

**440**  
**SPORTFIRE®**  
**Snowmobile**  
(Serial No. 222,001- )



DEALER  
**SERVICE SHOP**  
COPY

**OPERATOR'S  
MANUAL**



**FILE THIS REVISED MANUAL.**  
KEEP OM-M69158 AND  
MARK IT FOR MACHINES BELOW  
SERIAL NO. 222,001

Horicon Works  
OM-M69605 Issue F2



# To The Operator



M30594  
Snowmobile Serial Number



M25441  
Engine Serial Number



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 carefully read the message that follows.

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

Record the snowmobile and engine serial numbers in the space below.

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

John Deere 440 Sportfire (Serial No. J44SM 222,001M- )

Snowmobile Serial No. \_\_\_\_\_

Engine Serial No. \_\_\_\_\_

Date of Purchase \_\_\_\_\_

(To be filled in by purchaser.)

## IMPORTANT

Snowmobiles should not be operated at temperatures above +40°F (5°C), hard starting, poor performance and possible engine damage will occur. This is especially true at high altitude with temperatures above 40°F (5°C).

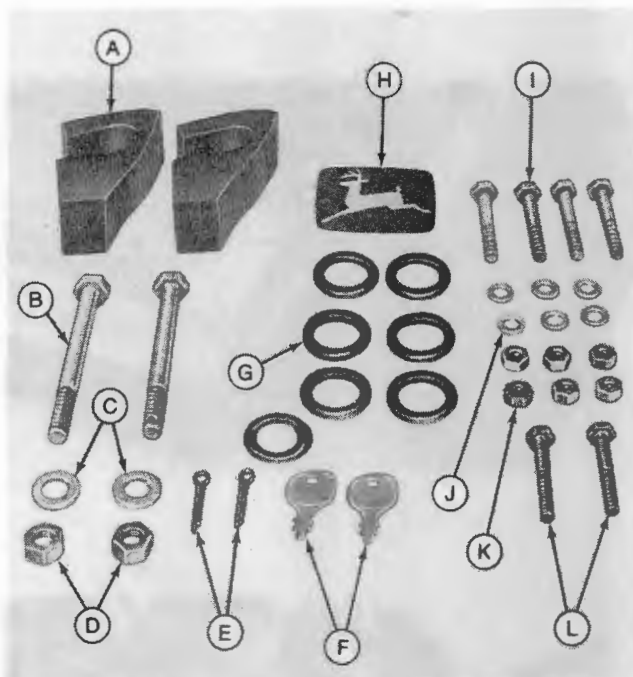
# ASSEMBLY

## Unpack Components

1. Skis
2. Windshield
3. Rear Bumper and Snow Flap Support
4. Operator's Manual
5. Bag of Parts
6. Fuel Tank Cap and Gauge

## Check Contents of Bag of Parts

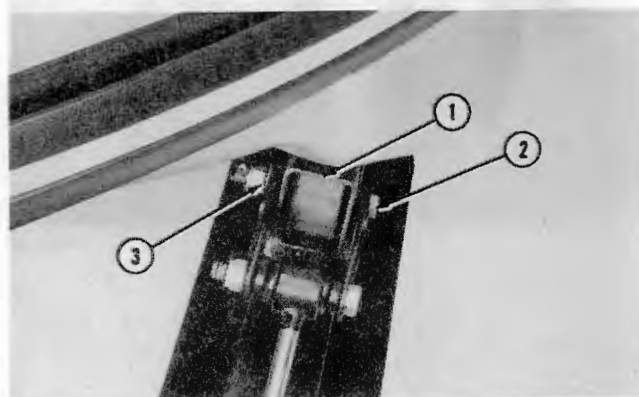
- A - Ski Spring Stop (2 used)
- B - Ski Pivot Bolt (2 used)
- C - 13/32 x 3/4-Inch Flat Washer
- D - 3/8-Inch - 24 Lock Nut
- E - Cotter Pins (2 used)
- F - Ignition Keys
- G - Windshield Retaining Rings (7 used)
- H - John Deere Medallion
- I - 1/4 x 1-3/4-Inch Cap Screws (4 used)
- J - 9/32 x 1/2-Inch Flat Washer (6 used)
- K - 1/4-Inch - 20 Lock Nut (6 used)
- L - 1/4 x 1-1/2-Inch Cap Screws (2 used)



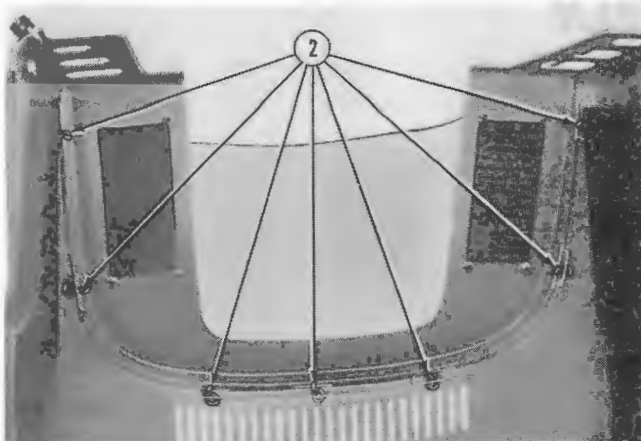
## Install Skis

**NOTE:** Bushing is factory installed in steering spindle.

1. Install rubber ski spring stop over spindle. Stop is held in place by ski saddle.
2. Position ski so that rear hole is aligned with spindle. Install ski bolt with head of bolt facing out.
3. Install 13/32 x 3/4-inch flat washer and 3/8-inch lock nut. Torque nut to 39 ft-lbs (52 N-m). Install cotter pin through bolt.



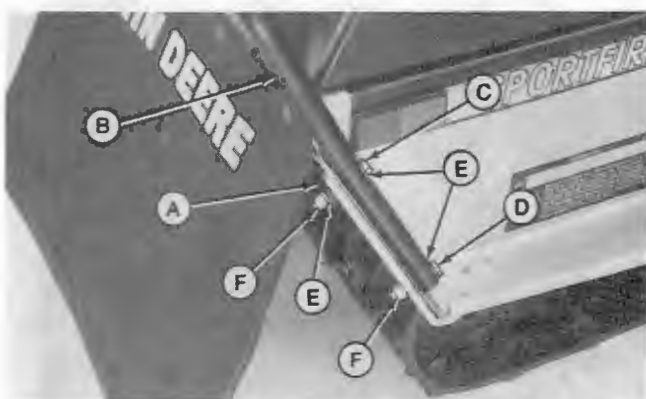
CUT HERE



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### Install Windshield

1. Bend a hook on the end of a 3/32-inch brazing rod.
2. Place windshield on hood.
3. Place the bent end of the rod through the hole in the windshield and hook the O-ring.
4. Pull O-ring halfway through hole and remove hook.



M30586

### Install Rear Bumper

Assemble rear bumper and snow flap support to tunnel as shown.

A—Snow Flap Support  
B—Rear Bumper  
C—1/4 x 1-3/4-inch  
Cap Screw

D—1/4 x 1-1/2-inch  
Cap Screw  
E—9/32 x 1/2-inch  
Flat Washer  
F—1/4-Inch - 20 Lock Nut



M25445

### Position Handlebars

1. Loosen lock nut securing handlebars in down position.
2. Use plastic mallet to loosen aluminum block before moving handlebar.
3. Move handlebar to desired position. Install two 1/4 x 1-3/4-inch bolts and 1/4-inch lock nuts. Tighten all four nuts securely.
4. Install John Deere medallion.

# PREDELIVERY CHECK LIST



**CAUTION:** When starting snowmobile, support machine so track is clear of ground. Check throttle for proper operation.

1. Align skis and check steering linkage.
2. Check track tension and align.
3. Check brakes. Adjust if necessary.
4. Check operation of choke and throttle. Adjust if necessary.
5. Start engine and check idle speed.
6. Check emergency stop and key switch.
7. Check operation of all lights.
8. Aim and adjust headlight.
9. Test drive or dynamometer test snowmobile.
10. Install accessories desired by customer.
11. Check chain case oil level. Add API GL-5 gear oil (SAE 90) if necessary.

## DELIVERY CHECK LIST

1. Explain operator's manual to customer.
2. Instruct customer about snowmobile operation.
3. Explain fuel and oil injection system. Use regular (leaded or un-leaded) gasoline with an anti-knock index of 88 or higher. DO NOT USE GASOHOL.
4. Explain to customer the use of pre-mix gasoline and oil in a 50:1 ratio for the first tank of fuel. Customer should also fill the oil tank with John Deere 2-Cycle Oil or a BIA certified 2-cycle engine oil. After break-in use gasoline only in fuel tank and 2-cycle oil in oil tank.
5. Tell customer about 10-hour or 200 mile check up.

