

# FD2 Series FlexDraper® Combine Header with FM200 Float Module

Unloading and Assembly Instructions (North America)

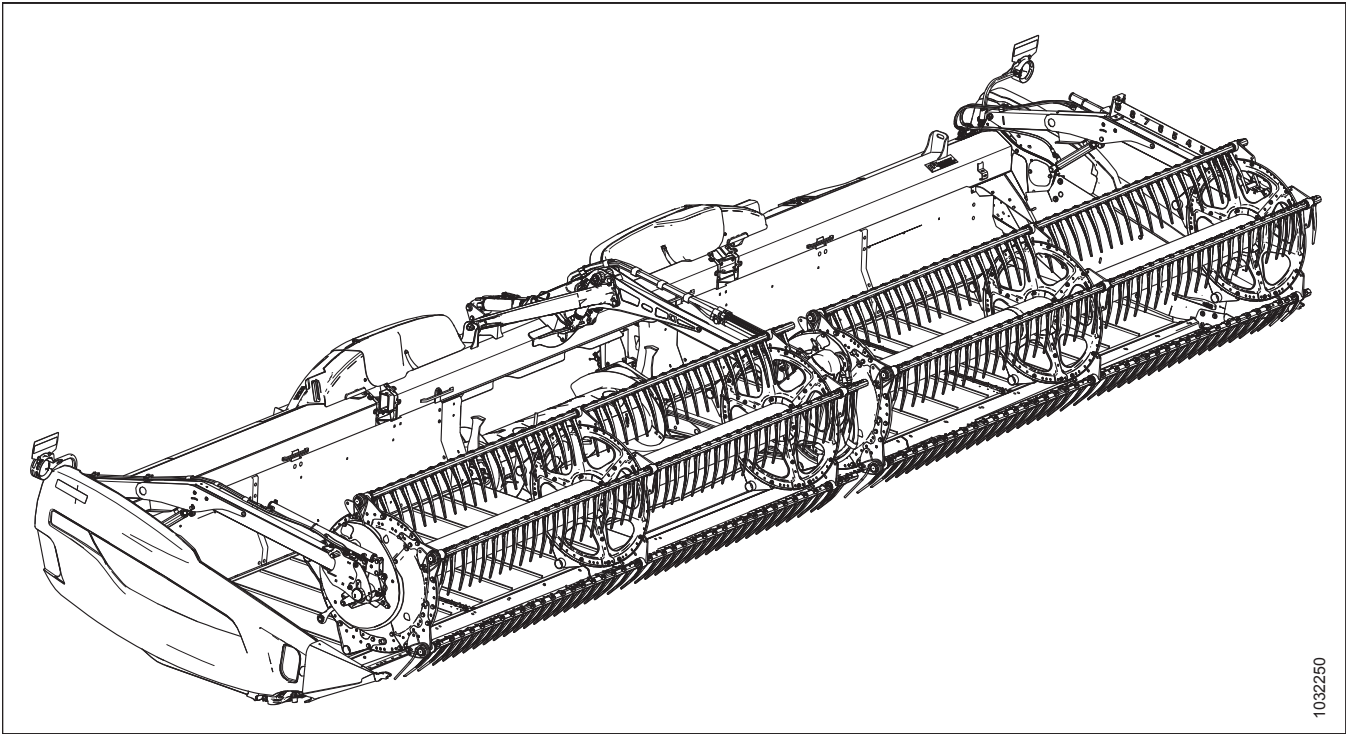
215586 Revision A

Original Instruction

*Featuring MacDon FLEX-FLOAT Technology™*

*The Harvesting Specialists.*

FD2 Series FlexDraper® Header



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## Introduction

This instruction manual describes the unloading, setup, and predelivery requirements for the MacDon FD2 Series FlexDraper® Combine Header with FM200 Float Module.

To ensure the best performance of this product and the safety of your customers, carefully follow the unload and assembly procedure from the beginning through to completion.

Some sections/steps do not apply to all header configurations and sizes. Refer to the instructions for your specific header.

**Carefully read all the material provided before attempting to unload, assemble, or use the machine.**

Retain this instruction for future reference.

This document is currently available in English only.

## Summary of Changes

The following list provides an account of major changes from the previous version of this document.

Section	Summary of Change	Internal Use Only
<i>2.5 Removing Shipping Stands, page 13</i>	<ul style="list-style-type: none"> <li>Added Caution about anti-rotation strap and header support.</li> <li>Added step to remove tine tubes from shipping position.</li> </ul>	Engineering
<ul style="list-style-type: none"> <li><i>3.1 Installing Reel Lift Cylinders – Double Reel, page 19</i></li> <li><i>3.2 Installing Reel Lift Cylinders – Triple Reel, page 24</i></li> </ul>	Removed step and revised illustration about shipping location of reel safety prop. Safety prop is attached to the reel arm.	Engineering
<i>3.4 Attaching Reel Height Sensor, page 33</i>	Revised steps and illustrations – reel height sensor rod shipping location changed.	Engineering
<i>3.4 Attaching Reel Height Sensor, page 33</i>	Revised illustration to show added jam nut to reel height sensor rod.	ECN 61486
<i>3.5 Installing Tine Tubes, page 36</i>	Revised procedure.	Engineering
<i>3.6 Attaching Cam Arms, page 44</i>	Revised procedure.	Engineering
<i>3.7.5 Installing Reel Endshields at Outboard Tail End, page 62</i>	Corrected bolt size from M12 X 1.75 X 30 to M10 X 1.5 X 20	Quality
<ul style="list-style-type: none"> <li><i>3.14 Installing Driveline – FM200 equipped with Sidehill/Hillside Drivelines MD #B7180, MD #B7181, or MD #B7182, page 81</i></li> <li><i>5.3.1 Attaching Header to Case IH Combine, page 125</i></li> <li><i>5.4.1 Attaching Header to CLAAS Combine, page 129</i></li> <li><i>5.5.1 Attaching Header to John Deere Combine, page 134</i></li> <li><i>5.6.1 Attaching Header to New Holland CR/CX Combine, page 139</i></li> </ul>	Replaced sidehill/hillside driveline bundle numbers with the correct bundle numbers.	Technical Publications
<i>4.2 FM200 Feed Auger Configurations, page 87</i>	Added Note.	Product Support
<i>6.1 Connecting Reel to Fore-Aft Cylinders, page 145</i>	<ul style="list-style-type: none"> <li>Moved Connecting Reel to Fore-Aft Cylinders procedure from Section 3.4 to Section 6.1. The header has to be attached to the combine before connecting the fore-aft cylinders.</li> <li>Added Caution to lift reel to avoid the reel from moving when removing fore-aft shipping supports.</li> </ul>	Engineering

Section	Summary of Change	Internal Use Only
<i>7.9 Checking and Adjusting Fore-Aft Position Sensor, page 175</i>	Moved Checking and Adjusting Fore-Aft Position Sensor procedure from Section 3.6 to Section 7.9. The header has to be attached to the combine.	Technical Publications
<i>7.12 Changing Float Spring Configuration – Confirming Type of Bell Crank, page 185</i>	Moved procedure from Section 11.3 to Section 7.11	Product Support
<i>9.1 Checking and Adjusting Reel Height Sensor, page 389</i>	<ul style="list-style-type: none"> <li>Added steps.</li> <li>Revised illustrations to show added jam nut to reel height sensor rod.</li> </ul>	ECN 61486
<i>7.12.2 Changing Float Spring Configuration – Bell Cranks with One Hole, page 190</i>	Changed configuration code from alpha to numeric for consistency.	Product Support
<i>4.2.6 Removing Bolt-On Flighting, page 103</i>	Added Important.	Product Support
<i>5.2.1 Attaching Header to an IDEAL™ Series Combine, page 122</i>	Removed unnecessary callouts from image.	Product Support
<i>7.14 Checking and Adjusting Header Float, page 197</i>	Added illustration.	Product Support
<i>7.15 Checking and Adjusting Wing Balance, page 202</i>	Added Note.	Product Support
<i>4.1 Installing Filler Cap, page 85</i>	Removed statement and Note about keeping cap screws. Filler cap comes with screws.	Product Support and Engineering
<i>7.2 Checking Tire Pressure – Stabilizer Wheels, or Transport with Stabilizer Wheels (Option), page 161</i>	Removed Important note about maximum pressure specified on tire sidewall.	Product Support and Engineering
<i>7.14 Checking and Adjusting Header Float, page 197</i>	Added steps to raise transport/stabilizer wheels.	Product Support and Engineering
<i>7.12.1 Changing Float Spring Configuration – Bell Cranks with Two Holes, page 185</i>	Corrected total weight in example and added information to Note.	Engineering
<i>Setting up the Header – IDEAL™ Series, page 233</i>	Added steps regarding power flow.	Product Support and Engineering
Various topics in Auto Header Height Section	Updated illustrations for FD2 Series.	Product Support
Various	Changed AGCO IDEAL™ Series to IDEAL™ Series.	Engineering
	Moved “Checking That Top-Link is Parallel” before “Checking and Adjusting Header Float”.	Product Support and Engineering



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# Chapter 1: Safety

## 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

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 1.1: Safety Equipment



Figure 1.2: Safety Equipment

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

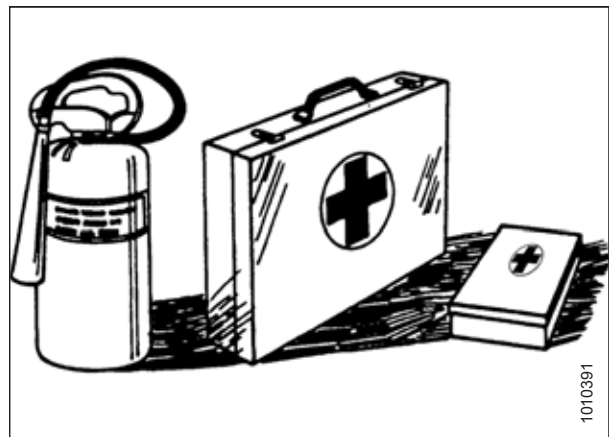


Figure 1.3: Safety Equipment

## 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 the engine is running.
- Do **NOT** modify the machine. Unauthorized modifications may impair machine function and/or safety. It may also shorten the machine's life.
- To avoid injury or death from 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.

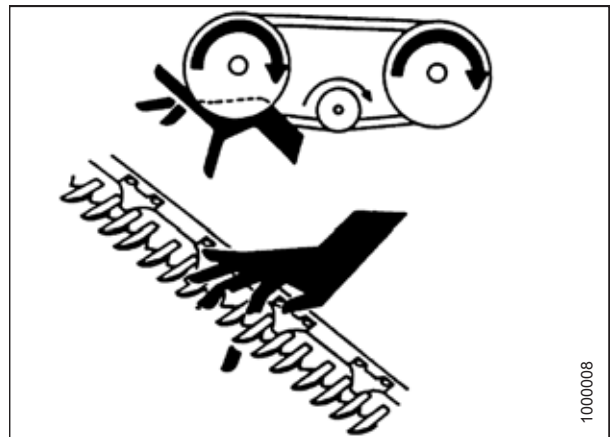


Figure 1.5: Safety around Equipment

- Keep service area clean and dry. Wet and/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 are fire hazards. 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

### 1.3 Safety Signs

Safety signs are usually yellow decals placed on the machine where there is a risk of personal injury, or where the operator has to take extra precautions before operating controls. Operator manuals and technical manuals identify the location and meaning of all safety signs placed on the machine.

- Keep safety signs clean and legible at all times.
- Replace safety signs that are missing or illegible.
- If the original part on which a safety sign was installed is replaced, be sure the repair part displays the current safety sign.

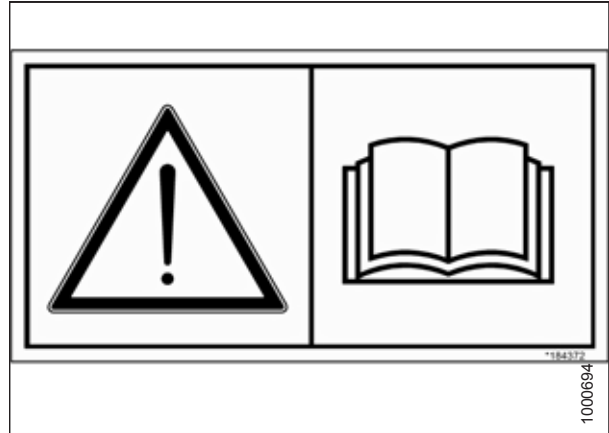


Figure 1.7: Operator's Manual Decal



## Chapter 2: Unloading the Header

Perform all procedures in this chapter in the order they are listed.

### 2.1 Unloading Header and Float Module from Trailer – Headers Shipped Upright

The following procedure assumes that two headers were shipped upright on the trailer.

#### DANGER

To avoid injury to bystanders from being struck by machinery, do NOT allow people to stand in unloading area.

#### DANGER

Equipment used for unloading must meet or exceed the requirements specified below. Using inadequate equipment may result in chain breakage, vehicle tipping, machine damage or bodily harm to operators or bystanders.

#### IMPORTANT:

For minimum lifting equipment requirements, refer to *11.4 Header Specifications for Unloading and Assembly, page 422*.

To unload the header and float module from a trailer, follow these steps:

1. Move the trailer into position and block the trailer wheels.
2. Lower the trailer storage stands.
3. Approach one of the headers and line up forks (A) with fork slider channels (B) under the float module frame.
4. Slide forks (A) underneath fork slider channels (B) as far as possible without contacting the shipping support of the opposite header.
5. Remove the hauler's tie-down straps, chains, and wooden blocks.
6. Slowly raise the header off the trailer deck.

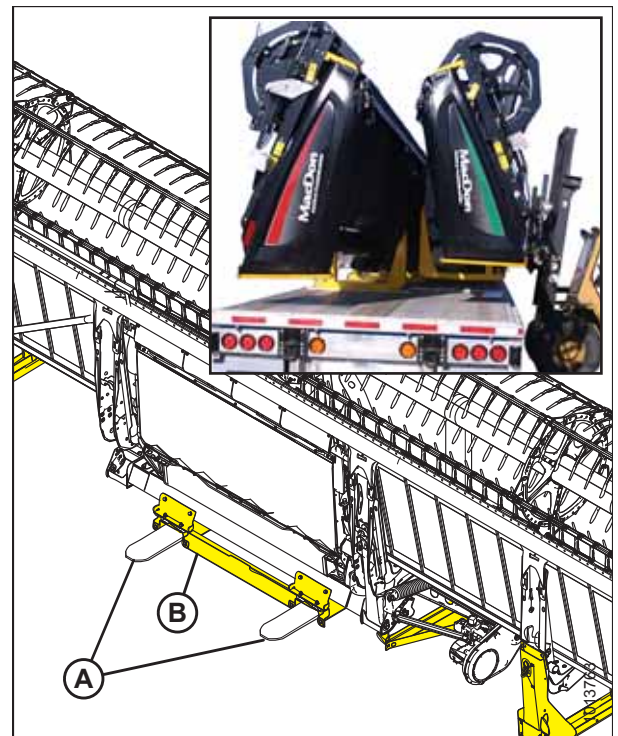


Figure 2.1: Header Shipping Supports

#### DANGER

Be sure forks are secure before moving away from load. Stand clear when lifting.

## UNLOADING THE HEADER

7. Back up until the header clears the trailer and slowly lower it to 150 mm (6 in.) from the ground.
8. Take the header to the storage set it down securely on level ground. Ensure the ground is flat and free of rocks or debris that could damage the header.
9. Check for shipping damage and missing parts.

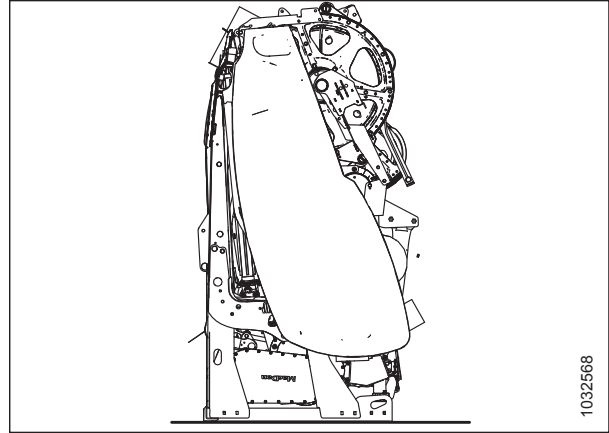


Figure 2.2: Header on Level Ground

## 2.2 Removing Upper Cross Auger from Shipping Location – Option

The upper cross auger (UCA) kit is shipped attached to the front of the header. Remove these large kit components before lowering an upright header down to the flat position.

**NOTE:**

Unless otherwise specified, discard stands, shipping material, and hardware. The removable stands are painted yellow or unpainted.

1. Remove any banding and blocks securing upper cross augers to the header:
  - **Two-piece augers:** Both augers are shipped attached to the left of the header at location (A).
  - **Three-piece augers:** Two augers shipped attached to the left of the header at location (A). The third auger is attached at location (B).
2. Set upper cross auger aside. It will be installed after the header is assembled.

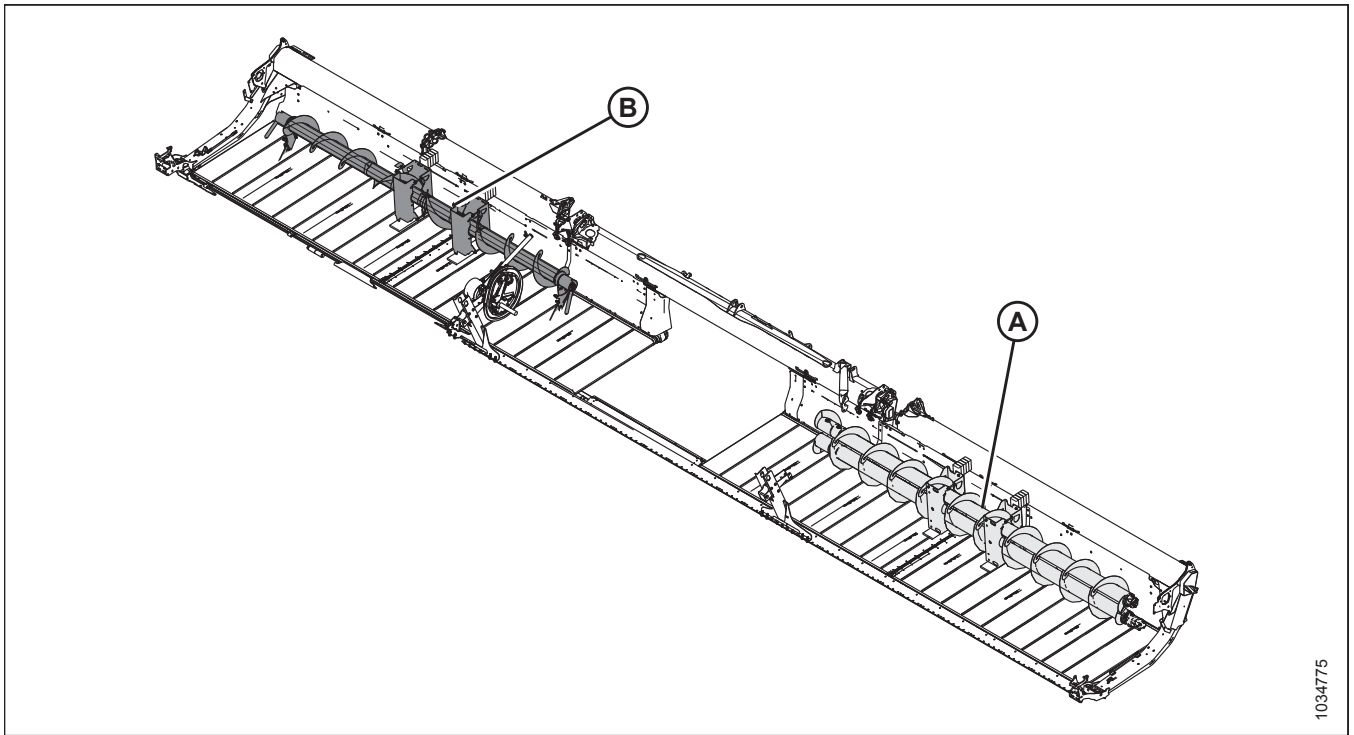


Figure 2.3: FD245 with Three-Piece Upper Cross Auger (UCA)

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## 2.3 Lowering Header to Field Position – Double Reel

### DANGER

Equipment used for unloading must meet or exceed the requirements specified below. Using inadequate equipment may result in chain breakage, vehicle tipping, machine damage or bodily harm to operators or bystanders.

For minimum lifting equipment requirements, refer to *11.4 Header Specifications for Unloading and Assembly, page 422*.

1. Approach the underside of the header with the lifting vehicle.

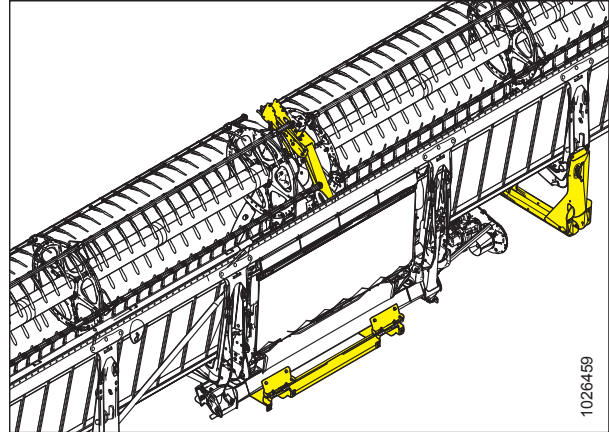


Figure 2.4: Underside of Header

2. Attach chain to shipping support (A) at center reel arm.

#### IMPORTANT:

Do **NOT** attempt to lift at cutterbar when unloading from trailer. This procedure is **ONLY** for laying the machine over into working position.

### CAUTION

Stand clear of header when lowering. Machine may swing.

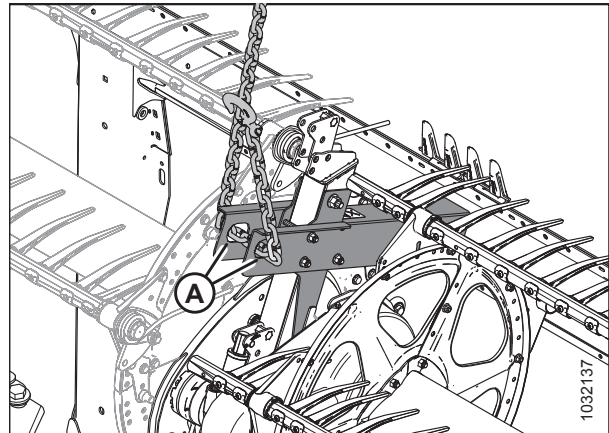


Figure 2.5: Chain Attachment Location – Double Reel

## UNLOADING THE HEADER

3. Back up **SLOWLY** while lowering forks until header rests on the ground.



Figure 2.6: Header Lowered onto Ground

## UNLOADING THE HEADER

4. Place 254 mm (10 in.) blocks (A) under each end and at the center of cutterbar, then lower the header onto blocks.
5. Remove chain.

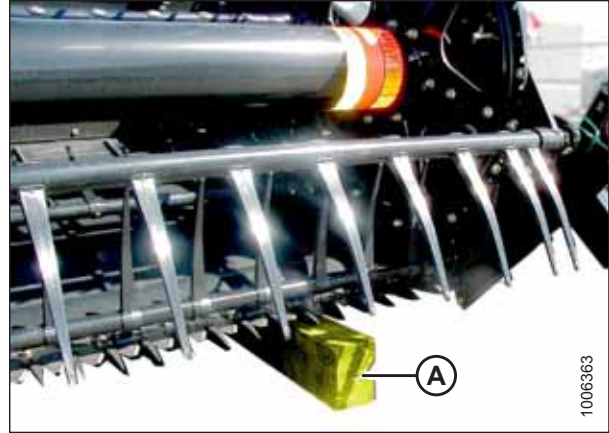


Figure 2.7: Blocks at Each End of Cutterbar

## 2.4 Lowering Header to Field Position – Triple Reel

### DANGER

Equipment used for unloading must meet or exceed the requirements specified below. Using inadequate equipment may result in chain breakage, vehicle tipping, machine damage or bodily harm to operators or bystanders.

#### IMPORTANT:

This procedure requires the use of a forklift spreader bar. For specifications and minimum lifting equipment requirements, refer to *11.4 Header Specifications for Unloading and Assembly, page 422*.

1. Choose an area with level ground.
2. Approach the underside of the header with the lifting vehicle.

#### IMPORTANT:

Do **NOT** attempt to lift at cutterbar when unloading from trailer. This procedure is **ONLY** for laying the machine over into working position.

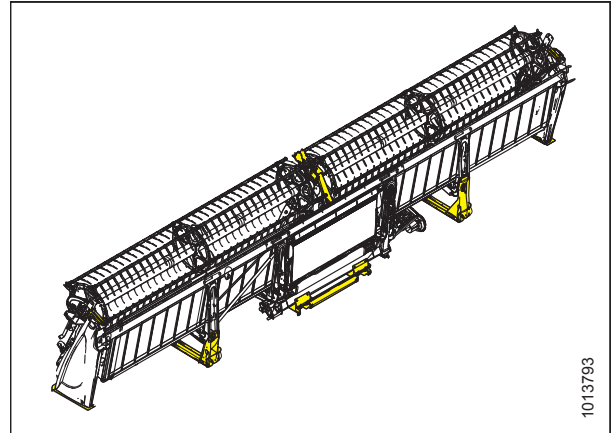


Figure 2.8: Underside of Header

3. Align the outer hooks on the spreader bar with the two shipping supports on the header.

### CAUTION

Stand clear of header when lowering. Machine may swing.

4. Attach chain (A) through the reel arm supports to spreader bar (B).

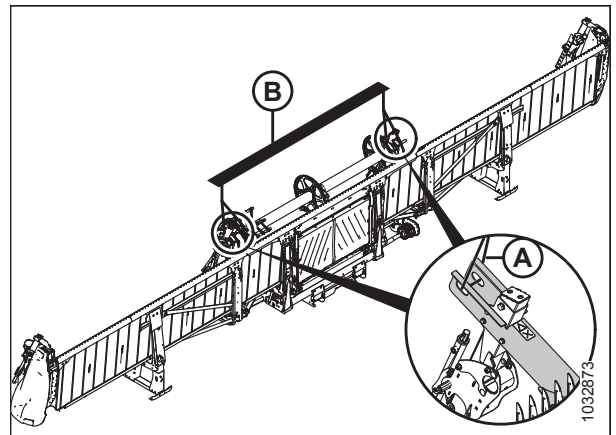


Figure 2.9: Shipping Support – Triple Reel Header

## UNLOADING THE HEADER

5. Back up **SLOWLY** while lowering spreader bar (A) until the cutterbar is approximately 305 mm (12 in.) off the ground.

