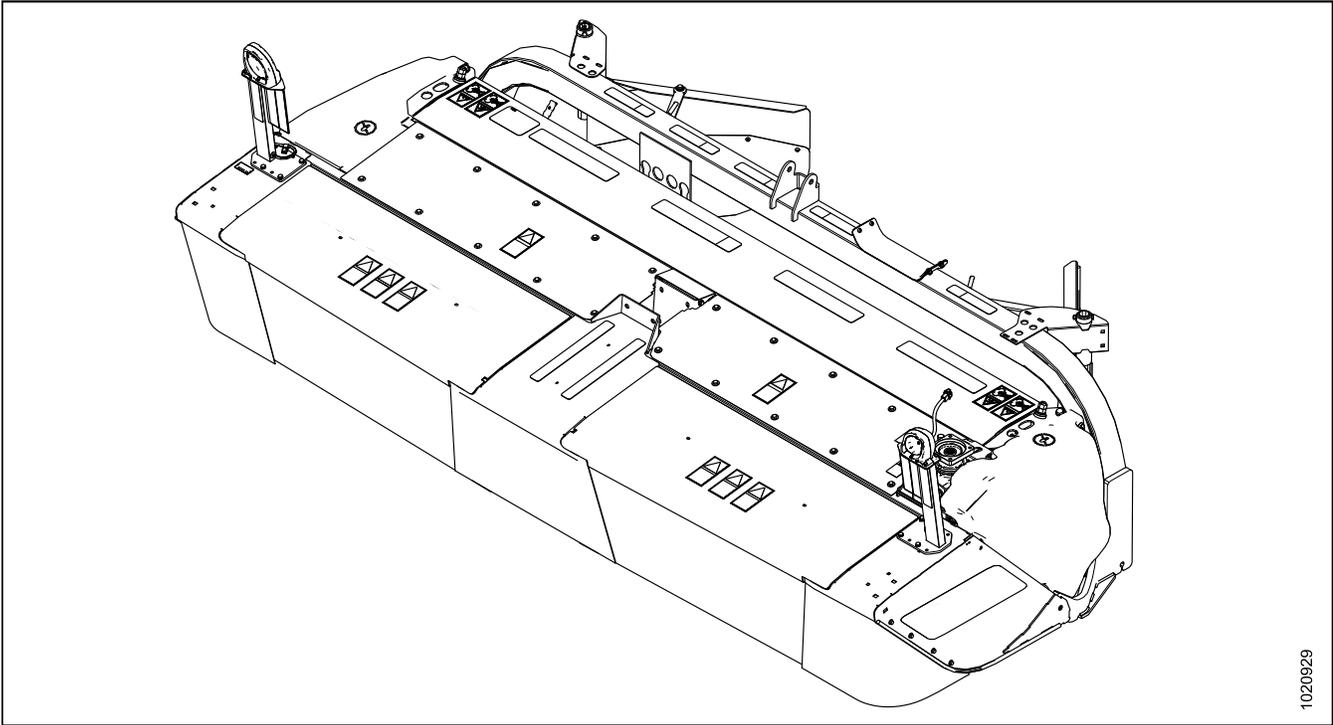


# **R1 SP Series Disc Headers**

Speed Sensor Update Kit (MD #257080)  
Installation Instructions

214481 Revision A  
Original Instruction

R1 SP Series Disc Header



1020929

Published in September 2017

# Introduction

The Speed Sensor Update kit (MD #257080) is used to replace the speed sensor and speed sensor bracket on a MacDon R1 SP Disc Header with newer versions of these parts. This document explains how to install the kit. A list of parts included in the kit is provided in Chapter *2 Parts List, page 5*.

## Conventions

The following conventions are used in this document:

- Right and left are determined from the operator's position. The front of the header is the side that faces the crop; the back of the header is the side that connects to the windrower.
- Unless otherwise noted, use the standard torque values provided in the header 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 not currently available in any language except English.



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# 1 Safety

## 1.1 Signal Words

Three signal words, **DANGER**, **WARNING**, and **CAUTION**, are used to alert you to hazardous situations. 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.

## 1.2 General Safety

### CAUTION

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

Protect yourself.

- When assembling, operating, and servicing machinery, wear all protective clothing and personal safety devices that could be necessary for 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
- 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 1.1: Safety Equipment



Figure 1.2: Safety Equipment

- Provide a first aid kit for use in case of emergencies.
- Keep a fire extinguisher on the machine. Be sure fire extinguisher is properly maintained. Be familiar with its proper use.
- Keep young children away from machinery at all times.
- Be aware that accidents often happen when Operator is tired or in a hurry. Take time to consider safest way. Never ignore warning signs of fatigue.

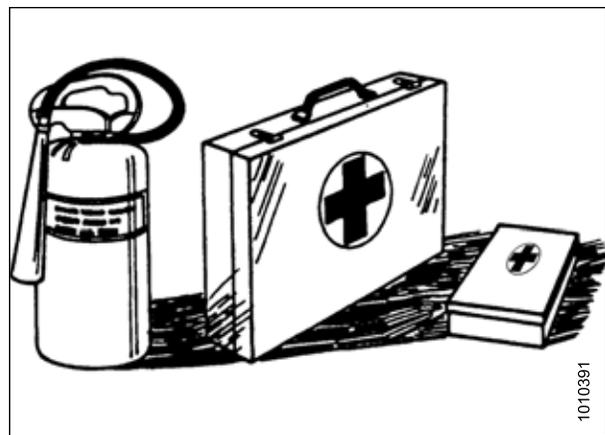


Figure 1.3: Safety Equipment

## SAFETY

- 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. Make sure driveline guards can rotate independently of shaft and can telescope freely.
- Use only service and repair parts made or approved by equipment manufacturer. Substituted parts may not meet 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 engine is running.
- Do **NOT** modify machine. Unauthorized modifications may impair machine function and/or safety. It may also shorten machine's life.
- To avoid bodily injury or death from unexpected startup of machine, **ALWAYS** stop the engine and remove the key from the ignition before leaving the operator's seat for any reason.

