

# ski-doo®



## OPERATOR'S GUIDE

**SAFARI\* SCOUT  
CHEYENNE**

1991



P414717900 CA2001

Version française au revers

414 7179 00

## SAFETY WARNING

Disregarding any of the safety precautions and instructions contained in this *Guide* and the *Safety Handbook* could cause injury, including the possibility of death.

This *Guide* & the *Handbook* should remain with the vehicle at the time of resale.

AFTER SALES SERVICE  
BOMBARDIER INC.  
VALCOURT (QUEBEC)  
CANADA JOE 2LO



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BOMBARDIER®  
CHEYENNE\*  
ÉLAN®

ROTAX®  
SAFARI\*  
SCOUT\*  
SKI-DOO\*


# FOREWORD


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The *Operator's Guide* and the *Snowmobile Safety Handbook* have been prepared to acquaint the owner/operator or passenger of a new snowmobile with the various vehicle controls, maintenance and safe operating instructions. Each is indispensable for the proper use of the product, and should be kept with the vehicle at all times.

Should you have any questions pertaining to the warranty and its application, please consult the "Often Asked Question" section of this guide, or your authorized dealer.

This guide uses the following symbols.

 **WARNING** : Identifies an instruction which, if not followed, could cause serious personal injuries including possibility of death.

 **CAUTION** : Denotes an instruction which, if not followed, could severely damage vehicle components.

 **NOTE** : Indicates supplementary information needed to fully complete an instruction.

Although the mere reading of such information does not eliminate the hazard, your understanding of the information will promote its correct use.

The information and components/system descriptions contained in this guide are correct at time of publication. Bombardier Inc. however, maintains a policy of continuous improvement of its products without imposing upon itself any obligation to install them on products previously manufactured.


Bombardier Inc. reserves the right at any time to discontinue or change specifications, designs, features, models or equipment without incurring obligation.


The illustrations show the typical construction of the different assemblies and, in all cases, may not reproduce the full detail or exact shape of the parts shown, however, they represent parts which have the same or a similar function.


Most specifications are given in both metric and customary units. Where precise accuracy is not required, some conversions are rounded to even numbers for easier use.

A *Shop Manual* can be obtained for complete service, maintenance and repair information.

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 **WARNING** : The engines and the corresponding components identified in this guide should not be utilized on product(s) other than those mentioned on the cover page of this guide.

 **WARNING** : Maintenance procedures and tightening torques must be strictly adhered to, never attempt repairs unless the appropriate tools are available.

 **CAUTION** : Most components of this vehicle are built with parts dimensioned in the metric system. Most fasteners are metric and must not be replaced by customary fasteners or vice versa. Mismatched or incorrect fasteners could cause damage to the vehicle or possible personal injury.



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# SAFETY MEASURES

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## Observe the Following Precautions:

- Throttle mechanism should be checked for free movement before starting engine.
- Do not operate vehicle near snow making equipment.
- Engine should be running only when belt guard and/or pulley guard is secured in place.
- Never run the engine without drive belt installed. Running an unloaded engine can prove to be dangerous.
- Never run the engine when the track is raised off the ground.
- It can be dangerous to run engine with the hood removed.
- Fuel is flammable and explosive under certain conditions. Always manipulate in a well ventilated area. Do not smoke or allow open flames or sparks in the vicinity. If fuel fumes are noticed while driving, the cause should be determined and corrected without delay.
- Maintain your vehicle in top mechanical condition at all times.
- Your snowmobile is not designed to be driven or operated on black top, bare earth, ice, hard pack or other abrasive surfaces. On such surfaces abnormal and excessive wear of critical parts is inevitable.
- Your snowmobile is not designed to be operated on public streets, road or highways. In most States and Provinces, it is considered an illegal operation.
- Installation of other than standard equipment, including ski-spreaders, bumpers, pack racks, etc., could severely affect the stability and safety of your vehicle. Avoid adding on accessories that alter the basic vehicle configuration.
- The snowmobile engine can be stopped by activating the emergency cut-out switch, tether switch or by turning off the key.
- Whenever the vehicle is parked outdoors, overnight or for a long period, it is suggested to protect it against the inclemency of the weather with a snowmobile cover.
- Do not lubricate throttle and/or brake cables and housings.
- Only perform procedures as detailed in this guide. Unless otherwise specified, engine should be turned OFF for all lubrication and maintenance procedures.
- Clean and check operation of the head light, taillight and brake light.
- Should removal of a locking device be required when undergoing repairs/disassembly, always replace by new ones. Tighten fasteners as specified in the applicable *Shop Manual*.

# THE 1991 SNOWMOBILE LIMITED WARRANTY

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## 1 - PERIOD

BOMBARDIER INC. as manufacturer, warrants FROM THE DATE OF DELIVERY TO THE FIRST CONSUMER, every 1991 BOMBARDIER® snowmobile, sold as NEW AND UNUSED, and predelivered by an authorized BOMBARDIER® dealer for a period of :

- 12 consecutive months.
- Warranty coverage on all new snowmobiles delivered between August 1<sup>st</sup> and December 1<sup>st</sup> of a year will expire on December 1<sup>st</sup> of the following year.

## 2 - WHAT BOMBARDIER INC. WILL DO

BOMBARDIER INC. will repair and/or replace, at its option, components defective in material and/or workmanship (under normal use and service), with a genuine BOMBARDIER® component without charge for parts or labour, at any authorized BOMBARDIER® dealer during said warranty period.

## 3 - CONDITION TO HAVE WARRANTY WORK PERFORMED

Present to the servicing dealer, the hard copy of the BOMBARDIER® Warranty Registration card or proof of purchase received by the customer from the selling dealer at time of delivery.

## 4 - EXCLUSIONS - ARE NOT WARRANTED

- Normal wear on all items such as, but not limited to :
  - drive belts
  - bulbs
  - slider shoes
  - runners on skis
  - spark plugs
- Replacement parts and/or accessories which are not genuine BOMBARDIER® parts and/or accessories.
- Damage resulting from installation of parts other than genuine BOMBARDIER® parts.
- Damage caused by failure to provide proper maintenance as detailed in the *Operator's Guide*. The labour, parts and lubricants costs of all maintenance services, including tune-ups and adjustments will be charged to the owner.
- Cold seizure and piston scuffing caused by insufficient warm-up.
- Vehicles designed and/or used for racing purposes.
- All optional accessories installed on the vehicle. (The normal warranty policy for parts and accessories, if any, applies).
- Damage resulting from accident, fire or other casualty, misuse, abuse or neglect.
- Damage resulting from operation of the snowmobile on surfaces other than snow.
- Damage resulting from modification to the snowmobile not approved in writing by BOMBARDIER INC.
- Damage incurred by track studs.
- Losses incurred by the snowmobile owner other than parts and labour, such as, but not limited to, transportation, towing, telephone calls, taxis, or any other incidental or consequential damage.



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## 5 - BATTERY WARRANTY :

- 12 consecutive months (Pro-rated).  
100% warranty coverage will start on the date the snowmobile was delivered and run to the following April 30<sup>th</sup>. The remainder of the 12 month-period will be pro-rated as follows :
  - 50% from April 30<sup>th</sup> to December 1<sup>st</sup>.
  - 40% from December 1<sup>st</sup> to December 31<sup>st</sup>.
  - 30% from January 1<sup>st</sup> to end of warranty.

## 6 - EXPRESSED OR IMPLIED WARRANTIES

**This warranty gives you specific rights and you may also have other legal rights which may vary from state to state, or province to province. Where applicable this warranty is expressly in lieu of all other expressed or implied warranties of BOMBARDIER INC., its distributors and the selling dealer, including any warranty of merchantability or fitness for any particular purpose ; otherwise the implied warranty is limited to the duration of this warranty. However, some states or provinces do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply.**

**Neither the distributor, the selling dealer, nor any other person has been authorized to make any affirmation, representation or warranty other than those contained in this warranty, and if made, such affirmation, representation or warranty shall not be enforceable against BOMBARDIER INC. or any other person.**

**Some states or provinces do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply.**

**BOMBARDIER INC. reserves the right to modify its warranty policy at any time, being understood that such modification will not alter the warranty conditions applicable to vehicles sold while the above warranty is in effect.**

## 7 - CONSUMER ASSISTANCE

If a servicing problem or other difficulty occurs we suggest that you try to solve it with your selling dealer. Discuss your concern with the Service Manager or Owner. In most cases you will have your concern resolved at this level.

If you still have a service or product complaint, you may contact the Customer Service Department in Valcourt. Write or call to :

Bombardier Inc.  
Customer Service Department  
Snowmobile Division  
Valcourt, Quebec  
Canada JOE 2LO  
Phone no : (514) 532-2211

December 1989  
Bombardier Inc.  
Valcourt, Quebec, Canada JOE 2LO

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## OFTEN ASKED QUESTIONS

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Q : Why must my snowmobile be registered at the factory? After all I do have my original invoice as proof of when I purchased my snowmobile.

*A : Registration is very important and your dealer must register your snowmobile with Bombardier Inc. Make sure the card has been sent. All of this will allow you to :*

*a) have warranty work performed at any authorized Bombardier dealer in North America. Your registration card will provide the dealer with all the necessary data to complete warranty claim forms.*

*b) be advised by Bombardier should there be a safety recall or particular warranty campaign.*

*c) be contacted much faster by the police, the minute they find your stolen vehicle (if such a case occurs).*

Q : Why must my snowmobile be registered with the governing body having jurisdiction over snowmobile use?

*A : Snowmobile registration has two purposes : In many provinces or states it is mandatory to register a snowmobile in the same way as for a car. It allows the state or province to maintain records of existing snowmobiles and governmental agencies use part of the registration fees for establishing and maintaining trails.*

Q : Where can I find information on the lubrication and maintenance of my snowmobile?

*A : In this Operator's Guide provided with the vehicle at the time of delivery.*

Q : Will the entire warranty be void or cancelled, if I do not operate or maintain my new snowmobile exactly as specified in the *Operator's Guide*?

*A : The warranty of the new snowmobile cannot be "Voided" or "Cancelled" if pre-delivered by an authorized dealer. However, if a particular failure is caused by operation or maintenance other than is shown in the Operator's Guide, that failure may not be covered under warranty. This includes service work performed by the customer, especially the critical adjustments to ignition, timing, carburation and oil injection/or oil mixture.*

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Q : Would you give some examples of abnormal use or strain, neglect or abuse which may affect warranty?

*A : These terms are general and overlap each other in areas. Some specific examples may include : running the machine out of oil, chain failure caused by a lack of lubrication, operating the machine with a broken or damaged part which causes another part to fail, and so on. If you have any specific questions on operation or maintenance, please contact your dealer for advice.*

Q : What costs are my responsibility during the warranty period?

*A : The customer's responsibility includes all costs of normal maintenance services, non-warranty repairs, accidents and collision damage, as well as oils, and spark plugs, and incidental or consequential damages costs as explained in the warranty.*

Q : Are "Genuine" Bombardier replacement parts used in warranty repairs covered by warranty?

*A : Yes. When installed by an authorized dealer, any "Genuine" Bombardier part used in warranty repairs assumes the remaining warranty that exists on the machine.*

Q : If I sell my snowmobile within the warranty period, will the new owner qualify for the balance of the warranty?

*A : Yes, provided the unit has been registered with the manufacturer.*

Q : How can I receive the best owner assistance?

*A : The satisfaction and goodwill of the owners of Bombardier products are of primary concern to your dealer and Bombardier Inc. Normally, any problems that arise in connection with the sales transaction or the operation of your snowmobile will be handled by your Dealers Sales or Service Departments. It is recognized, however, that despite the best intentions of everyone concerned, misunderstandings will sometimes occur. Frequently, complaints are the result of a breakdown in communications and can quickly be resolved by a member of the dealership management. If the problem already has been reviewed with the Sales Manager or Service Manager, contact the Dealer himself or the General Manager.*

# LISTING OF AREA DISTRIBUTORS

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## CANADIAN DISTRIBUTORS

### PROVINCE OF QUEBEC

#### SERVICE OFFICE

BOMBARDIER INC.  
Valcourt (Quebec) JOE 2L0  
(514) 532-2211

#### SALES OFFICE

BOMBARDIER INC.  
1350 Nobel street  
Boucherville (Quebec) J4B 1A1  
(514) 655-6121

### PROVINCE OF ONTARIO

#### SERVICE OFFICE

BOMBARDIER INC.  
230 Bayview Drive  
Barrie (Ontario) L4N 5E9  
(705) 728-8600

#### SALES OFFICE

BOMBARDIER INC.  
230 Bayview Drive  
Barrie (Ontario) L4N 5E9  
(705) 728-8600

### MARITIMES

#### SERVICE OFFICE

BOMBARDIER INC.  
P.O. Box 7060  
Riverview (New Brunswick) E1B 1V0  
(506) 386-6117

#### SALES OFFICE

BOMBARDIER INC.  
1350 Nobel Street  
Boucherville (Quebec) J4B 1A1  
(514) 655-6121

### ALBERTA, BRITISH COLUMBIA, MANITOBA, SASKATCHEWAN, YUKON

#### SERVICE OFFICE

BROOKS EQUIPMENT LIMITED  
1616 King Edward Street  
P.O. Box 985  
Winnipeg (Manitoba) R3C 2V8  
(204) 633-7247

#### SALES OFFICE

BROOKS EQUIPMENT LIMITED  
1616 King Edward Street  
P.O. Box 985  
Winnipeg (Manitoba) R3C 2V8  
(204) 633-7247

### NEWFOUNDLAND, LABRADOR

#### SERVICE OFFICE

CHARLES R. BELL LIMITED  
Riverside Drive P.O. Box 1050  
Corner Brook (Newfoundland) A2H 6J3  
(709) 634-3533

