'72 Owner's Manual

ski-doo*

blizzard

*Trademark Bombardier Limited

blizzard *

INDEX

CONGRATULATIONS.

You are now the proud owner of a 1972 Blizzard snowmobile — the toughest, sleekest and certainly the FASTEST Ski-Doo ever built.

The '72 Blizzard snowmobile is the result of incomparable teamwork between Bombardier designers, technicians and top racing drivers from which has evolved a superb racing vehicle that is going to prove a winner again and again.

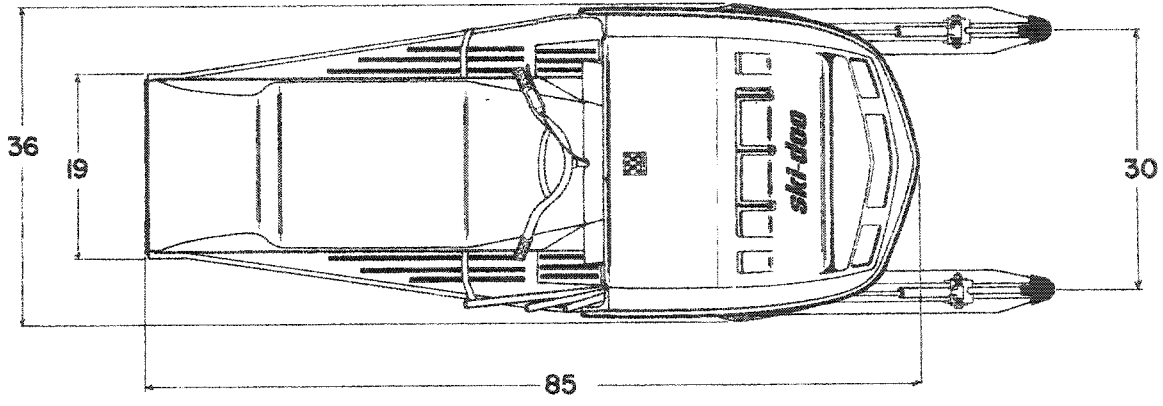
It's all new... completely new. From the solid drive axle to the new 35% lighter slide suspension system... from the new split chain case to the special alloy skis, 50% more resistant than last year... from the completely new frame with aluminum protector guides to the 20% stronger steering arms... even repositioning the engine, lower and further forward to give better handling on corners... it all adds up to the '72 Blizzard snowmobile, the vehicle which will make you the competitor to beat.

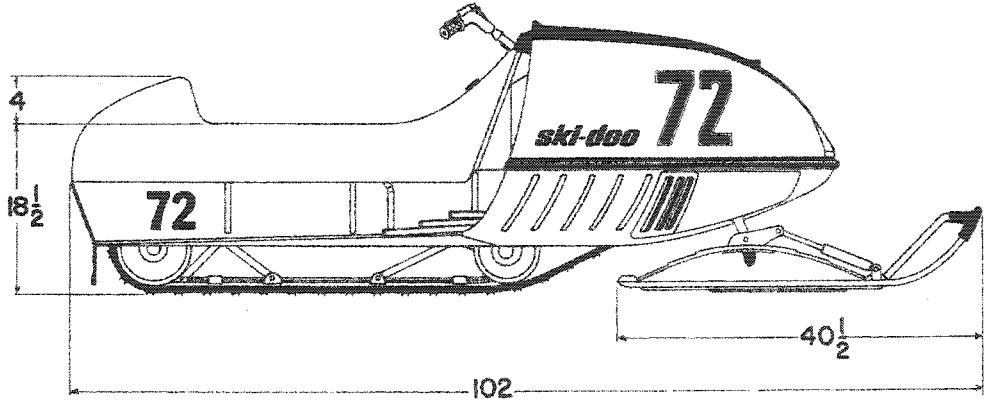
Realizing that the Blizzard has been purchased for racing use only and that you are familiar with the normal lubrication and maintenance requirements of a stock unit, we have limited the content of this manual to cover only vital data on vehicle operational requirements.

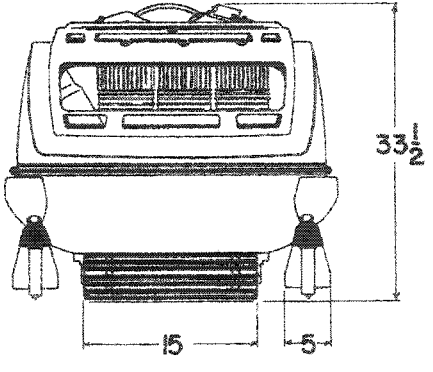
Bombardier Limited reserves the right to make changes in design and specifications, and/or to make additions to or improvements in its product without imposing any obligations upon itself to install them on its products previously manufactured.

