

440
SPORTFIRE™
Snowmobile
120001-155000



DEALER
SERVICE SHOP
COPY

**OPERATOR'S
MANUAL**



FILE THIS NEW MANUAL

Horicon Works
OM-M68674 Issue I9

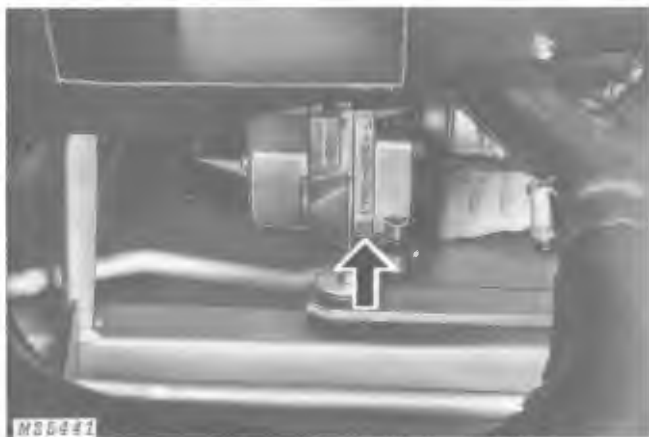
LITHO IN U.S.A.



To The Operator



Snowmobile Serial Number



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. J44SJ 120001M-)

Snowmobile Serial No. _____

Engine Serial No. _____

Date of Purchase _____

(To be filled in by purchaser.)

ASSEMBLY

Unpack Components

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

Check Contents of Bag of Parts

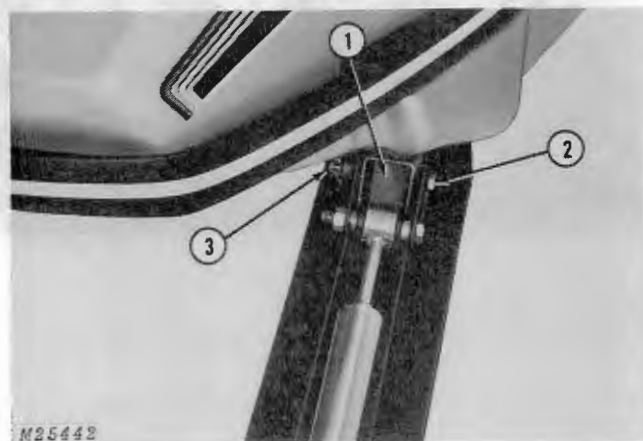
- A - Ski Spring Stop (2 used)
- B - Ski Pivot Bolt (2 used)
- C - 13/32 x 3/4-Inch Flat Washer
- D - 3/8-Inch - 24 Lock Nut
- E - Cotter Pins (2 used)
- F - Ignition Keys
- G - Windshield Retaining Rings (6 used)
- H - John Deere Medallion
- I - 1/4 x 1-3/4-Inch Cap Screws (4 used)
- J - 9/32 x 1/2-Inch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

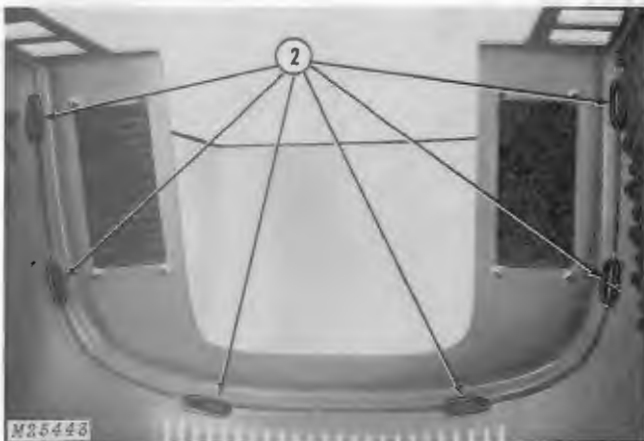


Install Skis

NOTE: Bushing is factory installed in steering spindle.