### Break-In Period

Do not exceed 50 mph (80 km/h) for the first 100 miles (160 km), or force the machine at full throttle in deep snow. An occasional burst of power on hard-packed snow will not be harmful.

4. Tell customer about 10-hour or 200 mile (322 km) check up.



# PERFORM THESE 10 HOUR OR 200 MILE (322 km) CHECKS

The following inspection must be performed on your new John Deere snowmobile. This should be done at approximately the first 10 hours or 200 miles (322 km) of operation. It will help assure you of top performance and avoid premature failure of critical components. Your John Deere dealer is qualified to perform this inspection.

Contact your dealer to arrange for an appointment. You are obligated to deliver the snowmobile to the dealer. Any normal maintenance or repair work required, not covered by warranty, will be charged to you should you decide to have the work done.

The inspection check list is as follows:

OKAY	NEEDS REPAIR	
_____	_____	1. Track tension.
_____	_____	2. Drive belt, drive, and driven sheaves.
_____	_____	3. Chain case oil level.
_____	_____	4. Carburetor adjustment.
_____	_____	5. Carburetor mounting hardware.
_____	_____	6. Operation and adjustment of brake, throttle, and choke lever controls.
_____	_____	7. Condition of ski wear rods.
_____	_____	8. Suspension hardware.
_____	_____	9. Suspension slide wear bars.
_____	_____	10. Ski alignment.
_____	_____	11. Operation of headlight, stop-taillight, dimmer switch, and emergency stop switch.
_____	_____	12. Fan belt tension.
_____	_____	13. Engine head bolts and exhaust manifold nuts.
_____	_____	14. Steering component hardware. (Steering arms, tie rods and handlebars).

DEALER COMMENTS: \_\_\_\_\_

Dealer Name \_\_\_\_\_

Town \_\_\_\_\_

Date \_\_\_\_\_







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# Safety



M23365



**CAUTION: DO NOT** carry a passenger. Improper use or maintenance by the operator can result in injury. 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.*

*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 hill-sides. Avoid ski slopes.*

*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. Turn emergency stop switch on the right-hand handlebar. See page 8.*

*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.*

*Ice or hard surfaces do not provide the same stability as snow. Drive slower on these surfaces. Do not accelerate rapidly.*

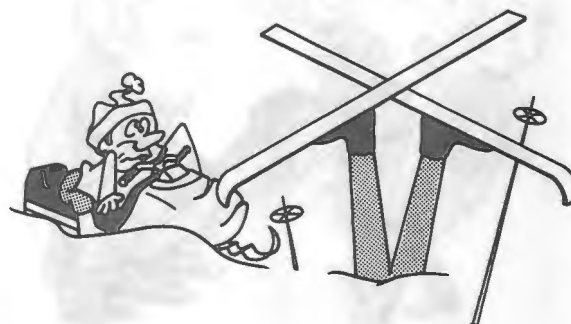
*Be sure tool box lid is closed at all times. An open lid could cause interference with steering or possible contact with the throttle lever producing unexpected acceleration.*



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M23366

*Prolonged exposure to loud noise can cause impairment or loss of hearing. Wear earplugs or any suitable hearing protective device that is comfortable when wearing a snowmobile helmet to protect against objectionable or uncomfortable loud noises. Always wear an approved helmet to guard against head injury.*

*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.*

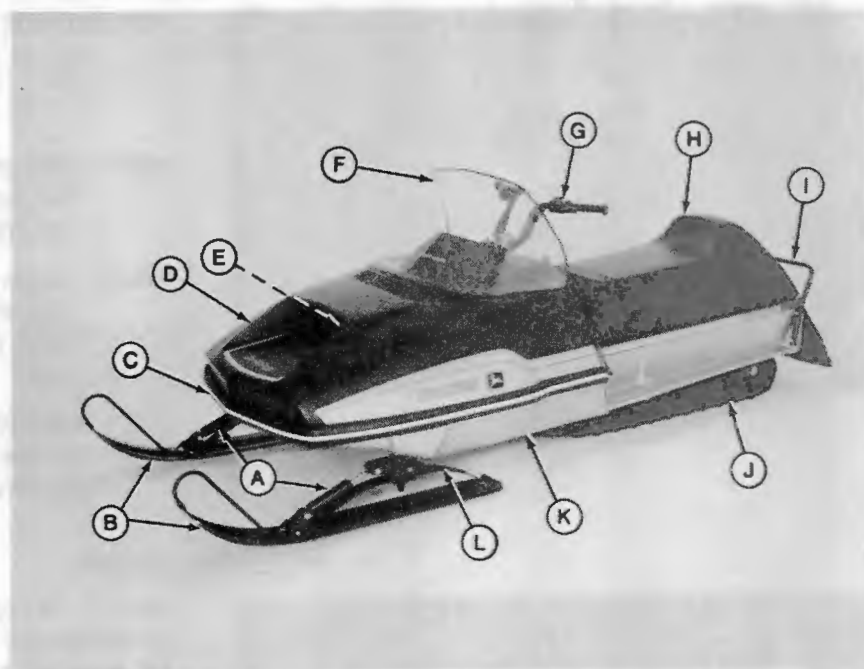
*Never lift the rear of the snowmobile to clear the track. Chunks of ice or rocks may be thrown rearward. Tilt machine on one footrest when clearing track . . . and keep all persons clear of area. Keep hands and feet clear of track.*





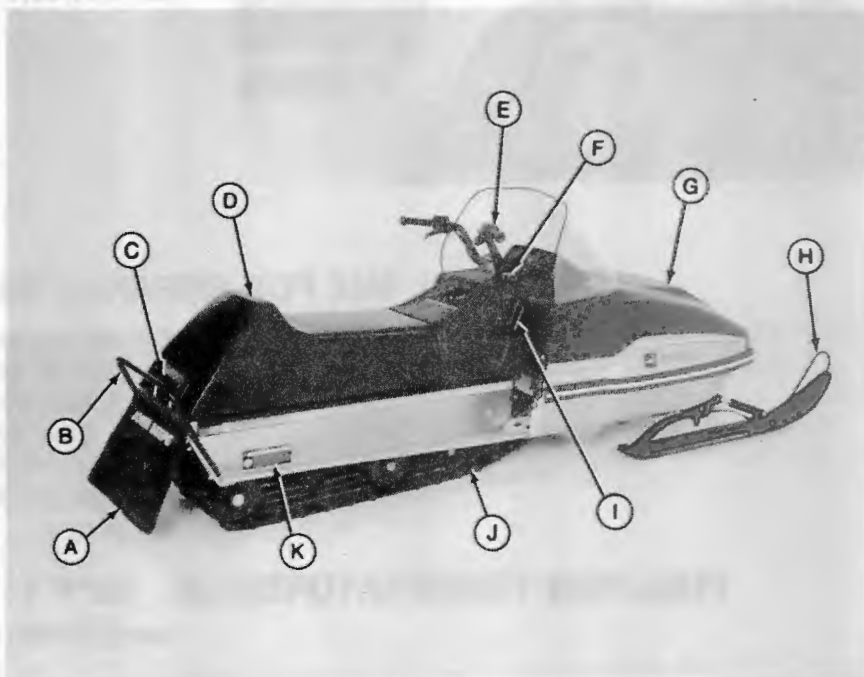
# Identification

- 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



M30597

- A—Snow Flap
- B—Rear Bumper
- C—Stop-Taillight
- D—Seat
- E—Throttle Control
- F—Fuel Tank
- G—Hood
- H—Ski Handle
- I—Recoil Start
- J—Track
- K—Snowmobile  
Serial Number



M30598



# Preparation

## FILL FUEL TANK



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**IMPORTANT:** Use regular leaded or un-leaded gasoline with an anti-knock index of 88 or higher. Never use gasoline that has been stored for a long time.

