

OPERATOR'S GUIDE

Élan



ski-doo

1993



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Élan

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


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.

 **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

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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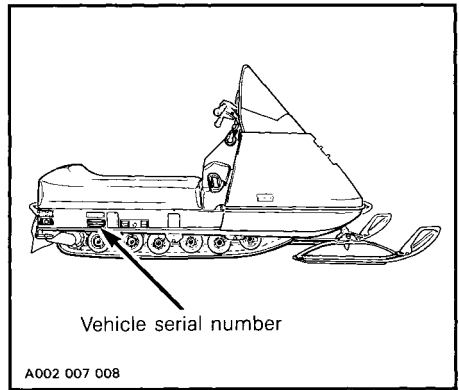
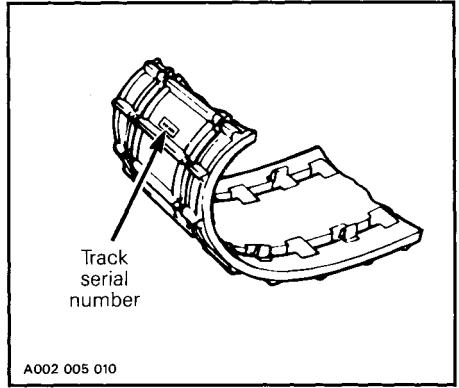
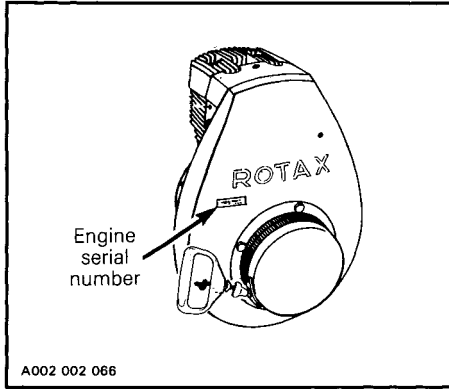
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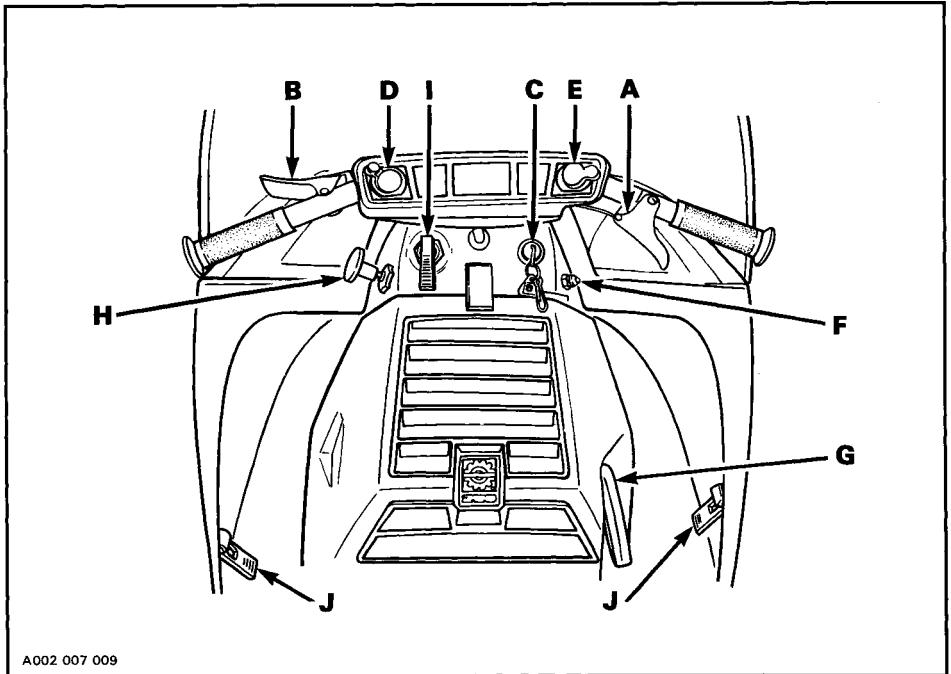
HOW TO IDENTIFY YOUR SNOWMOBILE

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



A002 007 009

A) Throttle Lever

B) Brake Lever

C) Ignition Switch

D) Headlamp Dimmer Switch

E) Emergency Cut-Out Switch

F) Tether Cut-Out Switch

G) Rewind Starter Handle

H) Primer Button

I) Decompressor Lever

J) Hood Latches

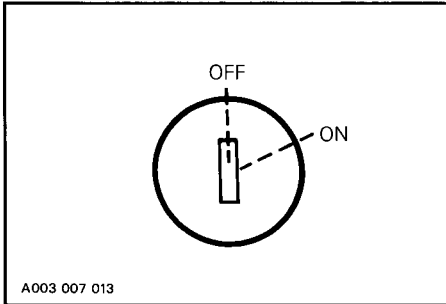
A) Throttle Lever

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

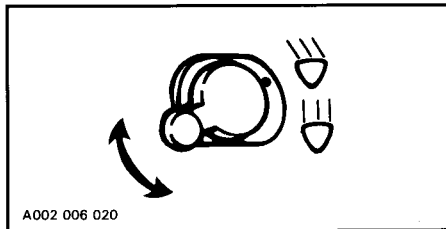


Key operated, two position switch. To start the engine, first turn the key to ON position. To stop the engine, turn the key to OFF position.

The lights are automatically ON whenever the engine is running.

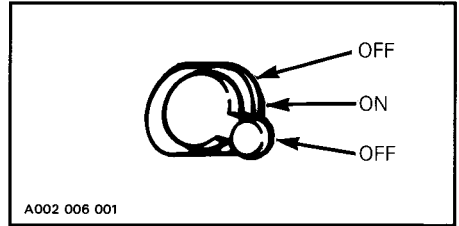
D) Headlamp Dimmer Switch

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



E) Emergency Cut-Out Switch

A three position switch located on the right side of the handlebar. To stop the engine in an emergency, flick the lever to either upper or lower OFF position and simultaneously apply the brake. To start engine, lever must be in middle ON position (middle).



◆ **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.

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 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 engine. To engage mechanism, pull handle slowly until a resistance is felt then pull vigorously.

H) Primer Button

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

I) 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 will damage your engine. Always pull down after the engine has started.

J) Hood Latches

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

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

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

Fuel Level

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

The tank is translucent and fuel level can be checked by opening hood and glancing at tank.