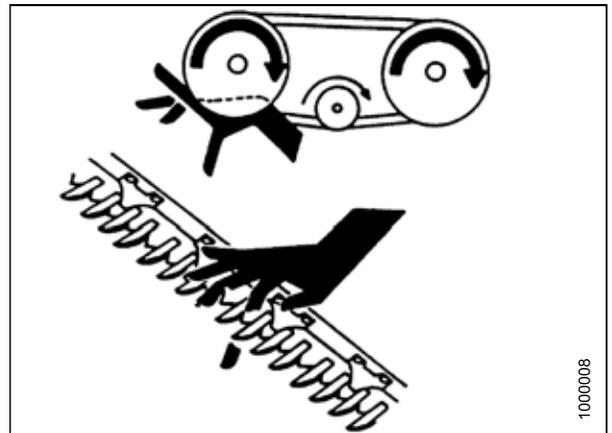


Figure 1.5: Safety around Equipment

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



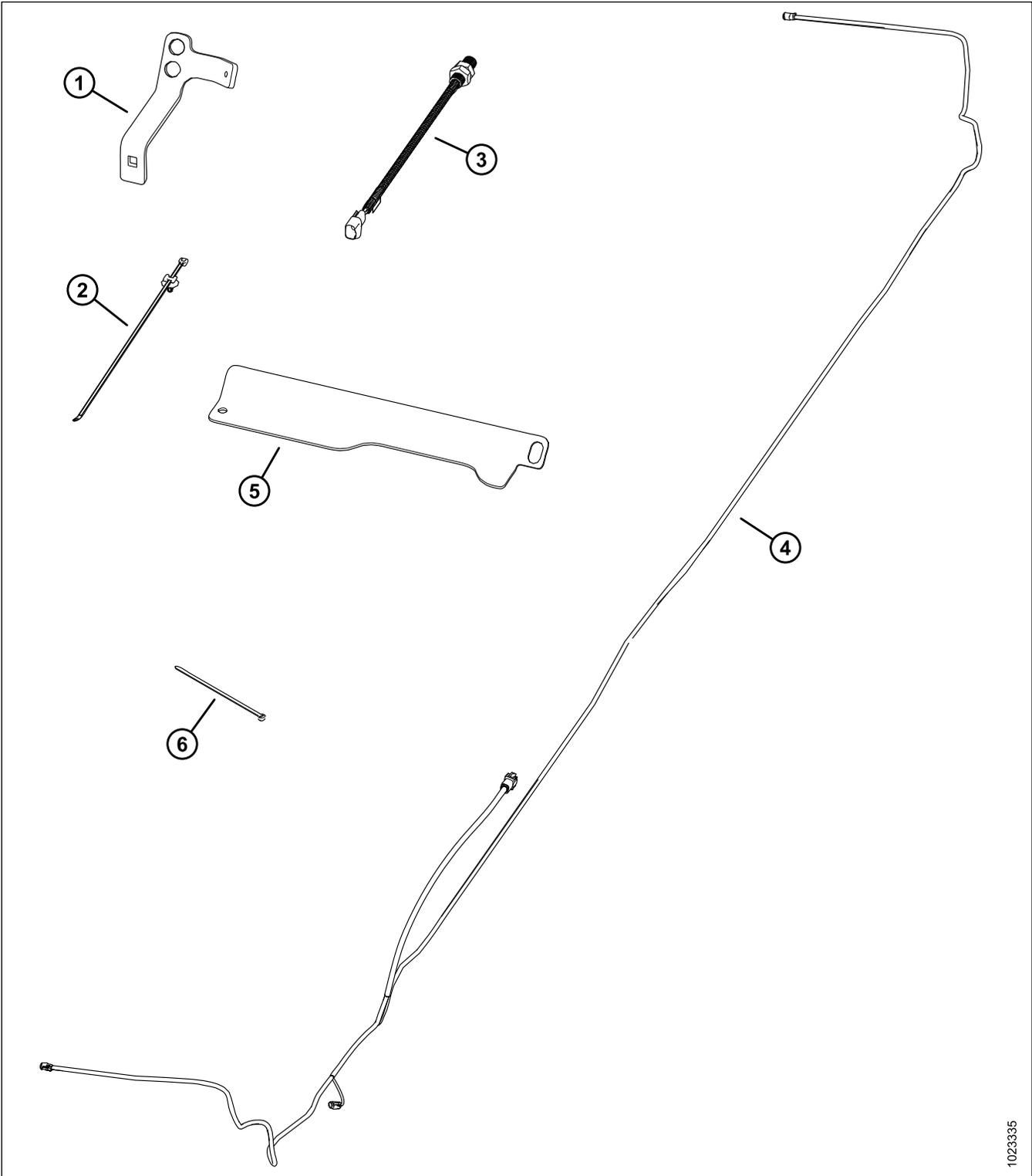
Figure 1.6: Safety around Equipment



## 2 Parts List

The following parts are included in this kit.

# PARTS LIST



1023335

## PARTS LIST

<b>Ref</b>	<b>Part Number</b>	<b>Description</b>	<b>Quantity</b>
1	257028	BRACKET – SPEED SENSOR	1
2	136655	FASTENER – FIR TREE MT W/TIE	1
3	136167	SENSOR – SPEED	1
4	256584	HARNESS – R1 SP	1
5	NSS <sup>1</sup>	PLATE – TEMPLATE	1
6	21763	FASTENER – CABLE TIE, BLACK	1

---

1. Not sold separately.



### 3 Installation Instructions

To install the Speed Sensor Update kit, follow these procedures in order:

#### CAUTION

To avoid bodily injury or death from unexpected startup of machine, always stop engine and remove key from ignition before leaving operator's seat for any reason.

1. Lower the header to the ground.
2. Turn off the engine and remove the key from the ignition.

#### 3.1 Removing Driveshields

Remove both the left and right driveshields, following these steps. The left driveshield is illustrated.

#### CAUTION

Do NOT operate the machine without the driveshields in place and secured.

