

# OPERATOR'S GUIDE

## Alpine II



**ski-doo**

# 1993



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également disponible

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# Alpine II

## SAFETY WARNING

Disregarding any of the safety precautions and instructions contained in this *Operator's Guide*, the *Warranty Guide and Vehicle Logbook* and the *Snowmobiler's Safety Handbook* could cause injury, including the possibility of death.

This *Operator's Guide*, the *Warranty Guide and Vehicle Logbook* and the *Snowmobiler's Safety Handbook* should remain with the vehicle at the time of resale.

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# NOTICE


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The *Operator's Guide*, the *Warranty Guide and Vehicle Logbook* and the *Snowmobiler's 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 Questions" section of the *Warranty Guide and Vehicle Logbook*, or an authorized dealer.

The 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 engine and components implemented in a particular model should not be used on other models. Use of Rotax® snowmobile engines in other than Ski-Doo snowmobiles is not recommended or authorized by Bombardier Inc.

 **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.

# 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.
  - The snowmobile engine can be stopped by activating the emergency cut-out or tether switch or turning off the key.
- ◆ Clean and check operation of the headlight, taillight and brake light.
- ◆ 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.
- ◆ **Electric start models only** : Never charge or boost a battery while installed on vehicle.
- ◆ 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.
- ◆ 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.
  - **Liquid cooled models only** : Since engine cooling is fully in effect only when the vehicle is in motion and driven on snow, it is not recommended that you allow the engine to idle for more than brief periods and/or you drive the vehicle on icy surfaces. Prolonged idling and/or continuous driving on ice may cause engine damage.
- ◆ **Liquid cooled models only** : When removing coolant tank cap, first place a cloth over cap then turn cap to its first step to release pressure. Never drain or refill the cooling system when engine is hot.
- ◆ Some models are designed for the driver only. No provisions have been made for a passenger.
- ◆ 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*.

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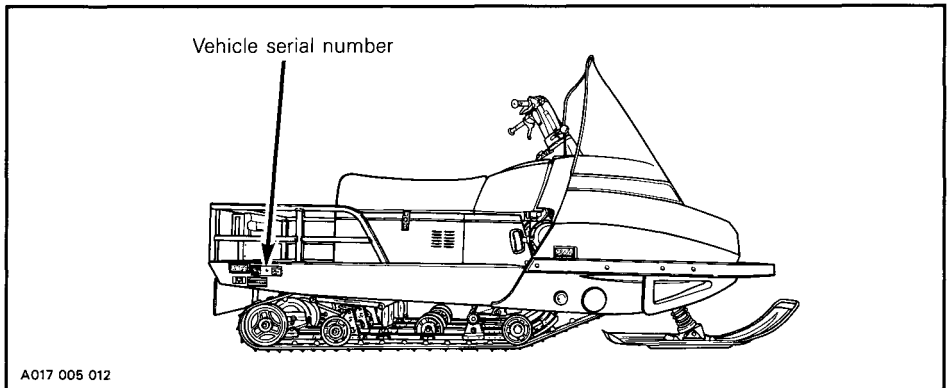
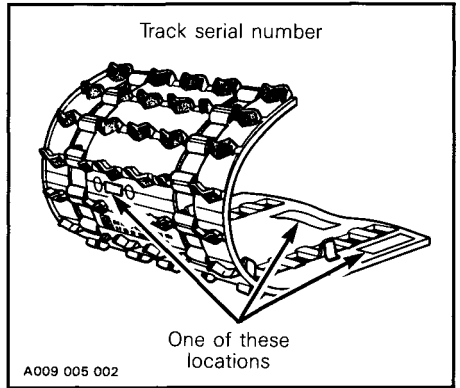
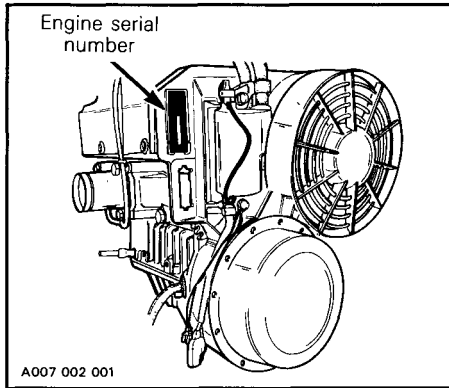
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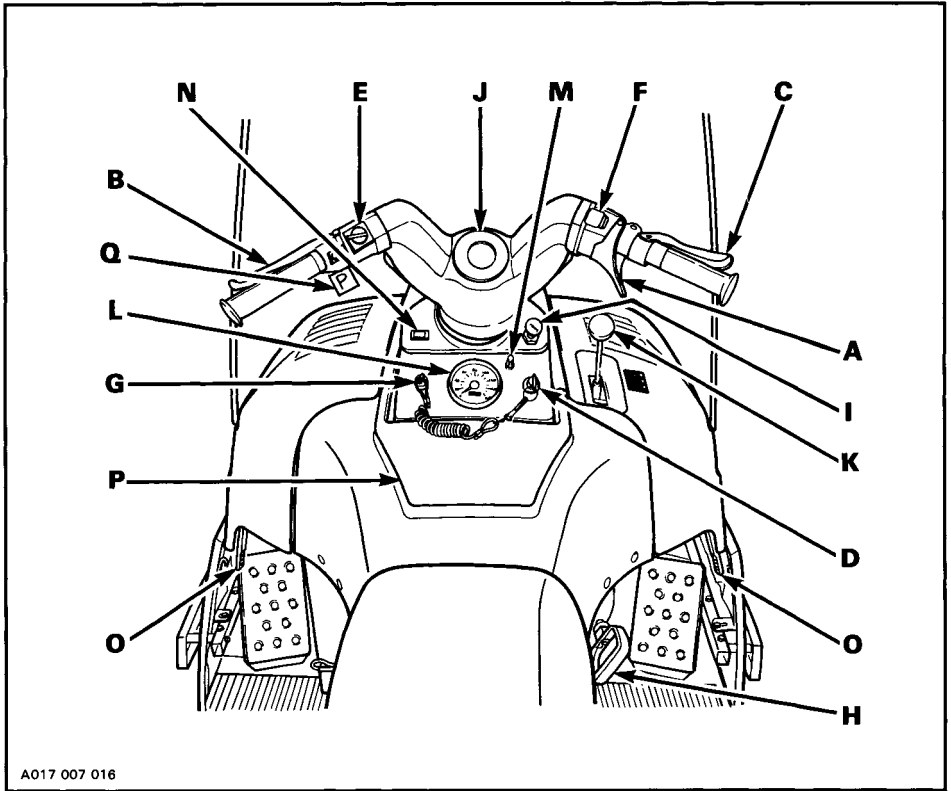
# HOW TO IDENTIFY YOUR SNOWMOBILE

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



- A) Throttle Lever
- B) Brake Lever
- C) Emergency Brake Lever
- D) Ignition Switch
- E) Headlamp Dimmer Switch
- F) Emergency Cut-Out Switch
- G) Tether Cut-Out Switch
- H) Rewind Starter Handle
- I) Primer Button
- J) Steering Handle
- K) Gear Shift Lever
- L) Speedometer
- M) Trip Meter Reset Button
- N) High Beam Pilot Lamp
- O) Hood Opening
- P) Console
- Q) Parking Brake Button

## A) Throttle Lever

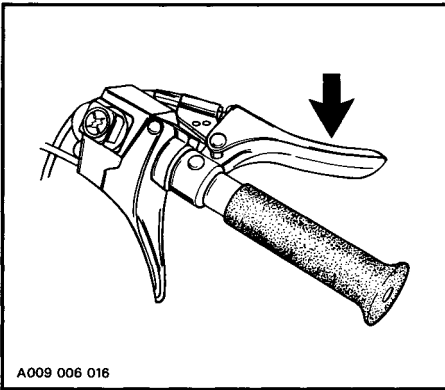
Located on the right side of handlebar. When pressed, it controls the engine speed and the engagement of the transmission. When released, engine speed returns automatically to idle.

## B) Brake Lever

Located on the left side of handlebar. When pressed, 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.

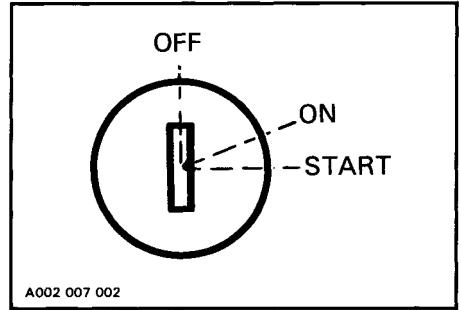
## C) Emergency Brake Lever

Located on right side of handlebar. In case of brake failure, use this emergency brake lever.



## D) Ignition Switch

The lights are automatically ON whenever the engine is running.



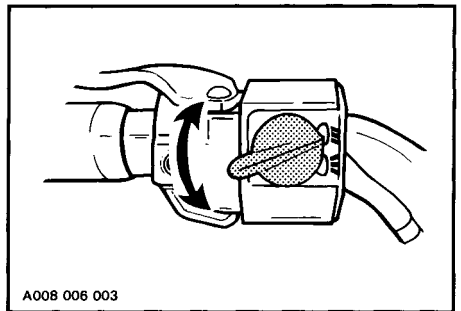
Key operated, three-position switch. To start engine, turn key to START position and hold. Return key to ON position immediately when engine has started. To stop engine, turn key to OFF position. If engine does not start on first try, key must be turned fully back to OFF each time.

▼ **CAUTION :** Holding key in START position when engine has started could damage starter mechanism.

○ **NOTE :** Engine may be manually started with rewind starter if necessary.

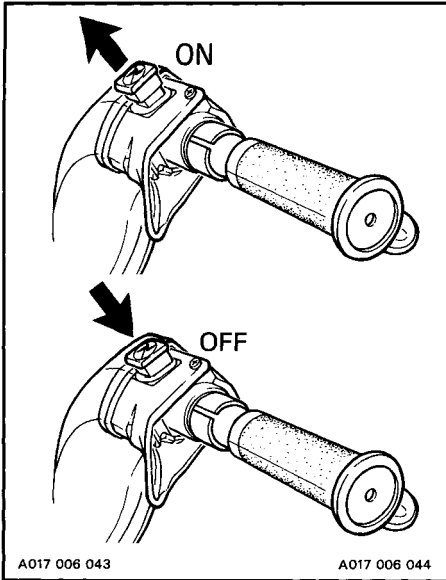
## E) Headlamp Dimmer Switch

Two-position switch, located on left side of handlebar. To obtain high or low beam simply flick switch.



## F) Emergency Cut-Out Switch

A push pull type switch located on the right side of the handlebar. 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.



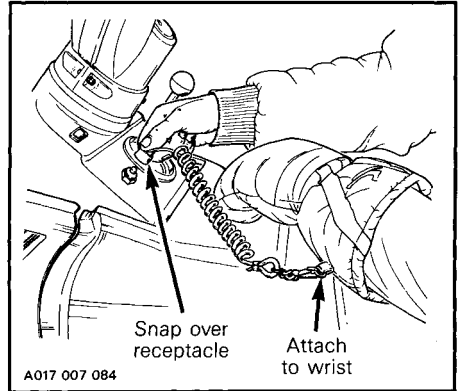
◆ **WARNING:** If the switch has been used in an emergency situation the source of malfunction should be determined and corrected before restarting engine.

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.

