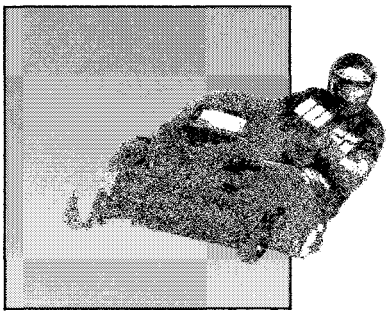


OPERATOR'S GUIDE

Tundra II

BOMBARDIER ski-doo

1993

Version française disponible

414 8174 00

Tundra II/LT

SAFETY WARNING

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

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

AFTER SALES SERVICE
BOMBARDIER INC.
VALCOURT (QUEBEC)
CANADA J0E 2L0

Litho'd in Canada

NOTICE

The *Operator's Guide*, the *Warranty Guide and the 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.

These guides use 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.

◆ **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.**

Observe the Following Precautions :

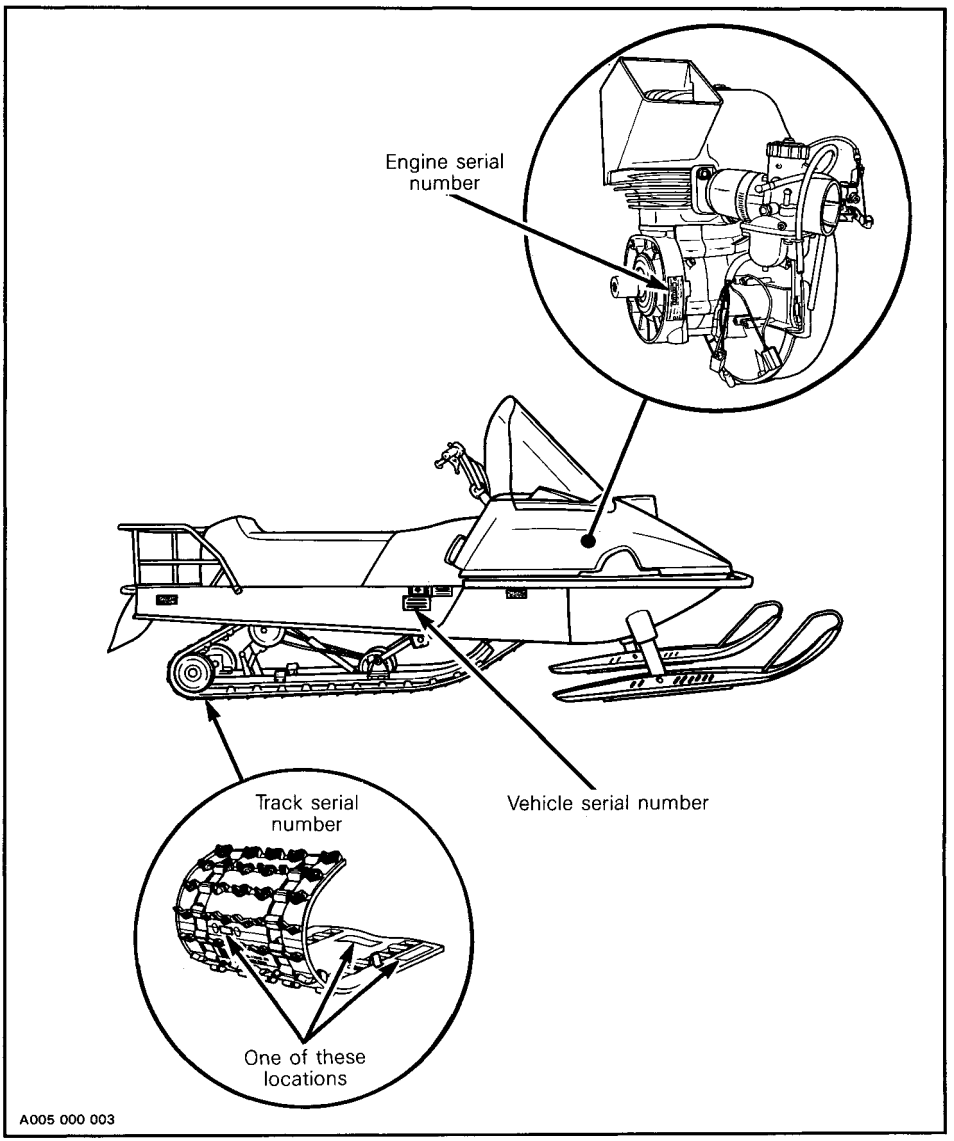
- ◆ Throttle mechanism should be checked for free movement before starting engine.
- ◆ Do not operate vehicle near snow making equipment.
- • The snowmobile engine can be stopped by activating the emergency cut-out or tether switch or turning off the key.
- ◆ Clean and check operation of the headlight, 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.
- ◆ Never drive the vehicle with the parking brake applied. This may overheat the brake disc and reduce braking ability.
- ◆ 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 engines 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 engines 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.
- ◆ The performance of some vehicles may significantly exceed that of other snowmobiles you have operated. Therefore, use of these vehicles by novice or inexperienced operators is not recommended.
- ◆ 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.*

TABLE OF CONTENTS

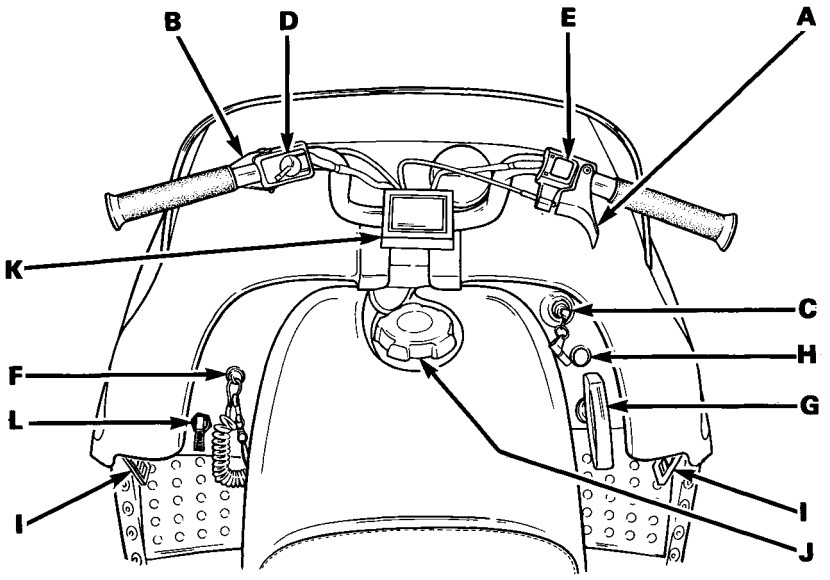
HOW TO IDENTIFY YOUR SNOWMOBILE

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

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



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A) Throttle Lever
B) Brake Lever
C) Ignition Switch
D) Headlight Dimmer Switch
E) Emergency Cut-Out Switch
F) Tether Cut-Out Switch
G) Rewind Starter Handle
H) Primer Button
I) Hood Latches
J) Fuel Gauge/Tank Cap
K) Adjustable Handlebar
L) Decompressor Lever

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.

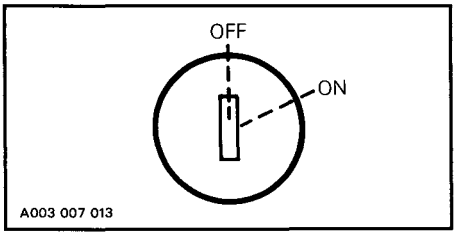
B) Brake Lever

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) Ignition Switch

The lights are automatically ON whenever the engine is running.

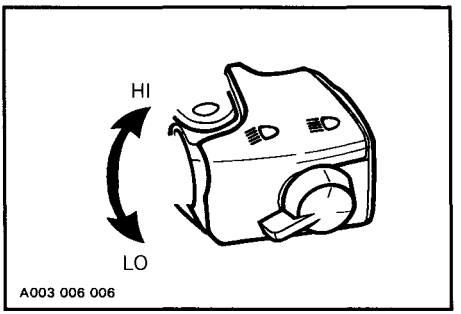
Starting



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

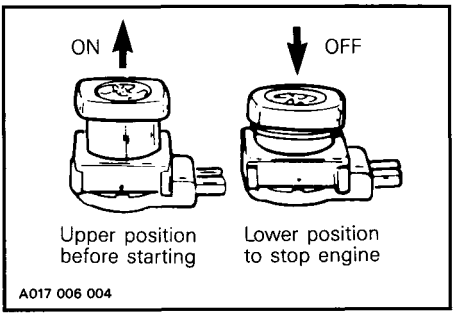
D) Headlight Dimmer Switch

The dimmer switch, located on left side of handlebar, allows correct selection of headlight beam. To obtain high or low beam simply flick switch.



E) 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 brake. To start engine, button must be at the upper ON position.