1. Locate the driveshield.

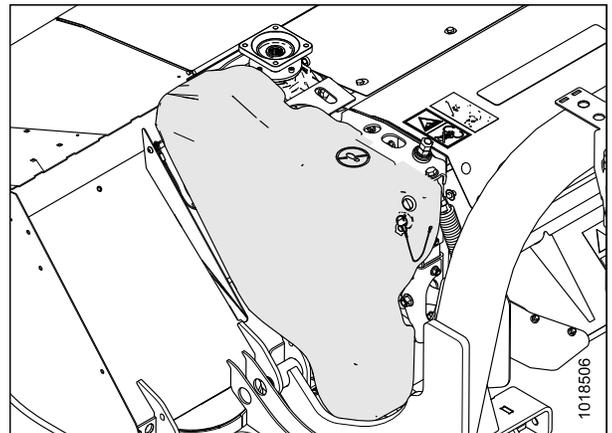


Figure 3.1: Left Driveshield

2. Remove lynch pin (A) and tool (B) from pin (C).

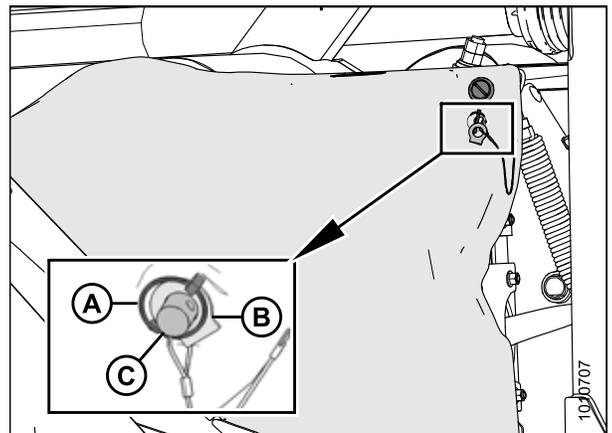
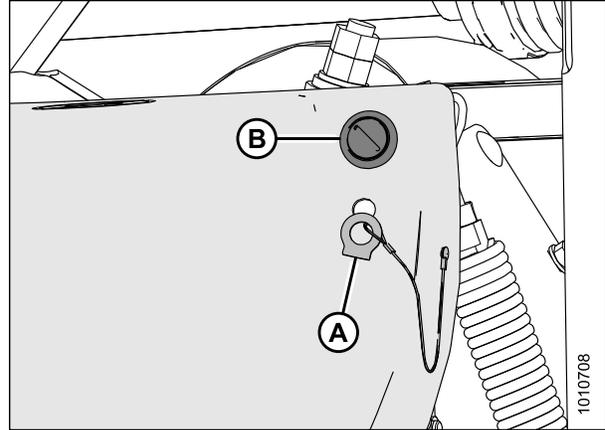


Figure 3.2: Left Driveshield

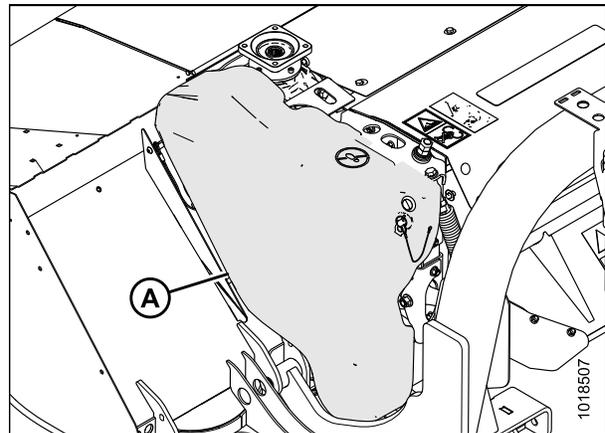
## INSTALLATION INSTRUCTIONS

3. Insert flat end of tool (A) into latch (B) and turn it counterclockwise to unlock.



**Figure 3.3: Driveshield Latch**

4. Pull top of driveshield (A) away from header to open.
5. Lift driveshield off the pins at the base of the shield.



**Figure 3.4: Left Driveshield**

## INSTALLATION INSTRUCTIONS

### 3.2 Modifying Left Driveshield

1. Position template (A) (provided in the kit) on the inside of the left driveshield, lining up holes (B) and (C).
2. Trim off material (D) between the template and the edge of the driveshield.

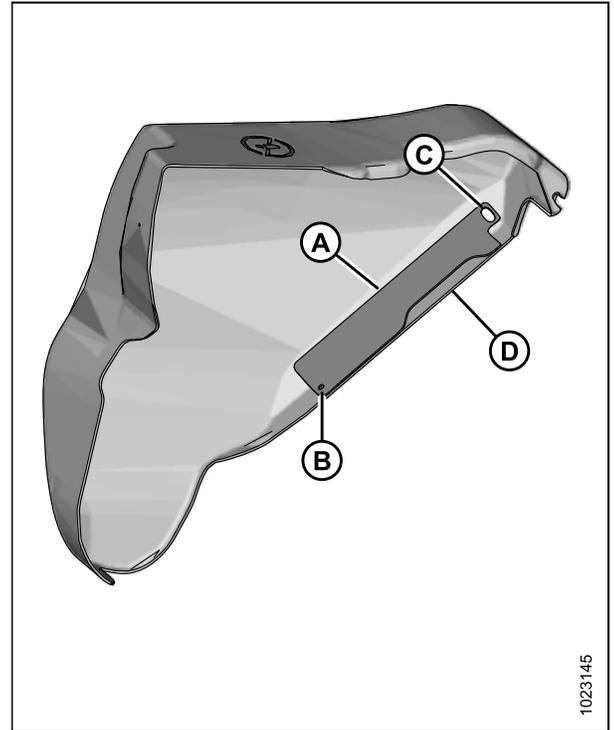


Figure 3.5: Left Driveshield and Template

### 3.3 Opening Cutterbar Doors: North America

**⚠ DANGER**

To avoid bodily injury or death from unexpected startup of machine, always stop engine and remove key from ignition before leaving operator's seat for any reason.

1. Lift door (A) at front to open.

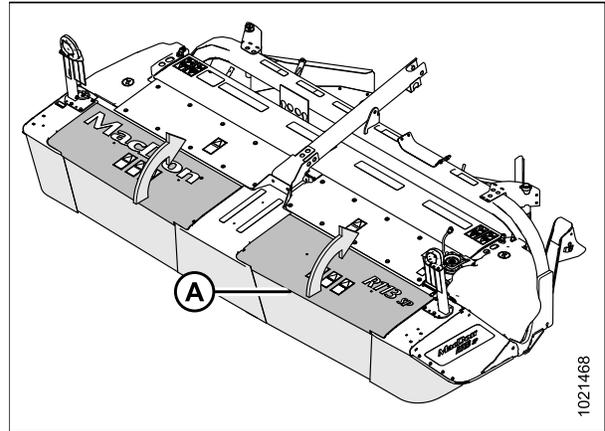


Figure 3.6: Cutterbar Doors

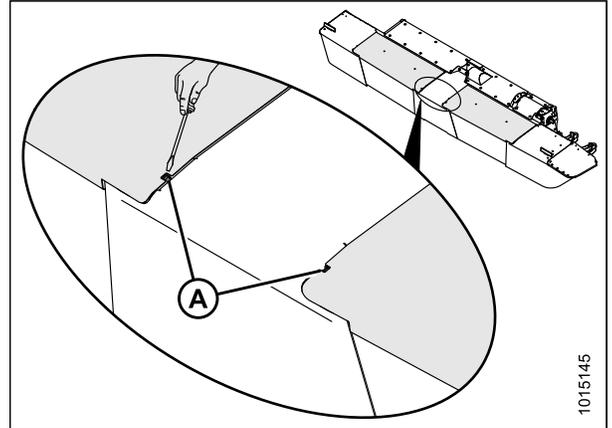
### 3.4 Opening Cutterbar Doors: Export Latches

