Form No. 3350–765

TORO®

DFS Vac Collection System

100 Series Z Master

Model No. 78500—Serial No. 230000001 and Up

Operator’s Manual

English (CE)

Contents

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.

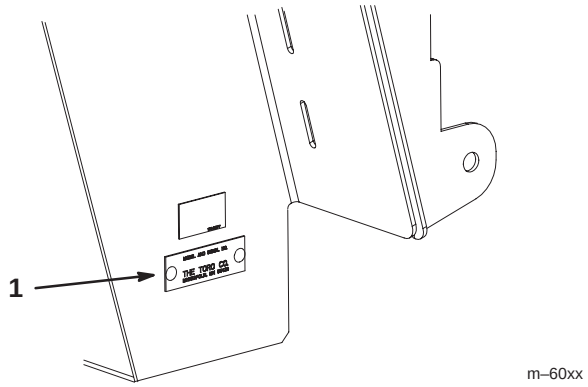

Figure 1

1. Location of the model and serial numbers

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

Model No. _____

Serial No. _____

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.

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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.

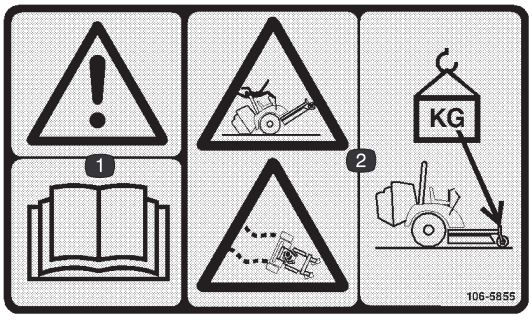
Safety

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.

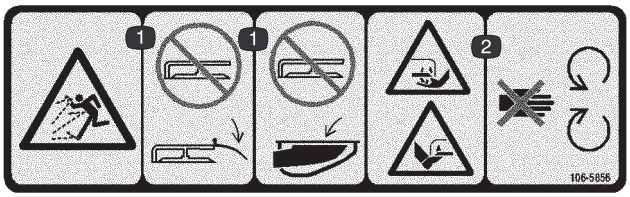
Safety and Instruction Decals

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
1	Template Bolt, #6 x1/2 inch	1 1	Drilling holes for the clutch
2	Bolt, 7/16 x 4–1/2 inch—Kawasaki® engines only Bolt, 7/16 x 4 inch—Kohler® engines only Drive pulley assembly Clutch spacer	1 1 1 1	Installing the clutch and drive pulley assembly
3	No parts needed		Removing the drive wheels
4	No parts needed		Removing the heat shield
5	Template	1	Drilling the holes for the bagger
6	Bagger mounting bracket Bolt, 5/16 x 1 inch Flange nut, 5/16 inch Flat washer, 5/16 inch	1 16 16 6	Installing the bagger mounting bracket
7	Idler pulley assembly with bracket Bolt, 5/16 x 7/8 inch Flange nut, 5/16 inch Spring bracket Shoulder bolt, 3/8 x 2–1/2 inch Nut, 3/8 inch	1 5 5 1 1 1	Installing the bagger idler pulley and skid plate

Step	Description	Qty.	Use
8	Bagger Clevis pin Hairpin cotter	1 2 2	Installing the bagger
9	Spring Bagger belt	1 1	Installing the bagger belt
10	Spacer	3	Checking/adjusting the bagger belt tension
11	Weight—left Weight—right Weight bracket—left Weight bracket—right Support plate Bolt, 3/8 x 6–1/2 inch Bolt, 5/16 x 1 inch Nut, 3/8 inch Lock washer, 3/8 inch Flat washer, 3/8 inch Bolt, 3/8 x 4–1/2 inch Bolt, 3/8 x 3/4 inch Self tapping bolt, 3/8 x 5/8 inch	1 1 2 2 1 4 2 8 8 16 4 2 1	Installing the weights
12	Weight Weight bracket Large Washer Locknut, 5/16 inch Bolt, 5/16 x 1–1/4 inch Washer, 11/32 inch	1 2 2 2 2 2	Installing the front weight
13	Bagger bracket Carriage bolt, 5/16 x 1 inch Flange nut, 5/16 inch	1 8 8	Installing the boot and discharge tubes
14	Bolt, 1/2 x 1–3/4 inch Jam nut, 1/2 inch	1 2	Installing the bagger dump lever stop bolt
15	No parts needed		Adjusting the bagger dump lever
16	No parts needed		Checking the tire pressure

Before Installation

Checking the Mower for Existing Holes

Check the mower for existing holes. Use any existing holes in the mower that align with any of the parts to be installed in their correct positions.

Step 1

Parts needed for this step:

- 1 Template
- 1 Bolt, #6 x 1/2 inch

Checking for Holes in the Clutch

Look under the engine to view the clutch. Check to see if there are existing holes in the clutch as shown in Figure 2.

- If there are no existing holes, proceed to Drilling Holes in the Clutch below.
- If there are existing holes in the clutch, proceed to Installing the Clutch and Drive Pulley Assembly on page 7.

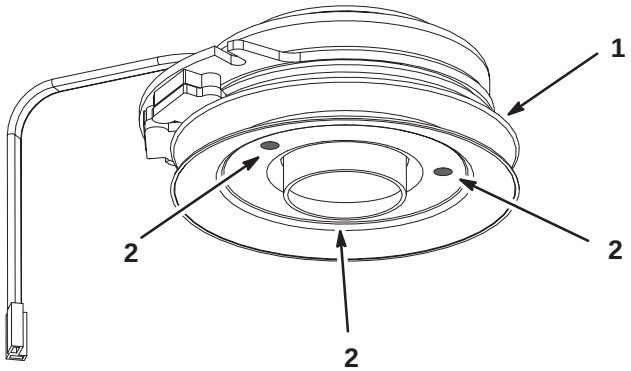


Figure 2

1. Clutch
2. Holes in clutch

Drilling Holes in the Clutch

Use the metal template, included with the bagger, to locate the clutch holes.

