



# **44in SFS Side Discharge Mower**

**For a Mid-size Traction Unit**

**Model No. 30149—Serial No. 24000001 and Up**

**Operator's Manual**

Keep the engine Owner's Manual with your machine. Should the engine Owner's Manual become damaged or illegible, replace it immediately. Replacements may be ordered through the engine manufacturer.

# Contents

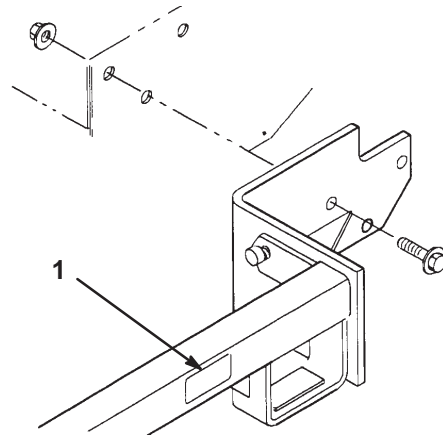
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# Introduction

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.

You may contact Toro directly at [www.Toro.com](http://www.Toro.com) for product and accessory information, help finding a dealer, or to register your product.

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.



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**Figure 1**

1. Location of the model and serial numbers

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

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

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 2 other words to highlight information.

**Important** calls attention to special mechanical information and **Note**: emphasizes general information worthy of special attention.

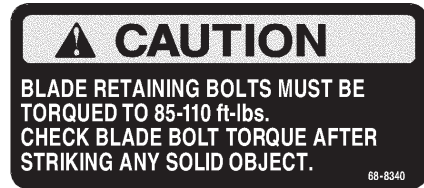
# Safety and Instruction Decals



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.



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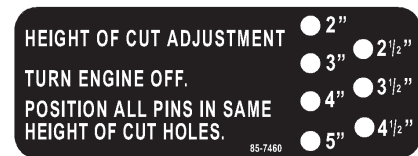
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# Setup

## Loose Parts

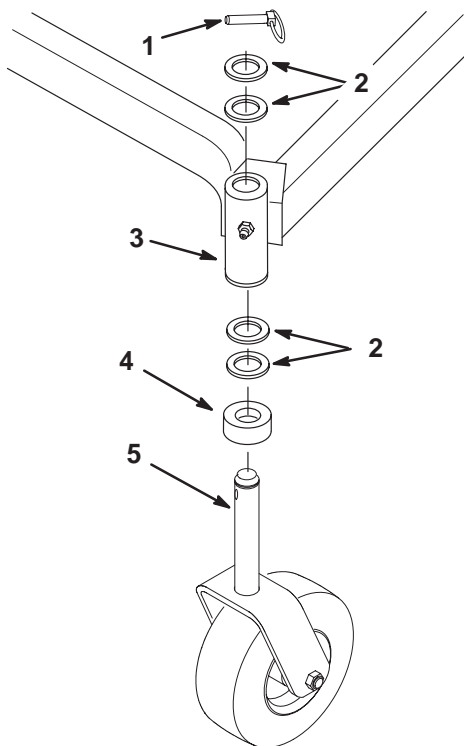
**Note:** Use the chart below to identify the parts used for assembly.

Step	Description	Qty.	Use
<b>1</b>	Castor wheel assemblies	2	Installing the castor wheels
	Thrust washers	8	
	Spacers	2	
	Locking pins	2	
<b>2</b>	Carrier frame	1	Installing the carrier frame to the traction unit
	Flange screws, 1/2 x 1 inch (25 mm)	6	
	Flange nuts, 1/2 inch	6	
<b>3</b>	Adjusting shafts	2	Installing the cutting deck
	Jam nuts, 1/2 inch	4	
	Spacers, 1/2 inch (13 mm)	2	
	Springs	2	
	Bushings	2	
<b>4</b>	Clevis pins	4	Installing the drive belt
	Hairpin cotter pins	4	

# Step 1

## Installing the Castor Wheels

1. Place the 2 thrust washers and spacer onto the castor wheel fork (Fig. 2).



**Figure 2**

- |                                |                      |
|--------------------------------|----------------------|
| 1. Locking pin                 | 4. Spacer            |
| 2. Thrust washer (4)           | 5. Castor wheel fork |
| 3. Carrier frame mounting tube |                      |

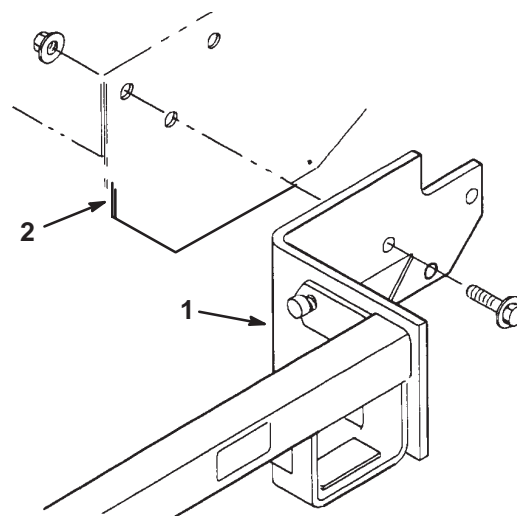
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2. Insert the castor wheel fork into the carrier frame mounting tube (Fig. 2).
3. Install 2 thrust washers onto the castor wheel fork.
4. Secure the assembly with a locking pin (Fig. 2).
5. Set the castor wheel tire pressure to 12–15 psi (83–103 kPa).

# Step 2

## Installing the Carrier Frame to the Traction Unit

1. Align the carrier frame holes with the mounting holes in the traction unit frame (Fig. 3).



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**Figure 3**

- |                  |                        |
|------------------|------------------------|
| 1. Carrier frame | 2. Traction unit frame |
|------------------|------------------------|

2. Fasten each side of the carrier frame to the traction unit with 3 flange screws (1/2 x 1 in) and locknuts.

**Note:** Torque the mounting screws to 60–80 ft-lb (81–109 N•m) (Fig. 3).

Step

3

## Installing the Cutting Deck

1. Position the cutting deck under the carrier frame.
2. Mount the cutting deck to the carrier frame with 4 clevis pins and hairpin cotters (Fig. 4).

