



When Performance Matters.™

TRUESET™
**Technical/Repair Manual
Supplement**

CUSTOMERCARE

jacobsen.com



When Performance Matters.™

TRUESET™
Technical/Repair Manual
Supplement



WARNING: If incorrectly used, this machine can cause severe injury. Those who use and maintain this machine should be trained in its proper use, warned of its dangers, and should read the entire manual before attempting to set up, operate, adjust, or service the machine.

Foreword

General

This manual provides detailed information and procedures to safely repair and maintain the following:

Jacobsen® TrueSet™ reels for fairway and greens mowers

This manual is intended to introduce and guide the user through the latest factory-approved troubleshooting and repair techniques and practices.

Before you attempt to troubleshoot or make repairs, you must be familiar with the operation of the mower. Refer to the operator's manual and parts manual for specific information on these topics.

THE INFORMATION CONTAINED IN THIS MANUAL IS BASED ON MACHINES MANUFACTURED UP TO THE TIME OF PUBLICATION. JACOBSEN RESERVES THE RIGHT TO CHANGE ANY OF THIS INFORMATION WITHOUT NOTICE.

California Proposition 65 Warning



WARNING

Certain vehicle components contain or emit chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Trademark Acknowledgement

Jacobsen acknowledges the following trademarks for company names or products mentioned within this publication:

Lubriplate® is a trademark of Fiske Brothers Refining Co.

Loctite® and Permatex® are trademarks of Henkel Corporation.

Perma-Lok® is a trademark of National Starch and Chemical Corporation.

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How to Use This Manual

This manual is designed to provide multiple ways to locate and access repair information.

Read each section in its entirety before beginning a procedure. Proper understanding of machine operation and components is the key to successful diagnostics and repair.

Make use of special information features within this manual in order to be better prepared to perform repairs. Always follow manual procedures and safety guidelines. Never take shortcuts.

Table of Contents

This manual begins with a detailed table of contents related to the specific reel component or system.

Use the table of contents to find specific component or procedural information.

Index

An alphabetical Index is located at the back of the manual.

Use the Index to find specific components and related procedures.

Required Tools and Materials

Some procedures will require the use of specific tools and/or materials. These tools and/or materials will be listed for reference, prior to beginning a procedure.

Specifications

Near the beginning of the manual is a specifications listing. This listing contains any specifications contained within the manual.

Warnings and Cautions

Warning and Caution indicators are located throughout the manual at specific points of interest. These notices are given to prevent personal injury, death, and/or equipment damage. Always heed these notices, and practice common sense when performing any maintenance or repair procedure.

Notes

Special notes are given in order to draw attention to detailed instructions. These notes are intended to give further important information regarding the machine and/or a step in a procedure.

Troubleshooting

Troubleshooting charts are provided to aid in the diagnostic process. Use these suggestions to aid in identifying a potential mechanical or machine adjustment problem.

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Model Identification Number

62828

11-blade, 18-inch reel for Eclipse® 2 118F greens mower.

62829

15-blade, 18-inch reel for Eclipse® 2 118F greens mower.

62830

7-blade, 22-inch reel for Eclipse® 2 118F greens mower.

62831

9-blade, 22-inch reel for Eclipse® 2 122F and Eclipse® 322 greens mowers.

62832

11-blade, 22-inch reel for Eclipse® 2 122F and Eclipse® 322 greens mowers.

62833

15-blade, 22-inch reel for Eclipse® 2 122F and Eclipse® 322 greens mowers.

62834

7-blade, 22-inch reel for GP400 greens mower.

62835

9-blade, 22-inch reel for GP400 greens mower.

62836

11-blade, 22-inch reel for GP400 greens mower.

62849

15-blade, 22-inch reel for GP400 greens mower.

62837

8-blade, 18-inch reel for SLF-1880™ fairway mower.

62838

11-blade, 18-inch reel for SLF-1880™ fairway mower.

62839

7-blade, 22-inch LH reel for LF 550™ fairway mower.

62840

7-blade, 22-inch RH reel for LF 550™ fairway mower.

62841

7-blade, 22-inch LH reel for Greens King™ IV greens mower.

62842

7-blade, 22-inch RH reel for Greens King™ IV greens mower.

62843

9-blade, 22-inch LH reel for Greens King™ IV greens mower.

62844

9-blade, 22-inch RH reel for Greens King™ IV greens mower.

62845

11-blade, 22-inch LH reel for Greens King™ IV greens mower.

62846

11-blade, 22-inch RH reel for Greens King™ IV greens mower.

62847

15-blade, 22-inch LH reel for Greens King™ IV greens mower.

62848

15-blade, 22-inch RH reel for Greens King™ IV greens mower.

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Introduction

Safety is the most important element of any repair procedure. Knowledge of the procedure to be performed and safe work habits are essential to preventing death, personal injury, or property damage. Use the following statements as a common-sense guide to proper work and tool-use habits.

Prepare for the Job

Preparation is essential to complete a procedure in a safe and efficient manner.

- Wear proper clothing. Loose or baggy clothing could become tangled in moving parts.
- Use eye/face protection. Always use proper eye/face protection to protect your eyes from flying debris or chemical splatters.
- Wear protective footwear. Wear safety shoes (steel-toe) to protect your feet from falling objects.
- Use gloves when handling parts. Parts may have sharp edges or may be hot.
- Remove jewelry prior to servicing electrical systems.
- Prepare proper tools and equipment. Always use the correct tool for the job. Improper or homemade tools can cause injury or machine damage.
- Prepare needed parts and materials. Gather the needed parts and materials before beginning the procedure.
- Allow machine to cool. Many components can get hot during operation. Be sure to allow enough time for components to cool before beginning service.
- Prepare proper work-space lighting. A well-lit work area can make the job easier.
- Follow procedures and safety warnings. Service procedures are written to be as safe and efficient as possible. Never take shortcuts.
- Be prepared for emergencies. Accidents can happen, even under the best conditions. Fire extinguishers and first aid kits should be well maintained and easily accessible.

Safety Notices

Throughout this manual, the following key safety words will be used to alert the reader of potential hazards. Become familiar with these words and their meaning. Take all precautions to avoid the hazards described.



This safety alert symbol is used to alert you to potential hazards.



DANGER

Indicates an imminently hazardous situation which, if not avoided, **WILL** result in death or serious injury.



WARNING

Indicates a potentially hazardous situation which, if not avoided, **COULD** result in death or serious injury.



CAUTION

Indicates a potentially hazardous situation which, if not avoided, **MAY** result in minor or moderate injury and property damage. It may also be used to alert against unsafe practices.

NOTICE

Indicates a potentially hazardous situation which, if not avoided, **MAY** result in property damage. It may also be used to alert against unsafe practices.

Safety Label Locations

Become familiar with machine safety labels and locations. The following illustrations show safety label locations on the reel.

See Figure 1-1.

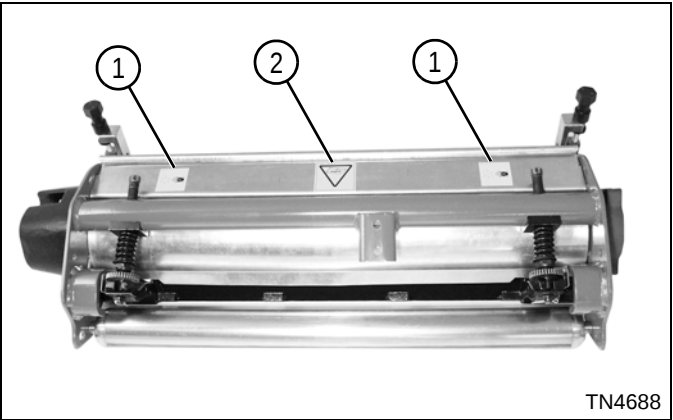
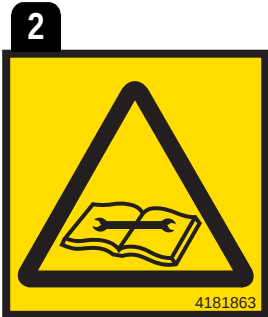


Figure 1-1



Inspect Safety Labels

Safety decals are critical to the safe operation of the mower. Inspect the mower for any damaged, missing, or unreadable decals. Replace decals as needed before placing the mower back into service.

Keep Work Area Clean

A clean, organized, well-lit work area is important to promote safe working conditions.

- Keep floor clean of debris and clear of parts and tools.
- Clean up any spilled fuel, oil, and/or chemicals immediately.
- Store all air hoses and electrical cords properly when not in use.

Keep Work Area Well Ventilated



WARNING

Never operate the engine without proper ventilation; exhaust fumes can be fatal if inhaled.

Certain test and adjustment procedures require the engine to be running. Be sure work area is well ventilated; never run the engine in an enclosed area.

Use Proper Eye and Face Protection



WARNING

Always use approved personal protection equipment. Avoid workplace hazards by wearing properly maintained, approved eye and face protection. Failure to use appropriate protection equipment may result in death or serious injury.

Always wear eye protection while in a shop environment.

- **Safety Glasses:** Safety glasses offer a minimum level of protection from flying debris.
- **Face Shields:** Face shields are often used along with safety glasses to offer a higher level of protection when sparks and flying debris are present.
- **Vented Goggles:** Goggles offer side protection not offered by safety glasses alone.
- **Unvented Goggles:** Unvented goggles offer protection from chemical splashes and vapors.

Park Mower Safely



WARNING

Before cleaning, adjusting, or repairing this equipment, disengage mow switch, engage park brake, move key switch to the off position, and remove key to prevent injuries.

When performing maintenance other than adjustments that require the reel and/or traction motors to be running, disconnect the battery pack plug to prevent accidental motor engagement and bodily injury.

Park the mower safely. (Refer to “Park Mower Safely” in the Safety section of the appropriate mower manual.)

Use Lifting Equipment Safely



WARNING

Always check the lifting capacity and condition of hoists, slings, cables, or chains before use. Using underrated or worn lifting components can result in death or serious injury.

- Always use a lifting device with a lifting capacity greater than the weight of the item being lifted.
- Secure the load to the lifting device using cables, chains, or slings rated to handle the load being lifted. Fasteners being used to connect lifting devices must be strong enough to handle the load. Also be sure the mounting point of the load is strong enough to handle the load.
- When using a lifting device, always connect the load so it is balanced.
- Always use a lifting device on a hard, level surface.
- Lower the lifting device to the lowest point before moving. Move the load slowly.
- Always support the load as soon as possible; never leave a load suspended in mid-air.

Support Machine Securely



WARNING

- Support the machine using properly rated jackstands. Never work under a machine supported only by a jack.
- Do not use wood or concrete blocks to support the machine. Failure to properly support the machine may result in death or serious injury.

Use Compressed Air and Air Tools Safely



WARNING

Always wear approved eye and ear protection while using compressed air. Misuse of compressed air could result in death or serious injury.

- **When using air nozzles, do not exceed an air pressure rating of 30 psi (206.8 kPa).**
- **Never direct air nozzles or tools at a person.**
- **Never point air nozzles directly at skin.**
- Compressed air is a useful tool when used in a safe manner.
- Always use eye and ear protection while using compressed air and air tools.
- When using air tools, do not exceed the air pressure rating for the tool.
- When using an impact wrench, always use approved impact sockets. Never use standard sockets on an impact wrench.
- Disconnect the air supply before changing air tool attachments.
- Never point air nozzles or air tools at another person.
- Always maintain air tools properly.

Service Tires Safely



WARNING

An inflated tire contains explosive force. Use care when handling wheels and tires.

- Always wear safety glasses or goggles.
- Use proper lifting methods when working with wheels and tires.
- When working on an inflated tire, never position yourself directly over the work area.
- When dismounting or mounting tires, use a wheel holder or tire machine. Use proper tire mounting tools and equipment. Never use screwdrivers or makeshift tools to force a tire on or off a wheel.
- Be sure tire irons and mounting tools are free of grease and oil. Grip them firmly.
- Inspect wheel parts for rust, damage, or distortion. Never use wheels that are out-of-round, rusted, or cracked.
- Never hammer on wheels with a steel hammer. Use rubber-covered hammers.
- When inflating tires, always use an inflation cage. Always stand away from the valve stem.
- Use accurate, tested inflation gauges to set air pressures.

Handle Fuel Safely

Handle fuel with care—it is highly flammable.



WARNING

- Never remove the fuel cap from the fuel tank, or add fuel, when the engine is running or while the engine is hot.
- Do not smoke when handling fuel. Never fill or drain the fuel tank indoors.
- Do not spill fuel. Clean spilled fuel immediately.
- Never handle or store fuel containers near an open flame or any device that may create sparks and ignite the fuel or fuel vapors.
- Be sure to reinstall and tighten fuel cap securely.
- Use an approved container; the spout must fit inside the fuel filler neck. Avoid using cans and funnels to transfer fuel.

Store fuel according to local, state, or federal ordinances and recommendations from your fuel supplier.

Never overfill or allow the tank to become empty.

Use clean, fresh fuel.

Do not fill above the fuel filler neck.

Store Volatile and Hazardous Materials Safely

Store volatile materials in approved containers that are clearly marked. Containers should be stored in an approved safety cabinet away from possible sources of ignition. Storage areas and cabinets should be well ventilated to prevent the possible buildup of fumes.

Handle Chemical Products Safely



WARNING

Exposure to chemical products could result in serious injury. Handle chemical products with care. Refer to the chemical manufacturer's Material Safety Data Sheet (MSDS) for information regarding health hazards, safe handling, and emergency response procedures.

Routine service often requires the use of various chemical products, including lubricants and cleaning solutions. Many of these chemicals are flammable and can pose health risks if not handled properly.

- Never mix chemicals. Mixing chemicals can produce toxic or explosive results.
- Follow the manufacturer's recommendations for safe usage and handling of the product.
- Various materials may pose a health hazard if used incorrectly. A Material Safety Data Sheet (MSDS) contains important information regarding proper handling and health hazards, as well as emergency response procedures. Contact the chemical manufacturer to obtain an MSDS for the chemical product.

Service Electrical Components Safely



WARNING

Always disconnect the negative terminal first and positive terminal last. Connect the positive terminal first and negative terminal last. Use care when testing live circuits to prevent arcing. Arcing could result in death or serious injury.

- Disconnect the battery negative (–) cable before removing or installing electrical components. Always connect the battery negative (–) cable last.
- Certain test and adjustment procedures must be performed with the battery connected. Use care to prevent arcing when working on live circuits or components. Arcing can cause component damage and could ignite flammable materials.

Dispose of Waste Materials Safely

Routine service can produce waste products such as used oil and grease and used batteries.

If not handled properly, these materials can pose a threat to the environment.

Collect fluids in well-marked, approved storage containers. Some waste fluids can react with certain types of plastics. Make sure the fluid to be stored is compatible with the storage container. Never use food or beverage containers to store waste fluids.

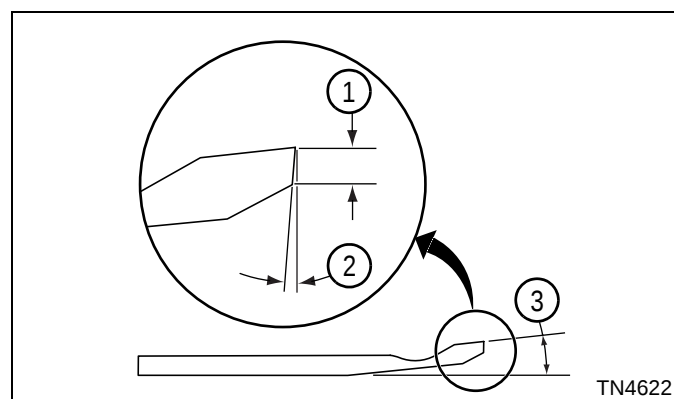
IMPORTANT

Never dispose of waste fluids by pouring them on the ground, down sewer drains, or into any body of water.

- Dispose of waste fluids properly at approved local recycling centers. If recycling facilities are not available, contact your local community for the correct disposal procedure for waste fluids.
- Dispose of old batteries properly. Battery electrolyte contains sulfuric acid and other hazardous materials. Never place an old battery in the trash. Batteries must be disposed of in a manner consistent with EPA and/or local regulations.

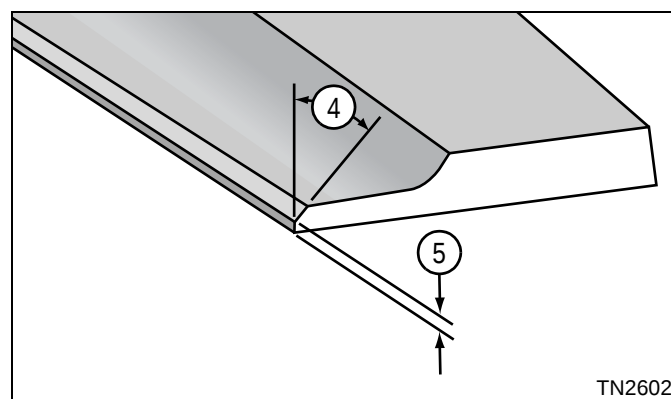
Specifications

See Figures 1-2 and 1-3.