Headers sold outside North America require a tool-operated latch on the cutterbar doors. Follow these steps to open cutterbar doors with export latches:

**⚠ DANGER**

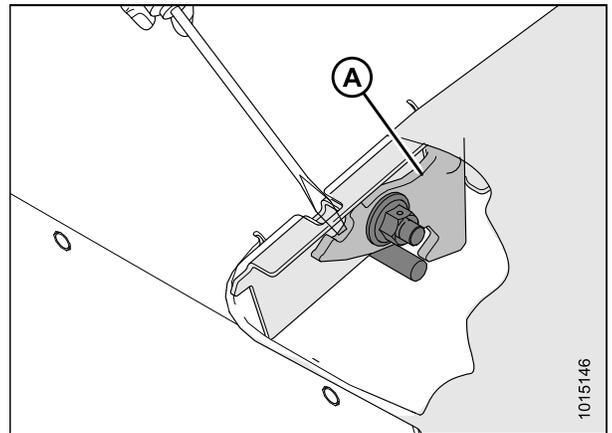
To avoid bodily injury or death from unexpected startup of machine, always stop engine and remove key from ignition before leaving operator's seat for any reason.

1. Locate the latch access holes (A) for each door.



**Figure 3.7: Cutterbar Door Latch Access Hole (Export Only)**

2. Use a rod or screwdriver to press down on the latch (A) and release the cutterbar door.



**Figure 3.8: Cutterbar Door Latch (Cut Away View)**

## INSTALLATION INSTRUCTIONS

3. Lift up on door (A) while pressing down on latch.

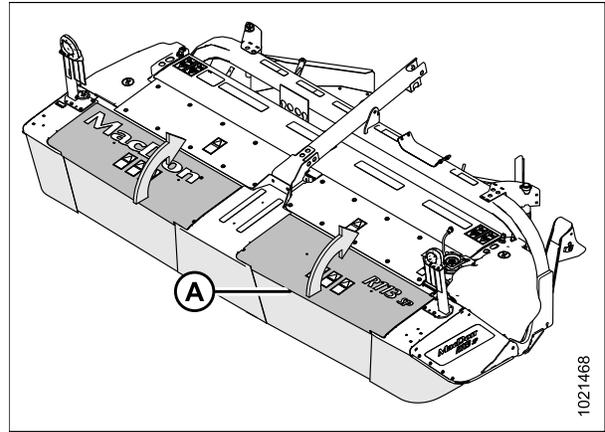


Figure 3.9: Left Cutterbar Door Open

## INSTALLATION INSTRUCTIONS

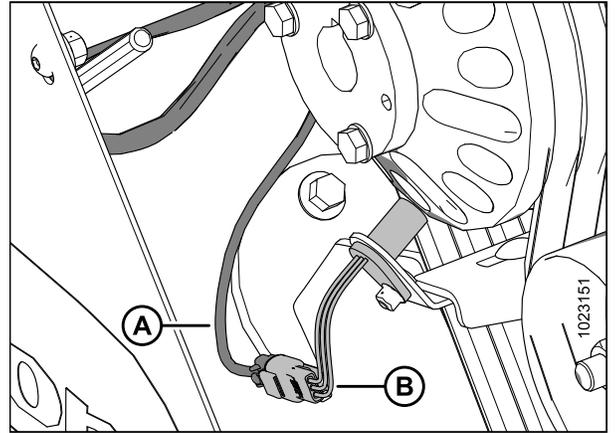
### 3.5 Removing Existing Speed Sensor, Bracket, and Harness

To remove the existing speed sensor, speed sensor bracket, and header harness, follow these steps:

1. On the left side of the header, disconnect header harness (A) from speed sensor (B).

**NOTE:**

Pay attention to how the speed sensor is oriented so that you can ensure that the new sensor is oriented correctly.



**Figure 3.10: Speed Sensor and Header Harness Connection**

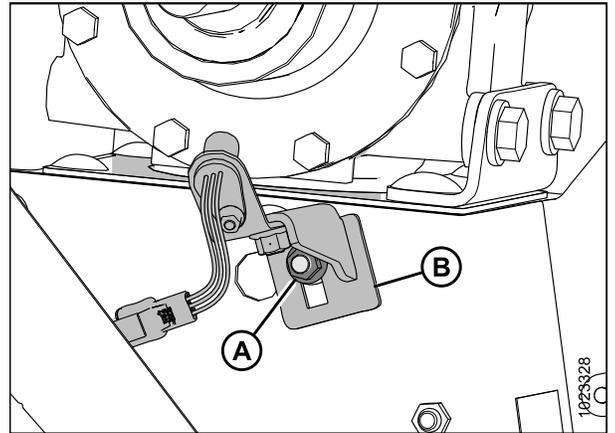
2. Loosen carriage bolt and nut (A) securing speed sensor bracket (B) to the frame panel. Remove and discard speed sensor and bracket.

**NOTE:**

Do NOT completely remove bolt and nut (A) as the bolt might drop into the drum/shielding assembly.

**NOTE:**

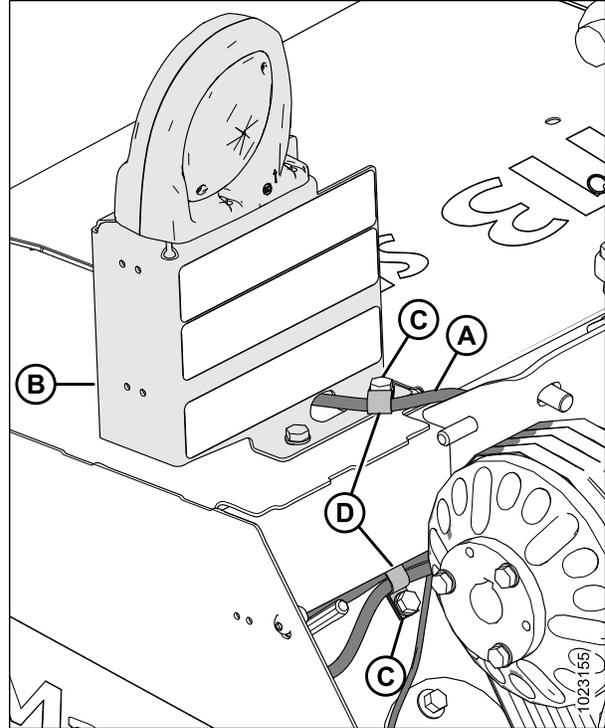
Some parts have been removed from the illustration for clarity.