1. Remove the clutch strap for the clutch (Fig. 3).

2. Unplug the clutch connector (Fig. 3).

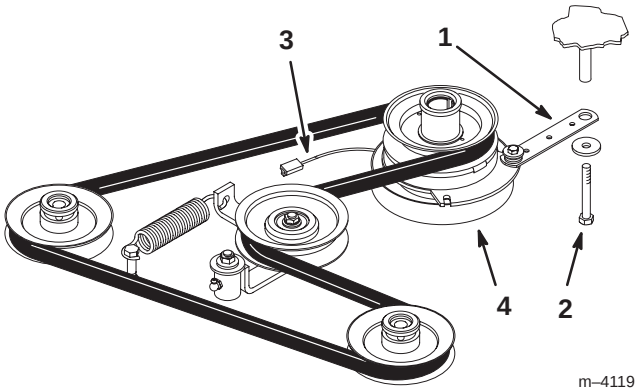


Figure 3

1. Clutch strap
2. Bolt
3. Clutch connector
4. Clutch

3. Remove the existing deck belt from the clutch.

4. Remove the existing clutch from the machine (Fig. 4). Discard the bolt that was installed in the clutch.

5. Remove the existing drive spacer from the clutch (Fig. 4).

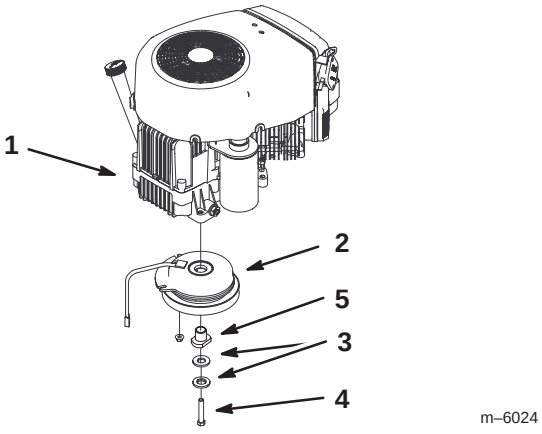


Figure 4

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

6. Position the template into the clutch pulley so the outside diameter is flush with the inside of the clutch flange (Fig. 5).

Note: Before drilling holes, place a piece of metal between the clutch and pulley. This will prevent drilling into the clutch.

7. Using the template, drill one 1/8 inch pilot hole into the pulley (Fig. 5).

8. Install the screw (#6 x 1/2 inch) into the 1/8 inch hole (Fig. 5). This will hold the template in place while drilling the other two holes.

9. Using the template, drill the remaining two 1/8 inch pilot holes into the pulley (Fig. 5).

10. Remove the template and the screw (#6 x 1/2 inch) and discard (Fig. 5).

11. Drill 3 holes, 3/8 inch diameter, into the 1/8 inch pilot holes. (Fig. 5).

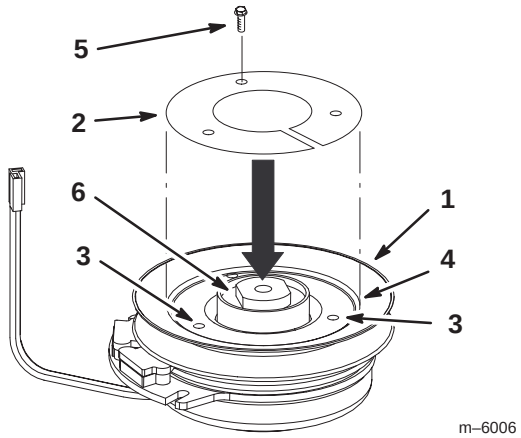


Figure 5

1. Clutch pulley
2. Template
3. Hole to drill
4. Clutch flange
5. Screw, #6 x 1/2 inch
6. Drive spacer

Step 2

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. 4 and 6).

2. If not already removed, remove the existing drive spacer from the clutch (Fig. 4 and 6).

3. Install the new pulley spacer into the clutch (Fig. 6).

4. Install the drive pulley assembly into the three holes drilled into the clutch pulley (Fig. 6).

5. Install the drive spacer into the drive pulley assembly (Fig. 6).

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. 6).

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. 6).

8. Torque the clutch bolt to **55 ft–lb (75 N•m)** (Fig. 6).

9. If needed, install the existing deck belt onto the clutch.

10. If needed, install the clutch strap (Fig. 3).

11. If needed, plug in the clutch connector (Fig. 3).

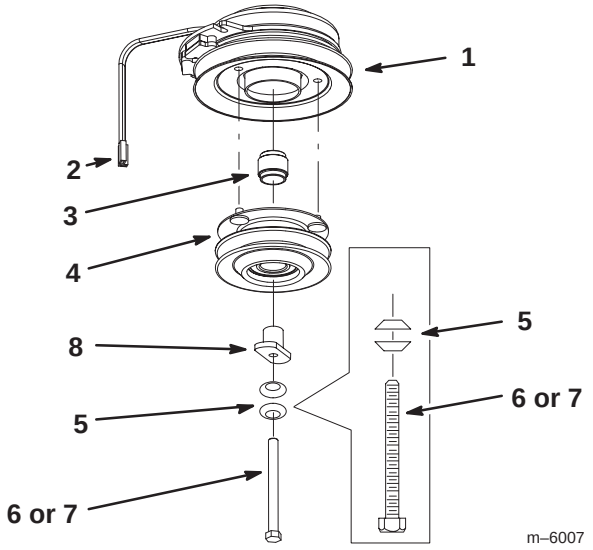


Figure 6

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

Step 3

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 4

No parts needed for this step.

Removing the Rear Heat Shield

1. Remove the 8 bolts and nuts securing the rear of the heat shield to the engine straps and the rear bumper (Fig. 7).
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. 7). Save the heat shield and all the hardware.

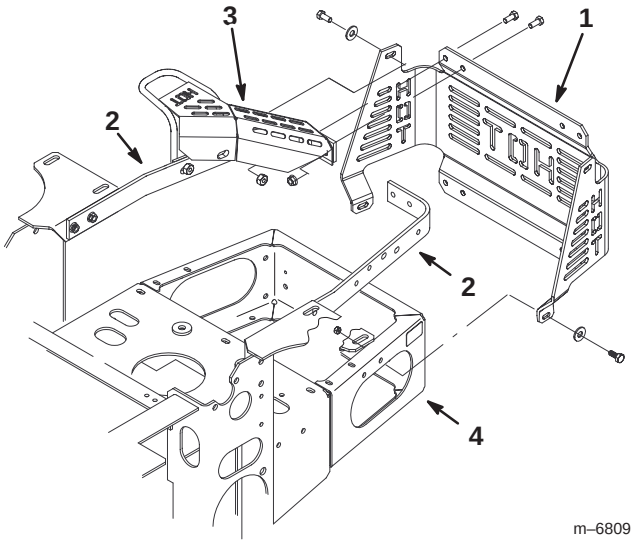


Figure 7

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

Step 5

Parts needed for this step:

- 1 Template

Drilling Holes for the Bagger

1. Check if there is a large opening in the rear bumper. (Fig. 8). If there is no large opening, proceed to next step.
2. Using the two large holes in the template, temporarily install the template to the rear bumper of the mower with 2 bolts (5/16 x 7/8 inch) and 2 nuts (5/16 inch), supplied with kit (Fig. 8).

