



OPERATOR'S MANUAL



Single Stage Snowthrower

522E Models

Mfg. No.	Description
1695090	522E, Snowthrower
1695091	522E, Snowthrower (CE)
1695346	522E, Snowthrower
7800080	SS5220E, Snowthrower
7800083	ESS5220E, Snowthrower (CE)

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WARNING

You must read, understand and comply with all safety and operating instructions in this manual before attempting to set-up and operate your snowthrower.

Failure to comply with all safety and operating instructions can result in loss of machine control, serious personal injury to you and /or bystanders, and risk of equipment and property damage. The triangle in the text signifies important cautions or warnings which must be followed.

WARNING

Engine exhaust from this product contains chemicals known, in certain quantities, to cause cancer, birth defects, or other reproductive harm.



Operating Safety

Congratulations on purchasing a superior-quality piece of lawn and garden equipment. Our products are designed and manufactured to meet or exceed all industry standards for safety.

Power equipment is only as safe as the operator. If it is misused, or not properly maintained, it can be dangerous! Remember, you are responsible for your safety and that of those around you.

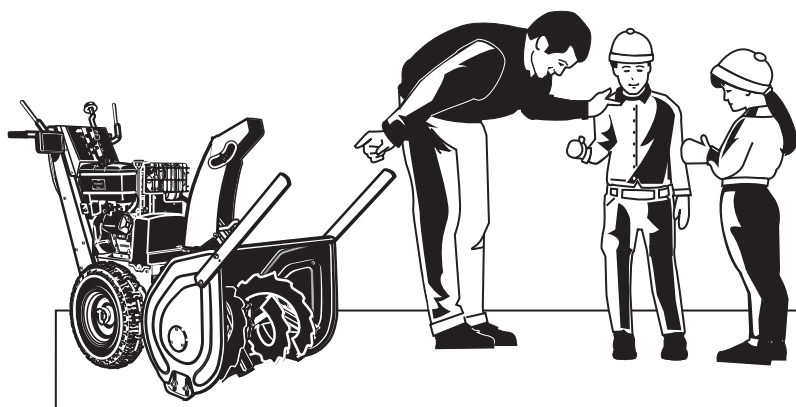
Use common sense, and think through what you are doing. If you are not sure that the task you are about to perform can be safely done with the equipment you have chosen, ask a professional: contact your local authorized dealer.

Read the Manual

The operator's manual contains important safety information you need to be aware of BEFORE you operate your unit as well as DURING operation.

Safe operating techniques, an explanation of the product's features and controls, and maintenance information is included to help you get the most out of your equipment investment.

Be sure to completely read the Safety Rules and Information found on the following pages. Also completely read the Operation section.



Children

Tragic accidents can occur with children. Do not allow them anywhere near the area of operation. Children are often attracted to the unit and snowthrowing activity. Never assume that children will remain where you last saw them. If there is a risk that children may enter the area where you are operating the unit, have another responsible adult watch them.

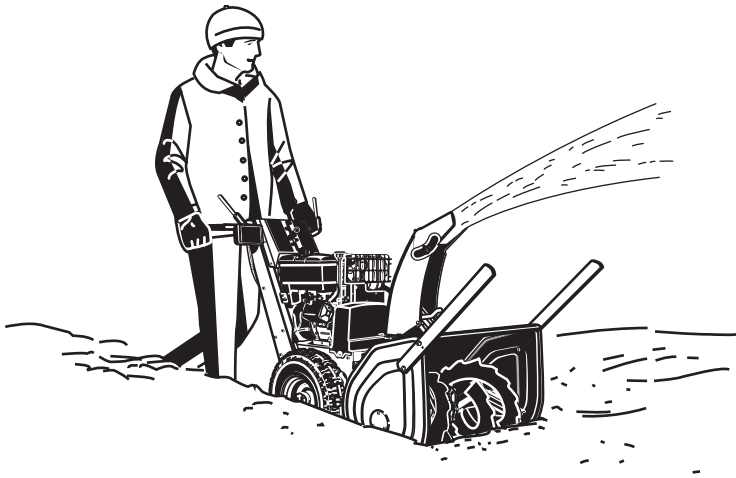
DO NOT ALLOW CHILDREN TO OPERATE THIS UNIT! This encourages them to come near the unit in the future while it is running, and they could be seriously hurt. They may then approach the unit when you are not expecting it, and you may run over them.

Moving Parts

This equipment has many moving parts that can injure you or someone else. However, if you are standing in the operator's position, and follow all the rules in this book, the unit is safe to operate.

The auger and impeller have spinning parts that can amputate hands and feet. Do not allow anyone near the equipment while it is running! DO NOT clear the discharge chute by hand. If the chute becomes plugged, stop the engine, wait for all moving parts to stop, and clear the blockage with a clean-out tool or piece of wood.

To help you, the operator, use this equipment safely, it is equipped with an operator-present safety system. Do NOT attempt to alter or bypass the system. See your dealer immediately if the system does not pass all the safety interlock system tests found in this manual.



Thrown Objects

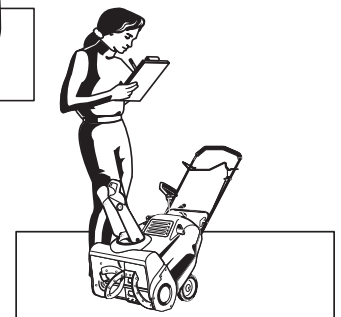
This unit has a spinning auger and impeller. They pick up and throw snow and ice. Thrown debris could seriously injure a bystander. ALWAYS direct the discharge chute away from bystanders and property that could be damaged by flying debris. Be sure to clean up the area to be cleared BEFORE you start.

Do not allow anyone in the area while the unit is running! If someone does enter the area, shut the unit off immediately until they leave.


Fuel and Maintenance

Gasoline is extremely flammable. Its vapors are also extremely flammable and can travel to distant ignition sources. Gasoline must only be used as a fuel, not as a solvent or cleaner. It should never be stored any place where its vapors can build up or travel to an ignition source like a pilot light. Fuel belongs in an approved, plastic, sealed gas can, or in the snowthrower fuel tank with the cap securely closed. Spilled fuel needs to be cleaned up immediately.

Proper maintenance is critical to the safety and performance of your unit. Be sure to perform the maintenance procedures listed in this manual, especially periodically testing the safety system.



Safety Rules & Information

This machine is capable to amputating hands and feet and throwing objects. Read these safety rules and follow them closely. Failure to obey these rules could result in loss of control of unit, severe personal injury or death to you, or bystanders, or damage to property or equipment. The triangle  in text signifies important cautions or warnings which must be followed.

TRAINING

1. Read, understand, and follow all instructions on the machine and in the manuals before operating this unit. Be thoroughly familiar with the controls and the proper use of the equipment. Know how to stop the unit and disengage the controls quickly.
2. Never allow children to operate the equipment. Never allow adults to operate the equipment without proper instruction.
3. Keep the area of operation clear of all persons, particularly small children and pets.
4. Exercise caution to avoid slipping or falling especially when operating in reverse.

PREPARATION

1. Thoroughly inspect the area where the equipment is to be used and remove all doormat, sleds, boards, wires, and other foreign objects.
2. Disengage all clutches and shift into neutral before starting engine (motor).
3. Do not operate the equipment without wearing adequate winter outer garments. Wear footwear that will improve footing on slippery surfaces. Avoid loose fitting clothing that can get caught in moving parts.
4. Handle fuel with care; it is highly flammable.
 - (a) Use an approved fuel container.
 - (b) Never add fuel to a running engine or hot engine.
 - (c) Fill fuel tank outdoors with extreme care. Never fill fuel tank indoors. Replace fuel cap securely and wipe up spilled fuel.
 - (d) Never fill containers inside a vehicle or on a truck or trailer bed with a plastic liner. Always place containers on the ground, away from your vehicle, before filling.
 - (e) 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 on a trailer with a portable container, rather than from a gasoline dispenser nozzle.
 - (f) Keep nozzle in contact with the rim of the fuel tank or container opening at all times, until refueling is complete. Do not use a nozzle lock-open device.
 - (g) Replace gasoline cap securely and wipe up spilled fuel.
 - (h) If fuel is spilled on clothing, change clothing immediately.
5. Use extension cords and receptacles as specified by the manufacturer for all units with electric drive motors or electric starting motors.
6. Adjust the collector housing height to clear gravel or crushed rock surfaces.
7. Never attempt to make any adjustments while the engine (motor) is running (except when specifically recommended by the manufacturer).
8. Let engine (motor) and machine adjust to outdoor temperatures before starting to clear snow.
9. Always wear safety glasses or eye shields during operation or while performing an adjustment or repair to protect eye from foreign objects that may be thrown from the machine.

