

**TRAILFIRE® LX
Snowmobile**
(Identification No. 285,001-)



DEALER
SERVICE SHOP
COPY

**OPERATOR'S
MANUAL**



**FILE THIS REVISED MANUAL.
KEEP OM-M69603 AND
MARK IT FOR MACHINES BELOW
SERIAL NO. 285,000.**

**John Deere Horicon Works
OM-M69754 Issue E3**

LITHO IN U.S.A.

INTRODUCTION

Read this manual carefully to learn how to operate and service your snowmobile correctly.

SAFETY



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.

DIRECTIONS

“Right-hand” and “left-hand” sides are determined by facing in the direction of forward snowmobile travel.

MEASUREMENTS

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

WARRANTY

Warranty is provided as part of John Deere's support program for customers who operate and maintain their equipment as described in this manual.

The warranty does not cover (a) John Deere snowmobiles used for competitive racing, altered for high performance or with high-performance kits; (b) products which have been altered or modified in ways not approved by John Deere, including setting fuel delivery above specifications or otherwise overpowering of products; (c) depreciation or damage caused by normal wear, accident, lack of reasonable and necessary maintenance as specified in this manual, improper maintenance, improper protection in storage, or improper use or abuse; (d) normal maintenance and replacement of service items such as filters, spark plugs, belts, brake linings, cutting blades and hoses unless such items are defective; (e) transportation, mailing and service call charges for warranty service.

MACHINE NUMBERS

Write the Product Identification Number and Engine Serial Number on the page provided in Specifications section. Your dealer needs this information when ordering parts.



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ASSEMBLY

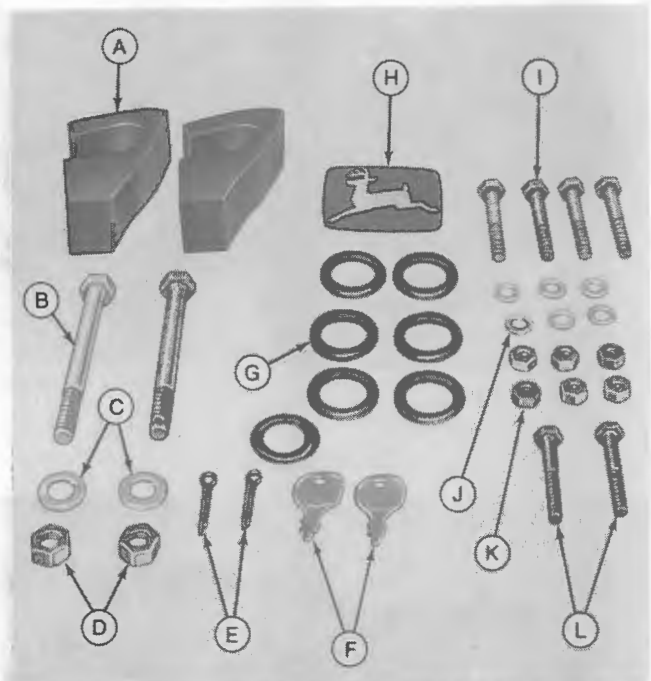
Unpack Components

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 (2 used)
- D - 3/8-Inch - 24 Lock Nut (2 used)
- E - Cotter Pins (2 used)
- F - Ignition Keys (2)
- 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)

CUT HERE

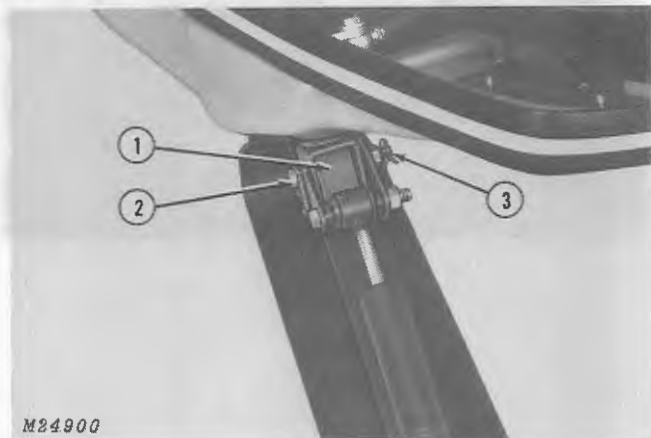


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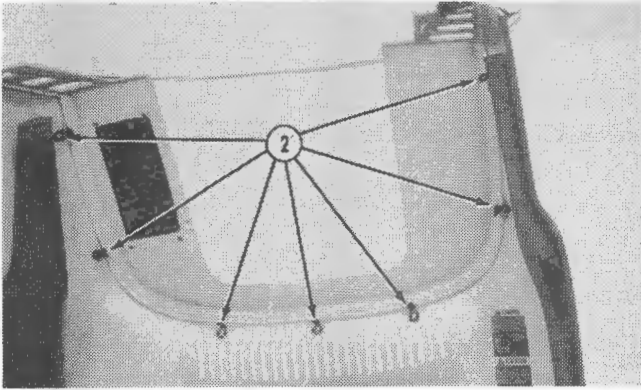
Install Skis

NOTE: Bushing is factory installed in steering spindle.

1. Install rubber ski spring stop over spindle. Stop is held in place by the ski saddle.
2. Position ski so that rear hole of ski 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.



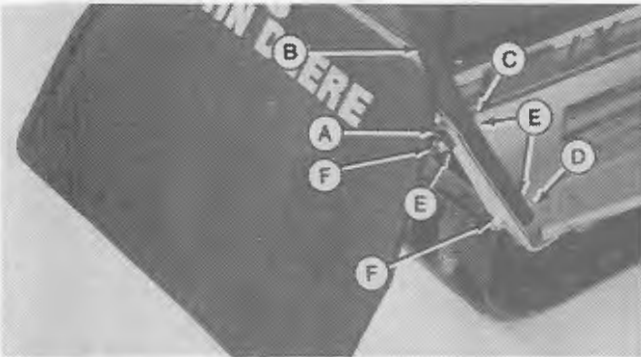
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Install Windshield

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 the O-ring halfway through hole and remove hook.

