



Snowthrower
Sitework Systems Attachment
Model No. 22456—990001 & Up

PROTOTYPE

Operator's Manual



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The warning system in this manual identifies potential hazards and has special safety messages that help you and others avoid personal injury, even death. DANGER, WARNING and CAUTION are signal words used to identify the level of hazard. However, regardless of the hazard, be extremely careful.

DANGER signals an extreme hazard that will cause serious injury or death if the recommended precautions are not followed.


WARNING signals a hazard that may cause serious injury or death if the recommended precautions are not followed.

CAUTION signals a hazard that may cause minor or moderate injury if the recommended precautions are not followed.

Two other words are also used to highlight information. “Important” calls attention to special mechanical information and “Note” emphasizes general information worthy of special attention.

The left and right side of the machine is determined by standing in the normal operator’s position.

Safety

Improper use or maintenance by the operator or owner can result in injury. To reduce the potential for injury, comply with the safety instructions in the traction unit operator’s manual and always pay attention to the safety alert  symbol, which means CAUTION, WARNING, or DANGER—“personal safety instruction.” Failure to comply with the instruction may result in personal injury or death.

Introduction

We want you to be completely satisfied with your new product, so feel free to contact your local Authorized Service Dealer for help with service, genuine replacement parts, or other information you may require.

Whenever you contact your Authorized Service Dealer or the factory, always know the model and serial numbers of your product. These numbers will help the Service Dealer or Service Representative provide exact information about your specific product. You will find the model and serial number on a plate located on the product.

PROTOTYPE

Model No: _____

Serial No. _____

DANGER

POTENTIAL HAZARD

- The rotating impeller/auger can cut off fingers, hands, or other body parts.

WHAT CAN HAPPEN

- Contact with the rotating impeller/auger can cause severe injury or death.

HOW TO AVOID THE HAZARD

- Stay away from the discharge and auger openings while operating the snowthrower.
- Keep your hands, feet, and any other part of your body or clothing away from concealed, moving, or rotating parts.
- Use a stick, not your hand, to remove obstructions from the discharge chute or auger housing.
- Before adjusting, cleaning, repairing, and inspecting the snowthrower and before unclogging the discharge chute, stop the engine and wait for all moving parts to stop. Remove the key.

WARNING

POTENTIAL HAZARD

- Stones and other foreign objects may be picked up and thrown by the rotor blades.

WHAT CAN HAPPEN

- Thrown objects can cause serious personal injury to operator or bystanders.

HOW TO AVOID THE HAZARD

- Keep the work area free of all objects that could be thrown by the rotor blades.
- Keep all children and pets away from area of operation.

WARNING

POTENTIAL HAZARD

- When the engine is off, attachments in the raised position can gradually lower.

WHAT CAN HAPPEN

- Someone nearby may be pinned or injured by the attachment as it lowers.

HOW TO AVOID THE HAZARD

- Always lower the attachment lift each time you shut off the traction unit.

General Snowthrower Safety

The following instructions have been adapted from the ANSI/OPEI and ISO standards.

Preparation

- Thoroughly inspect the area where the equipment is to be used and remove all doormats, sleds, boards, wires, and other foreign objects.
- Do not operate the equipment without wearing adequate winter outer garments. Wear footwear that will improve footing on slippery surfaces.
- Adjust the auger housing height to clear gravel or crushed rock surface.
- Never attempt to make any adjustments while the engine is running, except when specifically recommended by Toro.
- Let engine and machine adjust to outdoor temperatures before starting to clear snow.
- The operation of any powered machine can result in foreign objects being thrown into the eyes. Always wear safety glasses or eye shields during operation or while performing an adjustment or repair.

