

Operator's Manual



WORLDLAWN®

WS2265BSE/WS2475BSE

Snow thrower

- *Safety*
- *Assembly Instruction*
- *Product Overview*
- *Controls*
- *Operation*
- *Maintenance*
- *Storage*
- *Troubleshooting*



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INTRODUCTION

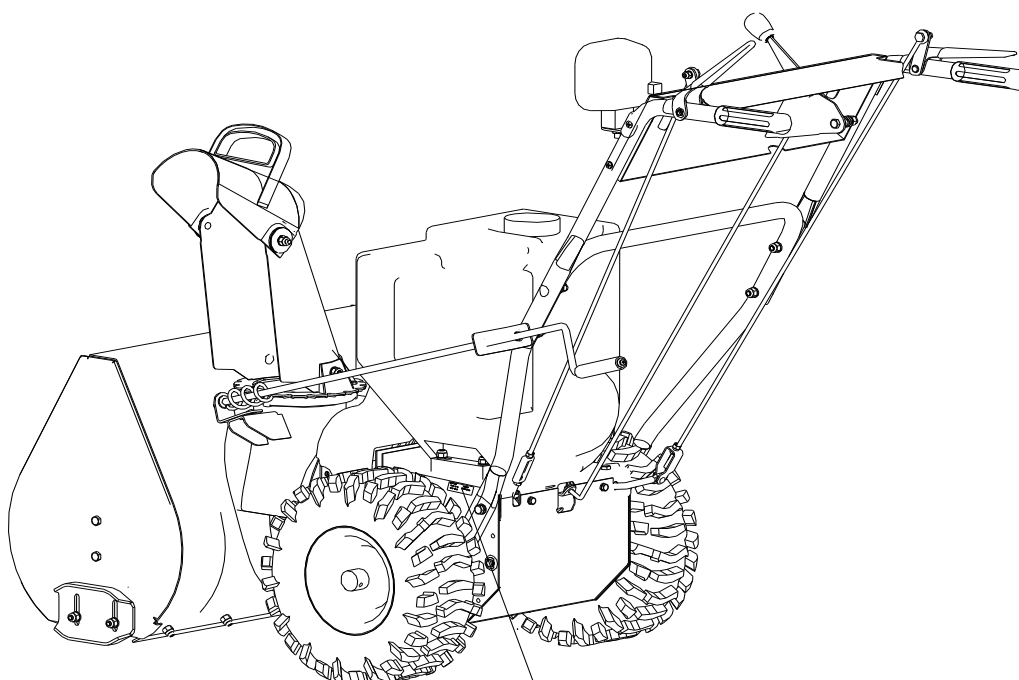
This manual contains assembly, operating, maintenance, adjustment, and safety instructions for your WS2265BSE/WS2475BSE snowthrower.

Before operating your snow thrower, read this manual in its entirety carefully.

Keep this snow thrower Owner's Manual when it is lent or transferred.

If this manual is lost, damaged, or illegible, replace it with a new one through our company's sales department or dealer immediately.

For more information, contact our sales department or dealer. Please also indicate the model and serial numbers of your product.



SERIAL NUMBER NAMEPLATE

To improve the quality, performance, and security of our products, we may change the design or quantity of various parts or assemblies of this product; therefore, you may find the product in hand a bit different from that which is described in this manual. We are very sorry for any inconvenience which this may cause you.



Safety alert symbol.

There are two types of highlighted warning signs in this manual: **Important** and **Note**.

Important calls attention to special mechanical information and **Note** emphasizes general operation information worthy of special attention.



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1. Safety Information

1.1 Before Operating

Read and understand the contents of this manual before operating the snow thrower.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

Improperly using or maintaining this snowthrower could result in injury or death. To reduce this potential hazard, comply with the following safety instructions.

This snow thrower is capable of amputating hands and feet and of throwing objects. Failure to observe the following safety instructions could result in serious injury.

1.2 Training

1.2.1 Regard the snow thrower as a piece of power equipment and the operator needs to be trained before operating this unit.

1.2.2 Read and follow all instructions on the machine and in the manual(s). Be thoroughly familiar with controls and the proper use of the equipment. Know how to stop the unit and disengage the controls.

1.2.3 Never allow children, teenagers, or adults to operate the equipment without proper instruction.

1.2.4 Keep everyone, especially children and pets, away from the area of operation. Remember that the operator or user is responsible for accidents or hazards occurring to other people or their property.

1.2.5 Exercise caution to avoid slipping or falling, especially when operating the snow thrower in reverse.

1.3 Preparation

1.3.1 Thoroughly inspect the area where the equipment is to be used and remove all wires, blocks, and any other foreign objects.

1.3.2 Put the clutch and shift levers into neutral before

starting the engine.

1.3.3 Avoid wearing loose fitting clothing that can get caught in moving parts. Wear footwear that will improve footing on slippery surfaces.

1.3.4 Handle fuel with care; it is highly flammable.

- Use an approved fuel container.
- Never add fuel to a running engine or hot engine.
- Fill fuel tank outdoors with extreme care. Never fill fuel tank indoors.
- Never fill containers inside a vehicle or on a truck or trailer bed, because interior carpets or plastic truck bed liners may insulate the container and slow the loss of any static charge.
- Always place containers on the ground, away from your vehicle, before filling.
- When practical, remove gas-powered equipment from the truck or trailer and refuel it on the ground. If this is not possible, then refuel such equipment on a trailer with a portable container, rather than from a gasoline dispenser nozzle.
- Keep the nozzle in contact with the rim of the fuel tank or container opening at all times, until refueling is complete.
- Replace gasoline cap securely and wipe up spilled fuel.
- If fuel is spilled on clothing, change clothing immediately.

1.3.5 Use extension cords and receptacles as specified by the manufacturer for all units with electric starting motors.

1.3.6 Adjust the collector housing height to clear gravel or crushed rock surfaces.

1.3.7 Never attempt to make any adjustments while the engine is running (except when specifically recommended by manufacturer).

1.3.8 Always wear safety glasses or eye shields during operation or while performing an adjustment or repair to protect eyes from foreign objects that may be thrown from the machine.

1.4 Operation

1.4.1 Do not put hands or feet near or under rotating parts. Keep clear of the discharge opening at all times.

1.4.2 Exercise extreme caution when operating on or crossing gravel drives, walks, or roads. Stay alert for hidden hazards or traffic.

1.4.3 After striking a foreign object, stop the engine, remove the wire from the spark plug, thoroughly inspect the snow thrower for any damage, and repair the damage before restarting and operating the snow thrower.

1.4.4 If the unit should start to vibrate abnormally, stop the engine and check immediately for the cause. Vibration is generally a warning of trouble.

1.4.5 Stop the engine:

- Whenever you leave the operating position.
- When making any repairs, adjustments, or inspections.
- Before unclogging the auger/impeller housing or discharge chute.

1.4.6 When cleaning, repairing, or inspecting the snow thrower, stop the engine and make certain the auger/impeller and all moving parts have stopped. Disconnect the spark plug wire and keep the wire away from the plug to prevent someone from accidentally starting the engine.

1.4.7 Do not run the engine indoors, except when starting the engine and for transporting the snow thrower in or out of the building. Open the outside doors; exhaust fumes are dangerous.

1.4.8 Exercise extreme caution when operating on slopes.

1.4.9 Never operate the snow thrower without proper guards and other safety protective devices in place and working.

1.4.10 Never direct the discharge toward people or areas where property damage can occur. Keep children and others away.

1.4.11 Do not overload the machine capacity by attempting to clear snow at too fast a rate.

1.4.12 Never operate the machine at high transport speeds on slippery surfaces. Look behind and use care

when operating in reverse.

1.4.13 Disengage power to the auger/impeller when snow thrower is transported or not in use.

1.4.14 Use only attachments and accessories approved by the manufacturer of the snow thrower.

1.4.15 Never operate the snow thrower without good visibility or light. Always be sure of your footing, and keep a firm hold on the handles. Walk; never run.

1.4.16 Never touch a hot engine or muffler.

1.5 Clearing a Clogged Discharge Chute

Hand contact with the rotating rotor blades inside the discharge chute is the most common cause of injury associated with snow throwers. Never use your hand to clean out the discharge chute.

