

# OM

## Operator's Manual

**John Deere  
340 and 440 Liquifire  
Snowmobiles**

**OM-M67679  
Issue F7**





# Safety Precautions

**⚠ CAUTION:** A snowmobile is no safer than the person operating it. Improper use or maintenance on the part of the operator can result in injury. To reduce this possibility, follow these safety suggestions.

## Preparation

Before starting the engine, read your operator's manual from cover to cover. Knowledge can prevent accidents.

Always operate your throttle and brake controls several times before you start your engine. Stuck or frozen controls could cause serious injury or damage.

Know your controls. Learn how to stop in an emergency.

Know your state, provincial, federal and local laws pertaining to snowmobiling. Respect property of others. Don't spoil this fine winter sport by creating a bad image. See "Code of Ethics" on page 11.

Never add fuel when smoking or while engine is running. Use a safe gasoline container. Always use fresh, clean fuel of the proper mixture. See page 6.

Wear clothing designed for snowmobiling...avoid frostbite. Never wear scarves, loose belts, or clothes that could catch on moving parts or tree limbs.

Always wear eye and headgear protection to guard against injury.

Avoid sun blindness. Wear properly tinted goggles or face shields. Never wear yellow eye protection in the bright sun.

Do not allow anyone to operate snowmobile without proper instructions. Take proper precautions before allowing young operators to drive.

Always use the "buddy system" on long trips. Remember you can drive farther in 30 minutes than you can walk in a day.

Carry adequate tools and repair items for emergency field repairs.

Don't overload your snowmobile...use sleds to carry provisions.

Always carry emergency survival supplies when going on long trips. Let friends and relatives know your destination and expected arrival time.

## Operation

Give complete and undivided attention to your snowmobile...don't be a show-off.

Do not operate snowmobile in crowded areas or steer the machine toward persons.

Do not operate snowmobile too close to avalanche areas, or on other unsafe terrain where spills could occur.

Observe all state, provincial, federal and local regulations, especially those with regard to operating on streets and highways.

When crossing highways (where permitted by law) always stop, look both directions, and cross at a 90-degree angle. Post guards when crossing in groups.

Do not operate snowmobiles on or near railroad tracks. Trains cannot always be heard above sound of snowmobile engine...it is difficult to escape from between tracks.

Skiers and snowmobiles don't mix on the same hillsides. Avoid ski slopes.

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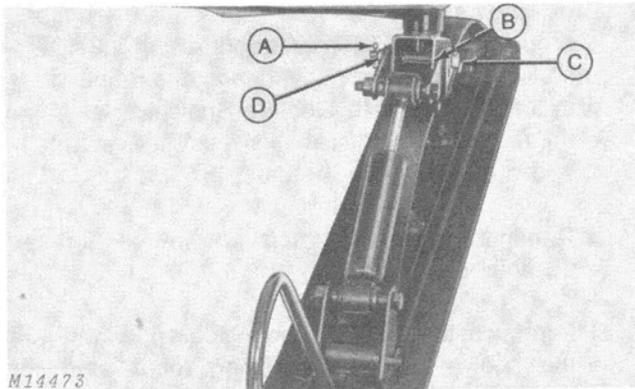
# JOHN DEERE 340 AND 440 LIQUIFIRE SNOWMOBILES

## ASSEMBLY INSTRUCTIONS

### Removing Snowmobile From Shipping Stand

1. Remove shrink wrap, skis and windshield.
2. Remove four lower corner bolts and lift top assembly off shipping stand.
3. Remove two bolts and nuts securing ski spindles to shipping stand. Discard bolts.
4. Cut rear banding.

### Installing Skis



A—Cotter Pin  
B—Bushing

C—Ski Bolt  
D—Lock Nut and Washer

Shock absorbers are mounted on the skis at the factory.

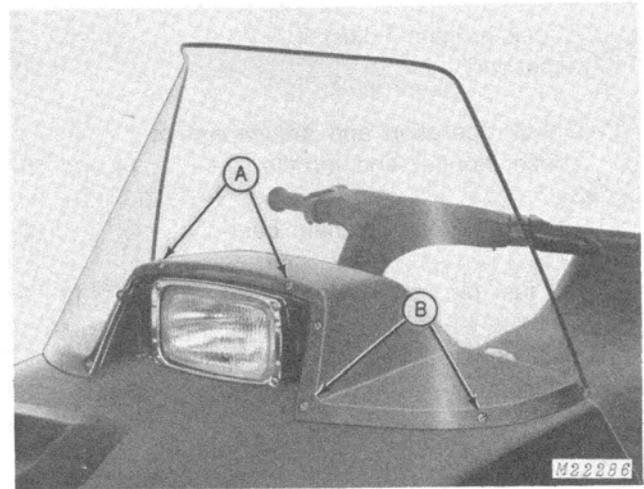
1. Insert bushing (B), packed with skis into spindle. Use Never-Seez on bushing.

2. Position ski over ski saddle and install ski bolt (C) with head of bolt facing out.

3. Install washer and lock nut (D) and torque to 39 ft-lbs (52 Nm). Install cotter pin (A) through ski bolt.

*NOTE: Ski bolts, washers, lock nuts, and cotter pins are in bag of parts.*

### Installing Windshield



A—Rubber Retaining Nuts

B—Screw With Washer

1. Install ten rubber retaining nuts (A) from bag of parts into holes in hood.

2. Use ten screws with washers (B) to secure windshield to hood.

Dealer Please Carefully Remove This Insert Sheet

REMOVE ASSEMBLY INSTRUCTIONS INSERT

## PREDELIVERY CHECK LIST

Refer to operator's manual pages shown, and perform the following services:

 **CAUTION: When starting snowmobile for first time, support machine so track is off ground and check throttle for proper operation to prevent possible runaways.**

- |  | Page      |
|--|-----------|
| <input type="checkbox"/> Align skis and check steering linkage for free movement. ....   | 24        |
| <input type="checkbox"/> Check track tension .....   | 21        |
| <input type="checkbox"/> Check brakes. Adjust if necessary .....   | 20        |
| <input type="checkbox"/> Check operation and adjustment of choke plunger and throttle .....  | 14 and 15 |
| <input type="checkbox"/> Check oil level in chain case .....   | 20        |
| <input type="checkbox"/> Fill fuel tank with properly mixed fuel.....  | 6         |
| <input type="checkbox"/> Start engine and check idle speed adjustment .....  | 15        |
| <input type="checkbox"/> Check operation of emergency stop and key switches .....  | 8         |
| <input type="checkbox"/> Check operation of headlight, stop-tailight, speedometer light, tachometer light, coolant temperature gauge light and dimmer switch ..... | 8 and 9   |
| <input type="checkbox"/> Aim headlight .....   | 26        |
| <input type="checkbox"/> Take a test ride or use a dynamometer and fine-tune carburetor .....  | 15        |
| <input type="checkbox"/> Check overall appearance of snowmobile. Install and check appearance or operation of accessories desired by customer.                     |           |

 **CAUTION: When starting snowmobile for first time, support machine so track is off ground and check throttle for proper operation to prevent possible runaways.**

- |  | Page |
|--|------|
| <input type="checkbox"/> Align skis and check steering linkage for free movement. .... | 24   |

## DELIVERY CHECK LIST

Perform the following services when making delivery of the snowmobile to the customer.

- Give customer the operator's manual and encourage him to read it before operating snowmobile.
- Instruct customer in safe operation of snowmobile.
- Explain periodic services outlined in the Service Interval Chart on page 12.
- Instruct customer as to the importance of using quality gasoline and oil and of mixing them properly. Tell customer about using LEADED FUEL ONLY with a minimum octane rating of 88 in the 340 and 440 Liquifire Snowmobiles. Use the required 40 to 1 ratio for the first tank of fuel and a 50 to 1 ratio thereafter.
- Remind customer to return snowmobile for free 10-hour check-up.
- Inform customer about engine tools provided with the snowmobile for removing recoil start for emergency starting.

- Give customer the operator's manual and encourage him to read it before operating snowmobile.
- Instruct customer in safe operation of snowmobile.
- Explain periodic services outlined in the Service Interval Chart on page 12.

**KEEP THIS SHEET WITH YOUR OPERATOR'S MANUAL  
BE SURE YOUR SELLING DEALER PERFORMS THIS  
FREE 10-HOUR CHECK-UP**

The following services must be performed on your snowmobile following the first 10 hours of operation to assure you of top performance and to avoid premature failure of critical components. Your John Deere Dealer will perform these services FREE.

Present this sheet to your selling dealer for your free 10-hour check-up.

Retain this sheet with your records as proof that the 10-hour check-up has been performed.

1. Check and adjust track tension.
2. Remove drive belt. Check sheave alignment and inspect drive and driven sheaves for free operation.
3. Tighten cap screw on drive sheave to proper torque.
4. Check chain case oil level.
5. Check carburetor adjustment and clean air intake silencer screens.
6. Tighten ski bolts to proper torque.
7. Inspect condition of ski wear rod.
8. Check operation and adjustment of brake, throttle, and choke lever controls.
9. Tighten band securing carburetor to rubber mount.
10. Tighten all suspension hardware to proper torque.
11. Check engine timing.
12. Check ski alignment.
13. Check operation of headlight, stop-taillight and dimmer switch.
14. Check and adjust coolant pump belt tension and coolant level.

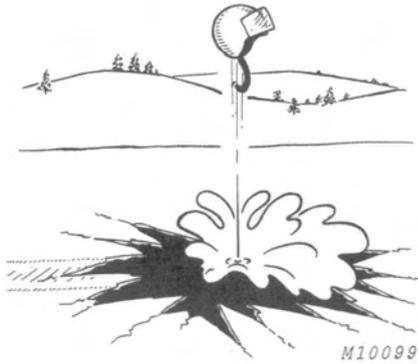
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Dealer's Signature

Date

**IMPORTANT: The selling dealer's signature above will be proof that these very important services have been performed. This information will prove helpful should your snowmobile require service from a John Deere dealer other than the selling dealer.**

RETAIN  
FREE  
10  
HOUR  
CHECKUP  
SHEET



*Never operate snowmobile on rivers or lakes without first checking thickness of ice. If you go through the ice, don't panic. Conserve energy.*

*Never operate snowmobile at night without lights. Keep headlight and taillight areas free of snow.*

*Keep all shields in place. . . all guards and protective hoods.*

*Never open new trails at night. Follow established trails. Unseen barbed wire or guy wires can cause serious injury or death.*

*Always use both hands for steering.*

*Avoid operating snowmobile at excessive speed. Always be aware of terrain.*

*If throttle sticks, don't panic. Push emergency stop switch on the right-hand handlebar. See page 8.*

*Drive at a slower rate of speed when carrying a passenger. . . especially a child.*

*Always allow adequate stopping distance based on ground cover conditions. Remember, ice requires a greater stopping distance. To avoid skidding, don't apply brakes rapidly on ice.*

*Do not speed through wooded areas. Hidden obstructions, hanging limbs, unseen ditches, and even wild animals can cause accidents.*

*Do not tailgate when riding trails. Rear end collisions can cause injury and machine damage.*

*Don't mix alcoholic beverages with snowmobiling.*

*Keep feet on footrests at all times. Do not permit them to hang over sides. Do not attempt to stabilize machine with feet when making turns or in near-spill situations. Broken limbs could result.*

*Select a riding position suited to the terrain upon which you're operating. Do not stand on seat, stunt, or show-off.*

*Do not jump snowmobile. Operator injury or machine damage could result.*

*Keep hands and feet out of the track area. . . be especially careful when freeing your snowmobile from deep snow.*

*When towing a sled, use a solid towbar. Do not use ropes or other flexible tow straps. See page 9.*

*Observe fuel supply regularly. Do not travel farther than your fuel will permit you to return.*

*Remove key from switch whenever you leave your machine unattended.*

*Never drive your snowmobile onto a tilt-bed trailer. Winch it on.*

*Always secure snowmobile firmly to trailer. Be sure trailer lights are operative.*

## Maintenance and Storage

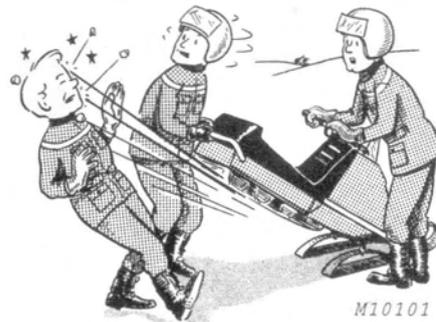
*Check over your snowmobile regularly. This will prevent many problems from occurring.*

*Do not attempt to make repairs to your snowmobile while engine is running.*

*Keep matches away and do not smoke while filling the fuel tank. Avoid possible explosions.*

*Check skis and steering components frequently to see they are in good condition. Keep all hardware tight.*

*Never lift the rear of the snowmobile to clear the track. Chunks of ice or rocks may be thrown rearward. Tilt machine on one footrest when clearing track. . . and keep all persons clear of area. Keep hands and feet clear of track.*





# To the Purchaser

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Look around you. Snowmobiling has really caught on...it's the fastest growing winter sport in America. Take a few minutes to be sure that it's a safe sport for you and your family...read this operator's manual carefully. You'll have more fun...have fewer problems.

Before operating your new snowmobile, check and observe all state and local regulations pertaining to snowmobiling. Respect the property of others. Don't spoil a fine sport for others.

**⚠ This safety alert symbol identifies important safety messages in this manual. When you see this symbol, be alert to the possibility of personal injury and read carefully the message that follows.**

Your operator's manual contains SI Metric equivalents which follow immediately after the U.S. customary units of measure.

Your new snowmobile is designed and manufactured to the traditionally high standards of John Deere. It has many quality features to bring you more fun and adventure. It's an efficient, easy-to-operate machine that's easy to maintain.

Right-hand (R.H.) and left-hand (L.H.) references are determined by standing at the rear of the snowmobile and facing the direction of forward travel.

When in need of parts or major service, see your John Deere Dealer. Be prepared to provide both machine and engine serial numbers.

The snowmobile serial number is located on the right-hand side of the tunnel. The engine serial number is located on the engine housing. Record these serial numbers in the space below.

