MacDon

R1 Series
Rotary Disc Pull-Type

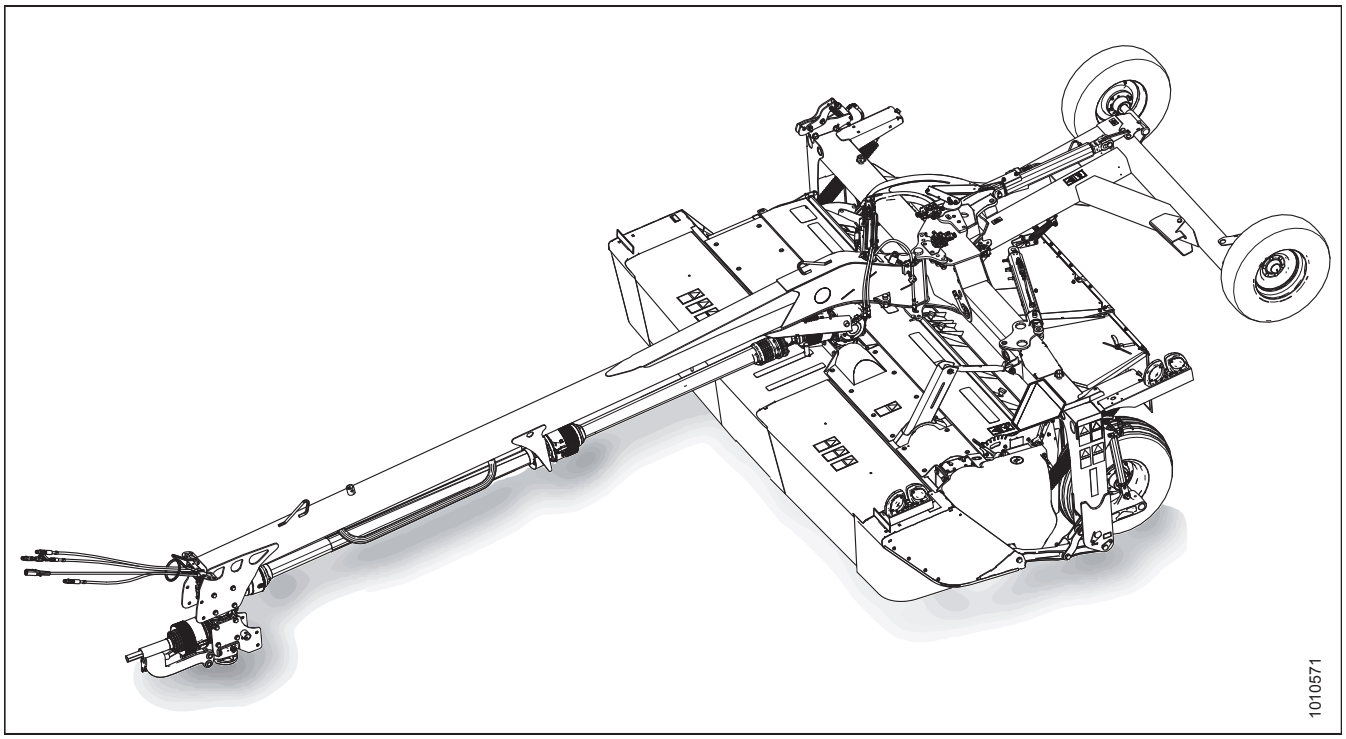
Quick Change Blade Kit for Quick Change Ready Discs (MD #257135 and 257136) Installation Instructions

214597 Revision C

Original Instruction

The Harvesting Specialists.

R1 Series Rotary Disc Pull-Type



Published June 2021

Introduction

This document explains how to install the Quick Change Blade kit on R1 Series headers equipped with quick change blade discs.

A list of parts included in the kit is provided in Chapter *2 Parts List, page 5*.

NOTE:

This kit is compatible with rotary disc pull-types equipped with quick change ready discs (B). Quick change ready discs are identified by the larger cut-out allowing access for the quick change blade tool.

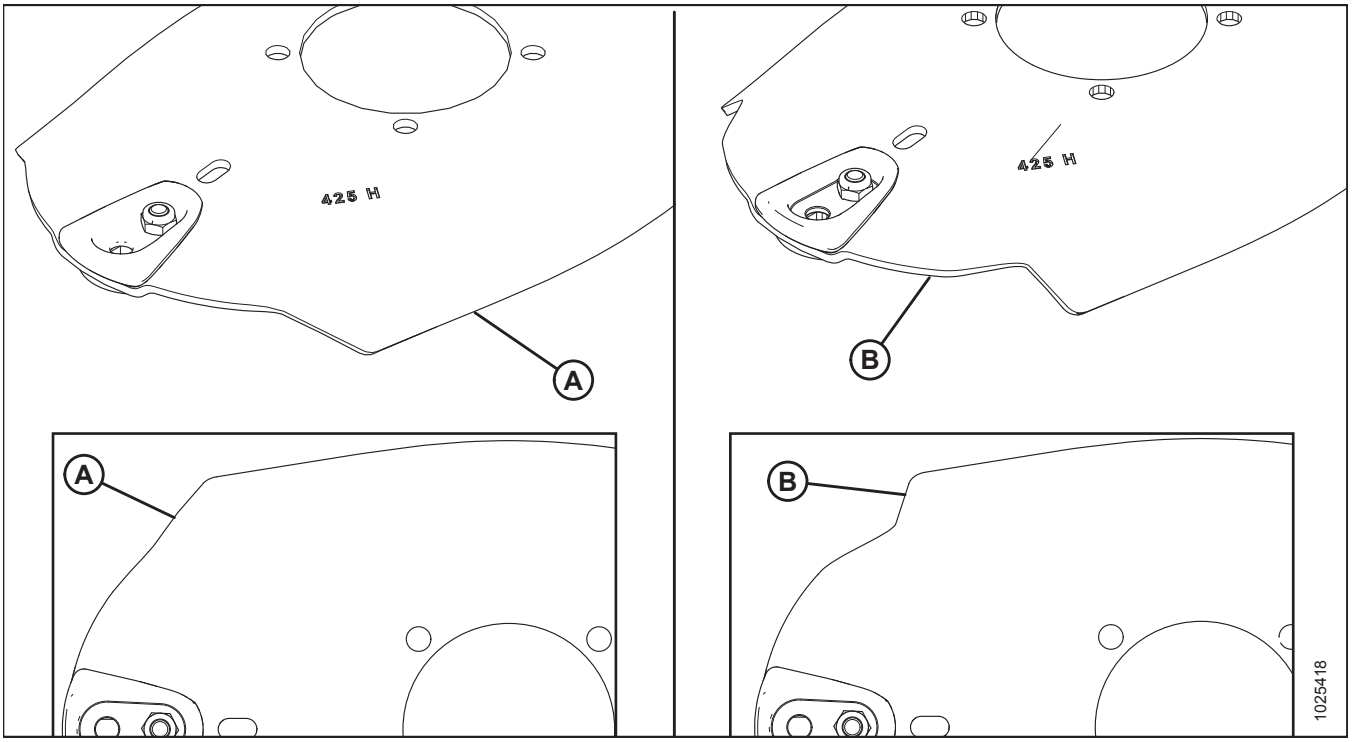


Figure 1: Standard Discs and Quick Change Blade Ready Discs

A - Standard Discs

B - Quick Change Blade Ready Discs

Installation Time

Installation time for this kit is approximately 3.5 hours depending if you have an 8- or 10-disc mower.

Conventions

The following conventions are used in this document:

- Right and left are determined from the operator's position. The front of the rotary disc pull-types is the side that faces the crop.
- Unless otherwise noted, use the standard torque values provided in the rotary disc pull-types operator's manual and technical manual.