OPERATION

1. Do not put hands or feet near or under rotating parts. Keep clear of the discharge opening at all times.
2. Exercise extreme caution when operating on or crossing gravel drives, walks, or roads. Stay alert for hidden hazards or traffic.
3. After striking a foreign object, stop the engine (motor), remove the wire from the spark plug, disconnect the cord on electric motors, thoroughly inspect the snowthrower for any damage, and repair the damage before restarting and operating the snowthrower.
4. If the unit should start to vibrate abnormally, stop the engine (motor) and check immediately for the cause. Vibration is generally a warning of trouble.
5. Stop the engine (motor) whenever you leave the operating position, before unclogging the collector/impeller housing or discharge guide, and when making any repairs, adjustments, or inspections.
6. When cleaning, repairing, or inspecting make certain the collector/impeller and all moving parts have stopped. Disconnect the spark plug wire and keep the wire away from the plug to prevent accidental starting.
7. Do not run the engine indoors except for starting the engine or for transporting the snowthrower in or out of the building. Open the outside doors; exhaust fumes are dangerous.
8. Exercise extreme caution when operating on slopes. Do not attempt to clear steep slopes.
9. Never operate the snowthrower without proper guards plates, or other safety protective devices in place and working.
10. Never direct the discharge toward people or areas where property damage can occur. Keep children and others away.
11. Do not overload the machine capacity by attempting to clear snow at too fast a rate.
12. Never operate the machine at high transport speeds on slippery surfaces. Look behind and use care when operating in reverse.
13. Disengage power to the collector/impeller when snowthrower is transported or not in use.
14. Use only attachments and accessories approved by the manufacturer of the snowthrower (such as wheel weights, counterweights, or cabs).
15. Never operate the snowthrower without good visibility or light. Always be sure of your footing, and keep a firm hold on the handles. Walk, never run.
16. Never touch a hot engine or muffler.
17. Never operate the snowthrower near glass enclosures, automobiles, window wells, drop-offs, and the like without proper adjustment of the discharge angle.
18. Never direct discharge at bystanders or allow anyone in front of the unit.
19. Never leave a running unit unattended. Always disengage the auger and traction controls, stop engine, and remove keys.
20. Do not operate the unit while under the influence of alcohol or drugs.

21. Keep in mind the operator is responsible for accidents occurring to other people or property.
22. Data indicates that operators, age 60 years and above, are involved in a large percentage of power equipment-related injuries. These operators should evaluate their ability to operate the unit safely enough to protect themselves and others from injury.
23. DO NOT wear long scarves or loose clothing that could become entangled in moving parts.
24. Snow can hide obstacles. Make sure to remove all obstacles from the area to be cleared.
8. Always follow the engine manual instructions for storage preparations before storing the unit for both short and long term periods.
9. Always follow the engine manual instructions for proper start-up procedures when returning the unit to service.
10. Maintain or replace safety and instruction labels as necessary.
11. Keep nuts and bolts tight and keep equipment in good condition.
12. Never tamper with safety devices. Check their proper operation regularly and make necessary repairs if they are not functioning properly.
13. Components are subject to wear, damage, and deterioration. Frequently check components and replace with manufacturer's recommended parts, when necessary.
14. Check control operation frequently. Adjust and service as required.
15. Use only factory authorized replacement parts when making repairs.
16. Always comply with factory specifications on all settings and adjustments.
17. Only authorized service locations should be utilized for major service and repair requirements.
18. Never attempt to make major repairs on this unit unless you have been properly trained. Improper service procedures can result in hazardous operation, equipment damage and voiding of manufacturer's warranty.
19. Check shear bolts and other bolts at frequent intervals for proper tightness to be sure the equipment is in safe working condition.

CHILDREN

Tragic accidents can occur if the operator is not alert to the presence of children. Children are often attracted to the unit and the operating activity. Never assume that children will remain where you last saw them.

1. Keep children out of the area and under the watchful care of another responsible adult.
2. Be alert and turn unit off if children enter the area.
3. Never allow children to operate the unit.
4. Use extra care when approaching blind corners, shrubs, trees, or other objects that may obscure vision.

CLEARING A CLOGGED DISCHARGE CHUTE

Hand contact with the rotating impeller inside the discharge chute is the most common cause of injury associated with snowthrowers. Never use your hand to clean out the discharge chute.

To clear the chute:

1. SHUT OFF THE ENGINE.
2. Wait 10 seconds to be sure the impeller blades have stopped rotating.
3. Always use a clean out tool, not your hands.

SERVICE, MAINTENANCE, AND STORAGE

1. Check shear bolts and other bolts at frequent intervals for proper tightness to be sure the equipment is in safe working condition.
2. Never store the machine with fuel in the fuel tank inside a building where ignition sources are present such as hot water and space heaters, or clothes dryers. Allow the engine to cool before storing in any enclosure.
3. Always refer to the operator's manual for important details if the snowthrower is to be stored for an extended period.
4. Maintain or replace safety and instruction labels as necessary.
5. Run the machine a few minutes after throwing snow to prevent freeze-up of the collector/impeller.
6. If fuel is spilled, do not attempt to start the engine but move the machine away from the area of spillage and avoid creating any source of ignition until fuel vapors have dissipated.
7. Always observe safe refueling and fuel handling practices when refueling the unit after transportation or storage.

EMISSIONS

1. Engine exhaust from this product contains chemicals known, in certain quantities, to cause cancer, birth defects, or other reproductive harm.
2. If available, look for the relevant Emissions Durability Period and Air Index information on the engine emissions label.

IGNITION SYSTEM

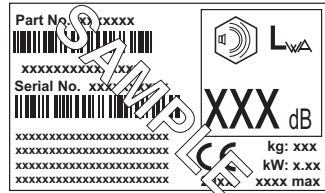
1. This spark ignition system complies with Canadian ICES-002.

Product Identification

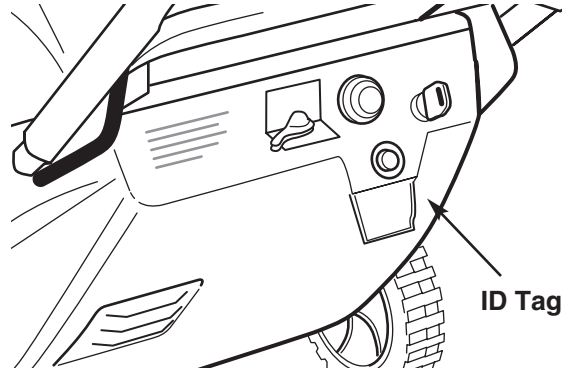
Identification Numbers



North American Models



CE Models



When contacting your authorized dealer for replacement parts, service, or information you **MUST** have these numbers.

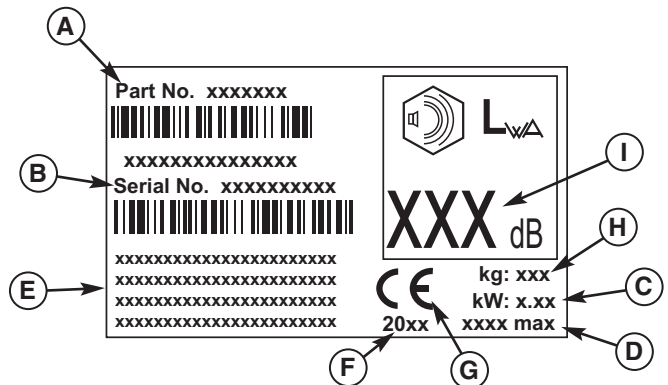
Record your model name/number, manufacturer's identification numbers, and engine serial numbers in the space provided for easy access. These numbers can be found in the locations shown.

NOTE: For location of engine identification numbers, refer to the engine owner's manual.

PRODUCT REFERENCE DATA	
Model Description Name/Number	
Unit MFG Number	Unit SERIAL Number
Mower Deck MFG Number	Mower Deck SERIAL Number
Dealer Name	Date Purchased
ENGINE REFERENCE DATA	
Engine Make	Engine Model
Engine Type/Spec	Engine Code/SERIAL Number

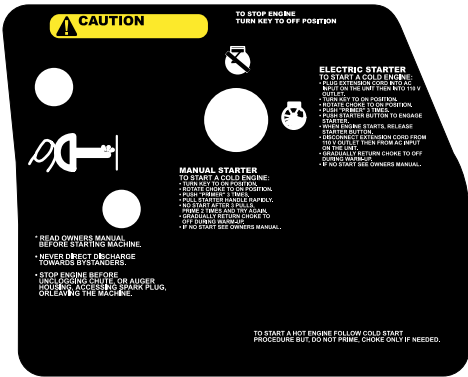
CE IDENTIFICATION TAG MARKINGS

- A. Part Number
- B. Manufacturer's Serial Number
- C. Power Rating in Kilowatts
- D. Maximum Engine Speed in Rotations per Minute
- E. Manufacturer's Address
- F. Year of Manufacture
- G. CE Compliance Logo
- H. Mass of Unit in Kilograms
- I. Sound Power in Decibels



SAFETY DECALS

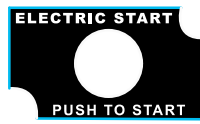
Safety warning decals are placed at strategic locations on the snowthrower as a constant reminder to the operator of the most important safety precautions. All warning, caution and instructional messages on your snowthrower should be carefully read and obeyed. If any of these decals are lost or damaged, replace them at once. They can be purchased from your local dealer.