Tool Box

Located under the hood. Ideal location for spare spark plug, rope, flash light, first aid kit, etc. Pull hair pin then slide cover to open.

Accessories

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

FUEL AND OIL

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

Recommended Fuel

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

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

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

Recommended Oil

Use BLIZZARD OIL (P/N 496 0135 00-500 mL) available from your authorized dealer. This type of oil will flow at temperatures as low as minus 40°C (-40°F).

If BLIZZARD OIL is unavailable, substitute with Bombardier 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/oil 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

12 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

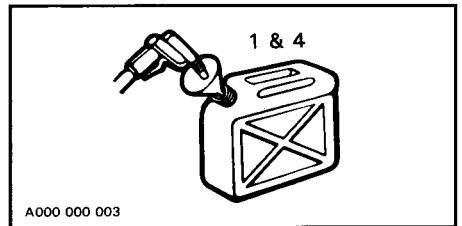
○ **NOTE** : To facilitate fuel/oil mixing, oil should be kept at room temperature.

Fuel/Oil Mixing Procedure

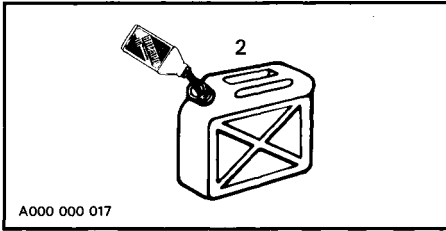
To mix the fuel and oil always use a separate clean container. Never mix directly in your snowmobile tank.

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

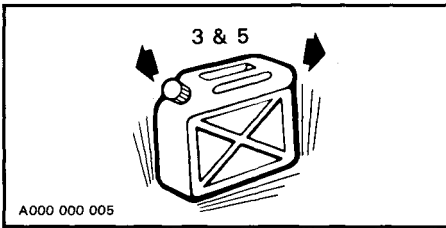
1. Pour approximately four liters (one gallon) of fuel into a clean container.



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



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

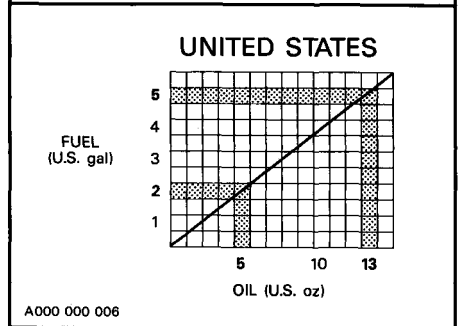
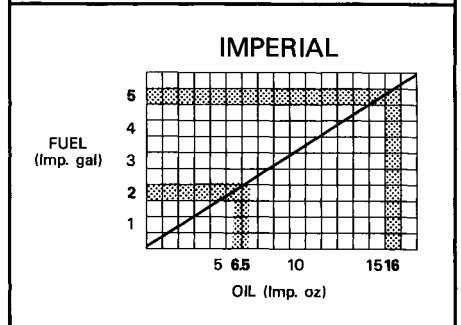
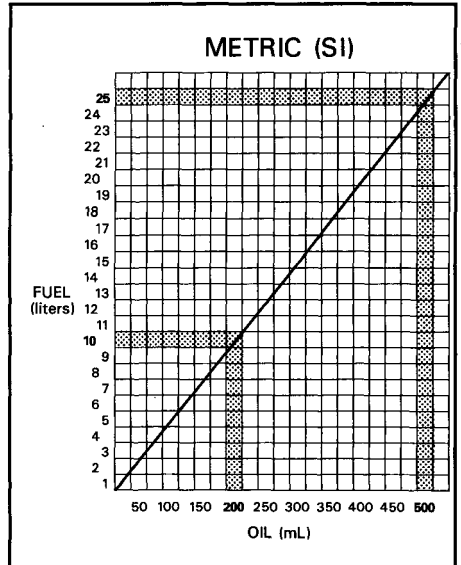


4. Add the remainder of the fuel.
5. Once again thoroughly agitate the container. Then using a funnel with a fine mesh screen to prevent the entry of foreign particles, pour the mixture into the snowmobile tank.

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

NOTE : When using pre-mixed 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

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 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.

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

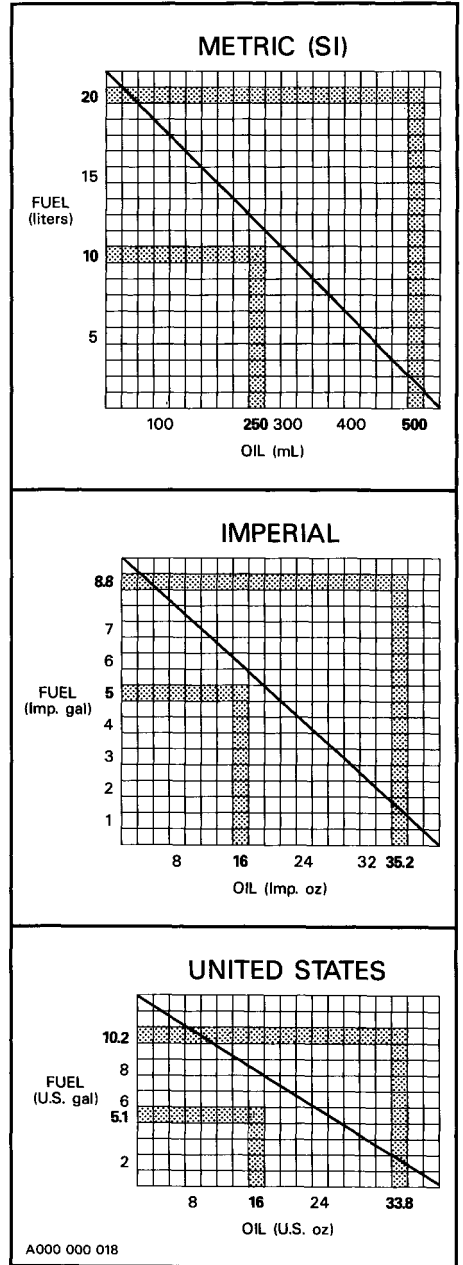
500 mL of oil to 4.8 imp. gal of fuel = 40:1

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 fuel level.
- Check that the skis and track 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.

