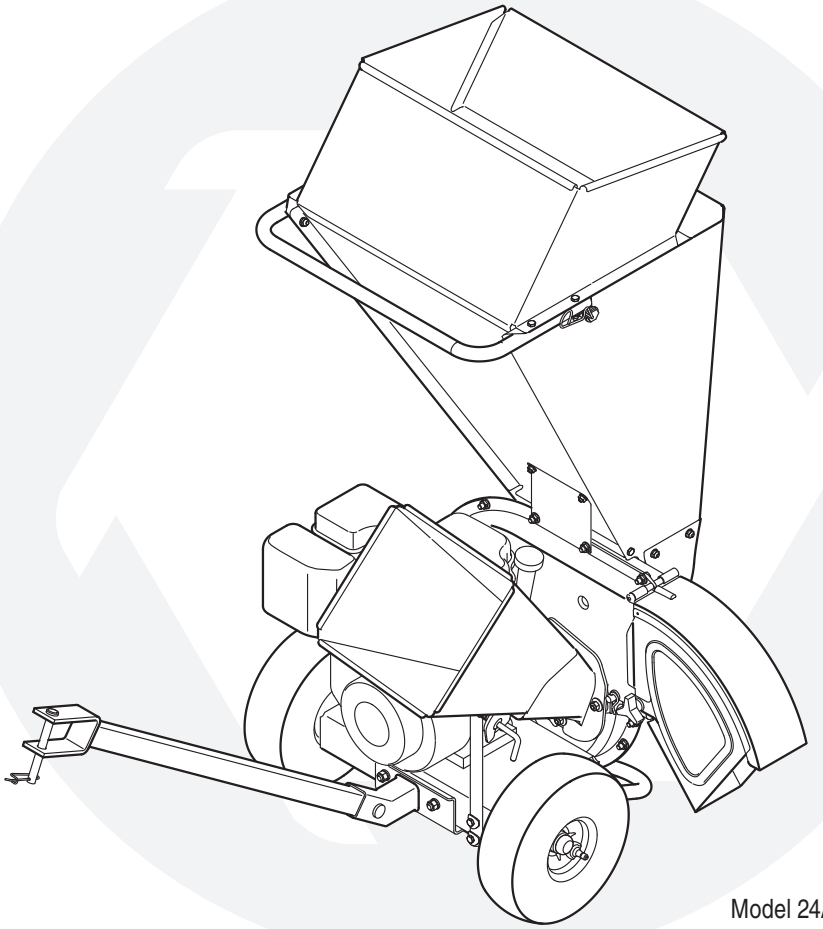
For Parts Call 606-678-9623 or 606-561-4983

Safety • Assembly • Operation • Tips & Techniques • Maintenance • Troubleshooting • Parts Lists • Warranty

OPERATOR'S MANUAL

TROY-BILT®



Model 24A-425E766 Shown

Chipper Shredder — Model Series 410 & 420

IMPORTANT

READ SAFETY RULES AND INSTRUCTIONS CAREFULLY BEFORE OPERATION

Warning: This unit is equipped with an internal combustion engine and should not be used on or near any unimproved forest-covered, brush-covered or grass-covered land unless the engine's exhaust system is equipped with a spark arrester meeting applicable local or state laws (if any). If a spark arrester is used, it should be maintained in effective working order by the operator. In the State of California the above is required by law (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal lands. A spark arrester for the muffler is available through your nearest engine authorized service dealer or contact the service department, P.O. Box 361131 Cleveland, Ohio 44136-0019.

PRINTED IN U.S.A.

TROY BILT LLC, P.O. BOX 361131 CLEVELAND, OHIO 44136-0019

FORM NO. 769-00830C
6/01/2006

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This Operator's Manual is an important part of your new chipper shredder. It will help you assemble, prepare and maintain the unit for best performance. Please read and understand what it says.

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Finding and Recording Model Number

BEFORE YOU START ASSEMBLING
YOUR NEW EQUIPMENT,
please locate the model plate on the equipment and copy the information to the sample model plate provided to the right. You can locate the model plate by standing behind the unit and looking down at the frame below the engine. This information will be necessary to use the manufacturer's web site and/or obtain assistance from the Customer Support Department or an authorized service dealer.

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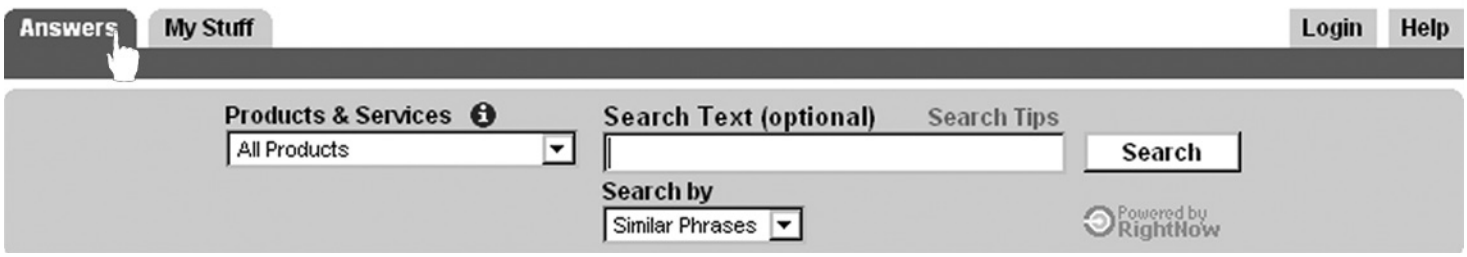
TROY-BILT LLC
P. O. BOX 361131
CLEVELAND, OH 44136
330-558-7220
1-800-520-5520

Customer Support

Please do *NOT* return the unit to the retailer from which it was purchased, without first contacting Customer Support.

If you have difficulty assembling this product or have any questions regarding the controls, operation, or maintenance of this unit, you can seek help from the experts. Choose from the options below:

1. Visit **troybilt.com**. Click on Customer Service at the bottom of the page.
2. Phone a **Customer Support Representative** at 1 (800) 520-5520.
3. The **engine manufacturer** is responsible for all engine-related issues with regards to performance, power-rating, specifications, warranty and service. Please refer to the engine manufacturer's Owner's/Operator's Manual, packed separately with your unit, for more information.



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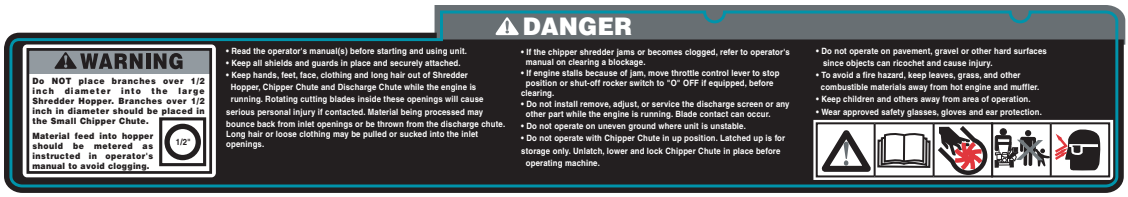