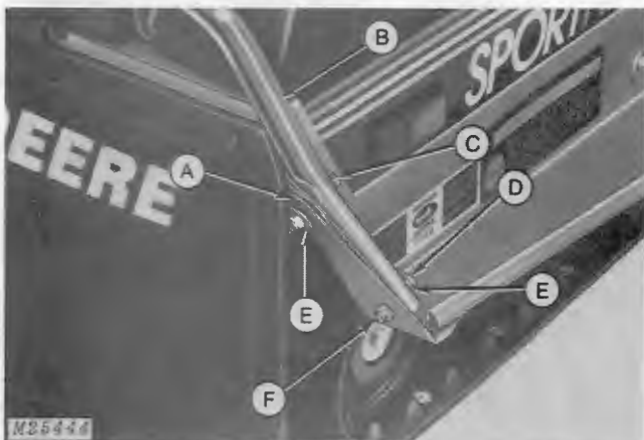
1. Install rubber ski spring stop over spindle. Stop is held in place by ski saddle.
2. Position ski so that rear hole is aligned with spindle. Install ski bolt with head of bolt facing out.
3. Install 13/32 x 3/4-inch flat washer and 3/8-inch lock nut. Torque nut to 39 ft-lbs (52 Nm). Install cotter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





Install Windshield

1. Install windshield tabs through holes in hood.
2. Secure windshield tabs to hood with rubber retaining rings.



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 1-1/2-Inch
Cap Screw

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



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. Fill fuel tank with 40:1 mix.
6. Start engine and check idle speed.
7. Check emergency stop and key switch.
8. Check operation of all lights.
9. Aim and adjust headlight.
10. Test drive or dynamometer test snowmobile.
11. Install accessories desired by customer.

DELIVERY CHECK LIST

1. Explain operator's manual to customer.
2. Instruct customer about snowmobile operation.
3. Explain fuel-oil mixture. Use **REGULAR LEADED OR NON-LEADED FUEL** with an anti-knock index of 88 or higher. Use a 40:1 ratio for first tank of fuel and a 50:1 ratio thereafter.

NOTE: Regular (leaded) gasoline is preferred but non-leaded gasoline is acceptable.

Break-In Period

Do not exceed 40 mph (64 km/h) for the first 25 miles (16 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 check up. See reverse side of this sheet.

PERFORM THESE 10 HOUR OR 200 MILE 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 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.

DEALER COMMENTS: _____

Dealer Name _____

Town _____

Date _____



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Safety



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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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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

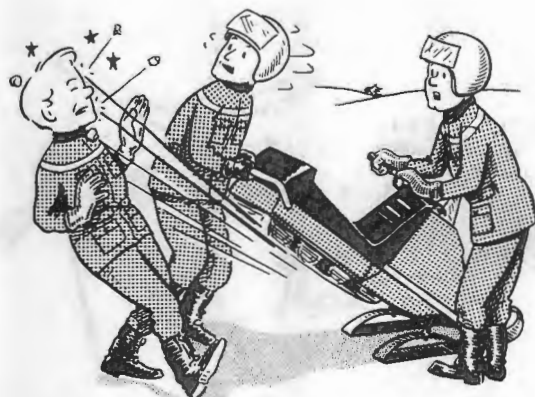
Check over your snowmobile regularly. This will prevent many problems from occurring.

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.