**Note:** All four pins must be in the same hole locations to prevent uneven cutting.

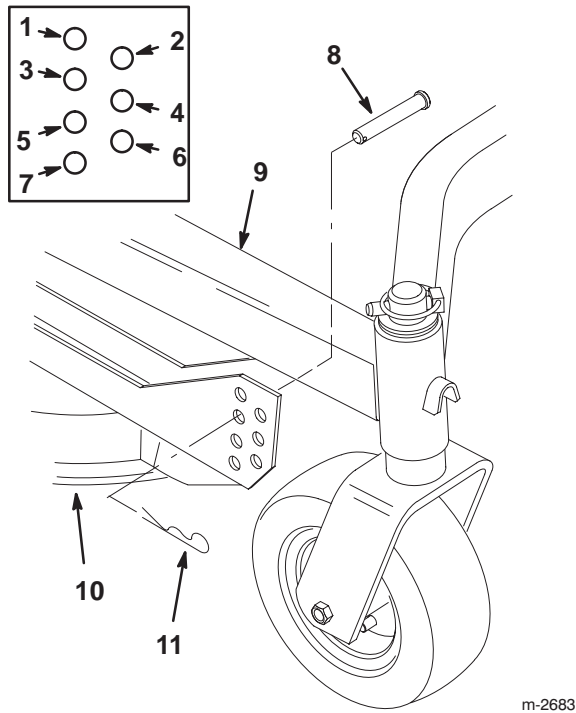


Figure 4

- |                                    |                                     |
|------------------------------------|-------------------------------------|
| 1. 2 in (51 mm) cutting height     | 6. 4-1/2 in (114 mm) cutting height |
| 2. 2-1/2 in (64 mm) cutting height | 7. 5 in (127 mm) cutting height     |
| 3. 3 in (76 mm) cutting height     | 8. Clevis pin                       |
| 4. 3-1/2 in (89 mm) cutting height | 9. Carrier frame                    |
| 5. 4 in (102 mm) cutting height    | 10. Cutting deck                    |
|                                    | 11. Hairpin cotter                  |

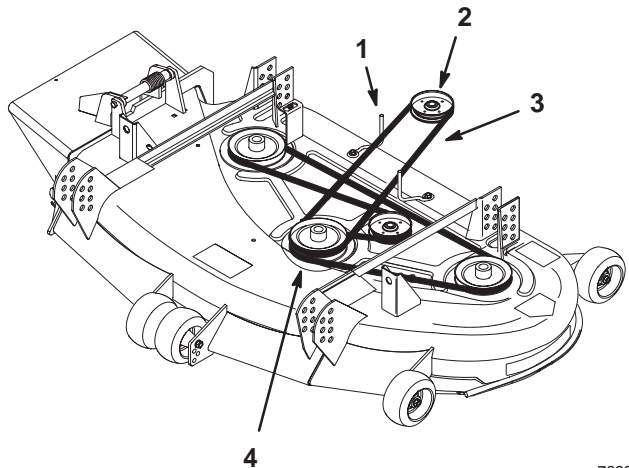
Step

4

## Installing the Drive Belt

1. Remove the hand knobs that hold the deck cover to the top of the cutting unit and remove the deck cover.
2. Install the drive belt around the drive pulley on the traction unit and the upper groove of the center spindle pulley.

**Note:** The belt must be between the belt guides (Fig. 5).

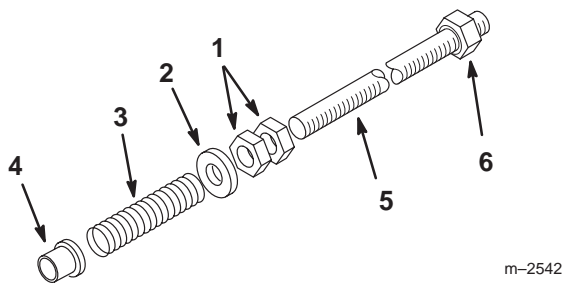


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Figure 5

- |                               |                          |
|-------------------------------|--------------------------|
| 1. Belt guide (2)             | 3. Drive belt            |
| 2. Traction unit drive pulley | 4. Center spindle pulley |

3. Install the deck cover onto the cutting unit, then install and tighten the hand knobs.
4. Thread jam nuts (2 1/2 in) approximately 9 in (22.8 cm) up on each adjusting shaft (Fig. 6).



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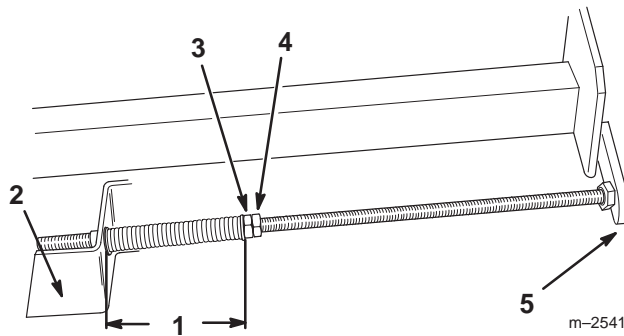
**Figure 6**

- |                      |   |
|----------------------|---|
| 1. Jam nuts (1/2 in) | 5. Adjusting shaft                                    |
| 2. Spacer (1/2 in)   | 6. Locknut (already installed on the adjusting shaft) |
| 3. Spring            |   |
| 4. Bushing           |   |

- Slide a spacer (1/2 in), a spring, and a bushing onto each adjusting shaft.

**Note:** Install the bushing with the flange end against the spring (Fig. 6).

- Insert the spring end of the adjusting shaft into the hole in the deck mounting bracket (Fig. 7).

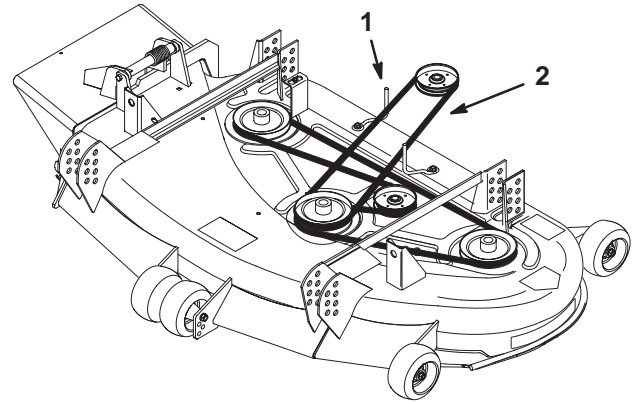


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**Figure 7**

- |  |                               |
|--|-------------------------------|
| 1. 5 inches between the spacer and the bushing | 4. Rear jam nut               |
| 2. Deck mounting bracket                       | 5. Carrier frame mounting tab |
| 3. Front jam nut                               |                               |
- Insert the small end of the bushing into the hole in the deck mounting bracket (Fig. 7).
  - Insert the locknut end of the adjusting shaft into the carrier frame mounting tab (Fig. 7).
  - To tension the belt, tighten the front jam nut on each adjusting shaft until the springs are compressed to 5 in (12.7 cm).
  - Measure the spring compression between the spacer and the bushing (Fig. 7).
  - Tighten the rear jam nuts (Fig. 7).
  - Check the position of the belt guides and adjust them as necessary.

**Note:** The belt guides should be about 1/8 inch (3 mm) away from the belt (Fig. 8).



m-7680

**Figure 8**

- |                   |               |
|-------------------|---------------|
| 1. Belt guide (2) | 2. Drive belt |
|-------------------|---------------|

- Check the front-to-rear blade pitch. Refer to Setting the Front-to-Rear Pitch on page 13.

