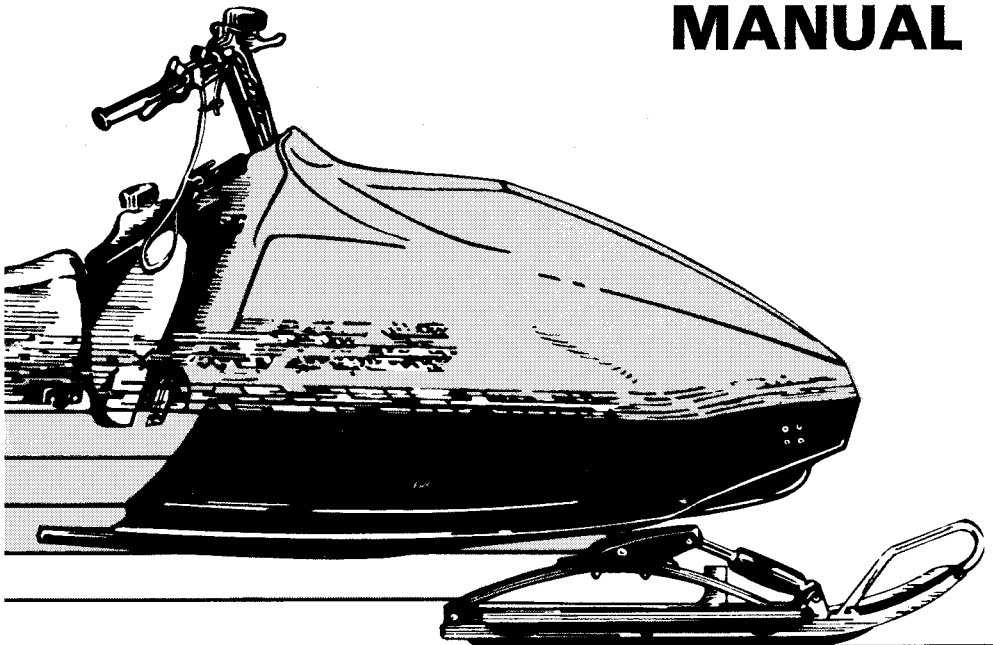




ski-doo[®]
snowmobiles

1977 blizzard[®]

**OPERATOR
MANUAL**



BLIZZARD

This vehicle has been designed for and should be used on, oval race track only.

The performance of this snowmobile significantly exceeds that of other snowmobiles you may have operated. Therefore, use of this vehicle should be restricted to experienced snowmobile racers.

All warranties on 1977 Blizzard* models either expressed or implied including any implied warranty of merchantability and any implied warranty of fitness for a particular purpose are hereby excluded and disclaimed.

December 1st, 1976

Bombardier Limited
Valcourt, Quebec, Canada

*Trademark of Bombardier Limited



The following are trademarks of Bombardier Limited.

BOMBARDIER	ELITE
SKI-DOO	EVEREST
ALPINE	MIRAGE
BLIZZARD	NORDIC
CARRY BOOSE	OLYMPIQUE
ELAN	SKI-BOOSE
RV	T'NT

This manual has been published by the:

TECHNICAL INFORMATION CENTRE
AFTER SALES SERVICE DEPARTMENT
BOMBARDIER LIMITED
VALCOURT, QUEBEC, CANADA

Suggested Retail Price \$5.00
(First copy free with unit purchased)

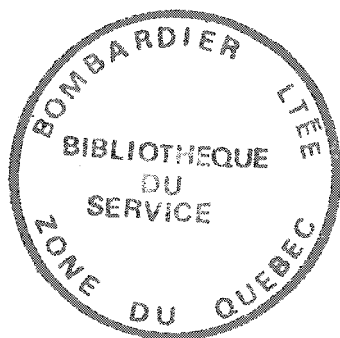
All rights reserved © Bombardier Limited 1976

CONGRATULATIONS

You are now the proud owner of a 1977 Blizzard snowmobile. This tough, sleek and fast racing vehicle is the result of incomparable teamwork between Bombardier designers, engineers, technicians and top racing drivers. Consequently, this vehicle is designed and engineered with safety, handling and comfort foremost. Realizing that this vehicle has been purchased for racing only, this manual has been prepared to acquaint the owner/operator with the various vehicle controls and owner-related maintenance instructions.

This manual emphasizes particular information denoted by the wording and symbols:

- ◆ **WARNING:** Identified an instruction which, if not followed, could cause personal injury.
- ▼ **CAUTION:** Denotes an instruction which, if not followed, could severely damage vehicle components.
- **NOTE:** Indicates supplementary information needed to fully complete an instruction.



All the information, illustrations and component / system descriptions contained in this manual are correct at the time of publication. However, Bombardier Limited reserves the right to make changes in design and specifications, and / or to make additions to or improvements in its products without imposing any obligations upon itself to install them on its products previously manufactured.

Observe the following precautions:

- Throttle mechanism should be checked for free movement before starting engine.
- Engine should be running only when pulley guard is secured in place.
- Never run engine without drive belt installed. Running an unloaded engine can prove to be dangerous.
- Never run the engine at high R.P.M. when the track of the vehicle is raised off the ground.
- It can be dangerous to run engine with the cab open.
- Gasoline is flammable and explosive under certain conditions. Always perform procedures in a well ventilated area. Do not smoke or allow open flames or sparks in the vicinity. If gasoline fumes are noticed while driving, the cause should be determined and corrected without delay.
- Your snowmobile is not designed to be operated on public streets, road or highways.
- 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, or other abrasive surfaces. On such surfaces abnormal and excessive wear of critical parts is inevitable.
- 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 manual. Unless otherwise specified, engine should be turned OFF for all lubrication and maintenance procedures.
- Installation of other than "stock" equipment, including ski-spreaders bumpers, pack racks, etc., could severely affect the stability and safety of your vehicle. Avoid adding on" accessories that alter the basic vehicle configuration.
- The snowmobile engine can be stopped by activating the emergency cut-out or tether switches, or turning off the key.
- This vehicle is not designed nor intended to be used for other than oval racing. Operating it for other use than competition is illegal.

Please read and understand all other warnings contained elsewhere in this manual.

THIS MANUAL SHOULD REMAIN WITH THE VEHICLE AT THE TIME OF RESALE.