- 1 Bedknife Front Face Height 3 Bedknife Top Face Angle
2 Bedknife Front Face Angle

Figure 1-2: Bedknife



- 4 Reel Blade Relief Angle 5 Reel Blade Land Height

Figure 1-3: Reel Blade

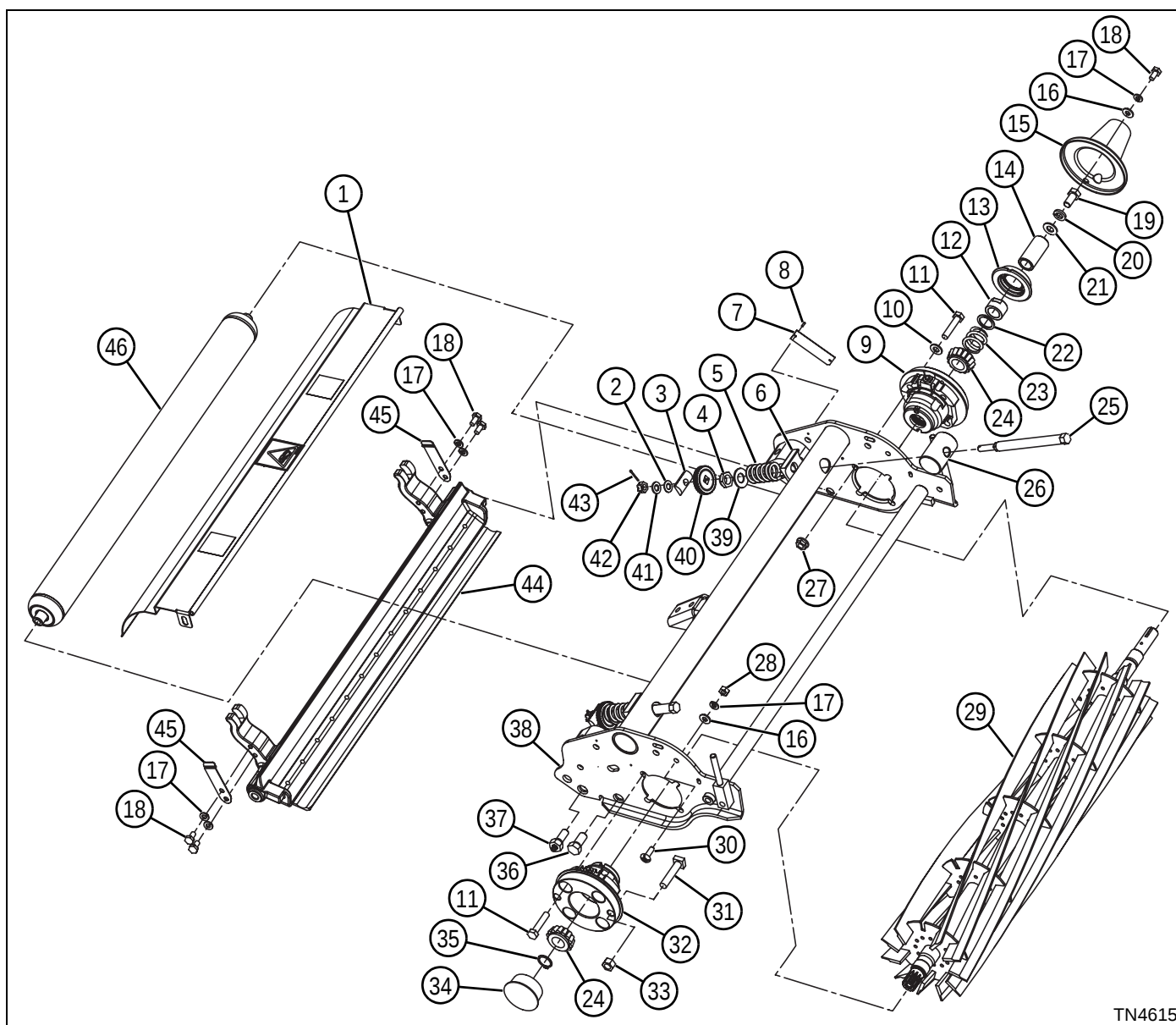
Checks and Adjustments		
Reel Bearing Pre-Load	in. (mm)	0.040 (1.0)
LF 550 Height-of-Cut Range	in. (mm)	0.375–0.750 (9.5–19.0)
SLF-1880 Height-of-Cut Range	in. (mm)	0.300–0.700 (7.6–17.8)
Eclipse 322 Height-of-Cut Range	in. (mm)	0.062–0.438 (1.6–11.1)
GP400 Height-of-Cut Range	in. (mm)	0.062–0.438 (1.6–11.1)
Greens King IV Height-of-Cut Range	in. (mm)	0.062–0.438 (1.6–11.1)
Eclipse 2 Height-of-Cut Range (except Eclipse 2 126)	in. (mm)	0.062–0.438 (1.6–11.1)
Eclipse 2 126 Height-of-Cut Range	in. (mm)	0.325–1.250 (8.3–31.8)
Bedknife Front Face Height (minimum)	in. (mm)	0.035 (0.9)
Bedknife Front Face Angle (all bedknives)	degrees	5
Bedknife Top Face Angle (rear relief) (all bedknives except Super Tournament and Championship)	degrees	8–10
Super Tournament Bedknife Top Face Angle	degrees	5–7
Championship Bedknife Top Face Angle	degrees	5–7
Reel Blade Relief Angle	degrees	45
Reel Blade Land Height	in. (mm)	0.040 (1.0)
Bedknife-to-Reel Clearance	in. (mm)	0.001–0.003 (0.025–0.075)

Repair		
Bedknife Adjustment Assembly—Bedknife Adjustment Rod-to-Reel Frame Tube Initial Adjustment Distance	in. (mm)	4.0 (101.6)
Bedknife Adjustment Assembly—Inside of Belleville Washer-to-Cradle Initial Adjustment Distance	in. (mm)	1.500 ± 0.060 (38.1 ± 1.5)
Bedknife Backing Mounting Screw Torque	lb-ft (N·m)	25–37 (33.9–50.2)
Bedknife Mounting Screw Torque	lb-in. (N·m)	90–120 (10.2–13.6)
Reel Bearing Housing Assembly Mounting Screw Torque	lb-ft (N·m)	18–22 (24.4–29.8)
Rear Roller Mounting Screw Torque	lb-ft (N·m)	16–24 (21.7–32.5)

Component Location

Greens Mowers

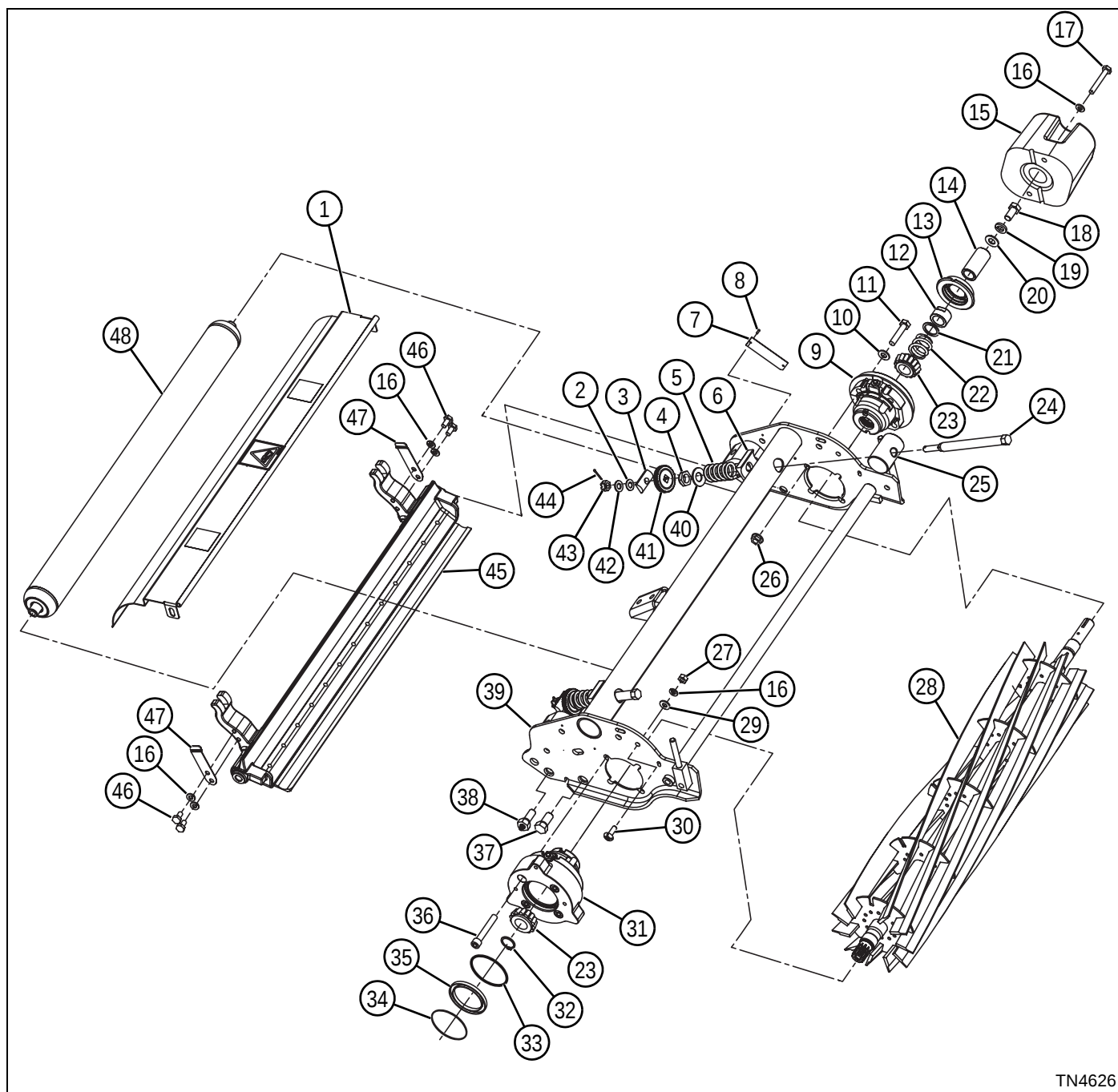
See Figures 1-4 through 1-6.



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- | | | | |
|----------------------------|----------------------|--------------------------------|--|
| 1 Grass Shield | 13 Seal Assembly | 25 Bedknife Adjustment Rod (2) | 36 Bedknife Backing Mounting Screw (2) |
| 2 Belleville Washer (2) | 14 Spacer | 26 Internal Trunnion (2) | 37 Zerk Bolt Assembly (2) |
| 3 Trunnion Half (2) | 15 Shaft Cover | 27 Spiral Lock Flange Nut (8) | 38 Reel Frame Weldment |
| 4 Nylock Hex Jam Nut (2) | 16 Flat Washer (4) | 28 Hex Nut (2) | 39 Belleville Washer (2) |
| 5 Compression Spring (2) | 17 Lock Washer (8) | 29 Reel Assembly | 40 Bedknife Adjustment Gear (2) |
| 6 Tube Spring Cradle (2) | 18 Screw (6) | 30 Truss Screw (2) | 41 Shim Washer (As Required) |
| 7 Serial Number Plate | 19 Screw | 31 Square-Head Bolt (2) | 42 Slotted Nut (2) |
| 8 Screw (2) | 20 Lock Washer | 32 Bearing Housing Assembly | 43 Cotter Pin (2) |
| 9 Bearing Housing Assembly | 21 Flat Washer | 33 Hex Nut (2) | 44 Bedknife Backing Assembly |
| 10 Flat Washer (4) | 22 Reel Shaft Washer | 34 Housing Plug | 45 Spring Detent (2) |
| 11 Screw (8) | 23 Spring | 35 Snap Ring | 46 Rear Roller Assembly |
| 12 Nut | 24 Bearing (2) | | |

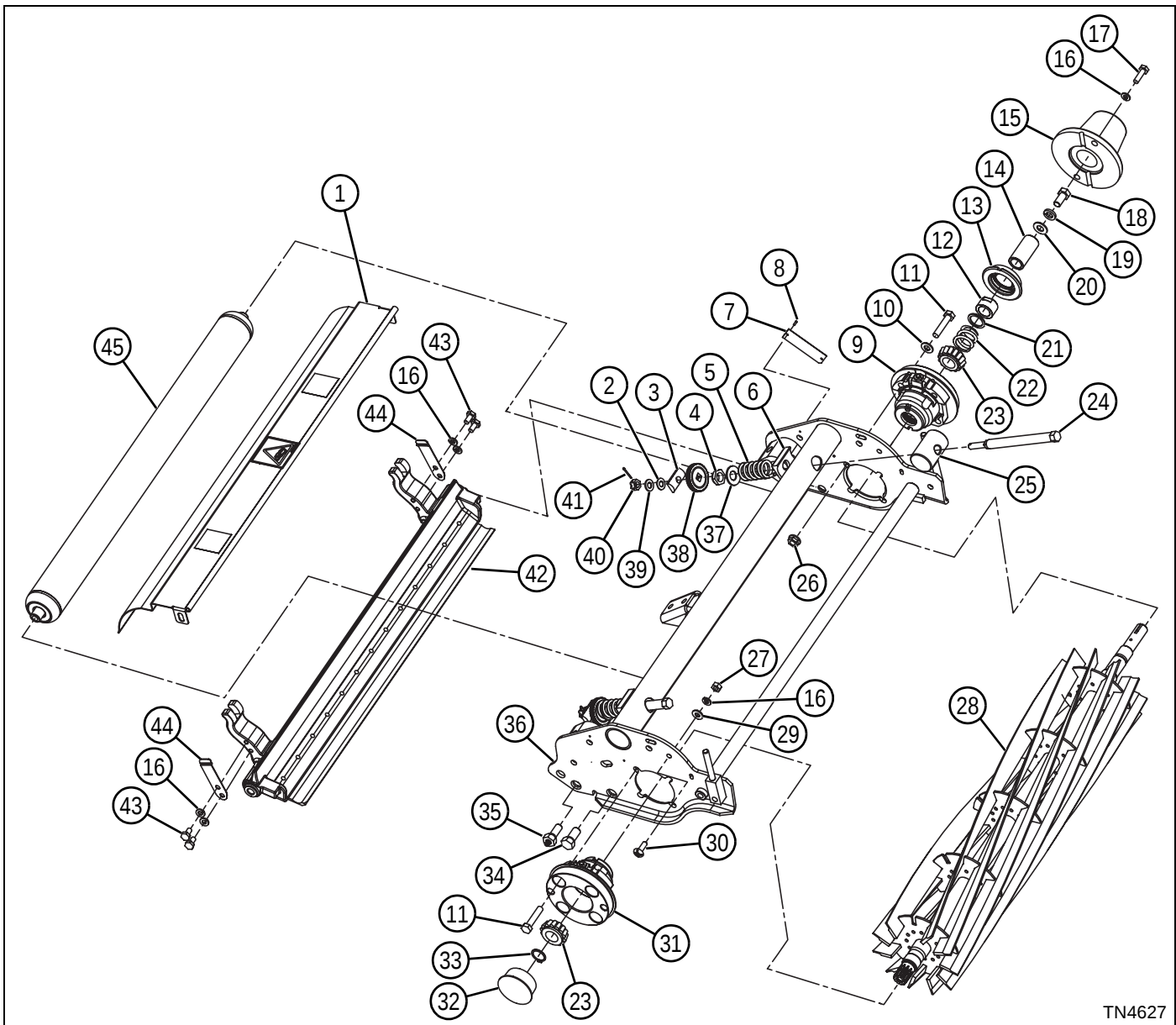
Figure 1-4: Greens King IV Mowers



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| 1 Grass Shield | 13 Seal Assembly | 25 Internal Trunnion (2) | 37 Bedknife Backing Mounting Screw (2) |
| 2 Belleville Washer (2) | 14 Spacer | 26 Spiral Lock Flange Nut (8) | 38 Zerk Bolt Assembly (2) |
| 3 Trunnion Half (2) | 15 Counterweight | 27 Hex Nut (2) | 39 Reel Frame Weldment |
| 4 Nylock Hex Jam Nut (2) | 16 Lock Washer (8) | 28 Reel Assembly | 40 Belleville Washer (2) |
| 5 Compression Spring (2) | 17 Screw (2) | 29 Flat Washer (2) | 41 Bedknife Adjustment Gear (2) |
| 6 Tube Spring Cradle (2) | 18 Screw | 30 Truss Screw (2) | 42 Shim Washer (As Required) |
| 7 Serial Number Plate | 19 Lock Washer | 31 Bearing Housing Assembly | 43 Slotted Nut (2) |
| 8 Screw (2) | 20 Flat Washer | 32 Snap Ring | 44 Cotter Pin (2) |
| 9 Bearing Housing Assembly | 21 Reel Shaft Washer | 33 O-Ring (Large) | 45 Bedknife Backing Assembly |
| 10 Flat Washer (4) | 22 Spring | 34 O-Ring (Small) | 46 Screw (4) |
| 11 Screw (4) | 23 Bearing (2) | 35 Pilot Adapter | 47 Spring Detent (2) |
| 12 Nut | 24 Bedknife Adjustment Rod (2) | 36 Socket-Head Screws (4) | 48 Rear Roller Assembly |