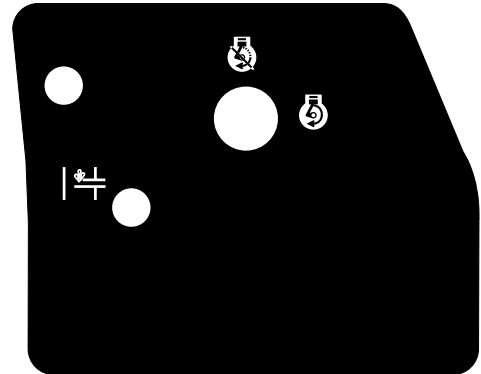
Part No. 1740428MA
North American - Danger / Warning
Main Dash Decal



Part No. 69880MA
North American -
Hot Surface Decal



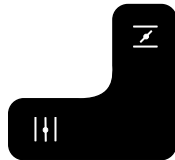
Part No. 48x5638MA
North American -
Electric Start Decal



Part No. 1740400MA
CE - Danger / Warning
Main Dash Decal



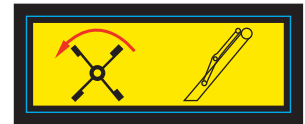
Part No. 70141MA
North American -
Auger Danger Decal



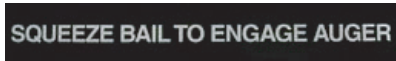
Part No. 1740422MA
All - Choke Decal



Part No. 48x6000MA
CE - Electric Start
Decal



Part No. 48x5998MA
CE - Auger Control Decal



Part No. 761150MA
North American - Auger Decal



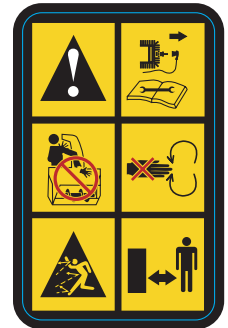
Part No. 48x5642
North American -
Unclogging Chute
Danger Decal



Part No. 48x5999MA
CE - Hot Surface
Danger Decal



Part No. 48x5995MA
CE - Auger Danger
Decal



Part No. 48x5994MA
CE - Chute Danger
Decal

International Symbols



FAST



SLOW



PRIMER



RUN



CHOKE



STOP



ELECTRIC
START



IGNITION
KEY

Assembling the Snowthrower

TOOLS REQUIRED

- Knife

REMOVAL FROM CARTON

1. Locate and remove container of oil.
2. Locate all parts packed separately and remove from carton.

Note: Set the fuel stabilizer aside until adding gasoline to the fuel tank. We recommend that fuel stabilizer be added to the fuel each time that gasoline is added to the fuel tank.

3. Remove and discard the packing material from around the snow thrower.
4. Cut down all four corners of the carton and lay the panels flat.
5. Hold onto the lower handle and pull the snow thrower off the carton.

CAUTION: DO NOT back over cables.

6. Remove the packing material from the handle assembly.

ASSEMBLY PROCEDURE

Snowthrower

If your unit was not previously assembled, see Figure 1 and follow the steps below to assemble the unit:

1. Lift up folding handle to align it with lower handle and tighten the t-knobs securely as shown in Figure 2.

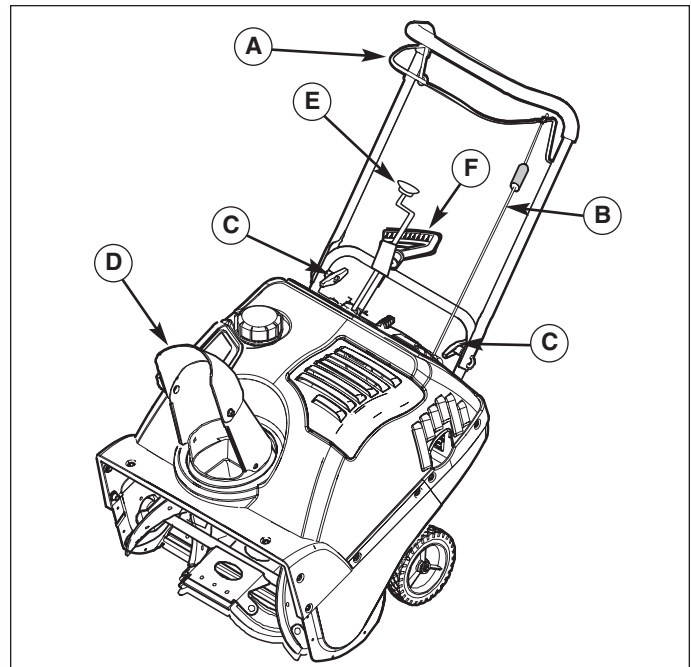


Figure 1. Snowthrower (Shown Assembled)

- A. Auger Drive Lever
- B. Auger Drive Cable
- C. T-Knobs
- D. Chute Deflector
- E. Crank Assembly
- F. Recoil Starter

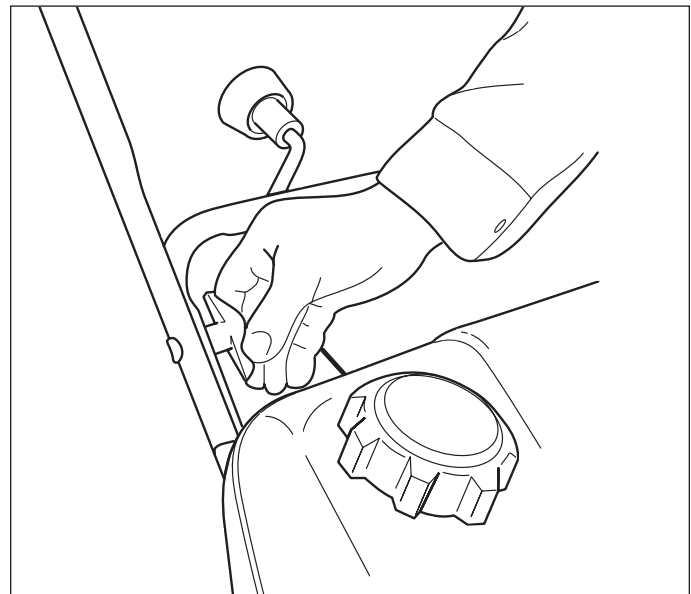


Figure 2. Lift Handles and T-Knobs

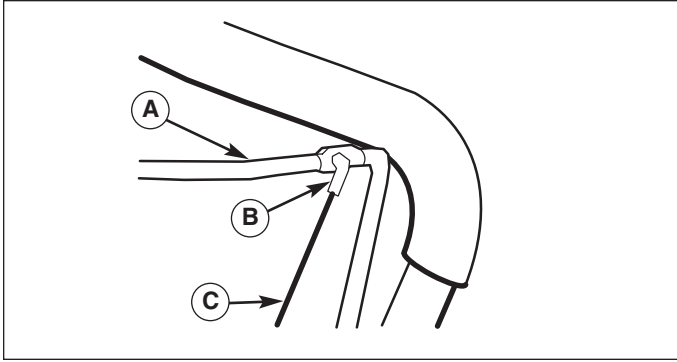


Figure 3. Z-Hook Installation

- A. Auger Drive Lever**
- B. Z-Hook**
- C. Auger Drive Cable**

2. Attach the auger drive cable (C, Figure 3) to the auger drive lever (A) using the Z-hook (B).
3. Remove the t-knob (B, Figure 4) and bolt on the upper chute.
4. Rotate the upper chute (A) to the operating position (past the lower chute stop)
5. Install the bolt and tighten the t-knob (B).

Engine

1. The snow thrower was shipped with a container of 5W30 engine oil. Before operating, add this oil to the engine.
2. Remove the oil fill cap/dipstick access panel (A, Figure 5).
3. Remove the oil fill cap/dipstick (B). Fill to the FULL mark on the oil fill cap/dipstick. Periodically check the oil level. **DO NOT OVER FILL.**
4. If not installed, install the fuel cap (C) onto the fuel tank.

