



ski-doo
snowmobiles

RV* 340 LC

1977

OPERATOR MANUAL



Recreational Products

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FOREWORD

Within the North American Continent, there exists a very special breed of people... people who enjoy ice and snow, and the unexcelled trails that lead to virtually every corner of the snowbelt. They enjoy too, the comfort of warm clothing, the friendliness of companions, and the recreational vehicle that made it all possible... the Ski-Doo snowmobile.

We, like millions of North American families, have never forgotten our pioneer heritage, or our love of nature and the great outdoors, consequently, we have designed and engineered all our models with safety, comfort and quietness foremost in our minds. We do respect your desires, and that of others.

Information has been prepared to acquaint the owner / operator of a new 1977 snowmobile with the various vehicle controls, owner-related maintenance, and safe operating instructions.

This is accomplished via three manuals; 'The Snowmobile Safety Handbook' the 'Warranty and Consumer Guide Booklet' and the 'Operator Manual'. Each is inseparable toward proper use of the product, and should be kept with the vehicle at all times.

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

◆ **WARNING:** Identifying an instruction which, if not followed, could cause personal injury.

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

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

Ride safe and have fun.

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SAFETY IN MAINTENANCE

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.
- 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.
- 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. In most States and Provinces, it is considered an illegal operation.
- 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 procedures as detailed 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.
- The R.V. is designed for the driver only. No provisions have been made for a passenger.

Please read and understand all other warnings contained elsewhere.

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

CONTROLS / INSTRUMENTS

Throttle control lever, brake control lever, ignition switch, headlamp dimmer switch, emergency cut-out switch, tether cut-out switch, rewind starter handle, primer, tachometer, speedometer, coolant temperature gauge, fuel control valve, cab opening, tool compartment, fuel gauge **4,5,6**

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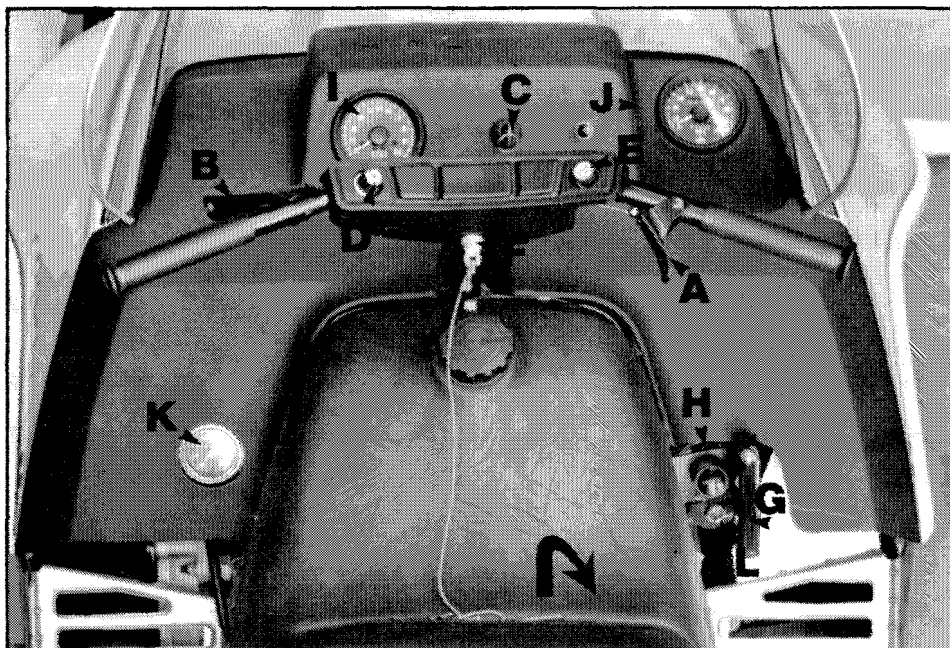
Track, slide suspension, ski assembly, fuel tank, carburetor, cylinder lubrication, cooling system, drive pulley, chaincase, controls, chassis, general inspection. **20,21**
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CONTROLS / INSTRUMENTS



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

- G) Rewind Starter Handle
- H) Primer
- I) Tachometer
- J) Speedometer
- K) Coolant Temperature Gauge
- L) Fuel Control Valve

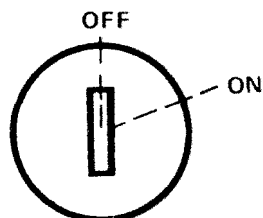
A) Throttle Control Lever

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

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

C) Ignition Switch



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

NOTE: When the key is turned to the ON position the lights will also be on as soon as the engine will be turning.