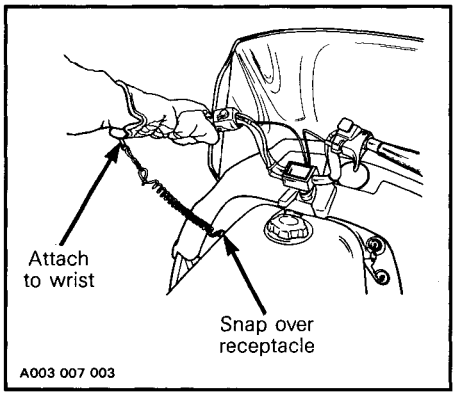
◆ **WARNING : If the switch has been used in an emergency situation the source of malfunction should be determined and corrected before restarting engine.**

The driver of the 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.

F) 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 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 in 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 until a pumping resistance is felt. Then, activate primer two or three times to start a cold engine. Not necessary when engine is warm.

I) Hood Latches

Pull down the latches to unlock 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.

J) Fuel Gauge/Tank Cap

WARNING : Never use open flame to check fuel level.

Unscrew fuel tank cap and withdraw dipstick to check fuel level.

K) Adjustable Handlebar

Handlebar height is adjustable, see an authorized dealer.

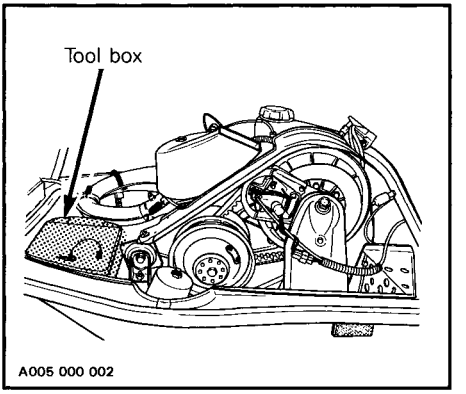
L) Decompressor Lever

Lift lever to operate. Tip down when engine has started.

CAUTION : The decompressor provides easier starting by reducing engine compression. However, leaving the decompressor lever lifted while running might damage your engine. Always tip down after the engine has started.

Tool Box

Located under the hood. Ideal location for spare spark plug, rope, flashlight, first aid kit, etc. It contains a tool kit including tools for basic vehicle maintenance.



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Accessories

Some optional accessories may be added to your vehicle such as front bumper, carbide runner, hitch, etc. Ask an authorized dealer for more information.

Recommended Fuel

Use regular unleaded gasoline available from all service stations or gasohol with less than 10% of ethanol. The gasoline used must have an octane number (R + M/2) of 87.

◆ **WARNING : Never top up the fuel tank before placing the vehicle in a warm area. As temperature increases, fuel expands and might overflow. Do not fill the fuel tank all the way to the top. When the vehicle is tilted, this could cause the fuel to 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

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

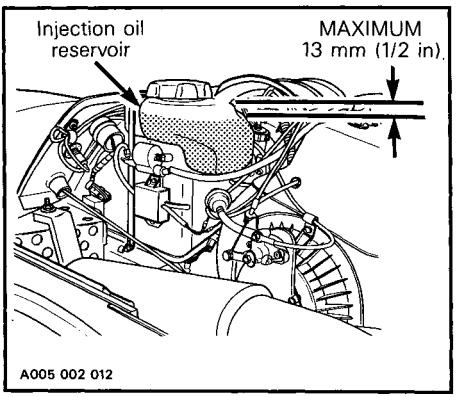
Use BOMBARDIER Snowmobile Injection Oil (P/N 496 0133 00 - 1 liter) available from an authorized dealer. This type of oil will flow at temperature as low as −40°C (−40°F).

If BOMBARDIER Snowmobile Injection Oil is unavailable, substitute with BLIZZARD OIL (P/N 496 0135 00).

Oil Injection System

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

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



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

○ **NOTE :** To assure additionnal protection during the initial engine break-in, 500 mL (18 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.

BREAK-IN PERIOD

Engine

With 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.

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 (18 imp. oz) of BLIZZARD Oil (P/N 496 0135 00) or the same quantity of BOMBARDIER Injection Oil (P/N 496 0133 00) should be added to fuel for the first full fuel tank filling.

CAUTION : Remove and clean spark plug 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*.

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

PRE-START CHECK

Check Points :

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

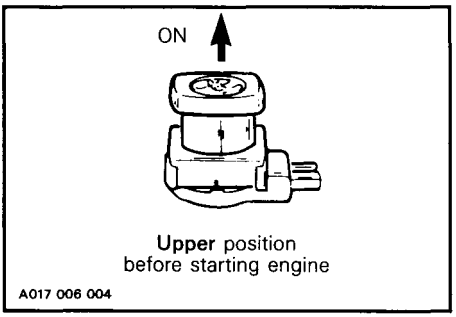
◆ **WARNING : Only start your snowmobile once all components are checked and are functioning properly.**

STARTING PROCEDURE

Starting

Test throttle lever operation.

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



Upper position
before starting engine

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

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

Activate primer two or three times.

◯ NOTE : Priming is not necessary when the engine is warm. To prime, activate the primer button 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.**

Lift the decompressor lever.

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.**

Tip the decompressor lever down once engine has started.

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 an authorized dealer.**

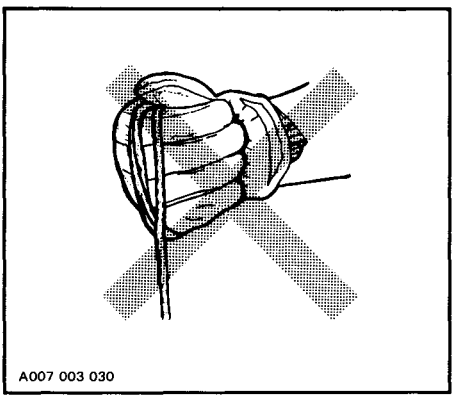
▼ **CAUTION : Let engine idle two minutes for warm-up. Then, ride at reduced pace for the first kilometer (mile). This will enable all components of the vehicle to warm-up.**

◆ **WARNING : This snowmobile is propelled by a revolving track 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 track.**

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.**



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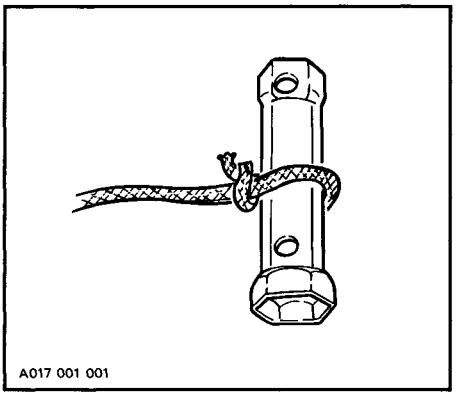
◆ **WARNING : Do not make a knot at the end of the emergency rope. Do not start the vehicle by the drive pulley, unless it is a true emergency situation. Have the vehicle repaired as soon as possible.**

◆ **WARNING : After starting the vehicle in an emergency situation by the drive pulley, do not reinstall the rewind starter.**

Remove the belt guard from vehicle (see MAINTENANCE section).

Transfer rewind starter handle to your emergency rope.

◯ **NOTE :** The spark plug socket can be used as an emergency starting handle.



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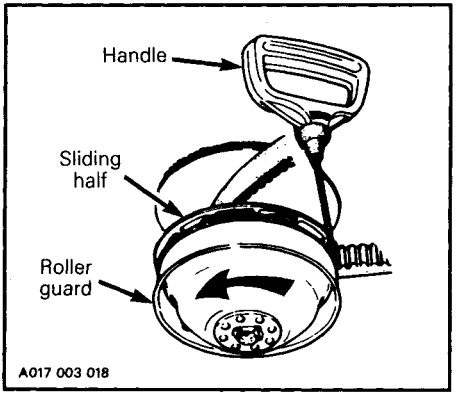
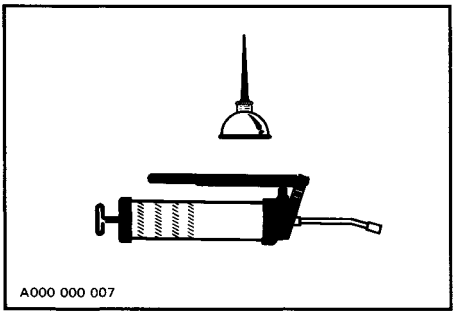
Wind emergency starting rope tightly around the drive pulley between sliding half pulley and roller guard. When pulled, drive pulley must turn counterclockwise (same direction as the track).



◆ **WARNING : When starting the vehicle in an emergency situation, using drive pulley, do not reinstall the belt guard and return slowly to have vehicle repaired.**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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 unless otherwise specified. 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.