STANDARD FEATURES INCLUDE: Hydraulic disc brake system • Slide suspension • Adjustable shock absorbers • Ski tip covers • Carbide runners.

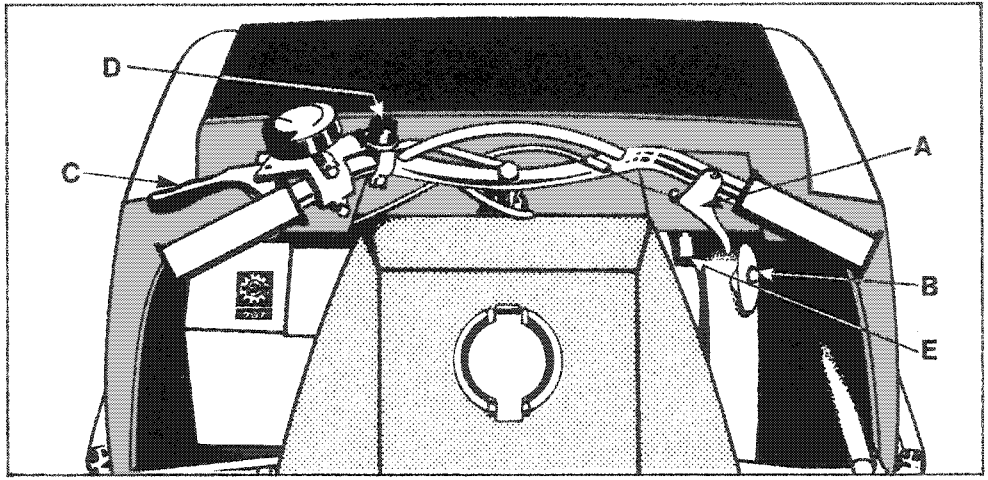
SPECIFICATIONS







BLIZZARD	ITEM	293	340	395	438	645	797
ENGINE	No. of cylinders	3	3	2	2	3	3
	Bore	50 mm	53.5 mm	64.5 mm	67.5 mm	67 mm	74.5 mm
	Stroke	50 mm	50 mm	61 mm	61 mm	61 mm	61 mm
	Displacement	294.5 cc	337.2 cc	398.6 cc	436 cc	645.2 cc	797.7 cc
	Horse Power	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Compression Ratio	13.5:1	13.25:1	12.5:1	12.5:1	12.5:1	12.5:1
	Carburetor (Tillotson)	H.R.	H.R.	H.D.	H.D.R.	H.D.R.	H.D.R.
CHASSIS	Overall Length	102″	102″	102″	102″	102″	102″
	Overall Width	36″	36″	36″	36″	36″	36″
	Height	33½″	33½″	33½″	33½″	33½″	33½″
	Weight	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Bearing Area	1117 sq. in.	1117 sq. in.	1117 sq. in.	1117 sq. in.	1117 sq. in.	1117 sq. in.
	Suspension	Slide					
POWER TRAIN	Track Width	15″	15″	15″	15″	15″	15″
	Track Material	Rubber and Steel Cross Links					
	Standard Gear Ratio	13/44	13/44	20/40	20/40	21/40	23/40
IGNITION	Lighting Coil	No	No	75 watts	75 watts	No	No
	Spark Plugs (Bosch)	R-310-T-17	R-310-T-17	R-340-T-17	R-340-T-17	R-310-T-17	R-310-T-17
	Breaker Points (gap)	.014″ - .018″	.014″ - .018″	Capacitor Discharge Unit		.014″ - .018″	.014″ - .018″
FUEL	Tank Capacity — Imp.	5.2 gals.	5.2 gals.	5.2 gals.	5.2 gals.	5.2 gals.	5.2 gals.
	— U.S.	6.5 gals.	6.5 gals.	6.5 gals.	6.5 gals.	6.5 gals.	6.5 gals.
	Mixing Ratio Premium gas/Blizzard oil	40/1	40/1	40/1	40/1	40/1	40/1
BRAKE	Type	Hydraulic Disc Brake					



Throttle lever (A) Manual Starter (B)

Brake lever (C)

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

WARNING: It is strongly recommended that you familiarize yourself with the *positive* braking action of this system.

Kill Button (D)

Located on left side of handlebar. To stop engine for any given reason, merely depress button. Wearing the emergency bracelet with its pin inserted into the kill button at the ON (depressed) position ensures engine cut-out should you unvoluntarily leave the vehicle.

Reinserting the pin will complete the electric circuit and allow the engine to restart.

