

SPITFIRE® SNOWMOBILE (SERIAL NO. 190,001-)



JOHN DEERE

OPERATORS MANUAL

SPITFIRE® SNOWMOBILE (SERIAL NO. 190,001-)

OMM69088 E1 English

**HORICON WORKS
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ENGLISH**



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To The Operator



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.

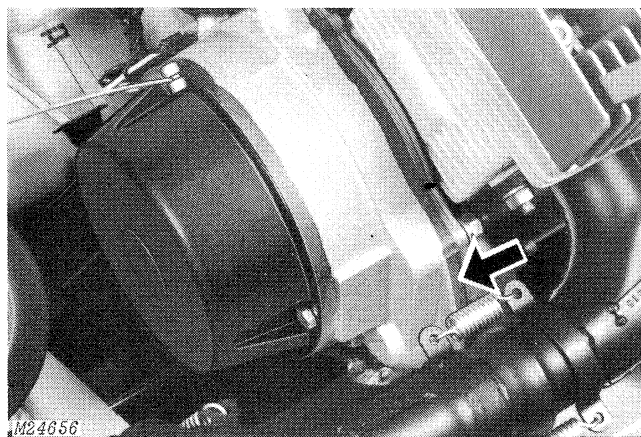
When in need of major parts or service, be prepared to provide your John Deere dealer with both the machine and engine serial numbers. Record these serial numbers in the space below.

This operator's manual is prepared for: John Deere SPITFIRE Snowmobiles (Serial No. J34AL 190001M-).



M28344

Snowmobile Serial Number



M24656

Engine Serial Number

JOHN DEERE SPITFIRE SNOWMOBILES

Machine Serial No. _____

Engine Serial No. _____

Date of Purchase _____

(To be filled in by purchaser)



Assembly

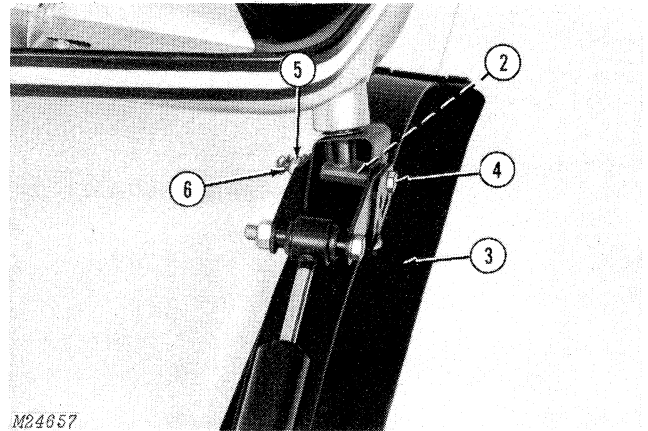
UNPACK COMPONENTS

1. Skis.
2. Windshield.
3. Operator's manual.
4. Bag of parts.

ASSEMBLE COMPONENTS

Install Skis

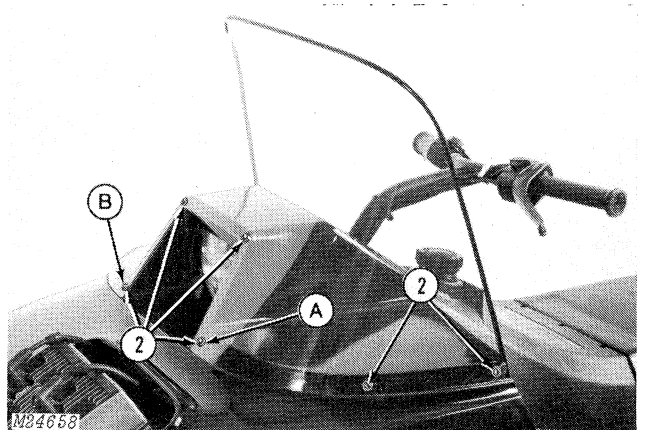
1. Remove ski bolts, washers, lock nuts and cotter pins from bag of parts.
2. Insert bushing into spindle. Use Never-Seez on bushing.
3. Position ski under ski saddle.
4. Install ski bolt with head of bolt facing out.
5. Install washer and lock nut. Torque nut to 39 ft-lbs (52 Nm).
6. Install cotter pin through ski bolt.



Install Windshield

1. Remove washers, screws, J-clip and retaining nuts from bag of parts.
2. Use screws and washers to secure windshield to hood.

NOTE: Install J-clip behind screw "A". Place headlight wiring harness in J-clip. Install hood lanyard behind screw "B".



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.

NOTE: BREAK-IN PERIOD:

Do not exceed 30 mph (48 km/h) for the first 25 miles (40 km), or force the machine at full throttle in deep snow. An occasional burst of power on hard-packed snow will not be harmful.

3. Explain fuel-oil mixture. Use regular leaded or unleaded gasoline 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 unleaded gasoline is acceptable.*

4. Tell customer about 10-hour or 200 mile check up.

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. Carburetor adjustment.
_____	_____	4. Carburetor mounting hardware.
_____	_____	5. Operation and adjustment of brake, throttle, and choke lever controls.
_____	_____	6. Condition of ski wear rods.
_____	_____	7. Suspension hardware.
_____	_____	8. Suspension slide wear bars.
_____	_____	9. Ski alignment.
_____	_____	10. Operation of headlight, stop-taillight, dimmer switch, and emergency stop switch.
_____	_____	11. Engine head bolts and exhaust manifold nuts.
_____	_____	12. Steering component hardware (steering arms, tie rods and handlebars).

DEALER COMMENTS: _____

Dealer Name _____

Town _____

Date _____



Contents

	Page
Safety	2
Identification	5
Preparation	6
Mix Fuel	6
Fill Fuel Tank	6
Operation	7
Before Operating	7
Start Engine	7
Stop Engine	8
Lights	8
Clearing Track	8
Towing	9
Dressing For The Weather	9
Transporting	9
Service	10
Service Interval Chart	10
Spark Plugs	10
Carburetor	11
Choke System	12
Adjusting Choke	12
Adjusting Carburetor	12
Checking Float Level	13
Main Jet Chart	13
In-Line Fuel Filter	14
Air Intake Silencer	14
Drive System	14
Replacing Drive Belt	14
Adjusting Brake	15
Slide Suspension	16
Replacing Wear Bars	16
Adjusting Track Tension	16
Adjusting Suspension Springs	17
Skis	17
Replace Ski Wear Rods	17
Replace Ski Wear Plates	18
Aligning Skis	18
Eliminating Loose Steering	18
Lighting System	19
Adjusting Headlight	19
Replacing Headlight	19
Replacing Stop-Tailight Bulb	19
Tightening Hardware and Components	20
Adjusting Glove Box Door Latch	20
Storage	21
Fuel Shut-Off Valve	21
Trouble Shooting	22
Specifications	24
Accessories	26



Safety



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 the 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.

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.

Avoid sun blindness. Wear properly tinted goggles or face shield. 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. 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.



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

Operation

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

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

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

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

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

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

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

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.