#### SALES OFFICE

CHARLES R. BELL LIMITED  
Riverside Drive P.O. Box 1050  
Corner Brook (Newfoundland) A2H 6J3  
(709) 634-3533

### NORTH-WEST TERRITORIES, FRANKLIN DISTRICT & KEEWATIN

#### SERVICE OFFICE

NORTHERN STORES INC.  
165 Hymus Blvd  
Pointe-Claire (Quebec) H9R 1G2  
(514) 630-5279

#### SALES OFFICE

NORTHERN STORES INC.  
165 Hymus Blvd  
Pointe-Claire (Quebec) H9R 1G2  
(514) 630 5279



## AMERICAN DISTRIBUTORS

### EAST-CENTRAL, CENTRAL REGIONS

#### SERVICE OFFICE

BOMBARDIER CORPORATION  
4418 Grand Avenue  
Duluth, Minnesota 55807 U.S.A.  
(218) 628-2881

OR

BOMBARDIER CORPORATION  
7575 Packer Drive  
P.O. Box 8035  
Wausau, Wisconsin  
54402-8035  
U.S.A.  
(715) 842-8886

#### SALES OFFICE

BOMBARDIER CORPORATION  
7575 Packer Drive  
P.O. Box 8035  
Wausau, Wisconsin 54402-8035 U.S.A.  
(715) 842-8886

### WESTERN REGION

#### SERVICE OFFICE

BOMBARDIER CORPORATION  
P.O. Box 1572  
Golden, Colorado 80402-1572 U.S.A.  
(303) 232-5284

#### SALES OFFICE

BOMBARDIER CORPORATION  
7575 Packer Drive  
P.O. Box 8035  
Wausau Wisconsin 55402-8035 U.S.A.  
(715) 842-8886

### EASTERN REGION

#### SERVICE OFFICE

BOMBARDIER CORPORATION  
East Main Street Road  
Malone, New-York 12953 U.S.A.  
(518) 483-4411

OR

BOMBARDIER INC.  
P.O. Box 7060  
Riverview (New Brunswick) E1B 1V0  
CANADA  
(506) 386-6117

#### SALES OFFICE

BOMBARDIER CORPORATION  
East Main Street Road  
Malone, New-York 12953 U.S.A.  
(518) 483-4411

### ALASKA

#### SERVICE OFFICE

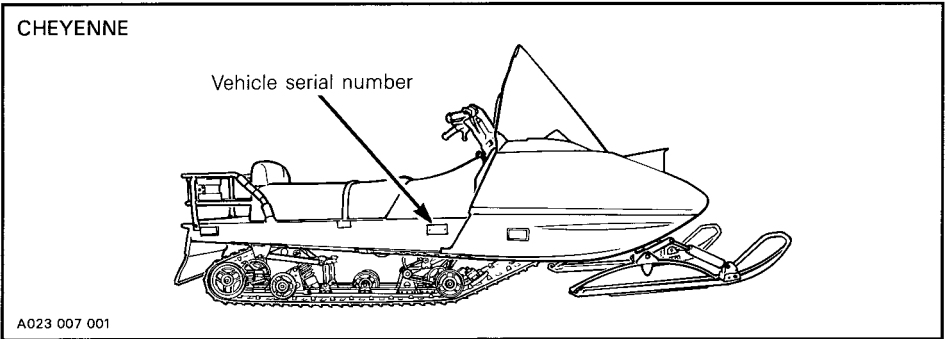
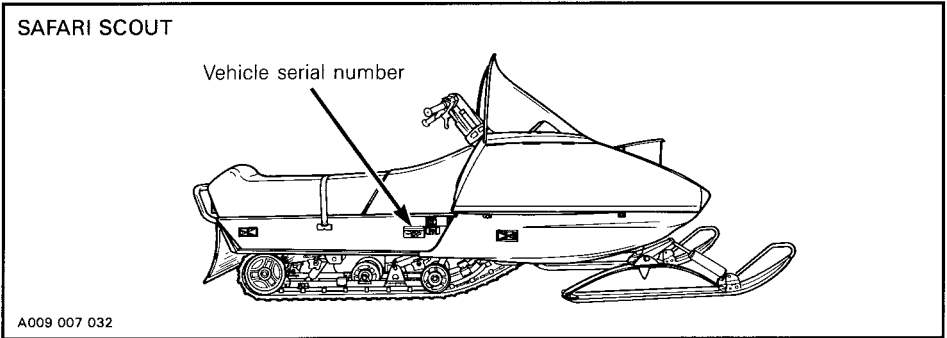
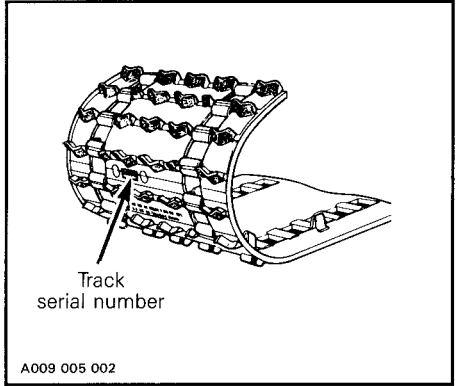
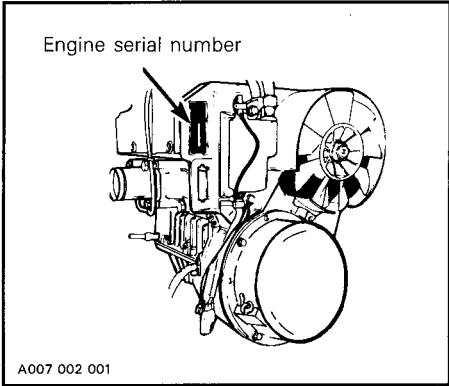
THE BRYANT CORPORATION  
NE. 190th & Woodinville  
Snohomish Road  
P.O. Box 389  
Woodinville, Wa 98072 U.S.A.  
(206) 483-0110

#### SALES OFFICE

BRYANT CORPORATION  
NE. 190th & Woodinville  
Snohomish Road  
P.O. Box 389  
Woodinville, Wa 98072 U.S.A.  
(206) 483-0110

# HOW TO IDENTIFY YOUR SNOWMOBILE

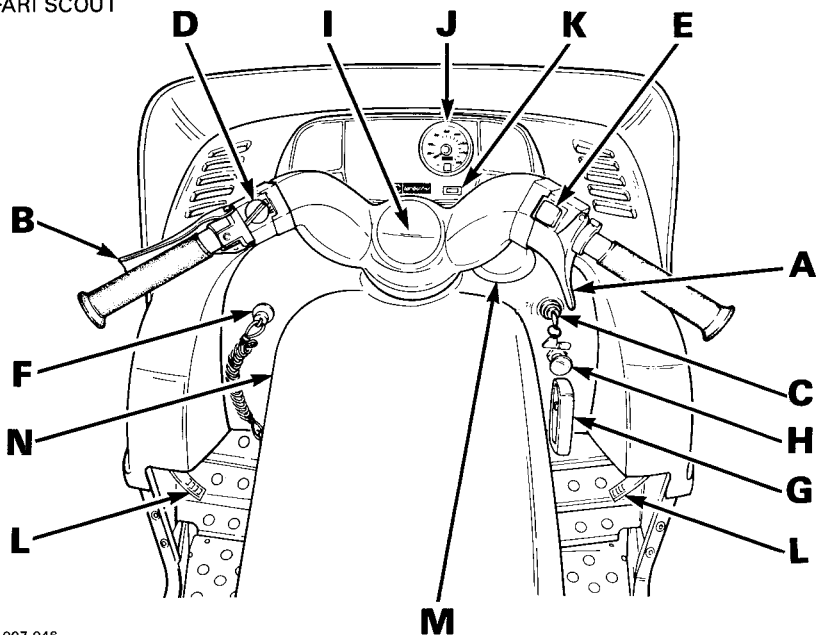
The main components of your snowmobile (engine, track and frame) are identified by different serial numbers. It may sometimes become necessary to locate these numbers for warranty purposes or to trace your snowmobile in the event of loss.



**NOTE :** We strongly recommend that you take note of all the serial numbers on your vehicle and supply them to your insurance company.

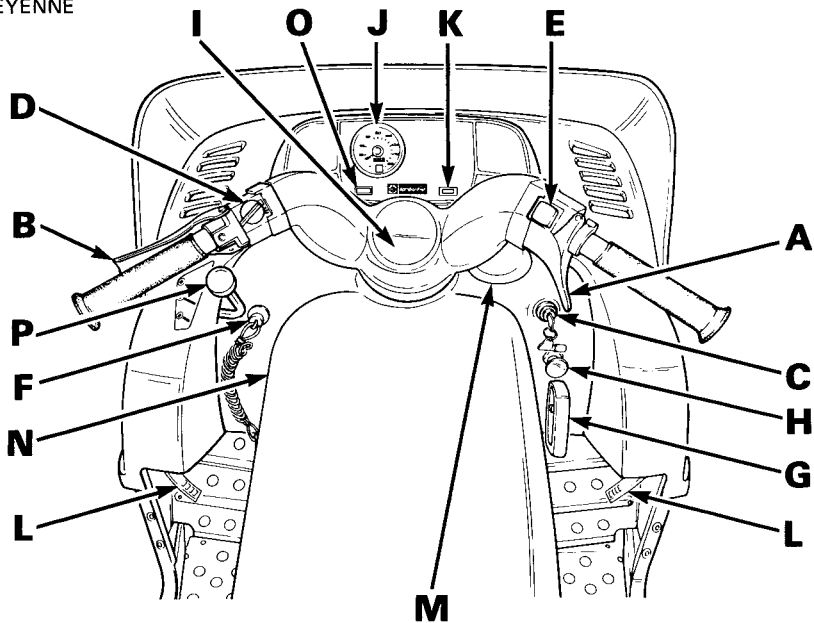
# CONTROLS/ INSTRUMENTS

SAFARI SCOUT



A009 007 046

CHEYENNE



A023 007 018

- A) Throttle Lever
- B) Brake Lever
- C) Ignition Switch
- D) Headlamp Dimmer Switch
- E) Emergency Cut-Out Switch
- F) Tether Cut-Out Switch
- G) Rewind Starter Handle
- H) Primer Button
- I) Adjustable Steering Handle

- J) Speedometer/Odometer
- K) Injection Oil Level Pilot Lamp (red)
- L) Hood Opening
- M) Tank Cap
- N) Fuel Level Gauge
- O) High Beam Pilot Lamp (blue)
- P) Gear Shift Lever (Cheyenne only)

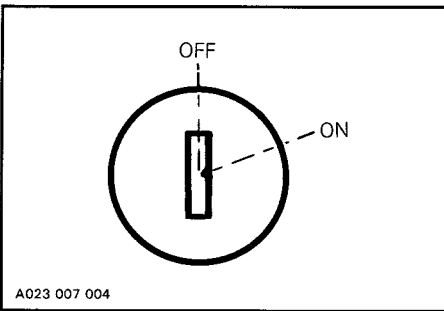
## A) Throttle Lever

Located on the right side of handlebar. When compressed, it controls the engine speed and the engagement of the transmission. When released, engine speed returns automatically to idle.

## B) Brake Lever

Located on the left side of handlebar. When compressed, the brake is applied. When released, it automatically returns to its original position. Braking effect is proportionate to the pressure applied on the lever and to the type of terrain and its snow coverage.

## C) Ignition Switch

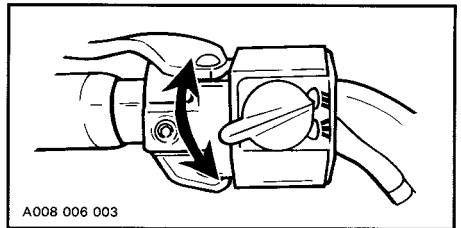


Key operated two position switch. To start the engine, first turn key to ON position. To stop engine, turn key to OFF position.

The lights are automatically ON whenever the engine is running.

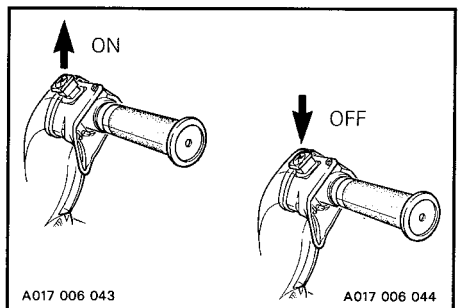
## D) Headlamp Dimmer Switch

The dimmer switch allows correct selection of headlamp beam. To obtain high or low beam simply flick switch.



## E) Emergency Cut-Out Switch

To stop the engine in an emergency, push the button to the lower off position and simultaneously apply the brakes. To start engine, button must be at the upper on position.





The driver of this vehicle should familiarize himself with the function of this device by using it several times on first outing. Thereby being mentally prepared for emergency situations requiring its use.

◆ **WARNING :** For safety reasons, the emergency cut-off switch is easily accessible ; be careful not to operate it inadvertently. If the switch has been used in an emergency situation the source of malfunction should be determined and corrected before restarting engine.

## F) Tether Cut-Out Switch

Attach tether cord to wrist or other convenient location of the driver's clothing. Snap tether cut-out cap over receptacle before starting engine.

If emergency engine "shut off" is required, completely pull cap from safety switch and engine power will be automatically "shut off".

○ **NOTE :** The cap must be installed on the safety switch at all times in order to operate the vehicle.

◆ **WARNING :** If the switch is used an emergency situation the source of malfunction should be determined and corrected before restarting engine.