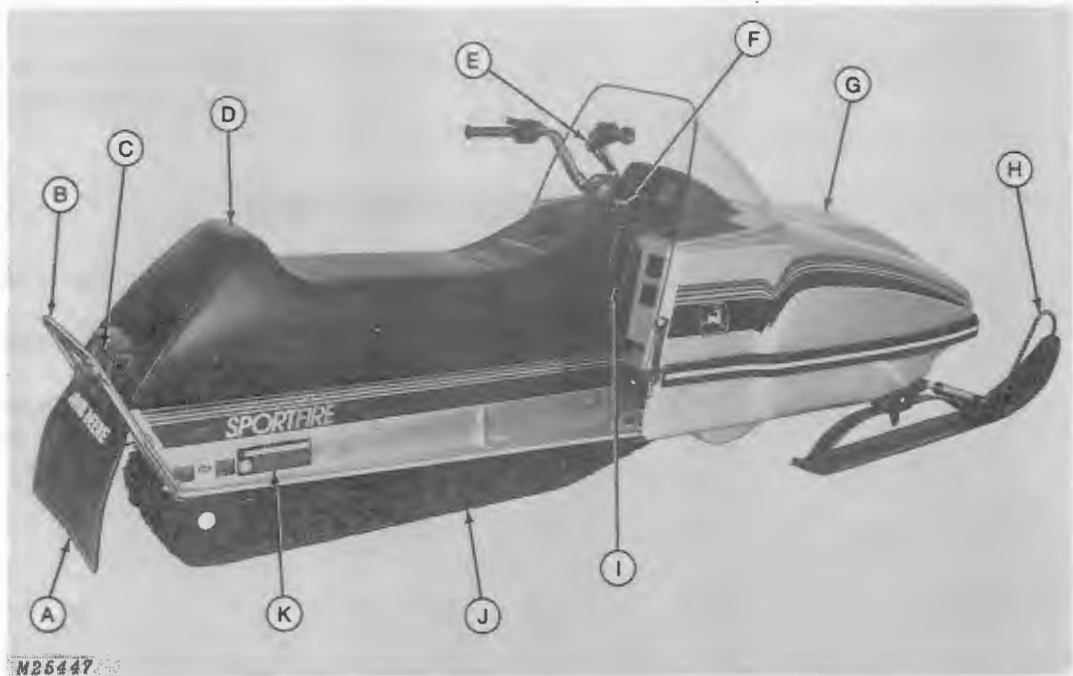


Identification

- 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



- 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





Preparation

MIX FUEL

IMPORTANT: Use regular leaded or non-leaded gasoline with an anti-knock index of 88 or higher, mixed with 2-cycle oil in the proper ratio. Never use gasoline that has been stored for a long time.

NOTE: Regular (leaded) gasoline is preferred but non-leaded gasoline is acceptable.

Use John Deere 2-cycle oil or an equivalent BIA approved 2-cycle oil. Mixing is improved if the oil is at room temperature.

The correct fuel-oil mixture is a 40:1 ratio for the first tank of fuel and a 50:1 ratio thereafter. See page 29.



CAUTION: Use safe mixing procedures:

Use an approved container for storage and refueling.

Mix fuel outdoors.

Do not smoke.

Do not spill fuel.

1. Pour half the gasoline into container.
2. Pour in all the oil.
3. Shake mixture vigorously.
4. Pour in remaining gasoline.
5. Shake mixture vigorously.

NOTE: Mix gasoline and oil in a separate container - never mix in the snowmobile fuel tank. Agitate stored mixtures thoroughly before using.

FILL FUEL TANK



CAUTION: Use safe refueling procedures.

Fuel snowmobile outdoors.

Do not smoke.

Avoid spilling fuel. Do not overfill.

Clean area around fuel tank of any spilled fuel.

Fill tank to bottom of filler neck.





Operation

BREAK-IN PERIOD

Do not exceed 40 mph (64 km/h) for the first 25 miles (16 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-tailight.

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

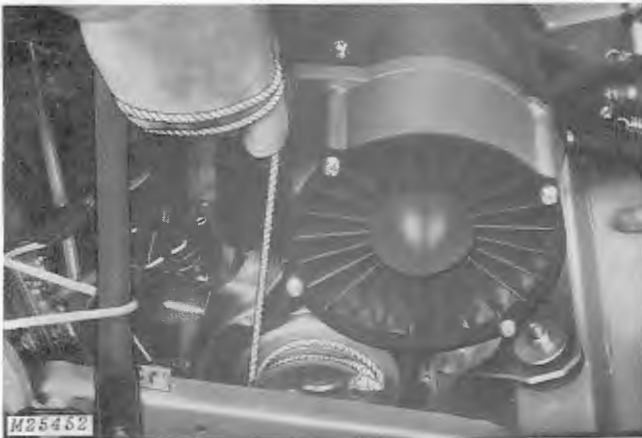


Emergency Stop Switch

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.



Emergency Starting

1. Use tools provided with snowmobile to remove recoil starter.
2. Knot end of rope and wind rope around recoil starter.
3. Pull on rope to start engine.

Carry an extra rope for emergency starting.

STOPPING ENGINE



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 22 and 23 for adjusting headlight and changing bulbs.



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. Secure skis of disabled machine to tow machine.
3. DO NOT use rear bumper for towing.