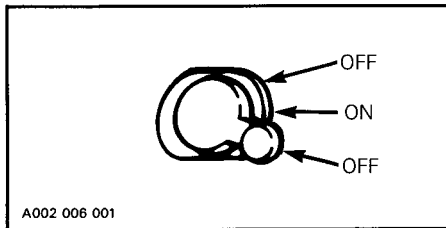
- Verify that the path ahead of the vehicle is clear of bystanders and obstacles.
- Clean and check operation of the headlight, taillight and brake light.

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

STARTING PROCEDURE

Test throttle control lever operation.

Check that the emergency cut-out switch is in the middle 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 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.

Lift the decompressor lever.

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

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.

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 flicking the emergency cut-out switch and/or when pulling the tether cut-out cap, stop the engine by turning OFF the ignition key. Do not operate the vehicle further, see your authorized dealer.

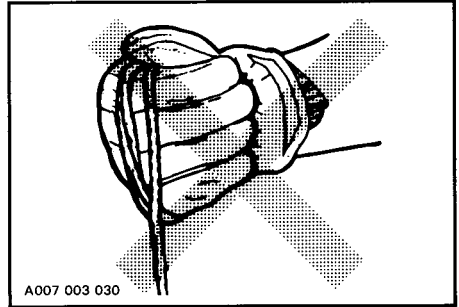
▼ **CAUTION** : Let engine idle two minutes for warm-up. Then, ride at reduced pace for the first kilometer. This will enable all components of the vehicle to warm-up.

◆ **WARNING** : This snowmobile is propelled by 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 and starting clip supplied with the tool kit.

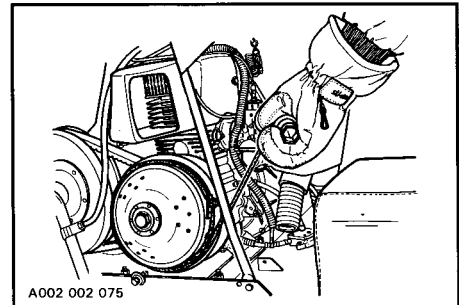
◆ **WARNING** : Do not start the vehicle by the drive pulley unless it is a true emergency situation, have the vehicle repaired as soon as possible. Do not wind starting rope around your hand. Hold rope by the handle only.



Remove belt guard and pulley guard. Remove console. Transfer the rope handle to your emergency rope.

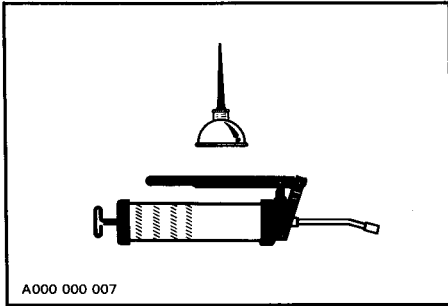
○ **NOTE** : The spark plug socket can be used as an emergency starter grip.

Tie a knot on rivet head side of supplied clip from tool kit. Hook up clip on drive pulley and wind counterclockwise up to three turns. Start engine as per usual manual starting.



◆ **WARNING** : After starting the vehicle in an emergency situation by the drive pulley do not reinstall belt and pulley guards.

LUBRICATION



Frequency

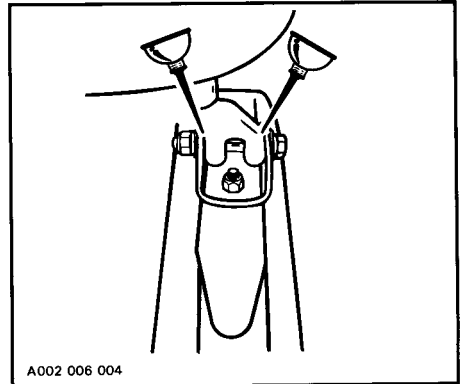
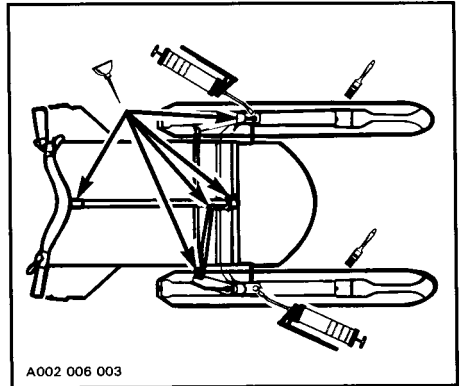
Routine maintenance is necessary for all mechanized products, and the snowmobile is no exception. A weekly vehicle inspection contributes to the life span of the snowmobile and retains dependable operation. It is recommended that the steering system and suspension be lubricated monthly or every 40 hours of operation. If the vehicle is operated in wet snow or in severe conditions these items should be lubricated more frequently.

◆ **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 cable and housings.

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

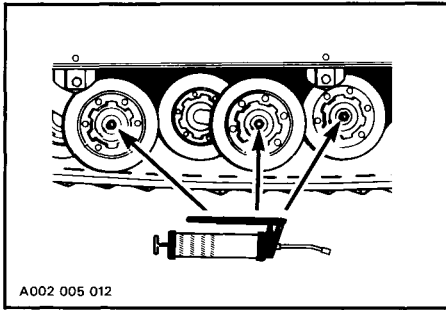
Steering Mechanism

Lubricate the ski legs at the grease fittings until new grease appears at the joints. Coat spring slider cushion with grease. Oil the spring coupler bolts, the four ball joints and the two pivots on the main tube of the handlebar.



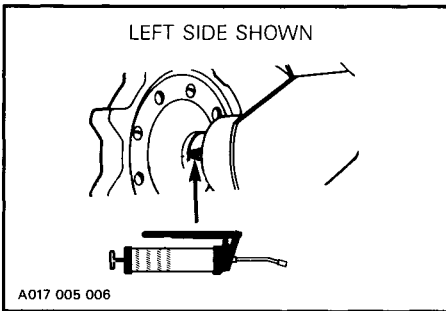
Bogie Wheels

Using low-temperature grease, lubricate the suspension bogie wheels through the grease fittings until new grease appears at the inner side joints.



Rear Axle

Lubricate the rear axle with low-temperature grease. Pump grease through the rear axle fittings using a low-pressure grease gun.



CAUTION : When lubricating the rear axle bearing, do not apply excessive grease as the seal will be pushed out of its housing. Check seal position with finger.

