



# **DFS Vac Collection System**

## **400 Series Z Master**

**Model No. 78510—Serial No. 250000001 and Up**

### **Operator's Manual**

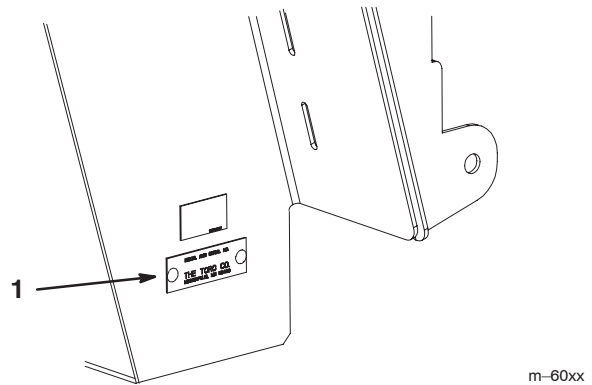
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# Introduction

Read this manual carefully to learn how to operate and maintain your product properly. The information in this manual can help you and others avoid injury and product damage. Although Toro designs and produces safe products, you are responsible for operating the product properly and safely.

Whenever you need service, genuine Toro parts, or additional information, contact an Authorized Service Dealer or Toro Customer Service and have the model and serial numbers of your product ready. Figure 1 illustrates the location of the model and serial numbers on the product.



**Figure 1**

1. Location of the model and serial numbers

Write the product model and serial numbers in the space below:

<b>Model No.</b> _____  <b>Serial No.</b> _____
---

This manual identifies potential hazards and has special safety messages that help you and others avoid personal injury and even death. ***Danger***, ***Warning***, and ***Caution*** are signal words used to identify the level of hazard. However, regardless of the hazard, be extremely careful.

***Danger*** signals an extreme hazard that *will* cause serious injury or death if you do not follow the recommended precautions.

***Warning*** signals a hazard that *may* cause serious injury or death if you do not follow the recommended precautions.

***Caution*** signals a hazard that may cause minor or moderate injury if you do not follow the recommended precautions.

This manual uses two other words to highlight information. **Important** calls attention to special mechanical information and **Note:** emphasizes general information worthy of special attention.

# Safety

The following list contains safety information specific to Toro products and other safety information you must know.

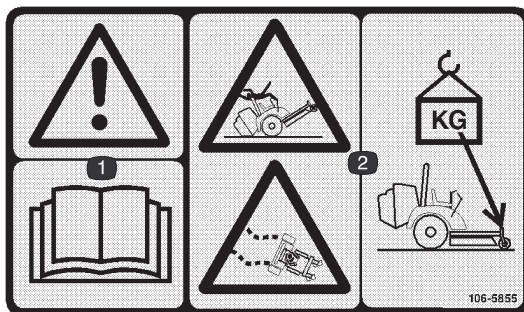
- Become familiar with the safe operation of the equipment, with the operator controls, and safety signs.
- Use extra care with grass catchers or other attachments. These can change the operating characteristics and the stability of the machine.
- Do not use a grass catcher on steep slopes. A heavy grass catcher could cause loss of control or overturn the machine.
- Slow down and use extra care on hillsides. Be sure to travel in the recommended direction on hillsides. Turf conditions can affect the machine's stability. Use extreme caution while operating near drop-offs.
- Keep all movement on slopes slow and gradual. Do not make sudden changes in speed, directions or turning.
- The grass catcher can obstruct the view to the rear. Use extra care when operating in reverse.
- Use care when loading or unloading the machine into a trailer or truck

- Never operate with the discharge deflector raised or removed and never altered, unless using a grass catcher or mulching baffles.
- Keep hands and feet away from moving parts. Do not make adjustments with the engine running.
- Stop on level ground, disengage drives, set the parking brake, shut off the engine before leaving the operator's position for any reason including emptying the grass catcher or unclogging the chute.
- If you remove the grass catcher, be sure to install any discharge deflector or guard that might have been removed to install the grass catcher. Do not operate the mower without either the entire grass catcher or the grass deflector in place.
- **Turn off the engine and wait for all moving parts to stop before removing the grass catcher or unclogging the chute.**
- Do not use your hands to unclog the chute, blower or bagger.
- Do not leave grass in grass catcher for extended periods of time.
- Grass catcher components are subject to wear, damage and deterioration, which could expose moving parts or allow objects to be thrown. Frequently check components and replace with manufacturer's recommended parts, when necessary.
- Do not leave grass or debris in grass catcher while transporting the machine.

## Safety and Instruction Decals

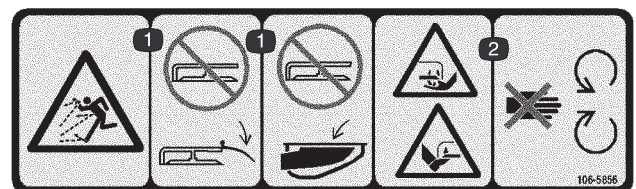


Safety decals and instructions are easily visible to the operator and are located near any area of potential danger. Replace any decal that is damaged or lost.



106-5855

1. Warning—read the *Operator's Manual*.
2. Tipping and lose of control hazard—add weight to the front of the machine.



106-5856

1. Thrown object hazard—do not operate the mower with the deflector up or removed; keep the deflector or grass collector in place.
2. Cutting/dismemberment hazard of hand or foot, mower blade—stay away from moving parts.



107-1613

## Setup

**Note:** Determine the left and right sides of the machine from the normal operating position.

## Loose Parts

**Note:** Use the chart below to verify all parts have been shipped.

Step	Description	Qty.	Use
<b>1</b>	Bolt, 7/16 x 4-1/2 inch—Kawasaki® engines only	1	Installing the clutch and drive pulley assembly
	Bolt, 7/16 x 4 inch—Kohler® engines only	1	
	Drive pulley assembly	1	
	Clutch spacer	1	
<b>2</b>	No parts needed		Removing the drive wheels
<b>3</b>	No parts needed		Removing the heat shield on 44 and 48 inch mowers
<b>4</b>	No parts needed		Removing the heat shields and rear weight on 52 inch mowers
<b>5</b>	Bagger mounting bracket	1	Installing the bagger mounting bracket
	Bolt, 5/16 x 1 inch	16	
	Flange nut, 5/16 inch	16	
	Flat washer, 5/16 inch	6	
<b>6</b>	Idler pulley assembly with bracket	1	Installing the bagger idler pulley and skid plate
	Bolt, 5/16 x 7/8 inch	5	
	Flange nut, 5/16 inch	5	
	Spring bracket	1	
	Shoulder bolt, 3/8 x 2-1/2 inch	1	
	Nut, 3/8 inch	1	
<b>7</b>	Bagger	1	Installing the bagger
	Clevis pin	2	
	Hairpin cotter	2	

Step	Description	Qty.	Use
<b>8</b>	Spring Bagger belt	1 1	Installing the bagger belt
<b>9</b>	Spacer	3	Checking/adjusting the bagger belt tension
<b>10</b>	Weight plate U-bolt Locknut, 3/8 inch Bolt, 3/8 x 2 inch Belleville washer	4 2 8 4 4	Installing the weight plates
<b>11</b>	Bar weight Locknut, 3/8 inch Bolt, 3/8 x 5-3/4 inch Belleville washer	4 2 2 2	Installing the bar weights
<b>12</b>	Bagger bracket Carriage bolt, 5/16 x 1 inch Flange nut, 5/16 inch	1 8 8	Installing the boot and discharge tubes
<b>13</b>	Bolt, 1/2 x 1-3/4 inch Jam nut, 1/2 inch	1 2	Installing the bagger dump lever stop bolt
<b>14</b>	No parts needed		Adjusting the bagger dump lever
<b>15</b>	No parts needed		Checking the tire pressure

## Step

# 1

### Parts needed for this step:

- 1 Bolt, 7/16 x 4-1/2 inch—Kawasaki® engines only
- 1 Bolt, 7/16 x 4 inch—Kohler® engines only
- 1 Drive pulley assembly
- 1 Clutch spacer

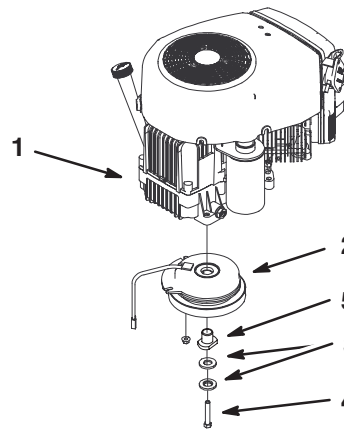
## Installing the Clutch and Drive Pulley Assembly

**Note:** Apply anti-seize compound to crank shaft before installing the clutch and drive pulley assembly.

1. If not already removed, remove the existing clutch bolt from the machine and discard (Fig. 2 and 3).
2. If not already removed, remove the existing drive spacer from the clutch (Fig. 2 and 3).
3. Install the new pulley spacer into the clutch (Fig. 3).
4. Install the drive pulley assembly into the three holes drilled into the clutch pulley (Fig. 3).
5. Install the drive spacer into the drive pulley assembly (Fig. 3).

