DEALER SERVICE SHOP COPY

Spitfire Snowmobile

JOHN DEERE

OPERATOR'S MANUAL

Horicon Works
OM-M68220 Issue E8
LITHO IN U.S.A.

To The Operator

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

Because John Deere sells its products worldwide, U.S. units of measure are shown with their respective metric equivalents throughout this operator's manual. These equivalents are the SI (International System) Units of measure.

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

This operator's manual is prepared for: John Deere Spitfire Snowmobiles (Serial No. J34AH 095001M-).

Snowmobile Serial Number

Engine Serial Number

JOHN DEERE SPITFIRE SNOWMOBILE

Machine Serial No. _____

Engine Serial No. _____

Date of Purchase _____

(To be filled in by purchaser)

Assembly

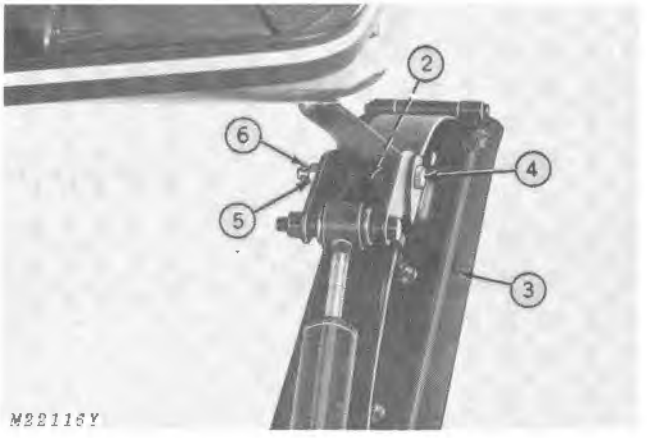
UNPACK COMPONENTS

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

ASSEMBLE COMPONENTS

Install Skis

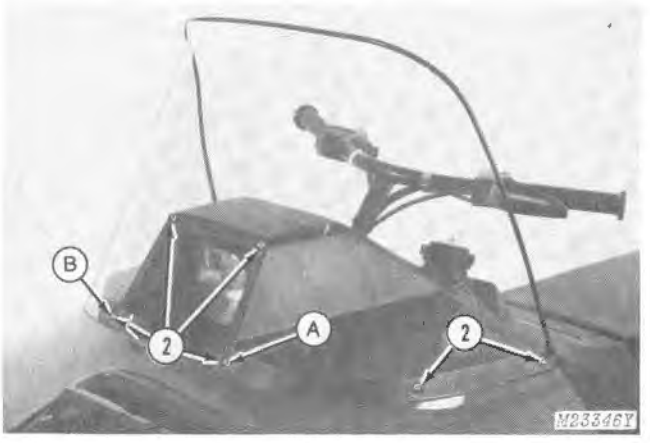
1. Remove ski bolts, washers, lock nuts and cotter pins from bag of parts.
2. Insert bushing into spindle. Use Never-Seez on bushing.
3. Position ski under ski saddle.
4. Install ski bolt with head of bolt facing out.
5. Install washer and lock nut. Torque nut to 39 ft-lbs (52 Nm).
6. Install cotter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



Install Windshield

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

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



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PREDELIVERY CHECK LIST

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

1. Align skis and check steering linkage.
2. Check track tension and align.
3. Check brakes. Adjust if necessary.
4. Check operation of choke and throttle. Adjust if necessary.
5. Fill fuel tank with 40:1 mix.
6. Start engine and check idle speed.
7. Check emergency stop and key switch.
8. Check operation of all lights.
9. Aim and adjust headlight.
10. Test drive or dynamometer test snowmobile.
11. Install accessories desired by customer.

DELIVERY CHECK LIST

1. Explain operator's manual to customer.
2. Instruct customer about snowmobile operation.

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

3. Explain fuel-oil mixture. Use LEADED FUEL ONLY with an anti-knock index of 88 or higher. Use a 40:1 ratio for first tank of fuel and a 50:1 ratio thereafter.
4. Tell customer about free 10-hour check up.

KEEP THIS SHEET WITH YOUR OPERATOR'S MANUAL

BE SURE YOUR SELLING DEALER PERFORMS THIS FREE 10-HOUR CHECK-UP

The following services must be performed on your snowmobile following the first 10 hours of operation to assure you of top performance and to avoid premature failure of critical components. Your John Deere Dealer will perform these services FREE.

Present this sheet to your selling dealer for your free 10-hour check-up.

Retain this sheet with your records as proof that the 10-hour check-up has been performed.

1. Check and adjust track tension.
2. Remove drive belt. Check sheave alignment and inspect drive and driven sheaves for free operation.
3. Tighten cap screw on drive sheave to proper torque.
4. Check carburetor adjustment and clean air intake silencer.
5. Tighten ski bolts to proper torque.
6. Inspect condition of ski wear rod.
7. Check operation and adjustment of brake, throttle, and choke lever controls.
8. Tighten band securing carburetor to rubber mount.
9. Tighten all suspension hardware to proper torque.
10. Check engine timing.
11. Check ski alignment.
12. Check operation of headlight, stop-taillight and dimmer switch.
13. Check engine cylinder head bolt torque (15 to 18 ft-lbs) (20 to 24 Nm).

Dealer's Signature Date

IMPORTANT: The selling dealer's signature above will be proof that these very important services have been performed. This information will prove helpful should your snowmobile require service from a John Deere dealer other than the selling dealer.