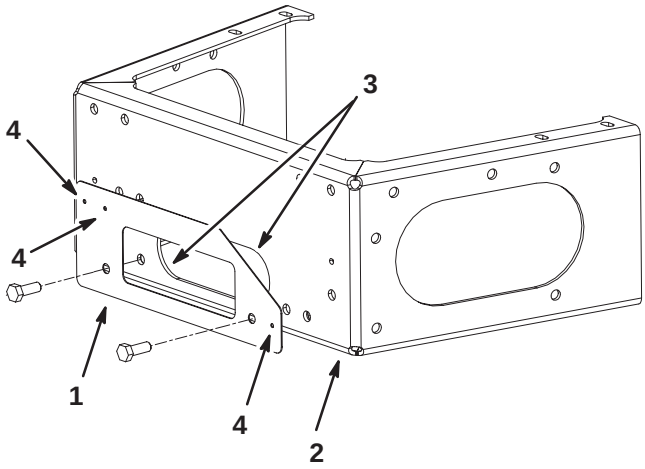


Figure 8

1. Template
2. Rear bumper
3. Large opening in bumper
4. Holes to drill

3. Mark and center punch the 3 holes to be drilled (Fig. 8).
4. Mark the outline of the large opening in the template (Fig. 8).
5. Remove the bolts, nuts, and template from the rear bumper.
6. Drill 1/8 inch pilot holes at the 3 marked locations and then drill 3/8 inch diameter holes.
7. Cut out the large opening marked on the rear bumper (Fig. 8). This opening is needed to allow the bagger belt to pass through the rear bumper.
8. File the metal burrs from the drilled holes and opening.

Step 6

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. 9).

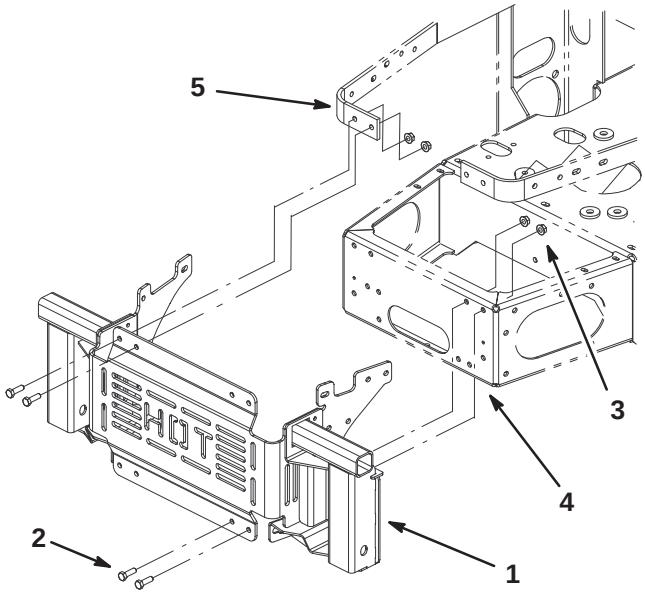


Figure 9

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

2. 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. 10).

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

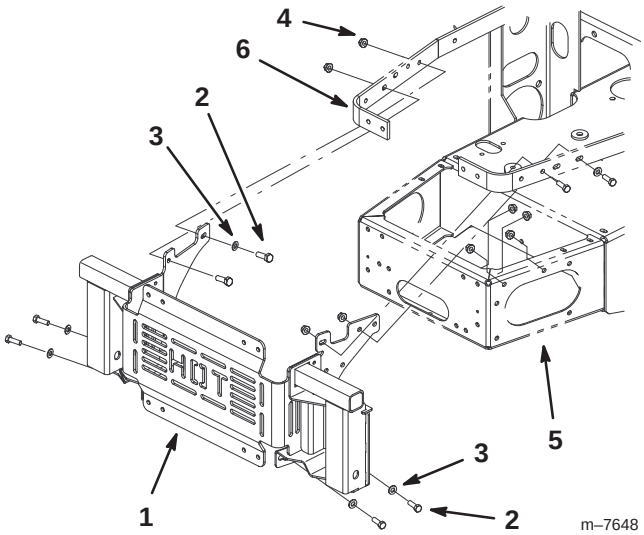


Figure 10

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

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

Step **7**

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

1. 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. 11).

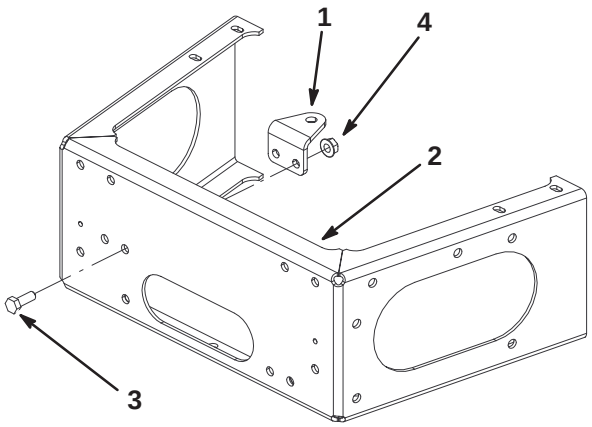


Figure 11

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

2. 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. 12).

3. 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. 12).