NOTE:

Keep your MacDon publications up-to-date. The most current version of this instruction can be downloaded from our Dealer-only site (*https://portal.macdon.com*) (login required).

NOTE:

This document is available in English only.

Summary of Changes

At MacDon, we're continuously making improvements, and occasionally these improvements affect product documentation. The following list provides an account of major changes from the previous version of this document.

Section	Summary of Change	Internal Use Only
2 Parts List, page 5	Added clevis pin MD #281931 and hair pin MD #15380 to the parts list.	ECN 61233

Chapter 1: Safety

Understanding and following safety procedures consistently will help to ensure the safety of machine operators and bystanders.

1.1 Signal Words

Three signal words, **DANGER**, **WARNING**, and **CAUTION**, are used to alert you to hazardous situations. Two signal words, **IMPORTANT** and **NOTE**, identify non-safety related information.

Signal words are selected using the following guidelines:

DANGER

Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.

WARNING

Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury. It may also be used to alert against unsafe practices.

CAUTION

Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may be used to alert against unsafe practices.

IMPORTANT:

Indicates a situation that, if not avoided, could result in a malfunction or damage to the machine.

NOTE:

Provides additional information or advice.

1.2 General Safety

Protect yourself when assembling, operating, and servicing machinery.

CAUTION

The following general farm safety precautions should be part of your operating procedure for all types of machinery.

Wear all protective clothing and personal safety devices that could be necessary for the job at hand. Do **NOT** take chances. You may need the following:

- Hard hat
- Protective footwear with slip-resistant soles
- Protective glasses or goggles
- Heavy gloves
- Wet weather gear
- Respirator or filter mask

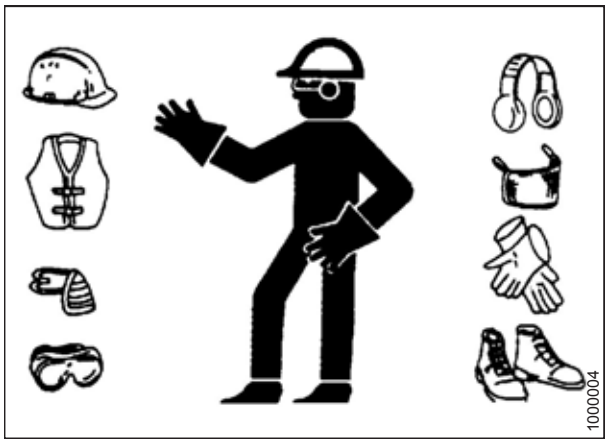


Figure 1.1: Safety Equipment

In addition, take the following precautions:

- Be aware that exposure to loud noises can cause hearing impairment or loss. Wear suitable hearing protection devices such as earmuffs or earplugs to help protect against loud noises.

Figure 1.2: Safety Equipment

- Provide a first aid kit in case of emergencies.
- Keep a properly maintained fire extinguisher on the machine. Familiarize yourself with its use.
- Keep young children away from machinery at all times.
- Be aware that accidents often happen when Operators are fatigued or in a hurry. Take time to consider the safest way to accomplish a task. **NEVER** ignore the signs of fatigue.

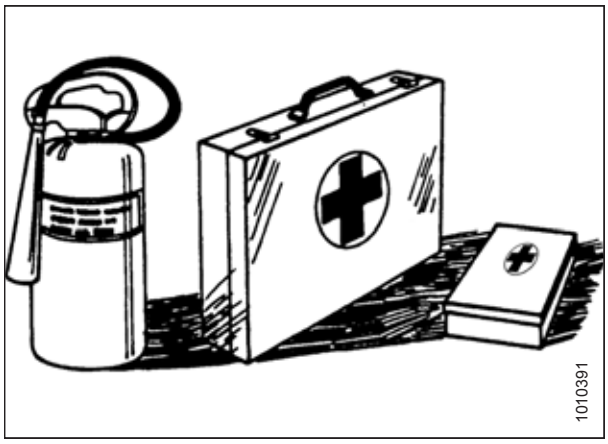


Figure 1.3: Safety Equipment

- Wear close-fitting clothing and cover long hair. **NEVER** wear dangling items such as scarves or bracelets.
- Keep all shields in place. **NEVER** alter or remove safety equipment. Ensure that the driveline guards can rotate independently of their shaft, and that they can telescope freely.
- Use only service and repair parts made or approved by the equipment manufacturer. Parts from other manufacturers may not meet the correct strength, design, or safety requirements.

Figure 1.4: Safety around Equipment

- Keep hands, feet, clothing, and hair away from moving parts. **NEVER** attempt to clear obstructions or objects from a machine while the engine is running.
- Do **NOT** modify the machine. Unauthorized modifications may impair the functionality and/or safety of the machine. It may also shorten the machine's service life.
- To avoid injury or death from the unexpected startup of the machine, **ALWAYS** stop the engine and remove the key from the ignition before leaving the operator's seat for any reason.