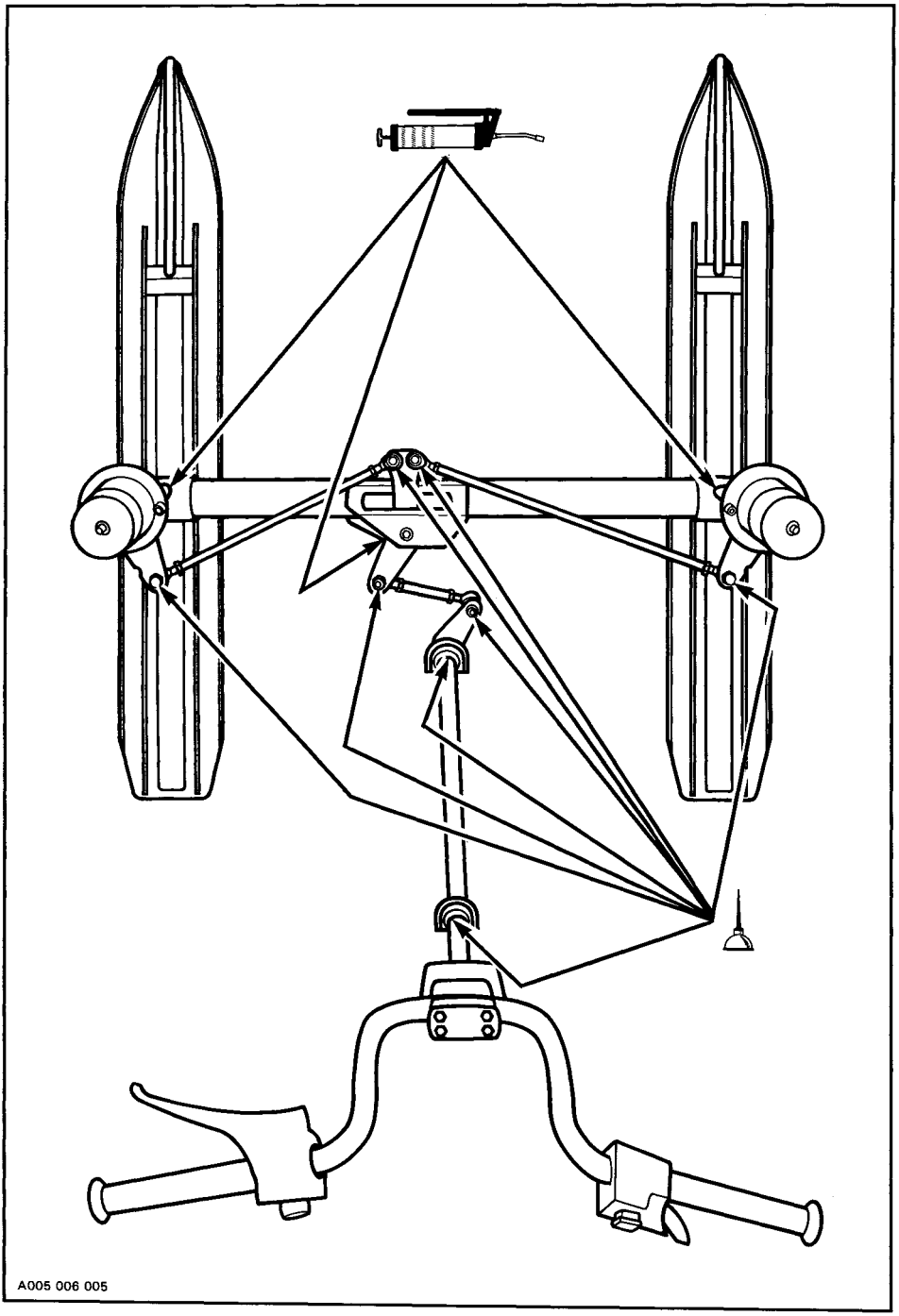
Steering and Front Suspension Mechanisms

Lubricate front suspension system and pivot arm at grease fittings. Pump five strokes of grease gun on each strut.

◯ NOTE : There are three grease fittings.

Oil ball joints and steering column bushings.

◯ NOTE : There are eight lubrication points.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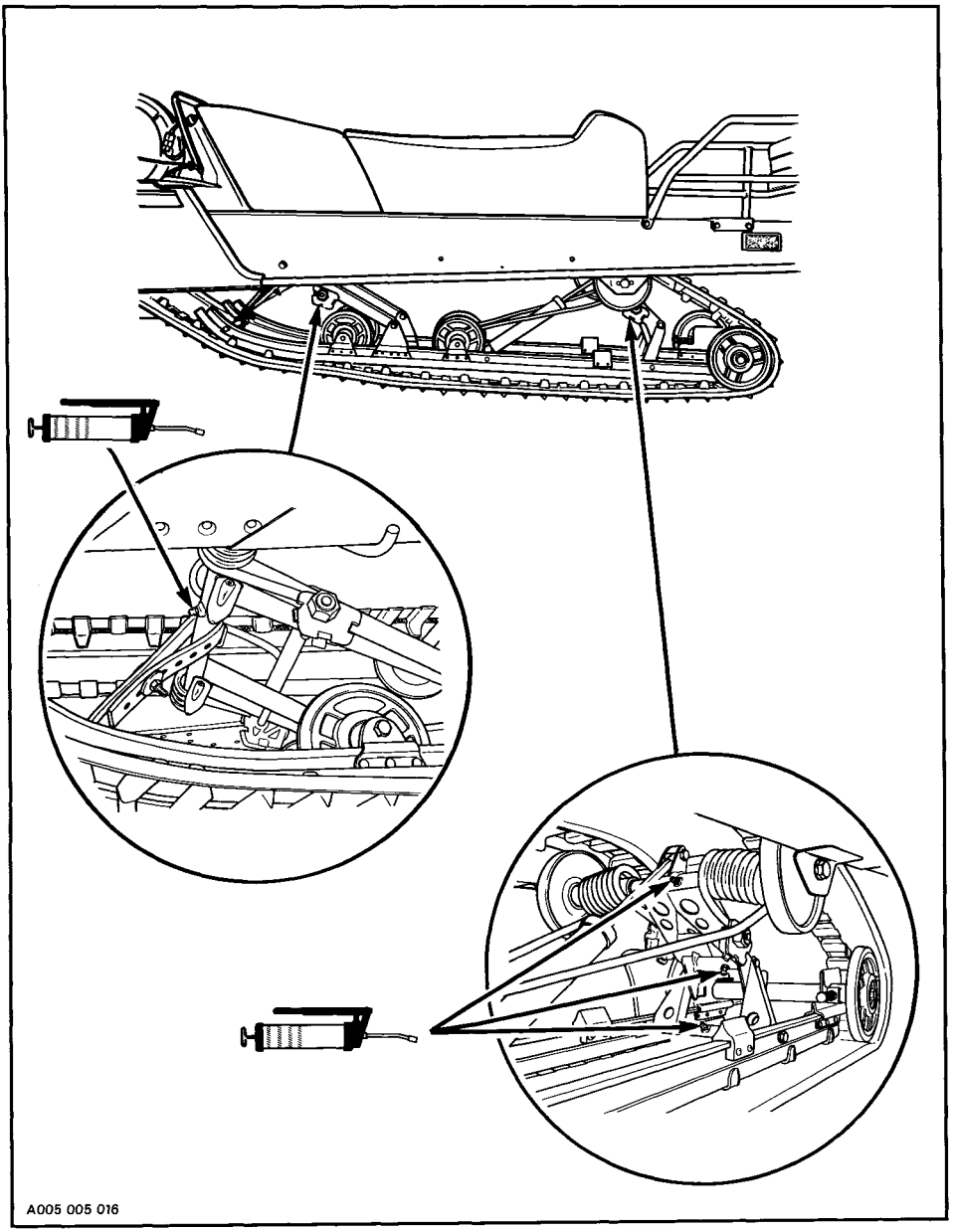
Rear Suspension

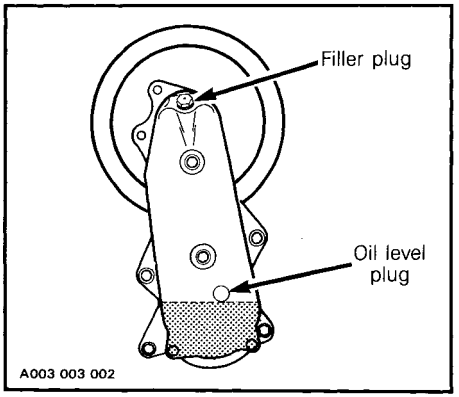
Lubricate front and rear arms at grease fittings.

NOTE : There are four grease fittings.



Chaincase Oil Level

Check the oil level by removing the chaincase oil level plug.



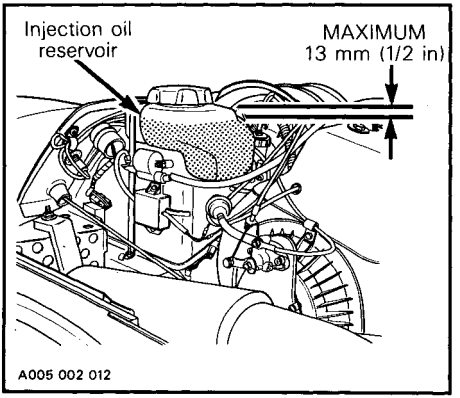
The oil should be level with the bottom of the oil level hole. Refill as required using Bombardier chaincase oil (P/N 413 8019 00).

NOTE : The chaincase oil capacity is 200 mL (7 oz).

Oil Injection System

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

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



CAUTION : Check level and refill every time you refuel. Do not overfill. Wipe off any spillage

Drive Pulley

No lubrication required.