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 depress switch.

E) 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.

F) Tether Cut-Out Switch

A pull switch located on the right side of cab. 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" out 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 restarting engine.

G) Rewind Starter Handle

Auto rewind type located on right hand side of vehicle. To start engine, pull handle.

H) Primer

A push-pull button located alongside manual starter handle. 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.

I) 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.

J) Speedometer

The speedometer is linked directly to drive axle. Direct-reading dial indicates the speed of vehicle in miles per hours (MPH). Odometer records the total number of miles travelled. A tripodometer is standard equipment. To reset, turn knob counter-clockwise.

K) Temperature Gauge

The gauge indicates engine coolant temperature. Normal operating temperature is 60° C (140° F). However, coolant temperature can vary depending on driving condition. If coolant temperature exceeds 80° C (180° F) reduce speed and run vehicle in loose snow or stop engine immediately.

◆ **WARNING:** Before removing the cap always release the pressure by placing a cloth over the cap and by partially unscrewing it (first step). If this is disregarded loss of fluid and possibility of severe burns could occur.

BREAK-IN PERIOD

L) Fuel Control Valve

Located alongside manual starter handle, the fuel valve controls the fuel flow depending of the valve lever position. Valve lever toward manual starter handle (RESERVE) allows fuel from rear gas tank to the engine, lever toward seat (ON POSITION) allows fuel from centre mounted tank to engine.

Cab Opening

To open cab, unfasten latches on both sides near footrest where cab meets frame. Always lift cab gently up until stopped by restraining device.

◆ **WARNING:** It is dangerous to run engine with cab open. Personal injury could result.

Tool Compartment

Built in the seat, simply lift compartment cover flaps then unfasten zip fastener to gain access. Ideal location for spare spark plugs, rope, etc.

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.

With the Bombardier-Rotax high performance engine, 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 break-in period will result in engine horsepower loss.

FUEL MIXING

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 simular products.

Recommended Oil

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

▼ **CAUTION:** Use of outboard or 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 a 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.

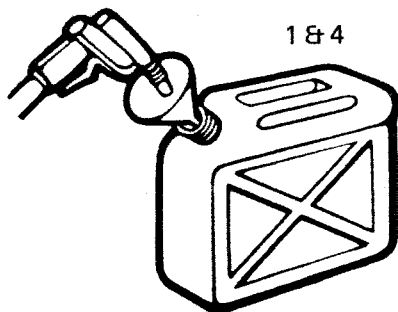
○ **NOTE:** To facilitate fuel mixing, oil should be kept at room temperature.

Fuel Mixing Procedure

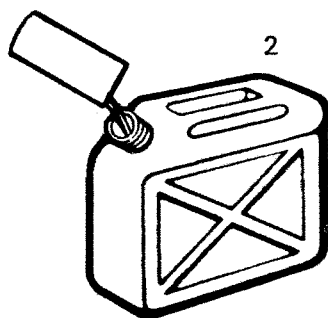
To mix the gasoline and oil always use a separate clean container. Never mix directly in your snowmobile tank. For best results, acquire two containers, either plastic or metal. Draw from one until empty then use the second one.

◆ **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 skin contact with fuel at below freezing temperatures.

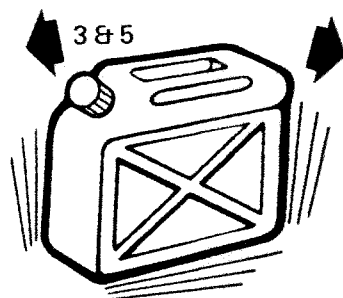
1. Pour approximately one gallon of gasoline into a clean container.



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

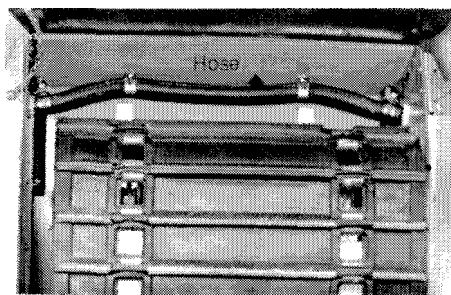
Check Points

- ▶ 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 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.
- ▶ 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 antifreeze) solution. When entire system has to be refilled, use a solution of 3 parts of anti-freeze for 2 parts of water. See cooling system in storage.