To clear the chute:

- Shut the engine off!
- Wait 10 seconds to be sure the impeller blades have stopped rotating.
- Always use a clean-out tool, not your hands.

1.6 Maintenance and Storage

1.6.1 Check all fasteners at frequent intervals for proper tightness to be sure the equipment is in safe working condition.

1.6.2 Never store the machine with fuel in the fuel tank inside a building where ignition sources are present, such as hot water heaters or clothes dryers. Allow the engine to cool before storing in any enclosure.

1.6.3 Always refer to the Operator's Manual for important details if the snow thrower is to be stored for an extended period.

1.6.4 Maintain or replace safety and instruction labels, as necessary.

1.6.5 Run the machine a few minutes after throwing snow to prevent freeze-up of the auger/impeller blades.



1.7 Snow thrower Safety

The following list contains safety information specific to products or other safety information that you must know.

1.7.1 Rotating the auger/impeller can cut off or injure fingers or hands. Stay behind the handles and away from the discharge opening while operating the snow thrower. Keep your face, hands, feet, and any other parts of your body or clothing away from moving or rotating parts.

1.7.2 Before adjusting, cleaning, inspecting, troubleshooting, or repairing the snow thrower, stop the engine, remove the ignition key, and wait for all moving parts to stop. Disconnect the wire from the spark plug and keep it away from the spark plug to prevent someone from accidentally starting the engine.

1.7.3 Before leaving the operating position, stop the engine, remove the ignition key, and wait for all moving parts to stop.

1.7.4 To unclog the discharge chute, stay in the operating position and release the left hand (traction) lever. While running the auger/impeller, push down on the handles to raise the front of the snow thrower a few inches (centimeters) off the pavement. Then lift the handles quickly to bump the front of the snow thrower on the pavement. Repeat if necessary until a stream of snow comes out the discharge chute.

1.7.5 If you cannot unclog the discharge chute by bumping the front of the snow thrower, stop the engine, wait for all moving parts to stop, and use the clean-out tool; never use your hand.

1.7.6 If a shield, safety device, or decal is damaged, illegible, or lost, repair or replace it before beginning operation.

1.7.7 Do not smoke while handling gasoline.

1.7.8 Do not use the snow thrower on a roof.

1.7.9 Do not touch the engine while it is running or soon after it has stopped because the engine may be hot enough to cause a burn.

1.7.10 Perform only those maintenance instructions described in this manual. Before performing any maintenance, service, or adjustment, stop the engine, remove the ignition key, and disconnect the wire from the spark plug. If major repairs are ever needed, contact an Authorized Service Dealer.

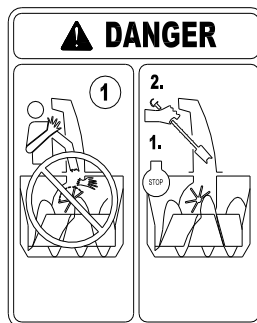
1.7.11 Do not change the governor settings on the engine.

1.7.12 When storing the snow thrower for more than 30 days, drain the fuel from the fuel tank to prevent a potential hazard. Store fuel in an approved fuel container. Remove the key from the ignition switch before storing the snow thrower.

1.7.13 Purchase only genuine replacement parts and accessories.

1.8 Safety and Instructional Decals

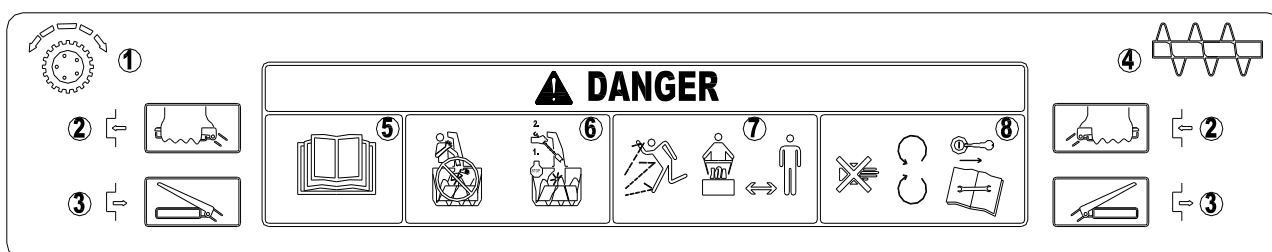
Important: Safety and instructional decals are located near areas of potential danger. Replace damaged decals.



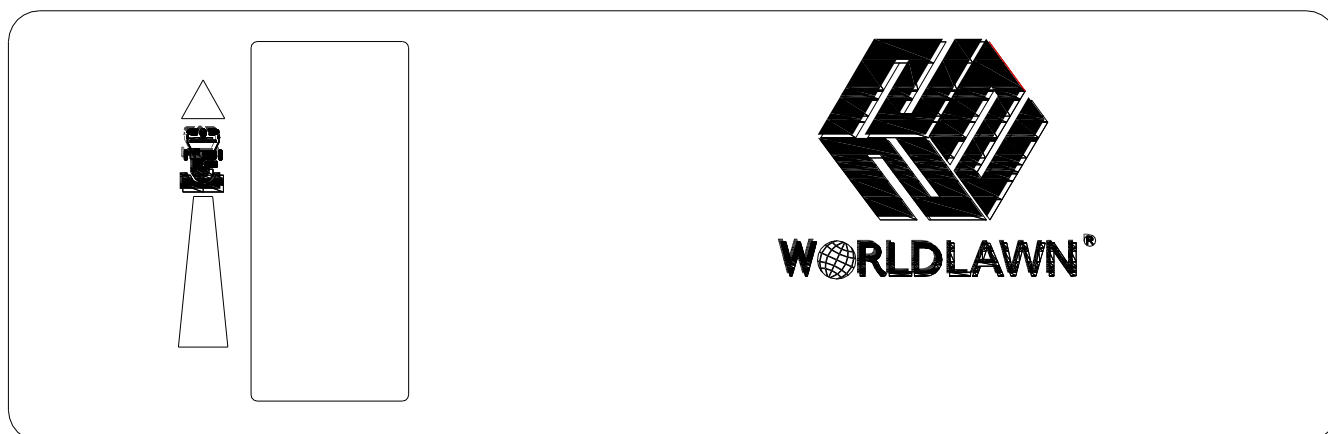
1. Do not place your hand in the chute; stop the engine before leaving the operator's position, use the tool to clear the chute.



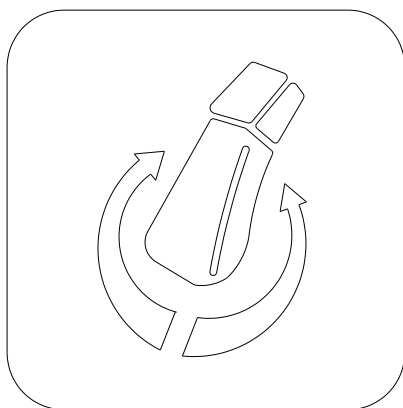
1. Cutting/dismemberment of foot by auger



- | | | | |
|----------------|----------------|--|---|
| 1. Wheel drive | 3. Disengage | 5. Read the Operator's Manual. | 7. Thrown objects, keep bystanders a safe distance from the snow thrower. |
| 2. Engage | 4. Auger drive | 6. Do not place your hand in the chute; stop the engine before leaving the operator's position, use the tool to clear the chute. | 8. Keep away from moving parts, remove the ignition key and read the instructions before servicing or performing maintenance. |



- | | | |
|---------------------------------|-------------------|--------------------------------|
| 1. Forward drive speed settings | 2. Speed selector | 3. Reverse drive speed setting |
|---------------------------------|-------------------|--------------------------------|



1. Chute control

2. Setup

Loose parts

Use the chart below to verify that all parts have been shipped.