Figure 1-5: Eclipse 2 and Eclipse 322 Mowers



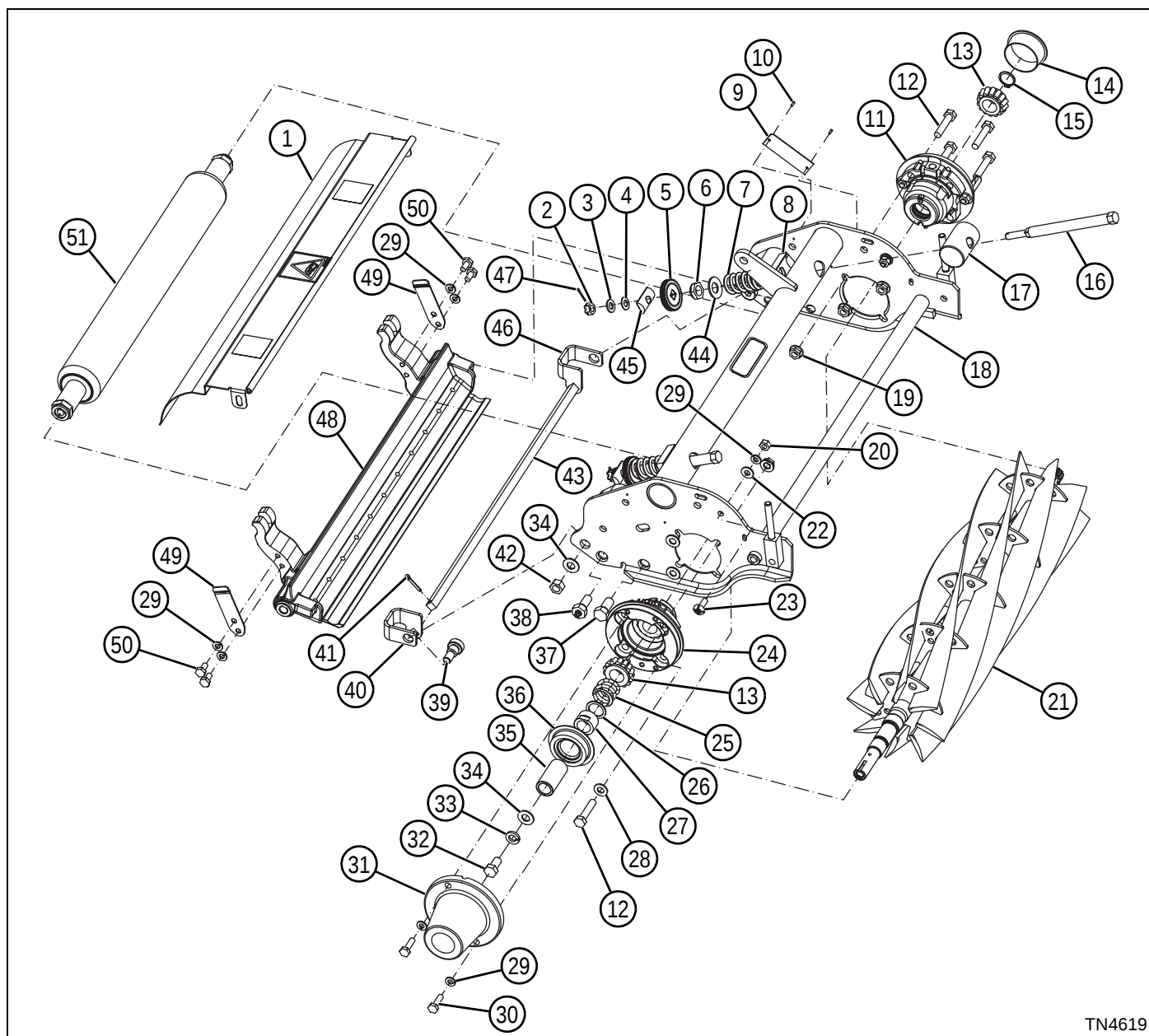
TN4627

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|----------------------------|----------------------|--|---------------------------------|
| 1 Grass Shield | 13 Seal Assembly | 24 Bedknife Adjustment Rod (2) | 35 Zerk Bolt Assembly (2) |
| 2 Belleville Washer (2) | 14 Spacer | 25 Internal Trunnion (2) | 36 Reel Frame Weldment |
| 3 Trunnion Half (2) | 15 Shaft Cover | 26 Spiral Lock Flange Nut (8) | 37 Belleville Washer (2) |
| 4 Nylock Hex Jam Nut (2) | 16 Lock Washer (8) | 27 Hex Nut (2) | 38 Bedknife Adjustment Gear (2) |
| 5 Compression Spring (2) | 17 Screw (2) | 28 Reel Assembly | 39 Shim Washer (As Required) |
| 6 Tube Spring Cradle (2) | 18 Screw | 29 Flat Washer (2) | 40 Slotted Nut (2) |
| 7 Serial Number Plate | 19 Lock Washer | 30 Truss Screw (2) | 41 Cotter Pin (2) |
| 8 Screw (2) | 20 Flat Washer | 31 Bearing Housing Assembly | 42 Bedknife Backing Assembly |
| 9 Bearing Housing Assembly | 21 Reel Shaft Washer | 32 Housing Plug | 43 Screw (4) |
| 10 Flat Washer (4) | 22 Spring | 33 Snap Ring | 44 Spring Detent (2) |
| 11 Screw (8) | 23 Bearing (2) | 34 Bedknife Backing Mounting Screw (2) | 45 Rear Roller Assembly |
| 12 Nut | | | |

Figure 1-6: GP400 Mowers

Fairway Mowers

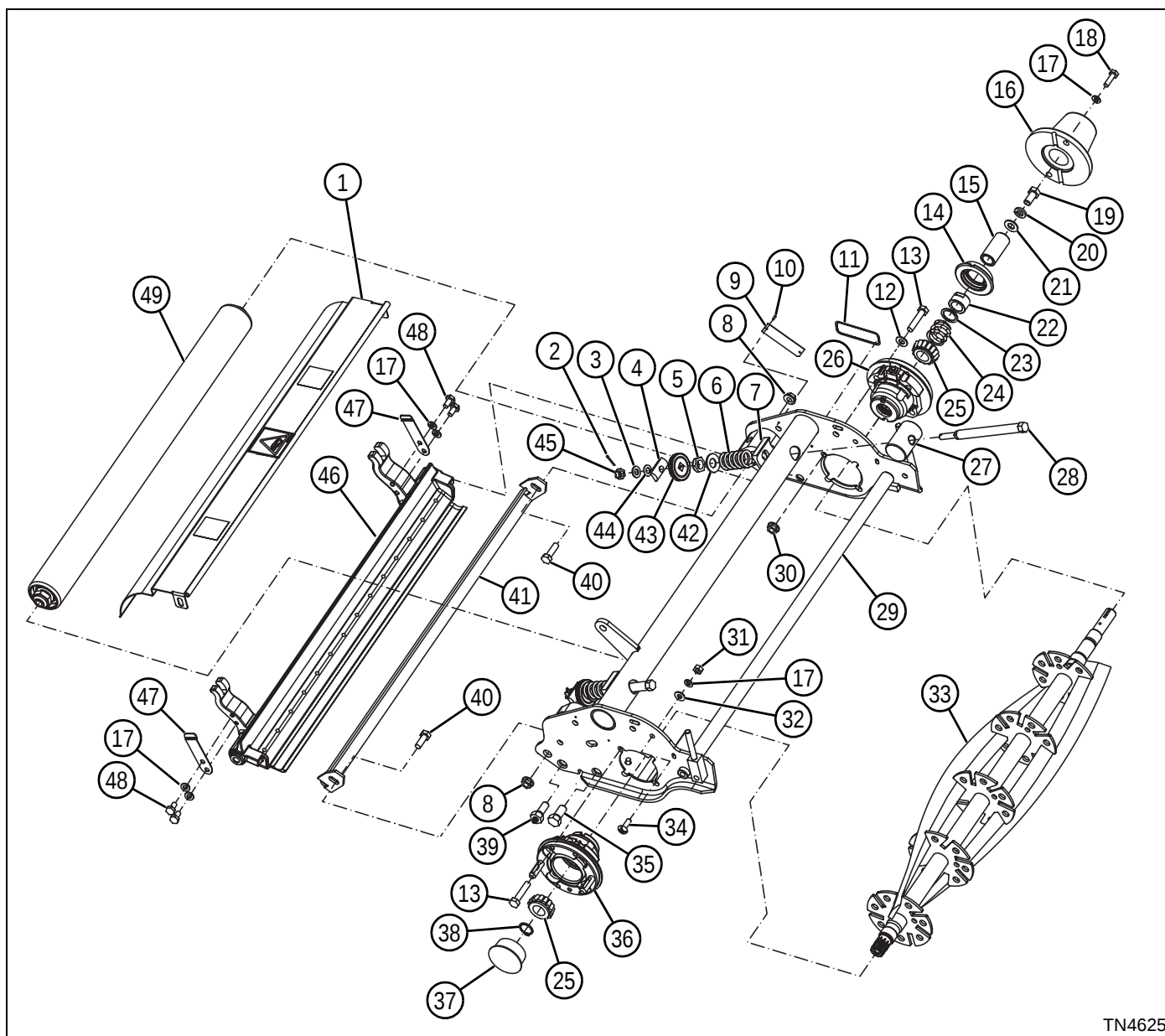
See Figures 1-7 and 1-8.



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|--------------------------------|--------------------------------|--|------------------------------|
| 1 Grass Shield | 14 Housing Plug | 27 Nut | 40 Right Scraper Bracket |
| 2 Cotter Pin (2) | 15 Snap Ring | 28 Flat Washer (4) | 41 Cotter Pin (2) |
| 3 Shim Washer (As Required) | 16 Bedknife Adjustment Rod (2) | 29 Lock Washer (8) | 42 Hex Nut (2) |
| 4 Belleville Washer (2) | 17 Internal Trunnion (2) | 30 Screw (2) | 43 Scraper Rod |
| 5 Bedknife Adjustment Gear (2) | 18 Reel Frame Assembly | 31 Counterweight | 44 Belleville Washer (2) |
| 6 Nylock Hex Jam Nut (2) | 19 Spiral Lock Flange Nut (8) | 32 Screw | 45 Trunnion Half (2) |
| 7 Compression Spring (2) | 20 Hex Nut (2) | 33 Lock Washer | 46 Left Scraper Bracket |
| 8 Tube Spring Cradle (2) | 21 Reel Assembly | 34 Flat Washer (3) | 47 Slotted Nut (2) |
| 9 Serial Number Plate | 22 Flat Washer (2) | 35 Spacer | 48 Bedknife Backing Assembly |
| 10 Screw (2) | 23 Truss Screw (2) | 36 Seal Assembly | 49 Spring Detent (2) |
| 11 Bearing Housing Assembly | 24 Bearing Housing Assembly | 37 Bedknife Backing Mounting Screw (2) | 50 Screw (4) |
| 12 Screw (8) | 25 Spring | 38 Zerk Bolt Assembly (2) | 51 Rear Roller Assembly |
| 13 Bearing (2) | 26 Reel Shaft Washer | 39 Shoulder Bolt (2) | |

Figure 1-7: SLF-1880 Mowers



TN4625

1 Grass Shield	14 Seal Assembly	26 Bearing Housing Assembly	38 Snap Ring
2 Cotter Pin (2)	15 Spacer	27 Bedknife Adjustment Rod (2)	39 Zerk Bolt Assembly (2)
3 Shim Washer (As Required)	16 Counterweight	28 Internal Trunnion (2)	40 Screw (2)
4 Trunnion Half (2)	17 Lock Washer (8)	29 Reel Frame Assembly	41 Scraper Rod
5 Nylock Hex Jam Nut (2)	18 Screw (2)	30 Spiral Lock Flange Nut (8)	42 Belleville Washer (2)
6 Compression Spring (2)	19 Screw	31 Hex Nut (2)	43 Bedknife Adjustment Gear (2)
7 Tube Spring Cradle (2)	20 Lock Washer	32 Flat Washer (2)	44 Belleville Washer (2)
8 Flange Nut (2)	21 Flat Washer	33 Reel Assembly	45 Slotted Nut (2)
9 Serial Number Plate	22 Nut	34 Truss Screw (2)	46 Bedknife Backing Assembly
10 Screw (2)	23 Reel Shaft Washer	35 Bedknife Backing Mounting Screw (2)	47 Spring Detent (2)
11 Patent Label Decal	24 Spring	36 Bearing Housing Assembly	48 Screw (4)
12 Flat Washer (4)	25 Bearing (2)	37 Housing Plug	49 Rear Roller Assembly
13 Screw (8)			

Figure 1-8: LF 550 Mowers

Troubleshooting

Quality-of-Cut Troubleshooting

Factors That Affect Cut Appearance

Even though the cutting units are properly sharpened and adjusted, some mowing practices and turf conditions can cause poor cutting results. These include:

- Repetitious mowing patterns—tires running over the same path—may cause depressions and ruts. This is also known as compaction.
- Mowing with excessive moisture in the ground may result in varying cutting heights. The mower slides over the wet turf, leaving grass uncut and depressed.
- Repetitious cutting of grass in the same direction may cause the grass to take a permanent set in that direction. The reel and bedknife have difficulty “lifting” the grass into cutting position. This condition is called graining.
- Poor quality grass that is matted cannot be lifted and cut uniformly.
- Dry grass does not lubricate the blades and leads to early dulling of the blades.

In most cases, information provided by the user/customer will provide the basis for the repairs and adjustments that may be required. However, it is recommended that a “test cut” be performed to evaluate the mower’s performance before beginning repairs or adjustments.

An area should be available where “test cuts” can be made. This area should provide known and consistent turf conditions to allow accurate evaluation of the mower’s performance.

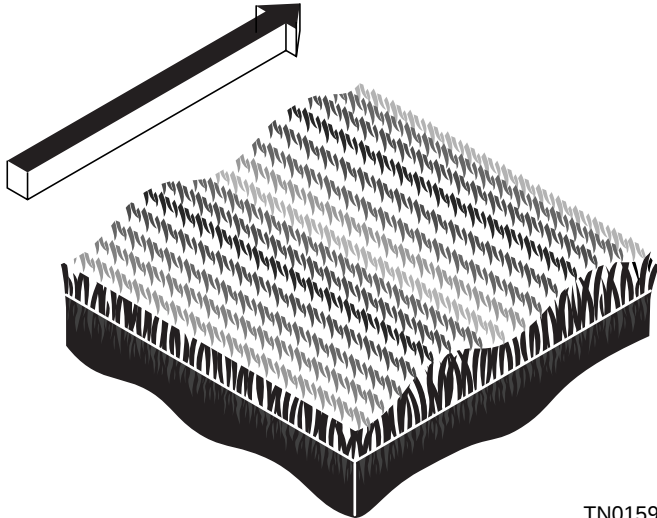
Before performing a “test cut” to diagnose cut appearance and mower performance, verify the following items to ensure an accurate “test cut:”

1. Mowing (Ground) Speed
2. Reel Bearing Condition and Pre-Load (End Play) Adjustment
3. Reel and Bedknife Sharpness
4. Bedknife Alignment to Reel
5. Bedknife-to-Reel Contact
6. Height-of-Cut (HOC)
7. Bedknife Application (Correct Bedknife)
8. Roller and Roller Bearing Condition
9. Reel Speed
10. Frequency-of-Clip (FOC)
11. Another “test cut” should be performed after the completion of the repairs and/or adjustments to verify the mower’s performance.

Definition of Terms

The following terms are used to describe various cut appearance symptoms.

Washboarding



TN0159

NOTE: One cutting unit width shown. Arrow indicates direction of travel.

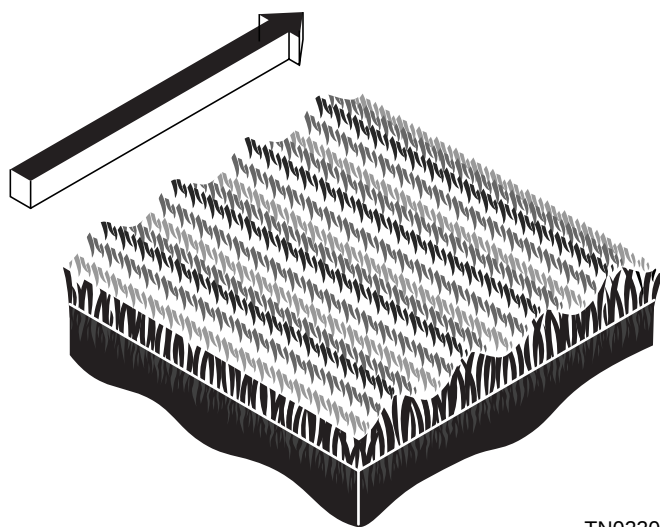
Washboarding is a cyclical pattern of varying cutting heights, resulting in a wave-like cut appearance. In most cases, the wave tip-to-tip distance is approximately 6–8 in. (15–20 cm). Color variation (light-to-dark) may also be noticed.

This condition is usually caused by a rocking motion in the cutting unit(s). This condition is found mostly on mowers with multiple (suspended) cutting units, but other causes in walk-behind mowers can produce the same result.

Washboarding may also be caused by variations in the turf.

Probable Cause	Remedy
Mowing (ground) speed is too fast.	Reduce mowing (ground) speed.
Grass buildup on roller.	Clean the roller and use scrapers or brushes.
Roller is out of round.	Replace roller.
Mowing in the same direction.	Change mowing direction regularly.
Use of a groomer on cleanup pass.	Groomers should be used only in a straight line.
Reel motor performance is reduced.	Check operation of reel motor(s) and repair/replace as necessary.
Battery tray adjusted too far back.(Eclipse® walkers only.)	Adjust battery tray.
Engine/gen-set adjusted too far back. (Eclipse® walkers only.)	Adjust engine forward on mount plate.

Marcelling



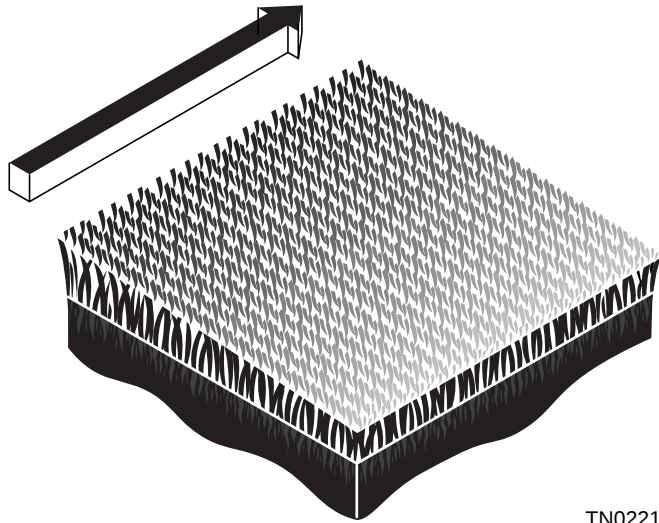
TN0220

NOTE: One cutting unit width shown. Arrow indicates direction of travel.