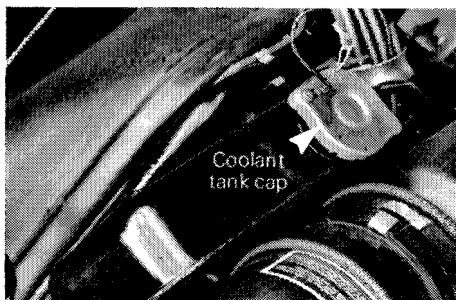
◆ **WARNING:** Before removing the cap always release the pressure by placing a rag on the cap and by partially unscrewing it (first step). If this is disregarded loss of fluid and possibility of severe burns could occur.

- ▶ 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 will damage the hose and severe engine damage will occur.




STARTING PROCEDURE


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 the 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.

LUBRICATION

Frequency

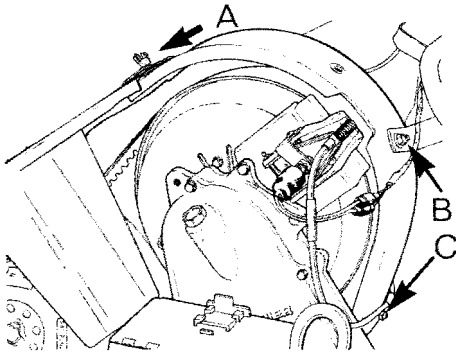
Routine maintenance is necessary for all mechanized products, and the snowmobile is no exception. A weekly vehicle inspection contributes to the life span of the snowmobile as well as retain safe and trouble-free operation. It is recommended that the steering system and suspension, be lubricated monthly 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 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 guards are secured in place.

Tilt cab. To tilt drive pulley guard remove clip and unscrew wing nut (A).

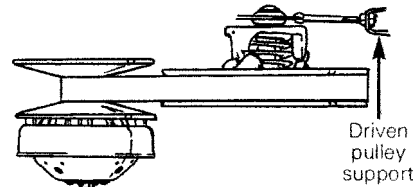


If necessary to remove driven pulley guard remove nuts (B) and (C).

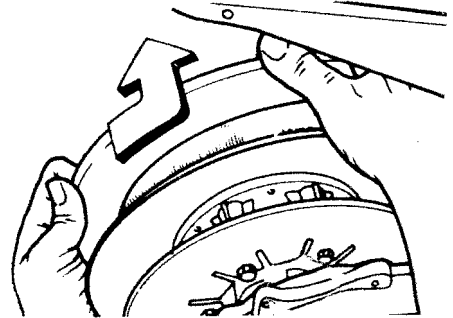
Drive Belt Removal

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

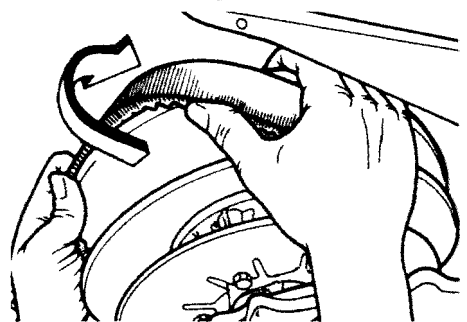
1. Tilt cab and pulley guard, unlock and raise driven pulley support.



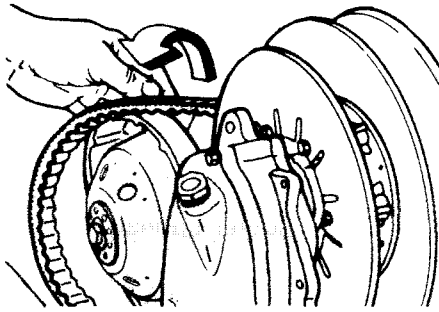
2. Open the driven pulley by twisting and pushing the sliding half. Hold in fully open position.



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

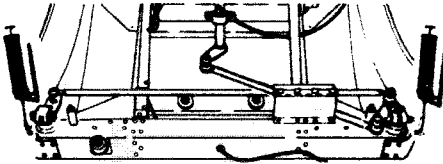


4. Slip the belt out from the drive pulley and remove completely from vehicle. To install drive belt, reverse procedure.



Steering Mechanism

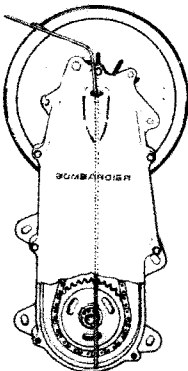
Lubricate ski legs at grease fittings until new grease appears at joints. Oil ski leg / coupler bolts.



