2027

OPERATOR'S MANUAL

ZR/THUNDERCAT/PANTERA — 7000/9000

p/n: 653-00132
2/26

ORIGINAL INSTRUCTIONS

California Proposition 65

⚠ WARNING

Operating, servicing and maintaining an off-road vehicle can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle in a well-ventilated area and wear gloves or wash your hands frequently when servicing your vehicle. For more information go to www.p65warnings.ca.gov/products/passenger-vehicle.

This vehicle can be hazardous to operate.

A snowmobile is a very high performance vehicle. Because it does accelerate rapidly and is capable of very high speeds, it should not be operated by a novice or an inexperienced operator. Never accelerate rapidly or drive at high speed beyond the limits of visibility or without being totally familiar with the terrain and what lies in front of you. Obey speed limits and never operate at speeds that do not allow adequate maneuvering and stopping distances. Read and study the entire Operator's Manual and Snowmobile Safety Handbook.

Failure to follow this warning could result in personal injury to yourself or others. For your safety, understand and follow all the warnings contained in this Operator's Manual and on the labels on this vehicle.

Keep this Operator's Manual with this vehicle at all times. If you lose your manual, contact your authorized dealer for a free replacement. The labels should be considered permanent parts of the vehicle. If a label comes off or becomes hard to read, contact your authorized dealer for a free replacement. Contact Arctic Cat Service Department, 601 Brooks Ave, Thief River Falls, MN 56701 USA, for proper registration information.

FAILURE TO FOLLOW THE WARNINGS CONTAINED IN THIS MANUAL CAN RESULT IN SERIOUS INJURY OR DEATH.

The Operator's Manual, Snowmobile Safety Handbook, and Snowmobile Decals display important information:

⚠	The Safety Alert Symbol means ATTENTION! BE ALERT! YOUR SAFETY IS INVOLVED.
⚠ **WARNING**	WARNING identifies personal safety-related information. Follow the directive because it deals with the possibility of serious personal injury or even death.
CAUTION	CAUTION, without the safety alert symbol, identifies unsafe practices. Follow the directive because it deals with the possibility of damaging part or parts of the snowmobile.
■ **NOTE:**	A NOTE identifies supplementary information worthy of particular attention.

Personal Injury

- To avoid injury to yourself and others, NEVER operate the snowmobile without first reading and understanding this manual and the Snowmobile Safety Handbook; then follow the instructions and heed the warnings given.
- USE COMMON SENSE.
- DON'T DRINK and DRIVE.
- STAY IN CONTROL at ALL TIMES.
- TELL YOUR FRIENDS. If you see a friend operating a snowmobile recklessly, at excessive speeds, while intoxicated, or in other unsafe ways, don't wait until it is too late to warn of the consequences of snowmobile misuse. Such conduct endangers everyone. TAKE AN ACTIVE ROLE IN THE SAFETY OF YOURSELF AND OTHERS.

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p/n: 653-00132

Foreword

Congratulations! You have chosen a quality Arctic Cat Snowmobile designed and assembled to give dependable service. Be sure, as the owner/operator of an Arctic Cat Snowmobile, to become thoroughly familiar with its basic operation, maintenance, and off-season storage procedures. Read this manual and the accompanying Snowmobile Safety Handbook before operating the snowmobile to learn safe and proper use of your new Arctic Cat Snowmobile. Always operate the snowmobile within your level of skill and current terrain conditions.

This manual covers operator-related maintenance, operating instructions, and off-season storage instructions. If major repair or service is ever required, contact an authorized Arctic Cat Snowmobile dealer for professional service.

At the time of publication, all information and illustrations were technically correct. Some illustrations used in this manual are used for clarity purposes only and are not designed to depict actual conditions. Because Arctic Cat Inc. constantly refines and improves its products, no retroactive obligation is incurred.

Use the QR code below or go to arcticcat.com/resources to view the model-specific specifications sheet and ensure you are reviewing the most current operator manual.

This Operator's Manual should be considered a permanent part of the snowmobile and must remain with the snowmobile at the time of resale. If the snowmobile changes ownership more than once, contact Arctic Cat Inc., Service Department, 601 Brooks Ave, Thief River Falls, MN 56701 USA, for proper registration information.

Every Arctic Cat Snowmobile meets or exceeds the standards of the Snowmobile Safety and Certification Committee and displays the SSCC decal. Arctic Cat Inc. endorses and encourages the safe use of all snowmobiles. Always wear a helmet and eye protection. Drive with caution, observe all state and local regulations, 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 Inc. promotes snowmobiling through education, charity, and research programs.

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Snowmobile Safety Rules

SNOWMOBILE SAFETY RULES

Arctic Cat® endorses and encourages the safe use of all snowmobiles.
Always obey all local laws and regulations and use common sense.
Receive proper training and operate within your capabilities. See operator's manual for complete safety instructions.

RÈGLEMENTS DE SÉCURITÉ EN MOTONEIGE

Arctic Cat® endosse et encourage l'utilisation sécuritaire de toutes motoneiges.
Respectez toujours ces règlements qui vous permettront de pratiquer ce sport avec plaisir.
Suivez une formation adéquate et opérez selon vos capacités. Consultez le manuel d'opérateur pour les instructions complètes de sécurité.
Veuillez vous référer au manuel de l'opérateur pour les instructions complètes de sécurité.

SÄKERHETSREGLER VID SNÖSKOTERKÖRNING

Arctic Cat® manar till försiktighet vid snöskoterkörning. Följ alltid dessa regler när du är ute och kör.

MOOTTORIKELKAN TURVASÄÄNNÖT

Arctic Cat® kannustaa moottorikelkojen turvallista käyttöä.
Niitä sääntöjä tarkkaan noudattaen saat kelkkailusta niin paljon nautinnollisen hurvin ja hyödyn.

SIKKERHETSREGLER FOR BRUK AV SNØSCOOTER

Arctic Cat® oppfordrer alle til å utvise forsiktighet ved bruk av snøscootere.
Følg alltid disse reglene når du er ute og kjører.

NORME DI SICUREZZA PER LE MOTOSLITTE

Arctic Cat® sostiene ed incoraggia la sicurezza delle motoslitte.
Per un divertimento continuo di questo sport seguite sempre le suddette norme.

スノーモービルの安全運転ルール

アークティック・キャットはスノーモービルの安全な運転を推奨しています。いつまでもスノーモービルを楽しむためには、下記の安全運転ルールを守ってください。

1 Don't drink and ride.
No buvez pas lorsque vous conduisez.
Kör aldrig om du är alkoholpåverkad.
Ajo ei koskaan ole alkoholipitoista.
Kjør aldri under påvirkning av alkohol.
Non bevete durante la guida.
飲酒運転はしないこと。

2 Always wear a helmet.
Portez toujours un casque.
Hjälm ska alltid bäras.
Käytä aina kypärää.
Bruk alltid hjelm.
Indossate sempre il casco.
常時、ヘルメットを着用すること。

3 Watch out for thin ice/open water.
Evitez de glace mince/trous d'eau.
Se upp för tunn is/öppet vatten.
Varo heikkoja jäitä ja avantoja.
Ikke kjør på tynn is/åpent vann.
Attenti allo spessore/rischio del ghiaccio.
薄氷やまだ凍っていない海域に注意すること。

4 Use caution when crossing road/train tracks.
Soyez prudent lorsque vous traversez des routes et des chemins de fer.
Var försiktig när du korsar väg/järnväg.
Ole varovainen kun ajat ilmi tai rautatien poikki.
Vær forsiktig ved krysning av veier/jernbaneskinner.
Usate prudenza nell'attraversare strade/passaggi a livello.
運路や踏切を横切るときは注意すること。

5 Don't ride after midnight.
Ne conduisez pas après minuit.
Kör inte efter midnatt.
Ajo ei ole sallittua yöllä.
Unngå å kjøre etter midnatt.
Non guidate dopo la mezzanotte.
真夜中以後は乗らないこと。

6 Beware of trees and other hazards.
Soyez prudent face aux arbres et autres dangers.
Se upp för träd och andra faror.
Varo puita ja muita vaaroja.
Se opp for trær og andre farer.
Attenti alle piante e altri pericoli.
木や障害物に用心すること。

7 Always use a solid hitch for towing.
Assurez-vous d'avoir une attache solide pour remorquer.
Använd alltid stel koppling vid bogsering.
Käytä aina vahvoja vetolaitoita.
Bruk alltid solid kopplelås for tauing.
Usate sempre un gancio solido.
牽引にはしっかりとカプラーを使うこと。

8 Observe proper rider capacity.
A. Maximum one rider on 1-Up sleds.
B. Maximum two riders on 2-Up sleds.
Respectez le nombre recommandé de passagers.
A. Un seul passager sur les modèles réguliers.
B. Maximum deux passagers sur les modèles à 2 places.
Begränsa antalet åkande.
A. Enkelsitsiga: Endast förare.
B. Dubbelsitsiga: Förare och en passagerare.
Ota huomioon kelkan kuormituskyky.
A. Vain yksi henkilö yhdän istuttavaan kelkkaan.
B. Korkeintaan kaksi kahden hengen kelkkaan.
Vær opptrådsom på passasjerkapasiteten.
A. Maks. 1 passasjer på 1-sitters scooter.
B. Maks. To personer på to-sæters scootere.
Osservate la capienza del veicolo.
A. Massimo 1 passeggero.
2-posti: Massimo 2 passeggeri.
乗車定員を守ること。
A. 一人乗りは一人まで。
B. 二人乗りは二人まで。

9 Check controls and maintain your machines.
Vérifiez les commandes et entretenez votre véhicule.
Kontrollera reglage och underhåll din maskin.
Tarkistakaa ohjaimet ja huolehtikaa koneesta.
Sjekk instrumentene og hold scooteren vedlikes.
Controllate i comandi ed eseguite la manutenzione.
操作系のチェックおよび整備すること。

10 Be of legal age.
Respectez l'âge légal.
Respektera åldersgränsen.
Ota kunnes saavutat vaadittun ikärajan.
Farer ikke yngre enn aldersgrensen.
Rispettate il limite di età.
運転は法の定める年齢に達していること。

11 Read and understand your Operator's Manual.
Lisez et comprenez votre Manuel de l'opérateur.
Läs och förstå Instruktionsboken.
Lue ja ymmärrä mitä Käyttöoppaassa sanotaan.
Les og forstå Brukerhåndboken.
Leggete attentamente il Manuale di Guida.
オーナーズマニュアルを必ず読み、理解すること。

12 Obey all local laws and regulations and use common sense.
Obéissez aux lois et recommandations locales et faites preuve de bon sens.
Följ lokal lagstiftning/regelverk och lokala bestämmelser. Använd sunt förnuft.
Noudata kaikkia paikallisia lakeja ja paikallisimpia ohjeita. Ole tarkkaavainen.
Overhold lokale lover og regelverk og bruk sunn fornuft.
Osservate tutte le norme di legge nazionali.
地域の法律や規定を守り、常識のある運転をすること。

Warning Labels & Information

This snowmobile comes with labels containing important safety information. Anyone who rides the snowmobile should read and understand this information before riding. The labels should be considered as permanent parts of the snowmobile. If a label comes off or becomes hard to read, contact your authorized dealer for a replacement.

B

WARNING

Use a solid tongue hitch when towing objects to avoid injury due to sudden stops.

Do not stand near or behind rotating track. Personal injury could result.

5611-853

A

WARNING

SEVERE INJURY OR EVEN DEATH MAY RESULT IF ANY OF THE FOLLOWING ARE IGNORED.
THIS VEHICLE IS DESIGNED FOR ONE (1) OPERATOR ONLY, UNLESS EQUIPPED WITH A MULTI-RIDER SEAT AND HANDGRIPS CONFORMING TO SSCC STANDARDS

Before operating this snowmobile, all operators must read, understand, and follow the information contained in the Operator's Manual Safety Handbook and all Warning decals.

This vehicle is designed for adult use only. It is capable of high speeds and should not be operated by children or inexperienced riders.

Wear an approved helmet, eye protection, and appropriate snowmobile clothing.

Before starting engine, check throttle, brake, and steering for proper operation.

To stop engine in an emergency, push the emergency stop switch down.

Stay clear of the rotating track. Entanglement may result.

Do not operate this vehicle on public roads.

Avoid contact with hot or moving parts. Turn engine off before opening hood. Leave all shields in place.

After refueling, secure fuel tank cap before sitting on or operating this vehicle. Do not store this vehicle in an enclosed area with a full fuel tank.

Check brake fluid level and pad wear before each use or brake loss can result. Loss of brakes can result in severe injury or even death.

Excessive repetitive use of the hydraulic brake for high speed stops will cause overheating of the brake fluid and premature brake pad wear which will result in an unexpected loss of brakes.

USE ONLY ARCTIC CAT BRAKE FLUID. Do not substitute with other brands of brake fluid as brake loss can result.

The brake lever lock is not a parking brake and should not be applied for periods exceeding 5 minutes. Longer time periods can cause loss of brake lock.

Refer to Operator's Manual for more information and instructions. A free Operator's Manual for this model is available upon written request.

CAUTION

The engine must be properly warmed up before high speed operation or severe engine damage may occur. Do not operate the engine at more than half throttle until the engine has reached normal operating temperatures. If this vehicle is equipped with a battery, it should be removed before turning vehicle onto its side to prevent battery acid spillage.

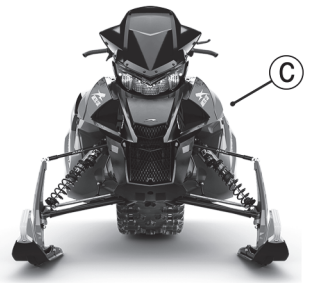
3621-487

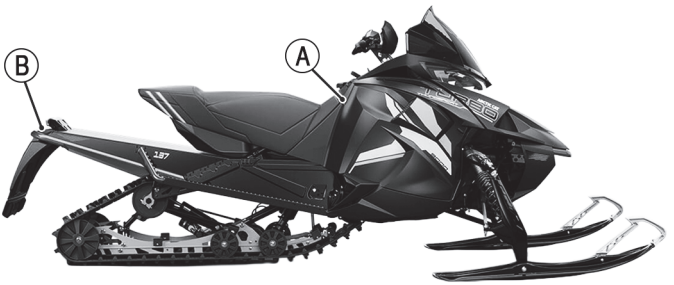
C

WARNING

Do not run engine without this shield in place or with drive belt removed.
Do not attempt any adjustment with engine running.

9611-690



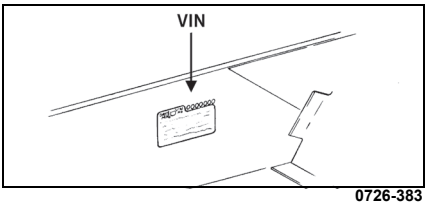


SNO-WL16

General Information

Snowmobile Identification

The Arctic Cat Snowmobile has two important identification numbers. The Vehicle Identification Number (VIN) is stamped into the tunnel near the right-side footrest. The Engine Serial Number (ESN) is stamped into the crankcase of the engine.



0726-383

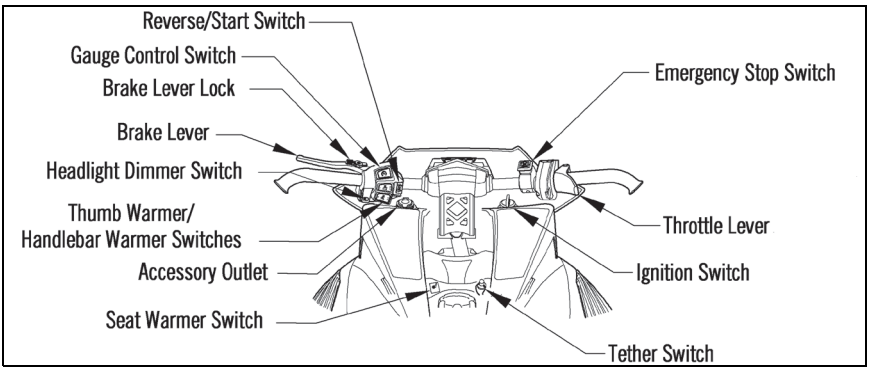
These numbers are required by the dealer to complete warranty claims properly. No warranty will be allowed by Arctic Cat Inc. if the engine serial number or VIN is removed or mutilated in any way.

Always provide the snowmobile name, VIN, and ESN 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.

Control Locations

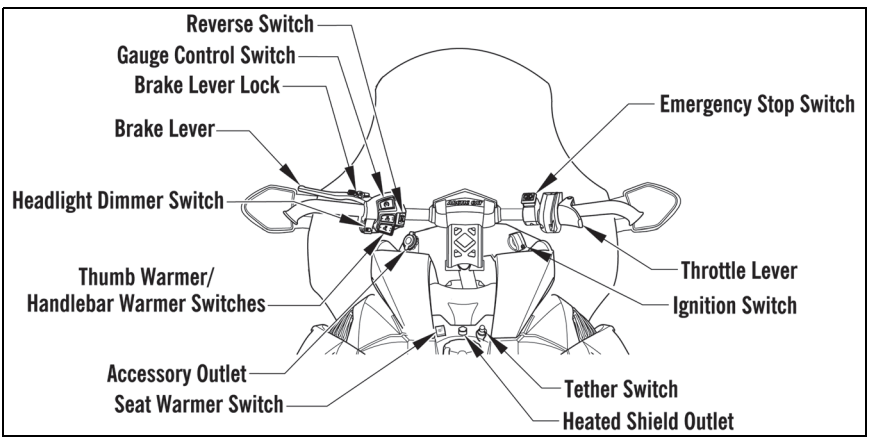
Shown below are the typical control locations for Arctic Cat snowmobiles. Location of a specific control will vary according to model.

ZR/Thundercat



0752-487

Pantera



0755-273

Gasoline — Oil

Recommended Gasoline

7000

The recommended gasoline to use in these snowmobiles is 87 octane regular unleaded. In many areas, oxygenates are added to the gasoline. Oxygenated gasolines containing up to 10% ethanol are acceptable gasolines.

When using ethanol-blended gasoline, it is not necessary to add a gasoline anti-freeze since ethanol will prevent the accumulation of moisture in the fuel system.