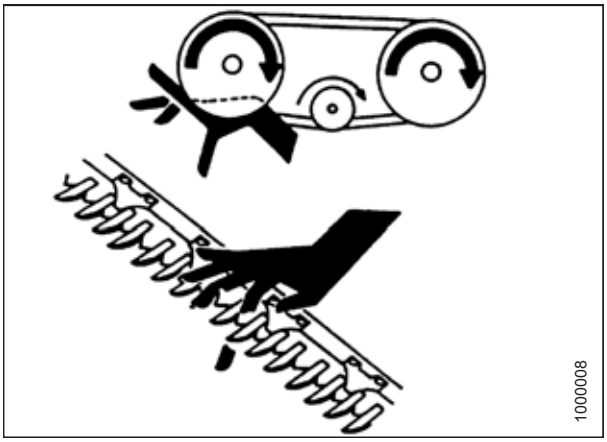


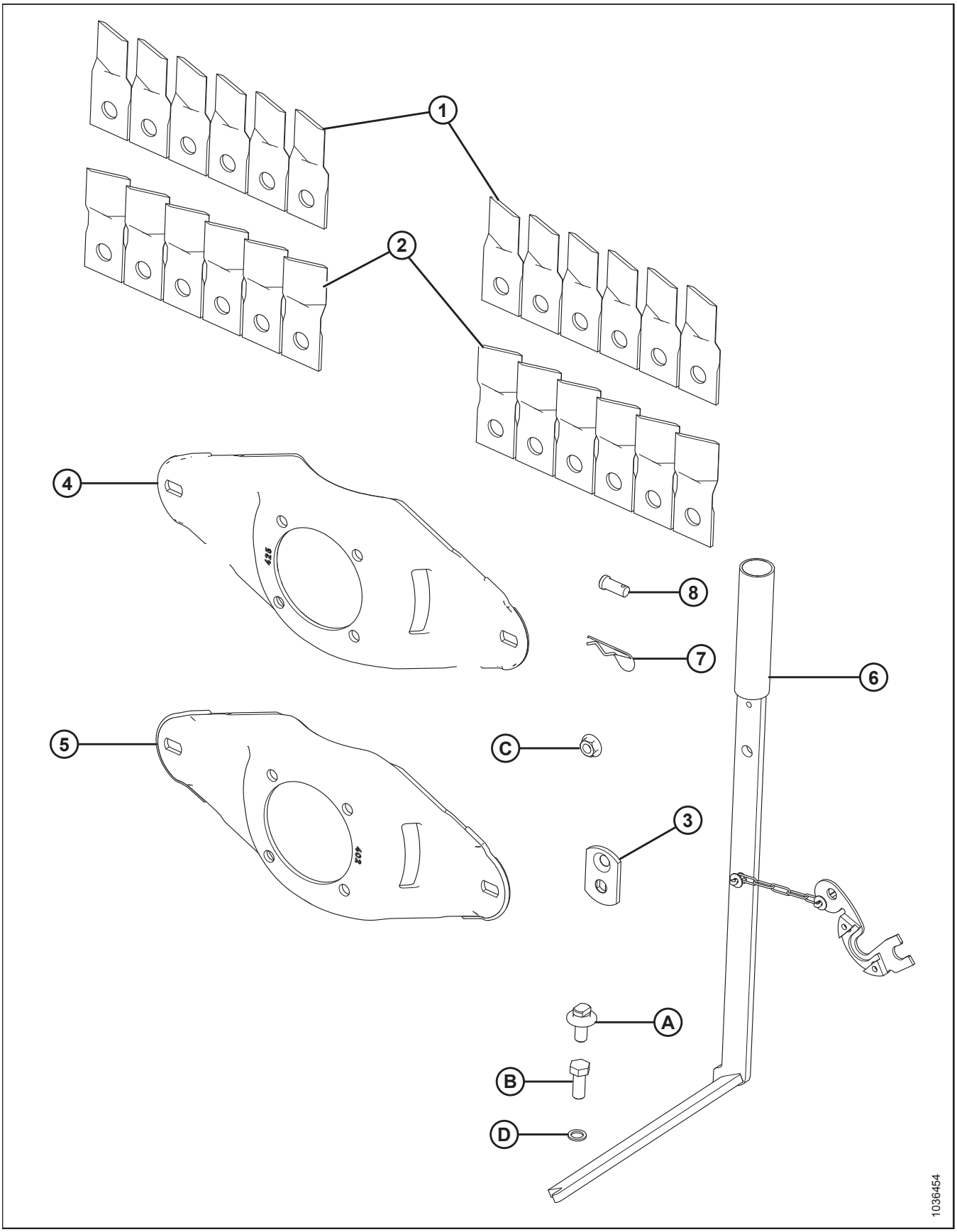
Figure 1.5: Safety around Equipment

- Keep the machine service area clean and dry. Wet and/or oily floors are slippery. Wet spots can be dangerous when working with electrical equipment. Ensure that all electrical outlets and tools are properly grounded.
- Keep the work area well-lit.
- Keep machinery clean. Straw and chaff on a hot engine are fire hazards. Do **NOT** allow oil or grease to accumulate on service platforms, ladders, or controls. Clean machines before they are stored.
- **NEVER** use gasoline, naphtha, or any volatile material for cleaning purposes. These materials may be toxic and/or flammable.
- When storing machinery, cover any sharp or extending components to prevent injury from accidental contact.

Figure 1.6: Safety around Equipment

Chapter 2: Parts List

A parts list is provided in this instruction so that you can confirm that you have received all required parts before you begin installation.


1
2
4
8
7
6
5
C
3
A
B
D
1036454

PARTS LIST

Ref	Part Number	Description	Qty	
			10 Disc	8 Disc
1	259200	BLADE – CCW 18° BEVEL DOWN QTY 6	2	2
2	259199	BLADE – CW 18° BEVEL DOWN QTY 6	2	2
3	246301	PLATE – BLADE, 5 MM	20	16
4	281364	PLATE – QUICK CHANGE, 425 MM	8	6
5	281365	PLATE – QUICK CHANGE, 402 MM (OUTSIDE DRUMS)	2	2
6	259112	TOOL – BLADE CHANGE ASSEMBLY	1	1
7	15380	PIN – HAIR	1	1
8	281931	PIN – CLEVIS 7/16 X 1	1	1
A	281363	BOLT – BLADE, QUICK CHANGE M12 X 1.75	20	16
B	30630	BOLT – HEX HD TFL M12 X 1.75 X 30-8.8-A3L	40	32
C	246300	NUT – BLADE	20	16
D	246952	WASHER – M12 LOCKING DISC	40	32

Chapter 3: Installation Instructions

To install the Quick Change Blade system, perform the following procedures in order.

3.1 Installing Quick Change Blade System on Driven Drums

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, stop engine, remove key, and engage lift cylinder lock-out valves before going under machine for any reason.

WARNING

Exercise caution when working around the blades. Blades are sharp and can cause serious injury. Wear gloves when handling blades.

NOTE:

The illustrations show the left side drum and driveline—the right side drum and driveline are similar.

NOTE:

There are two sizes of spring plates used with the Quick Change Blade system. The outboard drums use the 402 mm discs (MD #281365), and the inboard drums use the larger 425 mm discs (MD #281364).

1. Raise the rotary disc pull-type fully.
2. Shut down the engine, and remove the key from the ignition.
3. Engage the lift cylinder lock-out valves. Refer to your operator's or technical manual for instructions.
4. Open the cutterbar doors. Refer to the operator's manual for instructions.