*This operator's manual is prepared for the following snowmobiles:*

John Deere 340 Liquifire (Serial No. J34LG 080001 M- )  
John Deere 440 Liquifire (Serial No. J44LG 080001 M- )

Snowmobile Serial No. _____
Engine Serial No. _____
Date of Purchase _____
(To be filled in by purchaser)

00A

# To the Purchaser

---

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# Snowmobile Identification



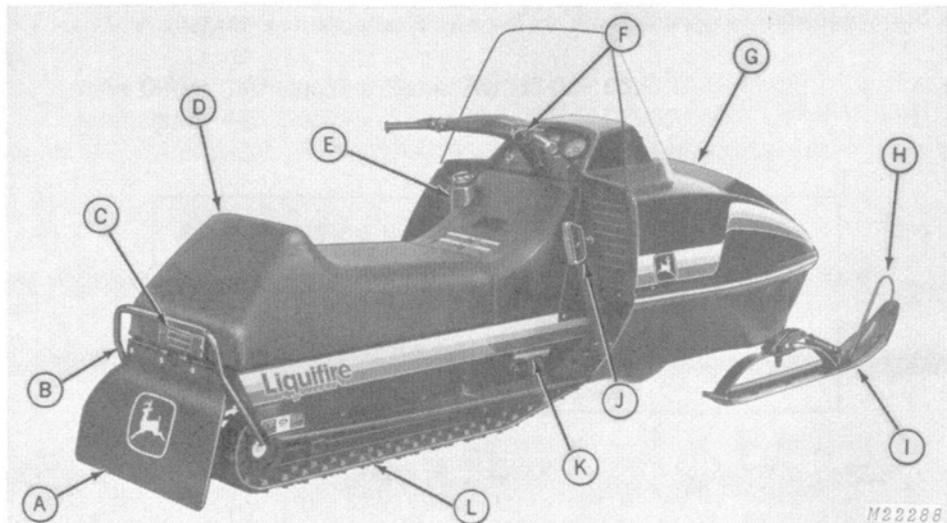
- A—Shock Absorbers
- B—Skis
- C—Front Bumper

- D—Hood
- E—Headlight
- F—Windshield

- G—Brake Control
- H—Seat
- I—Rear Bumper

- J—Track
- K—Pan
- L—Ski Spring

John Deere 340 Liquifire Snowmobile (Left Front View)



- A—Snow Flap
- B—Rear Bumper
- C—Stop-Taillight

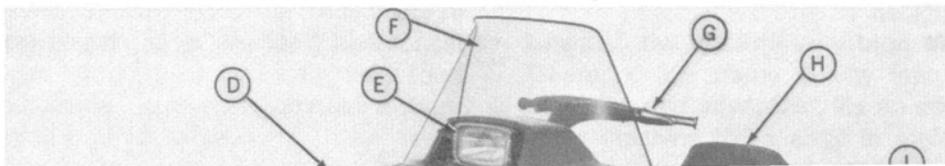
- D—Seat
- E—Fuel Tank
- F—Throttle Control

- G—Hood
- H—Ski Handle
- I—Ski

- J—Recoil Start
- K—Serial Number
- L—Track

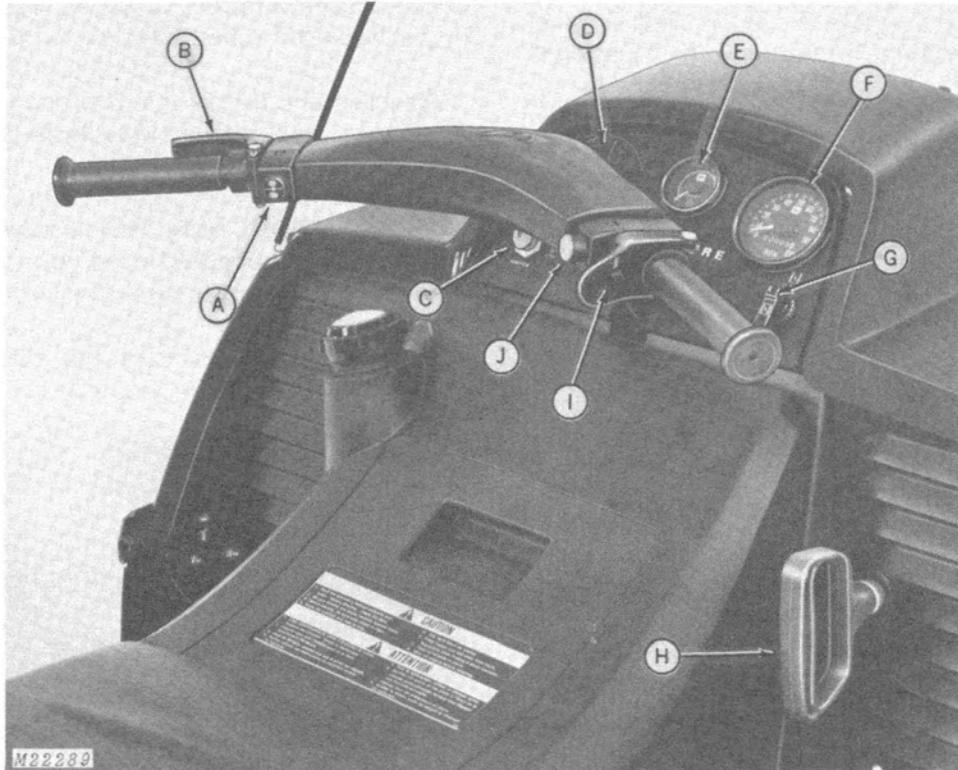
John Deere 340 Liquifire Snowmobile (Right Rear View)

# Snowmobile Identification





# Controls



**A - Headlight (Hi/Lo) Dimmer Switch** - Push once for low beam, push again for high beam. See page 9.

**B - Brake Control** - Operated by left hand. Compress control toward handlebar for braking action.

**C - Ignition Switch** - To start engine, turn key switch to "RUN" position and pull recoil start handle.

**D - Tachometer** - Indicates engine speed in revolutions-per-minute (rpm). Optional on 340.

**E - Coolant Temperature Gauge** - Indicates coolant temperature. See page 18.

**F - Speedometer** - Indicates vehicle speed in miles-per-hour (mph) and records total mileage.

**G - Choke Lever** - Opens choke system for cold starts. Flip up to start. Push choke lever down when engine begins to run smoothly.

**H - Recoil Starter** - Used to start the engine.

**I - Throttle Control** - Operated by right hand. Compress control lever toward handlebar to increase engine speed.

**J - Emergency Stop Switch** - Stops engine immediately by grounding out ignition. Push once to stop engine. Push again to allow starting. See page 8.



# Operation

## BREAK-IN PERIOD

Do not exceed 40 mph for the first 25 miles, or force the machine at full throttle in deep snow. An occasional burst of power on hard-packed snow will not be harmful.

**IMPORTANT: USE ONLY LEADED GASOLINE** with an anti-knock index of 88 or higher **AT ALL TIMES**, mixed with snowmobile oil in the proper ratio. See special mixing instructions below for break-in period.

For the first tank of fuel used, mix gasoline and oil in a 40 to 1 ratio (1 pint [0.473 l] of oil with 5 U.S. gallons [18.9 l] or 4 Imperial gallons [18.2 l] of gasoline). After this break-in period, mix gasoline and oil in a 50 to 1 ratio (1 pint [0.473 l] of oil with 6 U.S. gallons [22.7 l] or 5 Imperial gallons [22.7 l] of gasoline).

See specifications on page 35 for United States and Canadian gasoline and oil mixtures.

*NOTE: Mix gasoline with John Deere 2-Cycle Oil, which is an ashless oil without metallic additives. John Deere 2-Cycle Oil meets BIA (Boating Industry Association) test qualification TCW, test procedure BIA-312-69, and is available in 1-pint and 1-quart "pop-top" cans.*

**IMPORTANT: If other than John Deere 2-Cycle Oil is used, it should meet BIA (Boating Industry Association) test qualification TCW.**

Mix fuel according to the following procedure:

Pour one-half the necessary gasoline into a clean container. . . add the required amount of John Deere 2-cycle oil and shake vigorously. Add the remainder of the gasoline and agitate the mixture thoroughly. Mix gasoline and oil in a separate container. . . never mix in the snowmobile fuel tank. The John Deere Gasoline Can (TY5027) is ideal for snowmobile use.

# Operation

## BREAK-IN PERIOD

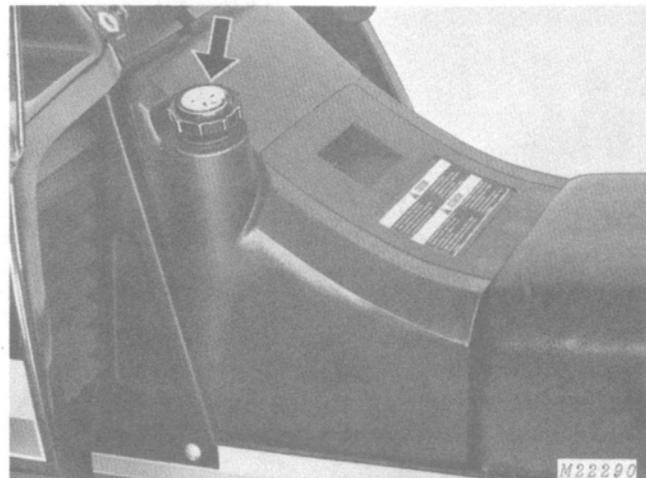
Do not exceed 40 mph for the first 25 miles, or force the machine at full throttle in deep snow. An occasional burst of power on hard-packed snow will not be harmful.

Thorough mixing is improved if the oil is at room temperature. Warming is recommended for all oils that do not have the John Deere label.

Gasoline and oil mix that has been stored for any extended length of time (1 week) should be agitated thoroughly.

**CAUTION:** Dirty fuel can cause engine failure that could leave you stranded . . . this could be dangerous in severe weather. Always use clean, fresh fuel.

## Filling Fuel Tank



Remove fuel cap. Use a fine screen funnel when refueling. Fuel tank capacity is 6-1/2 U.S. gallons (24.6 l).

**CAUTION:** Gasoline is dangerous, even when mixed with oil. Avoid fires due to smoking or careless maintenance practices.

Thorough mixing is improved if the oil is at room temperature. Warming is recommended for all oils that do not have the John Deere label.

Gasoline and oil mix that has been stored for any

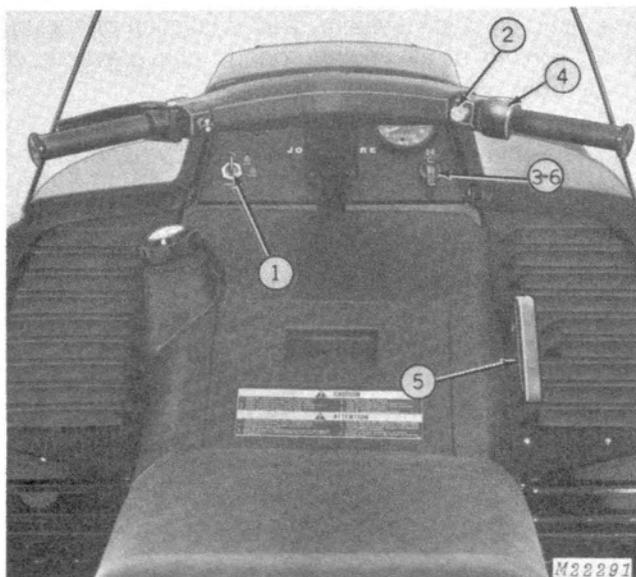
## Pre-Starting Inspection

**CAUTION:** Before starting your snowmobile the first time, read this entire manual and all decals on your snowmobile. Each time, thereafter, do the following:

1. Wipe the windshield with a clean, damp cloth. Do not scratch it. Do not clean windshield with gasoline, solvents or abrasive cleaners.
2. Check skis, wear rods and all steering components and bolts for wear. Tighten all bolts and replace worn or damaged parts. Check steering for a full right-hand and a full left-hand turn.
3. Check track for proper tension.
4. Check throttle and brake controls for freeness of operation and proper adjustment. Be sure the throttle is not "frozen" or "iced" up.
5. Check fuel level.
6. Start engine and test operation of emergency stop switch, key switch, headlight, dimmer switch, tail-light and stop-light.

## STARTING THE ENGINE

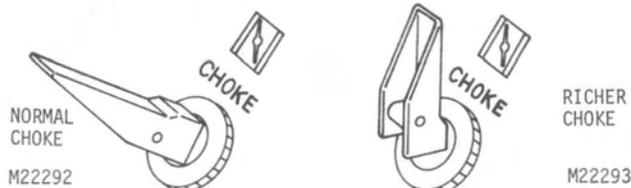
**CAUTION:** When starting your snowmobile, be sure there are no bystanders behind or in front of your machine.



## Starting A Cold Engine

**NOTE:** In extreme cold weather, with NO choke and NO throttle, pull the recoil start to turn the engine over 2 or 3 times. This will break loose any friction between the piston and cylinder.

1. Turn key switch to "RUN" position.
2. Push emergency stop switch to "ON" position. See page 8.



3. Flip choke lever up (normal position). In extreme cold weather, flip choke all the way up (richer position).
4. DO NOT touch or open the throttle lever. To do so will result in a "hard" or "no-start" situation.
5. Grasp recoil start handle in right hand and pull slowly until it catches... then pull rope vigorously.

**NOTE:** Let the recoil start handle return slowly. Do not release handle or let it snap back.

6. When engine starts, push choke lever down and allow engine to warm up briefly. Always warm up the engine prior to making a high-speed run.

**CAUTION:** When engine starts, be prepared to apply the brake to prevent snowmobile movement.

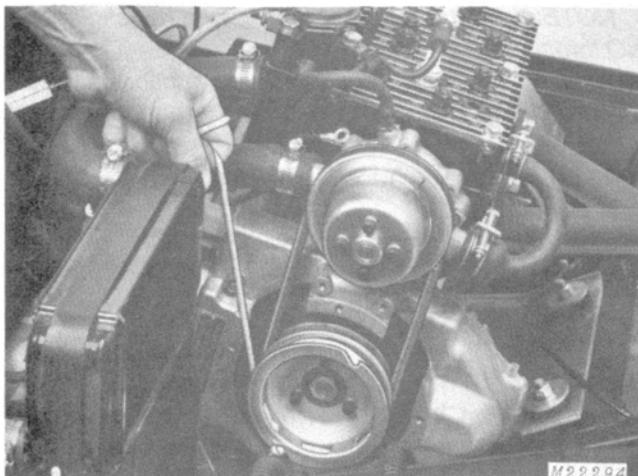
7. If engine becomes "flooded", push the choke lever down. Hold the throttle in the wide open position and pull recoil start until engine "pops". Release throttle lever. Pull recoil start until engine starts.

**IMPORTANT:** Do not permit engine to idle for long intervals. Shut off the engine whenever you stop.

## Starting A Warm Engine

DO NOT use choke lever and DO NOT open the throttle when restarting a warm engine.

## Emergency Starting



In an emergency use the following starting procedure:

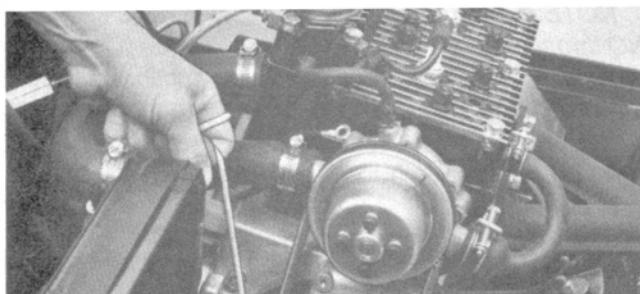
1. Raise the hood.
2. Remove coolant pump belt cover and recoil starter. Use engine tools provided with the snowmobile to remove recoil starter.
3. Wind a rope around the starter cup pulley.
4. Pull on rope to crank engine.

Carry a starter rope for emergency starting. The snowmobile recoil starter rope can be used as the emergency starter rope, if desired.

## STOPPING THE ENGINE

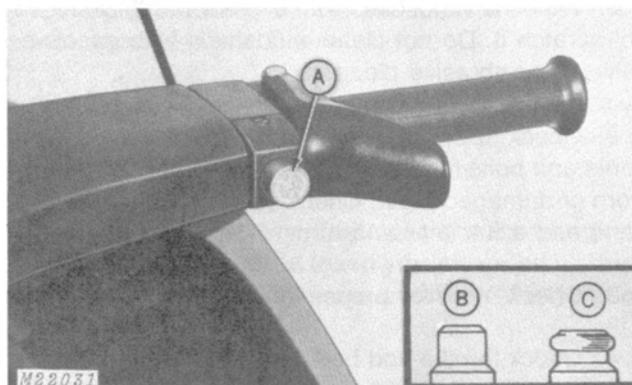
To stop the engine under normal circumstances, release throttle control lever and turn key switch to "OFF" position.