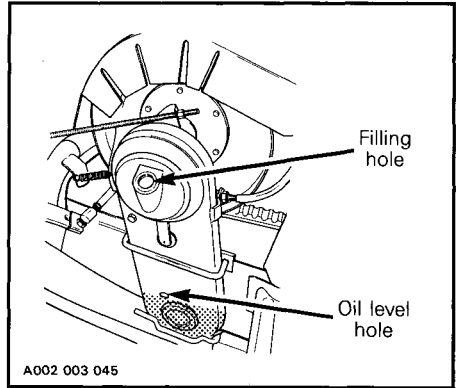
Chaincase Oil Level

Remove tool box from vehicle. Remove access plug and check oil level through hole. If necessary to replenish, remove filler plug and pour chaincase oil (P/N 413 8019 00) until it flows through oil level hole.

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

Wipe off any oil spillage.

Re-install plugs and tool box.



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 (P/N 413 7061 00) on the shaft. Always wipe off surplus.

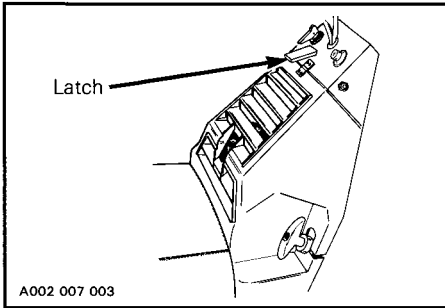
NOTE : Activate the sliding half several times to distribute lubricant over full length of shaft. Be careful that lubricant does not get on inner halves of pulley.

MAINTENANCE

Console Removal

For any procedure that may require removal of the console, proceed as follows:

1. Unlock the latch where the console and dash panel meet.

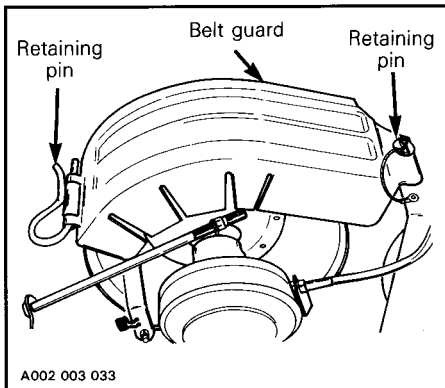


2. Push the console downward then tilt away from the engine. To reinstall, reverse the procedure.

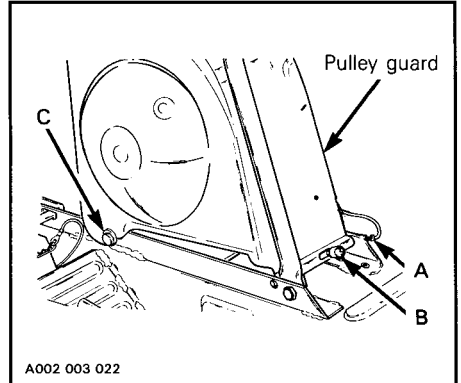
Belt Guard/Pulley Guard Removal

◆ **WARNING:** Engine should be running only when belt guard and/or pulley guard are secured in place.

1. Tilt the hood and remove the console.
2. Remove the belt guard (front) by unlocking it from retaining pins.



3. To remove the pulley guard, pull out the retaining clip (A) and pull on the spring (B) to disengage the pin from the bracket.

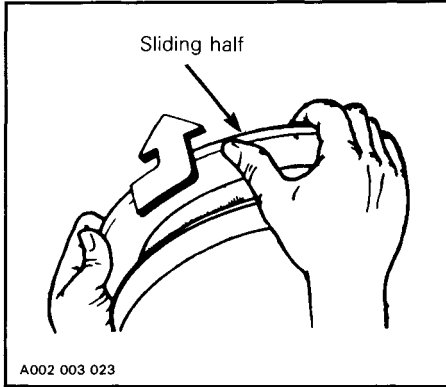


4. Push the pulley guard forward to disengage the front attachment (C) from the frame. Lift the guard from the vehicle.

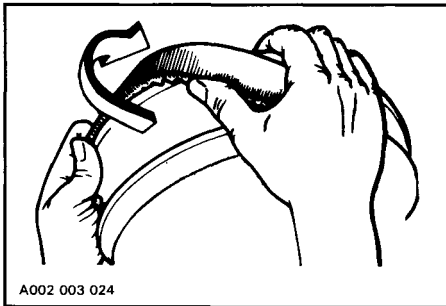
Drive Belt Removal and Installation

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

1. Remove ignition key.
2. Tilt the hood and remove the pulley guard.
3. Open the driven pulley by twisting and pushing the sliding half. Hold in fully open position.

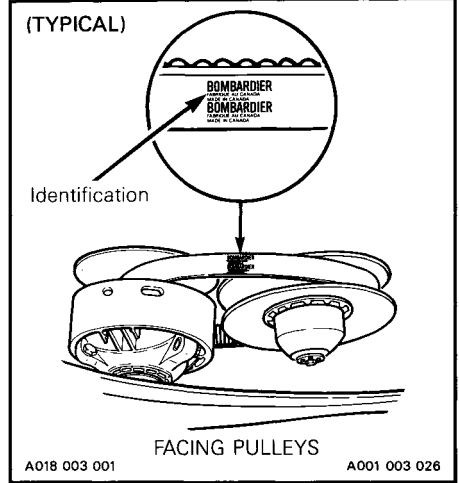


- Slip the belt over the top edge of the sliding half.



- Slip the 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.

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



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

Drive Belt Condition

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

Check the drive belt width.

Replace the drive belt if width is less than 27 mm (1-1/16 in).

New Drive Belt

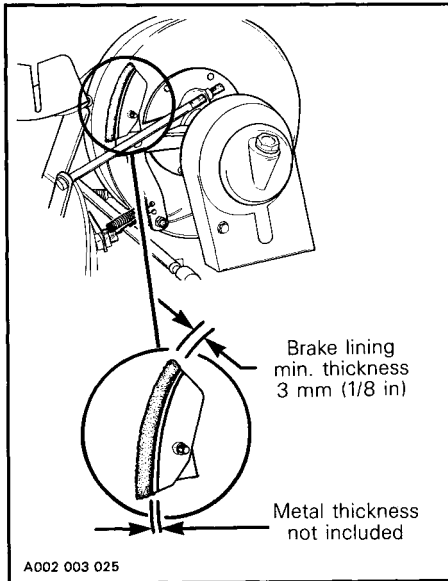
When installing a new drive belt, break-in period of 25 km (15 miles) is strongly recommended.