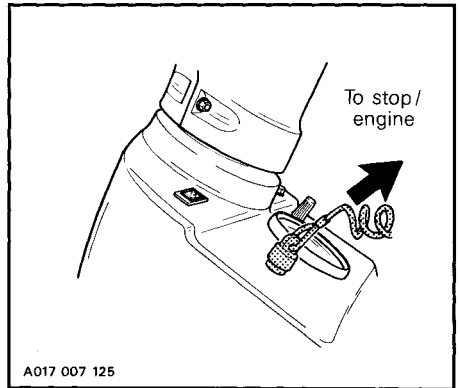
## G) Tether Cut-Out Switch

A pull switch located below the handlebar.

Attach tether cord to wrist or other convenient location then 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 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 in an emergency situation the source of malfunction should be determined and corrected before restarting engine.

## H) 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.

## I) Primer Button

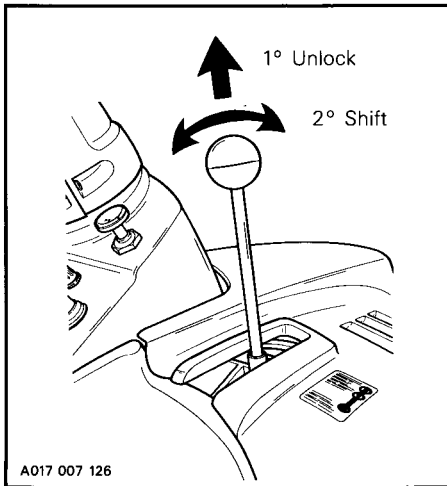
Pull and push button (two-three times) to start a cold engine. Not necessary when engine is warm.

## J) Steering Handle

Steering handle height is adjustable, see an authorized dealer.

## K) Gear Shift Lever

The gear shift lever is located right side of the dashboard. It is a three-position lever : two forward and one reverse. Pull lever upwards before selecting position.



◆ **WARNING :** This snowmobile is capable of a fast reverse. Operator should become familiar with this operation by practicing on level ground. Always apply brakes before shifting and come to a complete stop then, while holding brake on, change gear. Ensure the path behind is clear of obstacles or bystanders. Fast reverse, while turning, could result in loss of stability.

## L) Speedometer/Odometer

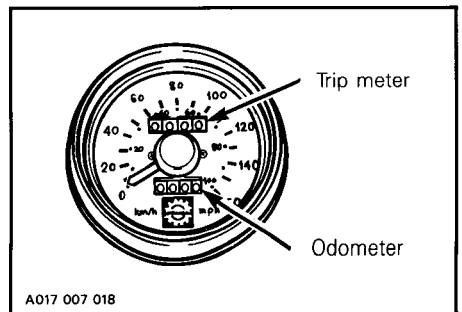
The speedometer indicates the speed of the vehicle in kilometers per hour. Odometer records the total number of kilometers travelled.

## M) Trip Meter Reset Button

The trip meter button is located in dashboard right to speedometer. To reset, turn button until all numbers read zero.

## Trip Meter

Speedometer features a trip meter that records a distance travelled in kilometers until it is reset. It can be used to record a fuel tank range or distance between two relays for instance.



## N) High Beam Pilot Lamp

Lights up when headlamp is on high beam.

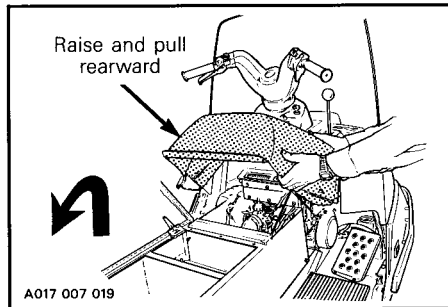
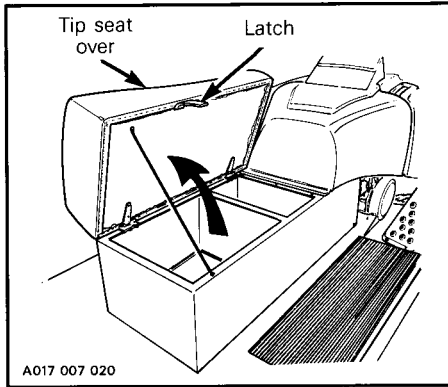
## O) Hood Opening

Pull down the latches to unlock the hood from the anchors. Always lift hood gently up until stopped by restraining device.

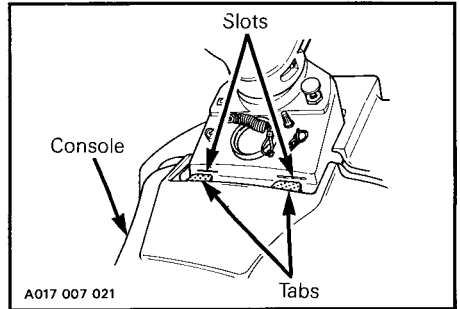
**WARNING :** It is dangerous to run an engine with the hood opened, unfastened or removed.

## P) Console

To gain access to the engine, carburetor and spark plugs, pull down the latch and tip seat over from right, raise rear part of console then pull rearward.



When installing console to vehicle, ensure to insert console tabs into dashboard slots.

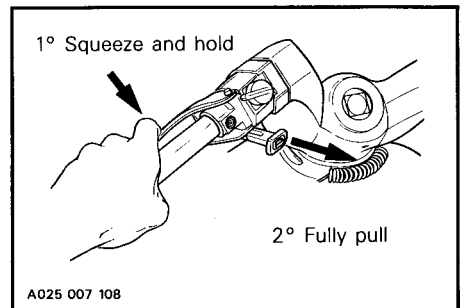


## Q) Parking Brake Button

Located on left side of handlebar. Parking brake should be used whenever vehicle is parked.

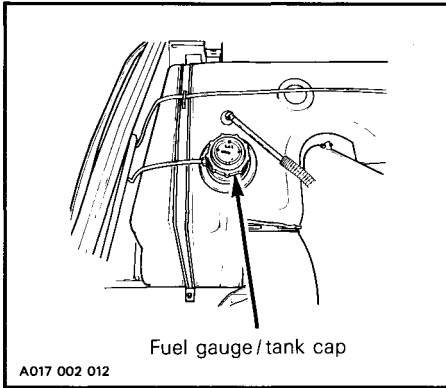
To engage mechanism, squeeze brake lever and maintain while pulling button with the other hand. There are two retaining notches on button lever; pull button until it locks on a notch then release brake lever.

To release mechanism, squeeze brake lever then fully push parking brake button.



## Fuel Gauge/Tank Cap

Under the hood, the fuel tank cap features a built-in needle fuel level gauge which indicates the amount of fuel remaining in tank.



○ **NOTE** : Emergency materials should be wrapped in foam or similar material. This will prevent possible damage to breakable items when travelling over rough or bumpy terrain.

## Battery/Fuel Pump Compartment

Battery and fuel pump are located in front portion of seat compartment.

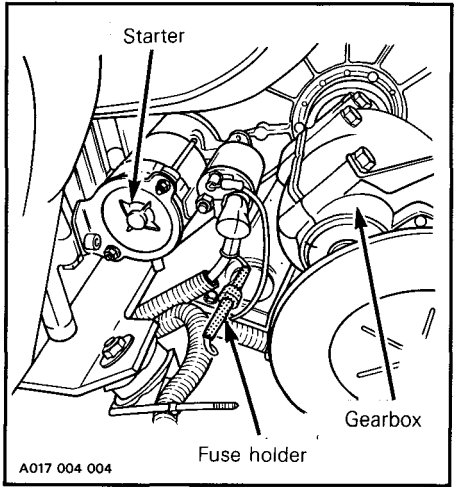
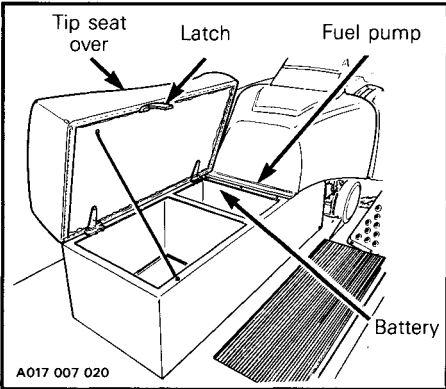
◆ **WARNING** : Do not store anything in the battery/fuel pump compartment.

## Fuse Holder

Starting system is protected with 30-ampere rated fuse. Fuse holder is located near starter and gearbox. If starter does not operate, check fuse condition and replace by the same rate if necessary.

## Seat Compartment

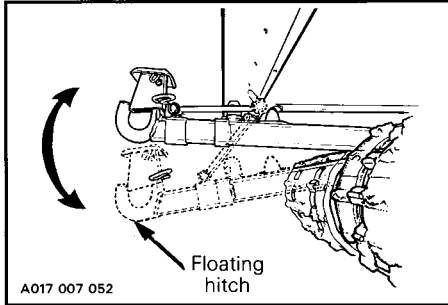
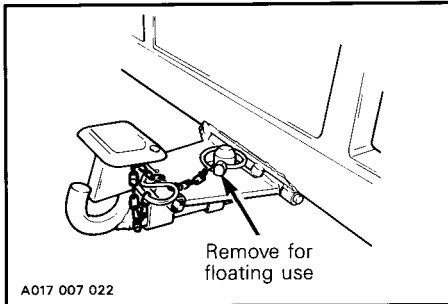
Pull down the latch and tip seat. Ideal location for spare spark plugs, belt, rope etc.



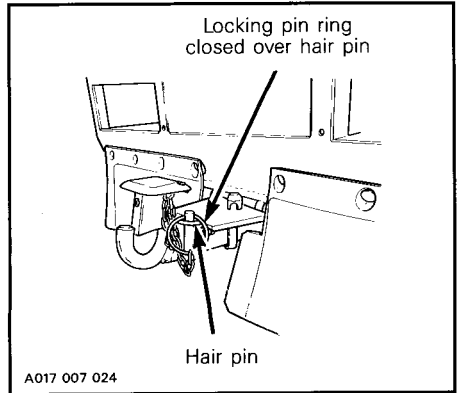
## Hitch

A hook-type hitch is provided to pull most equipments. The hitch may be used fixed or floating depending on the type of equipment towed. This allows smooth operation when towing a load.

While towing a trailer with a fixed draw bar, keep the hitch locked. With a floating draw bar, allow the hitch to move up and down by removing its locking pin.

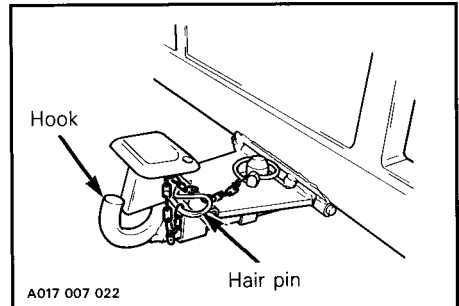


The locking pin can be installed into hair pin when the hitch is used floating.



**NOTE :** To maintain the hitch locked, install the locking pin into hitch post and place its flat side against the hitch plate.

A hair pin is provided to lock the hook of the hitch.



**WARNING :** When towing any sled or trailer, always ensure to lock the hook type attachment with the hair pin.



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Trailers or sleds towed behind a snowmobile should always be loaded with the lowest possible center of gravity. Use a sled with a rigid draw bar. When pulling passengers in a towed vehicle, drive at moderate speed and avoid rough terrain for their safety. Besides, have all passengers get out of the towed vehicle and walk across all roads.


