DEALER SERVICE SHOP COPY

SPRINTFIRE® Snowmobile

(Serial No. 222,001-285,000)

JOHN DEERE

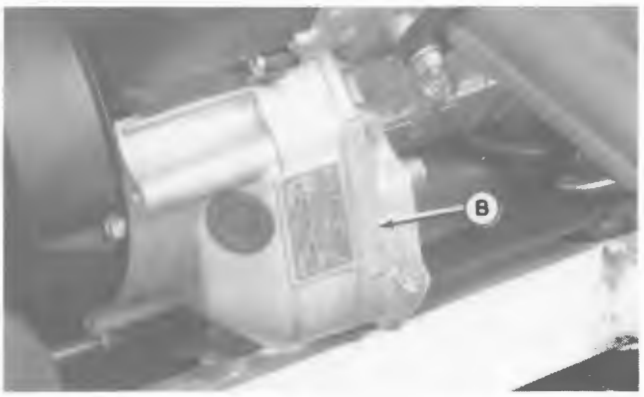
OPERATOR'S MANUAL

FILE THIS NEW MANUAL.

Horicon Works
OM-M69631 Issue H2
Litho in U.S.A.

To The Operator

M30886
Snowmobile Serial Number



M30887
Engine Serial Number

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

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

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

This operator's manual is prepared for: John Deere SPRINTFIRE Snowmobiles (Serial No. J34-LM 222001M-).

JOHN DEERE SPRINTFIRE SNOWMOBILES

Machine Serial No. _____

Engine Serial No. _____

Date of Purchase _____

(To be filled in by purchaser)

IMPORTANT

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

Assembly

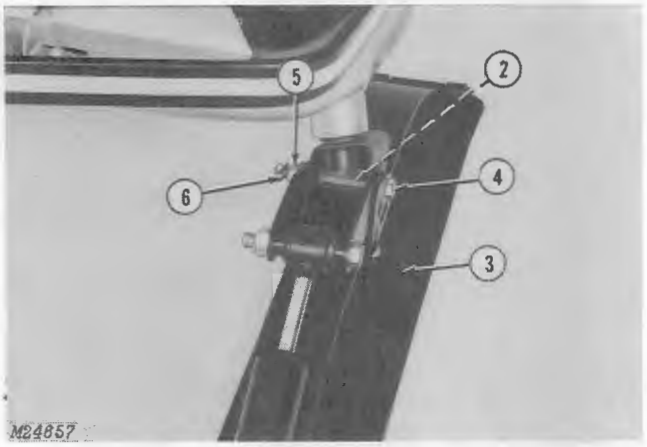
UNPACK COMPONENTS

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

ASSEMBLE COMPONENTS

Installing 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.



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Installing Windshield

1. Remove washers, screws, retaining nuts and o-rings from bag of parts.
2. Use screws, washers and retaining nuts to secure windshield to hood. Install o-rings through the windshield tabs.

NOTE: Attach hood lanyard cable to screw (A).

M30888

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, throttle and oil pump. Adjust if necessary.
5. Check coolant level. Leave cap off surge tank and start engine to see if coolant is flowing through system. A swirling action will be present in tank when coolant is flowing. Stop engine and replace cap.
6. Start engine and check idle speed.
7. Check emergency stop and key switch.
8. Check operation of all lights.
   A. Coolant Temperature Warning Light
      1. Remove wiring harness from engine temperature sender.
      2. Use a jumper wire to ground wiring harness to engine.
      3. Start engine and warning light should light.
      4. Reinstall wiring harness to temperature sender.
   B. Oil Level Warning Light
      1. Remove oil switch from oil tank.
      2. Allow float to bottom out on electrical terminals.
      3. Start engine and warning light should light.
      4. Replace oil switch in oil tank.
9. Aim and adjust headlight.
10. Test drive or dynamometer test snowmobile. (Do not exceed break-in speed).
11. Install accessories desired by customer.

DELIVERY CHECK LIST

1. Explain operator's manual to customer.
2. Instruct customer about snowmobile operation.
3. Explain fuel and oil injection system. Use regular (leaded or un-leaded) gasoline with an anti-knock index of 88 or higher.

NOTE: Regular (leaded) gasoline is preferred but unleaded gasoline is acceptable. 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 a 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 30 mph (48 km/h) for the first 100 miles (160 km), or force the machine at full throttle in deep snow. An occasional short 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. 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, emergency stop switch, warning lights and oil level switch.
_____	_____	11. Engine head bolts and exhaust manifold nuts.
_____	_____	12. Steering component hardware (steering arms, tie rods and handlebars).
_____	_____	13. Coolant level.