## Operation

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

## Side Discharging or Mulching the Grass

The mower has a hinged grass deflector that disperses clippings to the side and down toward the turf.



**Danger**



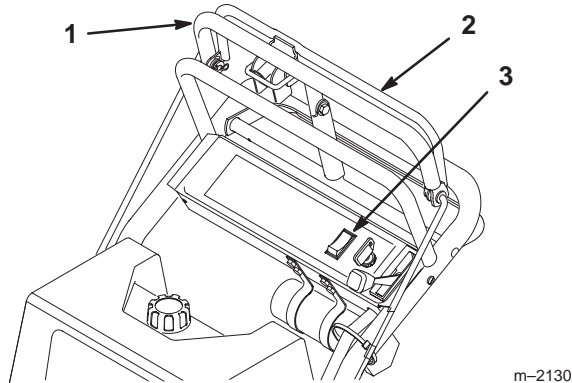
**Without the grass deflector or the complete grass catcher assembly mounted in place, you and others are exposed to blade contact and thrown debris. Contact with the rotating mower blades or thrown debris will cause injury or death.**

- Never remove the grass deflector from the mower because the grass deflector routes material down toward the turf. If the grass deflector is ever damaged, replace it immediately.
- Never put your hands or feet under the mower.
- Never try to clear the discharge area or the mower blades unless you move the power takeoff (PTO) to Off and rotate the ignition key to Off. Also, remove the key and disconnect the wire(s) from the spark plug(s).

## Engaging the Mower Blades (PTO)

The blade control switch (PTO) in conjunction with the blade control bail engages and disengages power to the electric clutch and the mower blades.

1. Pull on the upper control bar to stop the machine (Fig. 9).



**Figure 9**

1. Upper control bar
2. Blade control bail
3. Blade control switch (PTO)

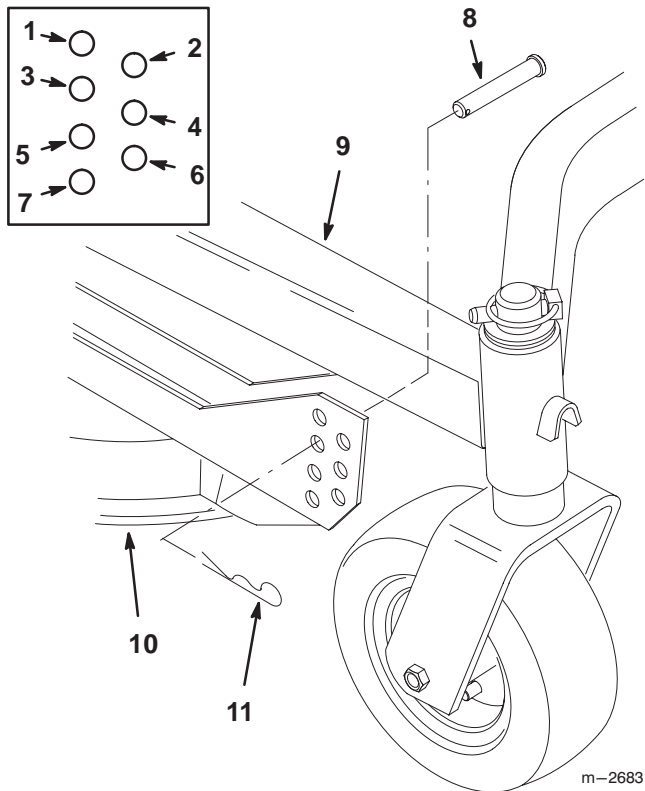
2. Squeeze the blade control bail against the upper control bar.
3. Press the blade control rocker switch forward to the On position. Hold the blade control bail against the control bar while operating.

**Note:** Repeat the procedure to engage the mower blades if you release the blade control bail.

4. To disengage the blades, release the blade control bail, or push the blade control switch to the Off position.

## Adjusting the Height-of-Cut

The height-of-cut is adjustable from 2 to 5 inches (51 to 127 mm) in 1/2-inch (13 mm) increments by relocating the clevis pins in different hole locations in brackets at each corner of the cutting unit (Fig. 10).



**Figure 10**

- |                                      |                                       |
|--------------------------------------|---------------------------------------|
| 1. 2-inch (51 mm) cutting height     | 5. 4-inch (102 mm) cutting height     |
| 2. 2-1/2-inch (64 mm) cutting height | 6. 4-1/2-inch (114 mm) cutting height |
| 3. 3-inch (76 mm) cutting height     | 7. 5-inch (127 mm) cutting height     |
| 4. 3-1/2-inch (89 mm) cutting height | 8. Clevis pin                         |
|                                      | 9. Hairpin cotter                     |

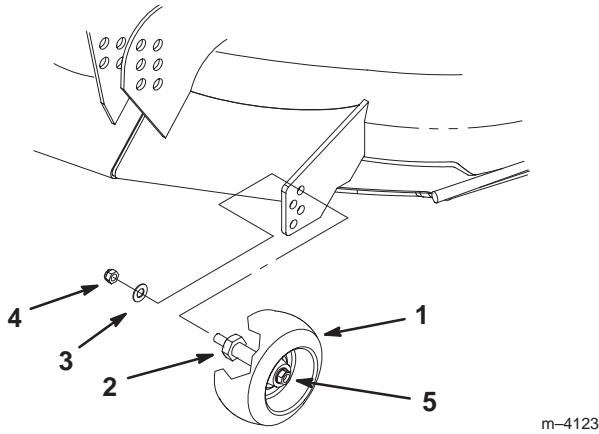
Stop the engine before adjusting the height-of-cut.

**Note:** All four pins must be in the same hole location for even cutting.

## Adjusting the Gage Wheels

You must adjust the gage wheels in the proper hole location for each height-of-cut position.

1. After adjusting the height-of-cut, remove the nut and the washer while holding the stud with a wrench (Fig. 11).



**Figure 11**

- |               |  |
|---------------|--|
| 1. Gage wheel | 4. Nut                                     |
| 2. Stud       | 5. Wheel nut and washer.<br>Do not remove. |
| 3. Washer     |  |

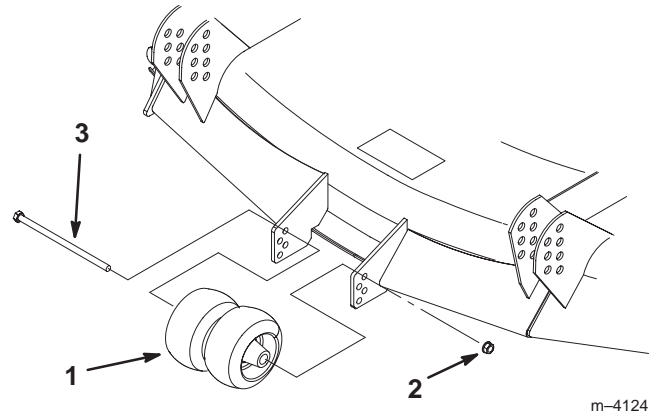
**Note:** Do not remove the wheel nut and washer (Fig. 11).