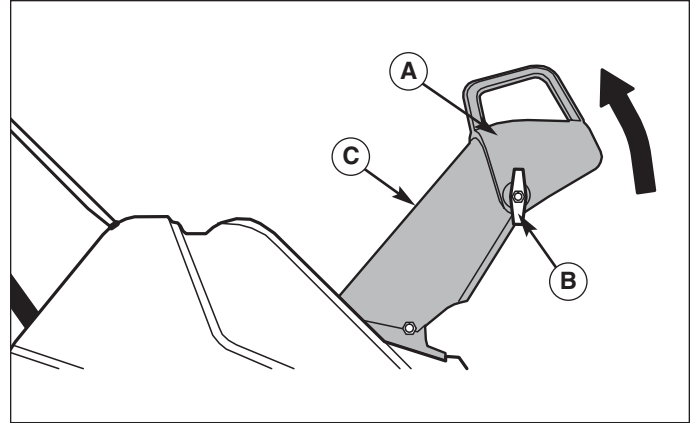


Figure 4. Upper Chute Installation

- A. Upper Chute**
- B. T-Knob**
- C. Lower Chute**

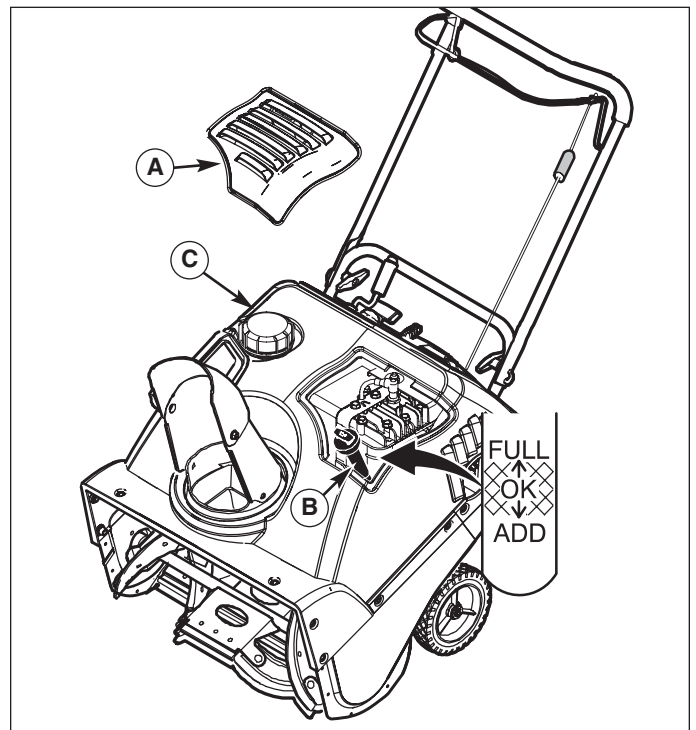


Figure 5. Add Engine Oil

- A. Access Panel**
- B. Oil Fill Cap/Dipstick**
- C. Fuel Cap**

Controls & Operation

SNOWTHROWER CONTROLS

Auger Control

A. Auger Control - This control engages and disengages the auger. Pull the control back against handle to engage the auger, (this will pull snowthrower forward if auger is in contact with the ground). Release the Auger Control to stop rotation of auger.

Deflector Controls

B. Chute Direction Control - The Chute Direction Control (B, Figures 6 & 7) allows the discharge chute to be rotated to throw snow in the desired direction. Snow may be thrown at any angle from straight left to straight forward, to straight right.

The length of the chute direction control can be adjusted. Remove the cotter pin (A, Figure 6) to extend or shorten the rod to desired length, then reinstall the pin.

C. Chute Deflector - Controls the distance snow is thrown. Tilting the Chute Deflector (C, Figure 7) UP provides a higher stream and greater distance, while tilting the deflector DOWN provides a lower stream and less distance.

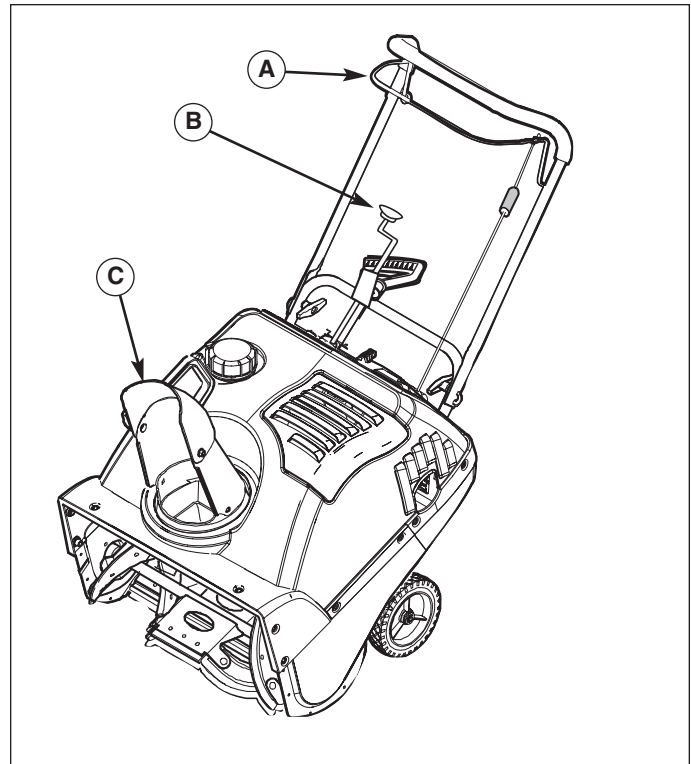


Figure 7. Snowthrower Controls

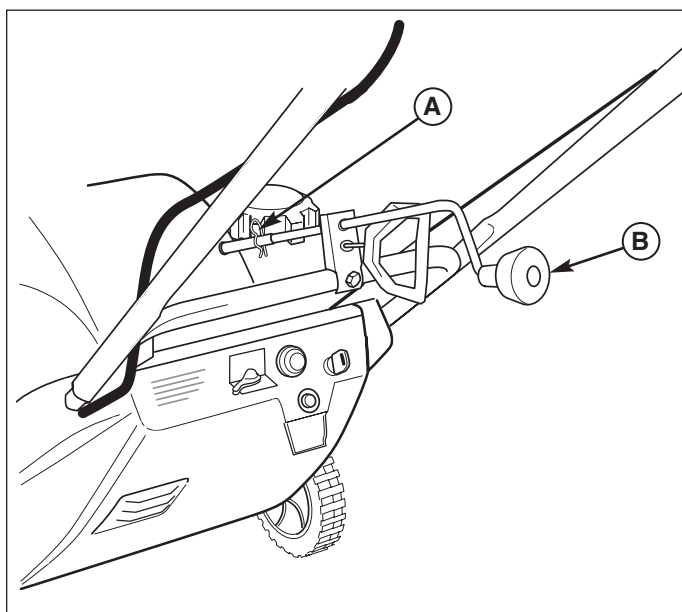


Figure 6. Discharge Chute Control Adjustment

- A. Cotter Pin
- B. Chute Direction Control

A	Auger Control	Engages auger when pulled back, and disengages auger when released.
B	Chute Direction Control	Rotates discharge chute to desired direction
C	Chute Deflector	Controls vertical angle snow is thrown.

ENGINE & STARTING CONTROLS

NOTE: Throttle - This snow thrower does NOT have a throttle for controlling operating speed of engine. The engine governor maintains operating speed for varying snow removal conditions.

- A. Electric Start Button** - The Electric Start Button (A, Figure 8) activates an electric starter mounted to the engine, eliminating the need to pull the starter handle. The Electric Start Button operates on 120 Volts AC, which is provided by connection to the extension cord provided with units equipped with this feature. **Connect this extension cord ONLY to a properly grounded 3 prong electrical outlet.**
- B. Fuel Tank Cap** - Cover fuel tank & provides venting ability to prevent vapor lock.
- C. Starter Handle** - The starter handle (C) connects to a starter cord to manually start the engine. Pulling starter handle rapidly spins the engine crankshaft, cycles the engine, and generates the spark necessary for starting the engine.
- D. Primer Button** - When pressed, the Primer Button (D) provides initial fuel to help start a cold engine. Normally, pressing the primer button twice will provide enough fuel to start a cold engine.
- E. Engine Key** - Insert key in switch and turn key to ON position when starting engine. To stop engine, turn key to OFF position.
- F. Choke Control** - The is control (F) adjusts the fuel/air mixture, and is used to help start a cold engine by providing a richer mixture. Once the engine is warm and running smoothly, the Choke Control should be set to the off position to provide a normal air/fuel mix.

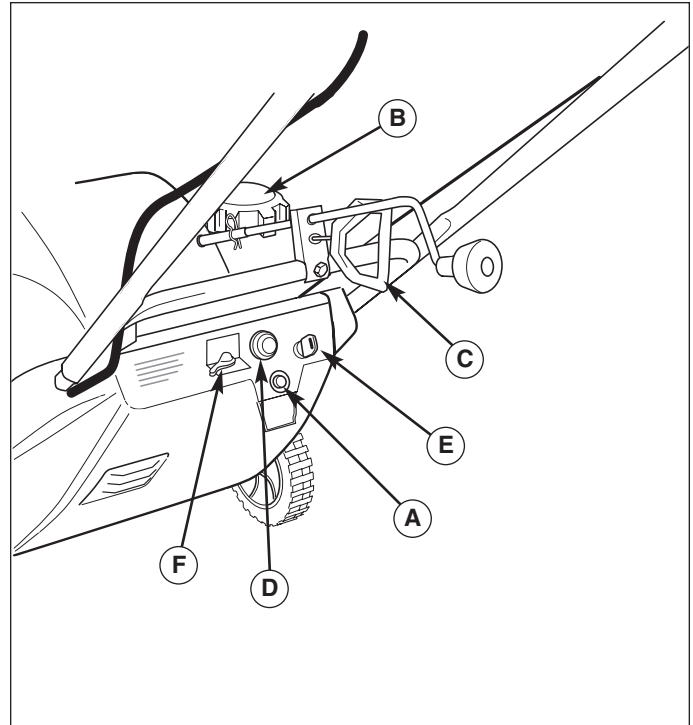


Figure 8. Engine Controls

A	Electric Start Button (Optional)	Activates electric starter
B	Fuel Tank Cap	Covers fuels tank and provides venting to prevent vapor lock
C	Starter Handle	Used to start engine
D	Primer Button	Primes carburetor for faster cold starting.
E	Engine Key	Prevents starting of engine without key. Stops engine when removed.
F	Choke Control	Adjusts air/fuel mixture

GENERAL OPERATION

CHECKS BEFORE EACH START-UP

1. Make sure all safety guards are in place and all nuts, bolts and clips are secure.
2. Check the fuel supply. Fill the tank no closer than 1/4 to 1/2 inch of top of tank to provide space for expansion. See your engine Owner's Manual for fuel recommendations.
3. Check the Auger Control (A, Figure 7) for proper operation. If adjustment is required, see the Service Section for procedures.
4. Check the Chute Direction Control (B, Figure 7) for proper operation. The discharge chute should rotate freely in both directions. See the Service section for adjustment procedures and troubleshooting.
5. Check the Chute Deflector (C, Figure 7) for proper operation. The deflector should pivot freely up and down. See the Service Section for procedures.
6. Position the chute at the desired starting direction and set the deflector at the desired angle.