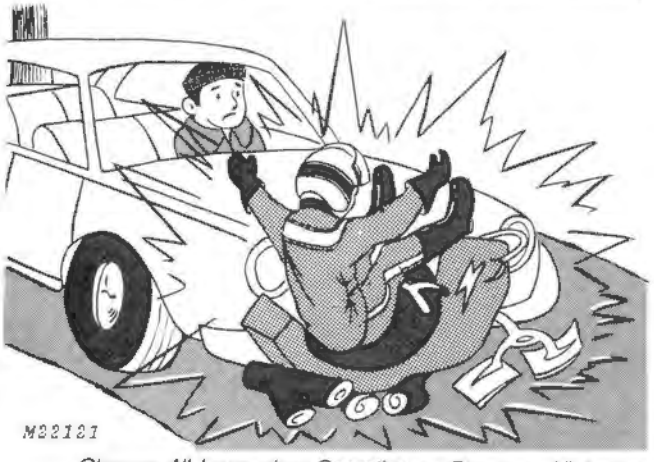
Contents

Safety

⚠ CAUTION: The Spitfire™ Snowmobile is designed for one person only. No provisions are provided for passengers. Improper use can result in personal injury. Follow these safety suggestions.

M22120

Wear Clothing Designed for Snowmobiling



M22121

Observe All Laws when Operating on Streets or Highways

M23364

By-pass rivers and lakes if you don't know the thickness of the ice. This is even more important at night.

Preparation

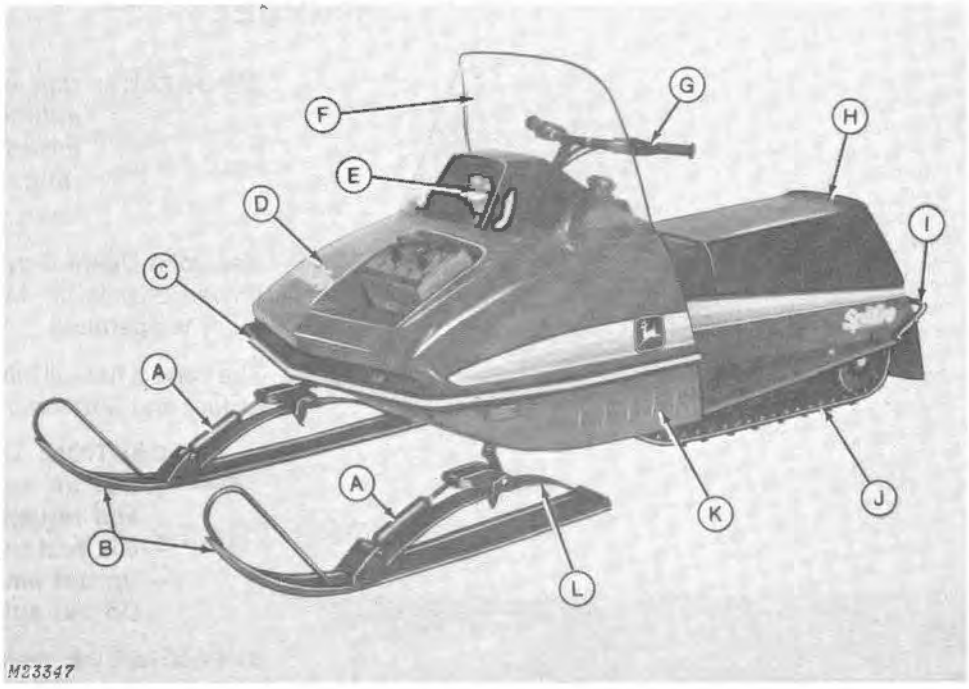
Read the operator's manual.
Check throttle and brake controls before starting engine.
Know how to stop in an emergency.
Know provincial, federal, state and local laws.
Never add fuel when smoking or while engine is running.
Use a safe gasoline container. Use fresh fuel.
Use the correct fuel-oil mixture.
Always wear eye and headgear protection.
Avoid sun blindness. Use properly tinted goggles or face shield.
Do not allow unqualified persons to operate snowmobile.
Use the "buddy" system on long trips.
Do not travel alone.
Carry adequate tools and parts for emergency repairs.
Don't overload your snowmobile.
Always carry emergency survival supplies on long trips.

Operation

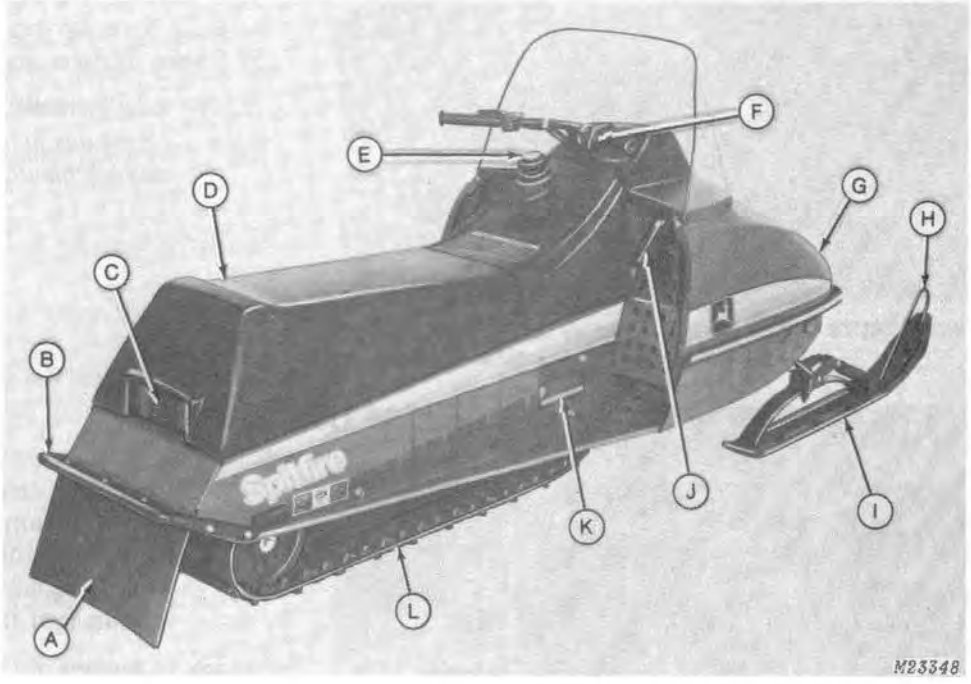
Do not operate snowmobile in crowded areas.
Do not operate snowmobile on unsafe terrain.
Cross highways (where permitted by law) at a 90-degree angle.
Do not operate snowmobile on or near railroad tracks.
Do not operate snowmobile on ski slopes.
Keep all safety shields in place.
Always allow adequate stopping distance.
Observe fuel supply regularly.
Do not speed through wooded areas.
Keep hands and feet out of the track area.
Never drive snowmobile onto a tilt-bed trailer.
Never lift rear of snowmobile to clear track.