**Figure 3.11: Speed Sensor and Speed Sensor Bracket**

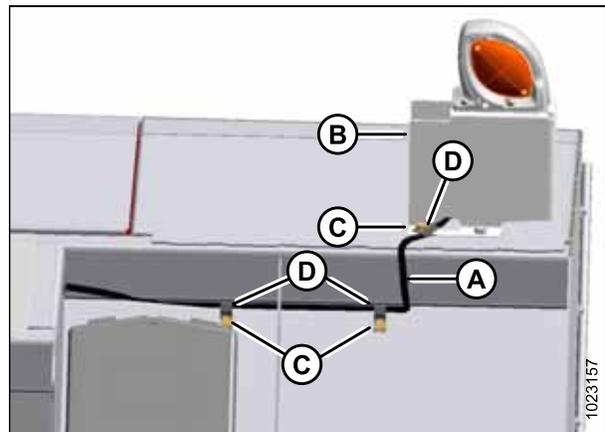
## INSTALLATION INSTRUCTIONS

3. On the left side of the header, disconnect header harness (A) from the left light fixture harness (connection is inside the light bracket [B]), and then remove the bolts (C) securing the insulated clamps (D) and header harness to the left frame panel. Retain the clamps and bolts to install the new header harness.



**Figure 3.12: Header Harness on Left Side of Header**

4. On the right side of the header, disconnect the header harness (A) from the right light fixture harness (connection is inside the light bracket [B]), and then remove the bolts (C) securing the insulated clamps (D) and header harness to the right frame panel. Retain the clamps and bolts to install the new header harness.

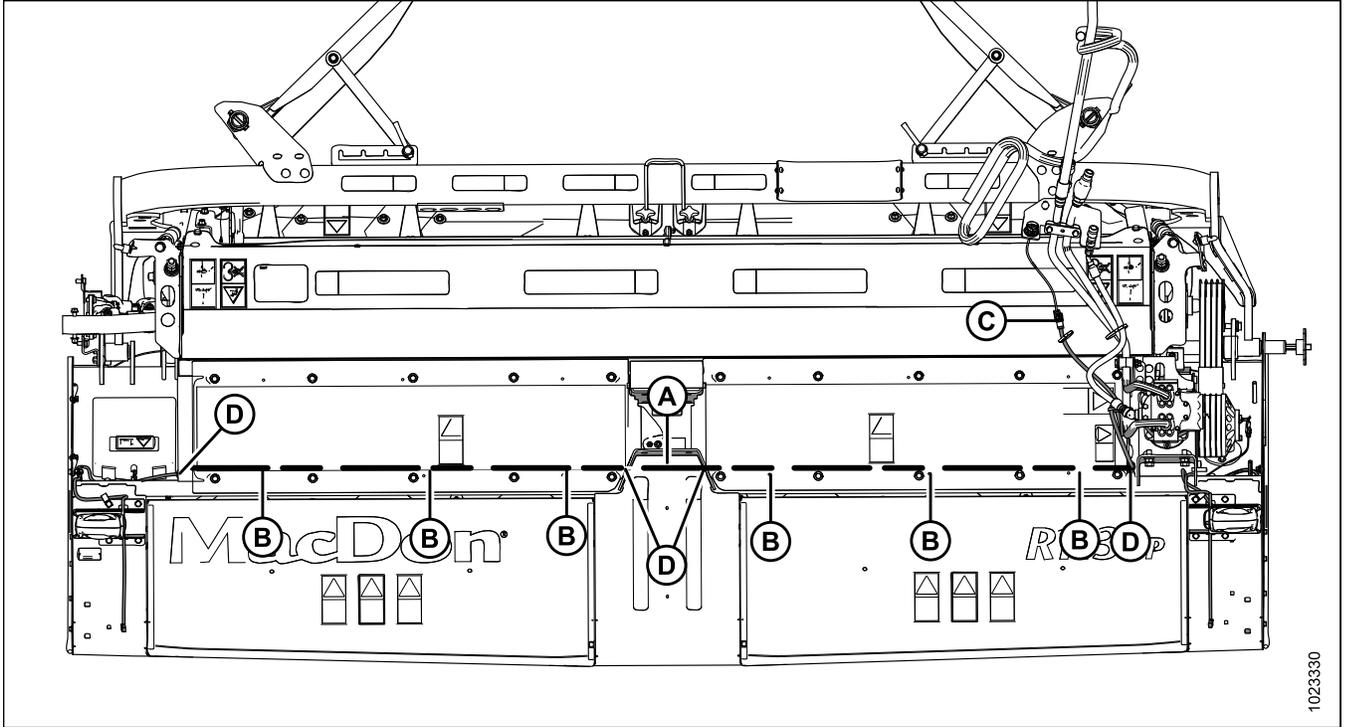


**Figure 3.13: Header Harness on Right Side of Header**

## INSTALLATION INSTRUCTIONS

- Remove the 6 bolts and 12 washers securing the insulated clamps and header harness to the underside of the top covers. The harness is represented by the dashed line (A) in Figure 3.14, page 17. Retain hardware and clamps for installation of the new harness.

**Figure 3.14: Header Harness Routing**



A - Header Harness

B - Insulated Clamp Locations

C - Harness End

D - Grommet Locations

- Starting with harness end (C) on the left side of the header, pull the header harness out of the header, and discard.

**NOTE:**

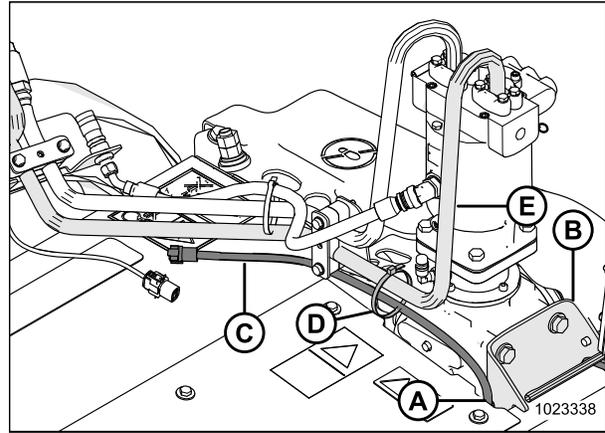
In each of the four locations (D) where the harness goes through the header frame, there is a grommet. If the grommets get pulled out with the harness, keep them. You can reinstall them when you install the replacement harness.