Procedure	Description	Qty.	Use
1	Lower Handle	1	Install the lower handle
	Hex Hd Bolt M8×18	4	
	Lock Washer M8	4	
	Flat Washer M8	4	
2	Upper Handle	1	Install the upper handle
	Carriage Bolt M8x45 XSZ56-1-15	3	
	Hex Hd Bolt M8×45	1	
	Flat Washer M8	4	
	Lock Nut M8	4	
3	Rod-LH (Wheel Drive Rod)	1	Install the Rod-LH
4	Rod-RH (Auger/Blower Drive Rod)	1	Install the Rod-RH
5	Speed selector rod (Shift Rod)	1	Install the speed selector rod
	Flat Washer M10	2	
	Cotter pin XSZ56-1-17	2	
6	Discharge chute	1	Install the discharge chute
	Carriage Bolt M8×20	3	
	Flat Washer M8	3	
	Nut M8	3	
7	Chute control rod assembly	1	Install the chute control rod
8	Snow clean-out tool	1	Install the snow clean-out tool
9	No parts required	-	Fill the engine with oil
10	No parts required	-	Check the tire pressure
11	No parts required	-	Check the skids and scraper

2.1 Install the Lower Handle

1	Lower Handle
4	Hex Hd Bolt M8×18
4	Lock Washer M8
4	Flat Washer M8

Procedure

2.1.1 Remove the linchpin from each side and slide the wheel out far enough to install the bolts into the lower handle. Use the M8x18 bolt in combination with a M8 lock washer and a M8 flat washer, tighten into place. (FIG 1)

2.1.2 Slide the wheels back into the original position and replace the linchpins. (FIG 1)

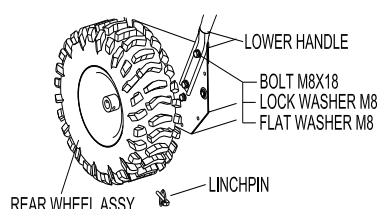


FIG 1

2.2 Install the Upper Handle

1	RH and LH Upper Handles
3	Carriage Bolt M8x45 (XSZ56-1-15)
1	Hex Hd Bolt M8×45
4	Flat Washer M8
4	Lock Nut M8

Procedure

2.2.1 Assemble the RH and LH upper handles to the lower handle with (3) M8x45 carriage bolts, M8 washers, and M8 nuts. (FIG 2)

2.2.2 Insert (1) M8x45 hex hd bolt, M8 washer, and M8 nut into lower left side of handle. Leave this bolt loose until chute control rod bracket is installed. (FIG 2)

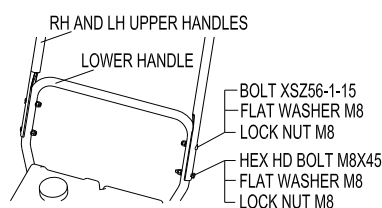


FIG 2

2.3 Install Wheel Drive Rod (LH side)

1	Wheel Drive Rod (shorter of the 2 rods)
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Procedure

2.3.1 Begin by placing rod through the slot on the left side of the upper handle then thread the wheel drive rod into the turnbuckle assembly located on the left side of the engine deck. Thread rod into turnbuckle until the turnbuckle reaches the preset jamb nut.

Ref to (FIG 3).

2.3.2 Assemble the upper side of Rod-LH onto the left drive lever by placing the shoulder bolt through the loop and tighten into place. Ref to (FIG 4).

2.3.3 When the speed selector handle is on Forward position, press the left handle; push the snow thrower. If the machine does not move ahead or encounters a large resistance, put speed selector handle in Reverse position, press the left handle; pull the snow thrower. If the machine does not move backward, it means the Rod-LH is installed in the correct place, or else readjust the Rod-LH.

Warning: When speed selector handle is on Forward position, press the left handle, do not pull the snow thrower. While speed selector handle is on Reverse position, press the left handle, do not push the snow thrower, or the friction pulley may fall and the machine will not perform correctly.

2.3.4 Loosen the nut of Rod-LH, rotate the screw buckle counterclockwise, shorten the length of Rod-LH, perform step 2.3.3, until machine performs correctly.

2.3.5 Tighten the nut.

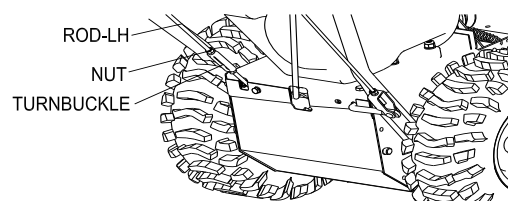


FIG 3

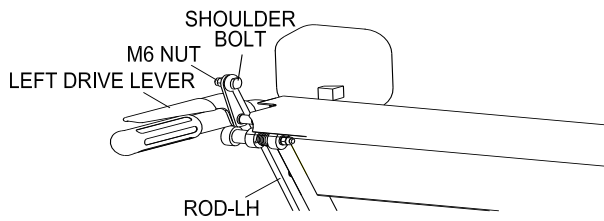


FIG 4

2.4 Install Auger/Blower Drive Rod(RH side)

1	Auger/Blower Drive Rod (longest rod)
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Procedure

- 2.4.1** Place rod through slot on the RH side of the upper handle and thread it into the clevis that is located on the right hand side of engine deck. (FIG 5)
- 2.4.2** Attach the upper side of the rod by removing the shoulder bolt from the drive lever and placing the bolt through the rod loop and tighten. (FIG 6)
- 2.4.3** At this time press down on the drive lever and check the tension of the auger/blower drive belt. Tension should be set at 1/4 inch belt deflection to 10 pounds of pull. If the tension needs to be adjusted, remove the shoulder bolt and turn the rod clockwise to increase the tension and counter clockwise to decrease the tension. Adjust the rod to desired tension and tighten locknut. (FIG 7)

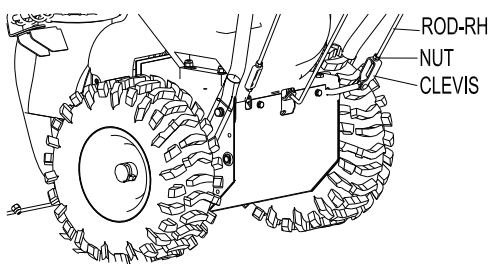


FIG 5

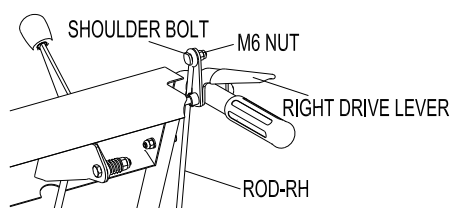


FIG 6

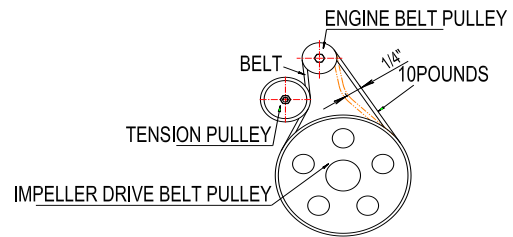


FIG 7

2.5 Install the Speed Selector Rod(Shift Rod)

1	Speed Selector Rod (Shift Rod)
2	Flat Washer M10
2	Hair Pin Cotter Pin (XSZ56-1-17)

Procedure

- 2.5.1** Install the shift rod into the hole located at the bottom of the speed control handle on the upper handle; attach by adding flat washer and insert cotter pin. Attach the other end of rod to the speed adjusting plate, located at the back center of the engine support frame, with the washer and cotter pin. (FIG 8, FIG 9)

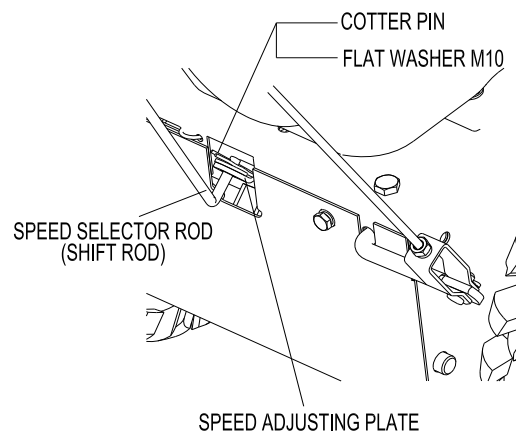


FIG 8

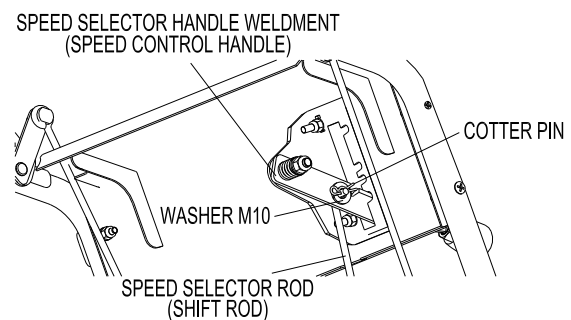


FIG 9

2.6 Install the Discharge Chute

1	Discharge chute
3	Carriage Bolt M8×20
3	Flat Washer M8
3	Nut M8

Procedure

Place the chute into the flange of the chute mount and secure with the bolts, flat washers, and nuts. (FIG 10)