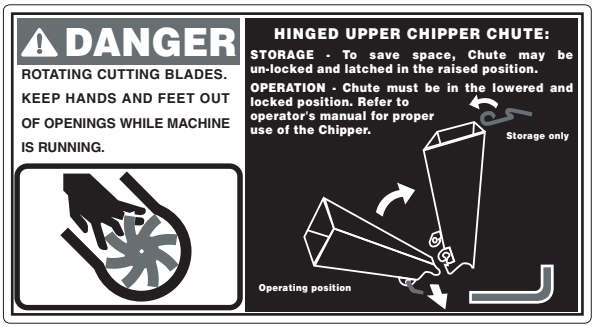

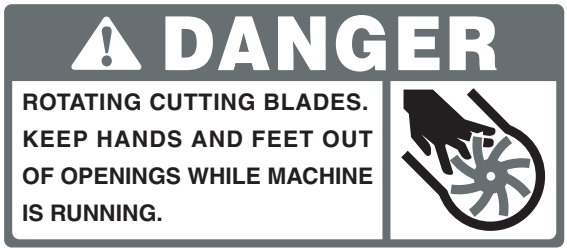

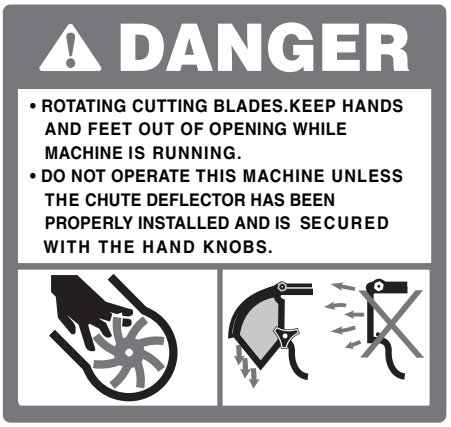

1

Safety Labels

WARNING

This symbol points out important safety instructions which, if not followed, could endanger the personal safety and/or property of yourself and others. Read and follow all instructions in this manual before attempting to operate this machine. Failure to comply with these instructions may result in personal injury. When you see this symbol.

HEED ITS WARNING!

Your Responsibility
Restrict the use of this power machine to persons who read, understand and follow the warnings and instructions in this manual and on the machine.

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2 Safe Operation Practices

WARNING

This symbol points out important safety instructions which, if not followed, could endanger the personal safety and/or property of yourself and others. Read and follow all instructions in this manual before attempting to operate this machine. Failure to comply with these instructions may result in personal injury. When you see this symbol.

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Your Responsibility
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WARNING: Engine Exhaust, some of its constituents, and certain vehicle components contain or emit chemicals known to State of California to cause cancer and birth defects or other reproductive harm.

DANGER: This machine was built to be operated according to the rules for safe operation in this manual. As with any type of power equipment, carelessness or error on the part of the operator can result in serious injury. This machine is capable of amputating hands and feet and throwing objects. Failure to observe the following safety instructions could result in serious injury or death.

Training

1. Read, understand, and follow all instructions on the machine and in the manual(s) before attempting to assemble and operate. Keep this manual in a safe place for future and regular reference and for ordering replacement parts.
2. Be familiar with all controls and their proper operation. Know how to stop the machine and disengage them quickly.
3. Never allow children under 16 years old to operate this machine. Children 16 years old and over should read and understand the operation instructions and safety rules in this manual and should be trained and supervised by a parent.
4. Never allow adults to operate this machine without proper instruction.
5. Keep bystanders, helpers, pets, and children at least 75 feet from the machine while it is in operation. Stop machine if anyone enters the area.
6. Never run an engine indoors or in a poorly ventilated area. Engine exhaust contains carbon monoxide, an odorless and deadly gas.
7. Do not put hands and feet near rotating parts or in the feeding chambers and discharge opening. Contact with the rotating impeller can amputate fingers, hands, and feet.
8. Never attempt to unclog either the feed intake or discharge opening, remove or empty bag, or inspect and repair the machine while the engine is running. Shut the engine off and wait until all moving parts have come to a complete stop. Disconnect the spark plug wire and ground it against the engine.

Preparation

1. Thoroughly inspect the area where the equipment is to be used. Remove all rocks, bottles, cans, or other foreign objects which could be picked up or thrown and cause personal injury or damage to the machine.
2. Always wear safety glasses or safety goggles during operation or while performing an adjustment or repair, to protect eyes. Thrown objects which ricochet can cause serious injury to the eyes.
3. Wear sturdy, rough-soled work shoes and close-fitting slacks and shirts. Loose fitting clothes or jewelry can be caught in movable parts. Never operate this machine in bare feet or sandals. Wear leather work gloves when feeding material in the chipper chute.
4. Before starting, check all bolts and screws for proper tightness to be sure the machine is in safe working condition. Also, visually inspect machine for any damage at frequent intervals.
5. Maintain or replace safety and instructions labels, as necessary.
6. To avoid personal injury or property damage use extreme care in handling gasoline. Gasoline is extremely flammable and the vapors are explosive. Serious personal injury can occur when gasoline is spilled on yourself or your clothes which can ignite. Wash your skin and change clothes immediately.
   a. Use only an approved gasoline container.
   b. Extinguish all cigarettes, cigars, pipes, and other sources of ignition.
   c. Never fuel machine indoors.
   d. Never remove gas cap or add fuel while the engine is hot or running.
   e. Allow engine to cool at least two minutes before refueling.
   f. Never over fill fuel tank. Fill tank to no more than 1/2 inch below bottom of filler neck to provide space for fuel expansion.
   g. Replace gasoline cap and tighten securely.
   h. If gasoline is spilled, wipe it off the engine and equipment. Move machine to another area. Wait 5 minutes before starting the engine.
   i. Never store the machine or fuel container inside where there is an open flame, spark, or pilot light (e.g. furnace, water heater, space heater, clothes dryer, etc.)
   j. To reduce a fire hazard, keep machine free of grass, leaves, or other debris build-up. Clean up oil or fuel spillage and remove any fuel soaked debris.
   k. Allow machine to cool at least 5 minutes before storing.

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Operation

1. Do not put hands and feet near rotating parts or in the feeding chambers and discharge opening. Contact with the rotating impeller can amputate fingers, hands, and feet.
2. Before starting the machine, make sure the chipper chute, feed intake, and cutting chamber are empty and free of all debris.
3. Thoroughly inspect all material to be shredded and remove any metal, rocks, bottles, cans, or other foreign objects which could cause personal injury or damage to the machine.

l4. f it becomes necessary to push material through the shredder hopper, use a small diameter stick. Do not use your hands or feet.

l5. f the impeller strikes a foreign object or if your machine should start making an unusual noise or vibration, immediately shut the engine off. Allow the impeller to come to a complete stop. Disconnect the spark plug wire, ground it against the engine and perform the following steps:
   a. Inspect for damage.
   b. Repair or replace any damaged parts.
   c. Check for any loose parts and tighten to assure continued safe operation.

6. Do not allow an accumulation of processed material to build up in the discharge area. This can prevent proper discharge and result in kickback of material through the feed opening.
7. Do not attempt to shred or chip material larger than specified on the machine or in this manual. Personal injury or machine damage could result.
8. Never attempt to unclog either the feed intake or discharge opening while the engine is running. Shut the engine off, wait until all moving parts have stopped, disconnect the spark plug wire and ground it against the engine before clearing debris.
9. Never operate without the shredder hopper, chipper chute, or chute deflector properly attached to the machine. Never empty or change discharge bag while the engine is running.
10. Keep all guards, deflectors and safety devices in place and operating properly.
11. Keep your face and body back and to the side of the chipper chute while feeding material into the machine to avoid accidental kickback injuries.
12. Never operate this machine without good visibility or light.
13. Do not operate this machine on a paved, gravel or non-level surface.
14. Do not operate this machine while under the influence of alcohol or drugs.
15. Muffler and engine become hot and can cause a burn. Do not touch.
16. Never pick up or carry machine while the engine is running.

Maintenance & Storage

1. Never tamper with safety devices. Check their proper operation regularly.
2. Check bolts and screws for proper tightness at frequent intervals to keep the machine in safe working condition. Also, visually inspect machine for any damage and repair, if needed.
3. Before cleaning, repairing, or inspecting, stop the engine and make certain the impeller and all moving parts have stopped. Disconnect the spark plug wire and ground it against the engine to prevent unintended starting.
4. Do not change the engine governor settings or overspeed the engine. The governor controls the maximum safe operating speed of the engine.
5. Maintain or replace safety and instruction labels, as necessary.
6. Follow this manual for safe loading, unloading, transporting, and storage of this machine.
7. Never store the machine or fuel container inside where there is an open flame, spark or pilot light such as a water heater, furnace, clothes dryer, etc.
8. Always refer to the operator's manual for proper instructions on off-season storage.
9. If the fuel tank has to be drained, do this outdoors.
10. Observe proper disposal laws and regulations for gas, oil, etc. to protect the environment.