**Note:** There are two different size bolts for installing the clutch. The size is determined by the type of engine on the machine.

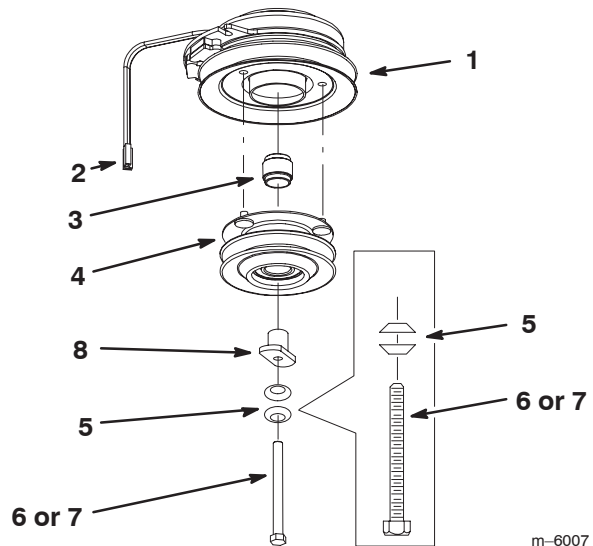
6. If the machine has a Kawasaki® engine, then install the clutch with a bolt (7/16 x 4-1/2 inch) and 2 existing curved washers (Fig. 3).
7. If the machine has a Kohler® engine, then install the clutch with a bolt (7/16 x 4 inch) and 2 existing curved washers (Fig. 3).
8. Torque the clutch bolt to **55 ft-lb (75 N•m)** (Fig. 3).
9. If needed, install the existing deck belt onto the clutch.
10. If needed, install the clutch strap.
11. If needed, plug in the clutch connector (Fig. 3).



m-6024

**Figure 2**

- |                   |                        |
|-------------------|------------------------|
| 1. Engine         | 4. Clutch bolt—discard |
| 2. Clutch         | 5. Drive spacer        |
| 3. Curved washers |                        |



m-6007

**Figure 3**

- |                          |   |
|--------------------------|---|
| 1. Clutch                | 6. Bolt, 7/16 x 4-1/2 inch for Kawasaki engines |
| 2. Clutch connector      | 7. Bolt, 7/16 x 4 inch for Kohler engines       |
| 3. Pulley spacer         | 8. Drive spacer                                 |
| 4. Drive pulley assembly |   |
| 5. Curved washers        |   |

Step

2

No parts needed for this step.

## Removing the Drive Wheels



**Danger**



Mechanical or hydraulic jacks may fail to support machine and cause a serious injury.

- Use jack stands when supporting machine.
- Do not use hydraulic jacks.

1. Loosen the drive wheel lugs or nuts.
2. Raise the rear of the machine and support with jack stands.
3. Remove the drive wheels.

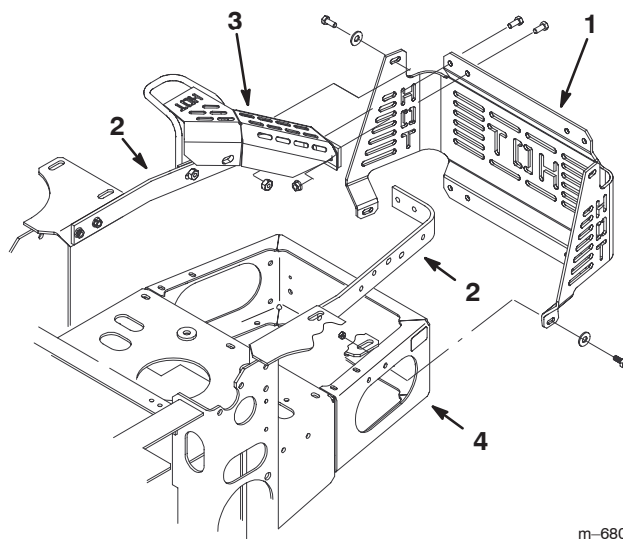
Step

3

No parts needed for this step.

## Removing the Rear Heat Shield on 44 and 48 inch Mowers

1. Remove the 8 bolts and nuts securing the rear of the heat shield to the engine straps and the rear bumper (Fig. 4).
2. Remove the 4 bolts, the washers and the nuts securing the sides of the heat shield to the engine straps, the tailpipe guard and the bumper (Fig. 4). Save the heat shield and all the hardware.



m-6809

**Figure 4**

- |                  |                   |
|------------------|-------------------|
| 1. Heat shield   | 3. Tailpipe guard |
| 2. Engine straps | 4. Frame          |

## Step

# 4

No parts needed for this step.

## Removing the Rear Weight and Heat Shields on 52 inch Mowers

1. Remove the 8 bolts, washers, and nuts securing the rear weight to the engine straps and the rear bumper (Fig. 4).
2. Remove the 4 bolts, washers and nuts securing the side heat shields to the engine straps, and the bumper (Fig. 4). Save the heat shields, the weight and all the hardware.

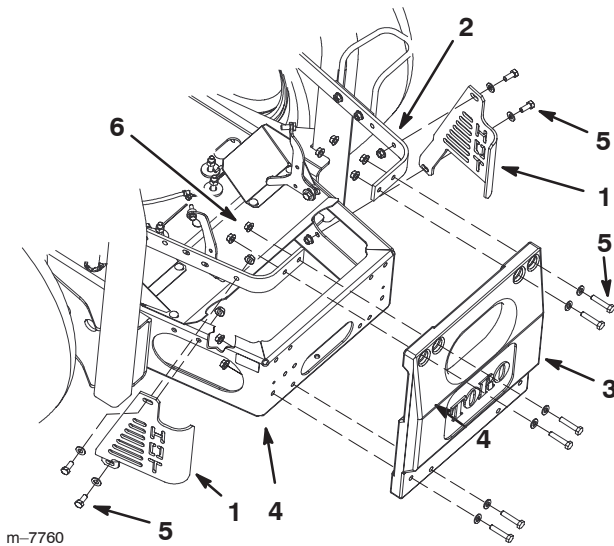


Figure 5

- |                  |                |
|------------------|----------------|
| 1. Heat shield   | 4. Rear bumper |
| 2. Engine straps | 5. Bolt        |
| 3. Rear weight   | 6. Nut         |

## Step

# 5

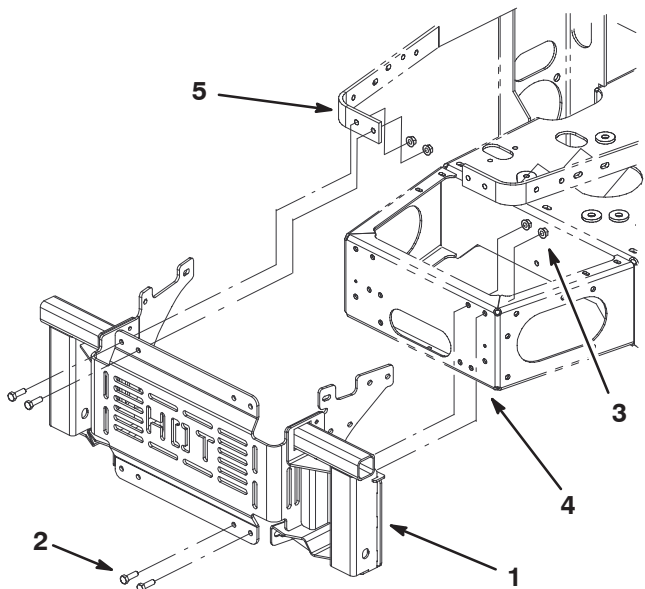
Parts needed for this step:

- 1 Bagger mounting bracket
- 16 Bolts, 5/16 x 1 inch
- 16 Flange nuts, 5/16 inch
- 6 Flat washers, 5/16 inch

## Installing the Bagger Mounting Bracket

**Important** Do not tighten any bolts until all bolts are loosely installed for the bagger mounting bracket.

1. Loosely install the bagger mounting bracket to the back of the rear bumper and the engine guard straps, with 8 bolts (5/16 x 1 inch) and 8 flange nuts (5/16 inch) (Fig. 6).