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

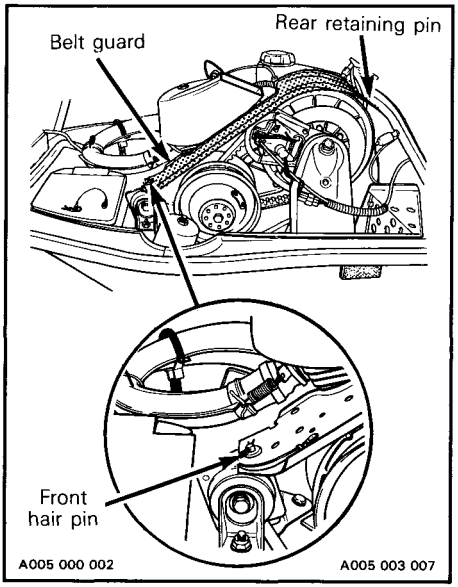
WARNING : Do not lubricate throttle and/or brake cables and housings.

Belt Guard

◆ **WARNING : Belt guard should always be in place when engine is running.**

A. Open the hood and pull rear retaining pin out. Pull front hair pin out.

B. Remove the guard.

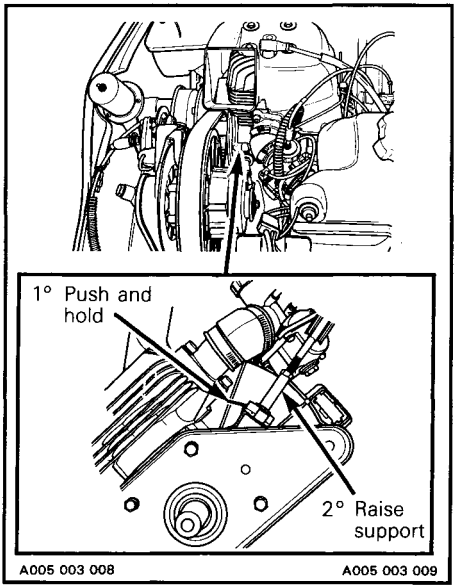


Reverse procedure for installation.

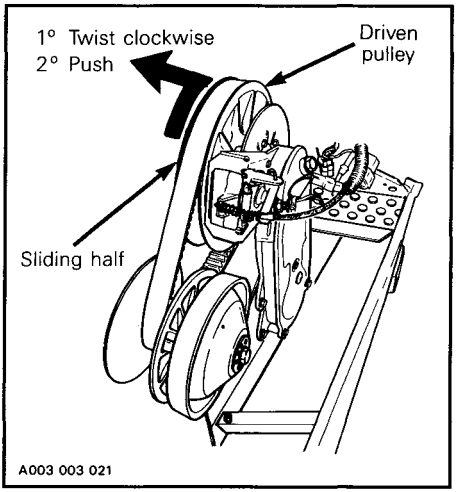
Drive Belt Removal

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

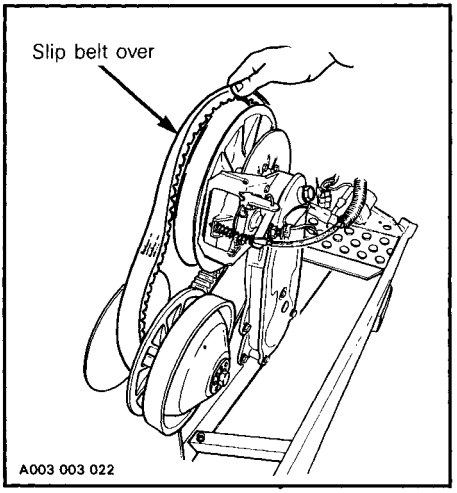
1. Remove ignition key.
2. Open the hood and remove the belt guard.
3. Unlock and raise driven pulley support.



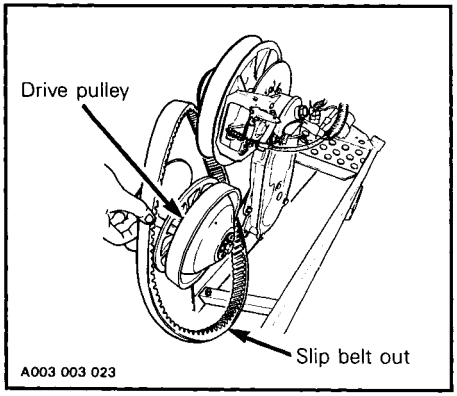
4. Open the driven pulley by twisting and pushing the sliding half. Hold in fully open position.



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



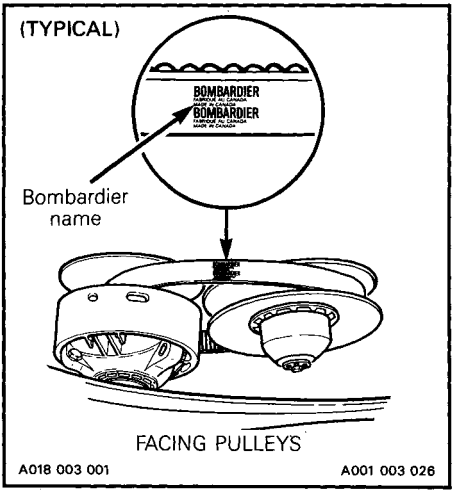
6. Slip the belt out from the drive pulley and remove completely from vehicle.



Drive Belt Installation

To install the drive belt, reverse the removal 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.

Lower and lock driven pulley support.

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 an authorized dealer.

Check the drive belt width.

Replace the drive belt if width is less than 30 mm (1-3/16 in).

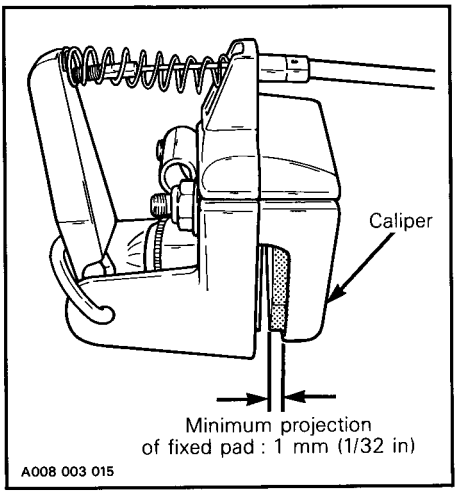
New Drive Belt

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

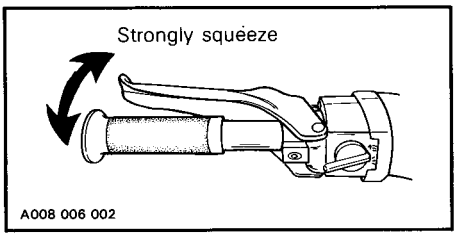
The brake mechanism on your snowmobile is an essential safety device. Keep this mechanism in proper working condition. Above all, do not operate your snowmobile without an effective brake system.



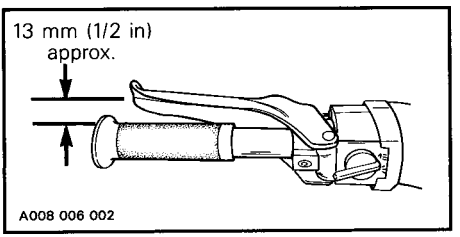
WARNING : Brake pads must be replaced as soon as only 1 mm (1/32 in) of the fixed pad is still projected out of caliper. Replacement must be performed by an authorized dealer.

Brake Adjustment

The brake mechanism is a self-adjusting type. 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 approximatively 13 mm (1/2 in) from handlebar grip. Otherwise, do not tamper with the brake, contact your authorized dealer.



Brake Light Switch Adjustment

To check operation :

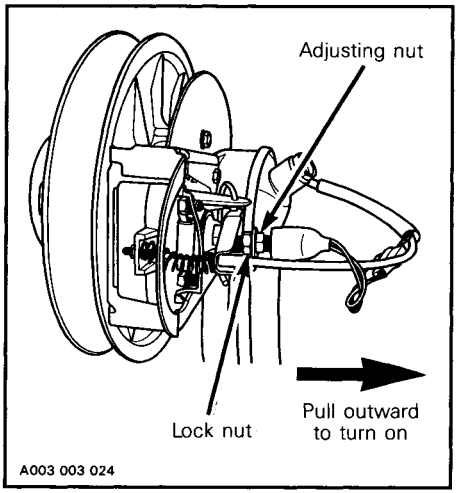
Pull the brake lever and check that a light resistance is felt while rotating the driven pulley. This is the position where the switch should have turned the brake light on.

To adjust :

NOTE : This adjustment must be performed after brake adjustment.

— Loosen the brake switch lock nut while retaining adjusting nut.

— While turning adjusting nut, pull switch outward to turn the light on or push inward to turn it off.



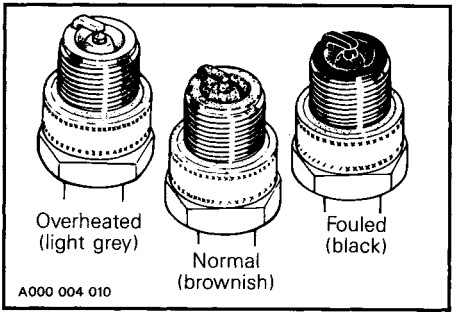
— Tighten the lock nut while retaining adjusting nut. Recheck brake light operation.