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 addi- tional effect.)	LITTLE DANGER (for properly clothed person)				INCREASING DANGER			GREAT DANGER				
					Danger from freezing of exposed flesh							

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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				20,21
Check track condition and tension.		X				18,19
Check throttle control operation.		X				14,15
Check operation of brakes.		X				17
Check emergency stop and key switch.		X				8
Check lighting system.		X				9
Check chain case oil level.			X			17
Check chain tensioner.				X		18
Check in-line fuel filter.					X	15
Check drive belt condition.		X				16,17
Check carburetor adjustments.			X	X	X	13,14,15
Check choke adjustments.			X	X	X	13
Check fan belt tension.				X	X	16
Check ski alignment.	X					21
Check headlight adjustment.	X					22
Check ski wear rods and wear plates.				X	X	20
Check slide suspension wear bars.				X	X	18
Use Never-Seez on throttle cable end.					X	14
Check all components for condition and tightness.					X	24
Service drive and driven sheaves.					X	16
Store snowmobile properly.					X	25

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.

1. Reconnect spark plug wire to 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 10 to 12 ft-lbs (14 to 16 Nm) torque.
3. Connect spark plug wires.

CARBURETOR

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

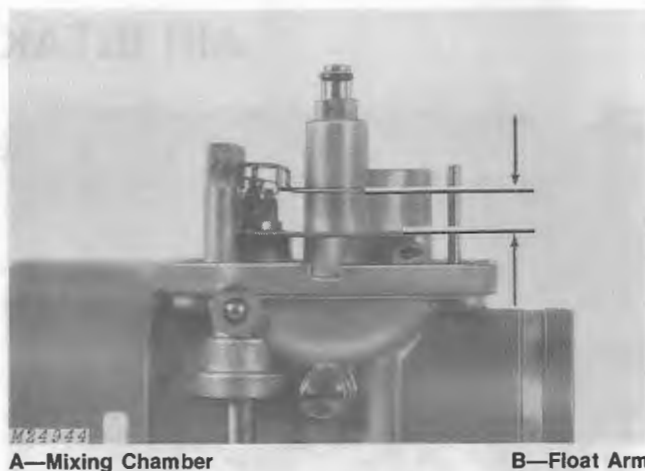
5. Turn idle adjusting screw counterclockwise until the tip is flush with inside of bore.
6. Remove clamp or rubber band from throttle lever. This allows throttle valve to fully seat in bore.
7. Turn idle adjusting screw clockwise until screw contacts throttle valve. Turn screw clockwise two additional 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.

Checking Float Level

NOTE: The fuel level in the float mixing chamber is regulated by the float. If the float is punctured, fuel overflow may occur.

1. Remove air intake silencer, fuel lines and carburetor from engine.
2. Remove float chamber body and gasket.
3. Invert carburetor. Float arm (B) should be parallel with edge of mixing chamber (A). If adjustment is necessary, bend only the float arm actuating tab.



A—Mixing Chamber

B—Float Arm

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.



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.

Check silencer daily if snowmobile has been run through cattails or weeds.

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.

CHECKING FAN BELT TENSION



Remove 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.

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 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 Nm). If snowmobile has a tendency to creep at idle speed after installing a new belt, add a washer.

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.

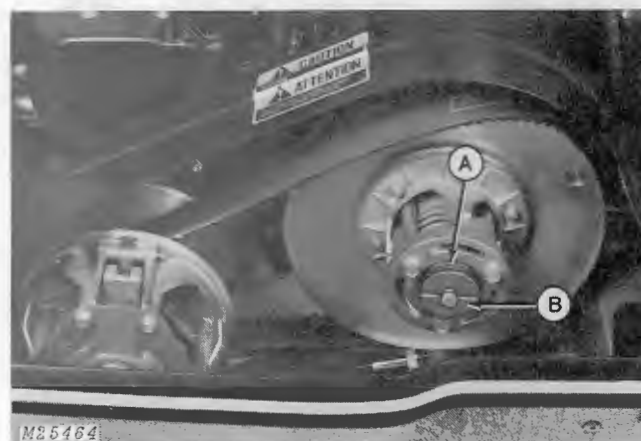
3. Check brake tension.
4. Readjust if necessary.

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.