DEALER COMMENTS: _____

_____

_____

Dealer Name _____

Town _____

Date _____

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Safety

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CAUTION: DO NOT carry a passenger. Improper use or maintenance by the operator can result in injury. Follow these safety suggestions.

Preparation

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

Always operate your throttle and brake controls several times before you start 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.

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.

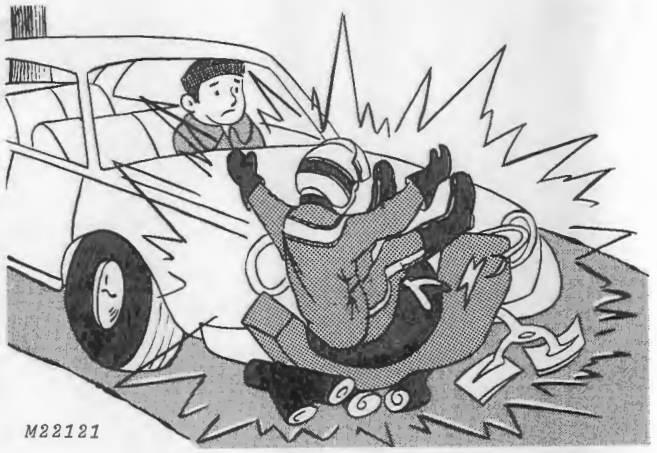
Always use both hands for steering.

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.

Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.

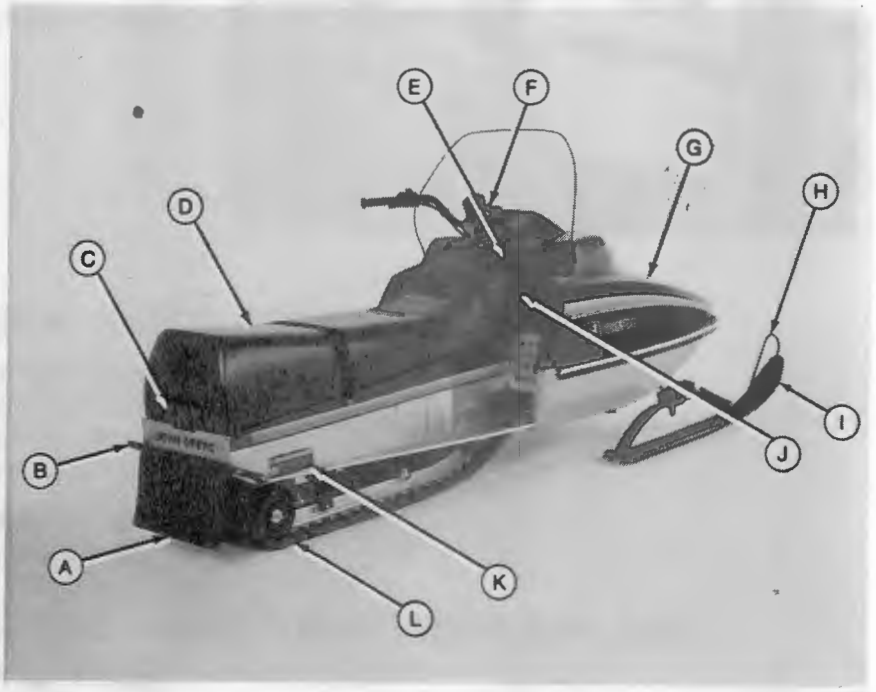
M22122

M22122

Identification

M30889

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

Preparation

FILLING FUEL TANK

M30891

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

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

NOTE: When running snowmobile in powder snow or blowing snow add gasoline de-icer to the fuel tank. Use ONLY 8 ounces (0.24 L) per tank of fuel. Fuel tank holds approximately 5 U.S. gallons (18.9 L).

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

FILLING OIL TANK

M30892

NEVER ALLOW OIL TANK TO BECOME EMPTY. Use John Deere 2-cycle oil or a BIA approved 2-cycle engine oil. Oil tank holds approximately 5.0 U.S. pints (2.4 L). Refill tank immediately when oil level warning light is on.

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.

Operation

BREAK-IN PERIOD

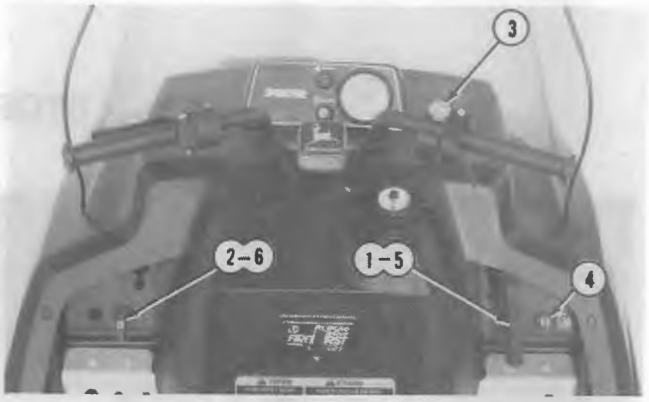
Do not exceed 30 mph (48 km/h) for the first 100 miles (160 km) or force the machine at full throttle in deep snow. An occasional short burst of power on hard-packed snow will not be harmful.