Do not modify engine

To avoid serious injury or death, do not modify engine in any way. Tampering with the governor setting can lead to a runaway engine and cause it to operate at unsafe speeds. Never tamper with factory setting of engine governor.

Notice regarding Emissions

Engines which are certified to comply with California and federal EPA emission regulations for SORE (Small Off Road Equipment) are certified to operate on regular unleaded gasoline, and may include the following emission control systems: Engine Modification (EM) and Three Way Catalyst (TWC) if so equipped.

Your Responsibility

Restrict the use of this power machine to persons who read, understand and follow the warnings and instructions in this manual and on the machine.

2

Safe Operation Practices

WARNING

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3

Setting Up Your Chipper Shredder

WARNING

Never operate the chipper shredder with the chipper chute in the raised position. Doing so may result in property damage or serious injury to the operator or bystanders.

IMPORTANT

This unit is shipped without gasoline or oil in the engine. Be certain to service engine with gasoline and oil as instructed in the separate engine manual before operating your machine.

NOTE: All references in this manual to the left or right side of the chipper shredder is from the operating position only. Exceptions, if any, will be specified.

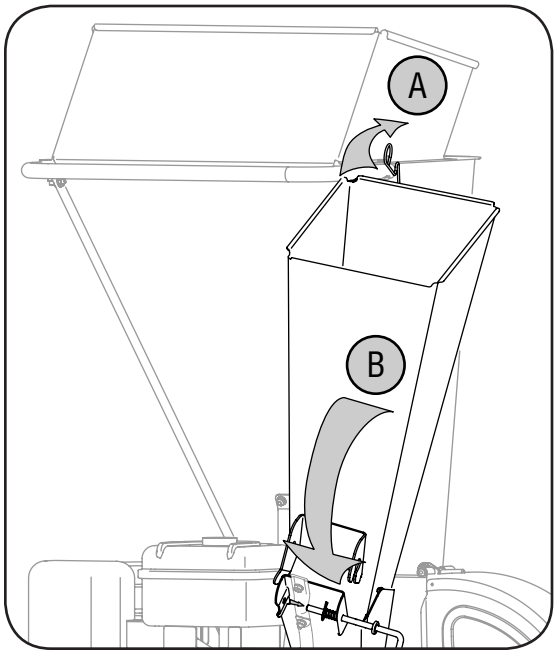

Figure 1

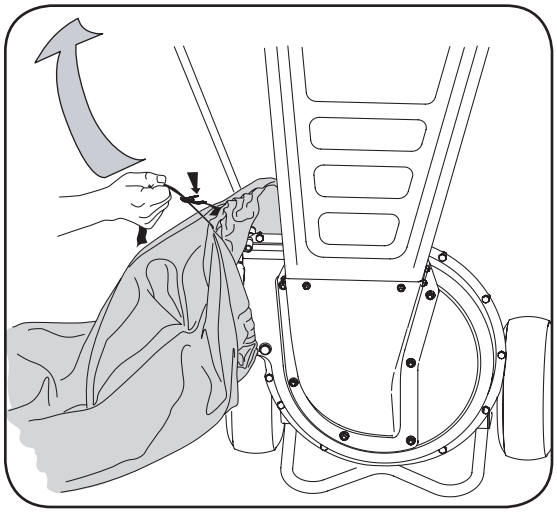

Figure 2

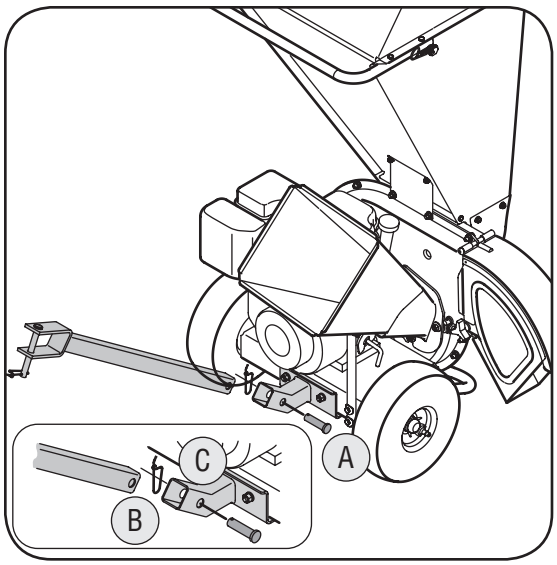

Figure 3

NOTE: This Operators Manual covers a range of product specifications for various models. Characteristics and features discussed and/or illustrated in this manual *may not* be applicable to all models. Troybilt LLC reserves the right to change product specifications, designs and equipment without notice and without incurring obligation.

IMPORTANT: This unit is shipped without gasoline or oil in the engine. Be certain to service engine with gasoline and oil as instructed in the separate engine manual before operating your machine.

Loose Parts In Carton

a. Debris Collection Bag
b. Tow Bar
c. Safety Glasses
d. Engine Oil

Lowering The Chipper Chute

(Model 24A-424G766 & 24A-425E766 Only)

1. For shipping reasons, the unit is crated with its chipper chute in a raised position. To pivot it downward, proceed as follows:
   a. Pull the spring latch upward.
   b. Gently pivot the chipper chute down until it clicks into the lock rod. See Figure 1.

WARNING: Never operate the chipper shredder with the chipper chute in the raised position. Doing so may result in property damage or serious injury to the operator or bystanders.

Attaching The Debris Collection Bag

2. To attach the bag:
   a. Place the opening of the bag completely over the chute deflector.
   b. Position the bag so that the wing knobs which secure the chute deflector to the impeller housing are completely covered.
   c. Pull on the drawstrap until the bag is tight around chute deflector opening. See Figure 2.

Attaching The Tow Bar

3. To attach the tow bar:
   a. Remove the spring pin and clevis pin from the end of the tongue. See Figure 3.
   b. Insert the tongue into the base.
   c. Reinsert the clevis pin through aligning holes in both the tongue and the base. Fasten with the spring pin to secure. See Figure 3.