**IMPORTANT:** Do not permit engine to idle for long intervals. Shut off the engine whenever you stop.



## Emergency Stopping

**CAUTION:** To stop engine in an emergency, such as a frozen throttle control, press emergency stop switch on throttle control handgrip. Apply brake if moving.



A—Emergency Stop Switch    C—"OFF" Position  
B—"ON" Position

The emergency stop switch grounds out the ignition and will bring the engine to a quick stop.

Before the engine can be restarted, you must push the emergency stop switch to the "ON" position.

*NOTE:* Always check position of the emergency stop switch before attempting to start your snowmobile.

## OPERATING THE LIGHTS

The 340 and 440 Liquifire Snowmobiles feature a regulated electrical system. This regulation offers uniform lighting at all engine speeds and prevents all bulbs from burning out should one fail.

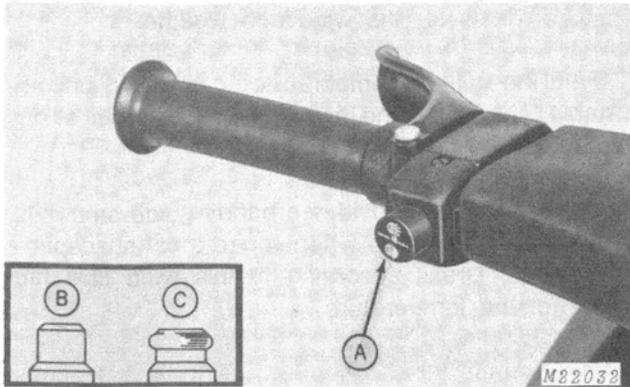
The lights are automatically "ON" whenever the engine is running. No light switch is required. The spotlight will come on whenever the brake is operated.

The engine must be running for the lights to operate.

**CAUTION:** To stop engine in an emergency, such as a frozen throttle control, press emergency stop switch on throttle control handgrip. Apply brake if moving.



## Dimming Headlight



A—Headlight Dimmer Switch  
B—High Beam Position  
C—Low Beam Position

The headlight bulb has twin filaments for high or low beam operation.

Push the dimmer switch, mounted on the brake control handgrip, to the low beam position (see inset) to obtain a low headlight beam. Push the switch again to obtain high beam. Low beam should be used as in your automobile when meeting other vehicles.

If one filament of your headlight bulb should fail, the other beam can be used. Change light bulb as soon as possible for most efficient lighting and safety.

See page 25 for information on changing headlight bulb, as well as bulbs in the taillight, speedometer, tachometer and coolant temperature gauge. Headlight aiming is explained on page 26.

## TOWING

Don't try to haul all the equipment necessary for long trips on your snowmobile. Pack it in a sled. The sled is also ideal for giving young children a safe ride.

**CAUTION:** Always use a solid towbar. Flexible ropes or pull straps offer less control on turns and could result in tailgate collisions when stopping. Use a safe, secure tow-pin.

If it becomes necessary to tow a disabled snowmobile, tie the disabled machine's skis securely to the hitch of the tow machine. DO NOT use the rear bumper for towing.

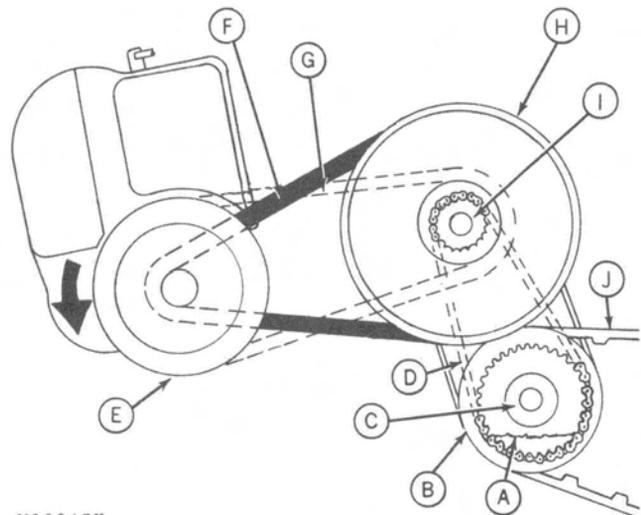
**IMPORTANT:** Always remove the drive belt from a disabled snowmobile before towing.

## OPERATING THE SNOWMOBILE

The 340 and 440 Liquifire Snowmobiles are very easy to operate... only three controls are necessary; the handlebars for steering, the throttle for changing speed, and the brake for slowing and stopping.

Remember, your snowmobile was designed to operate in snow. Operating on bare ground will cause rapid wear of track, suspension, skis and wear rods. Even the engine will wear rapidly when operated under dusty conditions.

## What Makes It Go?



A—Oil Level  
B—Chain Case  
C—Track Drive Shaft  
D—Drive Chain  
E—Drive Sheave  
F—Drive Belt (Low-Speed Position)  
G—Drive Belt (High-Speed Position)  
H—Driven Sheave  
I—Secondary Shaft  
J—Track

Squeezing the throttle is all that is necessary to start your snowmobile moving. As engine speed increases a centrifugally-operated clutch (drive sheave, E), mounted on the engine crankshaft, engages the drive belt (F) and starts the snowmobile moving.

Increasing engine speed further causes the drive belt (G) to assume the dotted line position, as shown in the above illustration, providing increased snowmobile speed.

The driven sheave (H) rotates the secondary shaft (I), which is connected by a drive chain (D) to the track drive shaft (C). Two drive wheels on the track drive shaft (C) propel the track.

## Getting Acquainted with Your Snowmobile

To enjoy your new snowmobile to the fullest, you must become well-acquainted with it. Select a wide open, level area for your first ride. Try out the controls. As you gain confidence and learn more how you and the machine work together as a team, open the throttle gradually.



### CAUTION

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. Read the operator's manual carefully and follow "Before-Starting" check list daily.</li> <li>2. Be sure throttle and brake controls operate freely.</li> <li>3. Before starting, be sure area ahead is clear.</li> <li>4. Know the controls and how to stop.</li> </ol> | <ol style="list-style-type: none"> <li>5. Use rigid hitch for towing.</li> <li>6. Keep hands and feet away from track, especially when freeing a stuck machine.</li> <li>7. Keep all shields in place.</li> <li>8. Shut off engine before refueling.</li> </ol> |
|---|---|



### ATTENTION

- |  |   |
|--|---|
| <ol style="list-style-type: none"> <li>1. Lisez attentivement le Livret d'Entretien et suivez toujours les conseils "Avant le Démarrage."</li> <li>2. Assurez-vous que l'accélérateur et le frein fonctionnent librement.</li> <li>3. Avant de démarrer, assurez-vous que le terrain est dégagé.</li> <li>4. Sachez utiliser les commandes et comment arrêter la machine.</li> </ol> | <ol style="list-style-type: none"> <li>5. Pour le remorquage, utilisez un attelage rigide.</li> <li>6. Gardez vos mains et vos pieds à l'écart de la chenille particulièrement lorsque vous dégagez une machine enneigée.</li> <li>7. Laissez tous les protecteurs en place.</li> <li>8. Arrêtez le moteur avant de remplir le réservoir de carburant.</li> </ol> |
|--|---|

M17939

## Snowmobile Code of Ethics

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. I will be a good sportsman. I recognize that people judge all snowmobile owners by my actions. I will use my influence with other snowmobile owners to promote sportsmanlike conduct.</li> <li>2. I will not litter trails or camping areas. I will not pollute streams or lakes.</li> <li>3. I will not damage living trees, shrubs, or other natural features.</li> <li>4. I will respect other people's property and rights.</li> <li>5. I will lend a helping hand when I see someone in distress.</li> <li>6. I will make myself and my vehicle available to assist search and rescue parties.</li> </ol> | <ol style="list-style-type: none"> <li>7. I will not interfere with or harass hikers, skiers, snowshoers, ice fishermen or other winter sportsmen. I will respect their rights to enjoy our recreation facilities.</li> <li>8. I will know and obey all federal, state and local rules regulating the operation of snowmobiles in areas where I use my vehicle. I will inform public officials when using public lands.</li> <li>9. I will not harass wildlife. I will avoid areas posted for the protection or feeding of wildlife.</li> <li>10. I will stay on marked trails or marked roads open to snowmobiles. I will avoid country travel unless specifically authorized.</li> </ol> |
|--|--|

...International Snowmobile  
Industry Association

### Clearing The Track

After operating in deep or slushy snow, clear the track. Snow and ice could freeze the track, making starting difficult the next time.

Tip the machine on its side until the track clears the ground. Spin the track at moderate speed until snow and ice are thrown clear.

**CAUTION:** Always check to see there is nobody behind your machine when clearing track. Ice or rocks could be thrown from the track.

**IMPORTANT:** If the track does freeze, free the track manually rather than attempting to break it loose with the engine. Breaking track loose with engine will burn and damage the drive belt.

### Dressing for the Weather

To enjoy snowmobiling fully, and to be safe from frostbite, dress for the wind and weather.

Even the mildest temperatures can prove uncomfortable when traveling at high speed...or if strong winds are blowing.

The chart below provides a handy guide, and illustrates the danger zone when you're most susceptible to frostbite. Dress according to this wind chill factor...not the temperature.

Wear protective snowmobile uniforms and accessories, available from your local dealer.

**CAUTION:** Always wear a snowmobile helmet when snowmobiling. The helmet provides both warmth and protection against accidental head injury.

### WIND CHILL CHART

ESTIMATED WIND SPEED IN MPH	ACTUAL THERMOMETER READING (°F.)											
	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
	EQUIVALENT TEMPERATURE (°F.)											
calm	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-21	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-36	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	-124
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-20	-35	-49	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-148
(Wind speeds greater than 40 mph have little additional effect.)	LITTLE DANGER (for properly clothed person)			INCREASING DANGER				GREAT DANGER				
				Danger from freezing of exposed flesh								

M10123

After operating in deep or slushy snow, clear the track. Snow and ice could freeze the track, making starting difficult the next time.

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The chart below provides a handy guide, and illustrates the danger zone when you're most susceptible to frostbite. Dress according to this wind chill factor...not the temperature.



# Service Interval Chart

Item	As Needed	Daily	Every 150 Miles	Every 300 Miles	Annually	Page
Clean windshield.	X					7
Check coolant level		X				18
Check condition of skis and steering.		X				22, 23, 24
Check track condition and tension.		X				21
Check throttle control operation.		X				14, 15
Check operation of brakes.		X				20
Check emergency stop and key switches.		X				8
Check lighting system.		X				8, 9
Check chain case oil level.			X			20
Check chain tensioner.				X		20
Check in-line fuel filter.					X	17
Check drive belt condition.		X				19
Check carburetor adjustments.			X	X	X	13, 14, 15, 16
Check choke adjustments.			X	X	X	14
Check coolant pump belt tension.				X	X	18
Check ski alignment.	X					24
Check headlight adjustment.	X					26
Check ski wear rods and wear plate.				X	X	23
Check slide suspension wear bars.				X	X	23
Place a drop of oil on throttle cable end.					X	14

# Service Interval Chart

Item	As Needed	Daily	Every 150 Miles	Every 300 Miles	Annually	Page
Clean windshield.	X					7



# Maintenance

**NOTE:** Be sure to have your dealer perform the free 10-hour check-up as described on the insert sheet at the front of this manual.

This section of your operator's manual describes the adjustments and services that you can perform to keep your snowmobile running smoothly. At times your snowmobile may need service that requires special tools or "know-how"...then it is best to contact your John Deere dealer.

## SPARK PLUGS

**NOTE:** The spark plugs used in the John Deere 340 and 440 Liquifire Snowmobiles are Champion QN-1 (John Deere Part No. AM54324).

### Removing Spark Plug

**CAUTION:** High-energy ignition systems can produce injurious electrical shock. Always stop engine and remove key from switch before touching or working on any ignition parts. **DO NOT** hold spark plug, leads or connectors in hand to check for spark.

Stop the engine. Raise the hood and carefully pull spark plug connectors from plugs. Remove plugs.

**IMPORTANT:** Do not pull on wire to remove connectors. Carefully pull spark plug connectors from plugs.

### Checking Spark Plug

New plugs are gapped at 0.020 inch (0.508 mm). The high-energy system will widen the gap in proportion to hours and miles of use. **DO NOT REGAP THE PLUG.** When plug eventually malfunctions, replace the plug.

#### PLUG APPEARANCE

Color	Possible Cause
Tan (Cocoa brown)	Proper fuel mixture, good combustion.
Black Sooty	Poor combustion, over-rich fuel mixture.
White (Very Light Tan)	Hot Combustion, lean fuel mixture.

Plug change is indicated when:

1. Plug appearance is abnormal.
2. Engine malfunctions, that is: hard starting, missing, etc.

To check for plug spark with capacitor discharge ignition (CDI), stop the engine. Remove spark plug and reconnect spark plug wire to plug. Lay the plug on the engine shroud. **Do not hold the plug or plug wire in your hand.** Pull the starter rope and check for spark. Replace plug if necessary.

### Installing Spark Plug

Clean the spark plug seating surface on the cylinder head and install plugs. Tighten moderately, being certain spark plug gasket makes good contact with cylinder head. If not, clean carbon from cylinder head threads with a spark plug tap.

Reinstall the spark plug wires and secure the hood.

## ADJUSTING CARBURETOR

**IMPORTANT:** **DO NOT** run engine when adjusting carburetor.

The John Deere 340 and 440 Liquifire Snowmobiles are equipped with two Mikuni Carburetors. Each carburetor is a float-type, fixed main jet carburetor that gives exact metering of the fuel-air mixture. The float in the fuel bowl maintains a constant fuel level in the bowl to assure an adequate fuel supply. The fixed main jet eliminates constant high-speed adjustments. However, altitude and temperature variations may require changes of the main jet.

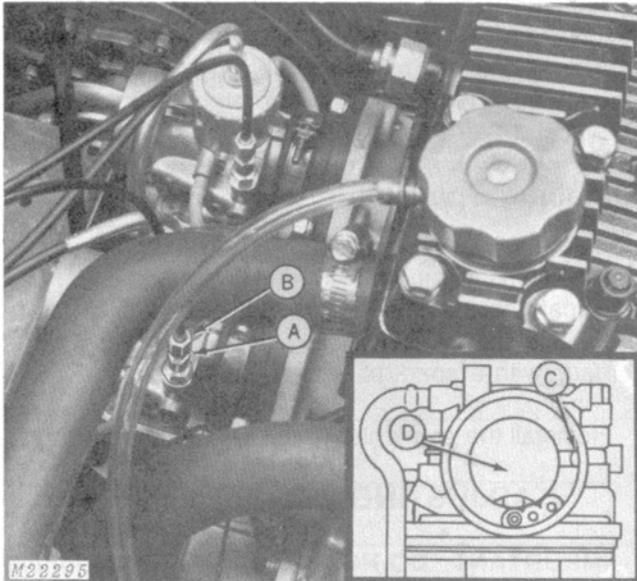
**IMPORTANT:** **DO NOT** at any time run the engine with the air intake silencer removed from the carburetor. To do so will cause the engine to run **LEAN** and could cause engine failure.