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

Chaincase Oil Level

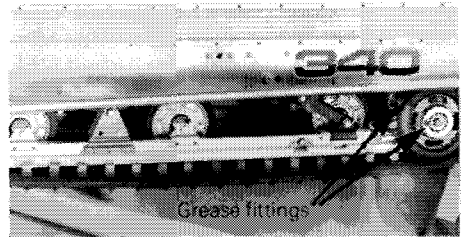
Using the spark plug socket, remove the filler cap then using a rigid wire as a "dipstick" check oil level. The oil level on the "dipstick" should be 75-90 mm (3" to 3½"). Replenish as necessary.



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

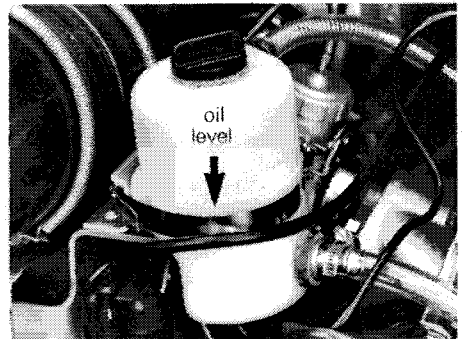
Slide Suspension

Using a low pressure grease gun, lubricate the idler wheels with low temperature grease. Pump 3 to 4 times through the grease fitting located on each cap of the rear idler wheels. Wipe off excess.



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 available from your dealer.



MAINTENANCE

The following Maintenance Chart indicates regular servicing schedules to be performed by you or your servicing dealer. If these services are performed as suggested, your snowmobile will give you many years of low-cost use.

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.

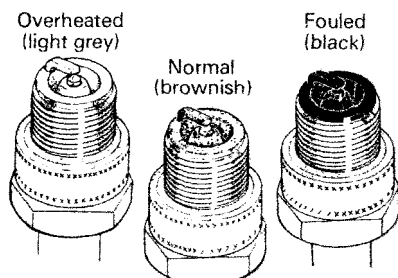
Code	Weekly	Page
W1	Spark plugs	12
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W3	Track	12
W4	Suspension (adjustment)	13
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Code	Monthly	Page
M1	Steering mechanism	16
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M4	Brake	17
M5	Engine head nuts	17
M6	Engine mount nuts	17
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(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 W340S2S 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

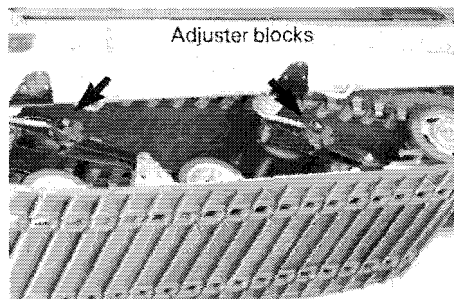
With rear of vehicle off the ground, rotate track and inspect condition. Check for bad cuts, missing inserts or track guides. If bad cuts, missing or defective inserts or guides are noted, contact your dealer.

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

(W4) Suspension (adjustment)

The suspension is adjustable, the front adjustment for surface condition, the rear for driver's weight.

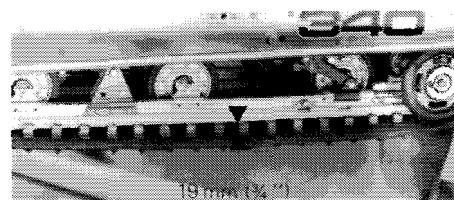
When the front adjuster blocks are at the lowest elevation more weight is distributed on skis. At the highest position the weight is transferred from the skis to the track. The rear adjuster blocks should be adjusted to suit the driver's preference.



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

Tension

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



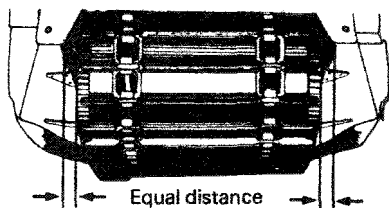
CAUTION: Too much tension will result in power loss and excessive stresses on suspension components.

If necessary to adjust, loosen or tighten adjuster bolts located on inner side of rear idler wheels. If correct tension is unobtainable, contact your dealer.

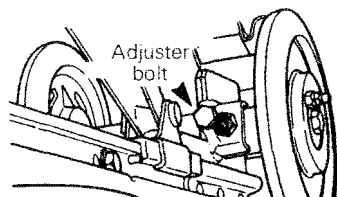
NOTE: Track tension and alignment are inter-related. Do not adjust one without the other.