## G) Rewind Starter Handle

Auto rewind type located on right hand side of vehicle. To engage mechanism, pull handle slowly until a resistance is felt then pull vigorously.

## H) Primer Button

Pull and push button (two three times) to start a cold engine. Not necessary to start a warm engine.

## I) Adjustable Steering Handle

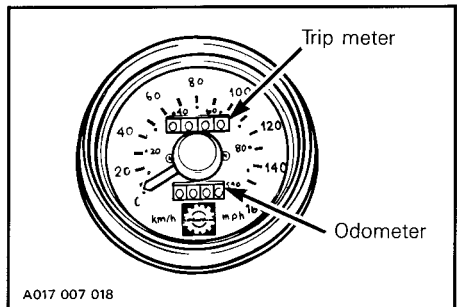
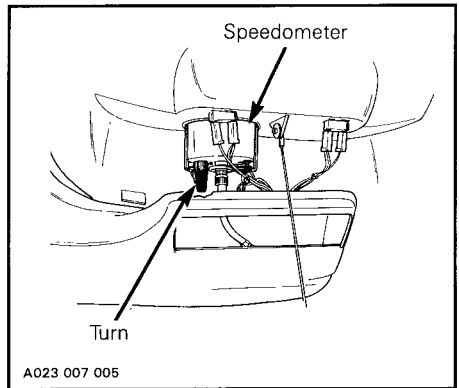
Steering handle height is adjustable. See your authorized dealer.

## J) Speedometer/Odometer

The speedometer is linked directly to the drive axle. Direct-reading dial indicates the speed of the vehicle. Odometer records the total distance travelled in kilometers.

### Trip Meter Button (Cheyenne only)

The trip meter reset button is located on the speedometer housing. To reset, open hood and turn black knob until all numbers read zero.



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## **K) Injection Oil Level Pilot Lamp (Red)**

Will light up when injection oil level is low. Check level and replenish as soon as possible.

▼ **CAUTION** : Do not run engine out of oil. Serious engine damage will occur.

Whenever brake lever is compressed, oil level pilot lamp should light up. If not, replace lamp.

## **L) Hood Opening**

Pull down the latches to unlock the hood from the anchors.

○ **NOTE** : Always lift hood gently up until stopped by restraining device.

◆ **WARNING** : It is dangerous to run an engine with the hood opened, unfastened or removed.

## **M) Tank Cap**

Unscrew to fill up tank then fully tighten.

◆ **WARNING** : Never use open flame to check fuel level.

## **N) Fuel Level Gauge**

Mounted on left hand side of the fuel tank, it allows a quick check of fuel level.

## **O) High Beam Pilot Lamp (Blue) (Cheyenne only)**

Lights up when headlamp is on high beam.

## **P) Gear Shift Lever (Cheyenne only)**

A push/pull lever. Push lever forward to engage transmission forward and pull rearward to engage in reverse. The Cheyenne has a park position which should be used when vehicle is stopped.

▼ **CAUTION** : Do not exceed idle speed in park position.

## **Seat Strap**

Located on middle of seat. Provides a grip for the rear passenger.

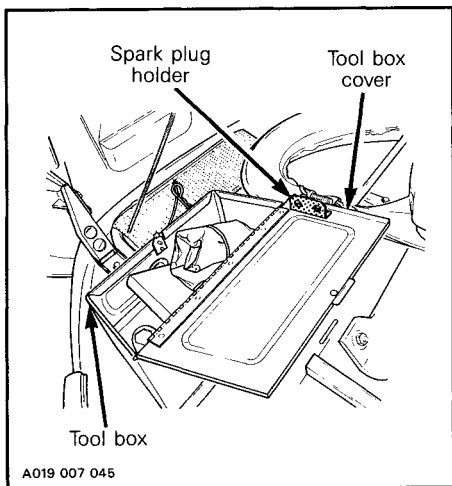
## **Tool Box**

Located under the hood. To gain access, tilt hood. Ideal location for spare spark plugs, rope, first aid kit, flashlight, etc.

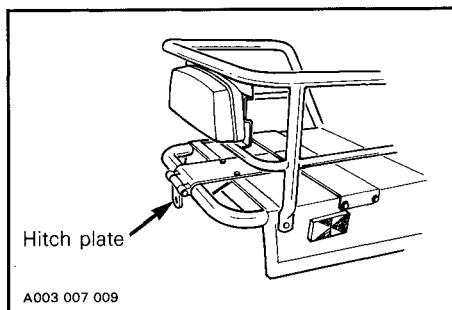
## **Spark Plug Holder**

To keep spark plugs dry and prevent shocks that might affect the adjustment or break them, a holder is provided in the inside of the tool box cover.

Fully tighten them into the holder.



## Hitch (Cheyenne only)



The Cheyenne equipped with a hitch, plate, on the rear bumper. A hook type may be fitted to the actual hitch. Consult your authorized dealer for details.

Trailers or sleds towed behind a snowmobile should always be loaded in a way to obtain the lowest possible center of gravity. Use a rigid tow bar when pulling a tow sled behind your snowmobile. When you are pulling passengers in a trailer or tow sled, use moderate speed and avoid rough terrain for their safety. Also, have all passengers get out of a towed vehicle and walk across all roads.

## Accessories

Some optional accessories might be added to your vehicle such as speedometer, tachometer, hitch, electric starter, etc, if not standard on your vehicle. Ask your authorized dealer for more information.

# BREAK-IN PERIOD

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## Engine

With Bombardier-Rotax snowmobile engine, a break-in period is required before running the vehicle at full throttle. Engine's manufacturer recommendation is 10 to 15 operating hours. During this period, maximum throttle should not exceed 3/4, however, brief full acceleration and speed variations contribute to a good break-in. Continued wide open throttle accelerations, high cruising speeds, and engine over-heating are detrimental during the break-in period.

○ **NOTE :** To assure additional protection during the initial engine break-in, 500 mL (17 oz) of BLIZZARD OIL (P/N 496 0135 00) or the same quantity of Bombardier injection oil should be added to fuel for the **first** full fuel tank filling.

▼ **CAUTION :** Remove and clean spark plugs after engine break-in.

## Belt

A new drive belt requires a break-in period of 25 km (15 miles).

## 10-Hour Inspection

As with any precision piece of mechanical equipment, we suggest that after the first 10 hours of operation or 30 days after the purchase, whichever comes first, your vehicle be checked by your authorized dealer. This inspection will give you the opportunity to discuss the unanswered questions you may have encountered during the first hours of operation.

---

**The 10-hour inspection is at the expense of the vehicle owner.**

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<b>10-HOUR INSPECTION CHECKLIST</b>	<b>✓</b>
Engine timing	
Fan belt tension	
Spark plugs condition : (Remove and clean)	
Carburetor adjustment	
Oil injection pump adjustment	
Engine head nuts	
Drive pulley screw (torque)	
Engine mount nuts	
Muffler attachment	
Transmission/Chaincase oil level	
Injection system oil level	
Brake operation and lining condition	
Ski alignment (runner condition)	
Handlebar bolts, retorque to 26 N•m (19 lbf•ft)	
Pulley alignment and drive belt condition	
Track condition, tension and alignment	
Lubrication (steering, suspension, etc.)	
Electrical wiring (wiring, connections)	
Tighten all loose bolts, nuts and linkage	
Operation of lighting system (HI / LO beam, brake light, etc.), test operation of emergency cut-out switch and tether switch	

**We recommend that you have your dealer sign this inspection list.**

\_\_\_\_\_  
Date of 10-hour inspection

\_\_\_\_\_  
Dealer signature

## Recommended Fuel

Use **regular leaded or unleaded gasoline** available from all service stations or **gasohol with less than 10% of ethanol**.

▼ **CAUTION** : Never experiment with other fuels or fuel ratios. The use of fuel containing methanol, or similar products including naphtha is not recommended. The use of unrecommended fuel can result in vehicle performance deterioration and damage to critical parts in the fuel system and engine components.

◆ **WARNING** : Never “top up” the fuel tank before placing the vehicle in a warm area. At certain temperatures, fuel will expand and overflow. Always wipe off any fuel spillage from the snowmobile. Fuel is flammable and explosive under certain conditions.

## Recommended Oil

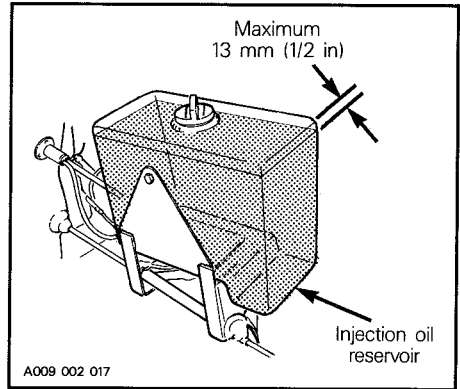
Use “Bombardier Snowmobile Injection Oil” (P/N 496 0133 00 - 1 liter) available from the authorized dealer. This type of oil will flow at temperatures as low as minus 40°C (-40°F).

If “Bombardier Snowmobile Injection Oil” is unavailable, substitute with **BLIZZARD OIL** (P/N 496 0135 00 - 500 mL) or equivalent.

▼ **CAUTION** : Never use outboard or straight mineral oils.

## Oil Injection System

Always maintain a sufficient amount of “Bombardier Snowmobile Injection Oil” in the injection oil reservoir.



▼ **CAUTION** : Check level and refill every time you refuel. Do not overfill.

○ **NOTE** : To assure additional protection during the initial engine break-in, 500 mL (17 oz) of **BLIZZARD OIL** (P/N 496 0135 00) or the same quantity of Bombardier Injection oil should be added to fuel for the **first** full fuel tank filling.

# PRE-START CHECK

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## Check Points

- **ACTIVATE THE THROTTLE CONTROL LEVER SEVERAL TIMES** to check that it operates easily and smoothly. It must return to idle position when released.
- Check that the skis and the track are not frozen to the ground or snow surface and that steering operates freely.
- Activate the brake control lever and make sure the brake fully applies before the brake control lever touches the handlebar grip. It must fully return when released.

- Check injection oil level.
- Check fuel level.
- Verify that the path ahead of the vehicle is clear of bystanders and obstacles.
- Clean and check operation of the headlight, taillight and brake light.

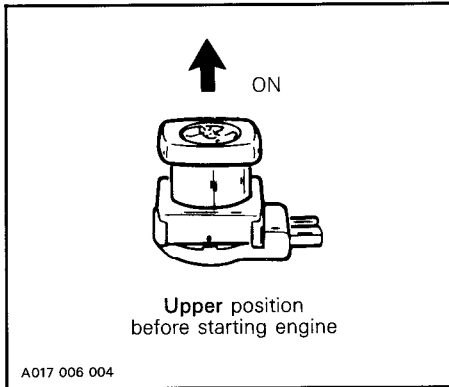
◆ **WARNING : Only start your snowmobile once all components are checked and functioning properly.**

# STARTING PROCEDURE

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Test throttle control lever operation.

Check that the emergency cut-out switch is in the ON position.



Ensure the tether cut-out cap is in position and that the cord is attached to the clothing.

Activate the primer (two or three times).

○ **NOTE :** The use of the primer is not necessary when the engine is warm.

▼ **CAUTION :** Use of ether or other types fluid as a starting aid can cause damage to engine components.

On models equipped with an electric starter, follow either manual or electric starting procedure.

## Manual Starting

Insert the key in the ignition and turn to ON position.

Grasp manual starter handle firmly and pull slowly until a resistance is felt then pull vigorously. Slowly release the rewind starter handle.

◆ **WARNING :** Do not apply throttle while starting.

## Before Riding

Check operation of the emergency cut-out switch and tether switch. Restart engine.

**WARNING:** If engine does not shut-off when applying the emergency cut-out switch and/or when pulling the tether cut-out cap, stop the engine by turning off the ignition key. Do not operate the vehicle further, see your authorized dealer.

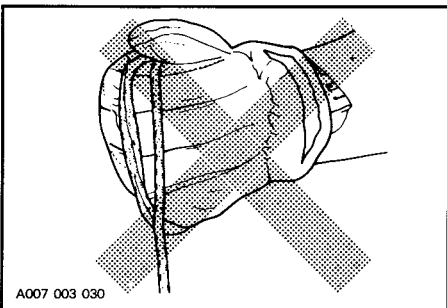
Allow the engine to warm before operating at full throttle.

**NOTE:** Engine is warm when operating temperature has been reached on temperature gauge. On vehicles without temperature gauge, let engine idle three to five minutes.

## Emergency Starting

Should the rewind starter rope fray and break, the engine can be started with the emergency starter rope supplied with the tool kit.

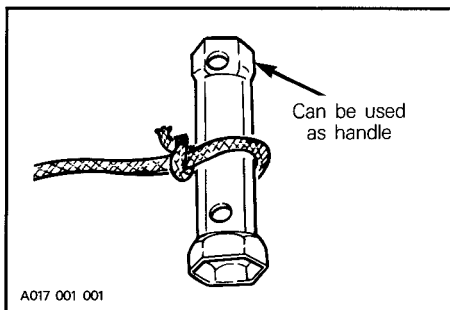
**WARNING:** Do not wind starting rope around your hand. Hold rope by the handle only.



**WARNING:** Do not start the vehicle by the drive pulley unless it is a true emergency situation. Have the vehicle repaired as soon as possible.