CAUTION

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

9000

The only recommended gasoline to use in these snowmobiles is 91 octane (minimum).

CAUTION

If a situation arises wherein 91 octane gasoline is not available, 89 or 87 octane gasoline can be substituted; however, do not prolong the usage of 89 or 87 octane gasoline as it will cause poor engine performance.

In many areas, oxygenates are added to the gasoline. Oxygenated gasolines containing up to 10% ethanol are acceptable gasoline. Do not use gasolines containing methanol.

Recommended Engine Oil

The recommended oil to use is C-TEC4 Synthetic Oil (p/n 6639-524 — qt) or (p/n 6639-525 — gal).

After the engine break-in period, the engine oil should be changed every 2500 miles (4000 km) and before prolonged storage.

Filling Gas Tank

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.

Also, if the snowmobile is to remain on a trailer after filling the gas tank, the bed of the trailer must be maintained level to prevent gasoline from draining out through the gas tank vent hose.

⚠ WARNING

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

Snowmobile Specifications

Use the QR code below or go to arcticcat.com/resources to view the model-specific specifications sheet.

Engine Break-In

The Arctic Cat engine (when new or rebuilt) requires a short break-in period before the engine is subjected to heavy load conditions.

Premixing fuel and oil during the break in period is not required. There is never a more important period in the life of the engine than the first 300 miles (480 km).

Since the engine is brand new, do not put an excessive load on it for the first 300 miles (480 km). The various parts in the engine wear and polish themselves to the correct operating clearances. During this period, prolonged full throttle operation or any condition that might result in engine overheating must be avoided.

Operating your snowmobile for the first time: Start the engine and let it idle for 15 minutes.

0-160 km (0-100 miles): Avoid prolonged operation above 6000 RPM.

160-500 km (100-300 miles): Avoid prolonged operation above 8000 RPM.

500 km (300 miles) and beyond: The snowmobile can now be operated normally.

■ NOTE: After 500 miles (800 km) of operation, the engine oil must be changed and the oil filter replaced. If any engine trouble should occur during the engine break-in period, immediately have a Arctic Cat dealer check the snowmobile.

Drive Belt Break-In

Drive belts require a break-in period of 25 miles (40 km). Drive the snowmobile for 25 miles (40 km) at 3/4 throttle or less. By revving the engine up and down (but not exceeding 60 mph [96 km/h]), the exposed cord on the side of a new belt will be worn down. This will allow the drive belt to gain its optimum flexibility and will extend drive belt life.

■ NOTE: Before starting the snowmobile in extremely cold temperatures, the drive belt should be removed and warmed up to room temperature. Once the drive belt is at room temperature, install the drive belt (see Drive Belt sub-section in the Maintenance section).

CAUTION

Never run the engine with the drive belt removed. Excessive revving of the engine could result in serious engine damage and drive clutch failure.

Cold Drive-Away Function

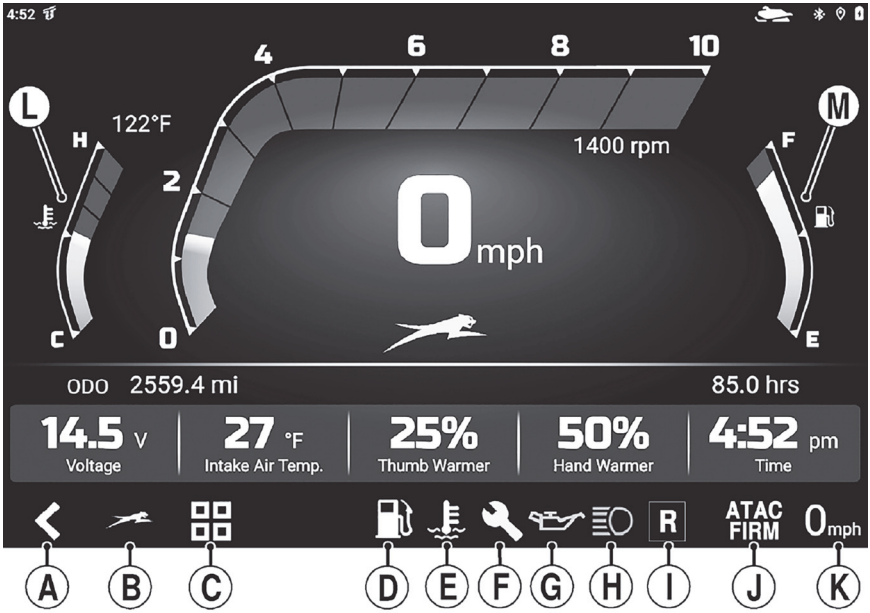
On these models, there is a "cold drive-away" function incorporated within the ECM.

When cold-starting the engine, the coolant temperature indicator will illuminate and the LOW TEMP display on the digital gauge will begin to flash. With the engine in this temperature range, the RPM "limit" of the engine will be below drive system engagement speed. As the engine warms, the coolant temperature indicator will begin to flash, the LOW TEMP display will continue to flash, and the RPM "limit" of the engine will increase allowing the snowmobile to move without full-throttle operation. When the engine reaches proper operating temperature, the coolant temperature indicator and the LOW TEMP display will go out.

CAUTION

It is extremely important that the engine is properly warmed up before subjecting the engine to high speed operation or heavy loads. The engine should be allowed to idle at least 3-4 minutes before it is operated at more than 1/2 throttle. In extremely cold conditions, the warm-up time will be longer. Cold seizure and piston scuffing caused by insufficient warm-up will not be covered by warranty. Also, do not idle the engine for excessively long periods of time.

G8 Gauge



ONS-483

A. Back Button

This button will show the previous viewed display screen.

B. Vehicle Information Button

This button will display the main vehicle information screen.

C. Main Screen Button

This button will display the main screen. Press and hold any app icon or widget to move it. Press and hold in a black area to add a new widget and/or change the background.

D. Low Fuel Indicator

The indicator illuminates whenever the gas level in the gas tank is low.

E. Coolant Temperature Indicator

The indicator and coolant temperature graph will illuminate blue when cold-starting the engine. The indicator will cease to illuminate, and the graph will change to green when the engine reaches proper operating temperature.

If the coolant temperature rises above the operating temperature, the indicator will illuminate orange at 176° F (80° C). Once the coolant temperature reaches the specified temperature of 185° F (85° C), the temperature sensor will signal the ECM to go into rich mode to protect the engine while overheating. At this time, the indicator will illuminate red.

CAUTION

If the indicator is illuminated red, stop the engine immediately and allow it to cool down. If unable to either determine or remedy the problem, take the snowmobile to an authorized Arctic Cat Snowmobile dealer for service. If not under warranty, this service is at the discretion and expense of the snowmobile owner.

F. Service Indicator

The indicator illuminates whenever a problem exists with any of the vehicle sensors.

G. Low Oil Indicator

The indicator is designed to alert the snowmobile operator when the oil in the oil injection tank gets below a prescribed level. Once the indicator illuminates during operation of the snowmobile, the operator must periodically monitor the level of oil in the reservoir and must fill the reservoir the next time gasoline is added.

H. High Beam Indicator

The indicator is on whenever the high beam mode is selected by the headlight switch.

I. Reverse Indicator

The indicator is on whenever the vehicle is shifting into reverse and a reverse alarm will sound.

J. ATAC Suspension Indicator

The indicator will display the selected ATAC suspension setting (soft, medium, firm, driver 1, driver 2).

K. Vehicle Speed Indicator

This will display the vehicle speed.

L. Coolant Temperature Graph

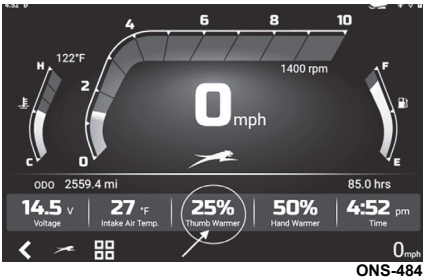
This graph display shows the coolant temperature.

M. Fuel Level Graph

This graph display shows the approximate amount of fuel in the gas tank.

G8 User Custom Data Fields

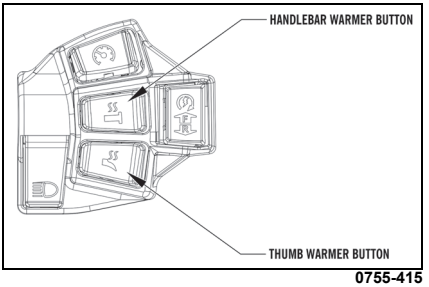
The five customizable data fields can display a variety of data. These data fields can be simply changed by pressing on the data field and selecting a new one.



ONS-484

Thumb Warmer

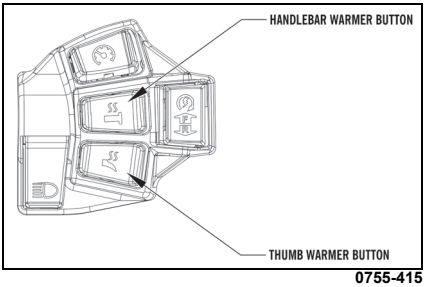
The right toggle of the button will increase the warmth setting and the left toggle will decrease the warmth setting.



0755-415

Handlebar Warmer

The right toggle of the button will increase the warmth setting and the left toggle will decrease the warmth setting.



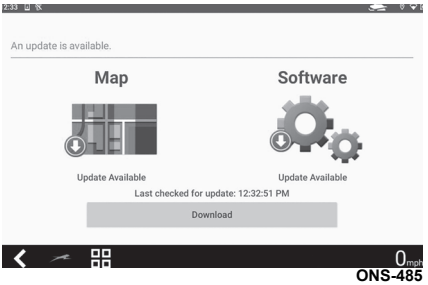
0755-415

G8 Software Update

When performing updates via Wi-Fi, it is recommended to connect the vehicle to a battery charger or battery tender, increase the screen timeout, and ensure the display battery voltage is 50% of charge or greater.

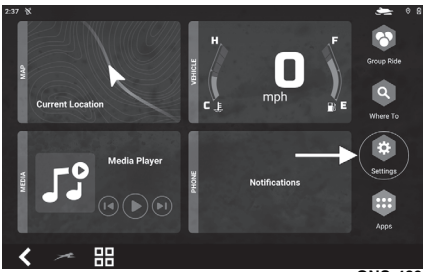
If the display battery voltage is below 50%, start and idle the vehicle until the display turns on. Using the provided USB cable, connect a PC or wall charger to the USB connection located near the hood connector.

The display will automatically prompt the user when an update is available.

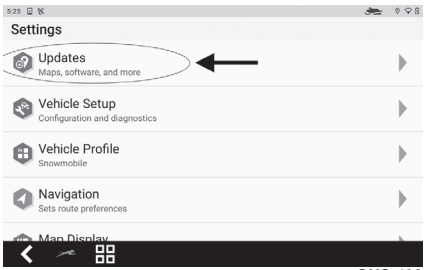


ONS-485

To manually check for updates, select settings and then updates.



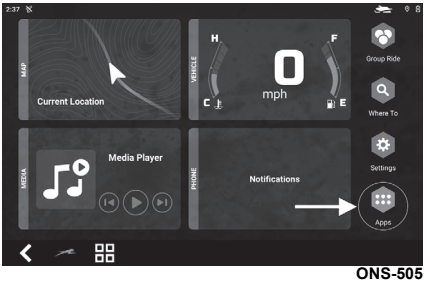
ONS-489



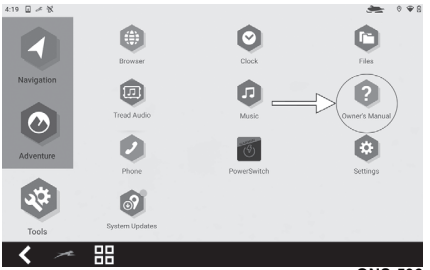
ONS-498

G8 Owner's Manual

The owner's manual for the G8 gauge can be found on the device screen in many languages. To find the owner's manual, select apps and then owner's manual.

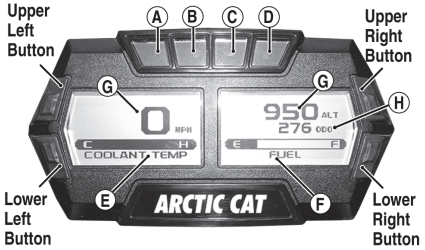


ONS-505



ONS-506

Deluxe Digital Gauge



CWI-051A

A. Coolant Temperature Indicator

The indicator will illuminate and flash when cold-starting the engine. The indicator and LOW TEMP display will stop flashing when the engine reaches proper operating temperature.

If the coolant temperature rises too far above proper operating temperature, the indicator will flash and the engine will "surge" to alert the operator. If the coolant temperature rises to a critical point above proper operating temperature, the indicator will stop flashing and will remain constantly illuminated.

CAUTION

If the indicator is illuminated, stop the engine immediately and allow it to cool down. If unable to either determine or remedy the problem, take the snowmobile to an authorized Arctic Cat Snowmobile dealer for service. If not under warranty, this service is at the discretion and expense of the snowmobile owner.

B. High Beam Indicator

The indicator is on whenever the high beam mode is selected by the headlight switch.

C. Oil Pressure Indicator

The indicator relates to engine oil pressure, not the oil level; however, if the oil level is low, it may affect oil pressure. If oil pressure is lost, check the oil level (see page 30).

If the indicator remains on or if the engine does not start, take the snowmobile to an authorized Arctic Cat Snowmobile dealer. If not under warranty, this service is at the discretion and expense of the snowmobile owner.

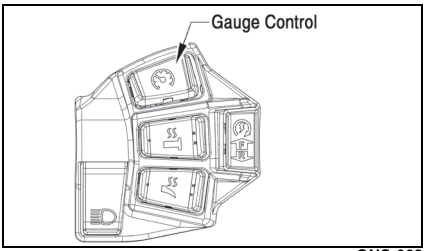
D. Low Fuel Indicator

The indicator illuminates whenever the gas level in the gas tank is low.

E. Coolant Temperature/ Battery Voltage/Intake Air Temperature Display

This bar display shows coolant temperature, battery voltage, and intake air temperature. Press the Lower Left Button to change the function displayed. Press and hold the Lower Left Button to see the actual information associated with the selected function.

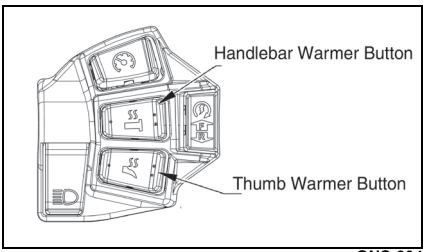
■ NOTE: The right toggle of the gauge control is the same as the Lower Left Button on the gauge.



ONS-068

E. Hand Warmer Display

This bar display shows the handlebar warmer and thumb warmer settings. The right toggle of the button will increase the warmth setting and the left toggle will decrease the warmth setting.



ONS-304

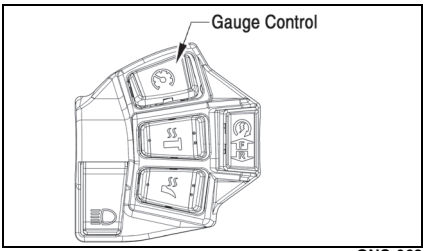
F. Fuel Level Display

This bar display shows the approximate amount of gas remaining in the gas tank.

G. RPM/Speed/Clock/ Altimeter

Press the Upper Left Button to cycle the left screen between RPM and speed.

■ NOTE: The left toggle of the gauge control is the same as the Upper Left Button on the gauge.



ONS-068

■ NOTE: When RPM is displayed on the left screen, the right screen will display speed, clock, or altimeter. When speed is displayed on the left screen, the right screen will display RPM, clock or altimeter.

Press the Upper Right Button to cycle the right screen between speed, RPM, clock, and altimeter.

Press and hold the Upper Button on the speed-side of the gauge to shift between standard (mph/miles/Fahrenheit) and metric (km/h/kilometers/Celsius).

Press and hold the Upper Button on the RPM-side to view maximum RPM. This value is reset by pressing and releasing the Lower Right Button while maximum RPM is displayed.

With the clock mode selected by pressing the Upper Right Button, press and hold the Upper Right Button to set the clock. The option of selecting the 12-hour or 24-hour clock is available; press the either Left Button to alternate between the two modes. Next, press the Lower Right Button to set the clock. Press either Left Button to set the hours; then press the Lower Right Button to reach the minutes. Press either Left Button to set the minutes. When the proper time has been set, press the Lower Right Button to return to the main gauge display.

With the altimeter mode selected by pressing the Upper Right Button, press and hold the Upper Right Button to set the current altitude by using either Left Button. When the proper altitude has been set, press the Lower Right Button to return to the main gauge display.

H. Engine Hour Meter/ Odometer/Trip Meter/Clock

This display shows engine hours, odometer, trip meter, or clock. Press the Lower Right Button to change the function displayed. The Engine Hour Meter and Odometer cannot be reset. To reset the trip meter, select the Trip Meter; then press and hold the Lower Right Button until the trip meter display reads 0.

■ NOTE: The clock can only be displayed in this position if it is not already displayed at the top of the right screen. To set the clock when the clock is in this position, press and hold the Lower Right Button; then use the procedure found in G.

Diagnostic Codes

Diagnostic codes are activated by the ECM and may be displayed on the digital gauge for a number of reasons.

If a code is displayed while the engine is running, the ECM is receiving input that is outside of its established parameters. If a code has been activated, take the snowmobile to an authorized Arctic Cat Snowmobile dealer for service. If not under warranty, this service is at the discretion and expense of the snowmobile owner.