### Choke System

A separate choke system is used. The fuel-air mixture for starting is metered through independent jets.

The choke system is opened and closed by the choke plunger. The choke system is constructed to operate by negative inlet pipe pressure. The throttle valve must be closed when starting the engine, otherwise the fuel-air mixture will be too lean for starting.

### Setting the Choke Plunger



A—Jam Nut  
B—Adjusting Sleeve  
C—3 O'clock Position  
D—Carburetor Throat

1. Raise the hood and remove the air intake silencer.
2. Be sure the choke lever on the dash is down.
3. Look into the choke plunger hole at the 3 o'clock position (C) in the carburetor throat (D). The choke plunger should be all the way down in its bore.

*NOTE: When the choke lever on the dash is down, the choke plunger should be all the way down in the bore (seated). There should be slight freeplay between the lever and the dash.*

4. If necessary loosen jam nut (A) and turn adjusting sleeve (B) clockwise to bring the choke plunger down. The fuel-air mixture for starting is metered through independent jets.

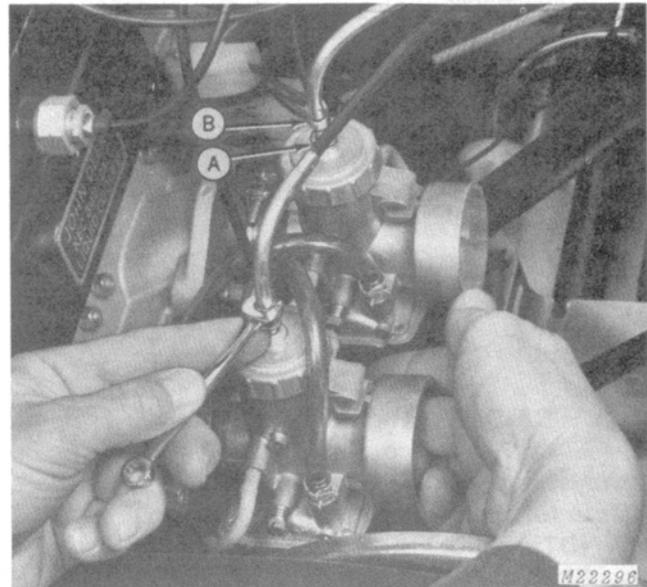
The choke system is opened and closed by the choke plunger. The choke system is constructed to operate by negative inlet pipe pressure. The throttle valve must be closed when starting the engine, otherwise the fuel-air mixture will be too lean for starting.

### Setting the Choke Plunger

5. Raise the choke lever and look in the choke plunger hole (C). Choke plunger should raise enough to expose at least half the hole opening.

### Synchronizing The Carburetors (Adjusting Throttle Cables)

1. Raise the hood and remove the air intake silencer.
2. Use a strong rubber band or clamp and lock the throttle lever tightly against the hand grip.



A—Jam Nut  
B—Adjusting Sleeve

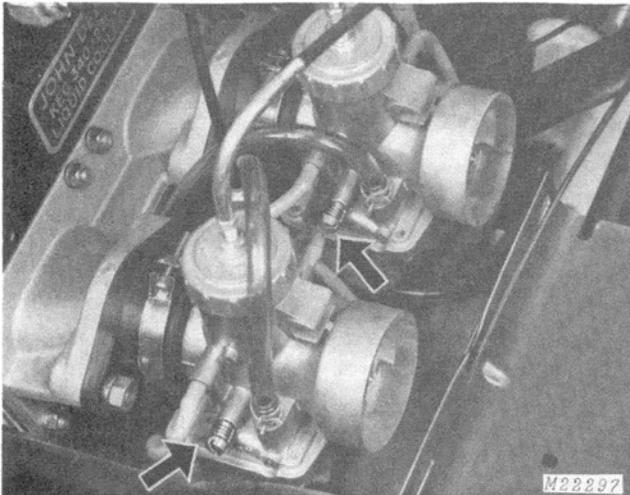
3. Place your finger in the throat of each carburetor. Loosen jam nut (A) and turn adjusting sleeve (B) clockwise (in) until the cut-out portion of the throttle valve can be felt flush with the inside of the bore.
4. After the cut-out portion of the throttle valve is flush with the bore, turn the adjusting sleeve (B) counterclockwise 3-1/2 turns on the 340 and 440 Liquifire. This will move the throttle valve UP, making the backside of the valve flush with the bore. Tighten jam nut (A).

*NOTE: When the throttle valve is adjusted correctly, the backside of the valve will be flush with the bore. No part of the valve will restrict air flow through the carburetor throat.*

to expose at least half the hole opening.

### Synchronizing The Carburetors (Adjusting Throttle Cables)

1. Raise the hood and remove the air intake silencer.
2. Use a strong rubber band or clamp and lock the throttle lever tightly against the hand grip.



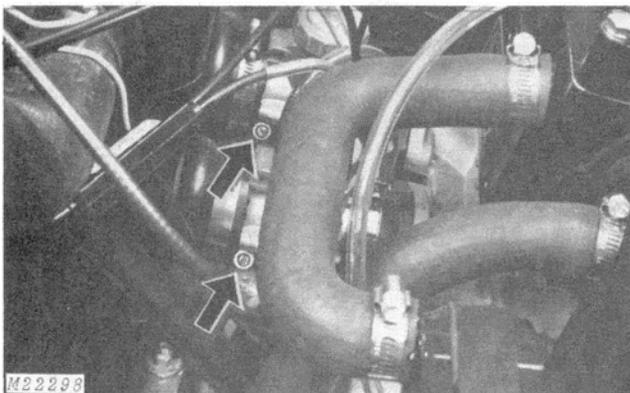
Idle Adjusting Screws

5. Turn the idle adjusting screws counterclockwise until the idle adjusting screw tip is flush with the inside of the carburetor bore.

6. Remove rubber band or clamp from the throttle lever and allow the throttle valves to fully seat in the carburetor bores.

7. Turn both idle adjusting screws clockwise until the screws contact the throttle valves. When the screws contact the valves, the valves will begin to rise. Turn idle adjusting screws two additional turns clockwise. This will give a preliminary idle speed setting for both carburetors.

8. Look into the throat of both carburetors and slowly compress the throttle lever on the handgrip. Both throttle valves should begin to rise at exactly the same time. If throttle valve movement does not occur as specified, repeat Steps 2, 3 and 4.



Pilot Air Screws

9. Carefully turn both pilot air screws clockwise (in) until a slight seating resistance is felt.

10. Turn both pilot air screws counterclockwise (out) 1-1/2 turns on the 340 Liquifire and 2 turns on the 440 Liquifire.

11. The idle speed may not be correct for normal operation, even though the carburetors are synchronized. To check engine for proper idle, proceed as follows:

a. Install air intake silencer and run the engine until operating temperature is obtained.

b. If the engine will not idle or if increased idle rpm is desired, turn the idle adjusting screws clockwise until desired idle is obtained.

*NOTE: Set both idle adjusting screws equally. If the idle adjusting screws are not equal, repeat Steps 5 through 7.*

**IMPORTANT: DO NOT use the air screws at any time to set engine idle. Be sure the air screws are adjusted as explained in Step 10.**

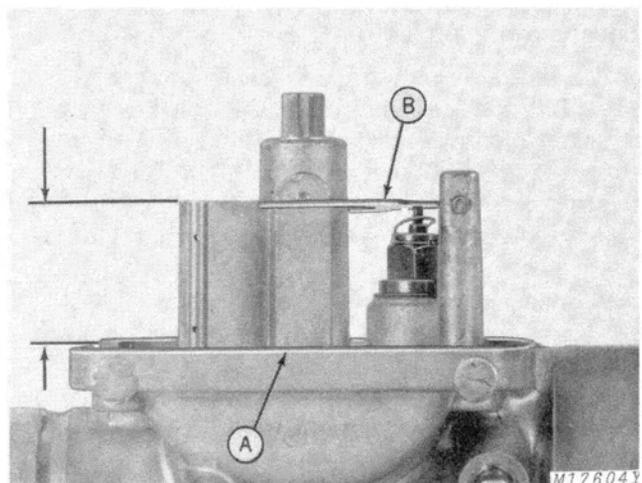
## Fine-Tuning Carburetor

### Checking Float Level

*NOTE: The fuel level in the float chamber is regulated by the float. If dirt or foreign particles get between the needle valve and seat, or wear or damage occurs in the needle valve area, or if the float is punctured, fuel overflow may occur. If the needle valve sticks, a limited amount of fuel will flow into the float chamber.*

1. Remove the air intake silencer, fuel lines and carburetor from the engine.

2. Remove the float chamber body and gasket from the carburetor.



A—Mixing Chamber

B—Float Arm

3. Invert the carburetor and check to see if the float arm is parallel with the edge of the mixing chamber. If adjustment is necessary, bend only the float arm actuating tab.

Selecting Main Jet

**340 LIQUIFIRE**

TEMPERATURE (Degrees F.)					ALTITUDE (Feet)
-40° to -20°	-20° to 0°	0° to 40°	40° to 80°	Above 80°	
Main Jet	Main Jet	Main Jet	Main Jet	Main Jet	
230-M65882	220-M65852	210*-M65472	200-M65471	190-M65470	Sea Level - 2,000

\*Factory Installed

**440 LIQUIFIRE**

TEMPERATURE (Degrees F.)					ALTITUDE (Feet)
-40° to -20°	-20° to 0°	0° to 40°	40° to 80°	Above 80°	
Main Jet	Main Jet	Main Jet	Main Jet	Main Jet	
240-M65853	230-M65882	220*-M65852	210-M65472	200-M65471	Sea Level - 2,000

\*Factory Installed

The 340 and 440 Liquifire Snowmobiles come from the factory adjusted to operate from sea level to 2000 feet in altitude.

Carburetor and clutch changes, adjustments or modifications may be necessary for operation at altitudes above 2000 feet.

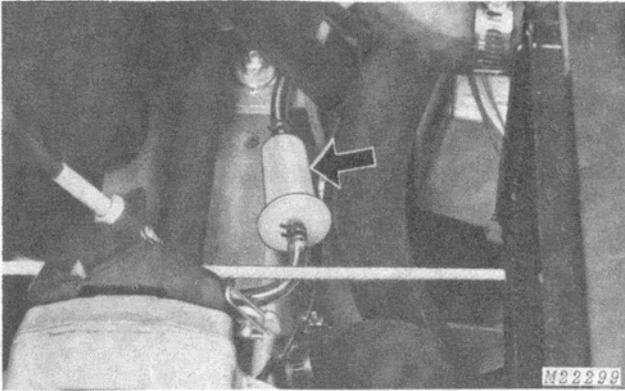
See your John Deere dealer for the proper modifications required for operation of the snowmobile at altitudes above 2000 feet.

*NOTE: A 220 main jet is included with the 340 Liquifire and 230 main jet is included with the 440 Liquifire from the factory.*

**340 LIQUIFIRE**

TEMPERATURE (Degrees F.)					ALTITUDE (Feet)
-40° to -20°	-20° to 0°	0° to 40°	40° to 80°	Above 80°	
Main Jet	Main Jet	Main Jet	Main Jet	Main Jet	

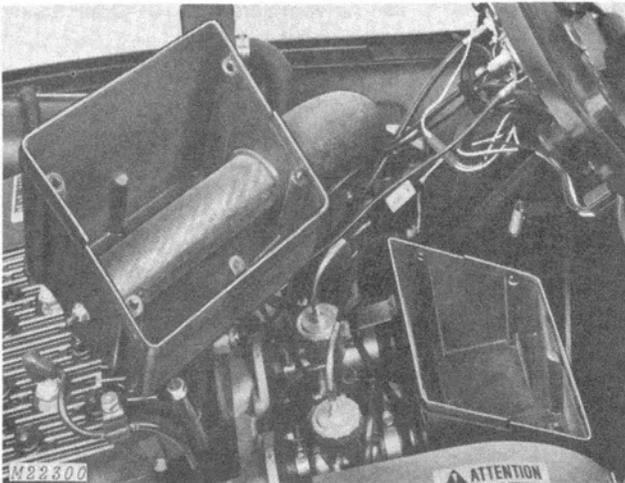
## REPLACING IN-LINE FUEL FILTER



Change the filter annually when the snowmobile is taken out of summer storage, or as indicated by the contamination build-up in the cone.

The nylon screen in the in-line fuel filter has a self-cleaning action. Pulsation of the screen shakes loose contamination such as dirt, rust and small fibers. Loose contamination collects at the base of the cone. When the packed contamination starts to build up at the base of the cone, change the filter.

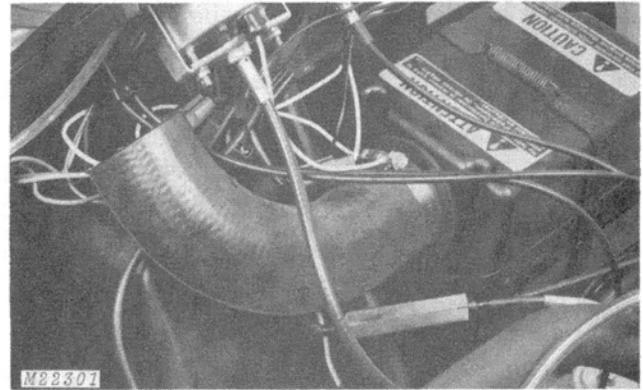
## CLEANING AIR INTAKE SILENCER



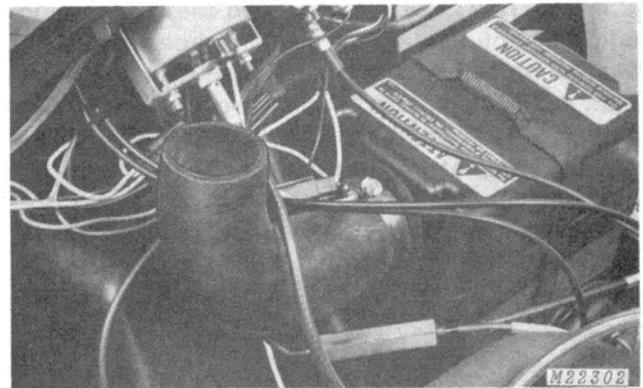
The air intake silencer should be checked daily if the snowmobile has been run through cattails, weeds or conditions which allow trash to be drawn into the silencer.

The first indication of trash on the silencer screen will be loss of power and performance. The engine will run rich because adequate air will not be mixing with the fuel.

## POSITIONING AIR INTAKE HOSE



The normal position for the air intake hose is pointing to the rear at a 45-degree angle. Air is taken in through the louver at the rear. This prevents blowing snow or powder snow from spraying off the skis, over the hood, and into the air silencer intake hose.



For high speed running on a hard-packed surface, the air intake hose may be positioned in the vertical position. Air is then taken in through a hole in the hood next to the headlight. When the air intake hose is pointing up, the possibility of powder or blowing snow entering the air intake system increases.