Operation

- Do not put hands or feet near or under rotating parts. Keep clear of the discharge opening at all times.
- Exercise extreme caution when operating on or crossing gravel drives, walks, or roads. Stay alert for hidden hazards or traffic. Do not carry passengers.
- After striking a foreign object, stop the engine, cycle the auxiliary hydraulics lever, disconnect the hydraulic lines, thoroughly inspect the snowthrower for any damage, and repair the damage before restarting and operating the snowthrower.
- If the unit should start to vibrate abnormally, stop the engine and check immediately for the cause. Vibration is generally a warning of trouble.
- Stop the engine whenever you leave the operating position, before unclogging the auger/impeller housing or discharge chute, and when making any repairs, adjustments, or inspections.
- When cleaning, repairing, or inspecting, stop the engine, make certain the auger/impeller and all moving parts have stopped, cycle the auxiliary hydraulics lever, and disconnect the hydraulic lines.
- Do not clear snow across the face of slopes. Exercise extreme caution when changing direction on slopes. Do not attempt to clear steep slopes.

- Never operate the snowthrower without proper guards, plates, or other safety protective devices in place.
- Never operate the snowthrower near glass enclosures, automobiles, window wells, drop-offs, and the like without proper adjustment of the snow discharge angle. Keep children and pets away.
- Do not overload the machine capacity by attempting to clear snow at too fast a rate.
- Never operate the machine at high transport speeds on slippery surfaces. Look behind and use care when moving in reverse.
- Never direct discharge at bystanders or allow anyone in front of the unit.
- Disengage power to the auger/impeller when the snowthrower is transported or not in use.
- Never operate the snowthrower without good visibility or light.

Maintenance and Storage

- Check fasteners at frequent intervals for proper tightness to be sure the equipment is in safe working condition.
- Always refer to the operator's manual for important details if the snowthrower is to be stored for an extended period.
- Maintain or replace safety and instruction labels, as necessary.
- Run the machine a few minutes after throwing snow to prevent freeze-up of the auger/impeller.

Toro Snowthrower Safety

The following list contains safety information specific to Toro products or other safety information that you must know that is not included in the ANSI or ISO standards.

- **The rotating auger/impeller or rotor blades can cut off or injure fingers or hands.** Stay in the operator's position and away from the discharge opening while

operating the snowthrower. **Keep your face, hands, feet, and any other part of your body or clothing away from concealed, moving, or rotating parts.**

- Before adjusting, cleaning, repairing, and inspecting the snowthrower, and before unclogging the discharge chute, **stop the engine, remove the key, and wait for all moving parts to stop.** Also, cycle the auxiliary hydraulics lever and disconnect the hydraulic lines.
- Use a stick, **not your hands** to remove obstructions from the discharge chute.
- **Before** leaving the operator's position, stop the engine, remove the key, and wait for all moving parts to stop.
- Do not wear loose fitting clothing that could possibly get caught in moving parts.
- If a shield, safety device, or decal is damaged, illegible, or lost, repair or replace it before beginning operation. Also, tighten any loose fasteners.
- **Do not** use the snowthrower on a roof.
- Perform only those maintenance instructions described in this manual. Before performing any maintenance, service, or adjustment, stop the engine, remove the key, cycle the auxiliary hydraulics lever, and disconnect the hydraulic lines. If major repairs are ever needed, contact your Authorized Toro Service Dealer.
- To ensure the best performance and safety, purchase only genuine Toro replacement parts and accessories to keep the Toro all Toro. **Do not use "Will Fit" replacement parts and accessories as they could cause a safety hazard.**
- When using the snowthrower in a raised position, stay away from overhead power lines and drive the traction unit only on level surfaces.
- Always transport the snowthrower in a lowered position.
- Use the snowthrower only to remove snow. Other materials may damage the snowthrower and cause a hazard.
- Do not tilt the snowthrower so that it discharges towards the operator or bystanders.