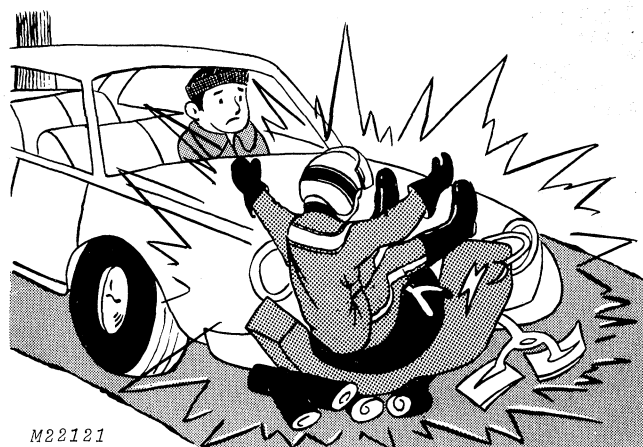
Always use both hands for steering.

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.

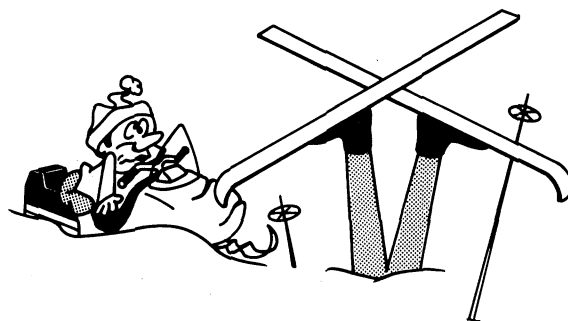
Ice or hard surfaces do not provide the same stability as snow. Drive slower on these surfaces. Do not accelerate rapidly.



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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.

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

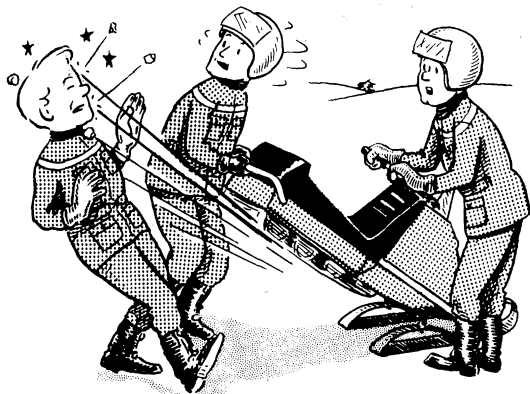
Check over your snowmobile regularly. This will prevent many problems from occurring.

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.

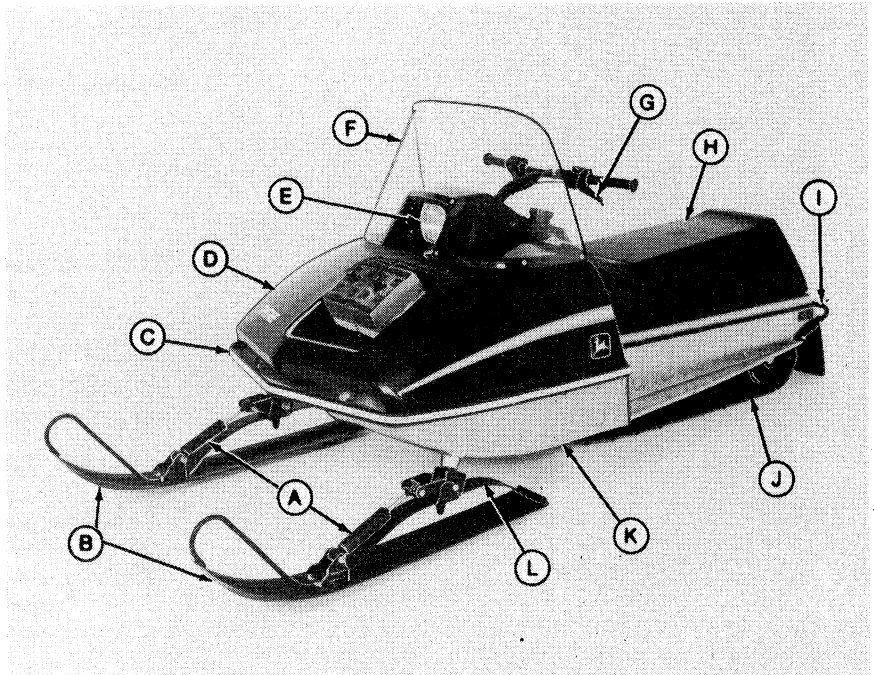
Never lift the rear of the snowmobile to clear the track. Chunks of ice or rocks may be thrown rearward. Tilt machine on one footrest when clearing track . . . and keep all persons clear of area. Keep hands and feet clear of track.





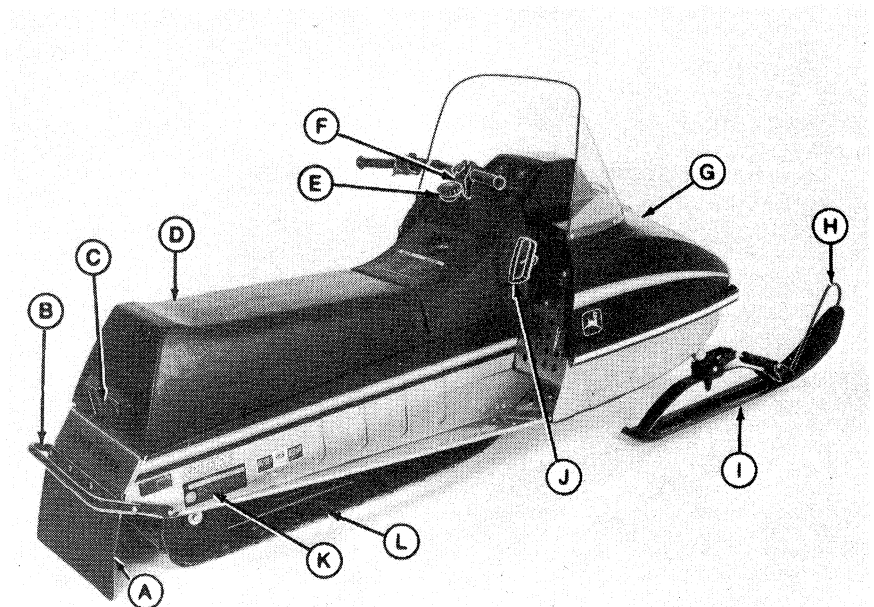
Identification

- 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



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



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Preparation

MIX FUEL

IMPORTANT: Use regular leaded or unleaded gasoline with 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 unleaded 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 40:1 ratio for the first tank of fuel and 50:1 ratio thereafter. See page 25.



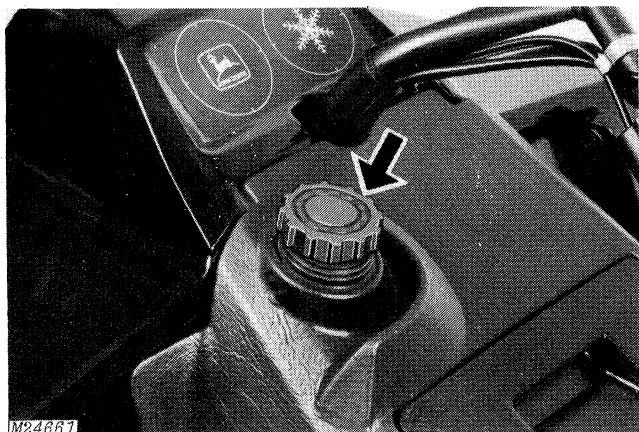
CAUTION: Use safe mixing procedures.

- 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 fuel tank of any spilled fuel.