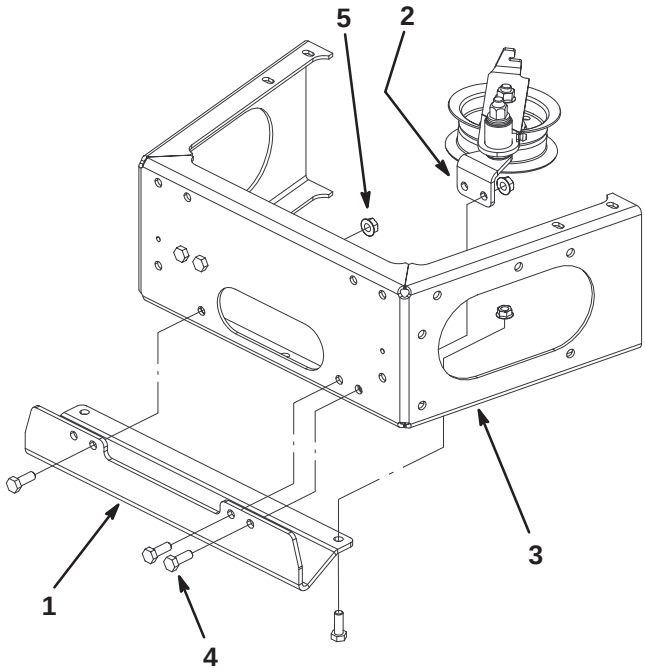


Figure 12

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

4. Install the shoulder bolt (3/8 x 2–1/2 inch), spring and flange nut (3/8 inch) to the spring bracket (Fig. 13).

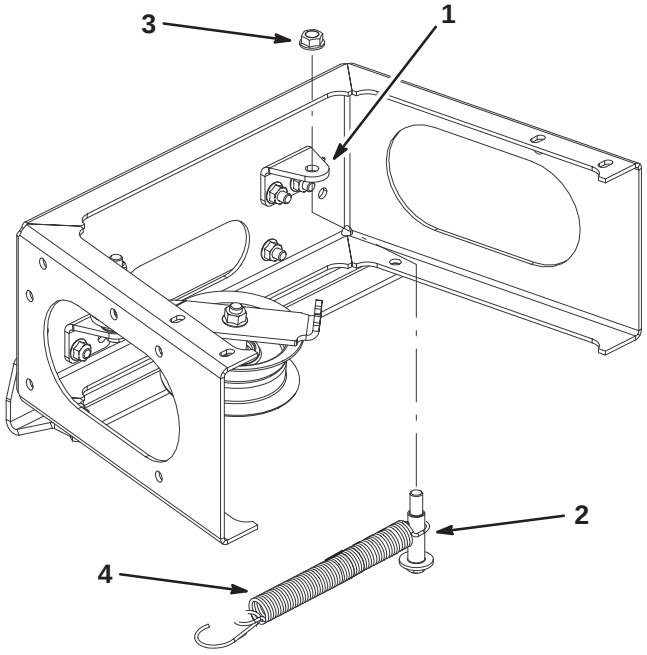


Figure 13

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

Step 8

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. 14).

2. Install clevis pins into the bagger and bagger mounting bracket. Secure them with hairpin cotter pins (Fig. 14).

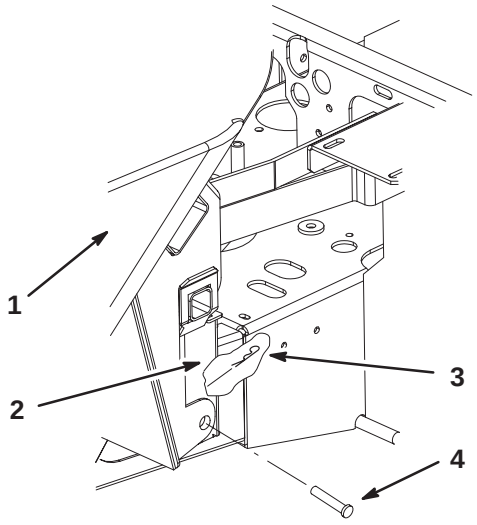


Figure 14

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

Step 9

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. 15).

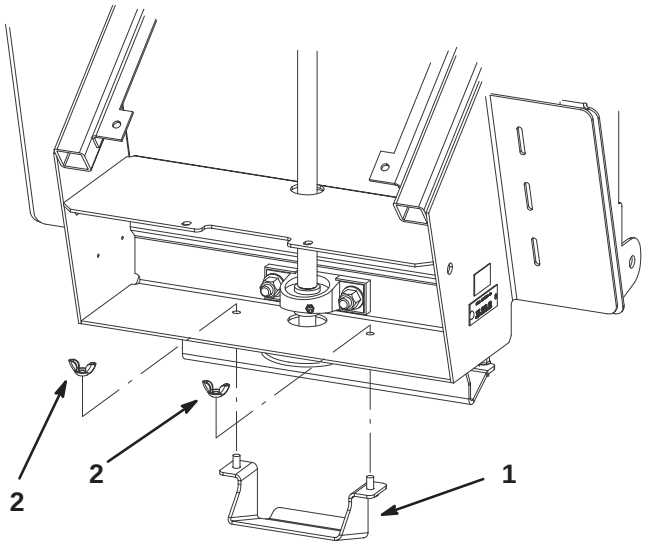


Figure 15

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

2. Install the bagger belt onto the clutch drive pulley (Fig. 16).

3. Route the bagger belt onto the idler pulley (Fig. 16).

4. Route the bagger belt through the hole in the rear bumper (Fig. 16).

5. Route the bagger belt onto the bagger pulley (Fig. 16).

6. Connect the spring loop to the hook on the idler arm (Fig. 16).

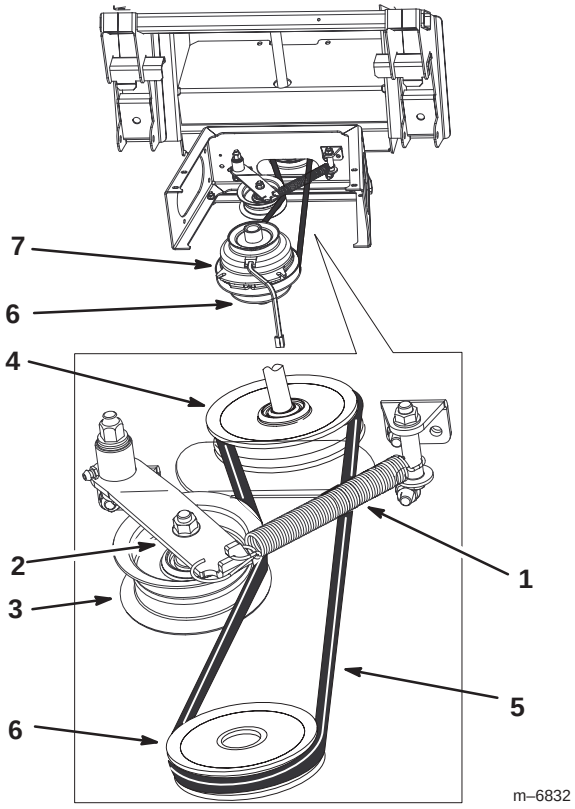


Figure 16

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. 15).

Step 10

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 17 at the tensioner pulley (Fig. 17). 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.

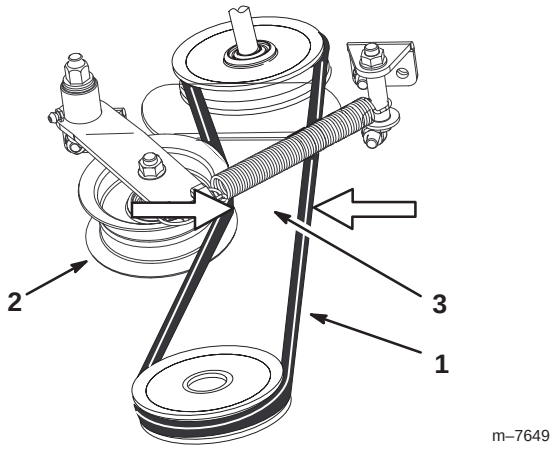


Figure 17

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. 18).