DANGER

Never run engine indoors or in enclosed, poorly ventilated areas. Engine exhaust contains **CARBON MONOXIDE**, an **ODORLESS** and **DEADLY GAS**.

DANGER

DO NOT clean out discharge chute with hands. Contact with moving parts in the chute will cause serious injury. Use clean-out tool provided with machine.

WARNING

OPERATIONAL WARNINGS

Clearing The Discharge Chute

To avoid serious injury, do not put your hands into the auger housing or discharge chute. If the auger stalls or chute becomes plugged, use the following procedure to remove objects or clear the chute:

1. Release the auger control.
2. Shut off the engine.
3. Remove the key.
4. Wait for all moving parts to stop.
5. Use the clean-out tool to remove foreign objects and clear the chute or auger. Never put your hands into the auger or discharge chute.
6. If servicing is needed, remove cover and disconnect spark plug wire.

Discharge Chute Adjustment

Release the auger control and make sure the auger has **STOPPED** before rotating the discharge chute or adjusting the deflector. **DO NOT** place hands near the auger while the engine is running.

Thrown Objects

Objects can be thrown by the snowthrower while it is in operation. Thrown objects could cause serious injury to the operator or bystanders. Always wear safety goggles or other suitable eye protection. Keep people and pets away from the area.

Slope Operation

For your safety, operation on slopes should be in an up and down direction only. If it becomes necessary to move across the face of a slope, use caution and do not activate the auger. Be very careful when changing direction on a slope.

Proper winter footwear is recommended for the operator to help prevent slipping. Never attempt to clean snow from slopes. The maximum slope for any operation is 17.7% (10°).

Do not use the snowthrower on surfaces above ground level such as the roof of a building.

ADDING ENGINE OIL

1. Make sure the unit is level. Use a high quality detergent oil classified "For Service SG, SH, SJ, SL, or higher".
2. Remove the oil fill cap/dipstick access panel (A, Figure 9).
2. Remove the oil fill cap/dipstick (B) and wipe with a clean cloth.
3. Insert the oil fill cap/dipstick (B) and turn clockwise to tighten.
4. Remove the oil fill cap/dipstick (B) and check the oil.

NOTE: Do not check the level of the oil while the engine is running.

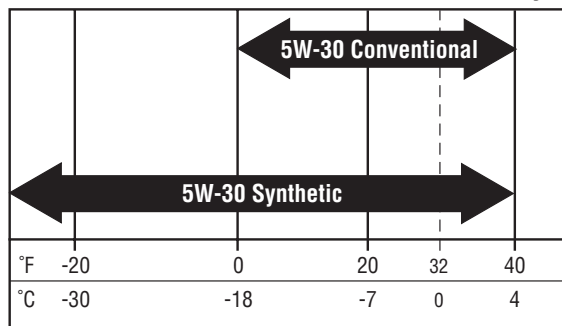
5. If necessary, add oil until the oil reaches the FULL mark on the oil fill/cap dipstick (see Figure 9). Do not add too much oil.
6. Tighten the fill cap/dipstick securely each time you check the oil level.

NOTE: For extreme cold operating conditions of 0°F (-18°C) and below, use a synthetic 5W30 motor oil for easier starting.

NOTE: S.A.E. 5W30 motor oil may be used to make starting easier in areas where the temperature is 20° F (-7° C) to 0F (-18° C). Synthetic 5W30 is acceptable for all temperatures. DO NOT mix oil with gasoline.

NOTE: SEE CHART FOR OIL RECOMMENDATION

Use oil classified API Service Class SF, SG, SH, SJ or better with SAE Viscosity:



ADDING FUEL

To add fuel:

1. Remove the fuel cap (C, Figure 9).
2. Fill the tank. Do not overfill. Leave room in the tank for fuel expansion. Fill the fuel tank with fresh, clean, unleaded regular, un-leaded premium, or reformulated automotive gasoline with a minimum of 85 octane along with a fuel stabilizer (follow instructions on fuel stabilizer package). **DO NOT** use leaded gasoline.

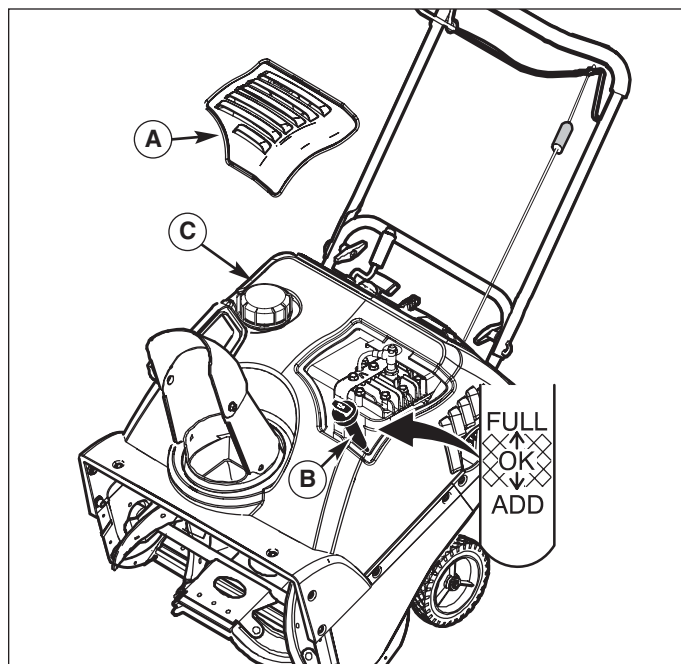


Figure 9. Add / Check Engine Oil and Gasoline

- A. Access Panel**
- B. Oil Fill Cap/Dipstick**
- C. Fuel Cap**

We recommend that fuel stabilizer be added to the fuel each time that gasoline is added to the fuel tank. Refer to your engine manual for further specific fuel recommendations.

3. Install and hand tighten the fuel cap.

NOTE: Winter grade gasoline has higher volatility to improve starting. Be certain container is clean and free from rust or other foreign particles. Never use gasoline that may be stale from long periods of storage in the container.

CAUTION: DO NOT use gasoline containing any amount of alcohol as it can cause serious damage to the engine or significantly reduce the performance

⚠ WARNING

Gasoline is highly flammable and must be handled with care. Never fill the tank when the engine is still hot from recent operation. Do not allow open flame, smoking or matches in the area. Avoid over-filling and wipe up any spills.



Do not use gasoline containing METHANOL, gasohol containing more than 10% ETHANOL, gasoline additives, or white gas because engine/fuel system damage could result.

Controls & Operation

STARTING THE ENGINE

NOTE: The snowthrower engine is designed to operate at cold temperatures. Avoid operating the snowthrower if air temperature is 40° F or warmer since engine may vapor lock and stop running after a short time. Engine will be difficult to start in warm weather.

WARNING

Electric start precautions:

- **Use only with a grounded, polarized 120V AC outlet. Do not modify the plug to fit into any other type of outlet.**
- **Use only the power cord supplied with the unit. DO NOT use a damaged cord.**
- **Be sure there is no moisture present on the cord ends or receptacles when connecting to an outlet or to the unit.**

Electric Starting Steps

Note: The electric starter is designed to operate on 120V AC household current, using power cord supplied with electric start snowthrower. When using power cord, match wide blade of plug to wide slot of receptacle.

1. Insert engine key in switch and turn key to the ON position.
2. If engine is cold, move choke control lever to the ON position. (Do not choke a warm engine).
3. Push the primer button two times if engine is cold. (Do not prime a warm engine.)
4. Plug power cord for starter into receptacle on starter switch, then plug other end into a 120Volt AC household receptacle. DO NOT use an extension cord with the electric start power cord supplied.
5. Push starter button to crank engine. DO NOT crank engine for more than a total of 15 seconds without allowing electric starter to cool for 10 minutes before additional cranking is attempted. Electric starter can be severely damaged if recommended starter operating limitations are not observed.

NOTE: Do not push primer button while engine is being cranked.

6. Release starter button when engine starts and gradually move choke lever to the OFF position.

NOTE: Always disconnect power cord from household receptacle first, then unplug from starter switch.

7. Disconnect power cord from household receptacle and then from starter switch on snowthrower. Store cord in a dry, convenient place.
8. To stop engine, turn engine key to the OFF position.

Manual (Recoil) Starting Steps

1. Insert engine key in switch and turn key to the ON position.
2. If engine is cold, move choke control lever to the ON position. (Do not choke a warm engine).
3. Push the primer button two times if engine is cold. (Do not prime a warm engine.)
4. Grasp starter rope handle and slowly pull out rope until resistance is felt. Allow rope to rewind slowly, then pull rope out rapidly to start engine. Let rope return slowly to starter.