BEFORE OPERATING

1. Clean windshield with a damp cloth. Do not use gasoline, solvents, or abrasive cleansers.
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 and oil levels. Oil level must be checked each time that fuel is added.
5. Check throttle and brake controls for free operation and proper adjustment.
6. Start engine and test operation of emergency stop switch, key switch, headlight dimmer switch, headlight, and stop-tailight.

STARTING ENGINE

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



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1. With no choke and no throttle, pull recoil start handle 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 up 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 closing choke.

   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 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 swtich "ON," pull recoil start rope.

NOTE: DO NOT use choke and open throttle slightly.

EMERGENCY STARTING

M30894

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.

STOP ENGINE

M30895

1. Release throttle lever.
2. Apply brake.
3. Push emergency stop switch down.
4. Before restarting, stop switch must be in the up 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. Push dimmer switch rearward for low beam.
3. Push dimmer switch forward for high beam.

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

M30896

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.

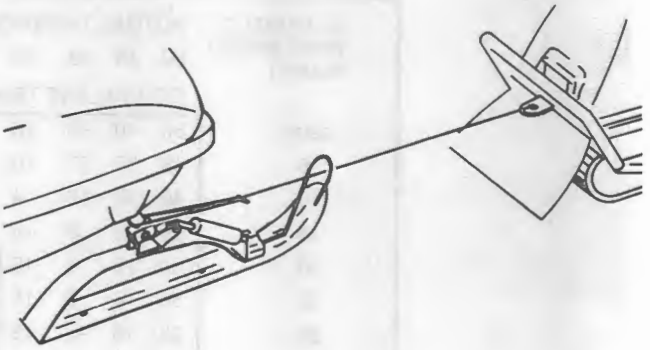
CAUTION: Be sure no one is behind machine when clearing track. Injury could result from ice or rocks thrown from track.

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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TRANSPORTING

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

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							

M10123

Service

SERVICE INTERVAL CHART

Item	As Needed	Daily	Every 150 Miles	Every 300 Miles	Annually	Page
Clean windshield	X					7
Check coolant level.		X				18
Check condition of skis and steering.		X				22, 23
Check track condition and tension		X				21
Check throttle control operation.		X				13, 14
Check operation of brakes.		X				20
Check emergency stop and key switches.		X				8
Check lighting system.		X				9
Check coolant temperature warning light.					X	See your John Deere Dealer
Check oil level warning light.					X	See your John Deere Dealer
Check oil injection pump drive belt.					X	See your John Deere Dealer
Check oil injection pump and cable.					X	15
Check in-line fuel filter.					X	16
Check in-line oil filter.	X				X	17
Check drive belt condition.		X				19
Check carburetor adjustments.			X	X	X	14, 15
Check choke adjustments.			X	X	X	13
Check ski alignment.	X					23
Check headlight adjustment.	X					24
Check ski wear rods and wear plate.				X	X	22, 23
Check slide suspension wear bars.				X	X	21
Oil throttle cable.					X	15
Check all components for condition and tightness.					X	26
Service drive and driven sheaves.					X	19
Store snowmobile properly.					X	27

SPARK PLUGS

NOTE: Spark plugs are Champion QN-2 (John Deere Part No. AM55044).

Removing Spark Plugs

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

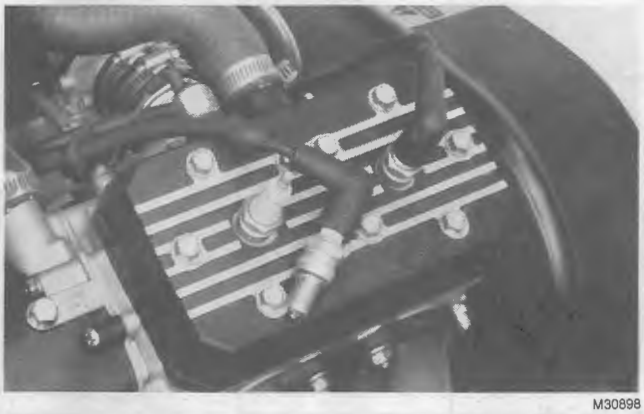
1. Stop engine.
2. Pull connectors from plugs.