Identification

A—Shock Absorbers
B—Skis
C—Front Bumper
D—Hood
E—Headlight
F—Windshield
G—Brake Control
H—Seat
I —Rear Bumper
J—Track
K—Pan
L—Ski Spring



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



Preparation

MIX FUEL

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

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

The correct fuel-oil mixture is 40:1 ratio for the first tank of fuel and 50:1 ratio thereafter. See page 23.

CAUTION: Use safe mixing procedures.
—Use an approved container for storage and refueling.
—Mix fuel outdoors.
—Do not smoke.
—Do not spill fuel.

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

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

FILL FUEL TANK

CAUTION: Use safe refueling procedures.
—Fuel snowmobile outdoors.
—Do not smoke.
—Avoid spilling fuel. Do not overfill.
—Clean fuel tank of any spilled fuel.

Fill tank to bottom of filler neck.

Operation

BEFORE OPERATING

1. Wipe windshield with a clean damp cloth. Do not use gasoline, solvents or abrasive cleaners.
2. Check skis, wear rods, and all steering components. Check steering for a full right and left-hand turn.
3. Check track for proper tension.
4. Check fuel level.

START ENGINE

Engine Break-In

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

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

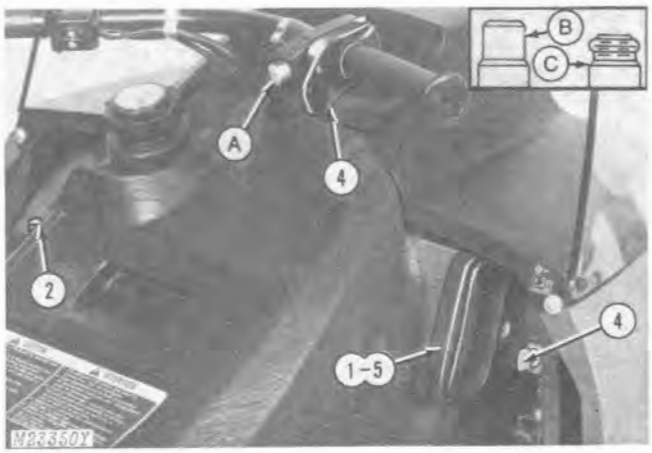
1. With no choke and no throttle, pull recoil start handle to turn engine over two or three times.
2. Pull out on choke knob.
3. Empergency stop switch (A) should be in "RUN" position (B).
4. Turn key switch "ON." DO NOT open throttle lever.
5. Pull recoil start rope.
6. When engine starts, allow it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

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

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

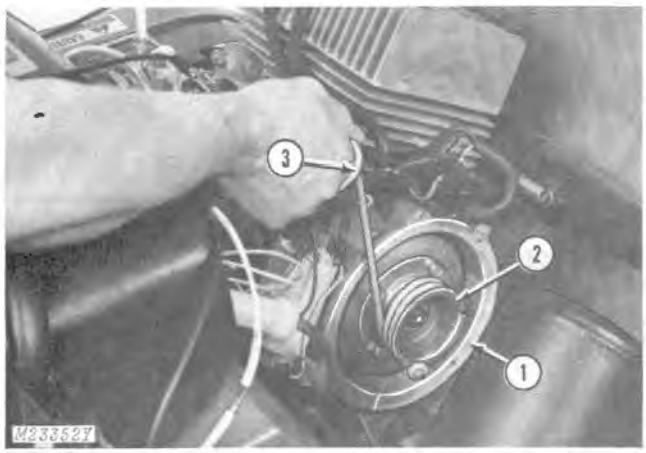
NOTE: Remove and dry spark plugs if engine is extremely flooded.

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



A—Emergency Stop Switch
B—"RUN" Position
C—"STOP" position

Choke Knob



Warm Starting

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

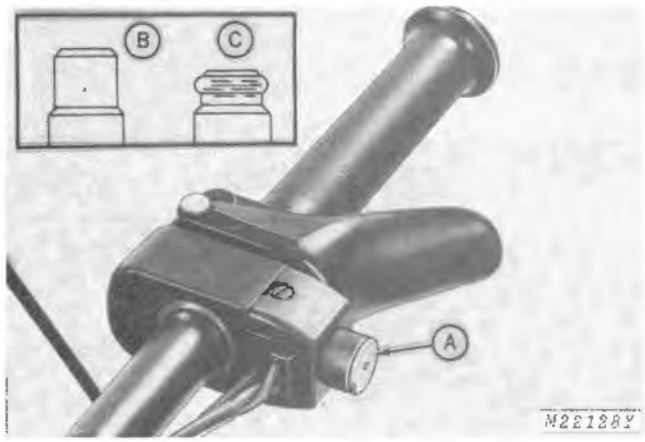
NOTE: DO NOT use choke and open throttle slightly.

Emergency Starting

1. Raise hood and use tools provided with snowmobile to remove recoil starter.
2. Wind rope around starter cup pulley.
3. Pull on rope to start engine.

Carry an extra rope for emergency starting.