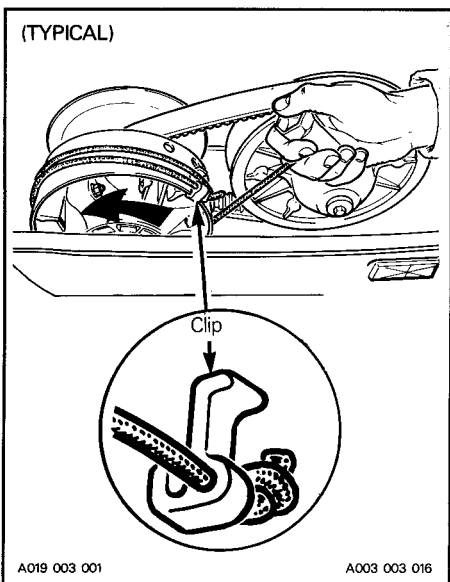
Attach emergency rope to any available handle.

**NOTE:** The spark plug socket can be used as an emergency starter grip.



## Cheyenne

Attach other end of emergency rope to starter clip supplied in tool box. Wind rope tightly around drive pulley.

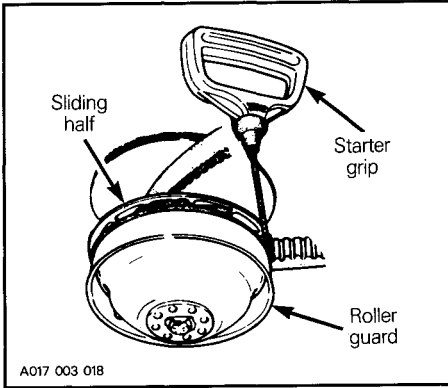




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## Safari Scout

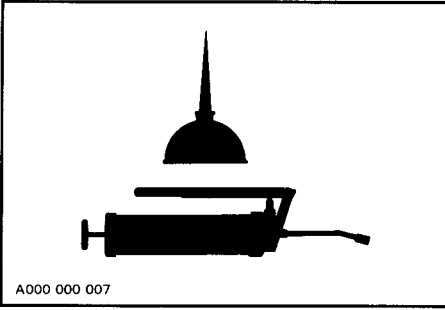
Wind the emergency rope tightly around the drive pulley between the sliding half and the roller guard.



## Both Models

Start engine as per usual manual starting.

# LUBRICATION



## Frequency

Routine maintenance is necessary for all mechanized products, and the snowmobile is no exception. A weekly vehicle inspection contributes to the life span of the snowmobile.

It is recommended that the steering system and suspension be lubricated monthly or every 40 hours of operation. If the vehicle is operated in wet snow or in severe conditions these items should be lubricated more frequently.

○ **NOTE** : When lubricating grease fittings, grease until grease appears at joints. Always use low temperature grease (P/N 413 7061 00).

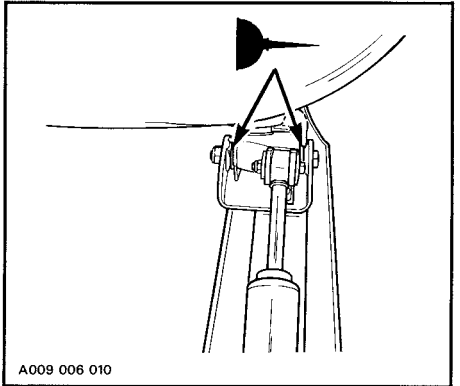
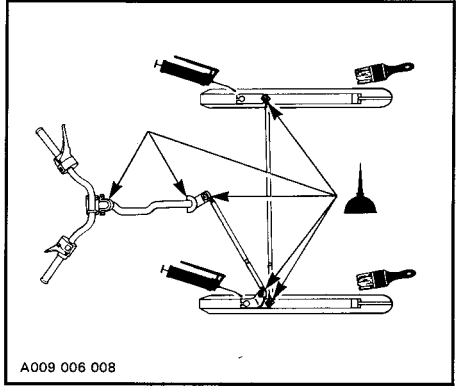
◆ **WARNING** : Only perform such procedures as detailed in this guide. It is recommended that dealer assistance be periodically obtained on other components/systems not covered in this guide. Unless otherwise specified, engine should be turned OFF for all lubrication and maintenance procedures.

## Steering Mechanism

◆ **WARNING** : Do not lubricate throttle and/or brake cables and housings.

Lubricate the ski legs at grease fittings until new grease appears at joints. Coat spring slider cushion with grease. Oil spring coupler bolts.

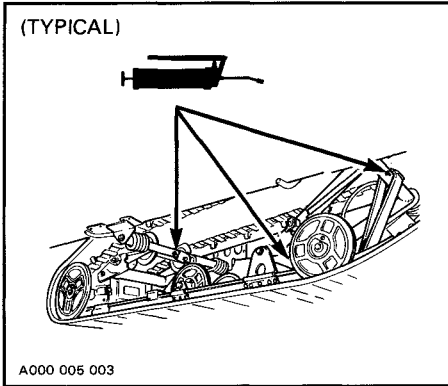
Oil ball joints and steering column bushings.



## Slide Suspension

### Safari Scout

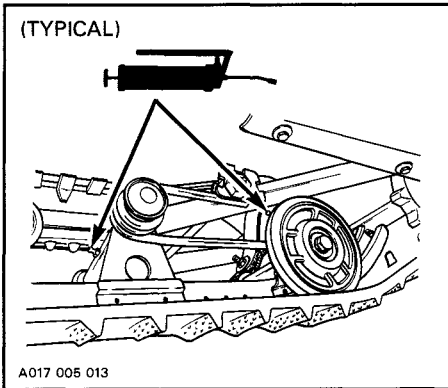
Lubricate front & rear arms at grease fittings until grease appears at joints. Use low temperature grease only.



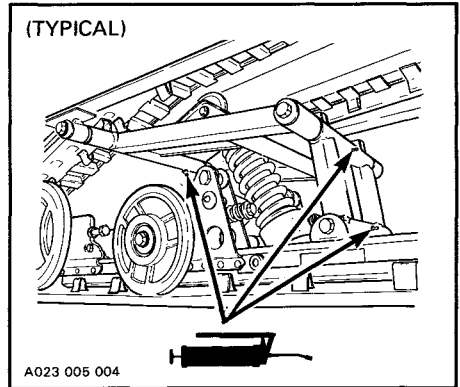
### Cheyenne

Lubricate the following parts at grease fitting until grease appears at joints. Use low temperature grease only.

- Front upper and lower cross shafts.



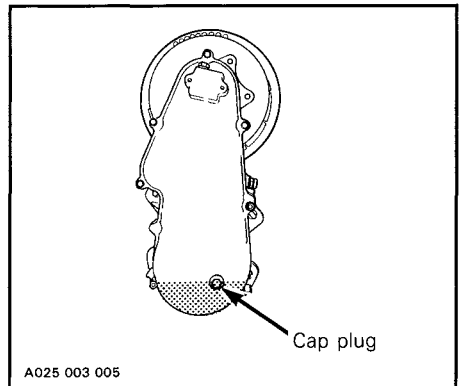
- Rear cross shaft and both shafts of shackle.



### Safari Scout

## Chaincase Oil Level

Check the oil level by removing the level cap plug. The oil level should be equal with the bottom of the hole. Refill as required using Bombardier chaincase oil (P/N 413 8019 00 - 250 mL (9 oz)).

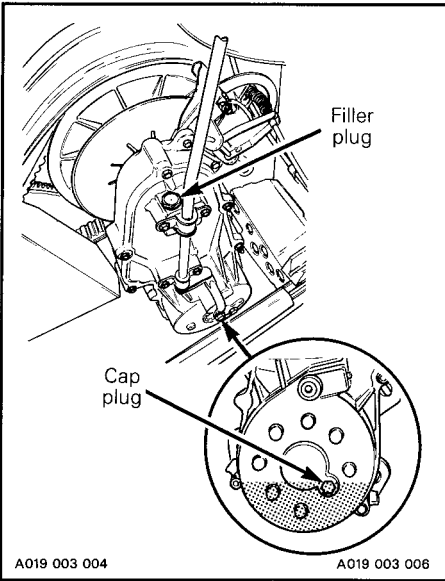


○ NOTE : The chaincase oil capacity is approximately 250 mL (9 oz).

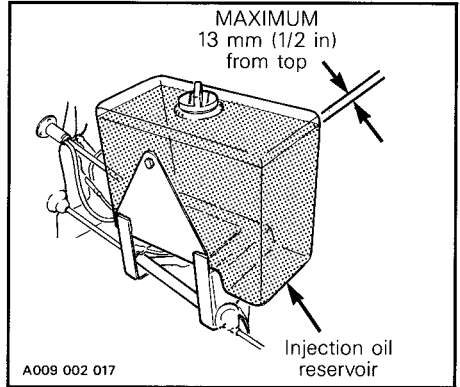
## Cheyenne

### Transmission Oil Level

Check the oil level by removing the oil level cap plug. The oil level should be equal with the bottom of the hole.



▼ **CAUTION** : Never allow oil level to drop more than 2/3.



▼ **CAUTION** : Check level and refill every time you refuel. Do not overfill.

### Driven Pulley

Remove pulley guard and slip off drive belt. Open the driven pulley, (push and twist sliding half.)

Thoroughly clean the driven pulley shaft.

Apply a light film of low-temperature grease on the shaft. Always wipe off surplus.

○ **NOTE** : Activate the sliding half several times to distribute lubricant over full length of shaft. Be careful that lubricant does not get on inner halves of pulley.

### Brake Caliper

See your authorized dealer.

◆ **WARNING** : Do not lubricate throttle and/or brake cables and housings.

To fill, remove filler plug from top of transmission. Refill as required using Bombardier chaincase oil (P/N 413 8019 00 – 250 mL).

○ **NOTE** : The transmission oil capacity is approximately 500 mL (17 oz).


### Both Models


### Oil Injection System

Always maintain a sufficient amount of Bombardier Snowmobile Injection Oil in the injection oil reservoir.


# MAINTENANCE

The following Maintenance Chart indicates regular servicing scheduled to be performed by you or your authorized dealer. If these services are performed as suggested, the snowmobile will provide many years of use.

 **NOTE :** Shadow areas in chart indicate recommended frequency.

 **WARNING :** Only perform such procedures as detailed in this guide. It is recommended that dealer assistance be periodically obtained on other components/systems not covered in this guide. Unless otherwise specified, engine should be turned OFF for all lubrication and maintenance procedures.

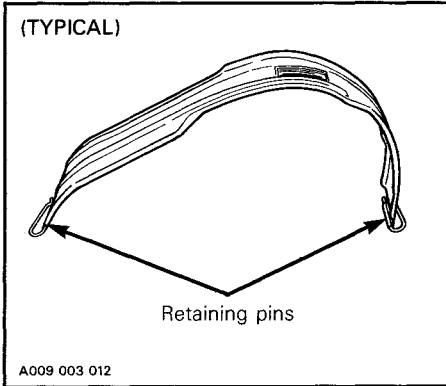
<b>MAINTENANCE CHART</b>	Weekly or every 240 km (150 mi)	Monthly or every 800 km (500 mi)	Once a year or every 3200 km (2000 mi)	Refer to page
Drive belt condition				29
Brake condition				29
Brake adjustment				30
Spark plugs				31
Suspension condition				31
Suspension stopper strap condition				31
Suspension adjustment	(as required)			31
Track condition				34
Track tension and alignment	(as required)			34
Drive pulley				36
Steering mechanism				37
Ski and runner wear and condition				37
Steering adjustment				37
Muffler attachment				38
Engine head nuts				38
Engine mount nuts				39
Carburetor adjustment				39
Injection oil filter condition				40
Oil injection pump adjustment				40
Fan belt				41
Headlamp beam aiming				41
General inspection				42

 **NOTE :** The 10-hour inspection is a very important part of proper service and maintenance.

## Belt Guard Removal

◆ **WARNING** : Engine should be running only when belt guard is secured in place.

1. Tilt the hood.
2. Pull out both retaining pins.

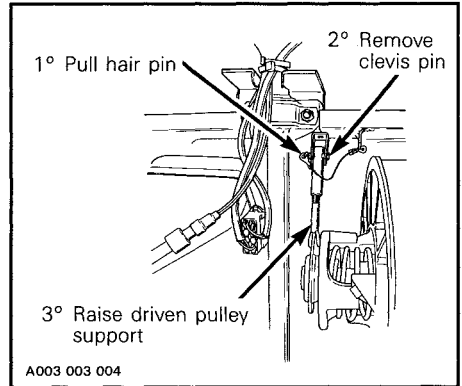


3. Lift and remove the belt guard.

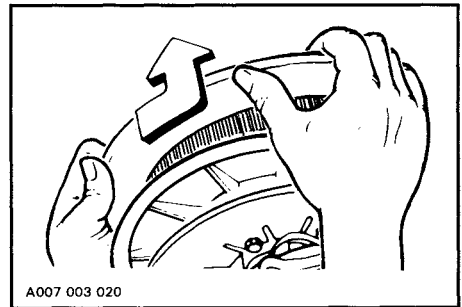
## Drive Belt Removal and Installation

◆ **WARNING** : Never start or run engine without the drive belt installed. Running an unloaded engine is dangerous.

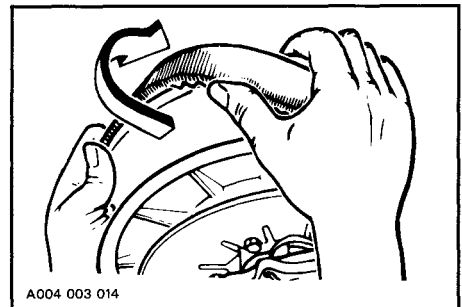
1. Remove ignition key.
2. Remove the belt guard.
3. Unlock and raise driven pulley support.