Refer to the following chart for a list of possible diagnostic codes:

Code	Trouble
C1500	Right Ski Shock Stepper Motor Stall Detection
C1505	Left Side Shock Stepper Motor Stall Detection
C1510	Front Skid Shock Stepper Motor Stall Detection
C1515	Rear Skid Shock Stepper Motor Stall Detection
C1520	Suspension Module Supply Voltage Low
C1521	Suspension Module Supply Voltage High
C1522	Suspension Module Checksum Error

Code	Trouble
C1523	Right Ski Shock Stepper Motor Coil A Circuit Malfunction
C1524	Right Ski Shock Stepper Motor Coil B Circuit Malfunction
C1525	Left Ski Shock Stepper Motor Coil A Circuit Malfunction
C1526	Left Ski Shock Stepper Motor Coil B Circuit Malfunction
C1527	Front Skid Shock Stepper Motor Coil A Circuit Malfunction
C1528	Front Skid Shock Stepper Motor Coil B Circuit Malfunction
C1529	Rear Skid Shock Stepper Motor Coil A Circuit Malfunction
C1530	Rear Skid Shock Stepper Motor Coil B Circuit Malfunction
C1600	Thumb Warmer Open Circuit
C1601	Thumb Warmer Circuit Short to System Ground
C1602	Thumb Warmer Circuit Short to System Power
C1603	Hand Warmer Open Circuit
C1604	Hand Warmer Circuit Short to System Ground
C1605	Hand Warmer Circuit Short to System Power
P0034	Turbocharger Bypass Valve Control Circuit Low
P0035	Turbocharger Bypass Valve Control Circuit High
P0107	Manifold Absolute Pressure Circuit Low
P0108	Manifold Absolute Pressure Circuit High
P0112	Intake Air Temperature Sensor Circuit Low
P0113	Intake Air Temperature Sensor Circuit High
P0117	Engine Coolant Temperature Sensor 1 Circuit Low
P0118	Engine Coolant Temperature Sensor 1 Circuit High
P0120	Throttle Position Sensor Circuit
P0122	Throttle Position Sensor Circuit Low
P0123	Throttle Position Sensor Circuit High
P0201	Injector Circuit/Open — Cylinder 1
P0202	Injector Circuit/Open — Cylinder 2
P0203	Injector Circuit/Open — Cylinder 3
P0237	Turbo Boost Sensor Circuit Low
P0238	Turbo Boost Sensor Circuit High
P0243	Turbo Wastegate Solenoid
P0327	Knock Sensor 1 Circuit Low
P0328	Knock Sensor 1 Circuit High
P0351	Ignition Coil “A” Primary/Secondary Circuit

Code	Trouble
P0352	Ignition Coil “B” Primary/Secondary Circuit
P0353	Ignition Coil “C” Primary/Secondary Circuit
P0505	Idle Air Control System
P0524	Engine Oil Pressure Low
P0562	System Relay Voltage Low
P0563	System Relay Voltage High
P0601	Internal Control Module Memory Checksum Error
P062F	Internal Control Module EEPROM Error
P0780	Shift Error
P0914	Gear Shift Position Circuit
P0916	Gear Shift Position Circuit Low
P0917	Gear Shift Position Circuit High
P1009	Speed Sensor Malfunction
P100A	Runaway Prevention System Activated
P1106	Manifold Absolute Pressure Sensor Hose Disconnected
P1236	Turbo Boost Sensor Hose Disconnected
P1335	Crankshaft Not Detected While Start-ing
P1520	Engine Oil Pressure Switch Circuit
P1522	Engine Oil Pressure Sensor Circuit Low
P1523	Engine Oil Pressure Sensor Circuit High
P1689	Reverse Relay Circuit Low
P1690	Reverse Relay Circuit High
P1692	Forward Relay Circuit Low
P1693	Forward Relay Circuit High
P1695	Headlight Relay Low
P1696	Headlight Relay Circuit High
P1704	Fuel Pump Relay Circuit Low
P1705	Fuel Pump Relay Circuit High
P2228	Barometric Pressure Sensor “A” Circuit Low
P2229	Barometric Pressure Sensor “A” Circuit High
U0132	Lost Communication with Suspension Control Module
U0155	LCD Gauge Communication Lost
U1000	Vehicle Not Registered or Invalid PIN
U1001	Vehicle Not Registered and Vehicle Limits Enabled
U1212	Lost Communication with Left Handlebar Control

Power Steering

Certain models were produced with an Electronic Power Steering (EPS) system to reduce steering effort and driver fatigue over a broad range of operating conditions.

The EPS system engages when the ignition switch is turned to the ON position and disengages after approximately five minutes (to conserve battery power) if the engine is not running.

This system is entirely maintenance-free: no adjustment or servicing is required. There are no fluids to check or change, and the EPS system is entirely self-contained and sealed to protect it from the elements.

The EPS system is battery system powered; therefore, the battery must be in good condition and fully charged. Power delivery and overload protection is provided by an EPS relay and 30-amp fuse located in the Power Distribution Module (PDM).

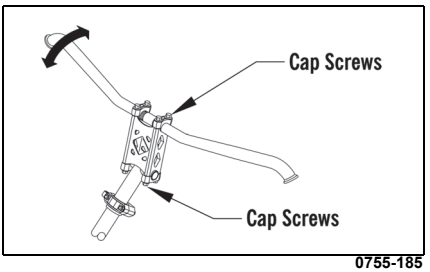
The system is self-monitored and will display a malfunction code on the LCD gauge/speedometer should an EPS system control circuit problem occur. Do not operate the vehicle with an EPS malfunction code displayed.

Code	Trouble
C1301	Over Current
C1302	Excessive Current Error
C1303	Torque Sensor Range Fault
C1304	Torque Sensor Linearity Fault
C1305	Rotor Position Encoder
C1306	System Voltage Low
C1307	System Voltage High
C1308	Temperature Above 110° C
C1309	Temperature Above 120° C
C1310	Vehicle Speed High
C1311	Vehicle Speed Low
C1312	Vehicle Speed Faulty
C1313	Engine RPM High
C1314	Engine RPM Low
C1315	Engine RPM Faulty
C1316	EEPROM Error
C1317	CAN Bus Error
C1318	Internal CRC Error
C1319	Boot Counter Exceeded
C1320	Incorrect Vehicle Speed-to-RPM Ratio
C1321	Vehicle Speed Erratic
C1322	Engine RPM Lost
C1323	“EPS OFF” Gauge Display
C1324	Loss of CAN communication with EPS unit
C1325	Dual Loss
C1326	Rotor Position Encoder
C1327	Voltage Converter Error (Low)
C1328	Voltage Converter Error (High)
C1329	Internal Data Error
C1331	Configuration CRC

Handlebar Tilt

The handlebar can be adjusted to the operator’s preference. To adjust the handlebar, use the following procedure:

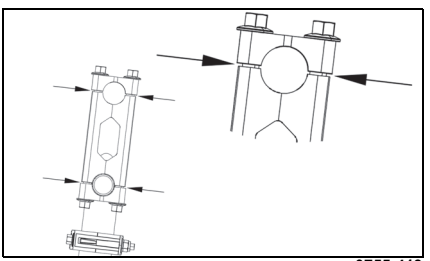
1. Remove the handlebar cover; then loosen the eight cap screws securing the handlebar caps to the riser and the riser to the steering post.



0755-185

2. Adjust the handlebar to operator’s desired position, tighten the cap screws evenly to 20 ft-lb (27 N-m), and check steering for maximum right/left turning capabilities.

■ NOTE: The riser block caps must be evenly spaced from the riser block when tightened to specification.



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■ **NOTE: Do not rotate the handlebar to a position that allows air to enter the brake system.**

⚠ WARNING

Tighten cap screws according to specifications to prevent unexpected "movement" of the handlebar during operation over rough terrain. DO NOT position the handlebar so steering (maximum right/left turning capabilities) or throttle and brake controls are affected.

Exhaust System

The exhaust system is designed to reduce noise and to improve the total performance of the engine. If any exhaust system component is removed from the engine and the engine is run, severe engine damage will result.

Air-Intake Silencer

Used in conjunction with the fuel intake system is a specially designed air-intake silencer. The purpose of the silencer is to quiet the intake of fresh air. Since the fuel intake system is calibrated with the air-intake silencer in place, the engine must never be run with the silencer removed. Performance will not be improved if the air-intake silencer is removed. In contrast, severe engine damage will occur.

CAUTION

These snowmobiles are not designed to be operated in dusty conditions. Operating the snowmobile in dusty conditions will result in severe engine damage.

Cooling System

These snowmobiles are equipped with a closed liquid cooling system for engine cooling. The cooling system should be inspected daily for leakage and damage. Also, the coolant level should be checked daily. If leakage or damage is detected, take the snowmobile to an authorized Arctic Cat Snowmobile dealer for service. If not under warranty, this service is at the discretion and expense of the snowmobile owner.

When filling the cooling system reservoir, use an ethylene glycol-based coolant/water mixture which will satisfy the coldest anticipated weather conditions of your area in accordance with the coolant manufacturer's recommendations.

■ **NOTE: If operating on ice or hard-packed snow conditions, it is recommended that Ice Scratchers (p/n 5639-897) be installed and engaged to reduce wear strip wear and engine overheating.**

For checking/filling cooling system, refer to Coolant Level sub-section in the Maintenance section.

Battery

It is extremely important that the battery be maintained at full charge at all times and that the battery connections be clean and tight. If charging the battery becomes necessary, refer to Battery sub-section in the Maintenance section.

⚠ WARNING

If at any time the battery is removed/disconnected and a jumper pack will be used to start the snowmobile, always use the key or emergency stop switch to turn the engine off. Never disconnect the jumper pack with the engine running. Failure to do this will cause damage to the voltage regulator/rectifier.

CAUTION

Always turn the ignition switch key to the OFF position when the snowmobile is not being used. Leaving the ignition switch in the ON position will result in discharging the battery and possible damage to the battery.

Jump-Starting

■ NOTE: Arctic Cat does not recommend jump-starting a snowmobile with a dead battery but rather to remove the battery, service it, and correctly charge it; however, in an emergency, it may be necessary to jump-start a snowmobile. If so, use the following procedure to carefully and safely complete this procedure.

⚠ WARNING

Improper handling or connecting of a battery may result in severe injury including acid burns, electrical burns, or blindness as a result of an explosion. Always remove rings and watches.

1. On the snowmobile to be jump-started, slide any terminal boots away.

⚠ WARNING

Any time service is performed on a battery, the following must be observed: keep sparks, open flame, cigarettes, or any other flame away. Always wear safety glasses. Protect skin and clothing when handling a battery. When servicing a battery in an enclosed space, keep the area well-ventilated.

2. Inspect the battery for any signs of electrolyte leaks, loose terminals, or bulging sides. Leaking or bulging battery cases may indicate a frozen or shorted battery.

⚠ WARNING

If any of these conditions exist, DO NOT attempt to jump-start, boost, or charge the battery. An explosion could occur causing serious injury.

3. Inspect the vehicle to be used for jump-starting to determine if voltage and ground polarity are compatible. The vehicle must have a 12-volt DC, negative ground electrical system.

CAUTION

Always make sure the electrical systems are of the same voltage and ground polarity prior to connecting jumper cables. If not, severe electrical damage may occur.

4. Move the vehicle to be used for the jump-start close enough to ensure the jumper cables easily reach; then set and lock the brakes, shut off all electrical accessories, and turn the ignition switch OFF.

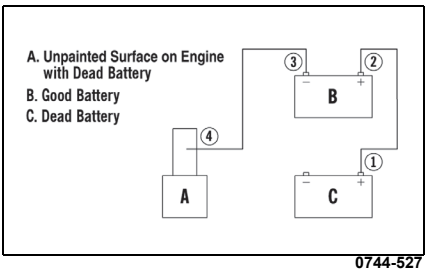
■ NOTE: Make sure all switches on the snowmobile to be jump-started are turned OFF.

5. Disconnect all external accessories such as cell phones, GPS units, and radios on both vehicles.

CAUTION

Failure to disconnect electronic accessories during jump-starting may cause system damage due to power spikes.

6. Attach one clamp of the positive (red) cable to the positive (+) terminal (1) of the dead battery (C) being careful not to touch any metal with the other clamp; then attach the other clamp of the positive (red) cable to the positive (+) terminal (2) of the good battery (B).



0744-527

■ NOTE: Some jumper cables may be the same color but the clamps or ends will be color-coded red and black.

7. Attach one clamp of the negative jumper cable (black) to the negative (-) terminal (3) of good battery (B); then attach the other clamp of the negative (black) jumper cable (4) to an unpainted metal surface (A) on the engine well away from the dead battery and fuel system components.

⚠ WARNING

Never make the final connection to a battery as a spark could ignite hydrogen gases causing an explosion of the battery resulting in acid burns or blindness.

8. Stand well away from the dead battery and start the vehicle with the good battery. Allow the vehicle to run for several minutes applying some charge to the dead battery.
9. Start the snowmobile with the dead battery and allow it to run for several minutes before disconnecting the jumper cables.
10. Remove the jumper cables in opposite order of hook-up (4, 3, 2, 1). Be careful not to short cables against bare metal.

■ NOTE: Have the battery and electrical system checked prior to operating the snowmobile again.

Drive Clutch and Driven Clutch

The drive clutch and driven clutch do not require lubrication; therefore, no special maintenance is required by the snowmobile owner except for periodic cleaning.

When operating the snowmobile at high altitudes, it may be necessary to change certain component parts of the drive clutch and/or the driven clutch. See an authorized Arctic Cat Snowmobile dealer for further information.

CAUTION

DO NOT attempt to service the drive clutch and driven clutch. The drive clutch and driven clutch must be serviced by an authorized Arctic Cat Snowmobile dealer only.

Drive Clutch/Driven Clutch Alignment

The offset between the drive clutch and driven clutch are set at the factory. Normally, no adjustment is necessary as long as neither the drive clutch nor the driven clutch is removed or disassembled. However, if premature drive belt wear is experienced or if the drive belt turns over, the drive clutch/driven clutch alignment must be checked. Take the snowmobile to an authorized Arctic Cat Snowmobile dealer for this service. If not under warranty, this service is at the discretion and expense of the snowmobile owner.

Fuel Pump

The fuel pump is designed to provide adequate amount of gas to the injectors at all throttle settings. If a fuel delivery problem is suspected, take the snowmobile to an authorized Arctic Cat Snowmobile dealer. If not under warranty, this service is at the discretion and expense of the snowmobile owner.

Standard-Lug Track

Accelerated wear strip wear caused by operating on ice or hard-packed snow conditions is NOT covered under Arctic Cat Inc. warranty policy.

Track Studs

■ NOTE: Stud or hooker plate installation will void track and tunnel warranty.

■ NOTE: Arctic Cat does not recommend studding a track greater than a 1.6-in (40.6 mm) lug.

■ NOTE: Stud installation can be performed by the snowmobile owner if qualified to do so. If the owner does not feel qualified, take the snowmobile to an authorized Arctic Cat Snowmobile dealer for this service. This service is at the discretion and expense of the snowmobile owner.

⚠ WARNING

When installing studs on a single-ply track, it is important to use Arctic Cat-approved studs (proper head diameter). If approved studs (proper head diameter) are not used, studs could tear free of the track causing possible injury or even death. Consult an authorized Arctic Cat Snowmobile dealer for information.

For proper installation, use the following procedure:

1. Using an appropriate stud template, mark the desired stud pattern to be used.
2. Using the proper-sized stud hole drill bit, drill out the stud holes.
3. Push the stud through the hole from inside the track; then place the domed support plate and lock nut on the exposed stud.
4. Using a wrench to secure the stud, tighten the lock nut on the exposed stud.

It is also recommended that whenever studs are installed on a track, carbide wear bars should be installed on the skis. Carbide wear bars complement the track studs to balance steering control under these conditions. The length of the carbide on the wear bars should be proportionate to the number of track studs (i.e. small number of track studs = short length of carbide and many track studs = long length of carbide). The proper proportion between the number of studs and carbide length on the wear bar will maintain steering balance.

⚠ WARNING

Never rotate a damaged track under power and never perform track measurements, adjustments, and/or maintenance with the engine running.

⚠ WARNING

Always balance the snowmobile with the proper proportion between the number of studs and carbide length on the wear bars. Do not "over drive" conditions; use common sense in all operating conditions.

CAUTION

Do not use studs that are more than 9.525 mm (0.375 in) longer than the track lug height.

⚠ WARNING

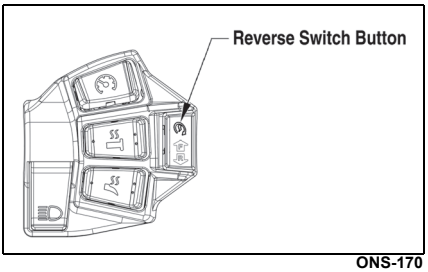
Do not operate a snowmobile with loose studs as they may be thrown from the track. Always use a shielded safety stand whenever performing any maintenance or adjustments.

⚠ WARNING

DO NOT stand behind the snowmobile or near the rotating track. NEVER run the track at high speed when the track is suspended.

Reverse Operation

The reverse function offers the operator the convenience of being able to back up the snowmobile rather than having to turn the snowmobile around by hand. This feature, under most situations, should not be used to free a stuck snowmobile as it will tend to dig the skis deeper into the snow. Always use minimal speed when operating in reverse.



ONS-170

■ NOTE: Correct drive belt tension (deflection) is important for the reverse function to operate properly. If the belt is too tight, difficulty in engaging reverse will be experienced. (The reverse function will make up to three attempts to engage into reverse. If the function is not completed after the third attempt, the engine will shut down.)

■ NOTE: Always warm up the engine for 2-3 minutes prior to shifting into reverse.

1. To shift into reverse, stop the snowmobile and allow the engine to idle (under 3000 RPM); then press the reverse button and release. The reverse selection will be complete.

■ NOTE: Shift only with the engine at idle RPM and the snowmobile completely stopped. The reverse function will not engage if engine is above idle RPM.

■ NOTE: The system will not shift until the button is released.

■ **NOTE: When reverse is engaged, a reverse icon will illuminate in the speedometer/tachometer and a reverse alarm sounds.**

2. If the throttle lever is compressed before complete reverse engagement, the engine may shut down. Always wait for the reverse icon to illuminate and the reverse alarm to sound before backing up.

⚠ WARNING

Do not use high speed when backing up. Control could be lost and injury could occur.

CAUTION

Do not use high speed when backing up. Damage to the drive belt and driven clutch components may occur.

■ **NOTE: While operating in reverse, a "rev-limiter" will activate at 6000 RPM.**

3. To shift into forward, stop the snowmobile and allow the engine to idle (under 3000 RPM); then press the reverse button and release. The forward selection will be complete.