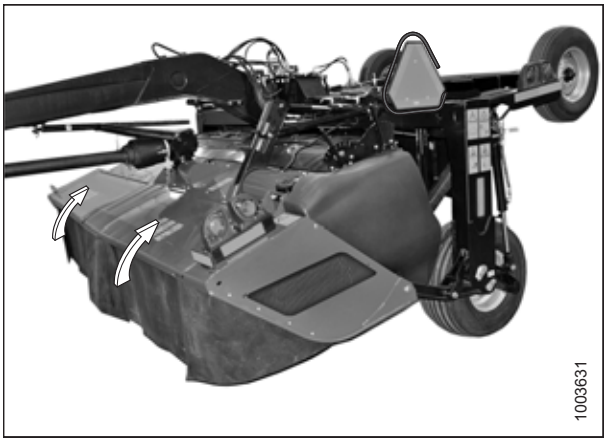


Figure 3.1: R113 Rotary Disc Pull-Type

5. Remove four M10 hex flange head bolts (A) and remove vertical driveshield (B).

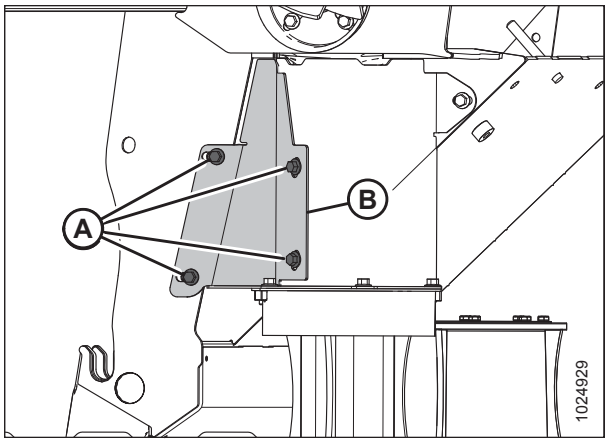


Figure 3.2: Driveline Shield

6. Remove two M10 hex flange head bolts (B) and cover plate (A).

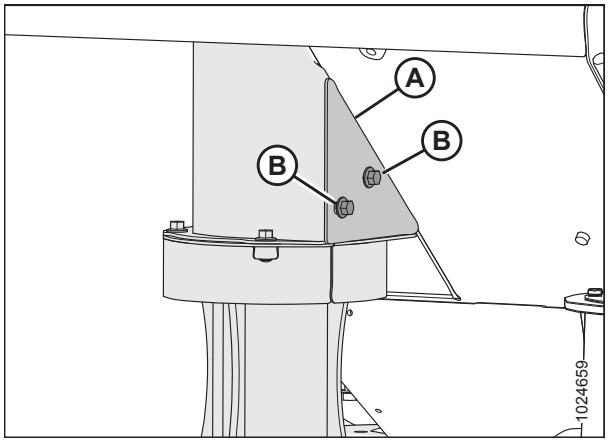


Figure 3.3: Driveline Shield

7. Remove four M10 hex flange head bolts (A), top plate (B), and drum top (C).

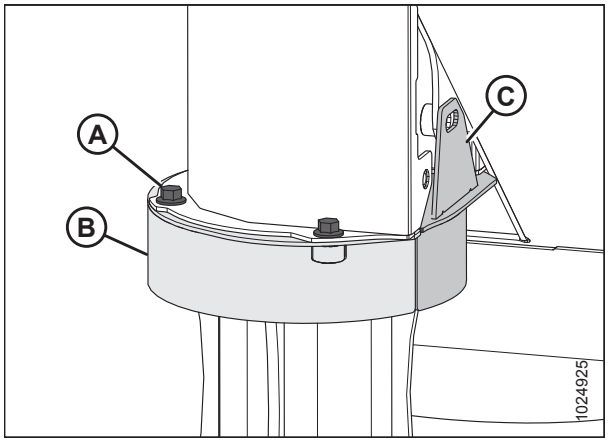


Figure 3.4: Driveline Shield

8. Remove one 20 mm M10 hex flange head bolt (B), two 16 mm M10 hex flange head bolts (C), and vertical shield (A).

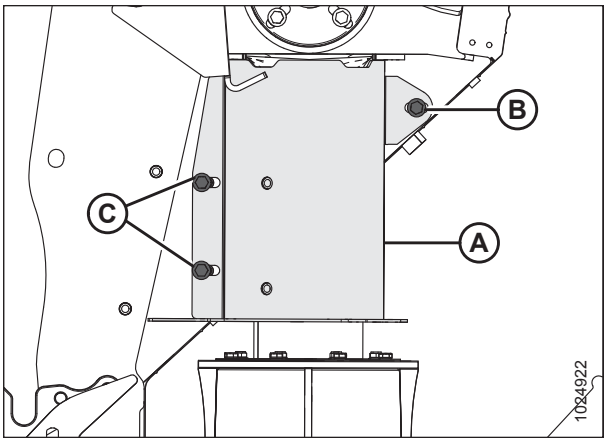


Figure 3.5: Driveline Shield

9. Remove eight M8 hex flange head bolts (A) and two drum shields (B).

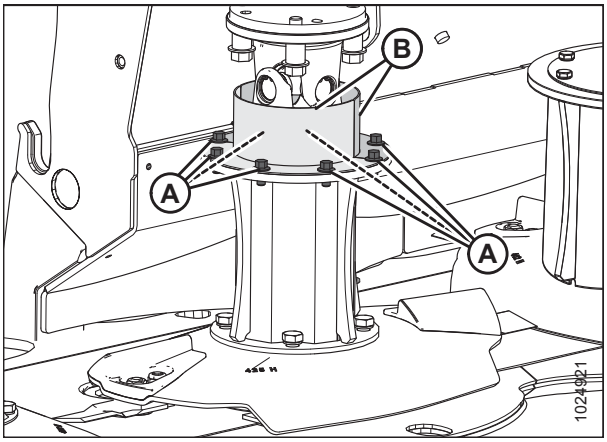


Figure 3.6: Driveline Shield

10. Remove four M12 hex flange head bolts and spacers (A) securing driveline assembly (B) to hub drive (C).

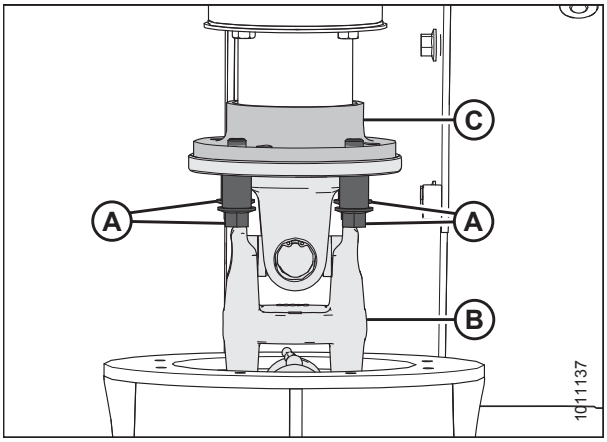


Figure 3.7: Hub Drive to Driveline Connection

11. Slide driveline (A) downwards, tilt it to the side, and pull the driveline up and out of drum.

    NOTE:

    For clarity, the illustration shows a cutaway view of the drum and tube shield.

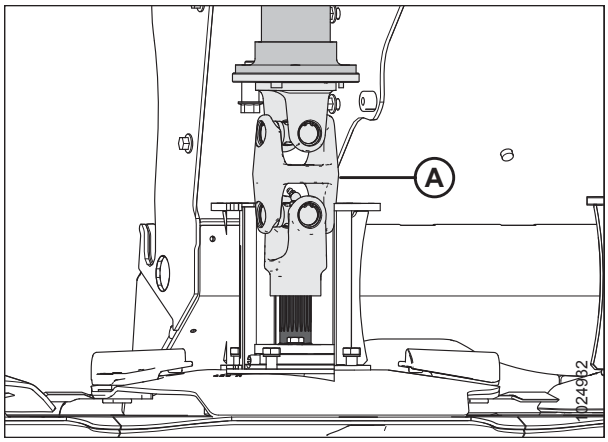


Figure 3.8: Hub Drive to Driveline Connection

12. Use an 18 mm deep socket to remove four M12 bolts and washers (A) holding the drum disc in place.
13. Remove drum disc assembly (B).

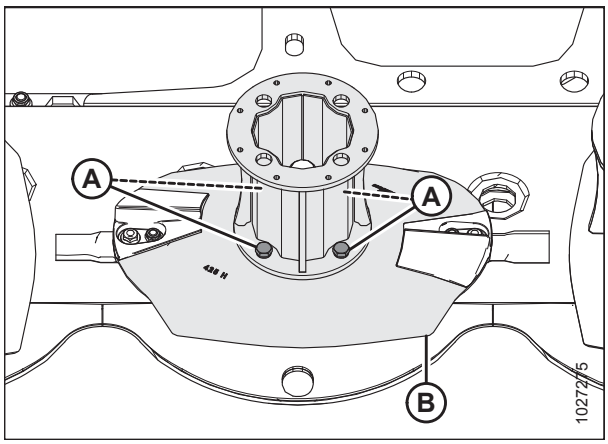


Figure 3.9: Driven Drum

14. Remove and discard spacer (A).

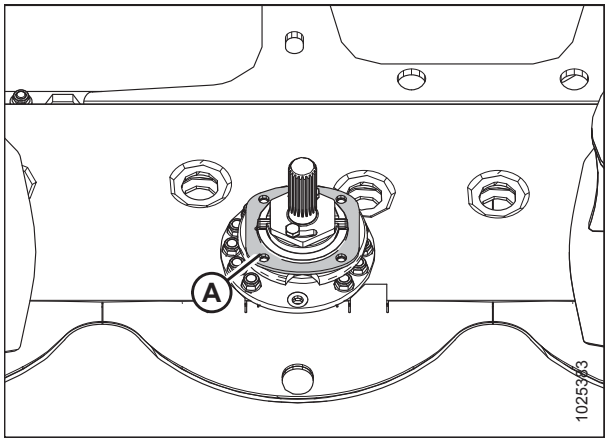


Figure 3.10: Disc Drum Spacer

15. Remove accelerator bolt (A), nut (B), and spacer (C) from the drum disc assembly. Discard spacer (C). Retain accelerator (D) and the hardware for reassembly.