Marcelling is a wave-like cut appearance similar to washboarding but with a uniform cutting height and smaller wave tip-to-tip distance. In most cases, the wave tip-to-tip distance is 2 in. (5 cm) or less. Color variation (light-to-dark) may also be noticed. This condition is usually caused by an incorrect frequency-of-clip.

Probable Cause	Remedy
Incorrect frequency-of-clip.	Check and adjust frequency-of-clip. Frequency-of-clip must be equal to or less than height-of-cut. Verify proper reel is being used for the correct application and change if necessary. May need more blades.
Mowing (ground) speed is too fast.	Reduce mowing (ground) speed.
HOC (height-of-cut) setting is too low for the machine's capability.	Confirm proper HOC range for reel/bedknife combination.
Reel speed too slow.	Check/set reel speed rpm or repair/replace reel motor as necessary.

Step Cutting



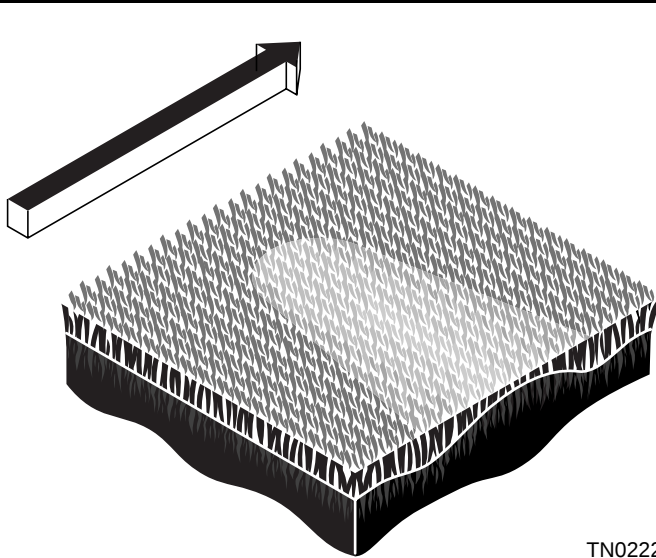
Step cutting occurs when grass is cut taller on one side of the reel than the other. This is usually caused by mechanical wear or an incorrect roller adjustment.

TN0221

NOTE: One cutting unit width shown. Arrow indicates direction of travel.

Probable Cause	Remedy
HOC (height-of-cut) settings are different from one side of the reel to the other, or from one cutting unit to another.	Check HOC adjustment. (See "Height-of-Cut (HOC) Adjustment" on page 1-29.)
Worn roller bearings.	Check/replace roller bearings.
Worn reel bearings.	Check/replace/adjust reel bearings. (See "Reel Bearing Pre-Load Adjustment" on page 1-30.)
Reel-to-bedknife contact is different from one side of the cutting unit to the other.	Check reel to bedknife contact. (See "Bedknife-to-Reel Clearance Adjustment" on page 1-28.)
Cutting unit movement is restricted.	Check/remove cutting unit movement restriction.
Variations in turf density.	Change mowing direction.
Machine ride height is uneven side to side (riding mowers).	Check/adjust proper tire inflation pressure. (Refer to "Safety, Operation, and Maintenance Manual.")
Mower frame is bent (riding mowers).	Repair or replace as needed.

Scalping



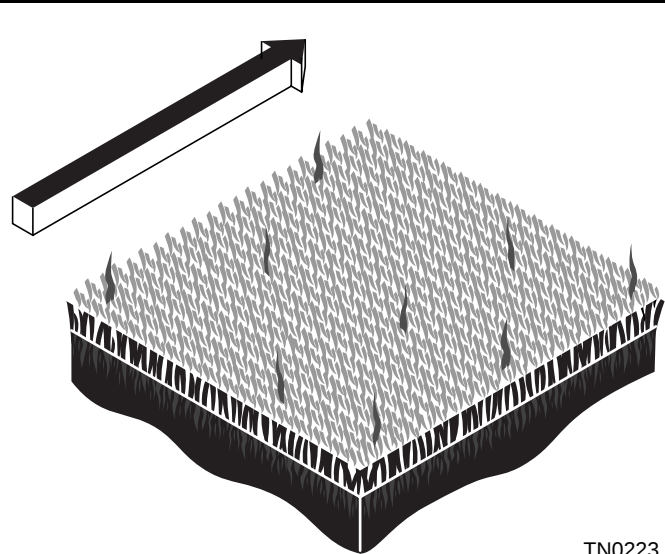
TN0222

NOTE: One cutting unit width shown. Arrow indicates direction of travel.

Scalping is a condition in which areas of grass are cut noticeably shorter than the surrounding areas, resulting in a light green or even brown patch. This is usually caused by an excessively low height-of-cut setting and/or uneven turf.

Probable Cause	Remedy
HOC (height-of-cut) settings are lower than normal.	Check and adjust the HOC settings. (See "Height-of-Cut (HOC) Adjustment" on page 1-29.)
Turf too uneven for the mower to follow.	Try a different mowing direction.
Incorrect bedknife for HOC.	Install correct bedknife for desired HOC. (See "Bedknife Backing Assembly" on page 1-33.)
Cutting too much grass at one time.	Mow more often.
Mowing (ground) speed is too fast.	Reduce mowing (ground) speed.

Stragglers



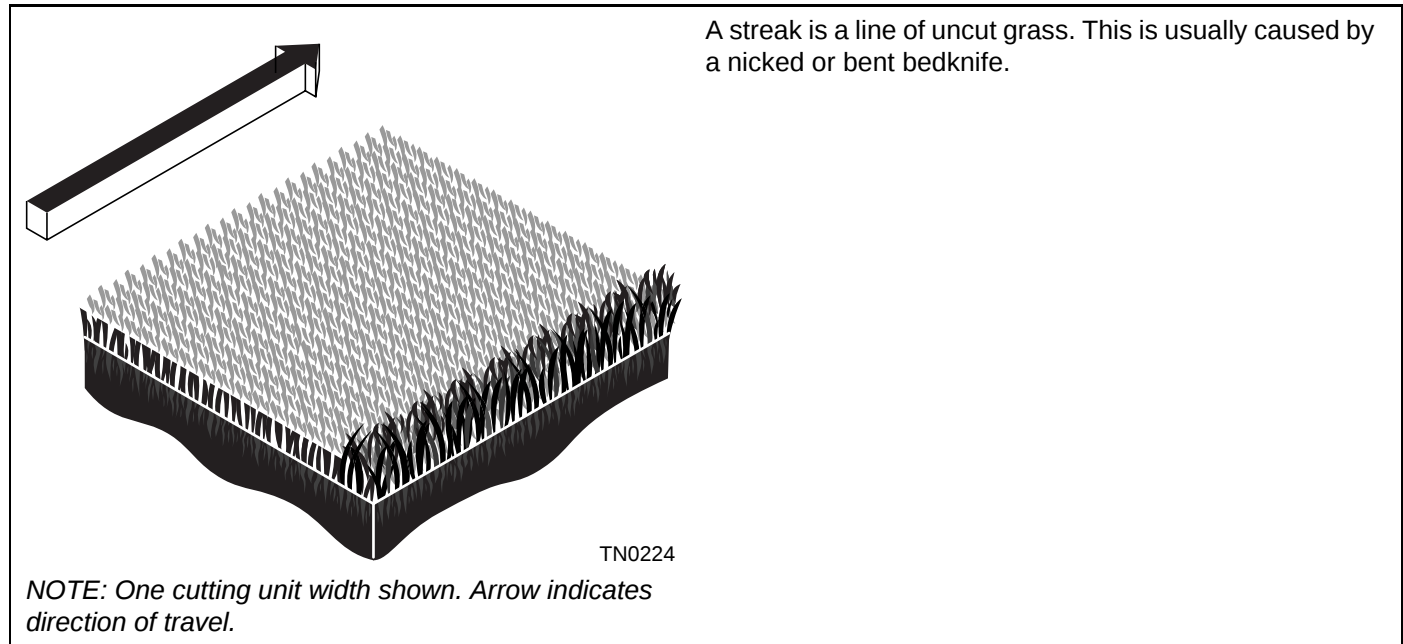
Stragglers are scattered blades of uncut or poorly cut grass.

TN0223

NOTE: One cutting unit width shown. Arrow indicates direction of travel.

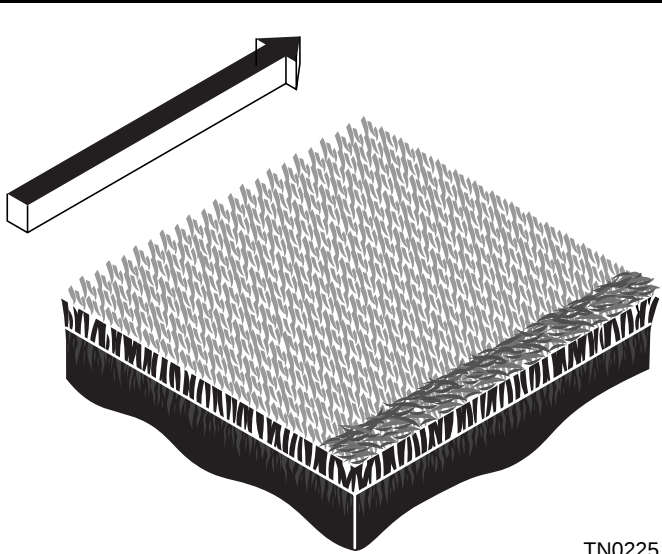
Probable Cause	Remedy
Bedknife improperly adjusted.	Adjust bedknife. (See “Bedknife-to-Reel Clearance Adjustment” on page 1-28.)
Dull cutting edges.	Sharpen reel and bedknife.
Mowing (ground) speed is too fast.	Reduce mowing (ground) speed.
Incorrect roller.	Install correct roller for application.
Grass is too tall.	Mow more often.
Mowing in the same direction.	Change mowing direction regularly.

Streaks



Probable Cause	Remedy
Damaged bedknife.	Replace bedknife. (See "Bedknife Backing Assembly" on page 1-33.)
Damaged or unevenly worn reel.	Inspect reel. Replace as needed.
Loose or missing bedknife fasteners.	Check bedknife screws: Tighten loose screws; replace missing screws. (See "Bedknife Backing Assembly" on page 1-33.)
Incorrect roller.	Install correct roller for application.
Bedknife is matting the grass down.	Install correct bedknife for application. (See "Bedknife Backing Assembly" on page 1-33.)
Turning too aggressively. Cutting units don't overlap during turns or on side hills.	Turn less aggressively to allow cutting units to overlap. Change mowing direction or pattern on side hills.
Tire mats down grass before it is cut.	Check/adjust tire inflation pressure. (Refer to "Safety, Operation, and Maintenance Manual.")
Wet grass is matted down before it is cut.	Cut when grass is dry.

Windrowing

A 3D perspective diagram showing a single cutting unit of a mower. The unit is a rectangular block with a textured top surface representing grass. An arrow points from the top-left corner of the unit towards the top-right, indicating the direction of travel. The unit is shown in a cross-section, revealing the internal structure and the grass being cut. The grass is shown as a dense layer of blades. The unit is positioned on a surface that appears to be a roller or a similar component of the mower.

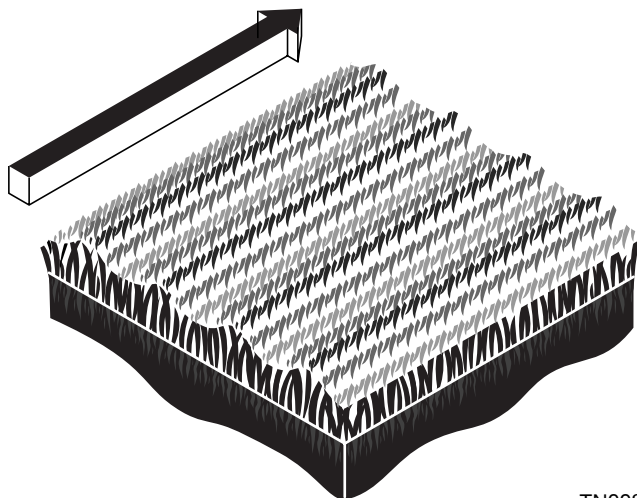
Windrowing is the deposit of clippings concentrated at one end of the cutting unit, forming a line in the direction of travel.

TN0225

NOTE: One cutting unit width shown. Arrow indicates direction of travel.

Probable Cause	Remedy
Grass is too tall.	Mow more often.
Mowing while turf is wet.	Mow when turf is dry.
Grass buildup on roller.	Clean the rollers and use scrapers or brushes.
Improperly adjusted scraper.	Adjust scraper.

Rifling or Tramlining



TN0987

NOTE: One cutting unit width shown. Arrow indicates direction of travel.

Rifling or tramlining is a pattern of varying cutting heights, resulting in a wave-like cut appearance, usually due to heavy contact points across the reel and/or bedknife.

Probable Cause	Remedy
Reel and/or bedknife unevenly worn.	Inspect bedknife and reel. Grind or replace as needed. (See "Reel and Bedknife Inspection" on page 1-27.)

Mechanical Troubleshooting

Cutting Unit

Mechanical troubleshooting will vary, depending on the mower model. Refer to the technical manual for the mower being serviced for additional information.

Condition	Probable Cause	Remedy
Reel motor does not turn.	Coupler stripped.	Replace coupler at reel motor shaft. Refer to the technical manual for the mower being serviced.
Reel motor does not reach full speed.	Bedknife-to-reel contact too tight.	Check bedknife-to-reel adjustment. (See "Bedknife-to-Reel Clearance Adjustment" on page 1-28.)
Bedknife adjustment rod difficult to turn.	Slotted nut overtightened.	Reseat/loosen slotted nut. (See "Bedknife Backing Assembly" on page 1-33.)
	Compression spring overcompressed.	Adjust compression spring distance. (See "Bedknife Backing Assembly" on page 1-33.)

Checks and Adjustments

Backlapping Procedure

The backlapping procedure will vary, depending on the mower model. Refer to the technical manual for the mower being serviced.

Reel and Bedknife Inspection

See Figure 1-9.

1. Park the mower safely. (Refer to “Park Mower Safely” in the Safety section of the appropriate mower manual.)



CAUTION

To prevent personal injury and damage to the cutting edges, handle the reel with extreme care.

2. Check the reel bearings for end play or radial play. If there is any abnormal movement of the reel, up-and-down or side-to-side, adjust or replace components as needed. (See “Reel Bearing Pre-Load Adjustment” on page 1-30.)

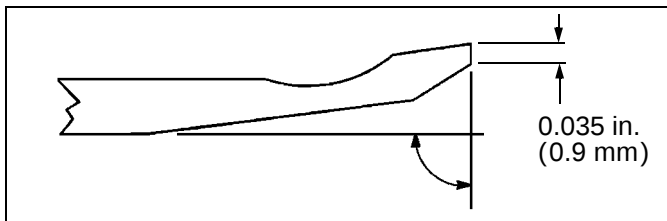


Figure 1-9

3. Inspect the reel blades and bedknife to ensure good sharp edges without bends or nicks.
 - a. The cutting edges of the reel blades and bedknife must be sharp, free of burrs, and show no signs of rounding off.
 - b. The bedknife and bedknife backing must be securely tightened. The bedknife must be straight and sharp.
 - c. A flat surface of 0.035 in. (0.9 mm) minimum must be maintained on the front face of the bedknife. Use a standard flat file to dress the bedknife.
4. If wear or damage to the reel or bedknife cannot be corrected by the lapping process, the reel or bedknife must be reground. (See “Bedknife” on page 1-37.)
5. Proper reel-to-bedknife adjustment is critical. A clearance of 0.001–0.003 in. (0.025–0.075 mm) must be maintained across the entire length of the reel and bedknife.
6. The reel must be parallel to the bedknife. An improperly adjusted reel will lose its sharp edges prematurely and may result in serious damage to the reel and bedknife.
7. Grass conditions will also affect the adjustment.
 - a. Dry, sparse grass requires a wider clearance to prevent heat buildup and damage to the reel and bedknife.
 - b. High-quality grass with a good moisture content requires a smaller clearance (near zero).

Bedknife-to-Reel Clearance Adjustment

See Figures 1-10 and 1-11.



CAUTION

To prevent personal injury and damage to the cutting edges, handle the reel with extreme care.

1. Park the mower safely. (Refer to "Park Mower Safely" in the Safety section of the appropriate mower manual.)
2. Inspect reel and bedknife before performing adjustment. (See "Reel and Bedknife Inspection" on page 1-27.)

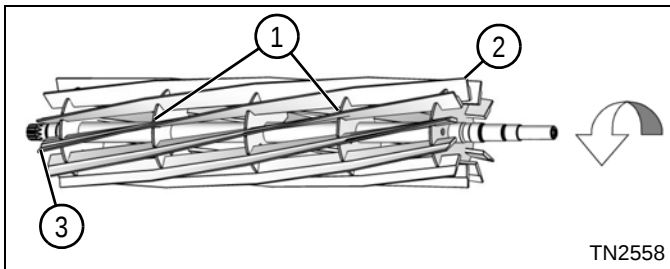


Figure 1-10

NOTES

- Clearance between the bedknife and reel should be checked with a feeler gauge. Slide the feeler gauge between the bedknife and reel. There should be a slight drag on the feeler gauge. Do not turn the reel while making the check. Clearance should be checked at the outer ends of the reel, then at the inner set of spiders (1), and then in the middle.
- The bedknife-to-reel adjustment should be made by starting with the leading end (3) of the reel and following with the trailing end (2). The leading end of the reel blade is the end that passes over the bedknife first during normal reel rotation.