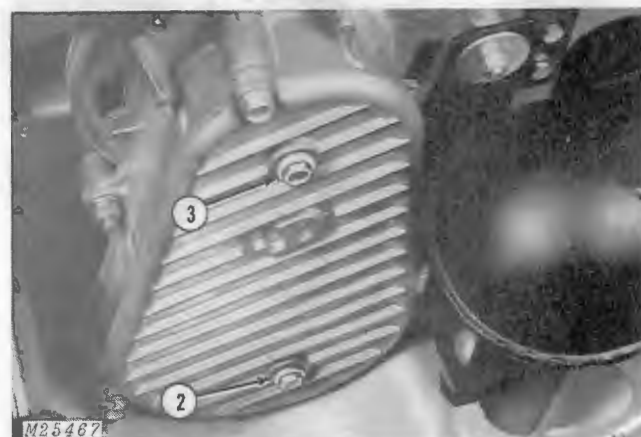
Checking Chain Case Oil Level

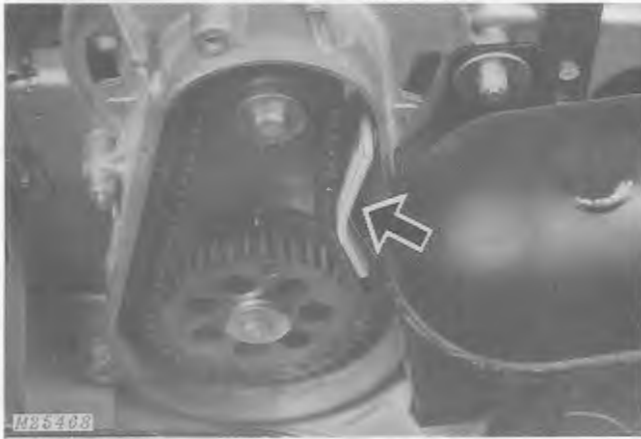
1. Park snowmobile on a level surface.
2. Remove lower plug from chain case. If oil flows from this hole, oil level is satisfactory.
3. To add oil, remove upper plug and add SAE 90 oil until it flows from lower hole.
4. Install plugs.



A—Spacer Washer

B—Retaining Washer





Checking Chain Tensioner

1. Turn snowmobile on its left side. Remove chain case cover.
2. Check chain tensioner for wear. When tensioner is worn until only 1/16 inch (1.588 mm) of material remains, replace the tensioner.
3. Install cover. Add oil to chain case if required. Wipe any spilled fuel from the pan or sheaves.

SLIDE SUSPENSION

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.

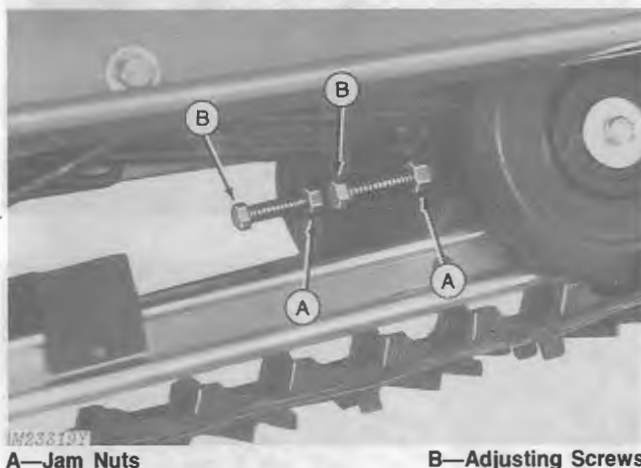
NOTE: Sand or gravel imbedded in the wear bars acts as an abrasive and will destroy the steel grouser bars in the track.

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 1/4 inch (6.35 mm) between track and slide wear bar. Both sides should be equal. Tighten jam nuts.



A—Jam Nuts

B—Adjusting Screws

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.

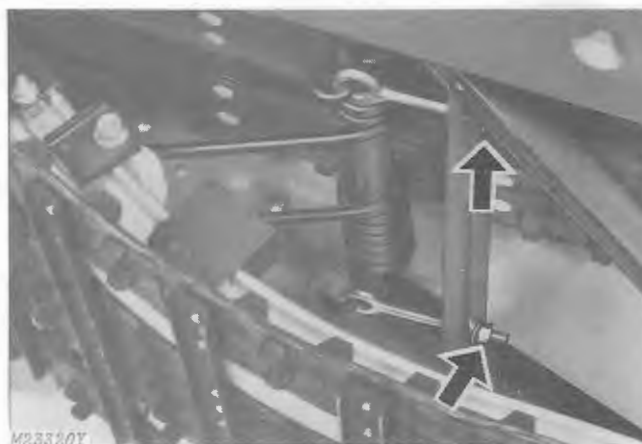
Adjusting Suspension Springs

Ride the snowmobile to determine adjustment requirements.