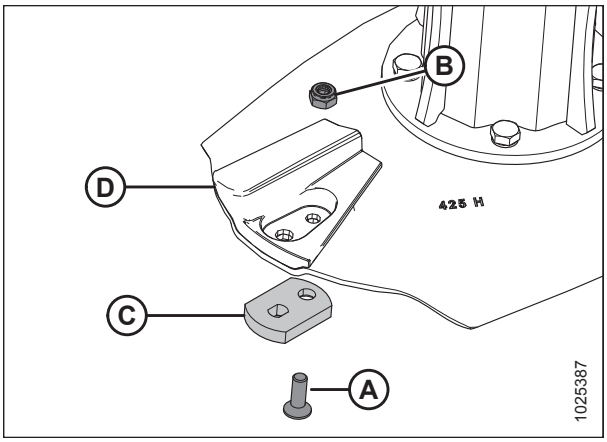


Figure 3.11: Accelerator Removal

16. Install new plate (A) (MD #246301) and retained accelerator (B) using retained accelerator nut and bolt (C). Torque nut (C) to 58 Nm (43 lbf·ft).
17. Install blade bolt (D) (MD #281363) and blade nut (E) (MD #246300) supplied with the kit. Torque the nut to 118–132 Nm (87–97 lbf·ft).

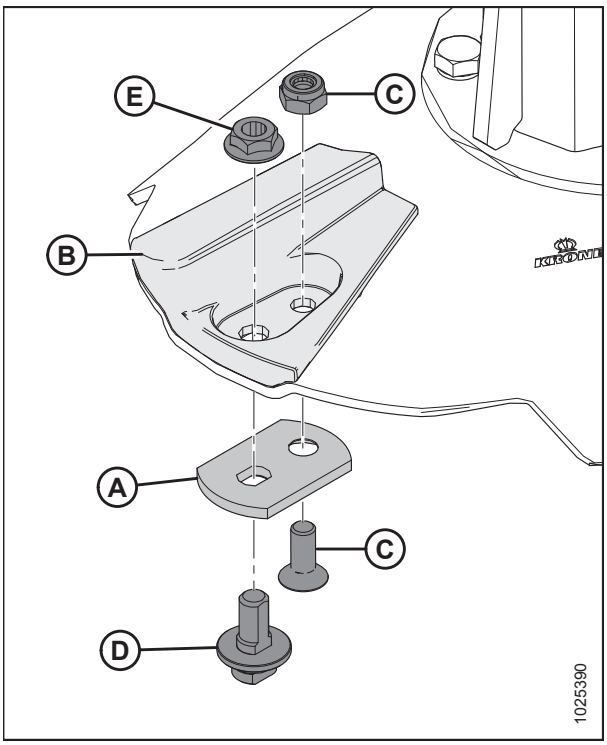


Figure 3.12: Quick Change Blade Bolt

18. Install new quick change plate (A) (MD #281364) over spindle (B).

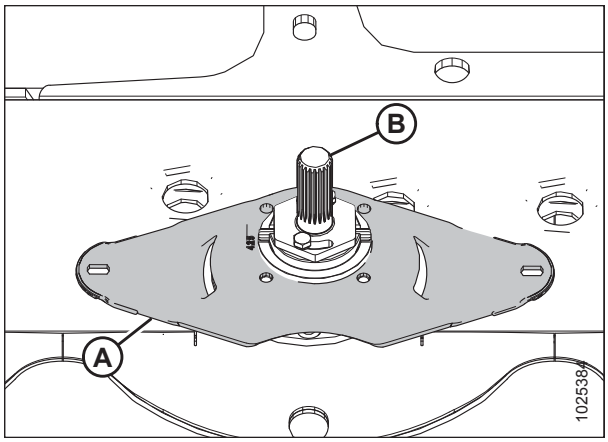


Figure 3.13: Quick Change Plate on Spindle

19. Using four new M12 disc cover bolts (A) (MD #30630) and locking disc washer (B) (MD #246952), attach drum assembly (C) to quick change plate (D) and spindle (E). Torque the bolts to 85 Nm (63 lbf·ft).

    NOTE:

    Check that the new disc cover bolts (A) are used. They are longer than the discarded disc cover bolts.

    NOTE:

    Check that blade bolt (F) is aligned with the hole in quick change plate (D).

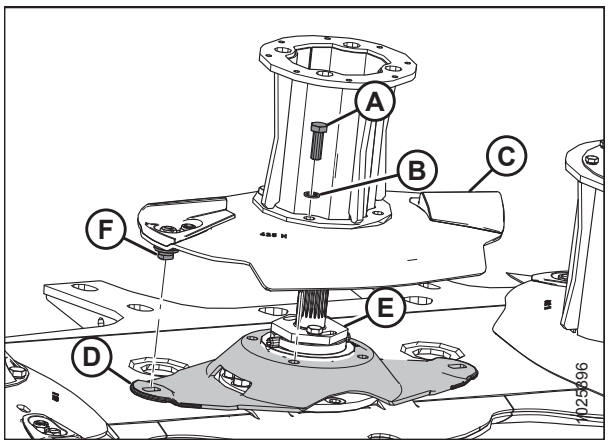


Figure 3.14: Attaching Driven Drum with Blade

20. Lubricate spindle splines (A). For lubricant specifications, refer to the header operator's manual or technical manual.

    NOTE:

    For clarity, the illustration shows a cutaway view of the drum and tube shield.

21. Insert driveline (B) at an angle and guide it past hub drive (C) and drum (D).

22. Insert splined spindle end (A) into the splined bore of driveline (B).

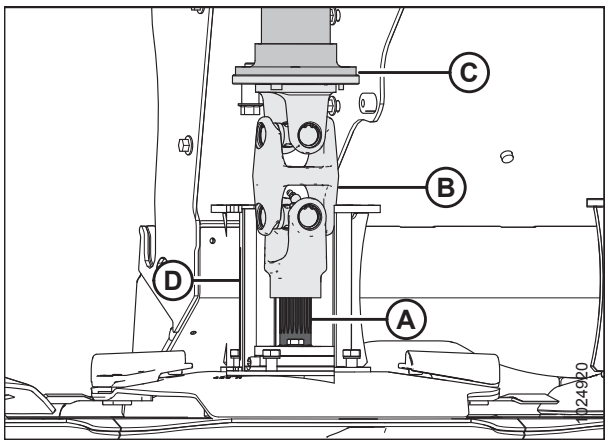


Figure 3.15: Hub Drive to Driveline Connection

23. Place a bead of medium-strength threadlocker (Loctite® 243 or equivalent) around the threads of four M12 hex flange head bolts (A). Use the bolts and spacers to secure driveline assembly (B) to hub drive (C). Torque the bolts to 102 Nm (75 lbf·ft).

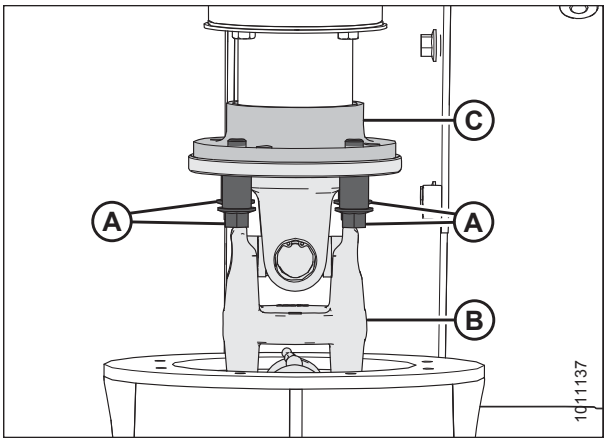


Figure 3.16: Hub Drive to Driveline Connection

24. Position two drum shields (B) as shown. Apply a bead of medium-strength threadlocker (Loctite® 243 or equivalent) around the threads of eight M8 hex flange head bolts (A). Use the bolts to secure the drum shields in place. Torque the hardware to 27 Nm (20 lbf·ft).