Safety Decals

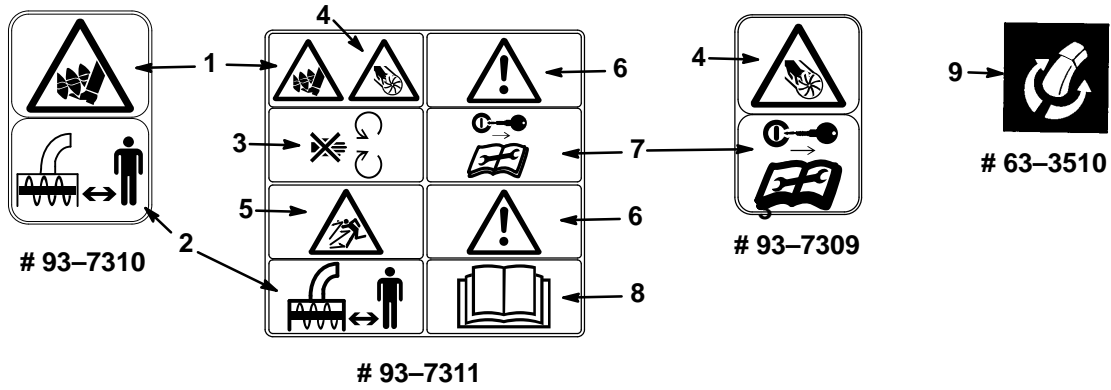


Figure 1

1. Cutting hazard—rotating auger
2. Keep bystanders away
3. Do not place hands or feet into areas with moving parts
4. Cutting hazard—rotating impeller
5. Thrown object hazard
6. Safety alert symbol
7. Remove the key and read the operator's manual before servicing
8. Read the operator's manual
9. Discharge chute rotation

Specifications

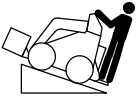


Note: Specifications and design are subject to change without notice.

Width	47.75 inches (121.3 cm)
Length	43.2 inches (109.7 cm)
Height	50.4 inches (128 cm)
Weight	335 lbs (152 Kg)
Clearing width	44 inches (111.7 cm)
Auger diameter	16 inches (40.6 cm)
Impeller diameter	13.5 inches (34.3 cm)
Auger speed	125 rpm @ 8.5 gpm
Impeller speed	1125 rpm @ 8.5 gpm
Hydraulic motor displacement	1.58 cu. in. (25.9 cc)

PROTOTYPE

Stability Ratings

To determine the degree of slope you can traverse with the snowthrower installed on a traction unit, find the stability rating for the hill position you want to travel in the table below, then find the degree of slope for the same rating and hill position in the Stability Data section of the traction unit operator's manual.

Orientation	Stability Rating
Front Uphill 	C
Rear Uphill 	C
Side Uphill 	B

Note: On traction units with a rear operator platform, the snowthrower is rated for use without the counterweight. If you use the counterweight with the snowthrower, the traction unit will be less stable in the front and side uphill positions.

!
WARNING
!

POTENTIAL HAZARD

- Exceeding the maximum recommended slope can cause the traction unit to tip.

WHAT CAN HAPPEN

- If the traction unit tips, you or bystanders could be crushed.

HOW TO AVOID THE HAZARD

- Do not drive the traction unit on a slope steeper than the maximum recommended slope, as determined in the previous table and the traction unit operator's manual.

Installation

Loose Parts

Description	Qty	Use
Snowthrower housing	1	Install the discharge chute
Discharge chute assembly	1	
Deflector shield	1	
Carriage bolt	3	
Washer	3	
Lock nut	3	
Cable guide	1	Install on the loader arm crossbar to guide the control cable.
Snowthrower	1	Install the snowthrower on the traction unit
Chute control bracket	1	Install the chute control bracket on the traction unit
Knob	2	
Handle clamp	1	
Washer, large	1	
Washer, small	1	

Installing the Discharge Chute

Install the deflector shield and the discharge chute assembly onto the snowthrower housing with three carriage bolts (heads to inside), washers, and lock nuts (Fig. 2).

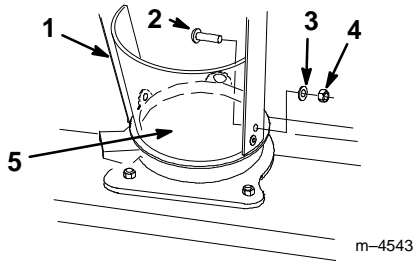


Figure 2

- | | |
|--------------------|---------------------|
| 1. Discharge chute | 4. Lock nut |
| 2. Carriage bolt | 5. Deflector shield |
| 3. Washer | |

Installing the Cable Guide

1. If your traction unit has a bolt installed in the underside of the loader arm cross bar, between the right loader arm and the hydraulic hoses, remove the bolt.
2. Place the cable guide over the loader arm cross bar on the far right side (Fig. 3).
3. Insert the clamp into the slot in the cable guide, then secure it with a knob (Fig. 3).