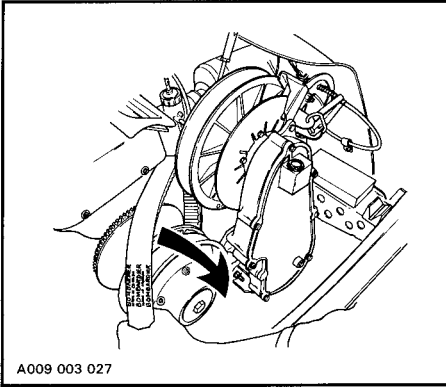
4. Open the driven pulley by twisting and pushing the sliding half. Hold in fully open position.



5. Slip slackened belt over the top edge of the sliding half.

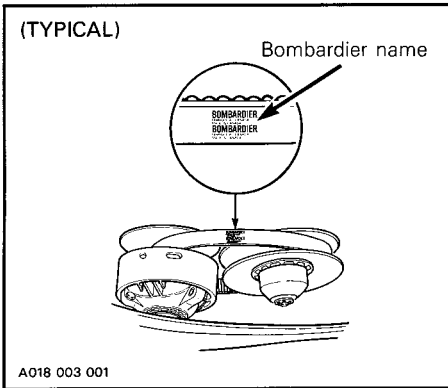


6. Slip the belt out from the drive pulley and remove completely from vehicle.



To install the drive belt, reverse the procedure, however pay attention to the following :

The maximum drive belt life span is obtained when the belt has the proper rotation direction. Install it so the Bombardier name on the belt can be read when facing pulleys.



**CAUTION :** Do not force or use tools to pry the belt into place, as this could cut or break the cords in the belt.

## Drive Belt Condition

Inspect belt for cracks, fraying or abnormal wear (uneven wear, wear on one side, missing cogs, cracked fabric). If abnormal wear is noted, probable cause could be pulley misalignment, excessive RPM with frozen track, fast starts without warm-up period, burred or rusty sheave, oil on belt or distorted spare belt. Contact the dealer.

Check the drive belt width. If less than 31.7 mm (1-1/4 in), replace the drive belt.

## New Drive Belt

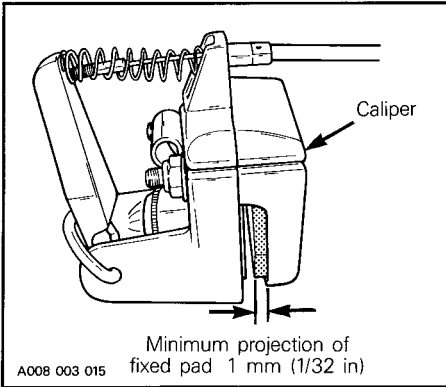
When installing a new drive belt, break in period of 25 km (15 miles) is strongly recommended.

**NOTE :** Always store a spare belt in a manner to allow its natural shape to be maintained.

## Brake Condition

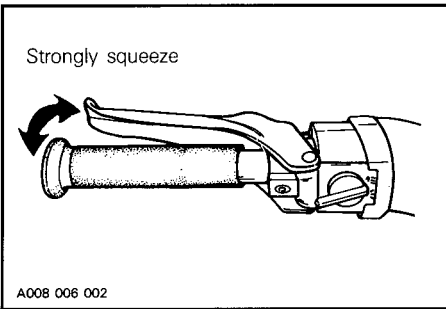
The brake mechanism on your snowmobile is an essential safety device. Keep this mechanism in proper working condition. Above all, do not operate the snowmobile without an effective brake system.

**WARNING :** Brake pads must be replaced when fixed pad projects only 1 mm (1/32 in) from caliper. Replacement must be performed by an authorized dealer.

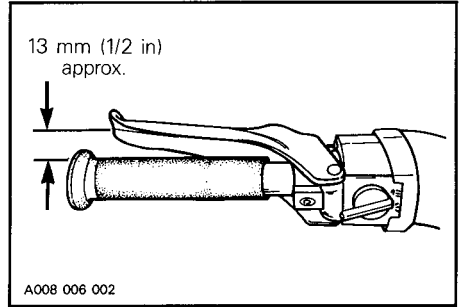


## Brake Adjustment

If a quicker brake response is desired, strongly squeeze the brake lever several times, this will actuate the self adjusting mechanism.

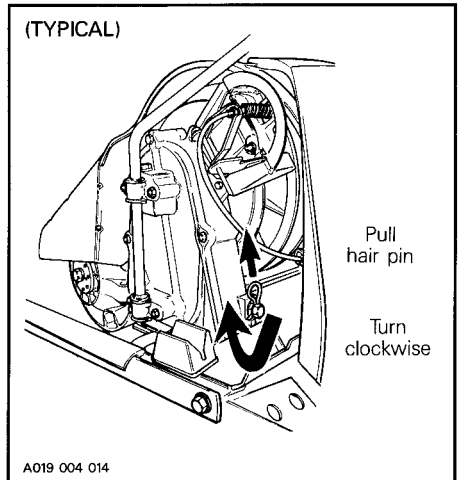


After the adjustment, brake should apply fully when lever is approximately 13 mm (1/2 in) from handlebar grip. If not, do not tamper with the brake, contact your dealer.



## Drive Chain Tension

Run vehicle forward so that true free-play can be taken. To adjust, remove the hair pin from adjusting screw. Fully tighten adjusting screw **by hand** then back off only far enough for hair pin to engage in locking hole.





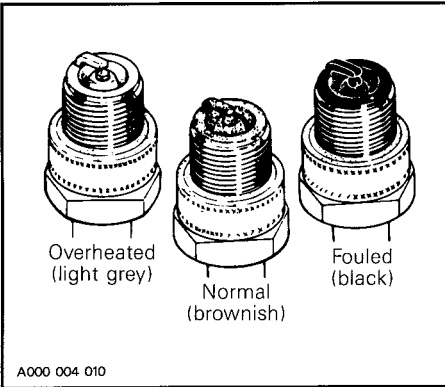
**◆ WARNING :** If the specified free-play is not reached with the tensioner screw fully tightened, consult an authorized dealer.

## Spark Plugs

Disconnect the spark plug wires and remove the spark plugs.

Check the condition of the plugs.

- A brownish tip reflects ideal conditions. (Carburetor adjustments, spark plug heat range, etc., are correct).
- A black insulator tip indicates fouling caused by : carburetor idle speed mixture and/or high speed mixture too rich, incorrect oil injection pump adjustment, wrong type of spark plug (heat range), or excessive idling.
- A light grey insulator tip indicates a lean mixture caused by : carburetor high speed mixture adjusted too lean, wrong spark plug heat range, oil injection pump adjustment, or a leaking seal or gasket.



**▼ CAUTION :** If spark plug condition is not ideal, contact your authorized dealer.

Check spark plug gap using a wire feeler gauge. It should be 0.4 mm (.016 in). Reinstall spark plugs and connect wires.

## Suspension Condition

Visually inspect all suspension components including slider shoes, springs, wheels, etc.

**○ NOTE :** During normal driving, snow will act as a lubricant and coolant for the slider shoes. Extensive riding on ice or sanded snow, will create excessive heat build-up and cause premature slider shoe wear.

## Stopper Strap Condition

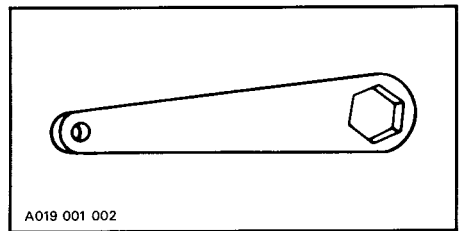
Inspect strap for wear and cracks, bolt and nut for tightness. If loose inspect holes for deformation. Replace as required. Torque nut to 10 N•m (89 lbf•in).

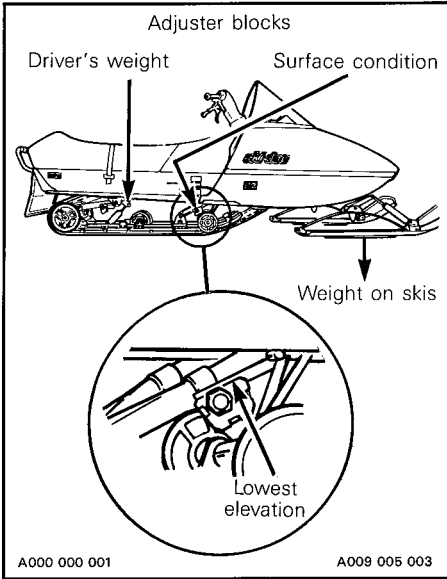
## Suspension Adjustment

### Scout

#### Adjuster Blocks

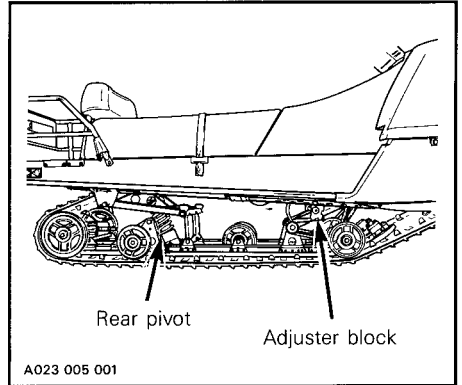
The suspension is adjustable. The front adjustment for surface condition, the rear for driver's weight. Use the special key located in tool box.





## Cheyenne

The front portion of the rear suspension is adjustable for surface condition and steering effects. Besides, the suspension rear pivot is adjustable depending on the operator's requirement.



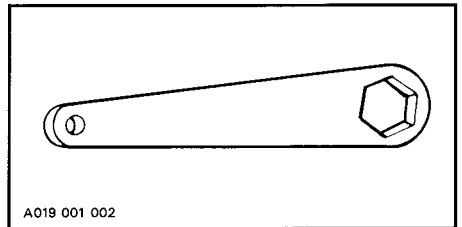
When the front adjuster blocks are at the lowest elevation, more weight is distributed on the skis.

At the highest position, the weight is transferred from the skis to the track. The rear adjuster blocks should be adjusted to suit the driver's preference.

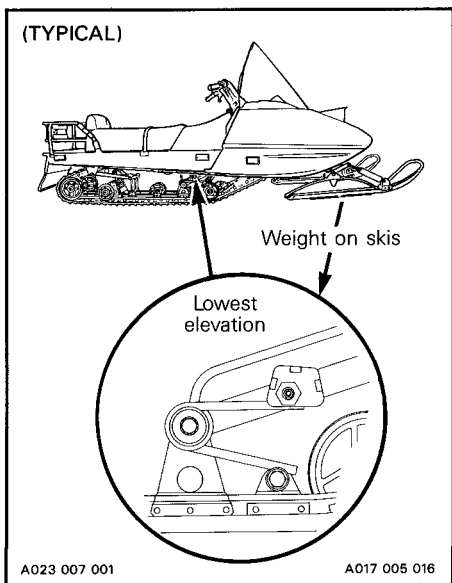
▼ **CAUTION:** Always turn the left side adjuster blocks in a clockwise direction, the right side blocks in a counter-clockwise direction. Left and right adjuster blocks of each adjustment must always be set at the same elevation.

## Adjuster Blocks

Use the key supplied in the tool box.



When the front adjuster blocks are at the lowest elevation, more weight is distributed to the skis, thus giving a more positive steering.

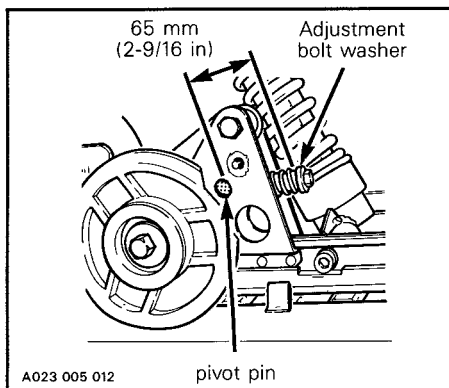


At the highest position the weight is transferred to the track thus giving a better traction.

▼ **CAUTION:** Always turn the left side adjuster blocks in a clockwise direction, the right side blocks in a counterclockwise direction. Left and right adjuster blocks of each adjustment must always be set at the same elevation.

### Suspension Rear Pivot

To prevent the rear portion of the track from digging in the snow when in reverse; the slide is hinged and spring loaded at the rear. To check for correct preload, measure the distance from the outer edge of the pivot to the inner edge of the adjustment bolt washer. The distance should be 65 mm (2-9/16 in).



○ **NOTE:** The driver can customize this adjustment to meet his particular needs. For instance should one is most of the time pulling a load and uses rarely the reverse, the rear pivot could be "locked" by fully tighten the adjustment bolt thus getting a better traction and a more positive steering.

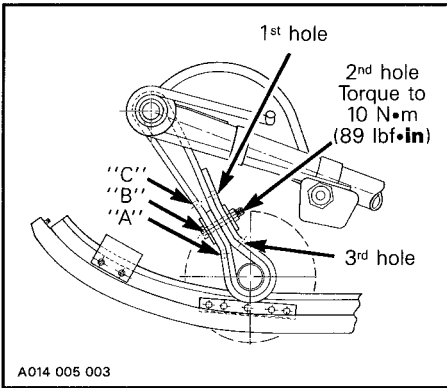
### Both Models

### Stopper Strap

The function of the suspension stopper strap is to control the transfer of vehicle weight during acceleration. The longer the belt, the more the weight will be transferred to the track to provide a better traction. The shorter the belt, the lesser the weight transferred to the track, thus maintaining a more positive direction. Adjusting holes on the stopper strap allow to adjust it according to driver's requirements, field and/or snow conditions.

For normal use locate bolt through 2<sup>nd</sup> hole and its corresponding hole "B".

HOLE NUMBER	CORRESPONDING HOLE
1	"A"
2	"B"
3	"C"



**WARNING** : Always torque the nut to 10 N•m (89 lbf•in).

### Track Condition

Lift the rear of the vehicle and support it off the ground. With the engine **OFF**, rotate track by hand, and inspect condition. If worn or cut, or if track fibers are exposed, or if missing or defective inserts or guides are noted ; contact your authorized dealer.