2. Select a hole position so that the gage wheel is 3/8 inch (9.5 mm) off the ground for the desired height-of-cut (Fig. 11).
3. Install the stud nut and the washer (Fig. 11).
4. Repeat the adjustment on the other gage wheels.

## Adjusting the Center Gage Wheels

You must adjust the gage wheels in the proper hole location for each height-of-cut position.

1. After adjusting the height-of-cut, remove the bolt and the nut (Fig. 12).



**Figure 12**

- |                       |         |
|-----------------------|---------|
| 1. Center gage wheels | 3. Bolt |
| 2. Nut                |         |

2. Select a hole position so that the gage wheel is 3/8 inch (9.5 mm) off the ground for the desired height-of-cut (Fig. 12).
3. Install the bolt and the nut (Fig. 12).

# Tips for Mowing Grass

## Fast Throttle Setting

For best mowing and maximum air circulation, operate the engine at Fast. Air is required to thoroughly cut grass clippings, so do not set the height-of-cut so low as to totally surround the mower by uncut grass. Always try to have one side of the mower free from uncut grass, which allows air to be drawn into the mower.

## Cutting a Lawn for the First Time

Cut grass slightly longer than normal to ensure the cutting height of the mower does not scalp any uneven ground. However, the cutting height used in the past is generally the best one to use. When cutting grass longer than 6 inches (15 cm) tall, you may want to cut the lawn twice to ensure an acceptable quality of cut.

## Cut 1/3 of the Grass Blade

It is best to cut only about 1/3 of the grass blade. Cutting more than that is not recommended unless the grass is sparse, or it is late fall when grass grows more slowly.

## Mowing Direction

Alternate the mowing direction to keep the grass standing straight. This also helps disperse the clippings, which enhances decomposition and fertilization.

## Mow at the Correct Intervals

Normally, mow every four days. But remember, grass grows at different rates at different times. So to maintain the same cutting height, which is a good practice, mow more often in early spring. As the grass growth rate slows in mid summer, mow less frequently. If you cannot mow for an extended period, first mow at a high cutting height; then mow again 2 days later at a lower height setting.

## Cutting Speed

To improve the quality of cut, operate the machine at a slower ground speed.

## Avoid Cutting Too Low

If the cutting width of the mower is wider than the mower you previously used, raise the cutting height to ensure that uneven turf is not cut too short.

## Long Grass

If the grass is ever allowed to grow slightly longer than normal, or if it contains a high degree of moisture, raise the cutting height higher than usual and cut the grass at this setting. Then cut the grass again using the lower, normal setting.

## When Stopping

If the machine's forward motion must be stopped while mowing, a clump of grass clippings may drop onto your lawn. To avoid this, move onto a previously cut area with the blades engaged.

## Keep the Underside of the Mower Clean

Remove the clippings and dirt from the underside of the mower after each use. If grass and dirt build up inside the mower, the cutting quality will eventually become unsatisfactory.

## Blade Maintenance

Maintain a sharp blade throughout the cutting season because a sharp blade cuts cleanly without tearing or shredding the grass blades. Tearing and shredding turns grass brown at the edges, which slows growth and increases the chance of disease. Check the cutter blades daily for sharpness, and for any wear or damage. File down any nicks and sharpen the blades as necessary. If a blade is damaged or worn, replace it immediately with a genuine Toro replacement blade.

# Maintenance

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

## Recommended Maintenance Schedule

Maintenance Service Interval	Maintenance Procedure
Each Use	<ul style="list-style-type: none"> <li>• Clean the mower housing.</li> </ul>
Every 8 Hours	<ul style="list-style-type: none"> <li>• Check the cutting blades.</li> <li>• Grease the blade spindle bearings.</li> <li>• Clean the mower housing.</li> </ul>
Every 25 Hours	<ul style="list-style-type: none"> <li>• Grease the idler arm.</li> <li>• Grease the castor wheels.</li> </ul>
Before Storage	<ul style="list-style-type: none"> <li>• Check the cutting blades.</li> <li>• Check the belts for wears or cracks.</li> <li>• Clean the mower housing.</li> <li>• Paint any chipped surfaces.</li> </ul>

**Important** Refer to your engine operator’s manual for additional maintenance procedures.

## Servicing the Cutting Blades

To ensure a superior quality of cut, keep the blades sharp. For convenient sharpening and replacement, keep extra blades on hand.

Warning

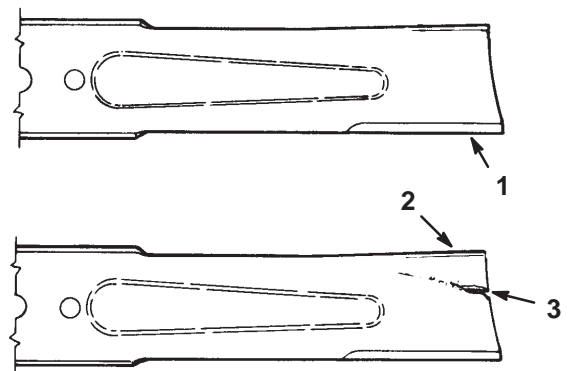
**A worn or damaged blade can break, and a piece of the blade could be thrown into the operator’s or bystander’s area, resulting in serious personal injury or death.**

- Inspect the blade periodically for wear or damage.**
- Replace a worn or damaged blade.**

1. Park the machine on a level surface, disengage the blade control (PTO), and set the parking brake.
2. Turn the ignition key to Off to stop the engine.
3. Remove the key and disconnect the spark plug wire(s) from the spark plug(s).

## Inspecting the Blades

1. Inspect the cutting edges (Fig 13).



m-151

**Figure 13**

- |                 |                      |
|-----------------|----------------------|
| 1. Cutting edge | 3. Wear/slot forming |
| 2. Curved area  |                      |

**Note:** If the edges are not sharp or have nicks, remove and sharpen the blades. Refer to Sharpening the Blades on page 12.

2. Inspect the blades, especially the curved area (Fig. 13).

**Note:** If you notice any damage, wear, or a slot forming in this area (item 3 in Fig. 13), immediately install a new blade.