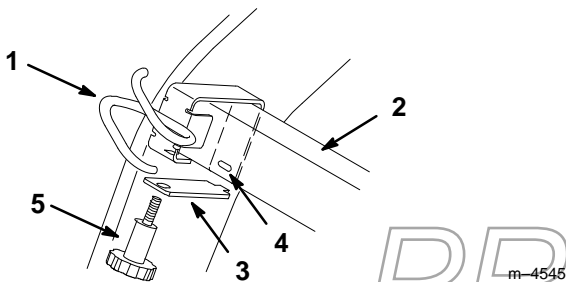


Figure 3

- | | |
|-------------------------|---------|
| 1. Cable guide | 4. Slot |
| 2. Loader arm cross bar | 5. Knob |
| 3. Clamp | |

Installing the Snowthrower on the Traction Unit

1. Connect the snowthrower to the traction unit mount plate and connect the hydraulic lines. Refer to your traction unit operator's manual for instructions.

2. Locate the hole in the side plate of the frame (Fig. 4) that is located just behind and to the left of the left handle. If there is no hole, complete the following:
 - A. Copy page 8, cut out the template, and align it with the upper left side plate of the traction unit (the arrow on the template should point up).

Note: The template is designed to fit on the outside of the side plate.

- B. Mark the hole location on the side plate at the center of the cross hairs on the template.
 - C. Drill a 3/8 to 1/2 inch (1 to 1.25 cm) hole through the frame at the marked location.
3. Place the chute control bracket between the left handle and the side plate (Fig. 4).
 4. Secure the bracket to the frame with a knob and the large washer (Fig. 4).
 5. Insert the handle clamp into the slot in the chute control bracket, wrapping it around the handle, then secure it with a knob (Fig. 4).