**NOTE:**

Keep the tension on the chains as consistent as possible.

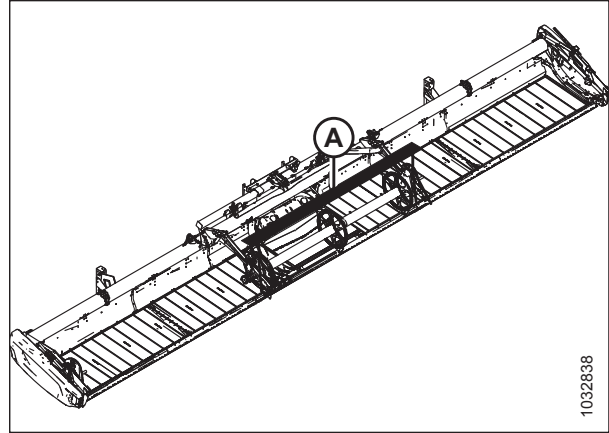


Figure 2.10: Lowered the Header

6. Place 254 mm (10 in.) blocks (A) under each end of the header, and one on each side of the float module. Continue lowering the header onto the blocks.
7. Remove the chain from both shipping supports.

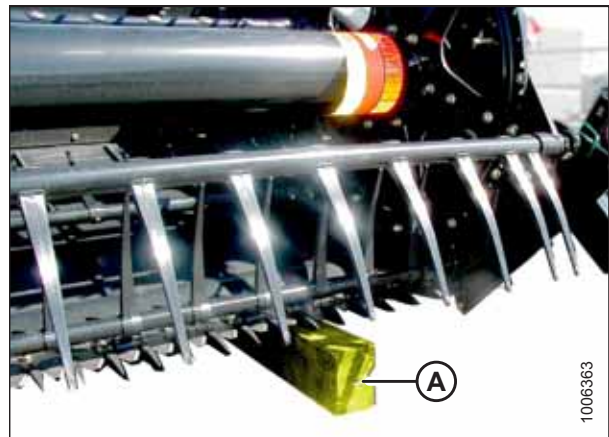


Figure 2.11: Blocks at Each End of Cutterbar



## 2.5 Removing Shipping Stands

**NOTE:**

Unless otherwise specified, discard stands, shipping material, and hardware. The removable stands are painted yellow or unpainted.

1. Remove four bolts (A) securing the shipping stand to the bottom of the float module.

**NOTE:**

To access the bolts at the lower stand support, the header must be supported with 254 mm (6 in.) blocks.

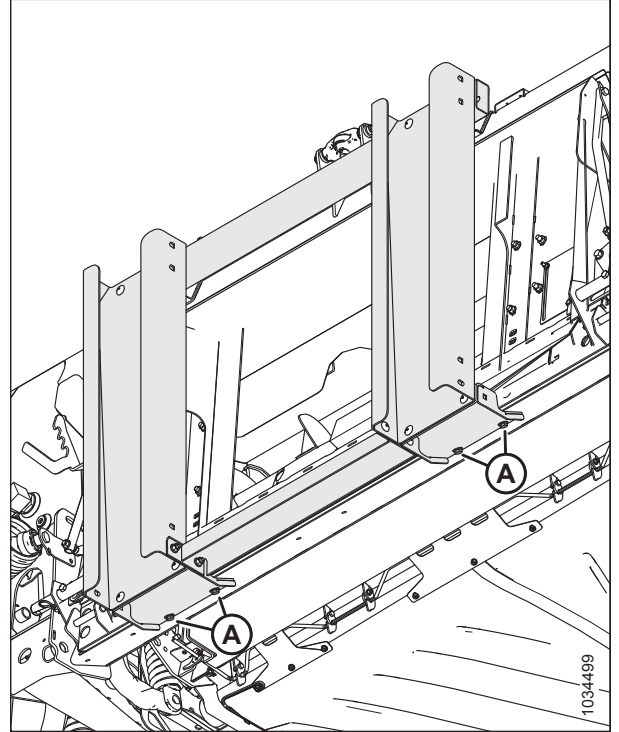


Figure 2.12: Shipping Supports – Rear of FM200

## UNLOADING THE HEADER

2. Remove four bolts (A) securing the top of the shipping stand to shipping brace (B).
3. Remove shipping stand (C).

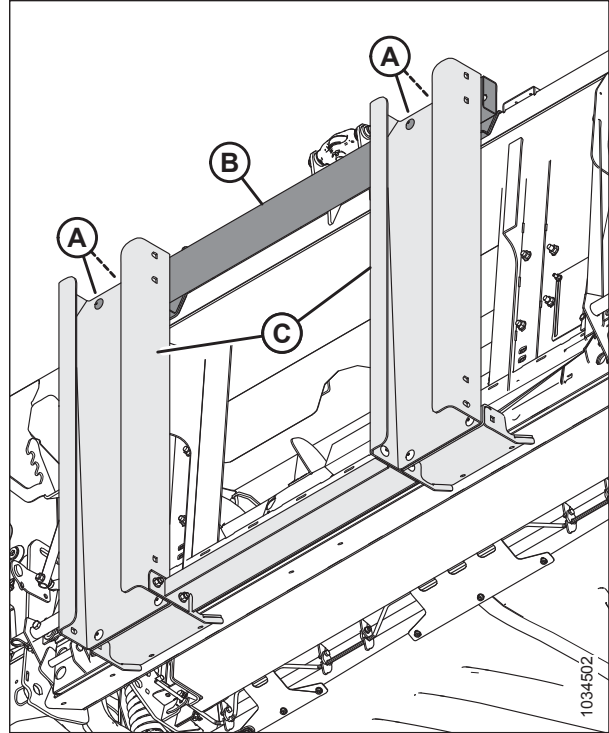


Figure 2.13: Shipping Supports – Rear of FM200

4. Remove bolt (A) securing shipping brace (B) to the top of the float module.
5. Slide shipping brace (B) upward and remove.

**NOTE:**

Shipping strap (C) gets removed after the header is attached to the combine in order to release the load on the bolts by adjusting the tilt cylinder.

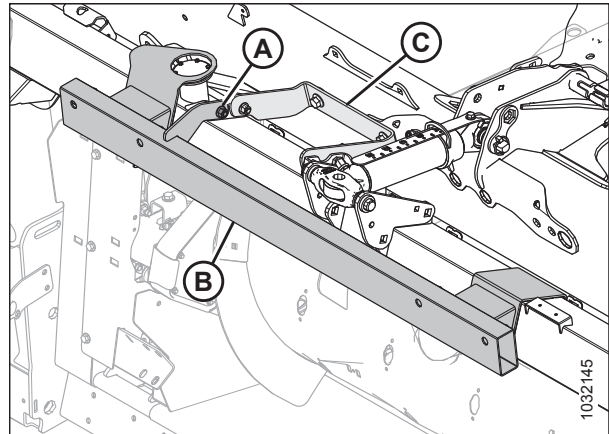


Figure 2.14: FM200 Shipping Supports

## UNLOADING THE HEADER

6. Remove right tank cover (A) from shipping position. It is tied to the bottom of the left tank cover (B).

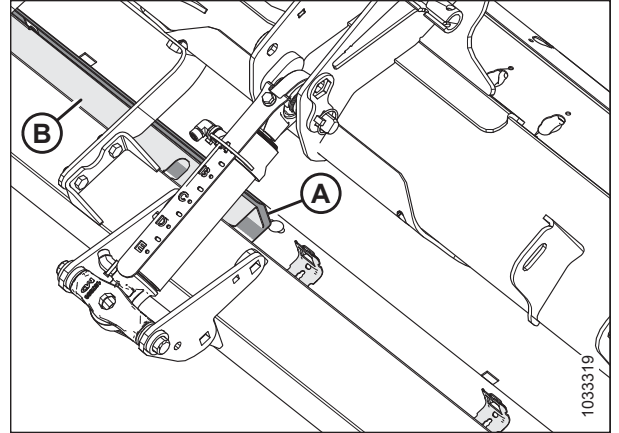


Figure 2.15: FM200 – Top View

7. Retrieve three push clips (C) (MD #208859) from shipping bag and secure right cover (A) to the three L-brackets (B).

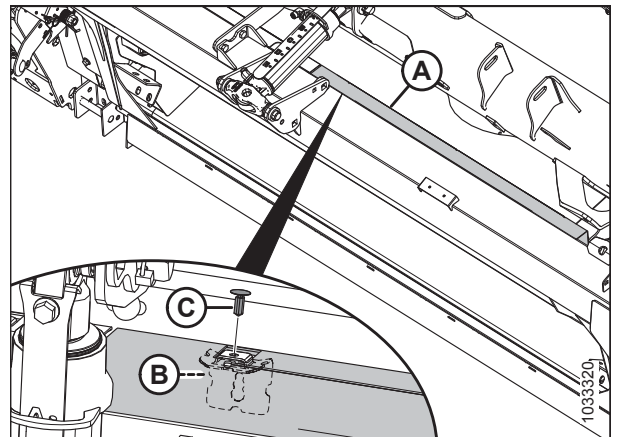


Figure 2.16: FM200 – Top View

8. Remove banding (A) and remove 2 x 4 wood (B) from the back of the feed auger.

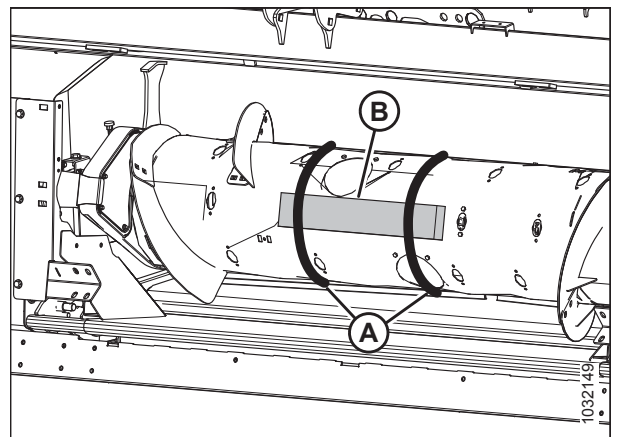


Figure 2.17: Feed Auger

## UNLOADING THE HEADER

9. Loosen bolt (A) securing divider cone (B) to the header leg shipping stand.
10. Slide the divider cone forward so that the bolt clears the keyhole, and remove divider cone from shipping position.
11. Remove and discard bolt (A).
12. Remove the second divider cone on the opposite shipping stand.

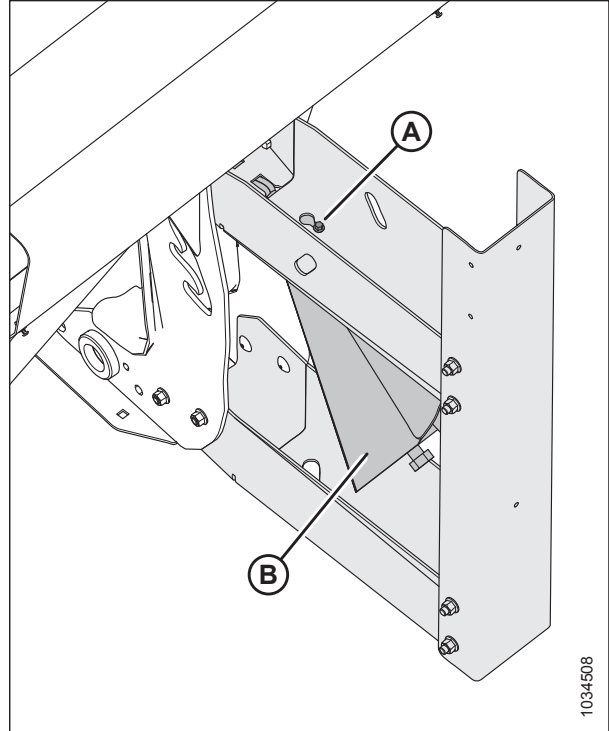


Figure 2.18: Divider Cone in Shipping Position

13. Remove the eight bolts (A) and shipping stand (B) from both outboard header legs.

**NOTE:**

Four of the bolts are on the opposite side of the shipping stand.

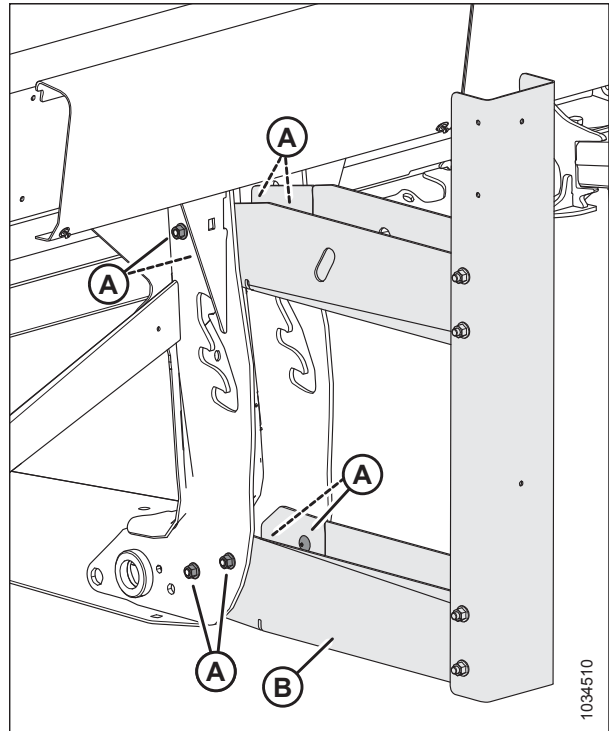


Figure 2.19: Shipping Stands at Outboard Legs – Right Side Shown

## UNLOADING THE HEADER

### CAUTION

To avoid injury from rotating reel, remove the tine tubes from shipping position before attempting to remove the anti-rotation strap.

15. Remove the shipping wire securing tine tubes (A) to reel (B), and remove the tine tubes.
16. Remove the hardware bag that is wired to the tine tube.

### CAUTION

Support the reel to avoid accidental rotation.

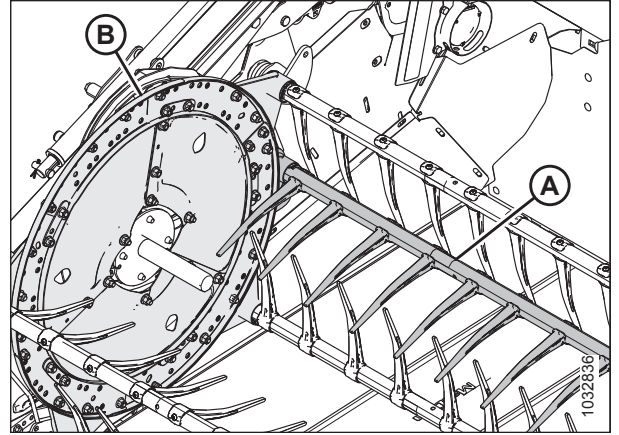


Figure 2.20: Tine Tube in Shipping Position

17. Support the reel to avoid accidental rotation.
18. At the right end of the header, between the reel and the endsheet, remove and discard hardware (A) and anti-rotation strap (B).

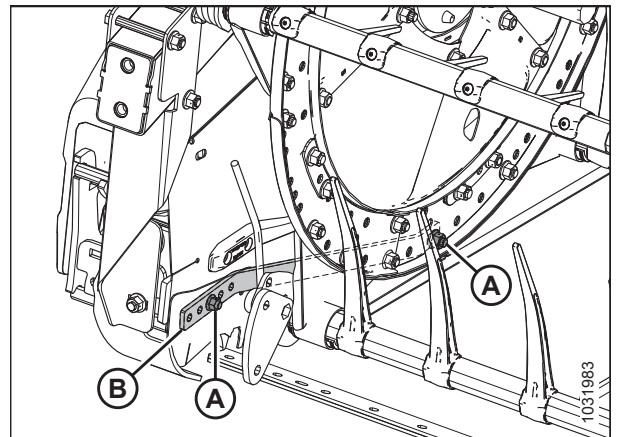


Figure 2.21: Reel Anti-Rotation Strap

19. Retrieve M10 x 30 mm flange bolt (A), flat washer (B), and center lock flange nut from the shipping bag, and install on knife cover (C) where the shipping strap hardware was removed.
20. Remove reel support.

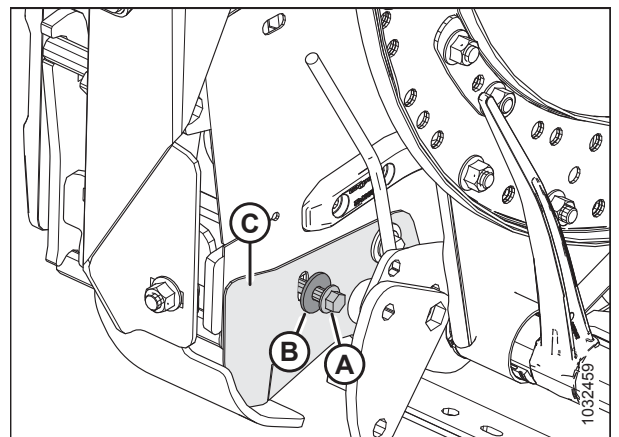


Figure 2.22: Right Knife Cover

## UNLOADING THE HEADER

21. Remove and discard hardware (A) and shipping tag (B) from the inboard deck support. Repeat on opposite deck.

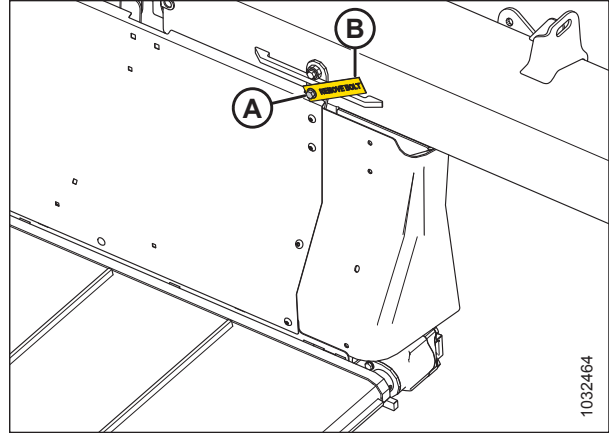


Figure 2.23: Deck Support Shipping Bolt

## Chapter 3: Assembling Header and Float Module

Perform all the procedures in this chapter in the order in which they are listed.

### 3.1 Installing Reel Lift Cylinders – Double Reel

1. Remove top two bolts (A) from all three reel arm supports.

**IMPORTANT:**

The top two bolts (A) must be removed from all three reel arm supports before connecting any of the lift cylinders to prevent the reel from twisting.

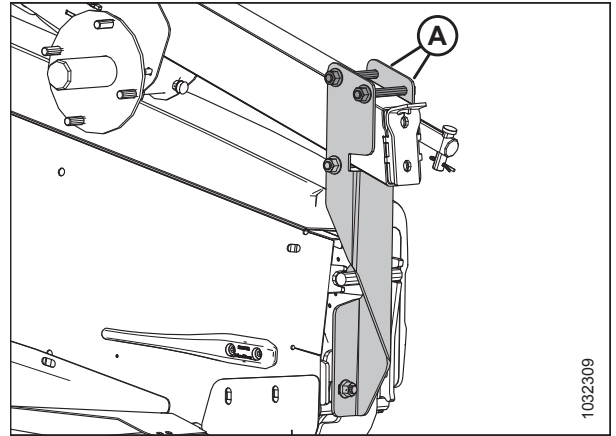


Figure 3.1: Outboard Arm Shipping Support – Left Side

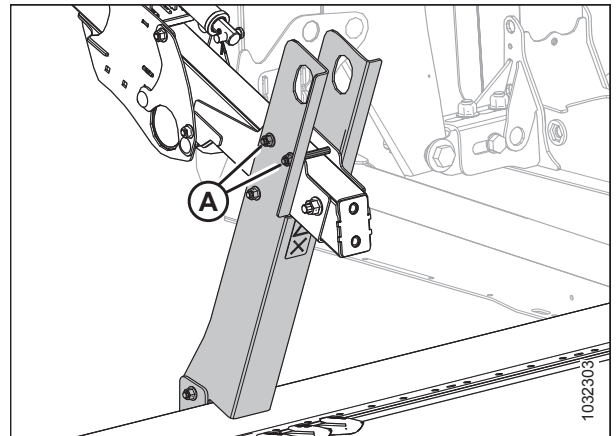


Figure 3.2: Center Arm Shipping Support

2. Position a sling around the reel tube—close to the left end of reel—and attach sling to a forklift (or equivalent).
3. Raise end of reel with a forklift or crane so the reel lift cylinder can be attached.

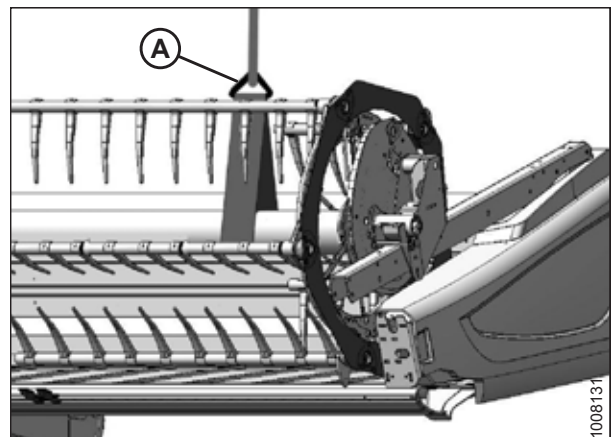


Figure 3.3: Left Reel Arm

## ASSEMBLING HEADER AND FLOAT MODULE

- Retrieve reel lift cylinder (A) that is tied to the reel support arm.

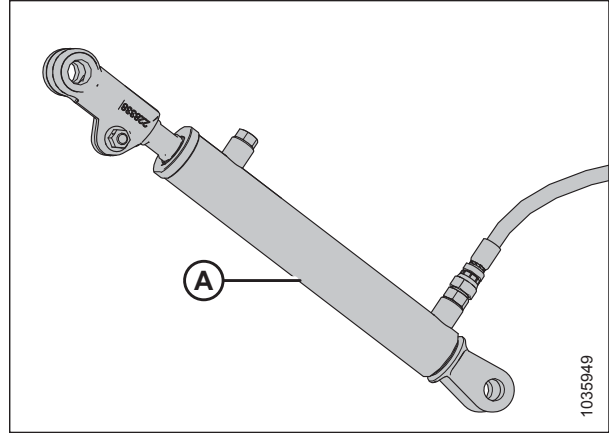


Figure 3.4: Reel Lift Cylinder and Reel Safety Prop

- Remove and retain the two sets of pins (A) from the lug on the endsheet and the reel arm.
- Lift the reel, so that the reel lift cylinder mounting holes line up with the lug on the endsheet and the hole in the reel arm.

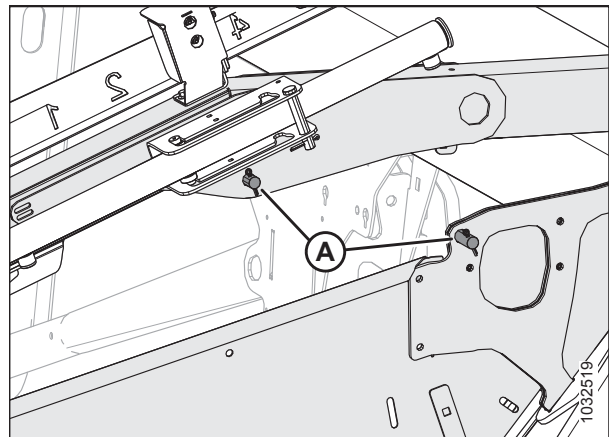


Figure 3.5: Left Reel Arm

- Secure base of cylinder (A) to the endsheet using clevis pin and cotter pin (B).

**IMPORTANT:**

Install cotter pin (B) on the outboard side of the header.

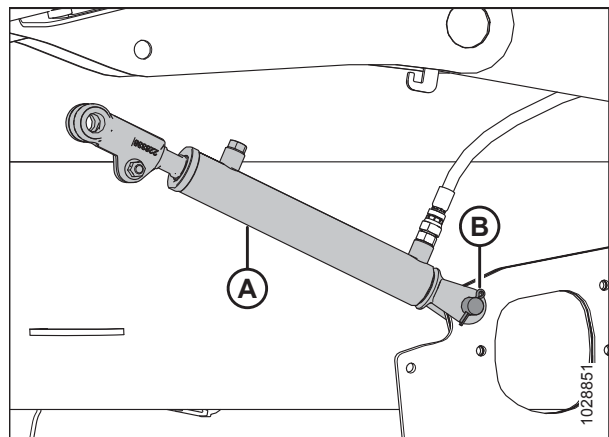


Figure 3.6: Left Lift Cylinder



## ASSEMBLING HEADER AND FLOAT MODULE

8. Install rod end of lift cylinder (A) and safety prop (B) using clevis pin (C) and cotter pin (D).

**IMPORTANT:**

Install cotter pin (D) on the outboard side of the header.