*NOTE: Loosen the air intake hose clamp before repositioning the air intake hose.*

**⚠ WARNING: DO NOT operate snowmobile with air intake hose in the vertical position in loose or blowing snow. This position may allow moisture to FREEZE in the intake system causing the throttle to stick.**

## LIQUID COOLING SYSTEM

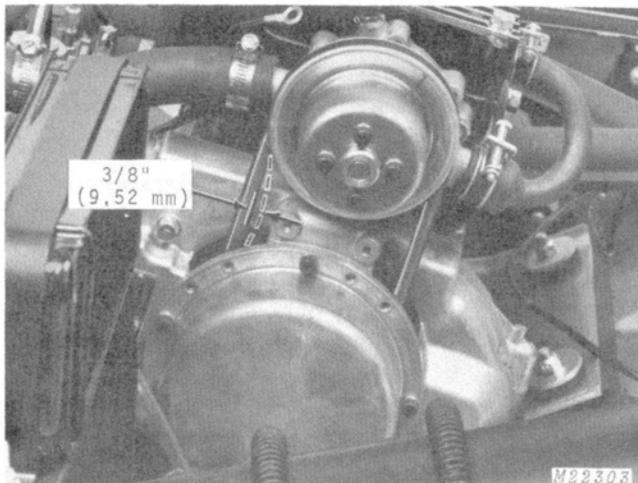
The liquid cooling system is a pressurized, thermostatically-controlled system. A heat exchanger is located in the tunnel and a radiator is under the front hood. The combination of snow against the exchanger and air through the radiator cools the system. The thermostat is located in the engine top filler tank and controls engine temperature.

During the initial break-in period, operate the snowmobile for 5 minutes and check coolant level. Coolant level should be flush with bottom of the filler neck. Capacity of the system is approximately 4 quarts (3.8 l).

If coolant must be added, use a 50-50 solution of ethylene glycol anti-freeze and water. DO NOT use any anti-freeze containing a radiator stop-leak. NEVER add radiator stop-leak to the cooling system.

**IMPORTANT: DO NOT exceed the recommended 50-50 solution. Never add anti-freeze to fill the system until checking the solution with a hydrometer. A 50-50 solution should give approximately a  $-40^{\circ}\text{F}$  ( $-40^{\circ}\text{C}$ ) reading. Check solution when engine is completely warmed up.**

### Checking Coolant Pump Belt Tension



Shut off the engine. Remove coolant pump belt cover.

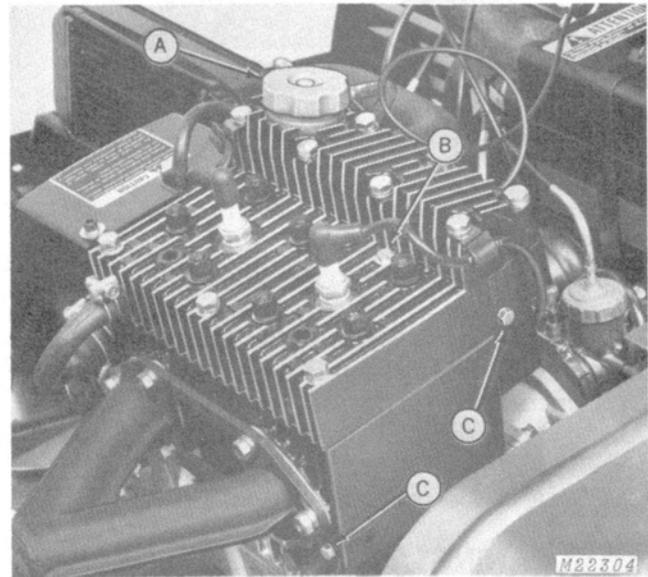
Use your finger to deflect the belt as shown. If more than 3/8-inch (9.52 mm) deflection is possible the belt mostatically-controlled system. A heat exchanger is located in the tunnel and a radiator is under the front hood. The combination of snow against the exchanger and air through the radiator cools the system. The thermostat is located in the engine top filler tank and controls engine temperature.

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## Draining and Filling Cooling System

### Draining System (2 Year Intervals Only)

1. Remove drain screws (C) and pressure cap (A).
2. Remove lower hose from heat exchanger.
3. Raise rear of snowmobile slightly to drain system. Replace drain screws and lower hose.
4. Wash engine and compartment with clean water.



A—Pressure Cap    B—Air Vent Screw    C—Drain Screws

### Filling System

1. Install lower hose to heat exchanger and replace drain screws (C).
2. Position snowmobile on a level surface.
3. Remove air vent screw (B) from engine cylinder head.
4. Start filling the system with a 50-50 solution of ethylene glycol anti-freeze and water until liquid flows from the cylinder head air vent (B). Install air vent screw (B) and washer.
5. Continue filling system until top tank is full. System capacity is approximately 4 U.S. quarts (3.8 l). Check coolant recovery container. Add solution until approximately one inch of solution is in the container and covers the end of the hose.
6. Check all hose connections for leaks.
7. Install pressure cap (A). Block up track so engine can be run safely. Start the engine and again check system for leaks.

### Draining System (2 Year Intervals Only)

1. Remove drain screws (C) and pressure cap (A).
2. Remove lower hose from heat exchanger.
3. Raise rear of snowmobile slightly to drain system. Replace drain screws and lower hose.
4. Wash engine and compartment with clean water.



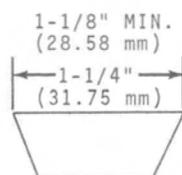
## SERVICING DRIVE AND DRIVEN SHEAVES

Once a year, the drive and driven sheaves on your snowmobile should be disassembled, cleaned and checked for worn parts. This service will keep your snowmobile in top operating condition. Because special tools are required to perform this maintenance, see your John Deere dealer.

## REPLACING DRIVE BELT

The drive belt should be replaced if obviously worn or damaged or if its width is reduced by 1/8 inch (3.18 mm) or more. A narrow belt will reduce snowmobile top speed.

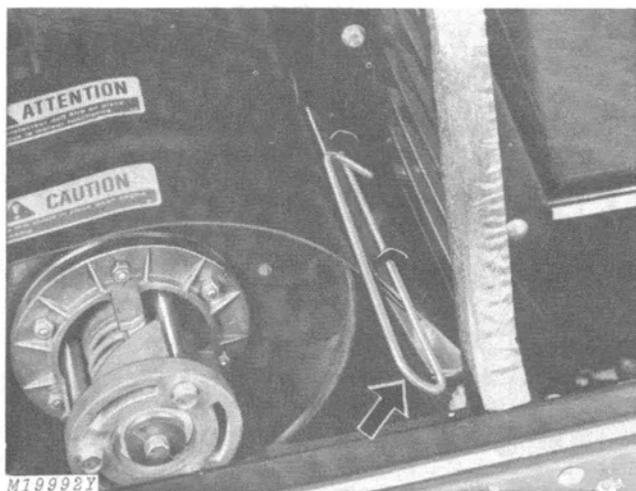
DRIVE BELT CROSS SECTION



M16136

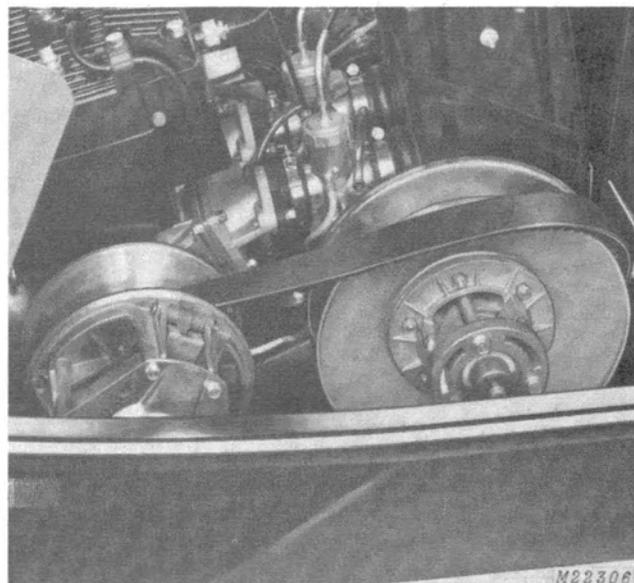
If drive belt wears rapidly, drive and driven sheaves are probably out of alignment. See your John Deere dealer because a special tool is required to align sheaves.

A belt worn narrow in only one area is caused by trying to free a frozen track with the engine. Always free a frozen track manually prior to starting engine.



1. Raise the hood.

2. Pull spring lock and tip belt guard forward to provide access to drive belt.



3. Push in on center of driven sheave and lift belt up and over sheave half to remove belt.

4. Remove belt from drive sheave last.

**IMPORTANT:** Never pry belt over sheaves. If driven sheave is opened properly, no prying is necessary.

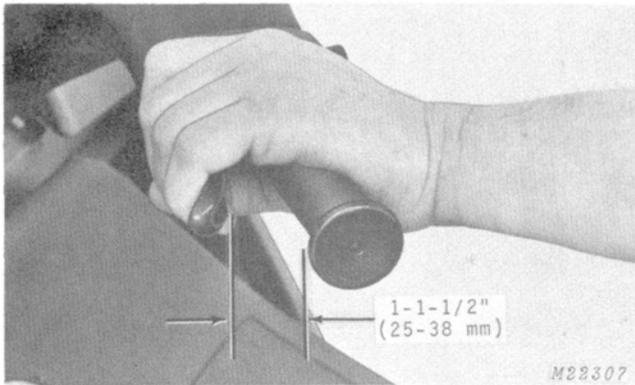
**CAUTION:** Keep fingers out of area between center of driven sheave halves when sheave is opened. If driven sheave sticks closed, use care in opening sheaves to prevent fingers from becoming pinched.

5. Install belt in the opposite sequence from which it was removed.

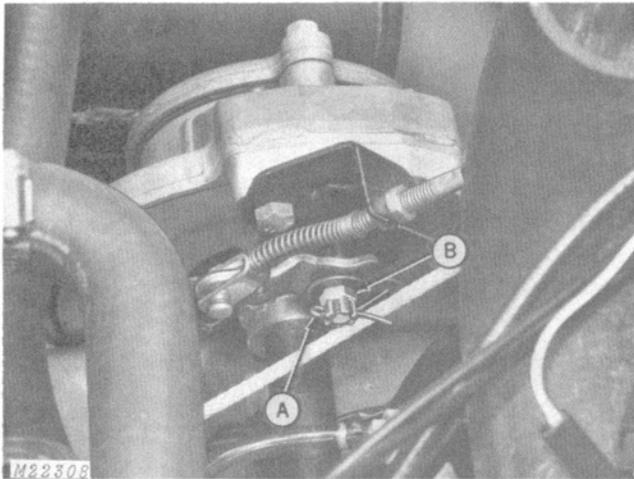
**NOTE:** Always install belt so that number on belt can be read when viewed from the left side.

6. Tip belt guard back into position and secure it with spring lock. Secure hood.

### ADJUSTING BRAKE



1. Apply the brake firmly and measure the distance from the brake control lever to the handgrip. It should be 1 to 1-1/2 inches (25 to 38 mm).



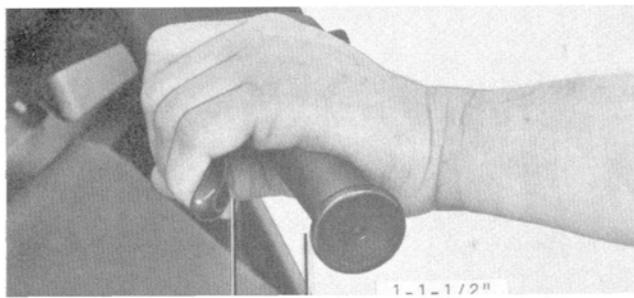
A—Cotter Pin                      B—Slotted Nut

2. Adjust brake by removing cotter pin (A) and tightening slotted nut (B). Reinstall cotter pin.

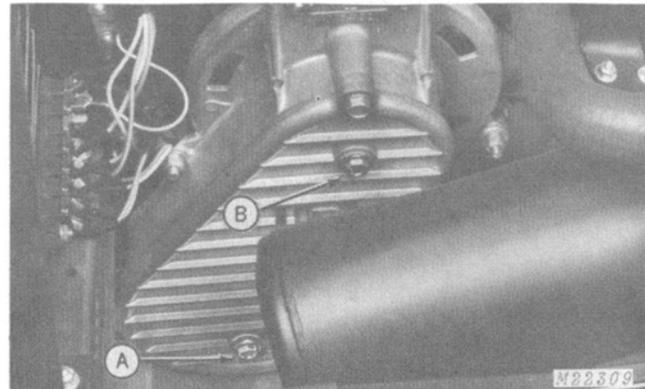
**CAUTION:** DO NOT adjust jam nuts on brake cable. To adjust brakes; remove cotter pin, turn slotted nut in, and replace cotter pin.

See your John Deere dealer for brake puck replacement when adjustment is no longer possible.

**NOTE:** Be certain dowel on end of brake cable is seated properly in recess of brake control lever. Check operation of stop light switch.



### CHECKING CHAIN CASE OIL LEVEL



A—Lower Plug                      B—Fill Plug

With the snowmobile parked on a level surface, raise the hood and remove lower plug (A) from chain case. If oil flows from this hole, the oil level is satisfactory.

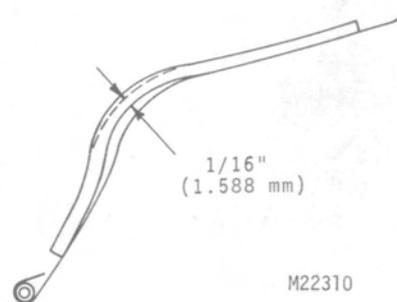
If oil must be added, remove fill plug (B) on the top of chain case and add SAE 90 oil until it flows from the lower hole. Install plugs.

### CHECKING CHAIN TENSIONER

Remove drive belt and muffler.

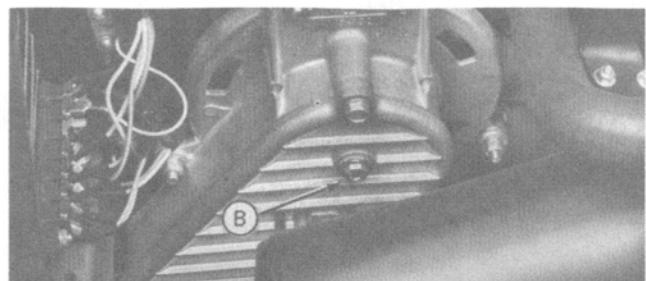
**NOTE:** Drive belt should be removed in the event some fuel may spill from the carburetor vent tubes when snowmobile is turned on its side.

Turn snowmobile on its left side. Remove chain case cover.



M22310

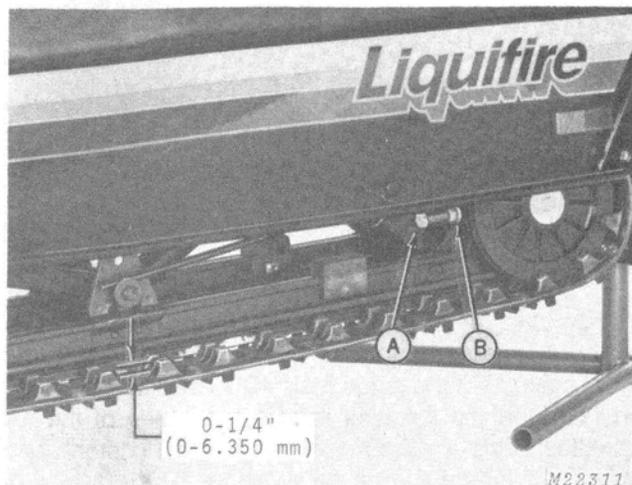
Check chain tensioner for wear. When tensioner is worn until only 1/16 inch (1.588 mm) of material re-



## ADJUSTING TRACK TENSION

### Tensioning the Track

Track tension and alignment must be checked frequently. A track that is too loose will cause excessive slap which can damage the track, tunnel or slide assembly. A track that is too loose or too tight requires additional power to operate.