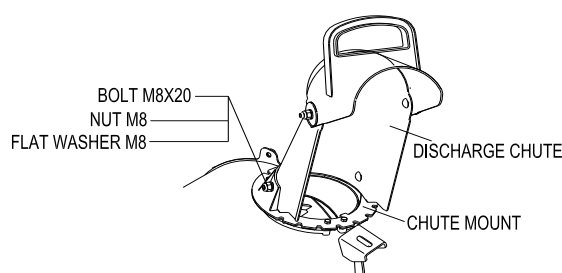


FIG 10

2.7 Install the Discharge Chute Control Assy

1	Discharge Chute Control Assembly
1	Chute Control Plate
1	Hex Hd Bolt M8x25
1	Flat Washer M8
1	Nut M8

Procedure

Attach the discharge chute control assembly (bracket) to the upper handle (LH) with the existing bolt, washer, and nut. Attach other end of assembly through worm bracket slot, plate, and front frame weldment holes with hex head bolt, washer, and nut. Operate the chute control rod to check if the discharge chute moves freely. (FIG 11, FIG 12)

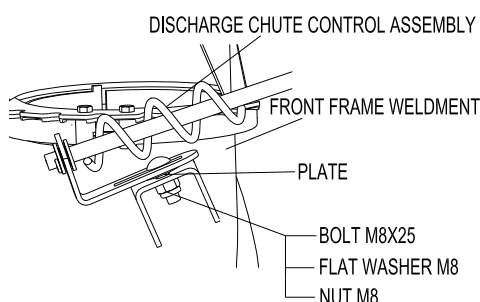


FIG 11

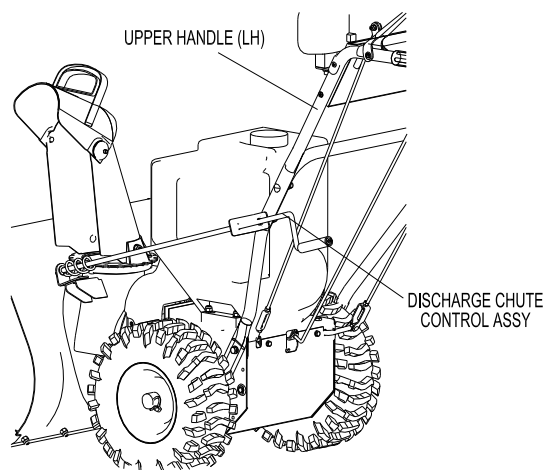


FIG 12

2.8 Install the Snow Clean-out Tool

1	Snow clean-out tool
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Procedure

Snap the clean out tool into place on the lower handle. (FIG 13)

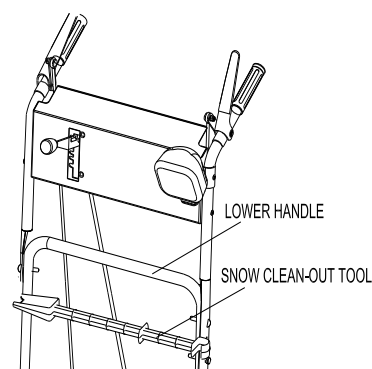


FIG 13

2.9 Fill the Engine with Oil

Procedure

Type: For temperatures above 32 F (0 °C) , use SAE 30.

For temperatures between 0° F and 32° F (-18° C to 0° C) , use SAE 5W30 or SAE 10.

For temperatures below 0° F (-18° C) , use SAE 0W30.

2.9.1 Move the snow thrower to a level surface to ensure an accurate oil level reading.

2.9.2 Clean around the dipstick.

2.9.3 Remove the dipstick by rotating the cap counterclockwise and pulling it out.

2.9.4 Wipe the dipstick with a clean cloth.

2.9.5 Fill the engine with oil.

2.9.6 Put the dipstick into the filler neck, then remove it.

2.9.7 Read the oil level on the dipstick.

2.9.8 If the oil level is below the LOW or ADD mark on the dipstick, add more oil to raise the oil level to the FULL mark. If overfill occurs, drain the excess oil until the oil level on the dipstick reads FULL.

Important: DO NOT overfill the crankcase with oil and run the engine; engine damage will result.

2.9.9 Replace the dipstick into the filler neck and rotate the cap clockwise until it is tight.

2.10 Check the Tire Pressure

Procedure

The tires are overinflated at the factory for shipping. Reduce the pressure equally in both tires to between 12 and 15 psi (82 and 103 kPa).

2.11 Check the Skids and Scraper

Procedure

Refer to "Adjusting the Skids and Scraper" in "Maintenance".

3. Product Overview

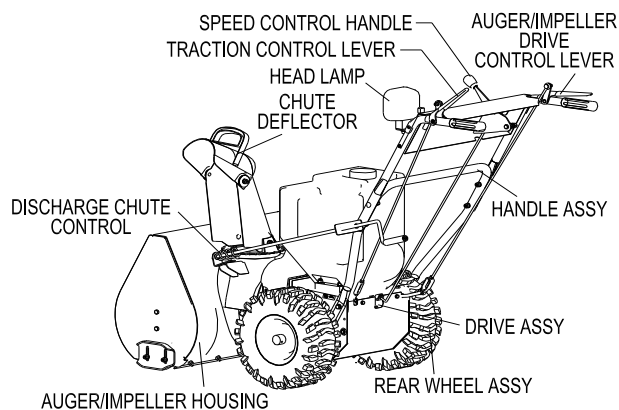


FIG 14



FIG 15

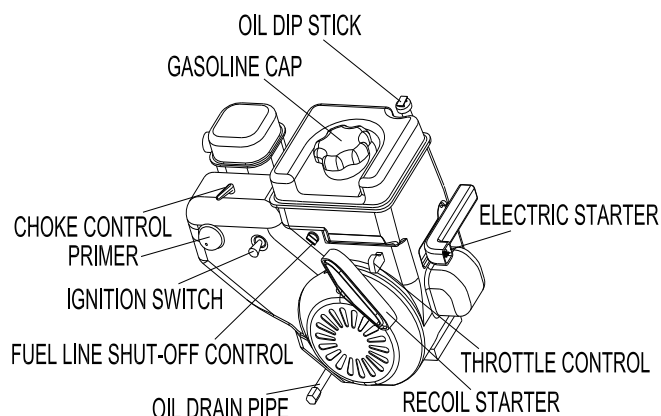


FIG 16

FIG 16 Refer to engine instruction book.

4. Controls

4.1 Auger/Impeller Drive Control Lever

To engage the auger/impeller, press the lever against the right handgrip. To disengage, release the lever.

4.2 Traction Control Lever

To engage the traction, press the lever against the left handgrip. To stop the traction, release the lever.

4.3 Speed Control Handle

This control has 4 positions: 3 forward speeds and 1 reverse. To change speeds, move the speed control handle to the desired position. The lever locks in a notch at each speed selection.

Note: Before shifting gears into or out of reverse, you must release the traction control lever. You may shift between any of the forward speeds without releasing the traction control lever.

4.4 RH Handle Lock Control

In the operation process, the left handle locks the right handle. Release the left handle and the right handle can be pressed or released freely; press the left handle and the right handle can only be pressed, but not be released.

4.5 Discharge Chute Control

Rotate the discharge chute control clockwise to move the discharge chute to the left; counterclockwise to move the chute to the right.

4.6 Chute Deflector Handle

Move the deflector handle forward to direct the snow stream down; move it backward to direct the snow stream up.