## Checking for Bent Blades

1. Rotate the blades until the ends face forward and backward (Fig. 14).

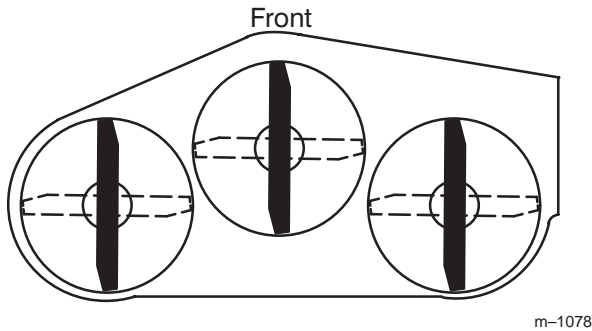


Figure 14

2. Measure from a level surface to the cutting edge of the blades (Fig. 15). Note this dimension.

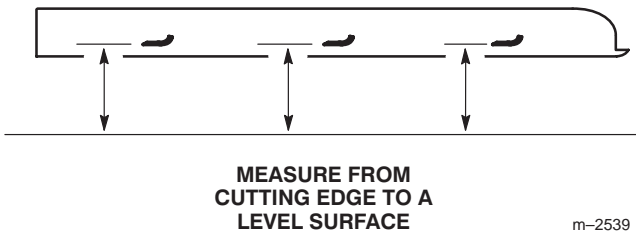


Figure 15

3. Rotate the opposite ends of the blades forward.
4. Measure from a level surface to the cutting edge of the blades at the same position as in step 1 above.

**Note:** The difference between the dimensions obtained in steps 1 and 2 must not exceed 1/8 inch (3 mm). If it does, the blade is bent and must be replaced. Refer to Removing the Blades, and to Installing the Blades on page 13.



### Warning



A blade that is bent or damaged could break apart and could seriously injure or kill you or bystanders.

- Always replace bent or damaged blade with a new blade.
- Never file or create sharp notches in the edges or surfaces of blade.

## Removing the Blades

Replace the blades when they hit a solid object, if they are out of balance, or are bent. To ensure optimum performance and continued safety conformance of the machine, use

genuine Toro replacement blades. Replacement blades made by other manufacturers may cause the machine to be non-conformance with safety standards.

Hold the blade end using a rag or thickly-padded glove. Remove the blade bolt, washer, anti-scalp cup, and blade from the spindle shaft (Fig. 16).

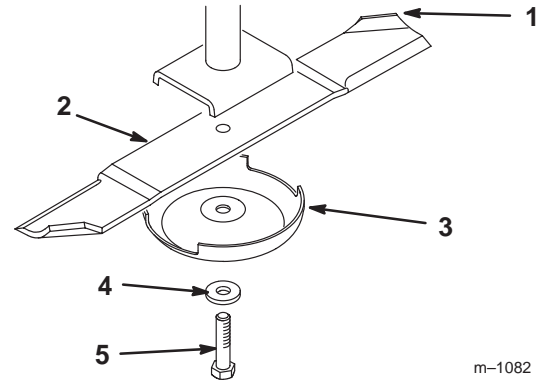


Figure 16

- |                       |               |
|-----------------------|---------------|
| 1. Sail area of blade | 4. Washer     |
| 2. Blade              | 5. Blade bolt |
| 3. Anti-scalp cup     |               |

## Sharpening the Blades

1. Use a file to sharpen the cutting edge at both ends of the blade (Fig. 17).

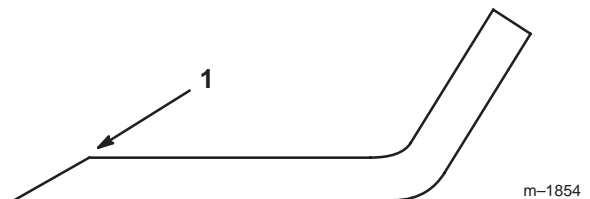
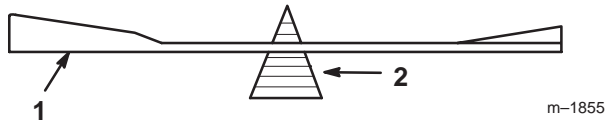


Figure 17

1. Sharpen at original angle

**Note:** Maintain the original angle. The blade retains its balance if the same amount of material is removed from both cutting edges.

2. Check the balance of the blade by putting it on a blade balancer (Fig. 18).



**Figure 18**

1. Blade
2. Balancer

**Note:** If the blade stays in a horizontal position, the blade is balanced and can be used. If the blade is not balanced, file some metal off the end of the sail area only (Fig. 16). Repeat this procedure until the blade is balanced.

## Installing the Blades

1. Install the blade onto the spindle shaft (Fig. 16).

**Important** The curved part of the blade must point upward toward the inside of the mower to ensure proper cutting.

2. Install the lock washer and blade bolt (Fig. 16). Torque the blade bolt to 85–110 ft-lb (115–140 N•m).

## Correcting Cutting Unit Mismatch

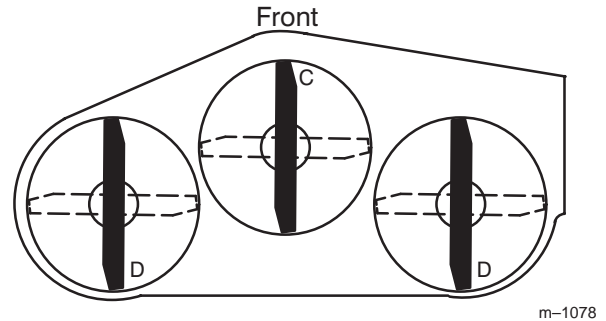
If one cutter blade cuts lower than the other, correct as follows:

1. Stop the engine, remove the key, and disconnect the spark plug wire(s) from the spark plug(s).
2. Adjust the tire pressure in all tires to specifications and check for bent blades. Refer to Checking for Bent Blades on page 12.
3. Set the height-of-cut to the 2-1/2-inch position. Refer to Adjusting the Height-Of-Cut in the Operation section. Ensure that the clevis pins are resting on the frame cushions.
4. Rotate the blades so that the tips line up with one another.

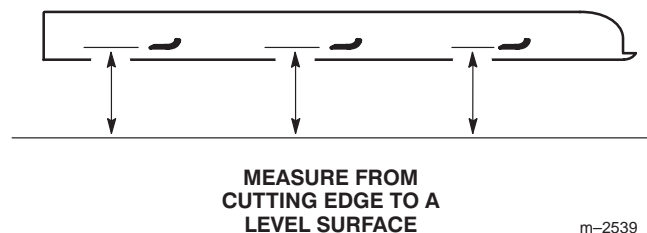
**Note:** The blade tips must be within 1/8 inch (3 mm) of each other. If the blade tips are not within 1/8 inch (3 mm) of each other, add shims between the appropriate spindle housing and the bottom of the cutting unit to align the blades.

## Setting the Front-to-Rear Pitch

1. Check the tire pressure.
2. Position the blades front-to-rear (Fig. 19). Measure at locations C and D (Fig. 19) from a level surface to the cutting edge of the blades (Fig. 20).