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Know Your Chipper Shredder

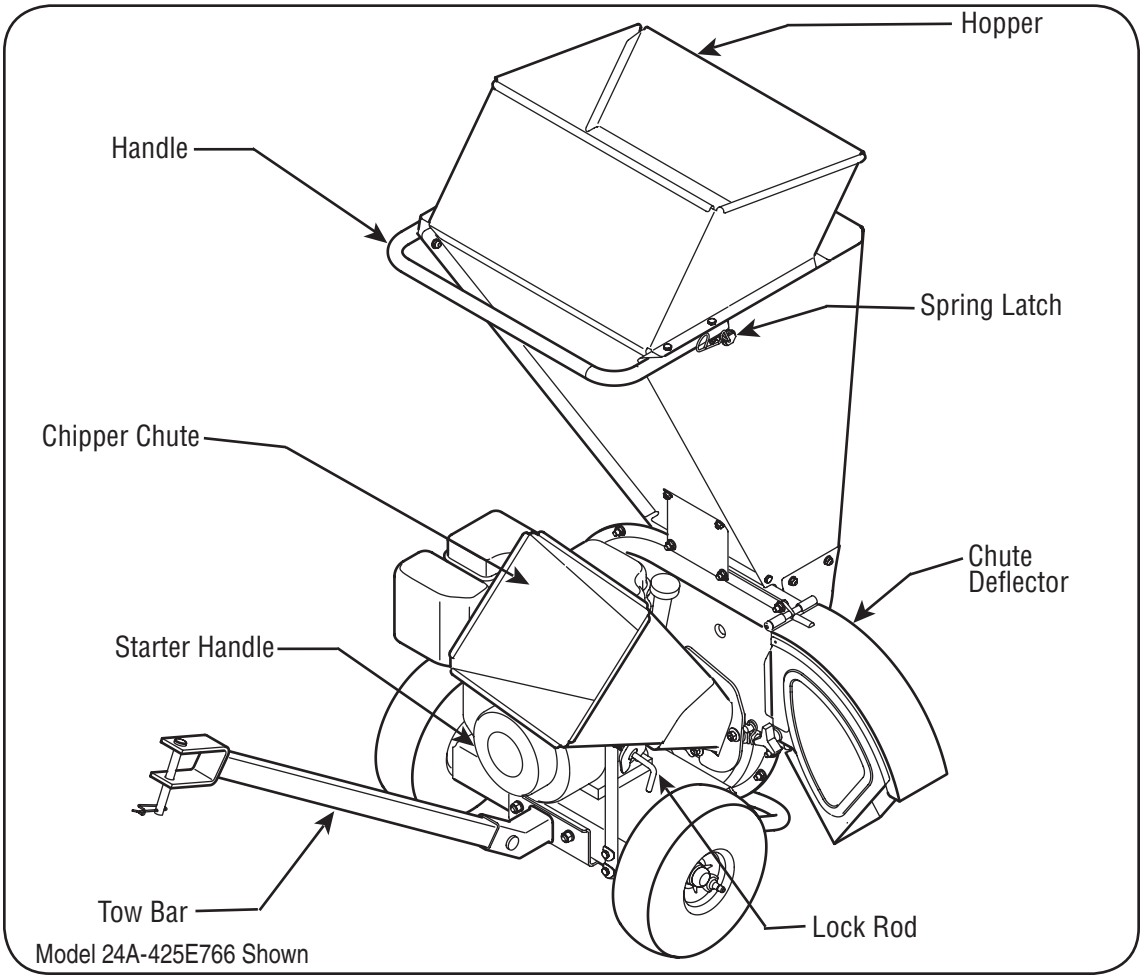

Figure 4

Now that you have set up your chipper shredder for operation, get aquainted with its controls and features. These are described below and illustrated on this page. This knowledge will allow you to use your new equipment to its fullest potential.

Chipper Chute
Branches up to 3" in diameter may be fed into the chipper chute for chipping. See Figure 4.

Hopper
Leaves, twigs and branches up to 1/2-inch in diameter may be placed into the hopper for shredding. See Figure 4.

IMPORTANT: Never place branches with a diameter greater than 1/2-inch in the hopper. Doing so can result in serious damage to your unit's shredder blade, flails or impeller.

Spring Latch
The spring latch is located on the top of the hopper. It is used to release or lock the chipper chute in a raised position for storage or for transporting. See Figure 4.

WARNING: Never operate the chipper shredder with the chipper chute in the raised position. Use the spring latch to lower the chipper chute into the operating position before starting the engine.

Lock Rod
The lock rod is located on the chipper chute support. It is used to release or lock the chipper chute in a lowered position for operation. See Figure 4.

Tow Bar
Use the tow bar to tow the chipper shredder behind a tractor to a job site. See Figure 4.

Handle
Use the handle when manually transporting the chipper shredder. See Figure 4.

Starter Handle
The starter handle is located on the engine. Pull the starter handle to start engine. See Figure 4.

Engine Controls
See the engine Owner/Operator manual packed with your unit for the location and function of the controls on the engine.

3

Setting Up Your Chipper Shredder

WARNING

Never operate the chipper shredder with the chipper chute in the raised position. Use the spring latch to lower the chipper chute into the operating position before starting the engine.

IMPORTANT
Never place branches with a diameter greater than 1/2-inch in the hopper. Doing so can result in serious damage to your unit's shredder blade, flails or impeller.

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4

Operating Your Chipper Shredder

WARNING

The operation of any chipper shredder can result in foreign objects being thrown. Always wear the safety glasses provided with this unit or eye shields before chipping or shredding and while performing any adjustments or repairs.

Never fill fuel tank indoors with engine running or until the engine has been allowed to cool for at least two minutes after running.

Never run the engine indoors or in a poorly ventilated area. Engine exhaust contains carbon monoxide, an odorless and deadly gas.

Never stop the engine by moving the choke lever into the CHOKE position. Backfire, fire or engine damage could result.

This Operators Manual covers a range of product specifications for various models. Characteristics and features discussed and/or illustrated in this manual *may not* be applicable to all models. Troy Bilt LLC reserves the right to change product specifications, designs and equipment without notice and without incurring obligation.

WARNING: The operation of any chipper shredder can result in foreign objects being thrown into the eyes, which can damage your eyes severely. Always wear the safety glasses provided with this unit or eye shields before chipping or shredding and while performing any adjustments or repairs.

Gas and Oil Fill-Up

Service the engine with gasoline and oil as instructed in the separate engine manual packed with your chipper shredder. Read instructions carefully.

WARNING: Never fill fuel tank indoors with engine running or until the engine has been allowed to cool for at least two minutes after running.

Starting Engine

IMPORTANT: Because this manual covers several different model units, different starting instructions may apply to your particular engine. Some engines may have a fuel petcock, some may not. Some engines may have On/Off switches, other may not. Some units will utilize a choke system, while others will require priming. These factors depend on what make and model engine comes with your particular unit. For these reasons, please refer to the engine operator's manual for the correct starting procedure.

Basic Starting Procedure:

1. Attach spark plug wire to spark plug. Make certain the metal cap on the end of the spark plug is fastened securely over metal tip on the spark plug.
2. Open fuel shut-off valve (If equipped) and make sure the On/Off switch is in the On position (if equipped).
3. Move choke control lever to CHOKE position, if equipped. If the unit has a primer, prime the motor as instructed in the engine operator's manual.

NOTE: A warm engine may not require choking or priming.

4. Move throttle control lever to FAST position (if equipped).
5. Grasp starter handle and pull rope out slowly until engine reaches start of compression cycle (rope will pull slightly harder at this point).

NOTE: A "clanking" noise may be heard when pulling the starter rope. It is completely normal and does NOT indicate a malfunction of any kind.

6. Pull rope with a rapid, continuous, full arm stroke. Keep a firm grip on starter handle. Let rope rewind slowly.
7. Repeat the previous steps until engine starts. When engine starts, move choke control gradually to RUN position until the engine is running smoothly.

WARNING: Never run the engine indoors or in a poorly ventilated area. Engine exhaust contains carbon monoxide, an odorless and deadly gas.

Stopping Engine

1. Move throttle control lever to STOP position (Model 414) or push rocker switch to OFF (Model 424 & 425). See Figure 6.

NOTE: See your engine manual packed with your unit for more detailed instructions.

CAUTION: Never stop the engine by moving the choke lever into the CHOKE position. Backfire, fire or engine damage could result.

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4 Operating Your Chipper Shredder

Operating The Chipper Shredder

Shredding

Yard waste such as leaves and pine needles can be placed in the hopper for shredding. After material has been processed by the shredder blade and flails, it will be forced out of the chute deflector, and, if attached, into a debris collection bag.

Observe the following guidelines when shredding yard debris:

1. Never attempt to shred material other than normal yard debris (leaves, twigs, pine cones, etc.).
2. Avoid shredding fibrous plants such as tomato vines until they are thoroughly dried out. Fresh vines do not shred well and tend to wrap themselves around the impeller and flails.
3. Place reasonable amounts of debris into the hopper at a time. Do not overload the hopper.
4. Allow the material in the hopper to be drawn into the blades and shredded before adding additional debris to the hopper. Failure to due so may result in a clogged hopper, clogged chute deflector or a stalled engine.
5. Avoid placing twigs longer than 24 inches into the hopper. Twigs longer than 24 inches may result in a clogged hopper.
6. Never place branches with a diameter greater than 1/2-inch in the hopper. Doing so can result in serious damage to the unit's shredder blade, flails or impeller.