CONTROLS / INSTRUMENTS

Throttle control lever, brake control lever, ignition switch, emergency cut-out switch, tether cut-out switch, rewind starter handle, primer, tachometer, temperature gauge, fuel gauge, cab removal **4,5**

BREAK-IN PERIOD **6**

FUEL MIXING

Recommended gasoline, recommended oil, fuel mixture ratio, fuel mixing procedure **6,7**

PRE-START CHECK

Check points **8**

STARTING PROCEDURE **9**

LUBRICATION

Frequency, pulley guard removal, drive belt removal, steering mechanism, chaincase oil level, hydraulic brake oil level **9,10,11**

MAINTENANCE

Spark plug, suspension, track, track adjustment, drive chain tension, carburetor adjustment, drive belt, drive pulley, steering mechanism, steering adjustment, cooling system, engine head nuts, engine mount nuts, exhaust system, vehicle general inspection **12,13,14,15,16,17,18,19**

TROUBLE SHOOTING GUIDE **20,21**

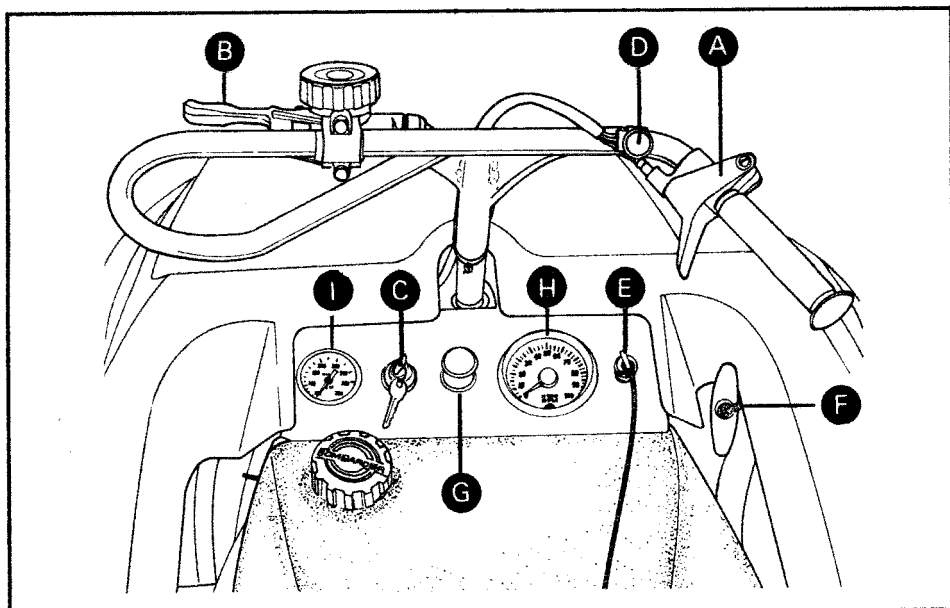
STORAGE

Suspension, skis, fuel tank, carburetors, cooling system, drive pulley, chaincase, controls, chassis, general inspection **22,23,24**

PRE-SEASON PREPARATION

Pre-season preparation chart **25**

SPECIFICATIONS **26**



- A) Throttle Control Lever
- B) Brake Control Lever
- C) Ignition Switch
- D) Emergency Cut-Out Switch
- E) Tether Cut-Out Switch

- F) Rewind Starter Handle
- G) Primer
- H) Tachometer
- I) Temperature Gauge

A) Throttle Control Lever

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

B) Brake Control Lever

Mounted on left side of handlebar when applied activates the hydraulic disc brake system bringing the vehicle to a fast smooth stop.

C) Ignition Switch

Key operated, 2 position switch. To start engine, first turn key clockwise to ON position. To stop engine, turn key counter-clockwise to OFF position.

D) Emergency Cut-Out Switch


A push button switch located on right side of handlebar. To stop the engine in an emergency, press button down into **lower** position.

Before re-starting engine always depress button into released **upper** position. The driver of this vehicle should familiarize himself with the function of this device by using it several times on first outing. Thereby being mentally prepared for emergency situations requiring its use.


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

E) Tether Cut-Out Switch

A pull switch located on the right side of dash panel. Attach tether cord to wrist or other convenient location before starting engine then fully insert tether cut out cap on receptacle.

 **NOTE:** The cap must be used at all time in order to operate the vehicle.

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

 **WARNING:** If the switch is used in an emergency situation the source of malfunction should be determined and corrected before re-starting engine.

F) Rewind Starter Handle


Auto rewind type located on right hand side of vehicle. To engage mechanism, pull handle.

G) Primer

A push-pull button located on the dash panel. Pull and push button (2-3 times) to activate primer. The primer should always be used for cold engine starts. After engine is warm however, it is not necessary to use primer when starting.


H) Tachometer

The tachometer registers the impulses of magneto. Direct-reading dial indicates the number of revolutions per minute (RPM) of the engine.

 **CAUTION:** The tachometer is protected by a fuse, if tachometer stops operating check fuse condition and if necessary replace. The fuse is 0.1 amp. Do not use a higher rated fuse as this can cause severe damage to the tachometer.


I) Temperature Gauge

The gauge indicates engine coolant temperature. Normal operating temperature is 60° C (140° F). The coolant temperature can vary depending on driving condition however it should never be allowed to exceed 80° C (180° F).

 **WARNING:** Do not remove coolant tank cap unless pressure is released by depressing red button, loss of fluid and possible severe burns could occur.


Fuel Gauge

To check fuel level, simply unscrew fuel tank cap and withdraw dipstick.

 **WARNING:** Never use a lite match or open flame to check fuel level.

Cab Removal

For those procedures that require cab removal, unlock side and front latches, then remove cab from vehicle.

 **WARNING:** It is dangerous to run engine with cab removed.

With Bombardier-Rotax engines, a break-in period of 6 to 10 operating hours is required before running the vehicle at full throttle. During this period, brief full throttle accelerations and constant speed variation will contribute to a good break-in. Continued wide open throttle accelerations can be detrimental. Never let your engine overheat.

▼ **CAUTION:** Incorrect or lack of a break-in period will result in engine horsepower loss.

Oil must be added to the gasoline in pre-measured amounts then both oil and gasoline should be thoroughly mixed together before fueling the tank.

Recommended Gasoline

The correct gasoline is premium gasoline, (not less than 98 octane) available from all service stations.

▼ **CAUTION:** Never experiment with different fuel or fuel ratios. Never use low lead or non leaded gasoline, naphtha, methanol or similar products.

Recommended Oil

Use a 20 / 1 ratio castor base snowmobile oil, this type of oil is specially formulated to meet the lubrication requirements of the high performance Bombardier-Rotax engine.

▼ **CAUTION:** Use of other than recommended oil can result in engine damage.

Fuel Mixture Ratio

The importance of using the correct fuel mixture cannot be overstressed. An incorrect fuel ratio results in serious engine damage.

Recommended fuel / oil ratio is 20 / 1. 5 gallons of premium gasoline plus 1 can of 20 / 1 castor base snowmobile oil = correct fuel / oil mixture.

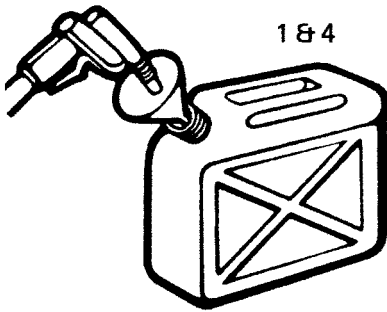
○ **NOTE:** To facilitate fuel mixing, oil should be kept at room temperature.

Fuel Mixing Procedure

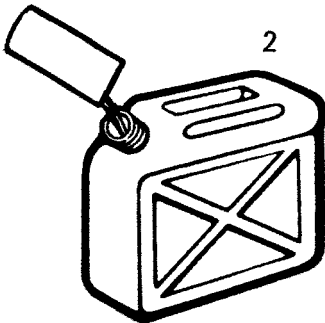
To mix the gasoline and oil always use a separate clean container. Never mix directly in your snowmobile tank. For best results, acquire two containers, either plastic or metal. Draw from one until empty then use the second one.