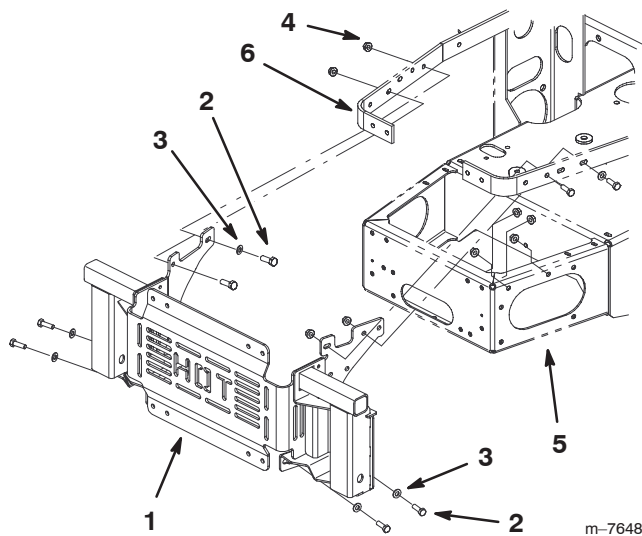


- |                            |                        |
|----------------------------|------------------------|
| 1. Bagger mounting bracket | 4. Back of rear bumper |
| 2. Bolt, 5/16 x 1 inch     | 5. Engine guard strap  |
| 3. Flange nut, 5/16 inch   |                        |



- Loosely install the bagger mounting bracket to the side of the rear bumper and the engine guard straps, with 8 bolts (5/16 x 1 inch), 6 flat washers (5/16 inch), and 8 flange nuts (5/16 inch) (Fig. 7).

**Note:** The bagger mounting bracket is to be installed to the inside of the engine guard straps.



**Figure 7**

- |                            |                          |
|----------------------------|--------------------------|
| 1. Bagger mounting bracket | 4. Flange nut, 5/16 inch |
| 2. Bolt, 5/16 x 1 inch     | 5. Side of rear bumper   |
| 3. Flat washer, 5/16 inch  | 6. Engine guard strap    |

- When all bolts, washers, and nuts are installed, tighten them. Torque all mounting bolts to 230 in-lb (26 N•m).

## Step

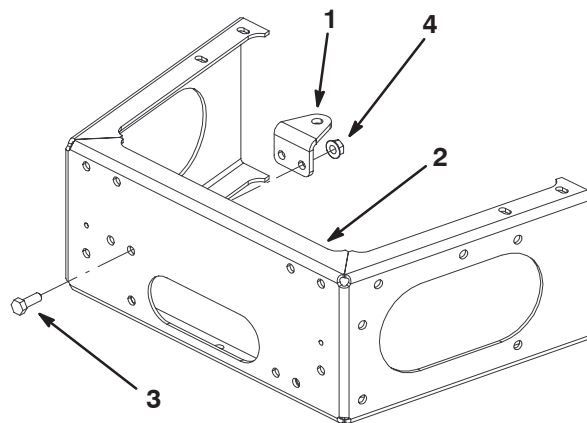
# 6

### Parts needed for this step:

- 1 Idler pulley assembly with bracket
- 5 Bolts, 5/16 x 7/8 inch
- 5 Flange nuts, 5/16 inch
- 1 Spring bracket
- 1 Skid plate
- 1 Shoulder bolt, 3/8 x 2-1/2 inch
- 1 Flange nut, 3/8 inch
- 1 Spring

## Installing the Bagger Idler Pulley and the Skid Plate

- Install the spring bracket to the rear bumper with 2 bolts (5/16 x 7/8 inch) and 2 flange nuts (5/16 inch) (Fig. 8).



**Figure 8**

- |                   |                          |
|-------------------|--------------------------|
| 1. Spring bracket | 3. Bolt, 5/16 x 7/8 inch |
| 2. Rear bumper    | 4. Flange nut, 5/16 inch |

- Install the skid plate and idler pulley bracket to the rear bumper with 3 bolts (5/16 x 7/8 inch) and 3 flange nuts (5/16 inch) (Fig. 9).
- Install the skid plate to the bottom of the rear bumper with 2 bolts (5/16 x 7/8 inch) and 2 flange nuts (5/16 inch) (Fig. 9).

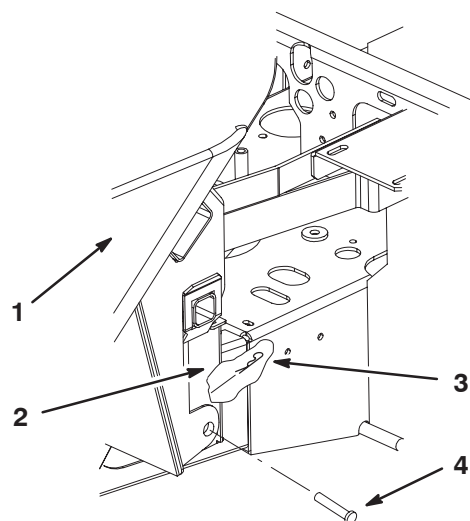
# Step 7

## Parts needed for this step:

- 1 Bagger
- 2 Clevis pins
- 2 Hairpin cotters

## Installing the Bagger

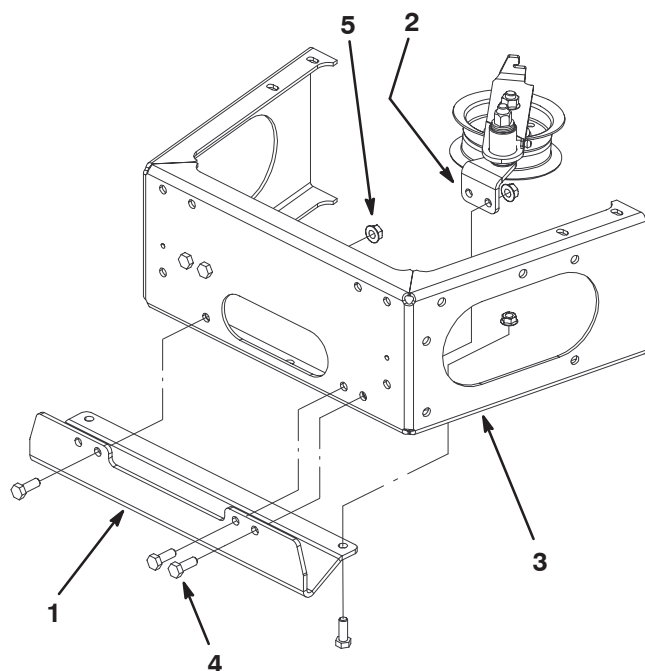
1. Install the bagger onto the bagger mounting bracket (Fig. 11).
2. Install clevis pins into the bagger and bagger mounting bracket. Secure them with hairpin cotter pins (Fig. 11).