Alignment

Start the engine and accelerate slightly so that track turns **slowly**. Check that track is well centered and turns evenly.

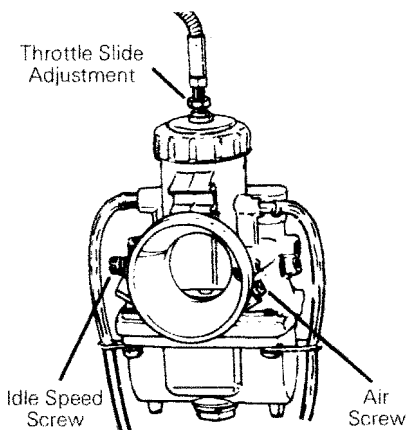


To correct, stop engine then loosen the lock nuts and tighten the adjuster bolt on side where track is closest to the frame. Tighten lock nuts and recheck alignment.



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.

(W5) Carburetor Adjustment



Air Screw Adjustment

Completely close the air screw (of each carburetor) until a slight seating resistance is felt then back off 1 turn.

Throttle Slide Adjustment

Completely open (counter-clockwise) the idle speed screw (of each carburetor). Unlock cables adjuster lock nuts then adjust the throttle cables to remove all slack and to synchronize the two throttle slides when operating throttle control lever. Lock cables adjusters in position by tightening the adjusters lock nuts.

Idle Speed Adjustment

Turn idle speed screw (of each carburetor) 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 3000-3200 RPM by turning idle speed screws clockwise or counter-clockwise.

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

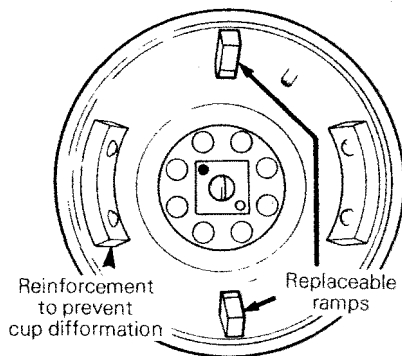
(W6) Drive Belt

Check condition of belt. Inspect for cracks, fraying or abnormal wear, (uneven wear, wear on one side, etc.). If abnormal wear is noted probable cause is pulley misalignment. If belt is less than 30 mm (1 $\frac{3}{16}$ ") wide, replace. A too narrow belt will result in a loss of performance.

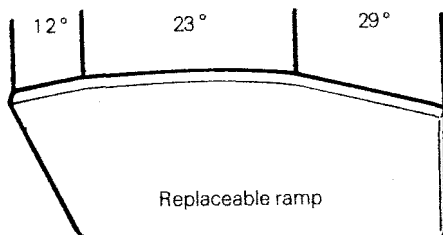
NOTE: When installing a new drive belt, a break-in period of 15-25 km (10-15 miles) is strongly recommended.

(W7) 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 C3LS and two (2) ramps, identified by 2344 (12° -23° -29°).



However when trying different calibration, the engine should maintain 8500 RPM and under no circumstance the engine should it be "loaded" or have hesitation, poor acceleration, etc.

◆ **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.

Kit contents

4 flyweights (heavier) C4LS
2 ramps 2345 (less positive angle 12° - 21° -27°
4 washers

Torque specifications

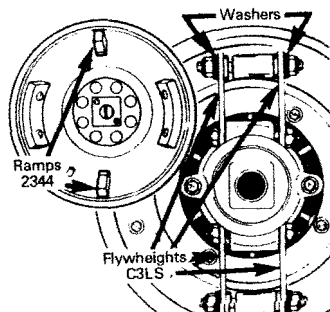
5/16" bolts retaining ramps on cup
2-2.5 kg-m (15-19 ft-lbs).
1/4" bolts retaining ramps on cup
1-1.4 kg-m (8-10 ft-lbs).
Shouldered pin lock nuts
1.2-1.5 kg-m (9-11 ft-lbs).
Drive pulley retaining bolt
8-9.4 kg-m (58-68 ft-lbs).

◆ **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.

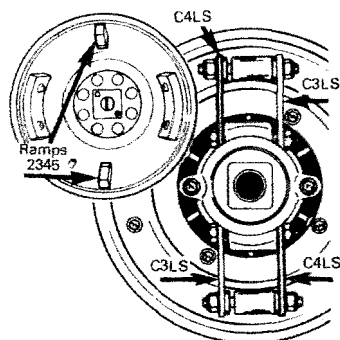
Possible calibrations

The followings are only some of the possible calibrations.