### **Accessories**

Some optional accessories might be added to your vehicle such as horn, hourmeter, long seat with backrest, linen cabin kit, tongue type hitch, etc. Contact an authorized dealer for more information.

# FUEL AND OIL


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Oil must be added to the fuel in premeasured amounts then both oil and fuel should be thoroughly mixed together before fueling the tank.

 **NOTE** : During the break-in period, engine requires a richer fuel/oil mixture. Refer to BREAK-IN section.

## Recommended Fuel

Use regular leaded or unleaded gasoline available from all service stations or gas-ohol with less than 10% of ethanol.


 **WARNING** : Never top up the fuel tank before placing the vehicle in a warm area. As temperature increases, fuel expands and might overflow. Fuel is flammable and explosive under certain conditions. Always handle in a well ventilated area. Do not smoke or allow open flames or sparks in the vicinity. If fumes are noticed while driving, the cause should be determined and corrected without delay. Never add fuel while engine is running. Avoid skin contact with fuel when temperature is below freezing point. Always wipe off any fuel spillage from the vehicle.

 **CAUTION** : Never experiment with other fuels or fuel ratios. The use of fuel containing methanol, or similar products including naphta 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.

## Recommended Oil

Use BLIZZARD OIL (P/N 496 0135 00 – 500 mL) available from an authorized dealer. This type of oil will flow at temperatures as low as  $-40^{\circ}\text{C}$  ( $-40^{\circ}\text{F}$ ).

If BLIZZARD OIL is unavailable, substitute with "Bombardier Snowmobile Injection oil" (P/N 496 0133 00 – 1 liter or equivalent).

 **CAUTION** : Never mix brands of two-cycle oil as serious chemical reactions can cause severe damage. Never use outboard or straight mineral oils.

## Fuel Mixture Ratio

The importance of using the correct fuel mixture cannot be overstressed. An incorrect fuel/oil ratio results in serious engine damage. Recommended fuel/oil ratio is 50:1 (40:1 during break-in period. See Break-In Fuel/Oil Mixing Charts below).

### SI UNITS

500 mL of oil to 25 liters of fuel = 50:1

### IMPERIAL UNITS


16 oz of oil to 5 imp. gal of fuel = 50:1  
or

500 mL of oil to 5-1/2 imp. gal of fuel = 50:1

### U.S. UNITS

13 oz of oil to 5 U.S. gal of fuel = 50:1  
or

500 mL of oil to 6.6 U.S. gal of fuel = 50:1

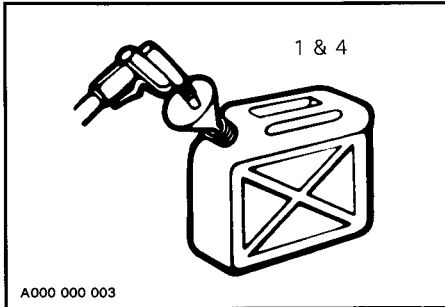
 **NOTE** : To facilitate fuel mixing, oil should be kept at room temperature.

## Fuel Mixing Procedure

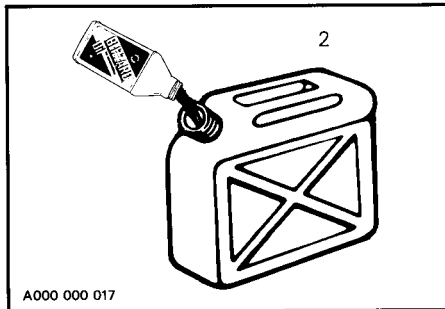
To mix the fuel and oil always use a separate clean container. Never mix directly in your snowmobile tank.

◆ **WARNING :** Never add fuel while the engine is running. Avoid skin contact with fuel at below freezing temperatures.

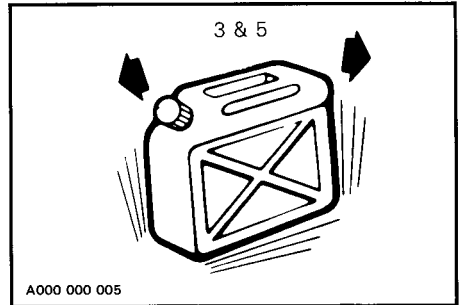
1. Pour approximately 4 liters (one gallon) of fuel into a clean container.



2. Add the amount of oil required for the total mixture.



3. Reinstall the container cap and shake the container thoroughly.

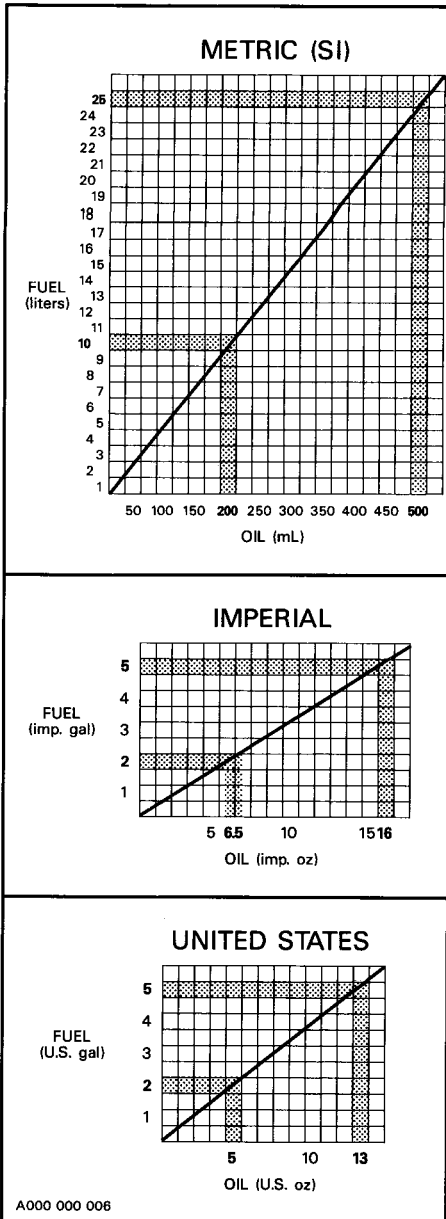


4. Add the remainder of the fuel.
5. Once again thoroughly agitate the container. Then using a funnel with a fine mesh screen to prevent the entry of foreign particles, pour the mixture into the snowmobile tank.

◆ **WARNING :** To prevent fuel spillage in the engine compartment, a funnel must always be used when filling the gas tank.

○ **NOTE :** When using premixed fuel, always shake the container thoroughly as the oil has a tendency to settle.

# Fuel/Oil Mixing Charts (50 to 1 ratio)




# BREAK-IN PERIOD

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## Engine

With Bombardier-Rotax® snowmobile engines, a break-in period is required before running the vehicle at full throttle. Engine manufacturer break-in recommendation is 10 to 15 operating hours. During this period, a richer mixture is needed (i.e. 40 parts of fuel for 1 part of BLIZZARD oil). 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, prolonged cruising speeds, and engine over-heating are detrimental during the break-in period.

 **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, that your vehicle be checked by an authorized dealer. This inspection will give you the opportunity to discuss the unanswered questions you may have encountered during the first hours of operation. Refer to the *Warranty Guide and Vehicle Logbook*.

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

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## Break-In Fuel/Oil Mixing Charts

▼ **CAUTION:** The following chart only applies to break-in period to give a richer mixture of 40 to 1 ratio.

### SI UNITS

500 mL of oil to 20 liters of fuel = 40:1

### IMPERIAL UNITS

16 oz of oil to 4.6 imp. gal of fuel = 40:1

or

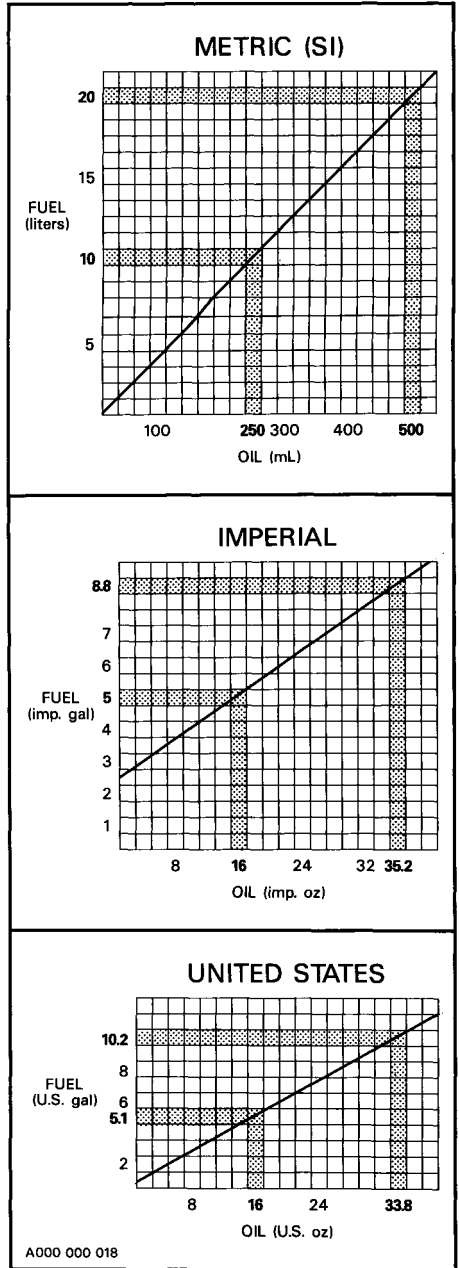
500 mL of oil to 4.8 imp. gal of fuel = 40:1

### U.S. UNITS

16 oz of oil to 5.1 U.S. gal of fuel = 40:1

or

500 mL of oil to 5.3 U.S. gal of fuel = 40:1



# PRE-START CHECK

---

## 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 ski and tracks are not frozen to the ground or snow surface and that the 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 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.

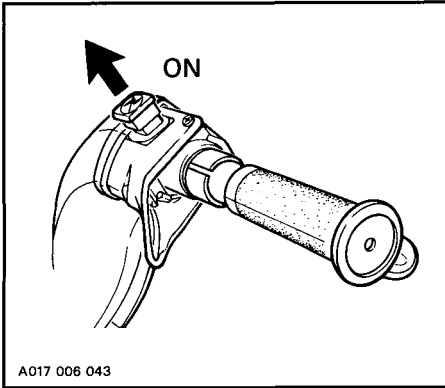
◆ **WARNING** : Only start your snowmobile once all components are checked and functioning properly.

# STARTING PROCEDURE

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Test throttle control lever operation.

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



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

Activate primer two or three times.

○ **NOTE** : Priming is not necessary when the engine is warm. To prime, activate the primer until a pumping resistance is felt. This indicates that fuel has reached primer valve. From this point, pump two or three times to inject fuel in intake manifold. After priming, ensure that primer button is pushed all the way in to avoid fuel from draining.

▼ **CAUTION** : Use of ether and/or other types of fluid as a starting aid can cause damage to engine components and is not recommended.

To start engine, follow either manual or electric starting procedure.

---

## Manual Starting

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

Grasp rewind 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.

## Electric Starting

Insert key in ignition switch.

▼ **CAUTION** : Never operate your snowmobile with the battery removed or disconnected, since the battery reduces voltage fluctuations, operating vehicle without it might cause instrument or bulb failure.

Turn ignition key clockwise to START position until starter engages. Release key immediately when engine has started. If engine does not start on first try, key must be turned fully back to OFF each time.

▼ **CAUTION** : To avoid starter overheating, the cranking period should never exceed 30 seconds and a rest period should be observed between cranking cycles to let starter cool down.