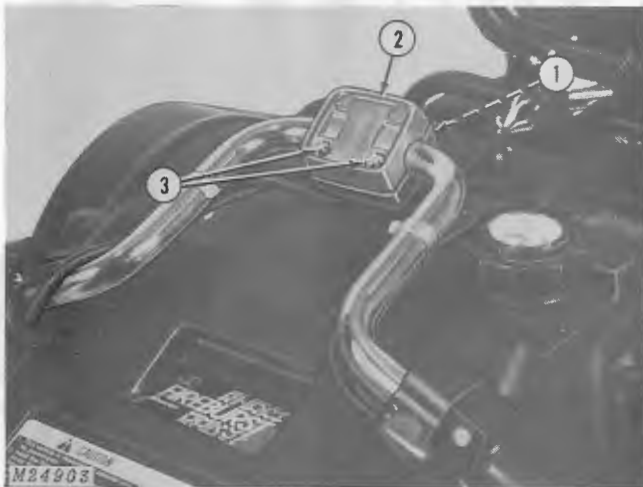


M33146

Install Rear Bumper

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

- | | |
|---------------------------------|----------------------------------|
| A—Snow Flap Support | D—1/4 x 1-1/2-Inch
Cap Screw |
| B—Rear Bumper | E—9/32 x 1/2-Inch
Flat Washer |
| C—1/4 x 1-3/4-Inch
Cap Screw | 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. Check oil injection pump adjustment and operation. Bleed line from oil tank to pump if necessary.
6. Start engine and check idle speed.
7. Check speed limiter system.
8. Check emergency stop and key switch.
9. Check operation of all lights.
10. Aim and adjust headlight.
11. Test drive or dynamometer test snowmobile.
12. Install accessories desired by customer.
13. Check chain case oil level.

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 non-leaded) gasoline with an anti-knock index of 87 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 (322 km) check up.

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.

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, oil injection pump, 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-tailight, 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 _____

PERFORM THESE 10 HOUR OR 200 MILE (325 km) CHECKS

The following inspection items are performed by you at your next oil change interval. This should be done at approximately 10 hours or 200 miles (325 km) of operation. It will help assure you of top performance and avoid premature failure of critical components. For a more detailed description of each item, refer to the appropriate section in the operator's manual.

Check the following items for wear or damage. You are advised to refer the equipment to the dealer. An operator should be trained to perform these checks. If you are not trained, you should have the work done by a qualified technician. If you are trained, you should have the work done by you.

The following check list is provided:

- 1. Check engine oil level
- 2. Check engine oil pressure
- 3. Check engine oil filter
- 4. Check engine oil filter
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- 99. Check engine oil filter
- 100. Check engine oil filter





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Safety

! **CAUTION:** Improper use or maintenance by the operator can result in injury. Follow these safety suggestions.



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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 pages 6 and 7.

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 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". 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.

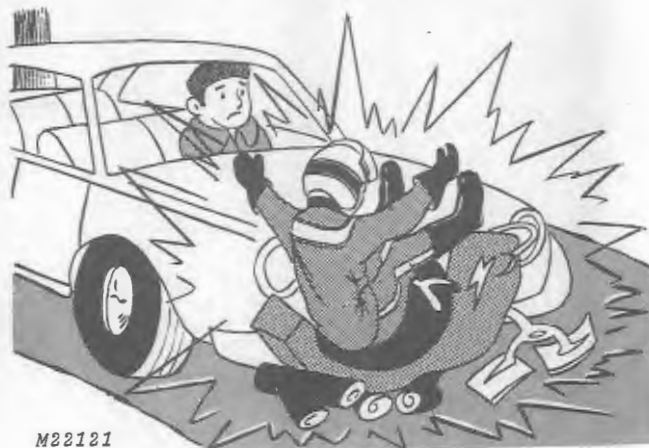
Avoid operating snowmobile at excessive speed. Always be aware of terrain.

If throttle sticks, don't panic. Turn emergency stop switch on the right-hand handlebar. See page 9.

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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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 10.

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

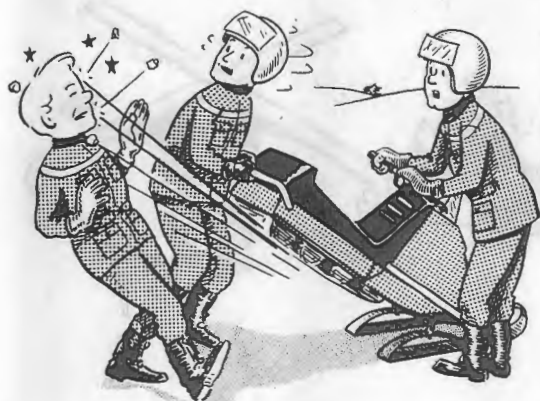
Check over your snowmobile regularly. This will prevent many problems from occurring.

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.

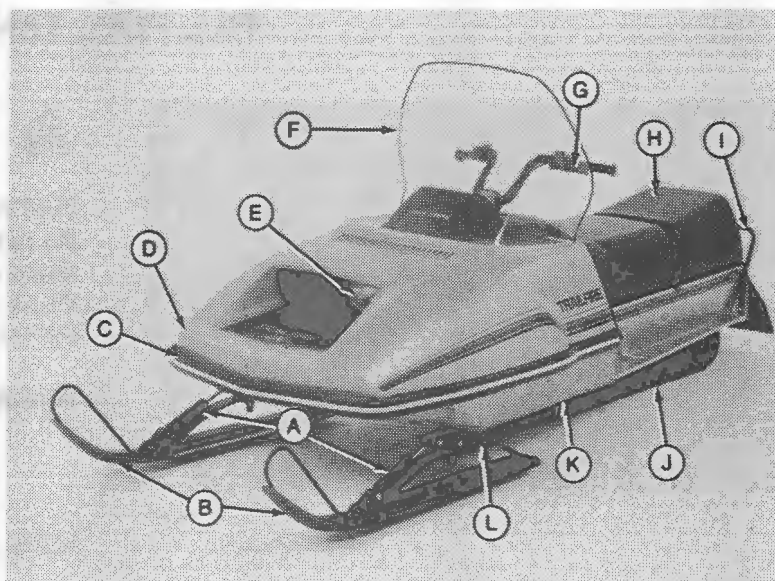
Never lift the rear of the snowmobile to clear the track. Chunks of ice or rocks may be thrown rearward. Tilt machine on one footrest when clearing track . . . and keep all persons clear of area. Keep hands and feet clear of track.