## INSTALLATION INSTRUCTIONS

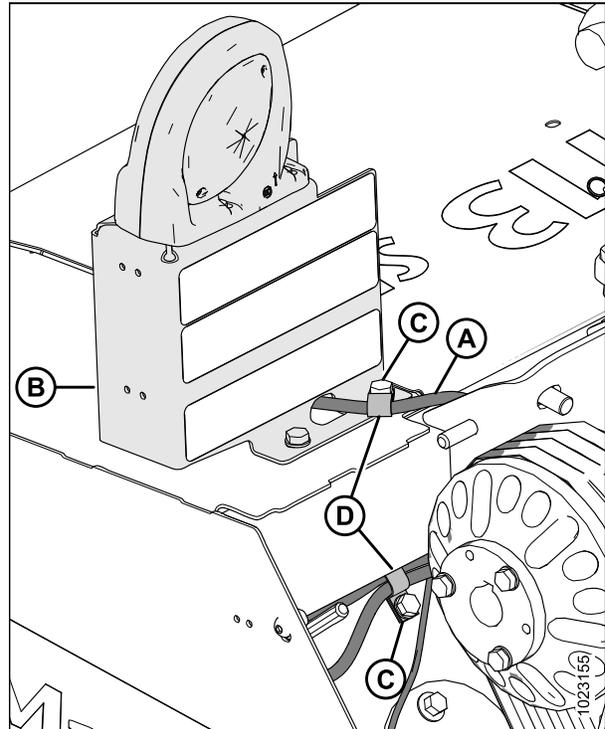
### 3.6 Installing New Harness

To install the new header harness (MD #256584) provided in the kit, follow these steps:

1. On the left side of the header, push each end of the harness in turn through gap (A) between the top shield and gearbox mounting channel (B), and then route as described in the following steps. Leave harness branch (C) ending at connector C20D-R116 on top of the header. This branch will connect to the windrower.
2. Using cable ties (D) (not provided), secure harness branch (C) to the vertical plate (not shown) below the top shield and to the closest high pressure line (E) from the motor.
3. Route the harness branches (not shown) ending in connectors P520 and C531 through the gap behind the gearbox mounting channel (B) towards the left end of the header.
4. Route connector P520 up into the left light bracket (B), and then connect it to the light fixture harness.
5. Secure header harness (A) to the left frame panel with insulated clamps (D) and bolts (C) retained from the previous procedure. Secure the new harness in the same locations as the old harness.
6. Leave connector C531 hanging. It will be connected to the new speed sensor in the next procedure.



**Figure 3.15: Harness End above Left Side of R113 Header**



**Figure 3.16: Header Harness on Left Side of an R113 Disc Header**

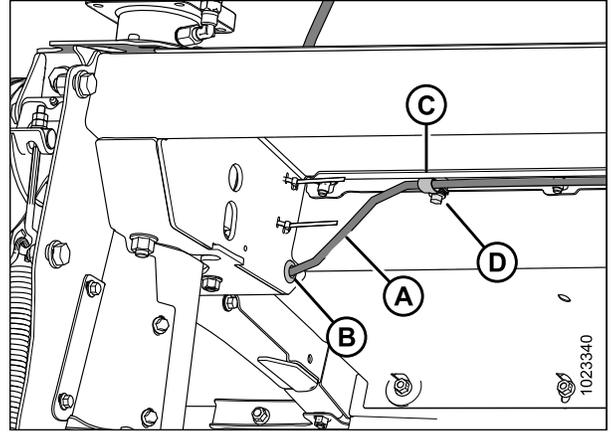
## INSTALLATION INSTRUCTIONS

7. Route harness branch (A) ending at connector P521 through round hole with grommet (B) towards the right side of the header. If the grommet was removed in the previous procedure, reinstall it now.

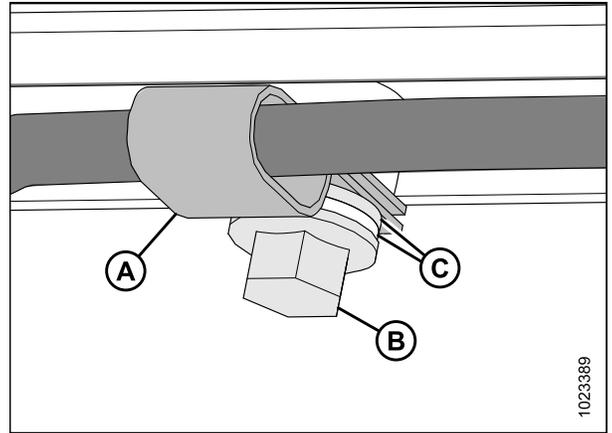
**NOTE:**

Some parts have been removed from the illustration for clarity.

8. Route harness branch (A) along the underside of the top covers to the right end of the header. It will need to go through two holes in the frame in the middle of the header, and a third at the right end. These holes should be lined with grommets. If the grommets were removed in the previous procedure, reinstall them now. For a view of the entire harness, refer to Figure 3.19, page 20.
9. Using insulated clamps (A), bolts (B), and washers (C) retained from the previous procedure, secure the harness to the underside of the top covers. Clamp locations are shown in Figure 3.19, page 20. Two washers are needed at each location.