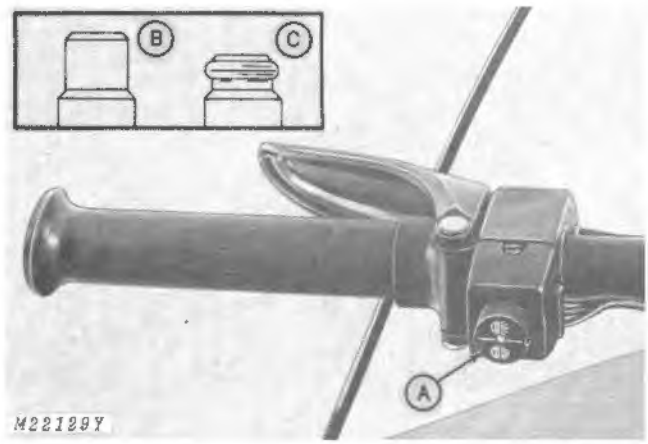
STOP ENGINE



1. Release throttle lever.
2. Apply brake.
3. Push stop switch (A) in to "STOP" position (C).
4. Before restarting, stop switch must be pushed again. Always check stop switch before attempting to start engine.
5. Turn key switch to "OFF" position and remove key when leaving machine unattended.

A—Emergency Stop Switch
B—"RUN" Position
C—"STOP" Position

LIGHTS



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

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

NOTE: If one filament of bulb fails, the other beam can still be used. See page 17 for adjusting headlight and changing bulbs.

A—Headlight Dimmer Switch
B—High Beam Position
C—Low Beam Position

TOWING

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

1. Remove drive belt.
2. Secure skis of disabled machine to tow machine.
3. DO NOT use rear bumper for towing.

CLEARING TRACK

1. Clear track after operating in slushy snow.
2. Tip machine on its 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.

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					5
Check Condition of Skis and Steering		X				15,16
Check Track Condition and Tension		X				14,15
Check Throttle Control Operation		X				10,11
Check Operation of Brakes		X				13
Check Emergency Stop and Key Switches		X				5,6
Check Lighting System		X				6
Check In-Line Fuel Filter		X			X	12
Check Drive Belt Condition		X				12,13
Check Carburetor Adjustments			X	X	X	10,11
Check Choke Adjustments			X	X	X	10
Check Ski Alignment	X				X	16
Check Headlight Adjustment	X				X	17
Check Ski Wear Rods and Wear Plates	X				X	15
Check Slide Suspension Wear Bars				X	X	14
Use Never-Seez on Throttle Cable End					X	10
Check All Components for Condition and Tightness					X	18
Check Drive and Driven Sheaves					X	12,13
Store Snowmobile Properly					X	19

SPARK PLUGS

NOTE: Spark plugs are Champion QN-3 (John Deere Part No. AM53941).

Removing Spark Plugs

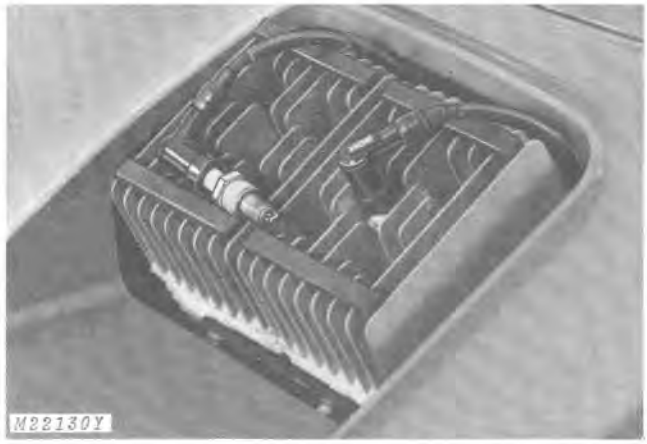
CAUTION: High-energy ignition systems can produce injurious electrical shock. Stop engine and remove key before working on ignition.

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

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

3. Remove plugs.

Checking Spark Plug



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

1. Reconnect spark plug wire to plug.
2. Lay plug on the engine fins.
3. Pull the recoil start rope and check for spark.

New plugs are gapped at 0.020 in. (0.508 mm). The gap will widen in proportion to the hours and miles of use. When plug gap reaches 0.045 inch (1.143 mm) or if plug malfunctions, replace it.

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

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

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

Installing Spark Plug

1. Clean plug seating surface on cylinder head.
2. Install plugs and torque to 10 to 12 ft-lbs (14 to 16 Nm).
3. Install spark plug wires.

CARBURETOR

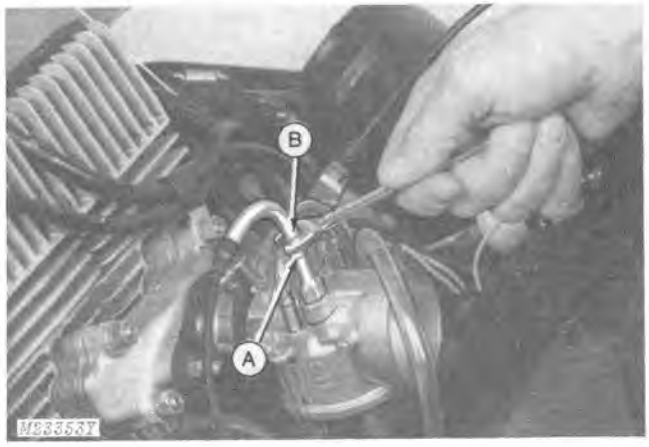
IMPORTANT: Do not run engine when adjusting carburetor.

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

Continued on page 10

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.