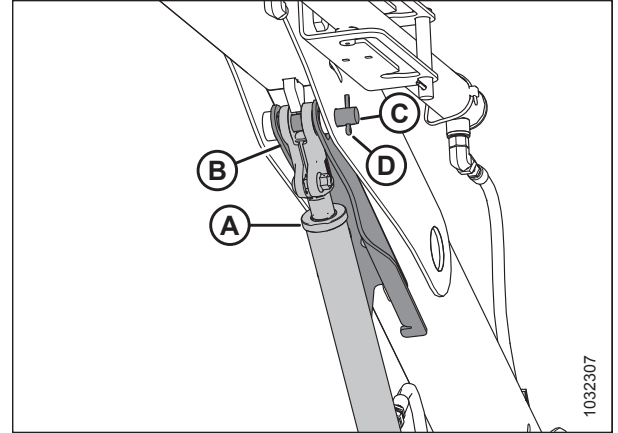


Figure 3.7: Left Lift Cylinder and Safety Prop

9. Reposition sling (A) near the reel center support arm.

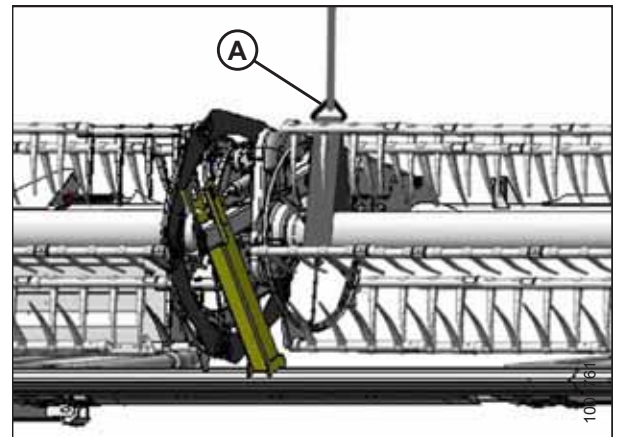


Figure 3.8: Center of Reel

10. Remove the shipping wires securing lift cylinders (A) to the center reel arm.
11. Remove and retain the pins from the rod ends of both lift cylinders.

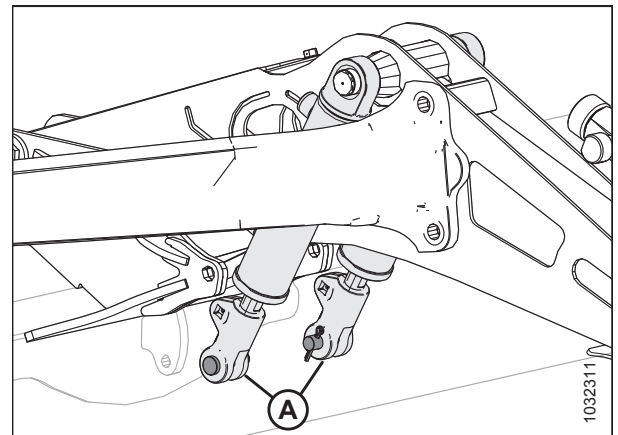


Figure 3.9: Lift Cylinders at Center Reel Arm

## ASSEMBLING HEADER AND FLOAT MODULE

12. Lift the reel and align the holes on cylinders (A) to the holes on the reel support plates. Secure them with clevis pins and cotter pins (B).

**IMPORTANT:**

Install cotter pins (B) on the inboard side as shown.

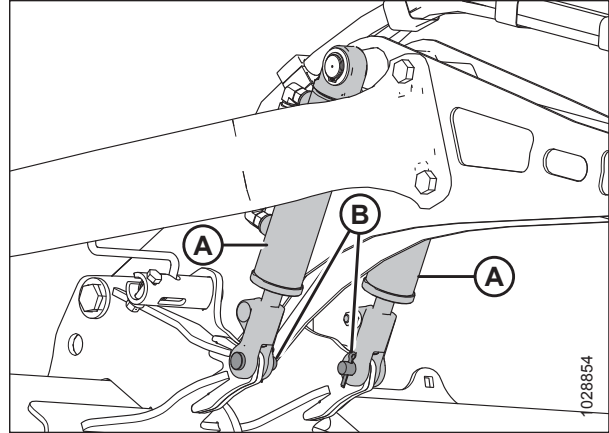


Figure 3.10: Lift Cylinders at Center Reel Arm

13. Repeat Step 2, page 19 to Step 8, page 21 to connect the right arm lift cylinder.

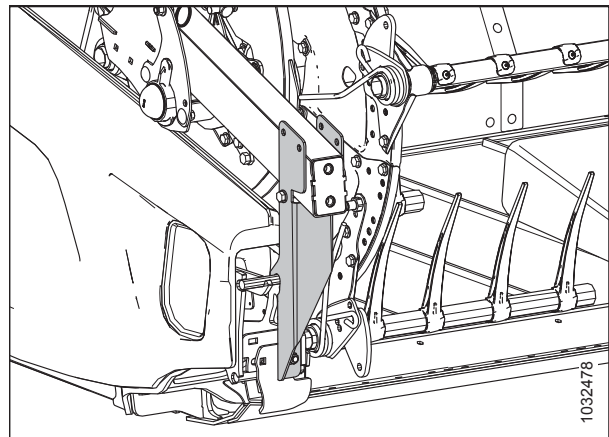


Figure 3.11: Right Reel Arm

14. At the center arm, remove bolt (A).
15. Remove four bolts (B) (two shown) that clamp the shipping support to the cutterbar, and remove the shipping support.

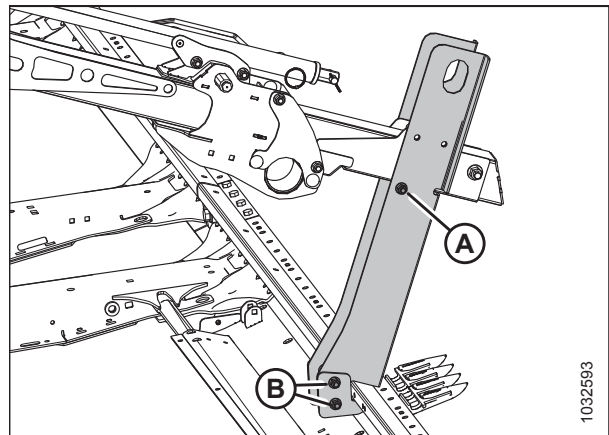


Figure 3.12: Center Reel Arm Support

## ASSEMBLING HEADER AND FLOAT MODULE

16. Remove hardware (A) from outboard arm support (B), and remove support.

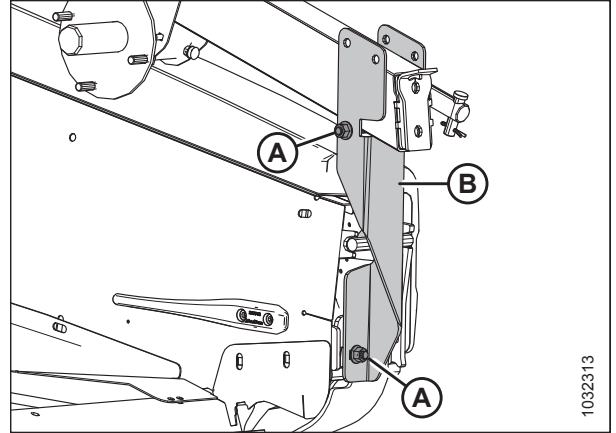


Figure 3.13: Reel Left Arm Support

17. Retrieve M12 x 30 mm round head square neck bolt (A) and center lock hex flange nut from the shipping bag, and install on knife cover (B) where the arm support hardware was removed.
18. Repeat Step 16, page 23 and Step 17, page 23 at the opposite end of the header.

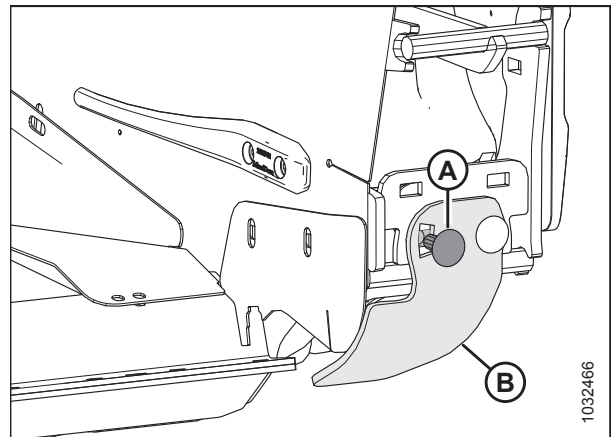


Figure 3.14: Left Knife Cover

19. Cut the ties securing the center arm hoses to the center reel arm brace (A), and move the hoses and clamp (B) to the back of the reel arm.
20. Remove and discard the nut from the bottom of the hose clamp (B), and secure the clamp (with hoses) to hole (C) at the back of the center arm using the existing bolt on the clamp. Tighten the bolt to 11 Nm (8 lbf-ft).

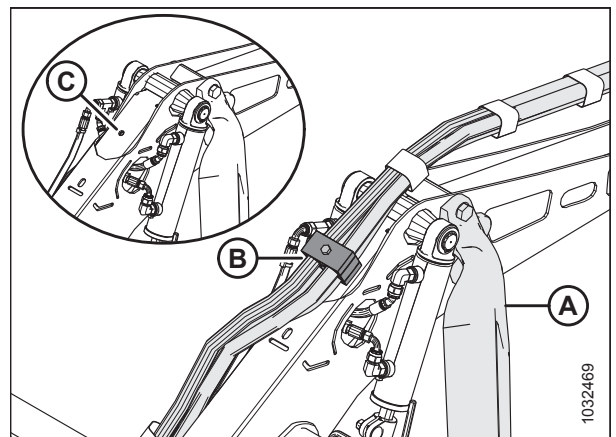


Figure 3.15: Center Reel Arm

### 3.2 Installing Reel Lift Cylinders – Triple Reel

1. Remove top two bolts (A) from all four reel arm supports.

**IMPORTANT:**

The top two bolts (A) must be removed from all four reel arm supports before connecting any of the lift cylinders to prevent the reel from twisting.

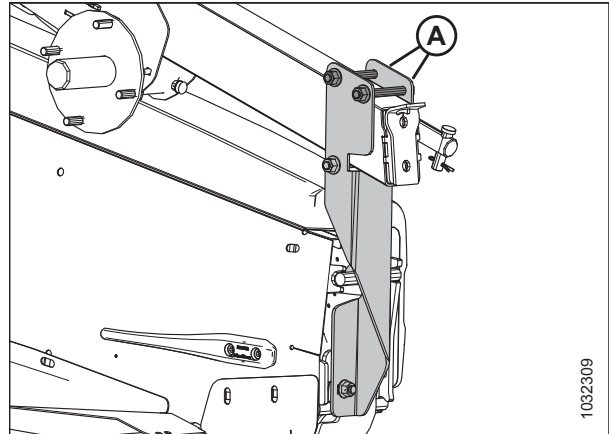


Figure 3.16: Outboard Arm Shipping Support

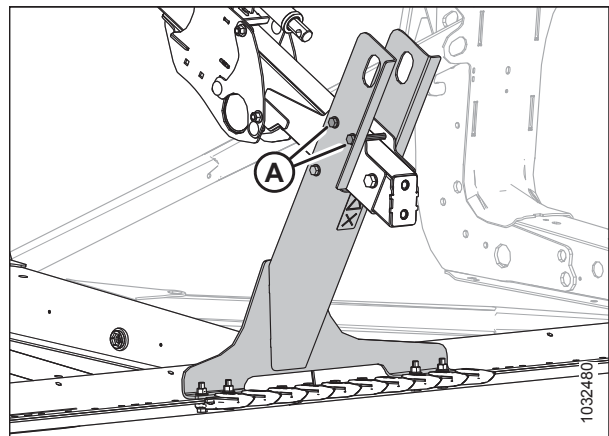


Figure 3.17: Center Arm Shipping Support

2. Position a sling around the reel tube—close to the outboard end of reel—and attach sling to a forklift (or equivalent).
3. Raise end of reel with a forklift or crane so the reel lift cylinder can be attached.

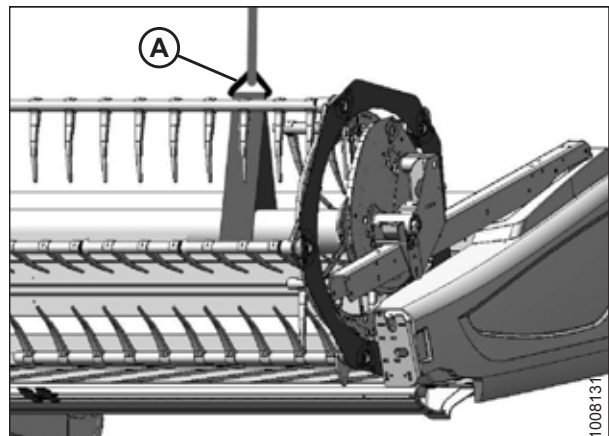


Figure 3.18: Left Reel Arm

## ASSEMBLING HEADER AND FLOAT MODULE

- Retrieve reel lift cylinder (A) that is wired to reel support arm.

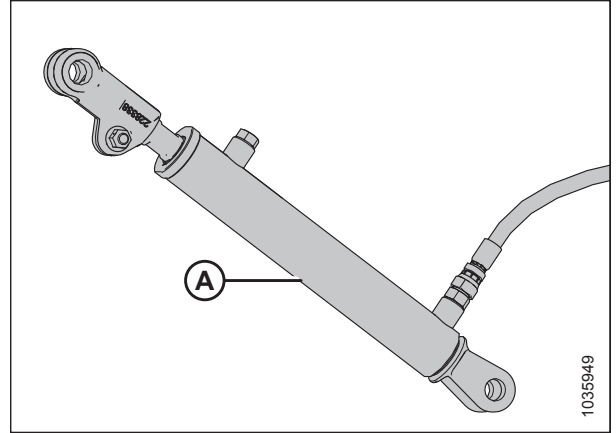


Figure 3.19: Reel Lift Cylinder and Reel Safety Prop

- Remove and retain the two sets of pins (A) from the lug on the endsheet and the reel arm.
- Lift the reel, so that the reel lift cylinder mounting holes line up with the lug on the endsheet and the hole in the reel arm.

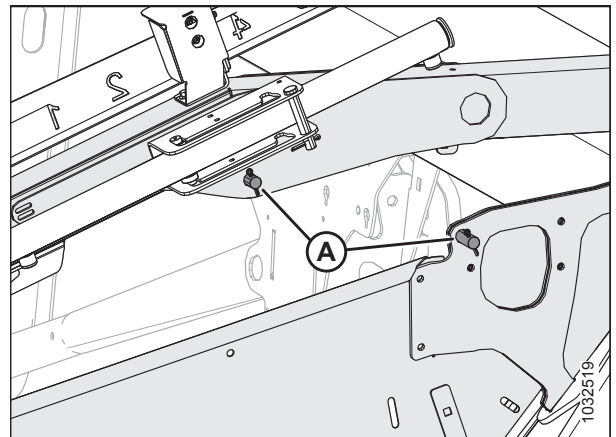


Figure 3.20: Left Reel Arm

- Secure base of cylinder (A) to the endsheet with existing clevis pin and cotter pin (B).

**IMPORTANT:**

Install cotter pin (B) on the outboard side of the header.

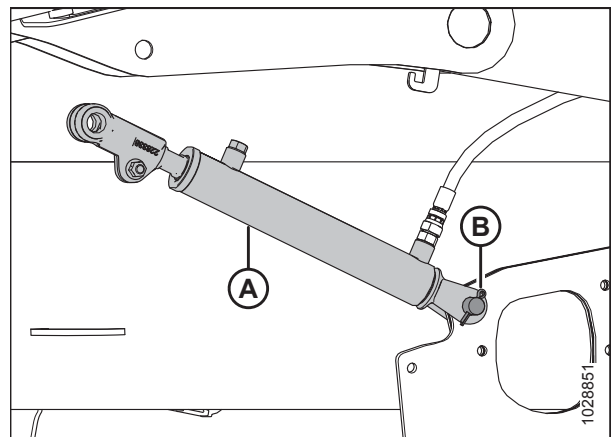


Figure 3.21: Left Lift Cylinder

## ASSEMBLING HEADER AND FLOAT MODULE

8. Install rod end of lift cylinder (A) and safety prop (B) using existing clevis pin (C) and cotter pin (D).

**IMPORTANT:**

Install cotter pin (D) on the outboard side of the header.

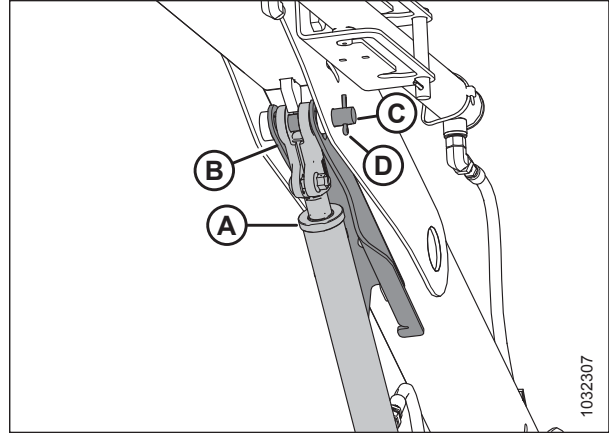


Figure 3.22: Left Lift Cylinder and Safety Prop

9. Reposition sling (A) near one of the two center arms.

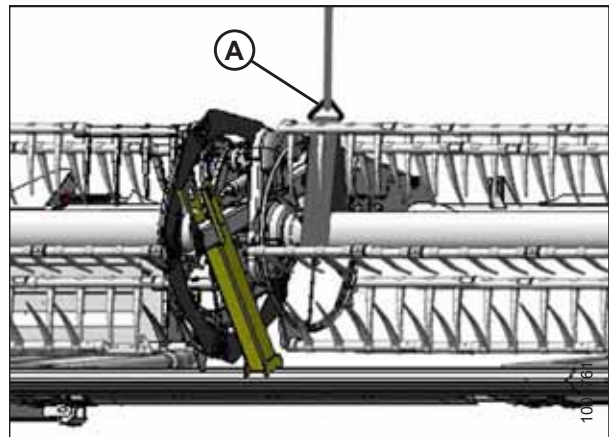


Figure 3.23: Center Reel Arm

10. Remove shipping wires securing lift cylinders (A) to center reel arm.
11. Remove and retain the pins from the rod ends of both lift cylinders.

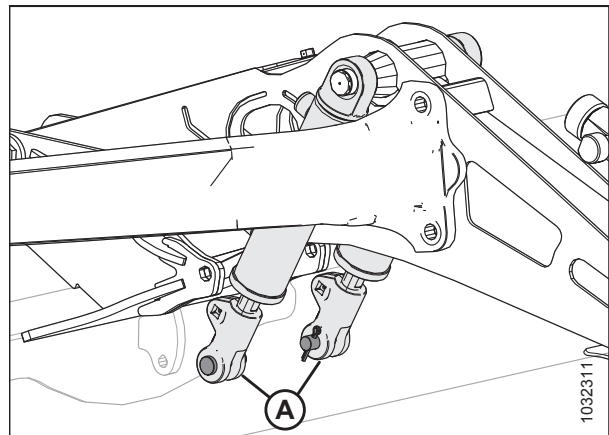


Figure 3.24: Lift Cylinders at Center Reel Arm

## ASSEMBLING HEADER AND FLOAT MODULE

12. Lift the reel and align the holes on cylinders (A) to the holes on the reel support plates. Secure them with clevis pins and cotter pins (B).

**IMPORTANT:**

Install cotter pins (B) on the inboard side as shown.

13. Repeat Step 9, page 26 to Step 12, page 27 to connect the lift cylinders on the second center arm.

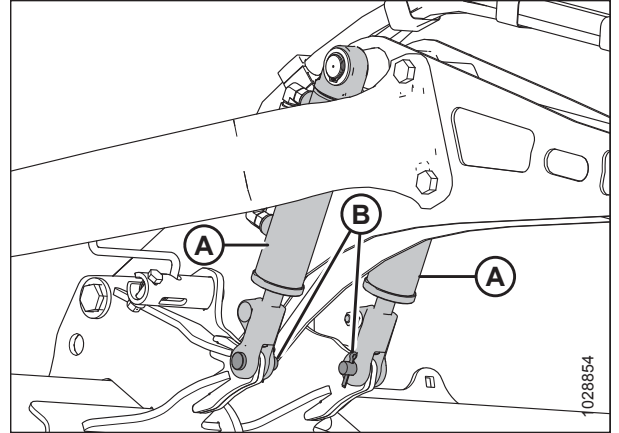


Figure 3.25: Lift Cylinders at Center Reel Arm

14. Repeat Step 2, page 24 to Step 8, page 26 to connect the right arm lift cylinder.

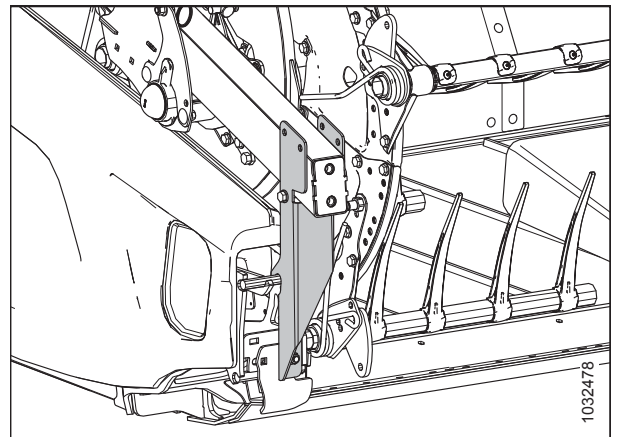


Figure 3.26: Right Reel Arm

15. Remove hardware (A) from outboard arm support (B), and remove support.

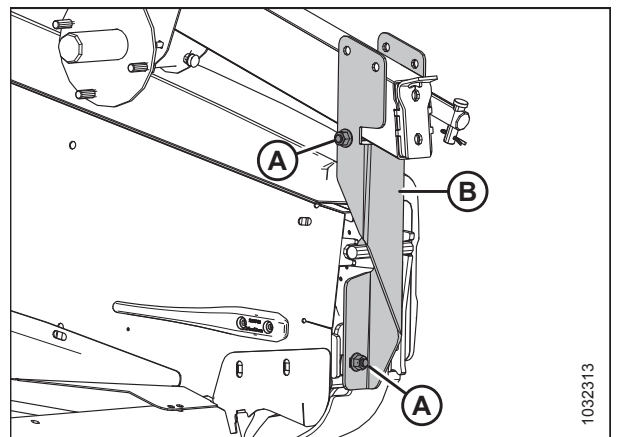


Figure 3.27: Reel Left Arm Support

## ASSEMBLING HEADER AND FLOAT MODULE

16. Retrieve M12 x 30 mm round head square neck bolt (A) and center lock hex flange nut from the shipping bag, and install on knife cover (B) where the arm support hardware was removed.
17. Repeat Step 15, page 27 and Step 16, page 28 at the other end of the header.

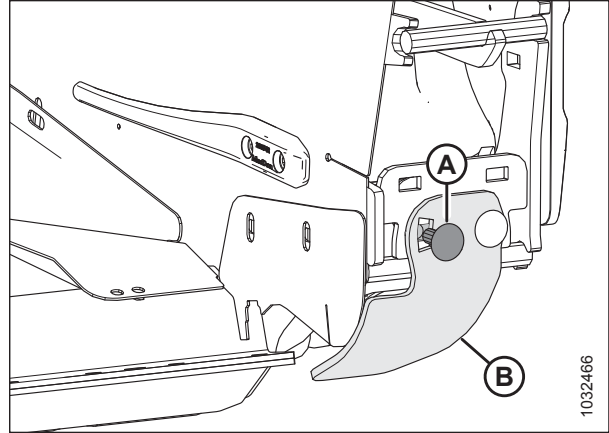


Figure 3.28: Left Knife Cover

18. Cut the ties securing the center arm hoses to the center reel arm brace (A), and move the hoses and clamp (B) to the back of the reel arm.
19. Remove and discard the nut from the bottom of the hose clamp (B), and secure the clamp (with hoses) to hole (C) at the back of the center arm using the existing bolt on the clamp. Tighten the bolt to 11 Nm (8 lbf-ft).

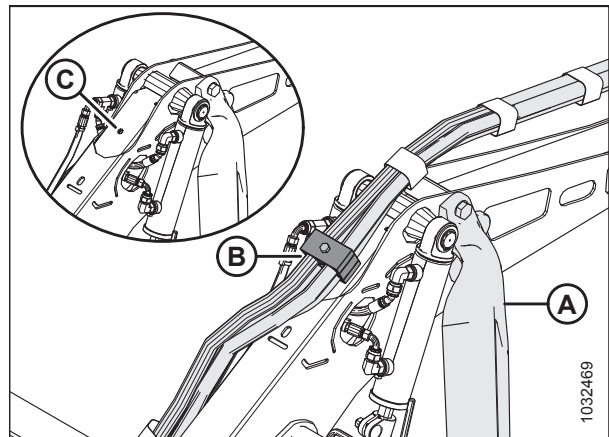


Figure 3.29: Center Reel Arm



### 3.3 Installing Cutterbar Wearplates and Hold-Downs – Triple Reel

At the center arm shipping supports on triple-reel headers, some cutterbar wearplates and knife hold-downs were removed prior to shipping in order to attach the supports to the cutterbar.

1. Remove and discard hardware (A) from center arm support (C).
2. Remove and discard hardware (B) securing the support to the cutterbar, and remove the support from the header.
3. Repeat on opposite arm shipping support.
4. Proceed to the correct procedure for your knife guard type:
  - [3.3.1 Installing Pointed Guard Hold-Downs and Wearplates, page 29](#)
  - [3.3.2 Installing Short Knife Guard Hold-Downs and Wearplates, page 31](#)

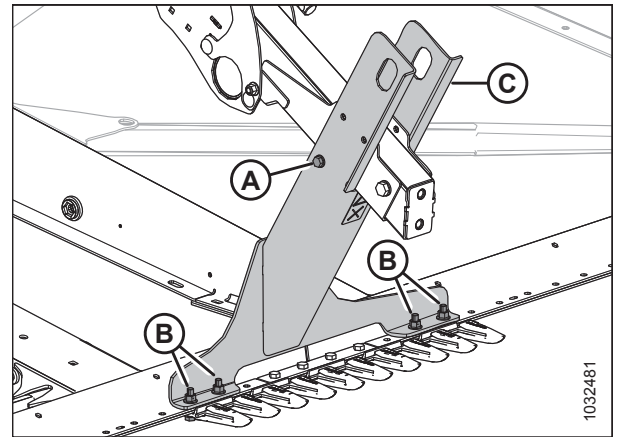


Figure 3.30: Center Reel Arm Shipping Bracket

#### 3.3.1 Installing Pointed Guard Hold-Downs and Wearplates

**NOTE:**

On pointed guard configurations, the knife hold-downs (A) are installed alternately.