◆ **WARNING:** Gasoline is flammable and explosive under certain conditions. Always perform procedures in a well ventilated area. Do not smoke or allow open flames or sparks in the vicinity. If gasoline fumes are noticed while driving, the cause should be determined and corrected without delay. Never add fuel while engine is running. Avoid ski contact with fuel at below freezing temperatures.

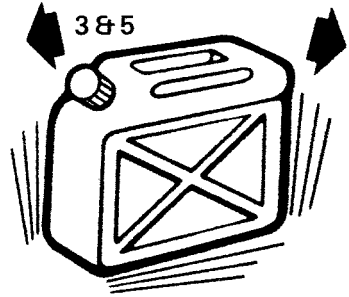
1. Pour approximately one gallon of gasoline into a clean container.



2. Add full amount of oil.



3. Replace container cap and shake the container thoroughly.



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

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

◆ **WARNING:** Never 'top up' gas tank before placing the vehicle in a warm area. At certain temperatures, gasoline will expand and overflow.

PRE-START CHECK

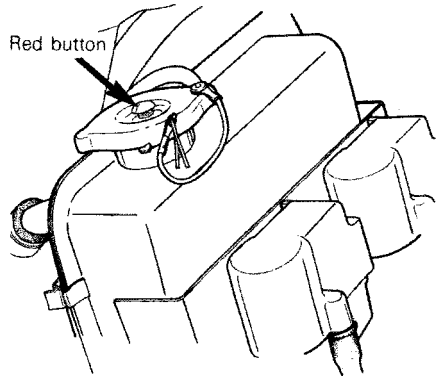
Check Points

- Activate the throttle control lever several times to check that it operates easily and smoothly. The throttle control lever must return to idle position when released.
- Check that the skis and the track are not frozen to the ground or snow surface and that steering operates freely.
- Activate the brake control lever and make sure the brake fully applies before the brake control lever touches the handlebar grip.
- Check coolant level. Liquid should be 2.5 cm (1") below filler neck. If additional coolant is necessary, always use a 50 / 50 (50 parts of water for 50 parts of anti-freeze) solution. When entire system has to be re-filled, use a solution of 3 parts of anti-freeze for 2 parts of water. See cooling system in storage.

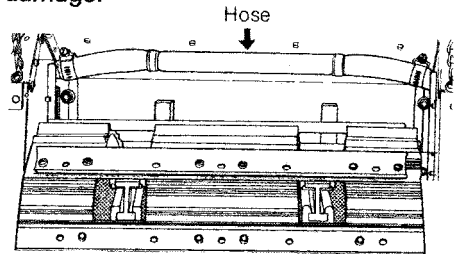
◆ **WARNING:** Before removing the cap always release the pressure by depressing the button (red) incorporated in the cap, loss of fluid and possibility of severe burns could occur.

- Check fuel level.
- Verify that the path ahead of the vehicle is clear of by standers and obstacles.

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



▼ **CAUTION:** Never use sharp tools such as an ice pick, screwdriver etc., to clean the rear end of the vehicle. The use of such a tool may damage the hose and cause severe engine damage.



STARTING PROCEDURE LUBRICATION

1. Insert key in ignition and turn to ON position.
2. **Test throttle control lever.**
3. Activate primer (2 to 3 times). Primer is not necessary when engine is warm.
4. Make sure the tether cut-out cap is in position and that the cord is attached to your body. Check that the emergency cut-out button is in the released upper position.
5. Grasp manual starter handle firmly and pull slowly until a resistance is felt then pull vigorously. Slowly release rewind starter handle.

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

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

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

7. Allow the engine to warm before operating at full throttle.

▼ **CAUTION: Since engine cooling is in effect only when the vehicle is in motion, it is recommended that you do not allow the engine to idle for more than brief periods. Prolonged idling may cause engine damage.**

Frequency

As with any mechanical product routine maintenance is necessary.

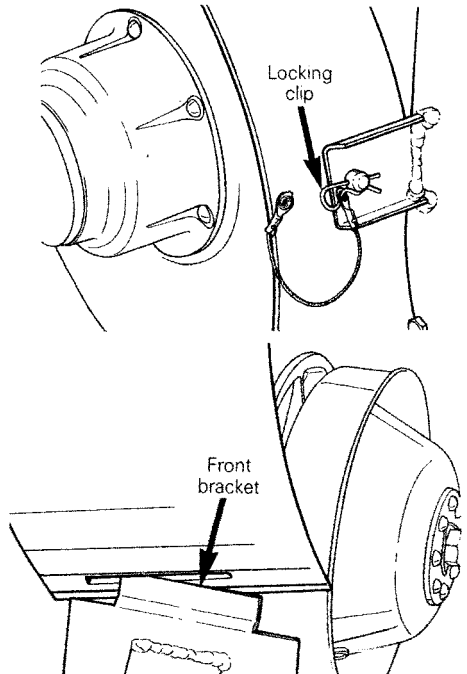
The steering system and suspension must be lubricated on a weekly basis or more often if the vehicle is operated in wet snow.

◆ **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 manual. Unless otherwise specified, engine should be turned OFF for all lubrication and maintenance procedures.**

Pulley Guard Removal

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

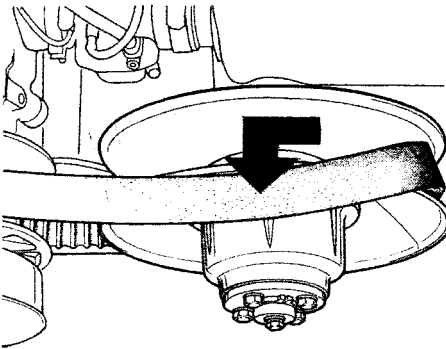
Remove cab. Pull out locking clip and disengage pin from bracket. Tilt pulley guard forward and disengage it from front bracket.



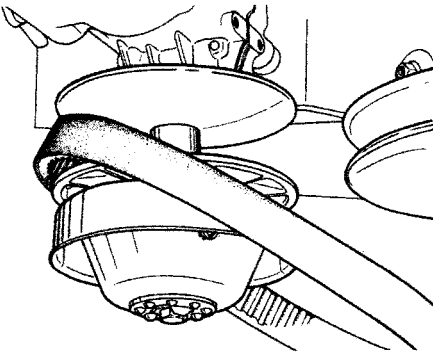
Drive Belt Removal

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

1. Remove cab and pulley guard.
2. Open the driven pulley by twisting and pushing the sliding half. Hold in fully open position.
3. Slip slackened belt over the top edge of the sliding half.

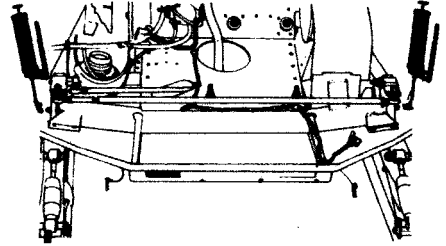


4. Slip the belt out from the drive pulley and remove completely from vehicle. To install drive belt, reverse procedure.



Steering Mechanism

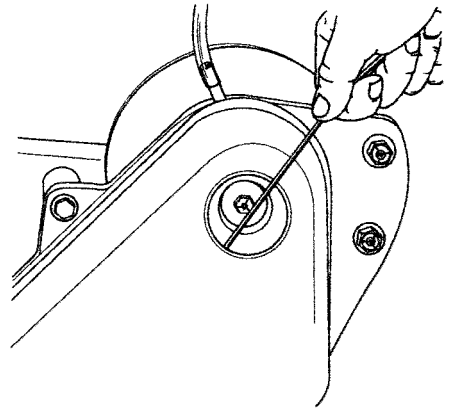
Lubricate ski legs at grease fittings until new grease appears at joints. Oil ski leg / coupler bolts.