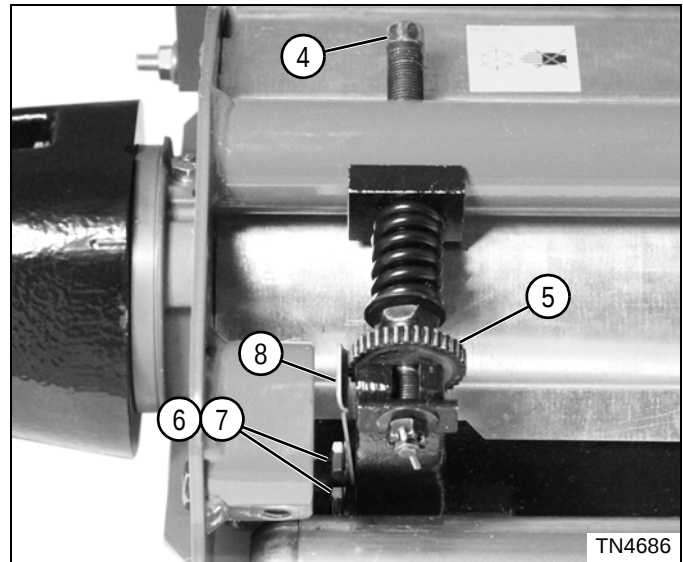


Figure 1-11

NOTE

Turn bedknife adjustment rod (4) counterclockwise (as viewed from front of cutting unit) to increase the clearance. Turn bedknife adjustment rod clockwise (as viewed from front of cutting unit) to reduce the clearance.

3. Adjust bedknife-to-reel clearance to 0.001–0.003 in. (0.025–0.075 mm) between reel blade and bedknife using bedknife adjustment rod (4) on both leading and trailing edges of reel.

NOTES

- Move the bedknife adjustment rods in very small increments when making bedknife-to-reel adjustments.
- Each click of the bedknife adjustment gear (5) corresponds to a 0.001 in. (0.025 mm) change in the bedknife-to-reel clearance.
- For infinite bedknife-to-reel clearance adjustment, remove the two screws (6), two lock washers (7), and spring detent (8) from each side of the cutting unit.
- When the reel and bedknife are properly adjusted, the reel will spin freely and will cut a piece of newspaper along the full length of the reel when the paper is held at a 90° angle to the bedknife.

Height-of-Cut (HOC) Adjustment

See Figure 1-12.



CAUTION

To prevent personal injury and damage to the cutting edges, handle the reel with extreme care.

Required Tools

Height-of-Cut Gauge Bar (Jacobsen PN 158568)

1. Park the mower safely. (Refer to "Park Mower Safely" in the Safety section of the appropriate mower manual.)

NOTE

The bedknife-to-reel clearance should be properly adjusted before adjusting the cutting height. (See "Bedknife-to-Reel Clearance Adjustment" on page 1-28.)

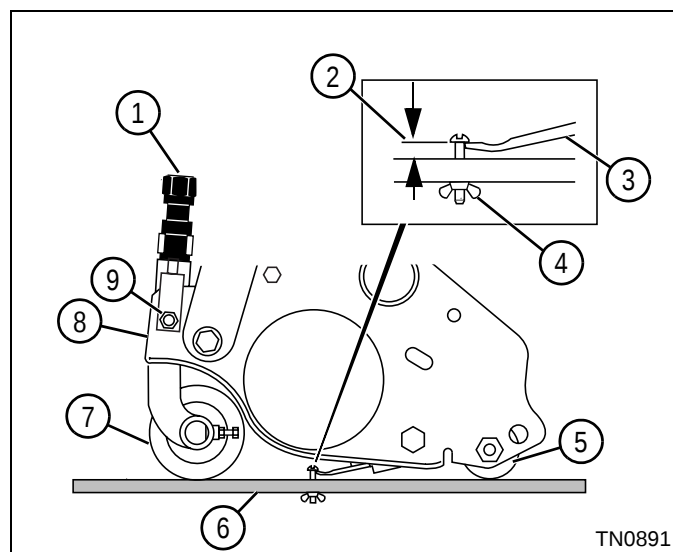


Figure 1-12

2. Loosen lock nut (9) on the side of front roller bracket (8) just enough to allow adjusting knob (1) to raise or lower the bracket.
3. Set height-of-cut bar (6) to desired height-of-cut (2) by measuring between the underside of screw head and the upper surface of height-of-cut bar and tightening wing nut (4).
4. Place height-of-cut bar (6) across bottom of front roller (7) and rear roller (5) near one end.
5. Slide the head of the gauge screw over bedknife (3).
6. Turn adjusting knob (1) to close the gap between front roller (7) and rear roller (5) and height-of-cut bar (6).

7. Tighten lock nut (9).
8. Repeat steps 2 through 7 on opposite end of front roller (7).
9. Recheck each end with height-of-cut bar and readjust as necessary.

NOTES

- Check the position of each reel for desired height-of-cut.
- All reels must be adjusted to exactly the same height for proper cutting.

Reel Bearing Pre-Load Adjustment

See Figures 1-13 through 1-21.

1. Park the mower safely. (Refer to "Park Mower Safely" in the Safety section of the appropriate mower manual.)
2. Back the bedknife away from the reel. (See "Bedknife-to-Reel Clearance Adjustment" on page 1-28.)

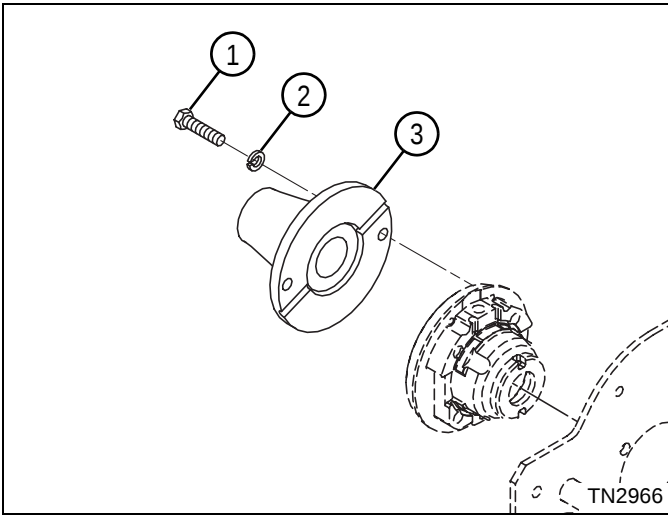


Figure 1-13: LF 550, SLF-1880, and GP400

3. For LF 550, SLF-1880, and GP400 mower cutting units, remove two screws (1), two lock washers (2), and counterweight (3).

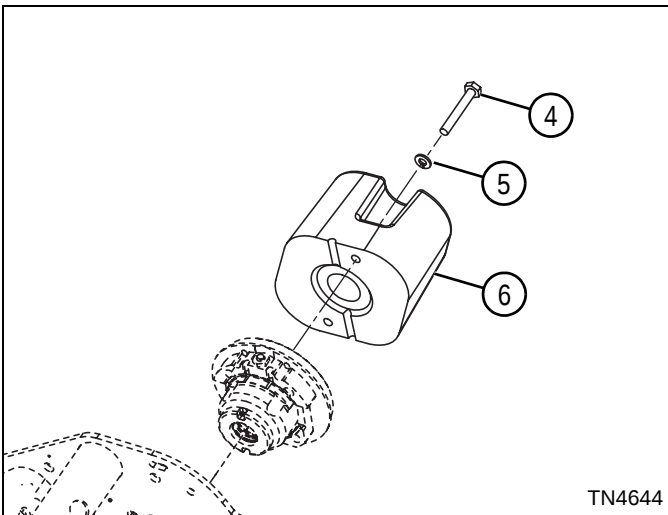


Figure 1-14: Eclipse

4. For Eclipse mower cutting units, remove two screws (4), two lock washers (5), and counterweight (6).

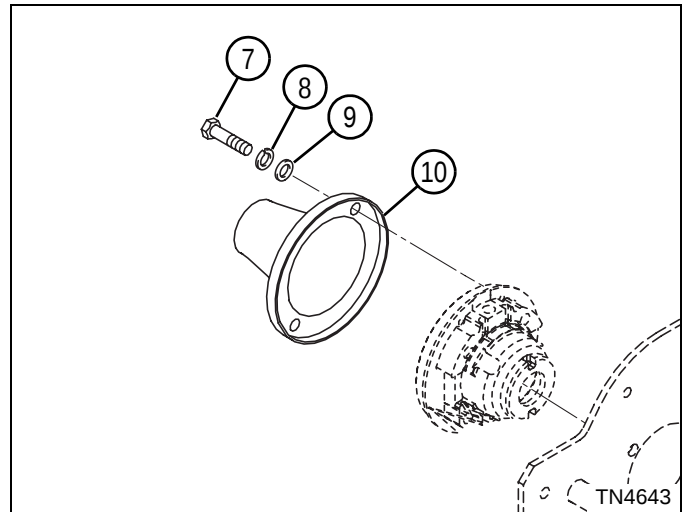


Figure 1-15: Greens King IV

5. For Greens King IV mower cutting units, remove two screws (7), two lock washers (8), two flat washers (9), and shaft cover (10).

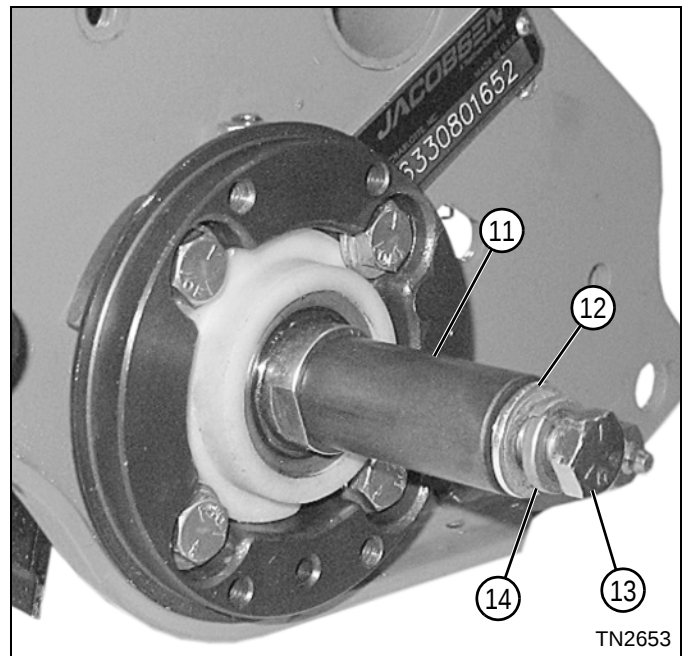


Figure 1-16

6. Remove screw (13), lock washer (14), washer (12), and spacer (11).

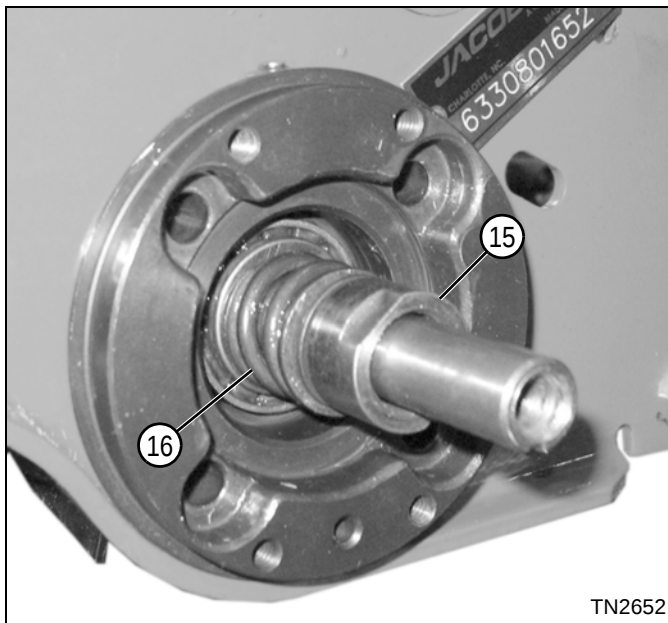


Figure 1-17

7. Tighten adjuster nut (15) until spring (16) is completely collapsed, then back the nut out 2–3 turns, or until there is 0.040 in. (1.0 mm) side-to-side movement of the reel.

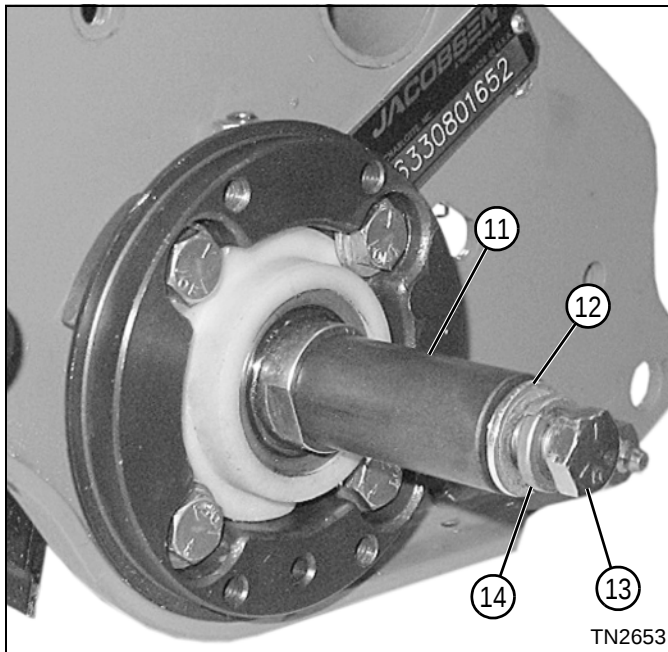


Figure 1-18

8. Install spacer (11), washer (12), lock washer (14), and screw (13).

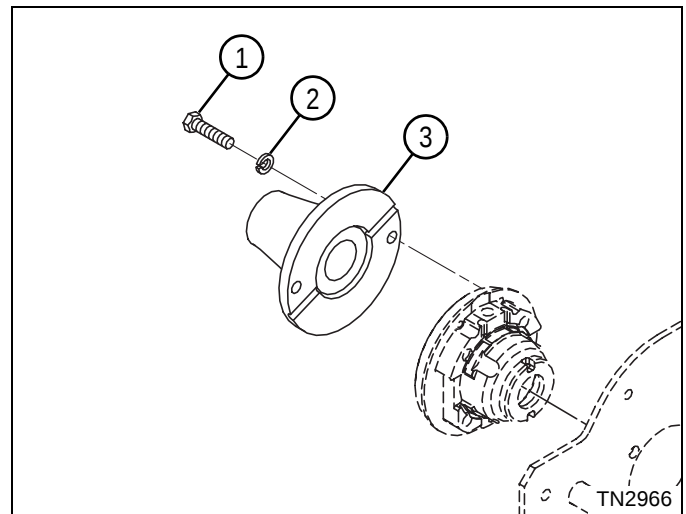


Figure 1-19: LF 550, SLF-1880, and GP400

9. For LF 550, SLF-1880, and GP400 mower cutting units, install counterweight (3), two lock washers (2), and two screws (1).

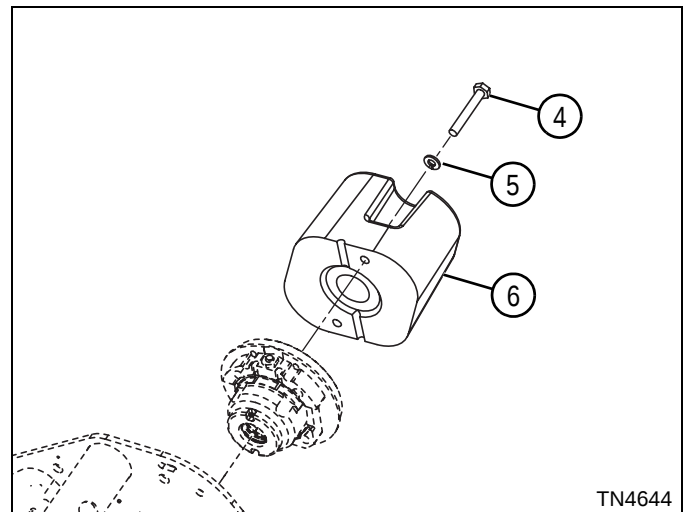


Figure 1-20: Eclipse

10. For Eclipse mower cutting units, install counterweight (6), two lock washers (5), and two screws (4).

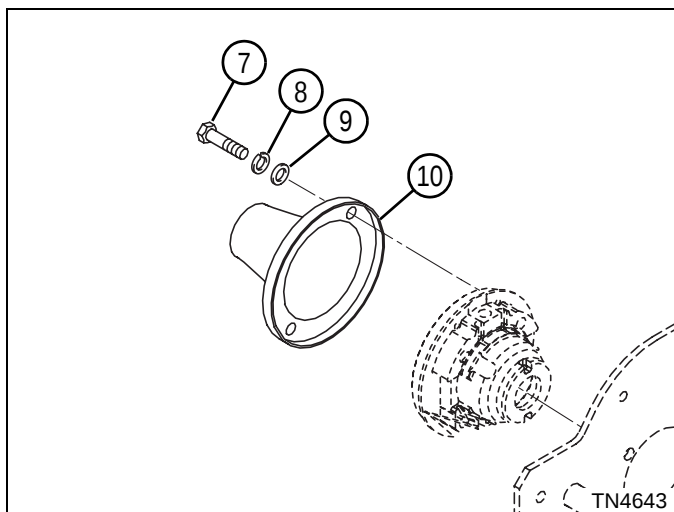


Figure 1-21: Greens King IV

11. For Greens King IV mower cutting units, install shaft cover (10), two flat washers (9), two lock washers (8), and two screws (7).
12. Adjust bedknife-to-reel clearance. (See "Bedknife-to-Reel Clearance Adjustment" on page 1-28.)

