

For Parts Call 606-678-9623 or 606-561-4983



Professional Shop Manual



Troy-Bilt Snow Flurry 1400

NOTE: These materials are for use by trained technicians who are experienced in the service and repair of outdoor power equipment of the kind described in this publication, and are not intended for use by untrained or inexperienced individuals. These materials are intended to provide supplemental information to assist the trained technician. Untrained or inexperienced individuals should seek the assistance of an experienced and trained professional. Read, understand, and follow all instructions and use common sense when working on power equipment. This includes the contents of the product's Operators Manual, supplied with the equipment. No liability can be accepted for any inaccuracies or omission in this publication, although care has been taken to make it as complete and accurate as possible at the time of publication. However, due to the variety of outdoor power equipment and continuing product changes that occur over time, updates will be made to these instructions from time to time. Therefore, it may be necessary to obtain the latest materials before servicing or repairing a product. The company reserves the right to make changes at any time to this publication without prior notice and without incurring an obligation to make such changes to previously published versions. Instructions, photographs and illustrations used in this publication are for reference use only and may not depict actual model and component parts.

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CHAPTER 1: INTRODUCTION

Professional Service Manual Intent

This Manual is intended to provide service dealers with an introduction to the mechanical aspects of the Troy-Bilt Snow Flurry.

Disclaimer: The information contained in this manual is correct at the time of writing. Both the product and the information about the product are subject to change without notice.

About the text format:

NOTE: is used to point out information that is relevant to the procedure, but does not fit as a step in the procedure.

- Bullet points: indicate sub-steps or points.



Caution is used to point out potential danger to the technician, operator, bystanders, or surrounding property.



Warning indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.



Danger indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations

1. Numbered steps indicate specific things that should be done, and the order in which they should be done.
 - 1a. Substeps will be lettered and nested within steps. Two or more substeps may be combined to describe the actions required to complete a step.

Disclaimer: This manual is intended for use by trained, professional technicians.

- Common sense in operation and safety is assumed.
- In no event shall MTD be liable for poor text interpretation or poor execution of the procedures described in the text.
- If the person using this manual is uncomfortable with any procedures they encounter, they should seek the help of a qualified technician or MTD Technical Support.

Safety

This Service Manual is meant to be used along with the Operator's Manual. Read the Operator's Manual and familiarize yourself with the safety and operational instructions for the equipment being worked on. Keep a copy of the Operator's Manual for quick reference. Operator's manuals may be viewed for free at the brand support website. It will be necessary to have the complete model and serial number for the equipment.

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- Be prepared in case of emergency:
 - Keep a fire extinguisher nearby
 - Keep a first aid kit nearby
 - Keep emergency contact numbers handy
- Replace any missing or damaged safety labels on shop equipment.
- Replace any missing or damaged safety labels on equipment being serviced.



- Grooming and attire:
 - Do not wear loose fitting clothing that may become entangled in equipment.
 - Long hair should be secured to prevent entanglement in equipment.
 - Jewelry is best removed.
- Protective gear: includes, but is not limited to
 - Clear eye protection while working around any machinery
 - Protective gloves where necessary
 - Armored footwear when working around any machinery
 - Hearing protection in noisy environments
 - Chemically resistant gloves when working with chemicals or solvents
 - Respirator when working with chemical or solvents
 - Appropriate tinted eye protection..... when cutting or welding
 - Flame resistant headgear, jacket, chaps . when cutting or welding



- Remember that some hazards have a cumulative effect. A single exposure may cause little or no harm, but continual or repeated exposure may cause very serious harm.
- Clean spills and fix obviously dangerous conditions as soon as they are noticed.
- Lift and support heavy objects safely and securely.
- Be aware of your surroundings and potential hazards that are inherent to all power equipment. All the labels in the world cannot protect a technician from an instant of carelessness.

Fasteners

- Most of the fasteners used on these snow throwers have metric thread sizes. For this reason, wrench sizes are frequently identified in the text, and measurements are given in U.S. and metric scales.
- If a fastener has a locking feature that has worn, replace the fastener or apply a small amount of releasable thread locking compound such as Loctite® 242 (blue).
- Some fasteners, like cotter pins, are single-use items that are not to be reused. Other fasteners such as lock washers, retaining rings, and internal cotter pins (hairpin clips) may be reused if they do not show signs of wear or damage. This manual leaves that decision to the judgement of the technician.

Assembly instructions

- **Torque specifications** may be noted in the part of the text that covers assembly. They may be summarized in tables along with special instructions regarding locking or lubrication. Whichever method is more appropriate will be used. In many cases, both will be used so that the manual is handy as a quick-reference guide as well as a step-by-step procedure guide that does not require the user to hunt for information.
- **Lubricant** quantity and specification may be noted in the part of the text that covers maintenance, and again in the section that covers assembly. They may also be summarized in tables along with special instructions. Whichever method is more appropriate will be used. In many cases, the information will be found in several places in the manual so that the manual is handy as a quick-reference guide as well as a step-by-step procedure guide that does not require the user to hunt for information.
- The level of assembly instructions provided will be determined by the complexity of reassembly, and by the potential for damage or unsafe conditions to arise from mistakes made in assembly.
- Some instructions may refer to other parts of the manual for subsidiary procedures. This avoids repeating the same procedure two or three times in the manual.

Description of the Troy-Bilt Snow Flurry



Figure 1.1

The Troy-Bilt Flurry 1400 is a compact, electric snow thrower that is ideal for milder winters, smaller driveways and lighter snowfalls.

CHAPTER 2: ELECTRICAL

Basics of electricity

In order to diagnosis any electrical system there are few things the technician must understand:

- Basic electrical values: voltage, current and resistance
- Ohm's law.
- Kirchhoff's current law.
- Kirchhoff's voltage law.
- How the system is wired together.

The first electrical value to be discussed is Voltage.

- Voltage is the "pressure" that electricity has. It is the amount of force pushing electrons through a circuit.
- This pressure is measured in volts.
- The capital letter "V" is used to represent volts.

The second electrical value is Current:

- Current is the "flow" of electricity. It is the amount of electrons flowing in circuit.
- The flow of current is measured in Amperes or Amps for short.
- The capital letter "I" is used to represent Amps.

The third and final value is Resistance:

- Resistance is the opposition to current flow. It is a restriction that slows down the flow of current.
- Resistance is measured in Ohm's.
- The greek letter omega " Ω " or the capital letter "R" is used to represent Ohm's.

Ohm's law

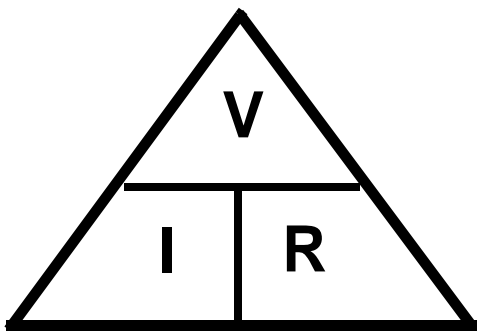


Figure 2.1

Ohm's law states that voltage is the product of resistance times current. It is written as $V=I \times R$. An example of how ohm's law works goes like this: It takes 12 volt to push 2 amp through a resistance of 6 ohm ($12=2 \times 6$). Ohm's law can be drawn in a triangle. When using the triangle, cover the value to be found, and the two values left exposed signify how to obtain that value. See Figure 2.1.

As an example if the "R" is covered, the "V" is over the "I" which means V is divided by I. If the "V" is covered, "I" and "R" is exposed, meaning $I \times R$ and so on.

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Kirchhoff's current law

Kirchhoff's current law deals with nodes. Nodes are the junction of two or more wires or the junction of a wire to a component. Kirchhoff's current law states that what ever current goes into a node must come out.

As an example: Three wires are connected with a wire nut. one wire has 5 amps going into the wire nut. The sum of the current coming out of the other two wires must equal 5 amps. That could be 3 amps in one wire and 2 amps in the other or it could be 2.5 amps in each wire, but the total must be the same as the current coming in. See Figure 2.2.

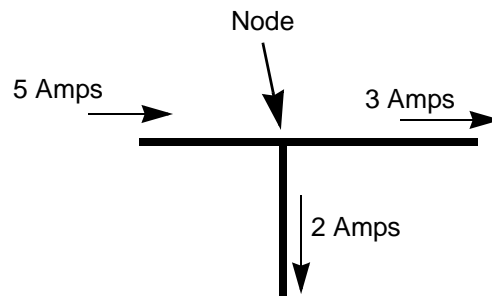


Figure 2.2

Kirchhoff's voltage law

Kirchhoff's voltage law deals with voltage drops. A voltage drop is the amount of voltage used up or "dropped" by a resistance in the circuit. Ohm's law stated that $V = I \times R$, every component in a circuit has resistance, even the wires. To push current through a resistance, it takes voltage. Kirchhoff's voltage law states that the sum of all the voltage drops equals the source voltage.

An example: a circuit has a battery of 12V, a light bulb that creates 3 ohms of resistance and there is 4 amps of current in the circuit. The wires are assumed to have 0 ohms, if the proper size wire is used and there is no corrosion in the wire, the resistance will be too small to worry about. The light bulb uses 12 volts (4 amps x 3 ohms = 12 volts). The battery has 12 volts that equals the 12 volts used by the light bulb.

AC electricity

AC electricity is used to provide electricity to homes and businesses because it can be easily transmitted over long distances. Some household products can run on straight AC power while most will convert it to a usable DC form internally.

AC or alternating current is a current or voltage value that varies with time and has an average value of zero. If the current or voltage is observed using an oscilloscope, the waveform will look like a sine wave. This means it will be positive for awhile then it will be negative for awhile. The time spent positive will equal the time spent negative. Since it spends just as much time positive as negative, the positive values cancel out the negative values leaving an average value of zero. See Figure 2.3.

Since AC varies with time, the time or phase angle of the waveform is needed to compute voltage and current. This manual will not go into how to do this. AC is only mentioned here as a reference.