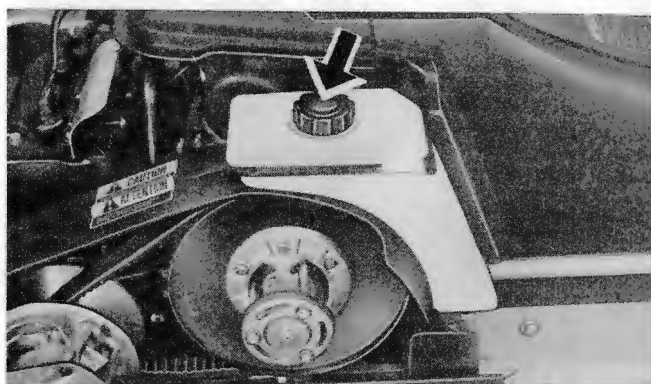
**NOTE:** Regular (leaded) gasoline is preferred but un-leaded gasoline is acceptable. **DO NOT USE GASOHOL.**

**NOTE:** When running snowmobile in powder snow or blowing snow add gasoline de-icer to the fuel tank. Use **ONLY** one 12 ounce can per tank of fuel.



**CAUTION:** Excessive amounts of gasoline de-icer will lean out the fuel mixture and could cause engine damage.

## FILL OIL TANK



M28360

**NEVER ALLOW OIL TANK TO BECOME EMPTY. MAINTAIN AT LEAST 3 INCHES OF OIL IN BOTTOM OF TANK AT ALL TIMES.** Use John Deere 2-cycle oil or a BIA approved 2-cycle engine oil. Oil tank holds 3.5 U.S. pints (1.7 L).

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

**Never use dirty or contaminated oil. The oil and oil tank must remain clean to avoid oil injection pump failure and engine damage.**

## FUEL MIX FOR BREAK-IN PERIOD

For the first tank of fuel, pre-mix gasoline and oil in a 50:1 ratio (1 pint of oil with 6 U.S. or 5 Imperial gallons) and fill fuel tank. Fill the oil tank with John Deere 2-cycle oil or its equivalent.

After the break-in period, use **ONLY GASOLINE** in the fuel tank and John Deere 2-cycle oil or its equivalent in the oil tank.

## FUEL FOR TEMPERATURES OF $-20^{\circ}\text{F}$ ( $-29^{\circ}\text{C}$ ) OR BELOW

**IMPORTANT:** Use a 50:1 gasoline and oil pre-mix in the fuel tank and fill the oil tank with 2-cycle oil. **DO NOT** use straight gasoline in the fuel tank. The oil injection system may not function efficiently at  $-20^{\circ}\text{F}$  ( $-29^{\circ}\text{C}$ ) and this could cause engine failure.





# Operation

## BREAK-IN PERIOD

Do not exceed 50 mph (80 km/h) for the first 100 miles (160 km), or force the machine at full throttle in deep snow. An occasional burst of power on hard-packed snow will not be harmful.

## BEFORE OPERATING

1. Clean windshield with a damp cloth. Do not use gasoline, solvents or abrasive cleaners.
2. Check skis, wear rods, and all steering components. Check steering for a full right and left-hand turn.
3. Check track for proper tension.
4. Check fuel level.
5. Start engine and test operation of emergency stop switch, key switch, headlight dimmer switch, headlight and stop-taillight.

## STARTING ENGINE



**CAUTION:** Be sure area in front of machine is clear. Be prepared to apply brake to prevent snowmobile movement.

### Cold Starting

1. With no choke and no throttle, pull recoil start to turn engine over two or three times.
2. Flip choke lever straight up (normal position). In extreme cold weather, flip choke over center all the way (richer position).
3. Emergency stop switch must be in center position.
4. Turn key switch "ON". DO NOT press throttle lever.
5. Pull recoil start rope.
6. When engine starts, allow it to run briefly before pushing choke lever down.

**NOTE:** If choke was in rich position, push down to normal position and allow engine to warm up.

7. If engine becomes "flooded", close the choke. Hold the throttle in wide open position. Pull start rope until engine "pops". Release throttle. Pull recoil start rope until engine starts.

**NOTE:** Remove and dry plugs if engine is extremely flooded.

**IMPORTANT:** DO NOT permit engine to idle for long intervals. Shut engine off whenever you stop.



Normal Choke



Richer Choke

## Warm Starting

1. Emergency stop switch must be in center position.
2. Turn key switch "ON".
3. Pull recoil start rope.

**NOTE:** *DO NOT use choke.*



M28361

## Emergency Starting

1. Raise the hood.

**NOTE:** *Leave belt guard in place. Do not raise or remove it.*

2. Push secondary clutch in slightly to relieve belt tension. This allows for easier starting.
3. Wind rope counterclockwise around clutch.

**CAUTION:** **DO NOT** wind rope around your hand. Use "T" handle from tool kit. When starting engine, use a sharp, crisp pull on rope so rope comes free of clutch. **DO NOT** allow rope to become tangled in drive belt when engine starts.

4. Keep all people clear of snowmobile when starting engine with emergency start procedure.

**CAUTION:** Knotted end of rope comes free of clutch when rope is pulled. Knotted end could snap into a bystanders face and cause personal injury.

## STOPPING ENGINE



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1. Release throttle lever.
2. Turn emergency stop switch up or down.
3. Apply brake.
4. Before restarting, emergency stop switch must be turned to center position. Always check emergency stop switch before attempting to start engine.
5. Turn key switch "OFF". Remove key before leaving machine unattended.



## LIGHTS

**NOTE:** The lights are automatically "ON" whenever the engine is running.

1. Stoplight comes on when brake is applied.
2. Turn dimmer switch to low beam.
3. Turn dimmer switch again for high beam.

**NOTE:** If one filament of bulb fails, the other beam can still be used. See pages 24 and 25 for adjusting headlight and changing bulbs.



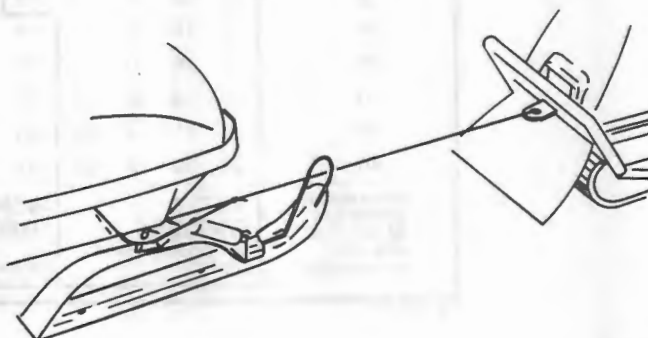
M24910

## TOWING



**CAUTION:** Always use a solid towbar when possible. Flexible ropes or pull straps do not allow for control on turns or when stopping.

1. Remove drive belt.
2. Connect only one ski of disabled machine to the tow machine.
3. DO NOT use rear bumper for towing.
4. When towing with a rope or strap, run rope through ski handle and around ski spindle. Do not loop rope through both skis, because this may damage the steering tie rod.



M27883

## CLEARING TRACK

1. Clear track after operating in slushy snow.
2. Tip machine on its left side until track clears the ground.
3. Spin track at moderate speed until snow and ice are thrown clear.



**CAUTION:** Be sure no one is behind machine when clearing track. Injury could result from ice or rocks thrown from track.

**IMPORTANT:** If track freezes, free it manually. Do not use the engine to break track loose. The drive belt will be burned and damaged.

## DRESSING FOR THE WEATHER

1. To prevent frostbite, dress for the wind and weather.
2. Wear protective clothing and accessories.
3. The chart provides a guide and illustrates the danger zones.



**CAUTION:** Always wear a snowmobile helmet. The helmet provides both warmth and protection against 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

M10123

## TRANSPORTING



M28362

Close fuel shut-off valve when transporting the snowmobile. Valve is off when handle is straight up. Valve should also be closed when snowmobile is stored.



# Service

## SERVICE INTERVAL CHART

Item	As Needed	Daily	Every 150 Miles	Every 300 Miles	Annually	Page
Clean windshield.	X					7
Check condition of skis and steering.		X				22,23
Check track condition and tension.		X				20,21
Check throttle control operation.		X				14,15
Check operation of brakes.		X				18,19
Check emergency stop and key switch.		X				8
Check lighting system.		X				9
Check chain case oil level.			X			19
Check chain tensioner.				X		19
Check in-line fuel filter.					X	17
Check in-line oil filter.	X				X	16
Check oil injection pump.					X	16
Check drive belt condition.		X				18
Check carburetor adjustments.			X	X	X	13,14,15
Check choke adjustments.			X	X	X	13
Check fan belt tension.				X	X	17
Check ski alignment.	X					23
Check headlight adjustment.	X					24
Check ski wear rods and wear plates.				X	X	22
Check slide suspension wear bars.				X	X	20
Use Never-Seez on throttle cable end.					X	14
Check all components for condition and tightness.					X	27
Service drive and driven sheaves.					X	18
Store snowmobile properly.					X	28
Grease L.H. track drive shaft bearing.	X				X	26
Grease steering column bushing.					X	26

## SPARK PLUGS

### Removing Spark Plugs



**CAUTION:** High-energy ignition systems can produce injurious electrical shock. Stop engine and remove key before working on ignition.