A) Standard ramps (no. 2344), standard flyweights (C3LS) and the four washers supplied in kit.

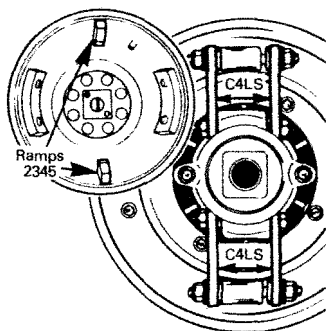


B) Ramps supplied in kit, two (2) standard flyweights (C3LS) two (2) flyweights (C4LS) from the kit.



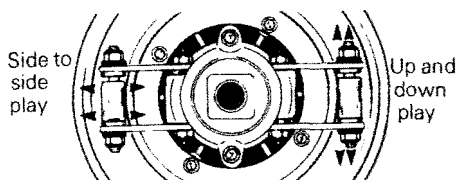
◆ **WARNING:** The wide (heavy) fly-weight must always face the narrow (light) flyweight.

C) Ramp (no. 2345), flyweights (C4LS) and the four washers supplied in the kit.



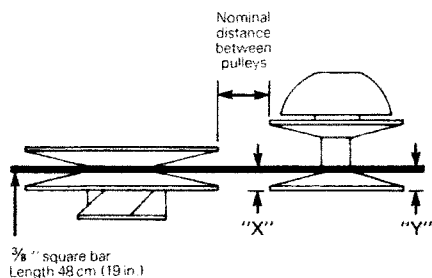
Maintenance

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



If excessive free-play is noticed replace the bushing inside the roller, also the flyweight ass'y should not have any excessive side play. If an excessive side to side play is noticed replace the hub / shouldered pin bushings.

Pulley Alignment

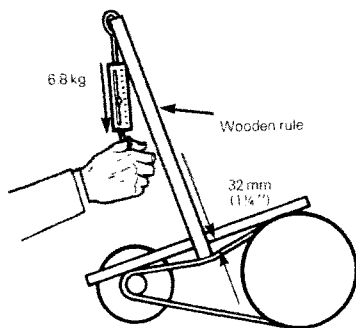


Dimension Y and X (offset); 33-35 mm (1 5/16" - 1 3/8").

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

Pulley (nominal) distance

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.



(M1) Steering Mechanism

Inspect steering mechanism for tight-

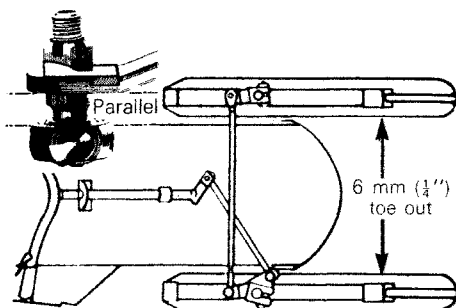
ness of components (steering arms, tie rods, ball joints, spring coupler bolts, etc.). If necessary, replace or retighten.

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

(M2) Steering Adjustment

Skis should have a toe out of 6 mm (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 restrined when tightening the tie rod end lock nuts.

(M3) Cooling System

Place a cloth over tie cap and release it to the first step to check that the cap pressurizes the system, if not, install a new 13 lb cap. Do not exceed the 13 lb. of pressure. Using a hydrometer check that the anti-freeze solution is strong enough for the temperature in which the vehicle is operated. If coolant tem-

perature 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.

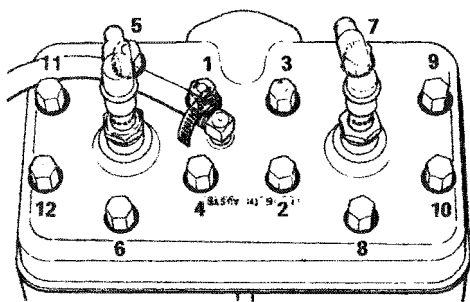
(M4) Brake

The brake mechanism is self-adjusting, therefore, periodic adjustment is not required. However, the brake mechanism can be checked by depressing brake control lever. Brake should apply fully when lever is 13 mm (½") approx. from handlebar grip. If it does not, do not tamper with the brake, contact your servicing dealer. Check the stop light to see if it functions. If necessary, readjust switch position.

◆ **WARNING:** Brake pucks less than 5 mm (⅜") must be replaced. Replacement must be performed by an authorized dealer. Always check the stop light to see if it functions.

(M5) 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.



(M6) Engine Mount Nuts

Check engine mount nuts for tightness. Retighten if necessary.