A—Adjusting Screw

B—Jam Nut

1. Suspend or support the rear of the snowmobile so the track is above the ground.
2. Loosen the jam nuts (B) on the two track adjusting screws (A).
3. Tension the track so that the dimension between the bottom of the slide wear bar and the track is flush to 1/4-inch (6.350 mm). Measure this dimension below the lower shock absorber mount. Be sure both sides are equal.

### After Adjustment

1. Start the engine and idle the track slowly so that it rotates several times. Stop the engine and allow the track to coast to a stop. **DO NOT USE THE BRAKE TO STOP THE TRACK.**
2. Check alignment by observing where the rear idler wheels run with respect to the drive lugs. The rear idler wheels should run in the center of the drive lugs.
3. Look under the track to determine if the slide rail wear bar is directly in the middle of each slide rail opening on the track.
4. If either Step 2 or 3 indicates a need for adjustment, repeat the tensioning procedure.

*NOTE: A track will always run to the loose side. For proper tensioning, the adjusting screw on the loose side should be tightened. For example, if the track is too far to the left side, tighten that side to move the track to the right side.*

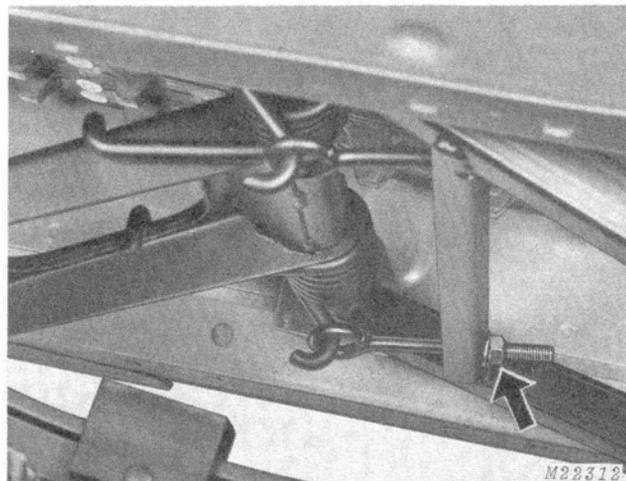
## ADJUSTING SLIDE SUSPENSION SPRINGS

Before adjusting the front and rear torsion springs, ride the snowmobile to determine adjustment requirements.

Preload (tightening or loosening) of the front and rear torsion springs can be adjusted to suit the weight and riding style of the operator. For high-speed operation, adjust the front torsion springs for minimum preload (loosen). Be sure at least two threads of bolt protrude through nut. Adjust the rear torsion spring for the riders weight.

*NOTE: In deep snow at high speeds, increased preload (tightening) on the front torsion springs will help provide additional ski lift.*

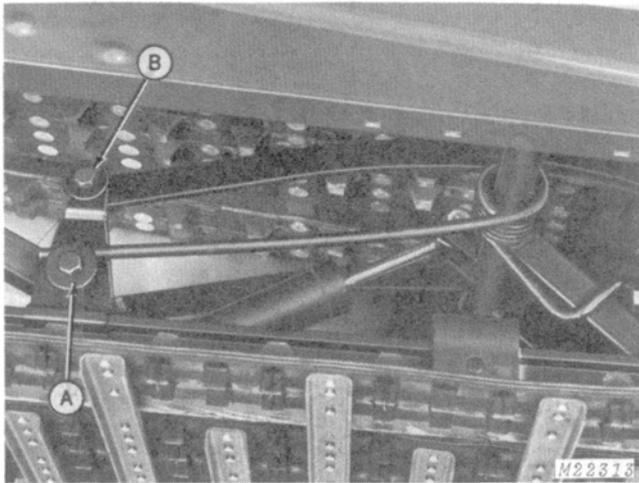
### Front Torsion Springs



If the front torsion springs are preloaded (tightened) too much, the ride will be stiff and the front of the snowmobile will seem light and lift up when power is applied. Added lift is fine for deep snow but makes the ride choppy on rough surfaces. The front torsion spring is not the only adjustment for ski lift, but it does contribute.

To reduce the preload, turn adjusting nuts counter-clockwise. Be sure that at least two threads of the adjusting screws protrude through the nuts.

### Rear Torsion Springs



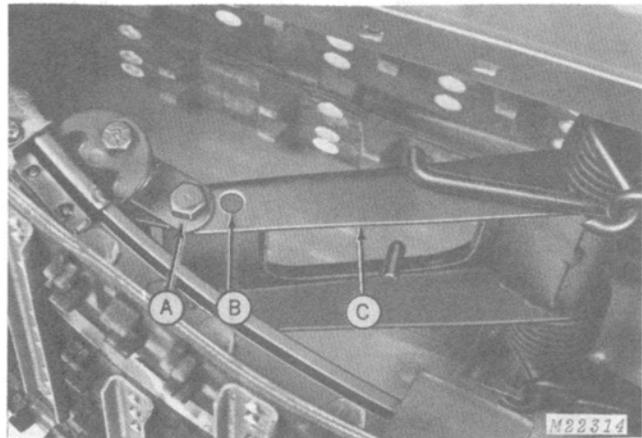
A—Bottom Position

B—Top Position

If the suspension bottoms frequently, increase the spring preload. If the ride is stiff, decrease the preload.

To increase the preload, move the springs from the bottom position (A) to the top position (B).

### ADJUSTING STEERING RESPONSE



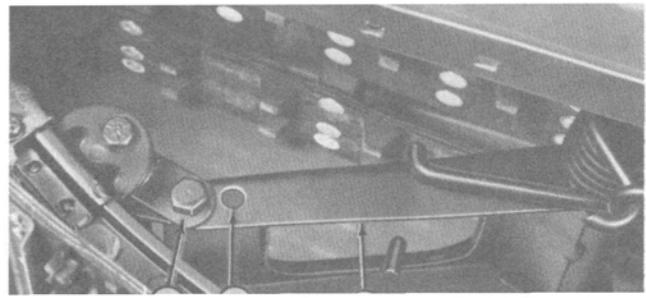
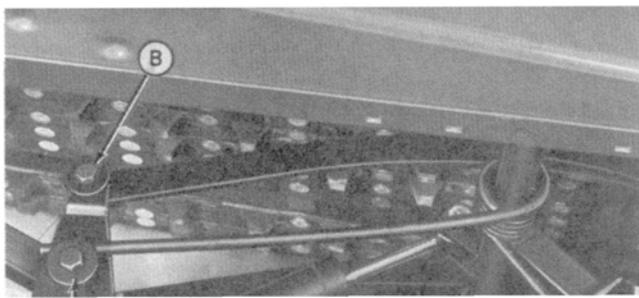
A—Front Hole

B—Rear Hole

C—Hinge Plate

For optimum steering control during cross-country riding, connect the arms of the front pivot tube to the front hole (A) of the hinge plate (C). The skis should be installed on the spindles in the front holes of the ski saddles. This arrangement increases "castor" and holds ski "darting" to a minimum.

For slow trail riding when down-pressure is required on the skis, connect the arms of the front pivot tube to the rear holes (B) of the hinge plate (C). Move the skis to the rear holes of the ski saddles.



## REPLACING SLIDE SUSPENSION WEAR BARS

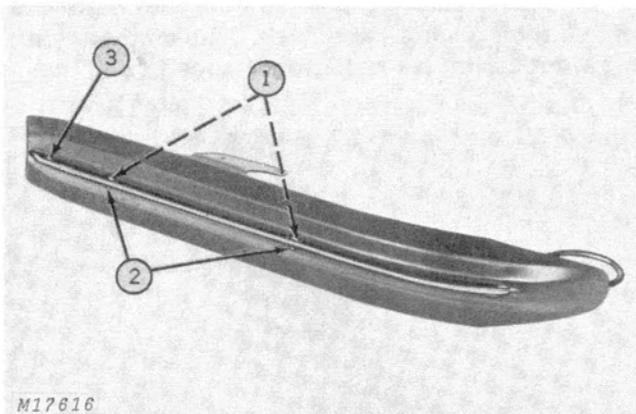
When running in marginal snow conditions, check wear bars daily.

Tip the snowmobile on its side and check wear bars in several places for cracks, THIN AREAS, or sand or gravel imbedded in the wear bar. If any of these conditions exist, see your John Deere Dealer for wear bar replacement.

*NOTE: Sand or gravel imbedded in the wear bar acts as an abrasive and will destroy the steel grouser bars in the track.*

## REPLACING SKI WEAR RODS

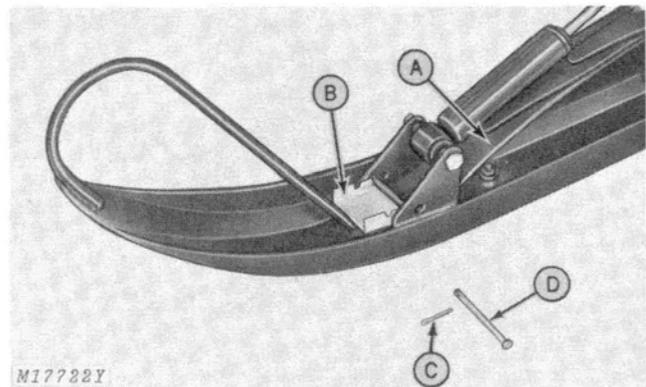
Inspect wear rods periodically and replace them if they are worn to one-half their original size. Remember, worn wear rods reduce snowmobile maneuverability.



To replace ski wear rods:

1. Remove lock nuts securing wear rod to ski.
2. Pry rod down to get studs out of holes.
3. Slide rod forward to remove rod from rear hole. Remove rod.
4. Install new rod in opposite sequence.

## REPLACING SKI WEAR PLATES



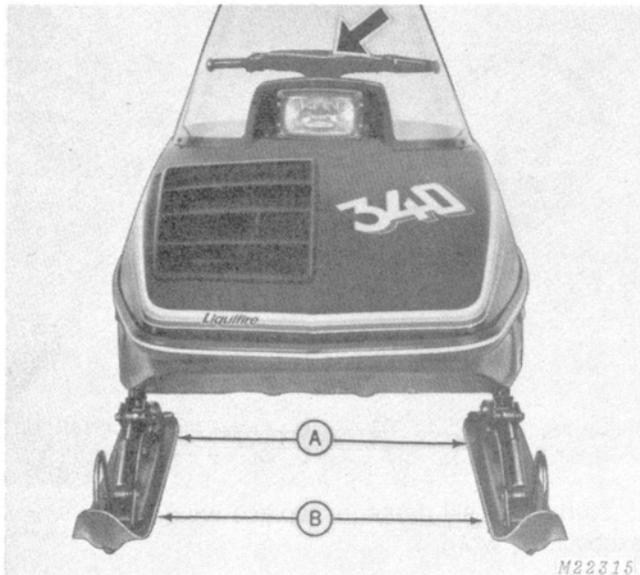
A—Spring  
B—Wear Plate

C—Cotter Pin  
D—Drilled Pin

To prevent ski damage, replace wear plates when excessively worn.

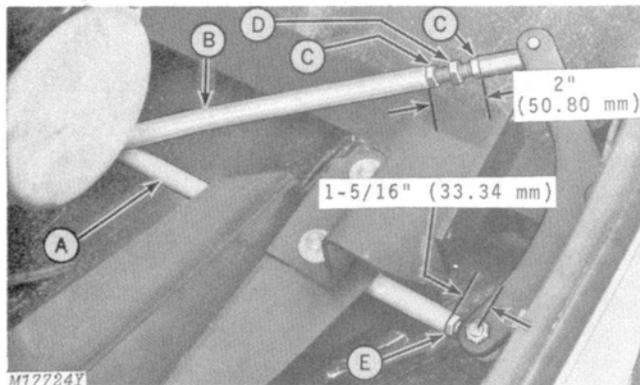
1. Raise front of snowmobile slightly.
2. Remove drilled pin (D) securing front of ski spring (A).
3. Lift front of spring (A) and remove wear plate (B).
4. Install new wear plate (B).
5. Lower ski spring (A) in place.
6. Secure spring with drilled pin (D) and cotter pin (C).

### ALIGNING SKIS



When properly aligned, skis are parallel (equal distance at "A" and "B") with skis pointing straight forward and handlebars positioned to steer straight ahead.

**IMPORTANT:** Measure from straight sides of skis only; not from tapered ends.



A—Tie Rod  
B—Drag Link  
C—Jam Nut  
D—Adjusting Screw  
E—Jam Nut

1. Remove exhaust silencer.

**CAUTION:** When removing HOT exhaust silencer do not burn yourself.



2. Loosen jam nut (E) on each end of tie rod (A). Turn tie rod to bring skis in parallel alignment. Tighten jam nuts (E).

3. Loosen jam nuts (C) on end of drag link (B). Adjust link as necessary to align handlebars with skis.

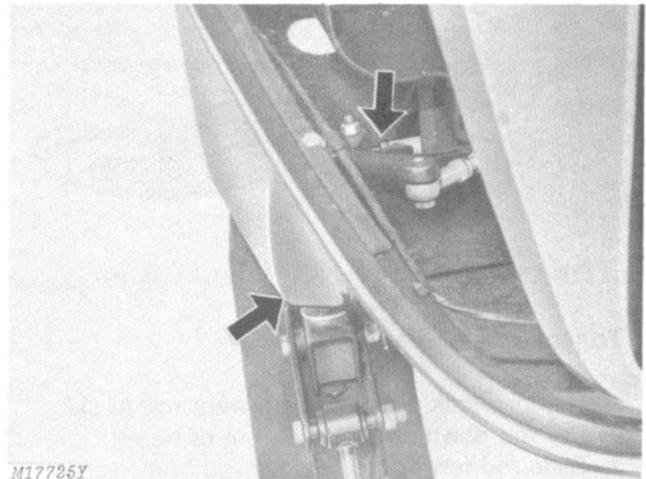
**IMPORTANT:** DO NOT exceed 1-5/16 inches (33.34 mm) between tie rod and center of tie rod end when adjusting the tie rod. DO NOT exceed 2 inches (50.80 mm) between the drag link and drag link end when adjusting drag link.

4. Hold the drag link adjusting screw (D) and tighten each jam nut (C).

5. Install exhaust silencer.

### ELIMINATING LOOSE STEERING

**CAUTION:** Make it a habit frequently to check steering components and hardware for condition and tightness. Remember your snowmobile travels at highway speeds.



The two major causes of loose steering are as follows.

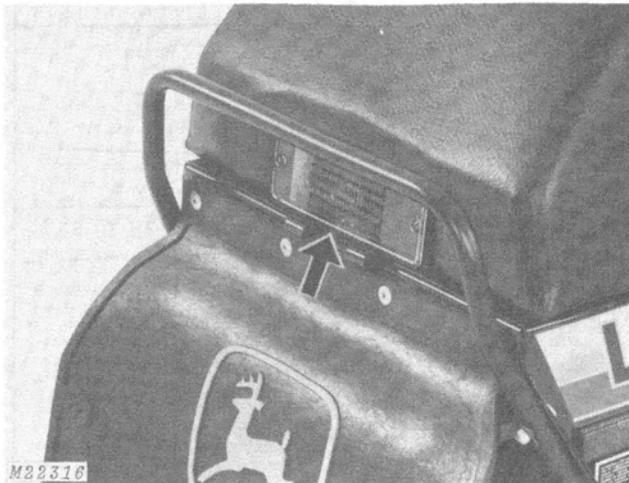
1. Excessively worn tie rod ends.
2. Excessively worn spindle bushings.