Fill tank to bottom of filler neck.

Fuel tank holds 5.5 U.S. gallons (20.8 L).



Operation

BEFORE OPERATING

1. Wipe windshield with a clean 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. Check throttle and brake for proper operation.

START ENGINE

Engine Break-In

Do not exceed 30 mph (48 km/h) for the first 25 miles (40 km), or force the machine at full throttle in deep snow.

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

1. With no choke and no throttle, pull recoil start handle to turn engine over two or three times.
2. Pull out on choke knob.
3. Emergency stop switch must be in center position.
4. Insert key and turn key switch "ON." DO NOT open throttle lever.
5. Pull recoil start rope.
6. When engine starts, allow it to run briefly before pushing choke knob in.

NOTE: Choke knob can be pushed in gradually for smooth engine performance during warm-up.

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

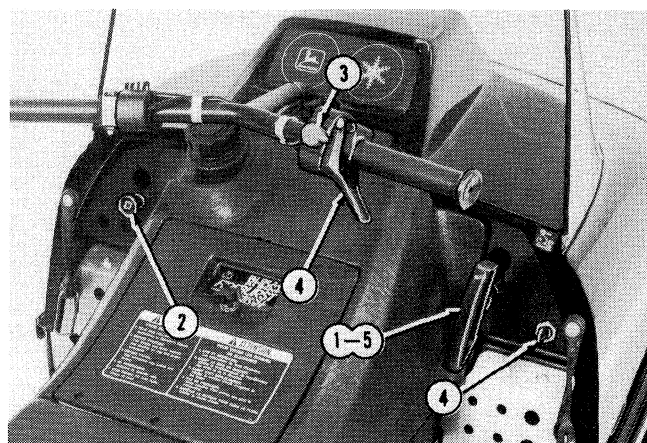
NOTE: Remove and dry spark plugs if engine is extremely flooded.

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

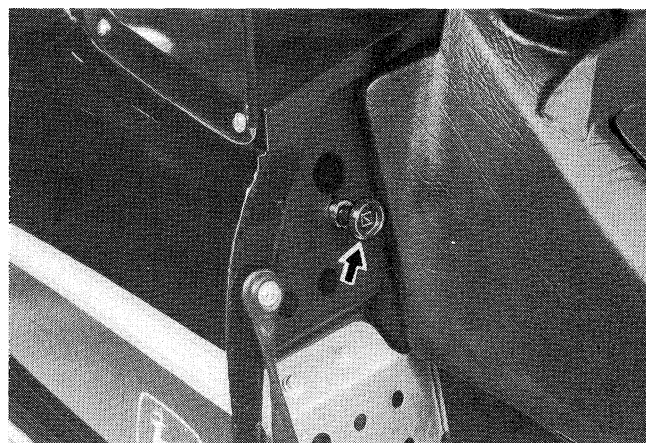
Warm Starting

With emergency stop switch in center position and key switch "ON," pull recoil start rope.

NOTE: DO NOT use choke and open throttle slightly.

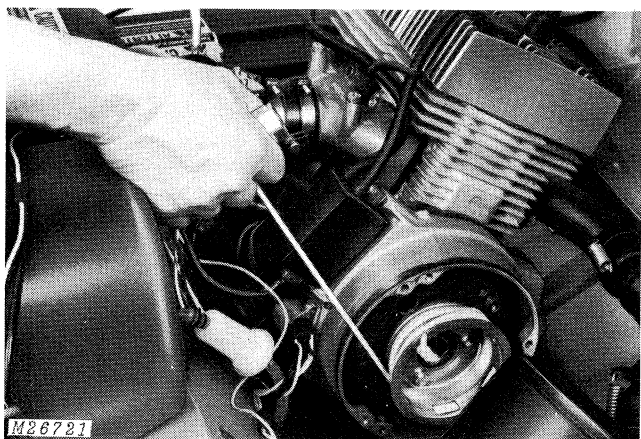


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Choke Knob

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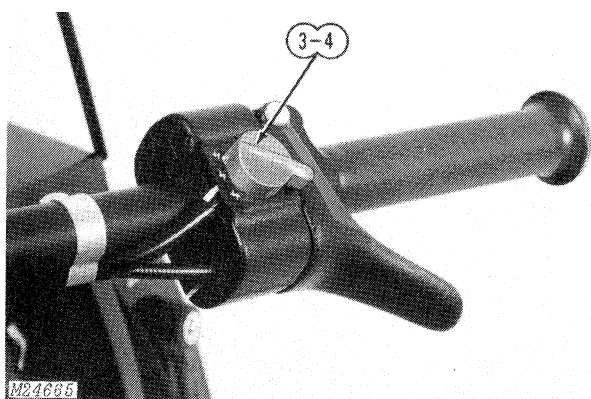


Emergency Starting

1. Raise hood and use tool kit provided with snowmobile to remove recoil starter.
2. Knot one end of rope and wind rope around recoil starter.
3. Wind opposite end of rope around spark plug wrench from tool kit.
4. Pull on rope to start engine.

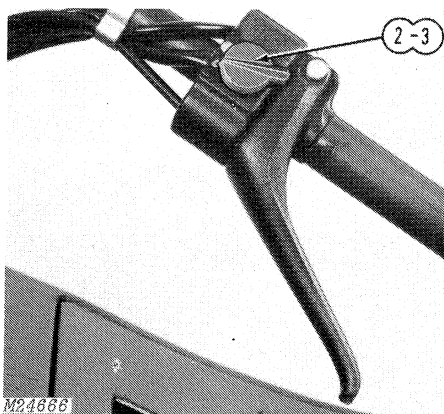
Carry an extra rope for emergency starting.

STOP ENGINE



1. Release throttle lever.
2. Apply brake.
3. Turn emergency stop switch up or down.
4. Before restarting, stop switch must be turned to the center position. Always check stop switch before attempting to start engine.
5. Turn key switch "OFF." Remove key when 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 once for 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 page 19 for adjusting headlight and changing bulbs.

CLEARING TRACK

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



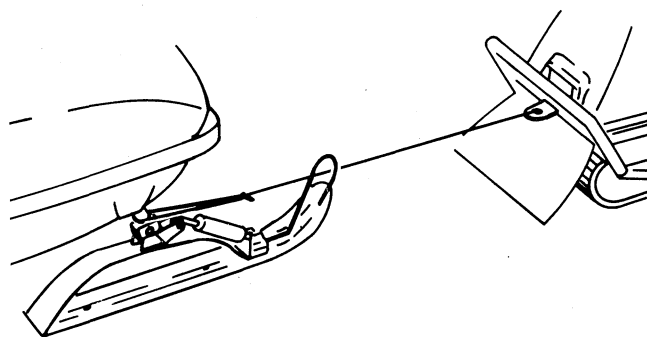
CAUTION: Be sure no one is behind machine when clearing track. Injury could result from ice or rocks thrown from track.

IMPORTANT: If track freezes, free the track manually. Do not use the engine to break track loose because it will burn and damage the drive belt.

TOWING

CAUTION: Always use a solid tow bar 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 spindle. Do not loop rope or strap through both skis, as this may damage the steering tie rod.



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DRESSING FOR THE WEATHER

1. To be safe from 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 with face shield or goggles. 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							

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TRANSPORTING

When transporting snowmobile on a trailer, close the fuel shut-off valve to prevent flooding of the engine. See page 21.



