



# Sno-Thro

## Owner/Operator Manual

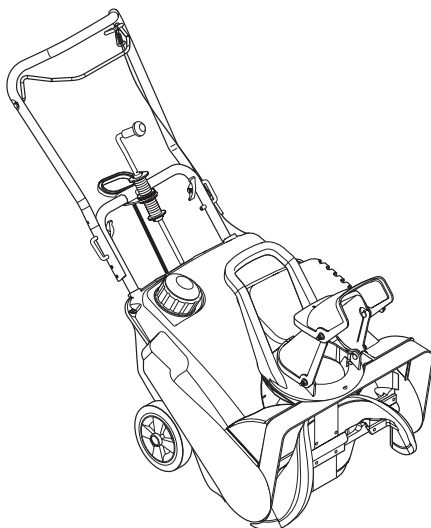
### Models

938017 - SS522EC

938018 - SS722EC

938019 - SS522

938117 - SS522EC



U.S. Patents  
5758436 and 5966846



**(GB)** ENGLISH

**(F)** FRANÇAIS

**(E)** ESPAÑOL

Transfer  
model &  
serial number  
label from  
product  
registration  
here.

Coller l'autocollant du  
modèle et du numéro de  
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Transferir aquí la etiqueta  
del modelo y número de  
serie del registro del  
producto.

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Printed in USA

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## INTRODUCTION

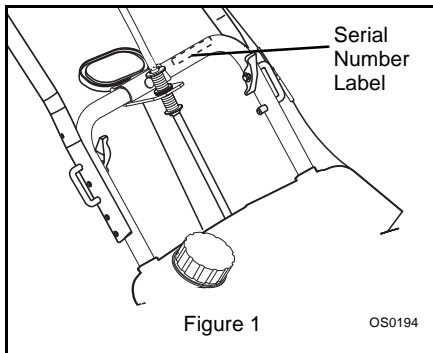
### THE MANUAL

Before operation of unit, carefully and completely read your manuals. If used improperly, this unit could be dangerous and cause personal injury or property damage. The contents will provide you with safety instructions for the safe use of your unit during normal operation and maintenance. All reference to left, right, front, or rear are given from operator standing in operation position and facing the direction of forward travel.

### MODEL AND SERIAL NUMBERS

When ordering replacement parts or making service inquiries, know the Model and Serial numbers of your unit and engine.

Numbers are located on the product registration form in the unit literature package. They are printed on a serial number label, located on the frame of your unit.



- Record Unit Model and Serial numbers here.

- Record Engine Model and Serial number here.

### PRODUCT REGISTRATION

The Ariens dealer must register the product at the time of purchase. Registering the product will help the company process warranty claims or contact you with the latest service information. All claims meeting requirements during the limited warranty period will be honored, whether or not the product registration card is returned. Keep a proof of purchase if you do not register your unit.

**Customer Note:** If the dealer does not register your product, please fill out, sign, and return the product registration card to Ariens or go to [www.ariens.com](http://www.ariens.com).

### UNAUTHORIZED REPLACEMENT PARTS

Use only Ariens replacement parts. The replacement of any part on this vehicle with anything other than an Ariens authorized replacement part may adversely affect the performance, durability, or safety of this unit and may void the warranty. Ariens disclaims liability for any claims or damages, whether warranty, property damage, personal injury or death arising out of the use of unauthorized replacement parts.

For a brief list of replacement parts see *Service Parts* in this manual. To obtain a complete parts manual, find your model and serial number. Then go to [www.ariens.com](http://www.ariens.com) or call 920-756-4664.

## DISCLAIMER

Ariens reserves the right to discontinue, make changes to, and add improvements upon its products at any time without public notice or obligation. The descriptions and specifications contained in this manual were in effect at printing. Equipment described within this manual may be optional. Some illustrations may not be applicable to your unit.

## DELIVERY

**Customer Note:** If you have purchased this product without complete assembly and instruction by your retailer, it is your responsibility to:

1. Read and understand all assembly instructions in this manual. If you do not understand or have difficulty following the instructions, contact your nearest Ariens Dealer for assistance. Make sure all assembly has been properly completed.

**NOTE:** To locate your nearest Ariens Dealer, call 920-756-4664 or go to [www.ariens.com](http://www.ariens.com) on the internet.



**WARNING:** Improper assembly or adjustments can cause serious injury.

2. Understand all Safety Precautions provided in the manuals.
3. Review control functions and operation of the unit. Do not operate the Sno-Thro unless all controls function as described in this manual.
4. Review recommended lubrication, maintenance and adjustments.
5. Review Limited Warranty Policy.
6. Fill out a Product Registration Card and return the card to the Ariens Company or go to [www.ariens.com](http://www.ariens.com).

## SAFETY



**WARNING:** To avoid injury to hands and feet, always disengage clutches, shut off engine, and wait for all movement to stop before unclugging or working on snow thrower. Keep hands and feet away from auger.



**WARNING: POTENTIALLY HAZARDOUS SITUATION!** If not avoided, **COULD RESULT** in death or serious injury.



**CAUTION: POTENTIALLY HAZARDOUS SITUATION!** If not avoided, **MAY RESULT** in minor or moderate injury. It may also be used to alert against unsafe practices.

## SAFETY ALERTS



Look for these symbols to point out important safety precautions. They mean:

**Attention! Personal Safety Is Involved!**  
**Become Alert! Obey The Message!**



The safety alert symbols above and signal words below are used on decals and in this manual.

Read and understand all safety messages.



**DANGER: IMMINENTLY HAZARDOUS SITUATION!** If not avoided, **WILL RESULT** in death or serious injury.

## NOTATIONS

**NOTE:** General reference information for proper operation and maintenance practices.

**IMPORTANT:** Specific procedures or information required to prevent damage to unit or attachment.

## PRACTICES AND LAWS

Practice usual and customary safe working precautions, for the benefit of yourself and others. Understand and follow all safety messages. Be alert to unsafe conditions and the possibility of minor, moderate, or serious injury or death. Learn applicable rules and laws in your area. Always follow the practices set forth in this manual.

# REQUIRED OPERATOR TRAINING

Original purchaser of this unit was instructed by the seller on safe and proper operation. If unit is to be used by someone other than original purchaser; loaned, rented or sold, ALWAYS provide this manual and any needed safety training before operation.

# SAFETY DECALS AND LOCATIONS

ALWAYS replace missing or damaged Safety Decals. Refer to figure 2 below for Safety Decal locations.