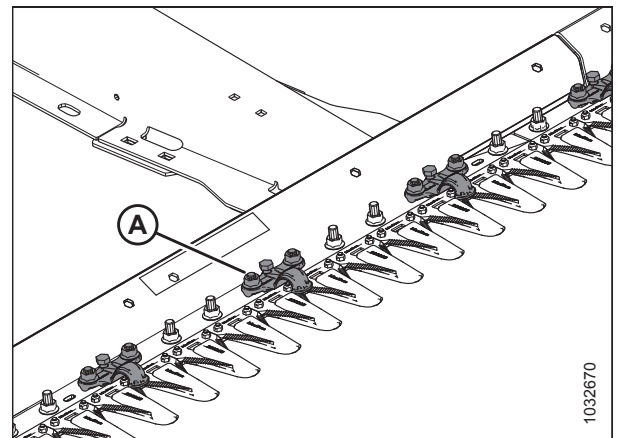


Figure 3.31: Pointed Knife Guard Configuration

1. Retrieve the wearplates, hold-downs, and hardware from the shipping bag.
2. Position plastic wearplate (A) and pointed knife guard (B) under the cutterbar.

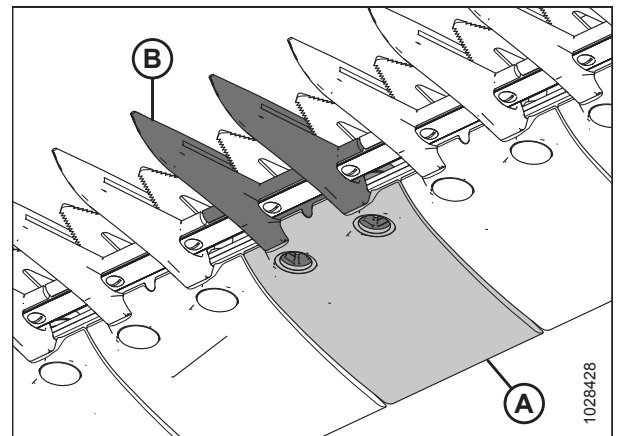


Figure 3.32: Pointed Knife Guard and Wearplate

## ASSEMBLING HEADER AND FLOAT MODULE

3. Position hold-down (A) (if applicable), and loosen adjustment bolt (C) so that it is not protruding from the bottom of the hold down.
4. Secure pointed knife guard, wearplate, and hold-down with two M12 x 47 mm square neck bolts and hex flange nuts (B). Tighten nuts to 100 Nm (74 lbf-ft).

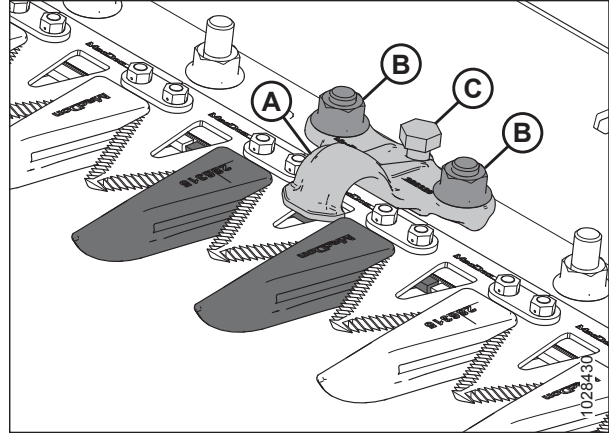


Figure 3.33: Pointed Knife Guards

5. Check the clearance at hold-down (B) as follows:
  - a. Manually stroke the knife to position knife section (A) under hold-down (B).
  - b. Push down on knife section (A) with approximately 44 N (10 lbf), and use a feeler gauge to measure the clearance between hold-down (B) and the knife section. Ensure the clearance is 0.1–0.5 mm (0.004–0.020 in.).

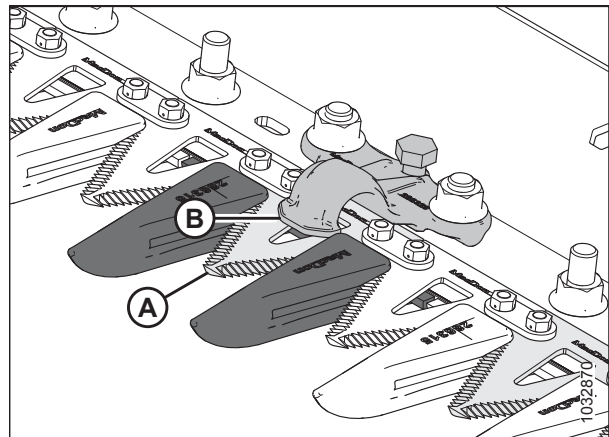


Figure 3.34: Pointed Hold-Down

6. If adjustment is required, adjust the hold-down clearance as follows:
  - a. To lower the front of hold-down (A) and decrease clearance, turn adjuster bolt (B) clockwise.
  - b. To raise the front of hold-down (A) and increase clearance, turn adjuster bolt (B) counterclockwise.

**NOTE:**

For larger adjustments, it may be necessary to loosen nuts (C) before turning adjuster bolt (B). After adjustment, retighten nuts to 100 Nm (74 lbf-ft).

7. Repeat procedure to install remaining hold-downs and wearplates.

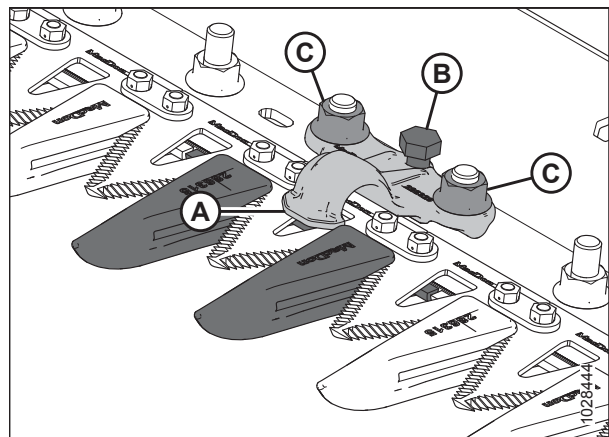


Figure 3.35: Pointed Hold-Down

### 3.3.2 Installing Short Knife Guard Hold-Downs and Wearplates

**NOTE:**

On short guard configurations, the knife hold-downs (A) are installed on every guard.

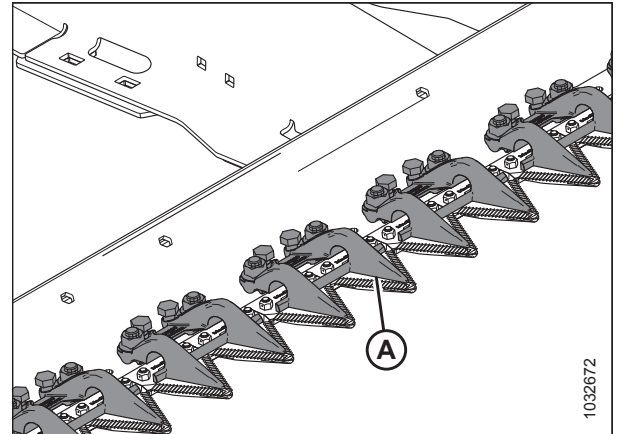


Figure 3.36: Short Knife Guard Configuration

1. Retrieve the wearplates, hold-downs, and hardware from the shipping bag.
2. Position plastic wearplate (A) and short knife guard (B) under the cutterbar.

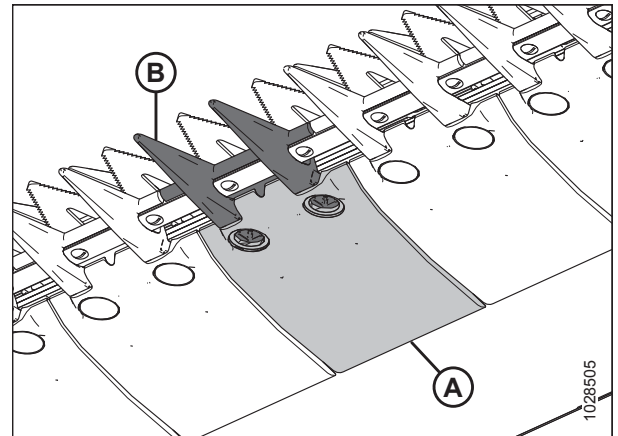


Figure 3.37: Short Knife Guard and Wearplate

3. Position hold-down (A), and loosen the two adjustment bolts so that they are not protruding from the bottom of the hold down.
4. Secure short knife guard, wearplate, and hold-down with two M12 x 47 mm square neck bolts and hex flange nuts (B). Tighten nuts to 100 Nm (74 lbf·ft).

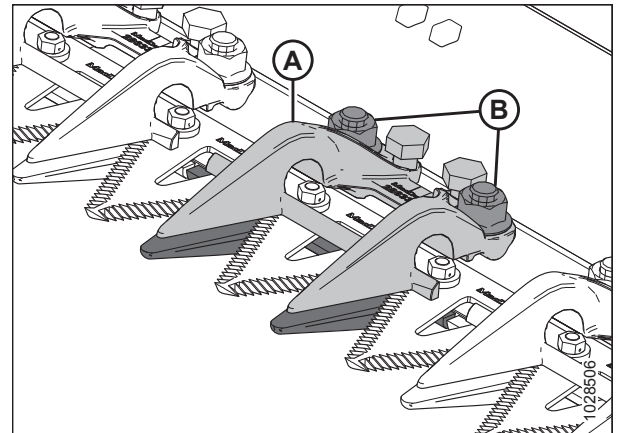


Figure 3.38: Short Knife Guard

## ASSEMBLING HEADER AND FLOAT MODULE

5. Check the clearance at the hold-down as follows:
  - a. Manually stroke knife to locate section under hold-down (A).
  - b. Use a feeler gauge to measure the clearance (B) between the tip of the hold-down and the knife section. Ensure the clearance is 0.1–0.5 mm (0.004–0.020 in.).

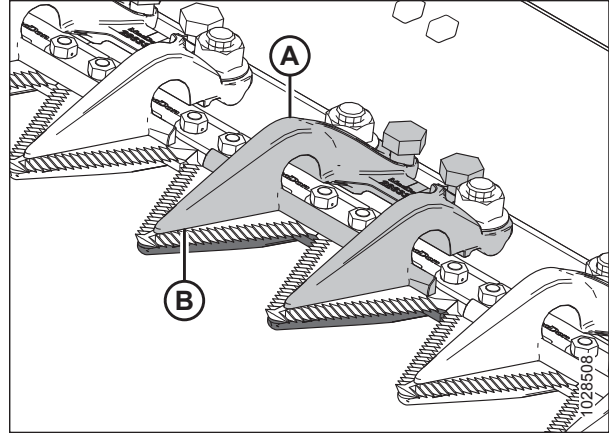


Figure 3.39: Short Knife Guards

6. If adjustment is required, adjust the hold-down clearance as follows:
  - a. To decrease clearance, turn adjuster bolts (A) clockwise.
  - b. To increase clearance, turn adjuster bolts (A) counterclockwise.

**NOTE:**

For larger adjustments, it may be necessary to loosen nuts (B) before turning adjuster bolts (A). After adjustment, retighten nuts to 100 Nm (74 lbf-ft).

- c. Recheck clearances, and make further adjustments if necessary.
7. Repeat procedure to install remaining hold-downs and wearplates.

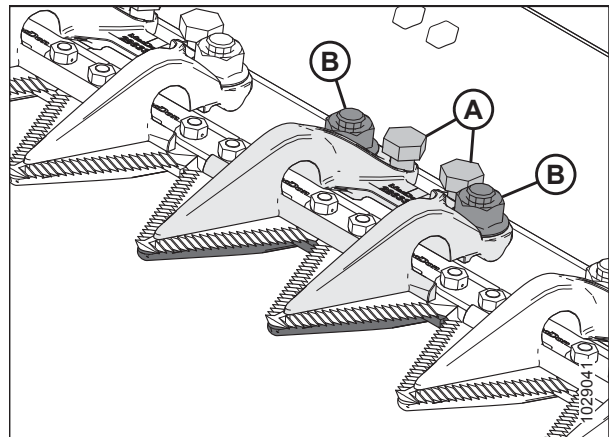


Figure 3.40: Short Knife Guard Hold-Down

### 3.4 Attaching Reel Height Sensor

The reel height sensor linkage (located toward the back of the right reel arm) is disconnected to prevent shipping damage.

1. Remove cable ties (A) that attaches the reel height sensor rod (B) to the end panel. Check the configuration of reel height sensor (C) in the next step.

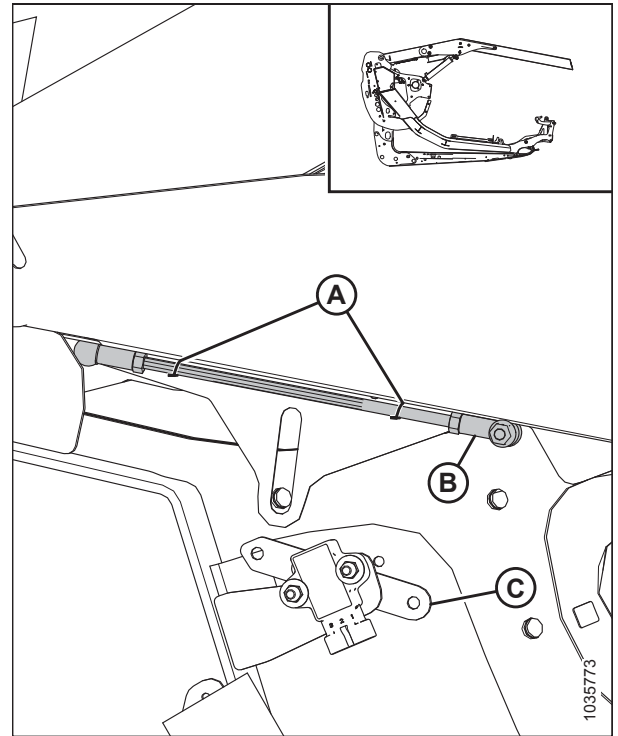
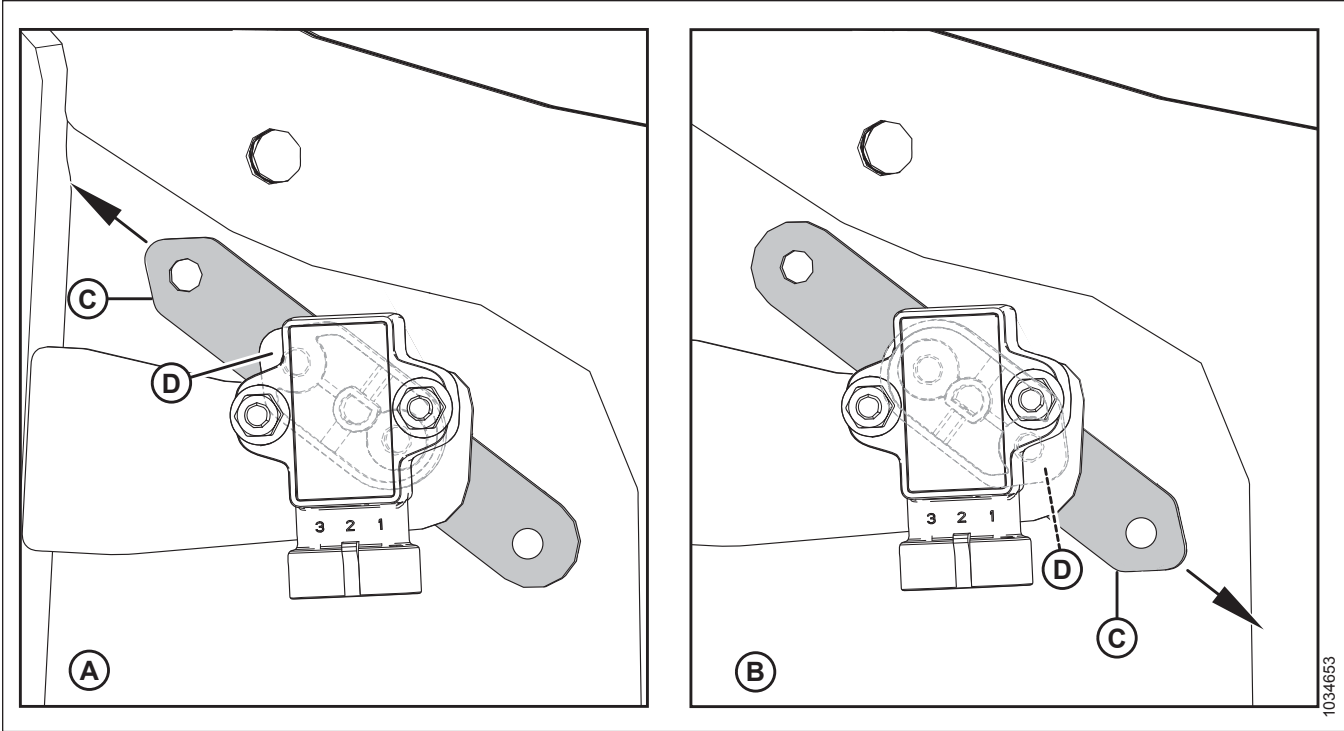


Figure 3.41: Reel Height Sensor Location

## ASSEMBLING HEADER AND FLOAT MODULE



**Figure 3.42: Sensor Arm/Pointer Configurations**

A - John Deere, CLAAS, AGCO IDEAL™ Configuration

B - Case/New Holland Configuration

C - Sensor Arm (Shown Semitransparent)

D - Sensor Pointer (Shown Under Sensor Arm)

### NOTE:

In configuration **A**, the arrow indicates that the pointed end of the sensor arm is toward the back of the header.

In configuration **B**, the arrow indicates that the pointed end of the sensor arm is toward the front of the header.

2. Check that sensor arm (C) and pointer (D) are configured properly for your combine. Refer to [Figure 3.42, page 34](#).

## ASSEMBLING HEADER AND FLOAT MODULE

3. Attach reel height sensor rod (A) to reel arm bracket (B) with existing nut (C). Secure the other end of the rod to the sensor arm with nut (D). Torque nuts (C) and (D) to 8.2 Nm (6 lbf·ft).

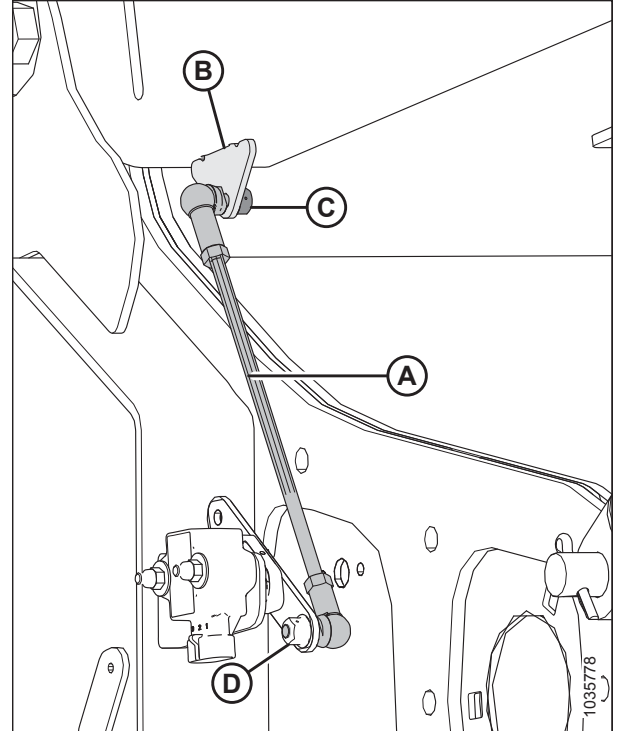


Figure 3.43: Reel Height Sensor

### NOTE:

Dimension (A) is factory set to 164.5 mm (6.5 in), but might be adjusted in [9.1 Checking and Adjusting Reel Height Sensor, page 389](#) to achieve the correct voltage range.

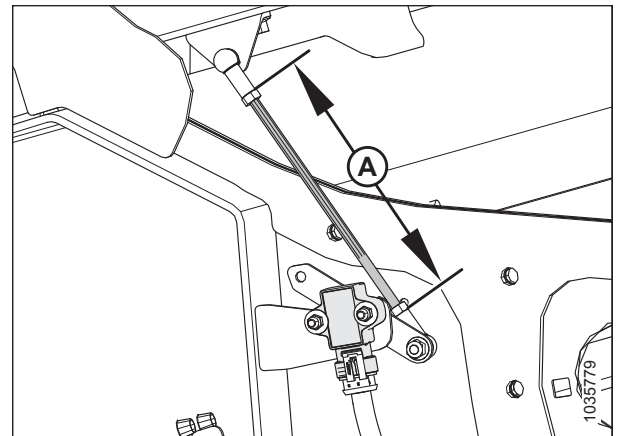


Figure 3.44: Reel Height Sensor – Right Reel Arm with Reel Down

### 3.5 Installing Tine Tubes

One of the tine tube assemblies on each reel was removed and tied to the back of the reel for shipping purposes.

Install the tine tube assemblies as follows:

1. Remove shipping wire (A) securing the cam links to the reel.

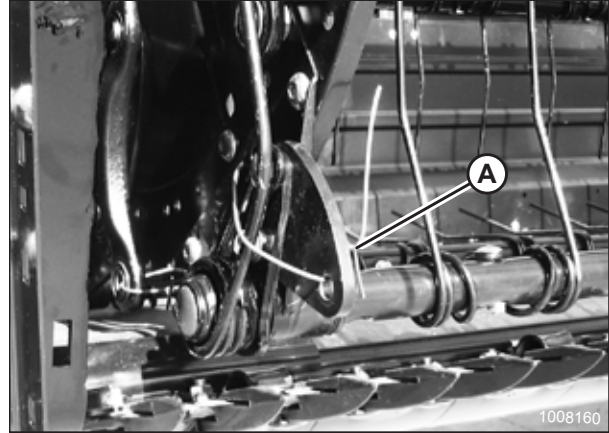


Figure 3.45: Disconnected Cam Links and Shipping Wire

2. Install cam links (A) in locations (B) shown using studs (C) and (D), and secure with nuts.

**NOTE:**

Only two cam linkages shown in illustration at right.

3. Tighten nuts to 69 Nm (51 lbf·ft).

**NOTE:**

Leave the nut on stud (D) loose for installing the removed tine tube later.

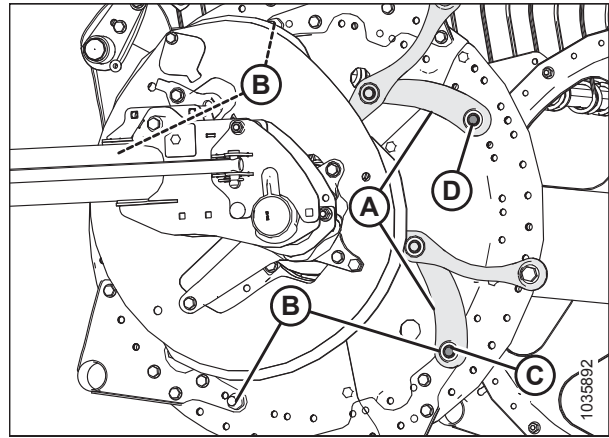


Figure 3.46: Cam Links

4. Rotate the reel (A) manually until the location without the tine tube is accessible.
5. Retrieve the tine tube that was removed earlier and the hardware bag that is wired to the tine tube.

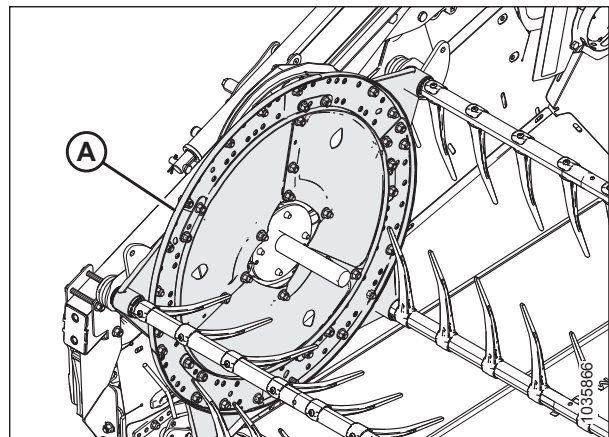


Figure 3.47: Tine Tube in Shipping Position



## ASSEMBLING HEADER AND FLOAT MODULE

**NOTE:**

When installed on the cam disc, the tine tube supports are 284 mm (11.2 in.) (A) apart.

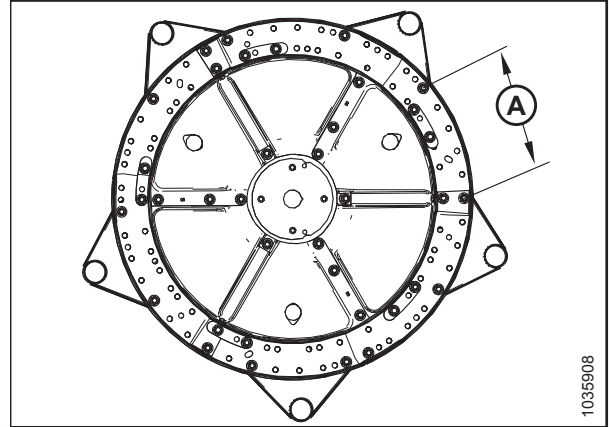


Figure 3.48: Cam Disc

**NOTE:**

To easily locate the installation position of the removed tine tube on the cam disc, a partial outline (A) on the cam disc is provided as shown.

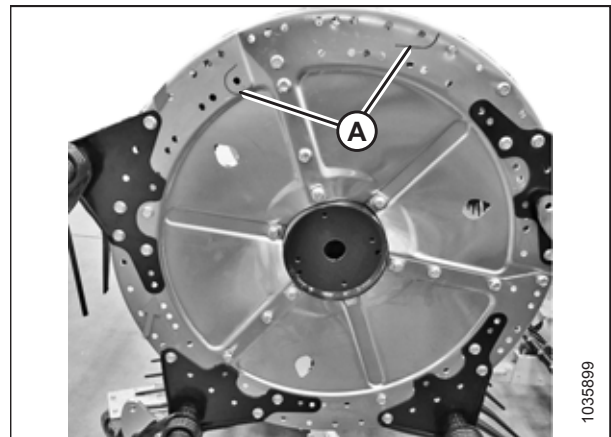


Figure 3.49: Outline on Cam Disc

6. Remove nut and stud (A). Retain hardware.

**NOTE:**

The removed tine tube support will be mounted in this location.