4. After shifting from reverse to forward (or from forward to reverse), apply the throttle slowly and evenly to allow the driven clutch to engage properly.

■ **NOTE: The reverse function is canceled whenever the engine is shut off.**

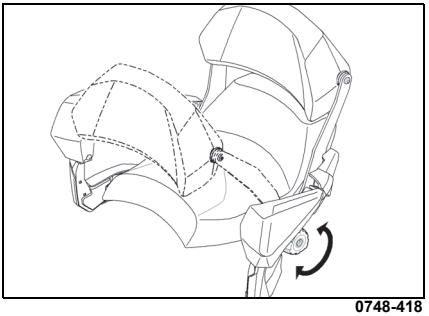
CAUTION

After reversing in deep powder snow conditions, make sure the snowflap does not become "caught up" in the track. Track and/or snowflap damage may occur.

Adjustable Backrest (Pantera)

The backrest is designed for maximum comfort and safety. When riding double, the backrest must be in the passenger seat position.

To change the position of the backrest, loosen the two adjuster knobs on either side of the seat and push the backrest forward or backward. Tighten both adjuster knobs.



0748-418

When riding single, the backrest can be moved to the forward seat position.

⚠ WARNING

Moving the backrest to the forward seat position limits the seating capacity to one person only.

Removable Seat

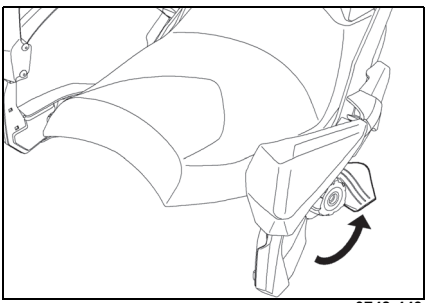
Pantera

■ **NOTE: If additional cargo is being added, maximum weight on the snowmobile (operator/passenger/cargo) should not exceed the maximum limitation set for each snowmobile. See the chart in the Suspension — Overload Springs sub-section in the Maintenance section for details. Also, the overload springs should be engaged.**

⚠ WARNING

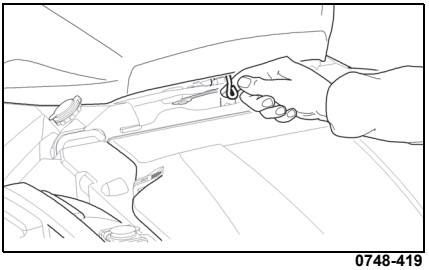
Make sure the rear seat is securely locked in place before carrying a passenger or personal injury may result.

To remove the rear seat, lift up both seat latches and hold them in that position; then lift and remove the seat. Make sure to disconnect the accessory harness.



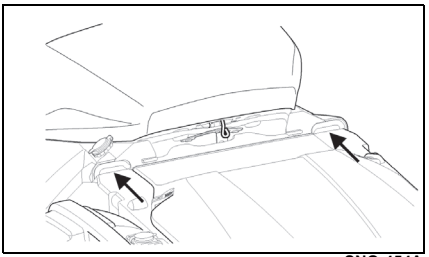
0748-449

Release the lever securing the front seat assembly; then lift up and remove the front seat. Make sure to disconnect the seat heater harness.



0748-419

To install the rear seat base, position the front of the seat base tabs under the loops in the seat frame; then press down and secure using the two seat latches.

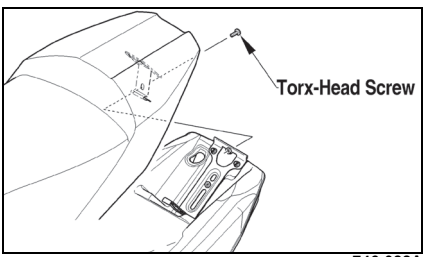


SNO-454A

■ NOTE: On certain models, be sure to connect the accessory harness.

ZR/Thundercat

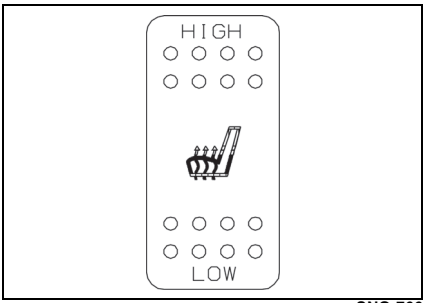
These snowmobiles are equipped with a removable seat. To remove the seat, remove the screw from the underside of the seat; then lift on the back of the seat and move it up and rearward to remove it.



746-088A

Heated Seat (if equipped)

Some models are equipped with a heated seat. Models with this option can be adjusted with a HIGH and LOW switch which will be located near the gas tank cap.



SNO-766

⚠ WARNING

People who are unable to feel pain to the skin because of advanced age, chronic illness, diabetes, spinal cord injury, medication, alcohol use, exhaustion, or other physical conditions, must exercise care when using the seat heater. The seat heater may cause burns even at low temperatures, especially if used for long periods of time. Do not place anything on the seat that insulates against heat, such as a blanket or cushion, because this may cause the seat heater to overheat. Do not puncture the seat with pins, needles, or other pointed objects because this may damage the heating element which may cause the seat heater to overheat. An overheated seat may cause serious personal injury.

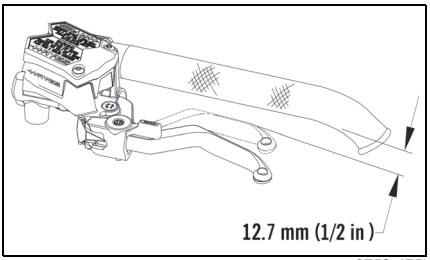
Towing

If the snowmobile is to be towed by another snowmobile, do not tow using the loops in the skis. The tow rope should be attached to the lower A-arms.

Pre-Start

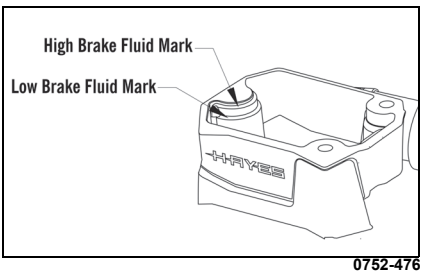
It is imperative that the brake system be checked for wear and proper operation and that all safety checks found in the accompanying Snowmobile Safety Handbook be performed before attempting to start the engine. After the engine has been started, check the headlights (high and low beam), taillight, and brake light to be sure they are working properly and adjusted correctly. Make sure all lights are clean to provide maximum illumination. The headlight and taillight must be clean and must be illuminated whenever the engine is running.

1. Test the operation of the brake system by compressing the brake lever. The brake lever must feel firm when compressed; then while holding the brake lever in the compressed position, measure the distance between the brake lever and the handlebar. The distance must be greater than 12.7 mm (1/2 in).



0752-475

2. With the brake fluid reservoir in a level position and the cover removed, check the fluid level. The brake fluid level must be at the high brake fluid mark in the reservoir.



0752-476

3. If the brake fluid is below the high brake fluid mark, add Arctic Cat-approved DOT 4 brake fluid until the fluid is at the recommended level. Install and secure the reservoir cover. Do not allow moisture to contaminate the brake system.

CAUTION

Brake fluid is highly corrosive. Do not spill brake fluid on any surface of the snowmobile.

⚠ WARNING

Do not overfill the brake fluid reservoir. Overfilling the reservoir may cause the brake system to hydraulically lock. Use only Arctic Cat-approved brake fluid.

⚠ WARNING

Do not start the engine if the brake system is not functioning properly. Service the brake system or have it properly repaired prior to operating the snowmobile. Serious personal injury or even death may occur if the brake system is not operating properly.

4. Test the throttle control lever by completely compressing and releasing it several times. The lever MUST return to the idle position quickly and completely.

CAUTION

Always check the coolant level before starting the engine.

5. Make sure the battery is fully charged to ensure the engine is turning over at a sufficient RPM to start.

■ NOTE: Even though the engine turns over, the engine may not have sufficient RPM to start.

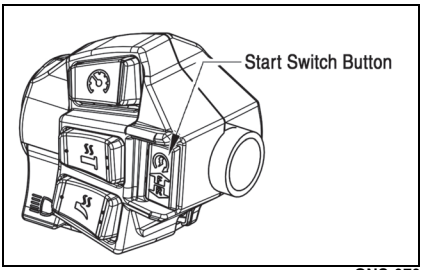
6. Check the spark plugs and replace as necessary. Short engine run times cause carbon buildup on spark plugs.
7. Ensure the gas tank is full of fresh gas whenever the snowmobile is removed from storage.
8. Ensure drive belt tension and deflection are correct to reduce starter drag.

Starting and Stopping Engine

1. Move the emergency stop switch to the UP or RUN position.
2. Attach the tether cord to your jacket or bibs and keep it free from the handlebars so that the engine stops if you, the operator, separate from the snowmobile. After riding, remove the tether cord from the snowmobile to avoid accidental starting or unauthorized use.
3. Insert key into ignition switch; then rotate key to the RUN position.

■ NOTE: When a cold engine is being started, DO NOT COMPRESS THE THROTTLE CONTROL LEVER. If the throttle control lever is compressed, the engine will not start because the fuel/air mixture will be too lean.

4. On 7000 models, rotate the key to the START position; then when the engine starts, release the key.
5. On 9000 models, press the start switch button located on the left-side handlebar control; then when the engine starts, release the button.



ONS-070

CAUTION

Do not continuously run the starter for more than 5 seconds at a time.

6. A "cold drive-away" function is incorporated within the engine. This function is active until the engine reaches operating temperature.

CAUTION

It is extremely important that the engine be properly warmed up before subjecting the engine to high speed operation or heavy loads. The engine should be allowed to idle at least 3-4 minutes before being operated at more than 1/2 throttle. In extremely cold conditions, the warm-up time will be longer. Cold seizure and piston scuffing caused by insufficient warm-up will not be covered by warranty. Also, do not idle the engine for excessively long periods of time.

7. Flooding — If the engine does not start but seems ready to start, engage the brake lever lock; then compress the throttle control lever fully and try to start the engine. When the engine starts, release the throttle control lever immediately. After the warm-up, release the brake lever lock.

■ NOTE: Spark plugs can be changed by the snowmobile owner if qualified to do so. If the owner does not feel qualified, take the snowmobile to an authorized Arctic Cat Snowmobile dealer for inspection and service. This service is at the discretion and expense of the snowmobile owner.

8. To shut off the engine, turn the ignition key to the OFF position or push the emergency stop switch to the DOWN position.

CAUTION

Always turn the ignition switch key to the OFF position when the snowmobile is not being used. Leaving the ignition switch in the ON position will result in discharging the battery and possible damage to the battery.

■ NOTE: When the engine is turned off, wait for the gauge to completely power down before attempting to start the engine.

Braking

The following items are items that the operator must be familiar with when operating this snowmobile and its hydraulic brake system. Important additional information on the proper maintenance of the brake system is found in the Maintenance section.

1. Use the brakes wisely. Each time the brakes are applied in all hydraulic brake systems (including automotive applications), heat is transferred to the brake fluid. The amount of heat transferred during high speed stops and/or repetitive use may be high enough to boil the brake fluid and cause the brakes to either fade or may cause an unexpected loss of brakes.

   If this occurs, the brake fluid requires a cool-down period before the brakes will again function properly. This cool-down period will vary depending upon the ambient air temperature and the temperature of the brake fluid. If loss of brakes has occurred because of high fluid temperatures, do not operate the snowmobile until the cool-down period has expired and brake lever firmness has returned.

⚠ WARNING

Excessive, repetitive use of the hydraulic brake for high speed stops will cause overheating of the brake fluid and premature brake pad wear which will result in an unexpected loss of brakes.

2. Be sure to maintain the brake fluid at the proper level and take care not to get any moisture in the system as moisture in the brake fluid lowers the boiling point. If the brake fluid is ever boiled (by high speed stops or repetitive use) or if moisture is allowed to enter the system, it must be changed. Never substitute or mix different types or grades of brake fluid.

⚠ WARNING

Use only Arctic Cat-approved DOT 4 brake fluid. Never substitute or mix different types or grades of brake fluid. Brake loss can result. Check brake fluid level and pad wear before each use. Brake loss can result in severe injury or even death.

3. Never ride the brake. Even maintaining minimal pressure on the brake lever will cause the brake pads to drag on the disc and may overheat the brake fluid.

4. The brake lever lock is not a parking brake and should not be applied for periods exceeding 5 minutes. NEVER OPERATE THE SNOWMOBILE WITH THE BRAKE LEVER LOCK ENGAGED.

⚠ WARNING

The brake lever lock is not a parking brake and should not be applied for periods exceeding 5 minutes. The brake lever lock maintains the brake lever in the compressed position and maintains pressure against the brake disc; however, after a period of time, the pressure applied to the brake disc may relax below the amount required to hold the snowmobile stationary.

5. Pumping the brake lever is permissible; however, if pumping the brake lever more than twice is necessary to obtain the necessary stopping power, immediately take the snowmobile to an authorized Arctic Cat Snowmobile dealer for service. If not under warranty, this service is at the discretion and expense of the snowmobile owner.

6. When new brake pads are installed, a “burnishing” process is required. Drive the snowmobile slowly and compress the brake lever several times until the pads just start to heat up; then allow them to thoroughly cool down. This process stabilizes the pad material and extends the life of the pads.

Emergency Stopping

There are several methods of stopping or slowing the snowmobile under a variety of situations. Identified in the following chart are the ways a snowmobile may be brought to a stop and the effectiveness under normal conditions.

Item	Function
Emergency Stop Switch	interrupts ignition circuit
Throttle/Ignition Monitor Switch	interrupts ignition circuit
Ignition Switch	interrupts ignition circuit
Brake	slows the drive system
Tether	interrupts ignition circuit

Throttle/Ignition Monitor Switch

The throttle control is equipped with a monitor switch for safety purposes which will stop the engine when a loss of return spring force occurs. If ice forms in the throttle system or if there is some other malfunction of the throttle system resulting in a loss of return spring force, the monitor switch will stop the engine when the throttle control lever is released.

⚠ WARNING

If any malfunction of the throttle system occurs (such as freezing in fluffy snow) and the monitor switch does not shut off the engine, press down on the emergency stop switch IMMEDIATELY to stop the engine. DO NOT start the engine until the malfunction in the throttle system has been located and corrected.

If the snowmobile engine stops abruptly when the throttle control lever is released and the activation of the monitor switch is suspected, use the following procedure:

1. Rotate the ignition key to the OFF position.
2. Remove ice and snow from the throttle system and wait 5-10 minutes for the engine heat to thaw ice from the throttle system.
3. Test the throttle control lever by compressing and releasing it several times. The lever MUST return to the idle position quickly and completely.

■ NOTE: If the throttle control lever operates properly and the engine does not start, compress the throttle lever slightly (approximately 1/8 throttle) and try starting the engine. If the engine now starts and stops when the throttle lever is released, take the snowmobile to an authorized Arctic Cat Snowmobile dealer for service. If not under warranty, this service is at the discretion and expense of the snowmobile owner.

⚠ WARNING

If the throttle control lever does not work properly, DO NOT ATTEMPT TO START THE ENGINE.

4. If the throttle control lever operates properly, rotate the ignition key to the RUN position and go through normal starting procedures.

■ NOTE: If the throttle control lever operates properly and the engine does not start, a malfunctioning monitor switch may be the problem. Take the snowmobile to an authorized Arctic Cat Snowmobile dealer for service. If not under warranty, this service is at the discretion and expense of the snowmobile owner. However, if a dire emergency exists wherein the engine must be started, disconnect the throttle monitor switch located in the right-side handlebar control.

■ NOTE: If disconnection of the throttle monitor switch is needed to start the engine, take the snowmobile to an authorized Arctic Cat Snowmobile dealer for service as soon as possible. If not under warranty, this service is at the discretion and expense of the snowmobile owner.

⚠ WARNING

Under no circumstances should disconnection of the throttle control wiring harness be used as a substitute for the monitor switch during normal operation of the snowmobile. Personal injury and damage could occur if the throttle system malfunctions or if the operator is unable to stop the engine in an emergency. If the snowmobile must be operated with a disconnected throttle control wiring harness, EXTREME CAUTION MUST BE TAKEN. NEVER EXCEED 10 MPH (16 KM/H) WITH THE THROTTLE CONTROL WIRING HARNESS DISCONNECTED.

■ **NOTE: The monitor switch is now bypassed. All other ignition/electrical features (ignition switch, tether, emergency stop switch, headlight, taillight, and brake light) will operate properly.**

Varying Altitude Operation

Operating a snowmobile at varying altitudes requires changes in performance components. These changes affect drivetrain components.

For altitude information, see the appropriate specifications sheet.

■ **NOTE: Just as important as calibrating the snowmobile for higher altitudes is recalibrating the snowmobile when going to lower altitudes. Always consult the altitude decal.**

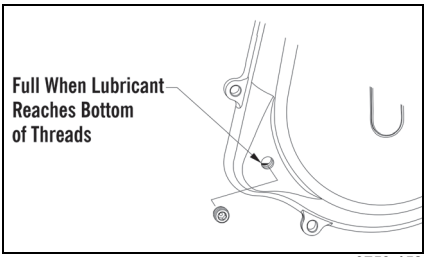
■ **NOTE: Drivetrain changes can be made by the snowmobile owner if qualified to do so. If the owner does not feel qualified, take the snowmobile to an authorized Arctic Cat Snowmobile dealer for this service. This service is at the discretion and expense of the snowmobile owner.**

Lubrication

Chain Case

■ NOTE: The snowmobile must be on a level surface for this procedure.

1. Remove the level plug from the chain case cover; the lubricant should be level with the bottom threads of the level plug hole. If the lube is level is correct, install the level plug. Tighten to 60 in-lb (6.8 N-m).



0753-158

■ NOTE: Adding lubricant can be done by the snowmobile owner if qualified to do so. If the owner does not feel qualified, take the snowmobile to an authorized Arctic Cat Snowmobile dealer for this service. This service is at the discretion and expense of the snowmobile owner.