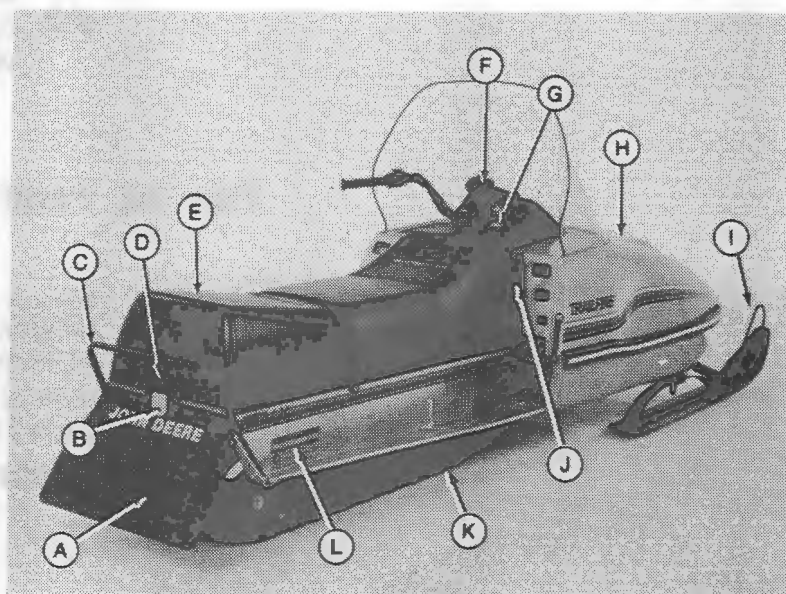
Identification

- 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



M33147

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



M33148



Preparation

FILL FUEL TANK



M33149



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.

IMPORTANT: Use regular leaded or un-leaded gasoline with an anti-knock index of 87 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 gasoline-alcohol mixtures, such as gasohol, or ethynol-blend gasoline.

NOTE: When running snowmobile in powder snow or blowing snow add gasoline de-icer to the fuel tank. Use **ONLY** one 12-ounce (355 mL) 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



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NEVER ALLOW OIL TANK TO BECOME EMPTY. MAINTAIN AT LEAST 3 INCHES (76 MM) 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°F (-29°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°F (-29°C) and this could cause engine failure.

STARTING ENGINE





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. Operating snowmobile above 40°F (5°C) may result in hard starting or reduced performance, especially at high altitudes.

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.

STARTING ENGINE



Normal Choke



Richer Choke



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

Cold Starting

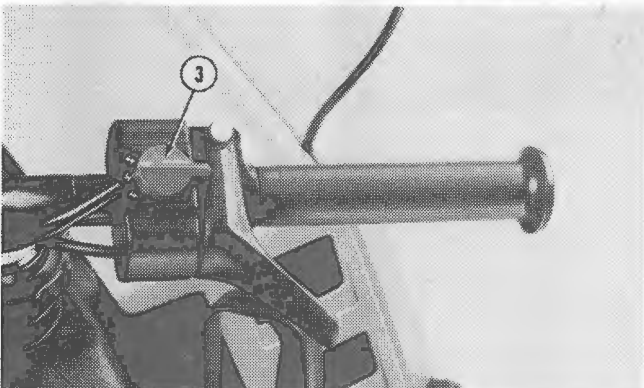
1. With no choke and no throttle, pull recoil start to turn engine over two or three times.
2. Flip choke lever straight up (normal position). In extremely cold weather, flip choke over center all the way (richer position).
3. Emergency stop switch must be in center position.
4. Turn key switch "ON". 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.



M33150

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. 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.

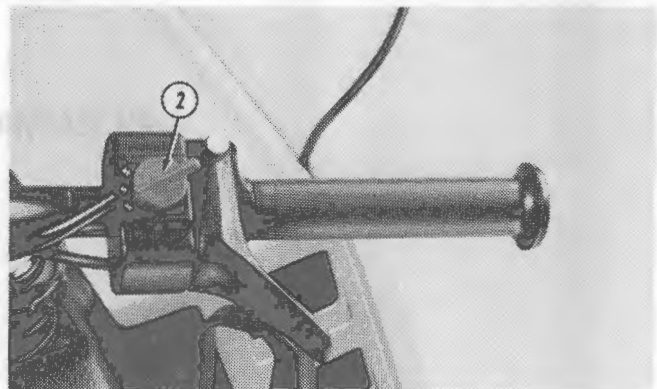
CAUTION: Knotted end of rope comes free of clutch when rope is pulled. Knotted end could snap into a bystanders face and cause personal injury.



M30586

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.



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LIGHTS



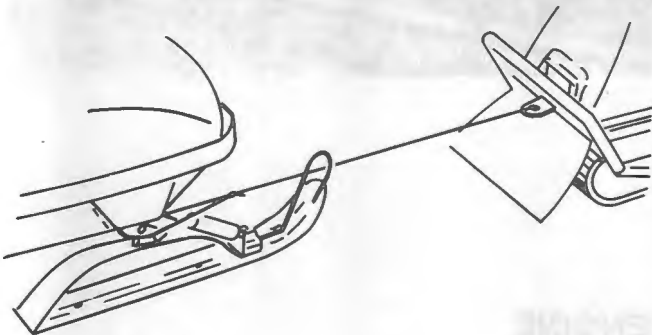
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NOTE: The lights are automatically "ON" whenever the engine is running.

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 25 and 26 for adjusting headlight and changing bulbs.

TOWING



M28322



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

1. Remove the 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 or strap through both skis. This may damage the steering tie rod.

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 Danger from freezing of exposed flesh				GREAT DANGER				

M10123

TRANSPORTING

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



M30567



Service

SERVICE INTERVAL CHART

Item	As Needed	Daily	Every 150 Miles	Every 300 Miles	Annually	Page
Clean windshield.	X					8
Check condition of skis and steering.		X				23,24
Check track condition and tension.		X				21,22
Check throttle control operation.		X				14,15,16
Check operation of brakes.		X				20
Check emergency stop and key switch.		X				9
Check lighting system.		X				10
Check chain case oil level.			X			20
Check chain tensioner.				X		20
Check in-line fuel filter.					X	18
Check in-line oil filter.					X	17
Check oil injection pump.					X	17
Grease L.H. track drive shaft bearing.					X	27
Grease steering column bearing.					X	27
Check drive belt condition.		X				19
Check carburetor adjustments.			X	X	X	14,15,16
Check choke adjustments.			X	X	X	14
Check fan belt tension.				X	X	18
Check ski alignment.	X					24
Check headlight adjustment.	X					25
Check ski wear rods and wear plates.				X	X	23
Check slide suspension wear bars.				X	X	21
Lubricate throttle cable.					X	16
Check all components for condition and tightness.					X	28
Service drive and driven sheaves.					X	19
Store snowmobile properly.					X	29

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 spark plug wire 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 spare 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.