1. Stop engine.
2. Pull connectors from plugs.

**IMPORTANT:** Do not pull on wire to remove connectors. Pull on connectors only.

3. Remove plugs.

### Checking Spark Plugs



**CAUTION:** Do not hold the plug or plug wire in your hand when checking for spark.

DO NOT remove plugs from engine for this test. If crankcase is full of fuel and engine is turned over, gasoline may spew out spark plug hole, causing a fire hazard.

1. Reconnect spark plug wire to a new spark plug.
2. Lay plug on engine.
3. With ignition "ON," pull recoil start rope and check for spark.

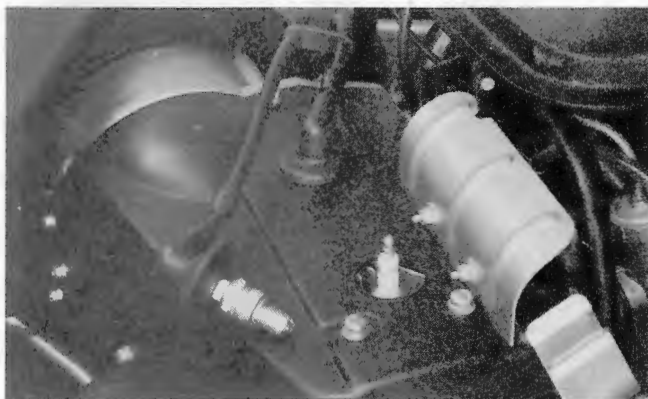
New plugs are gapped at 0.025 inch (0.635 mm). The gap will widen in proportion to the hours and miles of use. When plug gap reaches 0.045 inch (1.143 mm), or if plug malfunctions, replace it.

Plug Appearance	Possible Cause
Tan or Cocoa Brown	Proper fuel mixture, good combustion.
Black or Sooty	Fuel mixture too rich, poor combustion.
White or Light Tan	Fuel mixture too lean, hot combustion.

**NOTE:** Replace plug if appearance is abnormal, engine starts hard or malfunctions.

### Installing Spark Plugs

1. Clean plug seating surface on cylinder head.
2. Install plugs and tighten to 20 ft-lbs (27 N·m) torque.
3. Connect spark plug wires.



M30884

## CARBURETOR AND OIL INJECTION PUMP

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

The carburetor is a float-type fixed main jet carburetor. The float in the fuel bowl maintains a constant fuel level in the bowl. The fixed main jet eliminates high-speed adjustments. Altitude and temperature variations may require main jet changes.

**IMPORTANT: DO NOT run engine with air intake silencer removed. To do so will cause engine to run lean and could cause engine failure.**

### Choke System

A separate metered choke system is used. The system is opened and closed by a choke plunger. Do not open the throttle when starting the engine, otherwise the fuel-air mixture will be too lean for starting.

### Adjusting Choke Plunger

1. Remove air intake silencer.
2. Place choke lever down (closed).
3. Look in the choke plunger hole in the carburetor throat. Plunger should be all the way down in the bore.
4. To adjust plunger, loosen jam nut and turn adjusting sleeve clockwise. This moves plunger down. Tighten jam nut.

**IMPORTANT: Plunger must be down tight in bore or the carburetor will run "rich". This will affect engine performance.**

5. Raise choke lever and look in choke plunger hole. Plunger should raise enough to expose at least half the hole opening.
6. Start and run engine until it idles smoothly.
7. Insert a 0.030 inch (0.762 mm) feeler gauge between choke lever and dash (dash must be in down position). This should indicate free-play and should not affect engine idle.





### Adjusting Throttle Cable

1. Remove air intake silencer.
2. Lock throttle lever against handgrip with a clamp or strong rubber band.
3. Place your finger in throat of carburetor so you can feel the backside of the throttle valve.
4. Loosen jam nut and turn adjusting sleeve until the backside of throttle valve is flush with the bore. Tighten jam nut.

**NOTE:** No part of the throttle valve should restrict air flow through the carburetor throat when throttle is in the wide open position. Use Never-Seez on the throttle cable end in the throttle lever.



Idle Adjusting Screw



Air Screw

5. Turn idle adjusting screw counterclockwise until the tip is flush with inside of bore.
6. Remove clamp or rubber band from throttle lever. This allows throttle valve to fully seat in bore.
7. Turn idle adjusting screw clockwise until screw contacts throttle valve. Turn screw clockwise two additional turns. This gives preliminary idle speed.
8. Look into throat of carburetor and slowly compress throttle lever. The throttle valve should begin to rise; if not, repeat Steps 2, 3, and 4.
9. Turn air screw in until slight seating resistance is felt.
10. Back air screw out 1-1/2 turns.
11. Install air intake silencer and run engine until operating temperature is reached. If idle speed is not correct, turn idle adjusting screw in or out until idle speed is correct (2400 to 2700 rpm).

**IMPORTANT:** NEVER use air screw to set engine idle. Air screw should be adjusted as explained in Step 10.

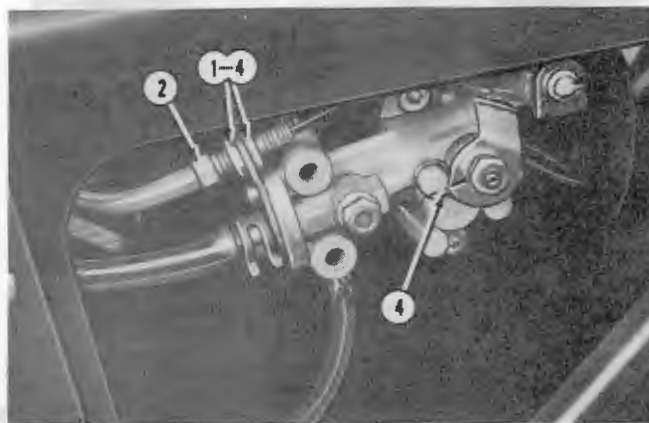


## Adjusting Oil Injection Pump

**IMPORTANT:** The oil injection pump lever must be adjusted to move at exactly the same time that the carburetor throttle valves start to rise.

Adjust oil injection pump as follows:

1. Loosen the two jam nuts securing the oil injection pump control cable adjusting sleeve.
2. Back sleeve out to tighten cable or turn in to loosen cable. Cable should have slight free-play; it should not be stretched tight.
3. Press the throttle lever on the handgrip and observe throttle valve and oil injection pump control lever. The throttle valves and lever should all start to move at exactly the same time.
4. When adjustment is correct, (marks will align). Tighten the jam nuts securing the oil injection pump control cable adjusting sleeve.



M28363

**IMPORTANT:** Lubricate throttle cable once each season with LPS or WD-40. Hold the throttle lever against the handgrip and allow lubricant to run down cable. **DO NOT** use engine oil or silicon spray. These lubricants may destroy the plastic components of the throttle cable or cause control cable to become sticky in cold temperatures.

## Replace Carburetor Main Jet

1. Remove air intake silencer.
2. Remove throttle valve assembly from top of carburetor.
3. Loosen clamp securing carburetor to intake manifold.
4. Remove carburetor from intake manifold.
5. Turn carburetor for access to float bowl screws.

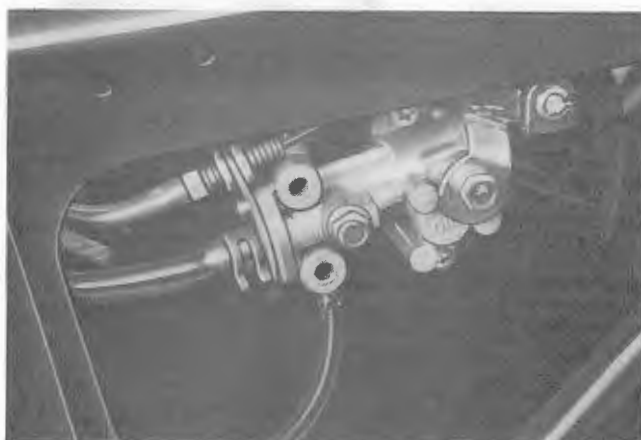
**CAUTION:** Fuel in carburetor float bowl drains out when bowl is removed. Place sufficient material under carburetor to soak up spilled fuel when bowl is removed. Avoid fires due to smoking or careless maintenance practices.