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				17-18
Check Track Condition and Tension		X				16
Check Throttle Control Operation		X				12
Check Operation of Brakes		X				15
Check Emergency Stop and Key Switches		X				7-8
Check Lighting System		X				8
Check In-Line Fuel Filter		X			X	14
Check Drive Belt Condition		X				14
Check Carburetor Adjustments			X	X	X	12
Check Choke Adjustments			X	X	X	12
Check Ski Alignment	X				X	18
Check Headlight Adjustment	X				X	19
Check Ski Wear Rods and Wear Plates	X				X	17
Check Slide Suspension Wear Bars				X	X	16
Use Never-Seez on Throttle Cable End					X	12
Check All Components for Condition and Tightness					X	20
Check Drive and Driven Sheaves					X	14-15
Store Snowmobile Properly					X	21

SPARK PLUGS

NOTE: Spark plugs are Champion ON-3 (John Deere Part No. AM55045).

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 Plug



CAUTION: Do not hold the plug or plug wire in your hand when checking for spark. High-energy ignition systems can produce injurious electrical shock.

1. Reconnect spark plug wire to plug.
2. Lay plug on the engine fins.
3. Pull the 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.

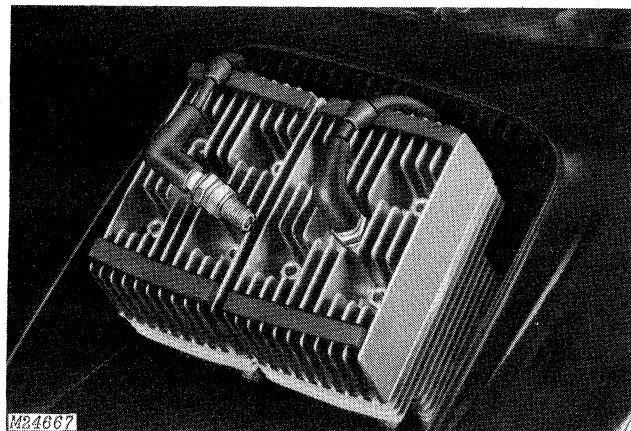
IMPORTANT: Do not regap the plug, always replace it!

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 Plug

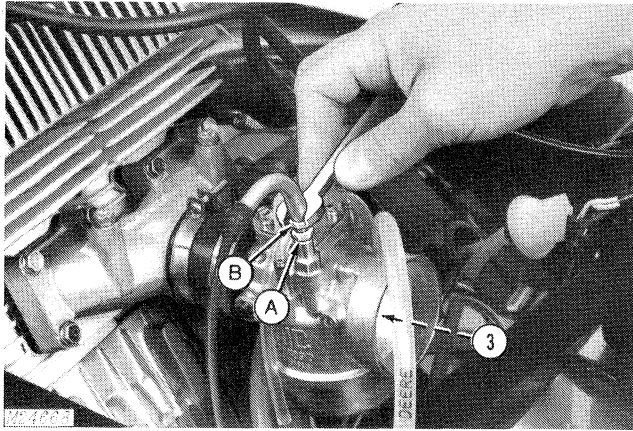
1. Clean plug seating surface on cylinder head.
2. Install plugs and torque to 20 ft-lbs (27 N·m).
3. Install spark plug wires.



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 carburetor changes and adjustments.



A—Jam Nut

B—Adjusting Sleeve

Choke System

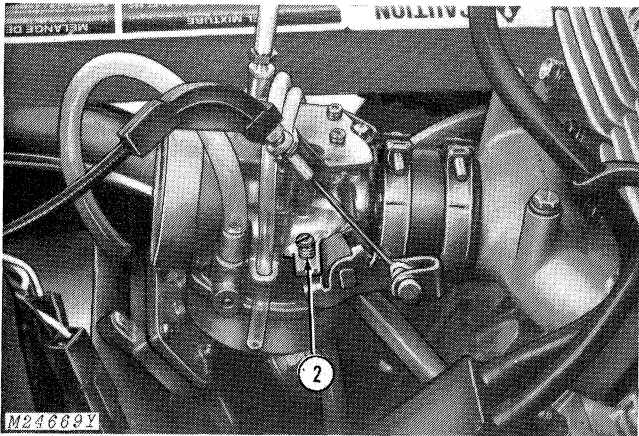
A separate metered choke system is used. The system is opened and closed by a choke plunger. Do not open the throttle when starting the engine, otherwise the fuel-air mixture will be too lean for starting.

Adjusting Choke

1. Remove air intake silencer.
2. Push choke knob in (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 (A) and turn adjusting sleeve (B) clockwise. Tighten jam nut.

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

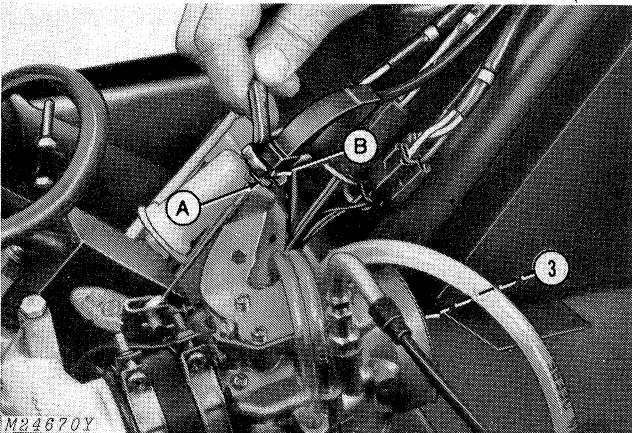
5. Pull out on choke knob and look in choke plunger hole. Plunger should raise and be all the way up in the bore.



Idle Speed Adjusting Screw

Adjusting Carburetor

1. Remove air intake silencer.
2. Back idle speed adjusting screw out until it no longer contacts the carburetor throttle lever.

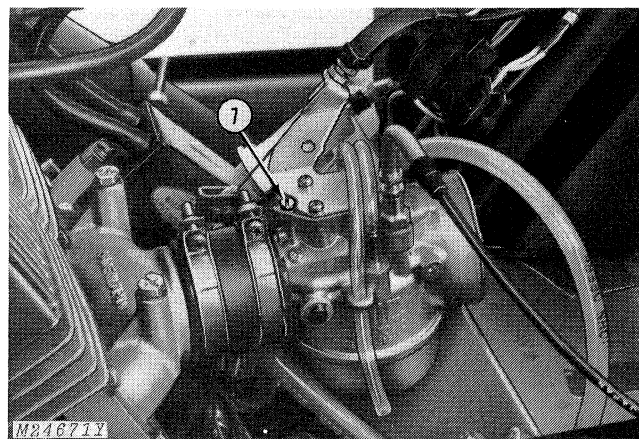


3. Look in carburetor throat to make sure butterfly valve is completely closed.
4. Loosen jam nut (A) on throttle cable. Turn adjusting sleeve (B) until cable is just snug and the butterfly is closed. Tighten jam nut. Use Never-Seez on throttle cable end in the throttle lever.