IMPORTANT: Do nut pull on wire to remove connectors. Pull on connectors only.

3. Remove plugs.

Checking for Spark

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. 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.



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1. Reconnect spark plug wire to a spare plug.
2. Lay plug on the engine
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 malfuntions, 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 Plugs

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

NOTE: See page 30 for spark plug recommendation.

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 carburetor changes and adjustments.

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 choke plunger hole in carburetor throat. Plunger should be all the way down in bore.
4. Loosen jam nut securing adjusting sleeve to brass choke adapter.
5. Turn adjusting sleeve clockwise to move plunger down.
6. Tighten jam nut tight against brass choke adapter.
7. Start and warm up engine until it idles smoothly. Do not run at idle for more than 5 minutes.
8. Insert a 0.030 inch (0.762 mm) feeler gauge between choke lever and dash. This indicates free-play and should not affect idle.
9. Flip choke lever up to first position and the engine should stop. This indicates the choke is operating properly.

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M30901

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Adjusting Throttle Cable

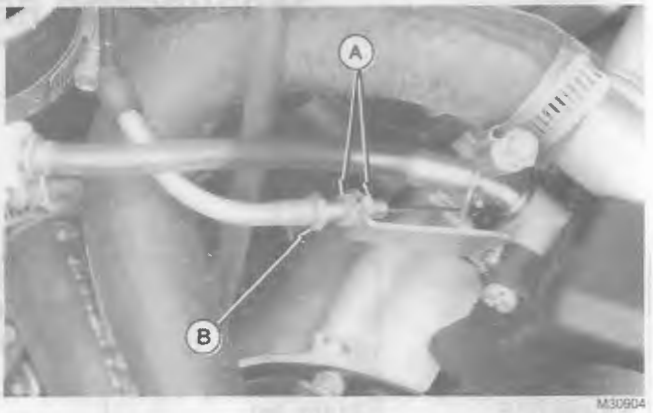
1. Remove air intake silencer.
2. Tape throttle lever tight against handgrip.
3. Place your finger in carburetor throat. Loosen jam nut and turn adjusting sleeve clockwise (in) until the backside of throttle valve is flush with the inside of bore. Tighten jam nut.

NOTE: When throttle valve is adjusted correctly, no part of the valve will restrict air flow through the carburetor.

4. Turn the idle adjusting screw counterclockwise until the screw tip is flush with inside of bore.
5. Remove tape from throttle lever and allow throttle valve to fully seat in bore.
6. Turn idle adjusting screw clockwise until the screw contacts the throttle valve. When screw contacts valve, the valve will begin to rise. Turn idle adjusting screw two additional turns clockwise. This gives a preliminary idle speed setting.
7. Look in throat of carburetor and slowly compress throttle lever on handgrip. Throttle valve should begin to rise, if not repeat steps 2, 3 and 4.
8. Carefully turn pilot air screw clockwise (in) until a slight seating resistance is felt.
9. Turn pilot air screw counterclockwise (out) 1-1/2 turns.

Adjusting Oil Injection Pump

IMPORTANT: Adjust the oil injection pump lever to move at exactly the same time that the carburetor throttle valve starts to move. Never run the engine without oil supply to the oil pump, even if premix is used. If oil pump runs dry, pump failure will result.



M30904

1. Loosen jam nuts (A) of oil injection pump cable. Back sleeve (B) out to tighten cable or in to loosen cable.
2. Adjust cable so straight edge of oil pump control arm aligns with vertical mark on oil pump body. Tighten jam nut.
3. Press throttle lever on handgrip and observe throttle valve and oil injection pump control lever. Both should start to move at exactly the same time.

M30905

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 silicone spray. These lubricants may destroy the plastic components of the throttle cable or cause control cable to become sticky in cold temperatures.

Replacing Carburetor Main Jet

1. Remove throttle valve assembly from top of carburetor.
2. Loosen clamp securing carburetor to intake manifold.
3. Loosen clamp securing intake silencer boot to carburetor.
4. Turn carburetor 90 degrees.

M30906

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.

CARBURETOR RECOMMENDATIONS

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

Temperature	Component	Sea Level to 4000 Feet (1219 m)	4000 to 8000 Feet (1219 to 2438 m)	8000 Feet and Above (2438 m)
Below 0°F (– 18°C)	Main Jet	175	155	135
Above 0°F (– 18°C)	Main Jet	165	145	125
All Temperatures	Jet Needle	6DH4-2	6DH4-2	6DH4-2
	Needle Jet	(159) P-4	(159) P-4	(159) P-4
	Throttle Valve	2.5	2.5	2.5
	Pilot Jet	30	35	30
	Air Screw	1-3/4 Turns Open	1-1/2 Turns Open	1-1/2 Turns Open
	Idle Speed	2000-2100 rpm	2400-2500 rpm	2400-2500 rpm

IN-LINE FUEL FILTER

M30907

Change the filter annually.