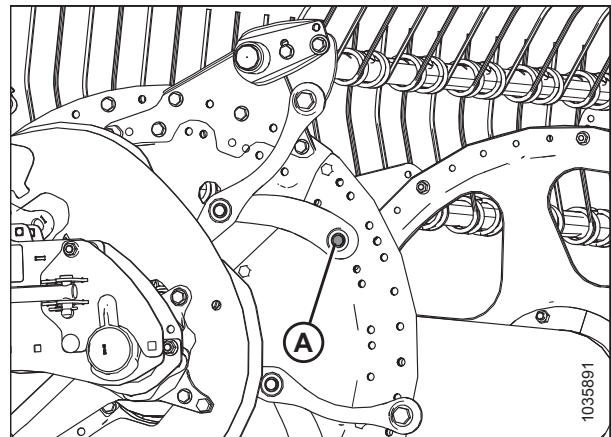


Figure 3.50: Cam End

## ASSEMBLING HEADER AND FLOAT MODULE

- At the cam end, assemble tine tube support (A) to the disc using M12 x 20 mm hex flange bolts (B) with M12 lock nuts and strap (C) as shown. Do **NOT** tighten the hardware until all bolts on all discs have been installed.

**NOTE:**

On the cam end of the reel, the position of the tine tube support is the same for all headers.

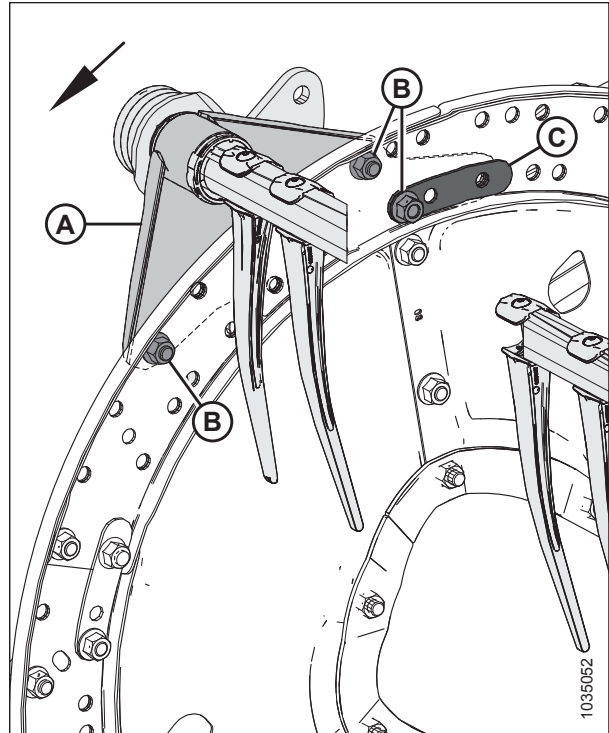
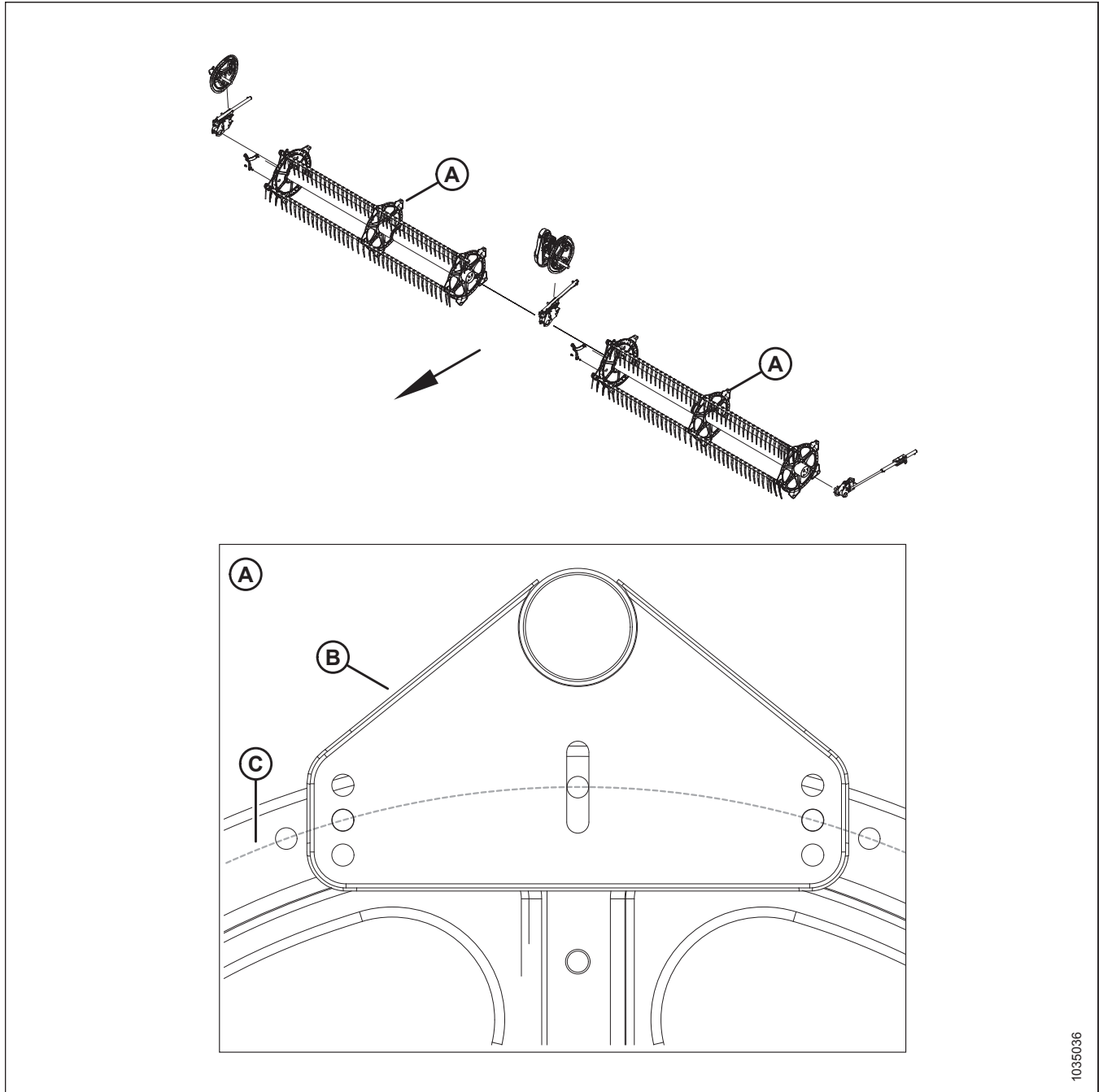


Figure 3.51: Cam End

## ASSEMBLING HEADER AND FLOAT MODULE



**Figure 3.52: Mid-Span Disc Tine Tube Position for FD230**

**NOTE:**

The arrow points to the front of the machine. Mid-span discs are located on FD230 headers at location (A). Position tine tube supports (B) on the discs according to dotted line (C). When you are ready to install the hardware, return to [Step 9, page 42](#).

## ASSEMBLING HEADER AND FLOAT MODULE

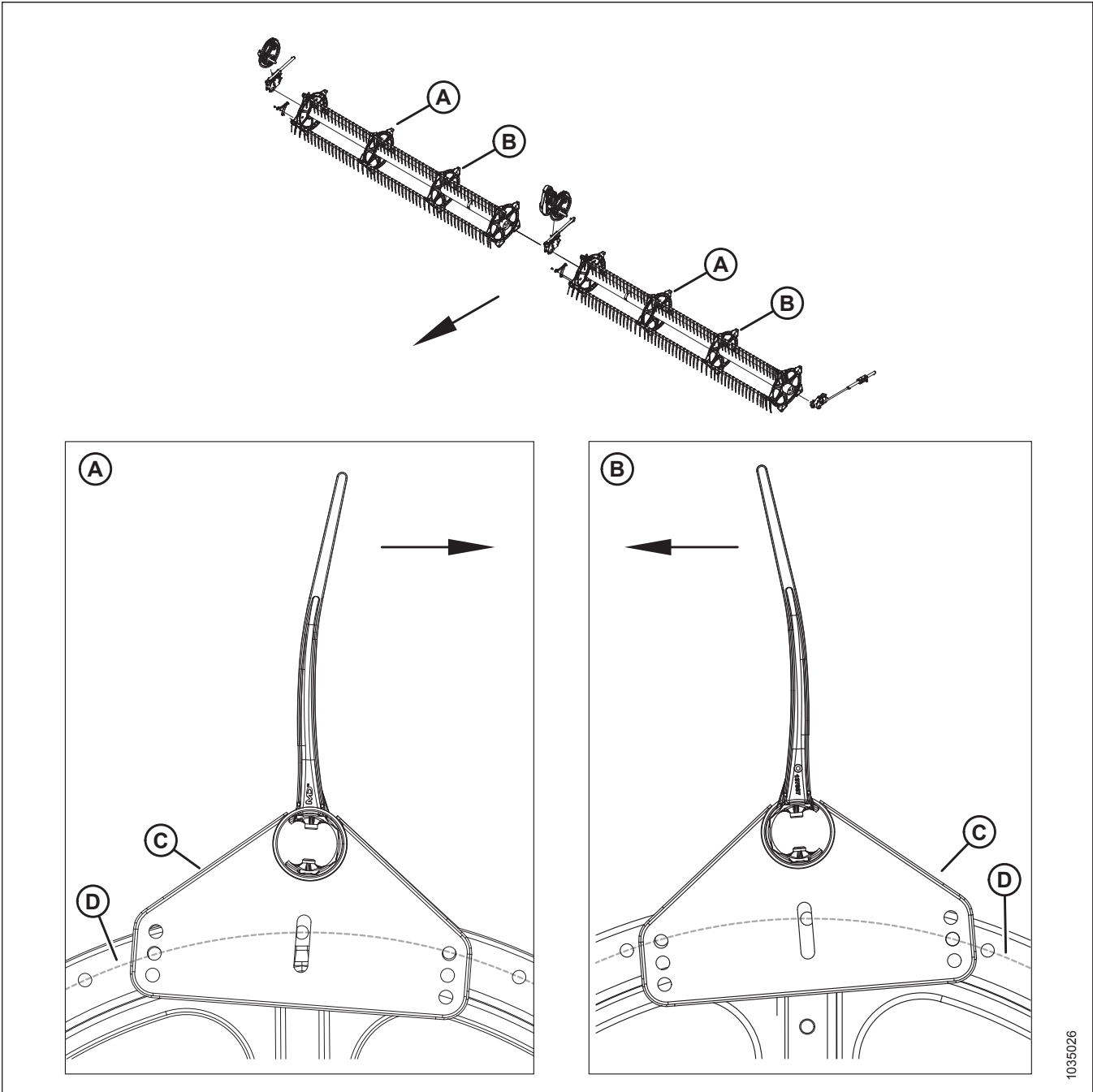


Figure 3.53: Mid-Span Disc Tine Tube Position for FD235 and FD240 Double Reel

### NOTE:

The arrow points to the front of the machine. Mid-span discs are located on FD235 and FD240 **Double Reel** headers at locations (A) and (B). Position tine tube supports (C) on the discs according to dotted line (D). When you are ready to install the hardware, return to Step 9, [page 42](#).

## ASSEMBLING HEADER AND FLOAT MODULE

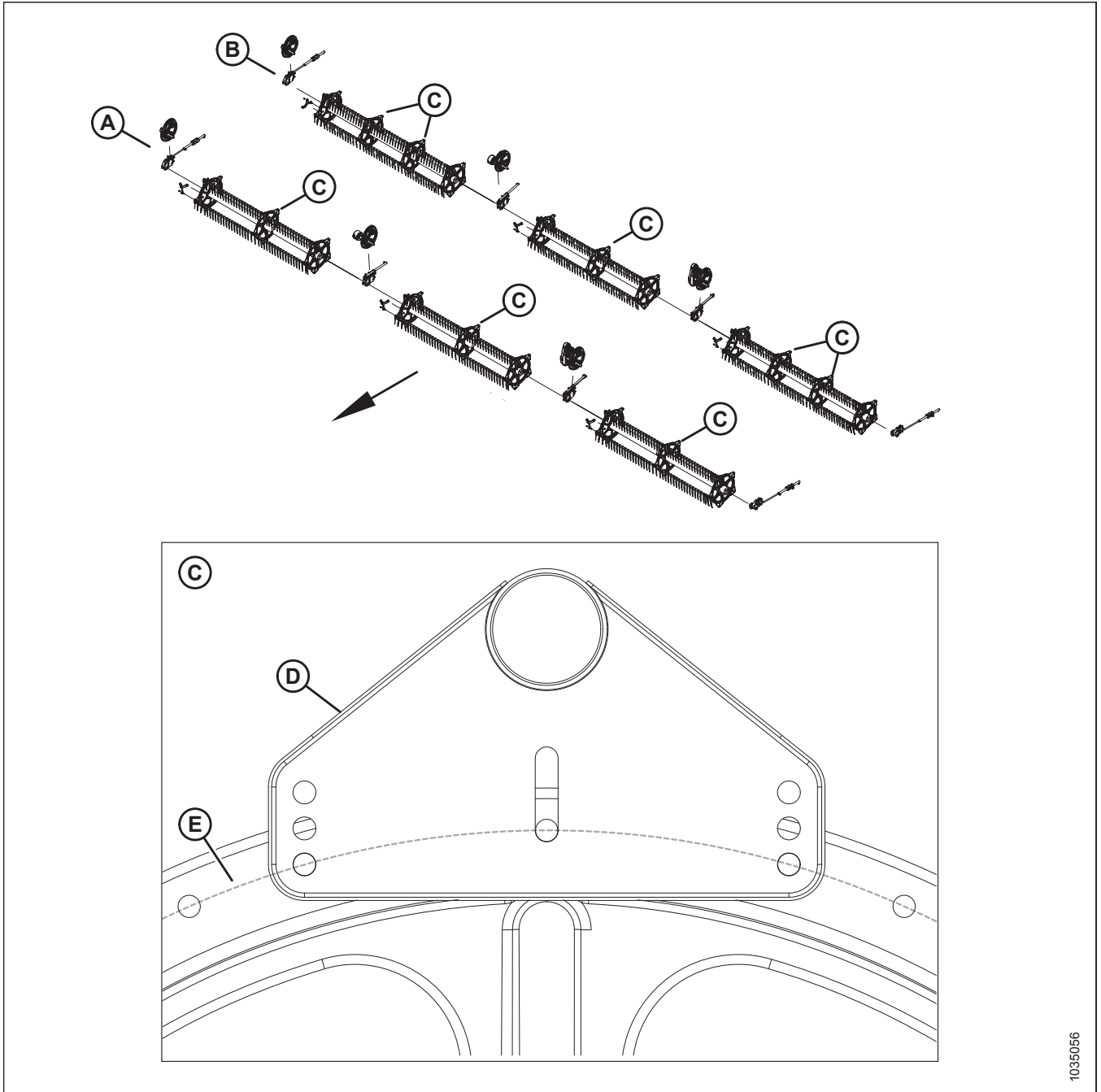


Figure 3.54: Mid-Span Disc Tine Tube Position for FD240 Triple Reel, FD245 and FD250

### NOTE:

The arrow points to the front of the machine. Header (A) applies to FD240 **Triple Reel** and FD245. Header (B) applies to FD250. Mid-span discs are located on headers at location (C). Position tine tubes supports (D) on the discs according to dotted line (E). When you are ready to install the hardware, return to Step 9, [page 42](#).

## ASSEMBLING HEADER AND FLOAT MODULE

8. Before installing the hardware, position tine tube support (A) on the **mid-span** reel discs according to the configuration of the header:
  - **FD230:** Figure 3.52, page 39
  - **FD235 and FD240 Double Reel:** Figure 3.53, page 40
  - **FD240 Triple Reel, FD245 and FD250:** Figure 3.54, page 41
9. Attach tine tube support(s) (A) to disc(s) using M10 x 16 mm hex flange bolts (B) with M10 lock nuts as shown. Do **NOT** tighten hardware until all bolts on all discs have been installed.

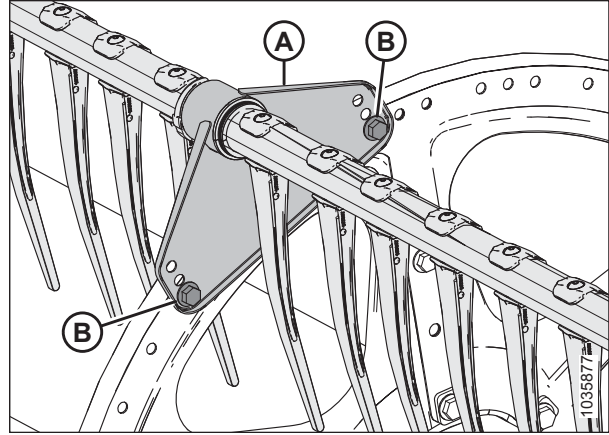


Figure 3.55: Mid-Span Disc – Tine Tube Support Position for FD240 Triple Reel, FD245 and FD250 Shown

10. Position tine tube support (A) on the tail end disc, assemble tine tube supports to discs using M10 x 16 mm hex flange bolts (B) with M10 lock nuts as shown.

**NOTE:**

On the tail end of the reel, the position of the tine tube support is the same for all headers.

11. Tighten the tine tube hardware on the **cam end** discs to 69 Nm (51 lbf-ft).
12. Tighten the tine tube hardware on the **mid-span** and **tail end** discs to 39 Nm (29 lbf-ft).

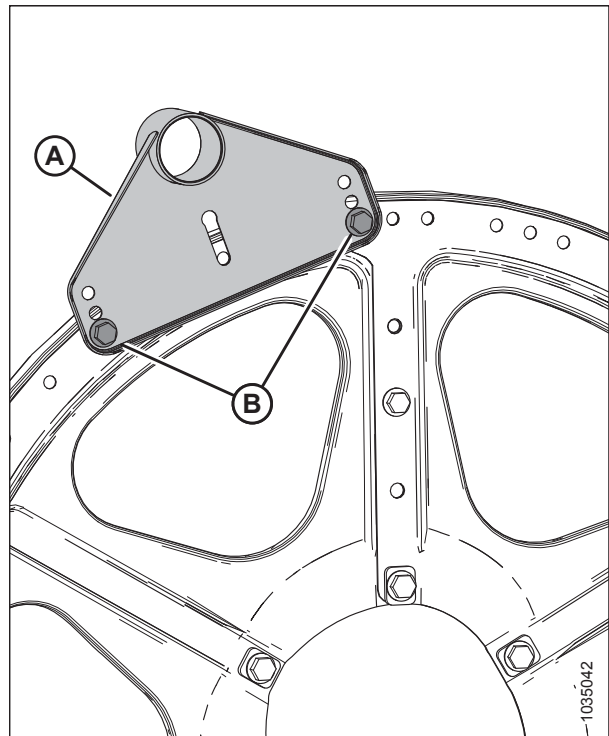


Figure 3.56: Tail End Disc

## ASSEMBLING HEADER AND FLOAT MODULE

13. At the cam end, attach cam linkage (A) to tine tube support (B) using lock nut (C). Tighten nut to 69 Nm (51 lbf·ft).
14. Repeat procedure on remaining reel(s).

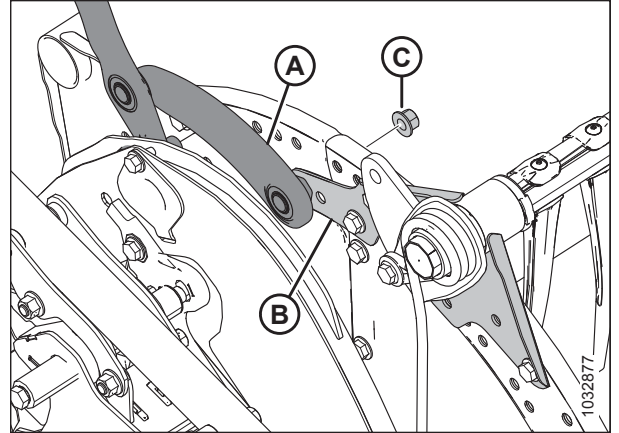


Figure 3.57: Cam Linkage

### 3.6 Attaching Cam Arms

To attach the reel cam arms, follow these steps:

1. Rotate tine bar crank (A) and position link (B) so attachment holes in bar crank are aligned with hole in link.
2. Install bolt (C) in link and position shim (D) on bolt so that shim is **BETWEEN** link (B) and tine bar crank (A).

**IMPORTANT:**

Make sure shim (D) is installed in the correct location to avoid damage to the bar crank.

**NOTE:**

Bolts are precoated with Loctite®, so no further locking method is required.

3. Realign link (B) and tine bar crank (A) and thread in bolt (C).
4. Repeat for remaining tine bars and torque bolts to 165 Nm (120 lbf-ft).
5. Position reel pitch at position 4 to access bolt (A) after rotating the reel. Reposition reel to position 2 when done.

**NOTE:**

This procedure is done only on the right reel.

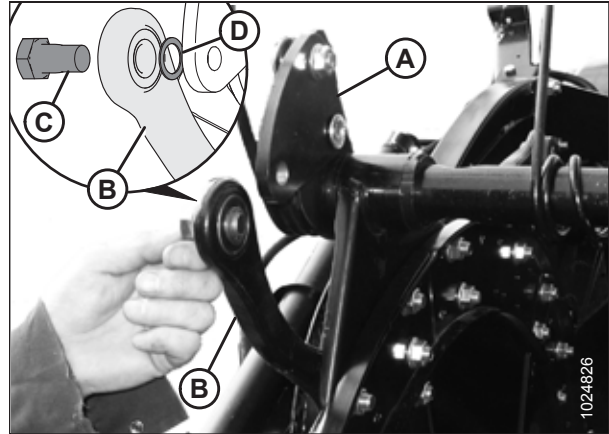


Figure 3.58: Bar Crank Attachment Holes and Link Alignment

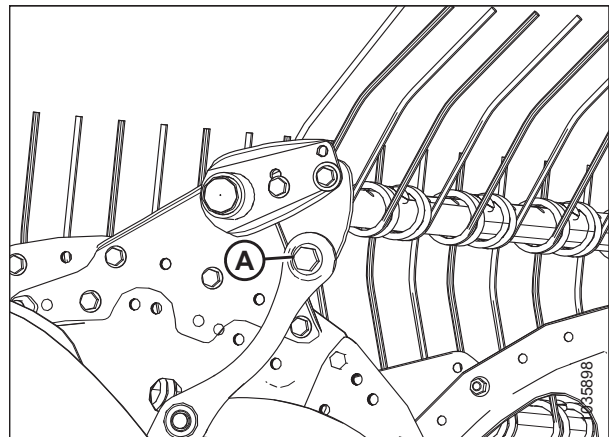


Figure 3.59: Right Reel with Cam Arms Attached



### 3.7 Installing Reel Endshields

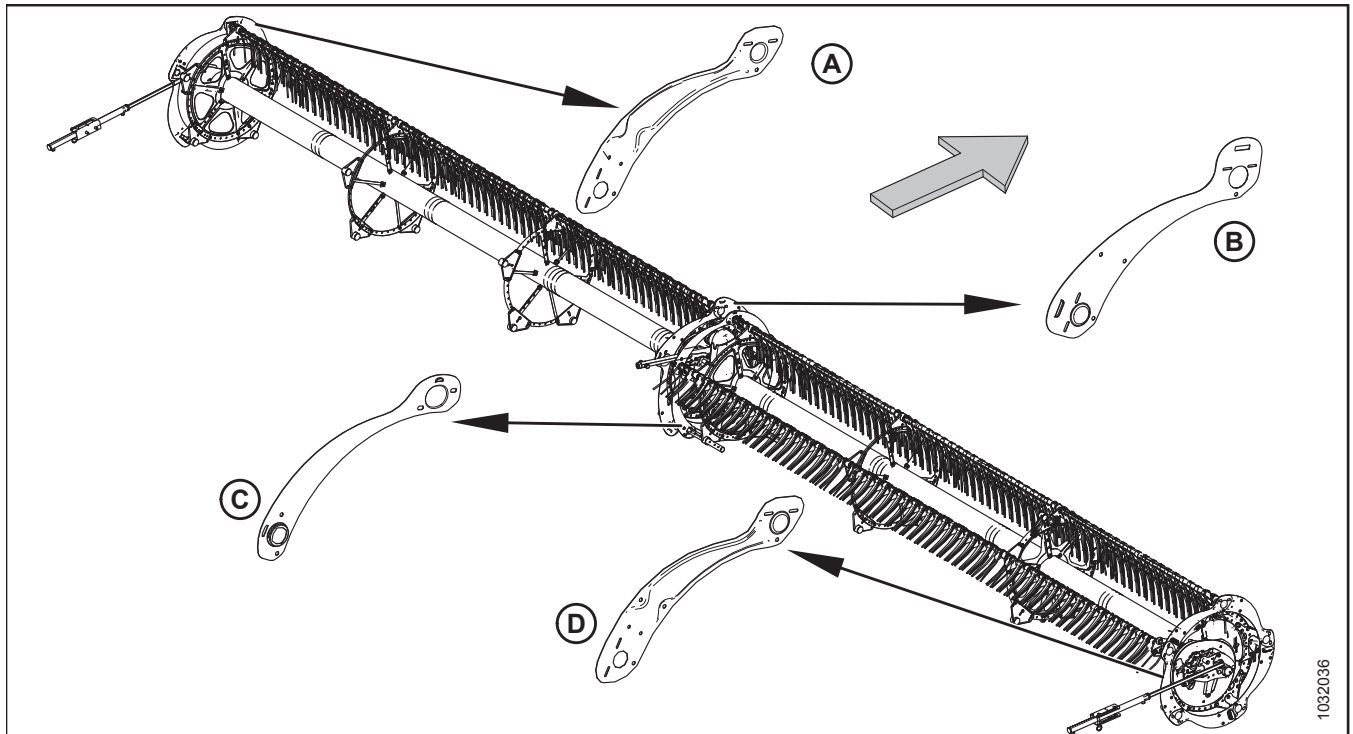
There are four kinds of endshields for installation. Ensure you are installing the correct endshield to the proper location as shown below:

**NOTE:**

On triple-reel headers, the center reel has the identical endshield configuration as the right reel.

**NOTE:**

The arrow points to the front of the machine.