A—Jam Nut

B—Adjusting Sleeve

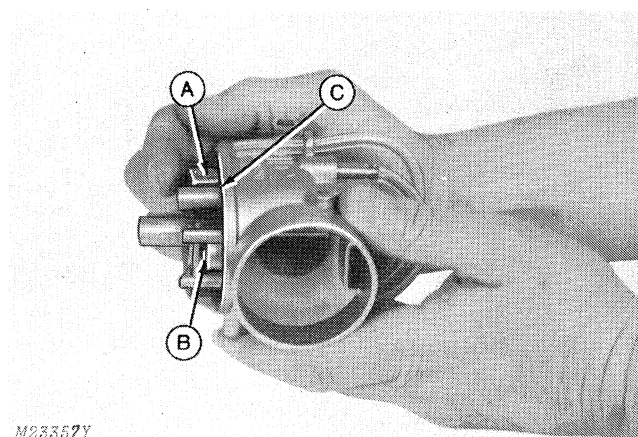
5. Look in carburetor throat and compress the hand-grip throttle lever until it contacts handgrip. Butterfly valve should be in full open position and parallel with carburetor bore. Repeat Steps 2 through 4 if necessary. Release throttle lever.
6. Turn idle speed adjusting screw in until it contacts throttle lever. Turn in one additional turn for preliminary idle speed adjustment.
7. Lightly seat idle mixture screw and then open one to two turns for initial mixture adjustment.
8. Install air intake silencer and warm up engine.
9. Turn idle mixture screw in (lean) or out (rich) to obtain an even engine idle.
10. Readjust idle speed adjusting screw to obtain an engine idle speed of 2000 rpm.



Checking Float Level

NOTE: The fuel level in the float chamber is regulated by the float.

1. Remove air intake silencer, fuel lines and carburetor.
2. Remove float chamber body.
3. Turn carburetor on its side. Touch float (A) lightly with finger until it just contacts needle valve (B). Float should be parallel with edge of float chamber (C).
4. If adjustment is necessary, bend the float arm.
5. After adjustment, tap the float lightly. If it is adjusted correctly, it will bounce from spring resistance of the needle valve.



A—Float
B—Needle Valve

C—Float Chamber

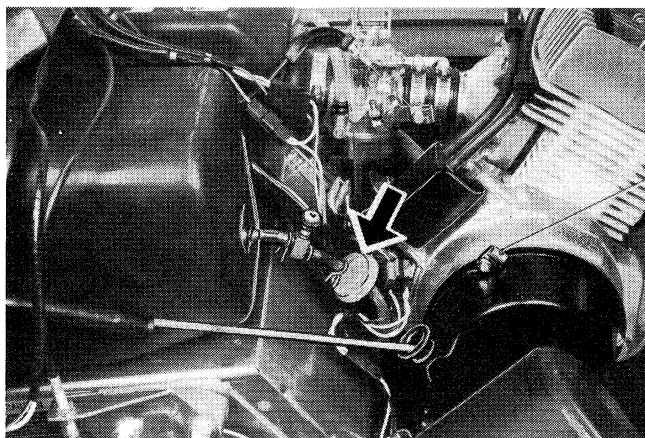
MAIN JET CHART

Carburetor and clutch changes, adjustments or modifications may be necessary for operation at altitudes above 4,000 feet (1 219 m). See your John Deere dealer for these changes.

TEMPERATURE				ALTITUDE
Below -30°F Below -35°C	-30° to +30°F -35° to -1°C	+30° to +60°F -1° to +16°C	Above 60°F Above 16°C	
Main Jet	Main Jet	Main Jet	Main Jet	
195	180*	170	155	Sea Level 4,000 ft. (1 219 m)

*Factory Installed.

IN-LINE FUEL FILTER



M28377

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

AIR INTAKE SILENCER



M24673Y

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 screen.
2. Shake or blow out the screen to remove any trash.
3. Install silencer screen.

DRIVE SYSTEM

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.

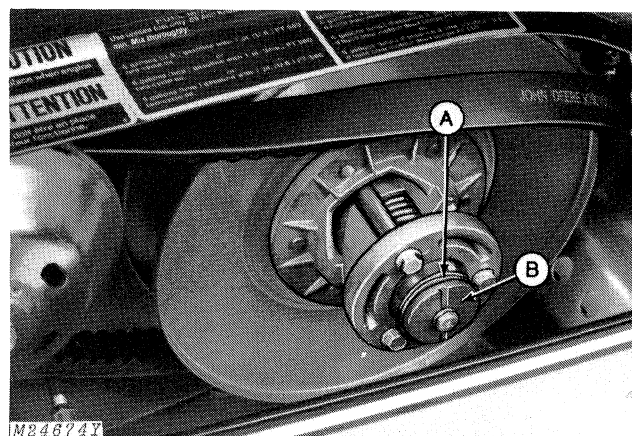
CAUTION: Keep fingers out of area between driven sheave halves. If driven sheave sticks, use care in opening it to prevent hand from being pinched.

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 left-hand side of snowmobile.

NOTE: As belt wear increases or if belt stretches, remove "anti-creep" shims (A) from behind retaining washer (B). When new belt is installed, replace shims. Torque cap screw to 20 ft-lbs (27 Nm). After installing a new belt, if snowmobile has a tendency to creep at idle speed, add a shim.

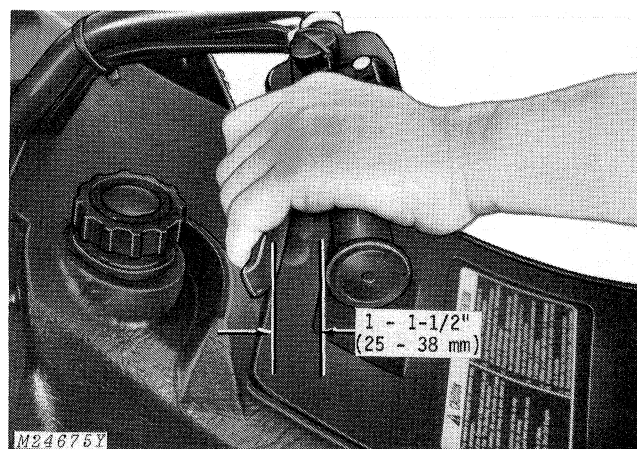


A—"Anti-Creep" Shims

B—Retaining 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).



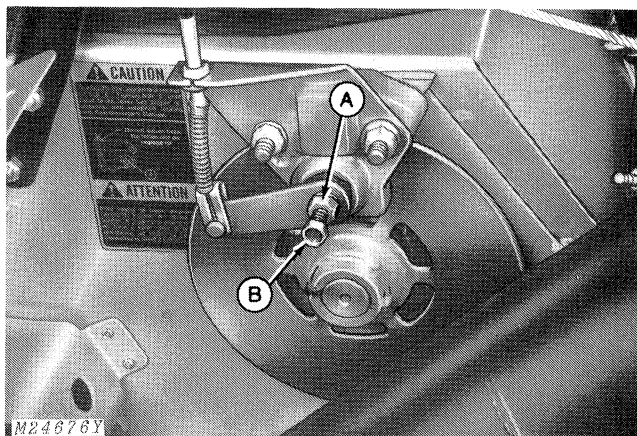
2. Adjust brake by loosening jam nut (A) and tightening adjusting screw (B). Tighten jam nut.

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.



A—Jam Nut

B—Adjusting Screw

SLIDE SUSPENSION

The slide suspension system requires lubrication between the plastic wear bar and the track grouser bar. 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 hard pack snow at high-speed, the wear bars will heat up. Either reduce speed, or frequently stop and 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.