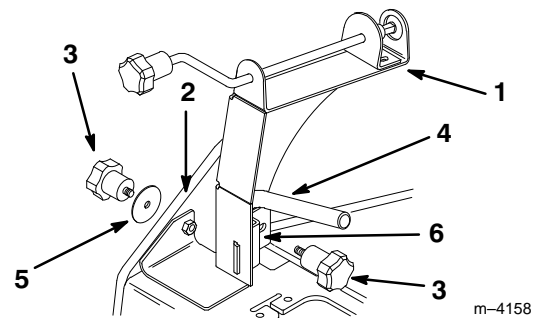


Figure 4

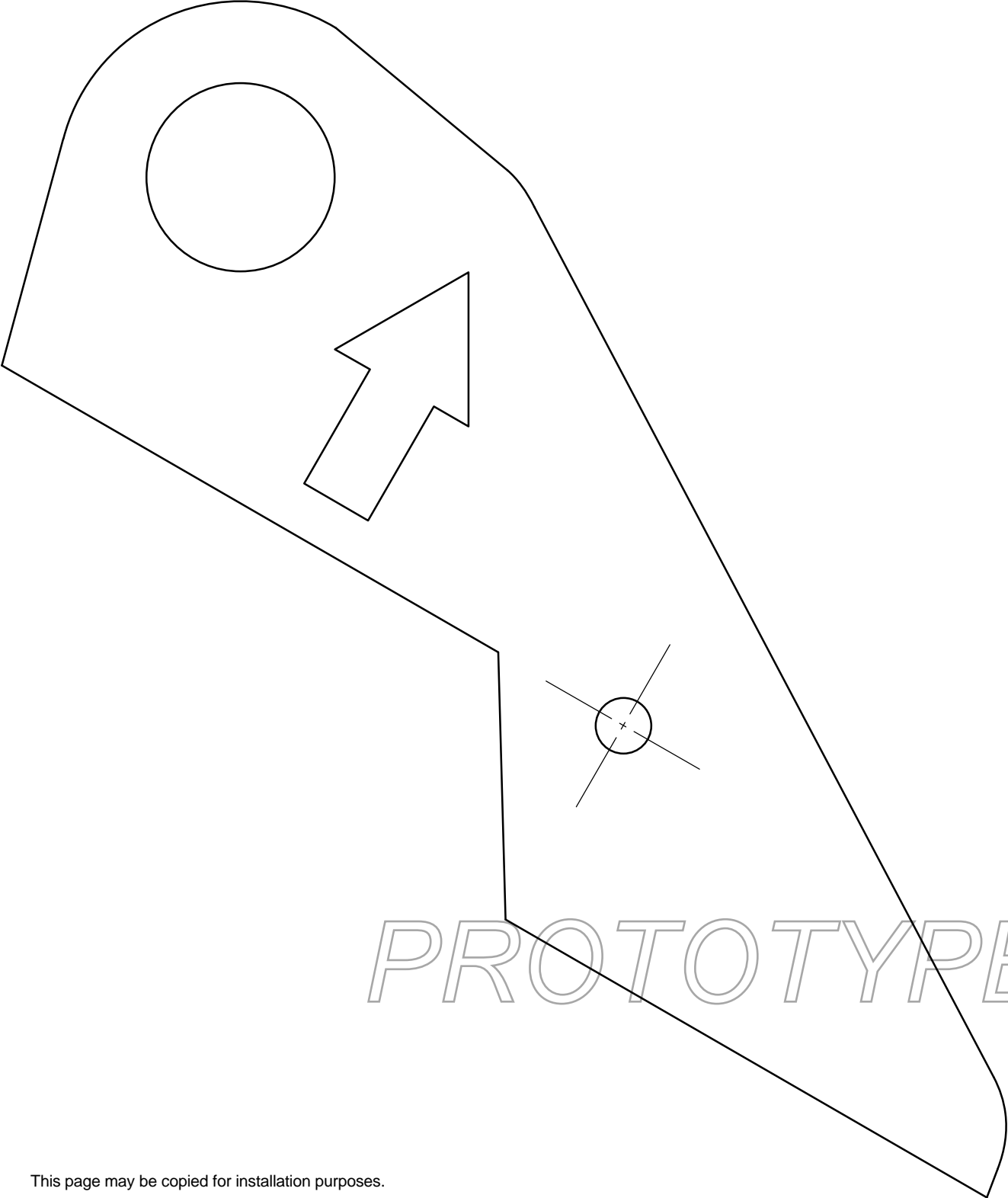
- | | |
|--------------------------|-----------------|
| 1. Chute control bracket | 4. Left handle |
| 2. Upper left side plate | 5. Large washer |
| 3. Knob | 6. Handle clamp |

6. Route the chute control cable through the cable guide.

Removing the Snowthrower from the Traction Unit

1. Start the engine and lower the attachment to the ground or onto a trailer, then stop the engine.
2. Remove the knobs, washer, and handle clamp from the chute control bracket and remove the bracket.
3. Install the handle clamp, washer, and knobs on the chute control bracket for safe keeping.
4. Remove the chute control cable from the cable guide.
5. Disconnect the hydraulic lines and remove the snowthrower from the mount plate. Refer to your traction unit operator's manual for instructions.

Side Plate Template for Marking the Hole Location



This page may be copied for installation purposes.

Operation

! **DANGER** !

POTENTIAL HAZARD

- The rotating impeller/auger can cut off fingers, hands, or other body parts.

WHAT CAN HAPPEN

- Contact with the rotating impeller/auger can cause severe injury or death.

HOW TO AVOID THE HAZARD

- Stay away from the discharge and auger openings while operating the snowthrower.
- Keep your hands, feet, and any other part of your body or clothing away from concealed, moving, or rotating parts.
- Use a stick, not your hand, to remove obstructions from the discharge chute or auger housing.
- Before adjusting, cleaning, repairing, and inspecting the snowthrower and before unclogging the discharge chute, stop the engine and wait for all moving parts to stop. Remove the key.

Note: Always use the traction unit to lift and move the attachment.