**Figure 3.60: Reel Endshields**

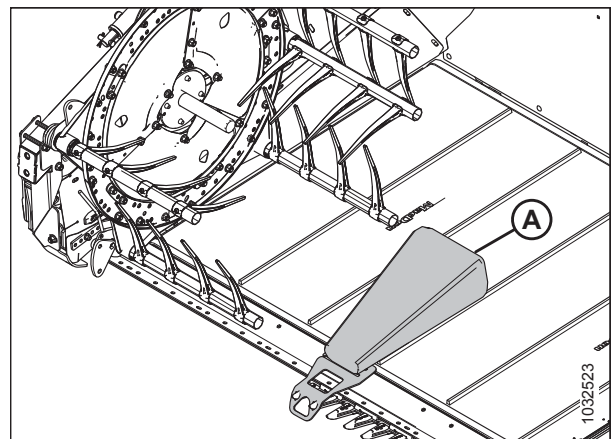
- A - Tail End, Outboard (MD #311695)
- C - Tail End, Inboard (MD #311795)

- B - Cam End, Inboard (MD #273823)
- D - Cam End, Outboard (MD #311694)

1. Retrieve shipping bag(s) (A) containing the reel endshield parts from the cutterbar.

**NOTE:**

Double-reel shown. Triple-reel headers have a second shipping bag.



**Figure 3.61: Reel Endshield Parts – Double Reel**

### 3.7.1 Installing Reel Endshields at Outboard Cam End

This instruction is applicable to the outboard cam end on all reel configurations.

To install the cam end (outboard) endshield (A), follow these steps:

**NOTE:**

The endshield segments used for this procedure have two additional holes (B) on one end. Do **NOT** confuse them with the segments (C) used for the outboard tail end of the reel.

**NOTE:**

Screw bits for Torx® hardware mentioned in this procedure are supplied in the manual case on the header.

**NOTE:**

The arrow points to the front of the machine.

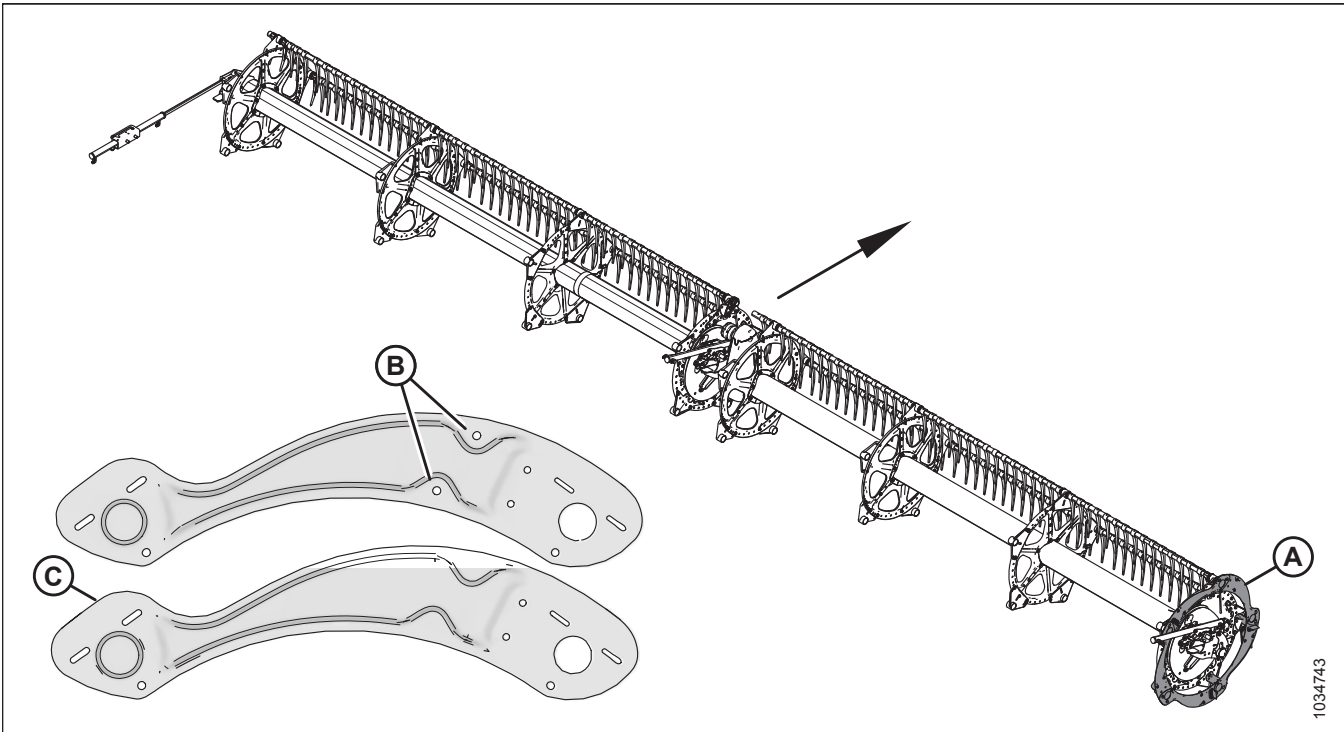
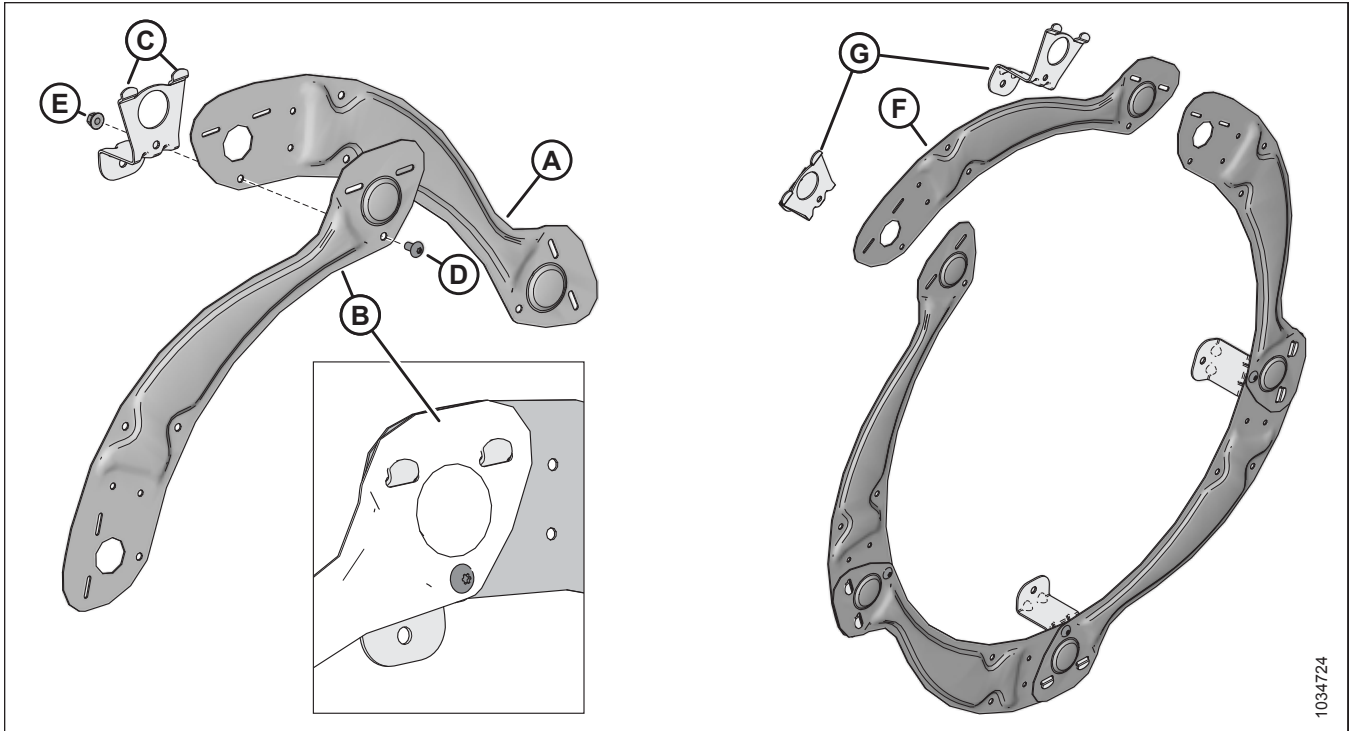


Figure 3.62: Five-Bat Reel – Endshield, Cam End, Outboard

## ASSEMBLING HEADER AND FLOAT MODULE



**Figure 3.63: Five-Bat Reel – Initial Endshield Assembly**

1. Assemble endshield as follows:

- a. Position endshield segment (A) **behind** segment (B). Engage endshield support tabs (C) through both segments, and secure with M10 X 1.5 X 20 Torx® screw (D) and hex nut (E). Do **NOT** tighten.
- b. Repeat for remaining segments leaving last segment (F) and two support tabs (G) uninstalled.

## ASSEMBLING HEADER AND FLOAT MODULE

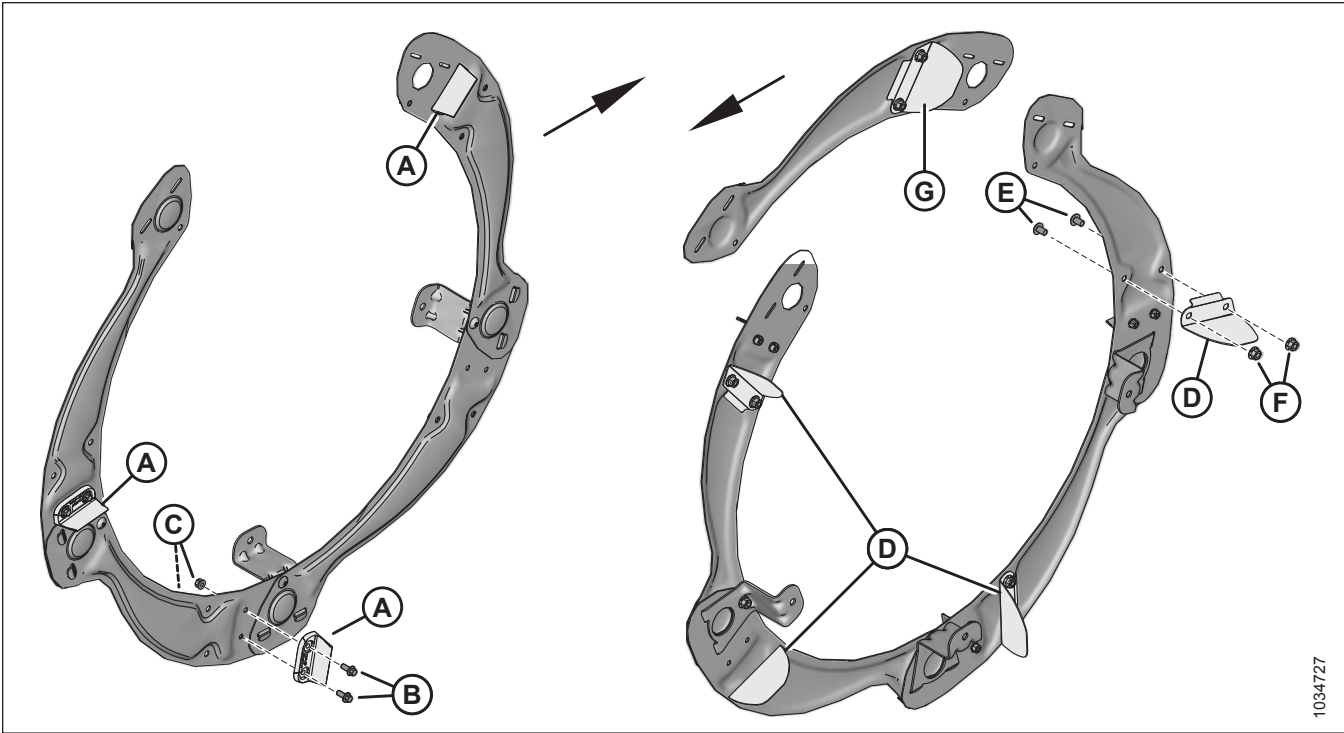


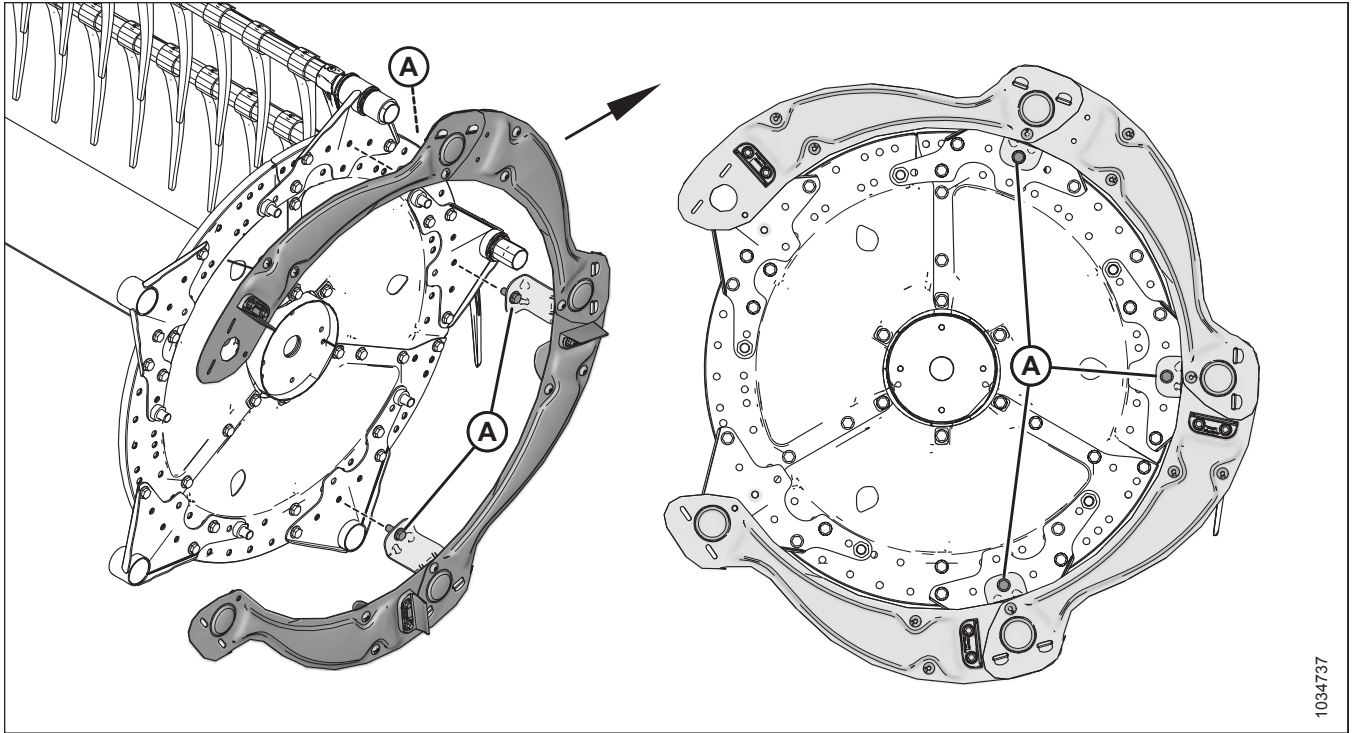
Figure 3.64: Five-Bat Reel – Rubber Paddles and Aluminum Cam Deflectors

### IMPORTANT:

The arrows point to the front of the machine. Ensure rubber paddles and cam deflectors are oriented as shown.

2. Install three **rubber** reel end paddles (A) on the **outboard face** of the endshield assembly using two M8 X 1.25 X 20 hex bolts (B) and nuts (C) per paddle.
3. Install four **aluminum** cam deflectors (D) on the **inboard face** of the endshield assembly shown using two M10 X 1.5 X 16 Torx® screws (E) and hex nuts (F).
4. Install **aluminum** cam deflector (G) on the last segment as shown using two M10 X 1.5 X 16 Torx® screws and hex nuts.

## ASSEMBLING HEADER AND FLOAT MODULE



**Figure 3.65: Five-Bat Reel – Partially Assembled Reel Endshields on Reel**

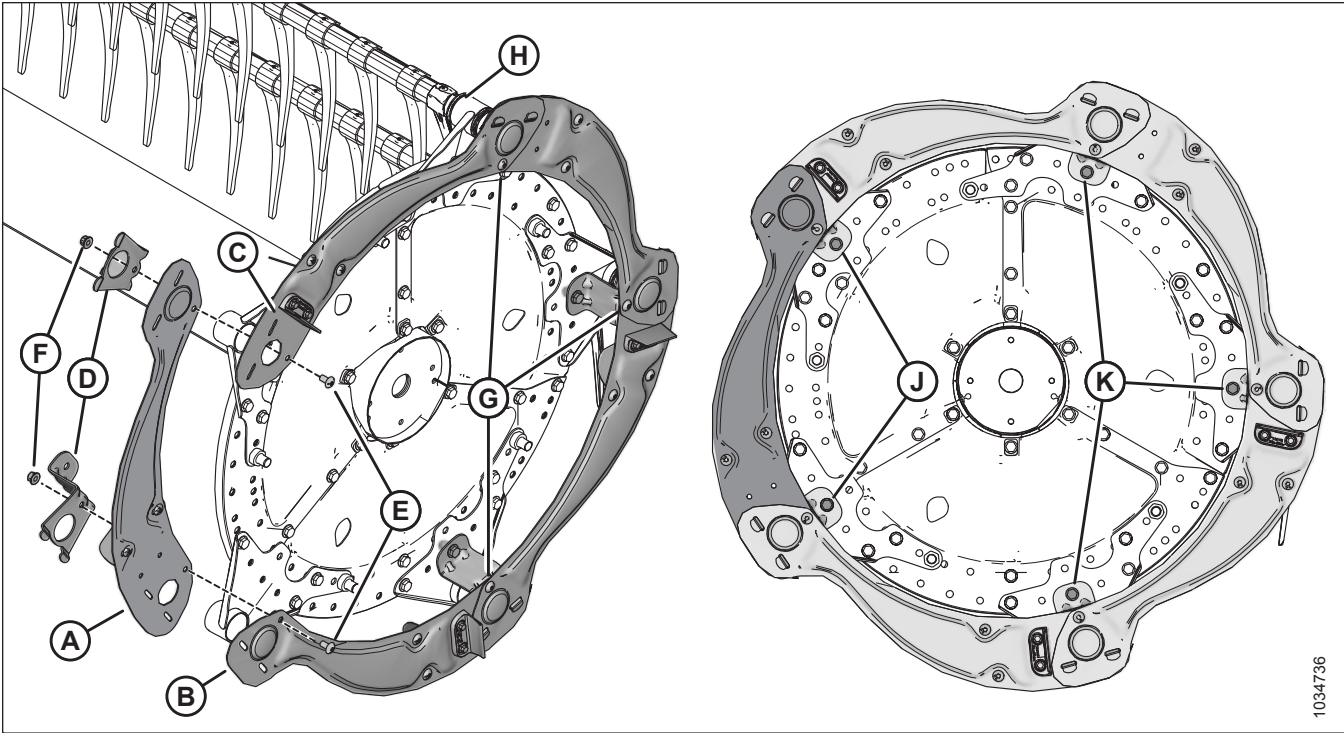
**NOTE:**

The arrow points to the front of the machine.

5. Position partially assembled reel endshield onto reel.
6. Secure with three M12 X 1.75 X 30 hex bolts (A) and nuts. Do **NOT** tighten.

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## ASSEMBLING HEADER AND FLOAT MODULE



**Figure 3.66: Five-Bat Reel – Partially Assembled Reel Endshields on Reel**

7. Install the last segment of endshield (A) as follows:
    - a. Position the wide end of last segment (A) **behind** segment (B). Position the other end of last segment **on top** of segment (C).
    - b. Install tabs of endshield supports (D) through the endshield segments.
    - c. Secure endshield supports using two M10 X 1.5 X 20 Torx® screws (E) and nuts (F).
    - d. Torque five M10 X 1.5 X 20 Torx® screws (E) and (G) to 39 Nm (29 lbf-ft). Rotate the reel to reach the screws if required.
  8. Slip endshield supports onto tine tubes (H).
- NOTE:**  
Not all tine tubes shown in illustration.
9. Secure the two endshield supports to the reel disc using two M12 X 1.75 X 30 hex bolts (J) and nuts.
  10. Tighten five M12 X 1.75 X 30 hex bolts (J) and (K) and nuts that secure the endshield supports to the cam discs to 68.5 Nm (50.5 lbf-ft).

### 3.7.2 Installing Reel Endshields at Inboard Tail End

To install the tail end (inboard) endshield (A), follow these steps:

**NOTE:**

Screw bits for Torx® hardware mentioned in this procedure are supplied in the manual case on the header.

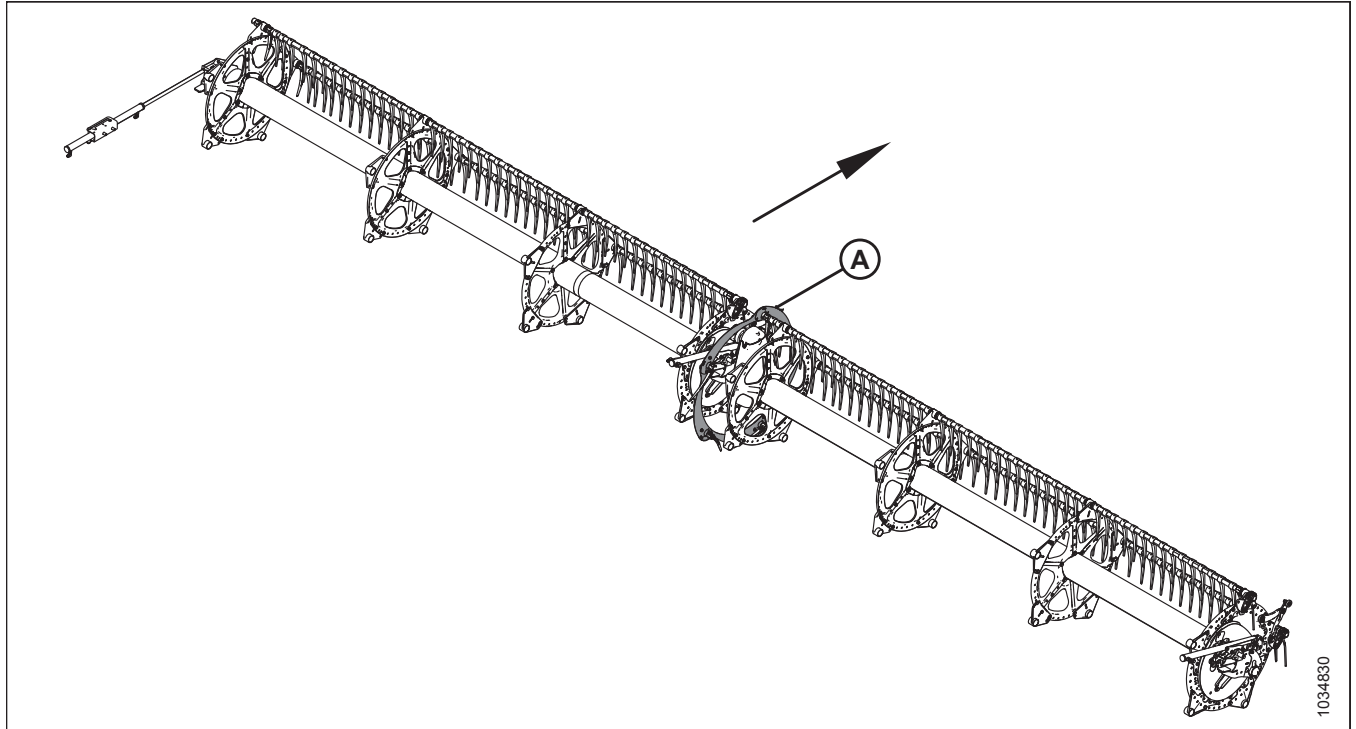
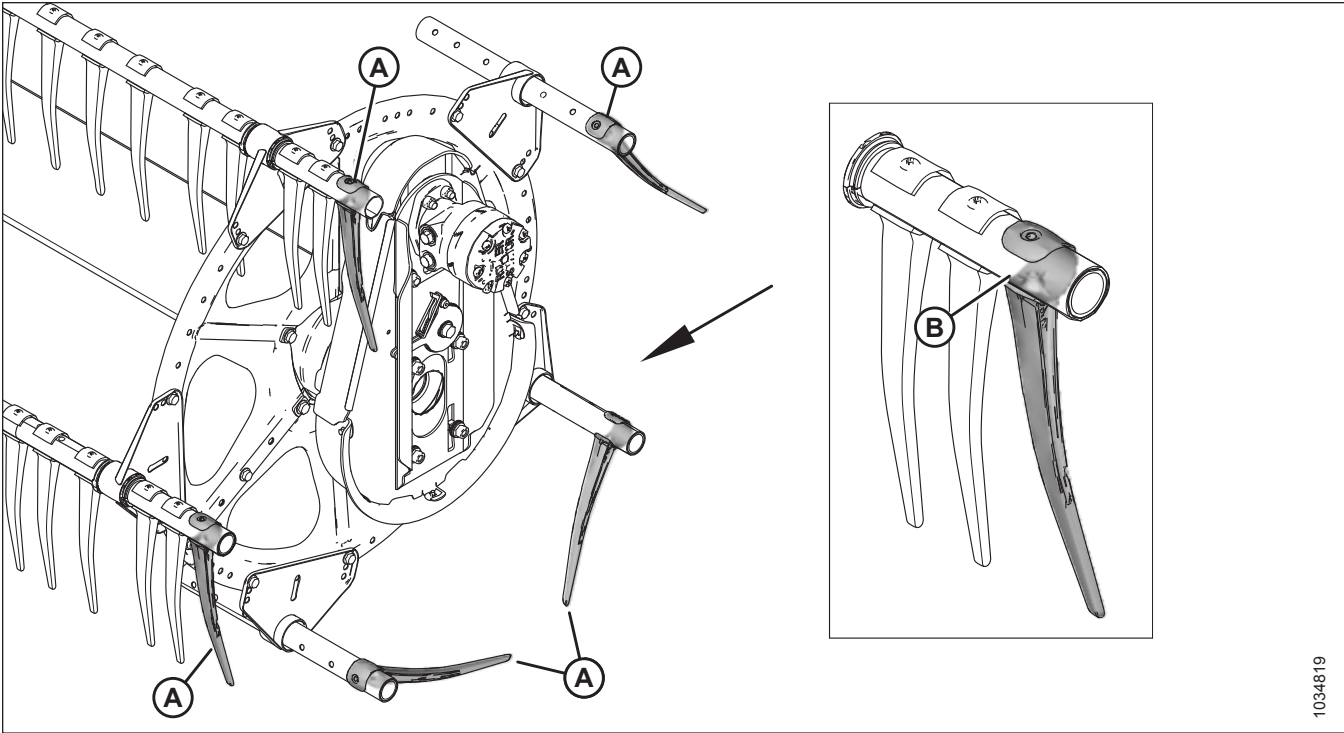


Figure 3.67: Reels

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**Figure 3.68: Fingers Placed on Tine Tubes**

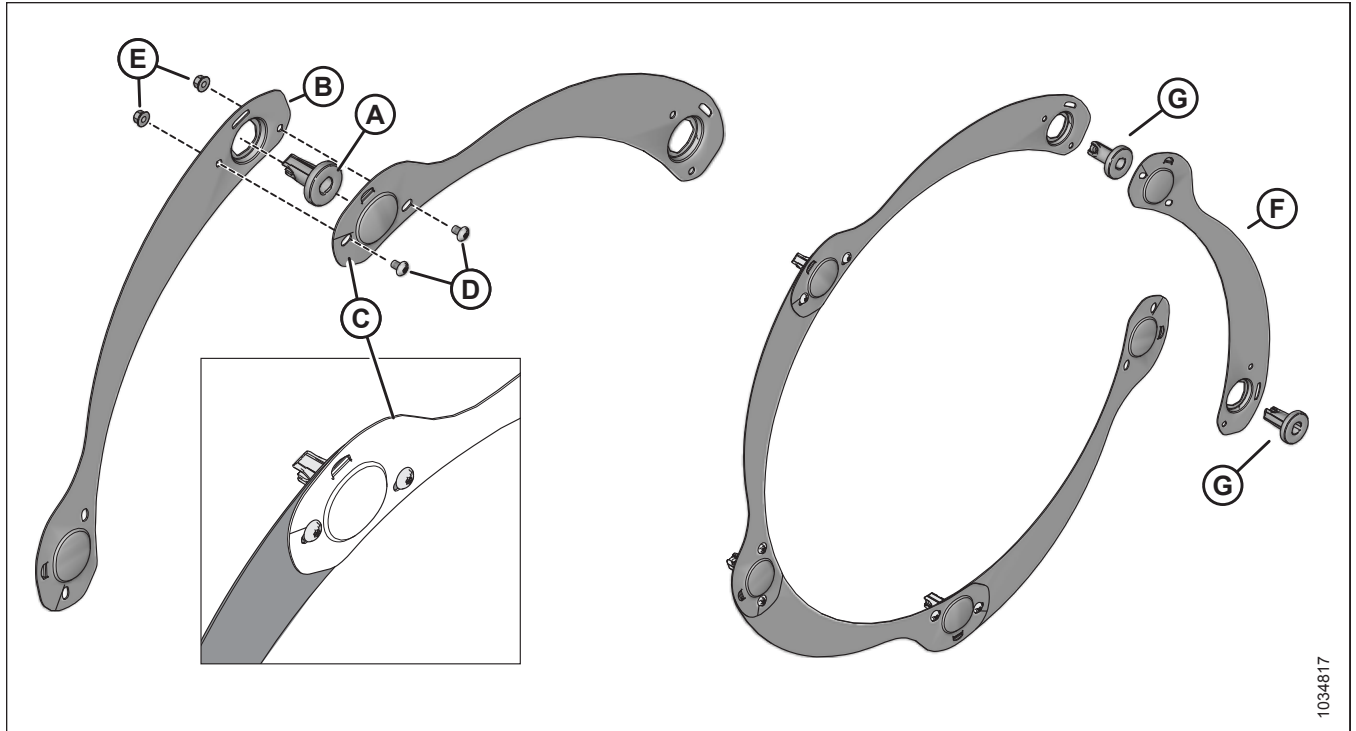
1. Place a finger (A) onto each tine tube. Make sure **open face** (B) of fingers face the **front** of the machine.