IN-LINE OIL FILTER

Replace oil filter annually or immediately if oil level in tank does not drop.

M30908

OIL INJECTION PUMP

Check oil injection pump (A) oil flow annually. See your John Deere dealer for this service.

M30909

AIR INTAKE SILENCER

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

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

IMPORTANT: DO NOT run engine with air intake silencer removed.

M30910

LIQUID COOLING SYSTEM

The liquid cooling system is pressurized. A heat exchanger is located in the tunnel. Snow against the exchanger cools the system.

A warning light is incorporated in the system and will turn on if the temperature reaches 205°F (96°C). The radiator cap releases pressure at 12 to 13 psi (82.7 to 89.6 kPa) allowing the cooling system to overflow.

IMPORTANT: Running on hard-packed snow or ice or pulling loads may cause overheating. If coolant temperature warning light goes on, reduce load and immediately run in loose snow or shut off engine.

During the initial break-in period, operate the snowmobile for five minutes. Allow the engine to cool slightly before opening the surge tank cap to check coolant level. Coolant level should be one inch below the filler neck. Capacity of the system is approximately 5 quarts (4.7 L).

If coolant is lower than two inches below filler neck, coolant must be added. Use a 50-50 solution of ethylene glycol anti-freeze and water. DO NOT use any anti-freeze containing a radiator stop-leak. NEVER add radiator stop-leak to the cooling system.

IMPORTANT: DO NOT exceed the recommended 50-50 solution. Never add anti-freeze to fill the system until after checking the solution with a hydrometer. A 50-50 solution should give approximately a −40°F (−40°C) reading. Check solution when engine is completely warmed up.

Draining and Filling System

Draining System (2 Year Intervals Only)

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

M29122

Filling System

1. Connect lower hose to heat exchanger and replace drain screw.
2. Position snowmobile on a level surface.
3. Fill the system with a 50-50 solution of ethylene glycol anti-freeze and water to bottom of filler neck on surge tank. System capacity is approximately 5 U.S. quarts (4.7 L).
4. Check all hose connections for leaks.
5. Block up track so engine can be run safely. Start engine and check for coolant flowing in system. There will be a swirling action in the top of the surge tank when coolant is flowing. Install pressure cap.

M30911

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.

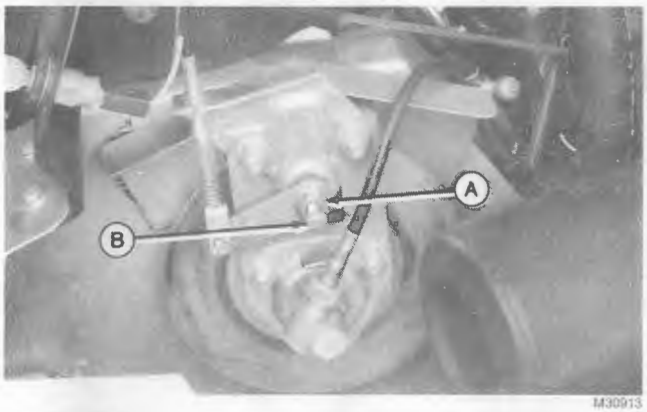
M29124

A—Anti-Creep Shims **B—Retaining Washer**

M30912

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).



M30913

A—Jam Nut B—Adjusting Screw

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

CAUTION: NO 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.

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.

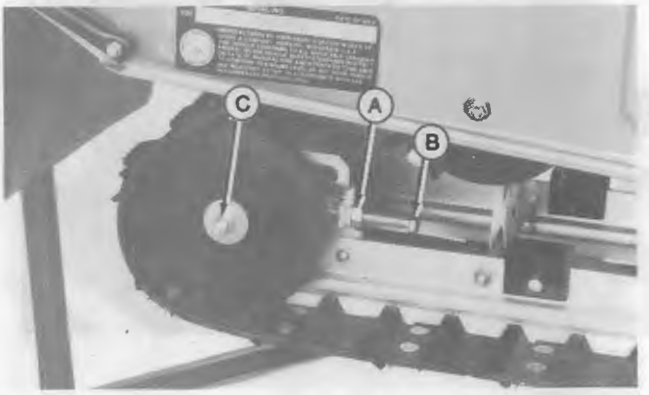
NOTE: Sand or gravel imbedded in the wear bars acts as an abrasive and will destroy the steel grouser bars in the track.