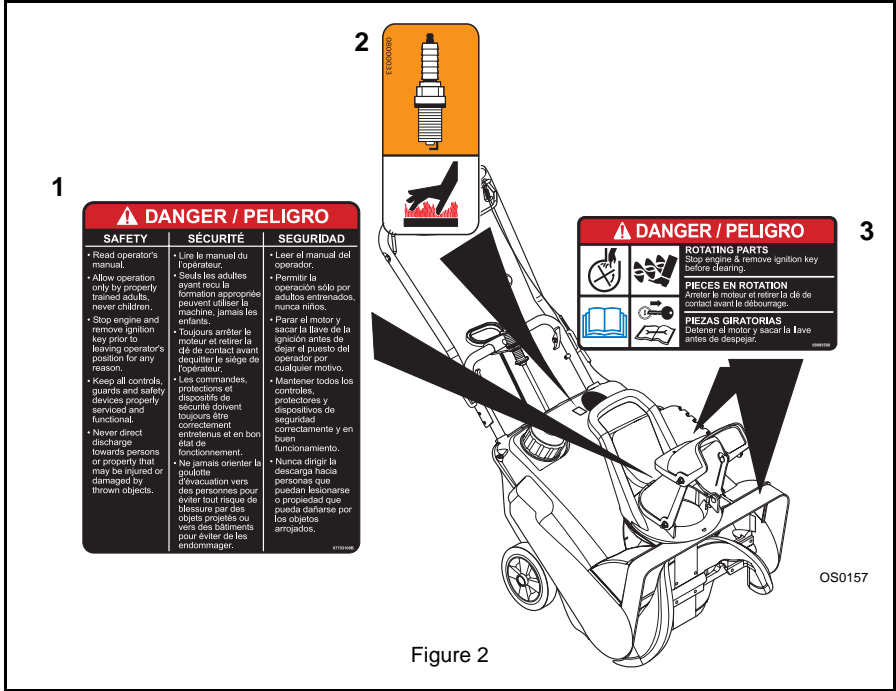


Figure 2

## 1. DANGER!

- Read operator's manual.
- Allow operation only by properly trained adults, never children.
- Stop engine and remove ignition key prior to leaving operator's position for any reason.
- Keep all controls, guards and safety devices properly serviced and functional.
- Never direct discharge towards persons or property that may be injured or damaged by thrown objects.

## 2. Hot Surface!



DO NOT touch unit parts which might be hot from operation. Allow parts to cool before attempting to maintain, adjust or service.

## 3. DANGER!



Read Owner/Operator manual.



Stop engine and remove ignition key before clearing.

OL0900



Stop engine and remove ignition key before clearing.

OS1050



Stop engine, remove ignition key, read manual before making any repairs, adjustments.

OL4010

## SAFETY RULES

Read, understand, and follow all safety practices in Owner/Operator Manual before beginning assembly or operating. Failure to follow instructions could result in personal injury and/or damage to unit.

ALWAYS remove key and/or wire from spark plug before assembly, maintenance or service. Unintentional engine start up can cause death or serious injury.

Complete a walk around inspection of unit and work area to understand:

- Work area
- Your unit
- All safety decals

ALWAYS check overhead and side clearances carefully before operation.

ALWAYS be aware of traffic when operating along streets or curbs.

Keep children and people away. Keep children out of work area and under watchful care of a responsible adult.

NEVER allow children to operate or play on or near unit. Be alert and shut off unit if children enter area.

DO NOT allow adults to operate unit without proper training.

Keep area of operation clear of all toys, pets, and debris. Thrown objects can cause injury.

Check for weak spots on docks, ramps or floors. Avoid uneven work areas and rough terrain. Stay alert for hidden hazards.

Avoid uneven and rough terrain. DO NOT operate near drop-offs, ditches, or embankments. Unit can suddenly turn over if a wheel is over the edge of a cliff or ditch, or if an edge caves in.

Falling snow, fog, etc. can reduce vision and cause an accident. Operate unit only when there is good visibility and light.

Only trained adults may operate unit.

Training includes actual operation.

NEVER operate unit after or during the use of medication, drugs or alcohol. Safe operation requires your complete and unimpaired attention at all times.

NEVER allow anyone to operate this unit when their alertness or coordination is impaired.

DO NOT operate unit without wearing adequate winter outer garments. Wear adequate safety gear, including safety glasses with side shields, and protective gloves. Wear proper footwear to improve footing on slippery surfaces.

DO NOT wear loose clothing or jewelry and tie back hair that may get caught in rotating parts.

Protect eyes, face and head from objects that may be thrown from unit. Wear appropriate hearing protection.

Avoid sharp edges. Sharp edges can cut. Moving parts can cut off fingers or a hand.

ALWAYS keep hands and feet away from all rotating parts during operation. Rotating parts can cut off body parts.

NEVER place your hands or any part of your body or clothing inside or near any moving part while unit is running.

ALWAYS keep hands away from all pinch points.

DO NOT touch unit parts which might be hot from operation. Allow parts to cool before attempting to maintain, adjust or service.

Never direct discharge towards persons or property that may be injured or damaged by thrown objects. Use extreme caution on gravel surfaces. Stay alert for hidden hazards or traffic. DO NOT throw snow any higher than necessary.

Deflected materials can cause injury and property damage.

Always stand clear of the discharge area when operating this unit.

Fumes from engine exhaust can cause injury or death. DO NOT run engine in an enclosed area. Always provide good ventilation.

ALWAYS disengage attachment, stop unit and engine, remove key and allow moving parts to stop before leaving operator's position.

**ROTATING AUGER CAN CAUSE SERIOUS INJURY. NEVER ATTEMPT TO UNLOAD OR CLEAN UNIT WHILE ENGINE IS RUNNING.**

Read, understand, and follow all instructions in the manual and on the machine before starting.

Understand:

- How to operate all controls.
- The functions of all controls.
- How to STOP in an emergency.

Before starting engine, disengage control(s).

Use only approved extension cords and receptacles when starting units equipped with electric starter. DO NOT connect electric starter cord to any wiring system that is not a three-wire grounded system.

ALWAYS allow unit and engine to adjust to outdoor temperatures before clearing snow.

Always be sure of your footing, especially when operating in reverse or leaving the operator's position. Walk, never run during operation.

DO NOT overload the machine capacity by attempting to clear snow at too fast a rate.

DO NOT operate at too fast a rate.

Slow down and turn corners slowly.

Do not operate in reverse unless absolutely necessary. ALWAYS back up slowly. Always look down and behind before and while backing.

Disengage attachment drive when traveling from one work area to another.

Abnormal Vibrations are a warning of trouble. Striking a foreign object can damage unit. Immediately stop unit and engine. Remove key and wait for all moving parts to stop. Remove wire from spark plug. Inspect unit and make any necessary repairs before restart.

**Before cleaning, removing clogs or making any inspections, repairs, etc.: disengage clutch(es), stop unit and engine, remove key, allow moving parts to stop. Allow hot parts to cool.**

Run unit a few minutes after clearing snow to prevent freeze-up of attachment.

Disengage clutch bail when not in use. Before starting engine: disengage clutch bail. DO NOT use on gravel or crushed rock surfaces.

Check clutch and brake operation frequently. Adjust and service as required. All motion of auger must stop quickly when bail is released.

Never leave a running unit unattended. ALWAYS shut off engine before leaving unit. ALWAYS remove key to prevent unauthorized use.

Never carry passengers.

DO NOT operate on steep slopes. DO NOT clear snow across the face of slopes. Keep all movement on slopes slow and gradual. DO NOT make sudden changes in speed or direction. Use a slow speed to avoid stops or shifts on slopes. Avoid starting or stopping on a slope.

DO NOT park unit on a slope unless absolutely necessary. When parking on a slope always block the wheels.