4.7 Fuel Shutoff Valve

Close the valve by rotating clockwise. Open the valve by rotating it counterclockwise. Close the valve when you are not using the snow thrower.

4.8 Ignition Switch

Insert the ignition key before starting the engine. To stop the engine, remove the key.

4.9 Choke

Rotate the choke knob to the "choke" position to start a cold engine. As engine warms up, gradually move the choke knob to the "run" position.

4.10 Throttle Lever

Move the throttle lever right to increase the engine speed; move it left to decrease the engine speed. To stop the engine, move the throttle lever all the way left to the "stop" position.

4.11 Primer

For cold start, choke the engine and press the primer 2 times. Do not over-prime. Do not prime a warm engine.

4.12 Electric Starter

The electric starter is on the top right side of the engine. To start the snow thrower, connect the electric starter to an electric power source with an approved extension cord and press the red starter button.

4.13 Recoil Starter

The recoil starter is on the back side of the engine. Pull the recoil starter handle to start the engine.

4.14 Snow Clean-out Tool

The snow clean-out tool is located on the lower handle. Use this tool to unclog the discharge chute and auger/impeller when they become clogged with snow.

5. Operation

Note: The left and right sides of the machine are determined by standing at the normal operating position.

5.1 "Freewheeling" or Using the Self-propel Drive

You can operate the snow thrower with the self-propel feature engaged or disengaged, "freewheeling".

To "freewheel", remove linchpins and slide wheels inward. Insert the pins through the outer axle holes, but not through the wheel hubs. (FIG 17)

To "self-propel", remove linchpins and slide the wheels outward. Insert the pins through the holes in the wheel hubs **and** the outer axle holes. (FIG 18)

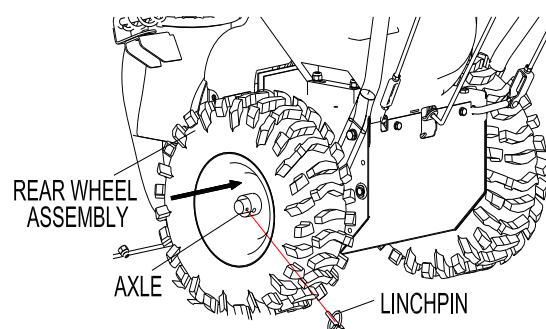


FIG 17

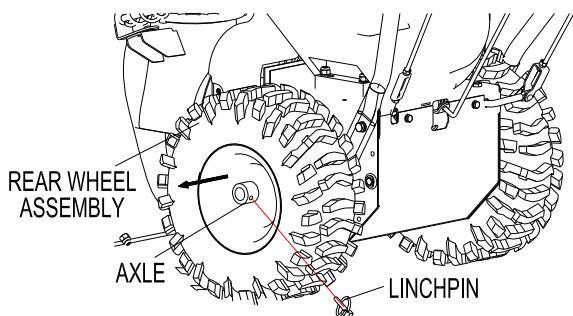


FIG 18

5.2 Filling the Fuel Tank



- Gasoline is extremely flammable and explosive. A fire or explosion from gasoline can burn you and others.
- To prevent a static charge from igniting the gasoline, place the container and/or snow thrower on the ground before filling, not in a vehicle or on an object.
- Fill the tank outdoors when the engine is cold. Wipe up spills.
- Do not handle gasoline when smoking or around an open flame or sparks.
- Store gasoline in an approved fuel container and out of the reach of children.

Fill the fuel tank with fresh unleaded regular gasoline from a major name-brand service station.

Important: To reduce starting problems, add fuel stabilizer to the fuel all season, mixing it with gasoline less than 30 days old. Do not add oil to the gasoline.

5.2.1 Clean around the fuel tank cap.

5.2.2 Remove the fuel tank cap.

5.2.3 Fill the fuel tank with unleaded gasoline.

Important: Do not fill the fuel tank too full, because the gasoline must have room to expand.

5.2.4 Replace the fuel tank cap and wipe up any spilled gasoline.

5.3 Starting the Engine

5.3.1 Move the throttle to the Fast position

5.3.2 Rotate the fuel shutoff valve counterclockwise to open it.

5.3.3 Rotate the choke knob to the "Choke" position.

5.3.4 Insert the ignition key.

5.3.5 Firmly push in the primer 2 times with your thumb, holding the primer in for a second before releasing it each time.

Note: Take your glove off when you push in the primer so that air cannot escape from the primer hole.

Note: Priming excessively may flood the engine and prevent it from starting.

5.3.6 Start the snow thrower using the recoil starter or the electric starter.

Important: To prevent damaging the electric starter, run it no more than 10 times at intervals of 5 seconds on, then 5 seconds off. If the engine does not start after this series of attempts, allow the starter to cool for at least 40 minutes before trying to start it again. If the engine still does not start, take the snow thrower to the dealer for service.

5.3.7 Disconnect the cord from the electric starter and the outlet.

5.3.8 When the engine starts, set the choke to the 3/4 position. As the engine warms up, set the choke to the 1/2 position. When the engine is warm, set the choke to the "Run" position.



- If you leave the snow thrower plugged into a power outlet, someone can inadvertently start the snow thrower and injure someone or damage property.
- Unplug the power cord whenever you are not starting the snow thrower.

5.4 Stopping the Engine

5.4.1 Engage the auger to remove any remaining snow from inside the housing.

5.4.2 Run the engine for a few minutes to dry off any accumulated moisture.

5.4.3 Release the auger/impeller drive control lever and the traction control lever.

5.4.4 Stop the engine by doing one of the following:

A: Move the throttle lever to the slow position, and remove the ignition key.

B: Move the throttle lever to the "Stop" position.

5.4.5 Close the fuel shutoff valve.

5.4.6 Pull the recoil starter with a rapid, continuous, full-arm stroke 3 or 4 times. This helps prevent the recoil starter from freezing up.

5.4.7 Wait for all moving parts to stop before leaving the operating position.

5.5 Unclogging the Discharge Chute

5.5.1 If the auger/impeller is running but there is no snow coming out of the discharge chute, the discharge chute may be clogged.

5.5.2 If the discharge chute becomes clogged, stop the engine, wait for all moving parts to stop, and use the clean-out tool - NEVER USE YOUR HAND.

5.6 Preventing Freeze-up

5.6.1 In snowy and cold conditions, some controls and moving parts may freeze. Do not use excessive force when trying to operate frozen controls. If you have difficulty operating any control or part, start the engine and let it run for a few minutes.

5.6.2 After using the snow thrower, let the engine run for a few minutes to prevent moving parts from freezing. Engage the auger/impeller to clear any remaining snow from inside the housing. Rotate the discharge chute control to prevent it from freezing. Stop the engine, wait for all moving parts to stop, and remove all ice and snow from the snow thrower.

5.6.3 With the engine off, pull the recoil starter handle several times to prevent the recoil starter from freezing up.

5.7 Operating Tips



When the snow thrower is in operation, the impeller /auger can rotate and cut off or injure hands and feet. Before adjusting, cleaning, inspecting, troubleshooting, or repairing the snow thrower, stop the engine and wait for all moving parts to stop. Disconnect the wire from the spark plug and keep it away from the plug to prevent someone from accidentally starting the engine.

- Remove an obstruction from the discharge chute and auger/impeller housing; refer to "Unclogging the Discharge Chute and Auger/Impeller Housing". Use the clean-out tool, not your hands, to remove an obstruction from the discharge chute or auger/impeller housing.
- Stay behind the handles and away from the discharge opening while operating the snow thrower.
- Keep face, hands, feet, and any other part of your body or clothing away from concealed, moving, or rotating parts.



The rotor blades can throw stones, toys, and other foreign objects and cause serious personal injury to the operator or to bystanders.

- Keep the area to be cleared free of all objects that the rotor blades could pick up and throw.
- Keep all children and pets away from the area of operation.

5.7.1 Always set the throttle lever to the Fast position when throwing snow.

5.7.2 If the engine slows down under overload or the wheels slip, shift the snow thrower into a lower gear.

5.7.3 If the front of the snowthrower rides up, shift the snow thrower into a lower gear. If the front continues to ride up, lift up on the handles.