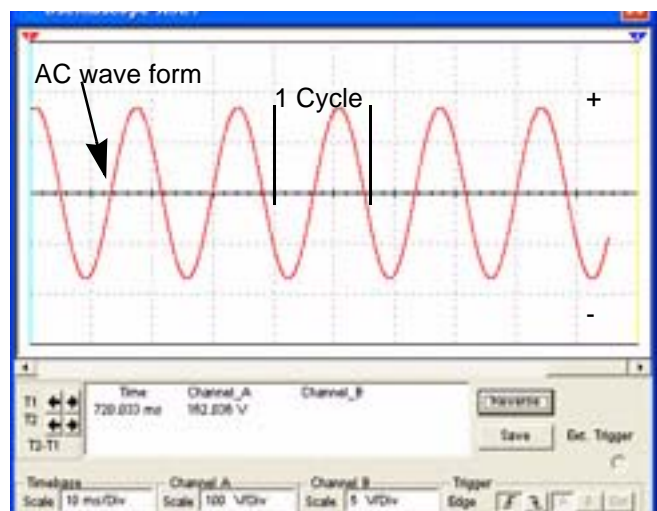


Figure 2.3

Electric circuits

All circuits have some basic rules that must be followed:

1. All circuits must have at least one voltage source. It could be a battery, an alternator or both.
2. All circuits must have a load. To make a circuit without a load is the same as shorting out the power source. A load could be:
 - a lamp
 - a motor
 - a resistor
 - a starter
3. All circuits must have a complete path back to the voltage source. This is also known as having continuity.
4. Most circuits have additional components like switches and fuses.

Types of circuits

There are three ways a circuit can be wired. They are:

- Series
- Parallel
- Series/parallel

Series

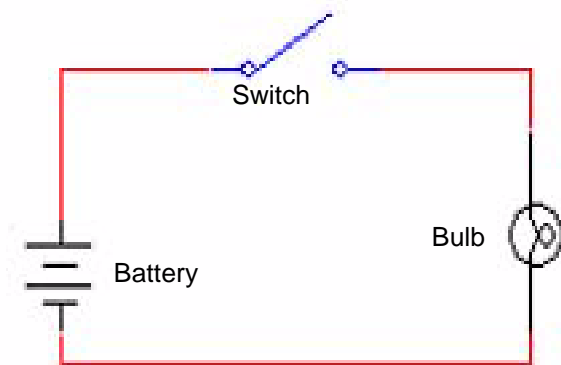


Figure 2.4

- Series circuits are wired so that the current has only one path to follow. See Figure 2.4.

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Parallel

- Parallel circuits are wired so that current has multiple paths to follow. See Figure 2.5.

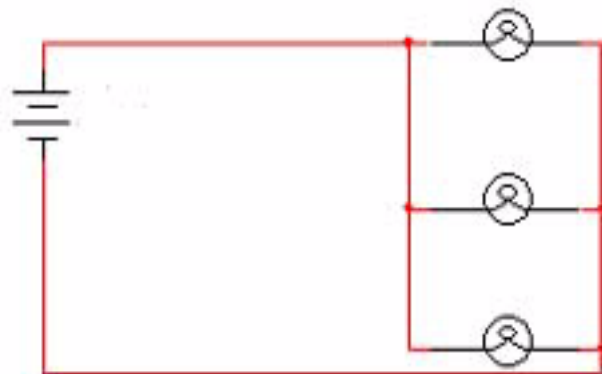


Figure 2.5

Series/parallel

- Series/parallel circuits have some sections wired in series and some in parallel. See Figure 2.6.

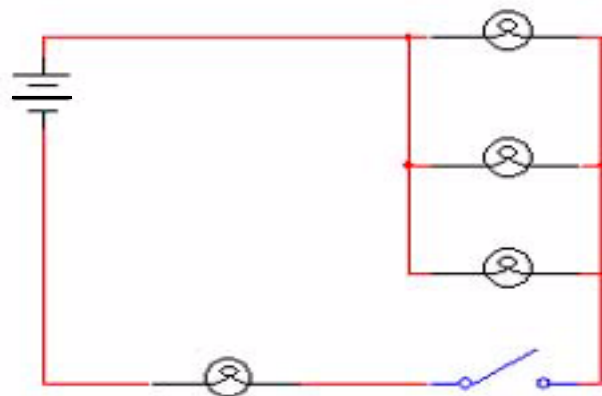


Figure 2.6

Circuit failures

There are three types of failures that can occur in an electrical circuit:

1. Shorts
2. Opens
3. Increased resistance

Shorts

A short is when electricity takes a path that it was not designed to take bypassing a component in the circuit.

A common example of a short is the wire that chafed through. The bare copper will short the circuit when it touches a ground source.

Opens

An open is when current can not complete its path back to the power source.

A common example of this is a blown fuse.

Increased resistance

Increased resistance is as the name implies, an increase in resistance.

Arguably the most common electrical failure, and the hardest to find, is when there is a loose connection or corrosion. It is not an open because there is some current that can get through, but the increase in resistance is enough to affect the circuit

Tools

- Digital volt ohm meter
- Wiring or a schematic diagram.

Equipment that may be useful:

- Fused jumper wires.
- Hand tools to gain access to components.
- Flash light.

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Digital multimeter

Digital Multi Meters or DMMs are the most useful tool to trouble shoot any electrical system. Depending on the model of DMM used, DMMs can measure Volts, Amps, Ohms and more. DMMs are a must when working on circuits with solid state components (microchips). They have very high impedance, that means they have very high resistance and pull very little current from the circuit. Use of analog equipment or test lights will pull enough current to damage the microchips in the circuit. See Figure 2.7.

When measuring volts, always hook the meter in parallel with the circuit. That means do not disconnect the component where measuring voltage.

When measuring current, the meter must be connected in series with the component to be measured. That means opening the circuit and having the circuit go through the meter.



Figure 2.7

NOTE: When measuring current, exceeding the meters rating will damage the meter.

NOTE: The only exception to this is when using an inductive amp clamp.

NOTE: When measuring resistance, the component must be isolated from the circuit.



The meter has its own power source to measure resistance. Connecting the meter to a component that has current going through it will damage the meter (usually beyond repair).

Inductive amp meter

An inductive amp meter, sometimes referred to as an "amp clamp" or clamp meter, measures current following through a wire by the magnetic field created around the wire. Clamp meters are very important when dealing with currents over 10 amps. A DMM typically can not measure current over 10 amps. Clamp meters are also helpful because they can read current in a circuit without opening it up to hook the meter into the circuit. See Figure 2.8.



Figure 2.8

Wiring or a schematic diagram

A wiring or a schematic diagram is very important in troubleshooting a circuit. The diagram shows how the circuit was designed and what paths the electricity is suppose to flow.

Fused jumper wires

Fused jumper wires are handy to help find bad grounds or to jump across switches for testing purposes.



Only use fused jumper wires. If there is a short in the circuit, using an unfused jump could damage components in the circuit further.

Switch

In order to bench test a switch, the way it operates must be known. All switches either open a circuit or close a circuit. The difference between switches is their resting state and how many circuits they control. When the switch controls more than one circuit, it could have one side normally open and the other normally closed. It could also have all sides the same.

A switch that while resting (off) closes (has continuity or allows current to flow through it) a circuit is called a normally closed switch. When the switch is activated it will open the circuit.

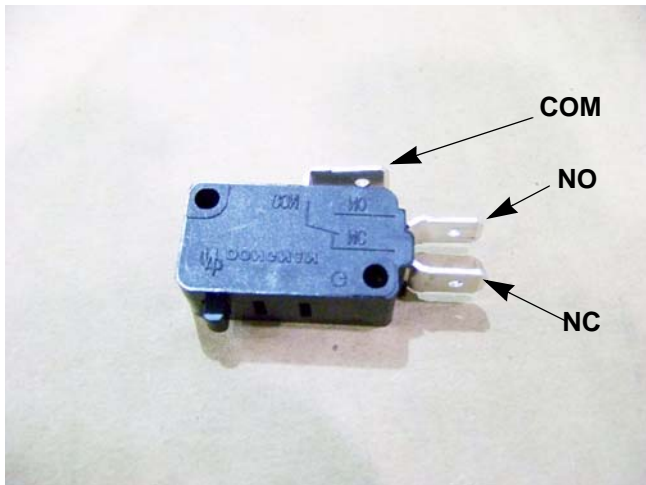


Figure 2.9

A switch that is open (does not have continuity) when in a resting state is called a normally open switch. When activated, the switch will close the circuit. The tabs for a normally open switch generally are unmarked.

The switch used on the snow flurry snow throwers has three terminals. One is a common terminal, one is a NO terminal and the last one is a NC terminal. See Figure 2.9.

Testing the switch

When testing the switch, treat it as two switches; the common terminal and the NO terminal as one switch and common to the NC terminal as another.

To test the switch:

1. Disconnect the power supply.
2. Remove and open the switch box assembly by following the steps described in the switch box section of this chapter.
3. Remove the switch from the circuit.
4. Set the DMM to the ohms scale (Ω).
5. With the switch in the off position; touch one probe to one of the common tabs and the other probe to the NC tab for that circuit.

NOTE: The DMM should read zero resistance.

6. Move the probe from the NC tab to the NO tab.

NOTE: The meter should show an open circuit.

7. With the probes still attached, turn the switch on. The readings should reverse, NO should have zero resistance and a NC switch should indicate an open circuit.

8. If the switch fails in any of the tests, replace the switch.

NOTE: The part number for just the switch is 725-05222.

9. Install the switch box assembly by following the above steps in reverse order.
10. Test run the snow thrower before returning to service.

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Circuit breakers

Circuit breakers are safety devices that open a circuit when the current flow reaches a certain level. This helps to prevent components from being damaged by the high current flow.

A circuit breaker is basically a switch. When current flows through a circuit, it creates heat. The higher the current flow, the more heat that is created. As current flows through a circuit breaker the contacts heat up. If the current heats the contacts enough, they will release the piece used to jump across the contacts. That will open the circuit and prevent current flow.

Some circuit breakers are self resetting, meaning that as they cool down, the circuit is closed. The circuit breaker on this snow thrower has a manual reset function. That means that a button has to be pushed in to restore the connection between the contacts. The circuit breaker may have to cool down for a few minutes before the breaker can be reset. See Figure 2.10.



Figure 2.10

To test a circuit breaker

1. Let the circuit breaker cool down for at least five minutes and reset the breaker.

NOTE: If the circuit breaker will not reset, unplug the wires from the breaker and let it cool down for five minutes. If it still will not reset, the breaker is bad and must be replaced.

2. If not already done, remove the circuit breaker from the circuit by unplugging the two wires.

NOTE: See the switch box section of this chapter for the steps to open the switch box assembly.

3. Check for continuity between the two tangs. See Figure 2.11.

NOTE: If there is no continuity between the two tangs, the breaker is bad and must be replaced.