Front Springs

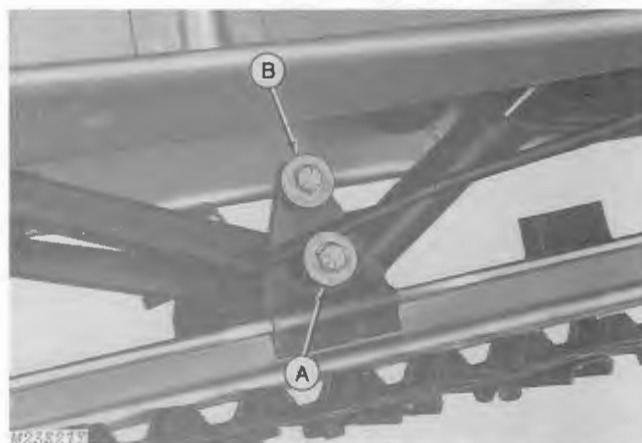
If the front springs are tightened too much, the ride will be stiff and the front of the snowmobile will seem light and lift up when power is applied. Added lift is fine for deep snow but makes the ride choppy on rough surfaces. Front torsion springs are not the only adjustment for ski lift, but they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

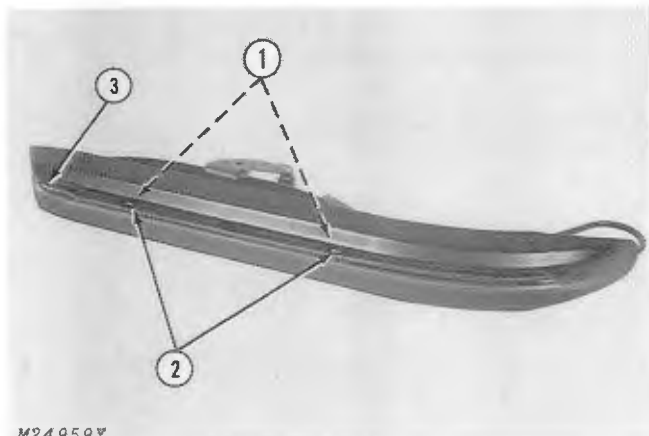
To increase tension, move the springs from the bottom position (A) to the top position (B).



A—Bottom Position

B—Top Position

SKIS

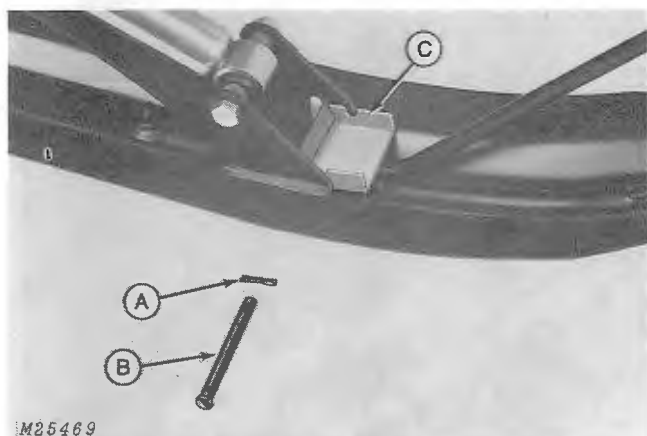


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Replacing Ski Wear Rods

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.



M25469

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 right tie rod from steering arm.
3. Loosen jam nut on right tie rod end. The left tie rod jam nut does not need to be loosened, it is staked to the rod.
4. Turn right tie rod end (in or out) to align skis. Measure from straight edge of skis; not tapered ends. Distance should be equal at locations shown.

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

5. Tighten jam nut on tie rod. Hold tie rod when tightening jam nut. This prevents stripping threads in ball joint.

IMPORTANT: After jam nut is tight, be sure tie rod end swivels freely.