6. Remove float bowl from carburetor.
7. Replace main jet in carburetor float bowl.
8. Reverse procedure to install carburetor.



M30600

## OIL INJECTION PUMP



M28364

Check oil flow annually. See your John Deere dealer for this service.

## IN-LINE OIL FILTER



M27765

Replace oil filter annually or immediately if oil level in oil tank does not drop. Minimum oil level at bottom of tank must be 3 inches (76 mm) for oil pump to function correctly.

## MAIN JET CHART

Carburetor and clutch changes, adjustments or modifications may be necessary for operation at altitudes above 4000 feet (1219 m). See your John Deere dealer.

Temperature	Main Jet	Power Jet	Altitude
0°F to -40°F (-18°C to -40°C)	210	170	Sea Level to 4000 Feet (1219 m)
0°F to +40°F (-18°C to +5°C)	200*	170*	

\*Factory Installed



## IN-LINE FUEL FILTER

Change the filter annually or when contamination builds up in the cone.



M30601

## AIR INTAKE SILENCER

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

1. Remove silencer.
2. Shake or blow out silencer to remove any trash.
3. Install silencer.

**IMPORTANT: DO NOT run engine with air intake silencer removed. Serious engine damage will result.**



M25462

## CHECKING FAN BELT TENSION

Remove air intake duct and fan cover.

Use your finger to deflect belt as shown. If more than 3/8-inch (9.52 mm) deflection is possible or if belt condition is questionable, see your John Deere dealer.

Install fan cover and air intake duct.



M25463

## DRIVE SYSTEM

### Servicing Drive and Driven Sheaves

Once a year, service the drive and driven sheaves. See your John Deere dealer for this service.

### Replacing Drive Belt

The drive belt should be replaced if its width is reduced by 1/8 inch (3.18 mm). A narrow belt reduces snowmobile top speed. Correct width is 1-1/4 inches (31.75 mm).

If drive belt wears rapidly, drive and driven sheaves may be out of alignment. See your John Deere dealer. A belt worn narrow in one area is caused by trying to free a frozen track with the engine. Free a frozen track manually before starting engine.



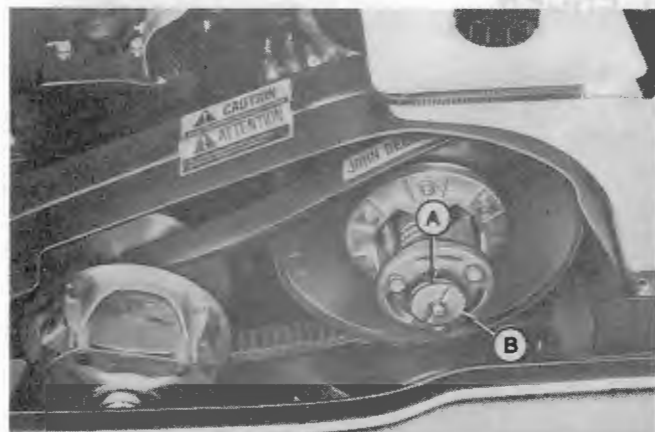
**CAUTION:** Keep fingers out of area between driven sheave halves. If driven sheave sticks, use care in opening it to prevent hand from being pinched.

1. Push in on center of driven sheave and rotate clockwise and lift belt up and over sheave half.
2. Remove belt from drive sheave.

**IMPORTANT:** Never pry belt over sheaves.

3. Install belt in reverse sequence. Always install belt so that number on belt can be read when viewed from the left-hand side of the snowmobile.

**NOTE:** As belt wear increases or if belt stretches, remove spacer washer (A) from behind retaining washer (B). When new belt is installed, replace washer. Torque cap screw to 20 ft-lbs (27 N·m). If snowmobile has a tendency to creep at idle speed after installing a new belt, add a washer.



M27809

A—Spacer Washer

B—Retaining Washer



M25486

### Adjusting Brake

1. Apply the brake control lever and measure the distance from the lever to the handgrip. It should be 1 to 1-1/2 inches (25 to 38 mm).
2. Adjust brake by loosening jam nut and turning cap screw in. Retighten jam nut securely.



**CAUTION:** DO NOT adjust jam nuts on brake cable.

3. Check brake tension.
4. Readjust if necessary.

**NOTE:** Be certain dowel on end of brake cable is seated properly in recess of brake control lever.

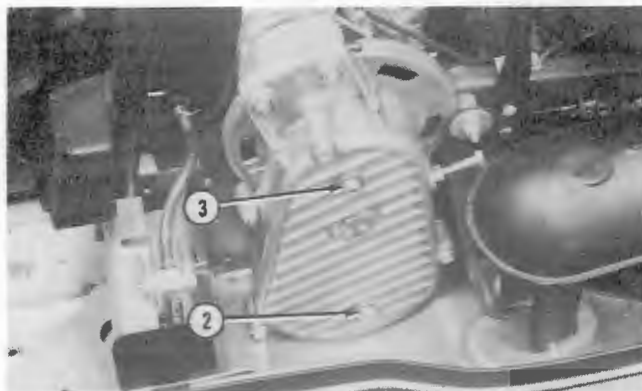
5. After brake adjustment, check operation of stoplight switch. If stoplight does not work, check for a defective switch.



M24914

### Checking Chain Case Oil Level

1. Park snowmobile on a level surface.
2. Remove lower plug from chain case. If oil flows from this hole, oil level is satisfactory.
3. To add oil, remove upper plug and add API-GL5 gear oil until it flows from lower hole.
4. Install plugs.



M30602

### Checking Chain Tensioner

1. Loosen jam nut and turn adjusting screw in finger tight.
2. Turn the driven sheave 1/2 turn forward, check adjusting screw again. Turn driven sheave another 1/2 turn and check adjusting screw a second time.
3. Back off adjusting screw 1/4 turn, and tighten jam nut.



M30603

## SLIDE SUSPENSION

The slide suspension system requires lubrication between the plastic wear bar and track metal clip. The absence of lubrication (snow or water) causes the plastic wear bar to wear rapidly and in severe cases, literally melt away.

Operation of the snowmobile under the following conditions should be avoided.

1. Dirt
2. Rocks
3. Sand
4. Grass
5. Bare Pavement
6. Snow permeated with dirt and sand
7. Glare ice surfaces

**IMPORTANT:** When running on ice or packed snow at high speed, the wear bars will heat up. Either reduce speed or frequently stop. Apply ice or snow to the track to lubricate the wear bars.

### Replacing Wear Bars

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

1. Tip snowmobile on its side.
2. Check wear bars in several places for cracks, thin areas and sand or gravel imbedded in the bar.

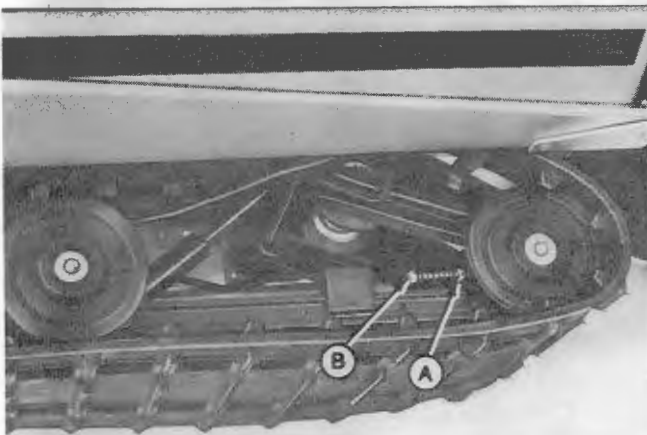
*NOTE: Sand or gravel imbedded in the wear bars acts as an abrasive and will destroy the steel grouser bars in the track.*

3. If any of these conditions exist, see your John Deere dealer for wear bar replacement.

### Adjusting Track Tension

Check track tension and alignment frequently. A loose track causes excessive slap and could damage the track, tunnel or slide assembly. A tight track requires additional power to operate.

1. Suspend or support snowmobile so track is clear of ground.
2. Loosen jam nuts (A) on track adjusting screws (B).
3. Turn adjusting screws (B) to tension track.
4. Measure below the lower shock absorber mount for clearance of flush to 1/2 inch (12.7 mm) between track and slide wear bar. Both sides should be equal. Tighten jam nuts.