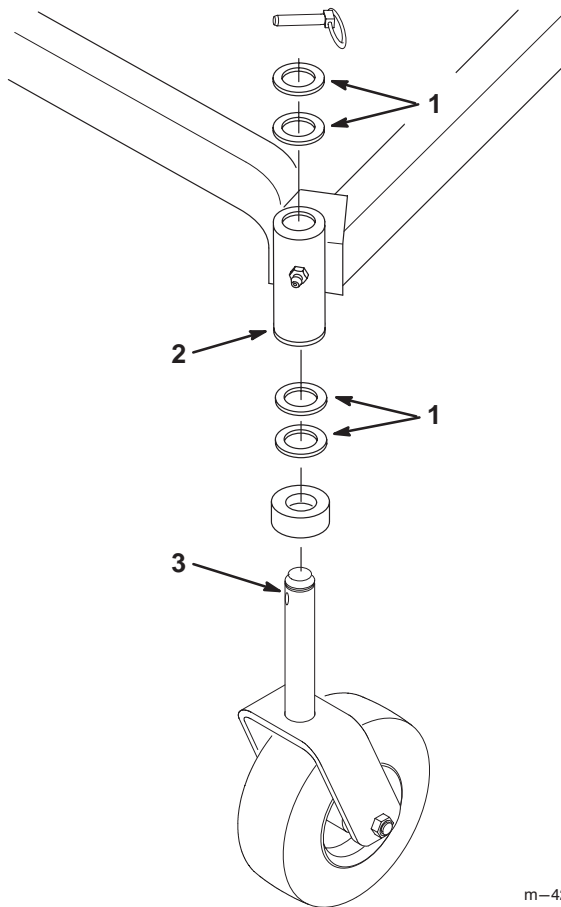
**Figure 19**



**Figure 20**

3. The mower should be 1/8 to 5/8 inch (3 to 16 mm) lower in front C than in the rear D.
4. To change the front-to-rear pitch, move an equal number of thrust washers on both castor wheel forks.

**Note:** Move the thrust washers from the top of the carrier frame mounting tube to the bottom to raise the front of the mower. Move the thrust washers from the bottom of the mounting tube to the top to lower the front of the mower (Fig. 21).



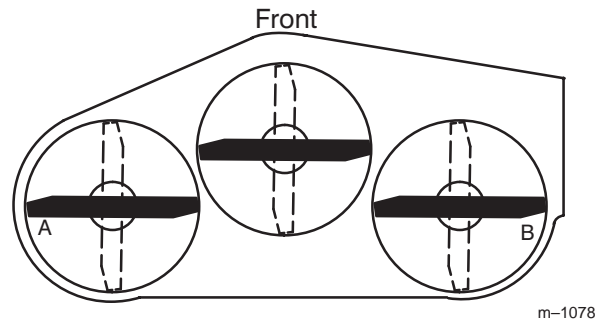
**Figure 21**

1. Thrust washers (locate as required)
2. Carrier frame mounting tube
3. Castor wheel fork

5. Check the side-to-side leveling of the cutting unit.

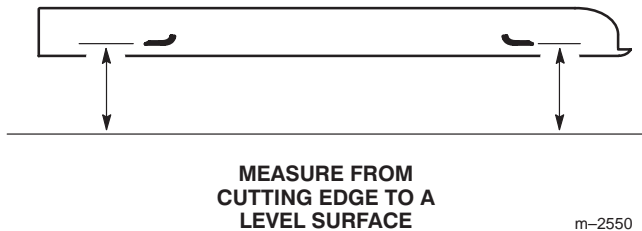
## Setting the Side-to-Side Leveling

1. Check the tire pressure.
2. Position the blades side-to-side (Fig. 22).



**Figure 22**

**Note:** Measure at locations A and B (Fig. 22) from a level surface to the cutting edge of blades (Fig. 23).



**Figure 23**

3. The difference between measurements A and B should be no more than 1/4 inch (6 mm).
4. To change the side-to-side leveling, move the thrust washers on one castor wheel fork only.

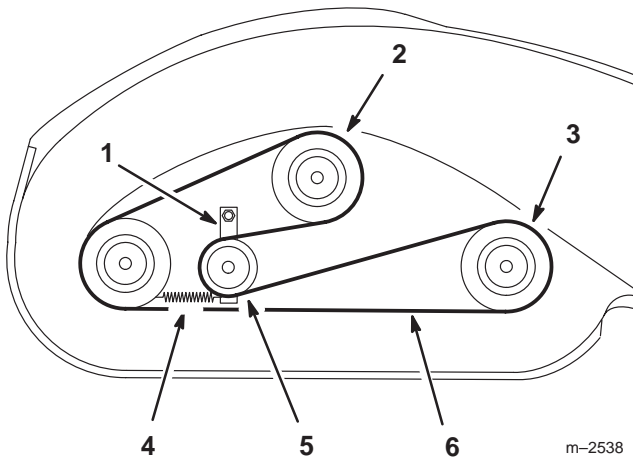
**Note:** Move the thrust washers from the top of the carrier frame mounting tube to the bottom to raise the corresponding side of the mower. Move the thrust washers from the bottom of the mounting tube to the top to lower the corresponding side of the mower. (Fig. 21).

5. Check the front-to-rear pitch of the cutting unit.

## Greasing the Bearings and Bushings

The cutting unit must be lubricated regularly. Refer to Maintenance on page 11. Grease with No. 2 general-purpose lithium-or molybdenum-base grease.

1. Stop the engine, remove the key, and disconnect the spark plug wire(s) from the spark plug(s).
2. Grease the fittings on the three spindle bearings and the idler arm (Fig. 24).

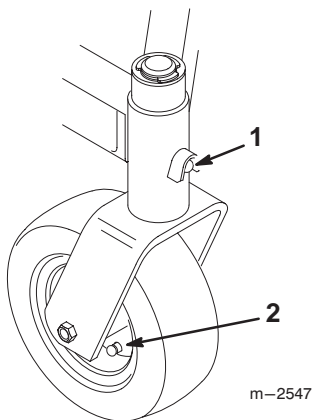


**Figure 24**  
Top View

- |                                |                     |
|--------------------------------|---------------------|
| 1. Idler arm                   | 4. Idler arm spring |
| 2. Center spindle pulley       | 5. Idler pulley     |
| 3. Outboard spindle pulley (2) | 6. Deck belt        |

**Note:** You must remove the deck cover to access the grease fitting on the idler arm.

3. Grease the fittings on the carrier frame mounting tubes and castor wheels (Fig. 25).



**Figure 25**

- |   |                                |
|---|--------------------------------|
| 1. Carrier frame mounting Tube grease fitting | 2. Castor wheel grease fitting |
|---|--------------------------------|

## Replacing the Deck Belt

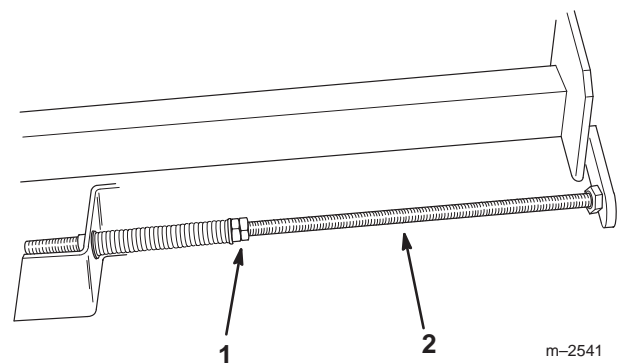
When the deck belt squeals while it is rotating, the blades slip when cutting grass, or the belt has frayed edges, burn marks, or cracks, replace the deck belt.