2. If the lubricant level is low, add Synthetic Chain Lube through the level plug opening. When the lubricant is level with the bottom of the level plug threads, install the level plug. Tighten to 60 in-lb (7 N-m).

■ NOTE: If excessive build-up of moisture or discolored oil is detected in the chain case, it may be necessary to replace the lube.

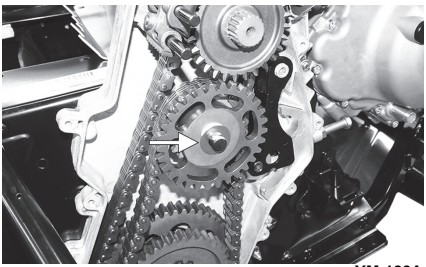
Replacing Lubricant

■ NOTE: Replacing the lubricant can be done by the snowmobile owner if qualified to do so. If the owner does not feel qualified, take the snowmobile to an authorized Arctic Cat Snowmobile dealer for this service. This service is at the discretion and expense of the snowmobile owner.

1. Place the snowmobile on a level surface. Remove both access panels and the hood; then remove the exhaust resonator.
2. Remove the three screws securing the shift actuator to the chain case; then disconnect the actuator wiring harness and remove the actuator, extension, detent, and spring.
3. Place a drain pain under the chain case; then loosen the screws securing the chain case cover/oil tank assembly to the chain case housing starting with the bottom screws first.

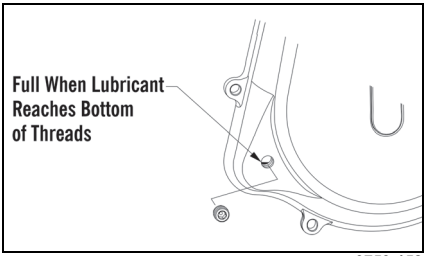
■ NOTE: Do not remove all screws completely until the chain lube has been completely removed. This will help keep debris/oil out of the screw holes.

4. Remove all screws; then swing the chain case out of the way. Account for a thrust washer on the countershaft.



YM-128A

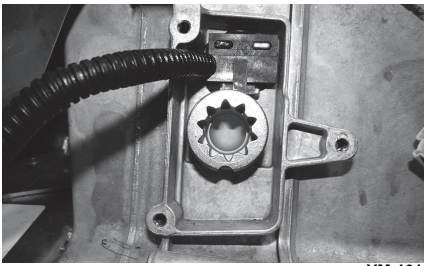
5. Inspect all chain case components along with the cover seal for nicks or damage.
6. Wipe clean the chain case cover and housing free of old oil; then install the cover and secure using the existing screws. Tighten to 108 in-lb (12 N-m).
7. Fill the chain case with 355 mL (12 oz) of Synthetic Chain Lube through the shift actuator opening until lubricant is level with the bottom of the level plug threads. Install the level plug. Tighten to 60 in-lb (7 N-m).



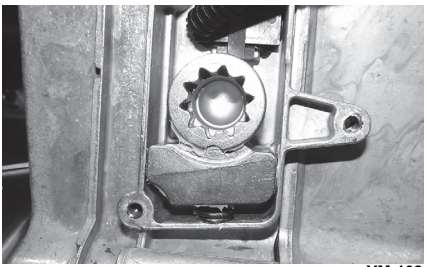
0753-158

■ NOTE: Be sure to add a small amount of white lithium grease to the O-rings of the actuator extension and the shift actuator detent block before installing.

8. Install the actuator extension and gently rotate counterclockwise to make sure the shift fork is in the forward position. When the shift fork is in the forward position, make sure the notch in the extension is directed downward.

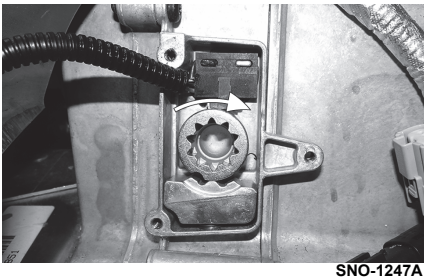

YM-101

9. Install spring into the bottom of shift actuator detent block and install into the chain case cover. The notch in the extension should be lined up with the notch in the block.


YM-102

■ NOTE: To verify everything is installed correctly, turn the extension counterclockwise. The notch in the extension should not rotate out of the detent block.

10. Rotate the extension clockwise approximately 20° making sure not to pull out the extension when rotating. This is only to aid in the installation of the actuator.


SNO-1247A

11. Install the actuator and secure using the existing three Torx screws. Tighten to 36 in-lb (4 N-m).
12. Connect the harness to the gear position sensor; then secure the connector to the main harness using a cable tie.
13. Install the resonator and secure using existing hardware.
14. Install the lower console; then install the seat, hood, and both access panels.
15. Start the engine; then shift the snowmobile into and out of reverse three times.

Rear Suspension

This procedure should be done every 40 operating hours.

■ NOTE: Arctic Cat recommends that Arctic Cat Low-Temp Grease (p/n 7639-517) be used for this procedure.

1. Lubricate all grease fittings with low-temperature grease.

Periodic Maintenance Checklist			
Item	Interval	Page	Remarks
Battery	Daily	16, 35	Check for proper charge and tight connections
Brake System	Daily	38	Check for binding, leakage, and proper operation; lever firmness, travel, caliper, disc, and pads
Chain Case	Daily	27	Check lube level and for leakage
Cooling System — Liquid	Daily	16, 34	Check for leakage, damage, obstructions, coolant level
Drive Belt	Daily/ Monthly	42	Check for wear, cracks, and fraying Check length and width dimensions
Headlight & Taillight/Brake Light	Daily	49	Check for proper operation and cleanliness
Hoses	Daily	—	Check for damage, leakage, and wear
Oil System	Daily	—	Check for leakage, damage, and injection/engine oil level
Ski Wear Bars	Daily	50	Check for wear and damage
Steering System	Daily	—	Check for proper operation, tightness of bolts, and binding
Stop Switch	Daily	—	Check for proper operation
Throttle Control System	Daily	25	Check for binding, sticking, proper operation, throttle cable tension, and wear
Electrical Wiring	Weekly	—	Check for wear, damage, and tight connections
Exhaust System	Weekly	16	Check for damage, leakage, and obstructions
Fuel System — Tank, Pump, & Vent Hose	Weekly	—	Check for damage, wear, obstructions, and leakage
Nuts, Bolts, Fasteners	Weekly	—	Check tightness
Recoil Starter	Weekly	—	Check rope for wear, fraying, and proper operation
Shock Absorbers	Weekly	45	Check for fluid leakage and damage
Suspension	Weekly	45	Check for damage, loose components, and proper adjustment
Track Tension/Alignment	Weekly	43, 44	Check/adjust as necessary
Wear Strips	Weekly	51	Check for wear and damage
Wires & Cables	Weekly	—	Check for wear, damage, and fraying
Drive Clutch/Driven Clutch	Monthly	18	Check for damage, binding, and wear; Remove drive belt, clean drive clutch/driven clutch with compressed air, and clean sheaves with suitable parts-cleaning solvent
Heat Exchangers	Monthly	—	Check for wear, leakage, and damage
Rear Suspension	Monthly	28	Grease
Chain Case — Lubricant	Seasonal	27	Replace
Air Filter (9000)	2500 mi (4000 km) Seasonal	34	Check/clean (more frequently in heavy snow dust or deep powder conditions). Change if necessary.
Engine Oil	2500 mi (4000 km) Seasonal	32	Change oil and filter
Spark Plugs	3500 mi (5600 km)	35	Check center electrode insulator color, carbon, and gap
Valve Clearance	5000 mi (8000 km)	35	Check/adjust

California Proposition 65

⚠ WARNING

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

The longevity and safety of the snowmobile can be increased by making periodic checks of the items in the preceding checklist.

If, at any time, abnormal noises, vibrations, or improper working conditions of any component of this snowmobile are detected, DO NOT OPERATE THE SNOWMOBILE. Take the snowmobile to an authorized Arctic Cat Snowmobile dealer for inspection and adjustment or repair. If not under warranty, this service is at the discretion and expense of the snowmobile owner.

The snowmobile should be taken to an authorized Arctic Cat Snowmobile dealer at the end of each snowmobiling season for general inspection and for off-season storage servicing. This inspection and servicing is at the expense of the snowmobile owner.

Fuel System

⚠ WARNING

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

Gasoline Additives

Fuel de-icer can be used for all models. Arctic Cat Fuel Treatment (p/n 2436-868) should also be added to the last tank of gasoline before storage.

Fuel Pickup Valves

These models are equipped with fuel pickup valves in the gas tank. If ever there is a restricted fuel flow and a pickup valve is suspected, take the snowmobile to an authorized Arctic Cat Snowmobile dealer for this service. If not under warranty, this service is at the discretion and expense of the snowmobile owner.

Checking Engine Oil Level

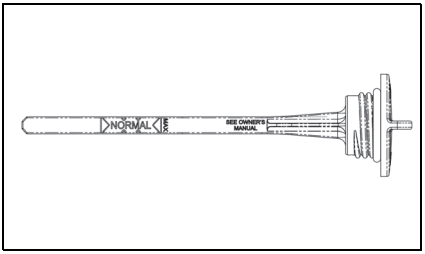
7000

■ NOTE: The snowmobile must be on a level surface for this procedure.

CAUTION

If the engine and oil are not at operating temperature the oil will not read correctly on the oil level stick.

1. Start the engine and let it idle and warm up until the fan on the radiator turns on.
2. Shut the engine off; then allow the engine to cool. Remove the oil level stick from the oil tank and verify it is within the “NORMAL” range on the stick.



SNO-482

3. If steps 1 and 2 were followed and the oil level is not within the “NORMAL” range, add the recommended engine oil.

■ NOTE: Care must be taken not to over-fill the oil tank.

4. Install the oil level stick.

9000

■ NOTE: The snowmobile must be on a level surface for this procedure.

CAUTION

If the engine and oil are not at operating temperature the oil will not read correctly in the oil level tube.

1. Start the engine and let it idle and warm up until the engine reaches operating temperature.

2. Shut the engine off. Remove the right-side access panel; then look at the oil level tube on the backside of the oil tank. The oil should be above the MIN line and below the MAX line.

XM451

3. If steps 1 and 2 were followed and the oil level is not within the "MAX to MIN" range, remove the oil fill plug and add the recommended engine oil through the oil tank fill hole.

■ NOTE: Care must be taken not to over-fill the oil tank.

4. Install the oil fill plug.

Changing Engine Oil 7000

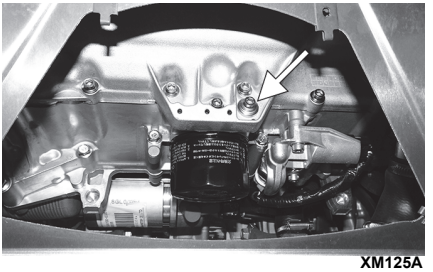
⚠ WARNING

Engine oil is extremely hot immediately after the engine is turned off. Burning could occur if oil contacts skin or clothing.

■ NOTE: Recycle or properly dispose of the used engine oil.

■ NOTE: The access panels and hood must be removed for this procedure.

1. Park the snowmobile on a level surface; then start the engine and let it idle and warm up until the fan on the radiator turns on.
2. Remove the Torx-head screws and the rear access plate from beneath the snowmobile.
3. Place a drain pan beneath the engine oil drain screw; then remove the screw and allow the oil to drain completely.

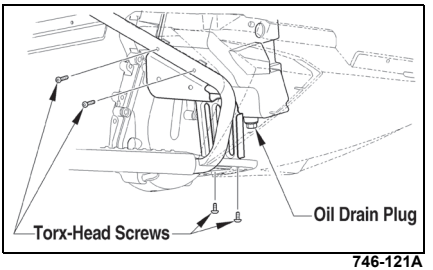


XM125A

4. Using Oil Filter Wrench, loosen (but do not remove) the oil filter and allow the oil to drain from the filter into the drain pan; then remove the filter.

■ NOTE: Ensure the O-ring is removed with the oil filter. If the O-ring remains attached to the crankcase, oil leakage may occur.

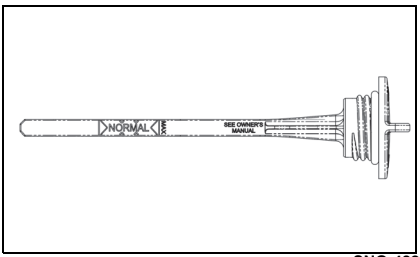
5. Apply a light coat of fresh engine oil to the seal of the new oil filter.
6. Install the new oil filter by turning the oil filter by hand until the seal has contacted the oil filter mounting surface; then tighten the oil filter to 12 ft-lb (16 N-m).
7. Install the engine oil drain screw with a new gasket. Tighten the screw to 86 in.-lb (10 N-m).
8. Install the rear access plate. Tighten the screws to 108 in.-lb (12 N-m).
9. Remove the four Torx-head screws securing the right-side footrest to the tunnel and the support; then with a drain pan in position, remove the drain plug from the oil tank.



746-121A

■ NOTE: To aid in draining the oil from the tank, position a funnel between the tank and the opening of the tunnel running board.

10. After the oil has drained completely, install the drain plug with a new O-ring and tighten to 16 ft-lb (22 N-m).
11. Install the four screws securing the right-side footrest. Tighten the screws to 44 in.-lb (5 N-m).
12. Pour 2.8 L (3 US quarts) of engine oil into the oil tank.
13. Insert the oil tank stick; then start the engine and let it idle. The oil pressure light may illuminate briefly after starting but should go out within 10 seconds. If the light does not go out within 10 seconds, the engine will automatically shut down. If a shutdown occurs check that there are no leaks and check that the proper amount of oil was added to the oil tank. Then start the engine again. If the engine shuts down automatically, the key will have to be turned off for 5 seconds before the engine can be restarted. If the light does not stay off after starting the engine a second time, take the snowmobile to an authorized Arctic Cat Snowmobile dealer for service.
14. Shut the engine off; then remove the oil level stick from the oil tank and wipe clean. Screw in the oil level stick; then remove and verify the oil level is within the "NORMAL" range on the stick.



SNO-482

■ NOTE: If step 14 was followed and the oil level is not within the "NORMAL" range, add the recommended engine oil.

■ NOTE: Care must be taken not to over-fill the oil tank.

15. Install the oil level stick; then install the hood and access panels.

9000

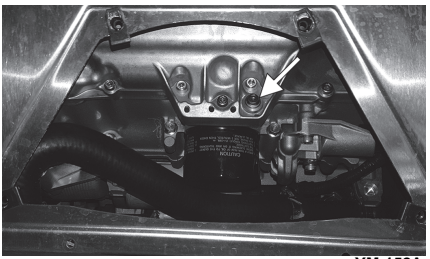
⚠ WARNING

Engine oil is extremely hot immediately after the engine is turned off. Burning could occur if oil contacts skin or clothing.

■ NOTE: Recycle or properly dispose of the used engine oil.

■ NOTE: The access panels and hood must be removed for this procedure.

1. Start the engine and let it idle and warm up until the engine reaches operating temperature, or if the snowmobile was operated, allow the engine to idle for approximately 30 seconds.
2. Shut the engine off. Remove the access panels and the hood.
3. Remove the Torx-head screws and the rear access plate from beneath the snowmobile.
4. Place a drain pan beneath the engine oil drain screw; then remove the screw and allow the oil to drain completely.


YM-152A

5. Using Oil Filter Wrench, loosen (but do not remove) the oil filter and allow the oil to drain from the filter into the drain pan; then remove the filter.

■ NOTE: Ensure the O-ring is removed with the oil filter. If the O-ring remains attached to the crankcase, oil leakage may occur.

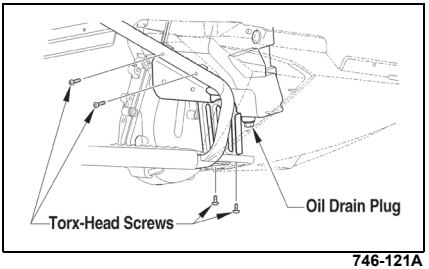
6. Apply a light coat of fresh engine oil to the seal of the new oil filter.

7. Install the new oil filter by turning the oil filter by hand until the seal has contacted the oil filter mounting surface; then tighten the oil filter to 12 ft-lb (16 N-m).

8. Install the engine oil drain screw with a new gasket. Tighten the screw to 86 in.-lb (10 N-m).

9. Install the rear access plate. Tighten the screws to 108 in.-lb (12 N-m).

10. Remove the four Torx-head screws securing the right-side footrest to the tunnel and the support; then with a drain pan in position, remove the drain plug from the oil tank.



746-121A

■ **NOTE: To aid in draining the oil from the tank, position a funnel between the tank and the opening of the tunnel running board.**

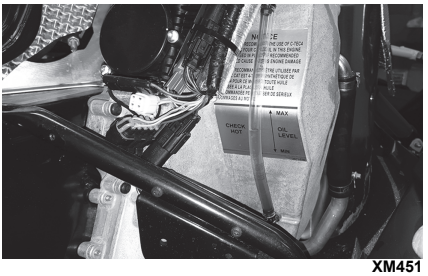
11. After the oil has drained completely, install the drain plug with a new O-ring and tighten to 16 ft-lb (22 N-m).

12. Install the four screws securing the right-side footrest. Tighten the screws to 44 in-lb (5 N-m).

13. Pour 2.8 L (3 US quarts) of engine oil in through oil tank fill hole.

14. Install the oil tank fill plug; then start the engine and let it idle. The oil pressure indicator may illuminate on the gauge briefly after starting the engine but should go out within 10 seconds. If the light does not go out within 10 seconds, the engine will automatically shut down. If a shut-down occurs, check for leaks and check that the proper amount of oil was added to the oil tank before restarting the engine. Turn the key off for 5 seconds and restart the engine. If the light does not stay off after starting the engine a second time, take the snowmobile to an authorized Arctic Cat Snowmobile dealer for service.

15. Shut the engine off; then look at the oil level tube on the backside of the oil tank. The oil level should be above the MIN line but not above the MAX line.



XM451

16. If steps 13-15 were followed and the oil level is not within the MIN to MAX range, add the recommended engine oil through the oil tank fill hole.