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

Brake Condition

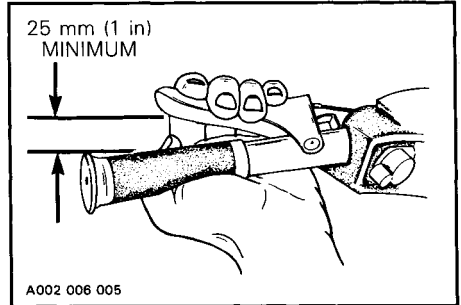
The brake mechanism on your snowmobile is an essential safety device. Keep this mechanism in proper working condition. Above all, do not operate your snowmobile without an effective brake system.

◆ **WARNING** : Brake lining less than 3 mm (1/8 in) thick must be replaced. Replacement must be performed by an authorized dealer.



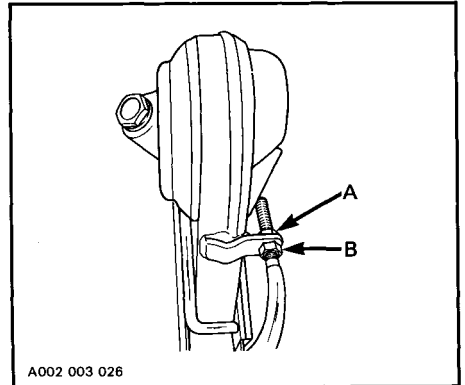
Brake Adjustment

Brake should apply fully while brake control lever is still 25 mm (1 inch) minimum from the handlebar grip.



Minor Adjustment

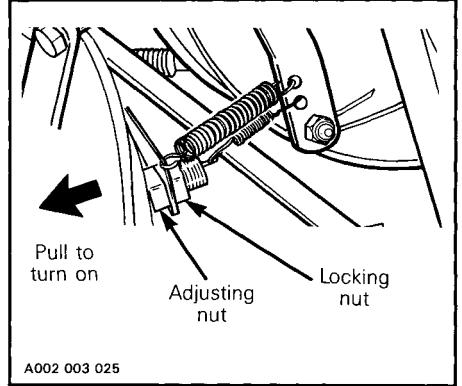
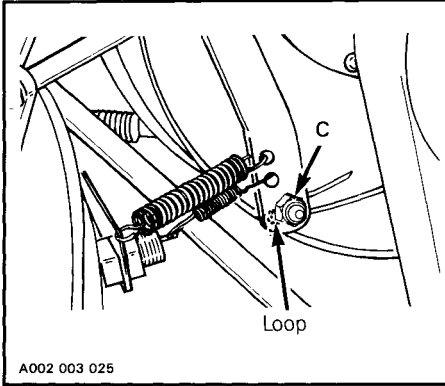
If a minor adjustment is necessary, slack off the cable housing nut (A) and tighten the nut (B) to reduce the lever clearance.



Once minor adjustment is completed, firmly tighten the nuts (A and B) against the bracket. If correct brake control lever clearance is unobtainable, proceed with major adjustment as follows :

Major Adjustment

Slacken off the nut (C) retaining the brake cable to the lower brake lever. Adjust the cable to required length by lengthening or shortening the brake cable. Retighten the nut. Ensure that minor adjustment nuts are located approximately half way on the adjuster threads.



◆ **WARNING** : Brake cable must make a loop around the bolt head. Strongly pull the brake handle to check cable tightness. Always check the brake light to see if it functions after performing brake adjustment.

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.

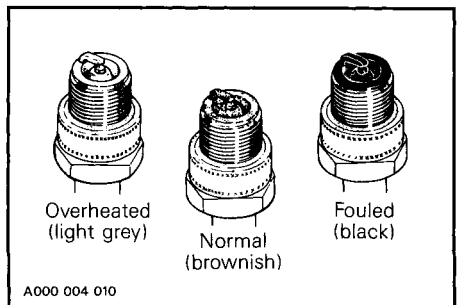
To adjust :

- Loosen the brake switch lock nut.
- While turning adjusting nut, pull switch outward to turn brake light on or push inward to turn it off.

Spark Plug

Disconnect spark plug wire and remove plug. Check condition of plug.

- A brownish tip reflects ideal conditions. (Carburetor adjustment, 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 your authorized dealer.

Check spark plug gap using a wire feeler gauge. Gap must be 0.55 mm (.022 in).

Reinstall plug and connect wire.

Rear Suspension Condition

Visually inspect suspension springs. Replace any weak or broken spring.

Check for wear or looseness. Correct as required.

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 your authorized dealer.

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

Track Tension and Alignment

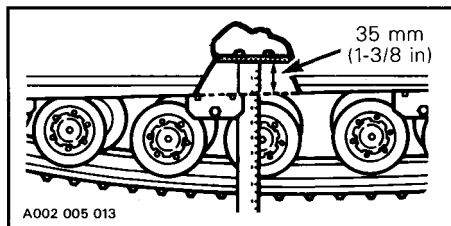
Tension

Lift the rear of vehicle and support it off the ground. Using a ruler, check track tension.

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

○ **NOTE** : If the track tension is too loose, the track will have a tendency to thump.

The distance between the top inside edge of the track and the bottom of the footboard at the middle set of bogie wheels should be 35 mm (1-3/8 in).

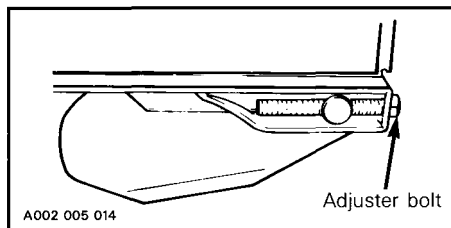


Alignment

To adjust track use the following procedure :

Loosen link plate spring lock nuts located on inner side of link plate springs.

Turn adjuster bolts clockwise to tighten track, counterclockwise to slacken.

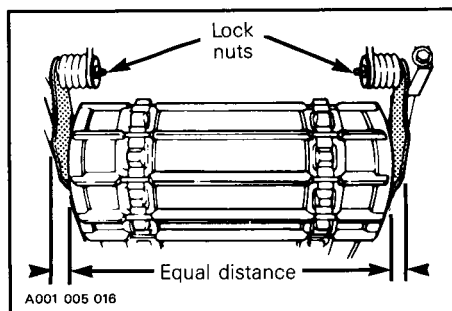


○ **NOTE** : Track tension and alignment are inter-related. Do not adjust one without checking the other.