NOTE: The part number for just the circuit breaker is 725-05221.



Figure 2.11

Motor

The motor used on this snow thrower is an AC universal motor that is not serviceable. Before troubleshooting an electric motor, check the easy stuff like the circuit breaker and make sure the snow thrower is plugged into a working power source.

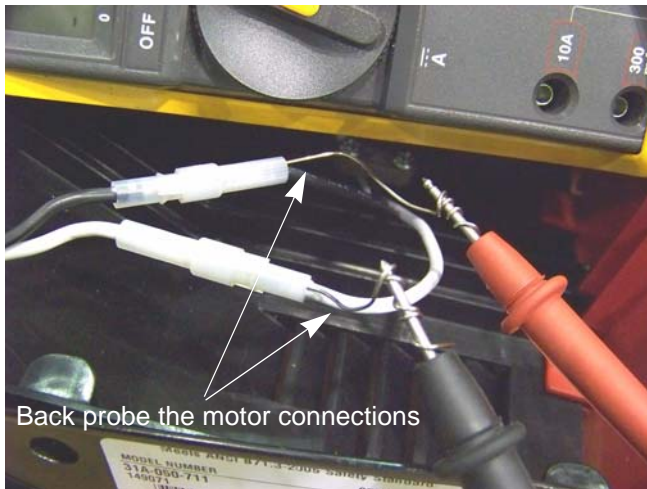


Figure 2.12

To test the motor:

1. Disconnect the power supply to the snow thrower.
2. Move the snow thrower to a safe area.
3. Remove the motor cover by following the procedures described in the upper synchronous belt section of Chapter 3: Belts and Pulleys.
4. Set a DMM to the VAC (Volts AC) mode.
5. Back probe the motor side of the motor harness connectors. See Figure 2.12.

NOTE: Paper clips can be inserted into the back side of the connectors and used as extensions for the DMM probes. See Figure 2.12.

6. Connect the snow thrower to a power source.
7. Operate the control bail of the snow thrower.
8. The DMM should read source voltage.

NOTE: If the DMM does not read source voltage, back trace the harness to find the problem before condemning the motor.
9. If the DMM reads source voltage, but the motor does not turn:
 - 9a. Disconnect the power source.
 - 9b. Try to spin the auger by hand.

NOTE: The technician should be able to spin the motor by spinning the auger. If the motor does not spin, check for binding loads in the belt drives. If the motor does spin, replace it.

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Motor Removal/replacement

To remove/replace a motor:

1. Disconnect the power source.
2. Remove the upper belt by following the procedures described in Chapter 3: Belts and Pulleys.
3. Remove the motor side harness clip using a #2 philips screw driver. See Figure 2.13.
4. Disconnect the motor harness.

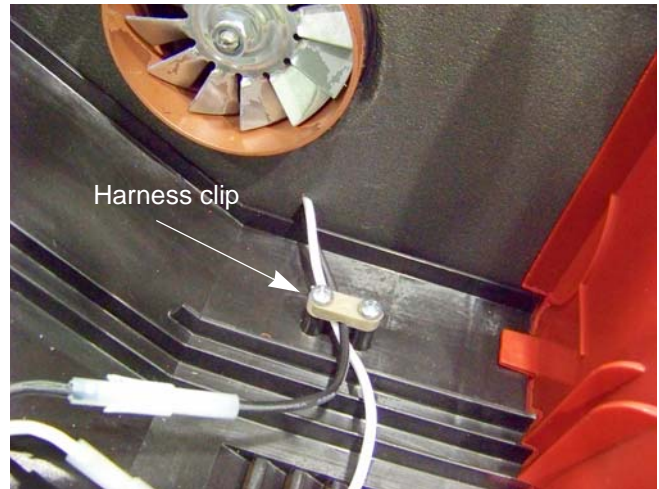


Figure 2.13

5. Remove the three motor screws using a 10 mm wrench. See Figure 2.14.

NOTE: There is a spacer between the motor and the side plate. A fourth screw will hold the spacer in place when the motor is removed.

6. Lift the motor and foam gasket out of the snow thrower.

NOTE: If reusing the motor, keep the foam gasket on it and protect the gasket from damage.

NOTE: If the foam gasket is damaged, it must be replaced.

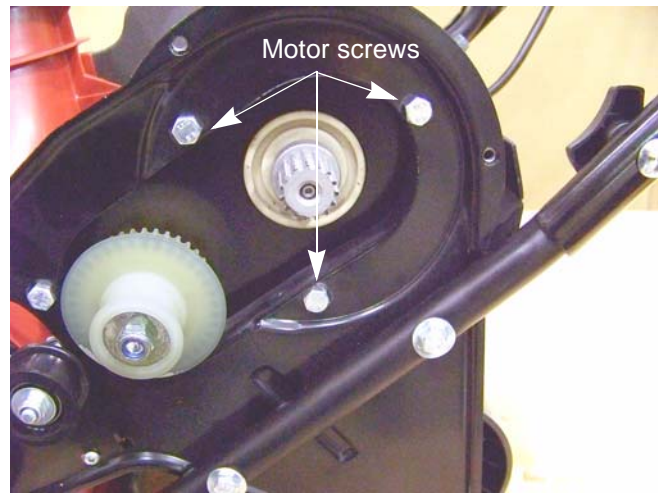


Figure 2.14

To install a motor:

1. Mount the motor to the side plate so that the black wire is on the top, front side of the motor and the white wire is at the bottom, rear side of the motor. See Figure 2.15.

NOTE: If the foam gasket is already attached to the motor, align it in the groves in the housing.



Figure 2.15

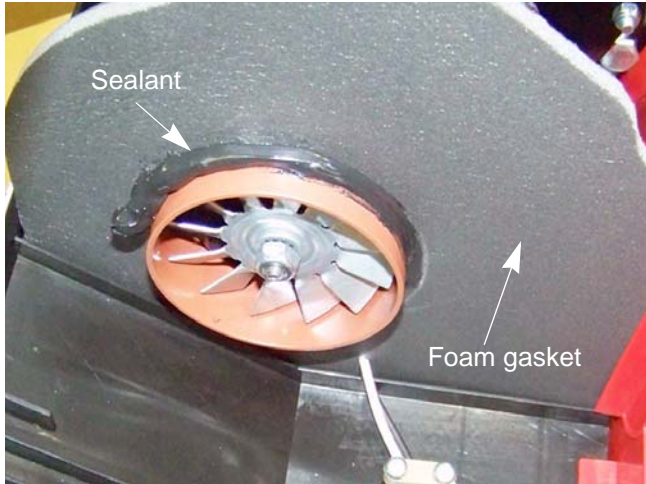


Figure 2.16

2. Install the foam gasket.
3. Apply a heavy bead of Terostat MS 939 or equivalent sealant around the top half of the motor where the gasket meets it. See Figure 2.16.
4. Connect the motor harness.
5. Install the harness clip.
6. Install the belts and the motor cover by following the procedures described in Chapter 3: Belts and Pulleys.
7. Test run the motor in a safe area before returning it to service.

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Switch box assembly

To remove/replace a switch box assembly:

1. Disconnect the power source.
2. Slide the control bail out of the hole on the left side of the handle bar. See Figure 2.17.
3. Slide the control bail out of the switch box assembly.

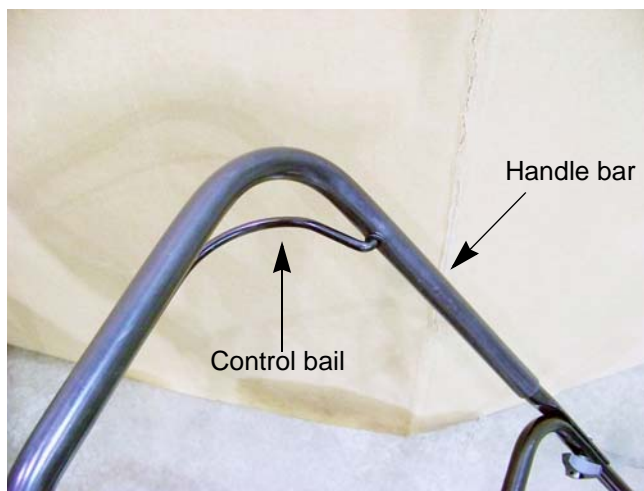


Figure 2.17

4. Slip the harness out of the clip on the right side of the middle handle. See Figure 2.18.

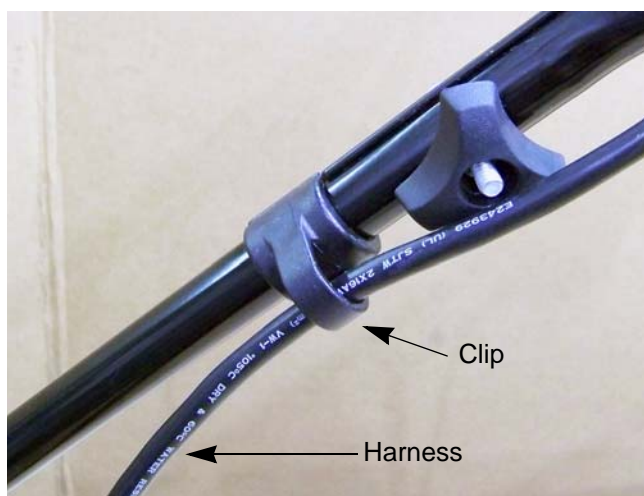


Figure 2.18

5. Remove the two bolts that hold the switch box to the handle bar using a 7/16" wrench. See Figure 2.19.



Figure 2.19

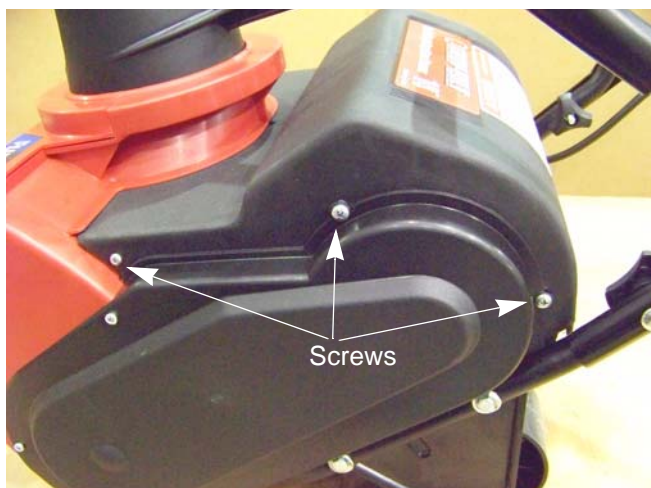


Figure 2.20

6. Remove the three screws that hold the left side of the motor cover to the snow thrower using a #2 phillips screw driver. See Figure 2.20.