■ **NOTE: Care must be taken not to over-fill the oil tank.**

17. Install the oil tank fill plug; then install the hood and access panels.

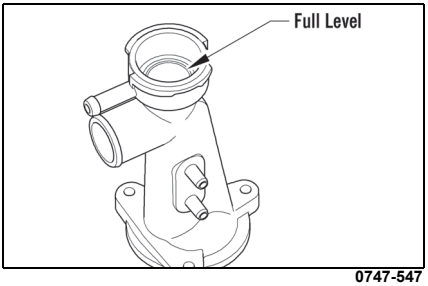
Coolant Level

■ NOTE: Use Arctic Cat Antifreeze – 60/40 Extended Life (p/n 2436-871).

CAUTION

After operating the snowmobile for the initial 5-10 minutes, stop the engine, allow the engine to cool down, and check the coolant level. Add coolant as necessary.

Locate the filler neck; then remove the coolant cap from the filler neck. Verify that the coolant level is at the bottom of the tab in the filler neck.



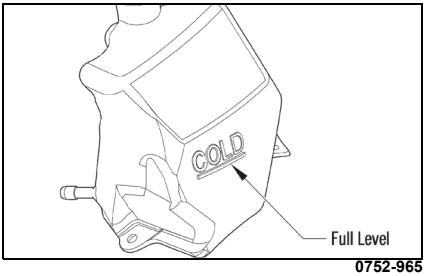
0747-547

■ NOTE: Under normal conditions checking only the overflow tank (located above the drive clutch) is acceptable. Only if this tank does not have coolant should the operator remove the hood and check the level at the filler neck.

CAUTION

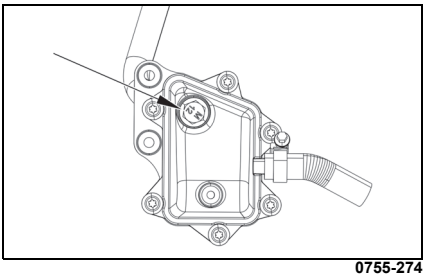
If the coolant is below the neck and if coolant has been added, immediately inspect for leakage and/or damage. If leakage or damage is detected, take the snowmobile to an authorized Arctic Cat Snowmobile dealer for service. If not under warranty, this service is at the discretion and expense of the snowmobile owner.

Locate the coolant tank above the driven clutch; then remove the plug from the coolant tank. Add coolant to the full level on the tank. Install the plug.



0752-965

On 9000 models, remove the plug in the vapor tank located above the exhaust. Once the plug is removed, verify the coolant is just below the threads. If coolant needs to be added, raise the left-side (clutch-side) ski up approximately 6 in (15.2 cm) and add coolant to the bottom of the threads. Install the plug.



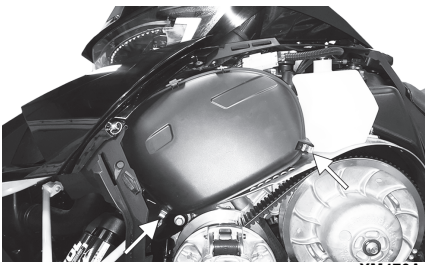
0755-274

Air Filter (9000)

The air filter inside the air filter housing must be clean to provide good engine power and gas mileage.

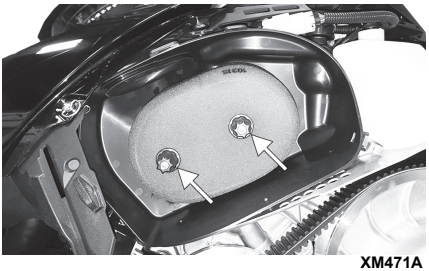
If operating the snowmobile in deep powder conditions, the air filter should be inspected for snow buildup.

1. Remove the left-side access panel; then remove the clips securing the air filter housing cover.



XM470A

2. Loosen the two knobs securing the air filter to the inside of the housing; then remove the filter.



XM471A

3. Install the filter and secure using the two knobs.
4. Install the air filter housing cover and secure with the clips.
5. Install the left-side access panel.

Spark Plugs

■ NOTE: Always use the recommended spark plugs in the engine. See the appropriate specifications sheet for correct spark plug gap.

CAUTION

If adjusting spark plug gap is necessary, do not use the center electrode as a leverage point. Damage to the plug may occur.

1. Disconnect the main harness from the ignition coils; then remove the ignition coils from the cylinder head cover.
2. Remove the three spark plugs.

■ NOTE: Prior to installing the spark plugs, check the gap between the electrode and ground strap. The clearance should be 0.7-0.8 mm (0.028-0.031 in).

3. Install new spark plugs. Tighten to 9.5 ft-lb (13 N-m).
4. Install the ignition coils onto the cylinder head cover making sure they are fully seated. Connect the main harness to the ignition coils.
5. Install the hood and access panels.

Valve Clearance

After 5000 miles (8000 km), valve clearance should be checked and adjusted as necessary.

■ NOTE: Take the snowmobile to an authorized Arctic Cat Snowmobile dealer for inspection and service. This service is at the discretion and expense of the snowmobile owner.

CAUTION

It is critical that the checking/adjusting valve clearance be done at the recommended intervals or severe engine damage may occur.

Battery

These sealed batteries after being in service require regular cleaning and recharging in order to deliver peak performance and maximum service life. The following procedures are recommended for cleaning and maintaining sealed batteries. Always read and follow instructions provided with battery chargers and battery products.

■ NOTE: Battery maintenance may be done by the snowmobile owner if qualified to do so. If the owner does not feel qualified, take the snowmobile to an authorized Arctic Cat Snowmobile dealer for this service. This service is at the discretion and expense of the snowmobile owner.

To remove and charge the battery, use the following procedure:

⚠ WARNING

Improper handling or connecting of a battery may result in severe injury including acid burns, electrical burns, or blindness as a result of an explosion. Always remove rings and watches. Any time service is performed on a battery, the following must be observed: keep sparks, open flame, cigarettes, or any other flame away. Always wear safety glasses. Protect skin and clothing when handling a battery. When servicing a battery in an enclosed space, keep the area well-ventilated.

⚠ WARNING

Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Wash hands after handling.

1. Remove the Torx-head screw from the rear underside of the seat; then remove the seat.

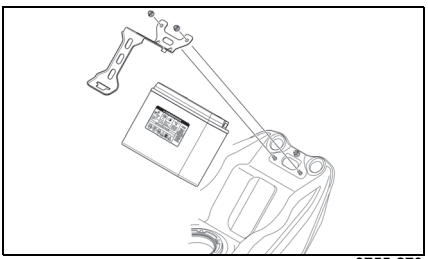
CAUTION

On models with a seat heater, make sure to disconnect the seat heater harness connector prior to removing the seat.

2. Remove the negative battery cable and ground wire; then remove the positive cable.

■ NOTE: For installing purposes prior to removing the battery, note the routing and securing locations of the cables and harness wires.

3. Remove the lock nuts securing the battery bracket/solenoid to the seat-base; then move the bracket up and out of the way and remove the battery.



0755-270

⚠ WARNING

Avoid spillage and contact with skin, eyes, and clothing.

CAUTION

Do not charge the battery while it is in the snowmobile with the battery terminals connected.

4. Thoroughly wash the battery with soap and water; then using a wire brush, clean the battery posts and cable ends removing all corrosive buildup. Replace damaged cables or cable ends.

■ NOTE: If battery posts or cable ends have a build-up of white/green powder residue, apply water and baking soda to neutralize acid; then flush off with warm soapy water.

CAUTION

Do not remove seal strip on a sealed battery.

⚠ WARNING

Battery acid is harmful if it contacts eyes, skin, or clothing. Care must be taken whenever handling a battery.

5. Using a multimeter, test battery voltage. The meter must read no less than 12.8 DC Volts for a fully charged battery.

■ NOTE: At this point if the meter reads as specified, the battery may be returned to service (see step 9).

6. If the meter reads less than specified voltage, charge the battery using the following guidelines.
   A. When using an automatic battery charger, always follow the charger manufacturer's instructions.
   B. When using a constant-current battery charger, use the following Battery Charging Chart.

CAUTION

Never exceed the standard charging rate.

⚠ WARNING

An overheated battery could explode causing severe injury or death. Always monitor charging times and charge rates carefully. Stop charging if the battery becomes very warm to the touch. Allow it to cool before resuming charging.

Battery Charging Chart (Constant-Current Charger)		
Battery Voltage (DC)	**Charge State**	**Charge Time Required (at 1.5-2.0 Amps)**
12.8-13.0	100%	None
12.5-12.8	75%-100%	3-6 hours
12.0-12.5	50%-75%	5-11 hours
11.5-12.0	25%-50%	13 hours (minimum)
11.5 or less	0-25%	20 hours (minimum)

■ NOTE: If the battery voltage is 11.5 DC Volts or less, some chargers may "cut off" and fail to charge. If this occurs, connect a fully charged booster battery in parallel (positive to positive and negative to negative) for a short period of time with the charger connected. After 10-15 minutes, disconnect the booster battery leaving the charger connected and the charger should continue to charge. If the charger "cuts off," replace the battery.

7. After charging the battery for the specified time, remove the battery charger and allow the battery to sit for 1-2 hours.
8. Connect the multimeter and test the battery voltage. The meter should read no less than 12.8 DC Volts. If the voltage is as specified, the battery is ready for service.

■ NOTE: If voltage in step 8 is below specifications, charge the battery an additional 1-5 hours; then retest. The battery is ready for service.

9. Place the battery into position in the snowmobile; then coat the battery posts and cable ends with a light coat of multi-purpose grease.

CAUTION

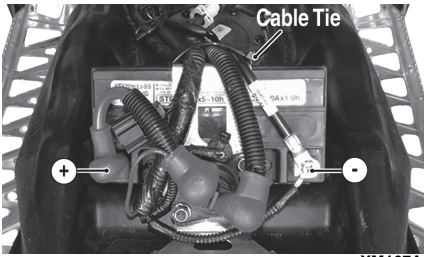
Before installing the battery, make sure the ignition switch is in the OFF position.

10. Secure the red positive cable to the positive terminal on the battery using a cap screw, lock washer, and a flat washer. Tighten securely.
11. Secure the main black negative cable and the small black negative cable to the battery using a cap screw, lock washer, and a flat washer. Tighten securely.

CAUTION

Connecting cables in reverse (positive to negative and negative to positive) can cause serious damage to the electrical system.

■ NOTE: Ensure the harness wires and cables are routed properly as noted during removing battery procedure.



XM167A

12. Install the battery bracket/solenoid and tighten the lock nuts to 105 in-lb (12 N-m); then install the seat and secure with the Torx-head screw. Tighten securely.

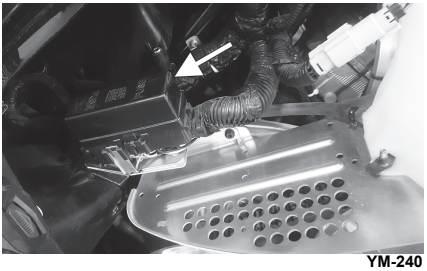
■ NOTE: On models with a seat heater, prior to lowering and securing the seat, connect the seat heater harness connector.

Fuses

Fuses protect the snowmobile electrical system from overloading. If electrical parts in the snowmobile are not working, the system may have been overloaded and caused a blown fuse. Before repairing or replacing any electrical part, check the appropriate fuses. If a fuse blows (opens a circuit), all the parts of the snowmobile that use that circuit will not work.

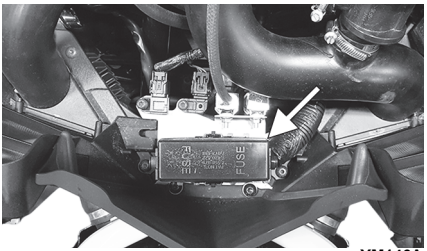
Once determining which fuse to check, perform the following steps:

1. Locate the fuse block and remove the fuse block cover.
2. On 7000 models, open the left-side access panel. Locate the fuse block above the drive clutch and remove the fuse block cover.



YM-240

3. On 9000 models, remove both access panels and the hood. Locate the fuse block in front of the engine.



YM146A

■ **NOTE: There are spare fuses beneath the fuse block cover.**

4. Remove the suspected fuse.

■ **NOTE: Fuse function descriptions are next to the fuse contacts in the fuse block.**

5. Look through the clear side of the fuse to see if the element inside is burned or separated. If it is, the fuse is blown and should be replaced with a fuse of the correct amperage rating.

⚠ WARNING

Always replace a fuse with one having the same specified amperage rating. Using a fuse with a higher rating can cause severe wire damage and could start a fire.

6. Install the fuse block cover.

Even after replacing a fuse, it may continue to blow if the cause of the overload is not determined. If the fuse continues to blow, take the snowmobile to an authorized Arctic Cat Snowmobile dealer for service. If not under warranty, this service is at the discretion and expense of the snowmobile owner.

Brake System

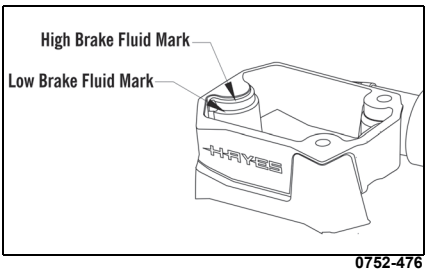
Arctic Cat recommends that the brake system (brake lever, fluid reservoir, hose, caliper, pads, and brake disc) be checked daily for fluid leakage, wear, or damage and for proper operation. Also, the brake fluid level must be checked every time before starting the engine. The brake fluid must be visible in the sight glass.

⚠ WARNING

DO NOT operate the snowmobile when the brake lever lock is engaged or when any component in the brake system is damaged, worn, or adjusted improperly. If the snowmobile is operated and the brake system is not functioning properly, severe personal injury could result.

Checking/Adding Brake Fluid

1. With the brake fluid reservoir in a level position and the cover removed, check the fluid level. The brake fluid level must be at the high brake fluid mark in the reservoir.



0752-476

2. If the brake fluid is not visible in the sight glass, remove the reservoir cover and add Arctic Cat-approved DOT 4 brake fluid until the fluid is at the recommended level. Install and secure the reservoir cover. Do not allow moisture to contaminate the brake system.

CAUTION

Brake fluid is highly corrosive. Do not spill brake fluid on any surface of the snowmobile.

⚠ WARNING

Do not overfill the brake fluid reservoir. Overfilling the reservoir may cause the brake system to hydraulically lock. Use only Arctic Cat-approved DOT 4 brake fluid. Never substitute or mix different types or grades of brake fluid. Brake loss can result. Brake loss can result in severe injury or even death.

Changing Brake Fluid

The brake fluid must be changed on a regular basis and whenever the brake fluid has been overheated or contaminated. The brake fluid should be changed every 1000 miles (1600 km) or at the end of the snowmobiling season, whichever occurs first. Take the snowmobile to an authorized Arctic Cat Snowmobile dealer for this service. This service is at the discretion and expense of the snowmobile owner.

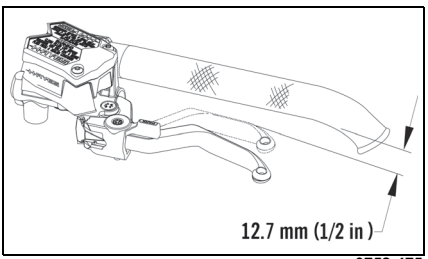
Checking Brake Lever Travel

Before each use, check the brake lever travel using the following procedure:

1. Compress the brake lever fully.

■ NOTE: Do not pump the brake lever as it will produce an inaccurate reading.

2. Measure the distance between the brake lever and the handlebar. The distance must be greater than 12.7 mm (1/2 in).



0752-475

3. If the resultant distance is less than specified, take the snowmobile to an authorized Arctic Cat Snowmobile dealer for service. If not under warranty, this service is at the discretion and expense of the snowmobile owner.

⚠ WARNING

Do not operate the snowmobile if the compressed distance between the brake lever and the handlebar is less than 12.7 mm (1/2 in). Brake loss may occur. Brake loss can result in severe personal injury.

Bleeding Brake System

If the brake lever feels spongy when applied, the brake system may need to be bled. To bleed the brake, use the following procedure:

■ NOTE: The brake system may be bled by the snowmobile owner if qualified to do so. If the owner does not feel qualified, take the snowmobile to an authorized Arctic Cat Snowmobile dealer for this service. This service is at the discretion and expense of the snowmobile owner.

1. Remove the reservoir cover and (if necessary) fill the reservoir to the high brake fluid mark with Arctic Cat-approved DOT 4 brake fluid.

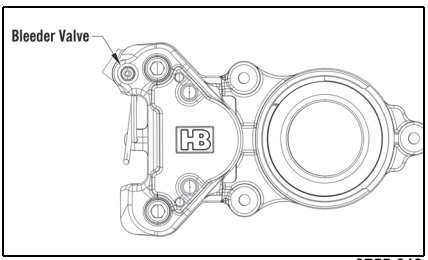
CAUTION

Brake fluid is highly corrosive. Do not spill brake fluid on any surface of the snowmobile.

⚠ WARNING

Use only Arctic Cat-approved DOT 4 brake fluid. Any substitute may result in a loss of brakes.

2. Slide a piece of flexible tubing over the ball of the bleeder valve and direct the other end into a container.



0755-018

3. Slowly compress the brake lever until maximum pressure is attained; then hold the lever in the compressed position to maintain pressure. Open the bleeder valve to release the fluid and air. When the fluid stops, close the bleeder valve; then release the brake lever.
4. Repeat step 3 until the brake fluid flows free of air bubbles.

■ NOTE: It may be necessary to refill the reservoir during the bleeding process. Never allow the brake fluid to go below the low brake fluid mark in the reservoir.

5. When the brake fluid is free of all air and the brake lever feels firm when compressed, fill the reservoir to the high brake fluid mark; then install and secure the cover. Remove the tube from the bleeder valve.

Checking/Changing Brake Pads

The condition of the brake pads must be checked daily and changed if worn or damaged. To check and change the brake pads, use the following procedure:

■ NOTE: The brake pads may be changed by the snowmobile owner if qualified to do so. If the owner does not feel qualified, take the snowmobile to an authorized Arctic Cat Snowmobile dealer for this service. This service is at the discretion and expense of the snowmobile owner.