**WARNING** : Do not operate a snowmobile with a cut, torn or damaged track.

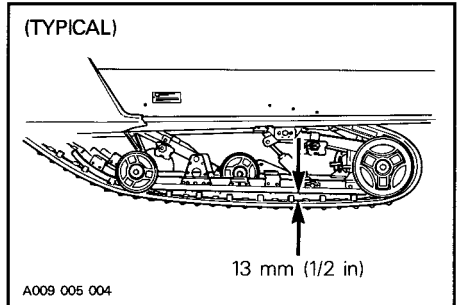
## Track Tension and Alignment

### Tension :

Lift the rear of vehicle and support with a mechanical stand. Allow the suspension to extend normally and check gap half-way of slider shoe.

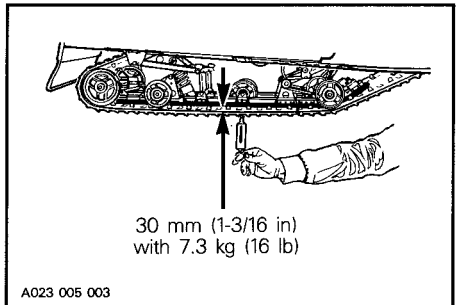
### Safari Scout

The gap should be 13 mm (1/2 in) between the slider shoe and the bottom inside of the track.



### Cheyenne

The gap should be 30 mm (1-3/16 in) between the slider shoe and the bottom inside of the track when applying a downward pull of 7.3 kg (16 lb). The gap should be measured close to suspension center idler wheel.

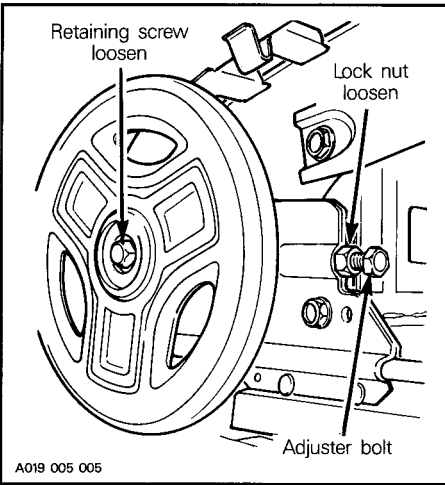


## Both Models

If the track tension is too loose, the track will have a tendency to thump.

**CAUTION:** Too much tension will result in power loss and excessive stresses on suspension components.

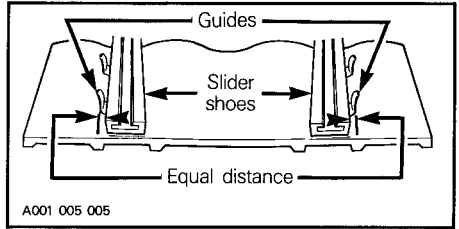
If necessary to adjust; loosen the rear idler wheel retaining screw and the adjuster bolt lock nut; then loosen or tighten the adjuster bolts located on the inner side of the rear idler wheels. If correct tension is unattainable, contact your authorized dealer.



**NOTE:** Track tension and alignment are inter-related. Do not adjust one without the other.

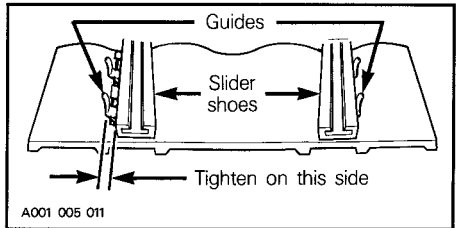
## Alignment

Start the engine and accelerate slightly so that track barely turns. This must be done in a short period of time (one to two minutes). Check that the track is well centered; equal distance on both sides between edges of track guides and slider shoes.

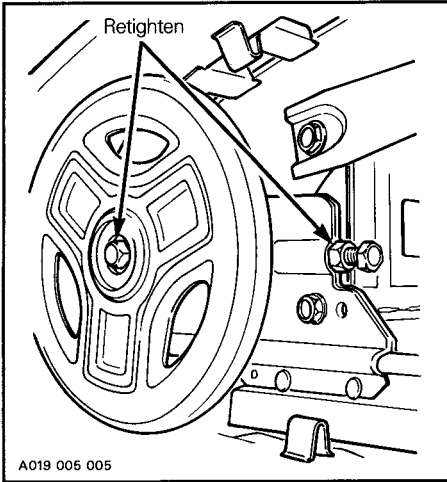


**WARNING:** Before checking track alignment, ensure that the track is free of all particles which could be thrown out while track is rotating. Keep hands, tools, feet and clothing clear of track. Ensure no one is standing in close proximity to the vehicle.

To correct, **stop the engine**, loosen the rear idler wheels retaining screws then loosen the lock nuts and tighten the adjuster bolt on side where the slider shoe is the farthest from the track insert guides.



Tighten lock nuts and the idler wheel retaining screws.



Restart engine, rotate track **slowly** and recheck alignment.

### Drive and Driven Pulleys

These are complex mechanism which operate at high rotational speeds. Each pulley is dynamically balanced at the factory. Any tempering by the owner may disrupt this precision balancing and create an unstable condition.

The pulleys are factory adjusted to provide the best performance under most riding conditions. However certain conditions, such as deep snow, high altitude, pulling a load, etc. may require a different adjustment. Contact an authorized dealer for adjustment.

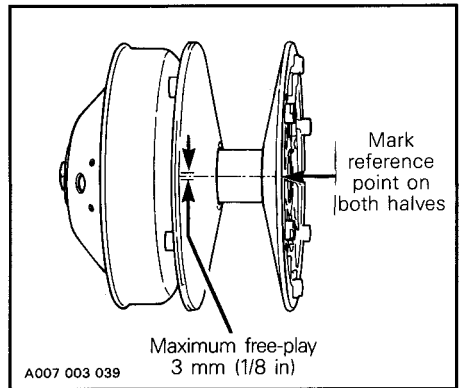
◆ **WARNING :** The drive and driven pulleys must be inspected and cleaned by an authorized dealer at least annually.

This vehicle is equipped with the TRA drive pulley (Total Range Adjustable).

The drive pulley is factory adjusted to provide the best performance under most riding conditions. However certain conditions, such as deep snow, high altitude, pulling a load, etc. may require a different adjustment. Contact your authorized dealer for adjustment.

### Drive Pulley on Safari Scout

Inspect the Duralon bushing condition by checking the free-play of the sliding half pulley. This is achieved by restraining the inner half and checking if the sliding half moves in the direction of the arrows more than 3 mm (1/8 in). If so, contact your dealer.



◆ **WARNING :** The drive pulley should be inspected by an authorized dealer at least annually.

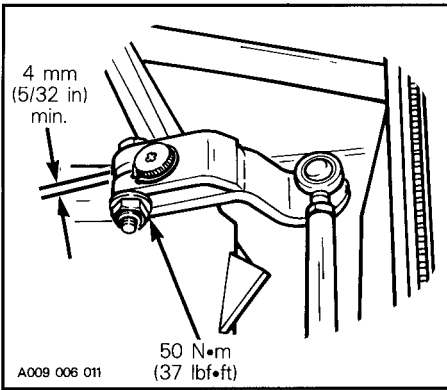
## Both Models

### Steering Mechanism

Inspect the steering mechanism for tightness of components (steering arms, tie rods, ball joints, spring coupler bolts, etc.) or wear. If necessary, replace or retighten.

**WARNING :** Check the condition of skis, ski runners and leaf springs, replace if weak. Replace ski runners if more than half worn.

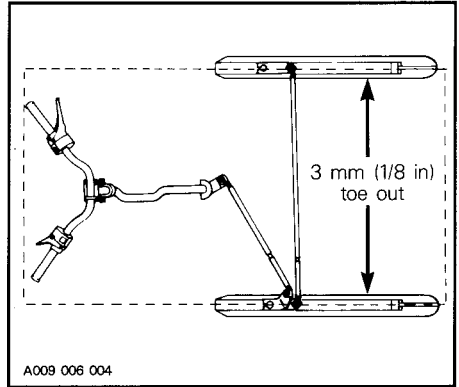
Torque steering arm bolt as illustrated below making sure to keep a minimum gap of 4 mm (5/32 in) between lugs.



### Steering Adjustment

Skis should have a toe out of 3 mm (1/8 in). To check, measure the distance between each ski at the front and rear of the leaf springs. The front distance should be 3 mm (1/8 in) more than the rear when the handlebar is horizontal.

**IMPORTANT :** Close the front of the skis manually to eliminate all slack from the steering mechanism using a rubber strap.



If adjustment is required :

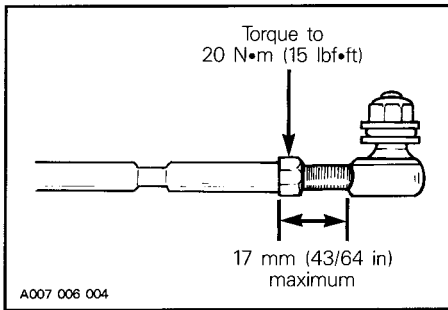
Loosen the lock nuts of the longest tie rod. Turn the tie rod manually until the skis are properly aligned. Firmly retighten the lock nuts.

The handlebar should also be horizontal when the skis are pointed toward the front.

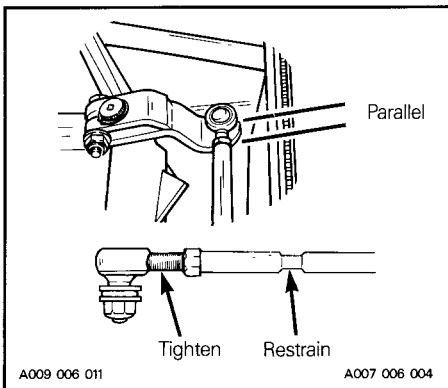
To adjust :

Loosen the lock nuts of the shortest tie rod. Turn the tie rod manually until the handlebar is horizontal. Retighten the lock nuts firmly.

**WARNING :** The maximum ball joint external threaded length not engaged in the tie rod end must not exceed 17 mm (43/64 in). Torque lock nut to 20 N•m (15 lbf•ft).



**WARNING :** The ball joint socket must run parallel with the steering arm. The tie rod must be restrained when tightening the tie rod end lock nuts.



## Exhaust System

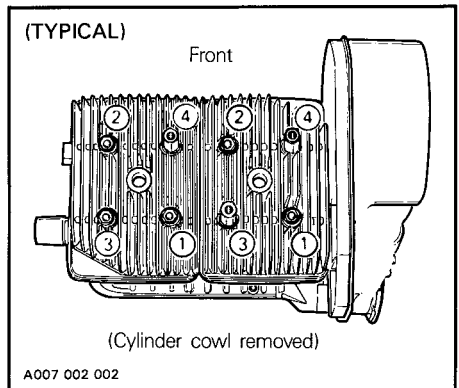
Repair or replace any components which has rusted or developed cracks or holes. Ensure muffler is properly secured in its mount and the ends or retaining springs have not been over-stretched. The tail pipe of the muffler should be centered with the exit hole in the bottom pan.

**CAUTION :** Do not operate vehicle with muffler disconnected otherwise serious engine damage will occur.

## Engine Head Nuts

With the engine cold, check that the engine head nuts are tight and equally torqued to 21 N•m (15 lbf•ft).

Respect tightening sequence as follows :



**IMPORTANT :** The engine head nut torque should be checked after the first 10 hours of operation.

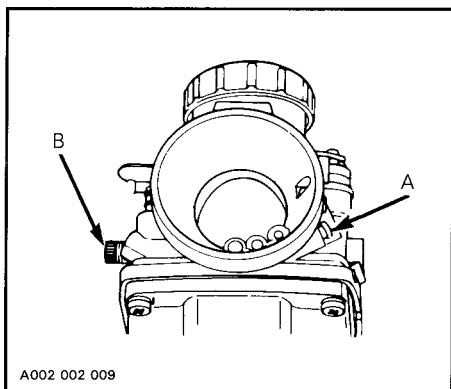


## Engine Mount Nuts

Check the engine mount nuts for tightness. Torque to 38 N•m (28 lbf•ft) if necessary.

## Carburetor Adjustment

▼ **CAUTION:** Never operate your snowmobile with the air intake silencer disconnected. Serious engine damage will occur if this notice is disregarded.



### A) Air Screw Adjustment

Completely close the air screw (until a slight seating resistance is felt) then back off screw 1-1/2 turn.

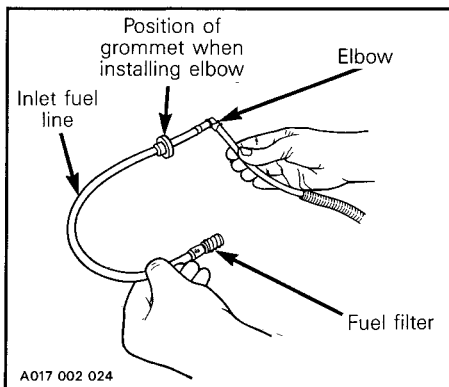
### B) Idle Speed Adjustment

Turn the idle speed screw clockwise until it contacts the throttle slide then continue turning two (2) additional turns. This will provide a preliminary idle speed setting. Start engine and allow it to warm then adjust the idle speed to 1800-2000 RPM by turning the idle speed screw clockwise or counter-clockwise.

## Fuel Filter Replacement

Drain fuel tank.

Remove fuel line grommet of fuel tank and pull out inlet fuel line from tank.