Figure 2.21

7. Remove the screw that holds the rear of the top motor cover to the bottom motor cover. See Figure 2.21.

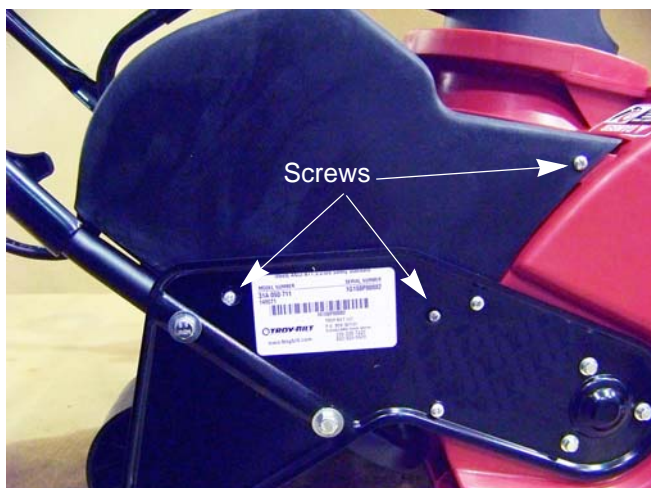


Figure 2.22

8. Remove the three screws that hold the right side of the motor cover to the auger housing using a #2 phil-lips screw driver. See Figure 2.22.
9. Remove the motor cover from the right side of the machine.

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10. Remove the harness clip using a #2 phillips screw driver. See Figure 2.23.
11. Disconnect the harness from the motor harness.
12. Install the switch box assembly by following the previous steps in reverse order.
13. Test run the snow thrower in a safe area before returning it to service.



Figure 2.23

Servicing the switch box assembly

NOTE: DO NOT open the switch box during the warranty period. If there is a failure under warranty, replace the entire switch box assembly.

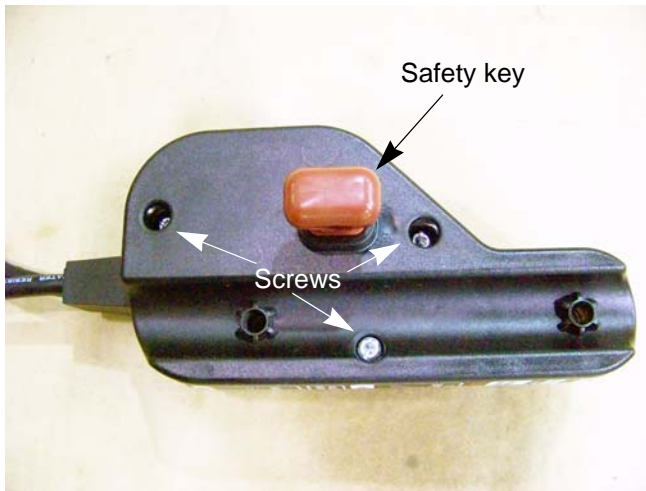


Figure 2.24

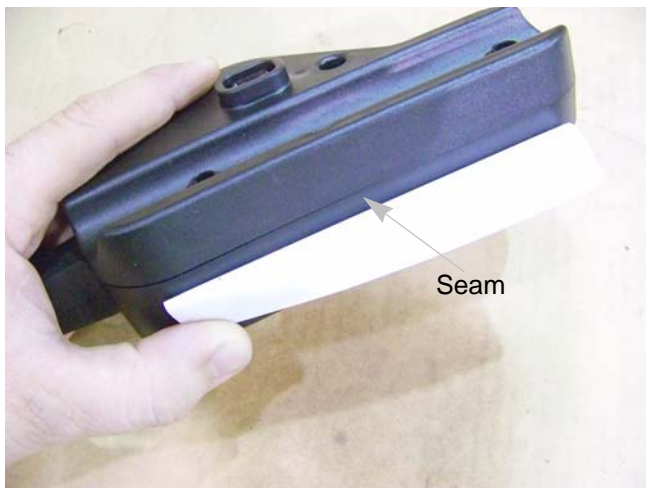


Figure 2.25

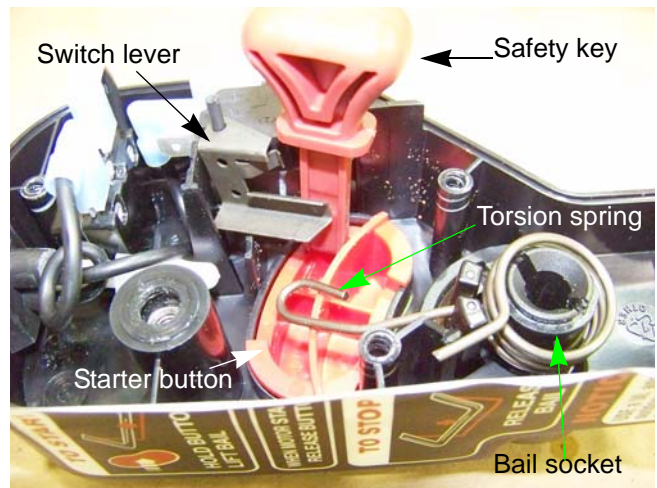
To service the switch box:

1. Disconnect the power supply to the snow thrower.
2. Remove the safety key.
3. Remove the three housing screws using T-20 torx driver. See Figure 2.24. Remove the switch box by following the steps described in the switch box section of this chapter.
4. Carefully peel back the label on the switch box until the housing seam is fully exposed. See Figure 2.25.
5. Carefully split the housing.

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NOTE: With the switch box open, the internal functions can be explained.

- Depressing the starter button lifts the torsion spring so that it can catch the switch lever.
- Squeezing the safety bail rotates the bail socket, which in turn causes the torsion spring to push against the switch lever.
- The switch lever pushes the safety key into the switch plunger, closing the contacts.



6. Service the internal components.

To remove/replace the switch:

- A Remove the switch lever and pin.
- B Lift the switch out of the housing.
- C Disconnect the wires.
- D Install by following the previous steps in reverse order.

To remove/replace the circuit breaker:

- A Pull the circuit breaker out of the housing.

NOTE: The circuit breaker is a tight fit in the housing.

- B Disconnect the wires.
- C Install by following the previous steps in reverse order.

To remove/replace the harness:

- A Disconnect the wire that goes from the main harness to the switch.
- B Disconnect the wire on the circuit breaker closest to the main harness assembly.
- C Slide the main harness assembly out of the housing.
- D Install the main harness by following the previous steps in reverse order.

7. Reassembly the switch box by following the previous steps in reverse order.

8. Test run the snow thrower in a safe area before returning it to service.

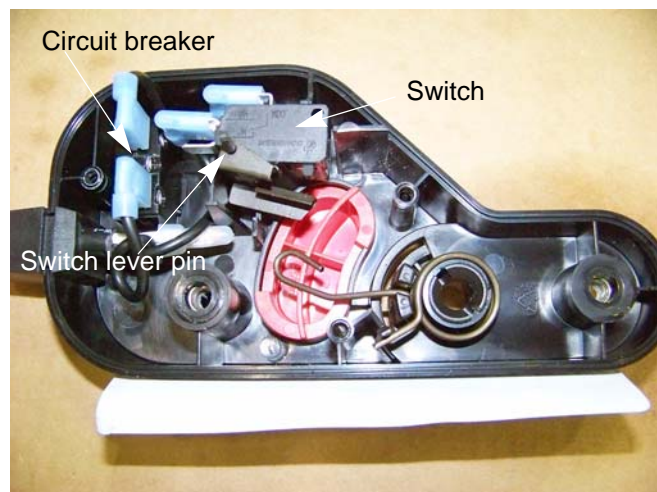


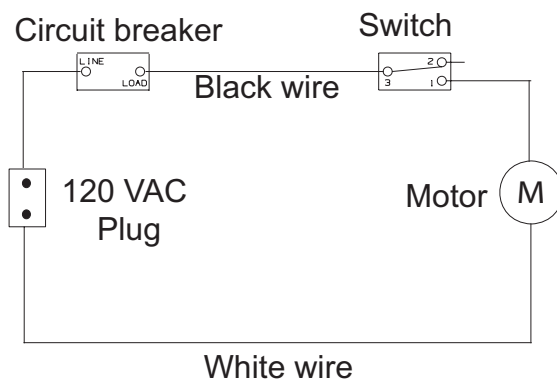
Figure 2.26

Returning to service

After diagnosing and repairing any fault in an electrical circuit and any other repairs needed, the following steps should be taken:

1. Test run the machine to verify that the condition has been repaired.
2. Cycle the circuit at least ten times.
3. Allow the machine to cool down for a couple of hours.
4. Re-test the machine to verify the condition does not re-appear.
5. If the condition does not re-appear, return the machine back to service.

Schematic



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Snow Flurry 1400

CHAPTER 3: BELTS AND PULLEYS

Belts

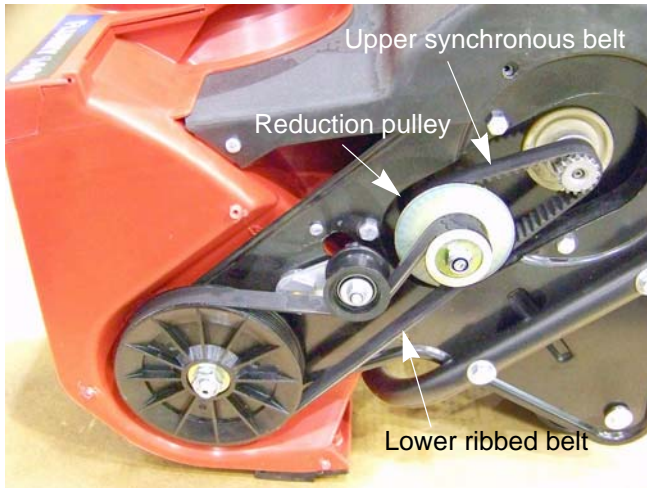


Figure 3.1

The Snow Flurry has a very efficient snow throwing pattern. This is accomplished through the use of a two stage, belt drive system to drive the auger. The upper stage uses a synchronous belt that goes from the motor to a reduction pulley. This gives the drive system a 2.5:1 speed reduction and increases the torque. See Figure 3.1.