m-6032

**Figure 11**

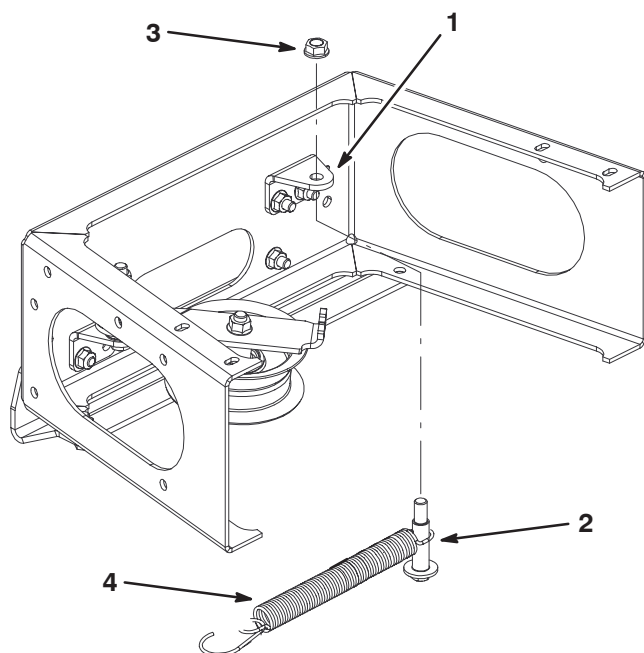
- |                            |                       |
|----------------------------|-----------------------|
| 1. Bagger                  | 3. Hairpin cotter pin |
| 2. Bagger mounting bracket | 4. Clevis pin         |



**Figure 9**

- |                         |                          |
|-------------------------|--------------------------|
| 1. Skid plate           | 4. Bolt, 5/16 x 7/8 inch |
| 2. Idler pulley bracket | 5. Flange nut, 5/16 inch |
| 3. Rear bumper          |                          |

4. Install the shoulder bolt (3/8 x 2-1/2 inch), spring and flange nut (3/8 inch) to the spring bracket (Fig. 10).



**Figure 10**

- |                                    |                         |
|------------------------------------|-------------------------|
| 1. Spring bracket                  | 3. Flange nut, 3/8 inch |
| 2. Shoulder bolt, 3/8 x 2-1/2 inch | 4. Spring               |

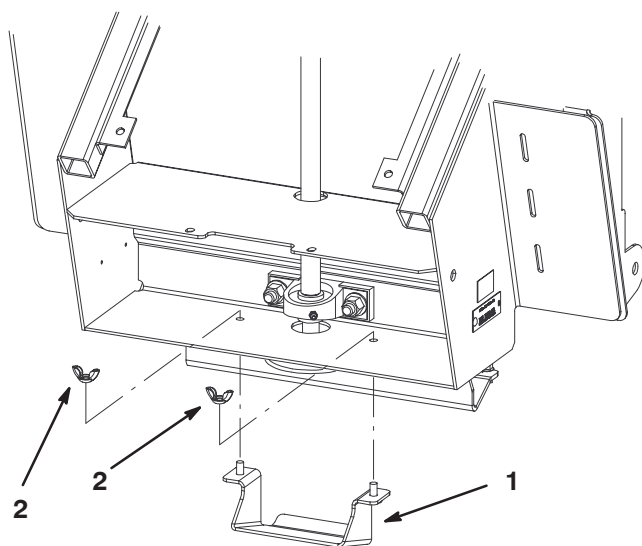
# Step 8

## Parts needed for this step:

- 1 Bagger belt

## Installing the Bagger Belt

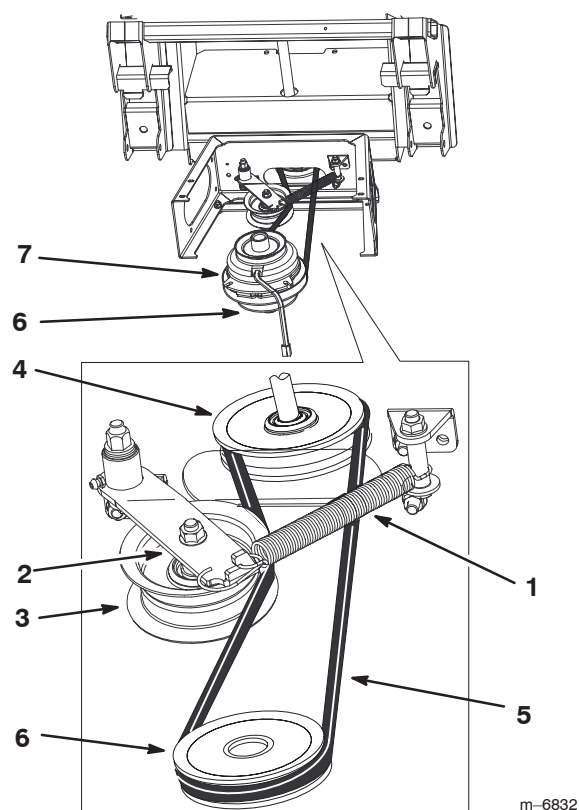
1. Remove the 2 wing nuts (5/16 inch) securing the pulley guard to the bottom of the bagger (Fig. 12).



**Figure 12**

1. Pulley guard
2. Wing nut, 5/16 inch

2. Install the bagger belt onto the clutch drive pulley (Fig. 13).
3. Route the bagger belt onto the idler pulley (Fig. 13).
4. Route the bagger belt through the hole in the rear bumper (Fig. 13).
5. Route the bagger belt onto the bagger pulley (Fig. 13).
6. Connect the spring loop to the hook on the idler arm (Fig. 13).



**Figure 13**

1. Tensioner spring
2. Idler arm
3. Bagger tensioner pulley
4. Bagger pulley
5. Bagger belt
6. Clutch drive pulley
7. Clutch

7. Install the pulley guard to the bottom of the bagger with 2 wing nuts (5/16 inch) (Fig. 12).

Step

9

### Parts needed for this step:

- 3 Spacers–Pillow bearing

## Checking/Adjusting the Bagger Belt Tension

1. With the bagger belt tensioned, measure the gap as shown in Figure 14 at the tensioner pulley (Fig. 14). The gap must be 1–3/4 to 2–1/8 inches. If the gap is not between 1–3/4 and 2–1/8 inches, proceed to the next step.

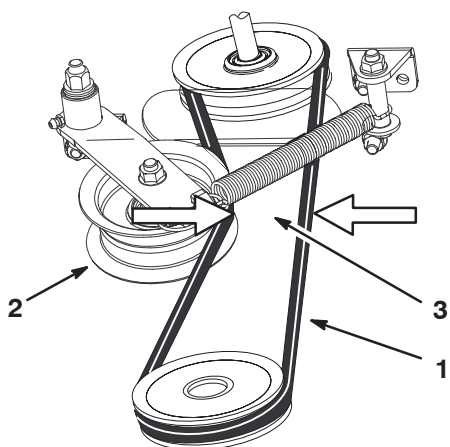
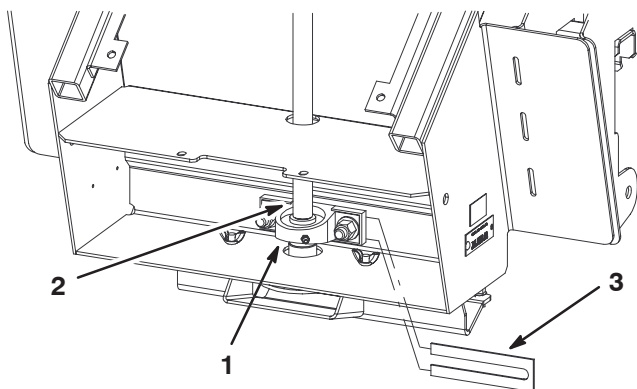


Figure 14

1. Bagger belt
2. Tensioner pulley
3. 1–3/4 to 2–1/8 inch gap

2. To adjust the belt tension:

- A. Loosen the 2 nuts on the lower fan shaft pillow block (Fig. 15).
- B. Insert a spacer behind the pillow block (Fig. 15).
- C. Tighten the nuts.
- D. Check the belt gap and repeat procedure as required.