▼ **CAUTION:** Do not lubricate throttle and/or brake cable housings.

Chaincase Oil Level

Remove rubber plug then using a rigid wire as "dipstick", check oil level. The oil level on the "dipstick" should be 50 mm (2"), replenish as necessary. The chaincase oil capacity is approximately 230 ml (8 oz).



Hydraulic Brake Oil Level

To check fluid level remove reservoir cover located on handlebar. Fluid must reach top lip of reservoir. If necessary to replenish use only hydraulic brake fluid meeting specification J-1703.

▼ **CAUTION:** The entry of dirt or foreign particles into the brake fluid may constitute system flushing.

Check brake hose for abrasion and signs of leakage. Check brake pad condition, if less than 4.5 mm ($\frac{3}{16}$ ") thick, the pads must be replaced.

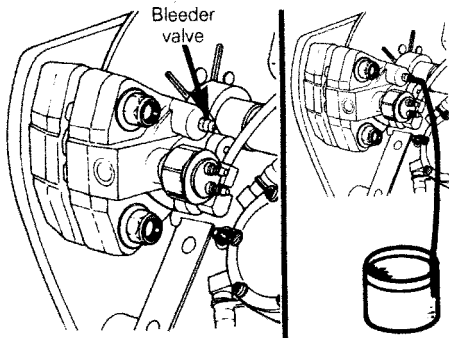
Filling and Bleeding

If the reserve is low and / or air has entered the system creating a soft, spongy braking action, the following should be done:

Remove reservoir cover and 'top up' fluid level. Install cover.

○ **NOTE:** Retain this reservoir level throughout the following procedure.

Connect a bleeder drain to the valve and insert end of bleeder hose into a container of brake fluid.



Repeatedly depress the brake lever in quick succession (pumping), to obtain pressure. Once obtained, hold lever, open bleeder valve then quickly depress brake lever. Close bleeder valve and allow brake lever to return slowly.

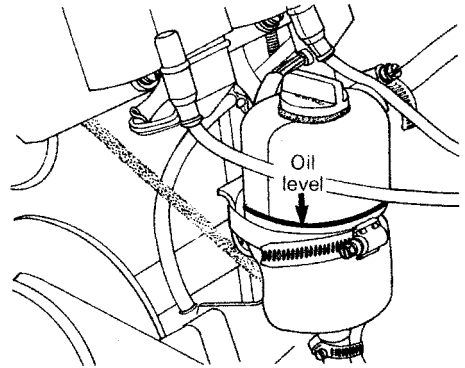
Continue pressing and releasing brake lever until the fluid injected into the container is air free.

Disconnect bleeder hose, recheck brake fluid.

○ **NOTE:** Brake fluid should be changed at least once every snowmobiling season.

Rotary Valve System

Check reservoir oil level frequently. level should not be below level line of plastic reservoir. If necessary replenish to oil level line using "Castrol Injector Oil" or equivalent.



Driven Pulley

Remove the bolt locking the driven pulley to its shaft and pull off the driven pulley ass'y. Lubricate the shaft using antiseize compound. Install pulley on shaft and torque the bolt to .5-1 kg-m (4-5 ft-lbs).

The following Maintenance Chart indicates regular servicing schedules to be performed by you or your servicing dealer.

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 manual. Unless otherwise specified, engine should be turned OFF for all lubrication and maintenance procedures.

Code	Weekly	Page
W1	Spark plugs	12
W2	Suspension condition	12
W3	Track condition	12
W4	Suspension	13
W5	Track adjustment	13
W6	Drive chain tension	14
W7	Carburetor adjustment	14
W8	Drive belt	15
W9	Drive pulley	15

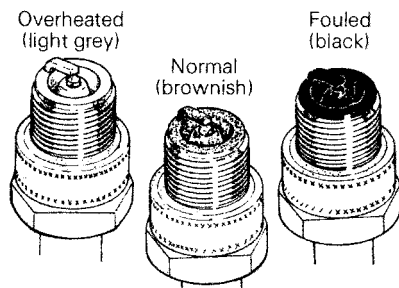
Code	Monthly	Page
M1	Steering mechanism	18
M2	Steering adjustment	18
M3	Cooling system	18
M4	Engine head nuts	19
M5	Engine mount nuts	19
M6	Exhaust system	19
M7	Vehicle general inspection	19

W1 Spark Plugs

Disconnect spark plug wires and remove spark plugs. Check condition of plugs.

- A brownish tip reflects ideal conditions (correct carburetor adjustment, spark plug heat range, etc.).
- A black insulator tip indicates fouling caused by: carburetor idle speed mixture and / or high speed mixture too rich, incorrect fuel mixing 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 dealer.

Check spark plug gap using a wire feeler gauge. Gap must be 0.50 mm (.020"). Reinstall plugs and connect wires. Correct spark plugs are Bosch W 340 S2S or equivalent.

W2 Suspension Condition

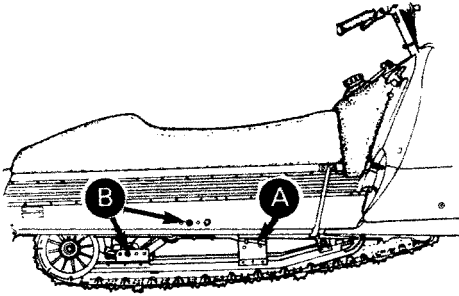
Visually inspect suspension springs. Replace any weak or broken spring. Inspect shoe condition of slide suspension and replace as necessary.

W3 Track Condition

Lift rear of the vehicle and support it off the ground so that the track is free to turn. Rotate track by hand and visually inspect the condition, pay attention to cross links and rivets. Immediately replace cracked cross links and loose or / and missing rivets.

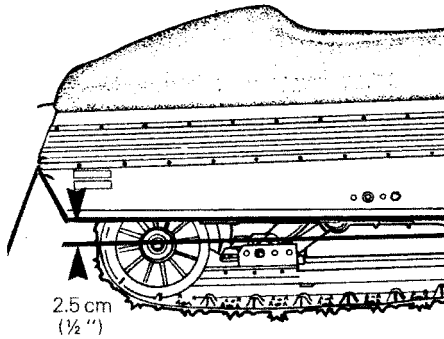
WARNING: Do not operate a snowmobile with a cut, torn or damage track.

W4 Suspension



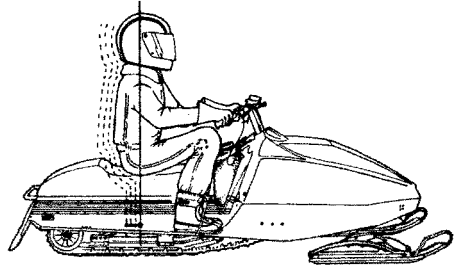
A) Suspension Adjustment (Driver Weight)

Adjust the front end of the suspension springs in such a way that when the driver sits on the vehicle the rear end of the vehicle does not drop by more of 2.5 cm ($\frac{1}{2}$ ").