■ NOTE: When installing new brake pads, always install them as a set. Never install just one pad or use brake pads which have been used in another snowmobile.

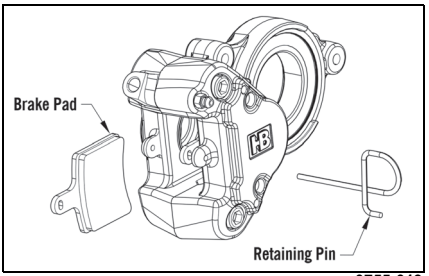
1. Remove the brake fluid reservoir cover; then remove most of the brake fluid from the reservoir. Install the cover.

CAUTION

Brake fluid is highly corrosive. Do not spill brake fluid on any surface of the snowmobile.

■ NOTE: The above procedure will allow room for the fluid from the caliper when the pistons are pushed into the caliper for installing new brake pads. Replacing the cover will prevent fluid spillage.

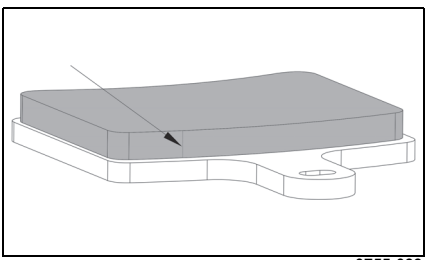
2. Open the left-side access panel.
3. Remove the Torx-head screws securing the brake shield to the belt guard mount; then remove the cap screws securing the brake shield to the brake caliper.
4. Carefully move the shield out of the way; then remove the hairpin clip securing the brake pads to the caliper assembly.
5. Using a pair of pliers, pull the outer brake pad out of the caliper assembly.



0755-019

■ NOTE: Changing one pad at a time will prevent one piston from pushing out the other piston from the caliper.

6. Measure the thickness of the brake pad. The brake pad thickness must be greater than 1.0 mm (0.04 in). If the brake pad thickness is less than specified, replacement of both pads is necessary.


0755-099

7. Using a flat-blade tool, slowly and carefully push the piston into the caliper.

8. Position the outer brake pad into the caliper; then install the hair-pin clip into the caliper assembly.
9. Repeat steps 5-8 for the inner pad; then secure the pad with the hairpin clip.
10. Remove the reservoir cover and remove the remaining fluid; then fill the reservoir with fresh fluid and install the cover.
11. Pump the brake lever to ensure correct positioning of the brake pads and proper brake lever travel; then release.

■ NOTE: If brake lever travel is not within specification, bleed the brake system.

12. Remove the reservoir cover and fill the reservoir (if necessary) to the proper level with fresh brake fluid; then install the cover.
13. Secure the brake shield; then close and secure the left-side access panel.

■ NOTE: When new brake pads are installed, a "burnishing" process is required (see Burnishing Brake Pads sub-section).

Burnishing Brake Pads

After changing brake pads, the new brake pads must be burnished to achieve full braking effectiveness. Braking distance will be extended until brake pads are properly burnished.

To properly burnish the brakes, use following procedure:

1. Choose an area sufficiently large to safely accelerate to 30-40 mph (48-64 km/h) and to brake to a stop.

■ NOTE: This procedure can also be accomplished using a shielded jack stand.

2. Accelerate to 30-40 mph (48-64 km/h); then compress brake lever to decelerate to a stop.

■ NOTE: Lightly apply the brake lever to come to an easy stop; do not over-apply brakes or "lock up" the track.

3. Repeat procedure 10-15 times allowing some cooling between stops.

■ NOTE: Do not repeat too soon or too aggressively as to get the brake disc "red hot."

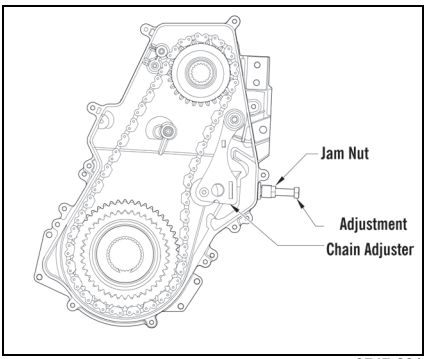
⚠ WARNING

Do not attempt sudden stops or put yourself into a situation where a sudden stop will be required until the brake pads are properly burnished.

■ NOTE: This procedure stabilizes the pad material and extends the life of the pads.

Chain Tension

1. Remove the right side access cover; then remove the exhaust assembly.
2. Loosen the jam nut.
3. Turn the chain tension adjustment bolt clockwise until it is finger tight; then loosen it 1-1/2 turns.



0747-831

CAUTION

Failure to loosen the adjustment bolt 1-1/2 turns after being finger tight will cause accelerated top sprocket bearing failure.

4. While holding the bolt with a wrench, tighten the jam nut to 18 ft-lb (24 N-m).
5. Install the exhaust assembly with a new gasket.
6. Install the right-side access cover.

■ NOTE: Check that the harness is installed correctly.

Drive Belt

The drive belt transfers power from the drive clutch to the driven clutch. If the belt is worn, cracked, or stretched, maximum power will not be transmitted and the belt could also fail and therefore must be replaced. Periodic checks (at least once a month under normal usage) of two drive belt specifications are essential.

1. Measure the outside circumference of the drive belt. The belt should be within the recommended range in circumference (see appropriate specifications sheet).
2. Measure the outside width of the drive belt. The belt should be within the recommended range in width.
3. Check the belt for cracking, fraying, etc.

If any of the specifications or conditions are unsatisfactory, replace the drive belt.

■ NOTE: Drive belts should be purchased from an authorized Arctic Cat Snowmobile dealer, as Arctic Cat drive belts are made to exact specifications and of quality material. Belts made by other manufacturers may not be of the same specifications or quality and, therefore, usage could result in poor performance and premature belt failure.

■ NOTE: Before starting the snowmobile in extremely cold temperatures, the drive belt should be removed and warmed up to room temperature. Once the drive belt is at room temperature, install the drive belt.

Also, new drive belts have a break-in period of approximately 25 miles (40 km). After installing a new drive belt, drive the snowmobile for 25 miles (40 km) at 3/4 throttle or less. By revving the engine up and down (but not exceeding 60 mph [96 km/h]), the exposed cord on the side of a new belt will be worn down. This allows the drive belt to gain its optimum flexibility and will extend drive belt life.

CAUTION

Never run the engine with the drive belt removed. Excessive revving of the engine could result in serious engine damage and drive clutch failure.

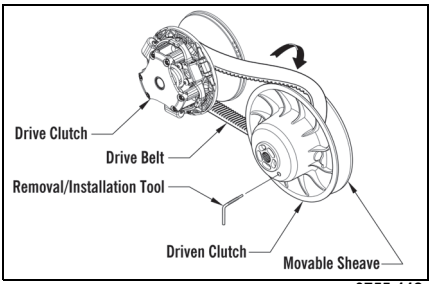
■ NOTE: Changing a drive belt can be done by the snowmobile owner if qualified to do so. If the owner does not feel qualified, take the snowmobile to an authorized Arctic Cat Snowmobile dealer for this service. This service is at the discretion and expense of the snowmobile owner.

Removing

1. Set the brake lever lock; then remove the left-side access panel.

■ NOTE: Verify the movable (rear) sheave is not in the reverse notch by rotating the sheave counterclockwise.

2. Thread Removal/Installation Tool clockwise into the driven clutch until the movable sheave opens far enough to remove the drive belt.



0755-112

3. When the sheaves are fully apart, pull up on drive belt and roll belt over stationary sheave until it is free of the driven clutch.
4. When the belt is free of driven clutch, remove the belt from the drive clutch.

Installing

1. Place the belt (so the part number can be read) between the sheaves of the drive clutch.
2. With the sheaves fully apart, roll the belt over the stationary sheave.

3. With the drive belt properly positioned in the drive clutch and driven clutch, turn the belt tool counterclockwise and roll the belt back and forth to allow the driven clutch sheaves to fully close.
4. Install the left-side access panel.
5. Release the brake lever lock.

Track Tension

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. If extremely loose, the idler wheels may climb over the track lugs forcing the track against the tunnel causing the track to "lock."

Arctic Cat recommends that the track tension be checked daily during the first 300 miles (480 km) of operation and once a week thereafter and adjusted according to need. The track will stretch and take a "set" during break-in. Track deflection must be maintained within the recommended range.

⚠ WARNING

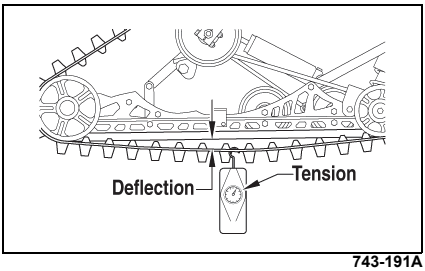
Track tension must be properly maintained. Personal injury could result if a track is allowed to become excessively loose.

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. Elevate the snowmobile on a shielded safety stand high enough to use a spring scale.
3. At midpoint of the track (on the bottom side), hook a spring scale around a track clip; then pull down on the scale to 20 lb (9 kg). Measure the deflection (distance) between the bottom of the wear strip and the inside surface of the track clip. Measurement should be 2 in (51 mm).

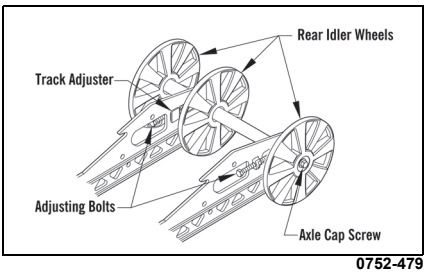


743-191A

Adjusting Track Tension

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

1. Loosen the idler wheel axle cap screws.



0752-479

2. If the deflection (distance between the bottom of the wear strip and the inside surface of the track clip) exceeds specifications, tighten the adjusting bolts to take up excessive slack in the track.
3. If the distance between the bottom of the wear strip and the inside surface of the track clip is less than specified, loosen the adjusting bolts to increase the slack in the track.

CAUTION

Always maintain track tension within recommended specification.

4. Check track alignment.
5. After proper track tension is obtained, tighten the idler wheel axle cap screws to 34 ft-lb (46 N-m); then tighten the adjusting bolts securely against the axle.

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

⚠ WARNING

Always make sure the adjusting bolts are snug against the axle and the idler wheel cap screws are tightened to specifications. Failure to do so could cause 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.

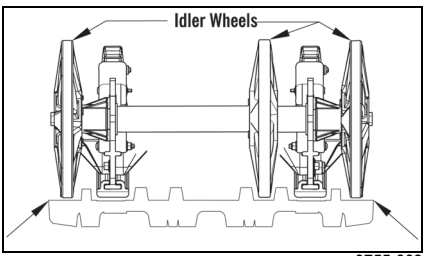
⚠ WARNING

DO NOT stand behind the snowmobile or near the rotating track. NEVER run the track at high speed when the track is suspended.

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 idler wheels and the outside of the track. If the idler wheels are an equal distance from the outside of the track, no adjustment is necessary.



0755-003

5. If the idler wheels are not centered, an adjustment is necessary.

Adjusting Track Alignment

1. On the side of the track which has the outside of the track closer to the rear idler wheel, loosen the idler wheel axle cap screw; 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.

3. After proper track alignment is obtained, tighten the idler wheel axle cap screw to 34 ft-lb (46 N-m); then tighten the adjusting bolts securely against the axle.

⚠ WARNING

Always make sure the adjusting bolts are snug against the axle and the idler wheel cap screws are tightened to specifications. Failure to do so could cause 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.

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.

Suspension

The suspension should be adjusted for the operational needs and riding preference of the operator.

The front shock springs determine the amount of ski pressure and the reaction of the front suspension to rough terrain. The amount of ski pressure can also be changed by adjusting the length of the skid frame front arm limiter straps.

On models with rear suspension springs, the springs influence the load carrying capability of the snowmobile and should be adjusted for the weight and riding preference of the operator.

■ NOTE: On models with a rear arm float shock, this adjustment is achieved by increasingly or decreasing the air pressure in the rear arm air shock absorber.

Arctic Cat IFP Rebuildable Gas Shocks

Servicing rebuildable shock absorbers is considered normal maintenance and is the responsibility of the owner. Take the snowmobile to an authorized Arctic Cat Snowmobile dealer for this service. This service is at the discretion and expense of the snowmobile owner. If changes in shock valving are desired, see an authorized Arctic Cat Snowmobile dealer. This service is at the discretion and expense of the snowmobile owner.

Each shock absorber should be visibly checked weekly for fluid leakage, cracks or breaks in the body, or a bent shaft. If any one of these conditions is detected, replacement is necessary. Take the snowmobile to an authorized Arctic Cat Snowmobile dealer for this service. If not under warranty, this service is at the discretion and expense of the snowmobile owner.

FOX Shocks

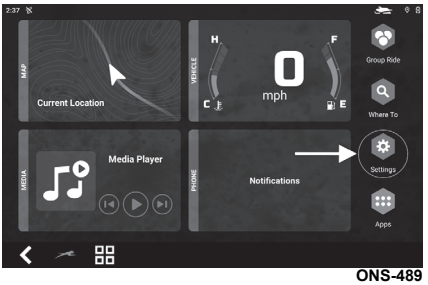
If service work is needed on any FOX shocks, the shock will have to be removed and sent to FOX or any FOX distributor for any service work. For FOX shock information log on to www.ridefox.com or call FOX at 1-800-369-7469.

Each shock absorber should be visibly checked weekly for fluid leakage, cracks or breaks in the body, or a bent shaft. If any one of these conditions is detected, replacement is necessary. Take the snowmobile to an authorized Arctic Cat Snowmobile dealer for this service. If not under warranty, this service is at the discretion and expense of the snowmobile owner.

iQS Shocks (Modifying customized DRIVER 1 and DRIVER 2 settings)

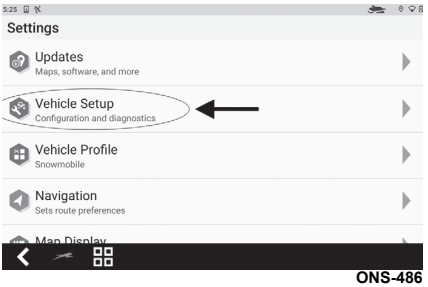
The iQS shocks are adjustable by choosing an overall compression setting (soft, medium, or firm) for both the front and rear shocks, or two customized driver profiles that fine tune the ride separately between the front ski shocks and rear skid shock(s). Adjustments may be made while the snowmobile is in motion using the gauge control on the handlebar.

To set the customized driver profiles, with the engine running, select settings from the main screen.

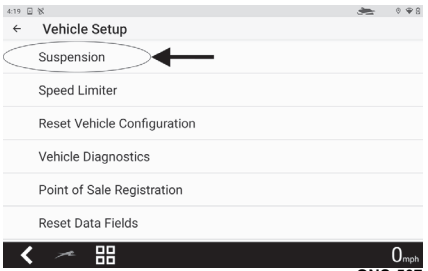


ONS-489

Select vehicle setup and then suspension.



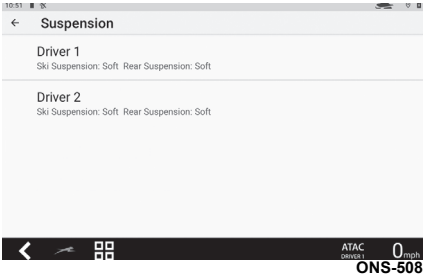
ONS-486



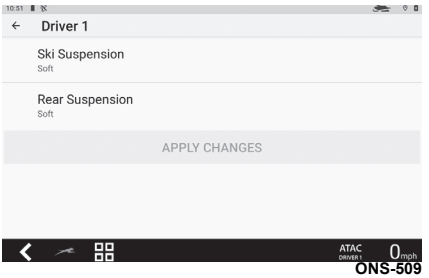
ONS-507

The compression of the front ski shocks and rear skid shock(s) are separately adjustable to the settings of soft, medium, or firm.

Select driver 1 or driver 2; then select either ski suspension or rear suspension.

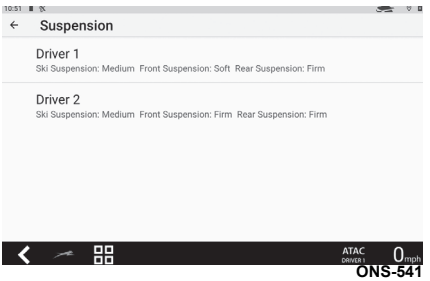


ONS-508



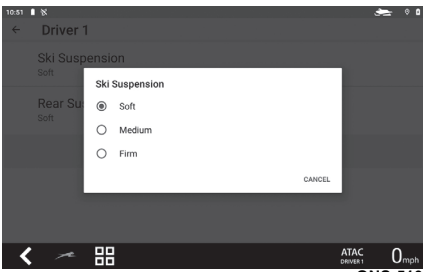
ONS-509

■ NOTE: On specific models, the front skid shock and rear skid shock can be adjusted individually.

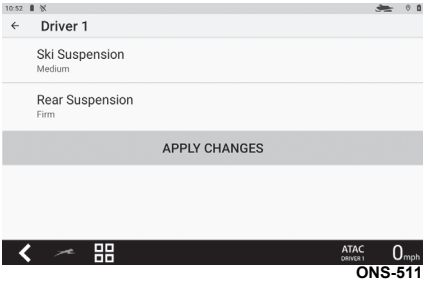


ONS-541

Select the desired suspension setting (soft, medium, or firm); then select apply changes.



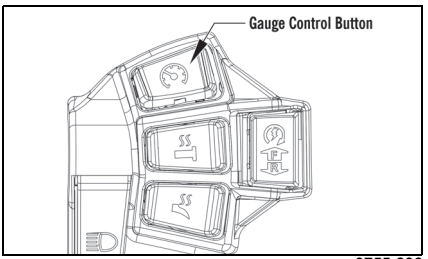
ONS-510



ONS-511

iQS Shocks (Selecting suspension setting)

With the engine running, press the center of the gauge control button on the left-side handlebar control until the ATAC suspension setting changes color from white to green.