M30882

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.

NOTE: There should be slight freeplay between choke lever and dash when plunger is all the way down and console is in the down position.

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.



Adjusting Throttle Cable

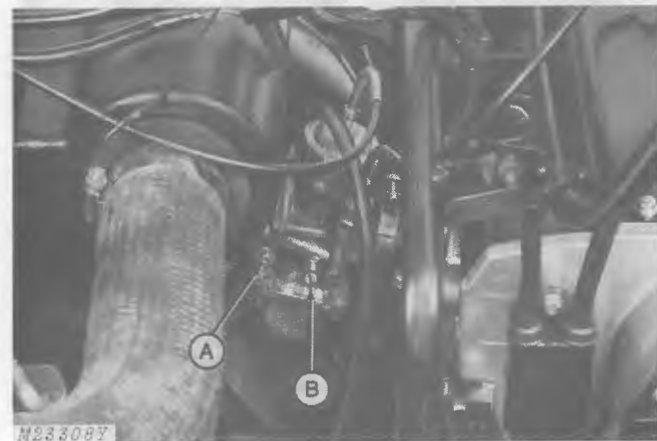
1. Remove air intake silencer.
2. Lock throttle lever against handgrip with a clamp or strong rubber band.
3. Place your finger in throat of carburetor so you can feel the backside of the throttle valve.
4. Loosen jam nut and turn adjusting sleeve until the backside of throttle valve is flush with the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

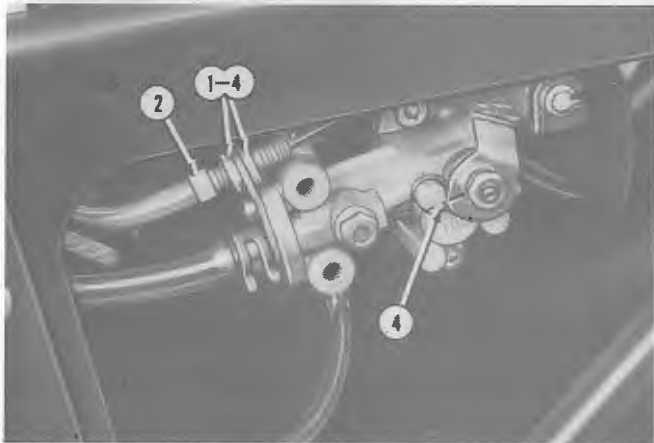
NOTE: No part of the throttle valve should restrict air flow through the carburetor throat when throttle is in the wide open position. Use Never-Seez on the throttle cable end in the throttle lever.



5. Turn idle adjusting screw (B) 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 (B) 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 the throttle lever. The throttle valve should begin to rise; if not, repeat Steps 2, 3, and 4.
9. Turn air screw (A) in until slight seating resistance is felt.
10. Back air screw (A) out 1 turn.
11. Install air intake silencer and run engine until operating temperature is reached. If idle speed is not correct, turn idle adjusting screw (B) in or out until idle speed is correct (2000 to 2200 rpm).

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





M26363

Adjusting Oil Injection Pump

IMPORTANT: The oil injection pump lever must be adjusted to move at exactly the same time that the carburetor throttle valve starts 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 valve and lever should 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.

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.



M30588

A—Mixing Chamber

B—Float Arm

Replace Carburetor Main Jet

1. Remove throttle valve assembly from top of carburetor.
2. Loosen clamp securing carburetor to intake manifold.
3. Remove clamp securing intake silencer boot to carburetor. Do not remove boot from carburetor.
4. Turn carburetor 90 degrees.



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

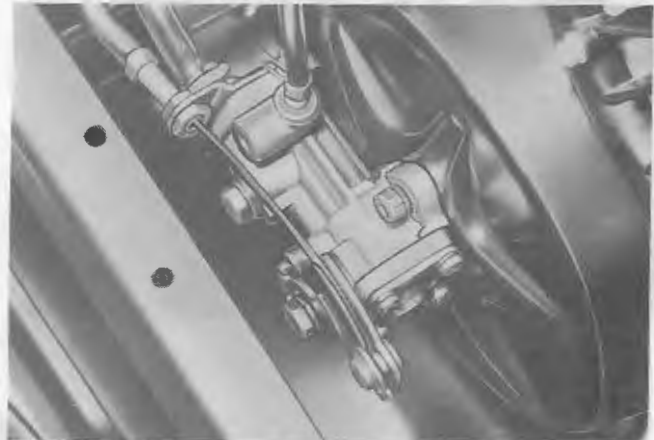
5. Use a 17 mm wrench to remove hex. plug from bottom of carburetor.
6. Replace main jet.
7. Reverse procedure to install carburetor.

CARBURETION RECOMMENDATIONS

Temperature	Component	Sea Level to 4000 ft. (1219 m)	4000 ft. (1210 m) to 8000 ft. (2438 m)	8000 ft. (2438 m) and Above
Below 0°F (-18°C)	Main Jet	240	230	210
Above 0°F (-18°C)	Main Jet	230	220	200
All Temperatures	Jet Needle	6F27-3	6F27-3	6F27-3
	Needle Jet	166-Q0	166-Q0	166-Q0
	Throttle Valve	3.5	3.5	3.5
	Pilot Jet	25	25	25
	Air Screw	1 Turn Open	1 Turn Open	1 Turn Open
	Idle Speed	1800-2300 rpm	2700-3200 rpm	2700-3200 rpm

OIL INJECTION PUMP

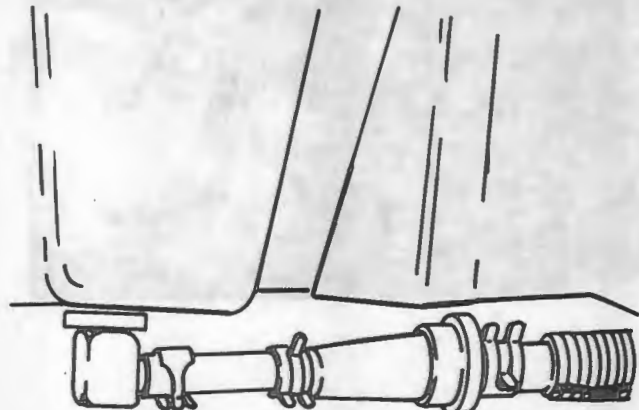
Check oil flow annually. See your John Deere dealer for this service.