Clearing the Hopper

Should the hopper become clogged with debris during operation, proceed as follows:

1. Grasp the handle with both hands and gently agitate the chipper shredder to help loosen debris, drawing it into the impeller.

If the clog does not clear, proceed as follows:

1. Stop engine.
2. Use your hands to remove any debris found near the top of the hopper.
3. Use a branch (or other available device, i.e. broomstick) to dislodge debris located toward the base of the hopper.
4. Restart engine.

NOTE: If you're unable to pull the starter rope as a result of accumulated debris near the impeller, follow instructions under the heading **Cleaning the Reduction Chamber** in the "Maintaining Your Chipper Shredder" section of this manual.

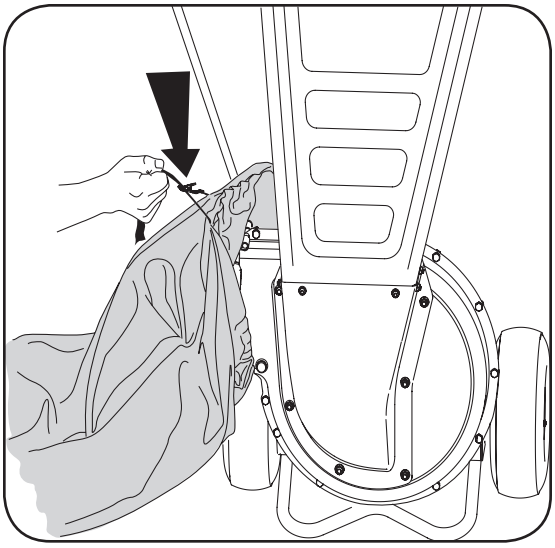

Figure 7

Chipping

WARNING: Never operate the chipper shredder without chipper chute lowered into the operating position.

Branches up to 3" in diameter can be fed into the chipper chute. Observe the following guidelines when chipping branches:

1. Keep both hands firmly on the branch as you feed it into the chipper chute.
2. Never feed more than one branch into the chipper chute at a time.
3. Never feed anything other than branches (or wood) into the chipper chute.
4. Apply intermittent pressure (force, in short pulses) while feeding larger (2- 3-inch diameter) branches into the chipper chute, to avoid bogging or stalling the engine.

IMPORTANT: Never feed branches with a diameter greater than three (3) inches into the chipper chute. Doing so can result in serious damage to your unit's chipper blades, flails or impeller.

NOTE: For best performance, always operate the unit with sharp chipper blades. If a noticeable loss in performance is encountered while chipping branches, the chipper blades should be replaced.

Emptying the Debris Collection Bag

1. Stop engine.
2. Squeeze the locking buckle release the bag's drawstrap before loosening it from the chute deflector. See Figure 7.
3. Empty the bag and reattach to the chute deflector opening. Refer to Figure 2.

WARNING

Never operate the chipper shredder without chipper chute lowered into the operating position.

IMPORTANT

Never place branches with a diameter greater than 1/2-inch in the hopper. Doing so can result in serious damage to your unit's shredder blade, flails or impeller.

IMPORTANT

Never feed branches with a diameter greater than three (3) inches into the chipper chute. Doing so can result in serious damage to your unit's chipper blades, flails or impeller.

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

5

Maintaining Your Chipper Shredder

WARNING

Always stop engine, disconnect spark plug, and ground against engine before cleaning, lubricating or doing any kind of maintenance on your machine.

The impeller's chipper blades are sharp. Wear leather work gloves to protect your hands.

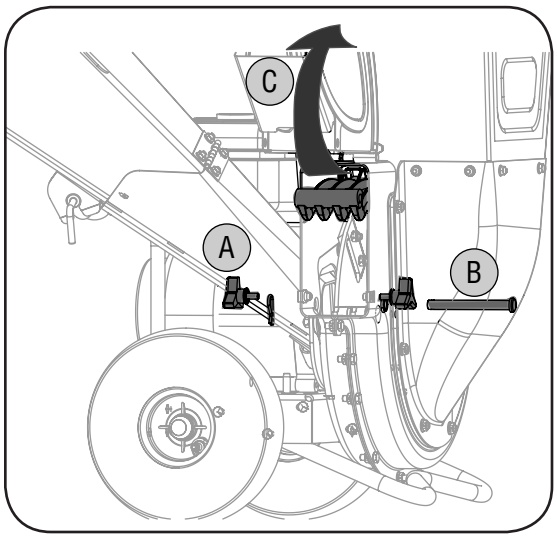

Figure 8

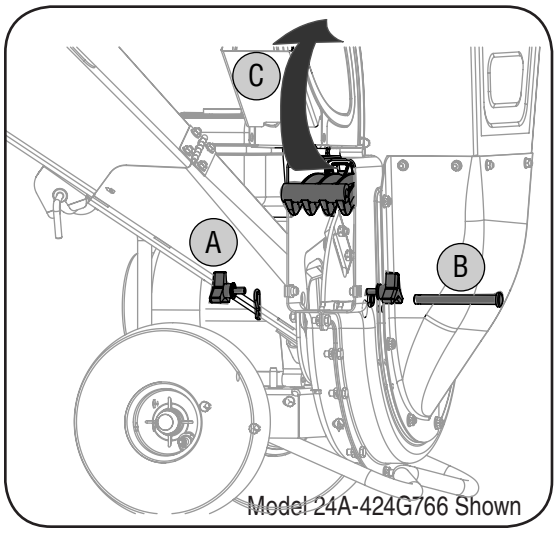

Figure 9

WARNING: Always stop engine, disconnect spark plug, and ground against engine before cleaning, lubricating or doing any kind of maintenance on your machine.

Lubrication

1. Lubricate the chipper chute hinge a with light oil once a season.
2. Lubricate the pivot points on the chute deflector with light oil once a season.
3. Refer to the Briggs & Stratton Owner/Operator manual packed with your unit for engine lubrication instructions.

Engine Care

Refer to the Maintenance section of the Briggs & Stratton Owner/Operator manual packed with your unit. Read and follow instructions carefully.

1. Check **engine oil level** before each use as instructed in the separate engine manual.
2. Clean **air cleaner's precleaner** every 25 hours under normal conditions. Clean every few hours under extremely dusty conditions. Replace the **air cleaner cartridge** once a season. To service the air cleaner, refer to the separate engine manual.
3. The **spark plug** should be cleaned and the gap reset once a season. Refer to the separate engine manual for correct plug type and gap specifications.

Chipper Shredder Care

Before each use, visually inspect your chipper shredder for loose (or missing) nuts and bolts. Securely tighten (or replace) all hardware before operating the chipper shredder.

Cleaning The Reduction Chamber

WARNING: The impeller's shredder blade and chipper blades are sharp. Wear leather work gloves to protect your hands when cleaning out the reduction chamber.

If the reduction chamber becomes clogged with debris, the shredder screen can be pivoted upward so that you can clean the surrounding area. To do so, proceed as follows:

1. Stop engine, disconnect spark plug, and make certain the chipper shredder has come to a complete stop.

WARNING: The muffler and surrounding area will be hot if the engine has been running. Use caution and protect your hands if working near the muffler.

2. a. If attached, remove debris bag. Remove the two wing knobs on either side of the chute deflector and pivot the chute deflector upward. See Figure 8.
   b. Remove the hairpin clip from the clevis pin which extends through the housing and shredder screen. See Figure 8. Remove clevis pin.
   c. Pivot the shredder screen upward and clean the surrounding area by scraping away debris.
3. Confirm that the spark plug wire is disconnected and away from spark plug. Pull on the starter rope two-to-three times to purge any remaining debris from the reduction chamber
4. When the area is cleaned, pivot the shredder screen downward and re-secure with the clevis pin and hairpin clip removed earlier.
5. Reattach the debris collection bag to the chute deflector, if desired.