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 rear idler wheels through bolt.
3. Loosen jam nuts (A) on track adjusting screws (B).
4. Turn adjusting screws (B) to tension track.
5. 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.
6. Tighten rear idler wheels through bolt to 25 ft-lbs (34 N·m).



A - Jam Nut B - Adjusting Screw C - Through Bolt

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.

CAUTION: Do not stand behind snowmobile when track is running.

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.

M30915

Adjusting Rear Suspension Springs

The rear suspension springs (A) are in the middle position when assembled at the factory. Ride the snowmobile. If ride needs to be stiffer move the springs to the upper position. If the ride needs to be softer move the springs to the lower position.

NOTE: To change spring position, remove long arm of spring from front retainer and pull out and down. Move short arm of spring to desired position and replace long arm on retainer.

M30916

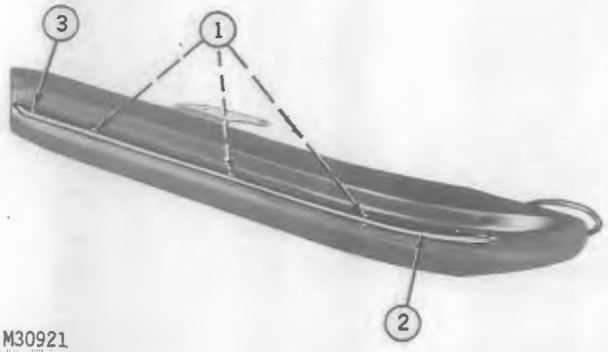
Adjusting Front Suspension Springs

1. Turn adjusting nut (A) counterclockwise to reduce tension, clockwise to increase tension.

2. In deep snow (for more lift) increase tension. In light snow (for more steering control) reduce tension.

IMPORTANT: Never turn adjusting nut (A) all the way out. Screw (B) must protrude at least 1/2 inch (12.7 mm) through adjusting nut (A).

SKIS



M30921

M30921

Replacing Ski Wear Rods

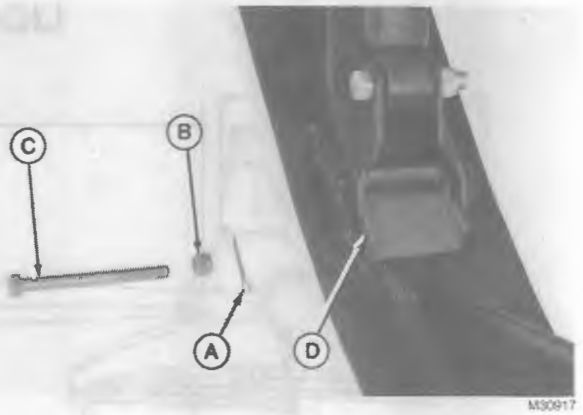
Wear rods should be replaced when they are worn to one-half their original size.

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.



M30917

Aligning Skis

When properly aligned, skis are parallel and handlebars 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 14-1/2 inches (36.8 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.

M30918

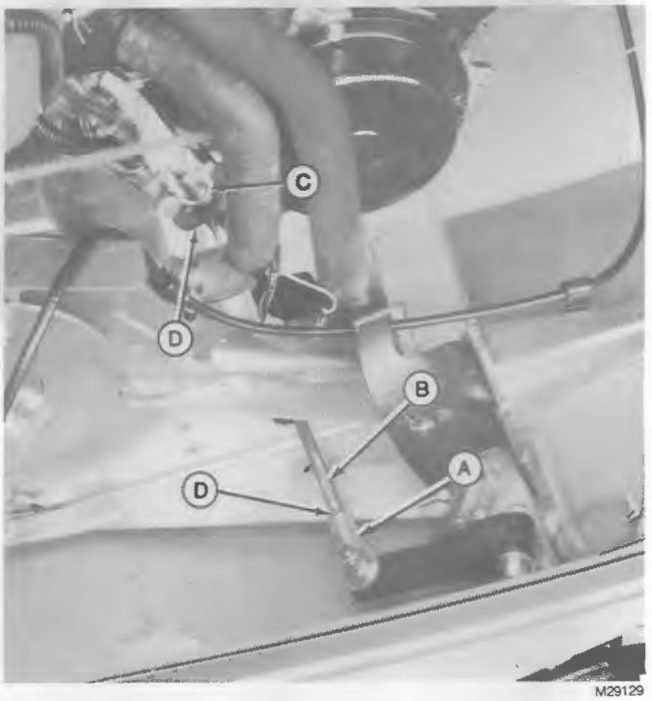
Eliminating Loose Steering

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

The two major causes of loose steering are:

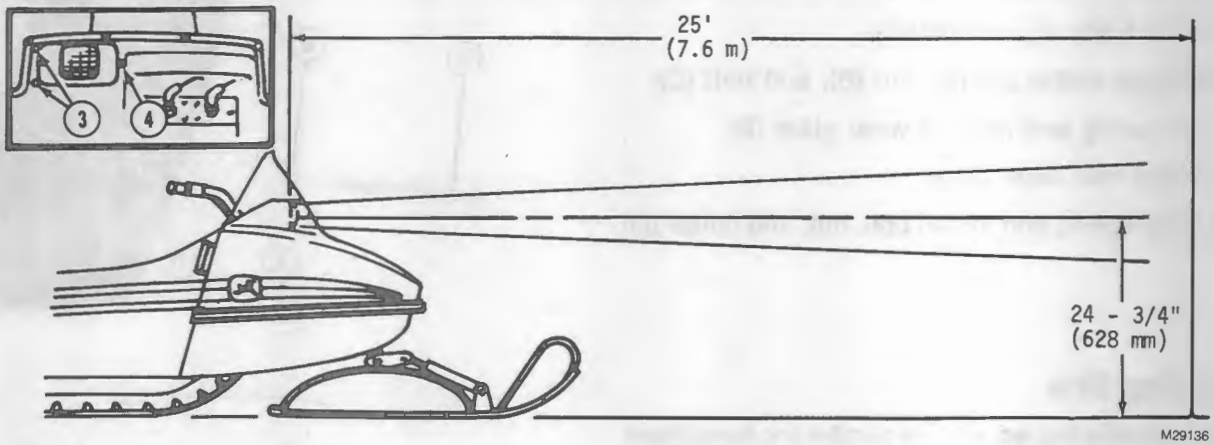
1. Excessively worn tie rod ends (A).
2. Excessively worn spindle bushings.
3. Replace or tighten parts as required.

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



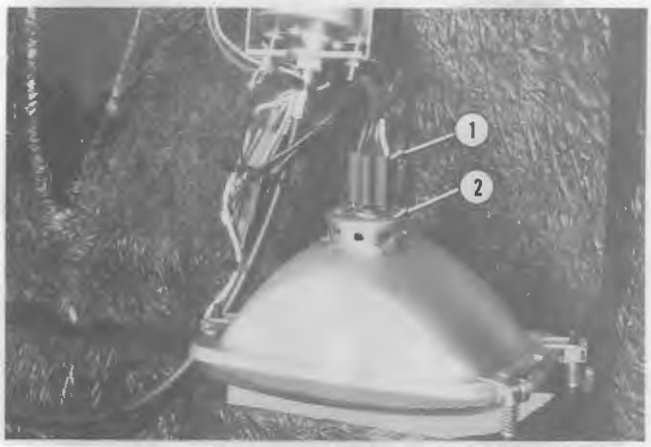
M29129

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 harness from 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.

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.

M30919

Replacing Oil Level Warning Light

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

NOTE: Do not damage light bulb during disassembly and assembly of socket from instrument console.

M29132

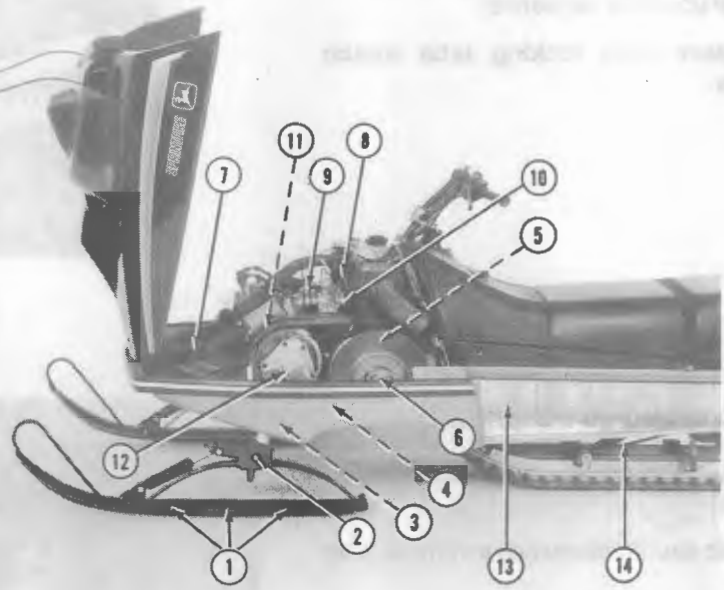
Replacing Coolant Temperature Warning Light

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

NOTE: Do not damage light bulb during disassembly and assembly of socket from instrument console.

M29133

TIGHTENING HARDWARE AND COMPONENTS



M30920

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 spring.
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.