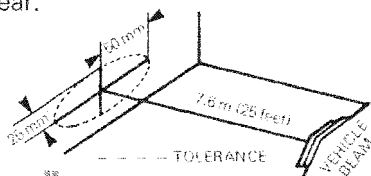
(M7) Exhaust System

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.

(M8) 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.



Headlamp

The angle of the headlamp beam has been pre-adjusted prior to delivery. Should you wish re-adjustment, place vehicle on a flat surface, 7.6 meter (25 feet) from a wall or screen. Turn HI beam on (engine must be running). Beam aiming is correct when beam center is equal with a horizontal beam line, within a maximum horizontal deviation of 50 mm (2") and a maximum vertical deviation of 25 mm (1").

Remove chrome ring then turn upper or lower adjustment screws to obtain specified beam position.

Bulb Replacement

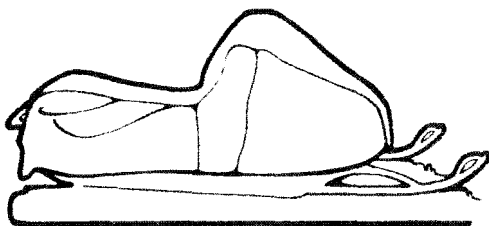
If headlamp is burnt, tilt cab. Unplug connector from headlamp. Remove rubber boot and unfasten bulb retainer clips. Detach bulb and replace. If taillight bulb is burnt, expose bulb by removing red plastic lens. To remove, unscrew the two (2) Phillips head screws. Verify all lights after replacement.

TROUBLE SHOOTING

SYMPTOMS	POSSIBLE CAUSES	WHAT TO DO
Engine turns over but fails to start or starts with difficulty	1. No fuel to the engine	Check the tank level and fill up with correct gas-oil mixture. Check for possible clogging of fuel, item 5.
	2. Spark plug	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.
	3. Faulty ignition	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.
	4. Flooded engine	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.
	5. Clogged fuel line (water or dirt)	Remove and clean the fuel filter. Change filter cartridge if necessary. Check condition and connections of fuel lines. Check the cleanliness of fuel tank.
	6. Faulty carburetor	First make primary adjustments on carburetor (See Maintenance Section). If carburetor is still faulty, contact your dealer for repair.
	7. Too much oil in fuel	Drain the fuel tank and refill with the correct gas/oil mixture.
	8. Engine timing	Engine timing may be defective or out of adjustment. Contact your dealer.
	9. Poor engine compression	Running with a lean fuel mixture may produce excessive engine wear resulting in poor engine compression. If this occurs, contact your dealer at once.
Engine will not turn manually	1. Seized engine	In the case of seized engine contact your dealer. Seizure is a direct result of poor lubrication or use of improper type of oil. Incorrect fuel/oil ratio.

SYMPTOMS	POSSIBLE CAUSES	WHAT TO DO
Engine lacks acceleration or power	1. Fouled or defective spark plug	Check item 2 of "Engine turns over but fails to start or starts with difficulty".
	2. Clogged fuel line (water or dirt)	Check fuel line condition. (See item 5 of "Engine turns over but fails to start or starts with difficulty".)
	3. Carburetor	Readjust the carburetors. (See Maintenance section). If trouble persists, contact your dealer.
	4. Faulty ignition	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.
	5. Engine	If unable to locate specific symptoms, contact your dealer.
Engine continually backfires	1. Faulty spark plug	Check item 2 of "Engine turns over but fails to start or starts with difficulty".
	2. Overheated	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.
	3. Engine timing incorrectly set	Contact your dealer.
Snowmobile cannot reach full speed	1. Drive belt	Check for damaged or worn drive belt. Replace if necessary.
	2. Incorrect track adjustment	Check track tension and alignment. Readjust to specifications. (See Maintenance section).
	3. Faulty engine	Check item 1 to 5 of "Engine lacks acceleration or power".
	4. Pulley misaligned	Contact your dealer.

STORAGE



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 or 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.

Track

Inspect track for cuts, missing track guides and broken rods. 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.

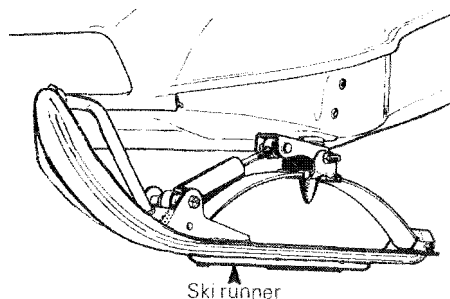
○ **NOTE:** The track should be rotated periodically, (every 40 days). Do not release track tension.