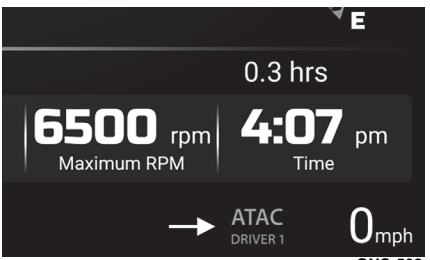


0755-396

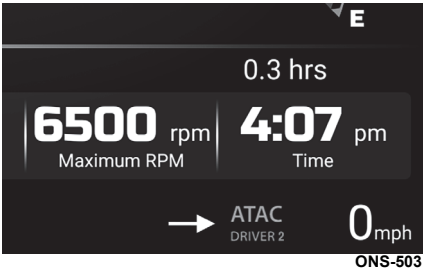
Press the left or right side of the gauge control button to select one of the following suspension settings:

DRIVER 1 or DRIVER 2 for the customized driver profile; or

SOFT, MEDIUM, or FIRM for the overall shock compression setting.



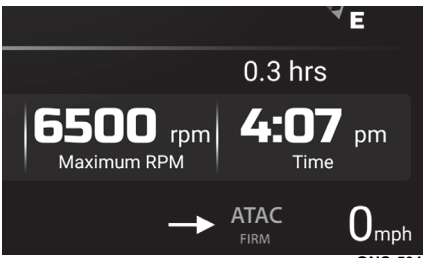
ONS-502



ONS-503

ONS-499

ONS-500



ONS-501

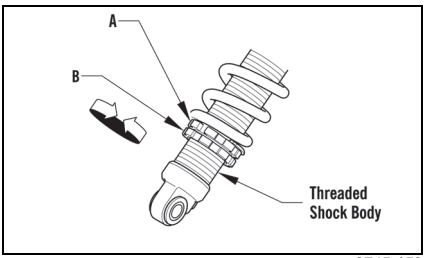
Press the center of the gauge control button to lock the ATAC suspension setting. The suspension setting is locked when the setting changes from green to white.

Adjusting Front Shock Springs

The front (ski) shock springs are individually adjustable for the terrain conditions and driving style of the operator. The spring adjuster nut has been set at the factory so the correct amount of threads are exposed between the adjuster nut and the threaded shock body as an initial setting. Additional ski pressure can be obtained by tightening the spring tension; ski pressure can be decreased by relaxing spring tension.

■ NOTE: Equal adjustments should be maintained on both sides of the snowmobile.

Front (ski) shock spring preload adjustment is accomplished by loosening the adjuster nut locking collar (B) from the adjuster nut (A) and using the Spring Adjuster Tool from the tool kit, rotating the adjuster nut in whichever direction is desired. Tighten the locking collar against the adjuster nut.



0745-159

Adjusting Rear Spring Preload

Proper adjustment of rear spring preload is necessary to get the most desirable ride. The chart is designed to help in setting up rear spring preload; however, riding style is the single greatest factor in determining rear spring requirements.

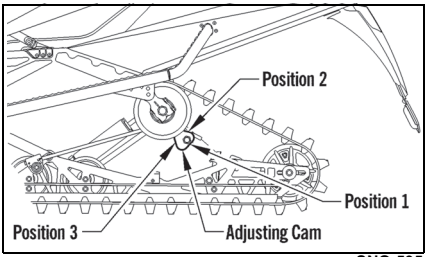
Rider Weight	Cam Position
Up to 180 lb (80 kg)	1
180-240 lb (80-110 kg)	2
Over 240 lb (110 kg)	3

■ NOTE: These cam position settings are suggestions only. Personal riding style will greatly influence cam position settings. Spend time to determine setting preferences.

Rear spring preload adjustment is accomplished by rotating the adjusting cams. Position 3 provides the stiffest ride, and Position 1 is for the lightweight operator or slow-speed trail riding. Position 2 is for the average weight 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.



SNO-595

To rotate an adjusting cam, use the spark plug wrench from the tool kit. Rotate the wrench until the cam is in the desired position. To stiffen the ride, rotate the cam so as to raise the spring end. Make the appropriate adjustment on the other cam.

Overload Springs (Pantera)

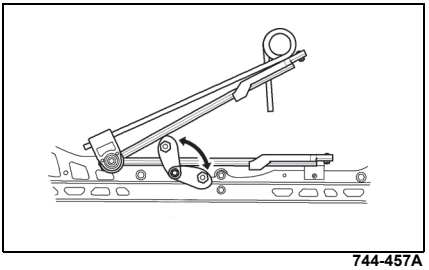
When either carrying a heavy load or riding 2-up, the overload springs should be engaged by rotating the spring tension blocks to the UP position. The spring tension blocks lock in an over-center position when engaged.

■ NOTE: Arctic Cat recommends that the overload springs be engaged whenever a load on the snowmobile (operator/passenger/cargo) exceeds 136 kg (300 lb).

CAUTION

There are weight limitations for these snowmobiles. If additional cargo is being added, maximum weight on the snowmobile (operator/passenger/cargo) should not exceed 170 kg (375 lb). Also, the overload springs should be engaged.

To either engage or disengage the spring tension blocks, use the spark plug socket and a screwdriver to adjust the blocks to the desired position. Make sure both spring blocks are in the same position (either engaged or disengaged).



744-457A

Lights

For the correct headlight bulb and/or taillight/brake light LED, see the appropriate specifications sheet.

Removing and Installing Taillight/Brake Light

These models are equipped with an LED taillight/brake light. If the LED fails, it must be replaced. To remove and install the LED, use the following procedure:

1. Disconnect the taillight harness connector.
2. Remove the Torx-head screws securing the taillight.
3. Connect the taillight harness connector; then secure the taillight to the bracket with the Torx-head screws.

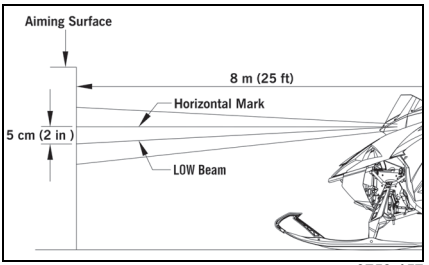
Adjusting Headlight Aim

The headlight can be adjusted for vertical aim of the HIGH/LOW beam. The LOW beam is used for vertical aiming.

1. Position the snowmobile on a level floor so the headlight is approximately 8 m (25 ft) from an aiming surface (wall or similar surface).

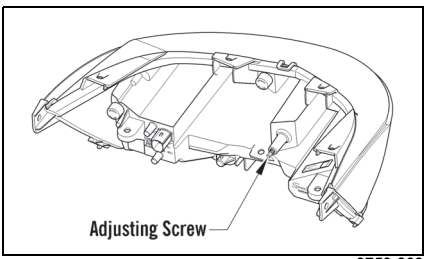
■ NOTE: There should be an "average" operating load on the snowmobile when adjusting headlight aim.

2. Measure the distance from the floor to midpoint of the headlight.
3. Using the measurement obtained in step 2, make a horizontal mark on the aiming surface directly in front of the headlight.
4. Make a vertical mark which intersects the horizontal mark on the aiming surface directly in front of the headlight.
5. Engage the brake lever lock and start the engine. Move the headlight dimmer switch to the LOW beam position. DO NOT USE HIGH BEAM.
6. Observe the headlight beam aim. Proper aim is when the LOW beam is centered on the vertical mark 5 cm (2 in) below the horizontal mark on the aiming surface.



0753-157

7. Adjust the headlight using the adjusting screw on the backside of the headlight using a 4 mm swivel socket and long extension until correct aim is obtained. Shut the engine off; then disengage the brake lever lock.



0750-309

Ski Wear Bars

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 before each use and replaced if worn beyond 1/2 of the 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 Bars

1. Using a Front End Lift, elevate the front of the snowmobile.
2. Remove the lock nuts securing the wear bar to the ski.
3. Remove the wear bar from the ski.

Installing Ski Wear Bars

1. Move the wear bar into position on the bottom of the ski.

■ NOTE: If installing a double-offset wear bar for normal steering capabilities, the carbide edge should be directed to the inside of the ski.

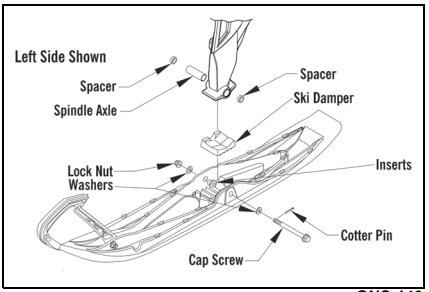
2. Align the wear bar studs with the holes in the ski; then install the lock nuts. Tighten to 11-15 ft-lb (15-20 N-m).

Adjusting Ski Stance

■ NOTE: Local laws and/or regulations as to maximum width of the ski stance on these snowmobiles may be applicable. Always comply with the maximum width laws and/or regulations when adjusting ski stance.

■ NOTE: Ski stance can be increased/decreased by 1 in (2.5 cm).

1. Place the front of the snowmobile on a support stand.
2. Remove the cotter pin; then remove the slotted nut and cap screw securing the ski assembly to the spindle. Remove the ski. Account for the ski damper, inserts, and washers.
3. To increase ski stance, place ski stance spacer to the outside of the spindle and adjust the ski damper.



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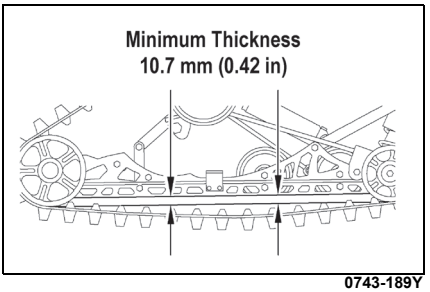
4. To decrease ski stance, place ski stance spacer to the inside of the spindle and adjust the ski damper.
5. Apply a low-temperature grease to the non-threaded portion of the cap screw; then slide the cap screw through the ski accounting for the ski damper, inserts, and washers.

■ NOTE: Install the cap screw so the slotted nut will be located to the inside of the ski.

6. Apply red Loctite 271 to the threads of the cap screw; then tighten the nut to 45 ft-lb (61 N-m).
7. Place the cotter pin into the ski cap screw and spread the pin.
8. Repeat procedure for the other ski.

Rail Wear Strips

Arctic Cat recommends that the wear strips be checked weekly and replaced as necessary. Measure the wear strips at 10 in (25.4 cm) intervals. Wear strips must be 0.42 in (10.7 mm) thick or thicker.



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If wear strip measurements are less than specified, replacement of both wear strips is necessary to prevent premature track clip wear and possible track damage. Take the snowmobile to an authorized Arctic Cat Snowmobile dealer for this service. This service is at the discretion and expense of the snowmobile owner.

Each time a new set of wear strips are installed, they should be tempered. Temper the wear strips by driving the snowmobile for approximately a mile (kilometer) on a hard pack trail; then immediately drive into deep snow and allow the wear strips to cool. Repeat the procedure (warming up the wear strips; then cooling them down) two or three times.

■ NOTE: The rail wear strips will wear rapidly if the snowmobile is operated on terrain on which the snow cover is minimal. Loose snow is required to cool and lubricate the wear strips and prevent accelerated wear.

Preparation for Storage

Prior to storing the snowmobile, it must be properly serviced to prevent corrosion and component deterioration. An authorized Arctic Cat Snowmobile dealer should perform this service; however, the owner/operator can perform this service if desired. This service is at the discretion and expense of the snowmobile owner. To prepare the snowmobile for storage, Arctic Cat recommends the following procedure:

1. Clean the seat cover with a damp cloth and a Vinyl Protectant.
2. Clean the snowmobile thoroughly by hosing dirt, oil, grass, and other foreign matter from the skid frame, tunnel, hood, and belly pan. Allow the snowmobile to dry thoroughly. DO NOT get water into any part of the engine.
3. Change the engine oil.
4. Fill the gas tank to its rated capacity; then add Arctic Cat Fuel Treatment (p/n 2436-868) to the gas tank following directions on the container for the stabilizer/gasoline ratio. Tighten the gas tank cap securely.
5. Remove the drive belt from the drive clutch/driven clutch. Lay the belt on a flat surface or slide it into a cardboard sleeve to prevent warping or distortion during storage.
6. Clean and inspect the drive clutch and driven clutch.
7. Apply light oil to the upper steering post bushing and shafts of the shock absorbers.
8. Lubricate the rear suspension, spindles, and steering arms with low-temperature grease.
9. Tighten all nuts, bolts, and cap screws making sure all nuts, bolts, and cap screws are tightened securely. Make sure all rivets holding the components together are tight. Replace all loose rivets.
10. Clean and polish the hood, console, and chassis with cleaner. DO NOT USE SOLVENTS. THE PROPELLANT WILL DAMAGE THE FINISH.

■ NOTE: Disconnect the battery cables making sure to disconnect the negative cable first; then clean the battery posts and cables. Charge the battery.

CAUTION

Sealed batteries require charging if left for extended non-start periods. Arctic Cat recommends trickle charging once a month. Follow the manufacturer's instructions and cautions.

11. Plug the exhaust system outlet with steel wool.
12. If possible, store the snowmobile indoors. Raise the track off the floor by blocking up the back end making sure the snowmobile is secure. Loosen the track adjusting bolts to reduce track tension. Cover the snowmobile with a machine cover or a heavy tarpaulin to protect it from dirt and dust.
13. If the snowmobile must be stored outdoors, position the snowmobile out of direct sunlight; then block the entire snowmobile off the ground making sure the snowmobile is secure. Loosen the track adjusting bolts to reduce track tension. Cover with a machine cover or a heavy tarpaulin to protect it from dirt, dust, and rain.

CAUTION

Avoid storing in direct sunlight and using a plastic cover as moisture may collect on the snowmobile causing corrosion.

Preparation after Storage

Taking the snowmobile out of storage and correctly preparing it for another season will ensure trouble-free snowmobiling. Arctic Cat recommends the following procedure:

1. Clean the snowmobile thoroughly. Polish the exterior of the snowmobile.
2. Clean the engine. Remove the steel wool from the exhaust system. Check exhaust system and air-intake silencer for obstructions.
3. Inspect 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 belt for cracks and tears. Check belt specifications. Replace if damaged or worn.

■ NOTE: If the old belt is worn but in reasonable condition, retain it with the snowmobile as a spare in case of emergency.

5. Inspect all fuel hoses and oil hoses for deterioration or cracks; replace if necessary. Make sure all connections are tight.
6. Inspect the spark plugs. Replace, gap, or clean as necessary.
7. Verify the condition of and the adjustment of the throttle cable.
8. Tighten all nuts, bolts, and cap screws making sure all nuts, bolts, and cap screws are tightened securely.
9. If not done during preparation for storage, lubricate the rear suspension, spindles, and steering arms with low-temperature grease.
10. Check the coolant level and all coolant hoses and connections for deterioration or cracks. Add properly mixed coolant as necessary.
11. Charge the battery until fully charged; then connect the battery cables making sure to connect the positive cable first. Test the electric start system.
12. Inspect the entire brake system, all controls, headlight, taillight, brake light, ski wear bars, and headlight aim; adjust or replace as necessary.
13. Adjust the track to the proper tension and alignment.

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	Torn or Punctured Upholstery
Wear Bars	Brake Pads	Spark Plugs	Drive Clutch/Driven Clutch Wear Parts	
Wear Strips	Shock Absorber(s)*		Non-Warning Decals	

*Limited to one (1) year or 1000 miles of "normal" riding conditions — replace for defective or leaking shock, corroded or pitted shaft, peeling chrome.

■ **NOTE: Snowmobiles that are factory equipped with FOX shocks and experience a shock failure within the factory warranty period (1 year) must not be tampered with. Only the "Schrader" (air pressure) valve is serviceable during the warranty period. Failures (air leaks) must be confirmed by following the test procedure as shown in the service manual. Any other tampering with the shock will void the FOX 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: 1-800-279-2281.

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., 601 Brooks Ave, Thief River Falls, MN 56701 USA — 1-800-279-2281

U.S. EPA Emission Control Statement/Warranty Coverage (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, 400 hours, 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 Module (ECM)
- Engine Coolant Temperature Sensor
- Intake Air Temperature Sensor
- Manifold Absolute Pressure Sensor
- Throttle Position Sensor

Fuel/Air System*
- Fuel Injectors
- Fuel Pressure Regulator
- Fuel Pump
- Carburetor(s)
- Throttle Bodies
- Turbocharger
- Oxygen Sensor
- Crankcase Ventilation System
- ISC Valve
- Gas Tank & Gas Tank Cap
- Fuel Line

Ignition System*
- Ignition Coil
- Knock Sensor System
- Crankshaft Position Sensor
- Exhaust Temperature Sensor
- Capacitive Discharge Ignition (CDI) Module
- Magneto Pick-Up
- Spark Plugs

Miscellaneous Items Used in Aforementioned Systems*
- Connectors
- Switches
- Grommets
- Clamps
- Hoses
- Ties
- Gaskets
- Wiring

*** Only applicable when equipped from factory.**

For U.S. EPA Emission Control Warranty coverage questions, contact Arctic Cat at 1-800-279-2281.

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 in accordance with Arctic Cat's recommendations 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.

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. This form may also be scanned and emailed to arcticcatwarranty@arcticcat.com.

- ❑ Address Change
- ❑ Ownership Change
- ❑ Warranty Transfer

CHANGE OF ADDRESS/OWNERSHIP/ WARRANTY TRANSFER TO:

Name _____

Address _____

City/State (Province) _____

Zip Code (Postal Code) _____

Phone ( ) _____

Email _____

Year and Model _____

Vehicle Identification Number (VIN) _____

Fold Back

Place
Stamp
Here

CHANGE OF ADDRESS/OWNERSHIP

ARCTIC CAT INC.
PRODUCT SERVICE AND WARRANTY DEPT.
601 BROOKS AVE
THIEF RIVER FALLS MN 56701
USA

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 only use 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 these snowmobiles, an Illustrated Parts Manual and a Service Manual are available through your local Arctic Cat Snowmobile dealer.

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Phone: 1-800-279-2281