Sharpening Or Replacing Chipper Blades

WARNING: The impeller's chipper blades are sharp. Wear leather work gloves to protect your hands.

1. Stop engine, disconnect spark plug, and make certain the chipper shredder has come to a complete stop.

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2. Pivot the shredder screen upward as instructed under the heading Cleaning the Reduction Chamber.
3. a. Remove the chipper chute support brace from the frame by removing the two hex bolts and saddle washers which secure it. See Figure 9.
   b. Remove the chipper chute by removing three hex nuts and washers which secure it to the impeller housing. See Figure 9.
   - Rotate the impeller by hand until one of the two chipper blades is visible through the impeller housing opening.

   c. Remove the blade by removing the internal hex screws, lock washers and hex nuts which secure it to the impeller. Retain the hardware.

NOTE: Use a 3/16" hex key (Allen) wrench on the outside of the blade and a 1/2" box (or socket) wrench on the inside of the impeller. Hold the Allen wrench stationary and rotate the box (or socket) wrench to loosen the nut.

4. Install a replacement blade (Part No. 742-0544) with the hardware removed earlier or sharpen.

IMPORTANT: When sharpening the blade, protect hands by using gloves. Follow the original angle of grind and make sure to remove an equal amount from each blade.

5. To replace the other blade, rotate the impeller to expose the second blade and repeat the steps above.

NOTE: Make certain blades are reassembled with the sharp edge outward (toward the chipper chute). Torque hardware to between 20 ft.-lbs and 25 ft.-lbs.

Sharpening Or Replacing The Shredder Blade

WARNING: The shredder blade is sharp. Wear leather work gloves to protect your hands.

1. Stop engine,disconnect spark plug, and make certain that all moving parts have come to a complete stop.
2. Remove the two flange nuts (and hex bolts) which secure the hopper support bracket to the impeller housing. Retain the hardware. See Figure 10.
3. Pivot the shredder screen upward as instructed under the heading **Cleaning the Reduction Chamber**.
4. a. Remove six flange nuts which secure hopper inlet guide to impeller housing. See Figure 11.
   - Carefully separate the hopper assembly from the impeller housing and set it aside.
   - Insert a piece of wood into the chute deflector opening to stabilize the impeller and prevent it from rotating when removing the shredder blade.

   b. Remove the two internal hex screws, hex lock nuts, and lock washers which secure the shredder blade to the impeller. See Figure 11.

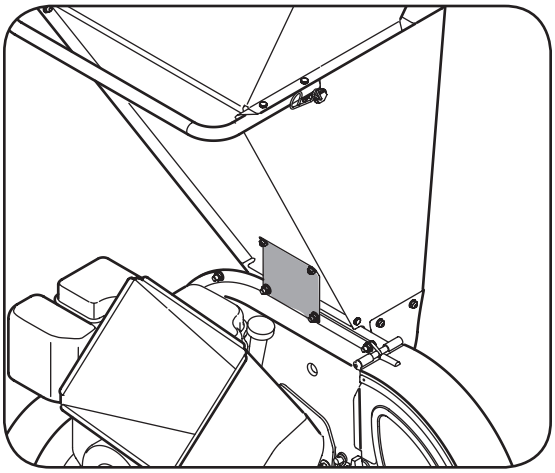

Figure 10

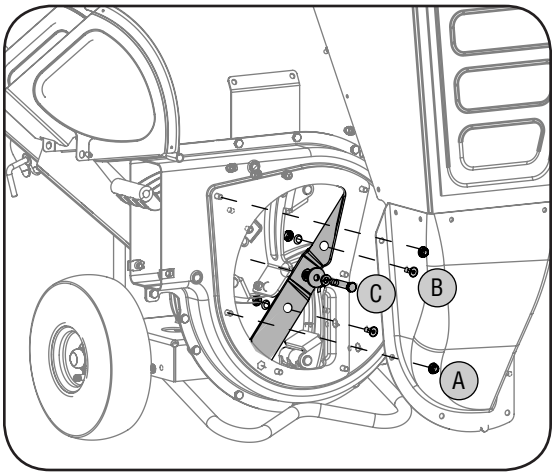

Figure 11

NOTE: Use a 3/16" hex key (Allen) wrench on the outside of the shredder blade and a 1/2" box (or socket) wrench on the inside of the shredder blade. Hold the Allen wrench stationary and rotate the box (or socket) wrench to loosen the nut.

   c. Remove the hex bolt, lock washer, and flat washer to completely free shredder blade. See Figure 11.

IMPORTANT: If sharpening the blade for reuse, follow the original angle of grind as a guide. Make certain each cutting edge receives an equal amount of grinding to prevent an unbalanced blade. Remove metal from the heavy side until it is balanced evenly.

IMPORTANT: When reassembling the blade, tighten center bolt to between 45 ft.-lbs and 60 ft.-lbs and the two out bolts to between 20 ft.-lbs and 25 ft.-lbs.

Storing Your Chipper Shredder

1. Clean the equipment thoroughly.
2. Wipe equipment with an oiled rag to prevent rust.
3. Refer to engine manual for correct engine storage instructions
4. Store unit in a clean, dry area. Do not store next to corrosive materials such as fertilizer.

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Maintaining Your Chipper Shredder

WARNING

The shredder blade is sharp. Wear leather work gloves to protect your hands.

IMPORTANT

Make certain chipper blades are reassembled with the sharp edge outward (toward the chipper chute). Torque hardware to between 20 ft.-lbs and 25 ft.-lbs.

IMPORTANT

When reassembling the shredder blade, tighten center bolt to between 45 ft.-lbs and 60 ft.-lbs and the two out bolts to between 20 ft.-lbs and 25 ft.-lbs.

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Trouble Shooting

For repairs beyond the minor adjustments listed here, contact an authorized service dealer.

Problem	Cause	Remedy
Engine fails to start	1. Throttle lever not in correct starting position (if equipped). 2. Spark plug wire disconnected. 3. Choke not in CHOKE position (if equipped). 4. Fuel tank empty or stale fuel. 5. Engine not primed (if equipped). 6. Faulty spark plug. 7. Blocked fuel line. 8. Engine flooded.	1. Move throttle lever to FAST or START position. 2. Connect wire to spark plug. 3. Move choke lever to CHOKE position. 4. Fill tank with clean, fresh gasoline. 5. Prime engine as instructed in Engine Manual. 6. Clean, adjust gap, or replace. 7. Clean fuel line. 8. Wait a few minutes to restart, but do not prime.
Engine runs erratic	1. Spark plug wire loose. 2. Unit running on CHOKE (if equipped). 3. Blocked fuel line or stale fuel. 4. Vent in gas cap plugged. 5. Water or dirt in fuel system. 6. Dirty air cleaner. 7. Carburetor out of adjustment.	1. Connect and tighten spark plug wire. 2. Move choke lever to OFF position. 3. Clean fuel line; fill tank with clean, fresh gasoline. 4. Clear vent. 5. Drain fuel tank. Refill with fresh fuel. 6. Refer to engine manual. 7. See authorized service dealer.
Engine overheats	1. Engine oil level low. 2. Dirty air cleaner. 3. Carburetor not adjusted properly.	1. Fill crankcase with proper oil. 2. Refer to engine manual. 3. See authorized service dealer.
Occasional skips (hesitates) at high speed	1. Spark plug gap too close. 2. Carburetor idle mixture adjustment improperly set.	1. Adjust gap to .030”. 2. See authorized service dealer.
Excessive Vibration	1. Loose parts or damaged impeller.	1. See authorized service dealer.
Unit does not discharge	1. Chute deflector clogged. 2. Foreign object lodged in impeller. 3. Low engine RPM.	1. Stop engine immediately and disconnect spark plug wire. Clean flail screen and inside of discharge opening. 2. Stop engine and disconnect spark plug wire. Remove lodged object. 3. Always run engine at full throttle.
Rate of discharge slows considerably or composition of discharged material changes	1. Low engine RPM. 2. Chipper blade dull.	1. Always run engine at full throttle. 2. Replace chipper blade or see your authorized service dealer.