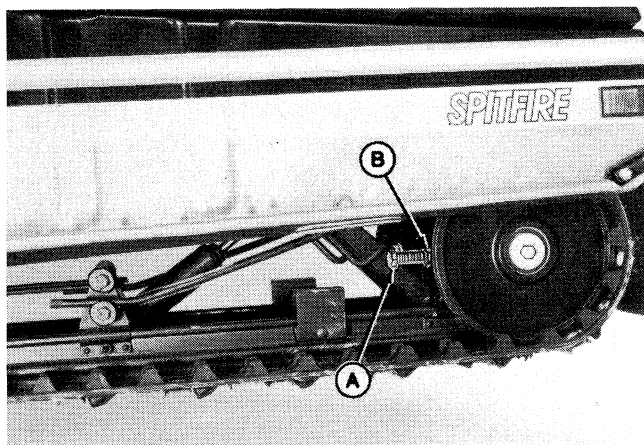
NOTE: Sand or gravel imbedded in the wear bars acts as an abrasive and will destroy the steel grouser bars in the track.

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



M28349

A—Jam Nut

B—Adjusting Screw

After Adjustment

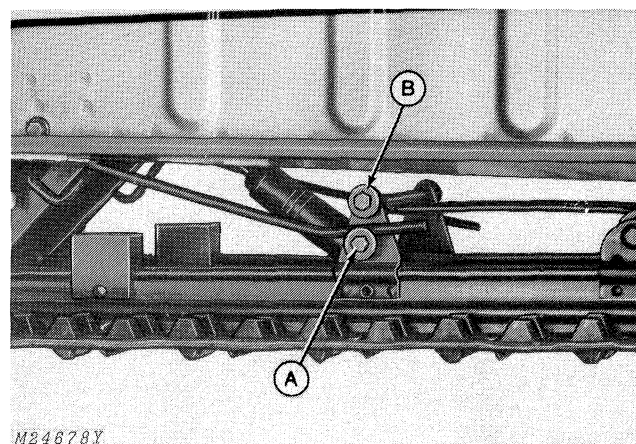
1. Start engine and allow the track to rotate slowly several times. Shut off engine and allow track to coast to a stop. **DO NOT APPLY BRAKE TO STOP TRACK.**
2. Check alignment. Rear idler wheels should run in center of drive lugs.
3. Slide rail wear bar should be in middle of each slide rail opening 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. If the suspension bottoms frequently, increase the rear spring preload.

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



A—Bottom Position

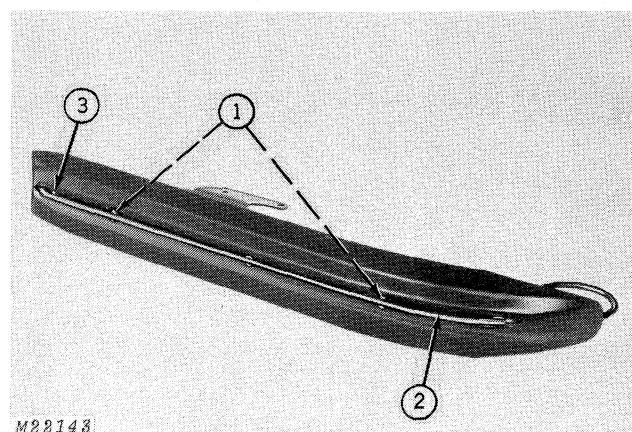
B—Top Position

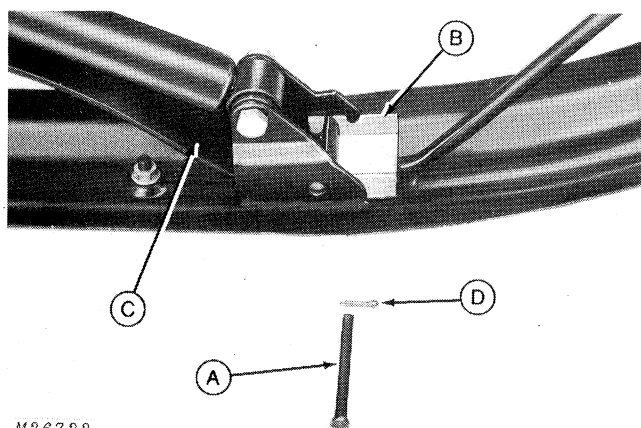
SKIS

Replace 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.





M26722

A—Drilled Pin
B—Wear Plate

C—Spring
D—Cotter Pin

Replace Ski Wear Plates

Replace wear plates when excessively worn.

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

Aligning Skis

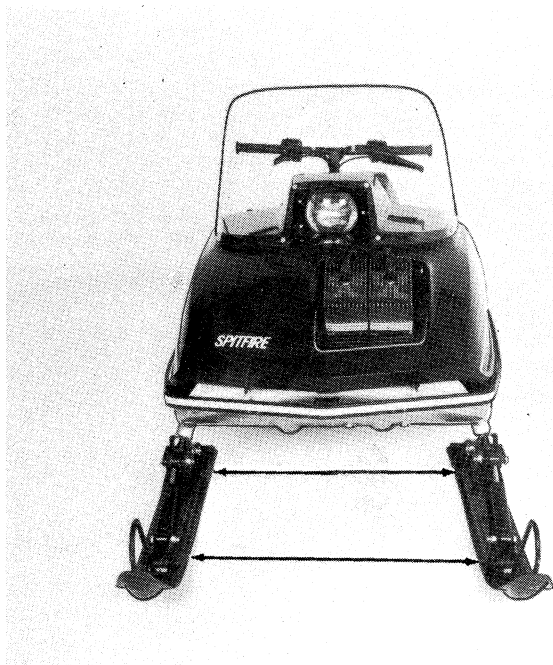
When properly aligned, skis are parallel and handle-bars are positioned straight ahead.

1. Loosen jam nuts (D). Gold-colored tie rod ends (C) have left-hand threads. Loosen opposite normal rotation.
2. Turn tie rods to align skis. Measure from straight edges of skis; not tapered ends.

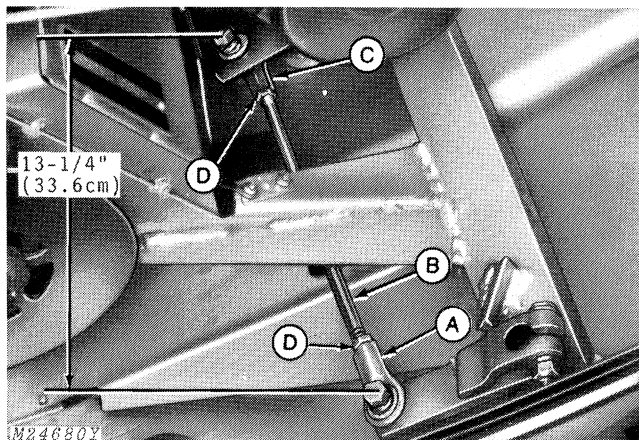
IMPORTANT: When adjusting tie rods (B), length from center hole-to-center hole should not exceed 13-1/4 inches (33.6 cm).

3. Tighten jam nuts (D). Hold tie rod (B) with vice grips when tightening jam nuts. This prevents stripping the threads in the ball joint.

IMPORTANT: After jam nuts are tight, be sure tie rod ends (A) still swivel freely.