◆ **WARNING** : Before checking track alignment, ensure that the track is free of particles which could be thrown out while track is rotating. Keep hands, tools, feet and clothing clear of track. Ensure nobody is standing near the vehicle.

Start engine and allow track to barely turn. Check if track is well centered and turns evenly on the rear sprockets. The distance between track edges and link plates should be equal on each side.

Misalignment can cause excessive wear of track edges and sprocket teeth.



To correct :

Stop engine and on appropriate side, turn adjuster bolt clockwise to withdraw track from link plate.

Tighten link plate spring lock nuts.

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

Drive and Driven Pulleys

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

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

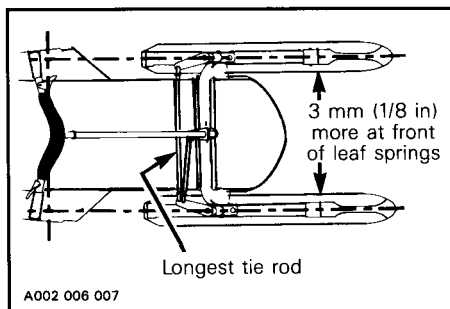
Inspect steering mechanism for tightness of components (steering arm, ball joints, etc.) or wear. If necessary, replace or retighten.

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

Steering Adjustment

Skis should have a toe out of 3 mm (1/8 in). To check, measure distance between skis at front and rear of leaf springs.

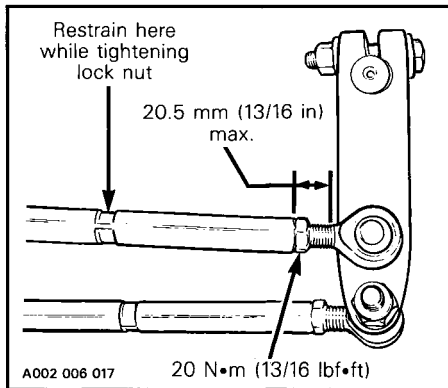
IMPORTANT : Close the front of the skis manually to eliminate all slack from the steering mechanism, using a rubber strap.



If necessary to adjust :

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

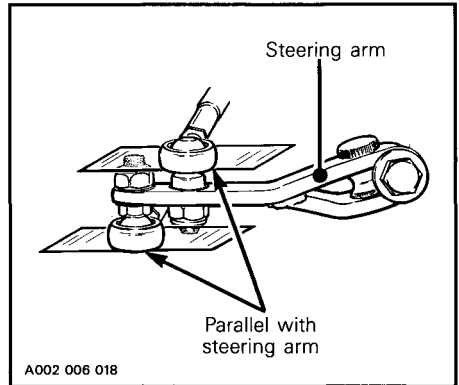
◆ **WARNING** : The maximum ball joint external threaded length not engaged in the tie rod end must not exceed 20.5 mm (13/16 in). Torque lock nut to 20 N•m (15 lbf•ft).



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

To adjust, loosen the lock nuts of the shorter tie rod. Turn the tie rod manually until the handlebar is horizontal. Retighten the lock nuts firmly. Check tightness of the steering arm locking bolts and the wear of the ball joints.

◆ **WARNING** : The ball joint socket must run parallel with the steering arm. When tightening lock nuts, restrain ball joint with appropriate size wrench.



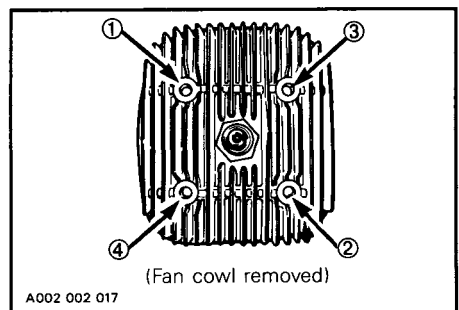
Exhaust System

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 over-stretched. The tail pipe of the muffler should be centered with the exit hole in the bottom pan.

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

Engine Head Nuts

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



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

Engine Mount Nuts

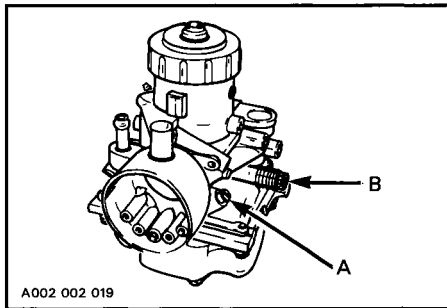
Check engine mount nuts for tightness. Retighten if necessary at 38 N•m (28 lbf•ft).

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.



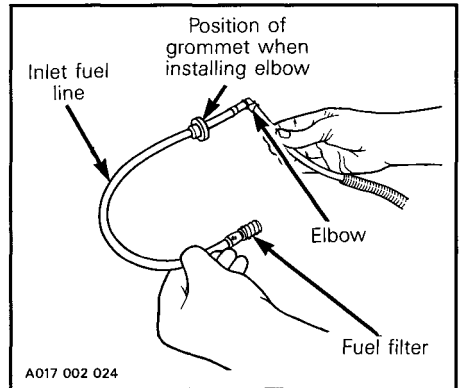
B) Idle Speed Adjustment

Turn the **idle speed** screw clockwise until 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 then adjust the idle speed by turning the idle speed screw clockwise or counterclockwise.

Idle speed : 1100-1300 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.

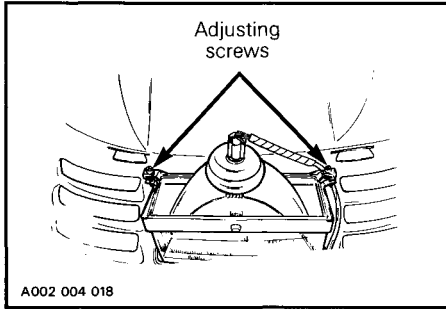
High Altitude Kit

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

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

Headlamp Beam Aiming

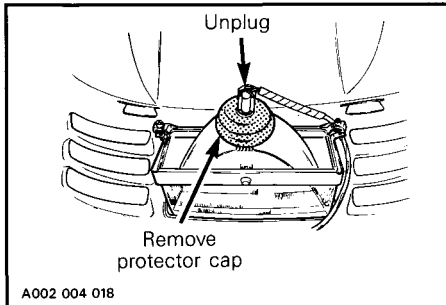
Open hood to adjust. From inside of hood, turn adjusting screws to obtain desired beam position.