Spark Plug

Disconnect the spark plug wire and remove the spark plug.

Check the condition of the plug.

- 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 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 0.5 mm (.020 in).

Reinstall spark plug and connect wire.

Rear 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.

Suspension Stopper Strap Condition

Inspect stopper strap for wear and cracks, bolt and nut for tightness. If loose inspect holes for deformation. Replace as required. Torque nut to 9 N•m (80 lbf•**in**).

Suspension Adjustments

Front Suspension

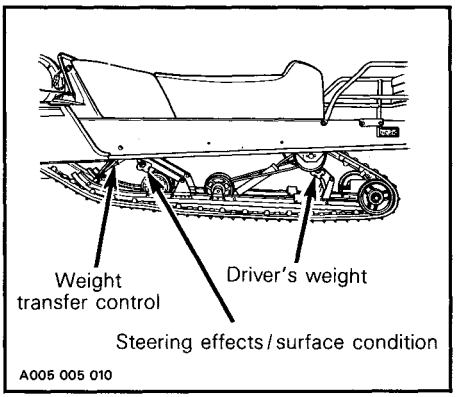
The front suspension is not adjustable. However, shim(s) may be added to stiffen shock absorber spring if necessary for particular situations. Refer to an authorized dealer.

Rear Suspension

The **front portion** of rear suspension is adjustable for surface condition and steering effects.

The **stopper strap** is adjustable for vehicle weight transfer control.

The **rear portion** of rear suspension is adjustable for driver's weight.



Choice of suspension adjustments depends on carrying load, driver's weight, personal preference, riding speed and field condition.

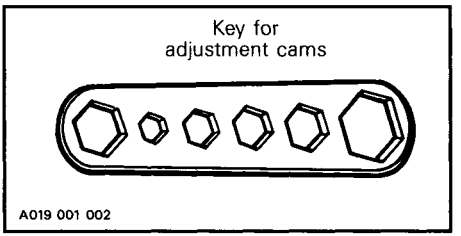
Rear Suspension Setting Table

Cam position	Soft → stiff
Operator's weight	Light → Heavy
Riding speed	Low → High
Field condition	Flat → Bumpy

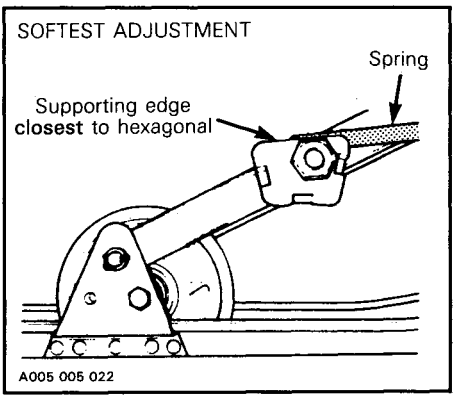
Slight suspension bottoming occuring under the worst riding conditions indicates a good choice of springs preload.

Adjustment Cam Tool

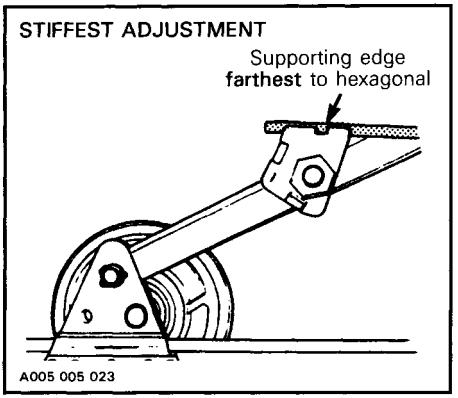
To adjust rear suspension adjustment cams, use the special key supplied in tool kit.



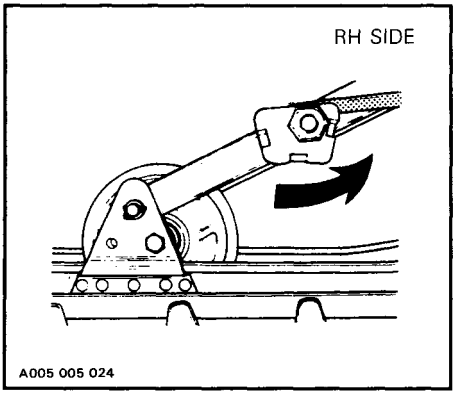
Turning adjustment cam moves edges of cam supporting spring rod. The softest adjustment is reached when the supporting edge of cam is the closest to hexagonal portion of cam.

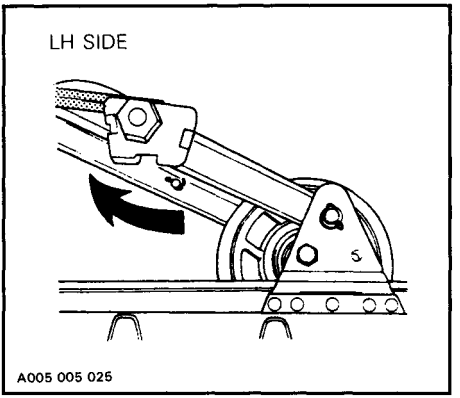


The stiffest adjustment is reached when the supporting edge of cam is the farthest to hexagonal portion of cam.



▼ **CAUTION : Always turn the left side adjustment cams in a clockwise direction, the right side cams in a counterclockwise direction. Left and right adjustment cams must always be set at the same position.**

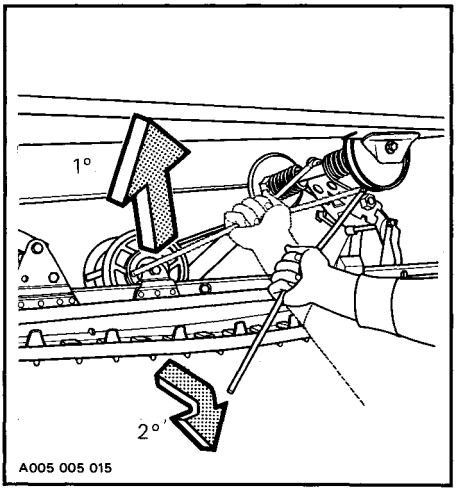




◯ **NOTE :** The following procedure allows to quickly change rear cam position without using any tool.

— Lay vehicle on its side.

— Unhook rear spring by hand from lower idler wheel.



— Turn adjustment cam by hand to the desired position.

— Reinstall spring on its support making sure that it sits in the groove of support.

Stopper Strap

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 steering.

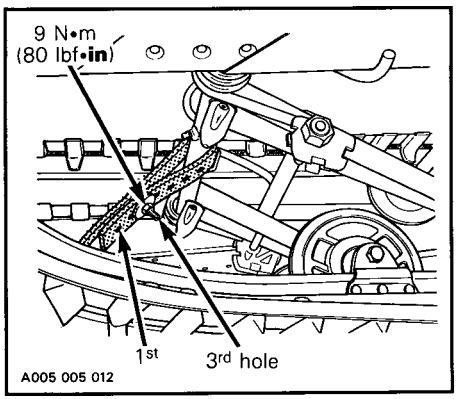
The longer the belt, the greater will be the track lead angle. A shorter belt will reduce track lead angle which may help when negociating a particular snow condition.

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

◆ **CAUTION : Whenever stopper strap length is changed, track tension must be readjusted to prevent any possibility of operating vehicle with a too loose or too tight track tension.**

For normal use locate bolt through 3rd hole from strap end.

◆ **WARNING : Always torque the nut to 9 N•m (80 lbf•in). Replace strap if worn or torn.**



○ **NOTE :** When towing a load, it is suggested to adjust stopper strap to its shortest length, soften front springs of rear suspension and stiffen rear springs. These adjustments will improve steeringability.

Deep Snow Operation

When operating the vehicle in deep snow, it may be necessary to change position of adjustment cams, 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. 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 are noted ; contact an authorized dealer.

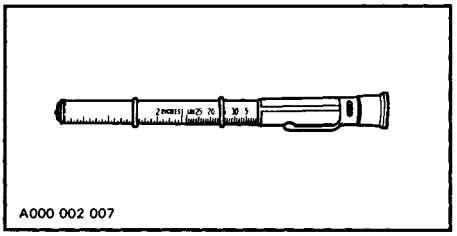
◆ **WARNING : Do not operate a snowmobile with a cut, torn or damaged track.**

Track Tension

Lift the rear of vehicle and support with a mechanical stand.

Allow the slide to extend normally and check the gap half-way along slider shoe. The gap should be 35 to 45 mm (1-3/8 — 1-3/4 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.