Tips for Throwing Snow

- Always use full throttle (maximum engine speed).
- If your traction unit has a speed selector, use the slow position (turtle).
- If your traction unit has a flow divider, set it as appropriate for the snow conditions (i.e., vary the setting from 10 o'clock for heavy snow to 12 o'clock for lighter snow).
- The discharge chute can be rotated 180° side to side. The direction is controlled by turning the chute control crank in the chute control bracket.
- The chute deflector, on top of the discharge chute, can be moved up and down to control the height and distance snow is thrown (Fig. 5).

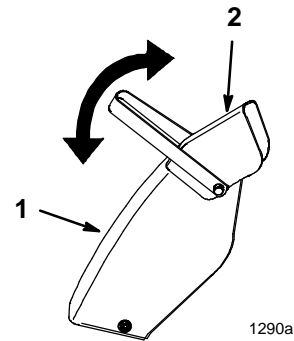


Figure 5

1. Discharge chute 2. Chute deflector

- Remove snow as soon as possible after it falls. This produces the best snow removal results.
- Adjust the skids to match the type of surface being cleaned; refer to Adjusting Skids.
- The snowthrower is designed to clean snow down to the contact surface, but there are times when the front of the snowthrower may tend to ride up. If this happens, reduce forward speed.
- Discharge snow downwind whenever possible, and overlap each pass to ensure complete snow removal. If wheels slip, reduce forward speed.
- Run the snowthrower for a few minutes after clearing snow so moving parts do not freeze.
- Do not overload the snowthrower by clearing snow at too fast a rate. If the engine slows down, reduce forward speed or adjust the flow divider (where applicable) to supply more power to the snowthrower.
- In some snow and cold weather conditions, some controls and moving parts may freeze. Therefore, when any control becomes hard to operate, stop the machine and wait for all moving parts to stop; then check all parts for freeze up. **Do not use excessive force when trying to operate frozen controls.** Free all controls and moving parts before operating.

Maintenance

Service Interval Chart

Service Operation	Initial Use	25 Hours	50 Hours	100 Hours	200 Hours	Storage Service
Auger gearbox—check oil			X			X
Discharge chute—check and adjust		X				X
Skids—adjust as required	X					X
Scraper blade—check/replace				X		X

! **CAUTION** !

POTENTIAL HAZARD

- If you leave the key in the ignition switch, someone could start the engine.

WHAT CAN HAPPEN

- Accidental starting of the engine could seriously injure you or other bystanders.

HOW TO AVOID THE HAZARD

- Remove the key from the ignition switch and pull the wire(s) off the spark plug(s) before you do any maintenance. Also push the wire(s) aside so it does not accidentally contact the spark plug(s).

Checking the Auger Gear Box Oil

Check level of oil in auger gear box every 50 hours.

1. With the snowthrower lowered and on a level surface, remove the pipe plug from the auger gear box (Fig. 6) by placing the open end of a 3/8" drive socket extension over the plug and using a 3/8" open end wrench on the square end of the extension.
2. Check the level of oil in the gear box. The oil must be at the point of overflowing in the filler opening.
3. If the oil level is low, add SAE 90 EP GL-4 transmission oil to the gear box.
4. Install the pipe plug in the gear box.

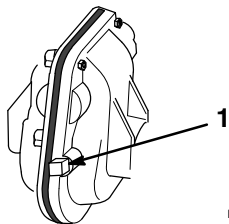


Figure 6

1. Pipe plug

Checking/Adjusting the Discharge Chute

Check the operation of the discharge chute every 25 hours to ensure that the chute rotates smoothly when the chute control crank is turned. If it does not rotate smoothly, adjust the worm gear as follows:

1. Loosen the worm bracket mounting screws (Fig. 7), firmly pushing the worm gear against the teeth in the retaining ring.

