed.

Declaration Of Conformity

Application of council directives: EMC Directive 2004/108/EEC
EC Machinery Directive 2006/42/EEC

Issued by European Commission.

Type of Equipment: Snowmobile

Brand Name: Arctic Cat

Model Numbers: S2018ZRAAAUSW

S2018ZRAAAOSW

Standards to which conformity is declared:

EMC: EN 55012, EN 61000-6-2

MACHINERY: 2006/42/EEC

Manufacturer (if not issuing agent): Arctic Cat Inc.
601 Brooks Ave. S.
Thief River Falls, MN
56701 USA

I, the undersigned, hereby declare that the equipment specified above conforms to the directive(s) and standard(s) as specified.



Craig Kennedy
Vice President/General Manager - Snowmobile Division

Change of Address, Ownership, or Warranty Transfer

Arctic Cat Inc. keeps on file the current name and address of the owner of this vehicle. This allows Arctic Cat to reach the current owner with any important safety information which may be necessary to protect customers from personal injury or property damage. Please make sure a copy of this form is completed and returned to Arctic Cat Inc. if you move or if the vehicle is sold to another party.

This form may also be used to transfer the unused portion of the original warranty to a second party. In order to transfer warranty, fill out this form completely; then return a copy of this form to Arctic Cat Inc. Arctic Cat will then process the application and issue warranty for the balance of the time remaining of the original warranty. Warranty coverage is only available in the country in which the original retail purchase occurs to the original retail purchaser resident in that country or to a transferee resident in that country of the balance of the remaining warranty.

- ☐ Address Change
- ☐ Ownership Change
- ☐ Warranty Transfer

CHANGE OF ADDRESS/OWNERSHIP/ WARRANTY TRANSFER TO:

Name _____

Address _____

City/State (Province)/Zip Code (Postal Code) _____

Phone # () _____

Year and Model _____

Vehicle Identification Number (VIN) _____

Fold Back

CHANGE OF ADDRESS/OWNERSHIP

Place
Stamp
Here

ARCTIC CAT INC.
PRODUCT SERVICE AND
WARRANTY DEPT.
P.O. BOX 810
THIEF RIVER FALLS, MN 56701

Warranty Procedure/Owner Responsibility

At the time of sale, an Owner Registration form is to be completed by the selling dealer and consumer. The receipt of the registration form by Arctic Cat is a condition precedent to warranty coverage. It is the selling dealer's responsibility to retain and/or submit the appropriate copies of the form to the appropriate place(s) to initiate warranty coverage.

The dealer will furnish to the consumer a signed copy of the form which must be presented to the dealer when requesting warranty service. **The registration form is the consumer's proof of ownership and warranty eligibility. The form is used by the dealer to validate the warranty claim.** Retain your copy of the form and keep it in a safe place.

When warranty repair is suspected, the snowmobile should be taken to the selling dealer, who has the primary responsibility to perform warranty repairs. Subject to the limitations set forth in the Limited Warranty, in the event the selling dealer has ceased to do business, you have moved, or you are in a location away from your selling dealer, warranty may be performed by any authorized Arctic Cat Snowmobile dealer.

The authorized Arctic Cat Snowmobile dealer will examine the snowmobile or part to determine if, in his opinion, a warrantable condition exists. If a warrantable condition appears to exist, the dealer will repair or replace, at Arctic Cat's option, free of charge, including any related labor costs, all parts that are found to be warrantable and any other parts which the warrantable part caused to be damaged. You, the consumer, will then be asked to sign a warranty form to ensure Arctic Cat that the warranty work was actually performed.

It is the consumer's responsibility to maintain and service the snowmobile in accordance with Arctic Cat's recommendations in the Operator's Manual. To protect yourself and your snowmobile, follow all safety and service tips. **Arctic Cat will NOT warrant repairs required as a result of not performing standard operator maintenance, storage procedures, and service as outlined in the Operator's Manual.**

Should you have any questions concerning the warranty, contact an authorized Arctic Cat Snowmobile dealer.

Arctic Cat Inc., P.O. Box 810, Thief River Falls, MN 56701 (218) 681-8558