Grass Shield Adjustment

See Figure 1-22.

1. Park the mower safely. (Refer to "Park Mower Safely" in the Safety section of the appropriate mower manual.)

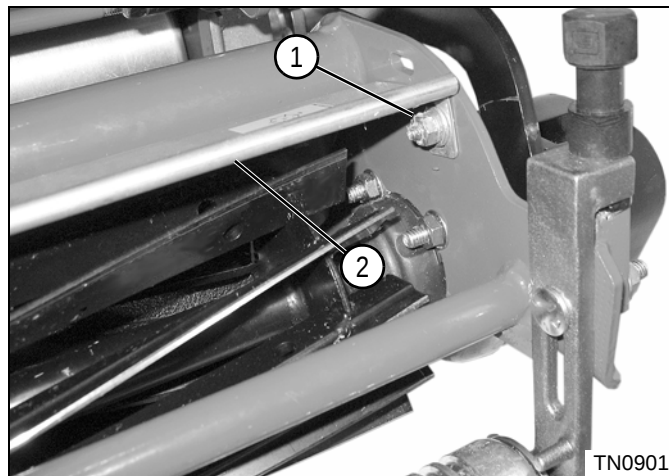


Figure 1-22

2. Loosen nut (1) on each end of grass shield (2) and adjust grass shield as close to reel blades as possible without making contact.
3. Tighten nut (1) on each end of grass shield.

Repair

Cutting Unit

Removal and Installation

Removal and installation of the cutting unit from the mower will vary, depending on the mower model. Refer to the technical manual for the mower being serviced.

Grass Shield

Removal and Installation

See Figure 1-23.

1. Park the mower safely. (Refer to "Park Mower Safely" in the Safety section of the appropriate mower manual.)

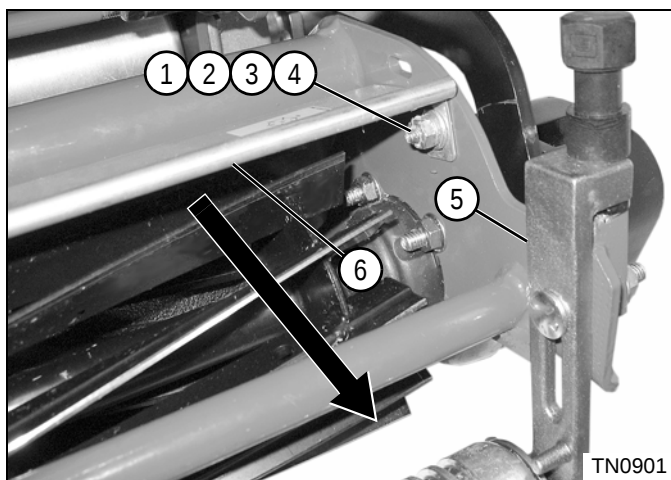


Figure 1-23

2. Remove the cutting unit front roller (5). (See "Front Roller" on page 1-44.)
3. Remove nut (1), lock washer (2), flat washer (3), and screw (4) from each side of mower.
4. Pull grass shield (6) forward and remove from mower.

Installation Note

Install grass shield by reversing the order of removal.

Bedknife Backing Assembly

Removal

See Figure 1-24.

1. Park the mower safely. (Refer to "Park Mower Safely" in the Safety section of the appropriate mower manual.)
2. Remove cutting unit from mower. (See "Cutting Unit" on page 1-33.)
3. Place cutting unit on a solid work surface.

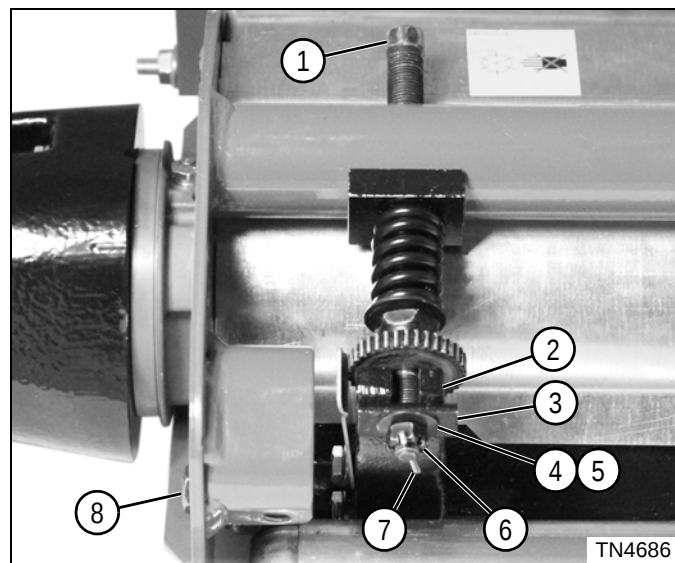


Figure 1-24

4. Turn bedknife adjustment rod (1) counterclockwise (as viewed from front of cutting unit) 1–2 turns to increase the bedknife-to-reel clearance. Repeat for other side of cutting unit.
5. Remove and discard cotter pin (7).
6. Remove slotted nut (6), shim washer (5) (if equipped), Belleville washer (4), and half trunnion (3).
7. Repeat steps 5 and 6 for other side of cutting unit.
8. Remove the bedknife backing mounting screw (8) on each side of cutting unit.
9. Remove bedknife backing assembly (2).

Installation

See Figure 1-25.

Required Materials
Anti-Seize Compound

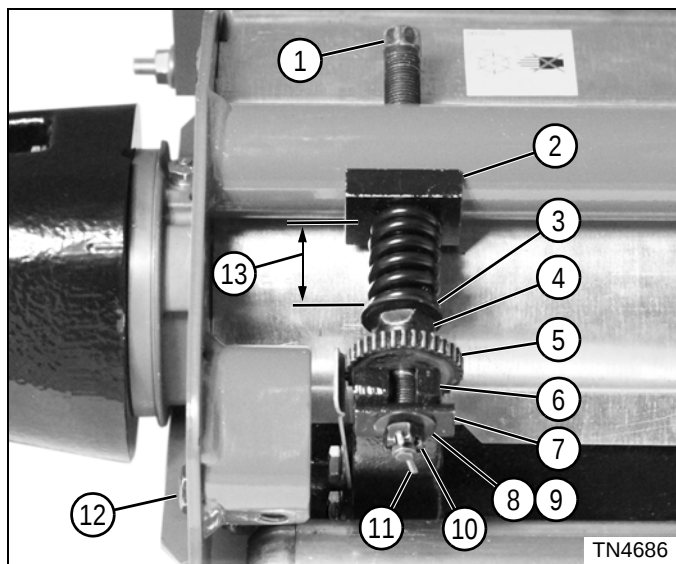


Figure 1-25

NOTES

- When installing bedknife backing assembly (6), do not use a metal hammer to force the bedknife adjustment rod (1) into the slot on the bedknife backing assembly.
 - Apply anti-seize compound to the threads of both bedknife backing mounting screws (12) prior to installation.
1. Lift the nut end of bedknife adjustment rod (1) to provide clearance for installing bedknife backing assembly (6), then install bedknife backing assembly and bedknife backing mounting screws (12). Position bedknife adjustment rod on each side of cutting unit in the slots on bedknife backing assembly.
 2. Turn bedknife adjustment rod (1) until bedknife adjustment gear (5) contacts the bedknife (6).
 3. Repeat step 2 for other side of cutting unit.

NOTE

The cupped side of the Belleville washer (8) should face the half trunnion (7) when installed.

4. Install half trunnion (7), Belleville washer (8), and shim washer (9) (if equipped).

NOTES

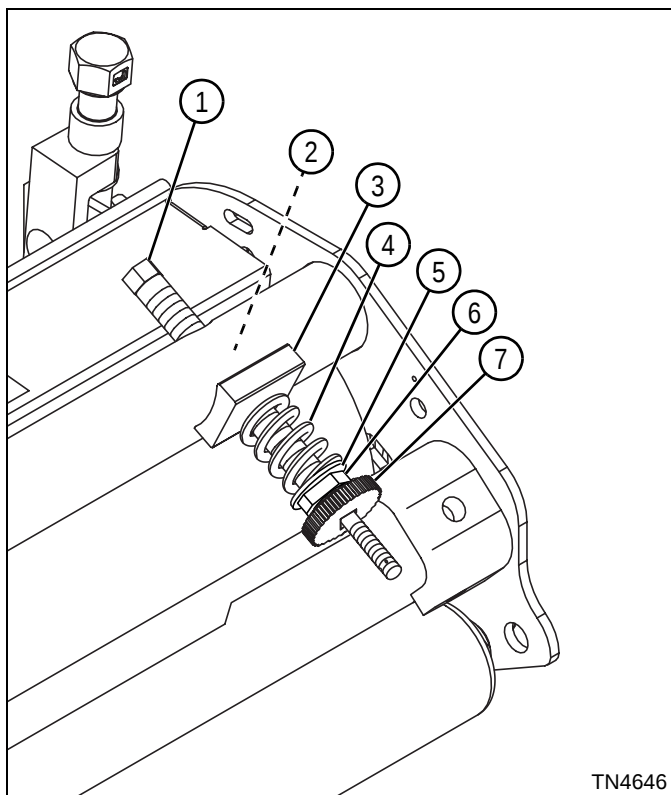
- Do not overtighten slotted nut (10) during installation. Overtightening the slotted nut will make it more difficult to turn the bedknife adjustment rod (1) during bedknife-to-reel adjustment.
 - When installing slotted nut, center the bedknife adjustment rod within the circular profile of the slot on the bedknife backing assembly and then hold the bedknife adjustment rod to prevent the bedknife adjustment rod from turning.
5. Thread slotted nut (10) onto bedknife adjustment rod (1) just enough to remove clearance between components (no end play). Tighten slotted nut (10) one full flat, then continue to tighten nut until hole in bedknife adjustment rod aligns with the next slot in slotted nut.
 6. Install, but do not bend, new cotter pin (11).
 7. Check force needed to turn adjuster. If turning bedknife adjustment rod is difficult, remove cotter pin and loosen nut until the hole in bedknife adjustment rod aligns with the next slot in slotted nut.
 8. **Check to ensure there is no end play in the components.** If there is no end play, reinstall cotter pin and proceed to step 9. If end play has been created, tighten slotted nut until hole in bedknife adjustment rod aligns with the next slot in slotted nut, then proceed to step 9.
 9. Bend cotter pin (11).
 10. Repeat steps steps 4 through 9 for other side of cutting unit.
 11. Hold bedknife adjustment rod (1) and turn jam nut (4) to achieve a distance (13) of 1.500 ± 0.060 in. (38.1 ± 1.5 mm) between inside of Belleville washer (3) and cradle (2) on each side of cutting unit.
 12. Adjust bedknife-to-reel clearance. (See "Bedknife-to-Reel Clearance Adjustment" on page 1-28.)
 13. Install cutting unit to mower. (See "Cutting Unit" on page 1-33.)

Bedknife Adjustment Assembly

Disassembly

See Figure 1-26.

1. Park the mower safely. (Refer to "Park Mower Safely" in the Safety section of the appropriate mower manual.)
2. Remove cutting unit from mower. (See "Cutting Unit" on page 1-33.)
3. Place cutting unit on a solid work surface.
4. Remove bedknife backing assembly. (See "Bedknife Backing Assembly" on page 1-33.)
5. Turn bedknife adjustment rod (1) clockwise (as viewed from front of cutting unit) enough to remove preload from compression spring (4).
6. Hold bedknife adjustment rod (1) in position and remove jam nut (6), bedknife adjustment gear (7), Belleville washer (5), compression spring (4), and cradle (3).
7. Remove bedknife adjustment rod (1) and internal trunnion (2).
8. Repeat steps 5 through 7 for other side of cutting unit.



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Figure 1-26

NOTE

Bedknife adjustment rod (1) is threaded through internal trunnion (2), located inside the reel frame weldment tube.

5. Turn bedknife adjustment rod (1) clockwise (as viewed from front of cutting unit) enough to remove preload from compression spring (4).

NOTE

The bedknife adjustment gear (7) is press fit on the bedknife adjustment rod (1). Removing jam nut (6) will assist bedknife adjustment gear removal.

Assembly

See Figure 1-27.

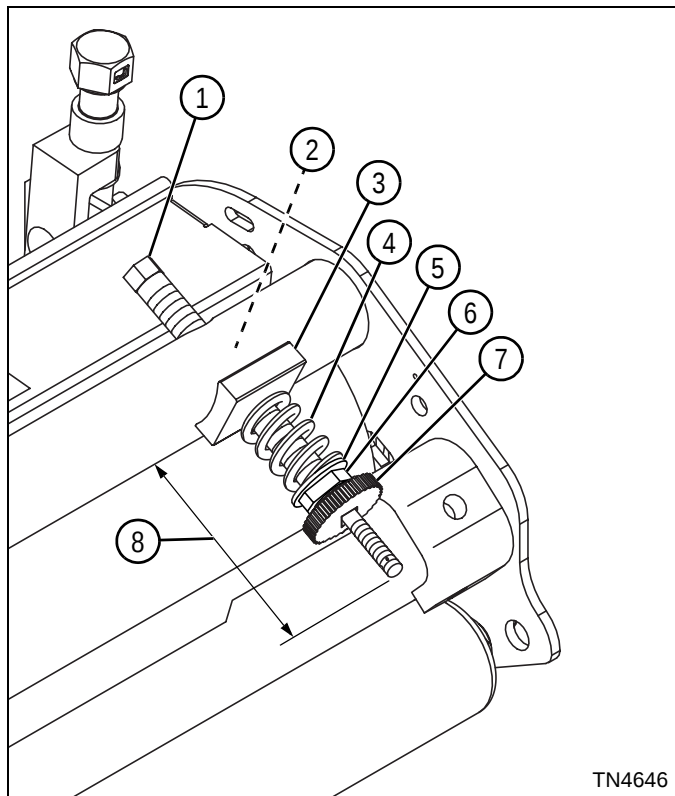


Figure 1-27

1. Install bedknife adjustment rod (1) and internal trunnion (2).
2. Adjust bedknife adjustment rod (1) to achieve an initial distance (8) of 4.00 in. (101.6 mm) between frame tube and threaded end of bedknife adjustment rod.
3. Install cradle (3) with slot facing down.
4. Install compression spring (4) and engage spring leg in slot on cradle.

NOTE

The cupped side of the Belleville washer (5) should face the compression spring (4) when installed.

5. Install Belleville washer (5).
6. Install jam nut (6).
7. While holding bedknife adjustment rod (1) to maintain distance (8), adjust jam nut (6) until flat on shoulder of bedknife adjustment rod is flush with face of jam nut.
8. Turn bedknife adjustment rod (1) until compression spring (4) is nearly collapsed.

NOTE

Use the slotted nut, previously removed, and 5/16 in. (8 mm) flat washers stacked to approximately 0.5 in. (12.7 mm) to press the bedknife adjustment gear (7) on the bedknife adjustment rod (1) during installation. (See "Bedknife Backing Assembly" on page 1-33.)

9. Install bedknife adjustment gear (7) with embossed ring on bedknife adjustment gear facing toward compression spring (4). Be sure bedknife adjustment gear is positioned against the shoulder of the bedknife adjustment rod (1).
10. Repeat steps 1 through 9 for other side of cutting unit.
11. Install bedknife backing assembly. (See Bedknife Backing Assembly "Installation" on page 1-34.)
12. Adjust bedknife-to-reel clearance. (See "Bedknife-to-Reel Clearance Adjustment" on page 1-28.)
13. Install cutting unit to mower. (See "Cutting Unit" on page 1-33.)

Bedknife

Removal and Installation

NOTE

This procedure is intended for use with machines equipped with standard fastener type bedknives. For machines equipped with an optional MAGKnife™ bedknife system, adjustments are similar, but the bedknife is secured to the bedknife backing by a series of magnets and aligned by dowel pins rather than being secured by screws.

See Figure 1-28.

1. Park the mower safely. (Refer to “Park Mower Safely” in the Safety section of the appropriate mower manual.)
2. Remove bedknife backing assembly. (See “Bedknife Backing Assembly” on page 1-33.)

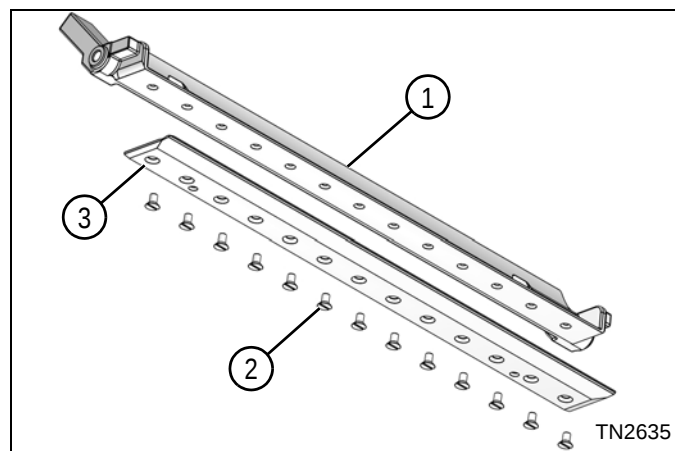


Figure 1-28

3. Remove thirteen screws (2) and bedknife (3) from the bedknife backing (1).

Installation Notes

Required Materials

Anti-Seize Compound

- Install bedknife by reversing the order of removal.
- Apply anti-seize compound to screws (2).
- Tighten screws (2) to 90–120 lb-in. (10.2–13.6 N·m), starting with screws in the center and working out to the ends of the bedknife.
- Grind bedknife after assembling to bedknife backing as specified below for the specific bedknife installed:

Bedknife Specifications		
Bedknife Front Face Height (minimum)	in. (mm)	0.035 (0.9)
Bedknife Front Face Angle (all bedknives)	degrees	5
Bedknife Top Face Angle (rear relief) (all bedknives except Super Tournament and Championship)	degrees	8–10
Super Tournament and Championship Bedknife Top Face Angle (rear relief)	degrees	5–7

- Adjust bedknife-to-reel clearance. (See “Bedknife-to-Reel Clearance Adjustment” on page 1-28.)