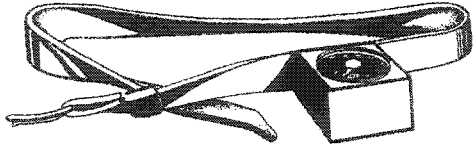
WARNING: If the button has been used in an emergency situation, the source of malfunction should be determined and corrected *before* restarting engine.

Tachometer outlet (E)

Standard equipment. Enables quick and easy connection of belt tachometer.

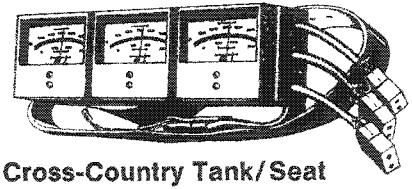
Tachometer

Belt model. For the all important last minute adjustments and engine analysis. Needle indicates engine R.P.M.



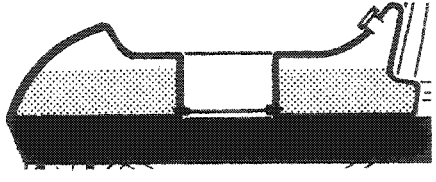
Heat Indicator

The expert can choose from two belt mounted models — exhaust or cylinder head gauges. A must for modified engines.

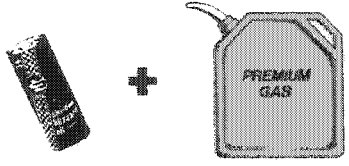


Cross-Country Tank/Seat

An additional fuel reservoir incorporated within a specially designed seat — without loss of riding comfort.
All are available at your Ski-Doo dealer.



FUEL MIXING



Which gasoline to use:

The correct gasoline for your Blizzard snowmobile is **premium** gasoline, **(not less than 98 octane).**

Which oil to use:

Use only Ski-Doo Blizzard oil available at your Ski-Doo dealer. This oil type has an especially formulated oil base to meet the lubrication requirements of the Bombardier-Rotax engine.

Note: *If Ski-Doo Blizzard oil is unavailable, concentrated Ski-Doo oil (40/1) or regular Ski-Doo oil (20/1) can be used.*

Fuel mixing ratio:

The correct fuel mixture ratio is 40/1. 5 U.S. GALLONS OR 4 IMPERIAL GALLONS PREMIUM GASOLINE PLUS 1 PINT CONCENTRATED SKI-DOO BLIZZARD OIL = CORRECT FUEL MIXTURE.

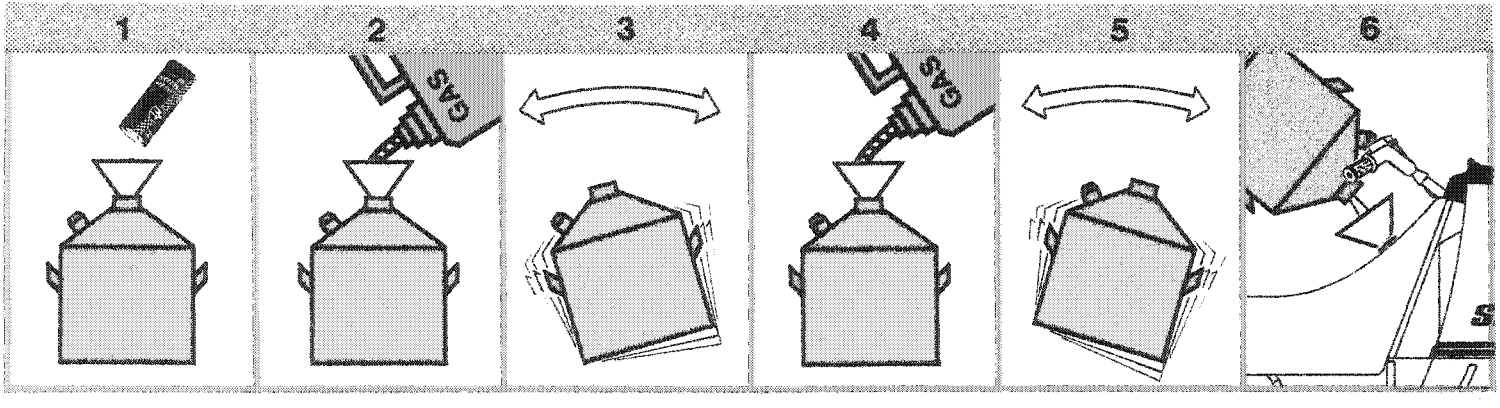
CAUTION: *To facilitate fuel mixing concentrated Ski-Doo oil should be kept at room temperature.*

Fuel mixing procedure:

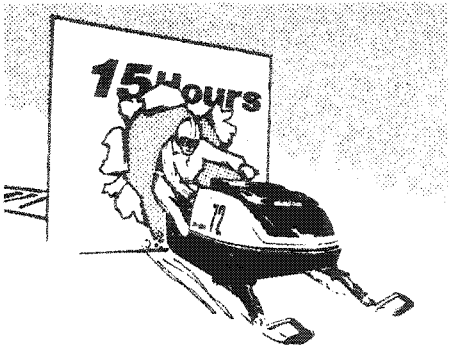
To mix the gasoline and oil always use a separate clean container. Never mix directly in your snowmobile tank.