ALWAYS shut off engine, remove key, and close fuel shut-off valve or drain fuel when transporting unit on a truck or trailer.

Use extra care when loading or unloading unit onto trailer or truck.

Secure unit chassis to transport vehicle. NEVER secure from rods or linkages that could be damaged.

DO NOT transport machine while engine is running.

Keep unit free of ice or other debris. Clean up oil or fuel spills.

This product is equipped with an internal combustion type engine. DO NOT use unit on or near any unimproved, forest-covered or brush covered land unless exhaust system is equipped with a spark arrester meeting applicable local, state or federal laws. A spark arrester, if it is used, must be maintained in effective working order by operator.

Fuel is highly flammable and its vapors are explosive. Handle with care. Use an approved fuel container.

NO smoking, NO sparks, NO flames. ALWAYS allow engine to cool before servicing.

NEVER fill fuel tank when engine is running or hot from operation.

NEVER fill or drain fuel tank indoors.

Replace fuel cap securely and clean up spilled fuel.

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.

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 fueling is complete. Do not use a nozzle lock-open device.

If fuel is spilled on clothing, change clothing immediately.

Before tipping unit up onto housing, remove fuel so no spills will occur. Ensure unit is secure and will not tip over during maintenance.

ALWAYS keep protective structures, guards, and panels in good repair, in place and securely fastened. NEVER modify or remove safety devices.

DO NOT change engine governor settings or over-speed engine.

Fumes from engine exhaust can cause injury or death. DO NOT run engine in an enclosed area. Always provide good ventilation.

ALWAYS maintain unit in safe operating condition. Damaged or worn out muffler can cause fire or explosion.

Keep all hardware properly tightened.

Maintain or replace safety and instruction labels, as necessary.

NEVER store unit with fuel in fuel tank, inside a building where any ignition sources are present.

Shut off fuel and allow engine to cool completely before storing in closed area or covering unit.

For extended storage, clean unit thoroughly. See Engine Manual for proper storage.

Use only attachments or accessories designed for your unit.

Check components frequently. If worn or damaged, replace with manufacturer's recommended parts.

## ASSEMBLY



**WARNING: AVOID INJURY.** Read and understand the entire *Safety* section before proceeding.

### TOOLS REQUIRED

7/16" Open-end wrench, Pliers

### ASSEMBLY

#### Handlebar Assembly

1. Remove wing knobs and release J-bolts from lower handlebar (figure 3).
2. Unfold upper handlebar.

**NOTE:** Adjust handlebar to a height comfortable for the operator (see *Handlebar Height Adjustment* on page 11).

3. Put J-bolts through the upper handlebar and lower handlebar holes.
4. Replace and tighten wing knobs to secure upper handlebar.

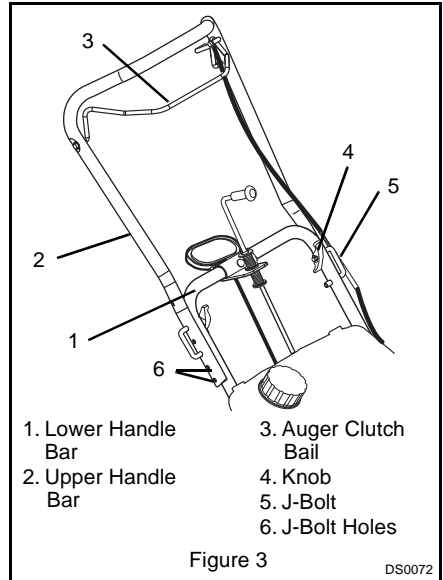
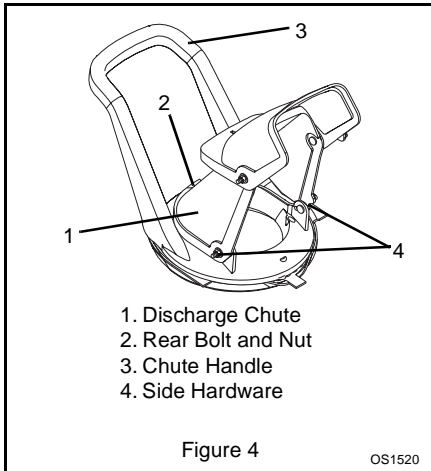


Figure 3

DS0072

## Discharge Chute Assembly

1. Remove bolt and nut from rear of discharge chute (figure 4).
2. Tip discharge chute up and install hardware just removed. Tighten hardware at rear of discharge chute first, then sides.



1. Discharge Chute
2. Rear Bolt and Nut
3. Chute Handle
4. Side Hardware

## Discharge Chute Crank Assembly (938017, 018, 117)

1. Remove nut from bolt that holds recoil starter handle bracket in place (figure 5).
2. Pull the chute crank assembly up so hole in chute crank bracket fits behind/under lower handle bar and over bolt end.

**NOTE:** DO NOT pull chute crank bracket past the lower handle bar or the 48T gear and spacer will fall off into unit.

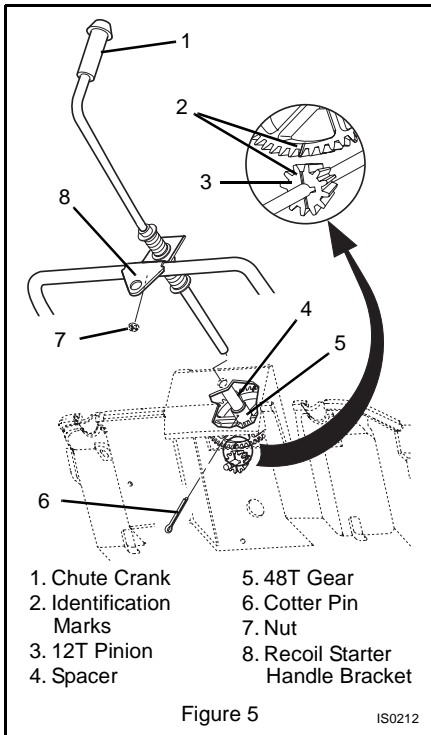
3. With crank knob straight up and discharge chute straight forward, check that 48T gear meshes with 12T pinion. Align space and tooth identification marks.
4. Insert cotter pin (taped to chute crank assembly) through 48T gear and chute crank shaft. Slight movement of the crank shaft or discharge chute may be needed to align holes.
5. Rotate chute crank to access cotter pin. Secure pin by bending ends over.
6. Secure chute crank and starter handle to lower handle bar by reinstalling nut from step 1.

## Fill Engine Fuel Tank

See *Filling Fuel Tank* on page 11.

## Check Function of all Controls

Ensure unit runs and performs properly (see *Operation* on page 10).