A—Jam Nut **B—Adjusting Sleeve**

Adjusting Choke

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

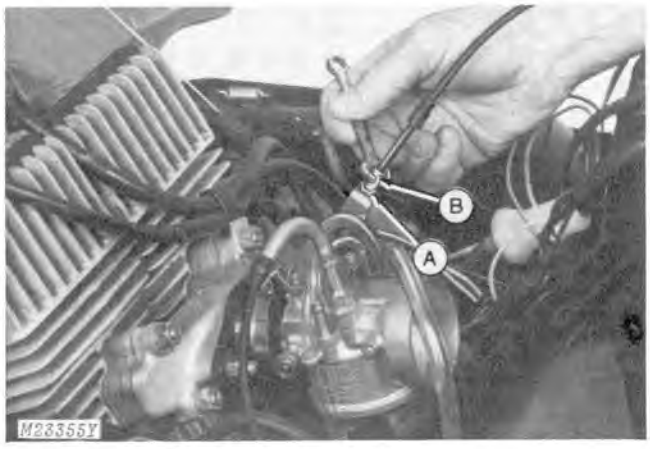
IMPORTANT: Plunger must be down tight in the bore or carburetor will run "rich". This will affect engine performance.

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

Idle Speed Adjusting Screw

Adjusting Carburetor

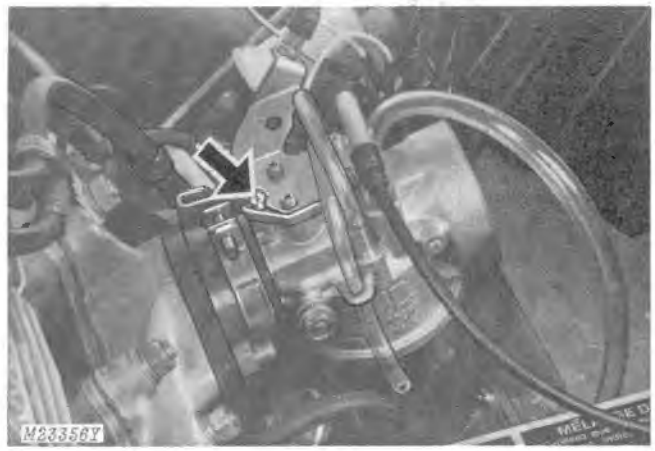
1. Remove air intake silencer.
2. Back idle speed adjusting screw out until it no longer contacts the carburetor throttle lever.



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

A—Jam Nut
B—Adjusting Sleeve

5. Look in carburetor throat and compress the handgrip throttle lever until it contacts handgrip. Butterfly valve should be in full open position and parallel with carburetor bore. Repeat Steps 2 through 4 if necessary.
6. Turn idle speed adjusting screw in until it contacts throttle lever. Turn in one additional turn for preliminary idle speed adjustment.
7. Lightly seat idle mixture screw and then open one turn for initial mixture adjustment.
8. Install air intake silencer and warm up engine.
9. Turn idle mixture screw in (lean) or out (rich) to obtain an even engine idle.
10. Readjust idle speed adjusting screw to obtain an engine idle speed of 1500 to 2000 rpm.

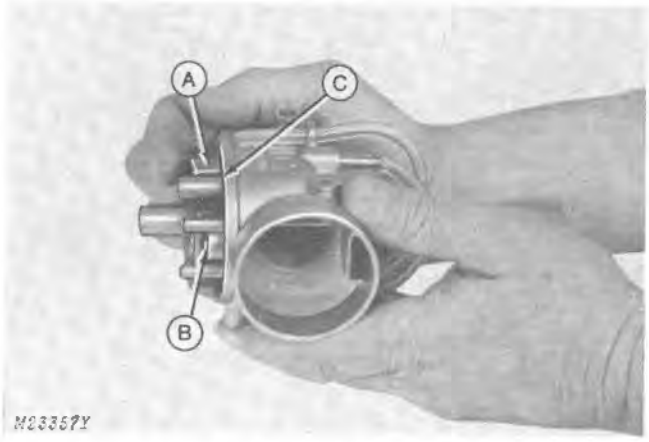


Idle Mixture Screw

Checking Float Level

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

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



A—Float
B—Needle Valve
C—Float Chamber

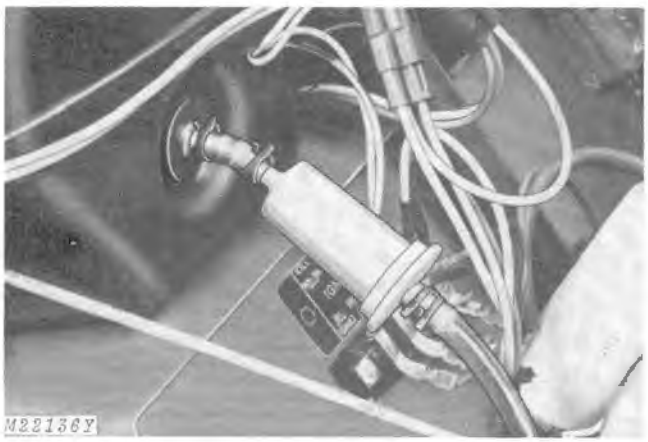
MAIN JET CHART

Carburetor and clutch changes, adjustments or modifications may be necessary for operation at altitudes above 2,000 feet (610 m). See your John Deere dealer for these changes.

TEMPERATURE					Altitude
-40° to -20°F -40° to -29°C	-20° to 0°F -29° to -18°C	0° to 40°F -18° to 4°C	40° to 80°F 4° to 27°C	Above 80°F Above 27°C	
Main Jet	Main Jet	Main Jet	Main Jet	Main Jet	Sea Level-2,000 ft. (610 m)
230	220*	210	200	190	

**Factory Installed.*

IN-LINE FUEL FILTER



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

AIR INTAKE SILENCER

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

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

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

DRIVE SYSTEM

Replacing Drive Belt

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

If drive belt wears rapidly, drive and driven sheaves may be out of alignment. See your John Deere dealer.