Reel Bearing Housing Assembly

Removal and Installation—Drive Side

See Figures 1-29 through 1-32.

Required Tools or Equipment

- Bearing Assembly Tool (Jacobsen PN JAC5084)
- Reel Bearing Housing Puller (Jacobsen PN JAC5085)

1. Park the mower safely. (Refer to “Park Mower Safely” in the Safety section of the appropriate mower manual.)
2. Remove cutting unit from mower. (See “Cutting Unit” on page 1-33.)
3. Remove reel motor. The reel motor removal procedure will vary, depending on the mower model. Refer to the technical manual for the mower being serviced.
4. Remove front roller. (See “Front Roller” on page 1-44.)
5. Remove grass shield. (See “Grass Shield” on page 1-33.)

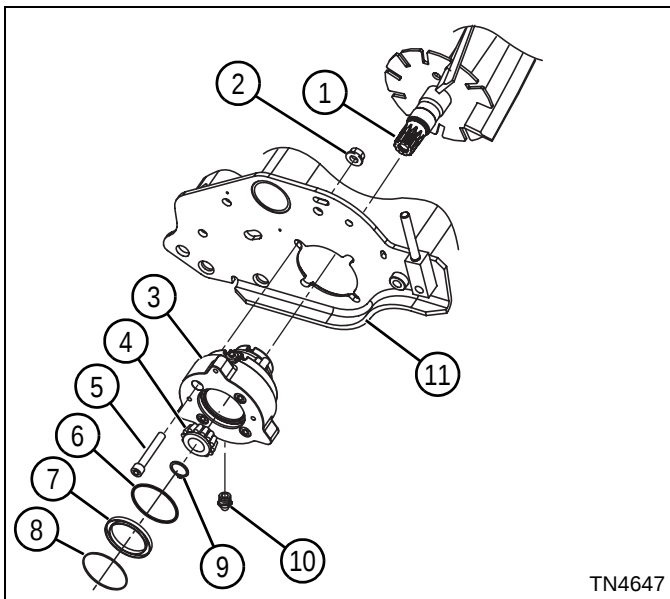


Figure 1-29

6. For Eclipse mower cutting units, remove large O-ring (6), small O-ring (8), and pilot adapter (7).
7. Remove snap ring (9).
8. Remove four screws (5) and nuts (2).

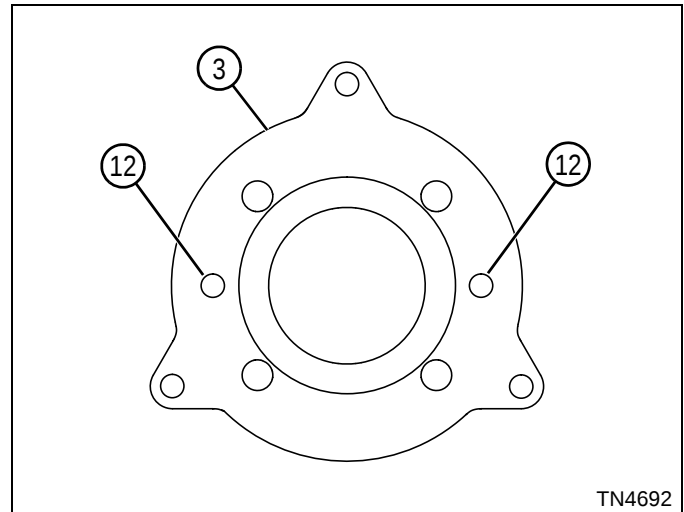


Figure 1-30: Eclipse

9. For Eclipse mower cutting units, disengage reel bearing housing (3) from frame (11) using two 5/16 - 18 x 2 1/2 screws threaded into holes (12). Then rotate reel bearing housing (3) to align grease fitting (10) with the clearance hole in the frame, and remove reel bearing housing. Proceed to step 11.

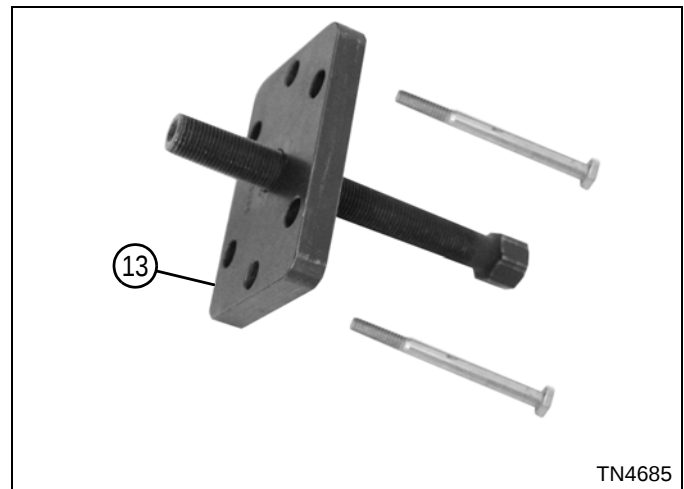


Figure 1-31

10. For all TrueSet™ reel mower cutting units except Eclipse mower cutting units, disengage reel bearing housing (3) from frame (11) using reel bearing housing puller (13) (Jacobsen PN JAC5085). Then rotate reel bearing housing (3) to align grease fitting (10) with the clearance hole in the frame, and remove reel bearing housing.
11. Inspect the reel shaft (1) for wear or damage. Replace reel if needed. (See “Reel Assembly” on page 1-43.)

Installation Notes

- *Install reel bearing housing assembly by reversing the order of removal.*

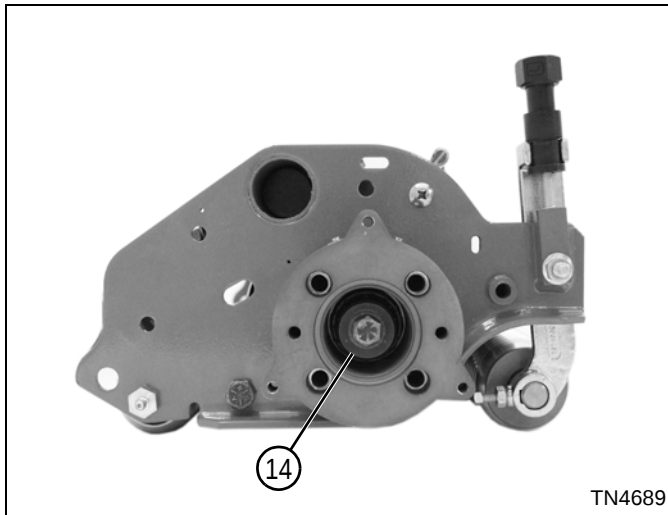
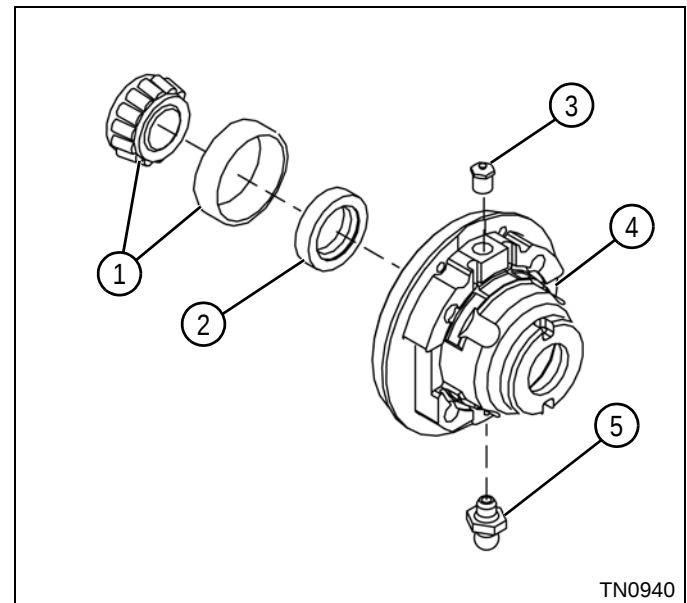


Figure 1-32

- *Use bearing assembly tool (14) (Jacobsen PN JAC5084) to install reel bearing onto the reel shaft.*
- *For Eclipse mower cutting units, install new O-rings (6 and 8) and lubricate with grease that meets or exceeds NLGI Grade 2 LB specifications.*
- *Inspect bearing (4) for wear or damage. Replace as needed.*
- *Pack bearing (4) with grease that meets or exceeds NLGI Grade 2 LB specifications before assembly.*
- *Lubricate grease fitting (10) with grease that meets or exceeds NLGI Grade 2 LB specifications. Clean grease fittings before lubricating and apply grease to the fittings with a hand grease gun only. Pump the gun slowly until a slight amount of pressure is felt, then stop—do not over-grease. Do not use compressed air gun.*

Disassembly and Assembly

See Figure 1-33.



- | | | | |
|---|----------------------|---|----------------------|
| 1 | Bearing Cup and Cone | 4 | Reel Bearing Housing |
| 2 | Grease Seal | 5 | Grease Fitting |
| 3 | Vent Fitting | | |

Figure 1-33

Assembly Notes

- *Install new grease seal (2).*
- *Inspect bearing cup and cone (1) for wear or damage. Replace as needed.*
- *Pack bearing (1) with grease that meets or exceeds NLGI Grade 2 LB specifications before assembly.*
- *Apply grease that meets or exceeds NLGI Grade 2 LB specifications to the lips of the grease seal (2).*

Removal—Non-Drive Side

See Figures 1-34 through 1-38.

Required Tools or Equipment

Reel Bearing Housing Puller (Jacobsen PN JAC5085)

1. Park the mower safely. (Refer to “Park Mower Safely” in the Safety section of the appropriate mower manual.)
2. Remove cutting unit from mower. (See “Cutting Unit” on page 1-33.)
3. Remove front roller. (See “Front Roller” on page 1-44.)
4. Remove grass shield. (See “Grass Shield” on page 1-33.)

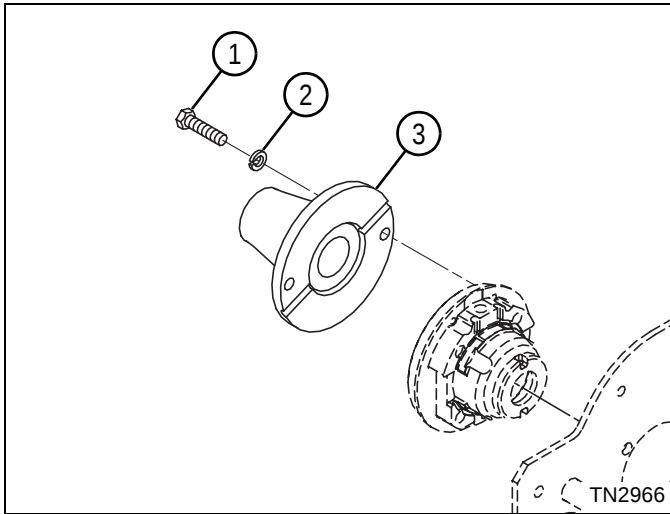


Figure 1-34: LF 550, SLF-1880, and GP400

5. For LF 550, SLF-1880, and GP400 mower cutting units, remove two screws (1), two lock washers (2), and counterweight (3).

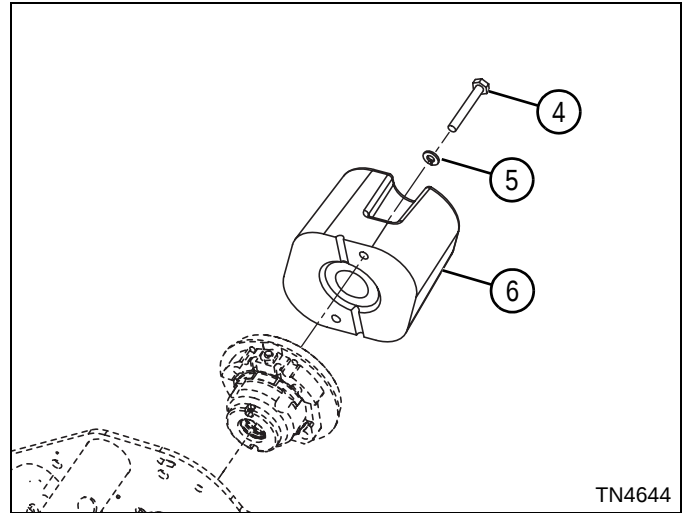


Figure 1-35: Eclipse

6. For Eclipse mower cutting units, remove two screws (4), two lock washers (5), and counterweight (6).

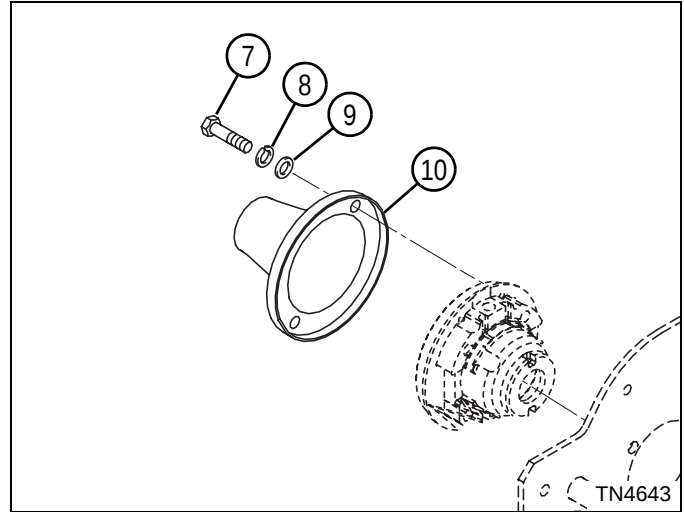


Figure 1-36: Greens King IV

7. For Greens King IV mower cutting units, remove two screws (7), two lock washers (8), two flat washers (9), and shaft cover (10).

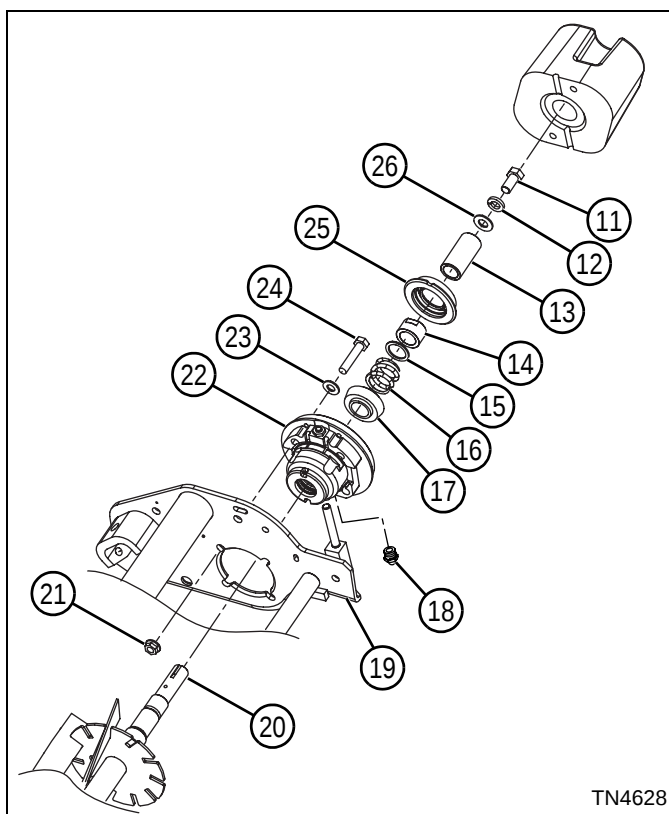


Figure 1-37

8. Remove screw (11), lock washer (12), flat washer (26), and spacer (13).
9. Remove four screws (24), washers (23), and nuts (21).
10. Remove seal (25).
11. Remove nut (14).
12. Remove washer (15) and spring (16).

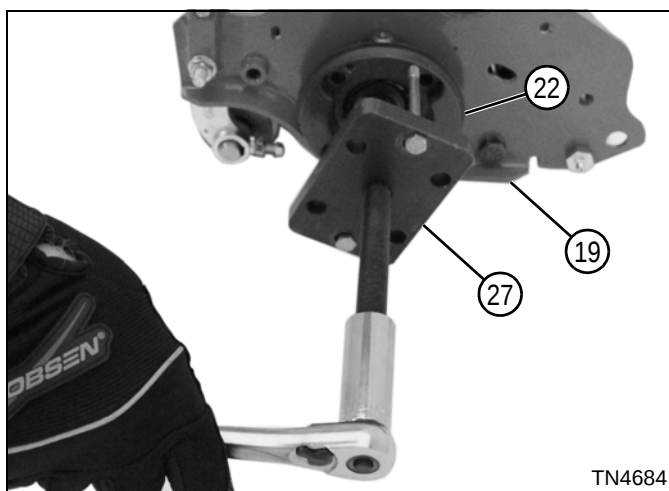


Figure 1-38

13. Disengage reel bearing housing (22) from frame (19) using reel bearing housing puller (27) (Jacobsen PN JAC5085). Then rotate reel bearing housing (22) to align grease fitting (18) with the clearance hole in the frame, and remove reel bearing housing.

14. Inspect reel shaft (20) for wear or damage. Replace reel if needed. (See "Reel Assembly" on page 1-43.)

Disassembly and Assembly

See Figure 1-39.