The lower ribbed belt goes from the reduction pulley to the auger. This belt has a spring load idler to hold a constant tension on the belt. This belt has a 3.5:1 reduction in speed, spinning the auger at its most efficient speed.

Lower ribbed belt

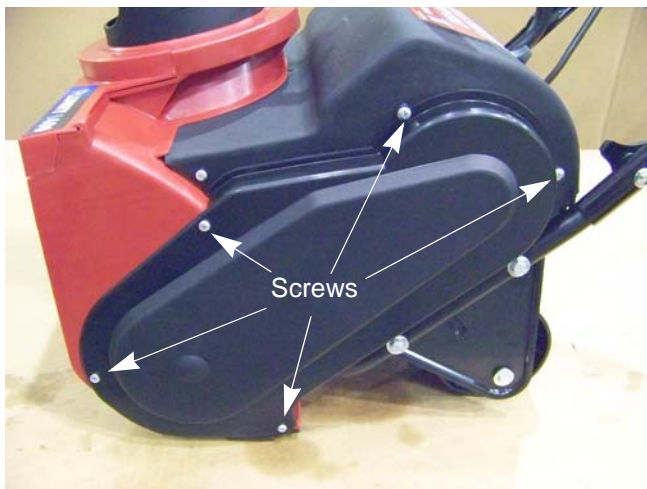


Figure 3.2

To change the lower belt:

1. Unplug the power cord of the snow thrower.
2. Remove belt cover by removing the five screws that hold it to the snow thrower using a #2 phillips screw driver. See Figure 3.2.

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3. Move the idler pulley to relieve the belt tension.

NOTE: A 10mm wrench can be used for leverage when moving the idler pulley.
See Figure 3.3.

4. Slide the belt off of the pulleys.
5. Install the belt by following the previous steps in reverse order.
6. Test run the snow thrower before returning it to service.



Figure 3.3

Upper synchronous belt

To remove/replace the upper belt:

1. Disconnect the power supply of the snow thrower.
2. Remove the lower belt by following the procedures described in the lower ribbed belt section of this chapter.
3. Remove the three screws that hold the right side of the motor cover to the auger housing using a #2 phillips screw driver. See Figure 3.4.

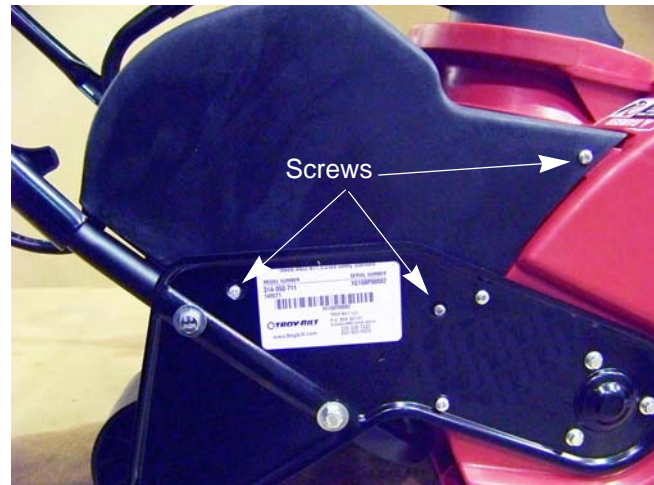


Figure 3.4

4. Remove the screw that holds the front left corner of the motor cover to the auger housing using a #2 phillips screw driver. See Figure 3.5.



Figure 3.5

Belts and Pulleys

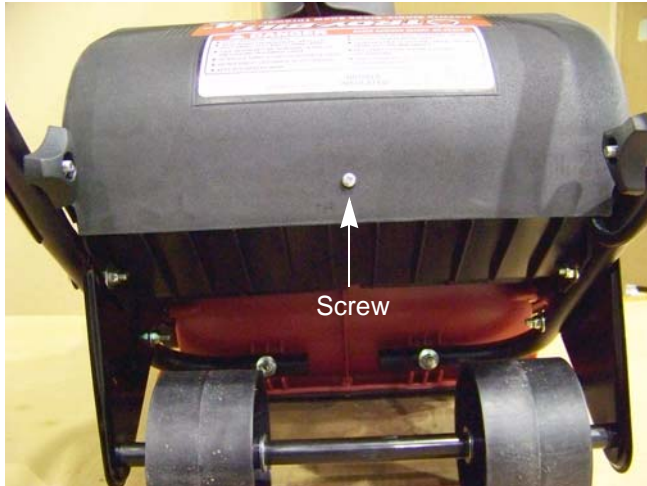


Figure 3.6

5. Remove the screw from the rear of the motor cover using a #2 phillips screw driver. See Figure 3.6.
6. Remove the motor cover from the right side of the machine.
7. Loosen the nut and bolt that the reduction pulley rotates on using a 12mm wrench and a 13mm wrench.
8. Slide the belt off of the pulleys.

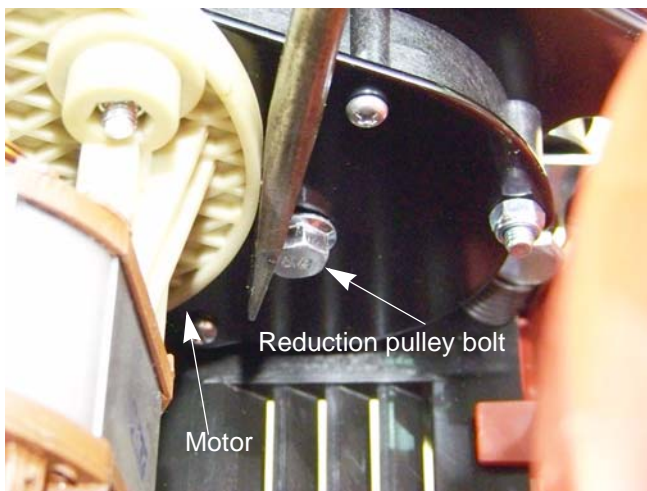


Figure 3.7

To install the upper belt:

9. Slide the belt over the reduction and the motor pulleys.
 10. Using a large flat head screw driver, gently pry on the head of the reduction pulley bolt to apply tension to the belt.
 11. While holding tension on the belt, tighten the reduction pulley nut using a 13mm wrench.
- NOTE:** The prying force applied to the bolt head will prevent the bolt from turning while tightening the nut.
12. Install the lower belt and the covers by following 1 - 5 in reverse order.
 13. Test run the snow thrower before returning it to service.

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Auger pulley

To remove/replace the auger pulley:

1. Disconnect the power source.
2. Remove the lower belt by following the procedures described in the lower ribbed belt section of this chapter.
3. Block the auger by placing a piece of wood down the discharge chute. See Figure 3.8.



Figure 3.8

4. Remove the pulley nut using a 17mm wrench. See Figure 3.9.

NOTE: The pulley nut has right hand threads.

5. Slide the pulley off of the auger.



Figure 3.9

Belts and Pulleys



Figure 3.10

6. Inspect the key and the auger shaft keyway for damage.

NOTE: If the key is damaged, inspect the auger for signs of impact damage.

7. Install the pulley by following the previous steps in reverse order.

8. Test run the snow thrower before returning it to service.

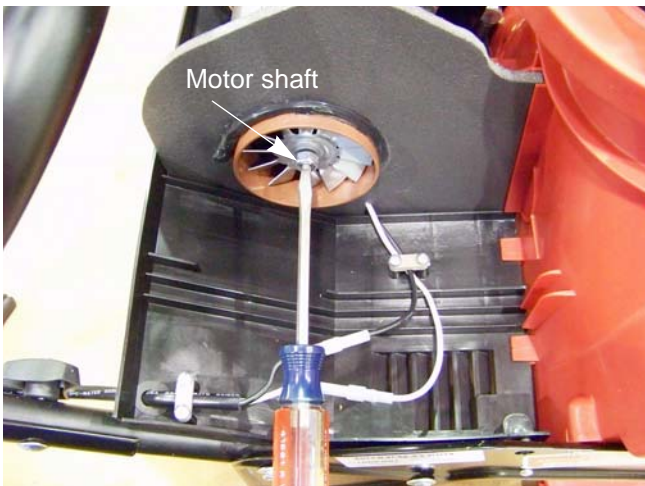


Figure 3.11

Motor pulley

To remove/replace the motor pulley:

1. Disconnect the power source.
2. Remove the upper belt by following the procedures described in upper synchronous belt section of this chapter.
3. Hold the motor's rotor shaft by inserting a flat head screw driver into the slot in the end of it, on the fan side. See Figure 3.11.



Figure 3.12

4. Unthread the motor pulley in a counter-clockwise direction using a large pair of pliers. See Figure 3.12.

5. Install the motor pulley by following the previous steps in reverse order.

NOTE: Hand tighten the motor pulley onto the motor shaft.

NOTE: DO NOT put a thread locking compound on the threads. The pulley is self tightening and the compound will interfere with that.

6. Test run the snow thrower in a safe area before returning it to service.

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CHAPTER 4: AUGER HOUSING COMPONENTS

NOTE: The snow flurry snow throwers have two components that are normal wear parts. They are the rubber auger spirals and the shave plate. These components will need to be replaced from time to time.

Rubber auger spiral replacement

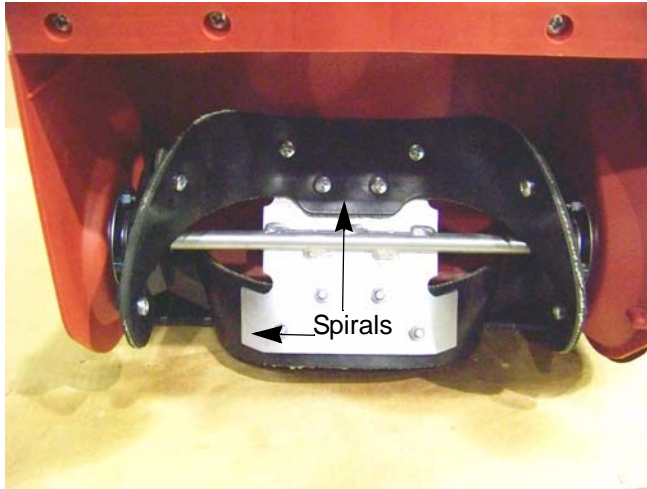


Figure 4.1

To replace the rubber auger spirals:

1. Disconnect the power supply of the snow thrower.
2. Remove the nuts and bolts that hold the rubber spirals to the auger assembly using a #3 phillips screw driver and a 10mm wrench. See Figure 4.1.
3. Install the spirals by following the previous steps in reverse order.