B. Insert a spacer behind the pillow block (Fig. 18).

C. Tighten the nuts.

D. Check the belt gap and repeat procedure as required.

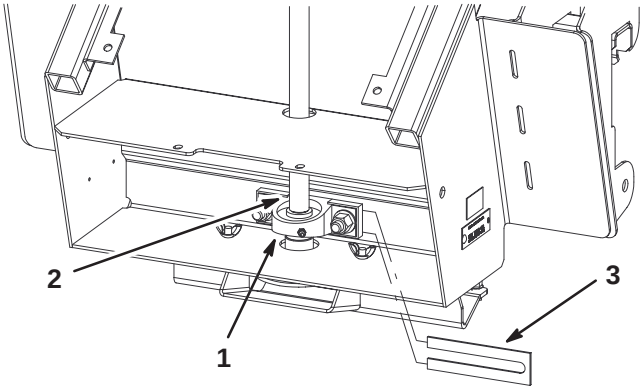


Figure 18

1. Pillow block
2. Fan shaft
3. Spacer

Step 11

Parts needed for this step:

- 1 Weight—left
- 1 Weight—right
- 2 Weight brackets—left
- 2 Weight brackets—right
- 1 Support plate
- 4 Bolts, 3/8 x 6–1/2 inch
- 2 Bolts, 5/16 x 1 inch
- 8 Nuts, 3/8 inch
- 8 Lock washers, 3/8 inch
- 16 Flat washers, 3/8 inch
- 4 Bolts, 3/8 x 4–1/2 inch
- 2 Bolts, 3/8 x 3/4 inch
- 1 Self tapping bolt, 3/8 x 5/8 inch

Installing the Weights

Note: There are left hand and right hand weights and weight brackets (Fig. 20).

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. Remove the two outside bolts that connect the front floor pan to the carrier frame (Fig. 19). Save this hardware.
2. Remove the 4 bolts and washers that hold the front floor pan to the front frame (Fig. 19). Save this hardware.

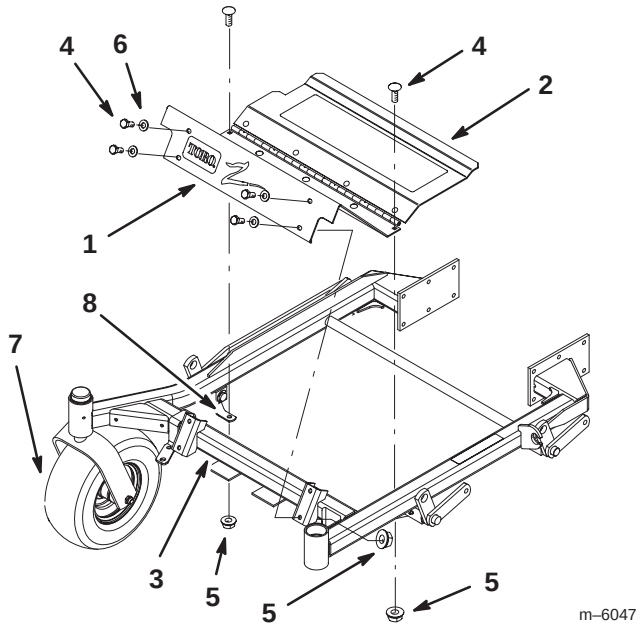


Figure 19

1. Front floor pan
2. Footrest
3. Front frame
4. Bolt
5. Nut
6. Washer
7. Front caster wheel
8. Carrier frame

3. With the two holes towards the front, place the left and right–hand weight brackets onto the front frame (Fig. 20).
4. In the weight bracket rear holes, install the weights with 4 bolts (3/8 x 6–1/2 inch), 8 flat washers (3/8 inch), 4 lock washers (3/8 inch), and 4 nuts (3/8 inch) (Fig. 20).

Note: Only the two inside weight brackets use the center holes for installing the weights.

5. In the weight bracket center holes, install 2 bolts (3/8 x 3/4 inch) into the weights (Fig. 20).

Note: After the weights are installed, pivot the caster wheels near the weights to ensure clearance between the wheels and the weights. Adjust the weights if needed.

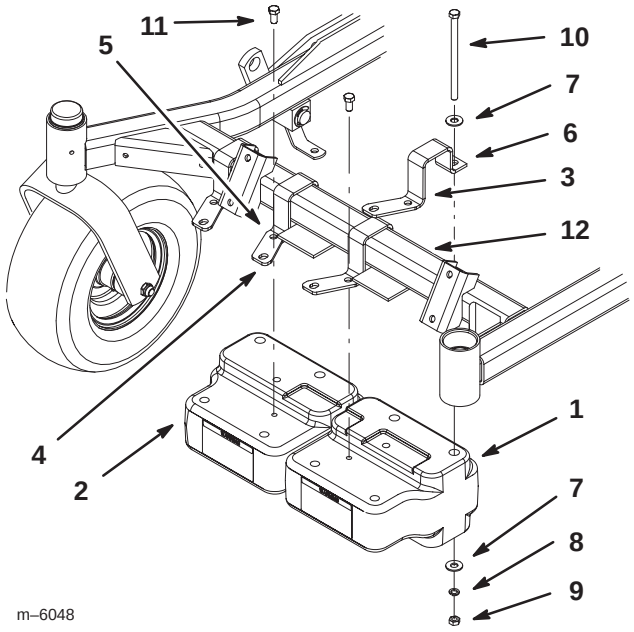


Figure 20

1. Weight—left
2. Weight—right
3. Weight bracket—left
4. Weight bracket—right
5. Center hole
6. Rear hole
7. Flat washer, 3/8 inch
8. Lock washer, 3/8 inch
9. Nut, 3/8 inch
10. Bolt, 3/8 x 6–1/2 inch
11. Bolt, 3/8 x 3/4 inch
12. Front frame

6. Install the two outside bolts that connect the front floor pan to the carrier frame (Fig. 19).

7. Install **only the top 2 bolts** that hold the front floor pan to the front frame (Fig. 19). Use existing hardware.

8. Using the bottom holes that hold the front floor pan, install the support plate to the front of the machine with 2 new bolts (5/16 x 1 inch), 2 existing flat washers (5/16 inch), and 2 existing flange nuts (5/16 inch) (Fig. 22).

Note: If the right–hand flange nut **can not** be reached, drill an 11/32 inch diameter hole through the front floor pan using the support plate as a template (Fig. 21).