- |                         |                                  |
|-------------------------|----------------------------------|
| 1. Chute Crank          | 5. 48T Gear                      |
| 2. Identification Marks | 6. Cotter Pin                    |
| 3. 12T Pinion           | 7. Nut                           |
| 4. Spacer               | 8. Recoil Starter Handle Bracket |



## CONTROLS & FEATURES

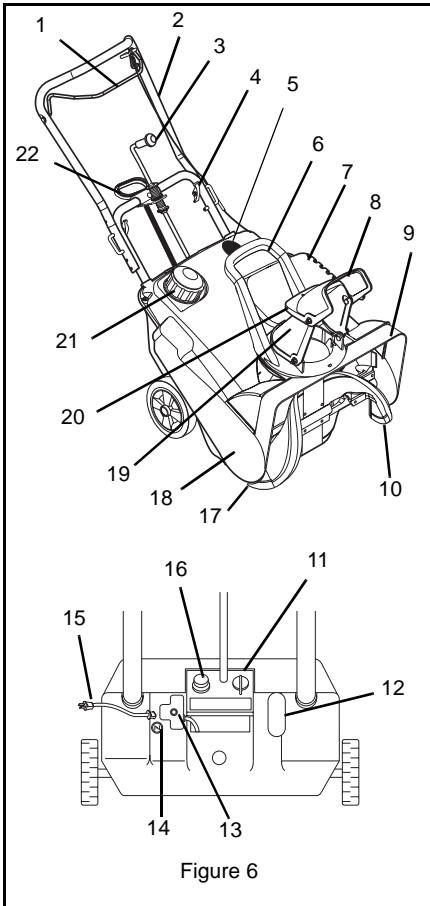


Figure 6

1. Auger Clutch Bail
2. Handlebar
3. Discharge Chute Crank (938017, 018, 117)
4. Handlebar Wing Knob
5. Spark Plug Access Cover
6. Discharge Chute Handle
7. Exhaust
8. Discharge Chute Deflector
9. Auger Housing
10. Auger
11. Ignition Switch
12. Fuel Level Indicator
13. Starter Button (938017, 018, 117)
14. Choke Control Knob
15. Power Cord (938017, 018, 117)
16. Primer Bulb
17. Scraper Blade
18. Cowl
19. Discharge Chute
20. Chute Deflector Handle
21. Fuel Tank and Cap
22. Recoil Starter Handle

# OPERATION



**WARNING: AVOID INJURY.** Read and understand the entire *Safety* section before proceeding.

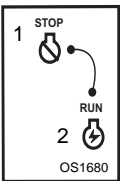


**WARNING:** To avoid injury to hands and feet, always disengage clutches, shut off engine, and wait for all movement to stop before unclogging or working on snow thrower. Keep hands and feet away from auger.

## CONTROLS AND FEATURES

See figure 6 for controls and features locations.

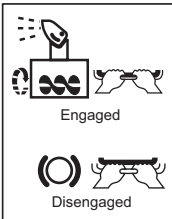
### Ignition Switch



Ignition switch is operated by a removable key that has two positions.

1. STOP
2. RUN

### Auger Clutch Bail



Squeeze auger clutch bail against handlebar to engage auger.

Release auger clutch bail to disengage and brake auger.

### Check Auger Clutch Bail



**WARNING:** Check auger clutch before each use. Auger brake **MUST DISENGAGE** when clutch is engaged. Auger brake **MUST STOP AUGER WITHIN 5 SECONDS** of releasing auger clutch bail.

**IMPORTANT:** If auger clutch bail moves freely with no resistance before contacting handlebar or does not operate as indicated in the following steps, adjust or repair unit before operating (see *Drive Belt Adjustment* on page 15).

1. With key in STOP position, engage auger clutch bail.

2. Pull recoil starter handle. Auger should rotate with the turning of the engine.
3. Release the auger clutch bail.
4. Pull recoil starter handle again. Auger must not rotate as engine turns.

**IMPORTANT:** If belt squeals when auger clutch bail is engaged, auger may be frozen. Immediately release auger clutch bail and move the unit to a heated area to thaw.

### Auger

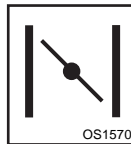
When handlebar is lifted so auger contacts the ground, auger propels unit forward while throwing snow. Forward speed will vary according to depth and moisture content.

### Primer Bulb



Pushing the primer bulb in adds fuel for easier engine start (see *Starting and Shutting off* on page 12).

### Choke Control Knob



Pulled out (closed) – chokes off air to the engine for easier start.

Pushed in (open) - allows for normal operation.

**IMPORTANT:** Gradually push in choke control knob after engine starts.

### Recoil Starter Handle

When pulled, recoil starter handle will turn engine over.

**IMPORTANT:** DO NOT let recoil starter handle snap back against unit.

### Discharge Chute (Figure 7)

Discharge chute rotates 220°.

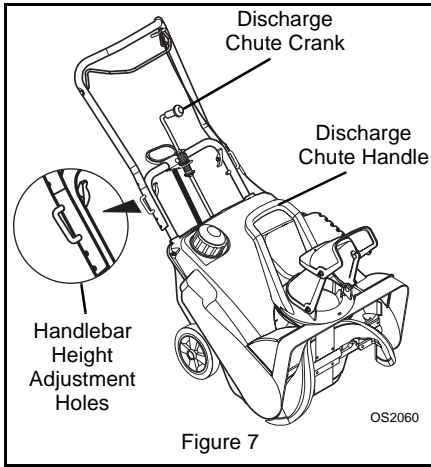
ALWAYS position discharge chute in safe direction and angle, away from operator and bystanders, before starting engine.

### Rotating Discharge Chute (Figure 7)

Two options are available to rotate discharge chute:

- Discharge Chute Crank (938017, 018, 117)
- Discharge Chute Handle

**IMPORTANT:** DO NOT force a frozen discharge chute. Start engine and run for 3-5 minutes to thaw. If still frozen, take to a warm place until controls are free.



### Discharge Chute Deflector

ALWAYS position discharge chute deflector at a safe angle before starting engine. DO NOT throw snow any higher than necessary.

Pull chute deflector handle upward to throw snow lower. Push chute deflector handle downward to throw snow higher.

**IMPORTANT:** If chute deflector does not stay in set position, adjust (see *Discharge Chute Deflector Adjustment* on page 15), or repair before operating.

### Handlebar Height Adjustment (Figure 7)

**CAUTION:** Adjust auger control cable after changing handlebar height (see *Drive Belt Adjustment* on page 15). Route auger control cable over handlebar as shown in figure 7.

Adjust handlebar height by selecting the appropriate handlebar height adjustment holes. Tighten handlebar wing knobs to secure upper handlebar to lower handlebar.

**NOTE:** The upper handlebar can be folded for storage.

### Scraper Blade

The scraper blade allows the back of the housing to keep better contact with the surface being cleared. It also prevents damage to the housing from normal wear.

**IMPORTANT:** DO NOT allow scraper blade to wear down too far or auger housing will become damaged.

## FILLING FUEL TANK

**WARNING:** AVOID INJURY. Read and understand the entire *Safety* section before proceeding.

**IMPORTANT:** Two cycle engines require that oil be mixed with fuel. Failure to mix oil with fuel will result in seizure and severe damage to engine. DO NOT use gasohol or gasoline containing alcohol. See Engine Manual for correct type of fuel/oil mixture.

1. ALWAYS place unit in open or well-ventilated area.
2. Stop engine and allow to cool.
3. Clean fuel cap and surrounding area to prevent dirt from entering fuel tank.
4. Remove fuel cap.