Replace fuel filter. To facilitate the fuel line installation, slide grommet on fuel line about 50 mm (2 in) away from elbow then install grommet on fuel tank and push elbow through grommet.

## Engine Compartment

Keep clean of grass, twigs, cloth, etc. These are combustible under certain conditions.

## High Altitude Kit

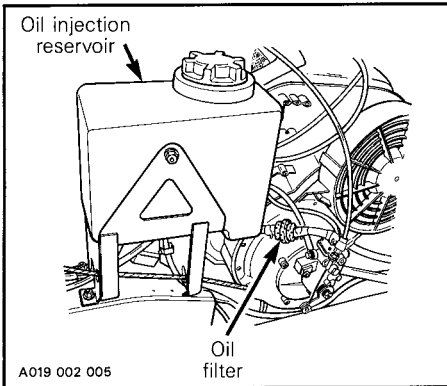
Snowmobiles used in high altitude areas (1200 m (4000 ft) and up) are subjected to loose power as temperature, elevation and snow condition are different. The carburetor and power train have to be recalibrated to meet those particular requirements. Ask your authorized dealer for more information on high altitude kit availability.

▼ **CAUTION :** Do not change original jetting if using vehicle below 1200 m (4000 ft).

## Oil Injection System

### Injection Oil Filter Condition

Inspect oil filter at least once a month. Insure that filter is not obstructed by foreign particles ; if so, see an authorized dealer.



▼ **CAUTION :** An obstructed injection oil filter will cause oil starvation resulting in serious engine damage.

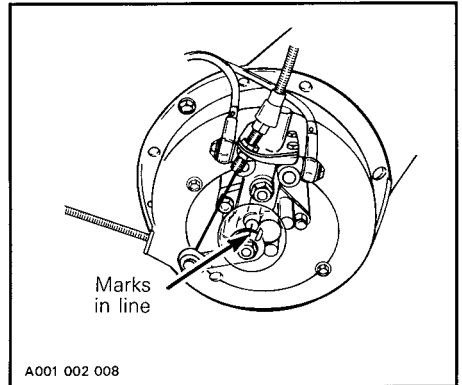
○ **NOTE :** After a storage period, it is important that the dealer replace the injection oil filter and that the oil flow of the injection pump be checked.

## Injection Pump Adjustment

Proper oil injection pump adjustment is very important. Any delay in the opening of the pump can result in serious engine damage.

▼ **CAUTION :** The carburetor must be adjusted before adjusting the oil injection pump. Make sure idle speed is 1800-2000 RPM.

To check adjustment: Eliminate the throttle cable free-play by pressing the throttle lever until a slight resistance is felt then hold in place. The aligning marks on the pump casting and lever must align perfectly. If not, contact an authorized dealer.

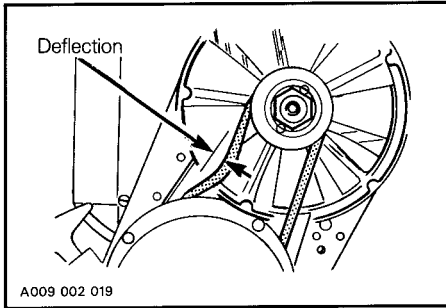


○ **NOTE :** Injection pump should be adjusted by an authorized dealer.

## Fan Belt

Inspect belt for cracks, uneven wear, etc. Check fan belt deflection.

MODELS	DEFLECTION
Safari Scout 377 engine type	8-9 mm (5/16" - 23/64")
Cheyenne 503 engine type	

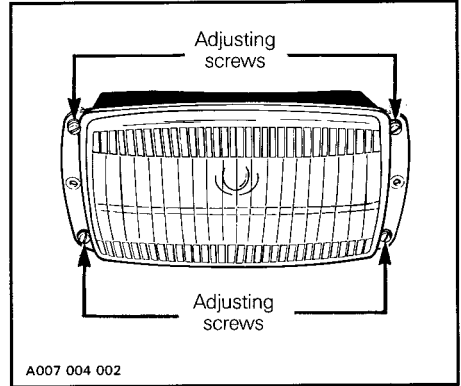


If belt seems damaged or if deflection is incorrect, contact an authorized dealer immediately.

◆ **WARNING :** If fan protector is removed, always reinstall after servicing.

## Headlamp Beam Aiming

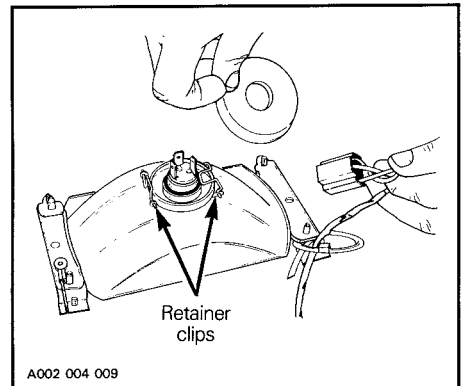
To adjust, remove the four caps, turn upper or lower adjusting screws to obtain desired beam position.



## Bulb Replacement

If the headlamp bulb is burnt, tilt hood, unplug the connector from the headlamp. Remove the protector cap and unfasten bulb retainer clips. Detach the bulb and replace.

▼ **CAUTION :** Never touch glass portion of an halogen bulb with bare fingers, it shortens it's operating life. If by mistake glass is touched clean it with isopropyl alcohol which will not leave a film on the bulb.



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If taillight bulb is burnt, expose the bulb by removing the red plastic lens. To remove, unfasten the two (2) screws.

◆ **WARNING** : Always check light operation after bulb replacement.

## **Wiring Harnesses, Cables and Lines**

Ensure each routing is well secured with proper fasten device (locking tie, clip, grommet, etc.) away from hot or rotating components.

## **General Inspection**

Check the electrical wiring and components, retighten loose connections. Check for stripped wires or damaged insulation. Thoroughly inspect the vehicle and tighten loose bolts, nuts and linkage.

◆ **WARNING** : Check condition of skis, ski runners and leaf springs, replace if weak. Replace ski runners if more than half worn.

# STORAGE

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It is during summer, or when a vehicle is not in use for any length of time that proper storage is a necessity. Storage of the snowmobile during long periods of inactivity consists of checking and replacing missing, broken or worn parts, proper lubrication and treatment to insure that parts do not become rusted ; cleaning items such as carburetor, to prevent gum and varnish formation within the carburetor, and in general, preparing the vehicle so that when the time comes to use the snowmobile again it will be in top condition.

◆ **WARNING :** Only perform such procedures as detailed in this guide. It is recommended that dealer assistance be periodically obtained on other components/systems not covered in this guide. Unless otherwise specified, engine should be turned OFF for all lubrication and maintenance procedures.

## Track

Inspect the track for wear, cuts, missing track guides and broken rods. Make any necessary replacement.

◆ **WARNING :** Do not operate a snowmobile with a cut, torn or damaged track.

Lift the rear of vehicle until track is clear of the ground then support with a brace or trestle. The snowmobile should be stored in such a way that the track does not stay in contact with the cement floor or bare ground.

○ **NOTE :** The track should be rotated periodically, (every 40 days). Do not release track tension.

▼ **CAUTION :** To prevent track damage, temperature in the storage area must not exceed 38°C (100°F).

## Suspension

Remove any dirt or rust. Lubricate suspension. Wipe off surplus. (Replace worn slider shoes).

## Skis and Runners

Wash or brush all dirt or rust accumulation from the skis and springs. Lubricate steering system.

◆ **WARNING :** Check condition of skis, ski runners and leaf springs. Replace if weak. Replace ski runners if more than half worn.

## Controls

Inspect all components for tightness, steering arm locking bolts, tie rods, ball joints, etc.). Tighten if necessary. Oil moving joints of the brake mechanism.

◆ **WARNING :** Do not lubricate the throttle and/or brake cables and housings. Avoid getting oil on the brake pads.

Coat all electrical connections and switches with silicone dielectric grease (P/N 413 7017 00). If unavailable, use petroleum jelly.

## Transmission

### Cheyenne

Drain the transmission and refill to proper level, using fresh chaincase oil (P/N 413 8019 00 – 250 mL (9 oz)). To drain, remove rubber plug from bottom pan then unscrew transmission drain plug.

○ **NOTE :** Transmission oil capacity is about 500 mL (17 oz).

### Chaincase

#### Safari Scout

Drain the chaincase and refill to proper level, using fresh chaincase oil (P/N 413 8019 00-250 mL (9 oz)). To drain, remove the chaincase cover.

**NOTE** : Chaincase oil capacity is about 250 mL (9 oz).

## Drive Pulley

Inspection and cleaning must be performed by your dealer at the beginning of each season.

## Engine

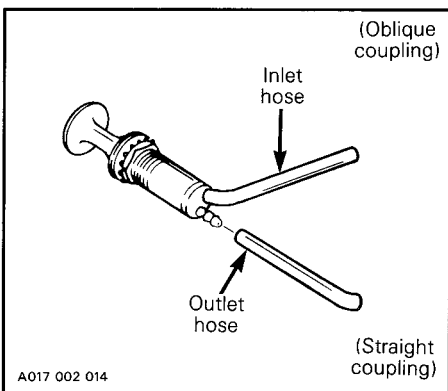
Engine internal parts must be lubricated to protect them from possible rust formation during the storage period.

To perform the storage procedures proceed as follows :

1. Lift the rear of the vehicle and support it off the ground.

**WARNING** : Ensure the track is free of all particles which could be thrown out while it is rotating. Keep hands, tools, feet and clothing clear of track. Ensure no one is standing in close proximity to the vehicle.

2. Start the engine and allow it to run at idle speed until the engine reaches its operational temperature.
3. Stop the engine.
4. To prevent fuel from draining, primer button should be pushed all the way.
5. Disconnect the outlet primer hose from the primer valve.



6. Insert storage oil (P/N 496 0141 00) can hose into primer outlet hose.
7. Restart engine and run at idle.
8. Inject storage oil until the engine dies or until a sufficient quantity of oil has entered the engine (approximately 30 seconds).
9. With the engine stopped, remove the spark plugs and pour approximately 85 mL (3 imp. oz) of Bombardier oil into each cylinder.
10. Crank slowly two or three revolutions to lubricate cylinders.
11. Reinstall the spark plugs and the outlet primer hose.

**Do not run engine during storage period.**

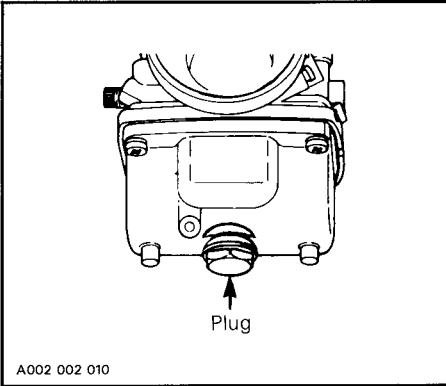
## Fuel Tank and Carburetor

Remove the cap then using a syphon, remove the fuel from tank.

**WARNING** : Fuel is flammable and explosive under certain conditions. Always manipulate in a well ventilated area. Do not smoke or allow open flames or sparks in the vicinity.

Carburetor must be dried out completely to prevent gum formation during the storage period.

Once the fuel tank is emptied, remove the float chamber drain plug from carburetor. Drain carburetor.



Reinstall plug.

Check all fuel lines, replace if necessary.

## Chassis

Clean the vehicle thoroughly, removing all dirt and grease accumulation.

▼ **CAUTION** : Plastic alloy components such as fuel tank, windshield, controls, etc., can be cleaned using mild detergents or isopropyl alcohol and a soft clean cloth. Never clean plastic parts with strong detergent, degreasing agent, paint thinner, acetone, etc. Do not apply isopropyl alcohol directly on decals.

Inspect the hood and repair any damage. Clean the frame.

For the unpainted aluminum portion use only "Aluminum cleaner" and follow instructions on the container.

Touch up all metal spots where paint has been scratched off. Spray all metal parts with metal protector. Wax the hood and the painted portion of the frame.

○ **NOTE** : Apply wax on glossy finish only. Protect the vehicle with a cover to prevent dust accumulation during storage.

▼ **CAUTION** : If for some reason the snowmobile has to be stored outside, it is necessary to cover it with an opaque tarpaulin. This caution will prevent the sun rays and the grime from affecting the plastic components and the vehicle finish.

## Suspension Stopper Strap

Replace annually and/or as stopper strap condition dictates. Torque nut to 10 N•m (89 lbf•in).

## General Inspection

Check the electrical wiring and components, retighten loose connections. Check for stripped wires or damaged insulation. Thoroughly inspect the vehicle and tighten loose bolts, nuts and linkage.

○ **NOTE** : Leave the drive belt off the pulleys for the entire storage period.

# PRE-SEASON PREPARATION

To simplify the pre-season preparation we have drawn up a small chart. The chart indicates servicing points to be performed by you and your authorized dealer.

**IMPORTANT :** Observe all Warnings and Cautions mentioned throughout this guide which are pertinent to the item being checked. When component conditions seem less than satisfactory, replace with genuine Bombardier parts or suitable equivalents.

<b>PRE-SEASON PREPARATION CHART</b>	To be performed by dealer ●	Refer to page
	To be performed by owner ○	
Change spark plugs*	○	31
Check chaincase oil level	○	25
Replace fuel filter (located inside fuel tank)	○	39
Check track tension and alignment	○	34
Lubricate suspension	○	24
Inspect drive belt and install	○	28
Check steering alignment and ski runner wear	●	37
Inspect condition of starting rope	○	—
Check tightness of all bolts, nuts and linkage	○	—
Refill fuel tank	○	20
Check throttle cable for free operation	●	21
Check electrical wiring	○	42
Inspect seals for possible cuts or leaks	○	—
Replace injection oil filter	●	Shop man.
Refill injection oil tank	○	20
Inspect brake condition and operation	○	21,30
Set engine timing	●	Shop man.
Check pulleys, verify components and clean, lubricate driven pulley	●	Shop man.
Adjust carburetor	●	Shop man.
Adjust oil injection pump	●	Shop man.
Lubricate brake caliper ratchet wheel	●	Shop man.