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

○ **NOTE** : If for some reason, the vehicle cannot be started electrically, place ignition key to ON position and start engine manually.

## Before Riding

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

Always deactivate parking brake before riding.

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

○ **CAUTION** : Let engine idle two minutes for warm-up. Then, ride at reduced pace for the first kilometer. This will enable all components of the vehicle to warm-up.

◆ **WARNING** : This snowmobile is propelled by revolving tracks which must be partially exposed for proper operation. Serious injuries may be caused by operator carelessness, resulting in hands, feet or clothing becoming entangled in the tracks.

## Emergency Starting

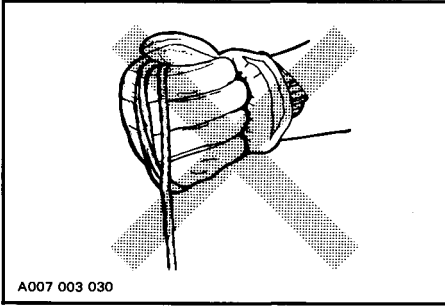
Should the rewind starter rope fray and break, the engine can be started with the emergency starter rope supplied with the tool kit.

Remove console to ease installation of emergency rope around drive pulley and crank the engine.

◆ **WARNING** : Damage to console or injury to the hand might be experienced if the console is not removed.

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

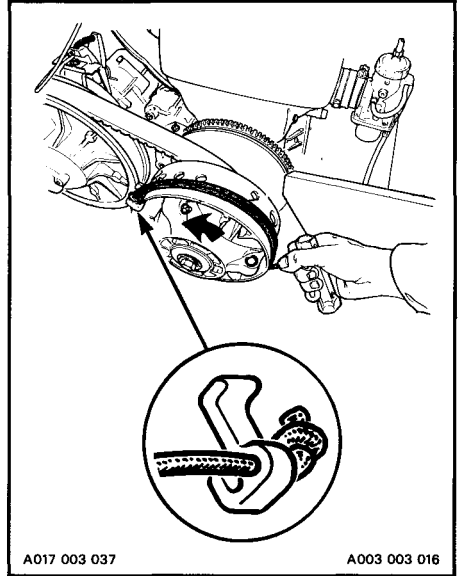
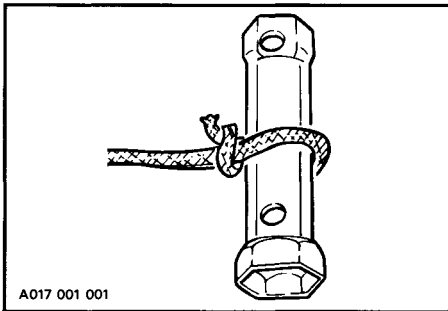




◆ **WARNING :** Do not start the vehicle by the drive pulley unless it is a true emergency situation. Have the vehicle repaired as soon as possible.

Attach emergency rope to any available handle and the starter clip supplied in the tool box. Wind the rope tightly around drive pulley so that when pulled, pulley will rotate counterclockwise (same direction as the track).

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

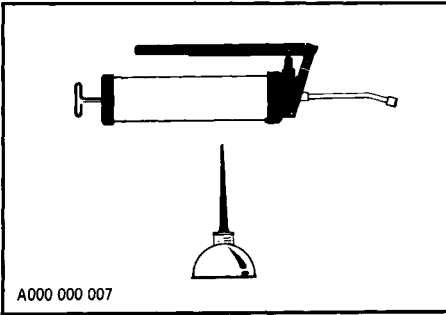


Start engine as per usual manual starting.

Reinstall console but not belt guard.

◆ **WARNING :** When starting the vehicle in an emergency situation by the drive pulley, do not reinstall the belt guard.

# 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.

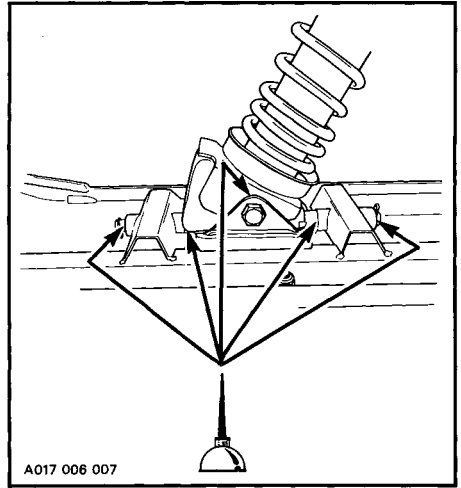
It is recommended that the steering system and suspension be lubricated monthly or every 40 hours of operation. If the vehicle is operated in wet snow or in severe conditions these items should be lubricated more frequently.

**NOTE :** When lubricating through grease fittings, slowly pump grease gun 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. Do not lubricate throttle and/or brake cables and housings.

## Steering Mechanism/ Front Suspension

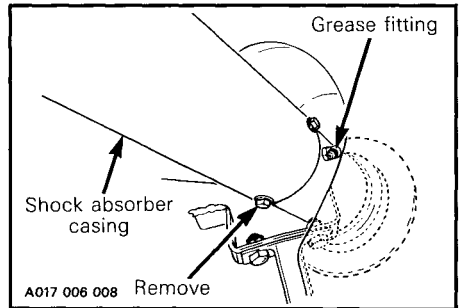
Using light machine oil, lubricate the longitudinal pivot of the ski and ski coupler bolt.



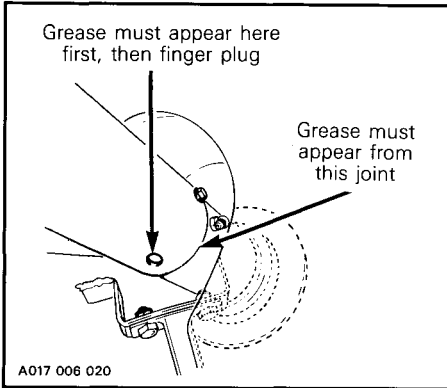
Allow the oil to run in and move ski several times to distribute lubricant.

From inside of hood, lubricate front shock system as follows :

Remove the screw shown.



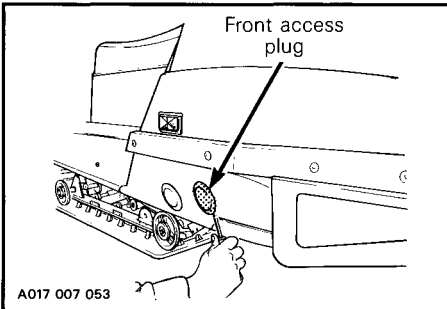
Lubricate until the grease appears from the hole, then, firmly plug the hole with a finger and slowly continue to lubricate until grease appears at the joint.



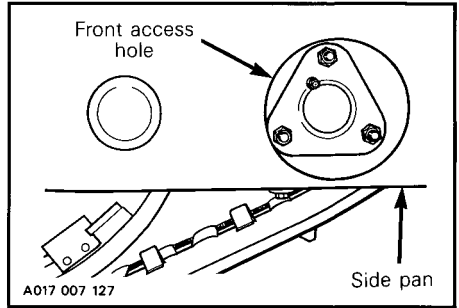
Oil tie rod ball joints.

### Drive Axles

Two access plugs are located on each side pan. Remove the front ones to get access to drive axles grease fitting.



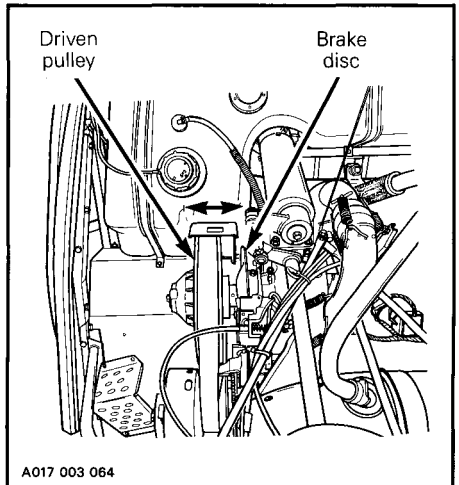
Lubricate using low temperature grease then reinstall access plugs.

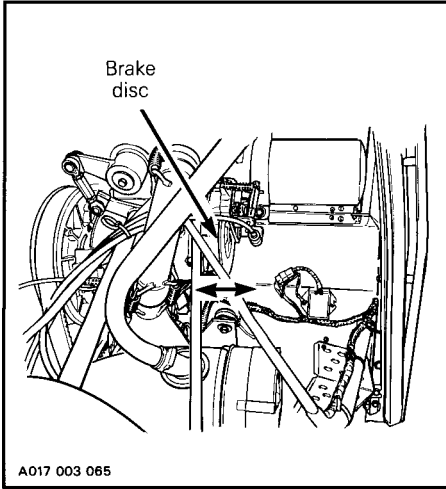


**CAUTION:** Ensure to lubricate both drive axles. A grease fitting is located on each side pan.

### Driven Pulley and Brake Discs

Driven pulley and brake discs must slide freely on their shafts. See an authorized dealer.





## Brake Calipers

See an authorized dealer for proper lubrication of brake caliper ratchet wheel.

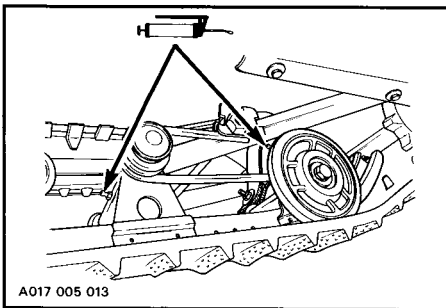
◆ **WARNING** : Do not lubricate throttle and/or brake cables and housings.

## Slide Suspensions

Lubricate the following parts of both suspensions at grease fittings until grease appears at joints. Use low temperature grease only.

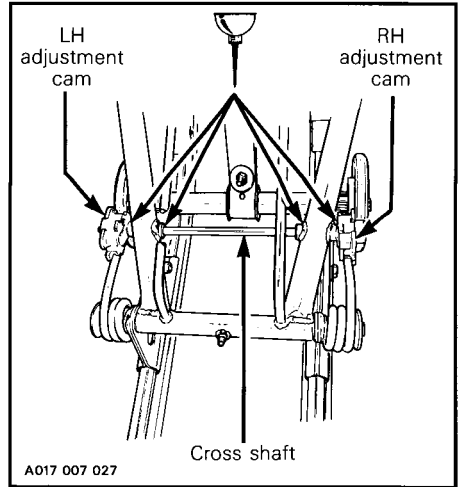
▼ **CAUTION** : Ensure to lubricate both suspension systems.

— Front arm upper and lower axles.



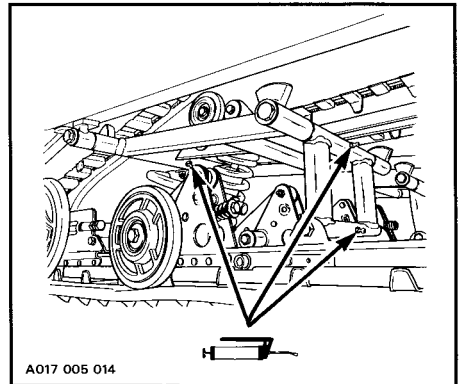
Oil adjustment cams cross shaft.

▼ **CAUTION** : Lubricate every week.