**IMPORTANT:** See Engine Manual for proper fuel/oil mixture. Fuel/oil mixture left standing for prolonged periods will begin to separate; thoroughly shake fuel/oil mixture before use.

**NOTE:** See *Specifications* on page 19 for fuel tank capacity.

5. Fill fuel tank with fuel/oil mixture.
6. Replace fuel cap and tighten.
7. ALWAYS clean up any spilled fuel.

## PRE-START

### 1. Check for Frozen Auger

With key in STOP position, engage auger clutch bail and pull recoil starter handle.

If you cannot pull recoil starter handle, auger is frozen. Move unit to a heated area to thaw to prevent possible damage.

### 2. Check Auger Clutch

**WARNING:** Check auger clutch before each use. Auger brake MUST DISENGAGE when clutch is engaged. Auger brake MUST STOP AUGER WITHIN 5 SECONDS of releasing auger clutch bail. See *Check Auger Clutch Bail* on page 10.

### 3. Check Engine Fuel Level

**WARNING:** AVOID INJURY. Read and understand the entire *Safety* section before proceeding.

Add fuel if required (see *Filling Fuel Tank* on page 11).

## STOPPING IN AN EMERGENCY

Immediately release auger clutch bail to stop unit in an emergency.

Stop engine, remove key and wait for all rotating parts to stop before leaving operator's position.

## STARTING AND SHUTTING OFF



**WARNING: FAILURE TO FOLLOW INSTRUCTIONS** could result in personal injury and/or damage to unit. **DO NOT** attempt to start your unit at this time. Read entire Owner/Operator Manual and the Engine Manual first.

**IMPORTANT:** Allow unit and engine to adjust to the outdoor temperature before clearing snow. Before shutting unit off, run auger a few minutes to prevent freeze-up.

**NOTE:** Try out each control without the engine running to see how it works and what it does.



**WARNING: THROWN OBJECTS** could cause death or serious injury. **ALWAYS** position discharge chute straight ahead (away from operator) for starting.

### Manual Start

1. Turn discharge chute straight ahead.

**NOTE:** When temperature is below -15° F (-26° C) additional priming may be needed.

2. Push primer bulb 1 to 3 times for cold engine.

**NOTE:** A warm engine requires less choking than a cold engine.

3. Pull choke control knob out.
4. Insert key into ignition switch.
5. Turn key to RUN.
6. Stand to behind unit. Grasp starter handle and pull rope out slowly until it pulls harder, let rope rewind slowly.

**IMPORTANT:** Do NOT let starter handle snap against unit.

7. Pull rope with a rapid continuous full arm stroke. Let rope rewind slowly.
8. Repeat steps 6 and 7 until engine starts. (If engine does not start, see *Troubleshooting* on page 18.)
9. When engine has started, open choke slowly by gradually pushing choke control knob in.

### Electric Start (938017, 018, 117)

**NOTE:** Electric start models can be started manually (see *Manual Start* on page 12).

1. Connect extension cord to prongs on starter.

**IMPORTANT:** Prevent damage to unit. Know voltage of your starter and only use matching outlets.

2. Plug extension cord into 120V 3-wire, grounded outlet.
3. Turn discharge chute straight ahead.
4. Push primer bulb 1 to 3 times for cold engine.

**NOTE:** When temperature is below -15° F (-26° C) additional priming may be needed.

5. Insert key into ignition switch.
6. Turn key to RUN position.

**NOTE:** A warm engine requires less choking than a cold engine.

7. Pull choke control knob out.

**IMPORTANT:** DO NOT crank engine for more than 5 seconds on each attempt.

8. Push starter button until engine starts.
9. Open choke slowly by gradually pushing choke control knob in.
10. Disconnect power cord from outlet, then from starter.

### Shutting Off

1. Engage and run auger a few minutes after use to prevent freeze-up of auger.
2. Release auger clutch bail and allow auger to stop.
3. Turn key to STOP position.
4. Remove key.

## SNOW REMOVAL

**IMPORTANT:** Allow unit and engine to adjust to the outdoor temperature before clearing snow.

To propel unit and throw snow:

1. Start engine.
2. Engage auger clutch bail to engage auger.

**NOTE:** Do not lift handlebar so high to allow snow to kick back from under unit.

3. Lift handlebar so auger contacts surface to be cleared. Lift the handlebar only high enough to propel unit forward.

## Tips for Operation

Snow is best removed as soon as possible after a snow fall.

To clear an area, run unit in an overlapping series of paths. For large areas, start in the middle and throw snow to each side, so snow is not cleared more than once.

ALWAYS direct snow away from area to be cleared and with direction of the wind.

**IMPORTANT:** DO NOT overload unit capacity by attempting to clear snow at too fast a rate.

## TRAVELING TO ANOTHER WORK AREA

1. Release auger clutch bail to disengage auger.
2. Press down on handlebar enough to raise front of unit slightly off the ground and push or pull unit.

## TRANSPORT

ALWAYS shut off engine and drain fuel when transporting unit on a truck or trailer.

Use extra care when loading or unloading unit onto trailer or truck.

Secure unit chassis to transport vehicle.

NEVER secure by rods or linkages that could be damaged.


DO NOT transport machine while engine is running.

## MAINTENANCE SCHEDULE



**WARNING:** AVOID INJURY. Read and understand the entire *Safety* section before proceeding.

Ariens Dealers will provide any service or adjustments which may be required to keep your unit operating at peak efficiency. Should engine service be required, contact an Ariens dealer or an authorized engine manufacturer's service center

Interval	Task	Action
Each Use	Check Auger Clutch	 <b>WARNING:</b> Check auger clutch before each use. Auger brake <b>MUST DISENGAGE</b> when clutch is engaged. Auger brake <b>MUST STOP AUGER WITHIN 5 SECONDS</b> of releasing auger clutch bail (see <i>Check Auger Clutch Bail</i> on page 10).
	Clean Unit	After each use, brush snow and debris off with a soft bristled brush. Occasionally apply a light coat of spray lubricant to exposed metal joints and surfaces. Wipe off excess with soft cloth. Do not use abrasives or harsh cleaners.
	Follow Engine Manual Maintenance Schedule	Perform scheduled engine maintenance. See Engine Manual for detailed instructions.
Every 10 Hours	Check Fasteners	Make sure all hardware is tightened properly.
	Check Drive Belt Adjustment	See <i>Drive Belt Adjustment</i> on page 15.
Yearly	Check Scraper Blade	Check scraper blade for wear. <b>DO NOT</b> allow scraper blade to wear down too far or auger housing will become damaged.

# SERVICE AND ADJUSTMENTS



**WARNING: AVOID INJURY.** Read and understand the entire *Safety* section before proceeding.

## SERVICE POSITION

Place unit on a flat level surface.