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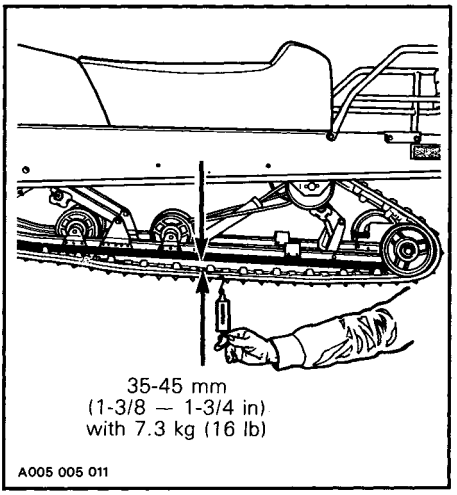

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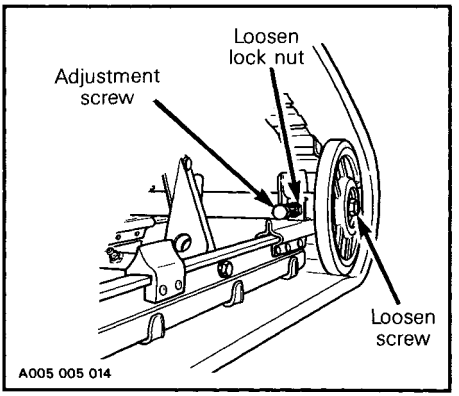
To adjust tension :

— Loosen the rear idler wheel retaining screws.

— Loosen the lock nuts then turn adjustment screws to adjust.

If correct tension is unattainable, contact an authorized dealer.



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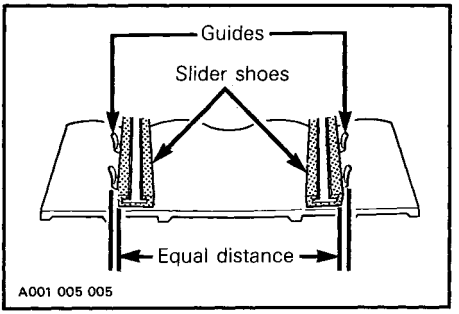
Track Alignment

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

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.

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.



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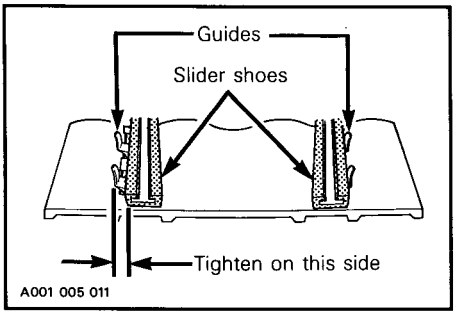
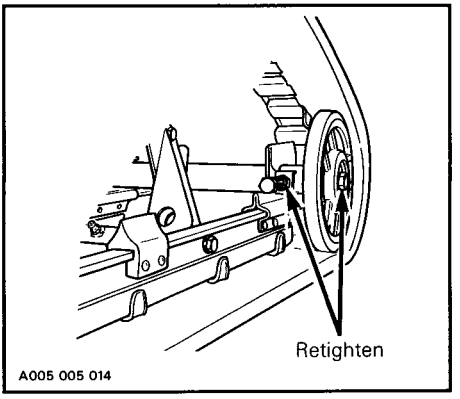
To correct, **stop the engine :** Loosen the lock nuts and tighten the adjustment screw on side where the slider shoe is the farthest from the track insert guides.



Tighten lock nuts and adjustment screws.

◆ **WARNING : If lock nuts or retaining screws are not tightened properly, the adjusting screws could loosen causing the track to become extremely loose and, under some operating conditions, allow the idler wheels to climb over the track lugs forcing the track against the tunnel causing the track to "lock".**



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

Reposition vehicle on ground.

Condition of 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 precisions balancing and create an unstable condition.

Pulleys are factory adjusted to provide the best performance under most riding conditons. 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 and Front Suspension Mechanisms

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

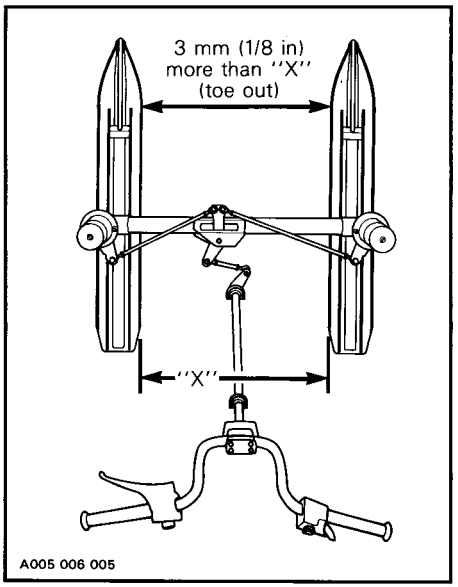
Wear and Condition of Skis and Runners

Check the condition of the skis and the ski runners. If worn, contact your authorized dealer.

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. The front distance should be 3 mm (1/8 in) more than the rear when the handlebar is horizontal.

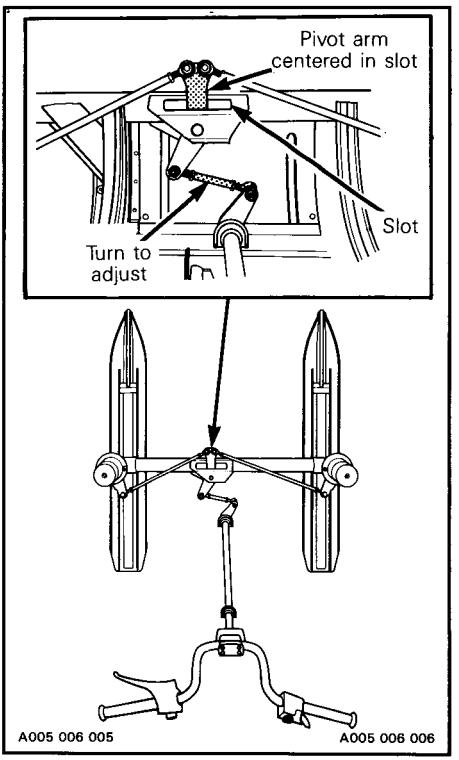
IMPORTANT : Close the front of the skis to eliminate all slack from the steering mechanism using a rubber strap.



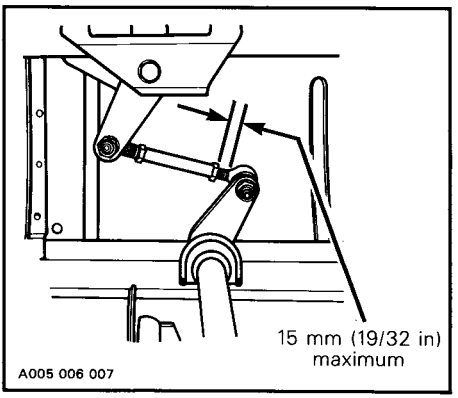
If adjustment is required :

— Turn handlebar until pivot arm is well centered in slot of its bracket.

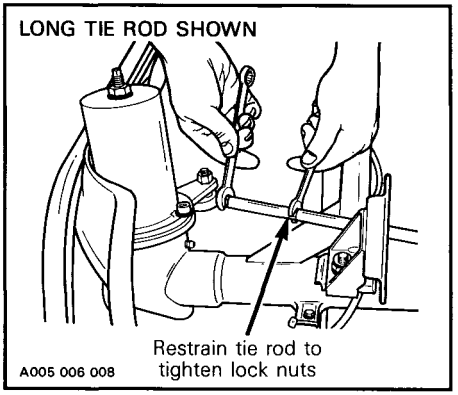
— Check if handlebar is horizontal. To adjust, loosen lock nuts of short tie rod and turn it accordingly.



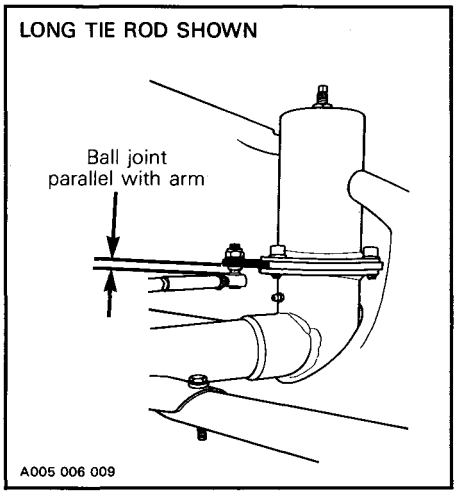
◆ **WARNING : Maximum ball joint external threaded length not engaged in the tie rod end must not exceed 15 mm (19/32 in). Torque lock nut to 20 N•m (15 lbf•ft).**



— Restrain tie rod while firmly retighten nuts so that ball joint sockets run parallel with steering arm and pivot arm.



◆ WARNING : Ball joint sockets must run parallel with steering arm and pivot arm. Tie rod must be restrained when tightening lock nuts.

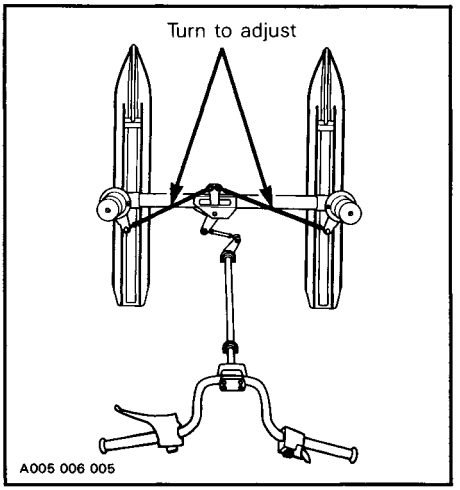


— Ensure that pivot arm is still centered and check ski toe-out.