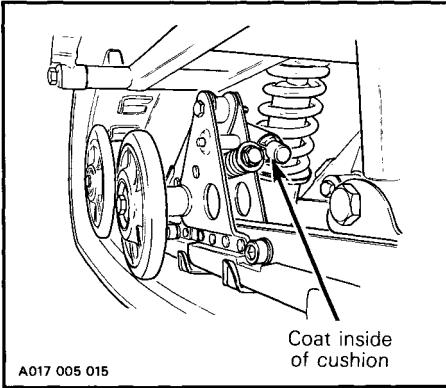


— Rear cross shaft.

— Upper and lower axles of pivot arm.

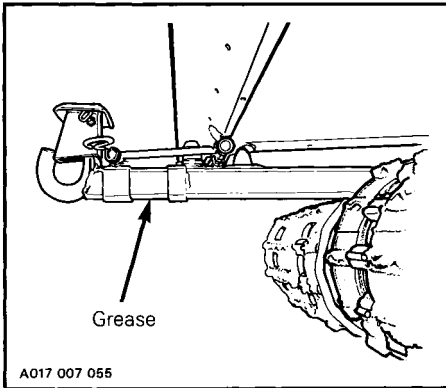


— Coat inside of stabilizer bar cushions of rear suspension with grease.



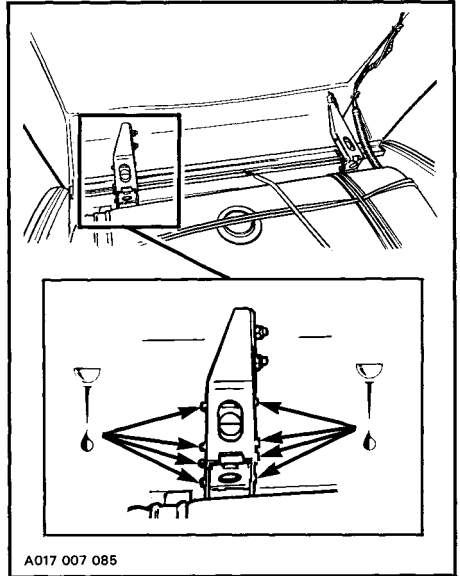
### Hitch Sliding Action

— Lubricate with low temperature grease all around square tube.



### Hood Hinges

Oil both hinges at all four pivots.

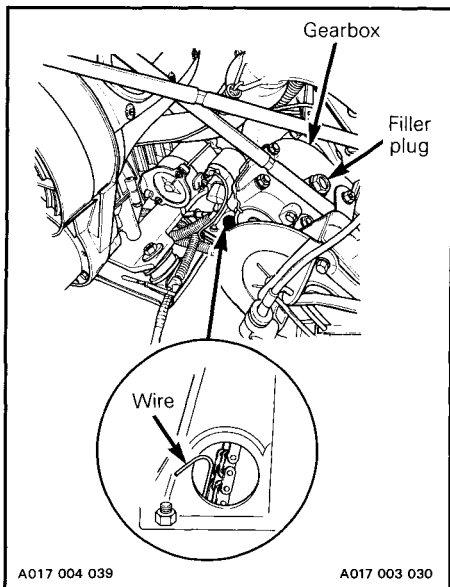


### Gearbox Oil Level

The gearbox oil capacity is 500 mL (18 oz).

To check level :

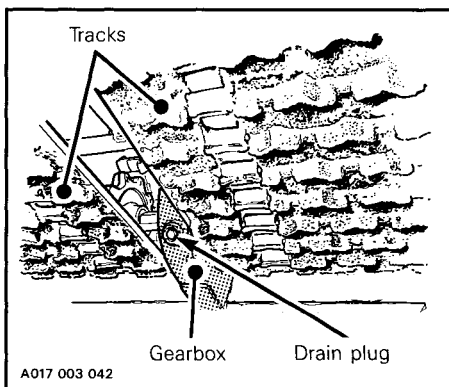
Remove rubber inspection cover located on bottom right side of gearbox. Using a rigid piece of wire as dipstick, check oil level. Oil level must reach 92 mm (3-5/8 in) on dipstick.



To fill, remove filler plug from top of gearbox. Refill as required using Bombardier chaincase oil (P/N 413 8019 00, 250 mL (9 oz)).

### **Gearbox Draining**

The gearbox is drained by removing the drain plug. It is located underneath the front part of the vehicle between tracks.



# MAINTENANCE

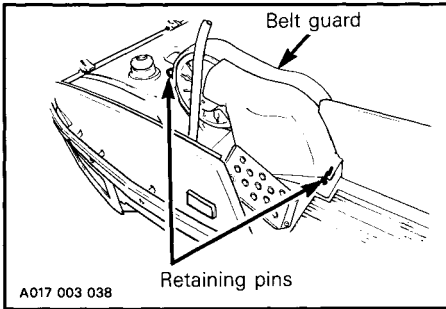
## Belt Guard Removal

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

1. Tilt the hood.

○ **NOTE** : The console may be removed to give an easier access if desired.

2. Pull out both retaining pins.



3. Lift and remove the belt guard.

## Drive Belt Removal and Installation

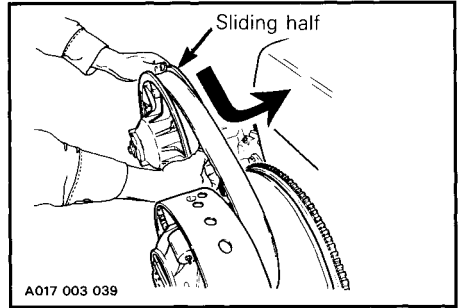
◆ **WARNING** : Never start or run engine without the drive belt installed. Running an unloaded engine is dangerous.

1. Remove ignition key.

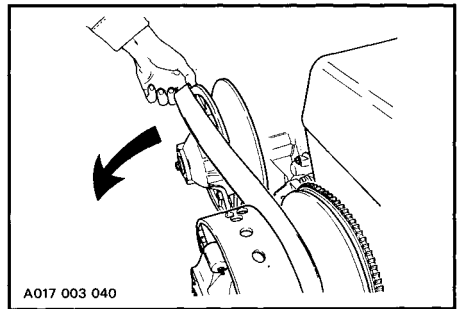
2. Tilt hood and remove the belt guard.

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

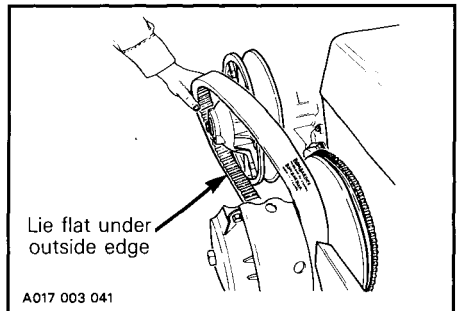
○ **NOTE** : Put on the parking brake to facilitate the opening of driven pulley.



4. Slip slackened belt over the top edge of the driven pulley sliding half, opposite side of gearbox.



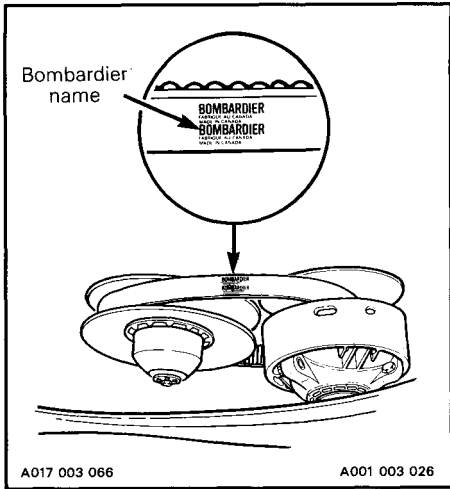
5. Completely remove the belt from the driven pulley and lie flat under the driven pulley outside edge.



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

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

Maximum drive belt life span is achieved when belt runs in the same direction. Always install drive belt so Bombardier name 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 warmup period, burred or rusty sheave, oil on belt or distorted spare belt. Contact an authorized dealer.

Check the drive belt width. Replace the drive belt if width is less than 32 mm (1-1/4 in).

## New Drive Belt

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

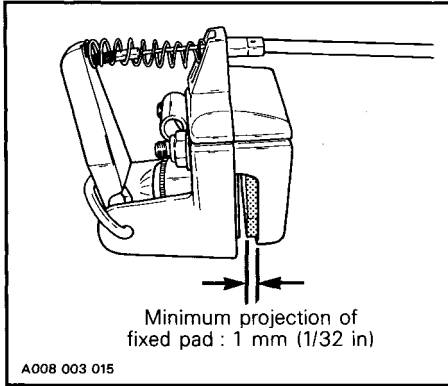
**NOTE :** Always store a spare belt in a manner to allow its natural shape to be maintained.

## 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 your snowmobile without an effective brake system.

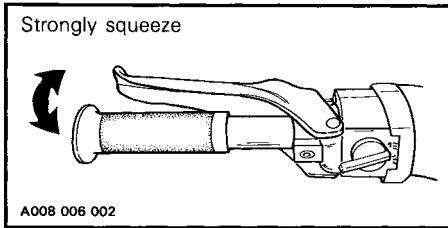
**WARNING :** Brake pads must be replaced when fixed pad projects only 1 mm (1/32 in) from caliper. Replacement must be performed by an authorized dealer.



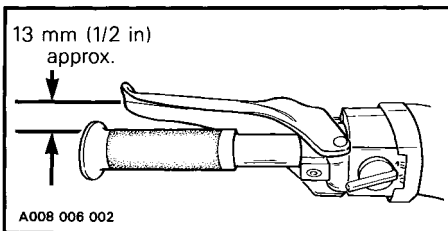


## Brake Adjustment

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 an authorized dealer.

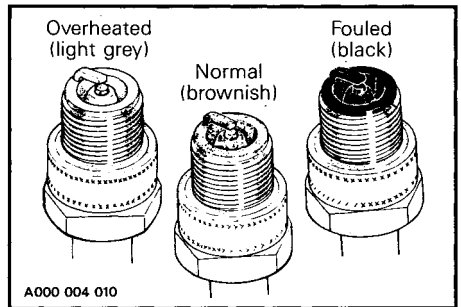


## Spark Plugs

Remove console to get access to spark plugs. Disconnect wires then remove spark plugs using socket and handle supplied in tool box.

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 too rich, incorrect fuel mixture ratio, 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, incorrect fuel mixture ratio, or a leaking seal or gasket.



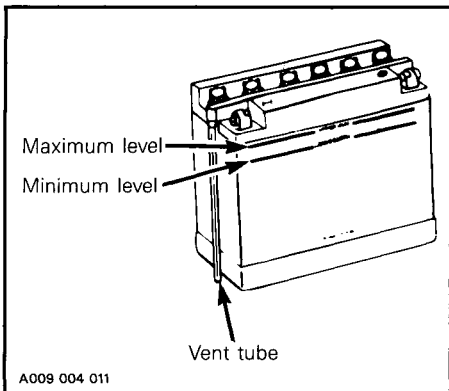
**CAUTION :** If spark plug condition is not ideal, contact an authorized dealer.

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

## Battery

○ **NOTE** : The battery is located under the seat.

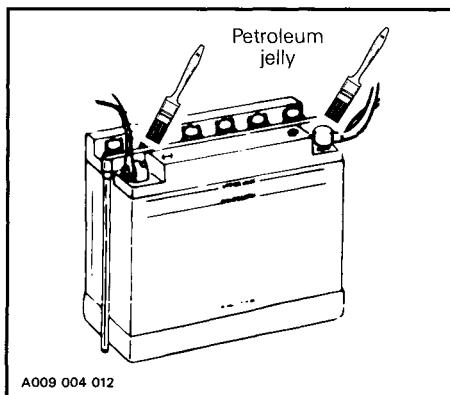
Check electrolyte level weekly. Electrolyte level must be at upper level line on battery casing.