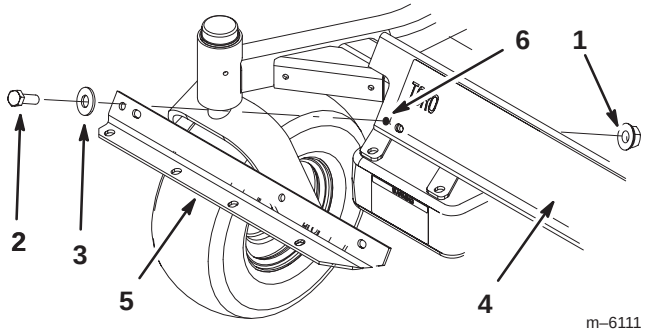


Figure 21

1. Flange nut, 5/16 inch
2. Bolt, 5/16 x 1 inch
3. Existing flat washer, 5/16 inch
4. Front floor pan
5. Support plate
6. Hole to drill if needed

9. Using the support plate as a template, drill one 5/16 inch hole into the front floor pan (Fig. 22).

10. Install a self tapping bolt (3/8 x 5/8 inch) into support plate and hole just drilled (Fig. 22).

11. Install the support plate to the brackets and weights with 4 bolts (3/8 x 4–1/2 inch), 8 flat washers (3/8 inch), 4 lock washers (3/8 inch), and 4 nuts (3/8 inch) (Fig. 22).

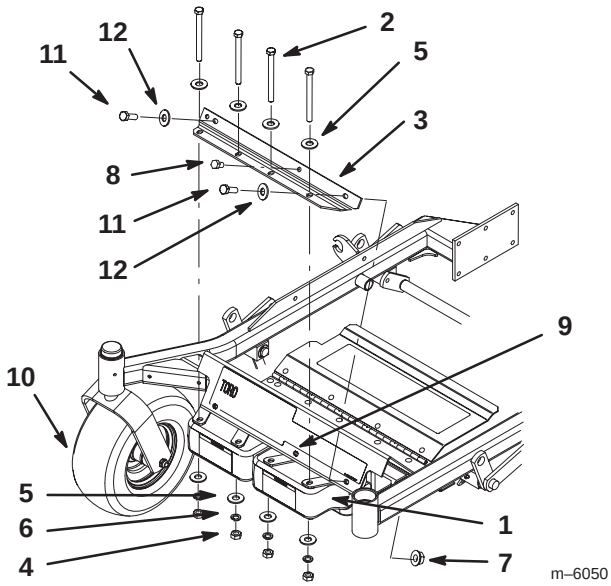


Figure 22

1. Weight
2. Bolt, 3/8 x 4–1/2 inch
3. Support plate
4. Nut, 3/8 inch
5. Flat washer, 3/8 inch
6. Lock washer, 3/8 inch
7. Flange nut
8. Self tapping bolt, 3/8 x 5/8 inch
9. Hole to drill
10. Front caster wheel
11. Bolt, 5/16 x 1 inch
12. Existing flat washer, 5/16 inch

Step 12

Installing the Front Weight

Parts needed for this step:

- 1 Weight
- 1 Weight bracket
- 2 Locknut, 5/16 inch
- 2 Bolt, 5/16 x 1–1/4 inch
- 2 Large Washer
- 2 Washer, 11/32 inch

Procedure

1. Remove the existing top bolts and washers from the front of the footpan. Save the washers.

2. Install the weight brackets to the front of the footpan with 2 bolts (5/16 x 1–1/4 inch) and 2 large washers and 2 washers previously removed (Fig. 23).

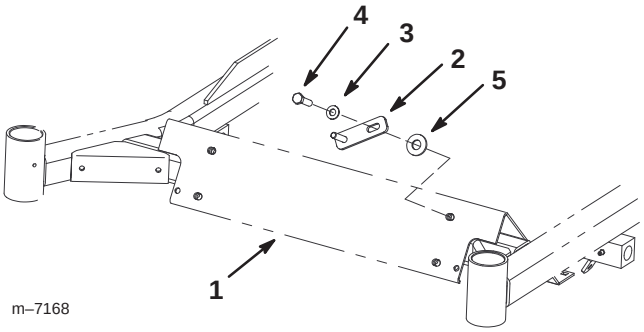


Figure 23

1. Front of footpan
2. Weight bracket
3. Previously removed washer
4. Bolt, 5/16 x 1–1/4 inch
5. Large washer

3. Install the weight onto the weight brackets with 2 washers (5/16 inch) and 2 locknuts (5/16 inch) (Fig. 24).

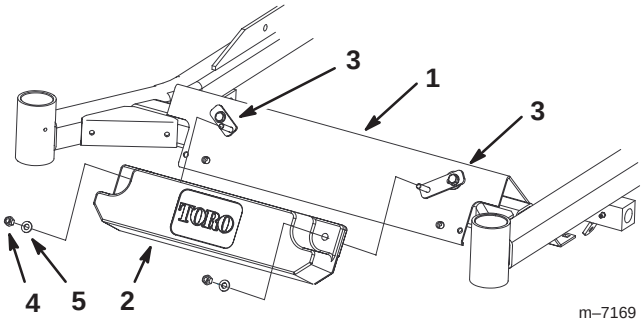


Figure 24

1. Front of footpan
2. Front weight
3. Weight bracket
4. Locknut, 5/16 inch
5. Washer, 11/32 inch

Step
13

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. 31).

4. Position the boot's front hook into the front slot on the mounting bracket (Fig. 25).

5. Place the rear hook over the rear of the mounting bracket (Fig. 25).

6. Install the upper tube into the bagger (Fig. 25).

7. Slide the clamp onto the middle tube (Fig. 25).

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. 25).

9. Tighten the clamp around the upper and middle tube connection (Fig. 25).

10. Slide the middle tube onto the boot and latch them together (Fig. 25).

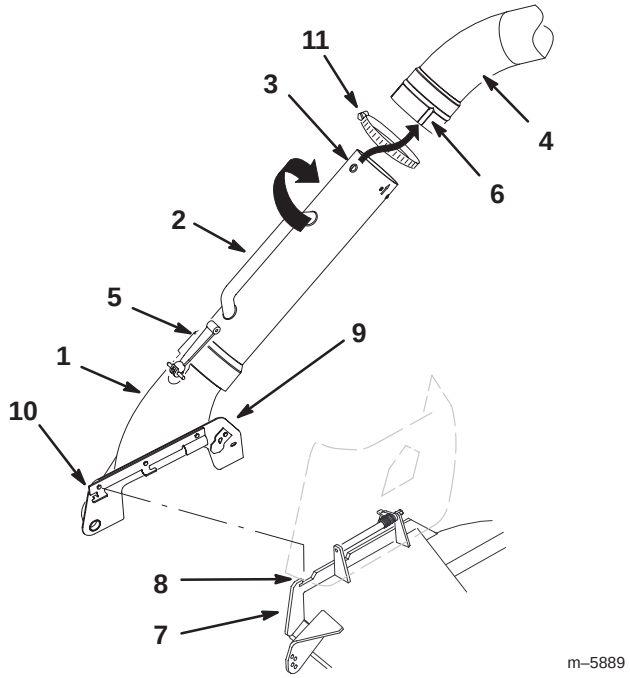


Figure 25

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

Step 14

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. 26).
2. Remove the cotter pin and clevis pin securing the bagger cable clevis to the bagger dump handle (Fig. 26).