## DRIVE BELT REPLACEMENT

### Remove (Figure 8)

1. Remove cowl.
2. Disconnect extension spring on idler arm/brake.

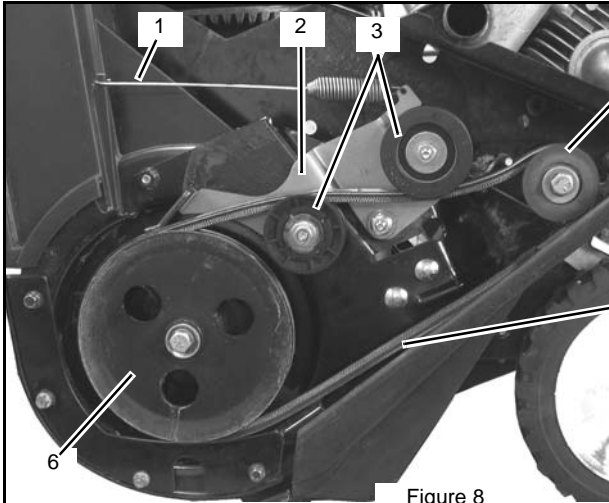


Figure 8

OS4001

3. Remove auger drive pulley.
4. Remove old belt.

### Install (Figure 8)

1. Install new belt on drive pulley and idlers.
2. Install drive belt on auger drive pulley.
3. Install auger drive pulley on unit.
4. Connect extension spring to idler arm/brake.
5. Adjust drive belt (see *Drive Belt Adjustment* on page 15).
6. Install cowl.

1. Extension Spring
2. Idler Arm/Brake
3. Idler
4. Drive Pulley
5. Drive Belt
6. Auger Drive Pulley

## DISCHARGE CHUTE ADJUSTMENT

If discharge chute rotates while throwing snow, tighten four screws holding discharge chute to housing to 11 – 12 lbf-in (1.23 – 1.35 N•m).

**IMPORTANT:** DO NOT overtighten screws.

1. Remove nut and bolt from rear of discharge chute.
2. Tip discharge chute forward.
3. Tighten two rear screws.
4. Tighten two front screws.
5. Reposition discharge chute and fasten with nut and bolt.

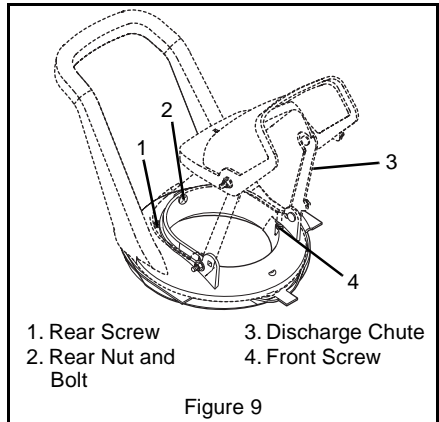
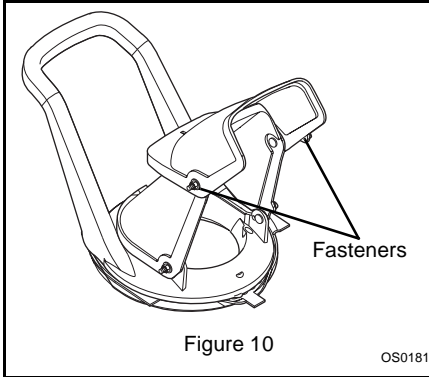


Figure 9

## DISCHARGE CHUTE DEFLECTOR ADJUSTMENT

If discharge chute deflector does not stay in position while throwing snow, adjust chute by tightening fasteners (figure 10).



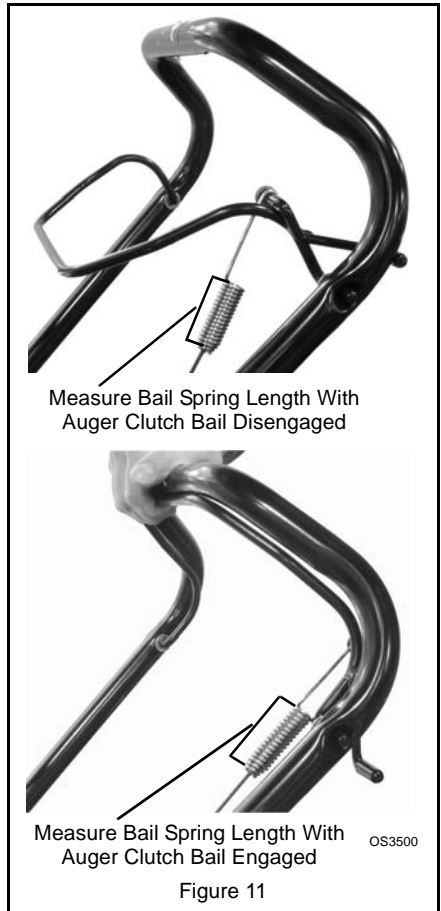
## DRIVE BELT ADJUSTMENT



**WARNING:** Improper adjustment could result in death or serious injury. Auger brake **MUST DISENGAGE** when clutch is engaged. Auger brake **MUST STOP AUGER WITHIN 5 SECONDS** of releasing auger clutch bail.

### Adjust Auger Control Cable (Figure 11)

1. Measure bail spring length with auger clutch bail **DISENGAGED**.
  2. Engage auger clutch bail.
  3. Measure bail spring length with auger clutch bail **ENGAGED**.
  4. The difference in bail spring length measurements should be  $9/16 - 5/8$  in. (14.3 – 15.9 mm).
- If bail spring length **IS** within specifications, go to *Adjust Belt Finger*.
  - If bail spring length **IS NOT** within specifications, go to *Adjust Cable*.



### Adjust Cable

**IMPORTANT:** After adjustment, if the auger control cable is taut when the auger clutch bail is disengaged, the auger brake will not work properly. If this condition occurs, replace the belt and restart the drive belt adjustment procedure.

1. Loosen jam nut on auger control cable adjuster.
2. Turn adjustment barrel to lengthen or shorten the cable as needed to achieve spring extension defined in step 4 of *Adjust Auger Control Cable (Figure 11)*.
3. Tighten jam nut on auger control cable adjuster.

### Adjust Belt Finger (Figure 12)

1. Remove cowl.

**IMPORTANT:** Auger clutch bail **MUST** be engaged while performing steps 2 through 5.

2. Engage auger clutch bail.

3. Loosen belt finger and rotate until there is 1/32 – 1/16 in. (0.8 – 1.6 mm) gap between belt finger and drive belt.
4. Tighten belt finger.
5. Recheck gap between belt finger and drive belt. Adjust belt finger until there is 1/32 – 1/16 in. (0.8 – 1.6 mm) gap between belt finger and drive belt.
6. Go to *Check Auger Stopping Time* next.

**WARNING:** Auger MUST NOT rotate when the auger clutch bail is disengaged.

1. Start unit.
2. Engage auger clutch bail for 5 seconds.

**IMPORTANT:** Auger MUST STOP within 5 seconds of disengaging auger clutch bail.

3. Disengage auger clutch bail.
  - If auger stops within 5 seconds, the adjustment is complete.
  - If auger does not stop within 5 seconds, repeat the entire *Drive Belt Adjustment* procedure.

**IMPORTANT:** Replace the drive belt if the *Drive Belt Adjustment* procedure has been completed twice and the drive belt is still not adjusted properly.