B) Rear Arm Adjustment

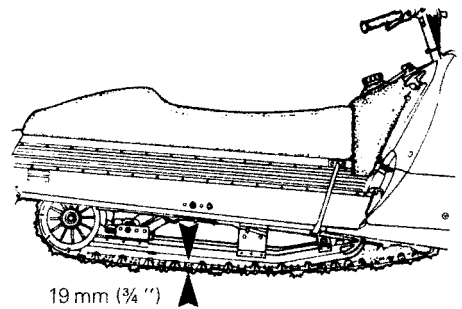
Depending on the driver height and / or normal sitting position, the suspension can be adjusted in order that the driver can transfer his weight as desired toward the front or the rear of the vehicle. With the driver sitting on the vehicle (normal driving position) place the rear arm to the proper position to obtain the desired "pivot effect".



Because of the force of acceleration and of the torque reaction it is recommended to maintain the front arm as horizontal as possible. If this is not observed the front end of the vehicle will be too light which will result in poor manoeuvrability (especially when cornering). As mentioned previously it is strongly recommended that the weight transfer be effectuated through the rear arm "pivot".

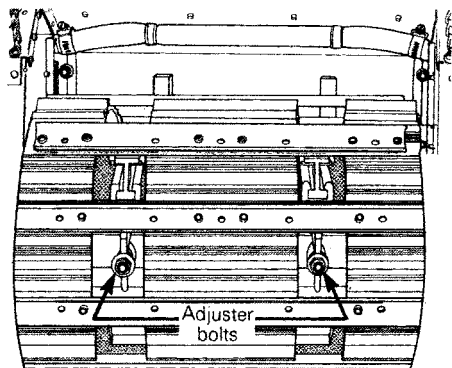
W5 Track Adjustment

Lift rear of vehicle and support with a mechanical stand. Allow slide to extend normally. A gap of 19 mm ($\frac{3}{4}$ ") should exist between slider shoe and cross links. If the track tension is too loose, the track will have a tendency to thump.



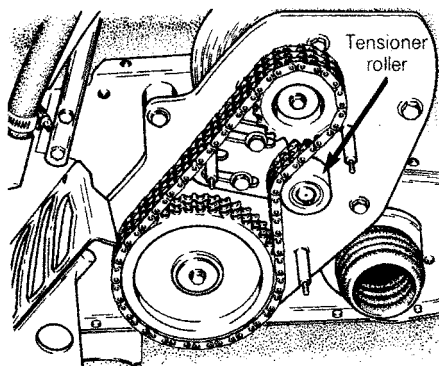
◆ **WARNING:** Too much tension will result in power loss and excessive stresses on cross links and suspension components.

If necessary to adjust simply loosen or tighten adjuster bolts.



W6 Drive Chain Tension

The tension is correct when there is no chain free play. This is obtained by slightly pushing the tensioner roller against the chain and by locking it in position.



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

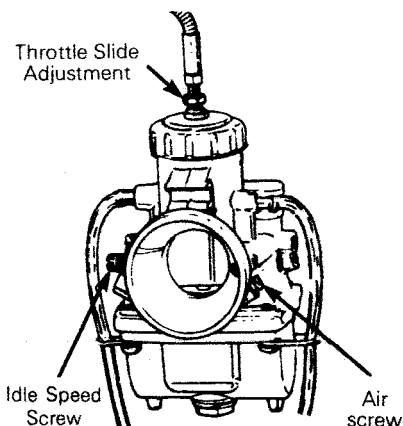
Start the engine and accelerate slightly so that track turns **slowly**. Check that track is well centered and turns evenly. To correct, stop engine then tighten the adjuster bolt on side where track is closest to the frame. Recheck alignment.

◆ **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.

W7 Carburetor Adjustment

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

The carburetor adjustments are: Air Screw Adjustment, Throttle Slide Adjustment and Idle Speed Adjustment.



A) Air Screw Adjustment

Completely close the air screw (until a slight seating resistance is felt), then back off screw $1\frac{1}{4}$ turn.

B) Throttle Slide Adjustment

Completely open (counter-clockwise) the idle speed screw, unlock cable adjuster lock nut then adjust the throttle cable to remove all slack when operating throttle control lever. Lock cable adjuster in position by tightening the adjuster lock nut.

C) Idle Speed Adjustment

Turn idle speed screw clockwise until it contacts the throttle slide then continue turning two (2) additional turns. This will provide a preliminary idle speed setting. Start engine and allow it to warm then adjust idle speed to 2800-3200 RPM by turning idle speed screw clockwise or counter-clockwise.

CAUTION: Do not attempt to set the idle speed by using the air screw. Severe engine damage can occur.

W8 Drive Belt

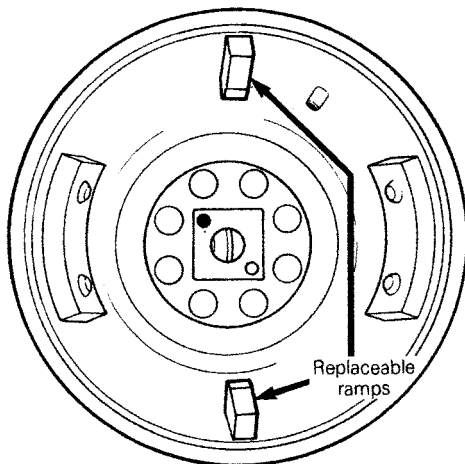
Inspect belt for cracks, fraying or abnormal wear (uneven wear, wear on one side, etc.). If abnormal wear is noted, probable cause is pulley misalignment. Contact your dealer. Check drive belt width. The drive belt width should not be less than 3 cm ($1\frac{3}{16}$ ") wide. A too narrow belt will result in a loss of performance.

NOTE: When installing a new drive belt, a break-in period of 15-25 km (10-15 miles) is strongly recommended.

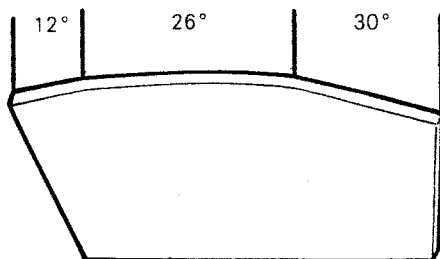
W9 Drive Pulley

WARNING: The drive pulley maintenance and / or calibration should be performed only by a professional mechanic who is familiar with this type of drive pulley.

The drive pulley is of the replaceable ramp type. Depending on the terrain condition, driver's weight and engine torque, the calibration of the drive pulley can be slightly compensated.



The clutch calibration kit supplied with the vehicle permits different calibration. The standard drive pulley calibration is four (4) flyweights identified by A5S, and two (2) ramps identified by 2353 (12° - 26° - 30°).



However, when trying different calibration, the vehicle should be running while maintaining 9000 RPM and under no circumstance should it be "loaded" or have hesitation, poor acceleration, etc.