M29135

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

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

4. Replace in-line fuel filter.
5. Remove spark plugs and add one 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. Support snowmobile so track is clear of ground. Loosen track adjusting screws.
8. Place cover on snowmobile and store inside.

REMOVE SNOWMOBILE FROM STORAGE

1. Wipe grease from drive and driven sheaves. Install drive belt.
2. Fill fuel tank and oil 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 "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.
Too Lean Fuel Mixture

Engine Overheats

Carburetor too "lean".
Intake manifold or carburetor leaking.
Insuffieient snow for heat exchanger

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.

Oil Level Light Not Working

Bulb Burned out.
Sender not working

Coolant Temperature Light Not Working

Bulb burned out.
Sender not working.

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	John Deere "Fireburst"*
	Model	TC340E
	Number of Cylinders	Two
	Bore	60 mm
	Stroke	60 mm
	Displacement	339 cc
Fuel System	Carburetor Mfgr.	Mikuni
	Carburetor Number	AM55676
	Tank Capacity	5.0 U.S. gal. (18.9 L) (Approx.)
	Fuel Mixing Ratio	50:1 See page 6
	Oil Tank	5.0 U.S. Pints (2.4 L) (Approx.)
Chassis and Tunnel	Material:	
	Tunnel	Aluminum
	Pan	Thermoplastic Rubber
	Hood	Sheet Molded Compound
	Windshield	Polycarbonate
	Overall Length	98 in. (2489 mm)
	Overall Width	37.4 in. (950 mm)
	Overall Height	38.0 in. (965 mm)
	Weight (Approx.)	330 lbs. (150 kg)
Track and Suspension	Suspension Type	Slide Suspension
	Track Material	Rubber
	Track Width	15 in. (38.1 cm)
Power Train	Transmission:	
	Type	2-Sheave Variable
	Manufacturer	
	Primary	John Deere (102C Comet)**
	Secondary	John Deere
	Final Drive Ratio:	
	Secondary Clutch	Low—4.5:1, High—1.13:1
	Brake	Mechanical Disk
	Drive Belt	M68715
Electrical System	Spark Plug (Champion)	QN-2 (AM55044)
	Aprak Plug Gap	0.025 in. (0.635 mm)
	Timing	Align Mark on Stator with Mark on Crankcase
	Lighting Coil Capacity	160 Watts
	Light Bulbs:	
	Headlight	AM53887
	Stop-Taillight	AM52619
	Speedometer Light	AM52847
	Coolant Light	AM55550
	Oil Level Light	AM55550

**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. Optional Track Drive Sprockets.
2. Tachometer.
3. Protective Cover.
4. Hitch Kit.
5. High Altitude Kits.
6. Primer Kit.
7. Handlebar Heater Kit.
8. Heavy Duty Hitch Kit.
9. Hitch Pin and Cable Kit.
10. Drive Belt Holder Kit.
11. Track Guide Clips.

JOHN DEERE SERVICE LITERATURE AVAILABLE...

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Title	Order No.	Qty.	Price Each
Parts Catalog Snowfire and Sprintfire Snowmobiles	PC 1872		$6.75
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Service or Technical Manual			

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

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

Check or money order in U.S. dollars enclosed . . . Total _____
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SP-317 Litho in U.S.A. JAN-82

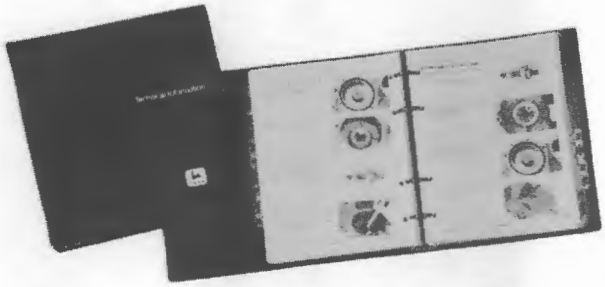
PARTS CATALOG

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 SERVICE LITERATURE AVAILABLE...

PARTS CATALOG

A parts catalog authorized by John Deere and for all parts is clearly shown. Illustrations are the latest parts, ready to assembling and disassembling.

OPERATOR'S MANUAL

An auto-[illegible] operator's manual [illegible] be [illegible] copy [illegible] your machine [illegible] manual.

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[illegible] Technical Manual			

[illegible] recommend [illegible] for equipment not shown on [illegible] the model [illegible] model number and name of the equipment owner.

[illegible] Handling and [illegible] RDT [illegible]

[illegible] order in U.S. [illegible] amount enclosed $ _____ [illegible] check or money [illegible]

[illegible] added to [illegible]

[illegible] U.S.A. [illegible]