M28351



M24680Y

A—Tie Rod End
B—Tie Rod
C—Gold-Colored Tie Rod End
D—Jam Nuts

Eliminating Loose Steering

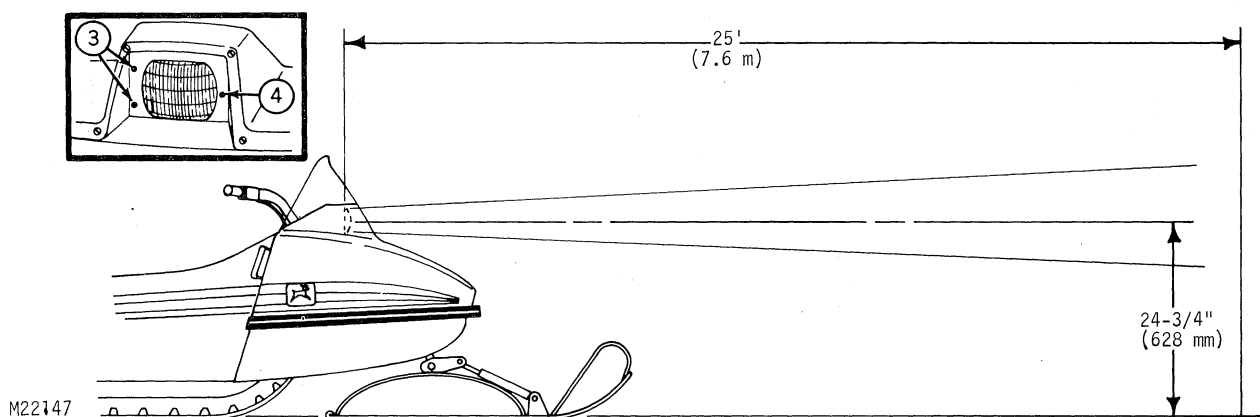


CAUTION: Check steering components and hardware frequently for condition and tightness.

The two major causes of loose steering are:

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

LIGHTING SYSTEM

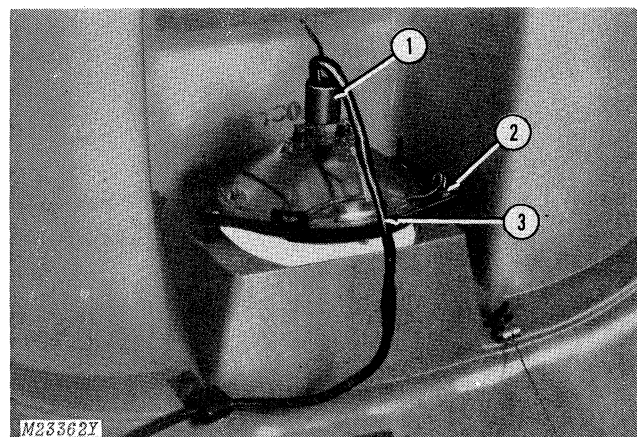


Adjusting Headlight

1. Position snowmobile on a flat surface with the headlight 25 feet (7.6 meters) from a vertical surface.
2. Have operator on seat and headlight on HIGH beam. Light beam centerline should be straight ahead and 24-3/4 inches (628 mm) above ground level.
3. Loosen or tighten the two left-hand adjusting screws to raise or lower the light beam.
4. Loosen or tighten the right-hand adjusting screw to move the light beam right or left.

Replacing Headlight

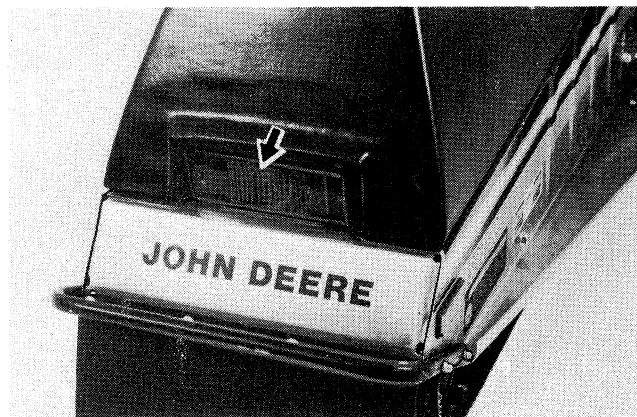
1. Disconnect wiring from light.
2. Unhook wire end from slot.
3. Remove wire clamp and headlight.
4. Install new headlight in opposite sequence.



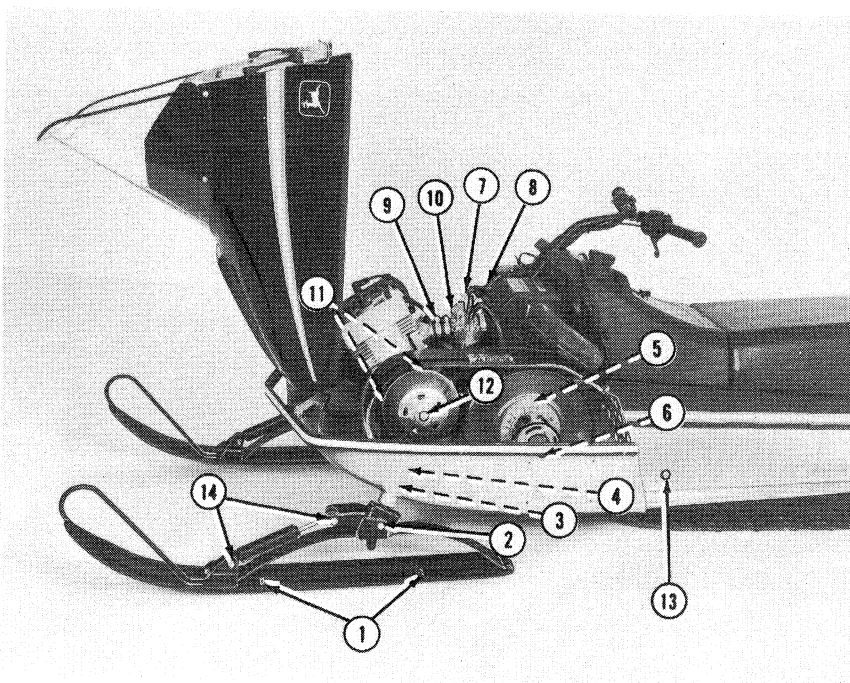
Replacing Stop-Taillight Bulb

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.



TIGHTENING HARDWARE AND COMPONENTS



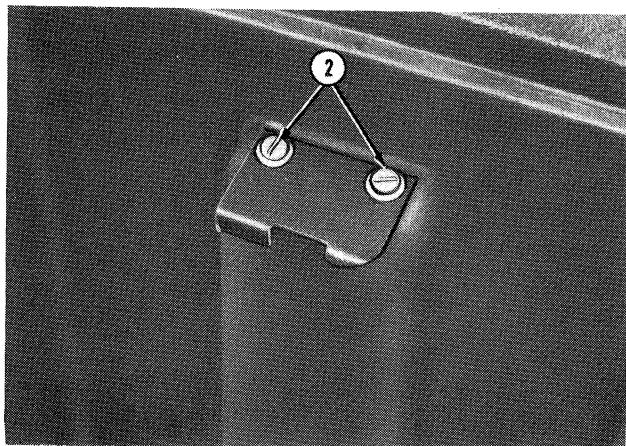
M28353

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. Drive shaft bearing cap screws.
6. Driven sheave cap screw.
7. Muffler clamp.
8. Throttle and choke cables.
9. Intake manifold nuts.
10. Carburetor attachment.
11. Engine mounting bolts.
12. Drive sheave cap screw.
13. Suspension cap screws.
14. Shock absorber screws.