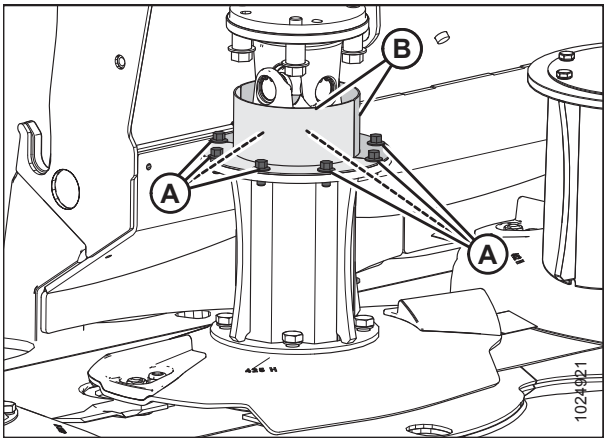


Figure 3.17: Driven Drum

25. Position vertical shield (A) as shown. Apply a bead of medium-strength threadlocker (Loctite® 243 or equivalent) around the threads of one M10 x 20 mm hex flange head bolt (B) and two M10 x 16 mm hex flange head bolts (C). Use bolts (B) and (C) to secure the vertical shield in place. Torque the hardware to 61 Nm (45 lbf·ft).

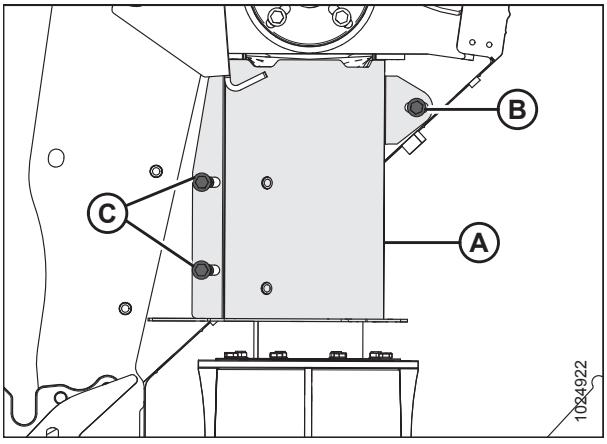


Figure 3.18: Driveline Shield

26. Position top plate (B) and drum top (C) onto the drum as shown. Apply a bead of medium-strength threadlocker (Loctite® 243 or equivalent) around the threads of four M10 hex flange head bolts (A). Use the bolts to secure the top plate and drum top in place. Torque the hardware to 61 Nm (45 lbf·ft).

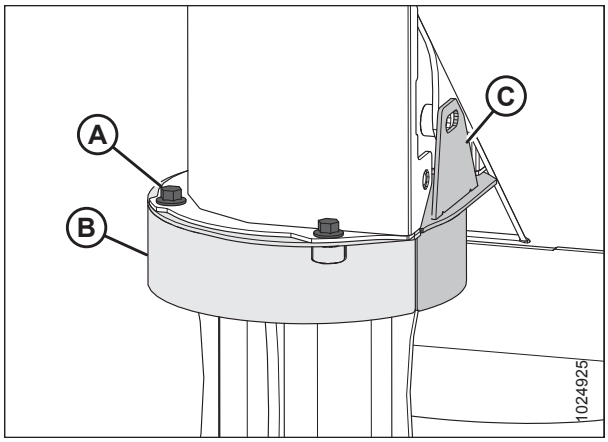


Figure 3.19: Driveline Shield

27. Apply a bead of medium-strength threadlocker (Loctite® 243 or equivalent) around the threads of M10 hex flange head bolt (B). Install bolt (B) through cover plate (A) and top plate (C). Torque the hardware to 61 Nm (45 lbf·ft).
28. Apply a bead of medium-strength threadlocker (Loctite® 243 or equivalent) around the threads of M10 hex flange head bolt (D). Install bolt (D) through cover plate (A) and vertical shield (E). Torque the hardware to 61 Nm (45 lbf·ft).
29. Tighten bolts (B) and (D).

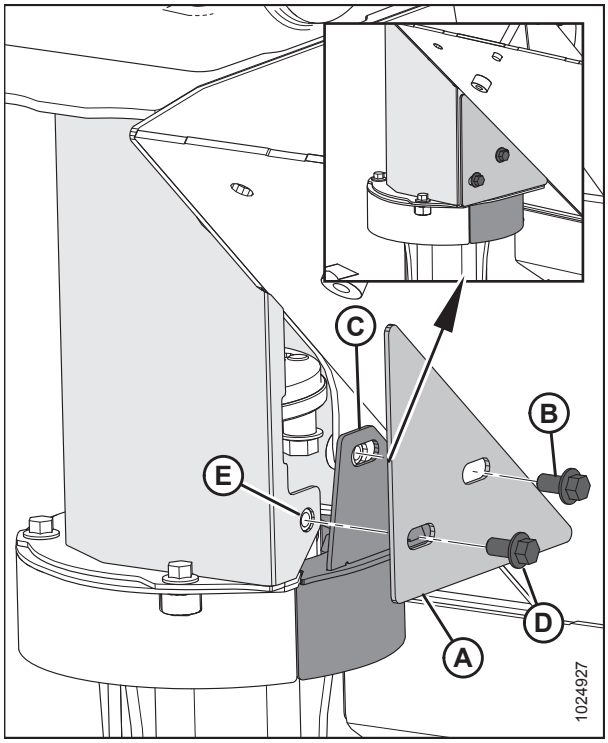


Figure 3.20: Driveline Shield

30. Position vertical driveshield (B) as shown at right. Apply a bead of medium-strength threadlocker (Loctite® 243 or equivalent) around the threads of four M10 hex flange head bolts (A). Use bolts (A) to secure vertical driveshield in place. Torque the hardware to 61 Nm (45 lbf·ft).

WARNING

Ensure the cutterbar is completely clear of foreign objects. Foreign objects can be ejected with considerable force when the machine is started and may result in serious injury or machine damage.

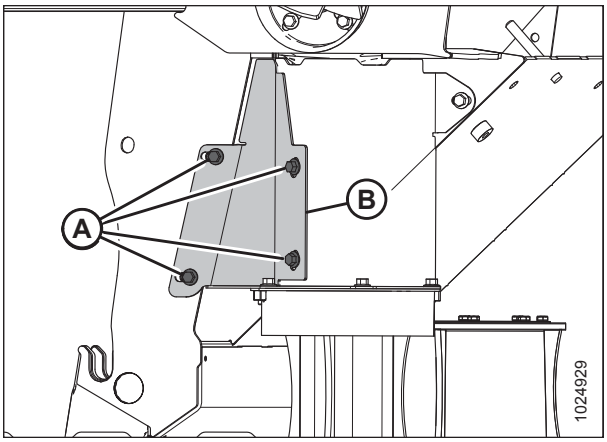


Figure 3.21: Driveline Shield

3.2 Installing Quick Change Blade System on Discs

Cutterbar discs are interchangeable and can be moved to a spindle that rotates in the opposite direction as long as it is in usable condition and the blades are oriented to cut in the correct direction.

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, stop engine, remove key, and engage lift cylinder lock-out valves before going under machine for any reason.

WARNING

Disc blades have two sharp cutting edges that can cause serious injury. Exercise caution and wear gloves when working with blades.

NOTE:

There are two sizes of spring plates used with the Quick Change Blade system. The outboard drums use the 402 mm discs (MD #281365), and the inboard drum use the larger 425 mm discs (MD #281364).

1. Raise the rotary disc pull-type fully.
2. Shut down the engine, and remove the key from the ignition.
3. Engage the lift cylinder lock-out valves. Refer to your operator's or technical manual for instructions.
4. Open the cutterbar doors. Refer to your operator's manual for instructions.