M28311

IN-LINE OIL FILTER

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



M28312

IN-LINE FUEL FILTER



M30589

Change the filter annually or when contamination builds up.

AIR INTAKE SILENCER



M28318Y

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.

CHECKING FAN BELT TENSION



M28318Y

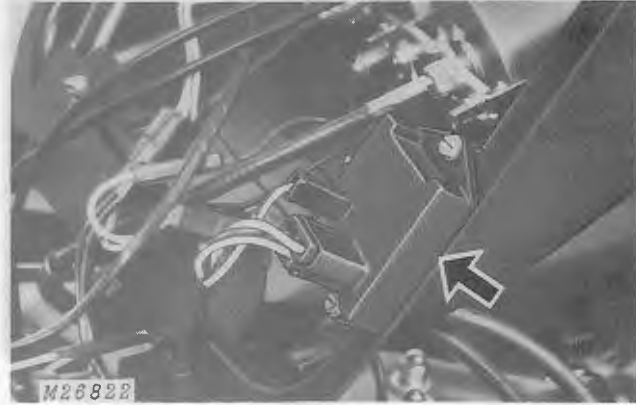
Remove fan cover.

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.

SPEED LIMITER SYSTEM

The function of the speed limiter system can be checked by holding the throttle lever pin rearward and pressing the throttle lever slowly. If the system is functioning correctly, the engine will "miss" or "cut out" at 2800 to 3000 rpm.

The speed limiter system provides two types of protection; it limits engine speed to 2800 to 3000 rpm if the throttle lever is released and the carburetor slides stick open and it limits maximum engine speed to 7800 to 8400 rpm in the event of a broken belt at wide open throttle.



M28822

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



A—Spacer Washer

B—Retaining Washer

M27809



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 API-GL5 gear oil (SAE 90) until it flows from lower hole.
4. Install plugs.



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

The slide suspension system requires lubrication between the plastic wear bar and metal 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 packed 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.

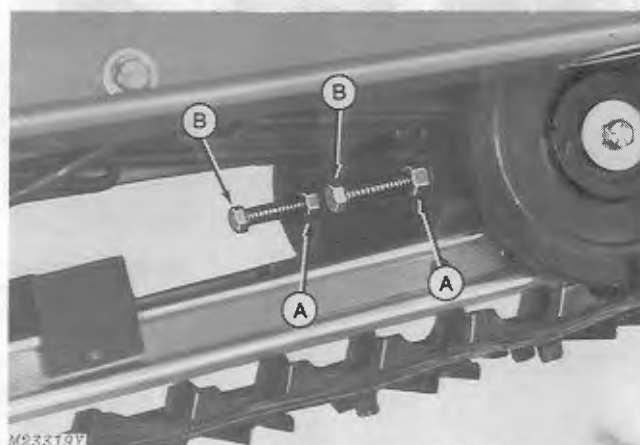
NOTE: Sand or gravel imbedded in the wear bars acts as an abrasive and will destroy the steel grouser bars in the track.

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.



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 side 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.



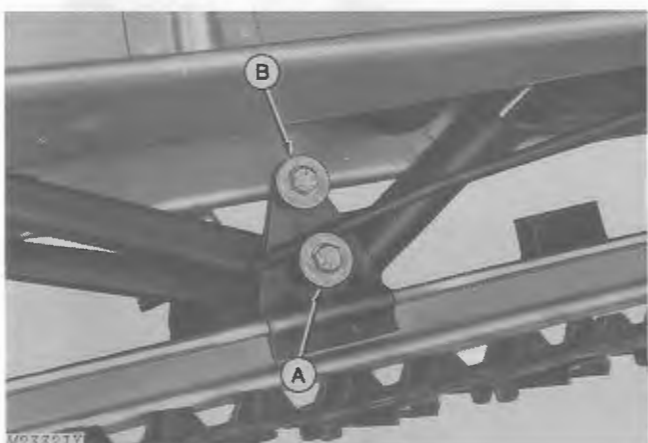
Adjusting Suspension Springs

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

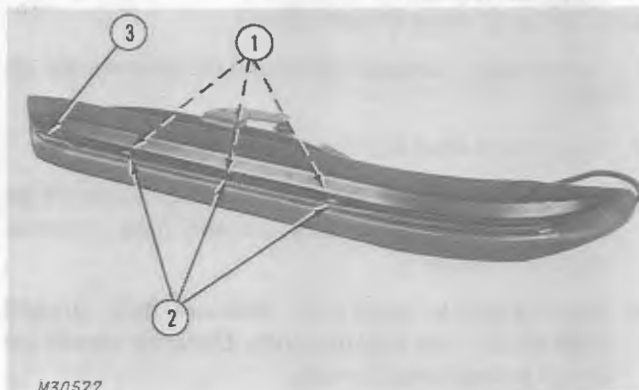
B—Top Position

SKIS

Replacing Ski Wear Rods

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

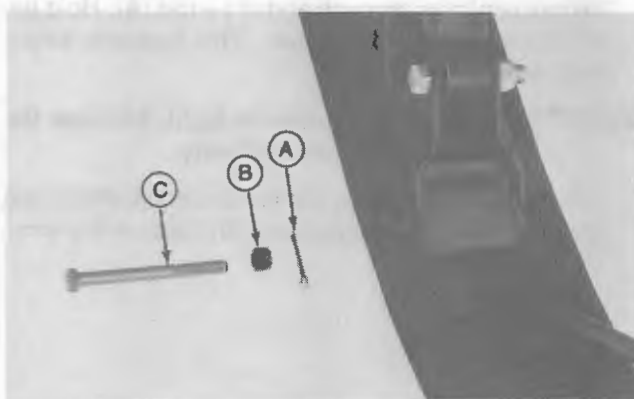
1. Remove lock nuts securing wear rod to ski.
2. Pry rod down to free studs from holes.
3. Slide rod forward to remove rod from rear hole.
4. Install new rod in opposite sequence.