NOTE: Tighten the nuts and bolts until they start to compress the rubber.

NOTE: Over torquing the nuts and bolt can cause the bolt head to pull through the rubber.

4. Test run the snow thrower in a safe area before returning it to service.

Shave plate

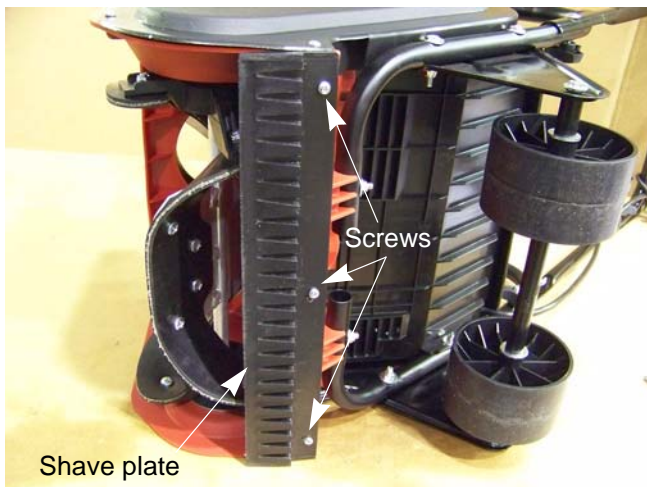


Figure 4.2

To replace the shave plate:

1. Disconnect the power supply of the snow thrower.
2. Lay the snow thrower down on its side.
3. Remove the three screws that hold the shave plate to the auger housing using a #2 phillips screw driver. See Figure 4.2.
4. Install the shave plate by following the previous steps in reverse order.
5. Test run the snow thrower in a safe area before returning it to service.

Lower Discharge chute

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To remove/replace the lower discharge chute:

1. Disconnect the power supply of the snow thrower.
2. Remove the four screws that hold the front cover to the auger housing using a #3 phillips screw driver. See Figure 4.3.

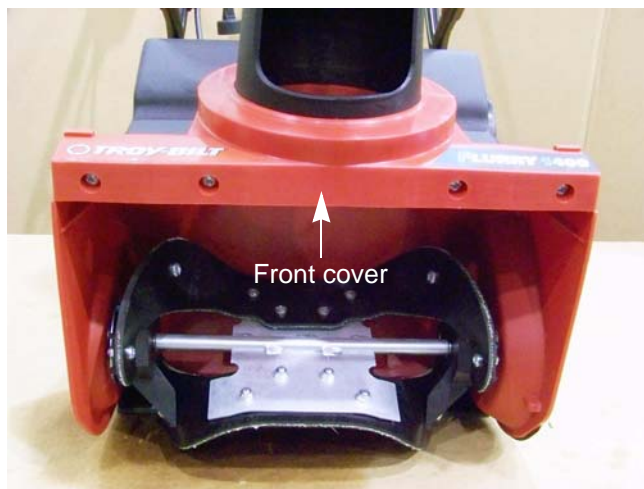


Figure 4.3

NOTE: The lower discharge chute has a spring loaded detent ratchet pressing against it. As the chute is pulled away from the auger housing, this ratchet will fall out. See Figure 4.4.

3. If replacing the lower discharge chute, remove the upper discharge chute from the lower chute.

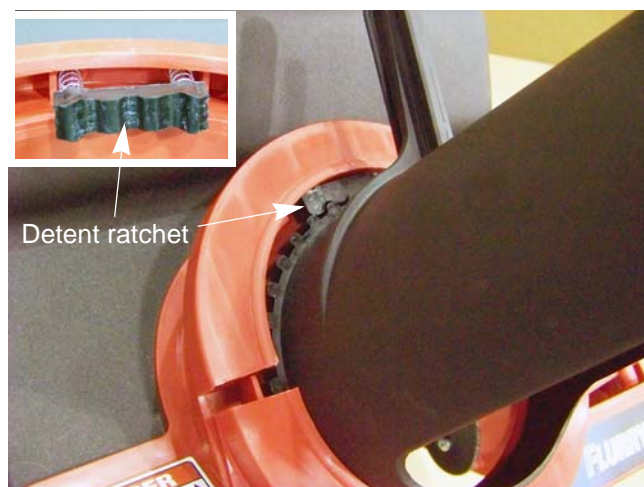


Figure 4.4

4. Tip the snow thrower back so that the chute opening is facing up.
5. If necessary, insert the springs into the detent ratchet.
6. Apply a light coat of lithium grease to the teeth section of the detent ratchet.
7. Install the detent ratchet and spring in the auger housing so that the spring slide over the bosses in the housing. See Figure 4.5.
8. Insert the lower discharge chute into the auger housing.
9. Install the front cover.
10. Test run the snow thrower before returning it to service.

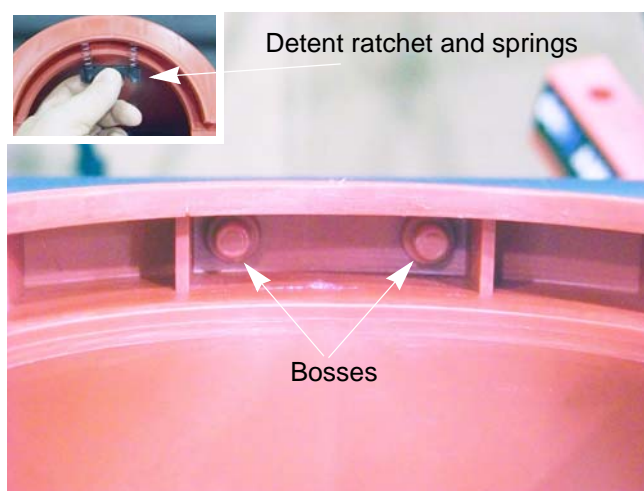


Figure 4.5

Upper discharge chute

Auger Housing Components

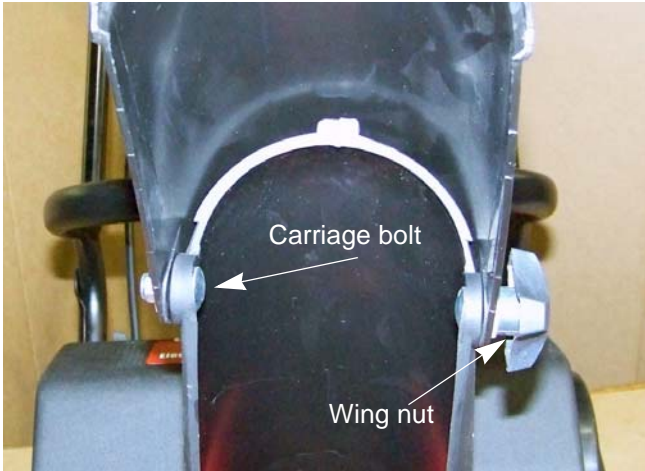


Figure 4.6

To remove/replace the upper discharge chute:

1. Disconnect the power supply of the snow thrower.
2. Remove the lock nut and carriage bolt that attach the upper chute to the lower chute using a 10mm wrench. See Figure 4.6.
3. Remove the wing nut and carriage bolt that attaches the upper chute to the lower chute.
4. Install the upper chute by following the previous steps in reverse order.
5. Test run the snow thrower before returning it to service.

Auger

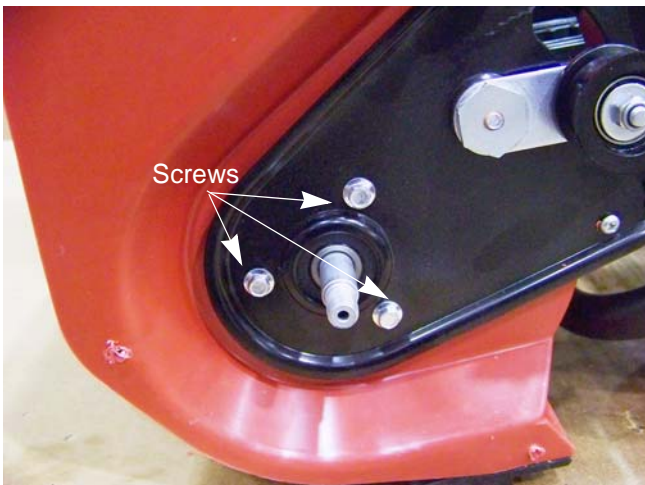


Figure 4.7

To remove/replace the auger:

1. Disconnect the power supply of the snow thrower.
2. Remove the lower belt by following the procedures described in Chapter 3: Belt and Pulleys.
3. Remove the auger pulley by following the procedures described in Chapter 3: Belt and Pulleys.
4. Remove both bearing retainers by removing the bearing retainer screws using a 7mm wrench. See Figure 4.7.



Figure 4.8

5. Remove the two screws that hold the right side panel to the auger housing using a #2 phillips screw driver.
6. Remove the two nuts and bolts that attach the lower handle to the side panel using a pair of 10mm wrenches.
7. Rotate the right side panel away from the auger housing.

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8. Gently bow out the right side of the auger housing.
9. Slide the auger far enough to the left to allow the right side of the auger to clear the housing. See Figure 4.9.
10. Remove the auger.



Figure 4.9

NOTE: These snow throwers have an auger that is assembled.

11. Mark the auger end mounts to identify which one is the left and which one is the right.
12. Remove the nuts and bolts that hold the rubber spirals to the auger assembly using a #3 phillips screw driver and a 10mm wrench. See Figure 4.10.



Mark the auger end mounts

Figure 4.10

13. Slide the left bearing and bearing cup off of the auger shaft. See Figure 4.11.
14. Slide the auger end mount off of the auger shaft.
15. Remove the key.
16. Remove the snap ring using a pair of retaining ring pliers.