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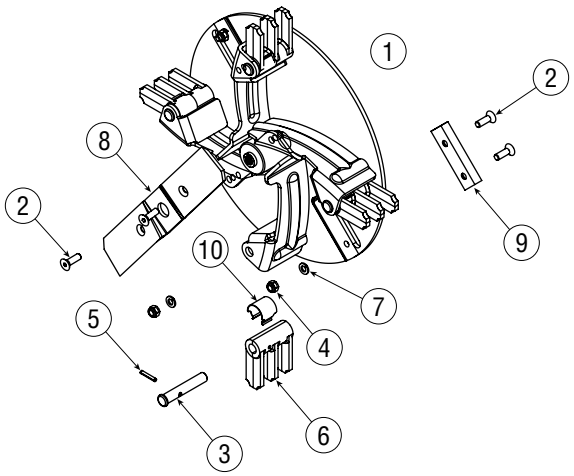
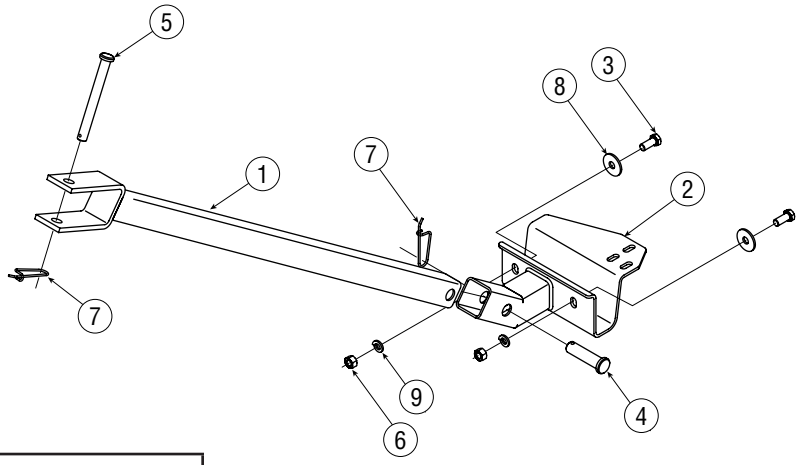
Model Series 410 & 420



1	681-04009	Impeller Assembly Complete
2	710-1054	Machine Screw, 5/16-24 x 1.0
3	711-0833B	Clevis Pin,.496
4	712-0411	Hex Lock Nut, 5/16-24
5	715-0166	Spiral Pin,.156 x 1.0
6	719-0329	Flail
7	736-0119	Lock Washer, 5/16
8	742-04050	Shredder Blade
9	742-0544	Chipper Blade
10	781-0735	Retainer Clip



1	681-0133	Tongue Hitch Mount
2	681-0134A	Base Hitch Mount
3	710-3001	Hex Cap Screw, 3/8-16 x.88
4	711-0299	Clevis Pin,.625 x 2.4
5	711-0835	Clevis Pin,.50 x 4.62
6	712-3017	Hex Nut, 3/8-16
7	732-0194	Spring Pin
8	736-0133	Flat Washer,.411 x 1.25 x 1.0
9	736-0169	Lock Washer, 3/8

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Parts List

To order replacement parts, contact 1-800-520-5520, 1-330-558-7220 or visit www.troybilt.com.

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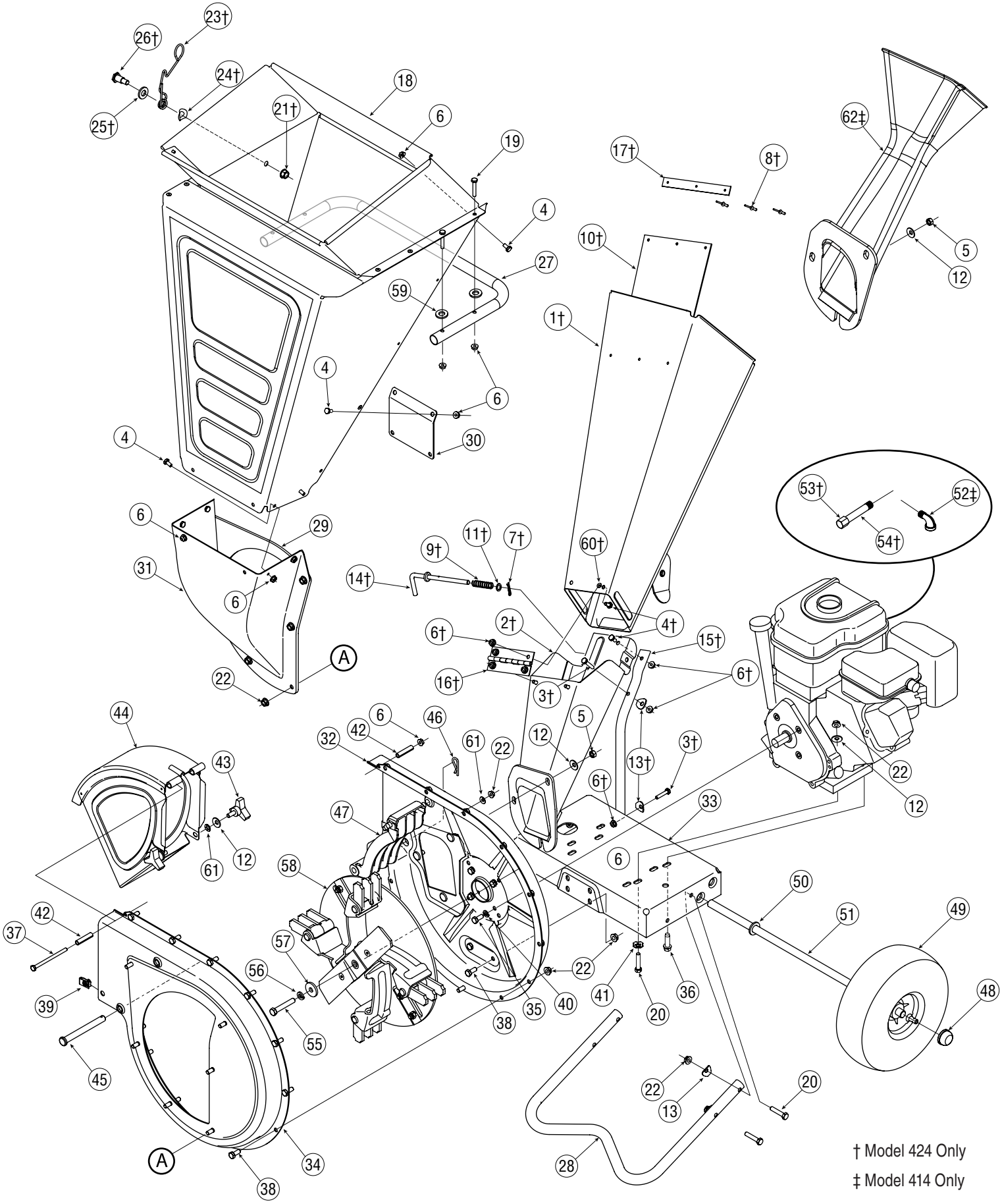
Model Series 410 & 420