Replacing Ski Wear Plates

Replace wear plates when excessively worn.

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



A—Cotter Pin

B—Nut

C—Bolt

D—Wear Plate

Aligning Skis

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

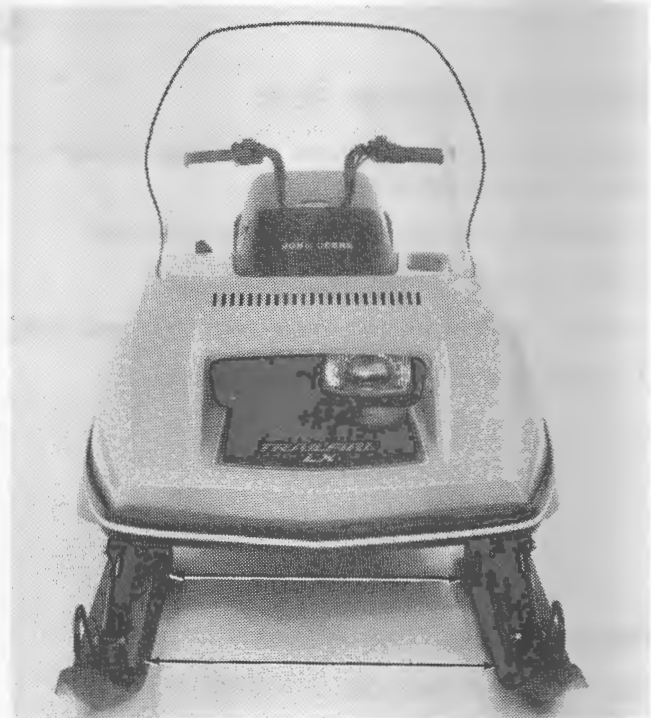
1. Raise front of snowmobile slightly to take weight off skis.
2. Disconnect drag link from steering arm.
3. Loosen jam nuts on tie rod ends. Gold-colored tie rod has left-hand threads. Loosen nuts opposite normal rotation.
4. Turn tie rod to align skis. Measure from straight edge of skis; not tapered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

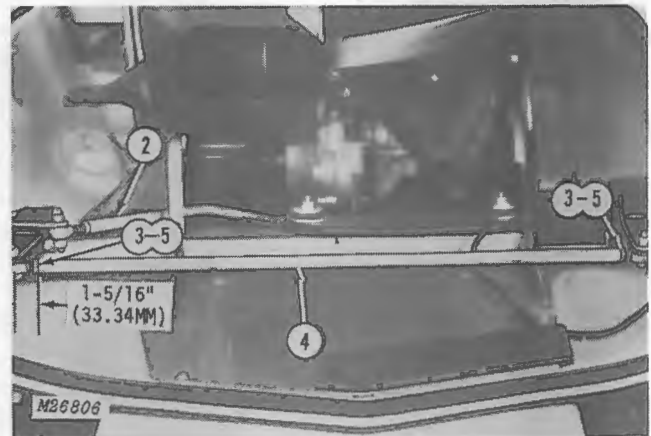
5. Tighten jam nuts on each end of tie rod (A). Hold tie rod when tightening jam nuts. This prevents stripping threads in ball joint.

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.



M33156

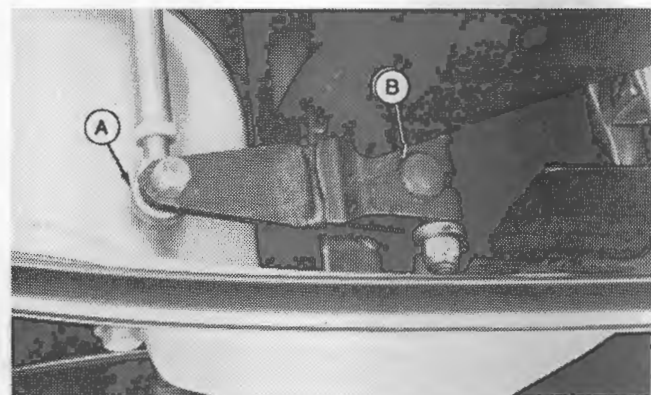


Eliminating Loose Steering

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.