If necessary add distilled water. Battery connections must also be free of corrosion. If cleaning is necessary remove corrosion using a stiff brush then clean with a solution of baking soda and water. Rinse and dry well.

▼ **CAUTION** : Do not allow cleaning solution to enter battery. It will destroy the chemical properties of the electrolyte.

After reconnecting battery, coat battery terminals and connectors with silicone dielectric grease (P/N 413 7017 00) or petroleum jelly to prevent corrosion. Check that battery is well secured and that battery vent tube is not kinked or blocked.



◆ **WARNING** : Vent tube must be free and open. Otherwise, it will restrict ventilation and create a gas accumulation that could result in an explosion. Avoid skin contact with electrolyte. Gases given off by a battery being charged are highly explosive. Always charge in a well ventilated area. Keep battery away from cigarettes, open flames and sparks.

▼ **CAUTION** : Prior to charging the battery, always remove it from the vehicle to prevent electrolyte spillage. Be careful not to ground positive terminal with the chassis. Always disconnect black negative cable first.

○ **NOTE** : Always keep battery fully charged. To charge, refer to **battery** in STORAGE section.

▼ **CAUTION** : A poorly charged or a discharged battery will freeze and damage its elements and possibly damage its casing and parts surrounding battery.

## Suspension Condition

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

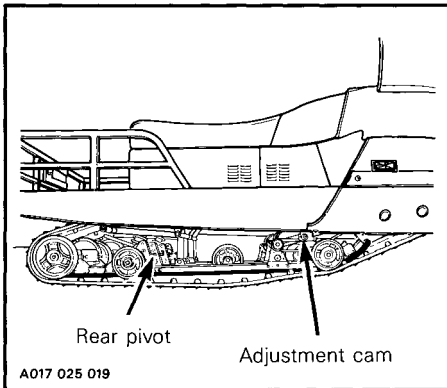
## Stopper Strap Condition

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

## Suspension Adjustment

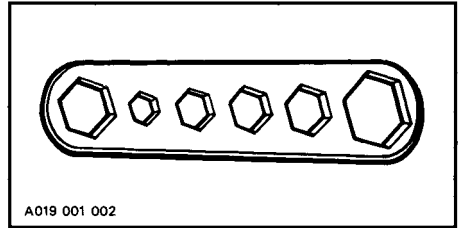
◆ **WARNING** : Always ensure to perform the same adjustments on each rear suspension.

The rear suspension is adjustable for surface condition and steering effects. Besides the suspension rear pivot may be adjusted depending on the operator requirement.

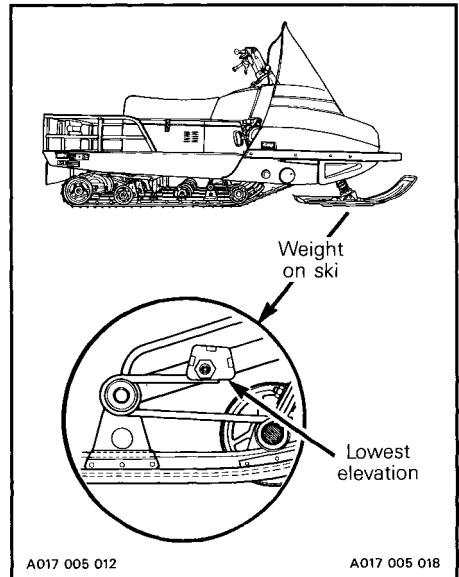


## Adjustment cam

Use the key supplied in the seat compartment.



When the front adjustment cams are at the lowest elevation more weight is distributed to the ski thus giving a more positive steering.



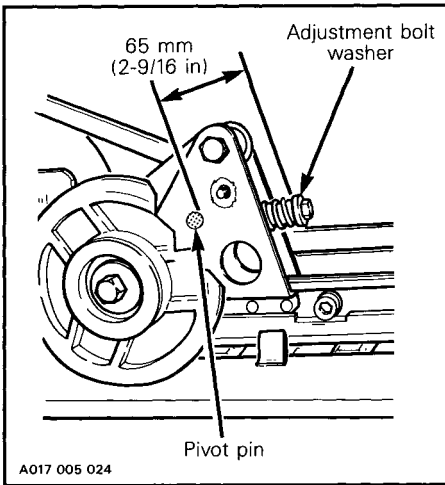
At the highest position, the weight is transferred to the track thus giving a better traction to pull a load.

○ **NOTE** : When turning the external adjustment cam from one suspension, the internal one of the same suspension will automatically turn at the same time because they are linked together by a cross shaft.

▼ **CAUTION** : Always turn adjustment cam of the RH suspension in a counterclockwise direction and the one of the LH suspension, clockwise. Both suspension 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 suspension is hinged and spring loaded. To check for correct pre-load, measure the distance from the outer edge of the pivot pin 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 its particular need. For instance should one is most of the time pulling a load and use 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.

### 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, thus providing a better traction. Adjusting holes in the stopper strap allow to adjust to driver's requirement, field and/or snow conditions.

The function of the suspension stopper strap is to control the transfer of vehicle weight during acceleration and to control track lead angle.

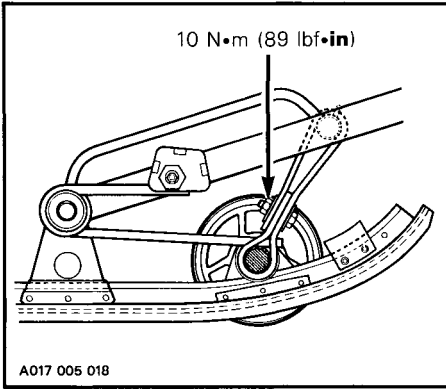
The longer the belt, the more the weight will be transferred to the track to provide a better traction. The shorter the belt, the lesser the weight transferred to the track, thus maintaining a more positive direction.

The longer the belt, the greater will be the track lead angle. A shorter belt will reduce track lead angle which may help when negotiating a particular snow condition.

Adjusting holes on the stopper strap allow to adjust it according to driver's requirements, field and/or snow conditions.

For normal use, adjust the stopper to its longer length.

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



**WARNING :** Always set stopper strap of each suspension to the same length.

### Deep Snow Operation

When operating the vehicle in deep snow, it may be necessary to change position of adjustment cam, rear pivot, stopper strap and/or driver's riding position, to change the angle at which the track rides on the snow. Operator's familiarity with the various adjustment as well as snow conditions will dictate the most efficient combination.

### Track Condition

Lift rear of vehicle and support it off the ground. (Place gear shift lever in forward position). With the engine **OFF**, rotate the tracks manually and inspect condition. If worn or cut, or if track fibers are exposed, or if missing or defective inserts are noted ; contact an authorized dealer.

**WARNING :** Do not operate this snowmobile with cut, torn or damaged tracks.

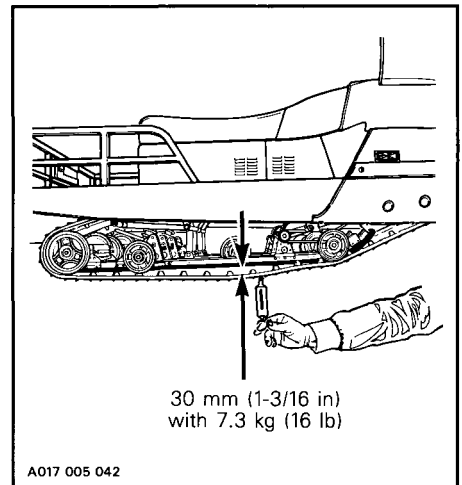
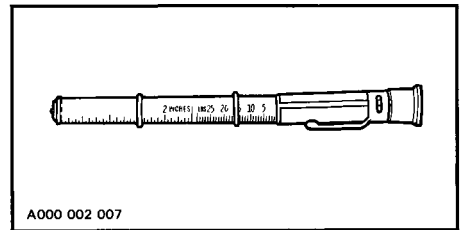
## Track Tension and Alignment

**WARNING :** Always ensure to perform the same adjustments on each rear suspension.

### Tension

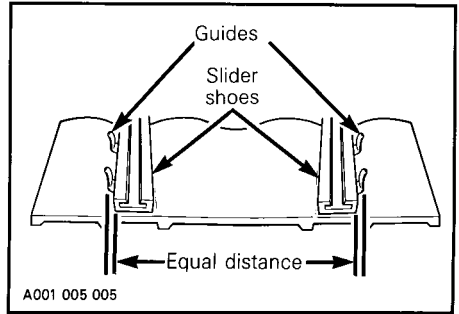
Lift the rear of vehicle and support with a mechanical stand. The gap should be 30 mm (1-3/16 in) between the slider shoe and the bottom inside of the track when applying a downward pull of 7.3 kg (16 lb). The gap should be measured close to suspension center idler wheel. If the track tension is too loose, the track will have a tendency to thump.

**NOTE :** A belt tension tester (P/N 414 3482 00) may be used to measure deflection as well as force applied.



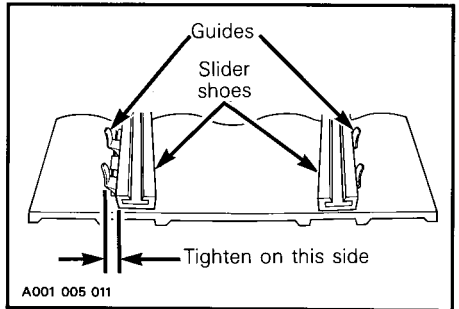
▼ **CAUTION:** Too much tension will result in power loss and excessive stresses on suspension components.

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

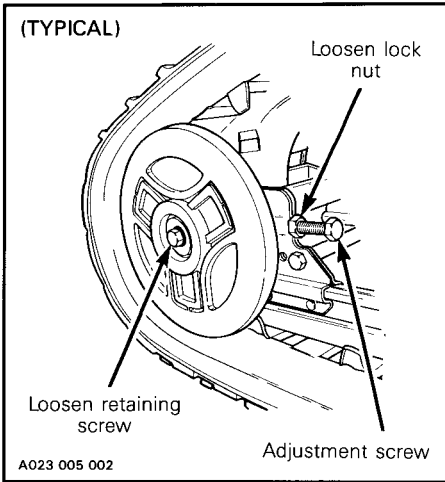


◆ **WARNING:** Before checking track alignment, ensure that the tracks are free of all particles which could be thrown out while track is rotating. Keep hands, tools, feet and clothing clear of track. Ensure no one is standing in close proximity to the vehicle.

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



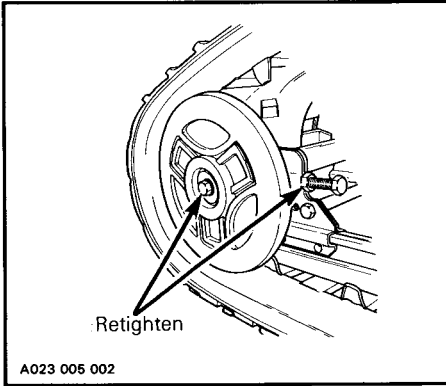
Tighten lock nuts and the idler wheel retaining screws.



○ **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 or two minutes). Check that the track is well centered; equal distance on both sides between edges of track guides and slider shoes.