A belt worn narrow in one area is caused by trying to free a frozen track with the engine. Free a frozen track manually before starting engine.

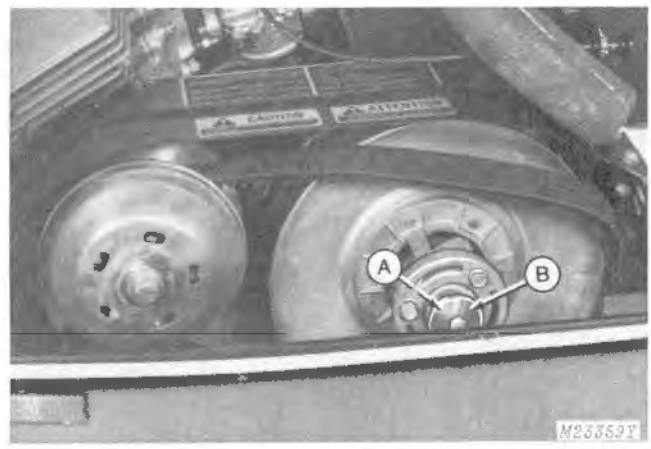
⚠ CAUTION: Keep fingers out of area between driven sheave halves. If driven sheave sticks, use care in opening it to prevent hand from being pinched.

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

IMPORTANT: Never pry belt over sheaves.

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

NOTE: As belt wear increases or if belt stretches, remove spacer washers (A) from behind retaining washer (B). When new belt is installed, replace washers. 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 washer.



A—Spacer Washers **B—Retaining Washer**

Adjusting Brake

1. Apply the brake control lever and measure the distance from the lever to the handgrip. It should be 1 to 1-1/2 inches (25 to 38 mm).

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

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

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

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

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

A—Jam Nut **B—Adjusting Screw**

SLIDE SUSPENSION

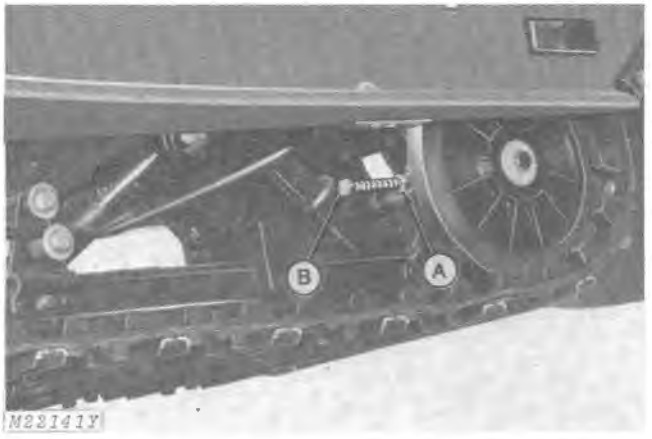
Replacing Wear Bars

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

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

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

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



A—Jam Nuts B—Adjusting Screws

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.

After Adjustment

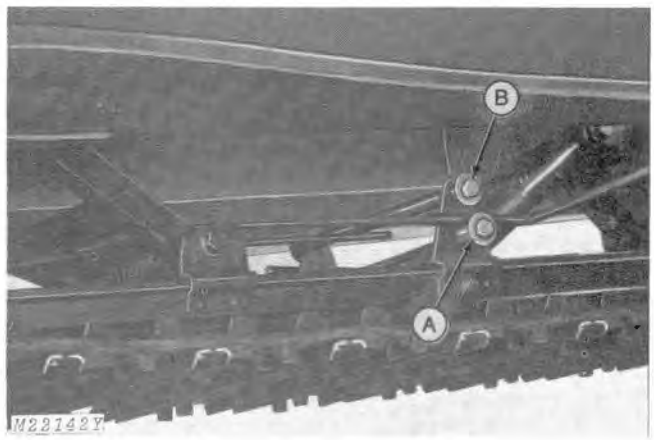
1. Start engine and allow the track to rotate slowly several times. Shut off engine and allow track to coast to a stop. DO NOT APPLY BRAKE TO STOP TRACK.
2. Check alignment. Rear idler wheels should run in center of drive lugs.
3. Slide rail wear bar should be in middle of each slide rail opening of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

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

Adjusting Suspension Springs

Ride the snowmobile. If the suspension bottoms frequently, increase the rear spring preload.

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



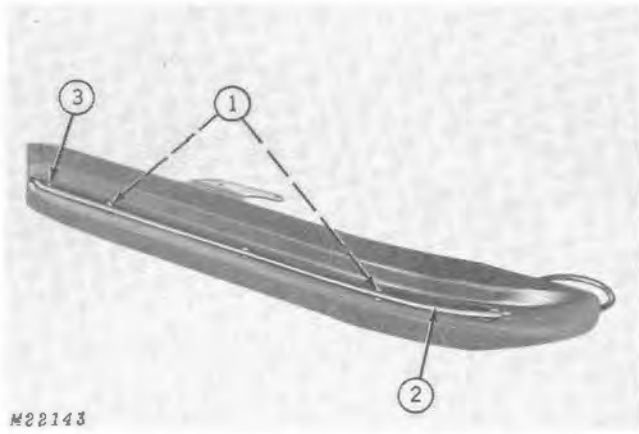
A—Bottom Position **B—Top Position**

SKIS

Replace Ski Wear Rods

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

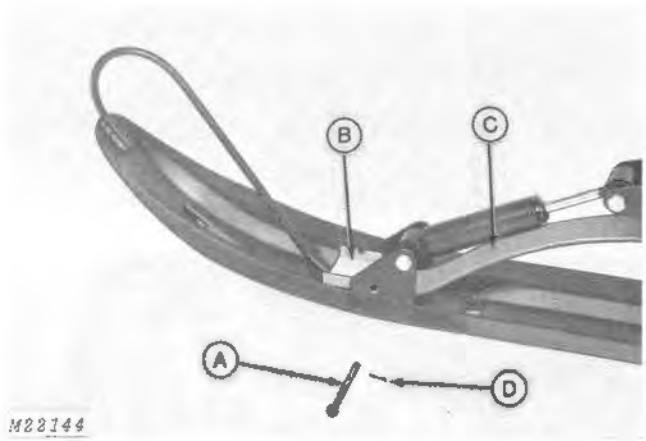
1. Remove lock nuts securing wear rod to ski.
2. Pry rod down to free studs from holes.
3. Slide rod forward to remove rod from rear hole.
4. Install new rod in opposite sequence.