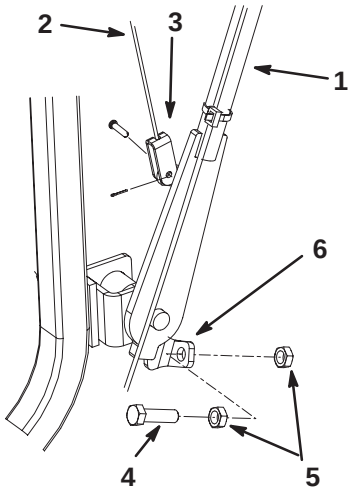


Figure 26

1. Bagger dump lever
2. Bagger cable
3. Bagger cable clevis
4. Bolt, 1/2 x 1–3/4 inch
5. Jam nut, 1/2 inch
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. 26).
4. Move the bagger dump lever forward to move the bottom of the lever away from the stop bracket (Fig. 26).
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. 26).
7. Adjust the handle stop, refer to Adjusting the Bagger Dump Lever, page 18.

Step 15

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. 27).
2. Adjust the stop bolt until there is **no** slack in the bagger cable (Fig. 27).
3. Tighten the nuts on both sides of the stop bracket (Fig. 27).

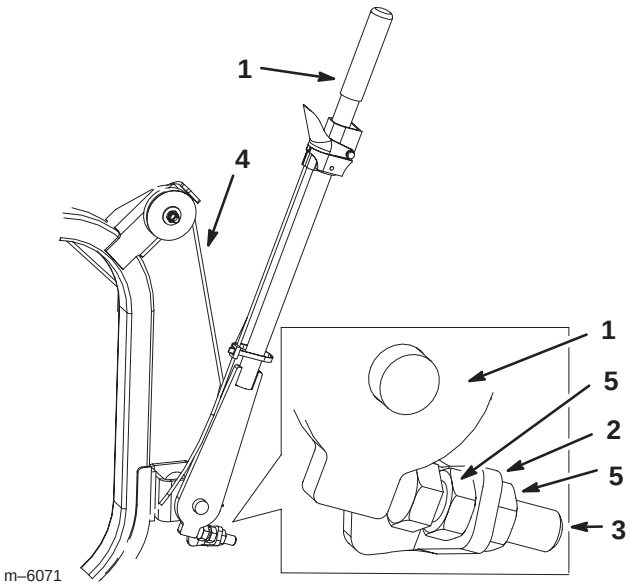


Figure 27

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

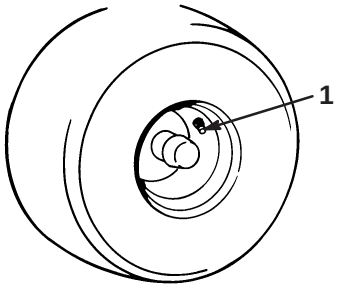
Step
16

No parts needed for this step.

Checking the Tire Pressure

Check the air pressure in the front caster wheel (Fig. 22) and rear tires (Fig. 28). 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 28

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 o*ff*. 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. 29). This will open the latch that secures the bagger door.

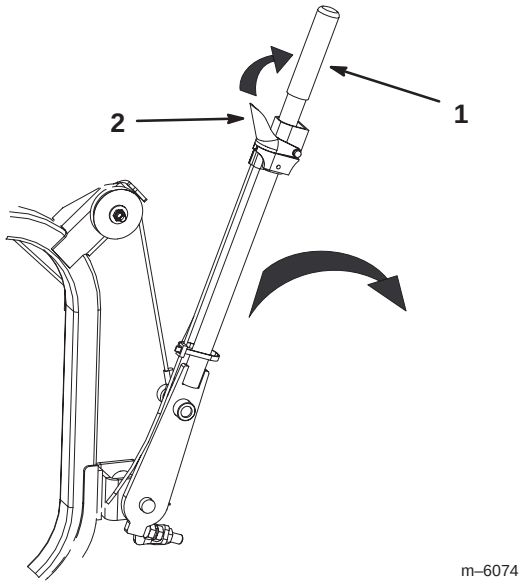


Figure 29

1. Bagger lever
2. Latch lever

3. Pull down on the bagger arm to allow the grass to fall out of the bagger (Fig. 29).
4. Return the bagger arm to upright position in one quick motion. Make sure the bagger door fully engages into the latch (Fig. 29).

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 20.
4. With the bagger open, pull out the holding pin and insert into the hole in the hinge (Fig. 30).

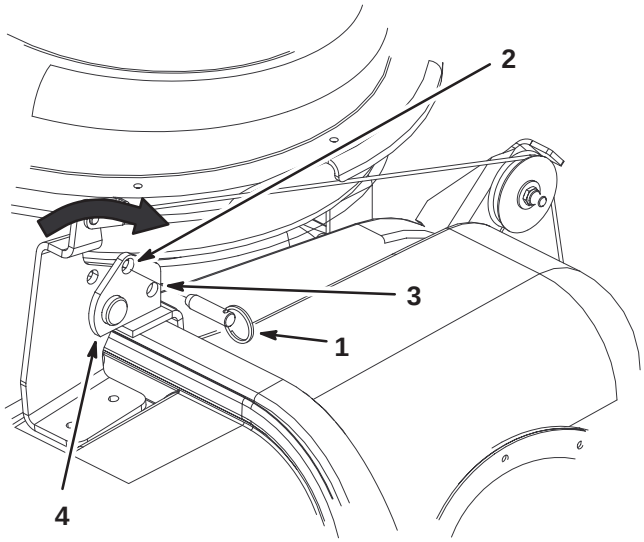


Figure 30

1. Holding pin
2. Hole in hinge (open)
3. Hole in hinge (storage)
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 17.

Removing the Discharge Tubes

Note: Remember to install the grass deflector when in side discharge mode. Refer to Installing the Grass Deflector on page 22.

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. 25).