1. Pillow block
2. Fan shaft
3. Spacer

# Step 10

## Parts needed for this step:

- 4 Weight plates
- 8 Nuts, 3/8 inch
- 2 U-bolts, 3/8 x 3 inch
- 4 Locknuts, 3/8 inch
- 4 Bolts, 3/8 x 2 inch
- 4 Belleville washers

## Installing the Weight Plates



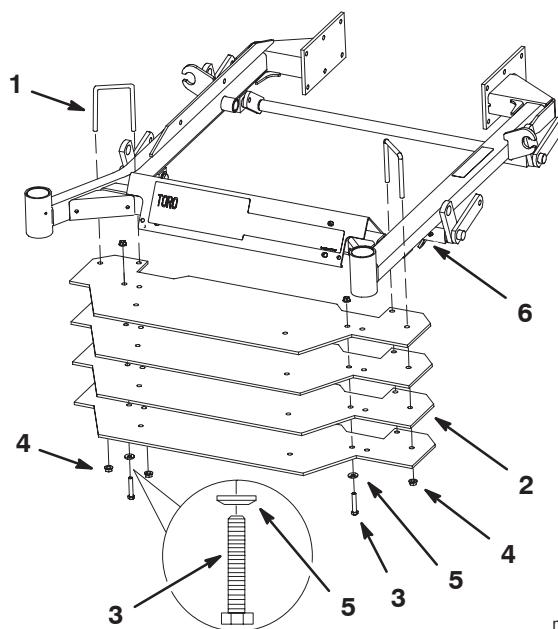
### Caution



The bagger adds a lot of weight to the rear of the machine and may cause an unstable condition which could result in a loss of control.

- Install the front weights.

1. Install the U-bolts over the frame near the foot pan as shown in Figure 16.
2. Install the weight plates under the frame allowing the U-bolts to go through them. Fasten the weight plates to the U-bolts with 4 locknuts (Fig. 16).
3. Install 4 bolts (3/8 x 2 inch), 4 Belleville washers, and 4 locknuts (3/8 inch) into the weight plates and secure them (Fig. 17).



m-7761

Figure 16

- |                       |                      |
|-----------------------|----------------------|
| 1. U-bolt             | 4. Locknut, 3/8 inch |
| 2. Weight plate       | 5. Belleville washer |
| 3. Bolt, 3/8 x 2 inch | 6. Frame             |

# Step 11

## Installing the Weight Bars

### Parts needed for this step:

- 4 Weight bars
- 2 Locknuts, 3/8 inch
- 2 Bolts, 3/8 x 5-3/4 inch
- 2 Belleville washers

### Procedure

1. Position the weight bars on top of the weight plates (Fig. 17).
2. Install the weight bars to the weight plates with 2 bolts (3/8 x 5-3/4 inch), 2 Belleville washers, and 2 locknuts (3/8 inch) (Fig. 17).

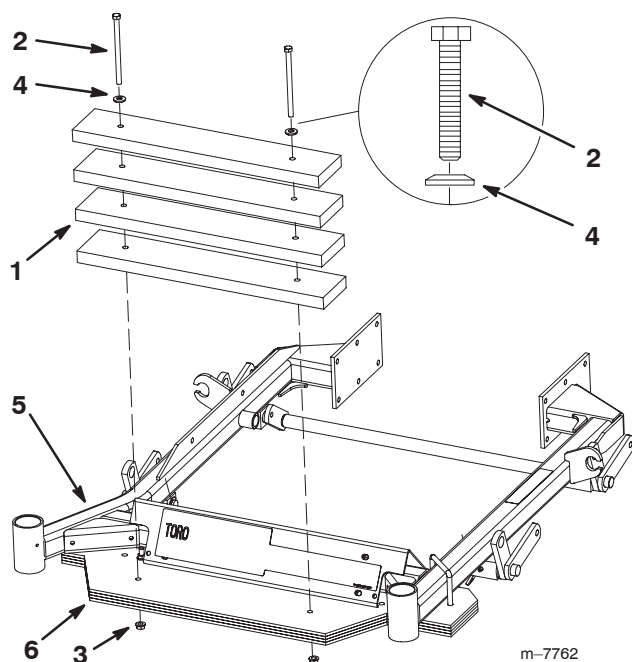


Figure 17

- |                           |                      |
|---------------------------|----------------------|
| 1. Weight bar             | 4. Belleville washer |
| 2. Bolt, 3/8 x 5-3/4 inch | 5. Frame             |
| 3. Locknut, 3/8 inch      | 6. Weight plate      |

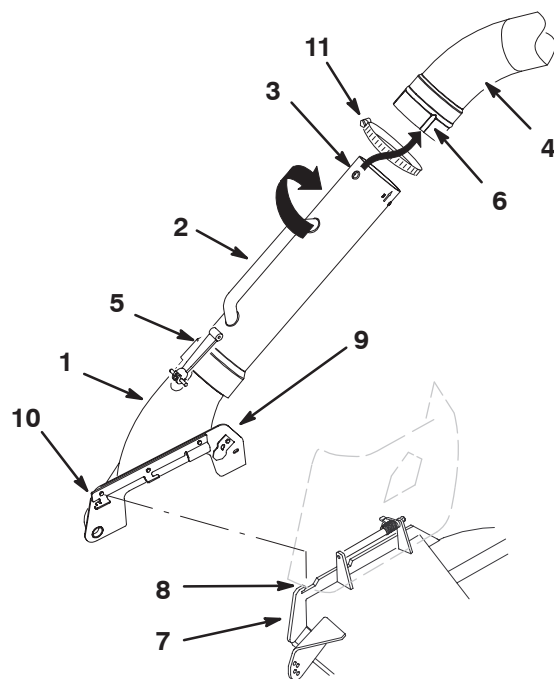
# Step 12

### Parts needed for this step:

- 1 Bagger bracket
- 8 Carriage bolts, 5/16 x 1 inch
- 8 Flange nuts, 5/16 inch

## Installing the Boot and Discharge Tubes

1. Disengage the PTO, set the parking brake, and chock or block the drive wheels.
2. Turn off the engine, remove the key, and wait for all moving parts to stop before leaving the operating position.
3. Remove the locknut, bolt, spring and spacer holding the grass deflector to the mower (Fig. 24).
4. Position the boot's front hook into the front slot on the mounting bracket (Fig. 18).
5. Place the rear hook over the rear of the mounting bracket (Fig. 18).
6. Install the upper tube into the bagger (Fig. 18).
7. Slide the clamp onto the middle tube (Fig. 18).
8. Align the knob on the middle tube with the notch in the upper tube. Slide the middle tube into the upper tube and twist the middle tube 60 degrees (Fig. 18).
9. Tighten the clamp around the upper and middle tube connection (Fig. 18).
10. Slide the middle tube onto the boot and latch them together (Fig. 18).



**Figure 18**

- |                        |                     |
|------------------------|---------------------|
| 1. Boot                | 7. Mounting bracket |
| 2. Middle tube         | 8. Front slot       |
| 3. Knob                | 9. Rear hook        |
| 4. Upper tube          | 10. Front hook      |
| 5. Latch               | 11. Clamp           |
| 6. Notch in upper tube |                     |

m-5889

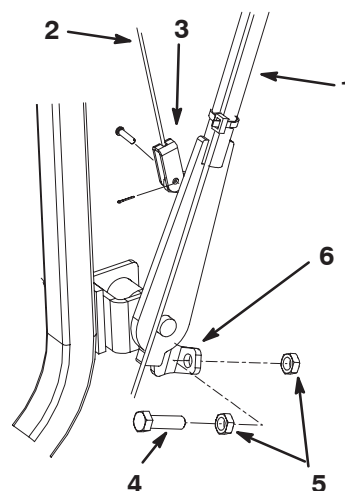
## Step 13

### Parts needed for this step:

- 1 Bolt, 1/2 x 1-3/4 inch
- 2 Jam nuts, 1/2 inch

### Installing the Bagger Dump Lever Stop Bolt

1. Move the bagger dump lever rearward to increase the slack in the bagger cable (Fig. 19).
2. Remove the cotter pin and clevis pin securing the bagger cable clevis to the bagger dump handle (Fig. 19).



**Figure 19**

- |                        |                           |
|------------------------|---------------------------|
| 1. Bagger dump lever   | 4. Bolt, 1/2 x 1-3/4 inch |
| 2. Bagger cable        | 5. Jam nut, 1/2 inch      |
| 3. Bagger cable clevis | 6. Stop bracket           |

3. Thread a jam nut (1/2 inch) all the way onto the bolt (1/2 x 1-3/4 inch) (Fig. 19).
4. Move the bagger dump lever forward to move the bottom of the lever away from the stop bracket (Fig. 19).
5. Insert the bolt into the stop bracket hole and thread another jam nut (1/2 inch) onto the bolt. Do not tighten.
6. Secure the bagger cable clevis to the bagger dump handle with the clevis pin and cotter pin previously removed (Fig. 19).
7. Adjust the handle stop, refer to Adjusting the Bagger Dump Lever, page 18.