WARNING: Gasoline is flammable and explosive under certain conditions. Store in a well ventilated area. Always stop the engine and do not smoke or allow open flames or sparks near the vehicle when refuelling. If gasoline fumes are noticed while driving, the cause should be determined and corrected without delay.

1. Pour the full amount of Ski-Doo oil required for the total mixture into the container.
2. Add approximately half the amount of gasoline to be mixed.
3. Shake the container thoroughly.
4. Add the remainder of the gasoline.
5. Once again thoroughly agitate the container.
6. Using a funnel with a fine mesh screen to prevent the entry of water and foreign particles, transfer the mixture from the container into the snowmobile tank.



BREAK-IN PERIOD



With Blizzard snowmobile engines, a break-in period is required before running the vehicle at full throttle.

Manufacturer's recommendation for the Bombardier-Rotax engine is 10 to 15 operating hours. During this period, maximum throttle should not exceed ¾. However, while cruising, brief full throttle accelerations contribute to a good break-in. Continued wide open throttle accelerations can be detrimental. Never let your engine overheat.

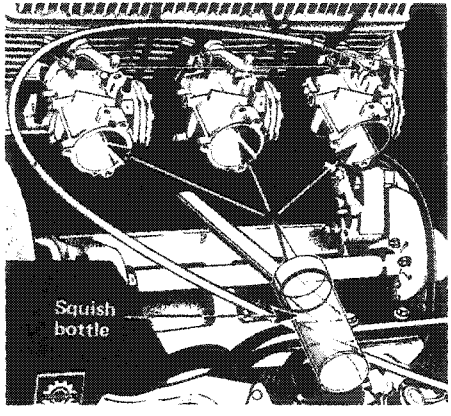
Note: *Horsepower loss can be attributed to incorrect or lack of a break-in period.*

After first three hours of vehicle operation, the engine head nuts should be torqued to 16-18 ft/lbs with engine **cold.**

STARTING PROCEDURE:

WARNING: Never run an engine at high R.P.M. when the track of the vehicle is raised off the ground.

1. Using a squish bottle containing premixed gas and oil, inject two or three squirts into carburetor throats.



The choke butterfly has been removed on Blizzard carburetors to increase air breathing.

2. Test throttle lever operation. If the lever does not return swiftly, remove cable and/or housing and replace.

WARNING: Do not start the engine until throttle lever returns swiftly.

3. Apply throttle lever slightly.

4. Grasp manual starter handle firmly and pull slowly until a resistance is felt then pull vigorously and engine will start.

Note: *Do not pull starting rope to its fullest extent. Allow handle to return slowly to its original position. If engine does not start, repeat procedure.*

5. Allow the engine **to warm up** before operating at full throttle.

Flooding

Feeding an excessive amount of fuel mixture into the engine will make it difficult to start. Flooding characteristics are easily detectable by fuel moisture dripping from the carburetors or, having wet spark plug faces. If engine has flooded, depress throttle lever fully and continue starting procedure. **Release throttle lever immediately after engine starts.**

LUBRICATION

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Code	**Monthly**	**Page**
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Pulley Guard

All routine lubrication and/or maintenance procedures can be performed without removing the pulley guard. Periodic inspection of the pulley guard and its attachments however, will ensure maximum efficiency of the device.

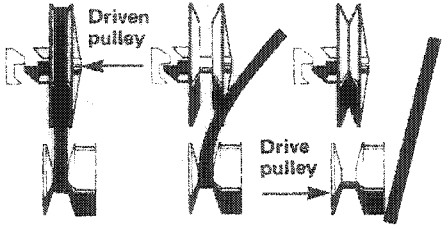
WARNING: Never start the engine or operate the vehicle without the pulley guard installed.

Drive Belt Removal

1. Remove cab. Open the driven pulley. (Twist and push the sliding half) and **hold** in place.
2. Pull the bottom of belt in toward the driven pulley, then slip slackened belt over the top edge of driven pulley.
3. Slip the belt out from the drive pulley. To install, follow reverse procedure (see fig. 1).

WARNING: Never start or run the engine without drive belt installed.