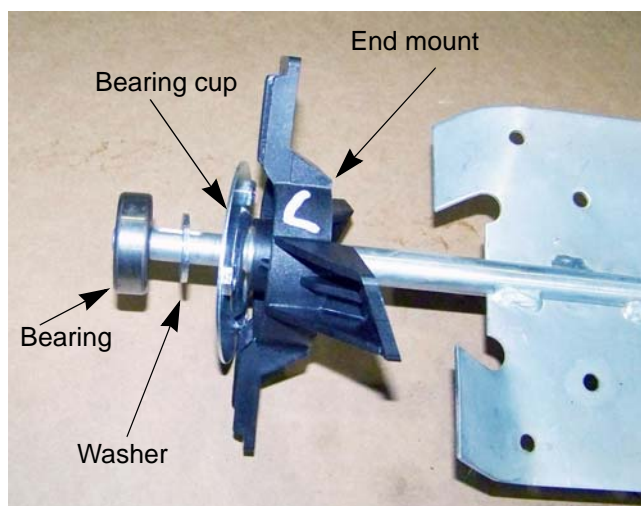


Figure 4.11

Auger Housing Components



Figure 4.12

17. Remove the screw and washer that retain the right bearing on the auger shaft. See Figure 4.12.
18. Slide the right bearing and bearing cup off of the auger shaft.
19. Slide the auger end mount off of the auger shaft.
20. Remove the key.
21. Remove the snap ring using a pair of retaining ring pliers.
22. Install the auger by following the previous steps in reverse order.

NOTE: Apply a small amount of releasable thread locking compound such as Loctite® 242 (blue) to the screw that retains the right bearing.

23. Test run the snow thrower in a safe area before returning it to service.

Snow Flurry 1400

Left side panel

To remove/replace the left side panel:

1. Disconnect the power supply of the snow thrower.
2. Remove the upper and lower belt by following the procedures described in Chapter 3: Belt and Pulleys.
3. Remove the auger pulley by following the procedures described in Chapter 3: Belt and Pulleys.
4. Remove the reduction pulley using a 12mm wrench and a 13mm wrench.

NOTE: There is a shoulder spacer and a washer under the reduction pulley. See Figure 4.13.

5. Remove the motor by following the procedures described in Chapter 2: Electrical.

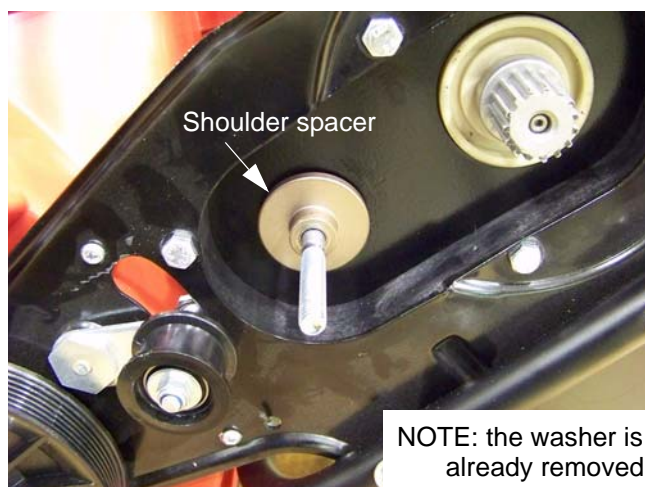


Figure 4.13

6. Remove the three bearing retainer screws using a 7mm wrench. See Figure 4.14.

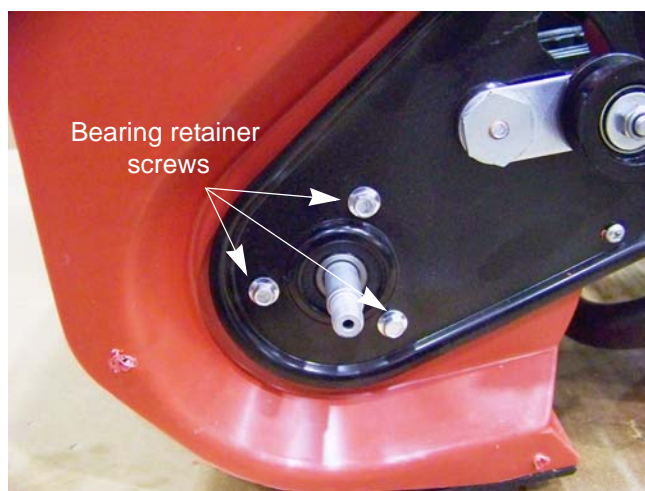


Figure 4.14

7. Remove the screw that holds the roller axle to the side panel using a 10mm wrench.

NOTE: A pair of locking pliers can be used to hold the axle while removing the screw. See Figure 4.15.

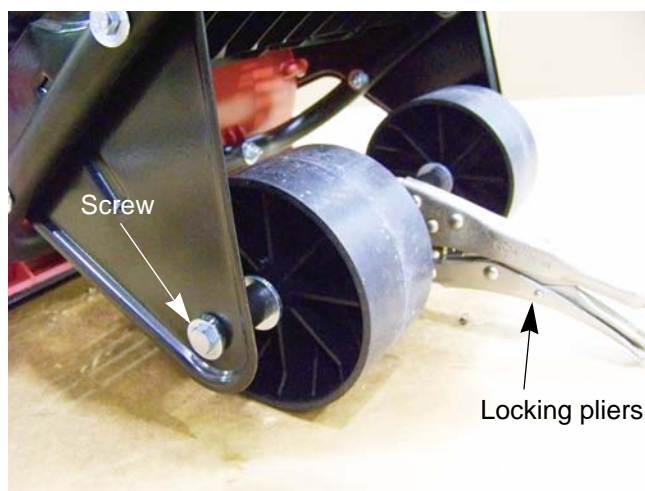


Figure 4.15

Auger Housing Components



Figure 4.16

8. Remove both of the nuts and bolts that hold the lower handle to the side panel using a pair of 10mm wrenches. See Figure 4.16.

NOTE: There are washers under the bolt head and under the nuts.



Figure 4.17

9. Remove the two screws that hold the side panel to the auger housing using a #2 phillips screw driver. See Figure 4.17.
10. Slide the side panel out from in between the lower handle and the auger housing.

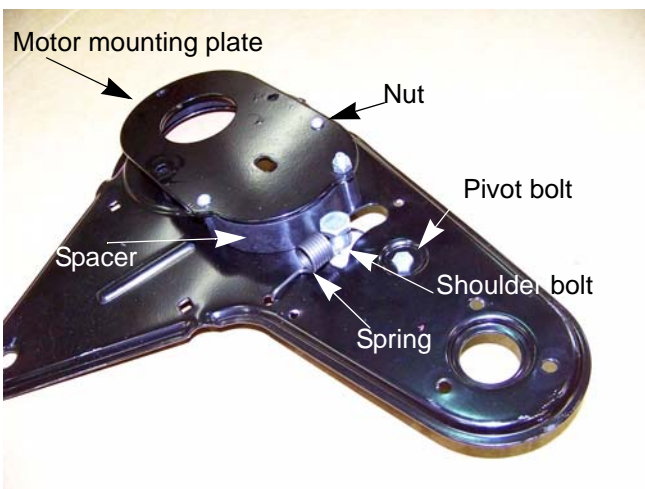


Figure 4.18

11. Remove the nut and bolt that holds the spacer and motor mounting plate to the side panel using a pair of 10mm wrenches. See Figure 4.18.
12. Remove the shoulder bolt, spring and the idler pulley using a 16mm wrench and a 10mm wrench.
13. Remove the idler bracket using a 10mm wrench and a 22mm wrench.
14. Install the left side panel by following the previous steps in reverse order.
15. Test run the snow thrower in a safe area before returning it to service.

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Right side panel

To remove/replace the right side panel:

1. Disconnect the power supply of the snow thrower.
2. Remove the belt cover.
3. Remove the screw that holds the front left corner of the motor cover to the auger housing using a #2 phillips screw driver. See Figure 4.19.

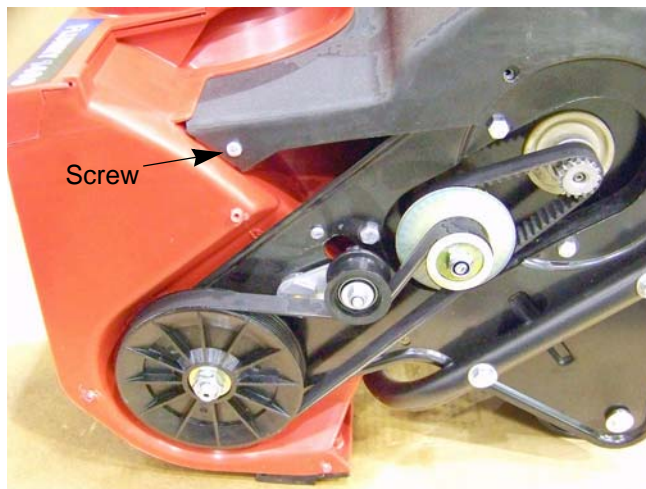


Figure 4.19

4. Remove the three screws that hold the right side of the motor cover to the auger housing using a #2 phillips screw driver. See Figure 4.20.

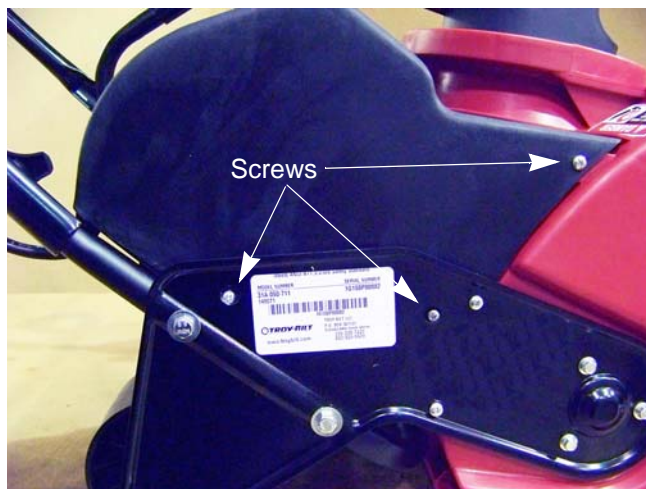


Figure 4.20

5. Remove the three bearing retainer screws using a 7mm wrench. See Figure 4.21.

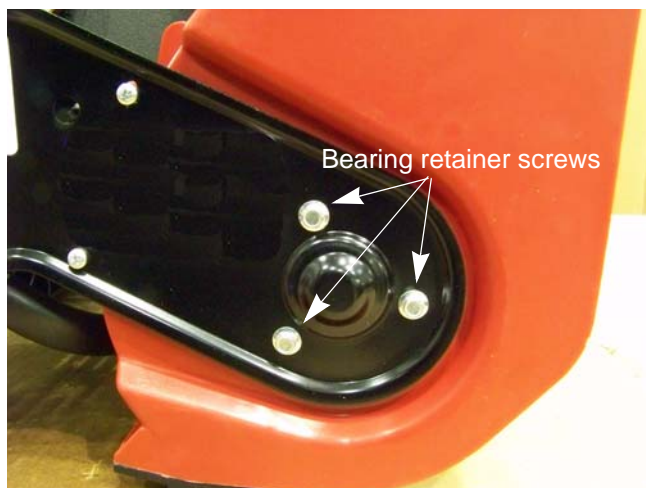


Figure 4.21

Auger Housing Components



Figure 4.22

6. Remove both of the nuts and bolts that hold the lower handle to the side panel using a pair of 10mm wrenches. See Figure 4.22.