NOTE: If engine does not start after three pulls, push primer bulb once and again pull starter rope.

5. After engine starts and gradually warms up, move choke lever to the OFF position. Be prepared to move choke lever to the ON position if engine falters during warm up.
6. Allow engine to warm up before beginning snowthrower operations. The engine will operate at full throttle when thoroughly warmed up.
7. To stop engine, turn engine key to the OFF position.

DANGER

Never run engine indoors or in enclosed, poorly ventilated areas. Engine exhaust contains CARBON MONOXIDE, an ODORLESS and DEADLY GAS.

STOPPING THE ENGINE

1. Release the auger control.
2. Turn engine key to the OFF position.
3. Remove the key from the switch if you are leaving the operating position or will be making adjustments or repairs. (NOTE: Allow the unit to cool before storing or making any adjustments or repairs.)

If you will be storing the unit for the season, see the STORAGE section for instructions on properly preparing the unit for long-term storage.

OPERATING THE SNOWTHROWER

Before operating snowthrower, review the *Checks Before Each Use* under General Operation on page 12 of this manual.

1. Rotate the discharge chute to the desired direction.
2. Pull the Auger Control back against the handle to engage the auger.

NOTE: The snowthrower will be pulled forward by the auger when the auger contacts the ground or with the snow to be thrown.

3. Begin snow removal by clearing a path down the center of walk or driveway, then gradually widen path, throwing snow off to both sides.
4. Release the auger control to stop both the auger and the forward motion of the snowthrower.

DANGER

Do not clean out discharge chute with hands. Contact with moving parts inside chute will cause serious injury. Use clean out tool provided with machine. Use the following procedure to remove objects or clear the chute:

1. Stop the engine. Remove the key
2. Wait 10 seconds to be sure the auger/impeller blades have stopped rotating.
3. Always use the clean-out tool. DO NOT use your hands.

SNOWTHROWING TIPS

Discharge chute plugging may occur as the result of snow build up inside the chute. **DO NOT** use your hands to clear the blockage, only use the clean-out tool. **DO NOT** place your hands near the auger or discharge chute any time the engine is running. Turn the engine OFF, be sure all moving parts have stopped, and clear the blockage using the clean-out tool, or put the unit indoors and allow the blockage to melt.

Varying snow conditions will affect performance of snowthrower. The snowthrower should be allowed to move into the snow at it's own pace.

Wet, heavy snow — When clearing wet, heavy snow, the forward movement of the snowthrower may have to be slowed by pushing down on handle while allowing engine to operate at full throttle.

Do not operate on **gravel or crushed rock surfaces**. Avoid picking up this type of material with auger since damage to unit could result and particles can be discharged with considerable force that could cause serious injury.

Always be alert to hidden hazards that might be struck by the auger. Should a foreign object be struck by the auger, immediately stop the engine and inspect machine for any damage. Repair damage before continuing operation.

AFTER EACH USE

Allow snow thrower to run a few minutes after clearing snow to reduce the likelihood of parts freezing while machine is not in use.

If you will be storing the unit for the season, see the STORAGE section for instructions on properly preparing the unit for long-term storage.

OFF-SEASON STORAGE

Before you store your snowthrower for the off-season, read the Service, Maintenance and Storage instructions in the Safety Rules section and take the following precautions:

NOTE: Gasoline, if permitted to stand unused for extended periods (30 days or longer), may develop gummy deposits which can adversely affect the engine carburetor and cause engine malfunction. To avoid this condition, add Dealer Line Gasoline Stabilizer to the fuel tank, or drain all fuel from the system before placing unit in storage.

NOTE: Refer to the engine manufacturer's owner's manual for engine storage information.

1. Drain fuel from the fuel tank and let the engine run until all fuel is consumed and the engine stops. Allow the unit to cool.
2. Disconnect the spark plug wire and secure away from the spark plug.
3. Tape all openings to prevent spraying water into the exhaust or air intakes.
4. Tilt the snowthrower up on its wheels and thoroughly clean the underside.
5. Lubricate all exposed metal with a light coating of oil. DO NOT place any type of lubrication on the drive belt or pulleys.
6. Store the unit in a shelter or other dry area protected from the weather.

STARTING AFTER STORAGE

1. Remove the spark plug and wipe dry. Then reinstall plug.
2. Fill fuel tank with fresh gasoline (unless a fuel stabilizer was used).
3. Check to be sure engine fins are clean and air flow is unobstructed.
4. Start the engine outdoors. Allow the engine to warm up before blowing snow.
5. Check the operation of all the controls.

Regular Maintenance

WARNING

Before beginning any repair stop the engine, remove the key, disconnect the spark plug wire, and wait for all moving parts to stop.

LUBRICATION

Note: The drive pulley end of auger shaft is supported by a sealed ball bearing and requires no lubrication. The ball bearing on other end of auger shaft is also sealed, and will not require lubrication.

Lightly Oil

- A few drops of oil should be placed on wheel hubs occasionally to keep wheels turning freely.
- Apply oil to pivot points of auger control periodically, wiping off any excess oil.
- A couple of drops of light machine oil applied to upper end of auger control cable will assure free movement of cable through outside casing. Wipe off any excess oil.
- Remove belt cover and lightly apply oil to the pivot point for idler pulley arm. **BE CAREFUL NOT TO GET OIL ON BELT OR PULLEYS.**



Grease

- At the beginning of each snow throwing season, remove discharge chute and generously lubricate steel flange at back of rotating ring with light grease. Rotate ring with crank to distribute grease.

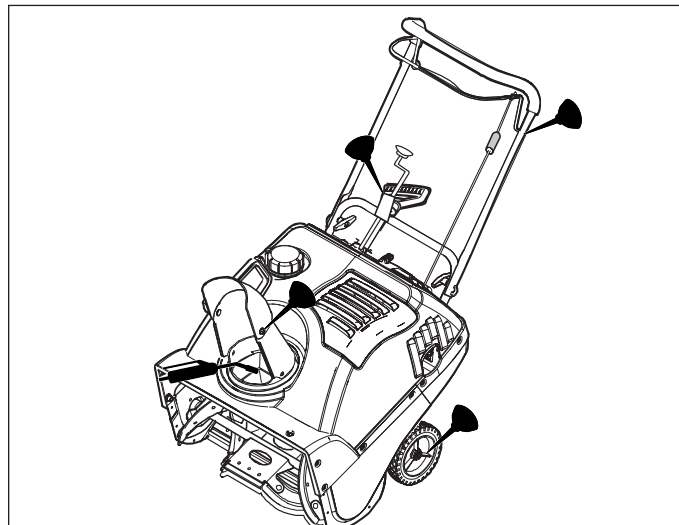


Figure 10. Lubrication points

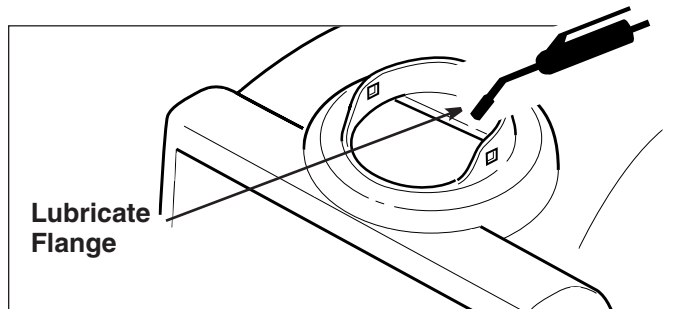


Figure 11. Grease the Discharge Chute Ring

Troubleshooting & Service

TROUBLESHOOTING

Problem	Possible Cause	Remedy
Engine fails to start	<ol style="list-style-type: none"> 1. Key is OFF 2. Failure to prime cold engine 3. Out of fuel 4. Choke OFF - cold engine 5. Engine flooded 6. Spark Plug not sparking 7. Water in fuel, or old fuel 	<ol style="list-style-type: none"> 1. Turn Key to the ON position 2. Press primer button twice and restart. 3. Fill fuel tank 4. Turn Choke to ON. 5. Turn Choke to OFF; try starting 6. Check Gap. Gap plug, clean electrode, or replace as necessary 7. Drain tank (Dispose of fuel at an authorized waste facility). Fill with fresh fuel mixture.
Engine starts hard or runs poorly	<ol style="list-style-type: none"> 1. Fuel mixture too rich 2. Spark plug faulty, fouled, or gapped incorrectly 3. Water in fuel, or old fuel 4. Gas cap vent hole plugged 	<ol style="list-style-type: none"> 1. Move choke to OFF position 2. Clean and gap, or replace 3. Drain tank (Dispose of fuel at an authorized waste facility). Fill with fresh fuel mixture. 4. Clean vent hole or replace cap
Unit does not throw snow	<ol style="list-style-type: none"> 1. Loose or broken drive belt 2. Incorrect control cable adjustment 3. Discharge chute clogged, foreign object lodged in auger 4. Broken control cable 	<ol style="list-style-type: none"> 1. Adjust or replace belt 2. Adjust Auger Control cable 3. Stop engine, remove key and clean out discharge chute 4. Replace cable
Auger does not stop turning when control is released	<ol style="list-style-type: none"> 1. Incorrect control cable adjustment 	<ol style="list-style-type: none"> 1. Adjust Auger Control cable
Excessive vibration	<ol style="list-style-type: none"> 1. Loose parts or damaged auger 	<ol style="list-style-type: none"> 1. STOP engine and REMOVE the key, tighten all hardware. If vibration continues, see your dealer.