A—Jam Nuts

B—Adjusting Screws

M28366

### After Adjusting Track Tension

1. Start engine and allow track to rotate slowly several times. Shut off engine and allow track to coast to a stop. **DO NOT APPLY BRAKE TO STOP TRACK.**
2. Check alignment. Rear idler wheels should run in center of drive lugs.
3. Slide rail wear bar should be in middle of each slide rail opening of track.
4. If either Step 2 or 3 indicates a need for adjustment, repeat the procedure.

**NOTE:** Track will run to the loose side. If track is too far to the left, tighten the left adjusting screw to move the track to the right.

### Adjusting Suspension Springs

Ride the snowmobile to determine adjustment requirements.

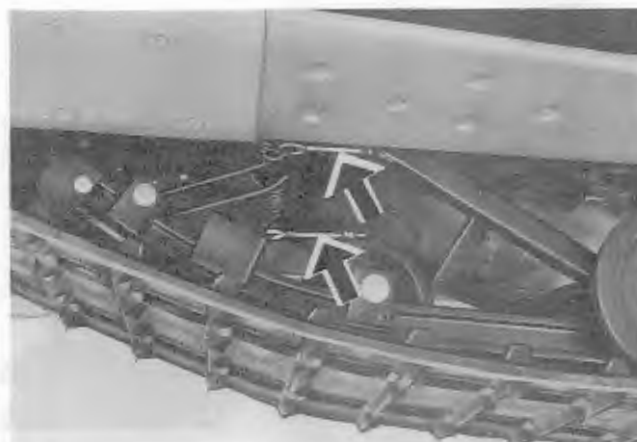
#### Front Springs

If the front springs are 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. Front torsion springs are not the only adjustment for ski lift, but they do contribute.

To reduce spring tension, turn adjusting nuts counterclockwise. Be sure that at least two threads of the adjusting screws protrude through the nuts.

#### Rear Springs

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



M28367

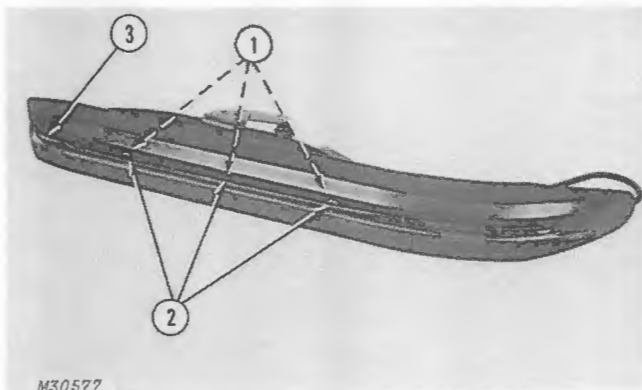


M28368

A—Bottom Position

B—Top Position

## SKIS



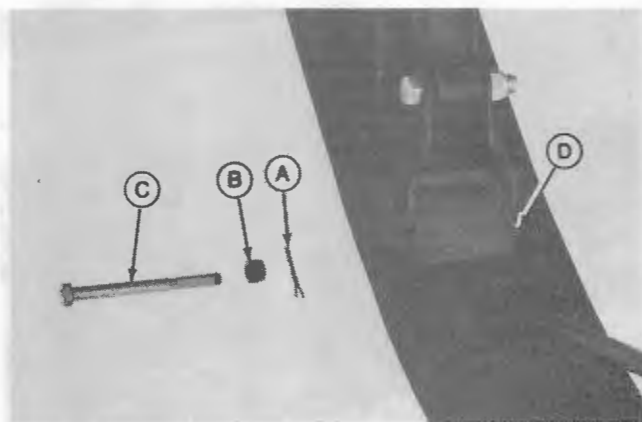
M30577

M30577

### Replacing Ski Wear Rods

Wear rods should be replaced when they are worn to one-half their original size.

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



M30885

A—Cotter Pin

B—Drilled Pin

C—Wear Plate

### Replacing Ski Wear Plates

Replace wear plates when excessively worn.

1. Raise front of snowmobile.
2. Remove cotter pin (A) and drilled pin (B).
3. Lift spring and remove wear plate (C).
4. Install new wear plate.
5. Lower spring and install drilled pin and cotter pin.



## Aligning Skis

When properly aligned, skis are parallel and handlebars are positioned straight ahead.

1. Raise front of snowmobile slightly to take weight off skis.
2. Disconnect drag link from steering arm.
3. Loosen jam nuts on tie rod ends. Gold-colored tie rod has left-hand threads. Loosen nuts opposite normal rotation.
4. Turn tie rod to align skis. Measure from straight edge of skis; not tapered ends. Distance should be equal at locations shown.

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

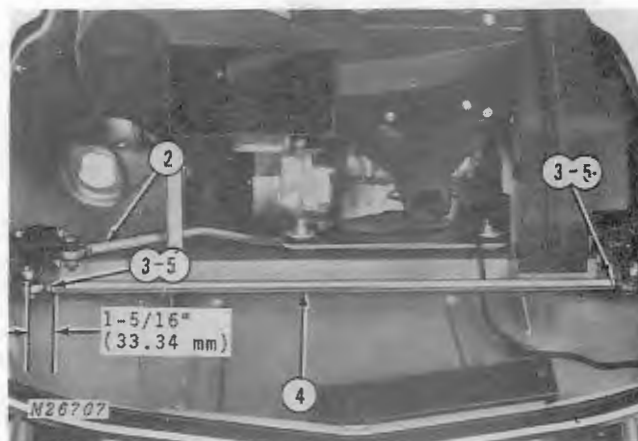
5. Tighten jam nuts on each end of tie rod (A). Hold tie rod when tightening jam nuts. This prevents stripping threads in ball joint.

**IMPORTANT: After jam nuts are tight, be sure tie rod ends swivel freely.**

6. Turn drag link (B) as required to position handlebars straight ahead. Reconnect drag link to steering arm.



M30604



M26707

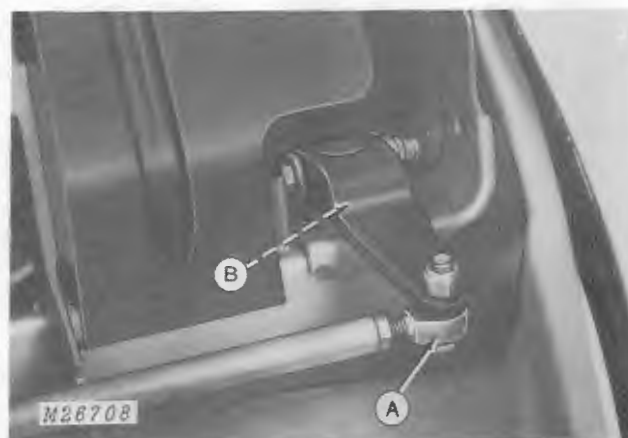
## Eliminating Loose Steering



**CAUTION: Check steering components and hardware frequently for condition and tightness.**

The two major causes of loose steering are:

1. Excessively worn tie rod ends (A).
2. Excessively worn spindle bushings (B).
3. Replace or tighten parts as required.

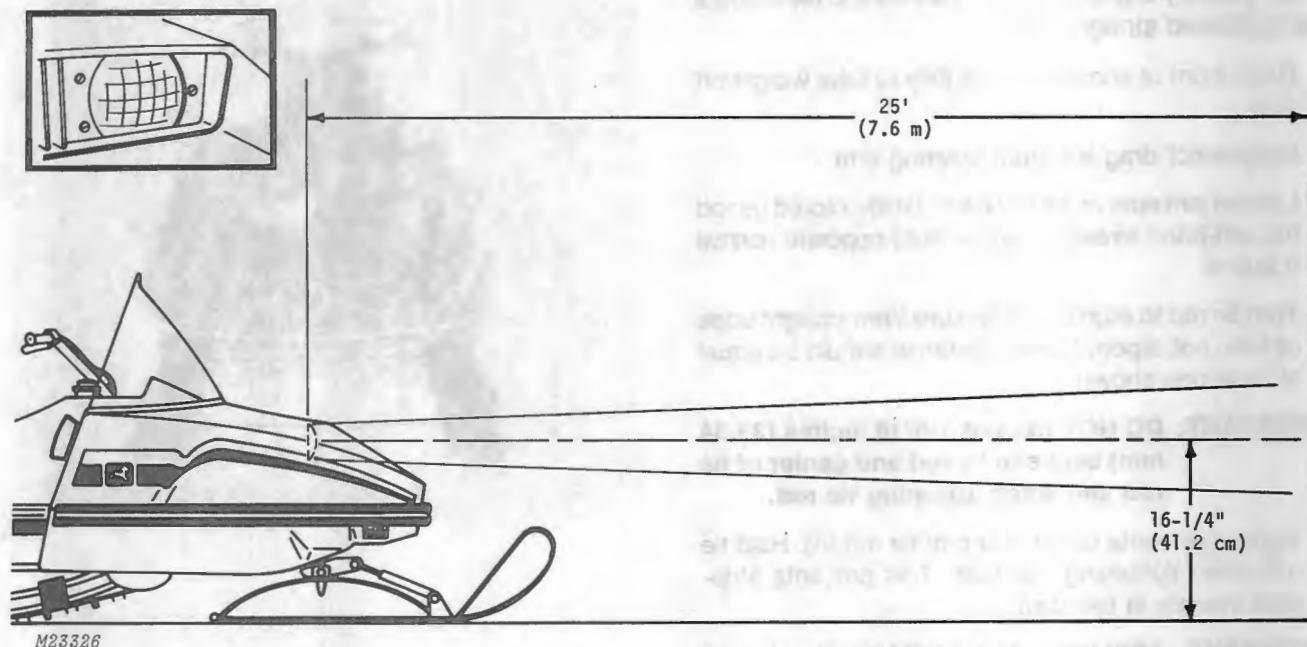


M26708

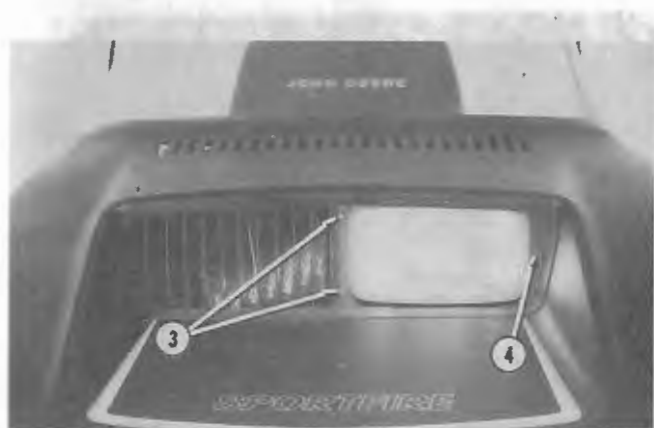
A—Tie Rod End

B—Spindle Bushing

## LIGHTING SYSTEM



M23326



M30605

### Adjusting Headlight

1. Position snowmobile on a flat surface with the headlight 25 feet (7.6 m) from a vertical surface.
2. With operator on seat and headlight on "HIGH" beam, light beam center line should be straight ahead and 16-1/4 inches (41.2 cm) above ground level.
3. Loosen or tighten the two adjusting screws to raise or lower the light beam.
4. Loosen or tighten the adjusting screw to move the light beam right or left.

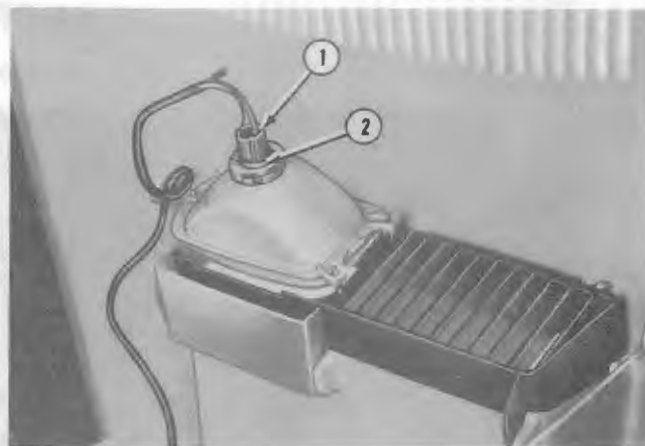


## Replacing Headlight Bulb

1. Disconnect the wiring harness from the light bulb.
2. Push and turn bulb counterclockwise to remove bulb.
3. Install new bulb in opposite sequence.

**IMPORTANT:** Be sure bulb locking tabs match slots.

4. Connect wiring harness to light bulb.



M28371

## Replacing Stop-Taillight Bulb

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

**IMPORTANT:** Be sure bulb locking tabs match slots.



M30606

## Replacing Speedometer Bulb

1. Pull the bulb socket out of the instrument.
2. Push and turn bulb counterclockwise to remove bulb from socket.
3. Install new bulb in opposite sequence.



M25476

M25476

## LUBRICATION



M28372

### Steering Column Bushing

Lubricate grease fitting at the lower end of the steering column once each year. This should be done prior to the summer storage period. Apply 2 to 3 shots of multipurpose grease.



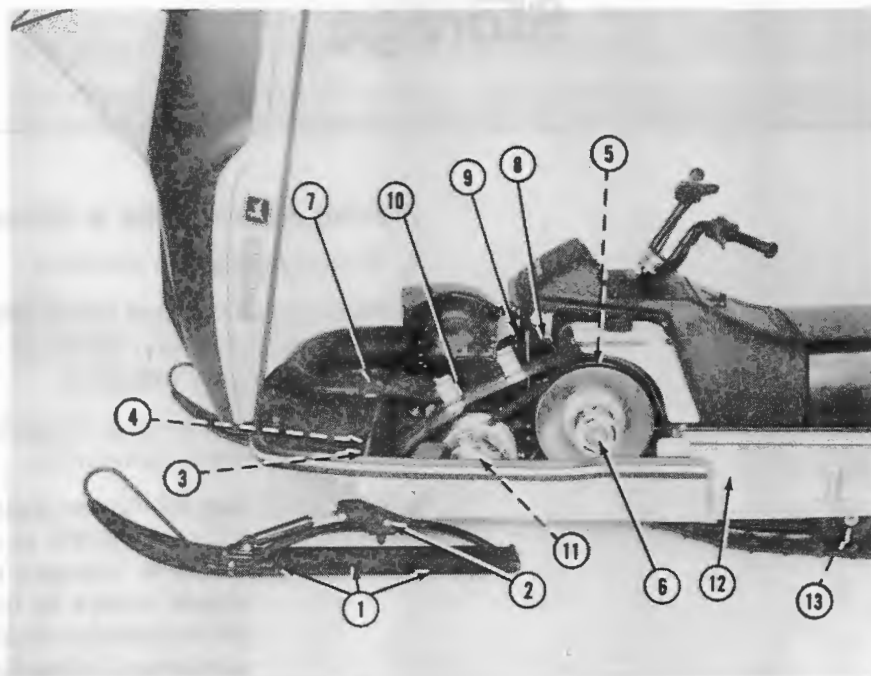
M28373

### Track Drive Shaft Bearing

The left-hand bearing is subjected to large amounts of water during some types of running. The bearing should be re-lubricated after any excessive use in very wet conditions. Use 2 to 3 shots of multipurpose grease.

Also lubricate the bearing when the snowmobile is prepared for summer storage.

## TIGHTENING HARDWARE AND COMPONENTS



M30607

Check hardware and components for tightness, wear and damage on a yearly basis. Replace any parts that are questionable.

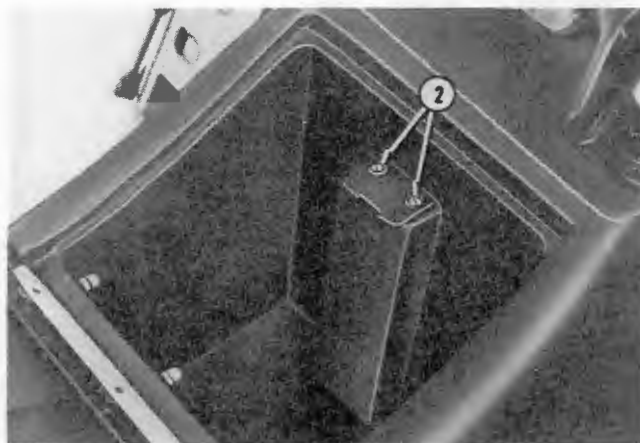


**CAUTION: Worn, bent or damaged ski and steering components are unsafe.**

1. Wear rod nuts.
2. Ski bolts.
3. Steering arm bolts.
4. Tie rod end bolts.
5. Secondary shaft bearing cap screws.
6. Driven sheave cap screw.
7. Muffler springs.
8. Throttle and choke cables.
9. Carburetor attachment.
10. Engine mounting bolts.
11. Drive sheave cap screw.
12. Suspension cap screws.
13. Shock absorber cap screws.