Kit contents

- 4 flyweights (heavier) A6S
- 2 ramps 2346 (less positive angles 12° - 24° - 28°) no. 2346
- 4 washers

Torque specifications

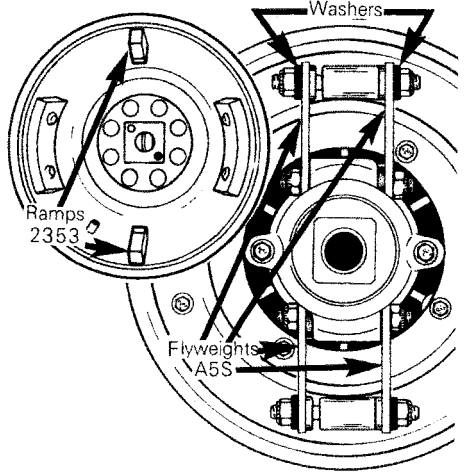
- 5/16" bolts retaining ramps on cup 2-2.5 kg-m (15-19 ft-lbs).
- 1/4" bolts retaining ramps on cup 1-1.4 kg-m (8-10 ft-lbs).
- Shouldered pin lock nuts 1.2-1.5 kg-m (9-11 ft-lbs).
- Drive pulley retaining bolt 8-9.4 kg-m (58-68 ft-lbs).

WARNING: Loctite Lock'n Seal or equivalent must be applied on the threads of each bolt and nut before their installation and where applicable the tab locks must be bent against the bolt heads. Tab locks should never be used more than twice.

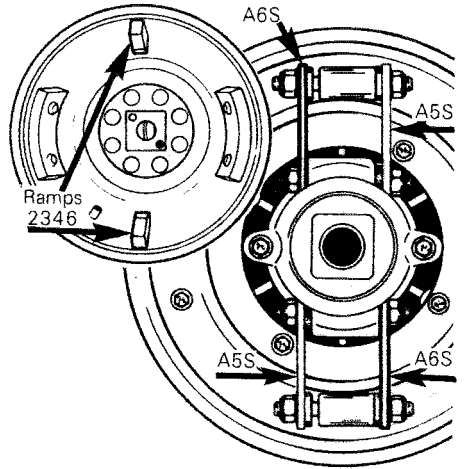
Possible Calibrations

The following are only some of the possible calibrations.

A) Standard ramps (no. 2353), standard flyweights (A5S) and the four washers supplied in kit.

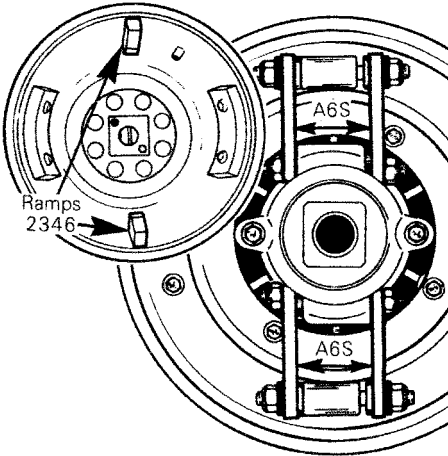


B) Ramps supplied in kit, two (2) standard flyweights (A5S) two (2) flyweights (A6S) from the kit.



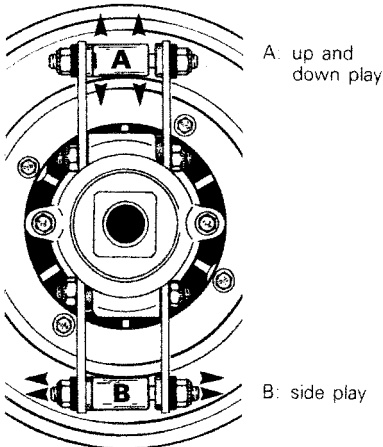
WARNING: The wide (heavy) flyweight must always face the narrow (light) flyweight.

C) Ramp (no. 2346), flyweights (A6S) and the four (4) washers supplied in the kit.

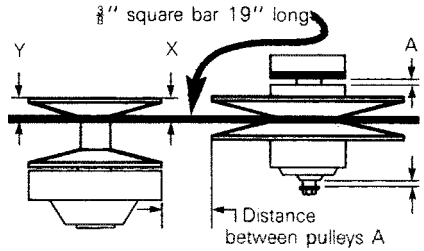


Maintenance

The drive pulley rollers are made of an internal bushing and a steel roller. The roller assemblies should not have any excessive up and down play on the retaining pins.



If excessive free play is noticed replace the bushing inside the roller, also the flyweight assemblies should not have any excessive side play. If excessive side play is noticed replace the hub / shouldered pin bushings.

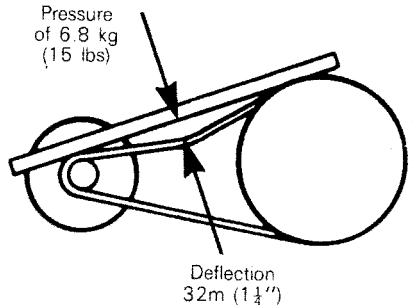


A. free floating 1.6 mm (1/16")

Dimension Y and X (off set); 33-35 mm (1 5/16" - 1 3/8").

CAUTION: Dimension "X" must never exceed dimension "Y". Dimension "Y" can exceed dimension "X" by 1.6 mm (1/16").

The distance between pulleys should be 35 mm (1 3/8"), however the maximum vehicle performance is obtained when the drive belt deflects by 32 mm (1 1/4") when a pressure of 6.8 kg (15 lbs) is applied on the drive belt.



Free Floating

Once the offset is adjusted, using shims, adjust the driven pulley in order to have a free play of 1.6 mm ($\frac{1}{16}$ ") on each side.

M1 Steering Mechanism

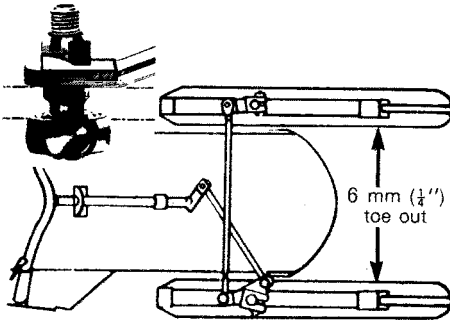
Inspect steering mechanism for tightness of components (steering arms, tie rods, ball joints, spring coupler bolts, etc.). If necessary, replace or retighten.

Check condition of skis and ski runners. Replace if worn.

M2 Steering Adjustment

Skis should have a toe out of 6 mm ($\frac{1}{4}$ "). To check, measure distance between skis at front and rear of leaf springs. To adjust:

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



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

To adjust:

Using a wrench, loosen the lock nuts of the shorter tie rod. Turn tie rod manually until handlebar is horizontal. Retighten lock nuts firmly.

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

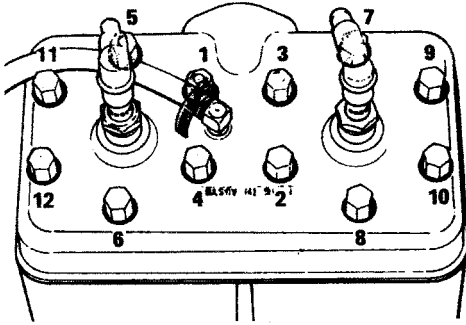
M3 Cooling System

By depressing the radiator cap (red) button check that the cap pressurize the system, if not install a new 13 lb. do not exceed 13 lb. of pressure. Using an hydrometer check that the anti-freeze solution is strong enough for the temperature in which the vehicle is operated. If coolant temperature is above recommended temperature 60° C (140° F) 80° C (180° F), hose off grime from the heat exchanger (underneath the frame above the track).