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

1	681-04006†	Upper Chipper Chute Assembly
2	681-04007†	Lower Chipper Chute Assembly
3	710-0106†	Hex Cap Screw, 1/4-20 x 1.25
4	710-3013	Hex Cap Screw, 1/4-20 x.5
5	712-3010	Hex Nut, 5/16-18
6	712-3027	Hex Lock Nut 1/4-20
7	714-0104†	Cotter Pin
8	728-0175†	Pop Rivet
9	732-0306A†	Compression Spring,.531 x 1.75
10	735-0249A†	Chute Flap
11	736-0140†	Flat Washer
12	736-0242	Bell Washer.340 ID x.872 OD
13	736-0451	Washer,.320 ID x.93 OD
14	747-04163†	Lock Rod
15	749-1004†	Chipper Chute Support
16	781-04032†	Chipper Chute Hinge
17	781-0633†	Chute Flap Strip
18	681-04011	Shredder Hopper Assembly
19	710-0809	Hex Cap Screw, 1/4-20 x 1.250
20	710-0805	Hex Cap Screw, 5/16-18 x 1.50
21	712-04065†	Flange Lock Nut, 3/8-16
22	712-3004A	Flange Lock Nut, 5/16-18
23	732-04167†	Torsion Spring
24	736-0182†	Spring Washer,.50 x 1.0 x.022
25	736-0326†	Flat Washer,.50 x 1.0 x.0125
26	738-0430†	Shoulder Screw, 3/8-16,.50 x.685
27	749-04103	Hopper Handle
28	749-04104	Tube Support
29	781-04007	Shredder Plate
30	781-04027	Hopper Support Bracket
31	781-04033	Inlet Guide
32	681-0117	Inner Flail Housing Assembly
33	681-0183A†	Frame Assembly (Model 424 only)
	681-0184A‡	Frame Assembly (Model 425 Incl.)

34	681-04002	Outer Flail Housing Assembly
35	710-0157	Hex Cap Screw, 5/16-24 x.75
36	710-0502A	Hex Sems Screw, 3/8-16 x 1.25
37	710-0825	Hex Cap Screw, 1/4-20 x 3.75
38	710-3025	Hex Cap Screw, 5/16-18 x.625
39	726-0211	U-Nut, 5/16-18
40	736-0119	Lock Washer, 5/16
41	736-0170	Special Lock Washer, 5/16
42	750-0793	Hinge Spacer,.265 x.380 x 1.66
43	681-0048	Knob Assembly (Incl. ref.# 12 & 61)
	720-0170	Knob Only, 5/16-18
44	681-0094	Chute Deflector Assembly
45	711-0835	Clevis Pin,.50 x 4.62
46	714-0149B	Internal Cotter Pin
47	719-04070	Shredder Screen
48	726-0214	Push Cap, 5/8
49	734-1845	Wheel, 10 x 4 x 4
50	736-0366	Flat Washer,.625 x 1.0
51	738-0813	Axle, 22.47”
52	737-0195‡	Elbow Fitting
53	737-0132†	Oil Drain End Cap (424 only)
54	737-0298†	Oil Drain Pipe (424 only)
55	710-1254	Hex Cap Screw, 3/8-24 x 2.2
56	736-0217	Lock Washer, 3/8
57	736-0247	Flat Washer,.406 x 1.25
58	681-04009	Impeller Assembly
		(See page 13 for Impeller Parts)
59	736-0173	Flat Washer,.28 x.74 x.063
60	726-0233†	Push Nut,.25ID x.50OD
61	726-0201	Speed Nut,.3125ID
62	681-0095‡	Chipper Chute
—	664-04023	Debris Collection Bag (Not Shown)
—	723-0400	Safety Glasses

† Model 424 & 425

‡ Model 414 Only

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Parts List

GENUINE FACTORY PARTS™

To order replacement parts, contact 1-800-520-5520, 1-330-558-7220 or visit www.troybilt.com.

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MANUFACTURER'S LIMITED WARRANTY FOR

TROY-BILT®

The limited warranty set forth below is given by Troy-Bilt LLC with respect to new merchandise purchased and used in the United States and/or its territories and possessions, and by MTD Products Limited with respect to new merchandise purchased and used in Canada and/or its territories and possessions (either entity respectively, "Troy-Bilt").

"Troy-Bilt" warrants this product (excluding its normal wear parts as described below) against defects in material and workmanship for a period of two (2) years commencing on the date of original purchase and will, at its option, repair or replace, free of charge, any part found to be defective in materials or workmanship. This limited warranty shall only apply if this product has been operated and maintained in accordance with the Operator's Manual furnished with the product, and has not been subject to misuse, abuse, commercial use, neglect, accident, improper maintenance, alteration, vandalism, theft, fire, water, or damage because of other peril or natural disaster. Damage resulting from the installation or use of any part, accessory or attachment not approved by Troy-Bilt for use with the product(s) covered by this manual will void your warranty as to any resulting damage.

Normal wear parts are warranted to be free from defects in material and workmanship for a period of thirty (30) days from the date of purchase. Normal wear parts include, but are not limited to items such as: batteries, belts, blades, blade adapters, grass bags, rider deck wheels, seats, snow thrower skid shoes, friction wheels, shave plates, auger spiral rubber and tires.

HOW TO OBTAIN SERVICE: Warranty service is available, WITH PROOF OF PURCHASE, through your local authorized service dealer. To locate the dealer in your area:

In the U.S.A.

Check your Yellow Pages, or contact Troy-Bilt LLC at P.O. Box 361131, Cleveland, Ohio 44136-0019, or call 1-866-840-6483 or 1-330-558-7220, or log on to our Web site at www.troybilt.com.

In Canada

Contact MTD Products Limited, Kitchener, ON N2G 4J1, or call 1-800-668-1238 or log on to our Web site at www.mtdcanada.com.

This limited warranty does **not** provide coverage in the following cases:

a. The engine or component parts thereof. These items may carry a separate manufacturer's warranty. Refer to applicable manufacturer's warranty for terms and conditions.
b. Log splitter pumps, valves, and cylinders have a separate one- year warranty.
c. Routine maintenance items such as lubricants, filters, blade sharpening, tune-ups, brake adjustments, clutch adjustments, deck adjustments, and normal deterioration of the exterior finish due to use or exposure.
d. Service completed by someone other than an authorized service dealer.
e. Troy-Bilt does not extend any warranty for products sold or exported outside of the United States and/or Canada, and their respective possessions and territories, except those sold through Troy-Bilt's authorized channels of export distribution.
f. Replacement parts that are not genuine Troy-Bilt parts.
g. Transportation charges and service calls.
h. If Products are used commercially. (Troy-Bilt may separately offer Limited Commercial Warranties on certain select products. Ask your dealer or retailer for details or contact Troy-Bilt Service for more information).

No implied warranty, including any implied warranty of merchantability of fitness for a particular purpose, applies after the applicable period of express written warranty above as to the parts as identified. No other express warranty, whether written or oral, except as mentioned above, given by any person or entity, including a dealer or retailer, with respect to any product, shall bind Troy-Bilt. During the period of the warranty, the exclusive remedy is repair or replacement of the product as set forth above.

The provisions as set forth in this warranty provide the sole and exclusive remedy arising from the sale. Troy-Bilt shall not be liable for incidental or consequential loss or damage including, without limitation, expenses incurred for substitute or replacement lawn care services or for rental expenses to temporarily replace a warranted product.

Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above exclusions or limitations may not apply to you.

In no event shall recovery of any kind be greater than the amount of the purchase price of the product sold. **Alteration of safety features of the product shall void this warranty.** You assume the risk and liability for loss, damage, or injury to you and your property and/or to others and their property arising out of the misuse or inability to use the product.

This limited warranty shall not extend to anyone other than the original purchaser or to the person for whom it was purchased as a gift.

HOW STATE LAW RELATES TO THIS WARRANTY: This limited warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

IMPORTANT: Owner must present Original Proof of Purchase to obtain warranty coverage.

Troy-Bilt LLC, P.O. BOX 361131 CLEVELAND, OHIO 44136-0019; Phone: 1-866-840-6483, 1-330-558-7220
MTD Canada Limited - KITCHENER, ON N2G 4J1; Phone 1-800-668-1238

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