**NOTE:**

The arrow points to the front of the machine.



## ASSEMBLING HEADER AND FLOAT MODULE

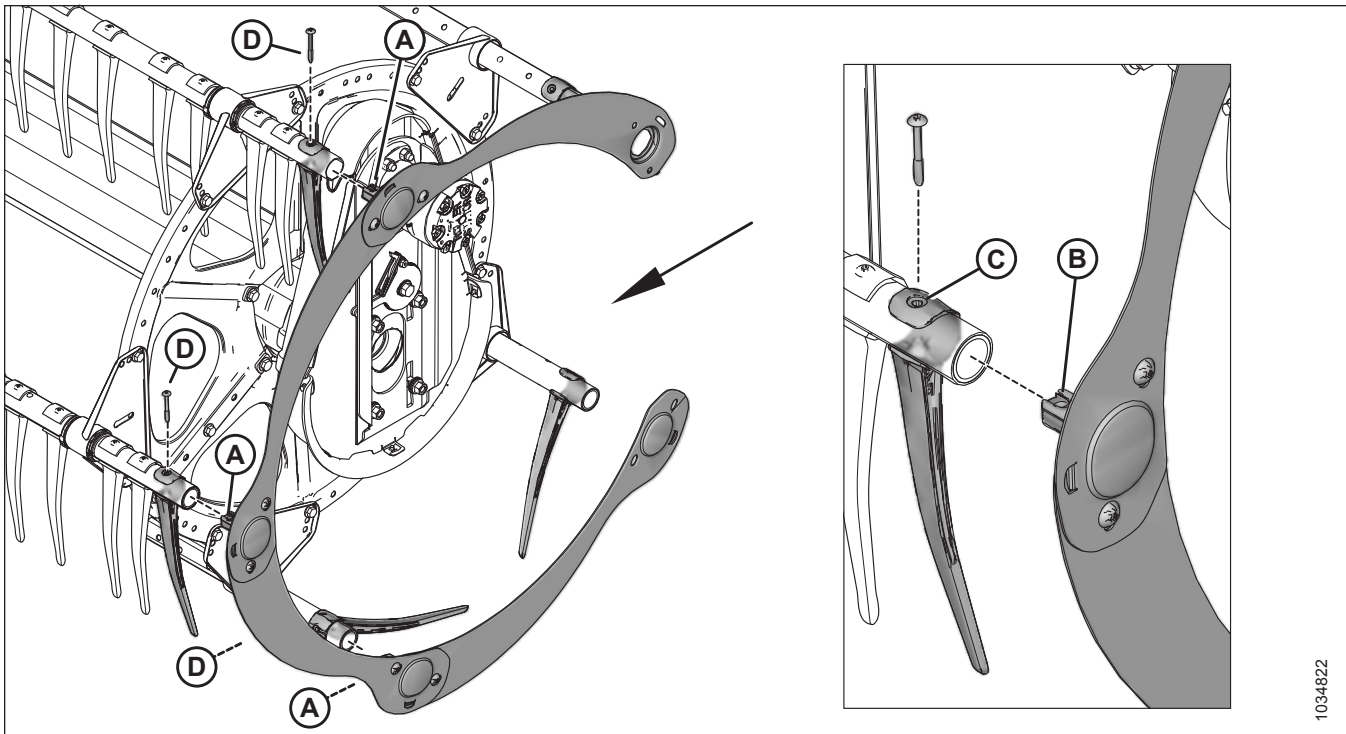


**Figure 3.69: Endshield Subassembly**

2. Assemble the endshield as follows:

- a. Insert bushing (A) into endshield segment (B).
- b. Place the cupped end of endshield segment (C) **on top** of segment (B). Attach segments using two M10 X 1.5 X 16 Torx® screws (D) and nuts (E). Do **NOT** tighten the hardware.
- c. Repeat for remaining segments leaving last segment (F) and two bushings (G) uninstalled.

## ASSEMBLING HEADER AND FLOAT MODULE



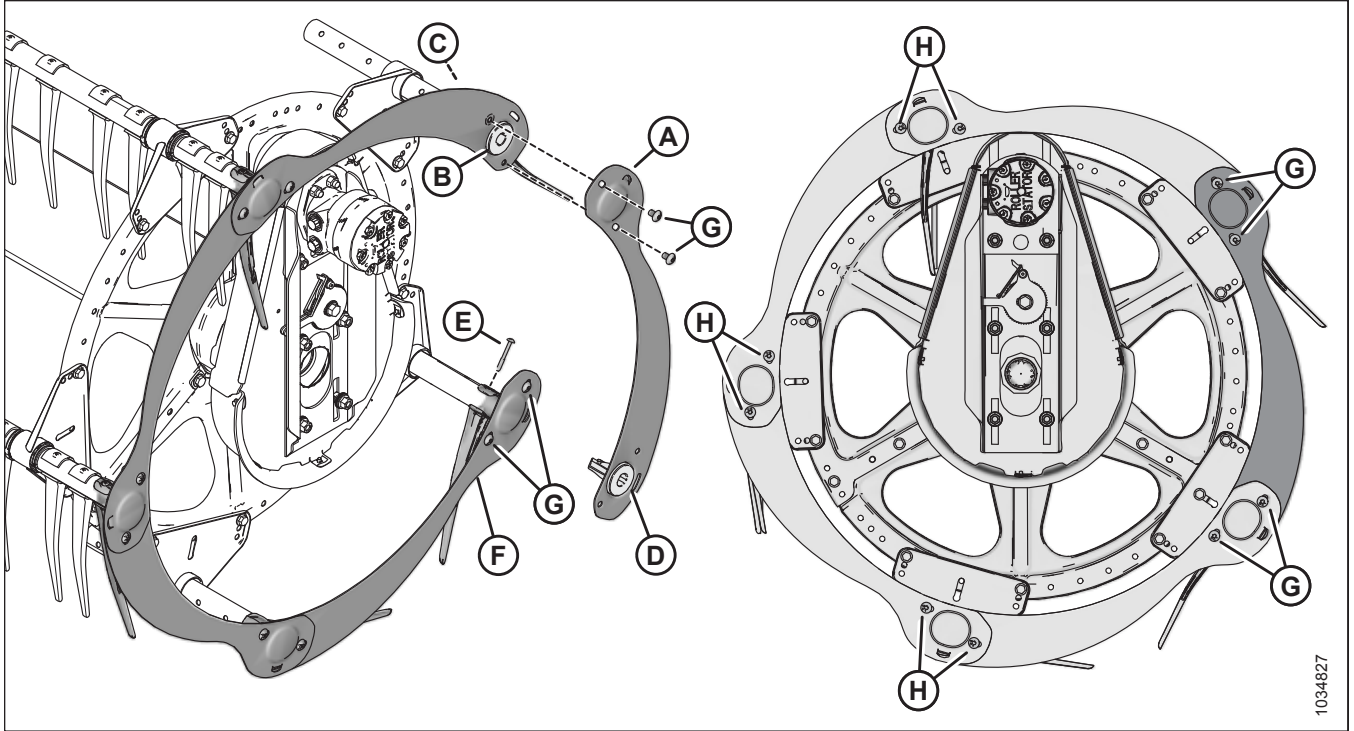
**Figure 3.70: Endshield Mounted onto Reel**

3. Mount the endshield onto the reel as follows:

- a. Insert the three bushings (A) into the tine tubes. Align the holes in the bushing (B) and finger (C) with the hole in the tine tube.
- b. Secure bushings and fingers using Torx® Plastite® screws (D). Do **NOT** tighten.

**NOTE:**

The arrow points to the front of the machine.



**Figure 3.71: Completed Endshield Assembly**

4. Install the remaining endshield segment (A) as follows:
  - a. Install bushing (B) into endshield segment and tine tube. Secure with Torx® Plastite® screw (C). Do **NOT** tighten.
  - b. Install bushing (D) into endshield segment.
  - c. Insert bushing (D) end of segment into tine tube. Secure with Torx® Plastite® screw (E). Do **NOT** tighten.
  - d. Place cupped end of segment (F) **on top** of segment (A).
  - e. Secure endshield segments with M10 X 1.5 X 16 Torx® screws (G) and nuts.
5. Tighten all the tine tube finger Torx® Plastite® screws to 9 Nm (7 lbf-ft). Do **NOT** overtighten the screws to prevent the flattening of the tubes.
6. Torque all M10 X 1.5 X16 Torx® screws (G) and (H) to 39 Nm (29 lbf-ft).
7. Proceed as follows:
  - **Triple-reel headers:** Proceed to [3.7.3 Installing Reel Endshields at Center Reel – Triple Reel Only, page 56](#).
  - **Double-reel headers:** Proceed to [3.7.4 Installing Reel Endshields at Inboard Cam End, page 57](#).

### 3.7.3 Installing Reel Endshields at Center Reel – Triple Reel Only

The center reel endshields are the same as the right reel endshields. The triple reel is offered in a five-bat configuration only.

To install the endshields on the center reel, follow these steps:

1. Install the outboard cam end endshield (A). For instructions, refer to [3.7.1 Installing Reel Endshields at Outboard Cam End, page 46](#).
2. Install the inboard cam end endshield (B). For instructions, refer to [3.7.2 Installing Reel Endshields at Inboard Tail End, page 51](#).

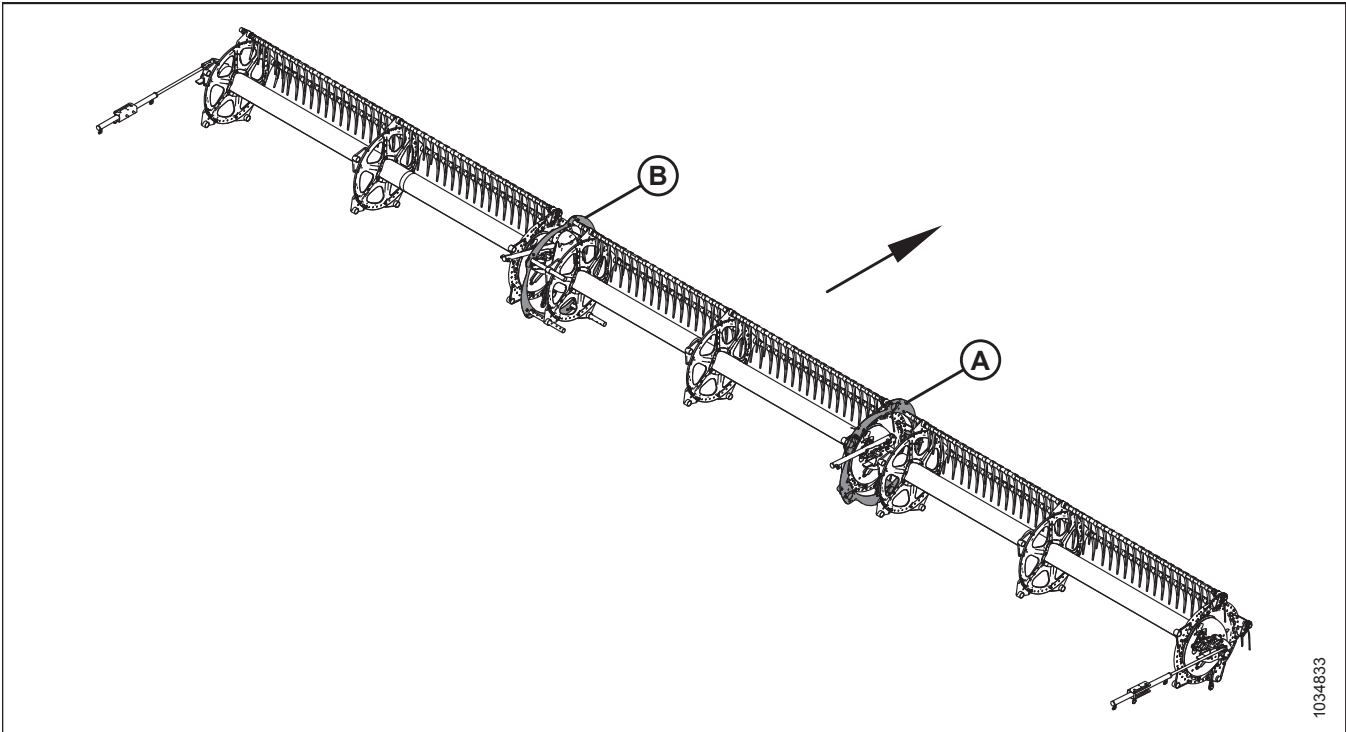


Figure 3.72: Triple Reel

### 3.7.4 Installing Reel Endshields at Inboard Cam End

This instruction is applicable to the inboard cam end on all reel configurations.

To install the cam end (inboard) endshield (A), follow these steps:

**NOTE:**

Screw bits for Torx® hardware mentioned in this procedure are supplied in the manual case on the header.

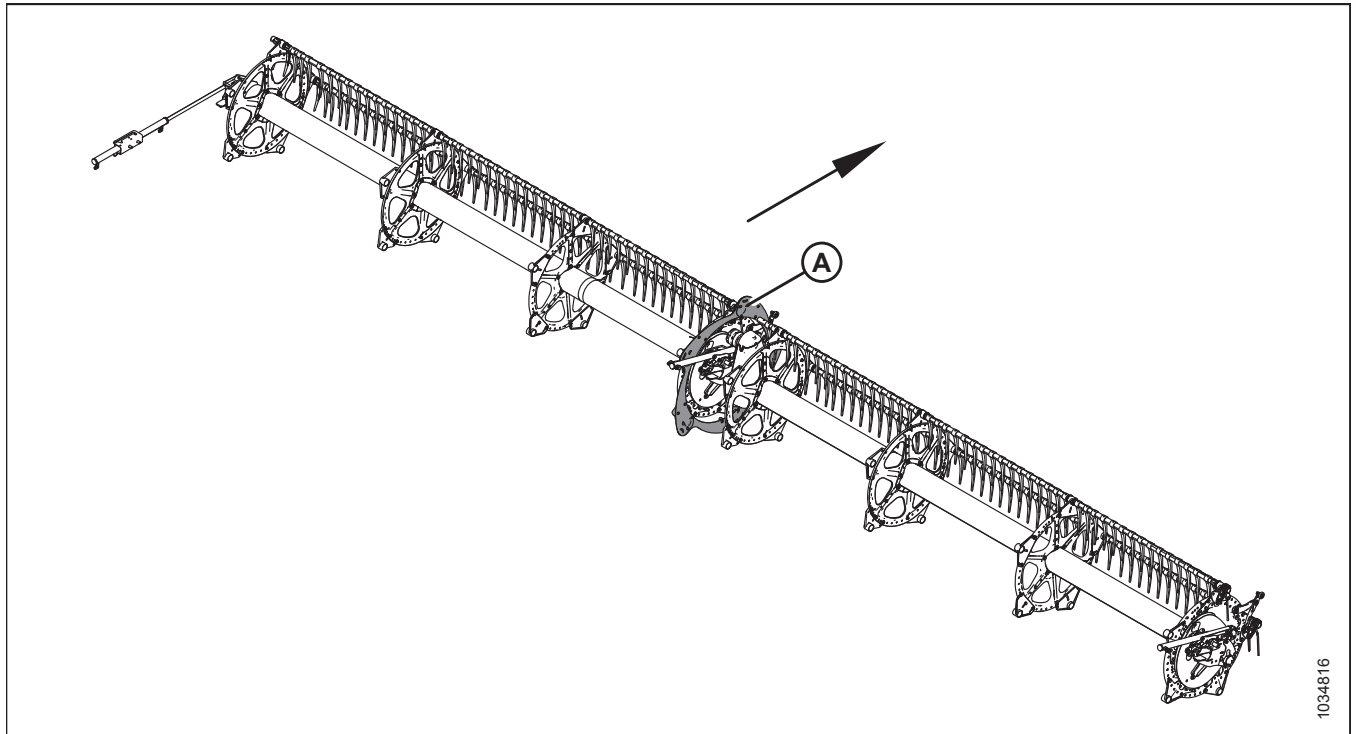
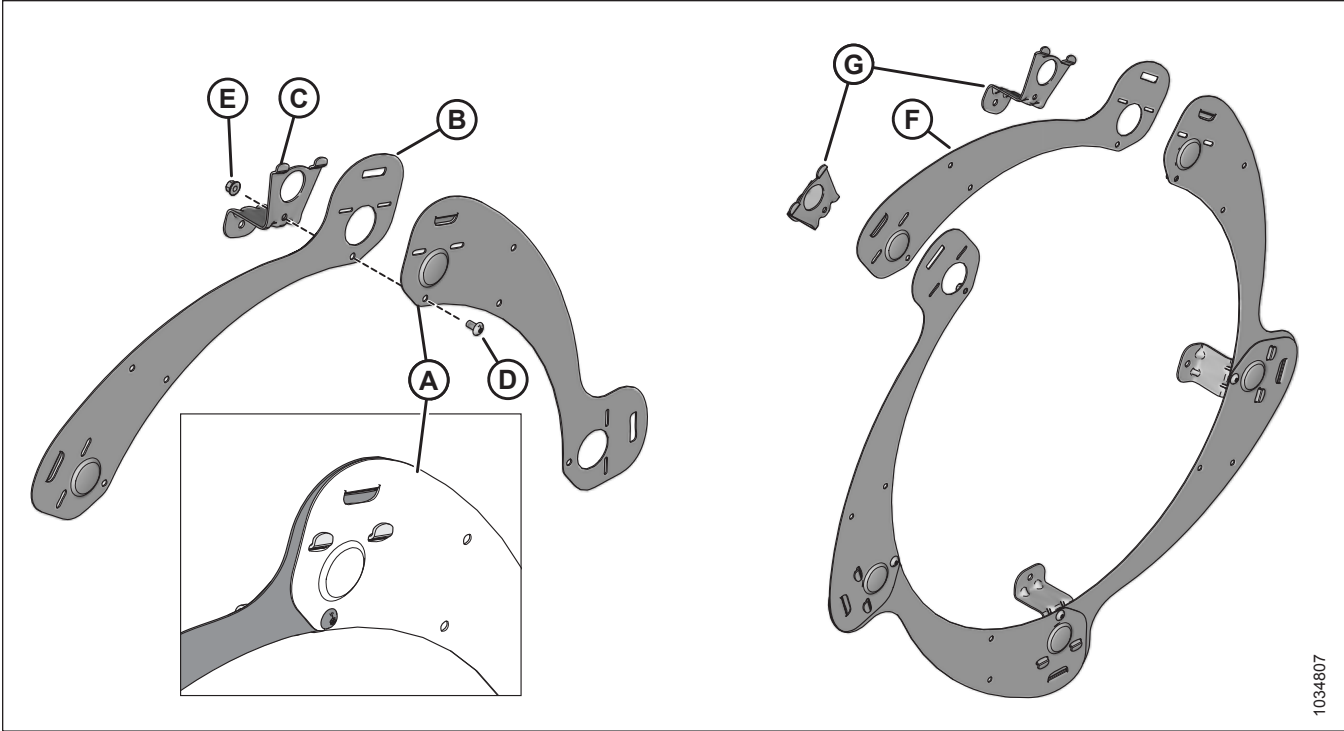


Figure 3.73: Five-Bat Reel – Endshield, Cam End, Inboard

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**Figure 3.74: Five-Bat Reel – Initial Endshield Assembly**

1. Assemble endshield as follows:
  - a. Position endshield segment (A) **behind** segment (B). Engage endshield support tabs (C) through both segments, and secure with M10 X 1.5 X 20 Torx® screw (D) and hex nut (E). Do **NOT** tighten.
  - b. Repeat for remaining segments leaving last segment (F) and two support tabs (G) uninstalled.