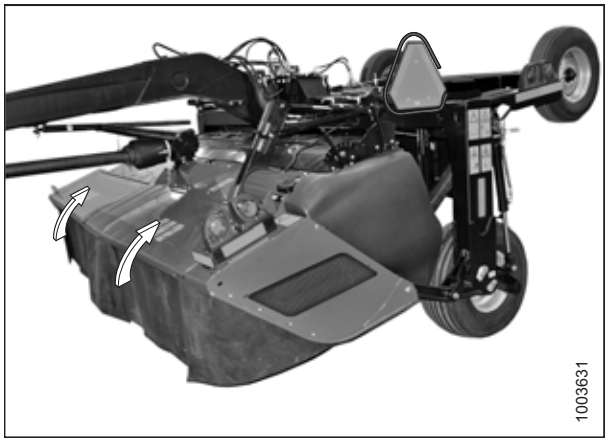


Figure 3.22: Rotary Disc Pull-Type

5. Place a pin (or equivalent) in front hole (B) of the rock guard to prevent disc rotation while loosening the bolts.
6. Remove four M12 bolts and washers (A).

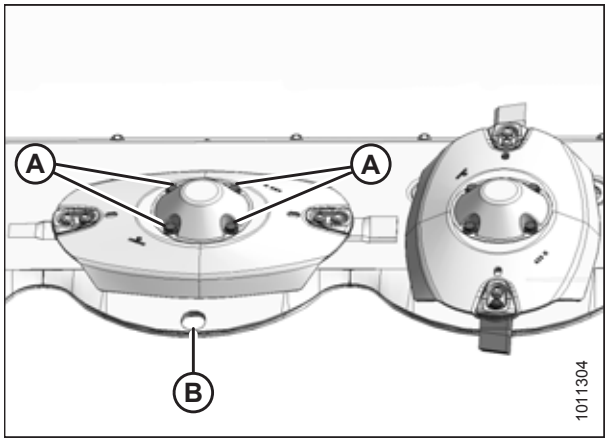


Figure 3.23: Cutterbar Disc Bolts

7. Remove cutterbar disc cap (A).
8. Remove cutterbar disc (B).

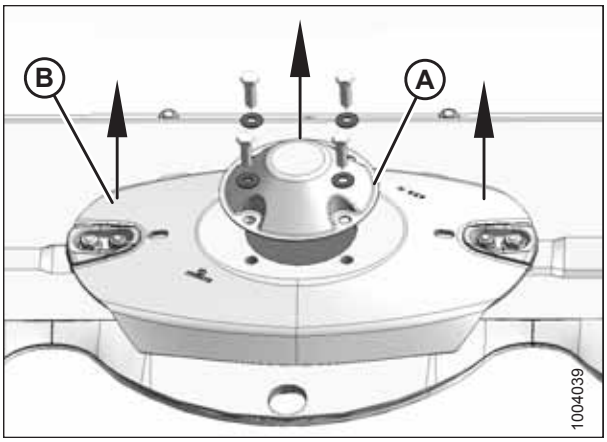


Figure 3.24: Cutterbar Disc and Cap

9. Remove and discard spacer (A).

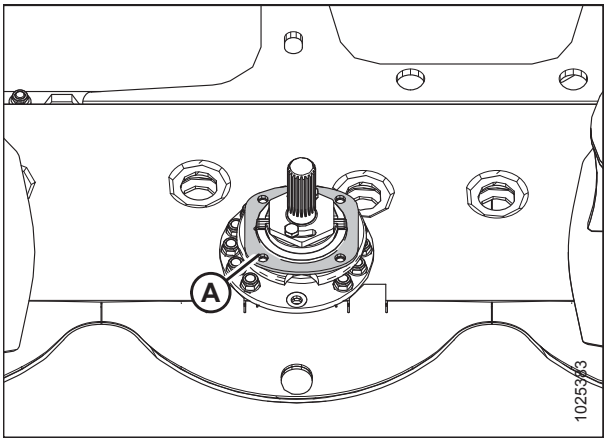


Figure 3.25: Disc Drum Spacer

10. Remove bolt (A), nut (B), disc guard (C), and 10 mm spacer (D) from the disc assembly. Retain the hardware and disc guard for reassembly. Discard the spacer.

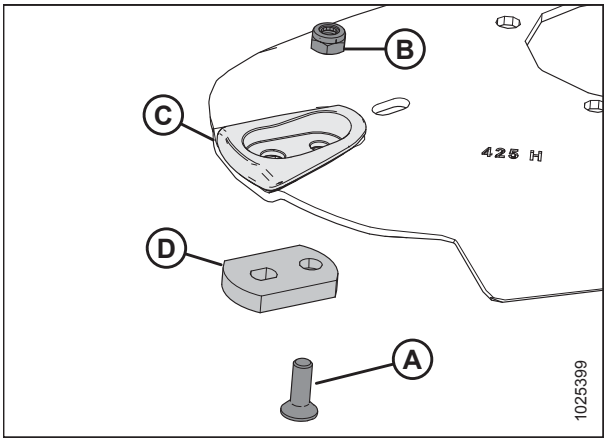


Figure 3.26: Blade Removal

11. Install new plate (A) (MD #246301) and retained disc guard (B) using retained accelerator nut and bolt (C). Torque nut (C) to 58 Nm (43 lbf·ft).
12. Install blade bolt (D) (MD #281363) and blade nut (E) (MD #246300) supplied with the kit. Torque the nut to 118–132 Nm (87–97 lbf·ft).

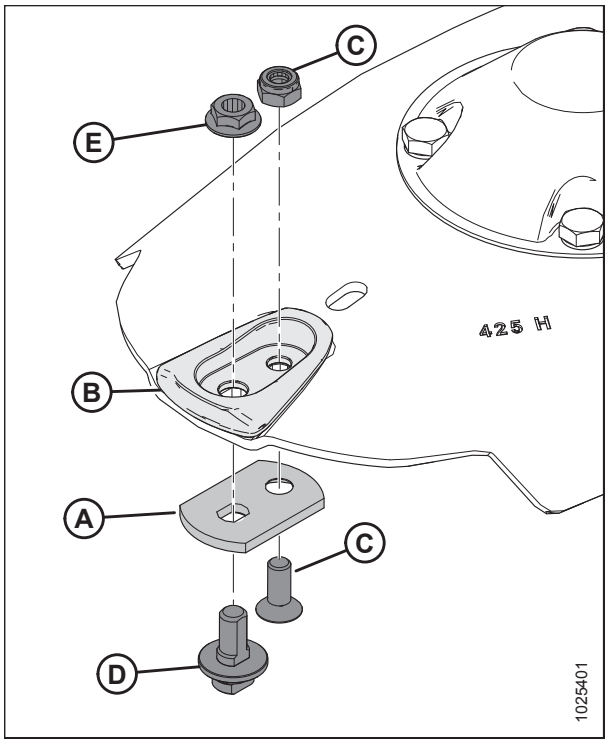


Figure 3.27: Quick Change Blade Bolt

13. Place quick change plate (A) (MD #281364) over cutterbar spindle (B).

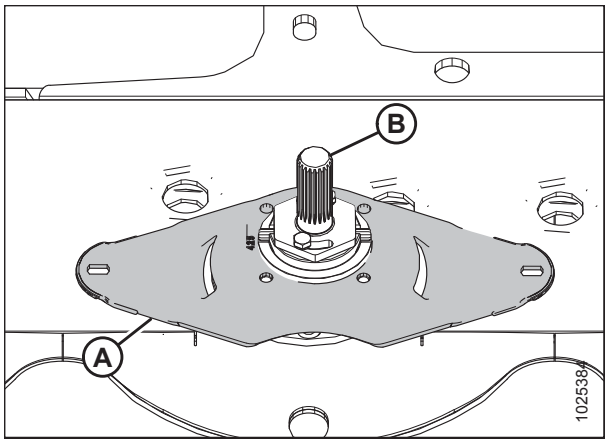


Figure 3.28: Quick Change Plate

14. Using four new M12 disc cover bolts (A) (MD #30630) and locking disc washer (B) (MD #246952), attach disc and disc cap (C) to quick change plate (D) and spindle (E). Torque the bolts to 85 Nm (63 lbf·ft).