If adjustment is required :

— Loosen lock nuts of long tie rods and turn each tie rod so that skis are in a straight ahead position. To adjust toe out, slightly turn both tie rods exactly the same amount.

— Check external threaded length not engaged and firmly retighten nuts as specified above.



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.

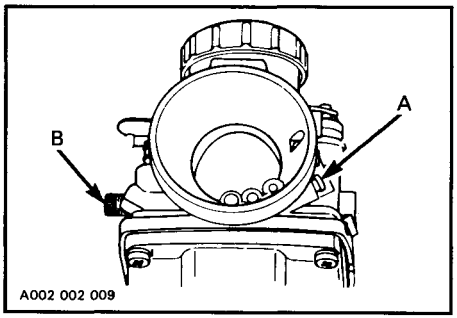
The exhaust system is designed to reduce noise and to improve the total performance of the engine. If any exhaust system component is removed from the engine, severe engine damage will result.

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 turn.

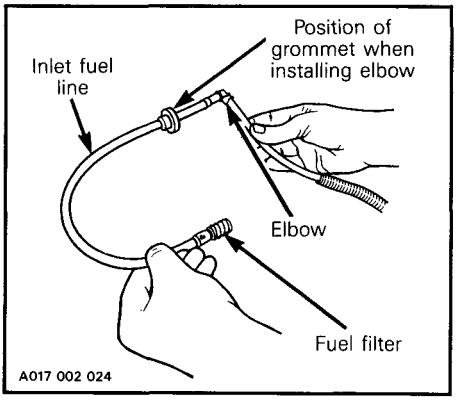


B) Idle Speed Adjustment

Turn the **idle speed** screw clockwise until it contacts the throttle slide then continue turning two additional turns. This will provide a preliminary idle speed setting. Start the engine and allow it to warm-up then adjust the idle speed by turning the idle speed screw clockwise or counterclockwise to 1100-1400 RPM.

Fuel Filter Replacement

Remove fuel line grommet from 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 than install grommet on fuel tank and push down elbow through grommet.

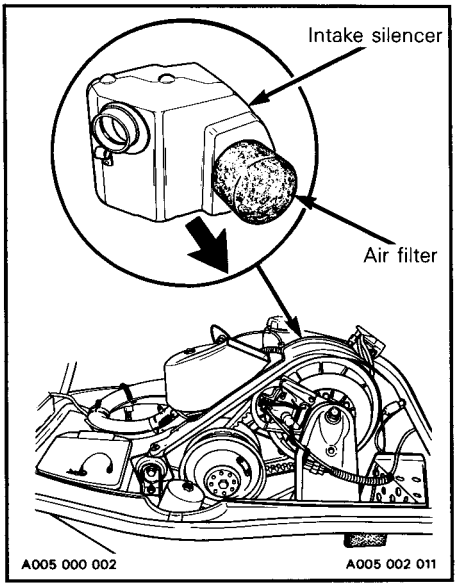
Engine Compartment

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

Air Filter Cleaning

Air filter is located on lower side portion of air intake silencer. Lift hood and remove belt guard. Gently pull air filter sideward.

Ensure it is clean and dry. Clean with a solvent and dry as necessary.



Check that the intake silencer is clean and dry then carefully reinstall the filter.

▼CAUTION : These vehicles have been calibrated with the filter installed. Operating the vehicle without it may cause engine damage.

High Altitude Kit

Altitude and temperature affect the carburetion needed for optimum engine performance. The carburetor jetting and drive system must be changed in conjunction with changes in operating altitude and temperature. As the ambient temperature rises or as snowmobile is operated at a higher altitude, the jetting must be replaced with leaner jets. The original equipement (production) jets need to be changed (depending upon your operating altitude and temperature), following the break-in period, to the proper size. See an authorized dealer.

An engine loses about 3-1/2% of its power for each 300 m (1000 ft) increase in elevation. For example, an engine operating at 3000 m (10000 ft) elevation would produce approximately 65 percent of the power it would have at sea level. Although this power cannot be regained, changes to the carburetor and drive system can be made to allow the engine to operate within its power band.

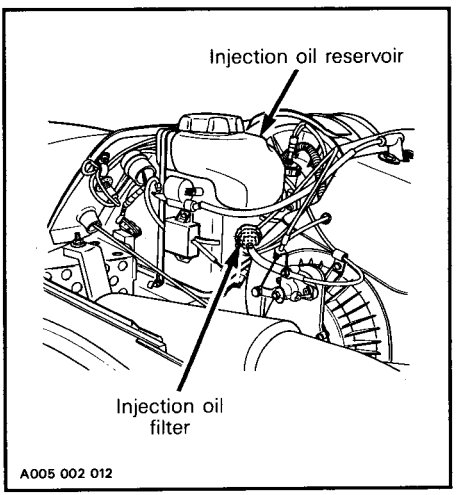
If your snowmobile is used in high altitude areas (1200 m (4000 ft) and up), the carburetor and drive system have to be recalibrated to meet those particular requirements. See an authorized dealer for high altitude kit installation.

▼CAUTION : Do not change original jetting calibration if vehicle is used 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.

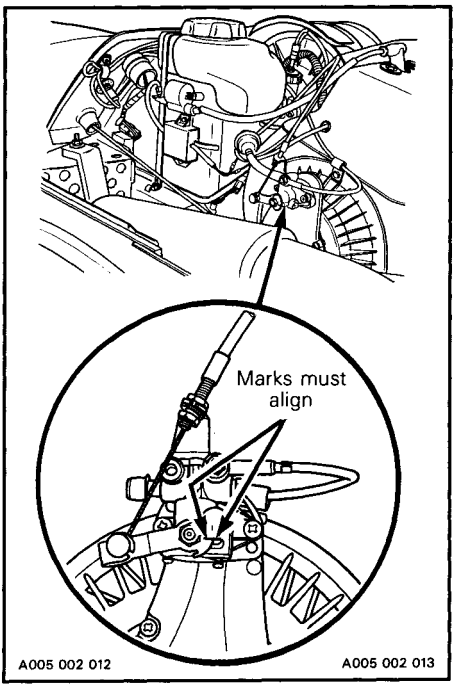
NOTE : After a storage period, it is **important** that an **authorized dealer** replace the injection oil filter, that he verifies the oil flow of the injection pump and adjust it.

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.

TO CHECK ADJUSTMENT :

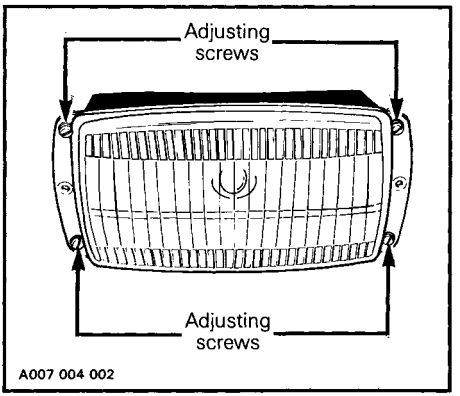
Eliminate the throttle cable free-play by pressing the throttle lever until a slight resistance is felt then hold in place. The aligning marks on the pump casting and lever must align perfectly. If not, contact an **authorized dealer** immediately.



▼ CAUTION : The carburetor must be adjusted before adjusting the oil injection pump. Make sure the idle speed is 1100-1400 RPM.

Headlight Beam Aiming

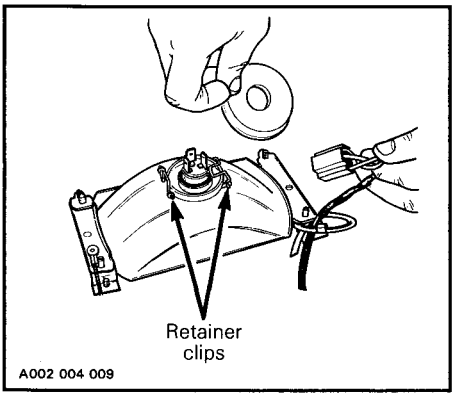
To adjust, remove the fours caps, turn upper or lower adjusting screws to obtain desired beam position.



Headlight Bulb Replacement

◆ WARNING : Always check headlight operation after bulb replacement.

If the headlight bulb is burnt, open hood, unplug the connector from the headlight. Remove the protector cap and unfasten bulb retaining clips. Detach the bulb.



Reverse procedure to install new bulb.

Taillight Bulb Replacement

If taillight bulb is burnt, expose the bulb by removing the red plastic lens. To remove, unscrew the two screws.

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

Wiring Harness, 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. Inspect skis and ski runners for wear.

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.**

Track

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

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

Controls

Lubricate the steering and front suspension mechanism. Inspect all components for tightness. Oil all 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.

Chaincase

Drain the chaincase and refill to proper level, using fresh chaincase oil (P/N 413 8026 00 - 200 mL (7 oz)). To drain the chaincase, remove its cover.

◯ **NOTE :** Chaincase oil capacity is about 200 mL (7 oz).