1. Stop the engine, remove the key, and disconnect the spark plug wire(s) from the spark plug(s).
2. Remove the hand knobs holding the deck cover to the top of the cutting unit and remove the deck cover.
3. Remove the drive belt. Refer to Replacing the Drive Belt, steps 1 through 4 on page 15.
4. Disconnect the idler arm spring to relieve the tension on the idler arm and idler pulley, then remove the worn deck belt (Fig. 24).
5. Install the new deck belt around the 2 outboard spindle pulleys, the idler pulley, and in the lower groove of the center spindle pulley (Fig. 24).
6. Connect the idler arm spring (Fig. 24).
7. Install the drive belt. Refer to Replacing the Drive Belt, steps 5 and 6 on page 15.
8. Install the deck cover onto the cutting unit, then install and tighten the hand knobs.

## Replacing the Drive Belt

When the drive belt squeals while it is rotating, the blades slip when cutting grass, or the belt has frayed edges, burn marks, or cracks, replace the drive belt.

1. Stop the engine, remove the key, and disconnect the spark plug wire(s) from the spark plug(s).
2. Remove the hand knobs that hold the deck cover to the top of the cutting unit and remove the deck cover.
3. Loosen the jam nuts on each adjusting shaft to loosen the tension on the drive belt.

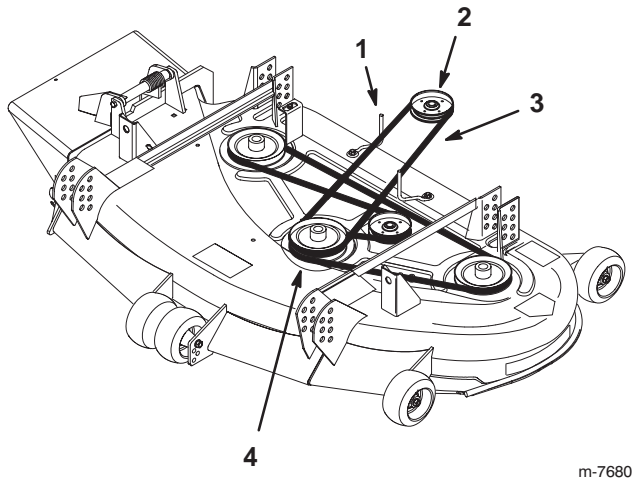


**Figure 26**

- |             |                    |
|-------------|--------------------|
| 1. Jam nuts | 2. Adjusting shaft |
|-------------|--------------------|

4. Remove the worn drive belt (Fig. 27).

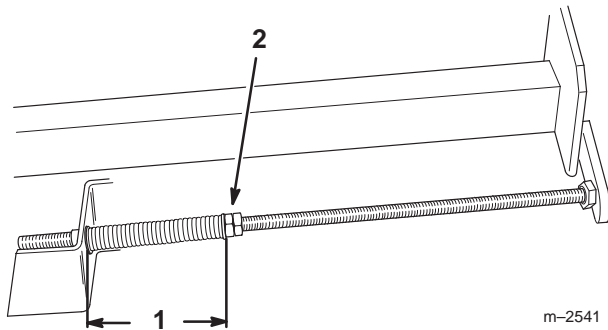
5. Install the new drive belt onto the traction unit drive pulley and the top groove of the center spindle pulley (Fig. 27).



**Figure 27**

1. Belt guide (2)
2. Traction unit drive pulley
3. Drive belt
4. Center spindle pulley

6. Tighten the jam nuts on the adjusting shafts until the springs are compressed to a length of 5 inches (12.7 cm) (Fig 28).



**Figure 28**

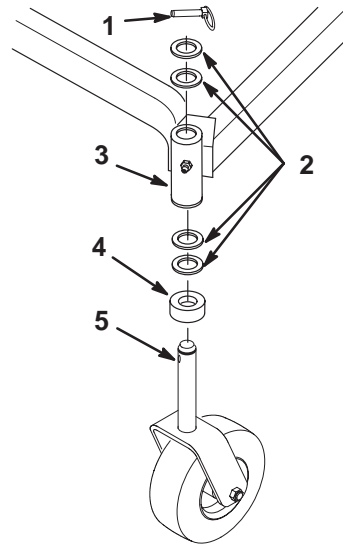
1. Five inches between the spacer and bushing
2. Jam nuts

7. Install the deck cover onto the cutting unit, then install and tighten the hand knobs.

## Replacing the Castor Wheel Fork Bushings

The castor wheel forks are mounted in bushings pressed into the top and bottom of the carrier frame mounting tubes. To check the bushings, move the castor forks back and forth and side-to-side. If a castor fork is loose, the bushings are worn and must be replaced.

1. Raise the cutting unit so the castor wheels are off the floor, then block up the front of the mower with jack stands.
2. Remove the locking pin and thrust washer(s) from the top of the castor wheel fork (Fig. 29).



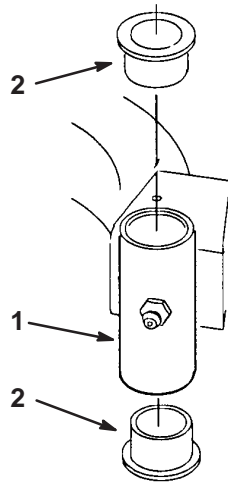
**Figure 29**

1. Locking pin
2. Thrust washers (locate as required)
3. Carrier frame mounting tube
4. Spacer
5. Castor wheel fork

3. Pull the castor wheel fork out of the mounting tube, leaving the thrust washer(s) and the spacer on the bottom of the fork.

**Note:** Remember the location of the thrust washers and the spacer on each fork to ensure correct installation and to maintain a level deck.

4. Insert a pin punch into the mounting tube and carefully drive out the bushings (Fig. 30).



m-1076

**Figure 30**

- |                                |            |
|--------------------------------|------------|
| 1. Carrier frame mounting tube | 2. Bushing |
|--------------------------------|------------|

5. Clean the inside of the mounting tube.
6. Grease the inside and outside of the new bushings.  
**Note:** Use a hammer and flat plate to carefully drive the bushings into the mounting tube.
7. Inspect the castor wheel fork for wear and replace it if necessary (Fig. 29).
8. Slide the castor wheel fork through the bushings in the mounting tube.
9. Replace the thrust washer(s) onto the fork and secure with the locking pin (Fig 29).