Replace Ski Wear Plates

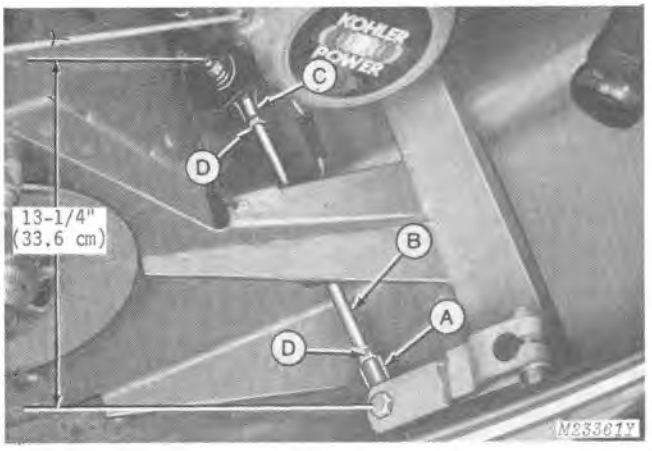
Replace wear plates when excessively worn.

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



A—Drilled Pin **C—Spring**
B—Wear Plate **D—Cotter Pin**

Continued on page 16



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

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 13-1/4 inches (33.6 cm).

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

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

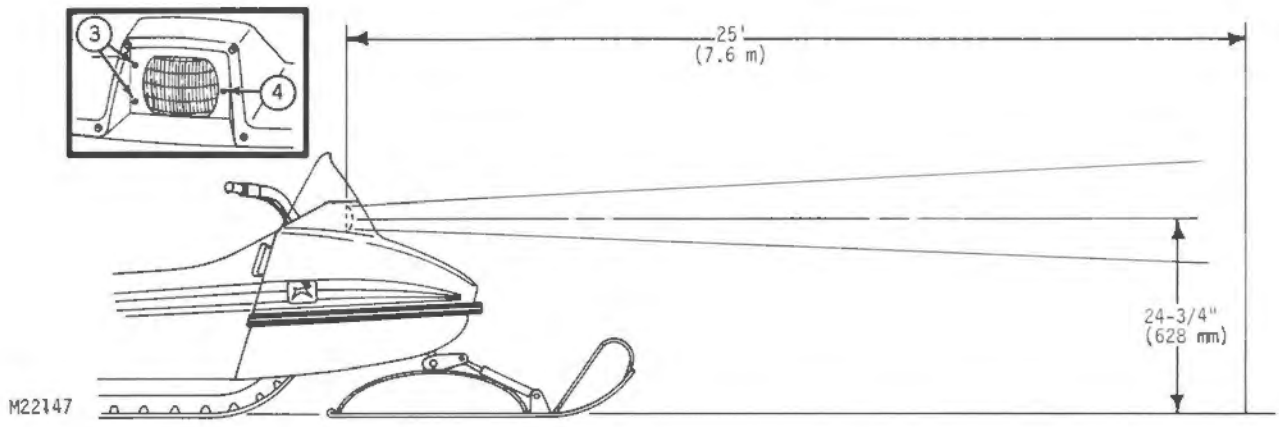
Eliminating Loose Steering

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

The two major causes of loose steering are:

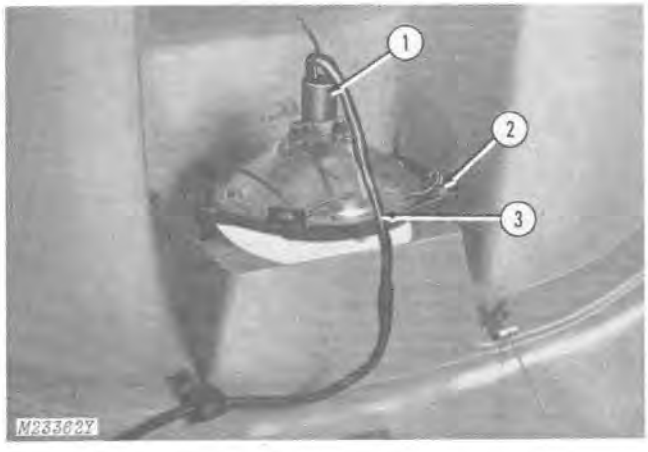
1. Excessively worn tie rod ends (A).
2. Excessively worn spindle bushings.
3. Replace or tighten parts as required.