M28354

Adjusting Glove Box Door Latch

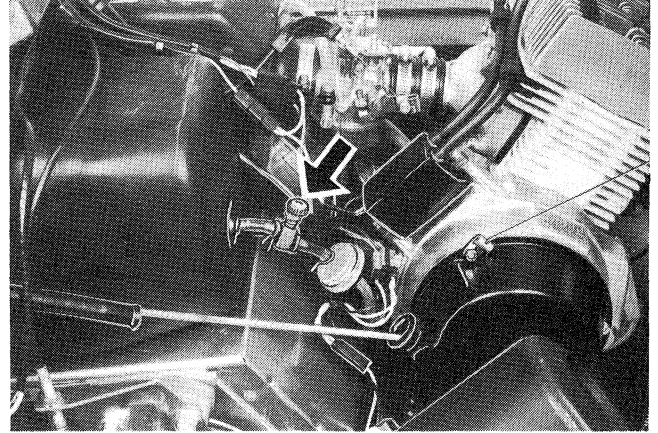
1. Open glove box door.
2. Loosen screws and move latch forward or backward.
3. Tighten screws.



Storage

PLACE 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. Drain fuel tank until there is approximately one gallon of fuel remaining in tank. Add 2 ounces (59 mL) of fuel stabilizer to the fuel tank. Run engine for 5 minutes to distribute the fuel through the system and carburetor. Drain fuel tank.
5. Replace in-line fuel filter.
6. Remove spark plugs and add one 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. Support snowmobile so track is clear of ground. Loosen track adjusting screws.
9. Place cover on snowmobile and store inside.



M28378

REMOVE 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 "STOP" 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.
Center distance between drive and driven sheaves too short for belt.

Engine Backfires and Runs Unevenly

Ignition timing incorrect.

Engine Overheats

Carburetor too "lean".
Intake manifold or carburetor leaking.

LIGHTS

Stoplight Not Working

Bulb burned out.
Stoplight switch defective.
Stoplight switch "frozen".

Lights Won't Light

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

POWER TRAIN AND CHASSIS

Clutch Does Not Disengage

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

Clutch engages slowly

Faulty clutch.
Stretched or worn drive belt.

Excessive Drive Belt Wear

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

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	Specification
Engine	Manufacturer Model Number of Cylinders Bore Stroke Displacement	John Deere "Fireburst"* TB340A Two 60 mm 60 mm 339 cc
Fuel System	Carburetor Mfr. Carburetor Number Tank Capacity Fuel Mixing Ratio	Mikuni AM54886 5.5 U.S. gal. (20.8 L) 50:1 See page 6.
Chassis and Tunnel	Material: Tunnel and Pan Hood Windshield Overall Length Overall Width Overall Height Weight (Approx.)	Aluminum Sheet Molded Compound Polycarbonate 98 in. (2489.2 mm) 33.25 in. (844.6 mm) 38.0 in. (965.2 mm) 275 lbs. (125 kg)
Track and Suspension	Suspension Type Track Material Track Width	Slide Suspension Rubber 15 in. (38.1 cm)
Power Train	Transmission: Type Manufacturer Primary Secondary Final Drive Ratio: Secondary Clutch Brake Drive Belt	2-Sheave Variable John Deere (94C Comet)** John Deere Low - 4.5:1, High - 1.23:1 Mechanical Disk M68416
Electrical System	Spark Plug (Champion) Spark Plug Gap Timing Lighting Coil Capacity Light Bulbs: Headlight Stop-Taillight	ON-3 (AM55045) 0.025 in. (0.635 mm) See page 11. 22° BTDC with engine running at 6500 rpm (0.109 in. BTDC) (2.76 mm BTDC) 120 Watts AM52959 AM52619

*Manufactured for John Deere by Kawasaki Heavy Industries, Japan

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

FUEL AND OIL MIXTURES

UNITED STATES

Ratio	Oil	Leaded 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	Leaded Fuel
40:1	1 U.S. pt. (0.473 L)	4 Imperial gal. (18.2 L)
	1 Imperial pt. (0.568 L)	5 Imperial gal. (22.7 L)
50:1	1 U.S. pt. (0.473 L)	5 Imperial gal. (22.7 L)
	1 Imperial pt. (0.568 L)	6 Imperial gal. (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

1. Speedometer.
2. Tachometer.
3. Protective Cover.
4. Hitch.
5. Track Stud Kit.

JOHN DEERE SERVICE LITERATURE AVAILABLE...

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Title	Order No.	Qty.	Price Each
Parts Catalog SPITFIRE Snowmobile	PC-1623		\$
Operator's Manual SPITFIRE Snowmobile	M69088		\$
Service or Technical Manual - SPITFIRE Snowmobile	TM-1191		\$

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.

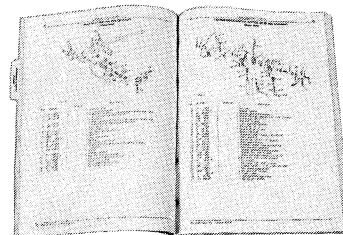
For current prices of John Deere Service Literature,
please call 1-800-522-7448

Illinois State Residents add 5% for ROT. ☐

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

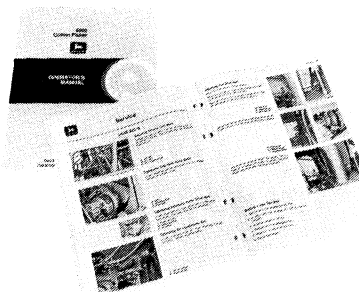
Prices subject to change without notice.

PARTS CATALOG



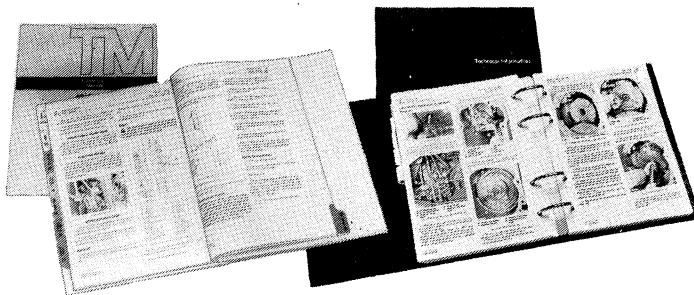
A parts catalog containing exploded view illustrations and lists of all parts is useful when purchasing service parts. Helps identify the correct parts. Useful in assembling and disassembling.

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.



John Deere is at your service when you need it

It is John Deere's objective to train all of their authorized dealer service personnel effectively so they can handle your service needs. Your dealer therefore has service technicians who are trained to give your machine the best of care. We would encourage you to use the service provided by your dealer whenever possible.

If for some reason you are unable to locate a dealer in your area, our sales branches are available to provide you with such information. The location and listing of such sales branches are listed below. Check the listing for the location of the area in which you reside.

Sales Branch

- | | | |
|--|--|--|
| 1. JOHN DEERE COMPANY
2001 Deere Dr.
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Grimsby, Ontario, Canada L3M 4H5 | 8. JOHN DEERE COMPANY
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Minneapolis, Minnesota 55440 |
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East Moline, Illinois 61244 | | |