Fig. 1



(L1) Steering Mechanism

Oil spring coupler bolts. Lubricate ski legs at grease fittings until new grease appears at joints. (See Fig. 2).

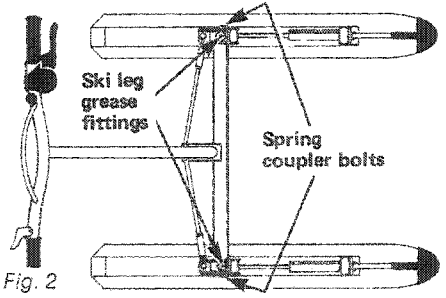


Fig. 2

(L2) Chain case oil level

Remove filler cap and using a rigid wire, check oil level. The oil level on the "dipstick" should be ½" - ¾" max. When necessary, replenish using Ski-Doo* chain case oil. (See Fig. 3). The oil capacity is approximately 6 ozs.

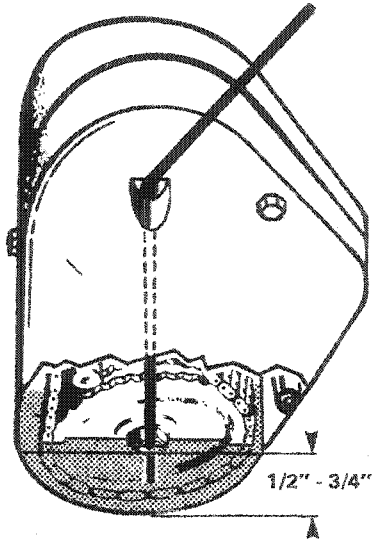


Fig. 3

(L3) Driven Pulley

1. Remove cab and drive belt. Open driven pulley and thoroughly clean pulley shaft.
2. Apply a light coat of Ski-Doo* clutch lube on shaft then activate sliding half to distribute lubricant.

CAUTION: *Excess lubricant on pulley shaft can penetrate drive belt causing slippage and deterioration. Always lubricate lightly and wipe off surplus. Do not allow lubricant on inner pulley halves.*

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(L4) Drive Pulley

1. Remove cab and drive belt.
2. Remove centrifugal governor as follows:
   - Remove spark plugs. Slowly pull starter handle to bring P.T.O. piston (left side) to ¾" to 1¼" **before** top dead center. **Make sure piston closes the exhaust port.**
   - Accede by the spark plug hole and pack the P.T.O. cylinder with 3/16" dia. rope (See Fig. 4).

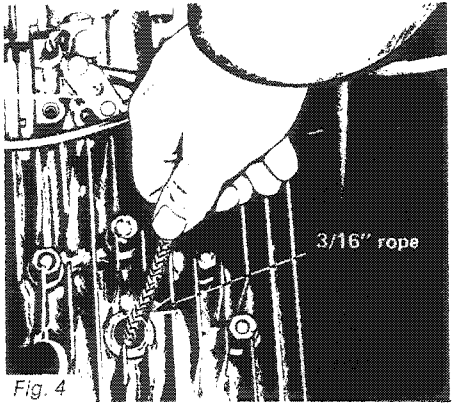


Fig. 4

   - Pull on manual starter until piston bears against "cushioning". Unscrew governor bolt and remove governor. Pull rope out of cylinder.
3. Unbolt engine mount, raise engine and pull off outer half pulley. Remove spring.
4. Thoroughly clean the inner pulley shaft using fine steel wool and a clean cloth. **Inspect all components for excessive wear.**
5. Apply a light coat of Ski-Doo* clutch lube to the fly-weights of the centrifugal governor.
6. Lubricate pulley shaft with Ski-Doo clutch lube. Install spring and outer half of pulley. (Fig. 5).

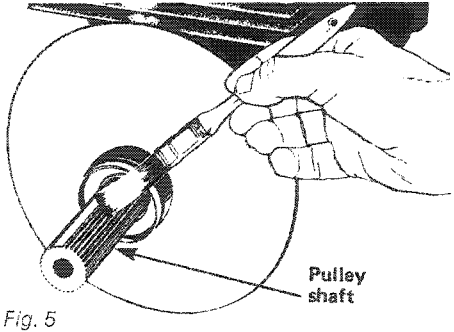


Fig. 5

7. Using light machine oil, lubricate governor bolt threads and install governor.

Note: *Installation procedure is reversed insuring that the rope is inserted into* ***same*** *cylinder when piston is ¾" approx. AFTER top dead center.*

WARNING: Make sure that the governor bolt is fully tightened before removing rope from cylinder.

(L5) Hydraulic Disc Brake (oil level)

Brake hoses should be checked once a month for abrasion and signs of leakage. The fluid level in the master cylinder should also be checked once a month. Use only hydraulic brake fluid, available from your Ski-Doo dealer.