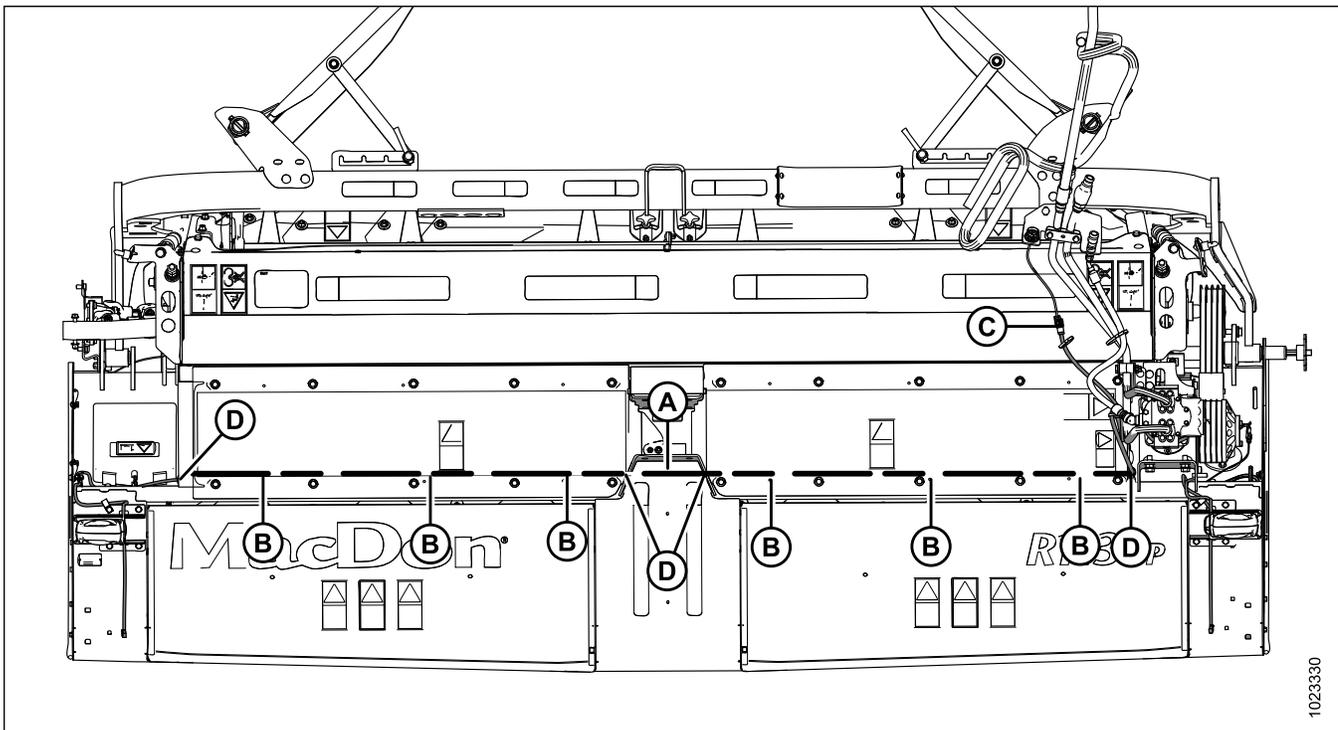
**Figure 3.17: Routing of Right Harness Branch from Left Frame under Top Covers**



**Figure 3.18: Insulated Clamp**

## INSTALLATION INSTRUCTIONS

**Figure 3.19: Header Harness Routing on an R113**



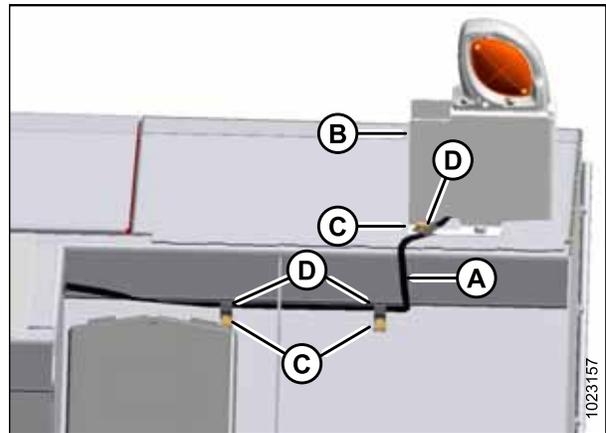
A - Header Harness

B - Insulated Clamp Locations

C - Harness End

D - Grommet Locations

10. Route the harness (A) above the manual case to the right light bracket (B). Plug connector P521 into the right light fixture harness (not shown in illustration; it is inside the right light bracket).
11. Using the insulated clamps (D) and bolts (C) retained from the previous procedure, secure the harness to the right frame panel in the same locations as the old harness.



**Figure 3.20: Header Harness on Right Side of Header**

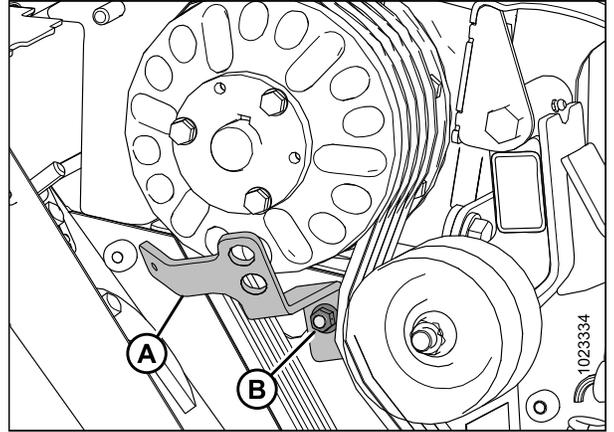
## INSTALLATION INSTRUCTIONS

### 3.7 Installing New Speed Sensor and Speed Sensor Bracket

#### NOTE:

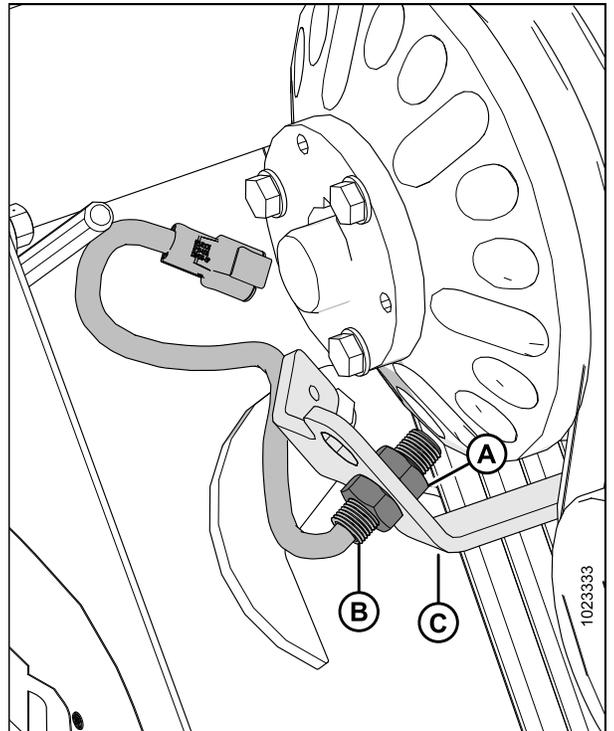
Unless otherwise specified, all parts are provided in the kit.

1. On the left side of the header, position the new speed sensor bracket (A) (MD #257028) in place of the old one, below the drive pulley, with the square hole lined up with the key-shaped hole in the frame panel. Secure in place with the existing carriage bolt and nut (B). The bracket should be oriented as shown in the illustration at right.



**Figure 3.21: New Speed Sensor Bracket Installed**

2. Remove nut (A) from the end of the new speed sensor (B) (MD #136167), and then plug the sensor into the appropriate round holes in the new speed sensor bracket (C).
  - Use the top hole if the header will be used with an M155 Self-Propelled Windrower.
  - Use the bottom hole if the header will be used with an M1170 Windrower.
3. Replace nut (A).