4. Replace cowl.

**Check Auger Stopping Time**

**WARNING:** Improper adjustment could result in death or serious injury. Auger brake MUST DISENGAGE when clutch is engaged. Auger brake MUST STOP AUGER WITHIN 5 SECONDS of releasing auger clutch bail.

**WARNING:** ROTATING PARTS can cut off body parts. Keep hands and feet away. Loose clothing, long hair or scarves can get caught in rotating parts and cause death or serious injury.

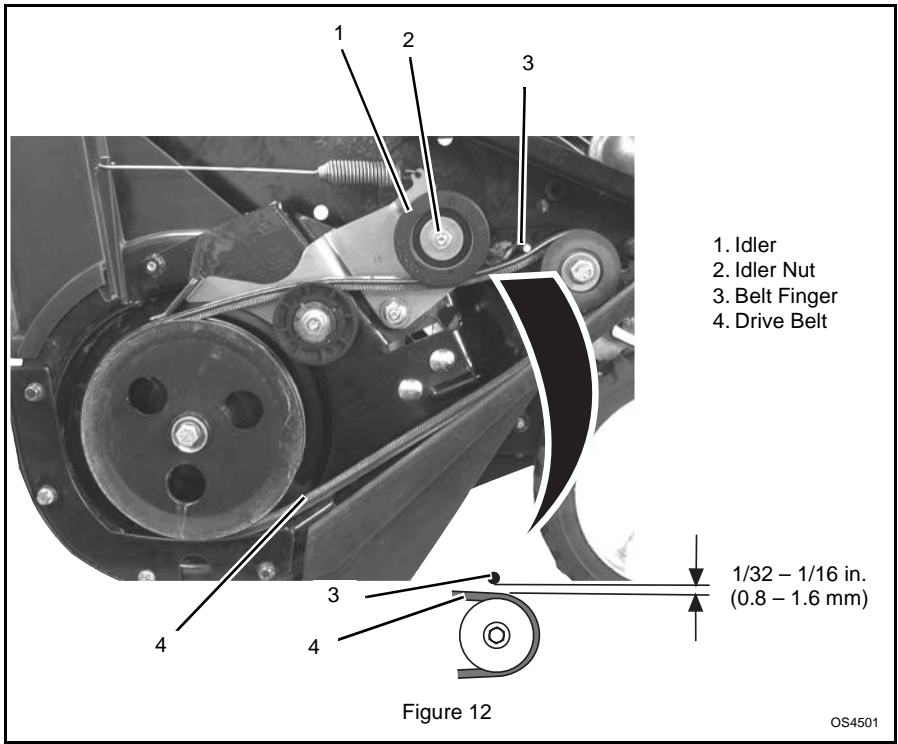


Figure 12

OS4501



## STORAGE



**WARNING: AVOID INJURY.** Read and understand the entire *Safety* section before proceeding.

### SHORT TERM

**IMPORTANT:** NEVER spray unit with high-pressure water or store unit outdoors. Run with attachment clutch engaged a few minutes after each use to free unit of any loose or melting snow.

Inspect unit for visible signs of wear, breakage or damage.

Keep all nuts, bolts and screws properly tightened and know unit is in safe working condition.

Store unit in a cool, dry protected area.

### LONG TERM

Touch up all scratched painted surfaces.

When storing unit for extended periods of time, remove all fuel from tank and carburetor (run dry). See Engine Manual.

# TROUBLESHOOTING

PROBLEM	PROBABLE CAUSE	CORRECTION
<b>Engine will not crank/start</b>	<ol style="list-style-type: none"> <li>1. Key not in RUN position.</li> <li>2. Fuel tank empty.</li> <li>3. Clogged fuel filter.</li> <li>4. Faulty electric starter or wire connections.</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn key to RUN position.</li> <li>2. Fill fuel tank.</li> <li>3. Replace fuel filter. See Engine Manual.</li> <li>4. Contact your Ariens Dealer.</li> </ol>
<b>Engine stops</b>	<ol style="list-style-type: none"> <li>1. Out of fuel.</li> <li>2. Improperly mixed or contaminated fuel.</li> <li>3. Faulty spark plug.</li> <li>4. Clogged fuel filter.</li> </ol>	<ol style="list-style-type: none"> <li>1. Fill fuel tank (see <i>Filling Fuel Tank</i> on page 11).</li> <li>2. Drain fuel tank and refill with new fuel/oil mixture (see <i>Filling Fuel Tank</i> on page 11).</li> <li>3. Replace spark plug. See Engine Manual.</li> <li>4. Replace fuel filter. See Engine Manual.</li> </ol>
<b>Discharge chute will not turn</b>	<ol style="list-style-type: none"> <li>1. Discharge chute gears are frozen.</li> </ol>	<ol style="list-style-type: none"> <li>1. Move unit to a warm area to thaw.</li> </ol>
<b>Auger will not turn or throw snow</b>	<ol style="list-style-type: none"> <li>1. Auger is frozen.</li> <li>2. Ice or debris is obstructing auger.</li> <li>3. Auger control cable out of adjustment.</li> <li>4. Drive belt slipping.</li> </ol>	<ol style="list-style-type: none"> <li>1. Move unit to a warm area to thaw.</li> <li>2. With engine off, and auger disengaged, remove obstructions.</li> <li>3. Adjust drive belt (see <i>Drive Belt Adjustment</i> on page 15).</li> <li>4. Adjust drive belt. See (see <i>Drive Belt Adjustment</i> on page 15).</li> </ol>

## ACCESSORIES

See your authorized Ariens dealer to add the additional accessories available to your Sno-Thro.	
73800300	Discharge Chute Crank Kit (938019)
73800100	Electric Starter Kit (938019)

## SERVICE PARTS

Order the following parts through your Dealer:		
Part no.	Qty	Description
07236300	1	Drive Belt
03813800	1	Scraper Blade
02910800	1	Fuel Filter

## SPECIFICATIONS

<b>Model Number</b>	938017	938018	938019	938117
<b>Description</b>	SS522EC	SS722EC	SS522	SS522EC
<b>Engine - Tecumseh (Two-Cycle)</b>	TH139SA	TH139SP	TH139SA	TH139SA
Power Max – HP (Kw/min <sup>-1</sup> )	5 (3.73)	7 (5.22)	5 (3.73)	
Fast Idle Speed – RPM (min <sup>-1</sup> )	3950 ± 150			
Displacement – in. (cc)	8.46 (139)			
<b>Fuel</b>	See Engine Manual.			
Fuel to Oil Mix	50:1			
Fuel Tank Capacity – qt. (L)	1.2 (1.1)			
<b>Electric Start</b>	120V	Optional	120V	
<b>Snow Clearing Width – in. (cm)</b>	22 (56)			
<b>Chute</b>				
Chute Rotation Angle	220°			
Discharge Chute Crank	Yes	No	Yes	
Discharge Chute Handle	Yes			
<b>Auger</b>				
Speed – RPM	1430			
Diameter – in. (cm)	9.0 (23)			
<b>Drive</b>				
Auger Drive	Yes			
Drive Belt	3L Section, Single “V” Construction, Raw Edge Kevlar Cord			
<b>Size and Weight</b>				
Height – in. (cm)	40.8 (104)			
Length – in. (cm)	43.2 (110)			
Width – in. (cm)	22 (56)			
Weight – lbs (Kg)	80 (36.3)	75 (34)	80 (36.3)	



# Ariens Limited Warranties



## 2-Year Limited Lawn and Garden Consumer Warranty

Ariens Company (Ariens) warrants to the **original purchaser** that Ariens and Gravely brand consumer products manufactured by Ariens Company will be free from defects in material and workmanship for a period of two (2) years after the date of purchase, and that Ariens will repair any defect in material or workmanship, and repair or replace any defective part, subject to the conditions, limitations and exclusions set forth herein. Such repair or replacement will be free of charge to the **original purchaser** (labor and parts), except as noted below.