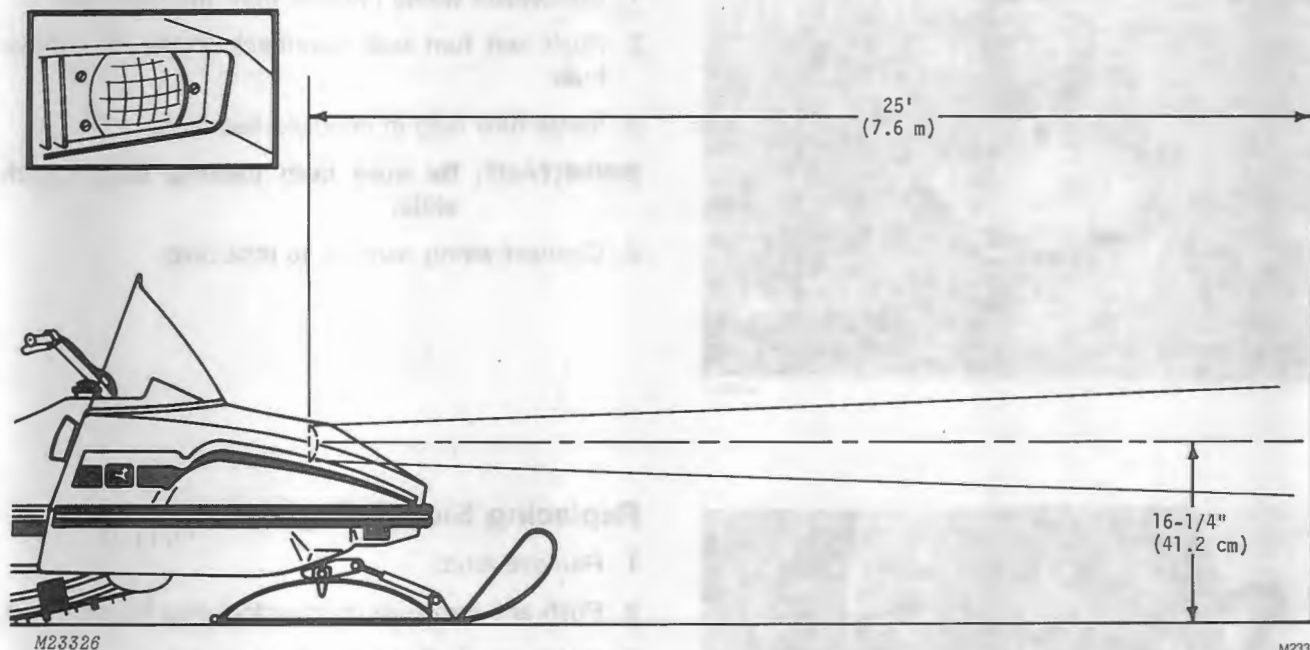


M33152

A—Tie Rod End

B—Spindle Bushing

LIGHTING SYSTEM

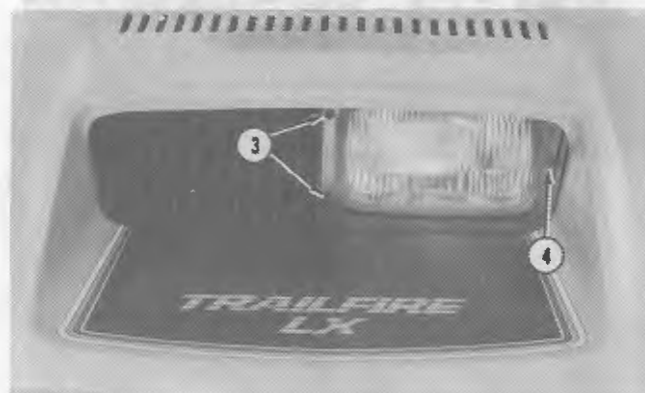


M23326

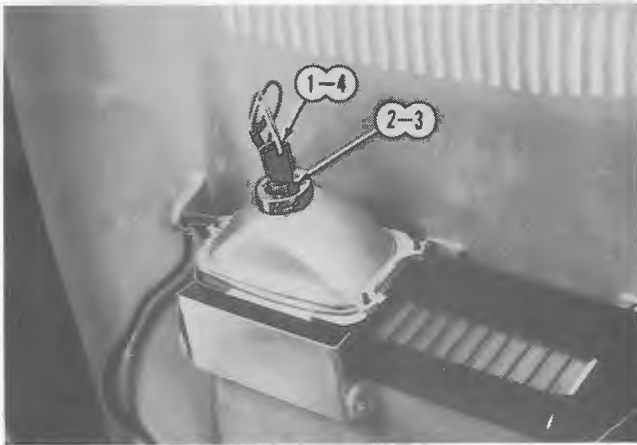
M23326

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.



M33153



M28317

Replacing Headlight Bulb

1. Disconnect 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.

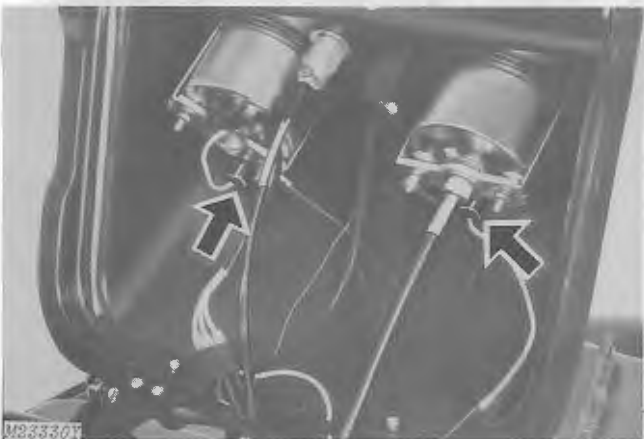


M30592

Replacing Stop-Tailight 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.



M233301

Replacing Speedometer and Tachometer Bulbs

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.

LUBRICATION

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.



M28318

Track Drive Shaft Bearing

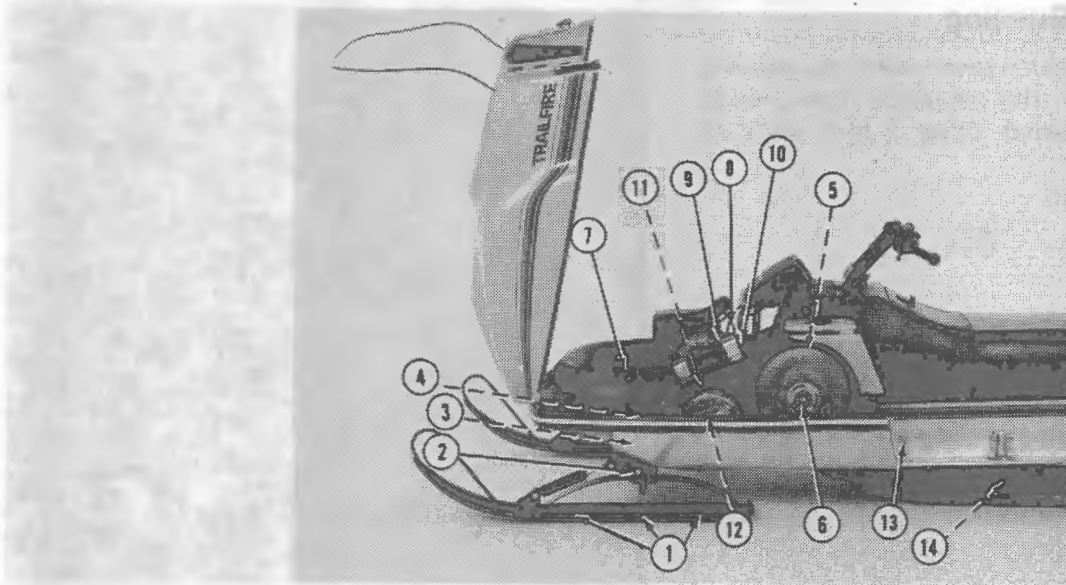
The left-hand bearing is subjected to large amounts of water during some types of running. The bearing should be re-lubricated after any excessive use in very wet conditions. Use 2 to 3 shots of multipurpose grease.