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 tampering by the owner may disrupt this precision balancing and create an unstable condition.

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.

## Steering Mechanism

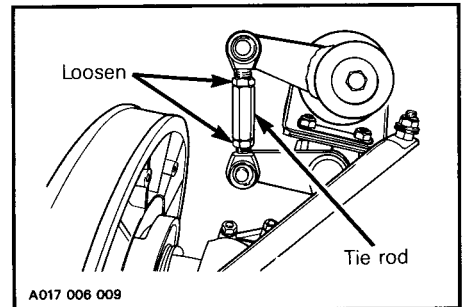
Inspect steering mechanism for tightness of components (steering arms, ball joints, etc). If necessary, replace or retighten. Check longitudinal ski pivot for free movement, condition of ski and ski runners. Replace ski runners if worn.

◆ **WARNING** : Check the condition of the ski and the ski runners. Replace runners if they are more than half worn.

## Steering Adjustment

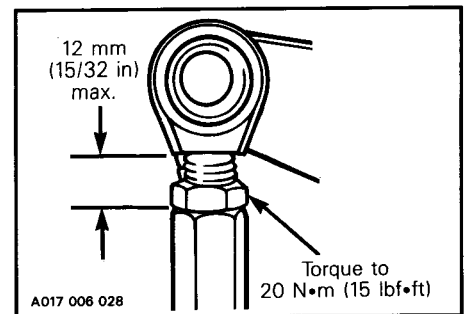
Ski should be perpendicular to handle bar. To align :

- Place ski parallel to vehicle.
- Loosen lock nuts of the tie rod.

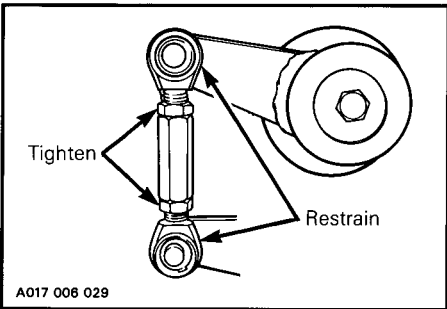
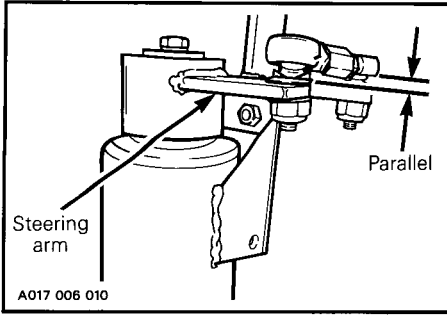


- Turn tie rod manually until the handlebar is horizontal.
- Firmly retighten the lock nuts.

◆ **WARNING** : The maximum ball joint external threaded length not engaged in the tie rod must not exceed 12 mm (15/32 in). Torque lock nut to 20 N•m (15 lbf•ft).



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



## Exhaust System

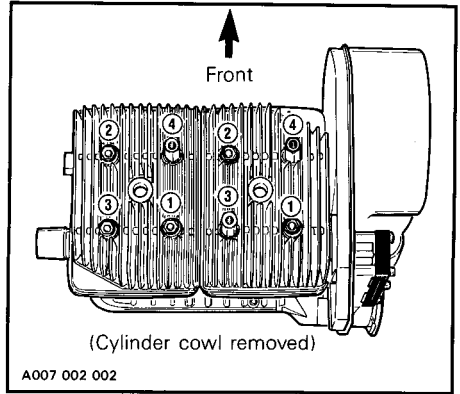
Repair or replace any components which has rusted or developed cracks or holes. Ensure muffler is properly secured in its mount and the ends of retaining springs have not been overstretched. The tail pipe of the muffler should be centered with the exit hole in the bottom pan.

**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 22 N•m (16 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

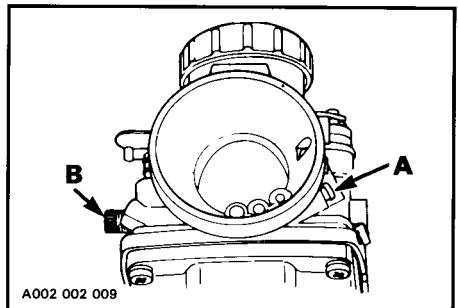
Check the engine mount nuts for tightness. Retighten if necessary to 38 N•m (28 lbf•ft).

## 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 turns.





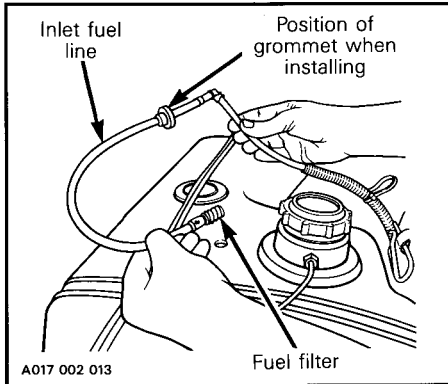
## B) Idle Speed Adjustment

Turn the **idle speed** screw clockwise until a slight contact is felt then continue turning two additional turns. This will provide a preliminary idle speed setting. Start engine and allow it to warm then adjust the idle speed by turning the idle speed screw clockwise or counterclockwise.

Idle speed : 1800-2000 RPM.

## Fuel Filter Replacement

Remove fuel line grommet from top 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 down elbow through grommet.

## Engine Compartment

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

## High Altitude Kit

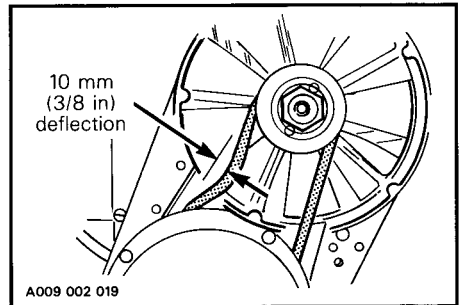
Snowmobiles used in high altitude areas (1200 m (4000 ft) and up) are subjected to loose power as temperature, elevation and snow condition are different.

The carburetor and power train have to be recalibrated to meet those particular requirements. Ask an authorized dealer for more information on high altitude kit availability.

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

## Cooling System Condition

Inspect belt for cracks, uneven wear, etc. Check fan belt tension, 10 mm (3/8 in) deflection should exist.



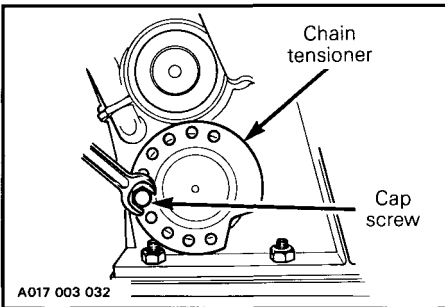
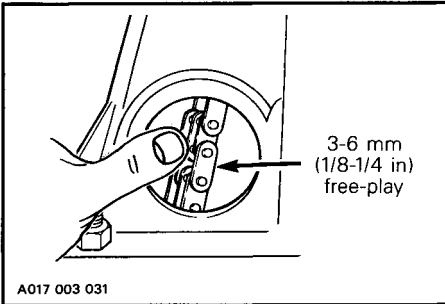
If belt seems damaged or if tension is incorrect, contact an authorized dealer immediately.

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

## Drive Chain Tension

Run vehicle forward so that true free-play can be taken. Check tension then turn driven pulley 1/2 turn forward and re-check. Starting from maximum reading, adjust chain tension to obtain 3-6 mm (1/8-1/4 in) free-play.

Remove capscrew locking chain tensioner in place (tensioner is located at bottom left of gearbox).

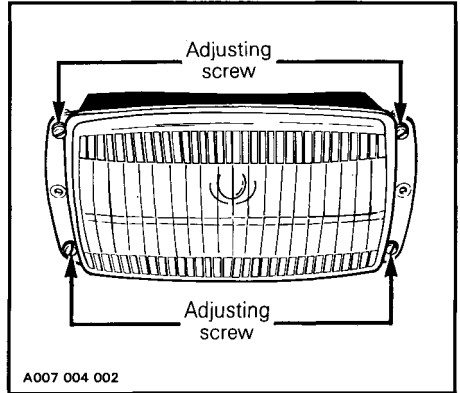


Rotate the tensioner as required to obtain correct chain tension.

Reinstall capscrew to lock chain tensioner in place.

## Headlamp Beam Aiming

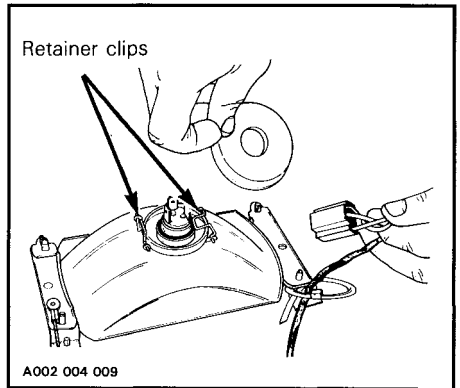
To adjust, remove the four caps, turn upper or lower adjusting screws to obtain desired beam position.



## Bulb Replacement

### Headlamp

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



### Taillight

If taillight bulb is burnt, remove the red plastic lens and replace bulb.

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

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## **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 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. Inspect ski and ski runners for wear.

◆ **WARNING** : Check the condition of the ski and the ski runners. Replace runners if they are more than half worn.

# STORAGE

It is during summer, or when a vehicle is not in use for more than one month that proper storage is a necessity.

◆ **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.

## Tracks

Lift rear of vehicle until tracks are clear of the ground and support with a brace or trestle.

○ **NOTE** : Do not release track tension.

## Controls

Lubricate the steering mechanism. Inspect all components for tightness.

Oil moving joints of the brake mechanism.

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

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

## Gearbox

Drain then refill with 500 mL (18 oz) of fresh Bombardier chaincase oil (P/N 413 8019 00-250 mL).

## Drive and Driven Pulleys

Remove pulley guard and slip off drive belt. Spray antirust product on pulleys.

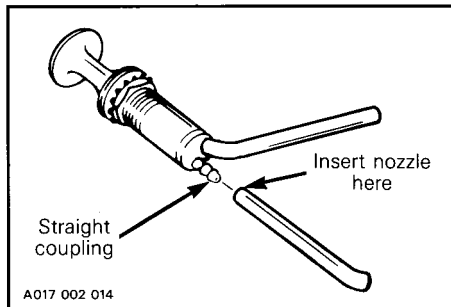
## Engine

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 :

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

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



5. Insert storage oil (P/N 496 0141 00) can nozzle into primer outlet hose.
6. Restart engine and run at idle speed.
7. Inject storage oil until the engine stalls or until a sufficient quantity of oil has entered the engine (approximately half a can).

8. With the engine stopped, remove the spark plugs and spray storage oil (P/N 496 0141 00) into each cylinder.
9. Crank slowly two or three revolutions to lubricate cylinders.
10. Reinstall the spark plugs and the outlet primer hose.

◆ **WARNING :** This procedure must only be performed in a well ventilated area. Do not run engine during storage period.

## Fuel Tank and Carburetor

A fuel stabilizer, such as Sta-Bil® (or equivalent), can be added in fuel tank to prevent fuel deterioration and avoid draining fuel system for storage. Follow manufacturer's instructions for proper use.

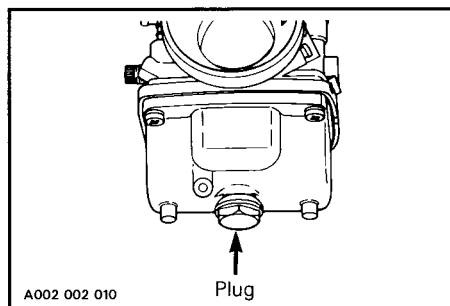
If above fuel stabilizer is not used, drain fuel system as described below.