To check fluid turn handlebar to right, remove reservoir cover located on handlebar (Fig. 6).

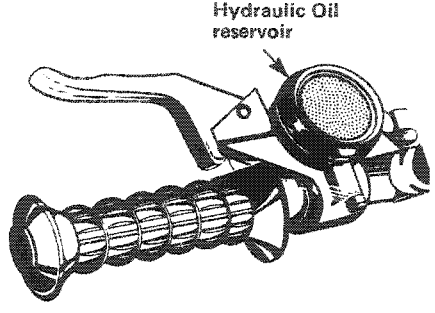


Fig. 6

Fluid must reach top lip of reservoir.

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

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:

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

Note: *Retain this reservoir level throughout the following procedure.*

2. Connect a bleeder drain to the valve and insert end of bleeder hose into a container of brake fluid. (See Fig. 7).

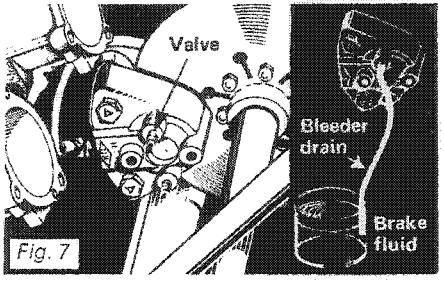


Fig. 7

3. 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.

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

5. Disconnect bleeder hose, recheck brake fluid and install reservoir cover.

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

MAINTENANCE

(W1) Spark Plugs

1. Disconnect spark plug wires and remove spark plugs.
2. Check condition of plugs. (See Fig. 8).

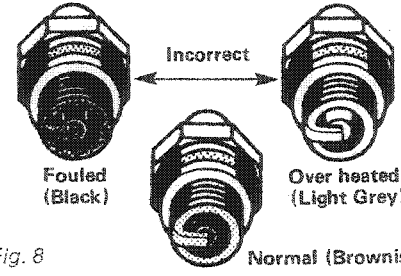


Fig. 8

- 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 mixing ratio, or a leaking seal or gasket.

CAUTION: *If, when checking spark plug color, you find that the engine is not running under ideal conditions, contact your authorized Ski-Doo dealer.*

3. Reinstall plugs and connect wires.

(W2) Suspension Springs

With engine off, visually inspect suspension springs. Replace any broken spring. The suspension is adjustable, the front adjustment for the surface condition, the rear for driver's weight. In either case, both sides of the adjustment should be equal. (See Fig. 9).

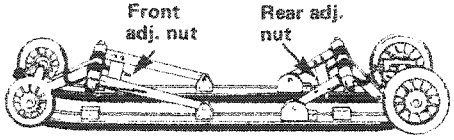


Fig. 9

(W3) Track Condition

Lift the rear of the vehicle and support it off the ground so that the track is free to turn. **With engine off,** rotate track by hand and visually inspect track condition. Pay particular notice to cross links and rivets.

Note: *Negotiating icy surface can be improved by installing 20-30 ice cleats.*

(W4) Track Tension

Lift rear of vehicle and support it off the ground. Allow pressure of slide to extend track normally. The slider shoes should be just touching the cross links.

If the track tension is too loose, the track will have a tendency to thump. If too tight, performance will be affected. Adjust to correct tension by loosening or tightening adjuster bolts. (See. Fig. 10).

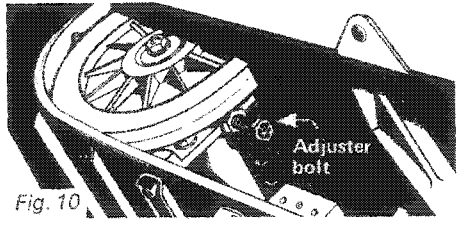


Fig. 10

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

(W5) Track Alignment

After track tension has been corrected start the engine and accelerate slightly so that track turns **slowly.** Check that track is well centered and turns evenly. To correct, loosen the lock nut and tighten the adjuster bolt on side where track is closest to the frame. (See Fig. 11). Tighten lock nut and recheck alignment.

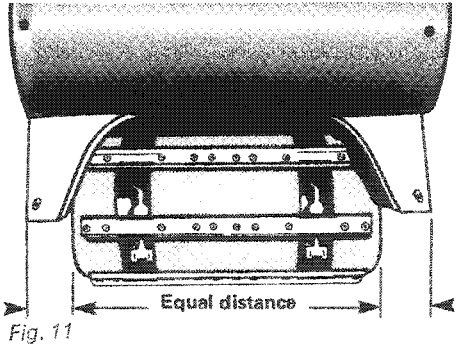


Fig. 11

(W6) Chain Tension

The correct chain tension is ¼" at driven pulley level. To check, **with engine off,** move driven pulley from side to side. To correct, unlock tensioner bolt then turn bolt clockwise to increase free-play, counter-clockwise to decrease. (Fig. 12).