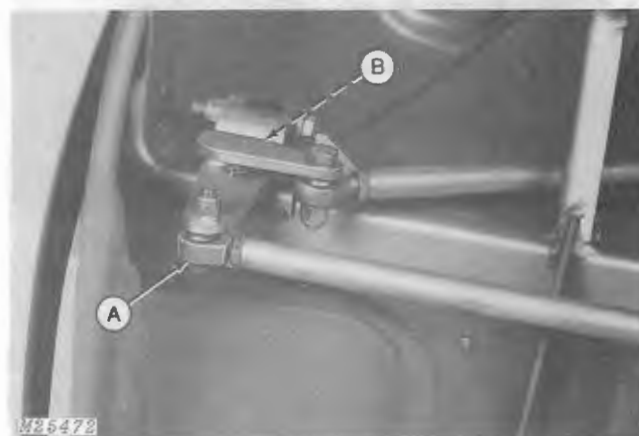
Eliminating Loose Steering



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

The two major causes of loose steering are:

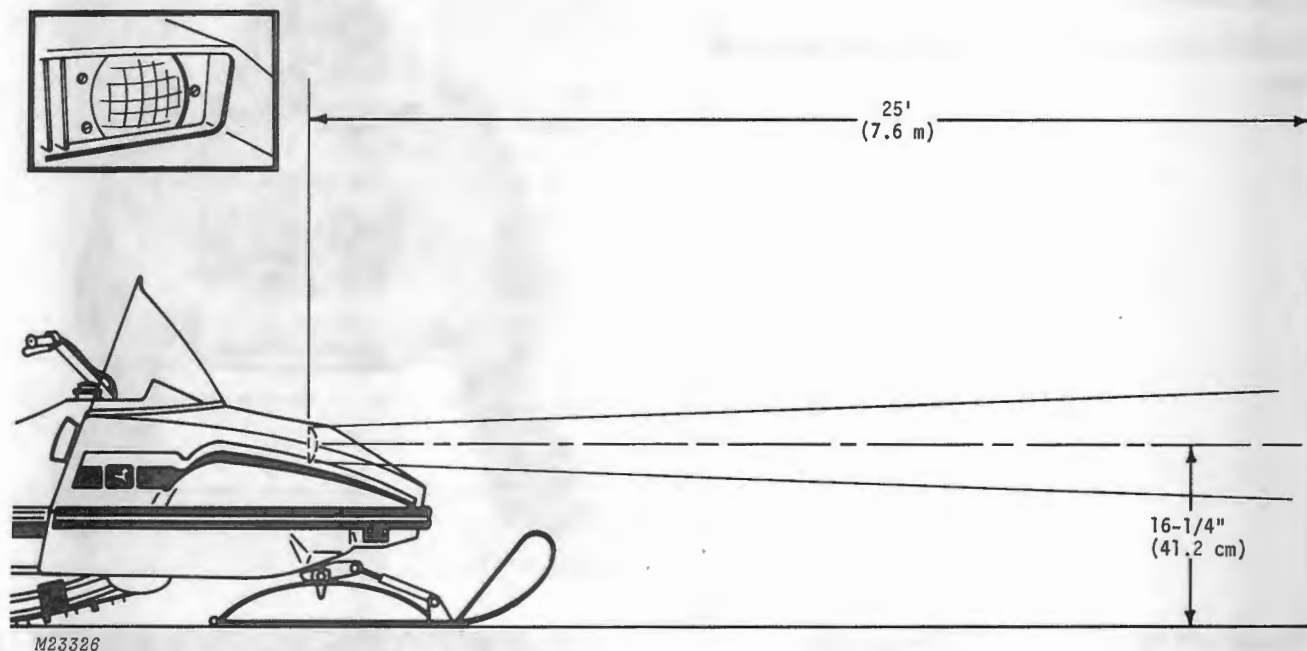
1. Excessively worn tie rod ends (A).
2. Excessively worn spindle bushings (B).
3. Replace or tighten parts as required.



A—Tie Rod End

B—Spindle Bushing

LIGHTING SYSTEM

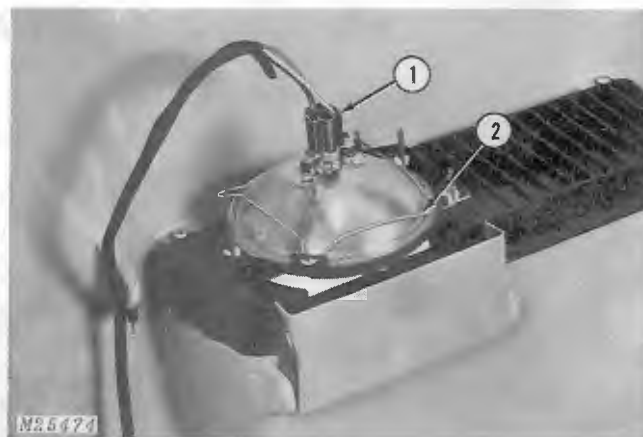


Adjusting Headlight

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

1. Disconnect wiring from light.
2. Unhook wire end from slot.
3. Remove wire clamp and headlight.
4. Reverse procedure to install new headlight.