    NOTE:

    Check that the new disc cover bolts (A) are used. They are longer than the discarded disc cover bolts.

    NOTE:

    Check that blade bolt (F) is aligned with the hole in quick change plate (D).

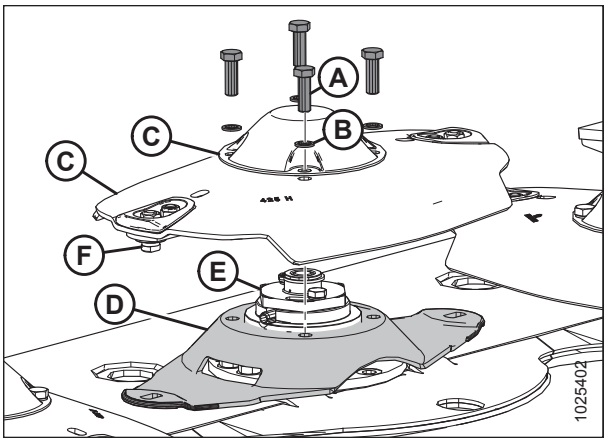


Figure 3.29: Attaching Disc to Spindle

3.3 Installing Quick Change Blades

This kit contains clockwise and counterclockwise 18° bevel down quick change disc blades. The disc blades have cutting edges on both sides so the blades can be turned over and reused. The twist in each blade determines the cutting direction.

NOTE:

If you are unsure which direction the spindles rotate, refer to the operator's manual or technical manual.

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, stop engine, remove key, and engage lift cylinder lock-out valves before going under machine for any reason.

WARNING

Disc blades have two sharp cutting edges that can cause serious injury. Exercise caution and wear gloves when working with blades.

1. Shut down the engine, and remove the key from the ignition.
2. Retrieve the change tool (MD #259112) from the shipping location.
3. Slide the flat bar on quick blade change tool (A) between disc (B) and quick change plate (C) from the side.

   NOTE:

   If required, remove any material that has collected between quick change plate (c) and the rock guard.

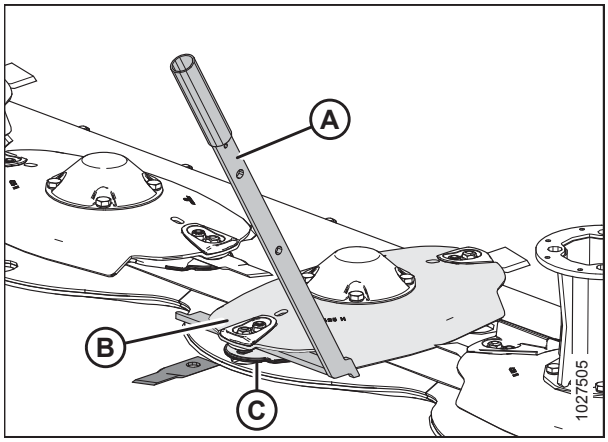


Figure 3.30: Blade Change Tool

IMPORTANT:

Check that the flat bar on blade change tool (A) is touching on both sides of the disc at location (B).

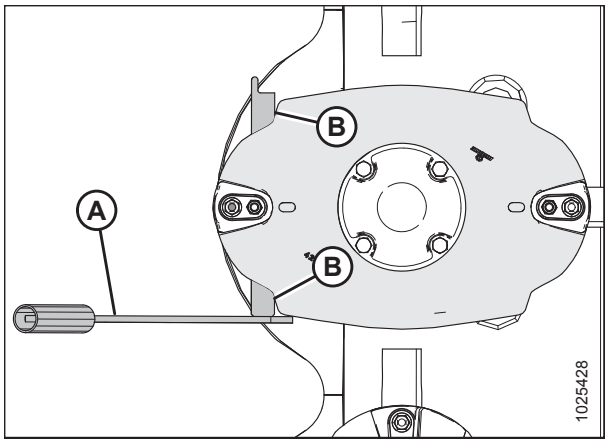


Figure 3.31: Correct Positioning of Blade Change Tool

5. Pull down on blade change tool (A), separate disc (B) from quick change plate (C), and remove old blade (D) from blade bolt (E). Push blade change tool (A) upward to return quick change plate (C) to the closed position.
6. Pull down on blade change tool (A) and separate disc (B) from quick change plate (C). Insert new blade (D) on blade bolt (E).
7. Push blade change tool (A) upward, enclosing new blade (D) in the disc assembly.

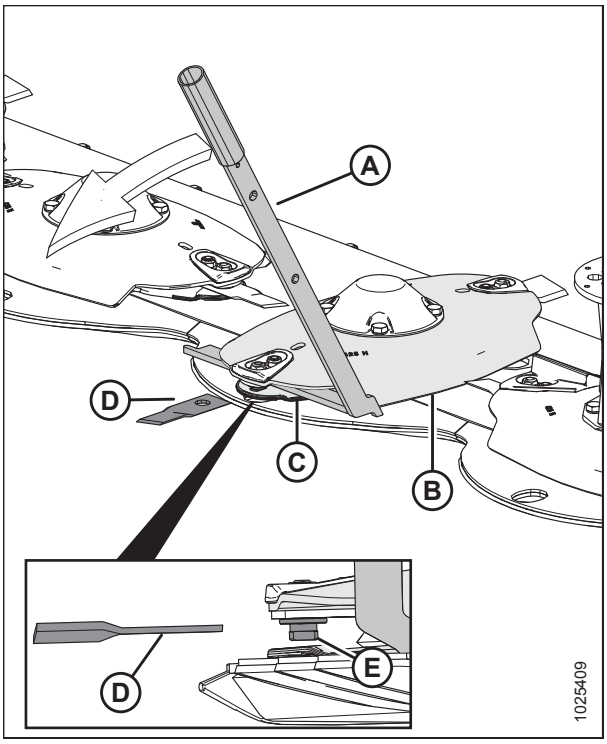


Figure 3.32: Installing Quick Change Blade

3.4 Storing the Quick Change Blade Tool

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, stop the engine, remove the key, and engage the windrower lift cylinder safety props before going under the machine for any reason.

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, stop engine, remove key, and engage lift cylinder lock-out valves before going under machine for any reason.

1. Lower the rotary disc pull-type fully.
2. Shut down the engine, and remove the key from the ignition.
3. Locate manual storage case (A) on the right side of the header.
4. Position blade change tool (C) as shown. Align the mounting hole on the tool with the mounting hole in the frame.
5. Align the hole in quick change gauge (E) with hole in the tool.
6. Install pin (B) (MD #281931) through the mounting holes.
7. Install hairpin clip (B) (MD #15380).

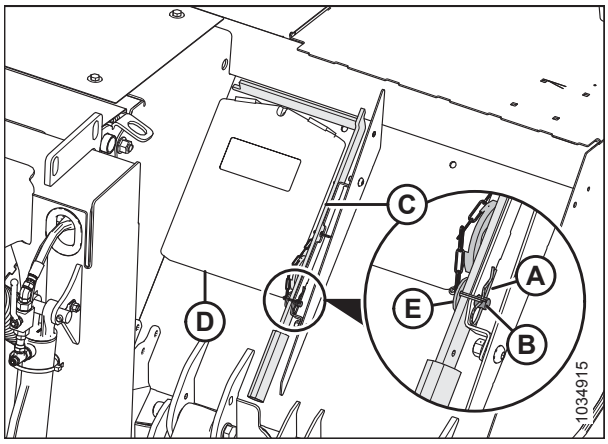


Figure 3.33: Manual Storage Case Location

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