NOTE: There are washers under the bolt head and under the nuts.



Figure 4.23

7. Remove the two screws that hold the side panel to the auger housing using a #2 phillips screw driver. See Figure 4.23.

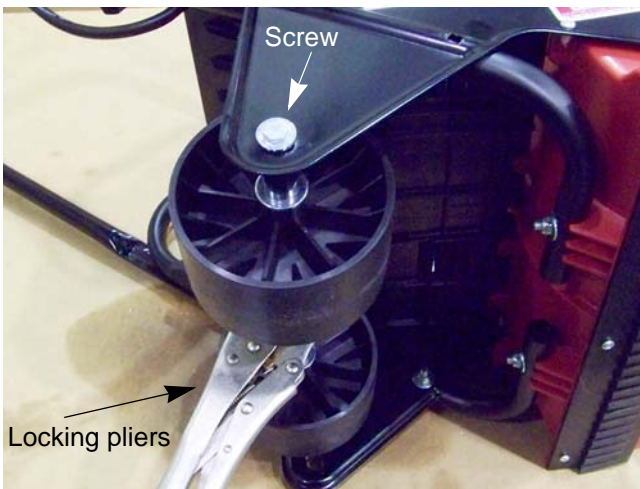


Figure 4.24

8. Remove the screw that holds the roller axle to the side panel using a 10mm wrench.
9. A pair of locking pliers can be used to hold the axle while removing the screw. See Figure 4.15.
10. Slide the side panel out from in between the lower handle and the auger housing.
11. Install the right side panel by following the previous steps in reverse order.
12. Test run the snow thrower in a safe area before returning it to service.

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Auger housing

To remove/replace the auger housing:

1. Disconnect the power supply of the snow thrower.
2. Remove the auger by following the procedures described in the auger section of the chapter.
3. Remove the motor cover by following the procedures described in the upper synchronous belt section of Chapter 3: Belts and Pulleys.
4. Remove the lower discharge chute by following the procedures described in the lower discharge chute section of this chapter.
5. Remove the shave plate by following the procedures described in the shave plate section of this chapter.
6. Remove the two carriage bolts and nuts that hold the lower handle bar to the bottom of the auger housing using a 10mm wrench. See Figure 4.25.
7. Remove the two screws that hold the left side panel to the auger housing using a #2 phillips screw driver. See Figure 4.26.
8. Slide the auger housing out of the snow thrower.



Figure 4.25



Figure 4.26

9. Install the auger housing by following the previous steps in reverse order.

NOTE: When installing the auger housing, make sure the lower motor housing and the foam gasket are in the slots in the auger housing. See Figure 4.27.

10. Test run the snow thrower in a safe area before returning it to service.

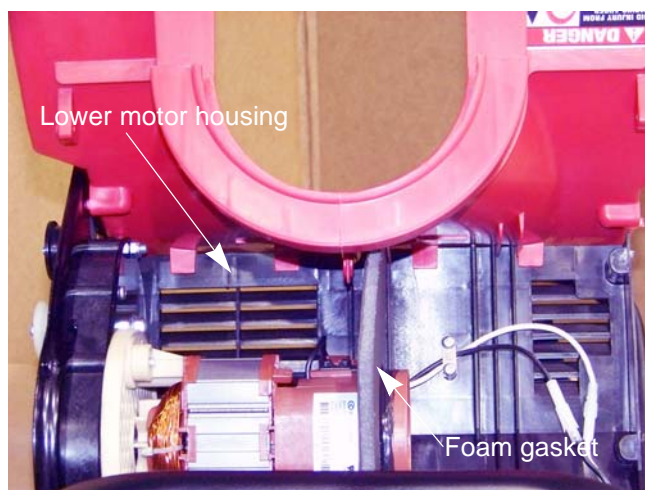


Figure 4.27

Auger Housing Components

Handles

NOTE: The handle is composed of three sections. They are serviceable separately.

Top section

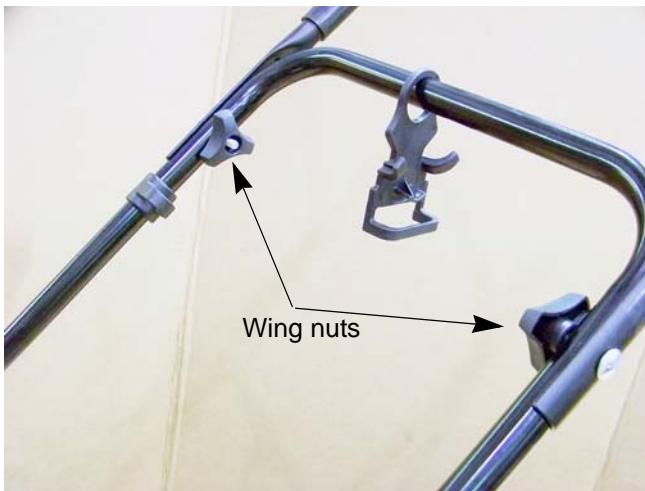


Figure 4.28

1. Disconnect the power supply of the snow thrower.
2. Remove the switch box assembly by following the procedures described in Chapter 2: Electrical.
3. Remove the two wing nuts and carriage bolts. See Figure 4.28.
4. Gently spread the upper handle section while sliding it off of the snow thrower.
5. Install the upper handle section by following the previous steps in reverse order.

Middle section

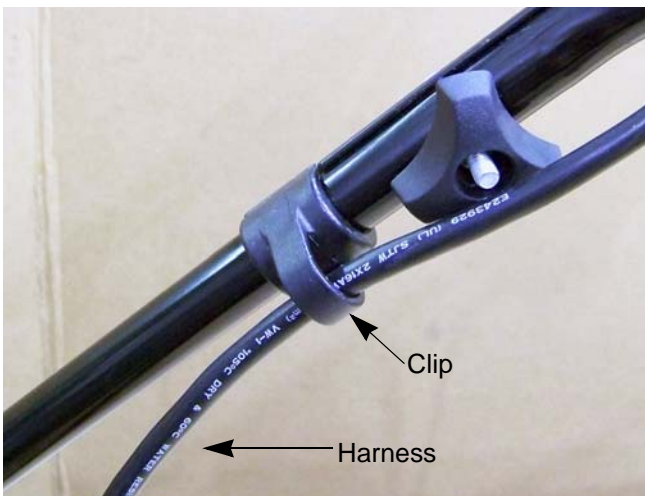


Figure 4.29

1. Disconnect the power supply of the snow thrower.
2. Slip the harness out of the clip on the right side of the middle handle. See Figure 4.29.
3. Remove the two wing nuts and carriage bolts that hold the upper handle to the middle handle.
4. Gently spread the upper handle section while sliding it off of the snow thrower.
5. Remove the two wing nuts and carriage bolts that hold the middle handle to the lower handle.
6. Gently spread the middle handle section while sliding it off of the snow thrower.
7. Install the middle handle section by following the previous steps in reverse order.

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Lower handle

1. Disconnect the power supply of the snow thrower.
2. Remove the two wing nuts and carriage bolts that hold the middle handle to the lower handle.
3. Gently spread the middle handle section while sliding it off of the snow thrower.



Figure 4.30

4. Remove the nuts and bolts that hold the lower handle to the left side panels using a pair of 10mm wrenches. See Figure 4.31.
5. Remove the nuts and bolts that hold the lower handle to the right side panels using a pair of 10mm wrenches.

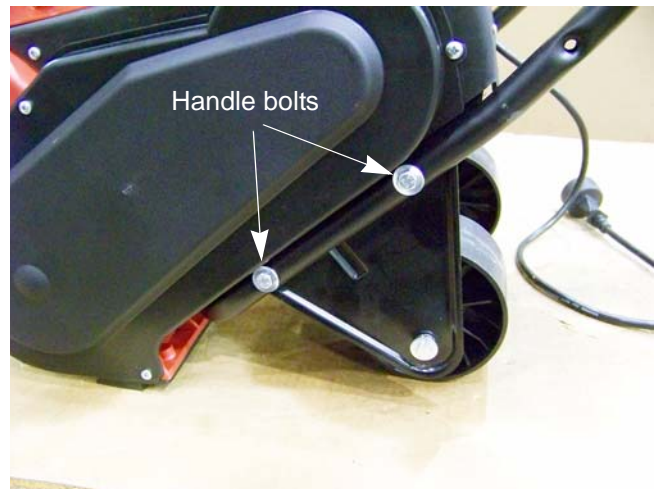


Figure 4.31

6. Remove the two carriage bolts and nuts that hold the lower handle bar to the bottom of the auger housing using a 10mm wrench. See Figure 4.32.
7. Slide the lower handle off of the snow thrower.
8. Install the lower handle by following the previous steps in reverse order.
9. Test run the snow thrower before returning it to service.

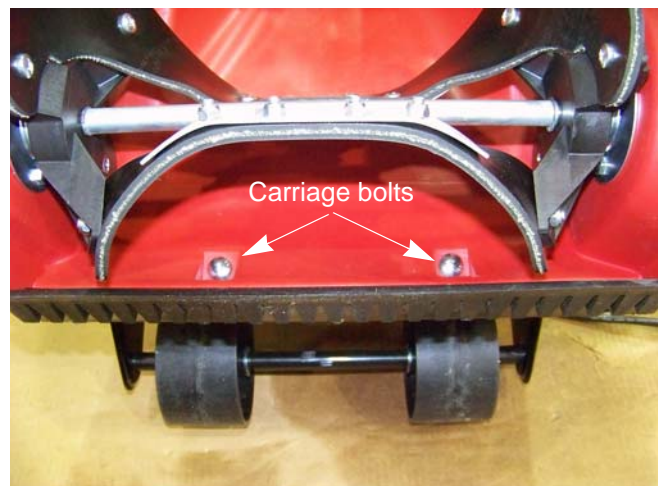


Figure 4.32

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