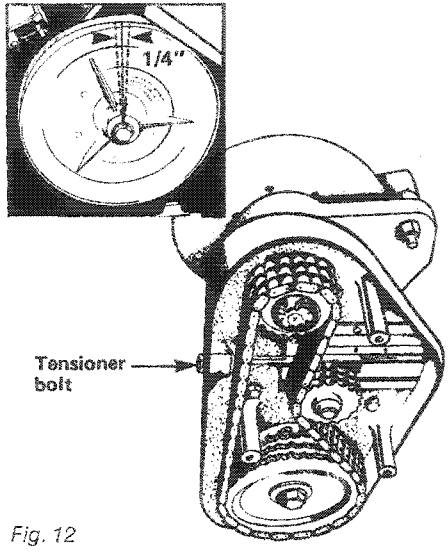


Fig. 12

(W7) Carburetor Adjustment

There are four different adjustments for the carburetor.

(1) Maximum Throttle Opening, (2) Idle Speed Mixture, (3) Idle Speed, and (4) High Speed Mixture. (See Fig. 13).

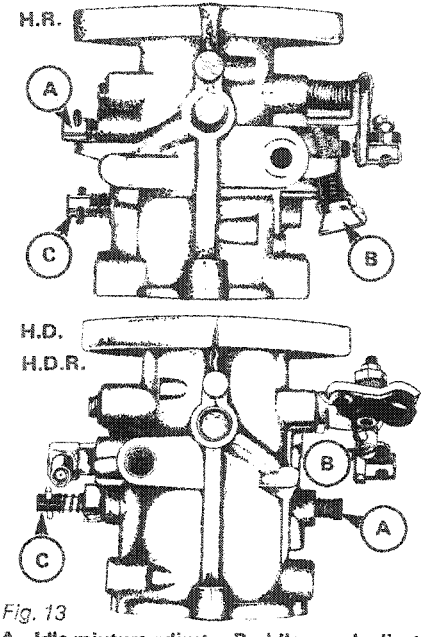


Fig. 13

A Idle mixture adjust. B Idle speed adjust. C High speed mixture adjustment

Maximum Throttle Opening

With engine off, adjust throttle cable and rod so that the throttle butterflies are horizontal when throttle lever gently touches handlebar.

WARNING: Before starting engine make sure carburetor throttle levers return to idle position when handlebar throttle is released.

Idle Mixture Adjustment

A primary adjustment (with engine OFF) should be made by first turning idle mixture screws fully clockwise until closed.

Back off screws one (1) turn counter-clockwise.

Note: *Do not close too tightly as needle and/or needle seat can be damaged.*

For final adjustment, start engine and allow it to **warm up.** Turn idle mixture screws until engine reaches maximum R.P.M. and obtain a steady idle and a fast response of engine to the throttle.

Turning idle mixture screw clockwise produces a leaner mixture; (more air/less fuel); counter-clockwise, a richer mixture (less air/more fuel).

Idle Speed Adjustment

Turn the idle speed adjusting screws clockwise to increase idling speed, counter-clockwise to decrease.

High Speed Mixture Adjustment

WARNING: High Speed Mixture adjustment must be carried out only by an authorized Ski-Doo dealer.

For primary adjustment however, with engine **off,** turn high speed mixture adjusting screws fully clockwise until closed. (Do not close too tightly as screws and/or screw seats can be damaged).

Then back off screws approximately one (1) turn counter-clockwise.

(W8) Drive belt condition

Remove cab and inspect drive belt for wear. If belt is less than 1″ wide, replace. 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.

(M1) Carburetor Flange Nuts

After the first two (2) hours of operation, check tightness of carburetor flange nuts. Tighten, if necessary.

(M2) Steering Adjustment

Skis should be parallel to each other. To check, measure distance between each ski at front and rear of leaf springs. The skis should also be parallel to the vehicle when the handlebar is horizontal. (See Fig. 14).

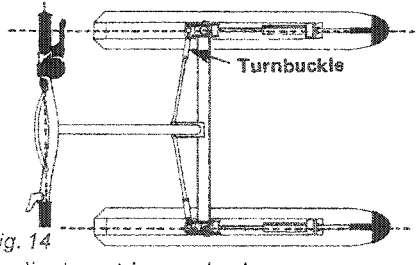


Fig. 14

If adjustment is required:

1. Release the turnbuckle locknuts.
2. Rotate one or both turnbuckles until alignment is corrected. Firmly retighten locknuts.