### Adjusting Glove Box Door Latch

1. Open glove box door.
2. Loosen screws and move latch forward or rearward.
3. Tighten screws.





# Storage

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## Placing Snowmobile in Storage

1. Thoroughly clean snowmobile.
2. Polish hood, pan and tunnel with automotive-type wax. Use upholstery cleaner on seat. Touch-up all bare metal parts with paint.
3. Check cap screws and components for tightness. Order any new parts required.

**IMPORTANT:** Use John Deere Gasoline Storage Stabilizer (TY6295) or equivalent in the fuel tank. Gasoline storage stabilizer should always be used when storing the snowmobile to prevent carburetor varnishing and partial plugging of carburetor jets. Either of these conditions could cause the engine to run lean and result in piston seizure and engine failure.

4. Replace in-line fuel filter.
5. Remove spark plugs and add 1 teaspoon of 2-cycle oil in each cylinder. Pull recoil start rope six or seven times to lubricate cylinder walls. Replace plugs.
6. Remove drive belt and coat drive and driven sheaves with light grease.
7. Change oil in chain case.
8. Support snowmobile so track is clear of ground. Loosen track adjusting screws.
9. Place cover on snowmobile and store inside.

## Removing Snowmobile From Storage

1. Wipe grease from drive and driven sheaves. Install drive belt.
2. Fill oil tank and fuel tank.
3. Check throttle and brake controls for proper adjustment and operation.
4. Adjust track tension.
5. Review operating and safety suggestions.
6. Start engine and test operation of all switches and lights.
7. Ride snowmobile at slow speed until you are sure it is operating properly.



# Trouble Shooting

## Engine

### Engine Starts Hard or will Not Start

- Fuel tank empty.
- Emergency stop switch in "OFF" position.
- Plugged in-line fuel filter.
- Fuel pump malfunctioning.
- Faulty ignition system.
- Ignition timing incorrect.
- Idle set too high.

### Engine Lacks Power or Acceleration

- Running on one cylinder.
- Throttle cable improperly adjusted.
- Improper fuel mixture.
- Carburetor out of adjustment.
- Restricted in-line fuel filter.
- Ignition timing incorrect.

### Engine Backfires and Runs Unevenly

- Ignition timing incorrect.

### Engine Overheats

- Carburetor set too lean.
- Intake manifold or carburetor leaking.
- Engine fan belt slipping or broken.
- Fan blade(s) broken off.

## Lights

### Stoplight Not Working

- Bulb burned out.
- Stoplight switch defective.

### Lights Won't Light

- Bulbs burned out.
- Loose electrical connections.
- Faulty lighting coil.

## Power Train and Track

### Clutch Does Not Engage Properly

- Engine idles too fast.
- Faulty clutch.
- Short drive belt.

### Clutch Engages Slowly

- Faulty clutch.
- Stretched or worn drive belt.

### Excessive Drive Belt Wear

- Driving long distances at clutch engagement speed.
- Freeing frozen track with engine.
- Drive and driven sheaves misaligned.

### Rapid Track Wear

- Operating on bare ground.
- Track improperly tensioned.

## Skis and Steering

### Loose Steering

- Worn tie rod ends.
- Worn spindle bushings.

### Poor Maneuverability

- Worn ski wear rods.
- Loose steering linkage.



# Specifications

## SNOWMOBILE SPECIFICATIONS

COMPONENT	ITEM	440 SPORTFIRE
Engine	Manufacturer	John Deere "Fireburst"*
	Model	TA440B
	No. of Cylinders	2
	Bore	68 mm
	Stroke	60 mm
	Displacement	436 cc
Fuel System	Carburetor Manufacturer	Mikuni
	Carburetor No.	AM55055
	Tank Capacity	7.5 Gals. (28.4 L)
	Fuel Mixing Ratio	See page 31.
Chassis and Body	Tunnel	Aluminum
	Pan	Thermoplastic Rubber
	Windshield	Polycarbonate
	Overall Length	102 in. (259.1 cm)
	Overall Width	39 in. (99.1 cm)
	Overall Height	35 in. (88.9 cm)
	Weight (Approx.)	385 lbs. (175 kg)
Track and Suspension	Suspension	Slide Suspension
	Track Material	Rubber
	Track Width	15 in. (381 mm)

\*Manufactured for John Deere by Kawasaki Heavy Industries, Japan

## SPECIFICATIONS—Continued

COMPONENT	ITEM	440 SPORTFIRE
Power Train	Transmission	2-Sheave Variable
	Manufacturer:	
	Primary	John Deere (Comet)*
	Model	102C
	Secondary	John Deere
	Final Drive Ratio	1.86:1
Electrical System	Spark Plug (Champion)	N2 (AM52640)
		QN2 (AM55044)
	Spark Plug Gap	0.025 in. (0.635 mm)
	Timing	Align mark on stator with Crankcase Separation
	Lighting Coil Capacity	120 Watts
	Light Bulbs:	
	Headlight	AM53887
	Taillight	AM52619
	Speedometer	AM52847
	Tachometer	AM52847

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

## FUEL AND OIL MIXTURES

### UNITED STATES

Ratio	Oil	Fuel
40:1	1 pt. (0.473 L)	5 gal. (18.9 L)
50:1	1 pt. (0.473 L)	6 gal. (22.7 L)

### CANADA

Ratio	Oil	Fuel
40:1	1 U.S. pt. (0.473 L)	4 Imperial gals. (18.2 L)
	1 Imperial pt. (0.568 L)	5 Imperial gals. (22.7 L)
50:1	1 U.S. pt. (0.473 L)	5 Imperial gals. (22.7 L)
	1 Imperial pt. (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.)



# Accessories

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Tachometer  
Protective Cover  
Hitch Kit  
Electric Start Kit  
Track Stud Kit  
Two-Passenger Seat  
Back Rest Kit  
Handlebar Heater Kit  
Carbide Wear Rods  
Extra Coverage Windshield  
Suspension Wheel Kit  
Quartz Halogen Light  
Heavy-Duty Hitch Kit  
Hitch Pin and Cable Kit  
Chaincase Guard  
Trail Windshield  
Spring Helper Kit  
Chrome Shock Absorber  
Chrome Rear Bumper  
Drive Belt Holder Kit  
Track Guide Clips



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Title	Order No.	Qty.	Price Each
Parts Catalog SPORTFIRE™ Snowmobile	PC-1743		\$ 3.00
Operator's Manual SPORTFIRE™ Snowmobile	OM-M69605		\$ 1.20
Service or Technical Manual SPORTFIRE™ Snowmobile	TM-1222		\$14.00

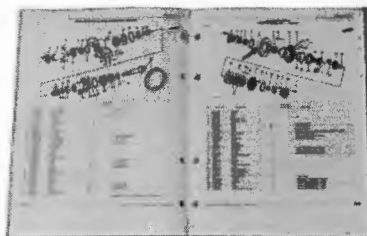
NOTE: If you want manuals or catalogs for equipment not shown on this list, list the model number, serial number and name of the equipment below.

Illinois State Residents add 5% for ROT. .... ☐

Check or money order in U.S. dollars enclosed ... Total \_\_\_\_\_  
(Do not send cash or stamps)

Prices subject to change without notice.

## PARTS CATALOG



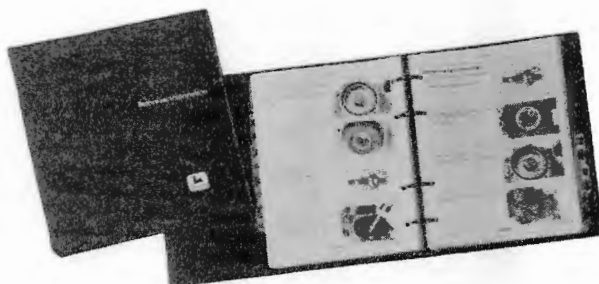
A parts catalog containing exploded view illustrations and lists of all parts is useful when purchasing service parts. Helps identify the correct parts. Useful in assembling and disassembling.

## OPERATOR'S MANUAL



An extra copy of the operator's manual may be important if the copy furnished with your machine is misplaced.

## SERVICE OR TECHNICAL MANUAL



The service or technical manual is a service guide for your machine. Included in the manual are specifications, diagnosis and adjustments, illustrations of special assembly and disassembly procedures, and wiring diagrams.