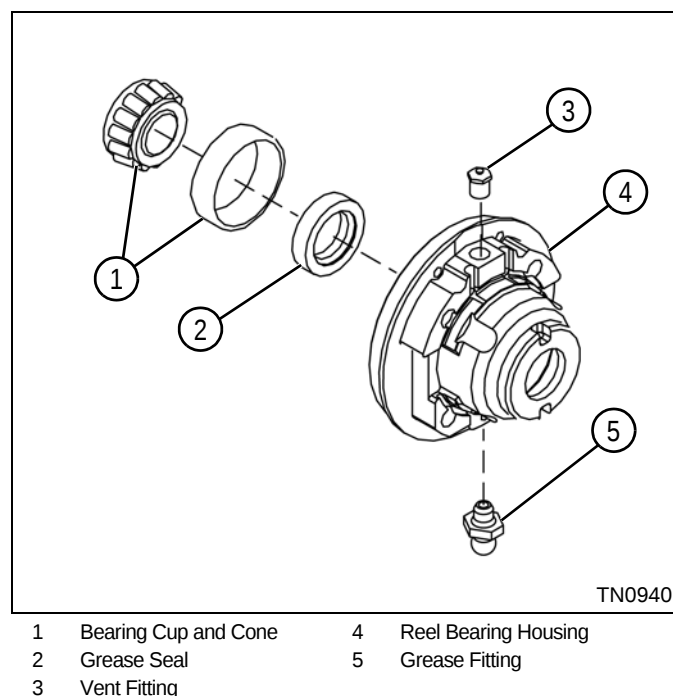


Figure 1-39

Assembly Notes

- Install new grease seal (2).
- Inspect bearing cup and cone (1) for wear or damage. Replace as needed.
- Pack bearing (1) with grease that meets or exceeds NLGI Grade 2 LB specifications before assembly.
- Apply grease that meets or exceeds NLGI Grade 2 LB specifications to the lips of the grease seal (2).

Installation—Non-Drive Side

See Figures 1-40 through 1-43.

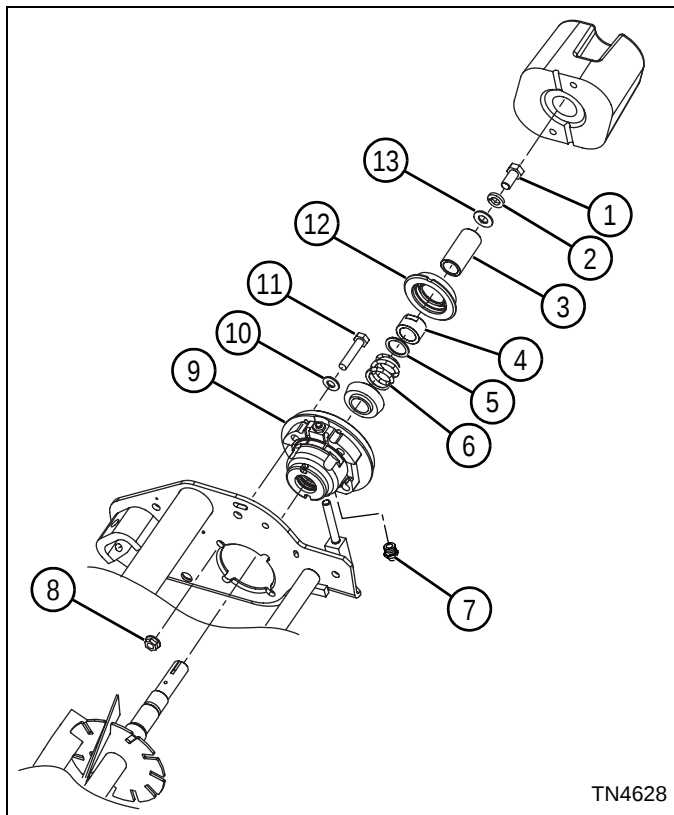


Figure 1-40

1. Install reel bearing housing assembly (9).
2. Install spring (6), washer (5), and nut (4).
3. Install seal (12) using screws (11), washers (10), and nuts (8).
4. Lubricate grease fitting (7) with grease that meets or exceeds NLGI Grade 2 LB specifications. Clean grease fittings before lubricating and apply grease to the fittings with a hand grease gun only. Pump the gun slowly until a slight amount of pressure is felt, then stop—do not over-grease. Do not use compressed air gun.
5. Adjust reel bearing pre-load. (See “Reel Bearing Pre-Load Adjustment” on page 1-30.)
6. Install spacer (3), washer (13), lock washer (2) and screw (1).
7. Adjust bedknife-to-reel clearance. (See “Height-of-Cut (HOC) Adjustment” on page 1-29.)

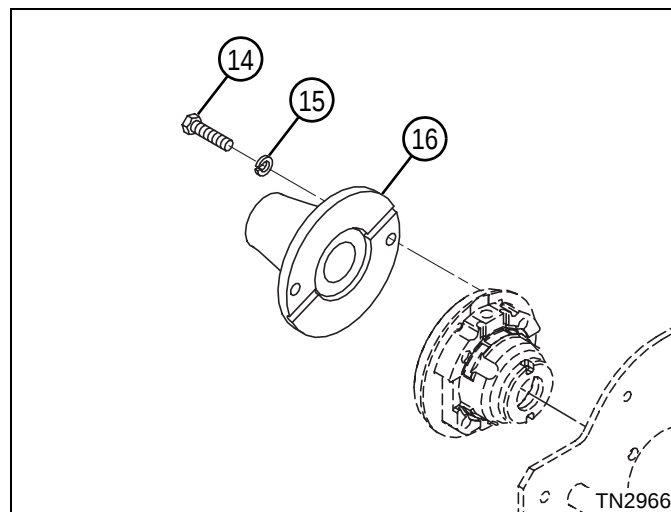


Figure 1-41: LF 550, SLF-1880, and GP400

8. For LF 550, SLF-1880, and GP400 mower cutting units, install counterweight (16), two lock washers (15), and two screws (14).

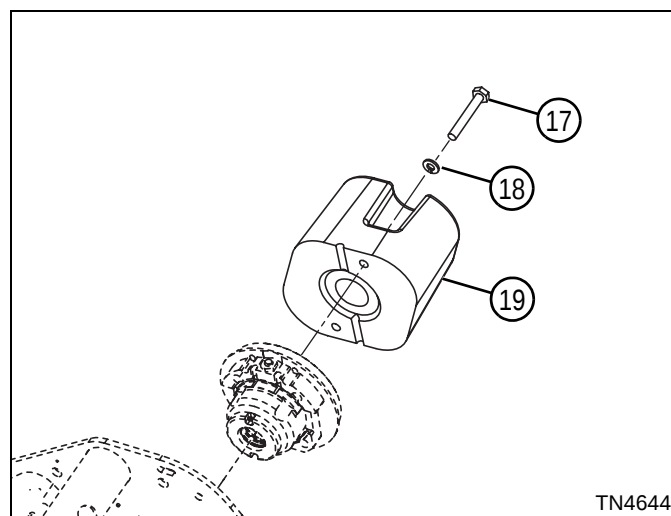


Figure 1-42: Eclipse

9. For Eclipse mower cutting units, install counterweight (19), two lock washers (18), and two screws (17).

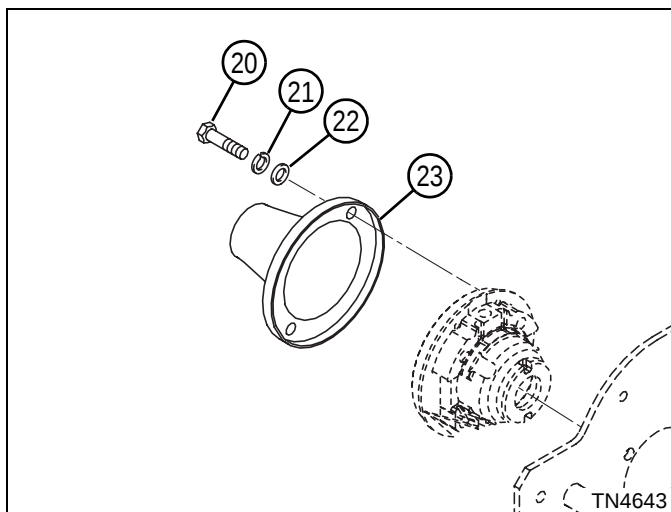


Figure 1-43: Greens King IV

10. For Greens King IV mower cutting units, install shaft cover (23), two flat washers (22), two lock washers (21), and two screws (20).
11. Install grass shield. (See "Grass Shield" on page 1-33.)
12. Install cutting unit front roller. (See "Front Roller" on page 1-44.)
13. Install cutting unit to mower. (See "Cutting Unit" on page 1-33.)

Reel Assembly

Removal and Installation

See Figure 1-44.

1. Park the mower safely. (Refer to "Park Mower Safely" in the Safety section of the appropriate mower manual.)
2. Remove cutting unit from mower. (See "Cutting Unit" on page 1-33.)
3. Remove bedknife backing assembly. (See "Bedknife Backing Assembly" on page 1-33.)
4. Remove front roller. (See "Front Roller" on page 1-44.)
5. Remove grass shield. (See "Grass Shield" on page 1-33.)
6. Remove drive side reel bearing housing assembly. (See "Reel Bearing Housing Assembly" on page 1-38.)
7. Remove non-drive side reel bearing housing assembly. (See "Reel Bearing Housing Assembly" on page 1-38.)

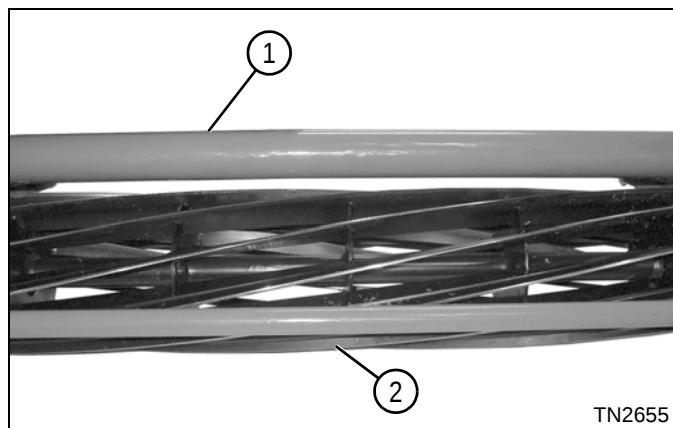


Figure 1-44



CAUTION

To prevent personal injury and damage to the cutting edges, handle the reel with extreme care.

8. Remove reel (2) from frame (1).

Installation Notes

- Install reel assembly by reversing the order of removal.
- Adjust reel bearing pre-load. (See "Reel Bearing Pre-Load Adjustment" on page 1-30.)
- Adjust grass shield. (See "Grass Shield Adjustment" on page 1-32.)
- Adjust bedknife-to-reel clearance. (See "Bedknife-to-Reel Clearance Adjustment" on page 1-28.)
- Check height-of-cut adjustment. (See "Height-of-Cut (HOC) Adjustment" on page 1-29.)
- Level cutting unit.

Front Roller

Removal and Installation

See Figure 1-45.

NOTE

Eclipse 322 mower cutting unit is shown. Other TrueSet™ reel mower cutting units are similar.

1. Park the mower safely. (Refer to "Park Mower Safely" in the Safety section of the appropriate mower manual.)
2. Remove cutting unit from mower. (See "Cutting Unit" on page 1-33.)
3. Raise cutting unit assembly with a suitable lifting device and support the cutting unit frame to remove weight from roller.

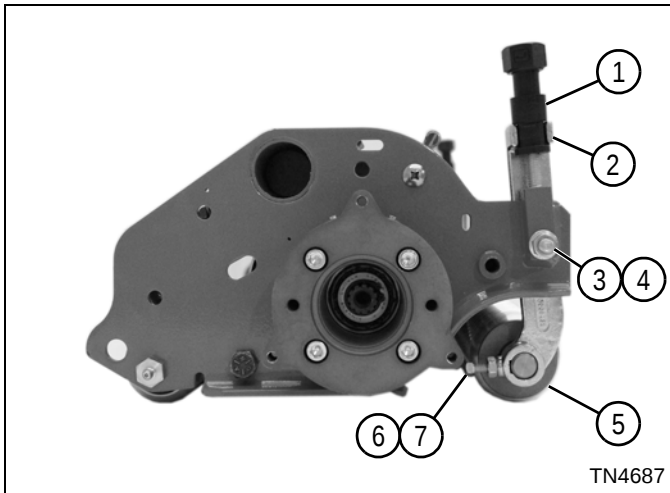


Figure 1-45

4. Remove nut (3) and screw (4).
5. Remove adjuster knob (1).
6. Remove adjuster bracket (2).
7. Repeat steps 4 through 6 for other side of cutting unit.
8. Remove front roller (5) from cutting unit.
9. Loosen jam nuts (6) and square head bolts (7) on both sides of front roller (5).
10. Remove front roller (5) from adjuster brackets (2).

Installation Notes

- Install front roller by reversing the order of removal.
- Center the roller between the adjuster brackets before tightening jam nuts and square head bolts.
- Align roller shaft flat with square head bolt before tightening bolts on each end of shaft.
- Check height-of-cut adjustment. (See "Height-of-Cut (HOC) Adjustment" on page 1-29.)

Rear Roller

Removal and Installation

See Figure 1-46.

NOTE

Eclipse 322 mower cutting unit is shown. Other TrueSet™ reel mower cutting units are similar.

1. Park the mower safely. (Refer to "Park Mower Safely" in the Safety section of the appropriate mower manual.)
2. Remove cutting unit from mower. (See "Cutting Unit" on page 1-33.)
3. Raise cutting unit assembly with a suitable lifting device and support the cutting unit frame to remove weight from roller.

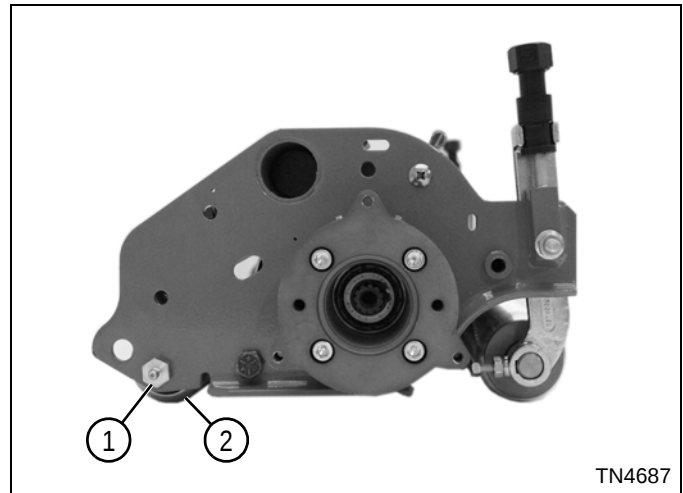


Figure 1-46

4. Remove screw with grease fitting (1) on both sides of rear roller (2).
5. Remove rear roller (2).

Installation Notes

- Install rear roller by reversing the order of removal.
- Lubricate grease fittings with grease that meets or exceeds NLGI Grade 2 LB specifications. Clean grease fittings before lubricating and apply grease to the fittings with a hand grease gun only. Pump the gun slowly until a slight amount of pressure is felt, then stop—do not over-grease. Do not use compressed air gun.

Roller Bearings

Removal

See Figure 1-47.

1. Park the mower safely. (Refer to "Park Mower Safely" in the Safety section of the appropriate mower manual.)
2. Remove roller. (See "Front Roller" on page 1-44 or "Rear Roller" on page 1-44.)

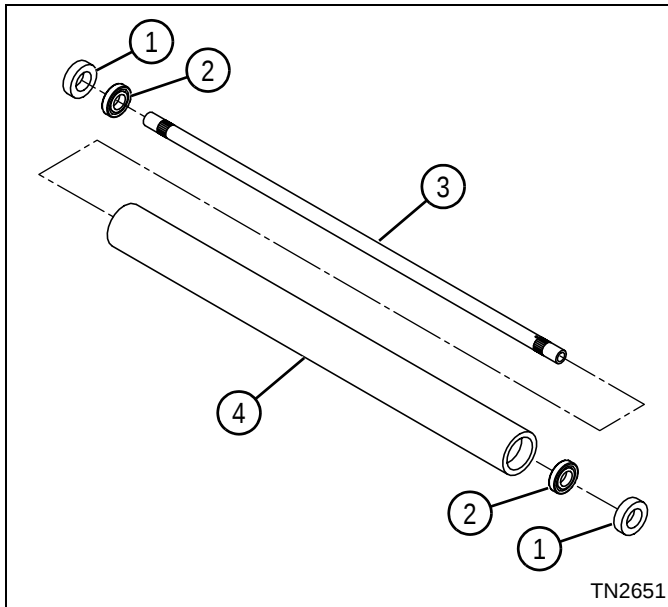


Figure 1-47

3. Support one end of roller (4). Using a suitable hammer, drive the bearing (2) and seal (1) out of roller by tapping opposite end of shaft (3).
4. Remove bearing (2) and seal (1) from shaft (3).
5. Repeat steps 3 and 4 for other end of roller.

Installation

NOTES

- Pack bearings (2) with grease that meets or exceeds NLGI Grade 2 LB specifications before installation.
 - Apply grease that meets or exceeds NLGI Grade 2 LB specifications to the lips of the seals (1).
1. Press one bearing (2) onto end of shaft (3) until it contacts the shoulder on the shaft.
 2. Install shaft and bearing assembly to roller (4) and press bearing into roller.
 3. Support bearing end of shaft and roller, and press the other bearing onto the opposite end of shaft until it contacts the shoulder on the shaft.
 4. Install seals (1).

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