Replace or tighten parts as necessary.

3. Loosen jam nuts (C) on end of drag link (B). Adjust link as necessary to align handlebars with skis.

**IMPORTANT:** DO NOT exceed 1-5/16 inches (33.34 mm) between tie rod and center of tie rod end when adjusting the tie rod. DO NOT exceed 2 inches (50.80 mm) between the drag link and

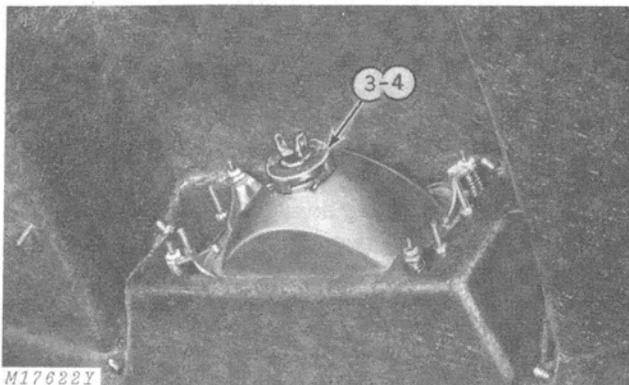
## REPLACING STOP-TAILLIGHT BULB



1. Remove two screws and lens.
2. Push and turn bulb counterclockwise to remove bulb.
3. Install new bulb in opposite sequence.

**IMPORTANT:** Bulb can be installed in one position only. Be certain locking tabs match slots.

## REPLACING HEADLIGHT BULB



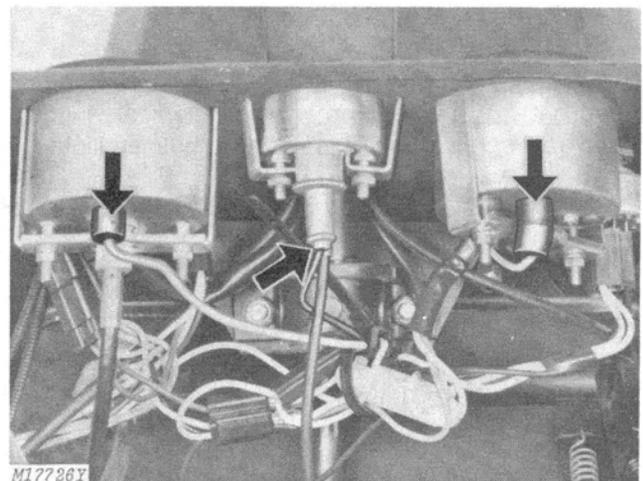
1. Raise the hood and disconnect the wiring harness from the light bulb.

2. Remove air intake chamber from hood.
3. Push and turn bulb counterclockwise to remove bulb.
4. Install new bulb in opposite sequence.

**IMPORTANT:** Bulb can be installed in one position only. Be certain locking tabs match slots.

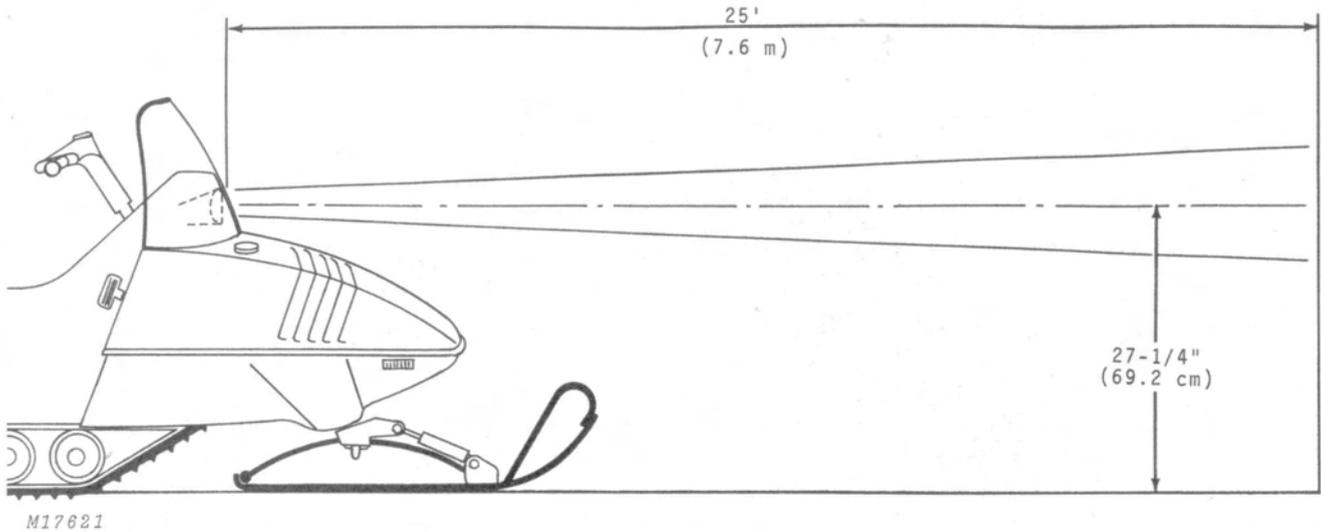
5. Install air intake chamber on hood.
6. Connect wiring harness to light bulb. Secure hood.

## REPLACING SPEEDOMETER, COOLANT GAUGE AND TACHOMETER BULBS



1. Raise the hood.
2. Pull the bulb socket out of the instrument.
3. Push and turn bulb counterclockwise to remove bulb from socket.
4. Replace with new bulb in opposite sequence.

### AIMING HEADLIGHT

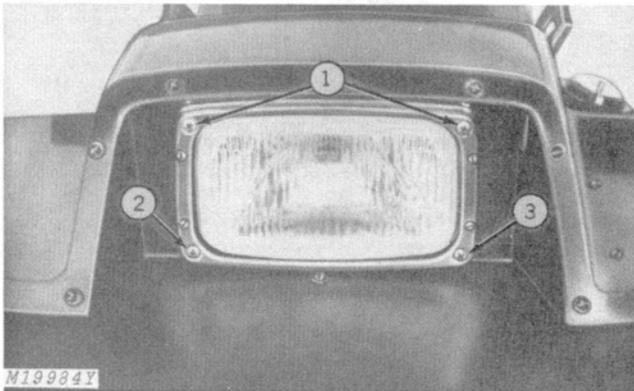


M17621

Position snowmobile on a flat surface with the headlight 25 feet (7.6 m) from a vertical surface. With an operator on the seat and the headlight on

**high beam**, the light beam centerline should be straight ahead of the machine and 27-1/4 inches (69.2 cm) above the ground level.

### ADJUSTING HEADLIGHT BEAM



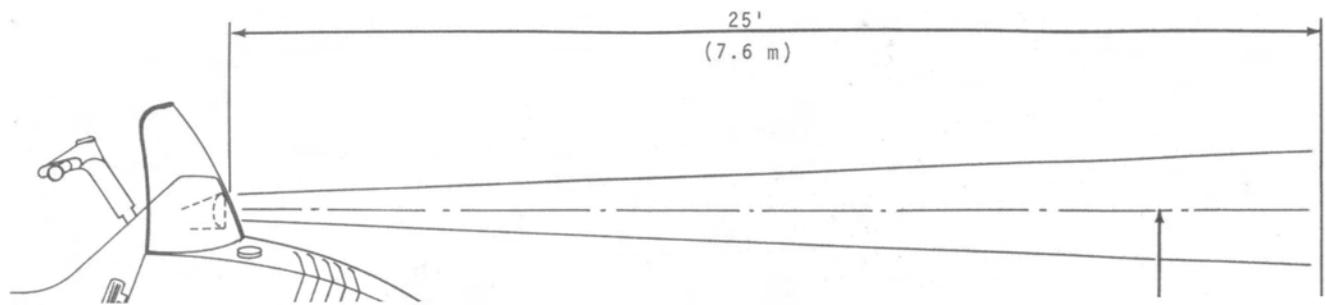
M19984Y

1. Turning these two screws clockwise lowers the light beam and turning them counterclockwise raises the light beam.

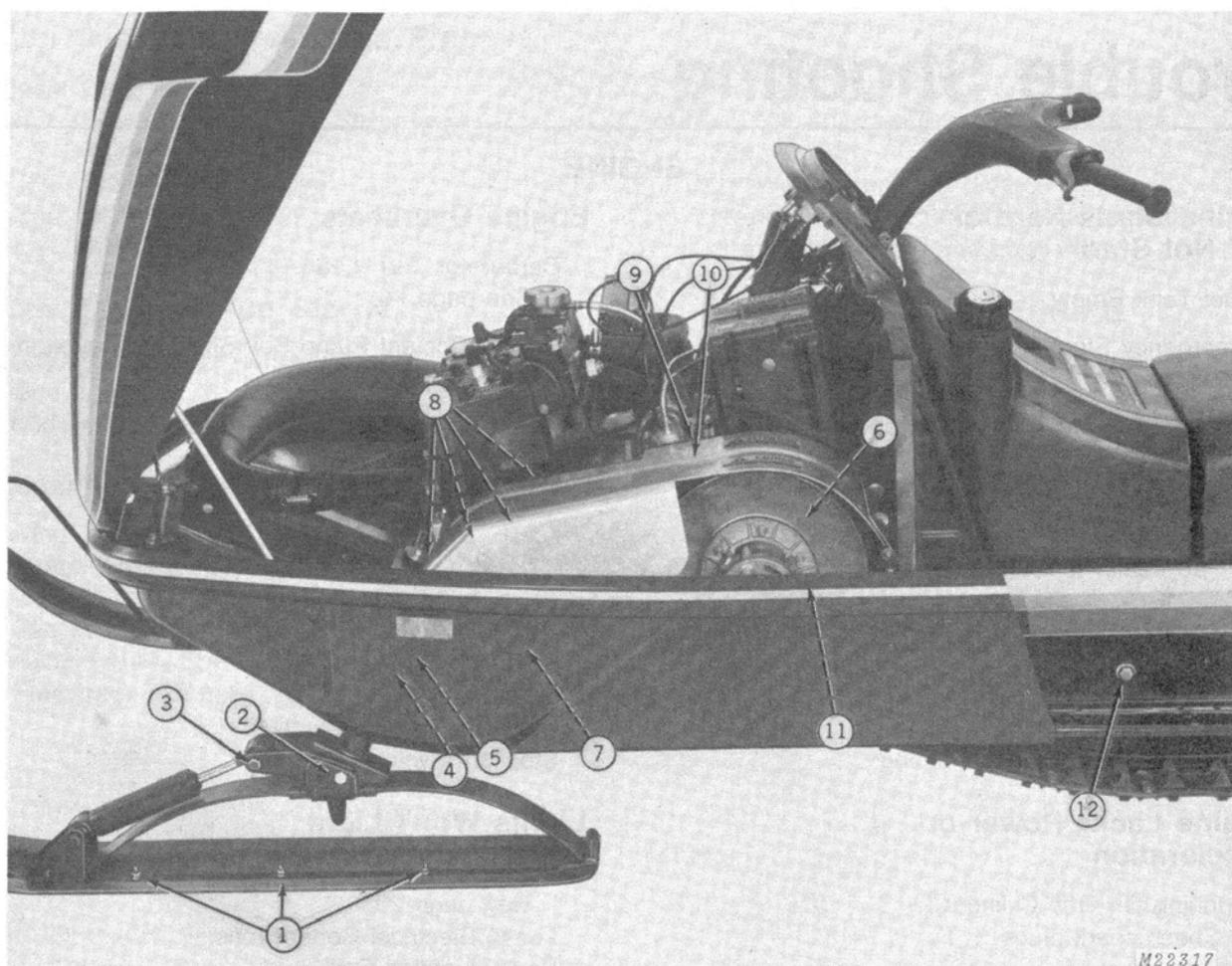
2. Turning this screw clockwise moves the light beam to the left (viewed from operator's position).

3. Turning this screw clockwise moves the light beam to the right (viewed from operator's position).

*NOTE: When making adjustments in Steps 2 and 3, it will be necessary to adjust the opposite screw by turning it counterclockwise.*



## TIGHTENING HARDWARE AND COMPONENTS



M22317

The following hardware and components should be checked for tightness on a yearly basis, before or after placing snowmobile in summer storage.

While tightening these items, also check for worn or damaged parts. Replace any parts found questionable, especially if they pertain to skis and steering.

**⚠ CAUTION: Worn, bent, or damaged ski and steering components are unsafe. Remember, your snowmobile travels at highway speeds.**

Check these items:

1. Wear rod nuts.
2. Ski bolts.
3. Shock absorber attaching cap screws.
4. Steering arm cap screws.
5. Tie rod end cap screws and jam nuts.
6. Secondary shaft bearing cap screws.
7. Drive sheave retaining cap screw.
8. Engine mounting bolts.
9. Carburetor attaching band.
10. Fuel line clamps.
11. Driven sheave retaining cap screw.
12. Check suspension as outlined on pages 21, 22 and 23.



# Trouble Shooting

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## ENGINE

### Engine Starts Hard or Will Not Start

- Fuel Tank Empty.
- Emergency Stop Switch in "OFF" Position.
- Plugged In-Line Filter in Suction Line.  
Change in-line filter.  
See Page 17.
- Fuel Pump Malfunctioning.  
See dealer for carburetor service.
- Faulty Ignition System.  
Check all electrical connections. See dealer for ignition system repair.
- Ignition Timing Wrong.  
See dealer for ignition timing.

### Engine Lacks Power or Acceleration

- Running On One Cylinder.  
Check spark plugs.
- Throttle Cable Improperly Adjusted.  
Adjust throttle. See page 14.
- Improper Fuel Mixture.  
Drain tank and fill with fuel of proper mixture. See Page 6.
- Carburetor Out of Adjustment.  
See pages 13, 14, 15 and 16.
- Restricted In-Line Filter.  
See page 17.
- Ignition Timing Wrong.  
See dealer for ignition timing.
- Belt Too Loose Due to Wear.  
Replace belt.

### Engine Backfires and Runs Unevenly

# Trouble Shooting

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### Engine Overheats

- Carburetor Too "Lean."  
See page 16.
- Engine Coolant Pump Belt Slipping or Broken.  
See page 18.
- Intake Manifold or Carburetor Gaskets Leaking.  
Coolant Level Low.

## LIGHTS

### Stoplight Not Lighting

- Bulb Burned Out.  
See page 25.
- Stoplight Switch Defective.
- Stoplight Switch Frozen.

### Lights Won't Light

- Bulbs Burned Out.  
See page 25.
- Loose Electrical Connections.
- Faulty Lighting Coil.  
See dealer.

## WINDSHIELD

### Windshield Becomes Clouded and Brittle

- Fuel or Other Hydrocarbons Cause Windshield to Deteriorate, Become Fogged or Brittle.  
Keep fuels and hydrocarbons off windshield.  
Clean windshield with a damp cloth.

## ENGINE

### Engine Starts Hard or Will Not Start

- Fuel Tank Empty.

### Engine Overheats

- Carburetor Too "Lean."  
See page 16.

## POWER TRAIN AND CHASSIS

### Clutch Does Not Disengage Properly

Engine Idles Too Fast

Set idle at slower speed. See pages 14 and 15.