6. Maintenance

Note: The left and right sides of the machine are determined by standing at the normal operating position.

6.1 Recommended Maintenance Schedule(s)

Maintenance Service Interval	Maintenance Procedure
After the first hour	Inspect and adjust the traction drive belt. Inspect and adjust the auger/impeller drive belt.
After the first 2 hours	Change the engine oil.
Before each use or daily	Check the engine oil level and add oil if necessary. Inspect and adjust or replace the traction drive belt when necessary. Inspect and adjust or replace the auger/impeller drive belt when necessary.
Every 20 hours	Lubricate the snow thrower.
Every 25 hours	Change the engine oil.
Every 100 hours	Inspect the spark plug. Replace and/or gap if necessary.
Yearly	Check the skids and the scraper and adjust them if necessary. Check the auger gearbox oil and add oil if necessary. Change the engine oil.
Yearly or before storage	Lubricate the snow thrower. Drain the gasoline and run the engine to dry out the fuel tank and the carburetor at the end of the season.

Note: Refer to your engine operator's manual for additional maintenance procedures. For engine adjustments, repairs, or warranty service not covered in this manual, contact an Authorized Service Dealer.



- If you leave the wire on the spark plug, someone could accidentally start the engine and seriously injure you or bystanders.
- Disconnect the wire from the spark plug before you do any maintenance. Set the wire aside so that it doesn't accidentally contact the spark plug.

6.2 Preparing for Maintenance

6.2.1 Move the snow thrower to a level surface.

6.2.2 Stop the engine and wait for all moving parts to stop.

6.2.3 Disconnect the spark plug wire.

6.3 Checking the Engine Oil Level

Service Interval: Before each use or daily

Each time before using the snow thrower, first ensure that the oil level is between the LOW/ADD and the FULL marks on the dipstick.

6.3.1 Clean around the dipstick.

6.3.2 Remove the dipstick by rotating the cap counterclockwise and pulling it out.

6.3.3 Wipe the dipstick clean with a clean cloth.

6.3.4 Put the dipstick into the filler neck, then remove it.

Note: To ensure an accurate oil level reading, you must fully install the dipstick.

6.3.5 Read the oil level on the dipstick.

6.3.6 If the oil level is below the LOW/ADD mark on the dipstick, slowly pour only enough oil into the filler hole to raise the oil level to the FULL mark on the dipstick.

Note: Use only a high-quality, SAE 5W-30 or SAE 10 detergent oil. For extremely cold conditions (below 0° F or -18° C, use 0W-30 detergent oil.

6.3.7 Rotate the cap clockwise until it is tight.

6.4 Adjusting the Skids and Scraper

Service Interval: Yearly

Adjust the skids and the scraper initially and then as needed to ensure that the auger does not contact the paved or gravel surface. Also, adjust them as needed to compensate for wear. (FIG 19)

6.4.1 Move the snow thrower to a level surface.

6.4.2 Check the tire pressure in the tires. Refer to Checking the Tire Pressure in Setup.

6.4.3 Loosen the 2 flange nuts that secure both skids to the auger side plates until the skids slide up and down easily.

6.4.4 Support the auger blades so that they are 1/8

inch (3mm) off the ground.

6.4.5 Check the scraper adjustment. The scraper should be 1/8 inch (3mm) above and parallel to a level surface.

A: For concrete and asphalt surfaces:

If the snow thrower does not clear the snow close enough to the pavement, adjust the skids to lower the scraper; if the pavement surfaces are cracked, rough, or uneven, adjust the skids to raise the scraper.

B: For gravel surfaces:

Support the auger blades a few inches above the ground, and adjust the skids to prevent the snow thrower from picking up rocks.

6.4.6 To adjust the scraper, loosen the 5 mounting screws, level the scraper, and tighten the mounting screws.

6.4.7 Move the skids down as far as possible.

6.4.8 Tighten the 4 flange nuts that secure both skids to the auger side plates.

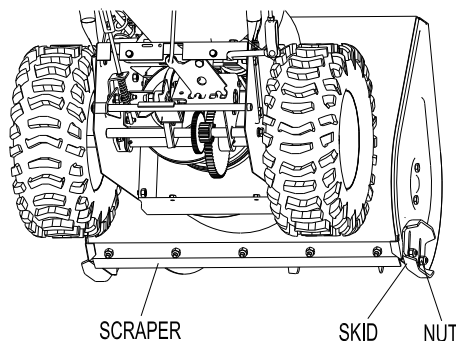


FIG 19

6.5 Adjusting the Speed Selector

Adjust the speed control rod initially and when the snow thrower is slow, first gear has no speed, or the speed control handle does not move into third gear.

6.5.1 Drain gasoline from the fuel tank and the engine oil from the crankcase. Refer to "Emptying the Fuel Tank" and to "Changing the Engine Oil".

6.5.2 Tip the snow thrower forward and block it so that it cannot fall.

6.5.3 Remove the upper and the bottom cover. (FIG 20)

6.5.4 Loosen the flange nuts that secure the shift plate to the control panel. (FIG 21)

6.5.5 Shift the speed control handle to third gear and push down on the shift plate to move the drive assembly to the right.

Note: The drive assembly should be 1/8 inch (3mm) from the roll pin; if not, slide the shift plate until the gap is 1/8 inch (3mm). (FIG 22)

6.5.6 Tighten the flange nuts that secure the shift plate to the control panel.

6.5.7 Shift the speed control handle to the reverse position and back to third gear to check the adjustment.

6.5.8 If the space between the roll pin and the drive assembly is more than 3/16 inch (5mm), repeat steps 6.5.3 through 6.5.6.

6.5.9 Install the bottom cover.

6.5.10 Return the snowthrower to the upright position.

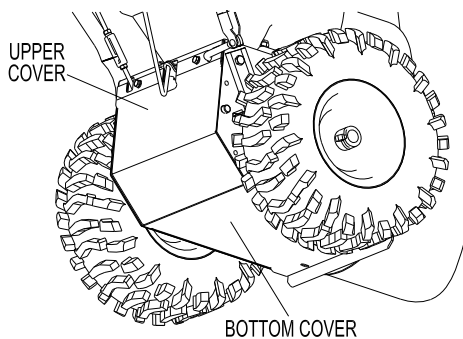


FIG 20

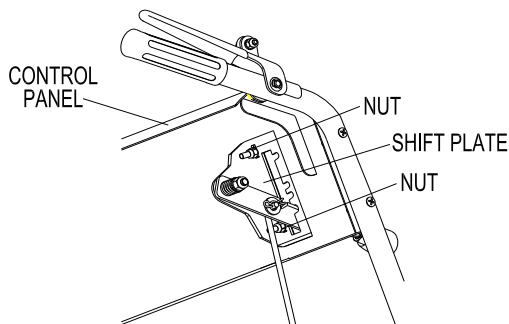


FIG 21

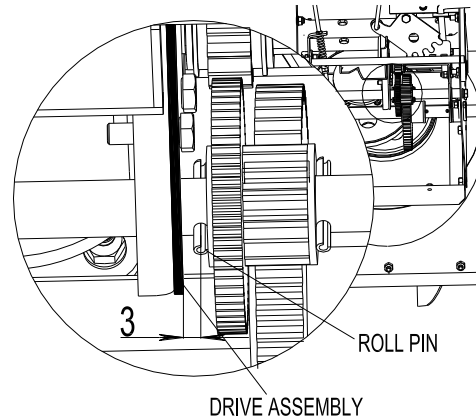


FIG 22

6.6 Checking the Auger Gearbox Grease

Service Interval: Yearly

The seal bolt and lubricating cup is for factory use only; you don't need to check or add grease. If the gearbox is leaking grease, contact an Authorized Service Dealer. (FIG 23)

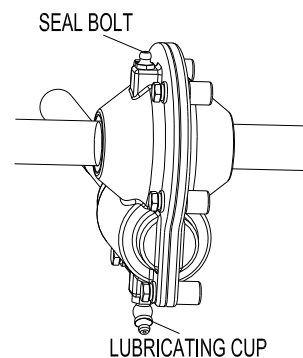


FIG 23

6.7 Changing the Engine Oil

Service Interval: After the first 2 hours

Yearly

Every 25 hours

If possible, run the engine just before changing the oil; warm oil flows better and carries more contaminants.