Replacing Stop-Taillight

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.

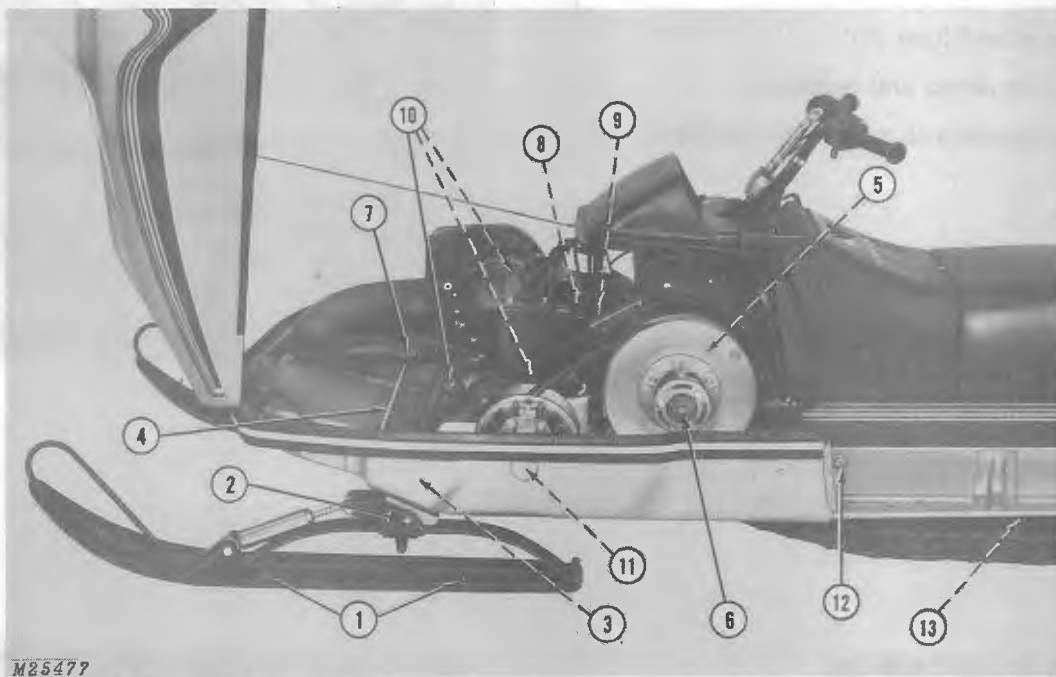


Replacing Speedometer

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.



TIGHTENING HARDWARE AND COMPONENTS



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 screws.



Storage

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.
4. Siphon fuel from tank. Start and run engine out of fuel at IDLE SPEED.
5. Replace in-line fuel filter.
6. 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.
7. Remove drive belt and coat drive and driven sheaves with light grease.
8. Change oil in chain case.
9. Support snowmobile so track is clear of ground. Loosen track adjusting screws.
10. Place cover on snowmobile and store inside.

Removing Snowmobile From Storage

1. Wipe grease from drive and driven sheaves. Install drive belt.
2. Fill fuel tank with properly mixed fuel.
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	8 Gals. (30.3 L)
	Fuel Mixing Ratio	See page 29
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	18° BTDC, engine running at 6500 rpm.
	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)
	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

- Tachometer
- Protective Cover
- Hitch
- Electric Start Kit
- Track Stud Kit
- Two-Passenger Seat
- Back Rest Kit
- Carburetor Primer Kit
- Handlebar Heater Kit
- Carbide Wear Rods
- Extra Coverage Windshield

MEMORANDA

MEMORANDA

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Parts Catalog SPORTFIRE™ Snowmobile	PC-1743		\$ 3.00
Operator's Manual SPORTFIRE™ Snowmobile	OM-M68674		\$ 1.00
Service or Technical Manual SPORTFIRE™ Snowmobile	TM-1222		\$12.25

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. ☐

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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.