Step

14

No parts needed for this step.

## Adjusting the Bagger Dump Lever

The bagger lever needs to be adjusted to remove slack in the bagger cable.

1. Loosen the nuts on both sides of the stop bracket (Fig. 20).
2. Adjust the stop bolt until there is **no** slack in the bagger cable (Fig. 20).
3. Tighten the nuts on both sides of the stop bracket (Fig. 20).

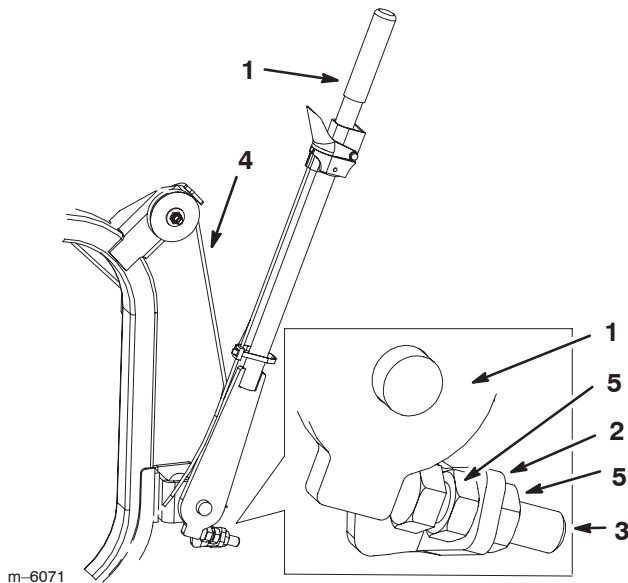


Figure 20

- |                 |                 |
|-----------------|-----------------|
| 1. Bagger lever | 4. Bagger cable |
| 2. Stop bracket | 5. Nut          |
| 3. Stop bolt    |                 |

Step

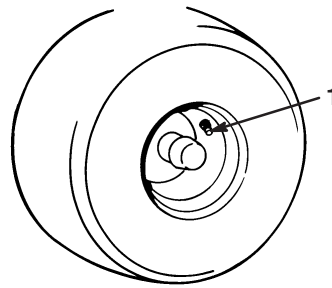
15

No parts needed for this step.

## Checking the Tire Pressure

Check the air pressure in the front caster wheel and rear tires (Fig. 21). Use the following tire pressures when the bagger is installed.

Pressure: Rear tires—20 psi (138 kPa)  
Front caster wheels—25 psi (241 kPa)



m-1872

Figure 21

1. Valve stem



# Operation

**Note:** Determine the left and right sides of the machine from the normal operating position.

**Important** Set the parking brake, and chock or block the tires when leaving the machine unattended, even if just for a few minutes.



## Warning



To avoid personal injury, follow these procedures:

- Become familiar with all operating and safety instructions in the operator's manual for your mower before using this attachment.
- Never remove the bagger or bagger tubes while the engine is running.
- Always shut the engine off and wait for all moving parts to stop before clearing an obstruction from the bagging system.
- Never do maintenance or repairs while the engine is running.
- Set the parking brake and chock or block the tires.



## Warning



Without the grass deflector, bagger tubes or complete bagger assembly mounted in place, you and others are exposed to blade contact and thrown debris. Contact with the rotating mower blade(s) and thrown debris will cause injury or death.

- Always install the grass deflector when removing the bagger and changing to side discharge mode.
- If the grass deflector is ever damaged, replace it immediately. The grass deflector routes material down toward the turf.
- Never put your hands or feet under the mower.
- Never try to clear the discharge area or mower blades unless you move the power take off (PTO) to *off* and rotate the ignition key to *off*. Also remove the key and pull the wire off of the spark plug(s).
- Turn off the engine before unclogging the discharge chute.



## Caution



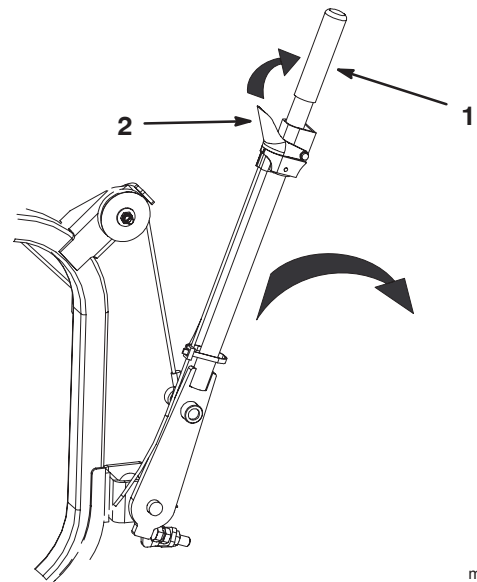
Children or bystanders may be injured if they move or attempt to operate the machine while it is unattended.

Always remove the ignition key, set the parking brake and chock or block tires when leaving the machine unattended, even if just for a few minutes.

## Opening the Bagger

**Important** Contact an Authorized Service Dealer for the required dump handle kit when operating this bagger on a machine with a Rollover Protection System (ROPS).

1. Disengage the PTO.
2. Reach back, squeeze and release the latch lever against the bagger lever (Fig. 22). This will open the latch that secures the bagger door.



m-6074

**Figure 22**

1. Bagger lever

2. Latch lever

3. Pull down on the bagger arm to allow the grass to fall out of the bagger (Fig. 22).
4. Return the bagger arm to upright position in one quick motion. Make sure the bagger door fully engages into the latch (Fig. 22).

**Note:** Make sure the bagger latch is fully engaged before collecting grass or leaves.

## Holding the Bagger Door Open



### Warning



Hands, fingers and arms can get pinched between the back and front sections of the collector.

- Keep people away from collector while emptying it.
- If working on the inside, use the holding pin to hold the collector door open.

1. Disengage the PTO, set the parking brake, and chock or block the tires.
2. Turn off the engine, remove the key, and wait for all moving parts to stop before leaving the operating position.
3. Open the bagger; refer to Opening the Bagger, page 17.
4. With the bagger open, pull out the holding pin and insert into the hole in the hinge (Fig. 23).

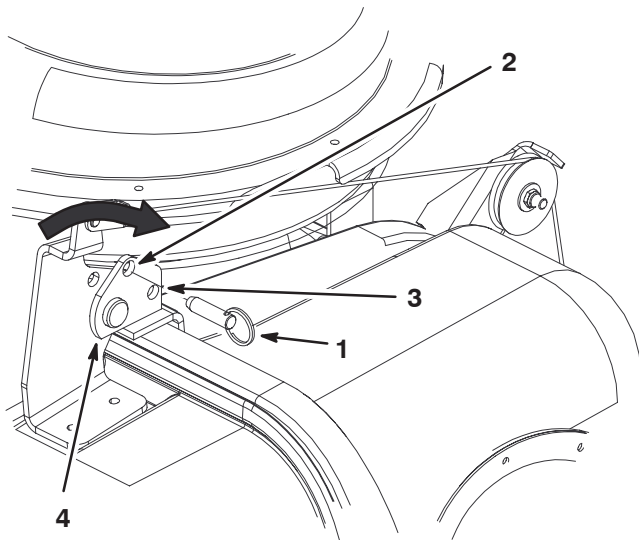


Figure 23

- |                         |                            |
|-------------------------|----------------------------|
| 1. Holding pin          | 3. Hole in hinge (storage) |
| 2. Hole in hinge (open) | 4. Hinge                   |

## Clearing Obstructions From the Bagger System



### Danger



When the bagger is in operation, the blower can be rotating and cut off or injure hands.

- Before adjusting, cleaning, repairing and inspecting the blower, and before unclogging the chute, *turn off the engine and wait for all moving parts to stop*. Remove the key.
- Use a stick, *not your hands*, to remove an obstruction from the blower and tube.
- Keep face, hands, feet, and any other part of your body or clothing away from concealed, moving, or rotating parts.