For temperatures above 32° F (0° C) , use SAE 30.

For temperatures between 0° F and 32° F (-18° C to 0° C) , use SAE 5W30 or SAE 10.

For temperature below 0° F (-18° C) , use SAE 0W30.

6.7.1 Clean the area around the oil drain plug.

6.7.2 Remove the nut of the oil drain plug. (FIG 24)

6.7.3 Drain the oil and then store it in a container.

6.7.4 Tighten the nut of the oil drain plug.

6.7.5 Fill the crankcase with oil. Refer to "Fill the Engine with Oil" in Setup 2.9.

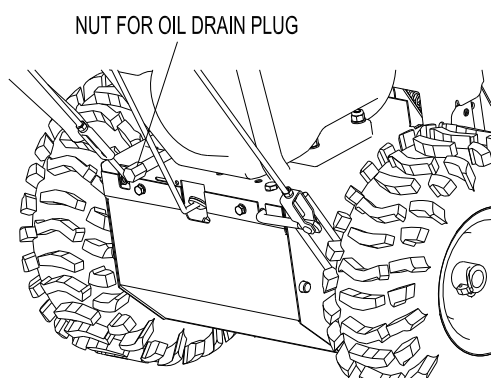


FIG 24

6.8 Lubricating the Snow thrower

Service Interval: Every 20 hours

Yearly or before storage

Lightly lubricate all moving parts of the snow thrower after every 20 operating hours and at the end of the snow throwing season.

Important: Do not get oil or grease on the rubber wheel or friction drive plate because the wheel will slip and the rubber may deteriorate.

6.8.1 Drain gasoline from the fuel tank and the oil from the crankcase.

6.8.2 Tip the snowthrower forward onto the auger/impeller housing and block it so that it cannot fall.

6.8.3 Remove the upper and the bottom cover. (FIG 20)

6.8.4 Lightly lubricate the snow thrower with light oil, wipe up any excess oil. (FIG 25)

Important: Do not excessively oil the snow thrower; extra oil may enter the traction drive and cause the traction drive belt to slip.

6.8.5 Grease the snow thrower, wipe up any excess grease.

6.8.6 Install the upper and the bottom cover.

6.8.7 Return the snow thrower to its upright position.

6.8.8 Refill fuel and oil. Refer to Filling the Fuel Tank and Changing the Engine Oil.

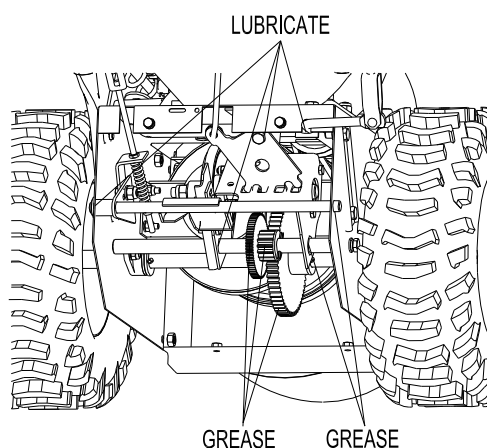


FIG 25

6.9 Inspecting and Replacing the Spark Plug

Service Interval: Every 100 hours

Check and gap the spark yearly, and replace the plug if necessary.

6.9.1 Clean around the base of the spark plug.

6.9.2 Remove the spark plug.

6.9.3 Examine the spark plug and replace it if it is cracked, fouled, dirty, or if the electrodes are worn.

Important: Do not clean the electrodes because grit could enter the cylinder and damage the engine.

6.9.4 Set the gap between the electrodes on the spark plug at 0.03 inch (0.76mm). (FIG 26)

6.9.5 Install the spark plug by hand and then torque it to 15ft-lb (20.4N-m).

Note: If you do not have a torque wrench, tighten the plug firmly.

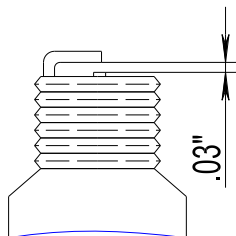


FIG 26

6.10 Adjusting the Traction Drive Belt

Service Interval: After the first hour

Before each use or daily

Adjust the traction drive belt after the first operating hour, after every 5 operating hours thereafter, and when the speed control handle shifts properly but the snow thrower does not drive in the forward or reverse speeds.

6.10.1 Adjust the belt with 10 pounds of pressure. If the belt moves 1/4", it is all right. If not, you should adjust the belt. (FIG 27)

6.10.2 Loosen the flange-head bolts of tension pulley, adjust, and retighten the bolts.

6.10.3 Repeat steps 6.10.1 and 6.10.2 above, until the 1/4" deflection is achieved.

6.10.4 If the problem continues to persist, contact the dealer.

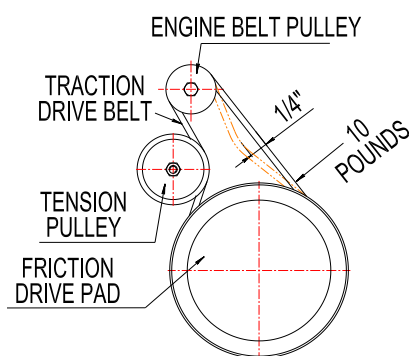


FIG 27

6.11 Replacing the Traction Drive Belt

If the traction drive belt becomes worn, oil-soaked, or otherwise damaged, replace the belt.

6.11.1 Loosen bolts and remove the belt cover. (FIG 28)

6.11.2 Remove the auger/impeller drive belt. (FIG 29)

6.11.3 Loosen the traction drive belt tension pulley. (FIG 29)

6.11.4 Remove the traction drive belt. (FIG 29)

6.11.5 Install the new traction drive belt.

6.11.6 Install Auger/Impeller Drive Belt.

6.11.7 Adjust the traction drive belt tension pulley. See "Adjusting the Traction Drive Belt".

6.11.8 Move the belt guide to work position and tighten bolts.

6.11.9 Install the belt cover.

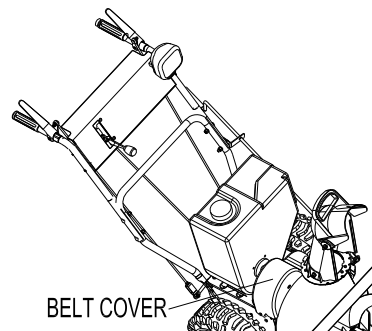


FIG 28

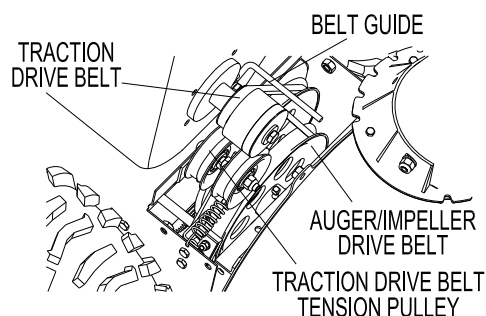


FIG 29

6.12 Adjusting the Auger/Impeller Drive Belt

Service Interval: After the first hour

Before each use or daily

Operating the snow thrower with an auger/impeller drive belt that slips decreases the snow throwing performance and damages the belt. Check the auger/impeller drive belt for the proper tension after the first operating hour, then check and adjust the belt when necessary.



Improperly adjusting the auger/impeller may cause it to turn when disengaged. A rotating auger/impeller can cut off or injure fingers, hands, or feet.

- Keep your face, hands, feet, and any other part of your body or clothing away from concealed, moving, or rotating parts.
- Do not adjust the auger/impeller drive belt too tight. It may cause the auger/impeller to turn when the control lever is in the disengaged position. If this occurs, decrease the belt tension.

6.12.1 Check and adjust the belt as instructed in 2.4.3 and 2.4.4 in Setup.

6.12.2 Insert the ignition key and start the engine.

6.12.3 If the belt still slips, replace it.

Important: Don't operate the snow thrower if the auger and the impeller rotate when you disengage the auger/impeller drive control lever.