The two-year duration of this warranty applies only if the product is put to ordinary, reasonable, and usual personal, family, or household uses. If the product is put to any business, commercial, or industrial use such as, but not limited to, commercial landscaping, mowing or snow removal services, or golf course or park maintenance, or agricultural or farmstead use, then the duration of this warranty is ninety (90) days after the date of purchase, or one (1) year after the date of purchase if the product is labeled as a Professional/Commercial Product. The duration of this warranty shall be ninety (90) days after the date of purchase if any product is rented or leased.

## 2-Year Limited Lawn and Garden Commercial Warranty

The Ariens Company (Ariens) warrants to the **original purchaser** that all Gravely Pro and ProMaster products manufactured by Ariens will be free from defects in material and workmanship for a period of two (2) years after the date of purchase or 1000 hours of use, whichever comes first. An authorized Gravely dealer will repair any defect in material or workmanship, and repair or replace any defective part, subject to the conditions, limitations and exclusions set forth herein. Such repair or replacement will be free of charge to the **original purchaser** (labor and parts), except as noted below.

The duration of this warranty shall be ninety (90) days after the date of purchase or 1000 hours of use, whichever comes first, if any product is rented or leased.

## 3-Year Limited Sno-Thro Warranty

Ariens Company (Ariens) warrants to the **original purchaser** that Sno-Thro products manufactured by Ariens Company will be free from defects in material and workmanship for a period of three (3) years after the date of purchase, and will repair any defect in material or workmanship, and repair or replace any defective part, subject to the conditions, limitations and exclusions set forth herein. Such repair or replacement will be free of charge to the **original purchaser** (labor and parts), except as noted below.

The three-year duration of this warranty applies only if the product is put to ordinary, reasonable, and usual personal, family, or household uses. If the product is put to any business, commercial, or industrial use, then the duration of this warranty is ninety (90) days after the date of purchase, or one (1) year after the date of purchase if the product is labeled as a Professional/Commercial Product. The duration of this warranty shall be ninety (90) days after the date of purchase if any product is rented or leased.

## DURA-CLEAN™ Auger Limited Lifetime Warranty

Ariens Company (Ariens) warrants to the **original purchaser** that the rubber components of the DURA-CLEAN™ Auger manufactured by Ariens Company will be free from defects in material and workmanship and will not wear out for the life of the Sno-Thro, except as noted below.

Ariens Company will provide for the replacement of any of the rubber components of the DURA-CLEAN™ Auger found upon examination by the Ariens Company to be defective or worn out. Replacements will be supplied free of charge. Labor is not included after two (2) years from the date of purchase of the Sno-Thro.

The lifetime limited warranty shall apply if the product is put to ordinary, reasonable, and usual personal household use. If the product is put to any business, commercial, industrial, rental, or leased use, the warranty shall be against defects in material and workmanship for ninety (90) days following the date of purchase.

## Exceptions, Limitations, Exclusions

These warranties are subject to the following conditions, limitations, and exclusions:

To obtain warranty service, the following conditions must be met:

- The purchaser must perform the maintenance and minor adjustments explained in the owner's manual.
- The purchaser must promptly notify Ariens Company or an authorized Ariens service representative of the need for warranty service.
- The purchaser must transport the product to and from the place of warranty service.
- Warranty service must be performed by a respective Ariens or Gravelly authorized service representative.
- To find an Ariens or Gravelly authorized service representative, contact Ariens at:

655 W. Ryan St, P.O. Box 157  
Brillion, WI 54110-0157  
(920) 756 - 2141  
www.ariens.com  
www.gravelly.com

This warranty is subject to the following limitations:

- Genuine Ariens or Gravelly brand service parts and accessories not purchased with the product covered by this warranty, but which are later purchased and used with that product, are warranted to be free from defects in material and workmanship for a period of ninety (90) days after date of purchase, and Ariens Company will repair or replace any such part or accessory free of charge, except for labor, during that period.
- Batteries are warranted only for a period of twelve (12) months after date of purchase, on a prorated basis. For the first ninety (90) days of the warranty period, a defective battery will be replaced free of charge. If the applicable warranty period is more than 90 days, Ariens Company will cover the prorated cost of any defective battery, for up to twelve (12) months after the date of purchase.

Ariens may from time to time change the design of its products. Nothing contained in this warranty shall be construed as obligating Ariens to incorporate such design changes into previously manufactured products, nor shall such changes be construed as an admission that previous designs were defective.

### LIMITATION OF REMEDY AND DAMAGES

Ariens Company's liability under this warranty, and under any implied warranty that may exist, is limited to repair of any defect in workmanship, and repair or replacement of any defective part. Ariens Company shall not be liable for incidental, special, or consequential damages (including lost profits). Some states do not allow the exclusion of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

**This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.**

The following items are excluded from this warranty:

- Engines and enty and are not covered by this warranty.
- Hydro-Gear transmissions and/or Hydro-Gear drive components are covered only by the Hydro-Gear warranty and are not covered by this warranty.
- Parts that are not genuine Ariens or Gravelly brand service parts are not covered by this warranty.
- Except as specifically warranted, normal maintenance, services, and normal replacement items, such as spark plugs, oil, oil filters, air filters, mufflers, belts, tires, shoes, runners, scraper blades, shear bolts, mower blades, mower vanes, headlights, light bulbs, knives, etc. are not covered by this warranty except as noted below.
- Mufflers, belts, and tires on consumer lawn and garden products are warranted to the **original purchaser** for two years.
- Friction discs, idlers, cables, and electrical components on Sno-Thros put to usual personal household use are warranted to the **original purchaser** for two years.
- Any defect which is the result of misuse, alteration, improper assembly, improper adjustment, neglect, or accident is not covered by this warranty.

This warranty applies only to products purchased in the United States (including Puerto Rico) and Canada. In all other countries, contact place of purchase for warranty information.

### DISCLAIMER OF FURTHER WARRANTY

Ariens Company makes no warranty, express or implied, other than what is expressly made in this warranty. If the law of your state provides that an implied warranty of merchantability, or an implied warranty of fitness for particular purpose, or any other implied warranty, applies to Ariens Company, then any such implied warranty is limited to the duration of this warranty. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.



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Fax 920-756-2407  
[www.ariens.com](http://www.ariens.com)

 **WARNING** 

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.