Faulty Clutch (Drive Sheave).

See dealer.

Short Drive Belt.

### Clutch Engages Too Slowly

Faulty Clutch (Drive Sheave).

See dealer.

Stretched or Worn Drive Belt.

### Excessive Drive Belt Wear

Driving Snowmobile Long Distances at Clutch Engagement Speed.

Drive and Driven Sheaves Misaligned.

See dealer.

Freeing Frozen Track With Engine.

Free track manually.

### Rapid Track Wear

Operating on Bare Ground.

Track Improperly Tensioned.

See page 21.

Track Not Adjusted Equally (Side-to-Side).

See page 21.

Track Wearing on One Side.

Track not adjusted equally (side-to-side) or track too loose. See page 21.

## SKIS AND STEERING

### Loose Steering

Worn Tie Rod Ends.

See page 24.

Worn Spindle Bushings.

See page 24.

### Poor Maneuverability

Worn Ski Wear Rods.

See page 23.

Loose Steering Linkage.

See page 24.



# Storage

## PLACING SNOWMOBILE IN STORAGE

**IMPORTANT: DO NOT drain cooling system. Coolant solution must remain in system during storage.**

1. Thoroughly clean your machine with a hose to remove dirt, rocks, or grass from track area. Remove debris from inside console and hood areas.

**IMPORTANT: Do not spray water around engine or carburetor. Allow all parts ample time to dry.**

2. Clean and polish the hood, pan, and tunnel with an automotive-type wax. Use an upholstery cleaner on the seat. If metal parts are scratched or bare, touch up these areas with paint. Oil or paint bottom of skis to prevent rust. See your John Deere dealer for matching paint.

3. Check condition of all parts and assemblies so that needed parts may be ordered and installed during the summer months. Check cap screws and components for tightness. See page 27.

4. Siphon fuel from tank. Start engine and run it out of fuel at IDLE SPEED. Check in-line fuel filter for contamination and replace as necessary.

5. Wrap carburetor and air intake system with a plastic sheet and tie securely.

6. Remove spark plugs and add 1 teaspoon of John Deere 2-Cycle Oil into each spark plug hole. With plugs removed, pull starter rope several times to properly lubricate cylinder walls. Replace plugs.

7. Remove drive belt and lubricate the drive and driven sheave surfaces with a light grease to prevent corrosion.

8. Change oil in chain case. See page 20.

9. Support snowmobile so track is off ground. Loosen track adjusting screws to remove tension from track during storage.

10. Place a cover over your snowmobile and store it inside if at all possible.

# Storage

## PLACING SNOWMOBILE IN STORAGE

**IMPORTANT: DO NOT drain cooling system. Coolant solution must remain in system during storage.**

4. Siphon fuel from tank. Start engine and run it out of fuel at IDLE SPEED. Check in-line fuel filter for contamination and replace as necessary.

## REMOVING SNOWMOBILE FROM STORAGE

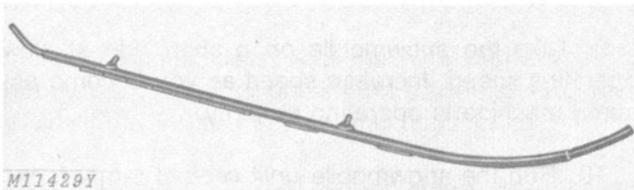
1. Check for loose cap screws and components if not done prior to storage. See page 27.
2. Wipe all grease, oil, or other lubricants from drive and driven sheave and reinstall drive belts.
3. Fill fuel tank with properly mixed fuel. See page 6.
4. Check throttle and brake controls for proper adjustment and operation. See pages 14 and 20.
5. Adjust track to proper tension. See page 21.
6. Familiarize yourself once more with all operating and safety suggestions.
7. Drain a small amount from the cooling system drain screw, page 18, into a clear glass jar and check coolant for color and sediment. After 2 years of use, replace coolant with a new 50-50 solution of anti-freeze and water.
8. Start engine and test operation of emergency stop switch, key switch, headlight, dimmer switch, tail-light and stoplight.
9. Take the snowmobile on a short ride at slow operating speed. Increase speed as you become assured machine is operating properly.
10. Run the snowmobile until coolant temperature is up to temperature. Check coolant with a hydrometer. Hydrometer should read approximately  $-40^{\circ}\text{F}$  ( $-40^{\circ}\text{C}$ ). Adjust coolant as necessary for the coldest temperature in which the snowmobile will operate.



# Accessories

The following items are all available from your John Deere Dealer.

## WEAR RODS WITH CARBIDE INSERTS



Ski wear rods with carbide inserts are available for the 340 and 440 Liquifire Snowmobiles.

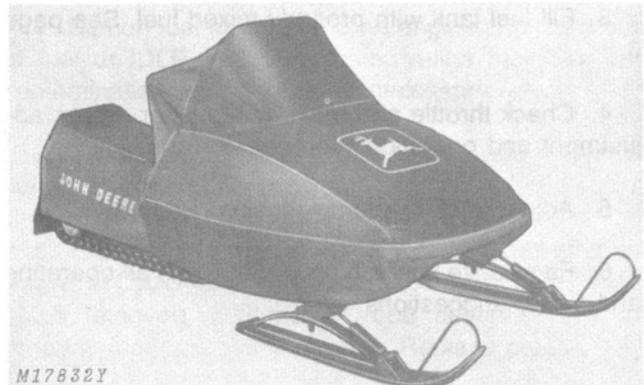
These wear rods are ideal for the performance-minded enthusiast. They provide increased maneuverability and control in addition to prolonged wear rod life.

## HIGH TORQUE DRIVE

High torque drives are available for 340 and 440 Liquifire Snowmobiles.

Increased final drive reduction provides peak operating performance under adverse snowmobiling conditions. The drives provide more torque for pulling loaded sleds and faster breakaways in deep snow conditions.

## SNOWMOBILE COVER



Protect your investment. The urethane-coated, polyester snowmobile cover provides excellent waterproof protection in addition to being tailor-fit for a sharp appearance. Use the cover when towing or storing your machine.

Covers are available for 340 and 440 Liquifire Snowmobiles.

*NOTE: Clean the cover with a mild soap and water solution. Do not use solvents or gasoline.*

# Accessories

The following items are all available from your John Deere Dealer.

## WEAR RODS WITH CARBIDE INSERTS



## SNOWMOBILE COVER

## SNOWMOBILE CLOTHING AND ACCESSORIES



M20029Y

A full line of clothing and accessories is available to make your snowmobiling both comfortable and fashionable.



M20030Y



M20031Y

Your John Deere Dealer will help you choose the clothing styles, colors, and sizes just right for you and your family.



# Specifications

## SNOWMOBILE SPECIFICATIONS

Component	Item	340 Liquifire	440 Liquifire
Engine	Manufacturer	John Deere (Kioritz)*	John Deere (Kioritz)*
	Model	KEC 340/23BLC	KEC 440/23BLC
	No. of Cylinders	2	2
	Bore	58 mm	66 mm
	Stroke	64 mm	64 mm
	Displacement	339 cc	438 cc
Fuel System	Carburetor Mfgr.	Mikuni (2 used)	Mikuni (2 used)
	Carburetor Number	AM54242	AM54245
	Tank Capacity	6-1/2 U.S. Gals. (24.6 l)	6-1/2 U.S. Gals. (24.6 l)
	Fuel Mixing Ratio	See page 6.	See page 6.
Chassis and Body	Material:		
	Tunnel and Pan	Aluminum	Aluminum
	Hood	Fiberglass	Fiberglass
	Windshield	Polycarbonate	Polycarbonate
	Overall Length	107.0 in. (271.8 cm)	107.0 in. (271.8 cm)
	Overall Width	39.0 in. (99.1 cm)	39.0 in. (99.1 cm)
	Overall Height	41.5 in. (105.4 cm)	41.5 in. (105.4 cm)
Weight	425 lbs. (192.7 kg)	425 lbs. (192.7 kg)	
Track and Suspension	Suspension Type	Slide Suspension	Slide Suspension
	Track Material	Rubber	Rubber
	Track Width	15.5 in. (39.4 cm)	15.5 in. (39.4 cm)
Power Train	Transmission:		
	Type	2 Sheave Variable	2 Sheave Variable
	Manufacturer		
	Primary	John Deere (Comet)**	John Deere (Comet)**
	Secondary	John Deere	John Deere
	Model	102C (Comet)	102C (Comet)
	Final Drive Ratio:		
	Standard	1.86:1	1.68:1
Brake	Mechanical Disk	Mechanical Disk	
Drive Belt	M66345	M66345	

\*Manufactured for John Deere by Kioritz Corporation, Tokyo, Japan.

\*\*Manufactured for John Deere by Comet Industries, Richmond, Indiana.

# Specifications

## SNOWMOBILE SPECIFICATIONS

Component	Item	340 Liquifire	440 Liquifire
Engine	Manufacturer	John Deere (Kioritz)*	John Deere (Kioritz)*

## SNOWMOBILE SPECIFICATIONS—Continued

Component	Item	Specification
Electrical System	Spark Plug (Champion) Timing	QN-1 (AM54324) See "Checking Spark Plugs" page 13 0.096 in. (2.44 mm) (BTDC) engine running at 2200 rpm (minimum)
	Lighting Coil Capacity Light Bulbs: Headlight Stop-taillight Speedometer Tachometer	120 Watt  AM53887 AM52619 AM52847 AM52847

## FUEL AND OIL MIXTURES

## United States

Ratio	Oil	Leaded Fuel
40:1	1 pint (0.473 l)	5 gal. (18.9 l)
50:1	1 pint (0.473 l)	6 gal. (22.7 l)

## Canada

Ratio	Oil	Leaded Fuel
40:1	1 U.S. pint (0.473 l)	4 Imperial gals. (18.2 l)
	1 Imperial pint (0.568 l)	5 Imperial gals. (22.7 l)
50:1	1 U.S. pint (0.473 l)	5 Imperial gals. (22.7 l)
	1 Imperial pint (0.568 l)	6 Imperial gals. (27.3 l)

NOTE: United States gallon contains 3.785 liters and the Canadian Imperial gallon contains 4.543 liters.

(Specifications and design subject to change without notice.)



# A Guide to Safe Snowmobiling

Snowmobiling has opened up a whole new world of winter family fun. But like any sport involving machines capable of high speed, there is a certain degree of hazard.

You can significantly reduce, or perhaps even eliminate, the possibility of an accident by being aware of the hazards of improper snowmobiling and by operating your snowmobile in a responsible manner.

The following tips provide a guide to safe snowmobiling. Play it smart...play it safe...and have fun.

## General Safety Tips

*Observe all safety precautions* contained on the inside front two pages of this operator's manual.

*Respect the property of others.* Keep snowmobiling fun for all. Observe the Code of Ethics on page 11.

*Join a snowmobile club.* If there's none in your area, start one. Keep alert to current and recommended snowmobile legislation. Protect the snowmobiling sport.

*Observe all governmental regulations* regarding use of streets, highways and railroad right-of-ways. Avoid trespassing on private property. Don't cut fences.



*Don't show off, act in a reckless manner or dare friends into hazardous forms of operation.* Confidence is a valuable aid in snowmobiling...but overconfidence can be dangerous.

# A Guide to Safe Snowmobiling

Snowmobiling has opened up a whole new world of winter family fun. But like any sport involving machines capable of high speed, there is a certain degree of hazard.

You can significantly reduce, or perhaps even

*Don't cut across another snowmobiler's path.* Don't cause other operators to panic by sudden changes in direction. Don't tailgate.

*Use understandable hand signals* when traveling in groups. Let others know your intentions when stopping or turning.

*Always allow adequate stopping distance,* based on ground cover conditions. Remember, ice requires a greater stopping distance...makes turning more difficult. Avoid skidding...don't apply brakes rapidly on ice.

*Don't loan your machine* to unreliable operators. You may be sued in case of injury...or held accountable in other ways for their mistakes.

*Always wear an approved helmet...*one that will not only keep you warm, but that will provide adequate protection from injury in case of an accident. A face shield could save your eyesight should you hit a small tree branch.

*Do not speed through wooded areas.* Hidden obstructions, hanging limbs, unseen ditches and even wild animals can cause accidents.

## Preparing for a Trip

*Check all cap screws and carriage bolts* for tightness. Be sure snowmobile is properly maintained to be in top operating condition. Don't operate your snowmobile when it is in need of repairs.

*Check the weather forecasts* (both long range and local) before starting out on a trip. Cancel your plans if a storm is suspected.

*Know where help is located...*study maps of the area before the trip. Note locations of phones, resorts, shelters, towns, farms and ranches. Know where fuel is available. Use the buddy system when possible.

*Don't cut across another snowmobiler's path.* Don't cause other operators to panic by sudden changes in direction. Don't tailgate.

*Use understandable hand signals* when traveling in

*Secure snowmobile to trailer* when driving to your starting point and be sure trailer lights are working. Winch the machine on the trailer...don't drive it on.

*Don't overload your snowmobile.* Use a sled with a stiff towbar to haul your supplies.

*Don't risk a heart attack if your snowmobile gets stuck in deep snow.* Carry a small block and tackle for such situations. Never let someone manually pull on the skis while you attempt to drive machine out.

*Don't operate beyond one-half the round trip cruising range of your fuel.* Keep in mind how far it is home.

*Remember...improper fuel mixtures* can lead to engine problems that could leave you stranded during severe weather conditions.

*Always carry emergency survival supplies* when going on long trips or traveling in unknown territory. Let friends and relatives know your destination and expected arrival time.

*Carry adequate eating and cooking utensils* (small pans, kettle, plates, cups, etc.) on longer trips. Carry matches in a waterproof container...candles for building a fire...food that is easy to pack...food that won't be damaged by freezing. Carry emergency rations such as dry food or space energy sticks.

*Pack extra clothing, a tent, sleeping bag, hand axe and compass.* A first aid kit and snow shoes may come in handy. Space age blankets (one side silver-foil) furnish warmth and also can be used as heat reflectors or signaling devices for aerial search parties.

### Emergency Survival Techniques

*In the event of an emergency...don't panic.* Relax, think the situation over and decide on a course of action. You may be within a short distance of help. Attempt to repair your snowmobile so you can drive to safety. But remember, conserve your energy...and stay warm.

*Avoid frostbite while servicing your machine.* Keep hands and feet active to promote circulation.

*Mentally retrace your route.* Where was the last point where help could be located? Don't attempt to walk long distances in deep snow. Make yourself comfortable until help arrives.



*Be properly equipped for your trip* and you can turn any undesirable area into a suitable campsite.

*Build a small shelter if necessary,* with tree branches or evergreen boughs. Look for a cave or sheltered area against a hill or cliff. Even burrowing in the snow offers protection from the cold and wind.

*Prepare a signal.* Set a fire using evergreen boughs and 2-cycle oil. If you can't build a fire, make an S-O-S in the snow.

*Beat cooking utensils or use a policeman's whistle* to attract attention or frighten off wild animals.

*When camp is established, climb the nearest hill* to determine your whereabouts. Observe landmarks on the way, so you can find your way back to your campsite. Don't rely on your footprints that may be covered in by blowing snow.

*Conserve food.* Eat for strength, not out of boredom. Your food may have to last you some time.

Snowmobiling makes the wide, white, wonderful world of winter your playground. It's an astonishingly beautiful place. Do your part to help keep it that way.