Engine

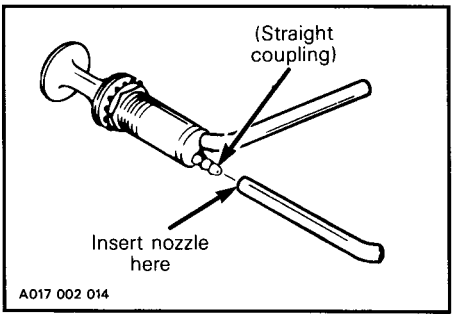
Engine internal parts must be lubricated to protect them from possible rust formation during the storage period.

To perform the storage procedures proceed as follows :

1. Start the engine and allow it to run at idle speed until the engine reaches its operating temperature.

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

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 plug 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.

Drive and Driven Pulleys

Remove belt guard and slip off drive belt.

Spray antirust product on pulleys.

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.

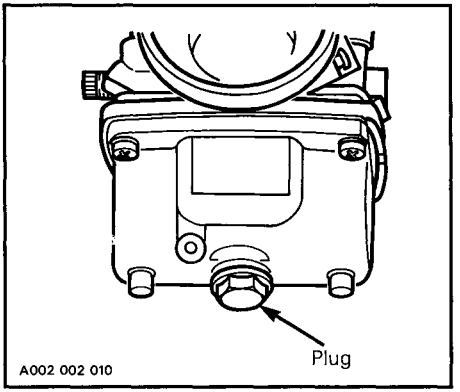
If above fuel stabilizer is not used, drain fuel system as described below.

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

◆ WARNING : Fuel is flammable and explosive under certain conditions. Always 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 on each carburetor and drain carburetor.



Reinstall plug.

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 clothes or Kimtowels® wipers no. 58-380 from Kimberly-Clark.

▼ CAUTION : It is necessary to use flannel cloths or "Kimtowels" 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 hardward 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".

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
Engine turns over but fails to start.	1. Ignition switch, emergency cut-out switch or tether switch is in the OFF position.	Place all switches in the RUN or ON position.
	2. Mixture not rich enough to start cold engine.	Check fuel tank level and check starting procedure, particularly use of the primer.
	3. Flooded engine (spark plug wet when removed).	Do not overprime. Remove wet spark plug, turn ignition to OFF and crank engine several times. Install clean dry spark plug. Ensure that air filter is clean and dry. Start engine following usual starting procedure. If engine continues to flood, see an authorized dealer.
	4. No fuel to the engine (spark plug dry when removed).	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.
	5. Spark plug/ignition (no spark).	Check that emergency cut-out switch is at ON position and the tether cut-out switch cap is snapped over the receptacle. 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 **being careful to hold away from spark plug hole**. Follow engine starting procedure and check for sparks. If no spark appears, replace spark plug. If trouble persists, contact an authorized dealer.

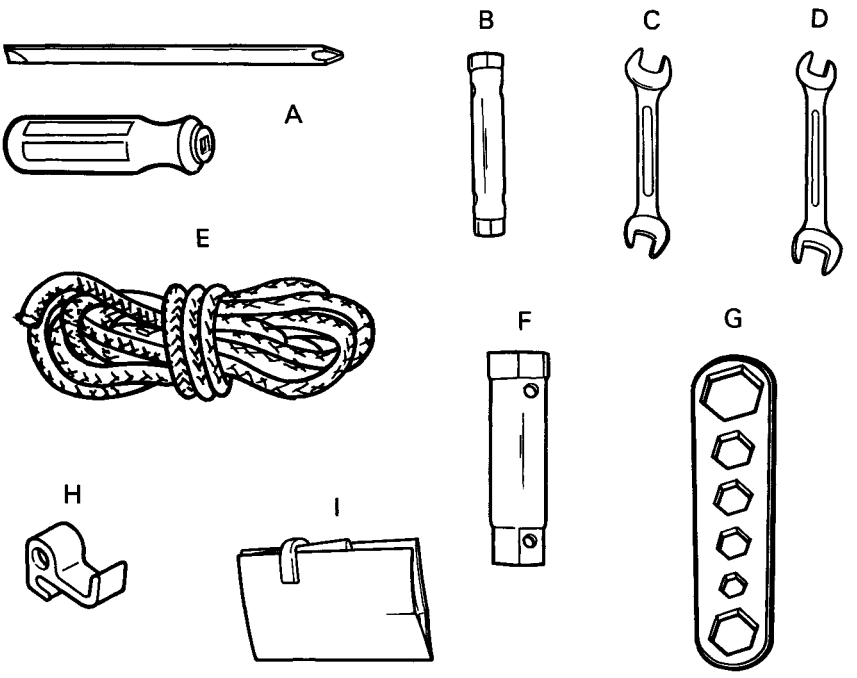
SYMPTOMS	POSSIBLE CAUSES	WHAT TO DO
	6. Engine compression.	As the engine is pulled over with the rewind starter, "cycles" of resistance should be felt as piston goes past top dead center (each piston on twin-cylinder engines). If no pulsating resistance is felt, it suggests a major loss of compression. 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.
	7. Engaged decompressor.	Check decompressor position.

SYMPTOMS	POSSIBLE CAUSES	WHAT TO DO
Engine backfire.	1. Faulty spark plug (carbon accumulation).	See item 5 of "Engine turns over but fails to start".
	2. Engine is running too hot.	See item 6 of "Engine lacks acceleration or power".
	3. Ignition timing is incorrect or there is an ignition system failure.	Contact an authorized dealer.
Engine misfire.	1. Fouled/defective/ worn spark plugs.	Clean/verify spark plug and heat range. Replace as required.
	2. Too much oil supplied to engine.	Improper oil pump adjustment, refer to an authorized dealer.
	3. Water in fuel.	Drain fuel system and refill with clean fuel.
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, 6 & 7 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



A005 001 001

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 bag	529 0191 00

SPECIFICATIONS

	TUNDRA II/TUNDRA II LT
ENGINE	
Type	277
No. of cylinder(s)	1
Bore	72 mm (2.835")
Stroke	66 mm (2.598")
Displacement	268.7 cm^3 (16.40 in^3)
Compression ratio (corrected)	6.3:1
Maximum horsepower RPM ①	6700 - 7000
Carburetor type	Variable venturi, float type
Carburetor adjustment :	
— air screw	1 turn
— idle speed	1100 - 1400 RPM
Torque :	
— engine head nuts	22 N•m (16 lbf•ft)
— crankcase nuts/screws	M6 : 10 N•m (7 lbf•ft)
	M8 : 28 N•m (21 lbf•ft)
— magneto flywheel nut	M22 : 90 N•m (66 lbf•ft)
— exhaust manifold nuts	25 N•m (18 lbf•ft)
CHASSIS	
Overall length	271 cm (106.7")
	LT : 285 cm (112")
Overall width	95.5 cm (37.6")
Overall height	114 cm (44.9")
Ski stance (center to center)	81.3 cm (32")
Ski alignment (toe-out)	3 mm (1/8")
Torque :	
— steering arm/ski leg bolt	50 N•m (37 lbf•ft)
— handlebar	26 N•m (19 lbf•ft)
Dry weight	152 kg (335 lb)
	LT : 161 kg (355 lb)
Bearing area	7140 cm^2 (1107 in^2)
	LT : 7864 cm^2 (1219 in^2)
Ground pressure	2.09 kPa (.302 lb/in^2)
	LT : 2.01 kPa (.291 lb/in^2)

① 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.

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 itselt to install them on its product previously manufactured.

	TUNDRA II/TUNDRA II LT
POWER TRAIN	
Track :	
– width	38.1 cm (15")
– length	315 cm (124") LT : 355 cm (140")
– tension	35-45 mm (1-3/8 – 1-3/4) gap between slider shoe and bottom inside of track when exerting a downward pull of 7.3 kg (16 lbf) to the track.
– alignment	Equal distance between edge of track guides and slider shoes.
Standard gear ratio	14/25
Drive belt :	
– number	414 8276 00
– max. width	33.3 mm (1-5/16")
– min. width	30 mm (1-3/16")
Chaincase oil capacity	200 mL (7 oz)
ELECTRICAL	
Lighting system (output)	12 V, 160 W
Bulb :	
– headlight	60/60 W
– taillight	8/27 W
Spark plug :	
– type	NGK BR9ES
– gap	0.45 mm (.018")
Ignition timing :	
– timing mark (BTDC)	2.52 mm (.099")
Stroboscopic timing	6000 RPM
FUEL	
Fuel type	Regular unleaded with a minimum octane number (R + M/2) of 87
Fuel tank capacity :	
– S.I.	26 L
– Imp.	5.7 gal
– U.S.	6.9 gal
Oil type :	Bombardier injection oil
Injection oil reservoir capacity :	
– S.I.	2.1 L
– Imp.	74 oz
– U.S.	71 oz
BRAKE	
Type	Disc self-adjusting.
Lining minimum thickness	When only 1 mm (1/32") or fixed pad is protected out of caliper.
Control lever adjustment (minimum distance from handlebar grip when fully applied)	13 mm (1/2")

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^2	cm^2	6.45
in^3	cm^3	16.39
ft	m	0.3
oz	g	28.35
lb	kg	0.45
lbf	N	4.4
lbf•**in**	N•m	0.11
lbf•ft	N•m	1.36
lbf•ft	lbf•**in**	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.*

NOTES