NOTE: The performance of the engine is better when the engine is cold. There is no thermostat in the system.

M4 Engine Head Nuts

After the first 5 hours of operation, check that engine head nuts are tight and equally torqued to 1.5-1.8 kg-m (11-13 ft-lbs) when cold.



M5 Engine Mount Nuts

Check engine mount nuts for tightness. Retighten if necessary.

M6 Exhaust System

The engine / exhaust system parts are vital toward efficient muffler function. Check all attachments. Replace springs and / or tighten if necessary.

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

M7 Vehicle general Inspection

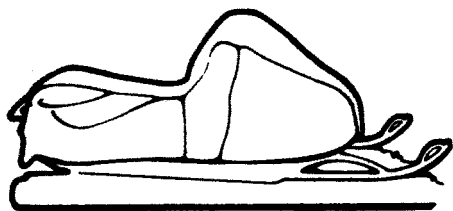
Check electrical wiring and components, retighten loose connections. Check for stripped wires or damaged insulation. Thoroughly inspect the vehicle and tighten loose bolts, nuts and linkage. Inspect skis and ski runners for wear.

TROUBLE SHOOTING

SYMPTOMS	POSSIBLE CAUSES	WHAT TO DO
<p>Engine turns over but fails to start or starts with difficulty</p>	<p>1. No fuel to the engine</p>	<p>Check the tank level and fill up with correct gas-oil mixture. Check for possible clogging of fuel, item 5.</p>
	<p>2. Spark plug</p>	<p>Check for fouled or defective spark plug. Disconnect spark plug wire, unscrew plug and remove from cylinder head. Reconnect wire and ground exposed plug on engine, being careful to hold away from spark plug hole. Follow engine starting procedure and check for spark. If no sparks appear, replace spark plug. If trouble persists, check item 3.</p>
	<p>3. Faulty ignition</p>	<p>Disconnect spark plug wire from plug, unscrew the spark plug cap then hold wire about 3 mm (1/8") from the cylinder head. Follow engine starting procedure and if no sparks appear, it means a faulty ignition system. Do not attempt to repair. Contact your dealer.</p>
	<p>4. Flooded engine</p>	<p>Remove wet spark plugs, turn ignition to OFF and crank engine several times. Install clean dry spark plugs. Start engine following usual starting procedure. If engine continues to flood, see your dealer.</p>
	<p>5. Clogged fuel line (water or dirt)</p>	<p>Remove and clean the fuel filter. Change filter cartridge if necessary. Check condition and connections of fuel lines. Check the cleanliness of fuel tank.</p>
	<p>6. Faulty carburetor</p>	<p>First make primary adjustments on carburetor (See Maintenance Section). If carburetor is still faulty, contact your dealer for repair.</p>
	<p>7. Too much oil in fuel</p>	<p>Drain the fuel tank and refill with the correct gas/oil mixture.</p>
	<p>8. Engine timing</p>	<p>Engine timing may be defective or out of adjustment. Contact your dealer.</p>
	<p>9. Poor engine compression</p>	<p>Running with a lean fuel mixture may produce excessive engine wear resulting in poor engine compression. If this occurs, contact your dealer at once.</p>
<p>Engine will not turn manually</p>	<p>1. Seized engine</p>	<p>In the case of seized engine contact your dealer. Seizure is a direct result of poor lubrication. Use of incorrect gas/oil ratio may be the cause.</p>

TROUBLE SHOOTING GUIDE

SYMPTOMS	POSSIBLE CAUSES	WHAT TO DO
<p>Engine lacks acceleration or power</p>	<p>1. Fouled or defective spark plug</p>	<p>Check item 2 of "Engine turns over but fails to start or starts with difficulty".</p>
	<p>2. Clogged fuel line (water or dirt)</p>	<p>Check fuel line condition. (See item 5 of "Engine turns over but fails to start or starts with difficulty".)</p>
	<p>3. Carburetor</p>	<p>Readjust the carburetors. (See Maintenance section). If trouble persists, contact your dealer.</p>
	<p>4. Faulty ignition</p>	<p>First check item 2 and 3 of "Engine turns over but fails to start or starts with difficulty". If the ignition system still seems faulty, contact your dealer.</p>
	<p>5. Engine</p>	<p>If unable to locate specific symptoms, contact your dealer.</p>
<p>Engine continually backfires</p>	<p>1. Faulty spark plug</p>	<p>Check item 2 of "Engine turns over but fails to start or starts with difficulty".</p>
	<p>2. Overheated</p>	<p>Carburetors set too lean. Contact your dealer. Coolant level too low (leaking hose or gasket, restricted hose). Engine coolant pump inoperative. Air in cooling system.</p>
	<p>3. Engine timing incorrectly set</p>	<p>Contact your dealer.</p>
<p>Snowmobile cannot reach full speed</p>	<p>1. Drive belt</p>	<p>Check for damaged or worn drive belt. Replace if necessary.</p>
	<p>2. Incorrect track adjustment</p>	<p>Check track tension and alignment. Readjust to specifications. (See Maintenance section).</p>
	<p>3. Faulty engine</p>	<p>Check item 1 to 5 of "Engine lacks acceleration or power".</p>
	<p>4. Pulley misaligned</p>	<p>Contact your dealer.</p>



IMPORTANT: 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 treatments to insure that parts do not become rusted;** cleaning items such as carburetor of oil mixtures, to prevent gum varnish formation within the carburetor; and in general, preparing the vehicle so that when the time comes to use the snowmobile again it will start and 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 manual. Unless otherwise specified, engine should be turned OFF for all lubrication and maintenance procedures.

Inspect track for cuts, loose or broken cross links and rivets. Make any necessary replacement. Lift rear of vehicle until track is clear of ground then support with brace or trestle. The snowmobile should be stored in such a way that track does not stay in contact with cement floor or bare ground.

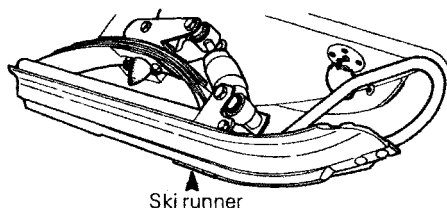
○ **NOTE:** The track should be rotated periodically, (every 40 days). Do not release track tension.

Suspension

Remove any grime or rust. Check slider shoe condition. Replace as necessary.

Skis

Wash or brush all grime or rust accumulation from skis and springs. Grease ski legs at grease fittings. Check condition of skis, ski runners and leaf springs. Replace if worn or weak.



Fuel Tank

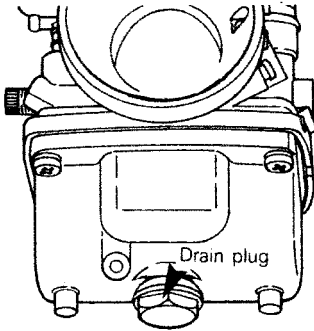
Remove cap then using a syphon, remove gasoline from tank. Using a piece of rigid wire, pull out the pick-up lines from the gas tank (through filler neck) and replace the fuel filters.