Note: For repairs beyond the minor adjustments listed above, please contact your local dealer.

CHUTE REMOVAL AND INSTALLATION

1. Remove the fasteners (B, Figure 12) that secure the chute (A) to the top cover.
2. Remove the chute (A).
3. Installation is reverse of removal.

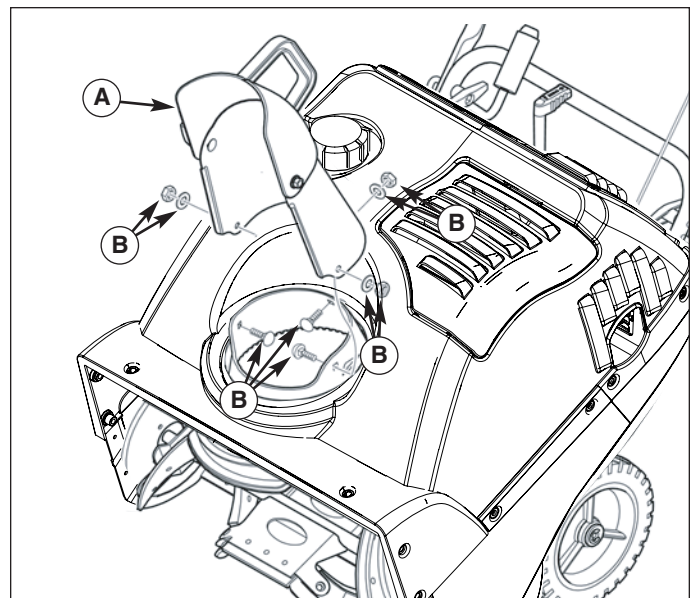


Figure 12. Chute Removal and Installation
A. Chute
B. Fasteners

COVER REMOVAL AND INSTALLATION

To access the drive system or the engine, the covers must be removed as follows:

REMOVE THE TOP COVER

1. Remove the discharge chute. See "How To Remove The Chute".
2. Remove the fuel cap.
3. Remove the screws (A, Figure 13) and nuts from the front of the top cover (D).
4. Remove the screws (B) and nuts from the left and right side of the top cover (D).
5. Remove the eight screws (C) on the left and right side of the top cover (D).
6. Remove the five screws (C) from the back portion of the control panel.
7. Carefully pull the rear of the top cover up and over the gas tank.
8. Installation of top cover (D) is reverse of removal.

REMOVE THE BELT COVER

1. Remove the screws (B, Figure 13) and nuts that hold the belt cover (E) to the auger housing.
2. If the top cover (D) has not been removed, then remove the screws (C) that attach the belt cover to the top cover.
3. Remove screw (C) that holds the belt cover (E) to the top cover (D).
4. To remove, hold the bottom portion of the belt cover (E) and pull down and out.
5. Installation of belt cover (E) is reverse of removal.

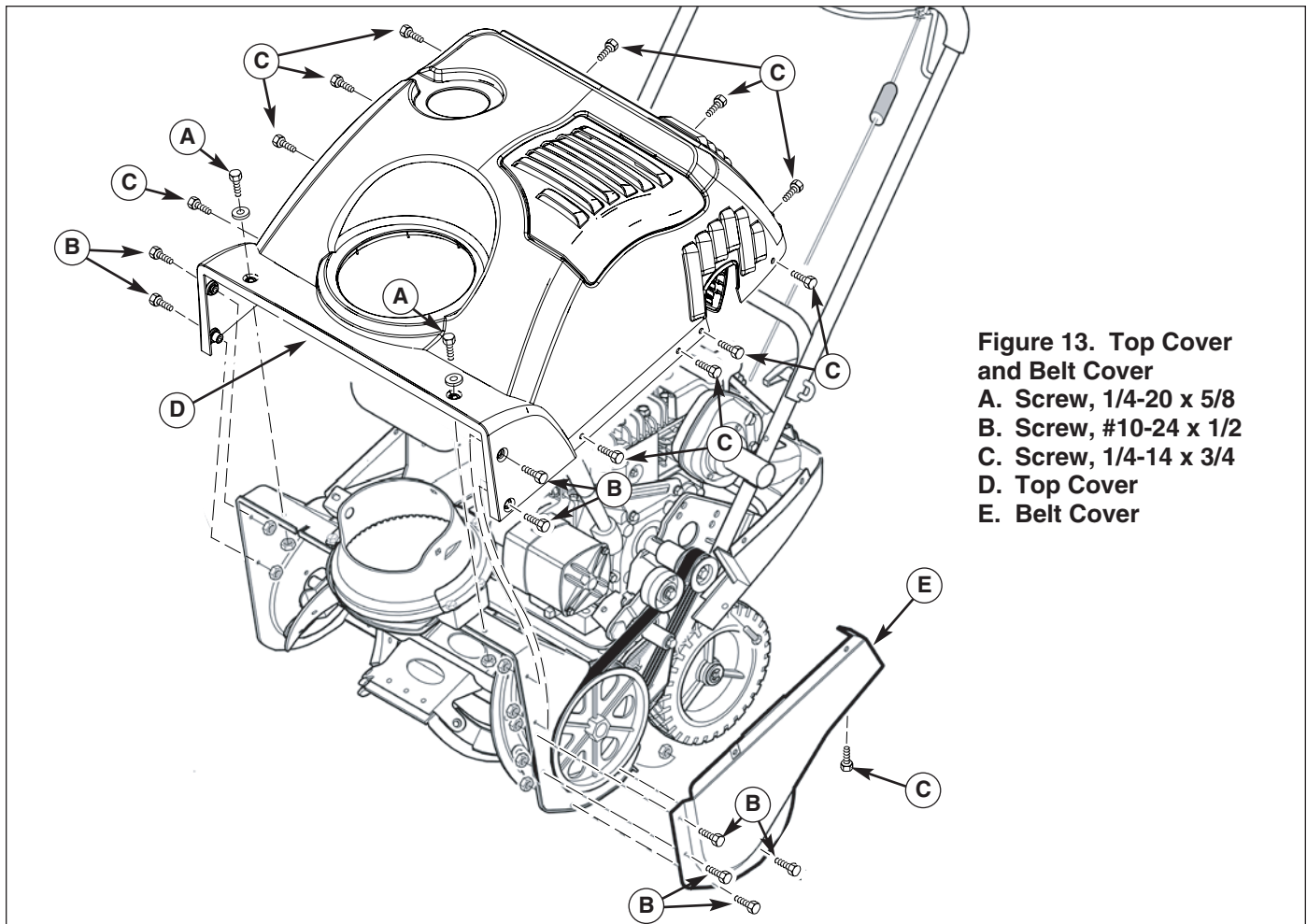


Figure 13. Top Cover and Belt Cover
A. Screw, 1/4-20 x 5/8
B. Screw, #10-24 x 1/2
C. Screw, 1/4-14 x 3/4
D. Top Cover
E. Belt Cover

REPLACE DRIVE BELT

The drive belt is of special construction and must be replaced with original factory replacement belt available from your nearest dealer.

1. Remove the belt cover. See “How To Remove The Belt Cover”.
2. Remove the drive belt (E, Figure 14) from the idler pulley (G).
3. Move the belt guide (B) away from the drive belt (E).
4. To reduce pressure on the drive belt (E), move the idler pulley (G) away from the belt. Remove the drive belt (E) from between the brake pad (F) and the brake roller (D).
5. Remove the old drive belt (E).
6. To install the new drive belt (E), reverse the above steps.
7. Make sure the drive belt (E) is seated properly on the pulleys.
8. Set the belt guide to 3/32” clearance as shown in Figure 15.

NOTE: When the auger control lever is engaged, the belt guide must be 3/32” (23mm) from the drive belt.