1. Empty the bagger.
2. Disengage the PTO, set the parking brake, and chock or block the drive wheels.
3. Turn off the engine, remove the key, and wait for all moving parts to stop before leaving the operating position.
4. Remove the complete tube assembly from the bagger and boot.
5. Remove the boot from the mower.
6. Using a stick or similar object, **not your hands**, carefully remove and clear the obstruction from the mower, upper tube, middle tube, or boot assembly.
7. After you remove the obstruction, install the complete bagger system and resume operation. Refer to Installing the Discharge Tubes on page 14.

## Removing the Discharge Tubes

**Note:** Remember to install the grass deflector when in side discharge mode. Refer to Installing the Grass Deflector on page 19.

1. Disengage the PTO, set the parking brake, and chock or block the drive wheels.
2. Turn off the engine, remove the key, and wait for all moving parts to stop before leaving the operating position.
3. Unlatch the middle tube from the boot and slide apart (Fig. 18).

4. Remove the tube assembly from the bagger (Fig. 18).
5. Remove the boot from the mounting bracket (Fig. 18).
6. If you are changing to side discharge mode, **install the grass deflector**. Refer to Installing the Grass Deflector on page 19.

## Removing the Bagger



### Danger



If you operate mower without the bagger installed or with the discharge tubes and boot removed, you and others may be injured by thrown debris or cut by the blade.

- Always operate the mower with either the complete bagger mounted in place or use the mower in side discharge.

1. Disengage the PTO, set the parking brake, and chock or block the drive wheels.
2. Turn off the engine, remove the key, and wait for all moving parts to stop before leaving the operating position.
3. Remove the discharge tubes. Refer to removing The Discharge Tubes on page 18.
4. Remove hairpin cotters and clevis pins from the bagger and bagger bracket (Fig. 11).
5. Remove the pulley guard (Fig. 12).
6. Remove the bagger belt and bagger tensioner arm with the pulley (Fig. 13).
7. Remove the bagger from the bagger mounting bracket (Fig. 11).
8. **Install the grass deflector**. Refer to Installing the Grass Deflector on page 19.
9. Remove **all front weight plates and weight bars** (Figures 16 and 17).

## Installing the Grass Deflector

The grass deflector spring will have either an **L** end or a straight end (Fig. 24).

**Note:** Make sure the grass deflector is installed when the bagger and tubes are removed.



### Warning



An uncovered discharge opening could allow the lawn mower to throw objects in the operator's or bystander's direction and result in serious injury. Also, contact with the blade could occur.

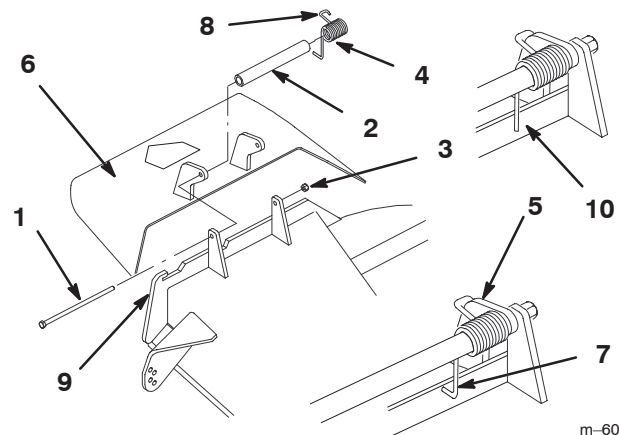
Never operate the lawn mower unless you install a cover plate, a mulch plate, grass deflector or a grass chute and catcher.

1. Place spacer and spring onto grass deflector. Place the **L** or the straight end of spring behind deck edge.

**Note:** Make sure the **L** or the straight end of spring is installed behind deck edge before installing the bolt as shown in figure 24.

2. Install bolt and nut. Place **J** hook end of spring around grass deflector (Fig. 24).

**Important** The grass deflector must be lowered down into position. Lift the deflector up to test that it lowers into the full down position.



m-6085

**Figure 24**

- |                     |   |
|---------------------|---|
| 1. Bolt             | 7. <b>L</b> end of spring, place behind mounting bracket before installing bolt |
| 2. Spacer           | 8. <b>J</b> hook end of spring  |
| 3. Locknut          | 9. Mounting bracket   |
| 4. Spring           | 10. Straight end—possible style of spring                                       |
| 5. Spring installed |   |
| 6. Grass Deflector  |   |

## Transporting Machines

Do not leave grass or debris in the bagger while transporting the machine.



### Warning



**Transporting the machine with grass or debris in the bagger can damage the machine.**

**Do not leave grass or debris in the bagger while transporting the machine.**

## Operating and Bagging Tips

### Machine Size

Remember that the machine is longer and wider with this attachment installed. By turning too sharply in confined places you may damage the attachment or other property.

### Trimming

Always trim with the left side of the mower. Do not trim with the right side of the mower because you could damage the bagging tubes.

### Cutting Height

For optimum bagging performance, set the deck height-of-cut to remove no more than 2 to 3 inches (51 to 76 mm) or 1/3 of the grass height, whichever is less. Cutting off more than this will reduce the capacity of the vacuum system.

### Cutting Frequency

Cut the grass often, especially when it grows rapidly. You will have to cut your grass twice if it gets excessively long (refer to Bagging Long Grass, page 20).

### Cutting Technique

For best lawn appearance, be sure to slightly overlap the mower into the previously cut area. This helps reduce the load on the engine and reduces the chance of plugging the boot and tube.

## Bagging Speed

The bagging system may plug if you drive too fast and the engine speed gets too slow. On hills it may be necessary to slow the machine's ground speed. Mow down hill whenever possible.



### Caution



**As the bagger fills, extra weight is added to the back of the machine. If you stop and start suddenly on hills, you may lose steering control or the machine may tip.**

- **Do not start or stop suddenly when going uphill or downhill. Avoid uphill starts.**
- **If you do stop the machine when going uphill, disengage the PTO. Then back down the hill using a slow speed.**
- **Do not change speeds or stop on slopes.**

## Bagging Long Grass

Excessively long grass is heavy and may not be propelled completely into the bagger. If this happens, the tube and boot may plug.

## Bagging Wet Grass

If possible, always try to cut grass when it is dry. Wet grass can cause plugging.

## Reducing Plugging

To avoid plugging the bagging system, reduce ground speed and mow the grass at a high height-of-cut, then lower the mower to your normal cutting height and repeat the bagging process.

## Signs of Plugging

As you are bagging, a small amount of grass clippings normally blow out the front of the mower. An excessive amount of clipping blow-out indicates that the bagger is full or the boot is plugged.



## Warning



Without the grass deflector, bagger tubes or complete bagger assembly mounted in place, you and others are exposed to blade contact and thrown debris. Contact with the rotating mower blade(s) and thrown debris will cause injury or death.

- Always install the grass deflector when removing the bagger and changing to side discharge mode.
- If the grass deflector is ever damaged, replace it immediately. The grass deflector routes material down toward the turf.
- Never put your hands or feet under the mower.
- Never try to clear the discharge area or mower blades unless you move the power take off (PTO) to *off* and rotate the ignition key to *off*. Also remove the key and pull the wire off of the spark plug(s).

## Bagging Blades

In certain mowing conditions, improved bagging performance can be achieved by using bagging blades. Contact an Authorized Service Dealer for the proper blades for different mowing conditions.

## Fan Vacuum

The bagging system operates by vacuum created by a rotating fan mounted in the top of the hopper. If the vacuum action is reduced, bagging performance will diminish. Refer to Troubleshooting on page 24 for causes of reduced performance.

## Curb Climbing and Loading

Always lift the deck to the highest position when loading the machine on trailers or ascending/descending a curb. Leaving the mower in a lower position can cause damage to mower baffles while loading and going over a curb. If a curb is higher than 6 inches (152 mm), cross it at a sharp angle with the deck fully raised. **Use extreme caution when loading onto a trailer.**

# Maintenance

**Important** If the machine is on a slope, set the parking brake and chock or block the wheels to prevent the machine from slowly rolling.