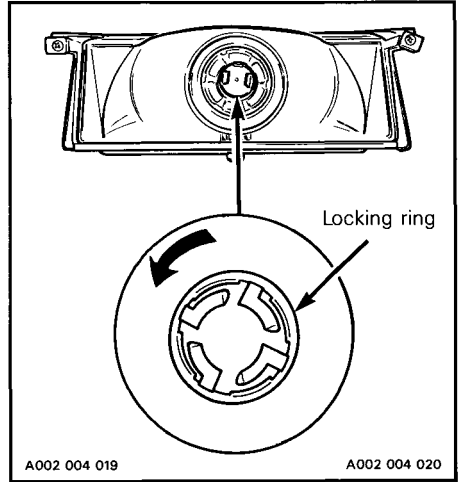
Bulb Replacement

Headlamp

If headlamp is burnt, open hood. Unplug connector from headlamp and remove protector cap.



To remove bulb, rotate locking ring counter-clockwise then pull bulb.



Properly re-install parts.

Taillight

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

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

Wiring Harnesses, Cables and Lines

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

General Inspection

Check 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 runner for wear.

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

STORAGE

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

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

Track

Inspect track for wear, cuts, missing track inserts or broken rods.

Make any necessary replacement.

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

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

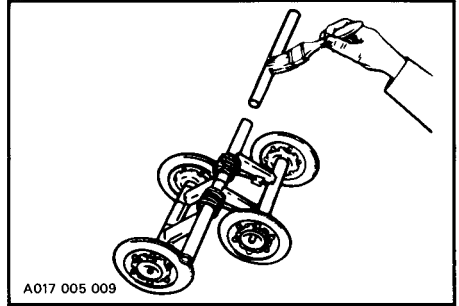
○ **NOTE :** The track should be rotated periodically (every 40 days). Do not release track tension.

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

Suspension

Remove the bogie wheel sets from the vehicle. Remove cross shaft from bogie wheel set. Clean bogie wheel assembly and cross shaft of dirt or rust.

Check condition of shaft and replace if bent or worn. Apply a coat of low temperature grease on cross shaft.



Grease each bogie wheel until the old grease is flushed out. Spray bogie wheel springs with metal protector. If unavailable, wipe with a cloth or rag soaked in oil.

Reassemble entire bogie wheel set, making sure assembly moves freely. Reinstall bogie wheel set in the proper position.

Torque cross shaft bolts to 30 N•m (23 lbf•ft). Repeat above steps on remaining bogie wheel sets. Lubricate rear hubs through grease fittings.

Skis and Runners

Wash or brush all dirt or rust accumulation from skis and springs. Grease ski leg at grease fitting. Apply metal protector on ski assembly. If unavailable, wipe the entire skis with a cloth soaked in oil to prevent rust formation.

◆ **WARNING** : Check condition of ski runner and leaf spring. Replace if worn or weak.

Controls

Lubricate steering mechanism. Inspect components for tightness (spring coupler bolt, steering arm locking bolt, ball joints, etc.). Tighten if necessary. Oil metallic moving joints of brake mechanism.

◆ **WARNING** : Do not lubricate throttle and/or brake cable or housing. Avoid getting oil on brake lining.

Coat 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 with fresh chaincase oil. (P/N 413 8019 00 - 250 mL (9 oz)).

To drain the chaincase remove the tool box then access plug (lower plug) and tilt vehicle hard left.

Drive Pulley

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

Engine

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

To perform the storage procedures proceed as follows :

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

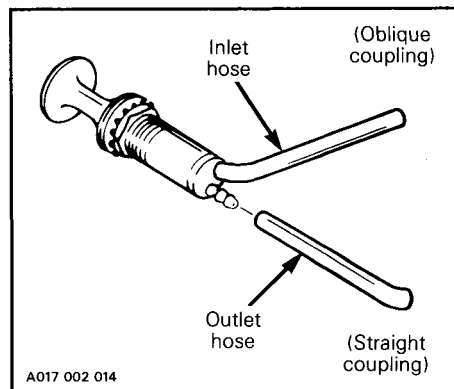
◆ **WARNING** : Ensure the track is free of all particles which could be thrown out while it is rotating. Keep hands, tools, feet and clothing clear of track. Ensure no one is standing in close proximity to the vehicle.

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

3. Stop the engine.

4. To prevent fuel from draining, primer button should be pushed all the way.

5. Disconnect the outlet primer hose from the primer valve.



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

Do not run engine during storage period.

Driven Pulley

Remove drive belt. Thoroughly clean the driven pulley shaft. Apply a light film of low-temperature grease on shaft. Activate the sliding half several times to distribute grease on shaft. Spray internal pulley surfaces with metal protector.

○ **NOTE** : Leave drive belt **off** during entire storage period.

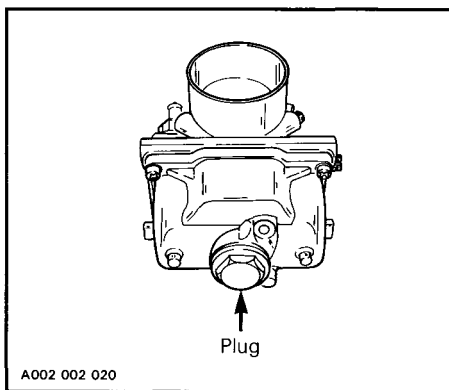
Fuel Tank and Carburetor

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

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

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.



Check all fuel lines, replace if necessary.

Chassis

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

▼ **CAUTION** : Plastic alloy components such as windshield, console, etc., can be cleaned using mild detergents or isopropyl alcohol and a clean cloth. Do not use strong soaps, degreasing solvents, abrasive cleaners, paint thinners, acetone, etc. Do not apply isopropyl alcohol directly on decals.

Inspect hood and see an authorized Bombardier dealer for repair.

Touch up all metal spots where paint has been scratched off. Spray all metal parts of vehicle with metal protector. Wax the hood for better protection.

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

▼ **CAUTION** : Cover the snowmobile with an opaque tarpaulin. This caution will prevent the sun rays or grime from affecting the plastic components and the vehicle finish.

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.