6.13 Replacing the Auger/Impeller Drive Belt

If the auger/impeller drive belt becomes worn, oil-soaked, or otherwise damaged, replace the belt.

6.13.1 Loosen bolts and remove the belt cover.

6.13.2 Remove the belt.

6.13.3 Install new belt.

6.13.4 Install the belt cover.

Important: Don't operate the snow thrower if the auger and the impeller rotate when you disengage the auger/impeller drive control lever.

6.14 Replacing the Safety Pin

When the snow thrower is overloaded or strikes a foreign object during operation, the safety pin will shear automatically to prevent damage to the rear transmission. Stop the engine, remove the ignition key, close the fuel shutoff valve, and examine the snow thrower.

6.14.1 Clean out sheared safety pin. (FIG 30)

6.14.2 Replace safety pin; tighten the nut.

6.14.3 Lubricate the snow thrower. See "Lubricating the Snow thrower".

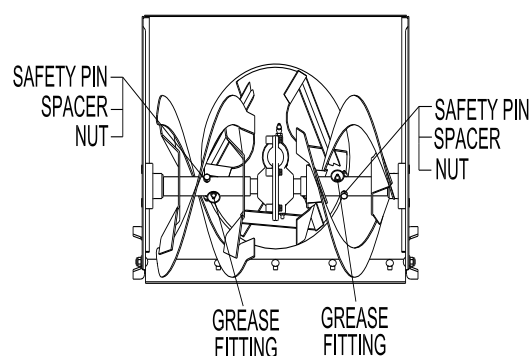


FIG 30

6.15 Emptying the Fuel Tank

6.15.1 Close the fuel shutoff valve.



Gasoline is highly flammable; it can ignite and cause serious personal injury.

- Drain gasoline outdoors.
- Drain gasoline from a cold engine only.
- Wipe up any gasoline that may have spilled.
- Do not drain gasoline near any open flame or where gasoline fumes may be ignited by a spark.
- Do not smoke a cigar, a cigarette, or a pipe when handling gasoline.

6.15.2 Drain the fuel.

6.15.3 Start the snow thrower and run the engine until it stops.

7. Storage



- Gasoline vapors can explode.
- Do not store gasoline more than 30 days.
- Do not store the snow thrower in an enclosure near an open flame.
- Allow the engine to cool before storing it.

7.1 Preparing the Snow thrower for Storage

7.1.1 On the last refueling of the year, add fuel stabilizer to fresh fuel as directed by the engine manufacturer.

7.1.2 Run the engine for 10 minutes to distribute the conditioned fuel throughout the fuel system.

7.1.3 Stop the engine, allow it to cool, and drain the fuel tank. Refer to "Emptying the Fuel Tank".

7.1.4 Start the engine and run it until it stops.

7.1.5 Choke or prime the engine, start it a third time, and run the engine until it will not start.

7.1.6 Dispose of unused fuel properly. Recycle it according to local codes, or use it in your automobile.

Note: Do not store stabilized gasoline for more than 90 days.

7.1.7 While the engine is still warm, change the engine oil. Refer to "Changing the Engine Oil".

7.1.8 Remove the spark plug.

7.1.9 Squirt 2 teaspoons of oil into the spark plug hole.

7.1.10 Install the spark plug by hand and then torque it to 15 ft-lb (20.4N-m). If you do not have a torque wrench, tighten the plug firmly. Do not connect the wire to the plug.

7.1.11 Pull the recoil starter slowly to distribute the oil on the inside of the cylinder.

7.1.12 Lubricate the snow thrower. Refer to "Lubricating the Snow thrower".

7.1.13 Clean the snow thrower.

7.1.14 Touch up chipped surfaces with paint to prevent the metal parts from rusting.

7.1.15 Tighten any loose fasteners. Repair or replace any damaged parts.

7.1.16 Cover the snow thrower and store it in a clean, dry place out of the reach of children. Allow the engine to cool before storing it in any enclosure.

7.2 Removing the Snow thrower from Storage

7.2.1 Remove the spark plug and spin the engine rapidly using the starter to blow the excess oil from the cylinder.

7.2.2 Install the spark plug by hand and then torque it to 15ft-lb (20.4N-m). If you do not have a torque wrench, tighten the plug firmly.

7.2.3 Connect the spark plug wire.

7.2.4 Perform the annual maintenance procedures as given in the "Recommended Maintenance Schedule".

8. Troubleshooting

Problem	Possible Cause	Corrective Action
Electric starter does not turn (electric-start models only)	<ol style="list-style-type: none"> 1. The power cord is disconnected at the outlet or the snow thrower. 2. The power cord is worn, corroded, or damaged. 3. The power outlet is not energized. 	<ol style="list-style-type: none"> 1. Connect the power cord to the outlet and/or the snow thrower. 2. Replace the power cord. 3. Have a qualified electrician energize the outlet.
Engine does not start or is hard to start.	<ol style="list-style-type: none"> 1. The key is not in the ignition or is in the Stop position. 2. The choke is in the Off position and the primer has not been pressed. 3. The fuel shutoff valve is not open. 4. The throttle is not in the Fast position. 5. The fuel tank is empty or the fuel system contains stale fuel. 6. The spark plug wire is loose or disconnected. 7. The spark plug is pitted, fouled, or the gap is incorrect. 8. The fuel vent cap is restricted. 9. The engine oil level in the engine crankcase is too low or too high. 	<ol style="list-style-type: none"> 1. Insert the key into the ignition and turn it to the On position. 2. Move the choke to the On position and press the primer 2 times. 3. Open the fuel shutoff valve. 4. Move the throttle to the Fast position. 5. Drain and/or fill the fuel tank with fresh gasoline (not more than 30 days old). If the problem persists, contact the dealer. 6. Connect the wire to the spark plug. 7. Check the spark plug and adjust the gap if necessary. Replace the spark plug if it is pitted, fouled, or cracked. 8. Remove the vent restriction or replace the fuel cap. 9. Add or drain oil to adjust the oil level in the engine crankcase to the Full mark on the dipstick.



Problem	Possible Cause	Corrective Action
Engine runs rough	<ol style="list-style-type: none"> 1. The choke is in the On position. 2. The fuel shutoff valve is not completely open. 3. The fuel tank is nearly empty or contains stale fuel. 4. The spark plug wire is loose. 5. The spark plug is pitted, fouled, or the gap is incorrect. 6. The engine oil level in the engine crankcase is too low or too high. 	<ol style="list-style-type: none"> 1. Move the choke to the Off position. 2. Open the fuel shutoff valve. 3. Drain and fill the fuel tank with fresh gasoline (not more than 30 days old). If the problem persists, contact the dealer. 4. Connect the wire to the spark plug. 5. Check the spark plug and adjust the gap if necessary. Replace the spark plug if it is pitted, fouled, or cracked. 6. Add or drain oil to adjust the oil level in the engine crankcase to the Full mark on the dipstick.
Engine runs, but the snow thrower discharges snow poorly or not at all	<ol style="list-style-type: none"> 1. The throttle is not in the Fast position when throwing snow. 2. The snow thrower is moving too fast to clear the snow. 3. You are trying to remove too much snow per swath. 4. You are trying to remove extremely heavy or wet snow. 5. The discharge chute is plugged. 6. The auger/impeller drive belt is loose or is off the pulley. 7. The auger/impeller drive belt is worn or broken. 	<ol style="list-style-type: none"> 1. Move the throttle to the Fast position. 2. Shift the snow thrower into a lower gear. 3. Reduce the amount of snow removed per swath. 4. Don't overload the snow thrower with extremely heavy or wet snow. 5. Unclog the discharge chute. 6. Install and/or adjust the auger/impeller drive belt. 7. Replace the auger/impeller drive belt.
Discharge chute either does not lock into place or does not move	<ol style="list-style-type: none"> 1. The discharge chute latch is not properly adjusted. 	<ol style="list-style-type: none"> 1. Adjust the discharge chute latch.
Snowthrower does not properly clear the snow off the surface	<ol style="list-style-type: none"> 1. The skids and/or scraper are not properly adjusted. 2. The pressure in the tires is not equal. 	<ol style="list-style-type: none"> 1. Adjust the skids and/or the scraper. 2. Check and adjust the pressure in one or both tires.



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