LIGHTING SYSTEM



Adjusting Headlight

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



Replacing Headlight

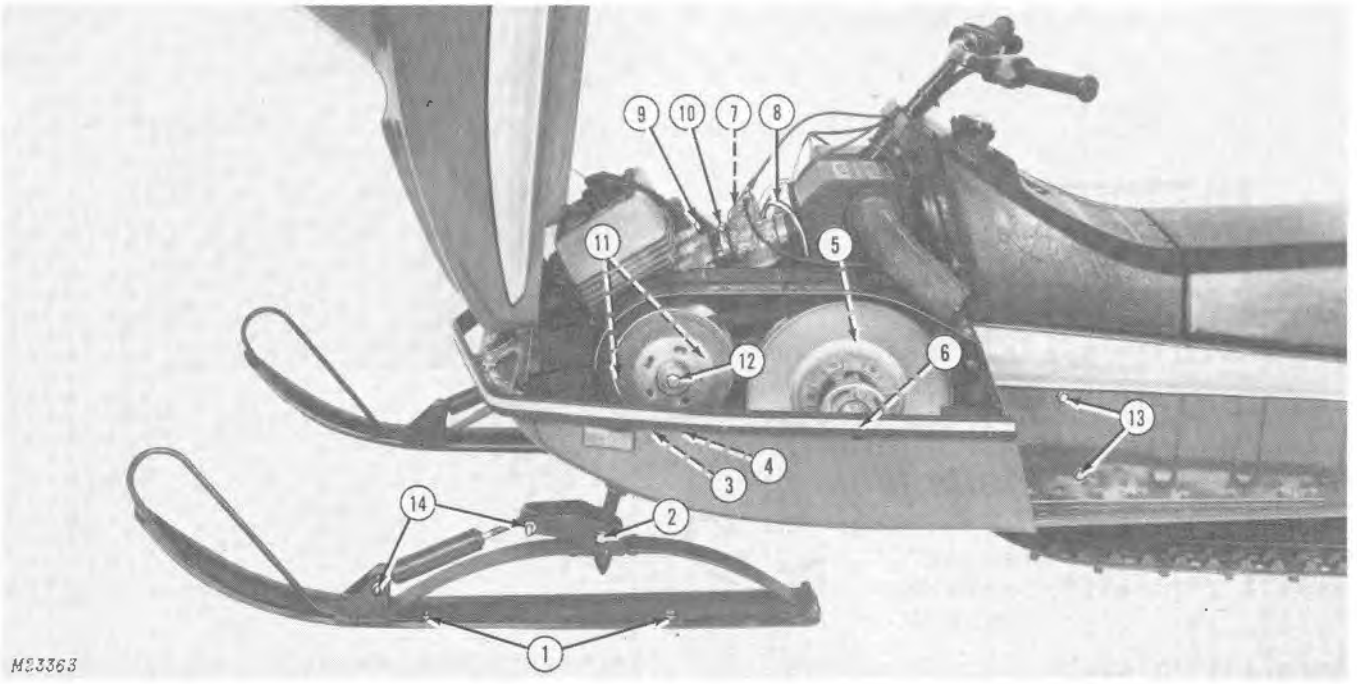
1. Disconnect wiring from light.
2. Unhook wire end from slot.
3. Remove wire clamp and headlight.
4. Install new headlight in opposite sequence.

Replacing Stop-Taillight

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

IMPORTANT: Be sure bulb locking tabs match slots.

TIGHTENING HARDWARE AND COMPONENTS



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

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

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

Storage

PLACE SNOWMOBILE IN STORAGE

1. Thoroughly clean snowmobile.
2. Polish hood, pan and tunnel with automotive-type wax. Use upholstery cleaner on seat. Touch up all bare metal parts with paint.
3. Check cap screws and components for tightness. Order any new parts required.
4. Siphon fuel from tank. Start and run engine out of fuel at IDLE SPEED.
5. Replace in-line fuel filter.
6. Remove spark plugs and add one teaspoon of 2-cycle oil in each cylinder. Pull recoil start rope 6 or 7 times to lubricate cylinder walls. Replace plugs.
7. Remove drive belt and coat drive and driven sheaves with light grease.
8. Support snowmobile so track is clear of ground. Loosen track adjusting screws.
9. Place cover on snowmobile and store inside.

REMOVE SNOWMOBILE FROM STORAGE

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

Trouble Shooting

ENGINE

Engine Starts Hard or Will Not Start

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

Engine Lacks Power or Acceleration

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

Engine Backfires and Runs Unevenly

Ignition timing incorrect.

Engine Overheats

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

LIGHTS

Stoplight Not Working

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

Lights Won't Light

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

POWER TRAIN AND CHASSIS

Clutch Does Not Disengage

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

Clutch engages slowly

Faulty clutch.
Stretched or worn drive belt.

Excessive Drive Belt Wear

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

Rapid Track Wear

Operating on bare ground.
Track improperly tensioned.

SKIS AND STEERING

Loose Steering

Worn tie rod ends.
Worn spindle bushings.

Poor Maneuverability

Worn ski wear rods.
Loose steering linkage.

Specifications

SNOWMOBILE SPECIFICATIONS

Component	Item	Specification
Engine	Manufacturer	Kohler
	Model	K340-2FA
	Number of Cylinders	Two
	Bore	62 mm
	Stroke	56 mm
	Displacement	339 cc
Fuel System	Carburetor Mfgr.	Mikuni
	Carburetor Number	AM54886
	Tank Capacity	5.0 U.S. Gals (18.9 L)
	Fuel Mixing Ratio	50:1 See page 23.
Chassis and Tunnel	Material:	
	Tunnel and Pan	Aluminum
	Hood	Sheet Molded Compound
	Windshield	Polycarbonate
	Overall Length	98 in. (2489.2 mm)
	Overall Width	33.25 in. (844.6 mm)
	Overall Height	38.0 in. (965.2 mm)
	Weight (Approx.)	275 lbs. (125 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 (Comet)*
	Secondary	John Deere
	Model	94C (Comet)*
	Final Drive Ratio:	
	Secondary Clutch	Low - 4.5:1, High - 1.23:1
	Brake	Mechanical Disk
	Drive Belt	M66345
Electrical System	Spark Plug (Champion)	QN-3 (AM53941)
	Spark Plug Gap	0.020 in. (0.508 mm) See page 9.
	Timing	0.085-in. (2.159 mm) BTDC
	Lighting Coil Capacity	120 Watts
	Light Bulbs:	
	Headlight	AM52959
	Stop-Taillight	AM52619

**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 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.)