9. Install belt cover. See “How To Remove The Belt Cover

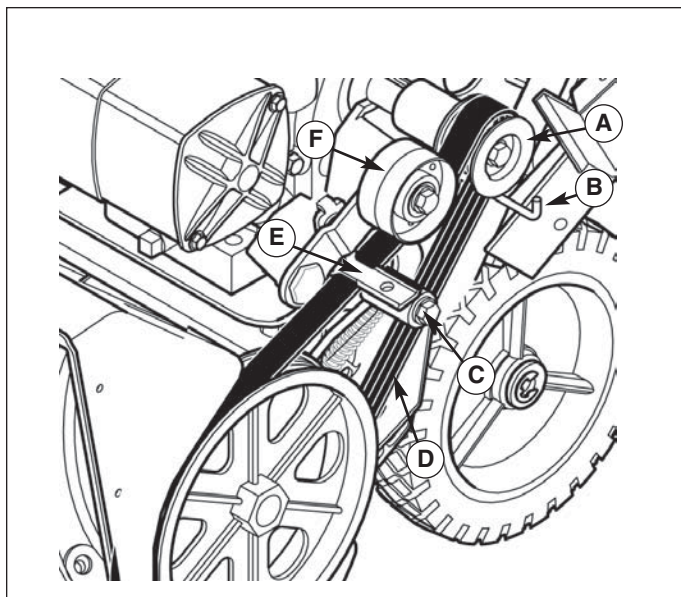


Figure 14. Drive Belt Installation

- A. Engine Pulley**
- B. Belt Guide**
- C. Brake Roller**
- D. Drive Belt**
- E. Brake Pad**
- F. Idler Pulley**

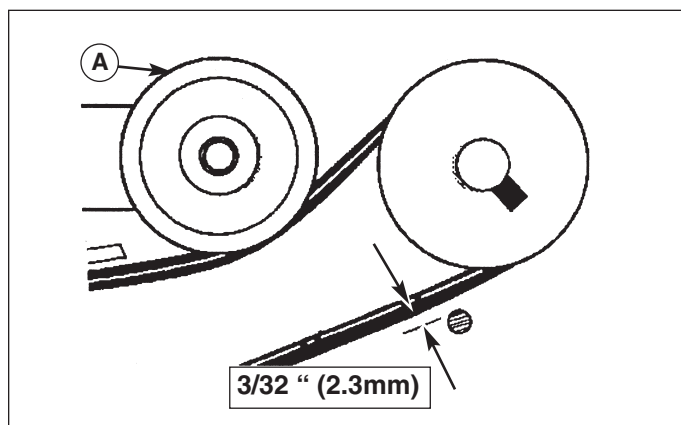


Figure 15. Belt Guide

SERVICING THE SPARK PLUG

1. Remove engine key from switch.
2. Remove the oil access cover.
3. Disconnect the wire from the spark plug.
4. Inspect the spark plug and clean. If necessary, replace it with a new spark plug as recommended in the engine owners manual.
5. Adjust the gap on the spark plug to .030 inches (.762 mm) using a gauge.
6. Reinstall the plug and tighten firmly, torque to 18-23 ft.lbs.
7. Reconnect spark plug wire.
8. Reinstall engine cover.

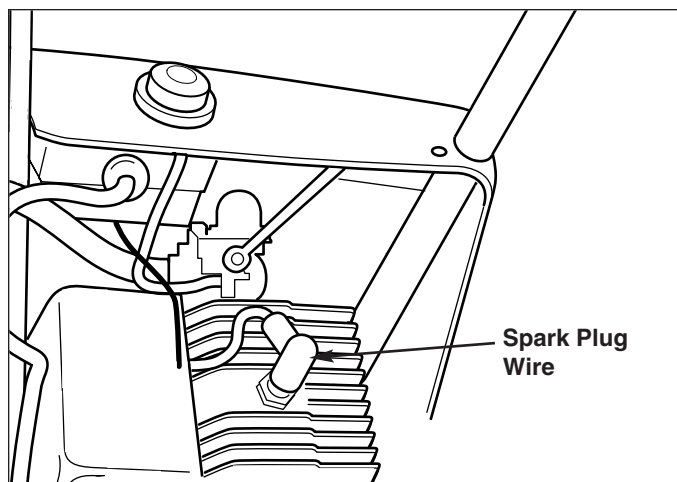


Figure 16. Servicing Spark Plug

AUGER DRIVE CABLE ADJUSTMENT

The auger drive cable is adjusted at the factory and no adjustment should be necessary. If the cable becomes stretched or is sagging, adjustment will be necessary.

Whenever the belt is adjusted or replaced, the cable will need to be adjusted.

1. Remove the z-hook (C, Figure 18) from the auger drive lever (A).
2. Slide the cable boot, (A, Figure 1) if equipped, up the auger control cable (B) until the cable boot does not cover any portion of the cable adjustment bracket (D).
3. Pull the auger control cable (B) through the eyehole in the cable adjustment bracket (D) as shown by the arrow in Figure 18. This will create enough slack to allow the “Z” hook to be easily removed.
4. Install the “Z” hook (C) into the next available adjustment hole in the cable adjustment bracket (D). This is the adjustment hole located one notch down from where the “Z” hook (C) was previously attached.
5. Pull the auger control cable (B) back through the eyehole of the cable adjustment bracket (D) until all the slack is taken out of the auger control cable (B).
6. Slide the cable boot (A) back down over the cable adjustment bracket(D).
7. Install the “Z” hook (B, Figure 18) to the auger drive lever (A).

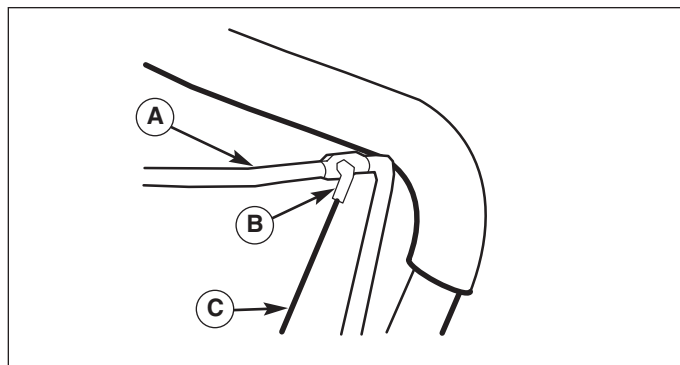


Figure 17. Z-Hook Installation

- A. Auger Drive Lever**
- B. Z-Hook**
- C. Auger Drive Cable**

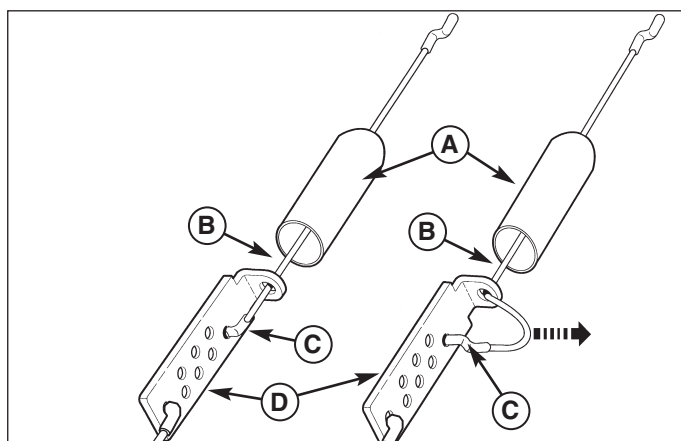


Figure 18. Traction Drive Cable Adjustment

- A. Cable Boot**
- B. Auger Control Cable**
- C. “Z” Hook**
- D. Cable Adjustment Bracket**

Specifications

NOTE: Specifications are correct at time of printing and are subject to change without notice.

** The gross power rating for individual gas engine models is labeled in accordance with SAE (Society of Automotive Engineers) code J1940 (Small Engine Power & Torque Rating Procedure), and rating performance has been obtained and corrected in accordance with SAE J1995 (Revision 2002-05). Torque values are derived at 3060 RPM; horsepower values are derived at 3600 RPM. Actual gross engine power will be lower and is affected by, among other things, ambient operating conditions and engine-to-engine variability. Given both the wide array of products on which engines are placed and the variety of environmental issues applicable to operating the equipment, the gas engine will not develop the rated gross power when used in a given piece of power equipment (actual "on-site" or net power). This difference is due to a variety of factors including, but not limited to, accessories (air cleaner, exhaust, charging, cooling, carburetor, fuel pump, etc.), application limitations, ambient operating conditions (temperature, humidity, altitude), and engine-to-engine variability. Due to manufacturing and capacity limitations, Briggs & Stratton may substitute an engine of higher rated power for this Series engine.*

ENGINE:

5.25 Series Briggs & Stratton

Make	Briggs & Stratton
Domestic	
Model / Type	09A413 / 0202E1
CE	
Model / Type	09A413 / 0203E1
Gross Torque*	5.25 ft. lbs. @ 3060 rpm
Displacement	9.02 Cu. in (148 cc)

CHASSIS:

Spout Rotation	190 Degrees
Auger Diameter	9" (22.9 cm)
Tire Size	7" x 1.5" (17.8 cm x 3.8 cm)

DIMENSIONS:

Effective Clearing	22" (51 cm)
Width	
Length	42" (107 cm)
Height	42" (107 cm)
Weight	75 lbs (34 kg)

Parts & Accessories

REPLACEMENT PARTS

Replacement parts are available from your authorized dealer. Always use genuine Simplicity/Snapper Service Parts.

MAINTENANCE ITEMS

Many convenient and helpful service and maintenance items are available from you authorized dealer. Some of these items include:

Engine Oil	Tire Sealant
Touch-Up Paint	Degreaser/Degreaser
Grease Gun Kit	Gas Stabilizer
8 oz. Grease Tube	

TECHNICAL MANUALS

Additional copies of this manual are available, as well as fully illustrated parts lists. These manuals show all of the product's components in exploded views (3D illustrations which show the relationship of parts and how they go together) as well as part numbers and quantities used. Important assembly notes and torque values are also included.

For applicable manuals currently available for your model, contact our Customer Publications Department at 262-284-8519. Have the information listed in the box below available when phoning in your request. Technical manuals can be downloaded from:

www.simplicitymfg.com

www.snapper.com

Model:	_____
Mfg. No.:	_____
Your Name:	_____
Address:	_____
City, State, Zip:	_____
Visa/Mastercard No.:	_____
Card Expiration Date:	_____



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