\*NOTE : Before installing new spark plugs, it is suggested to burn excess storage oil by starting the engine, using the old spark plugs.



CAUTION : Only perform this procedure in a well ventilated area.



# TROUBLESHOOTING

SYMPTOMS	POSSIBLE CAUSES	WHAT TO DO
<p>Engine turns over but fails to start</p>	<p>1. Ignition switch, emergency cut-out switch or tether switch is in the off position</p>	<p>Place all switches in the "run" or "on" position.</p>
	<p>2. Mixture not rich enough to start cold engine</p>	<p>Check fuel tank level and check starting procedure, particularly use of the primer.</p>
	<p>3. Flooded engine. (Spark plug wet when removed)</p>	<p>Do not over prime. Remove wet spark plug, turn ignition to OFF and crank engine several times. Install clean dry spark plug. Start engine following usual starting procedure. If engine continues to flood, see your authorized dealer.</p>
	<p>4. No fuel to the engine. (Spark plug dry when removed)</p>	<p>Check fuel tank level ; turn fuel on if applicable ; check fuel filter ; replace if clogged ; check condition of fuel and impulse lines and their connections. A failure of the fuel pump or carburetor has occurred. Contact your authorized dealer.</p>
	<p>5. Spark plug/ignition (no spark)</p>	<p>Check that emergency cut-out switch is at the upper position (ON) and the tether cut-out switch cap is snapped over the receptacle.</p> <p>Check for fouled or defective spark plug. Disconnect spark plug wire, unscrew plug and remove from cylinder head. Reconnect wire and ground exposed plug on engine cowl, <b>being careful to hold away from spark plug hole</b>. Follow engine starting procedure and check for spark. If no spark appears, replace spark plug. If trouble persists, contact your authorized dealer.</p>

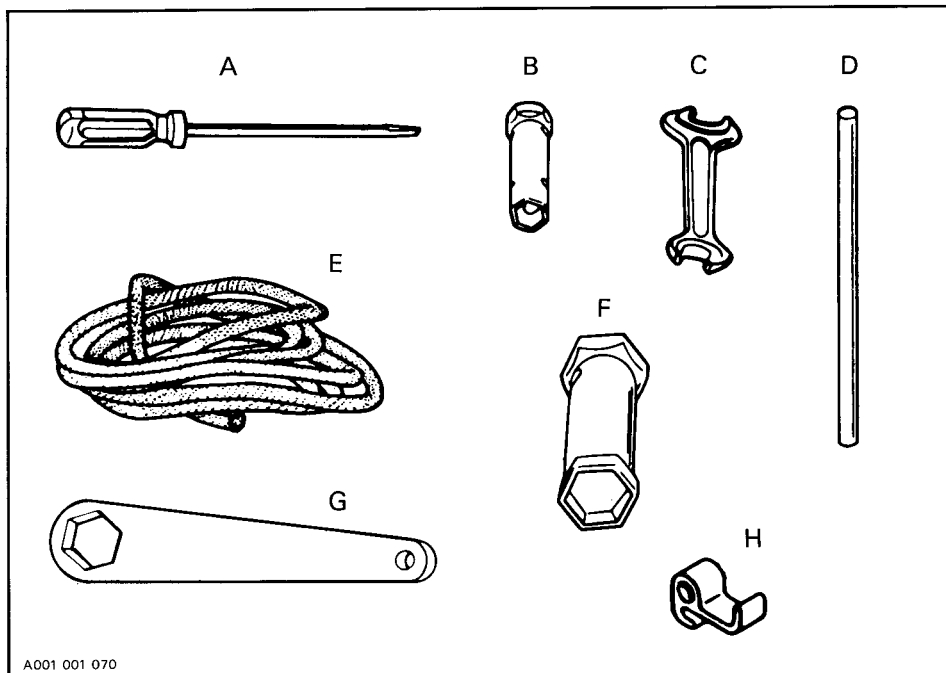
<b>SYMPTOMS</b>	<b>POSSIBLE CAUSES</b>	<b>WHAT TO DO</b>
	6. Engine compression	As the engine is pulled over with the recoil starter, "cycles" of resistance should be felt as each piston goes past top dead center. If no pulsating resistance is felt, it suggests a major loss of compression. Contact your authorized dealer.
Engine lacks acceleration or power	1. Fouled or defective spark plug	Check item 5 of "Engine turns over but fails to start."
	2. Lack of fuel to engine	Check item 4 of "Engine turns over but fails to start."
	3. Carburetor adjustments	Contact your authorized dealer.
	4. Drive belt worn too thin	If the drive belt has lost more than 3 mm (1/8 in) of its original width, it will affect vehicle performance.
	5. Drive and driven pulleys require servicing	Contact your authorized dealer.
	6. Engine is overheating	If applicable, check coolant level ; check pressure cap ; check thermostat.  Check for air locks in cooling system.  If applicable, check fan belt and its tension ; clean cooling fins of engine ; if heating persists, contact your authorized dealer.

<b>SYMPTOMS</b>	<b>POSSIBLE CAUSES</b>	<b>WHAT TO DO</b>
Engine backfire	1. Faulty spark plug	See item 5 of "Engine turns over but fails to start."
	2. Water in fuel	Drain fuel system and refill with clean fuel.
	3. Engine is running too hot	See item 6 of "Engine lacks acceleration or power."
	4. Ignition timing is incorrect or there is an ignition system failure	Contact your authorized dealer.
Snowmobile cannot reach full speed	1. Drive belt	Check item 4 of "Engine lacks acceleration or power."
	2. Incorrect track adjustment	See maintenance section for proper alignment and tension settings.
	3. Pulleys misaligned	Contact your authorized dealer.
	4. Engine	See items 1, 2, 3 & 6 of "Engine lacks acceleration or power."

# TOOLS

As standard equipment each new snowmobile is supplied with basic tools such as screwdriver, wrenches, emergency starting rope, etc.

## Standard Tools



A001 001 070

### DESCRIPTION

### PART NUMBERS

A. Screwdriver	414 6424 00
B. Socket 10/13 mm	414 6426 00
C. Open end wrench 10/13 mm	414 6428 00
D. Socket wrench handle	414 6427 00
E. Emergency starting rope	412 5001 00
F. Socket 21/26 mm	414 6425 00
G. Hexagonal wrench (adjuster blocks)	529 0024 00
H. Emergency starter clip	420 8523 40

# SPECIFICATIONS

	SAFARI SCOUT	CHEYENNE
<b>ENGINE</b>		
Type	377	503
No of cylinders	2	2
Bore	62 mm (2.441")	72 mm (2.835")
Stroke	61 mm (2.402")	61 mm (2.402")
Displacement	368.3 cm <sup>3</sup> (22.48 in <sup>3</sup> )	496.7 cm <sup>3</sup> (30.3 in <sup>3</sup> )
Compression ratio (corrected)	6.9:1	6.9:1
Maximum horsepower RPM*	7000 RPM	7000 RPM
Carburetor type	Variable venturi, float type	Variable venturi, float type
Carburetor adjustment :		
– air screw	1-1/2 turn	1-1/2 turn
– idle speed	1800-2000 RPM	1800-2000 RPM
Fan belt deflection	8-9 mm (5/16"-23/64")	8-9 mm (5/16"-23/64")
Torque :		
– engine head nuts	M8 : 21 N•m (15 lbf•ft)	M8 : 21 N•m (15 lbf•ft)
– crankcase nuts	M6 : 10 N•m (90 lbf•in) M8 : 21 N•m (15 lbf•ft)	N.A. M8 : 21 N•m (15 lbf•ft)
– magneto ring nut	M22 : 85 N•m (63 lbf•ft)	M22 : 85 N•m (63 lbf•ft)
– fan nut	M16 : 65 N•m (48 lbf•ft)	M16 : 65 N•m (48 lbf•ft)
– crankcase/engine support nuts	M10 : 38 N•m (28 lbf•ft)	M10 : 38 N•m (28 lbf•ft)
– exhaust manifold bolts	M8 : 21 N•m (15 lbf•ft)	M8 : 21 N•m (15 lbf•ft)
<b>CHASSIS</b>		
Overall length	266.7 cm (105")	302.3 cm (119")
Overall width	96.5 cm (38")	96.5 cm (38")
Overall height	106.4 cm (42")	120.6 cm (47.5")
Ski stance (center to center)	81.9 cm (32.25")	81.9 cm (32.2")
Ski alignment (toe out)	3 mm (1/8")	3 mm (1/8")
Torque :		
– steering arm/ski leg bolt	50 N•m (37 lbf•ft)	50 N•m (37 lbf•ft)
– steering column/handlebar	26 N•m (19 lbf•ft)	26 N•m (19 lbf•ft)
Weight	179.6 kg (395 lb)	217.8 kg (480 lb)
Bearing area	7065 cm <sup>2</sup> (1030 in <sup>2</sup> )	8260 cm <sup>2</sup> (1280 in <sup>2</sup> )
Ground pressure	2.5 kPa (.363 lb/in <sup>2</sup> )	2.58 kPa (.375 lb/in <sup>2</sup> )
<b>BRAKE</b>		
Type	Disc, self-adjusting.	
Lining minimum thickness	Fixed pad must projects 1 mm (1/32") minimum from caliber.	
Control lever adjustment	13 mm (1/2") minimum distance from handlebar grip when fully applied.	

N.A. : Not applicable

\*The maximum horse RPM is applicable with engine on the vehicle. It may vary under certain circumstances and Bombardier Inc. reserves the right to modify it without any obligation.

	<b>SAFARI SCOUT</b>	<b>CHEYENNE</b>
<b>POWER TRAIN</b>		
Track :		
— width	41.9 cm (16 1/2'')	41.9 cm (16 1/2'')
— length	290 cm (114'')	355 cm (139.8'')
— tension	*13 mm (1/2'')	**30 mm (1-3/16'')
— alignment	Equal distance between edges of track guides and slider shoes	
Standard gear ratio	20/44	17/44
Drive belt :		
— number	414 5233 00	414 6175 00
— maximum width	34.9 mm (1-3/8'')	34.9 mm (1-3/8'')
— minimum width	31.7 mm (1-1/4'')	31.7 mm (1-1/4'')
Chaincase oil	250 mL (9 oz)	500 mL (18 oz)
<b>ELECTRICAL</b>		
Lighting system (output)	12 V 160 W	12 V 160 W
Bulb :		
— headlamp	60/60 W	60/60 W
— tail/stop	5/21 W	5/21 W
— speedometer	5 W	5 W
Spark plug :		
— type	NGK BR9ES	NGK BR9ES
— gap	0.4 mm (0.016'')	0.4-0.5 mm (.016''-.020'')
<b>FUEL</b>		
Gas type	Regular leaded or unleaded	
Fuel tank capacity :		
— SI	28.6 liters	28.6 liters
— Imp.	6.3 gallons	6.3 gallons
— U.S.	7.6 gallons	7.6 gallons
Injection oil	Bombardier snowmobile injection oil	
Tank capacity :		
— SI	2.6 liters	2.6 liters
— Imp.	92 oz	92 oz
— U.S.	88 oz	88 oz

Hal. : Halogen

N.A. : Not applicable

*Bombardier Inc. reserves the right to make changes in design and specifications and / or to make additions to, or improvements in its product without imposing any obligation upon itself to install them on its products previously manufactured.*

\* Gap between slider shoe and bottom inside of track

\*\*Between slider shoe and bottom inside of track with a downward pull of 7.3 kg (16 lbf).

# SI\* METRIC INFORMATION GUIDE

BASE UNITS			
DESCRIPTION	UNIT	SYMBOL	
length	meter	m	
mass	kilogram	kg	
force	Newton	N	
liquid	liter	L	
temperature	Celsius	°C	
pressure	kilopascal	kPa	
torque	Newton meter	N•m	
speed	kilometer per hour	km/h	

PREFIXES			
PREFIX	SYMBOL	MEANING	VALUE
kilo	k	one thousand	1000
centi	c	one hundredth	0.01
milli	m	one thousandth	0.001
micro	μ	one millionth	0.000001

CONVERSION FACTORS			
TO CONVERT	TO †	MULTIPLY BY	
in	mm	25.4	
in	cm	2.54	
in <sup>2</sup>	cm <sup>2</sup>	6.45	
in <sup>3</sup>	cm <sup>3</sup>	16.39	
ft	m	0.3	
oz	g	28.35	
lb	kg	0.45	
lbf	N	4.4	
<b>lbf•in</b>	<b>N•m</b>	0.11	
<b>lbf•ft</b>	<b>N•m</b>	1.36	
<b>lbf•ft</b>	<b>lbf•in</b>	12	
PSI	kPa	6.89	
imp. oz	U.S. oz	0.96	
imp. oz	mL	28.41	
imp. gal	U.S. gal	1.2	
imp. gal	L	4.55	
U.S. oz	mL	29.57	
U.S. gal	L	3.79	
MPH	km/h	1.61	
Fahrenheit	Celsius	$(°F - 32) ÷ 1.8$	
Celsius	Fahrenheit	$(°C × 1.8) + 32$	

\*The international system of units abbreviates "SI" in all languages.

†To obtain the inverse sequence, divide by the given factor. To convert "mm" to "in", divide by 25.4.

**NOTE** \_\_\_\_\_