4. Remove the tube assembly from the bagger (Fig. 25).
5. Remove the boot from the mounting bracket (Fig. 25).
6. If you are changing to side discharge mode, **install the grass deflector**. Refer to Installing the Grass Deflector on page 22.

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 21.
4. Remove hairpin cotters and clevis pins from the bagger and bagger bracket (Fig. 14).
5. Remove the pulley guard (Fig. 15).
6. Remove the bagger belt and bagger tensioner arm with the pulley (Fig. 16).
7. Remove the bagger from the bagger mounting bracket (Fig. 14).
8. **Install the grass deflector.** Refer to Installing the Grass Deflector on page 22.
9. Remove **all front weights** (Figures 20 and 22).

Installing the Grass Deflector

The grass deflector spring will have either an **L** end or a straight end (Fig. 31).

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 31.

2. Install bolt and nut. Place **J** hook end of spring around grass deflector (Fig. 31).

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

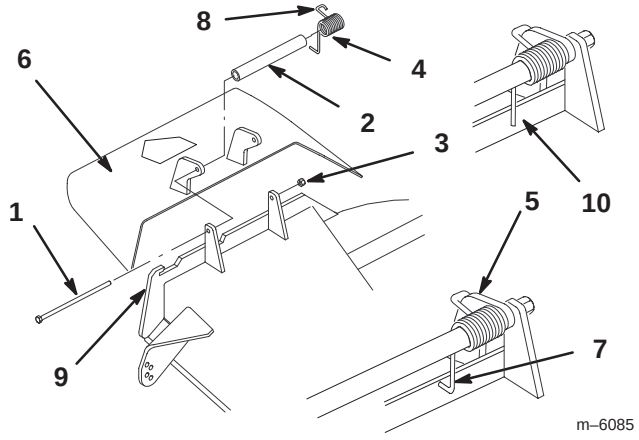


Figure 31

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

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 that 2 to 3 inches (51 to 76 mm) or 1/3 of the grass height, which ever 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 23).

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 machines 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 o*ff*. 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 27 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	• Screen—clean
8 Hours	• Bagger—clean
First 10 Hours	• Bagger—inspect
40 Hours	• Bagger idler arm—grease • Belt tension—check
100 Hours	• Bagger—inspect • Bagger fan shaft bearings (upper & lower)—grease • Belts—check for wear/cracks
Storage Service	• Belts—check for wear/cracks • Bagger—inspect • Bagger—clean

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 21.
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. 32) every 40 hours.

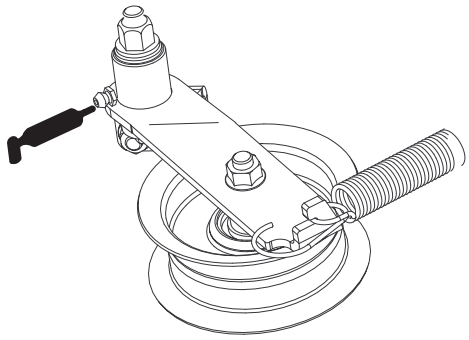


Figure 32

Greasing the Fan Shaft Bearings

Grease the upper and lower bagger fan shaft bearings (Fig. 33 & 34) every 100 hours.

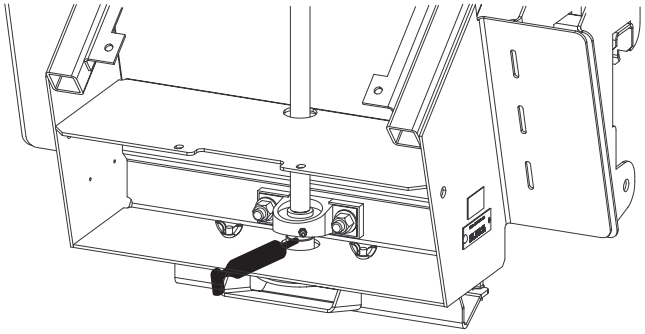


Figure 33

1. Remove rubber plug to expose grease fitting.

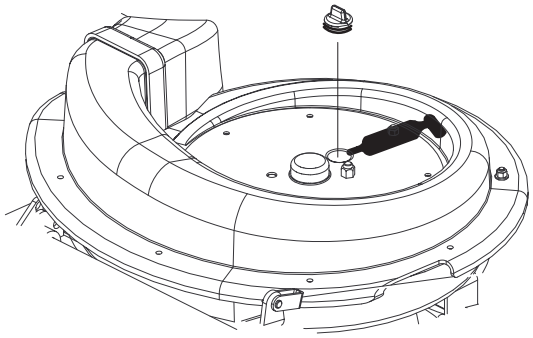


Figure 34

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 25.
2. Inspect the bagger attachment for damage. Refer to Inspecting the Bagger Attachment on page 25.
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.	1. Cutting blade(s) is/are bent or unbalanced.	1. Install new cutting blade(s).
	2. Blade mounting bolt is loose.	2. Tighten blade mounting bolt.
	3. Loose bagger pulley or pulley assembly.	3. Tighten the appropriate pulley.
	4. Bagger belt is worn or damaged.	4. Replace the bagger belt.
	5. Bagger impeller is out of balance.	5. Contact Authorized Service Dealer.
	6. Blade interferes with mower baffles.	6. Do not use machine. Replace bent blades and/or baffles.
Reduced bagging performance.	1. Low engine speed.	1. Always operate the bagger at full throttle.
	2. Plugged fan screen.	2. Remove debris, leaves or grass clippings from the fan screen.
	3. Loose bagger belt.	3. Tighten the bagger belt.
	4. Broken seal between hopper and rear door.	4. Ensure the rear door is latched.
	5. A plugged boot.	5. Locate and remove plugged debris.
	6. Improper seal around the upper tube going into the hopper.	6. Ensure that there is a good seal at hopper.
	7. Full hopper.	7. Empty hopper.
Boot and tubes plug too frequently.	1. Hopper is too full.	1. Dump more frequently.
	2. Low engine speed.	2. Always operate the bagger at full throttle.
	3. Grass is too wet.	3. Cut grass when dry.
	4. Grass is too long.	4. Cut no more that 2–3 inches or 1/3 of the grass height, which ever is less.
	5. Plugged fan screen.	5. Remove debris, leaves or grass clippings from the fan screen.
	6. Ground speed is too fast.	6. Drive slower at full throttle.
	7. Worn belt.	7. Replace belt.
Debris blowout.	1. Hopper is too full.	1. Dump more frequently.
	2. Ground speed is too fast.	2. Drive slower at full throttle.
	3. Center tunnel baffle not installed.	3. Install the center baffle when bagging leaves.
	4. Mower is not leveled.	4. See the mower operator's manual for leveling the mower.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