**Figure 3.22: New Speed Sensor Installed**

## INSTALLATION INSTRUCTIONS

- Adjust nuts as required to ensure that there is a 2–3 mm (1/16–1/8 in.) gap (C) between the speed sensor (A) and the pulley (B). Ensure the sensor is parallel with the pulley.
- Tighten sensor nuts to 12 Nm (9 lbf·ft).

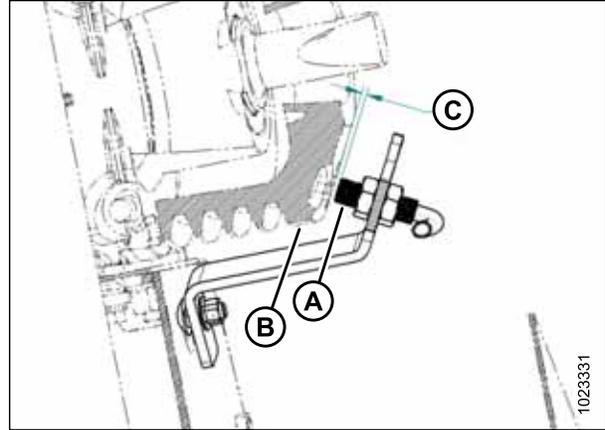


Figure 3.23: Gap between Sensor and Pulley

- Secure the sensor harness to the small hole in bracket (A) with the fir tree fastener (B) (MD #136655). To ensure that the harness doesn't rub on the belt or cover, the wire length from the sensor to the fir tree fastener should be 102–122 mm (4–4-3/16 in.).
- Plug the connector on the header harness (C) into the connector on the speed sensor (D).
- Secure the sensor harness to the header harness (C) with black cable tie (E) (MD #21763).

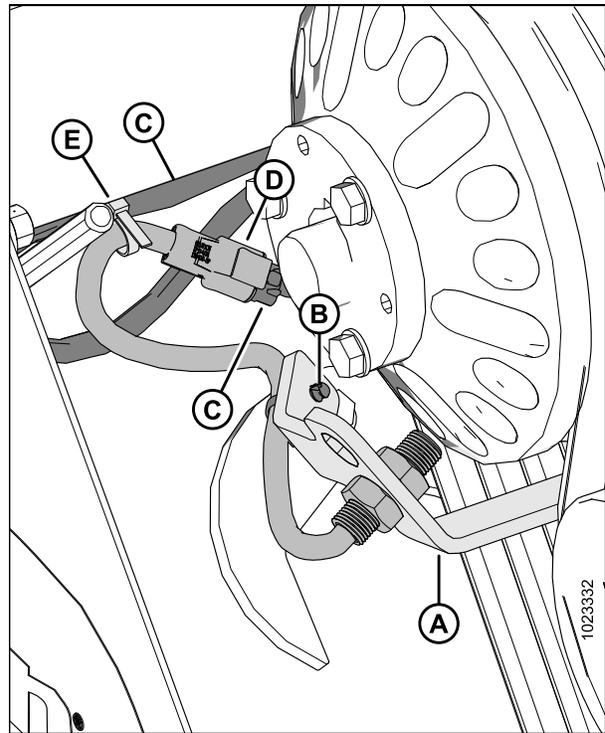


Figure 3.24: New Speed Sensor Installed

### 3.8 Closing Cutterbar Doors

**⚠ CAUTION**

To avoid injury, keep hands and fingers away from corners of doors when closing.

1. Pull door (A) at top to close.
2. Ensure that curtains hang properly and completely enclose cutterbar area.

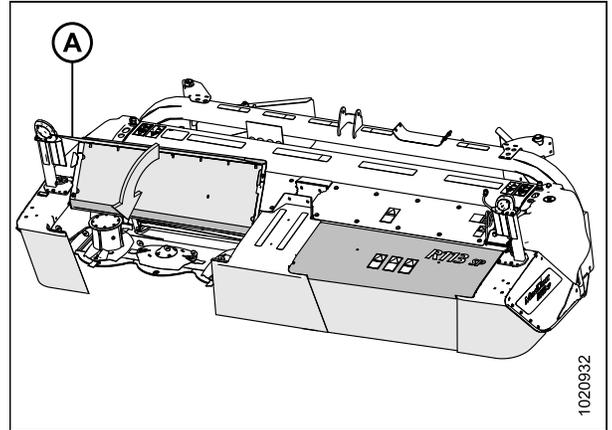


Figure 3.25: Cutterbar Doors

### 3.9 Reinstalling Driveshields

#### CAUTION

Do NOT operate the machine without the driveshields in place and secured.

1. Position driveshield (A) onto pins (B) at base of driveshield.
2. Push driveshield to engage latch (C).
3. Check that driveshield (A) is properly secured.

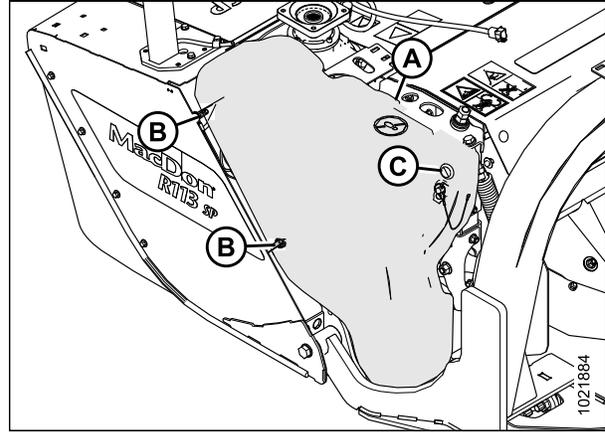


Figure 3.26: Driveshield and Latch

4. Replace tool (B) and lynch pin (A) on pin (C).

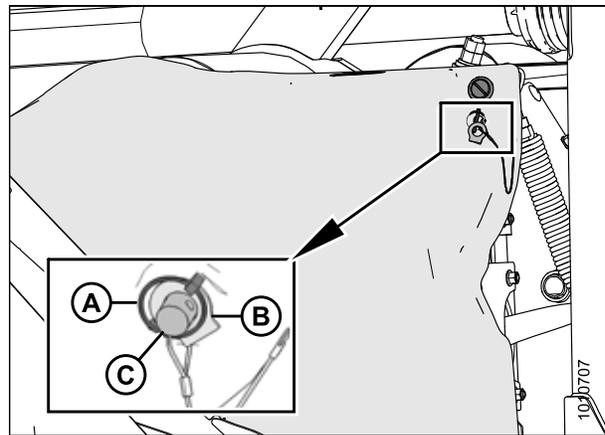


Figure 3.27: Tool to Unlock Driveshield



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