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

Carburetors

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

Assure that inlet fuel line is disconnected. Remove drain plug of the float chamber of each carburetor. Drain carburetors.



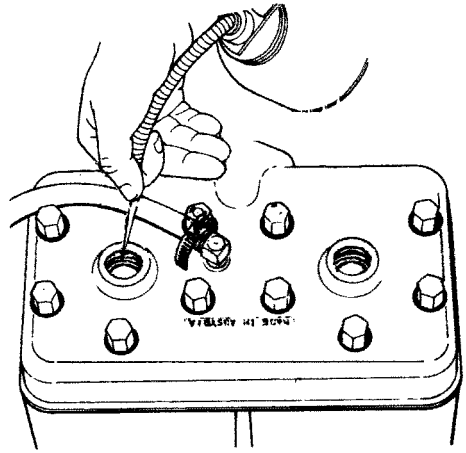
Reinstall plug and connect fuel line.

Cylinder Lubrication

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

○ **NOTE:** This operation should be repeated every 40 days during storage.

Remove spark plugs. Operate rewind starter to bring piston at top position. Pour the equivalent of one spoonful of oil into spark plug hole.

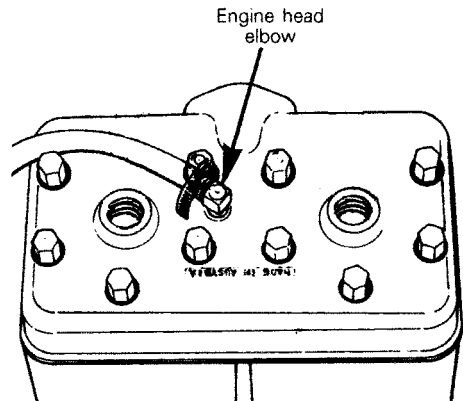


Slowly crank engine several times using manual starter. Repeat above steps for other cylinder. Install spark plugs.

▼ **CAUTION:** To prevent ignition system damage, make sure that the cut-out button is in the lower position.

Cooling System

Drain the cooling system by disconnecting the hose from the engine head elbow, then block off the elbow and remove the radiator cap from the tank. Once the system has been drained unblock the elbow.



○ **NOTE:** To completely drain the system the elbow has to be blocked, otherwise no syphoning effect will be produced and a certain quantity of liquid will remain in the system.

▼ **CAUTION:** To prevent rust formation in the cooling system, always replenish the system with the recommended solution. (60% antifreeze 40% water).

To refill the cooling system; position the disconnected end of the hose higher than the engine head, then pour in the liquid until it reaches the elbow fitting on the engine head. Reconnect the hose. Continue to pour the liquid in the system until the coolant level reaches 2.5 cm (1") below filler neck of reservoir.

Drive Pulley

Inspection and cleaning should be performed by the dealer at the end of each season.

Chaincase

Drain the chaincase completely and refill to proper level using fresh chaincase oil. To drain, remove chaincase cover.

Controls

Lubricate steering mechanism. Inspect components for tightness, (spring coupler bolts, steering arm locking bolts, tie rods, ball joints, etc.). Tighten if necessary.

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

Coat electrical connections and switches with a greaseless metal protector. If unavailable, use petroleum jelly.

Chassis

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

▼ **CAUTION:** Plastic alloy components such as fuel tank, etc., can be cleaned using mild detergents or isopropyl alcohol. Do not use strong soaps, degreasing solvents, abrasive cleaners, paint thinners, etc.

Inspect cab and repair damage. Repair kits are available at your authorized dealer. Clean frame. (Use only "Aluminum cleaner" and follow instructions on container).

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

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

▼ **CAUTION:** If for some reason the snowmobile has to be stored outside it is necessary to cover it with an opaque tarpaulin. This caution will prevent the sun rays 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.

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

PRE-SEASON PREPARATION

Snow is falling and you are now anticipating the next snowmobile season. If you have observed and adhered to the storage procedures outlined in this manual, your vehicle preparation becomes a relatively easy task.

To simplify the pre-season preparation we have drawn up a small chart. **The chart indicates servicing points to be performed by you and your servicing dealer.** If these services are performed as suggested, your vehicle will give you many hours of fun and low cost use.

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

PRE-SEASON PREPARATION CHART

To be performed by dealer ●	
To be performed by owner ○	
Change spark plugs	○
Check chaincase oil level	○
Check drive pulley and clean	●
Check ski alignment	○
Replace fuel filter	○
Connect fuel lines and check attaching points	○
Check track condition, tension and alignment	○
Check coolant condition and level	○
Inspect drive belt and install	○
Check throttle cable for damage and free operation	○
Inspect brake condition and operation	○
Inspect oil seals for possible cuts or leaks	●
Check engine timing	●
Check electrical wiring (broken wire, damage insulation)	○
Inspect condition of starting rope	○
Check tightness of all bolts, nuts and linkage	○
Refill gas tank	○
Adjust carburetors	●
Check oil level of rotary valve reservoir	○

SPECIFICATIONS

Engine	Type	454, liquid cooled
	No. of cylinder	2
	Bore	67.5 mm (2.657")
	Stroke	61 mm (2.401")
	Displacement	436.6 cm ³ (26.6 in ³)
	Compression ratio	.5
	Max. operating R.P.M.	13:1
	Rotary valve port timing: opening	9250
	Rotary valve port timing: closing	130° B.T.D.C.
	Cylinder port timing: Transfer ports	80° A.T.D.C.
	Cylinder port timing: Exhaust ports	63.5°
	Cylinder port timing: Boost ports	103.7°
	Cylinder head squish gap (minimum)	64.6°
	Cylinder head squish angle	1.2 mm (.047")
Piston ring type	15°	
Piston to wall clearance	One (1) "L" trapeze chromium plated	
Exhaust system	0.11 mm (.0045")	
		2 tuned exhaust with single muffler
Chassis	Overall length	243.8 cm (96")
	Overall width	101.6 cm (40")
	Overall height	83.8 cm (33")
	Dry weight	156.8 kg (360 lbs.)
	Ski-stance	87.6 cm (34 1/2")
Power Train	Track type	Internal drive with riveted cross links
	Track width	38 cm (15")
	Std. gear ratio	22 / 40
Electrical	Ignition type	Capacitor discharge
	Spark plug (Bosch)	W-340 S2S
	Ignition timing	1.6 mm (.065") B.T.D.C. at 6500 RPM
Fuel	Tank capacity — S.I.*	15.9 liters
	— Imp. gals.	3.5
	— U.S. gals.	4.2
	Gasoline	Premium
	Oil	Castor base
	Gas / oil ratio	20 / 1
	Carburetor	2 × Mikuni VM 44-12
	Main jet	450
	Jet needle	7 DH2-2
	Needle jet	224-CC5
	Throttle slide cut-away	2.5
Carburetor pilot jet	35	
Air screw adjustment ± 1/4	1 1/4 turn	
Brake	Type	Hydraulic disc brake

* S.I. International System

All information, illustration and component / system description contained in this manual are correct at the time of publication. However, Bombardier Limited 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 product previously manufactured.