Remove the cap and using a siphon, drain fuel tank.

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

The 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 and reinstall plug.



## Battery

○ **NOTE :** The battery is located in the seat compartment.

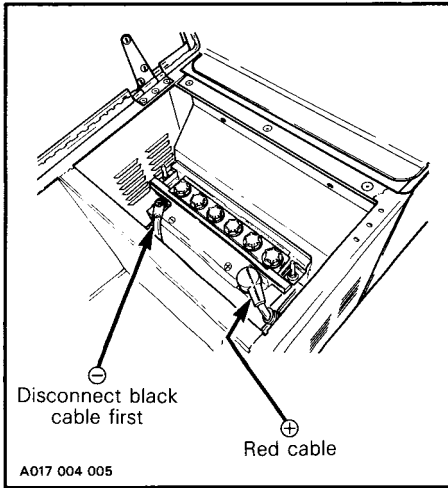
The battery should be removed from vehicle when storing vehicle.

▼ **CAUTION :** A poorly charged or a discharged battery will freeze and damage its elements and possibly damage its casing and parts surrounding battery.

To remove, proceed as follows :

1. Disconnect the battery cables and remove the battery retainer cover.

▼ **CAUTION :** To avoid possibility of grounding the positive terminal with the chassis, always disconnect black negative cable first.



2. Disconnect vent tube.
3. Lift out the battery. Before storing the battery, clean outside surface with a solution of baking soda and water. Remove all deposits from posts then rinse with clear tap water.

**CAUTION :** Do not allow cleaning solution to enter battery since it will destroy the electrolyte.

Check electrolyte level. Refill as necessary with distilled water. Fully charge battery at a maximum rate of 2.0 amps.

**CAUTION :** Prior to charging the battery, always remove it from the vehicle to prevent electrolyte spillage.

**WARNING :** Gases given off by a battery being charged are highly explosive. Always charge in a well ventilated area. Keep battery away from cigarettes, open flames and sparks. Avoid skin contact with electrolyte.

Coat battery posts with silicone dielectric grease (P/N 413 7017 00), if unavailable, use petroleum jelly.

Store battery in a cool, dry place.

**NOTE :** To prevent battery from discharging, store it on a wooden shelf away from moisture. A stored battery must be recharged at least every 40 days.

## General Inspection

Grease or oil at all recommended lubrication points. Wipe off surplus.

Block air intake hole and exhaust system hole using clean cloths.

Remove any dirt or rust.

To clean the entire vehicle, use only flannel cloths or "Kimmtowels®" wipers no. 58-380 from Kimberly-Clark.

**CAUTION :** It is necessary to use flannel cloths or "Kimmtowels" wipers on windshield and hood to avoid damaging further surfaces to clean.

To clean the entire vehicle, including metallic parts with a **thick** coat of grease, use "Endust" imported by Bristol Myers, available at hardware stores or supermarkets.

To clean the entire vehicle, including metallic parts with a **thin** coat of grease, use "Simple Green" from Sunshine Makers Inc., available at hardware stores or at automotive parts retailer.

To remove scratches on windshield or hood : Start with "Slip Streamer Motorcycle Windshield Heavy Duty Scratch Remover". Finish with "Slip Streamer Motorcycle Cleaner and Polish".

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○ **NOTE** : The latest product may be use alone if only light scratches are noticeable.

▼ **CAUTION** : Never clean plastic parts or hood with strong detergent, degreasing agent, paint thinner, acetone, products containing chlorine, etc.

Inspect the hood and repair any damage. Touch up all metal spots where paint has been scratched off. Spray all metal parts with antirust product. Wax the hood and the painted portion of the frame for better protection.

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

▼ **CAUTION** : The snowmobile has to be stored in a cool and dry place and covered with an opaque tarpaulin. This will prevent sun rays and grime from affecting plastic components and vehicle finish.

# 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 overprime. 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 an authorized dealer.</p>
	<p>4. No fuel to the engine (spark plug dry when removed).</p>	<p>Check fuel tank level ; turn fuel shut-off valve 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 an authorized dealer.</p>
	<p>5. Spark plug/ignition (no spark).</p>	<p>Check that emergency cut-out switch is at ON position 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 a metallic part of engine <b>being careful to hold away from spark plug hole</b>.</p> <p>Follow engine starting procedure and check for sparks. If no spark appears, replace spark plug. If trouble persists, contact an authorized dealer.</p>



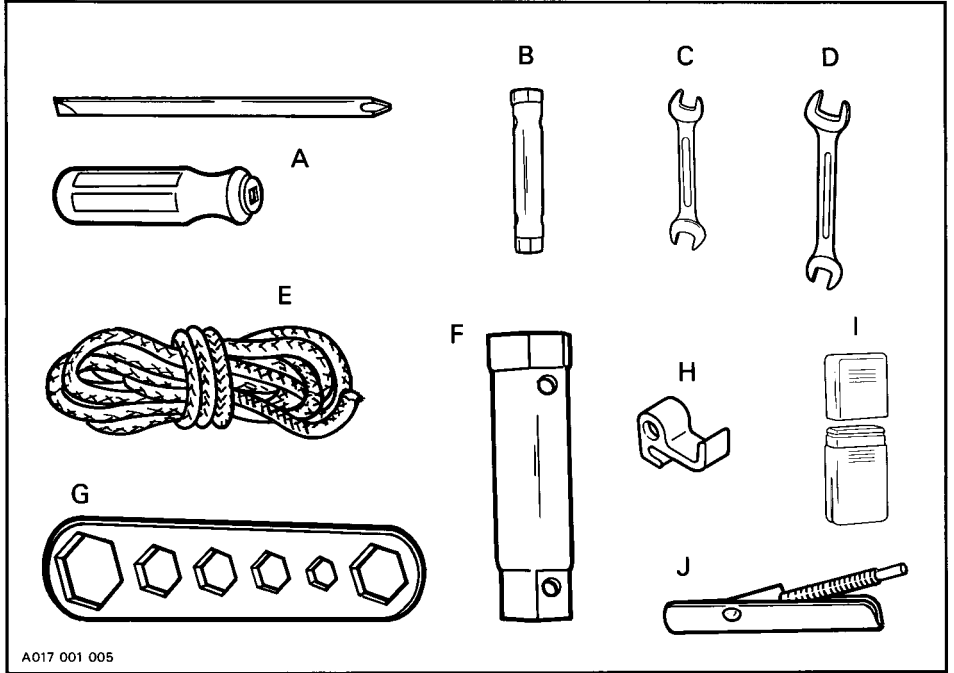
<b>SYMPTOMS</b>	<b>POSSIBLE CAUSES</b>	<b>WHAT TO DO</b>
	6. Engine compression.	As the engine is pulled over with the rewind starter, "cycles" of resistance should be felt as piston goes past top dead center (each piston on twin-cylinder engines). If no pulsating resistance is felt, it suggests a major loss of compression. Contact an 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 an 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 an authorized dealer.
	6. Engine is overheating.	On liquid cooled engines, check coolant level, pressure cap, thermostat and for air locks in cooling system.  On fan cooled engines, check fan belt and its tension ; clean cooling fins of engine ; if heating persists, contact an 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 an 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 adjustments.
	3. Pulleys misaligned.	Contact an authorized dealer.
	4. Engine.	See items 1, 2, 3 and 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



A017 001 005

DESCRIPTION	PART NUMBERS
A. Screwdriver	529 0192 00
B. Socket 10/13 mm	529 0149 00
C. Open end wrench 10/13 mm	529 0173 00
D. Open end wrench 15/17 mm	529 0193 00
E. Emergency starting rope	529 0175 00
F. Socket 21/26 mm	529 0148 00
G. Multi-purpose key	529 0147 00
H. Emergency starting clip	529 0194 00
I. Tool box	572 0363 00
Tool box cover	572 0364 00
J. Drive belt installer/remover	529 0195 00

# SPECIFICATIONS

	<b>ALPINE II 503</b>	
<b>ENGINE</b>		
Type	503	
No. of cylinders	2	
Bore	72 mm	(2.835 in)
Stroke	61 mm	(2.402 in)
Displacement	496.70 cm <sup>3</sup>	(30.31 in <sup>3</sup> )
Compression ratio (corrected)	6.3:1	
Maximum horsepower RPM*	5250	
Carburetor	Variable Venturi, float type	
Carburetor adjustment :		
– air screw	1-1/2 turns	
– idle speed	1800-2000 RPM	
Torque :		
– engine head nuts	22 N•m	(16 lbf•ft)
– crankcase nuts	22 N•m	(16 lbf•ft)
– magneto flywheel nut	90 N•m	(66 lbf•ft)
– fan nut	60 N•m	(44 lbf•ft)
– crankcase/engine support nuts	38 N•m	(28 lbf•ft)
– exhaust manifold bolts	25 N•m	(18 lbf•ft)
– electrical starter bolts	M5 : 4 N•m	(35 lbf•in)
Fan belt free-play	10 mm (3/8 in) when applying a force of 5 kg (11 lb) midway between pulleys	
<b>CHASSIS</b>		
Overall length	306 cm	(120.5 in)
Overall width	111 cm	(43.7 in)
Overall height	147 cm	(57.9 in)
Ski alignment	Ski perpendicular to handlebar	
Torque :		
– steering column/handlebar	26 N•m	(19 lbf•ft)
Mass	353 kg	(778 lb)
Bearing area	13696 cm <sup>2</sup>	(2123 in <sup>2</sup> )
Ground pressure	2.53 kPa	(.366 lb/in <sup>2</sup> )

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

	<b>ALPINE II 503</b>
<b>POWER TRAIN</b> Track : — quantity — width — length — tension — alignment Standard gear ratio Gearbox chain tension Drive belt : — number — max. width — min. width Chaincase/gearbox oil capacity	2 41.9 cm (16.5 in) 353.9 cm (139.3 in) 30 mm (1-3/16 in) between slider shoe and bottom inside of track with a downward pull of 7.3 kg (16 lbf). Equal distance between edge of track guides and slider shoe. 17/46 3-6 mm (1/8-1/4 in) 570 2777 00 35 mm (1-3/8 in) 32 mm (1-1/4 in) 500 mL (17 oz)
<b>ELECTRICAL</b> Lighting system (output) Bulb : — headlamp — tail/stop — speedometer Fuse : — starter solenoid Spark plug : — type — gap Ignition timing : — timing mark (BTDC) — stroboscopic timing	12 V, 160 W (AC) 60/60 W 8/27 W 5 W 30 A NGK BR8ES 0.5 mm (.020 in) 2.29 mm (.090 in) 6000 RPM
<b>FUEL</b> Gas type Fuel tank capacity : — S.I. — Imp. — U.S. Premixed fuel/oil : — oil type — ratio	Regular unleaded 34.2 L 7.5 gal 9 gal Blizzard oil 50:1
<b>BRAKE</b> Type Lining minimum thickness Control lever adjustment	Disc, self-adjusting When only 1 mm (1/32 in) of fixed pad projects from caliper. 13 mm (1/2 in) minimum distance from handlebar grip when fully applied.

*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.*

# 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	1 000
centi	c	one hundredth	0.01
milli	m	one thousandth	0.001
micro	μ	one millionth	0.000 001

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.





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