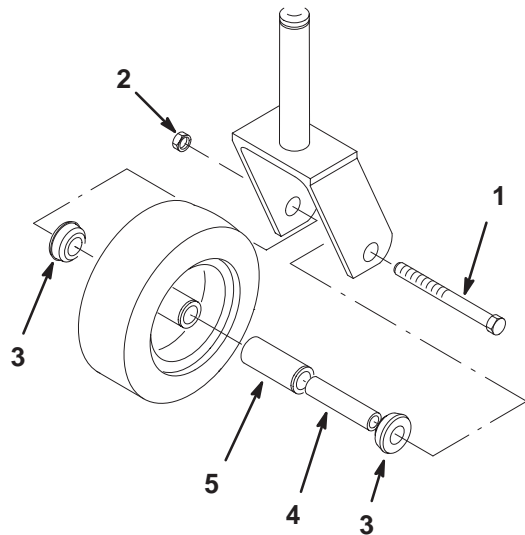
**Important** The inside diameter of the bushings may collapse slightly when installed. If the castor wheel fork does not slide into the new bushings, ream both bushings to an inside diameter of 1.126 in. (28.6mm).

10. Grease the fitting on the carrier frame mounting tube using No. 2 general-purpose lithium- or molybdenum-base grease.

## Servicing the Castor Wheels and Bearings

The castor wheels rotate on a roller bearing supported by a spanner bushing. If the bearing is kept well lubricated, wear will be minimal. Failure to keep the bearing well lubricated will cause rapid wear. A wobbly castor wheel usually indicates a worn bearing.

1. Remove the locknut and wheel bolt that hold the castor wheel to the castor fork (Fig. 31).



m-3986

**Figure 31**

- |               |                    |
|---------------|--------------------|
| 1. Locknut    | 4. Spanner bushing |
| 2. Wheel bolt | 5. Roller bearing  |
| 3. Bushing    |                    |

2. Remove 1 bushing, then pull the spanner bushing and the roller bearing out of the wheel hub (Fig. 31).
3. Remove the other bushing from the wheel hub and clean any grease and dirt from the wheel hub (Fig. 31).
4. Inspect the roller bearing, bushings, spanner bushing, and the inside of the wheel hub for wear. Replace any defective or worn parts (Fig. 31).
5. To assemble, place 1 bushing into the wheel hub. Grease the roller bearing and spanner bushing and slide them into the wheel hub. Place the second bushing into the wheel hub (Fig. 31).
6. Install the castor wheel into the castor fork and secure with the wheel bolt and locknut.
7. Tighten the locknut until the spanner bushing bottoms against the inside of the castor forks (Fig. 31).
8. Grease the fitting on the castor wheel.

## Replacing the Grass Deflector



### 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, or a grass chute and catcher.

1. Remove the locknut, bolt, spring, and spacer that hold the deflector to the pivot brackets (Fig. 32).

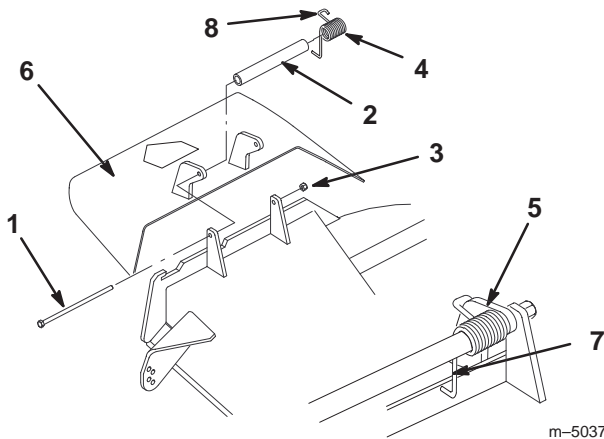


Figure 32

- |                     |   |
|---------------------|---|
| 1. Bolt             | 6. Grass deflector  |
| 2. Spacer           | 7. L end of spring—place it behind the deck edge before installing the bolt |
| 3. Locknut          | 8. J hook end of the spring   |
| 4. Spring           |   |
| 5. Spring installed |   |

**Note:** Remove damaged or worn grass deflector.

2. Place spacer and spring onto the grass deflector.

**Note:** Place the L end of the spring behind the deck edge.

**Note:** Ensure that the L end of spring is installed behind the deck edge before installing the bolt as shown in Figure 32.

3. Install the bolt and nut. Place the J hook end of the spring around the grass deflector (Fig. 32).

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

## Storage

1. Clean any dirt and chaff from the top of the mower.
2. Scrape any heavy buildup of grass and dirt from the underside of the mower, then wash the mower with a garden hose.
3. Check the condition of the blades. Refer to Cutting Blades on page 11.
4. Check the condition of the drive and deck belts.
5. Check and tighten all bolts, nuts, and screws. Repair or replace any part that is damaged or defective.
6. Paint all scratched or bare metal surfaces with paint available from an Authorized Service Dealer.
7. Store the machine in a clean, dry garage or storage area. Cover the machine to protect it and keep it clean.

# Troubleshooting

Problem	Possible Causes	Corrective Action
The mower vibrates abnormally.	<ol style="list-style-type: none"> <li>1. The cutting blade(s) is/are bent or unbalanced.</li> <li>2. The blade mounting bolt is loose.</li> <li>3. The engine mounting bolts are loose.</li> <li>4. The engine pulley, idler pulley, or blade pulley is loose.</li> <li>5. The engine pulley is damaged.</li> <li>6. The blade spindle bent.</li> </ol>	<ol style="list-style-type: none"> <li>1. Install new cutting blade(s).</li> <li>2. Tighten the blade mounting bolt.</li> <li>3. Tighten the engine mounting bolts.</li> <li>4. Tighten the appropriate pulley.</li> <li>5. Contact an Authorized Service Dealer.</li> <li>6. Contact an Authorized Service Dealer.</li> </ol>
The cutting height is uneven.	<ol style="list-style-type: none"> <li>1. The blade(s) is/are not sharp.</li> <li>2. The cutting blade(s) is/are bent.</li> <li>3. The mower is not level.</li> <li>4. The underside of the mower is dirty.</li> <li>5. The tire pressure is incorrect.</li> <li>6. The blade spindle bent.</li> </ol>	<ol style="list-style-type: none"> <li>1. Sharpen the blade(s).</li> <li>2. Install new cutting blade(s).</li> <li>3. Level the mower from side-to-side and front-to-rear.</li> <li>4. Clean the underside of the mower.</li> <li>5. Adjust the tire pressure.</li> <li>6. Contact an Authorized Service Dealer.</li> </ol>
The blades do not rotate.	<ol style="list-style-type: none"> <li>1. The drive belt is worn, loose or broken.</li> <li>2. The drive belt is off the pulley.</li> <li>3. The deck belt is worn, loose, or broken.</li> <li>4. The deck belt is off the pulley.</li> </ol>	<ol style="list-style-type: none"> <li>1. Install a new drive belt.</li> <li>2. Install a drive belt and check the adjusting shafts and belt guides for the correct position.</li> <li>3. Install a new deck belt.</li> <li>4. Install the deck pulley and check the idler pulley, idler arm, and spring for the correct position and function.</li> </ol>