## Recommended Maintenance Schedule

Maintenance Service Interval	Maintenance Procedure
Each Use	<ul style="list-style-type: none"><li>• Screen—clean</li></ul>
8 Hours	<ul style="list-style-type: none"><li>• Bagger—clean</li></ul>
First 10 Hours	<ul style="list-style-type: none"><li>• Bagger—inspect</li></ul>
40 Hours	<ul style="list-style-type: none"><li>• Bagger idler arm—grease</li><li>• Belt tension—check</li></ul>
100 Hours	<ul style="list-style-type: none"><li>• Bagger—inspect</li><li>• Bagger fan shaft bearings (upper &amp; lower)—grease</li><li>• Belts—check for wear/cracks</li></ul>
Storage Service	<ul style="list-style-type: none"><li>• Belts—check for wear/cracks</li><li>• Bagger—inspect</li><li>• Bagger—clean</li></ul>

**Note:** Determine the left and right side of the machine from the normal operating position.

## Cleaning the Screen

The screen needs to be cleaned before each use. In wet grass it will need to be cleaned more often.

1. Disengage the PTO, set the parking brake, and chock or block the drive wheels.
2. Turn off the engine, remove the key, and wait for all moving parts to stop before leaving the operating position.
3. Open the bagger and hold the bagger door open. Refer to Holding the Bagger Door Open on page 18.
4. Clean the debris from the screens.
5. Close the bagger door.

## Cleaning the Bagger

The bagger needs to be cleaned as needed when debris is observed and at storage.

1. Wash the inside and outside of the bagger, upper tube, lower tube, boot assembly and the underside of the mower. Use a mild automotive detergent to remove dirt.
2. Make sure you remove matted grass from all parts.
3. After washing all parts, let them dry thoroughly.

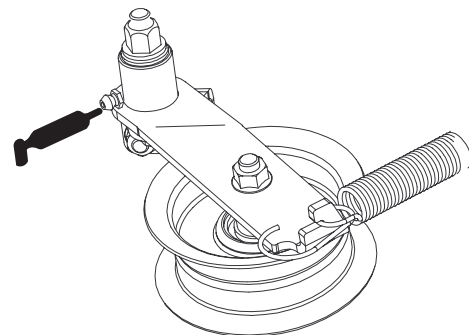
**Note:** With all parts installed, start and run the machine for a minute to assist in drying.

## Checking the Bagger Belt

Check the bagger belt for wear and cracks every 100 hours and when storing the bagger.

## Greasing the Idler Arm

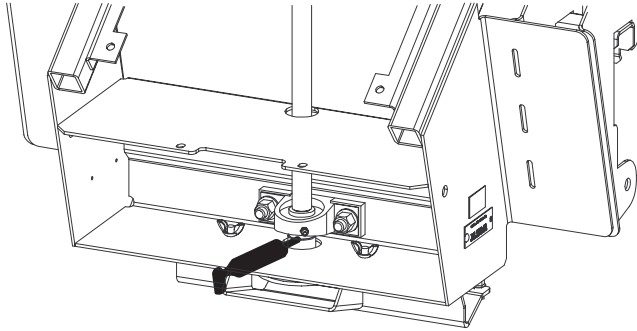
Grease the bagger belt idler arm (Fig. 25) every 40 hours.



**Figure 25**

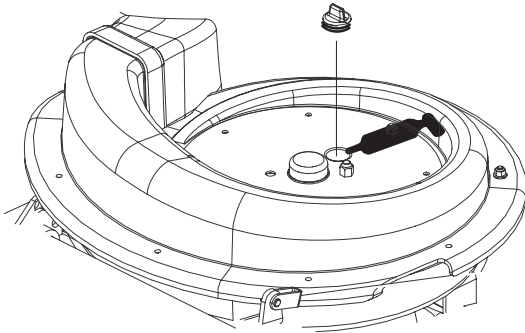
## Greasing the Fan Shaft Bearings

Grease the upper and lower bagger fan shaft bearings (Fig. 26 & 27) every 100 hours.



**Figure 26**

1. Remove rubber plug to expose grease fitting.



**Figure 27**

1. Plug

## Inspecting the Bagger

Inspect the bagger attachment after the first ten hours of operation, and 100 hours thereafter.

1. Disengage the PTO, set the parking brake, and chock or block the drive wheels.
2. Turn off the engine, remove the key, and wait for all moving parts to stop before leaving the operating position.
3. Check the upper tube, lower tube, and the boot assembly. Replace these parts if they are cracked or broken.
4. Check the bagger, bagger frame, and screen. Replace any parts that are cracked or broken.
5. Tighten all nuts, bolts and screws.

## Inspecting the Mower Blades and Baffles

1. Inspect the mower blades and baffles regularly and whenever a blade strikes a foreign object.
2. If blades or baffles are badly worn or damaged, install new blades or baffles. Refer to your mower operator's manual for complete blade maintenance.

## Storage

1. Clean the bagger attachment. Refer to Cleaning the Bagger Attachment on page 22.
2. Inspect the bagger attachment for damage. Refer to Inspecting the Bagger Attachment on page 22.
3. Make sure the bagger is empty and thoroughly dry.
4. Check the belt for wear or cracks.
5. Store the machine in a clean, dry place, out of direct sunlight. If you must store the machine outside, cover it with a weatherproof cover. This protects the plastic parts and extends the life of the machine.



# Troubleshooting

Problem	Possible Causes	Corrective Action
Abnormal vibration.	<ol style="list-style-type: none"> <li>1. Cutting blade(s) is/are bent or unbalanced.</li> <li>2. Blade mounting bolt is loose.</li> <li>3. Loose bagger pulley or pulley assembly.</li> <li>4. Bagger belt is worn or damaged.</li> <li>5. Bagger impeller is out of balance.</li> <li>6. Blade interferes with mower baffles.</li> </ol>	<ol style="list-style-type: none"> <li>1. Install new cutting blade(s).</li> <li>2. Tighten blade mounting bolt.</li> <li>3. Tighten the appropriate pulley.</li> <li>4. Replace the bagger belt.</li> <li>5. Contact Authorized Service Dealer.</li> <li>6. Do not use machine. Replace bent blades and/or baffles.</li> </ol>
Reduced bagging performance.	<ol style="list-style-type: none"> <li>1. Low engine speed.</li> <li>2. Plugged fan screen.</li> <li>3. Loose bagger belt.</li> <li>4. Broken seal between hopper and rear door.</li> <li>5. A plugged boot.</li> <li>6. Improper seal around the upper tube going into the hopper.</li> <li>7. Full hopper.</li> </ol>	<ol style="list-style-type: none"> <li>1. Always operate the bagger at full throttle.</li> <li>2. Remove debris, leaves or grass clippings from the fan screen.</li> <li>3. Tighten the bagger belt.</li> <li>4. Ensure the rear door is latched.</li> <li>5. Locate and remove plugged debris.</li> <li>6. Ensure that there is a good seal at hopper.</li> <li>7. Empty hopper.</li> </ol>
Boot and tubes plug too frequently.	<ol style="list-style-type: none"> <li>1. Hopper is too full.</li> <li>2. Low engine speed.</li> <li>3. Grass is too wet.</li> <li>4. Grass is too long.</li> <li>5. Plugged fan screen.</li> <li>6. Ground speed is too fast.</li> <li>7. Worn belt.</li> </ol>	<ol style="list-style-type: none"> <li>1. Dump more frequently.</li> <li>2. Always operate the bagger at full throttle.</li> <li>3. Cut grass when dry.</li> <li>4. Cut no more than 2–3 inches or 1/3 of the grass height, whichever is less.</li> <li>5. Remove debris, leaves or grass clippings from the fan screen.</li> <li>6. Drive slower at full throttle.</li> <li>7. Replace belt.</li> </ol>
Debris blowout.	<ol style="list-style-type: none"> <li>1. Hopper is too full.</li> <li>2. Ground speed is too fast.</li> <li>3. Center tunnel baffle not installed.</li> <li>4. Mower is not leveled.</li> </ol>	<ol style="list-style-type: none"> <li>1. Dump more frequently.</li> <li>2. Drive slower at full throttle.</li> <li>3. Install the center baffle when bagging leaves.</li> <li>4. See the mower operator's manual for leveling the mower.</li> </ol>