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

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 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.</p>

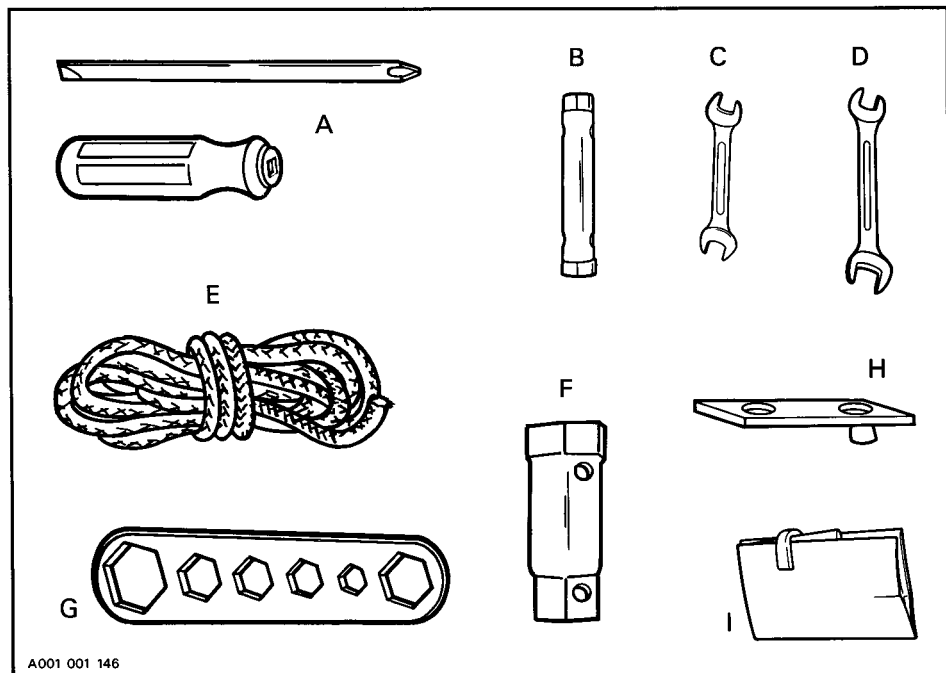
SYMPTOMS	POSSIBLE CAUSES	WHAT TO DO
	6. Engine compression.	As the engine is pulled over with the rewind starter, "cycles" of resistance should be felt as piston goes past top dead center (each piston on twin-cylinder engines). If no pulsating resistance is felt, it suggests a major loss of compression.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

SYMPTOMS	POSSIBLE CAUSES	WHAT TO DO
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 & 6 of "Engine lacks acceleration or power".

TOOLS

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

Standard Tools



A001 001 146

DESCRIPTION

- A. Screwdriver
- B. Socket 10/13 mm
- C. Open end wrench 10/13 mm
- D. Open end wrench 15/17 mm
- E. Emergency starting rope
- F. Socket 21/26
- G. Multi-purpose key
- H. Emergency starter clip
- I. Tool bag

PART NUMBERS

- 529 0192 00
- 529 0149 00
- 529 0173 00
- 529 0193 00
- 529 0175 00
- 529 0170 00
- 529 0147 00
- 417 1154 00
- 572 0191 00

SPECIFICATIONS

ENGINE

Type	247
No of cylinders	1
Bore	69.5 mm (2.736")
Stroke	66 mm (2.598")
Displacement	250.4 cm ³ (15.28 in ³)
Compression ratio (corrected)	5.5:1
Speed shift	5000-5300 RPM
Carburetor type	Mikuni, variable venturi, float type
Carburetor adjustment :	
- air screw	1-1/2 turns
- idle speed	1100 - 1300 RPM
Torque :	
- engine head nuts	M8 : 21 N•m (15 lbf•ft)
- crankcase nuts	M8 : 22 N•m (16 lbf•ft)
- magneto ring nut	M22 : 85 N•m (63 lbf•ft)
- crankcase/engine support nuts	38 N•m (28 lbf•ft)
- exhaust manifold bolts	21 N•m (15 lbf•ft)

CHASSIS

Overall length	224.8 cm (88.5")
Overall width	77.5 cm (30.5")
Overall height	109.5 cm (43.1")
Ski stance (center to center)	64.8 cm (25.5")
Ski alignment	3 mm (1/8") toe out
Torque :	
- steering arm/ski leg bolt	28 N•m (21 lbf•ft)
- tie rod/ball joint lock nuts	20 N•m (15 lbf•ft)
Dry weight	129 kg (284 lb)
Bearing area	6505 cm ² (1008 in ²)
Ground pressure	1.95 kPa (.283 lbf/in ²)

POWER TRAIN

Track :	
- width	38.1 cm (15")
- length	290 cm (114")
- tension	35 mm ± 3 (1-3/8" ± 1/8") distance between top inside edge of track and the bottom of the footboard. Equal distance between edges of track and link plates.
- alignment	10/25
Standard gear ratio	10/25
Drive belt :	
- number	570 0411 00
- max. width	30.2 mm (1-3/16")
- min. width	27 mm (1-1/16")
Chaincase oil capacity	200 mL (7 oz)

ELECTRICAL	
Lighting system (output)	12 V, 75/23 watts
Bulb :	
– headlamp	60/60 W
– tail/stop	5/21 W
– speedometer	N.A.
Fuse :	
– ignition switch	N.A.
– main wiring	N.A.
Breaker point gap	0.35 - 0.40 mm (.014 - .016'')
Spark plug :	
– type	Bosch M7A
– gap	0.55 mm (.022'')
Ignition timing :	
– timing mark (BTDC)	3.98 mm (.157'')
Dynamic edge gap	7 - 10 mm (9/32 - 25/64'')
FUEL	
Gas type	Regular leaded or unleaded
Fuel tank capacity :	
– S.I.	13.6 liters
– Imp.	3 gallons
– U.S.	3.6 gallons
Premixed fuel/oil :	
– oil type	Blizzard oil
– ratio	50:1
BRAKE	
Type	Drum
Lining minimum thickness	3 mm (1/8'')
Control lever adjustment (minimum distance from handlebar grip when fully applied)	25 mm (1'')

N.A. : Not applicable

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

SI* METRIC INFORMATION GUIDE

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

PREFIXES			
PREFIX	SYMBOL	MEANING	VALUE
kilo	k	one thousand	1000
centi	c	one hundredth	0.01
milli	m	one thousandth	0.001
micro	μ	one millionth	0.000 001

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	$(^{\circ}\text{F} - 32) \div 1.8$	
Celsius	Fahrenheit	$(^{\circ}\text{C} \times 1.8) + 32$	

*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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