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



M28319

TIGHTENING HARDWARE AND COMPONENTS



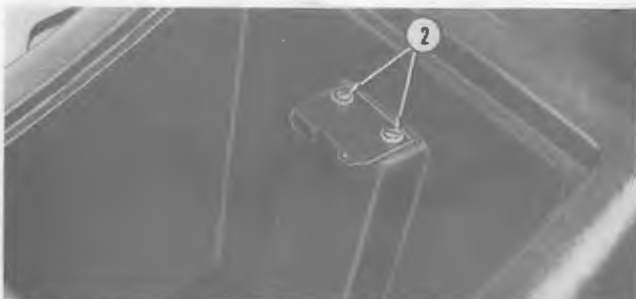
M33154

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. Intake manifold nuts.
10. Carburetor attachment.
11. Engine mounting bolts.
12. Drive sheave cap screw.
13. Suspension cap screws.
14. Shock absorber screws.



M28321

Adjusting Glove Box Door Latch

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

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 jet. 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 (Trailfire LX) 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.

Problem	Cause	Remedy
Clutch does not engage properly	Engine idles too fast	Adjust idle speed
	Faulty clutch	Repair or replace
	Short drive belt	Replace with correct length
Clutch engages slowly	Faulty clutch	Repair or replace
	Stretched or worn drive belt	Replace with correct length
Excessive drive belt wear	Driving long distances at clutch engagement speed	Use proper driving technique
	Freeing frozen track with engine	Freeze track with manual
	Drive and driven sheaves misaligned	Adjust alignment
Rapid track wear	Operating on bare ground	Use proper driving technique
	Track improperly tensioned	Adjust track tension
Loose steering	Worn tie rod ends	Replace
	Worn spindle bushings	Replace
Poor maneuverability	Worn ski wear rods	Replace
	Loose steering linkage	Tighten



Specifications

SNOWMOBILE SPECIFICATIONS

Component	Item	TRAILFIRE LX
Engine	Manufacturer	John Deere "Fireburst"*
	Model	TA440A
	No. of Cylinders	2
	Bore	68 mm
	Stroke	60 mm
	Displacement	436 cc
Fuel System	Carburetor Manufacturer	Mikuni
	Carburetor No.	AM55054
	Tank Capacity	7.5 Gals. (28.4 L)
	Fuel Mixing Ratio	See page 33
Chassis and Body	Tunnel	Aluminum
	Pan	Thermoplastic Rubber
	Hood	Sheet Molded Compound
	Windshield	Polycarbonate
	Overall Length	102 in. (2 590.8 mm)
	Overall Width	37 in. (939.8 mm)
	Overall Height	37 in. (939.8 mm)
Weight (Approx.)	375 lbs. (170 kg)	
Track and Suspension	Suspension	Slide Suspension
	Track Material	Rubber
	Track Width	15-3/4 in. (400 mm)
Power Train	Transmission	2-Sheave Variable
	Manufacturer:	
	Primary	John Deere (Comet)**
	Model	102C (Comet)
	Secondary	John Deere
	Final Drive Ratio:	1:86:1 (Standard)
Brake	Mechanical Disk	
Drive Belt	M66345	
Electrical System	Spark Plug (Champion)	QN-3 (AM53941)
	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 Kawasaki Heavy Industries, Japan

**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.)

Record the snowmobile and engine numbers in the space below.

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

John Deere TRAILFIRE LX (PIN No. MOTRLXX285001).

Product Identification No. _____

Engine Serial No. _____

Date of Purchase _____

(To be filled in by purchaser)



M33155

Product Identification Number



M24898

Engine Serial Number



Accessories

- Speedometer
- Tachometer
- Protective Cover
- Hitch Kit
- Back Rest Kit
- Electric Start Kit
- Track Stud Kit
- Sport Seat
- Extra Coverage Windshield
- Handlebar Heater Kit
- Suspension Wheel Kit
- Quartz Halogen Light
- Heavy-Duty Hitch Kit
- Hitch Pin and Cable Kit
- Chain Case Guard
- Light-Duty Rear Springs
- Spring Helper Kit
- Drive Belt Holder Kit
- Track Guide Clips



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Title	Order No.	Qty.	Price Each
Parts Catalog 340 and 440 TRAILFIRE Snowmobile	PC-1676		\$ 3.00
Operator's Manual TRAILFIRE LX Snowmobiles	OM-M69754		\$ 1.20
Service or Technical Manual 340 and 440 TRAILFIRE Snowmobiles	TM-1197		\$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.

FOS COMPACT EQUIPMENT MANUALS

FCP-80101B	Engines	\$10.00
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FCP-82101B	Hydraulics	8.00
FCP-81101B	Power Trains	8.00

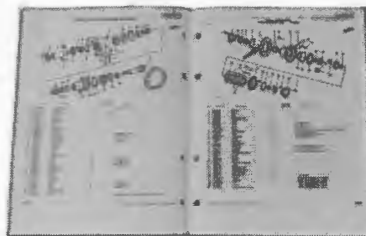
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PARTS CATALOG



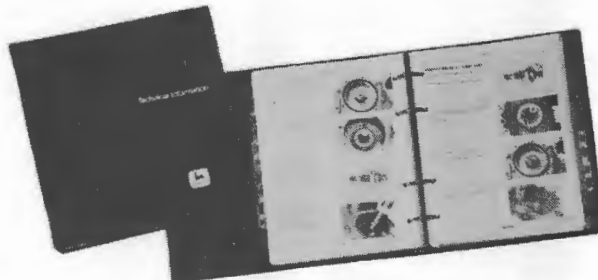
A parts catalog containing exploded view illustrations and lists of all parts is useful when purchasing service parts. Helps identify the correct parts. Useful in assembling and disassembling.

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.

FOS MANUALS ON COMPACT EQUIPMENT



John Deere has made these new books available so you can read and learn the basics of how to service and repair most types of compact tractors and small engine-powered equipment. The fundamentals of how those systems work are shown clearly with hundreds of color illustrations. You can learn about operating principles of engines, electrical systems, power trains, or hydraulic systems. No brands or model numbers are mentioned; only generic principles are covered.