Slide Suspension

Remove any dirt or rust. Grease idler wheels at grease fittings. Wipe off surplus. Replace worn slider shoes.

Ski Assembly

Wash or brush all dirt 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.



Apply metal protector on ski assembly. If unavailable, wipe the entire ski with cloth soaked in oil to prevent rust formation.

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.

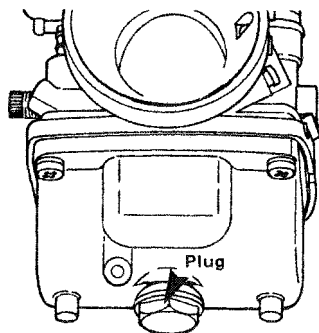
WARNING: Gasoline is flammable and explosive under certain conditions. Always perform procedures in a well ventilated area. Do not smoke or allow open flames or sparks in the vicinity.

Carburetor

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

Assure that inlet fuel line is disconnected.

Remove plug of the float chamber of each carburetor. Drain carburetors.



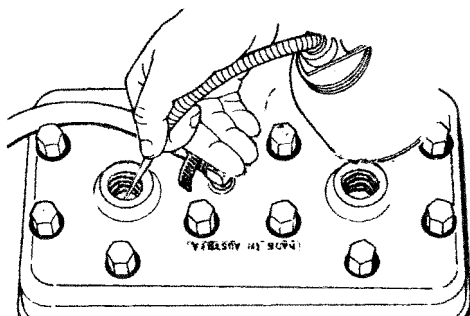
Reinstall plug and connect fuel line.

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.

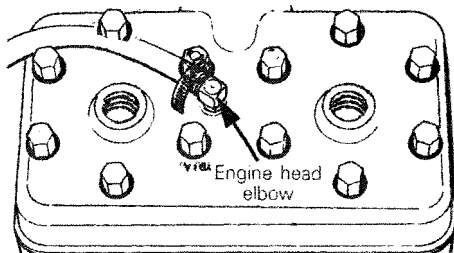



Slowly crank engine several times using manual starter. Repeat above steps for other cylinder. Install spark plugs.


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 provided 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% anti-freeze 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 in the engine head. Reconnect the hose. Continue to pour the liquid in the system until the coolant level reaches 2.5 cm (1 in.) 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 and 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, windshield, 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 all 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 Ski-Doo 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 safari. 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, damaged 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	354, liquid cooled
	No. of cylinders	2
	Bore	59.5 mm (2.342")
	Stroke	61 mm (2.401")
	Displacement	339.2 cm ³ (20.7 in. ³)
	Compression ratio \pm .5	13:1
	Max. operating R.P.M.	8500
	Rotary valve port timing: Opening	130° B.T.D.C.
	Closing	80° A.T.D.C.
	Cylinder port timing: Transfer ports:	47.7 mm (1.878 in)
	Exhaust ports:	30.1 mm (1.185 in)
	Boost ports:	47.7 mm (1.878 in)
	Cylinder head squish gap (minimum)	1.2 mm (.047")
	Piston ring type	One (1) "L" trapeze molydenum plated
	Piston to wall clearance	0.08 mm (.0035")
Chassis	Exhaust system	Two (2) tuned exhaust pipes with single muffler
	Overall length	271.8 cm (107")
	Overall width	106 cm (41 3/4")
	Overall height	105.4 cm (41 1/2")
	Dry weight	172 kg (395 lbs)
Power Train	Ski stance	86.3 cm (34")
	Track type	Rubber with embedded fiberglass rods
	Track width	38.1 cm (15")
Electrical	Std. gear ratio	18 / 38
	Ignition type	Capacitor discharge
	Spark plug (Bosch)	W 340 S-2-S
Fuel	Ignition timing	1.6 mm (.065") B.T.D.C. at 6500 R.P.M.
	Tank capacity (front)	4 Imp. gals, 4.5 U.S. gals, 18 liters
	Tank capacity (rear)	5 Imp. gals, 6 U.S. gals, 22 liters
	Gasoline	Premium
	Oil	Castor base
	Gas / oil ratio	20 / 1
	Carburetor	Mikuni VM 38-37
	Carburetor main jet	330
	Carburetor jet needle	6 DH4-2
	Carburetor needle jet	166 RH 0
	Throttle slide cut-away	2.5
	Pilot jet	35
Brake	Air screw \pm 1/4	1 turn
	Type	Disc, self-adjusting

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