Shock Absorber

Each Blizzard shock absorber can be adjusted to the type of terrain over which the vehicle is traveling. To obtain the desired hydraulic control, detach shock absorber from the ski, (slider cushion area). Fully compress unit and turn to change internal valving.

(M3) Engine Head Nuts

Remove cab and check head nut torque. (16 to 18 ft/lbs when **cold**).

Note: *Always torque in a cross sequence.*

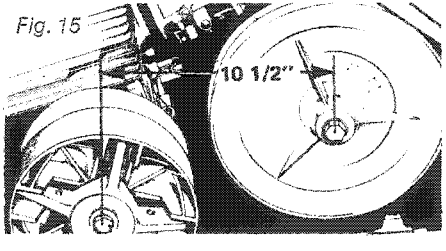
(M4) Engine Mount Nuts

With cab removed check engine mount nuts. Retighten as necessary.

(M5) Pulley Alignment

Due to the installation position and method of attachment, the distance between the center of the drive and driven pulley shafts is non adjustable. (See Fig. 15). Should this distance vary, inspect engine mounts for security, distortion, etc. Distance should be;645 and 797 cc models: 10½". On other models: 10⅝" to 10¾".

Fig. 15



Pulley offset is ½" ± 1/32". When **greater,** transfer aligning shims from cam side to fixed pulley half side of the driven pulley. When **less** than 7/16", transfer shims from fixed pulley half to cam side of driven pulley. (See Fig. 16).

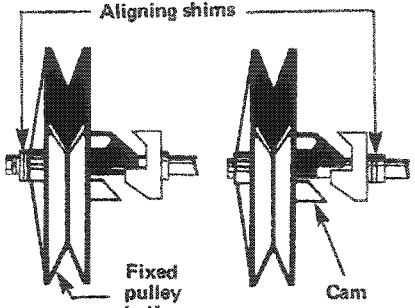


Fig. 16

(M6) Slider Shoe Wear

During normal driving, snow will act as a lubricant and coolant for the slider shoes. Extensive riding on ice or sanded snow, (not to mention dirt, asphalt, etc. never recommended) may create excessive heat build up and cause premature slider shoe wear.

Always inspect shoe condition and replace as necessary prior to all races.

(M7) Vehicle General Inspection

Check electrical wiring and components, retighten loose connections. Check for stripped wires or damaged insulations. Thoroughly inspect the vehicle and tighten loose bolts, nuts and linkage.

BOMBARDIER TO SUPPORT SKI-DOO RACERS

In an effort to support independent snowmobile racers and stand behind our claim that: "It Pays to Race Ski-Doo", Bombardier Limited is putting up $150,000 for Ski-Doo drivers to win at selected race events across North America as well as for winning major regional High Point Championships.

Cash prizes totalling $900 for modified events and $525 for each of the standard stock events will be awarded to the top three that finish driving a Ski-Doo snowmobile. In addition to cold hard cash, Bombardier distributors will also offer technical aid at the track to all Ski-Doo racers. This assistance will greatly expand Bombardier's support for Ski-Doo racers.

Cash prizes are offered as follows:

MODIFIED		STOCK
1st Place	$500.00	$300.00
2nd Place	$300.00	$150.00
3rd Place	$100.00	$ 75.00
Total	$900.00	$525.00

CLASSES

0-295cc	0-250cc
296-340cc	251-295cc
341-440cc	296-340cc
441-640cc	341-400cc
641-775cc	

Note: These classes are subject to change depending on Associations and events.

Bombardier Limited will provide you with all the technical information you need to keep your Blizzard snowmobile the 'hottest' vehicle on the track.

Once you're on the track, we'll do everything to help you finish in the prize money.

Register today.
International Ski-Doo Racers Club.

Technical information will be available to every Ski-Doo racer from your regional Ski-Doo distributor. However, we do need your name, address and TELEPHONE number on file at our Competition Center so we can contact you about your success this Winter.

NOTES

BLIZZARD OWNER'S REGISTRATION

(To be completed and returned to Bombardier Ltd.)

NAME _____
(Block letters)

STREET _____ TEL.: _____

CITY _____ STATE/PROV. _____ ZIP CODE _____

SNOWMOBILE SERIAL NUMBER | | | | | | | | | | |

ENGINE SERIAL NUMBER | | | | | | | |

DEALER'S NAME _____

Printed in Canada

AFFIX
STAMP
HERE

Competition Center

c/o Bombardier Limited,
Valcourt, Québec,
Canada.

Bombardier Limited, Valcourt, Quebec, Canada.
Litho'd in Canada. 480-0051

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