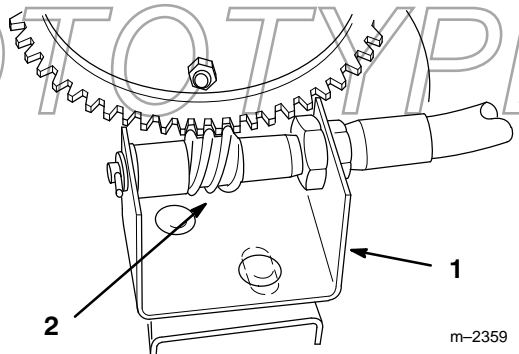


Figure 7

1. Worm bracket
2. Worm gear

2. While holding the bracket in place, tighten the mounting screws.

Adjusting the Skids

The distance between the scraper blade and the ground is controlled by skids on each side of the housing. The height can be adjusted so the scraper blade will not catch on uneven surfaces

1. Lower the snowthrower until it is 1 to 2 inches above a level surface, then stop the engine.
2. Remove the nuts and bolts securing the skids to the housing (Fig. 8).
3. Position the skids equally on both sides, to obtain a level scraping action, and secure the skids with the nuts and bolts (Fig. 8).

Note: On smooth, paved surfaces, the scraper blade can be close to the surface. On uneven, gravel or crushed rock surfaces, adjust the skids to raise the scraper, to prevent catching or picking up rocks.

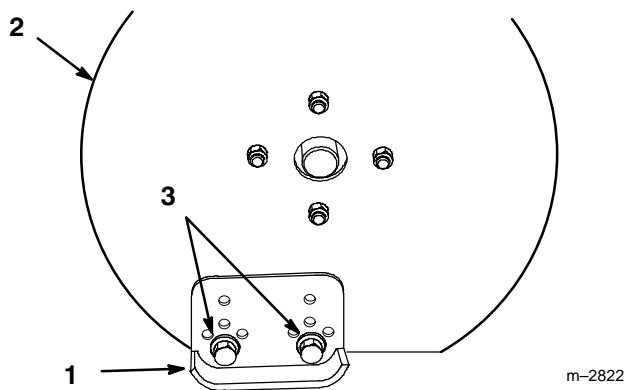


Figure 8

1. Skid
2. Housing
3. Nut

IMPORTANT: The scraper should be higher above the pavement if the pavement surfaces on which the snowthrower will be used are cracked, rough, or uneven.

Replacing the Scraper Blade

The scraper blade contacts the ground preventing damage to the snowthrower housing. Periodically inspect the scraper blade for wear. When the scraper becomes worn, before the working surface contacts the housing, replace the scraper blade.

1. Raise the snowthrower a foot off of the ground and stop the engine.
2. Remove the nuts, washers, carriage bolts, and scraper blade (Fig. 9).
3. Replace the scraper blade and secure the new blade with the previously removed hardware (Fig. 9).

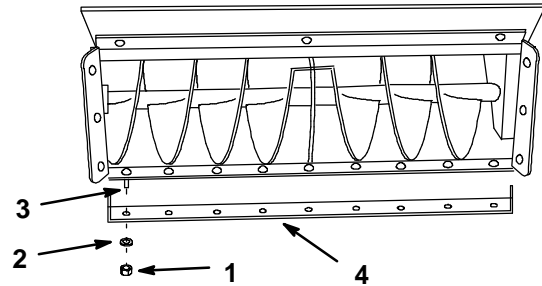


Figure 9

1. Nut
2. Washer
3. Carriage bolt
4. Scraper blade

Storage

1. Before long term storage, wash the snowthrower with mild detergent and water to remove dirt and grime.
2. Check the condition of the scraper blade; refer to Replacing Scraper Blade, page 11.
3. Check the auger gear box oil level; refer to Checking the Auger Gear Box Oil.
4. Check and tighten all bolts, nuts, and screws. Repair or replace any part that is damaged or defective.
5. Paint all scratched or bare metal surfaces. Paint is available from your Authorized Service Dealer.
6. Store the snowthrower in a clean, dry garage or storage area. Cover the snowthrower to protect it and keep it clean.

Troubleshooting

PROBLEM	POSSIBLE CAUSES	CORRECTIVE ACTION
Snowthrower does not operate.	<ol style="list-style-type: none"><li>1. Hydraulic coupler not completely connected<li>2. Damaged hydraulic coupler<li>3. An obstruction in a hydraulic hose<li>4. Auxiliary valve on the traction unit is not opening.	<ol style="list-style-type: none"><li>1. Check and tighten all couplers.<li>2. Check couplers and replace any that are damaged.<li>3. Find and remove the obstruction.<li>4. Repair the valve.

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