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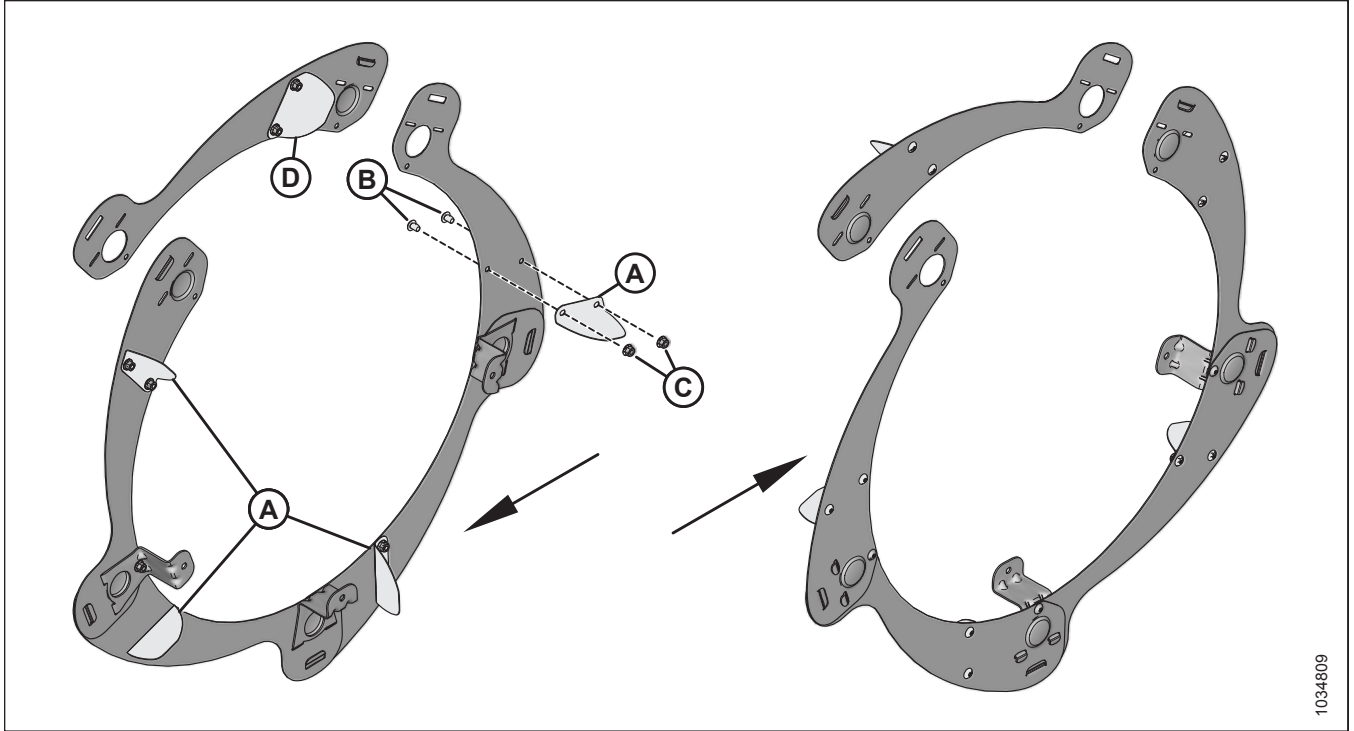


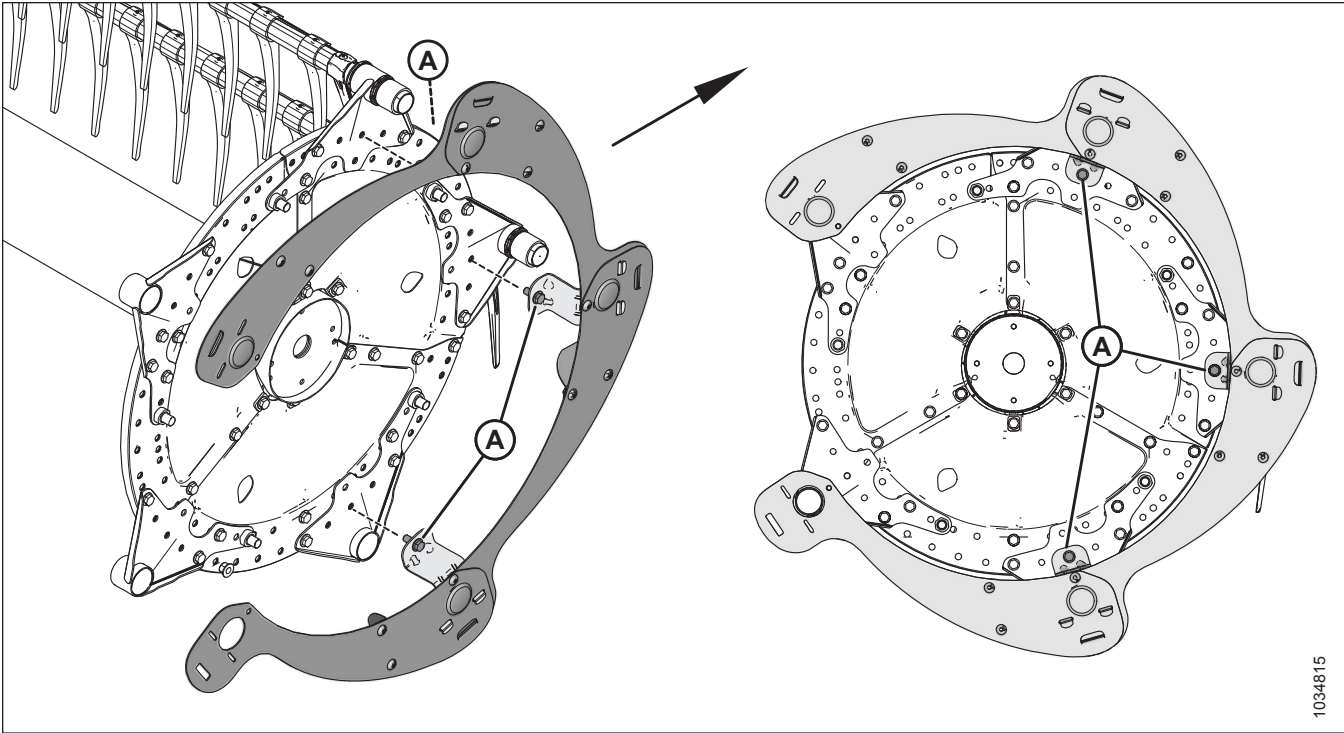
Figure 3.75: Five-Bat Reel – Aluminum Cam Deflectors

### IMPORTANT:

The arrows point to the front of the machine. Ensure the cam deflectors are oriented as shown.

2. Install four **aluminum** cam deflectors (A) on the **inboard face** of the endshield assembly shown using two M10 X 1.5 X 16 Torx® screws (B) and hex nuts (C).
3. Install **aluminum** cam deflector (D) on the last segment as shown using two M10 X 1.5 X 16 Torx® screws and hex nuts.

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**Figure 3.76: Five-Bat Reel – Partially Assembled Reel Endshields on Reel**

4. Position partially assembled reel endshield onto reel.

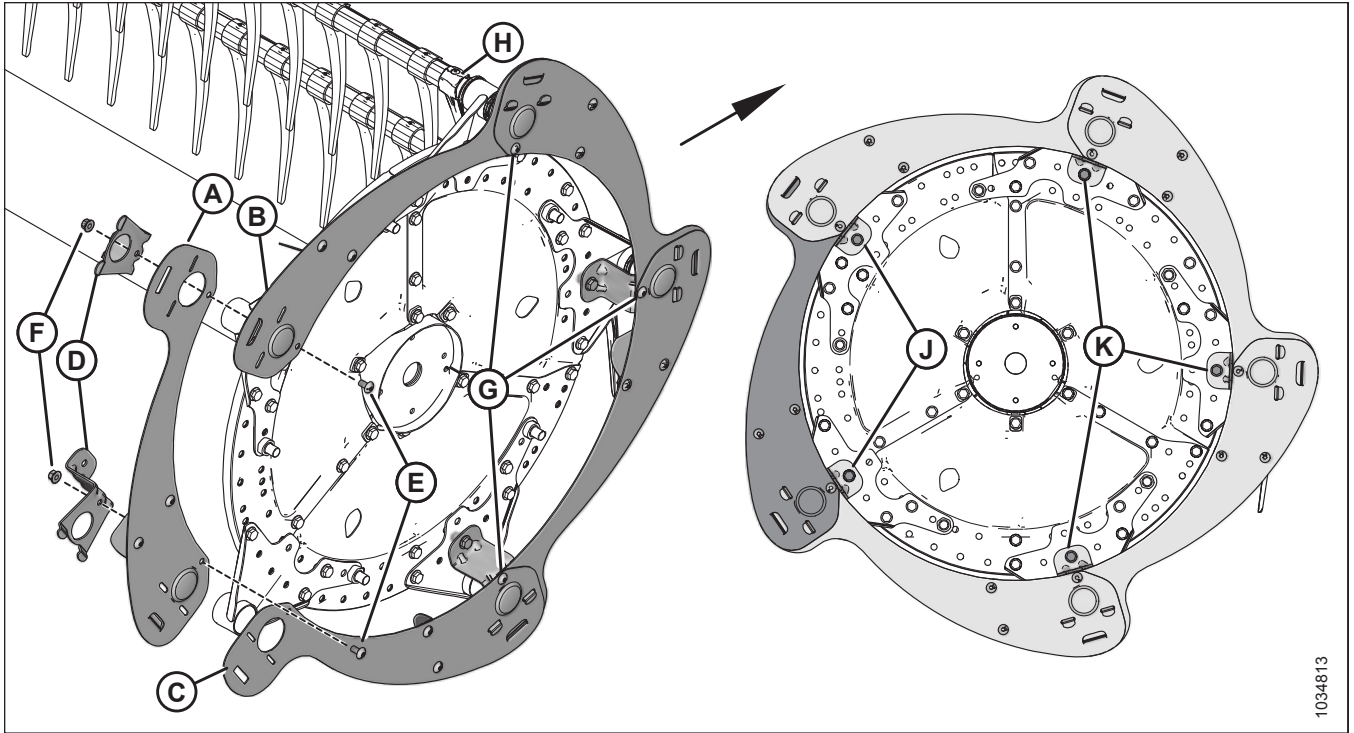
**NOTE:**

The arrow points to the front of the machine.

5. Secure with three M12 X 1.75 X 30 hex bolts (A) and nuts. Do **NOT** tighten.



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**Figure 3.77: Five-Bat Reel – Assembled Reel Endshields on Reel**

6. Install the last segment of endshield (A) as follows:

**NOTE:**

The arrow points to the front of the machine.

- a. Position the wide end of last segment (A) **behind** segment (B). Position the other end of last segment **on top** of segment (C).
  - b. Install tabs of endshield supports (D) through the endshield segments.
  - c. Secure endshield supports using two M10 X 1.5 X 20 Torx® screws (E) and nuts (F).
  - d. Torque five M10 X 1.5 X 20 Torx® screws (E) and (G) to 39 Nm (29 lbf-ft). Rotate the reel to reach the screws if required.
7. Slip endshield supports onto tine tubes (H).

**NOTE:**

Not all tine tubes shown in illustration.

8. Secure the two endshield supports to the reel disc using two M12 X 1.75 X 30 hex bolts (J) and nuts.
9. Tighten five M12 X 1.75 X 30 hex bolts (J) and (K) and nuts that secure the endshield supports to the cam discs to 68.5 Nm (50.5 lbf-ft).

### 3.7.5 Installing Reel Endshields at Outboard Tail End

To install the tail end (outboard) endshield (A), follow these steps:

**NOTE:**

Screw bits for Torx® hardware mentioned in this procedure are supplied in the manual case on the header.

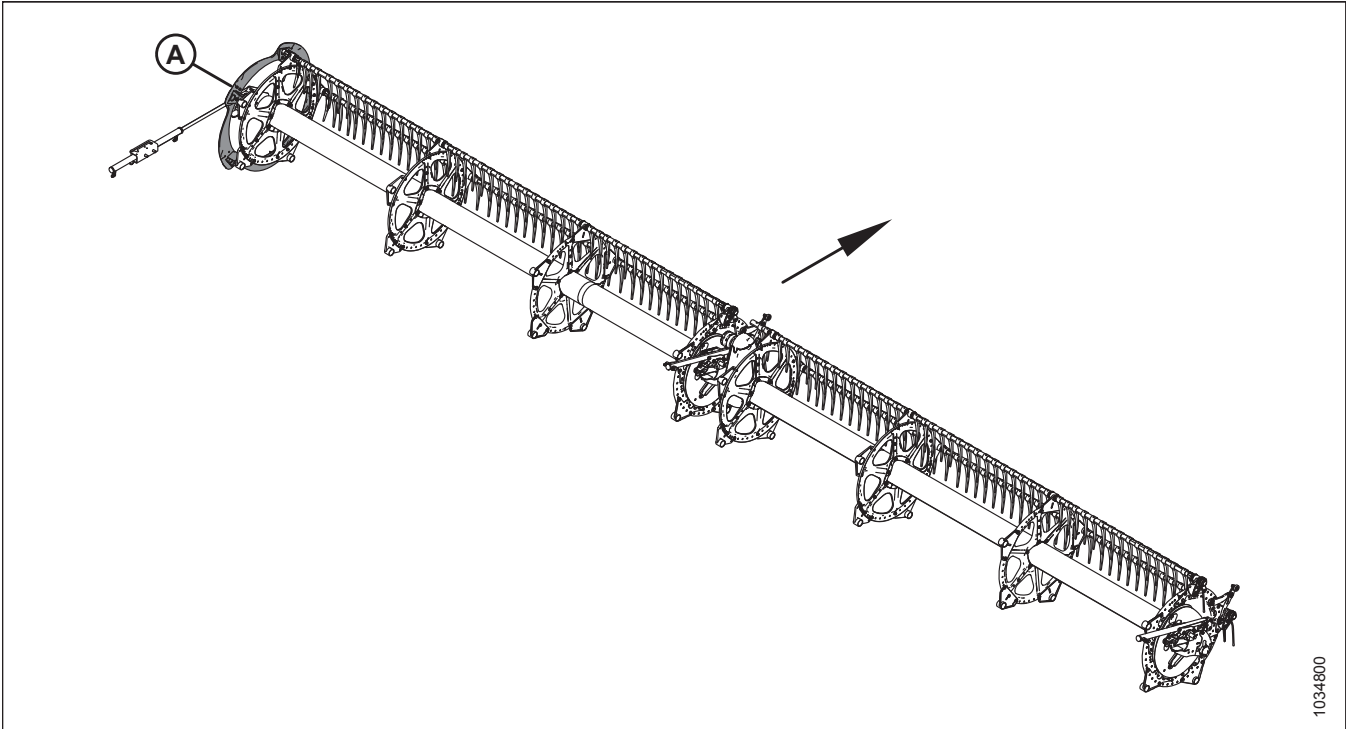
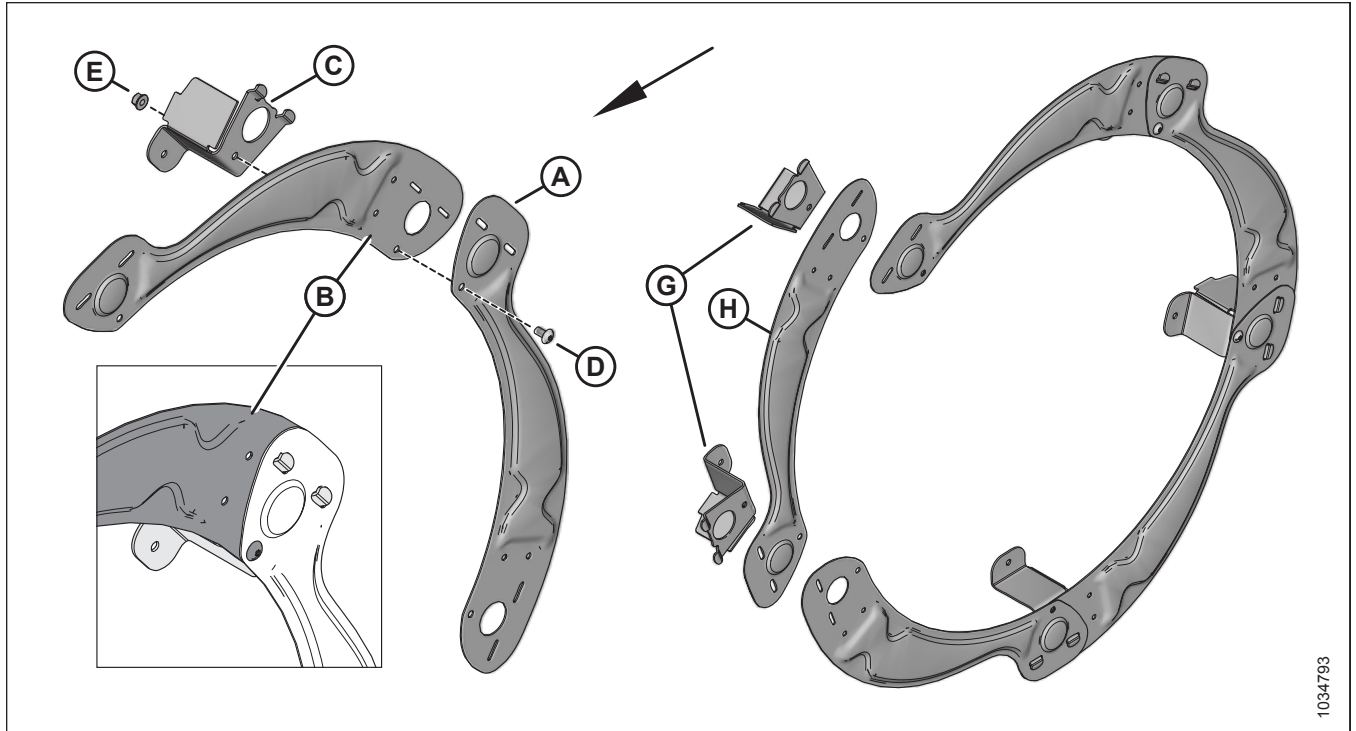


Figure 3.78: Five-Bat Reel – Endshield, Outboard Tail End

## ASSEMBLING HEADER AND FLOAT MODULE



**Figure 3.79: Five-Bat Reel – Initial Endshield Assembly**

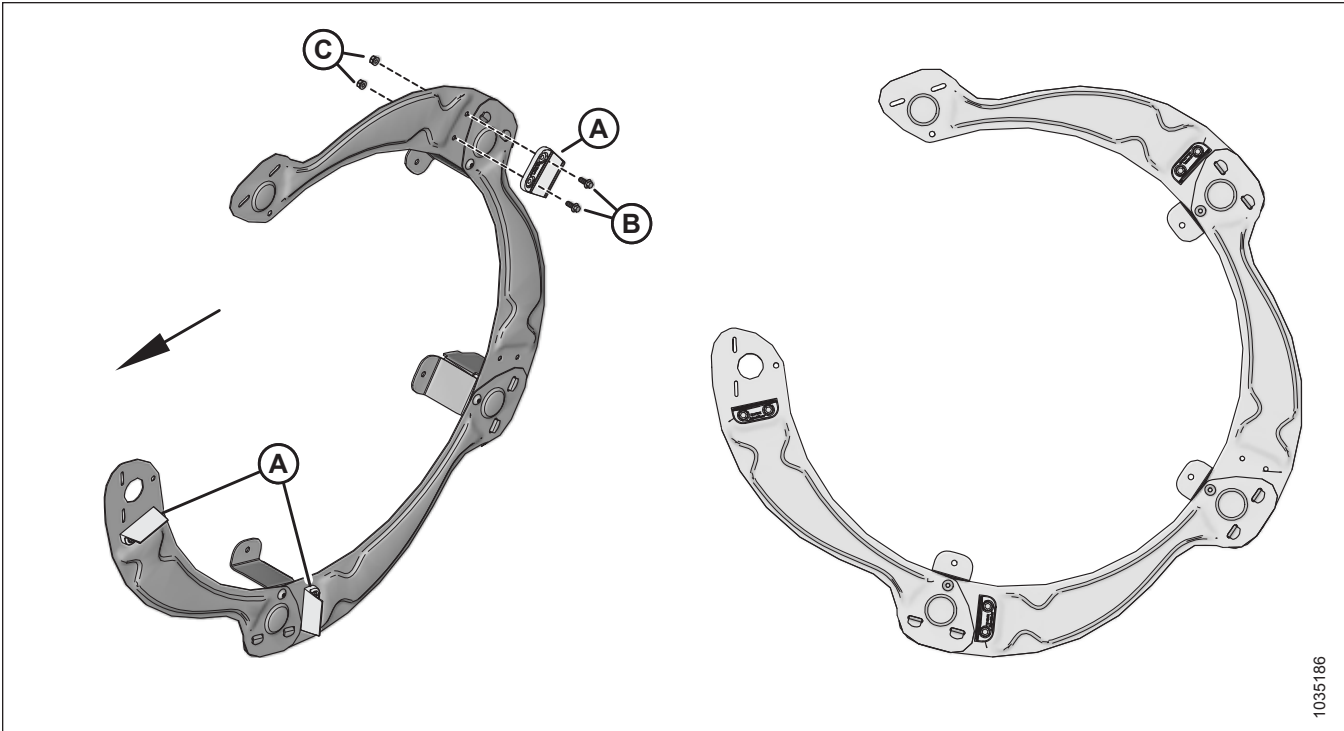
1. Assemble endshield as follows:

**NOTE:**

The arrow points to the front of the machine.

- a. Position endshield segment (A) **in front** of segment (B). Engage endshield support tabs (C) through both segments, and secure with M10 X 1.5 X 20 Torx® screw (D) and hex nut (E). Do **NOT** tighten.
- b. Repeat for remaining segments leaving last segment (H) and two support tabs (G) uninstalled.

## ASSEMBLING HEADER AND FLOAT MODULE



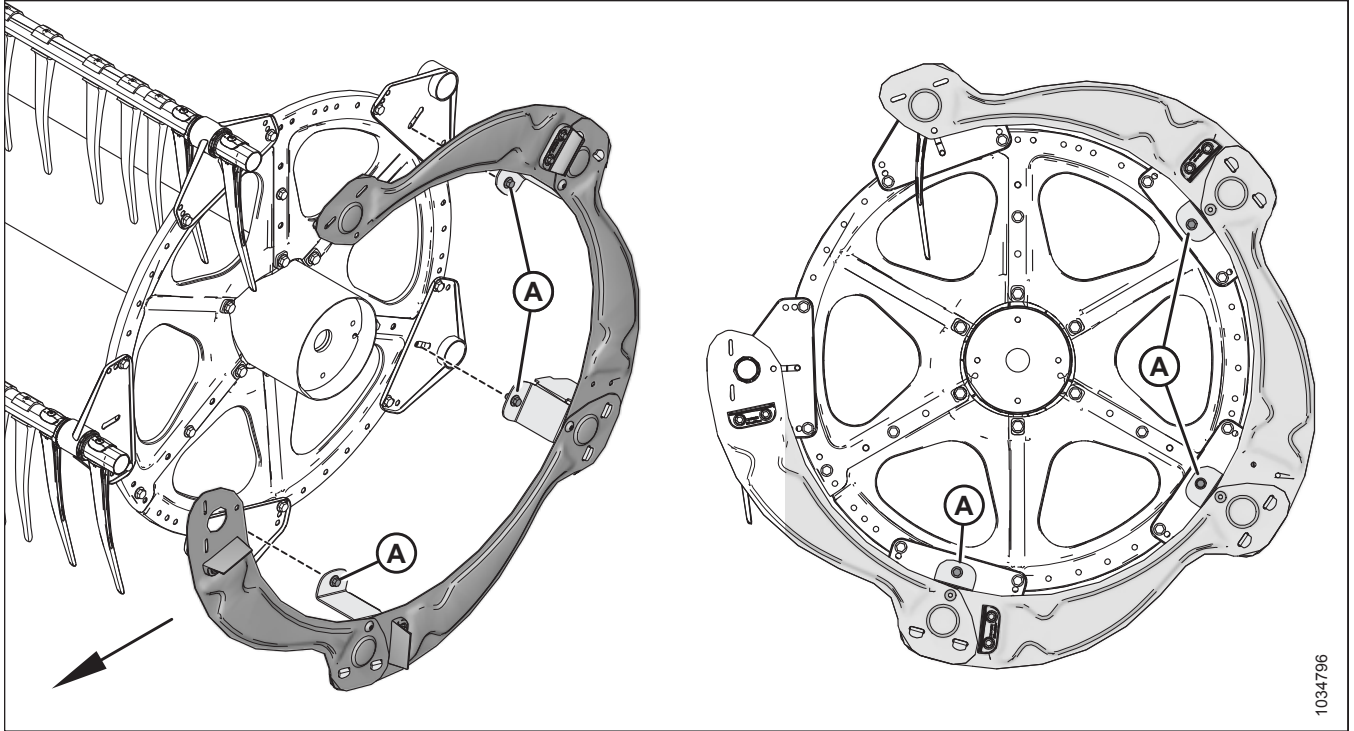
**Figure 3.80: Five-Bat Reel – Rubber Paddles**

2. Install three **rubber** reel end paddles (A) on the **outboard face** of the endshield assembly using two M8 X 1.25 X 20 hex bolts (B) and nuts (C) per paddle.

**IMPORTANT:**

The arrow points to the front of the machine. Ensure rubber paddles are oriented as shown. The rubber paddles on both ends of the reel (the outboard cam and outboard tail ends) should be aligned.

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**Figure 3.81: Five-Bat Reel – Partially Assembled Reel Endshields on Reel**

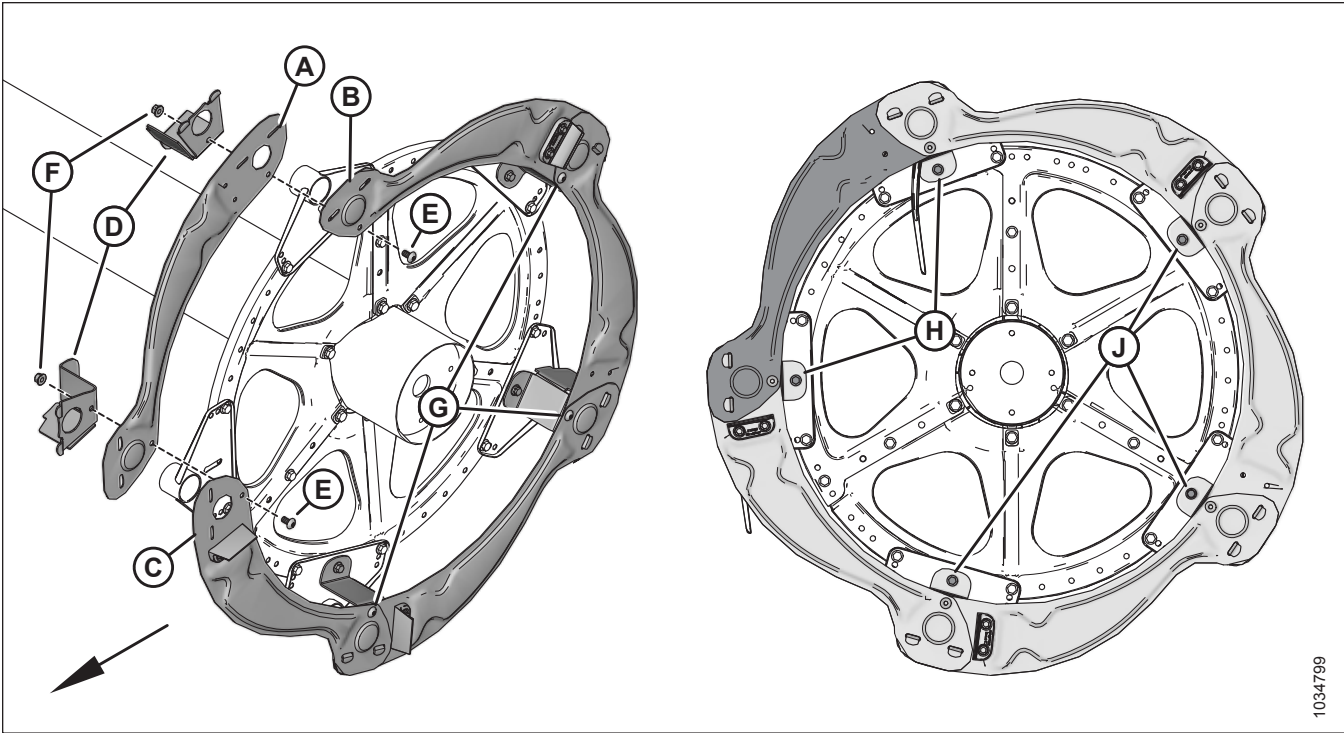
3. Position partially assembled reel endshield onto reel and tine tubes.

**NOTE:**

The arrow points to the front of the machine.

4. Secure with three M10 X 1.5 X 20 hex bolts (A) and nuts. Do **NOT** tighten.

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**Figure 3.82: Five-Bat Reel – Partially Assembled Reel Endshields on Reel**

5. Install the last segment of endshield (A) as follows:

**NOTE:**

The arrow points to the front of the machine.

- a. Position the wide end of last segment (A) **behind** segment (B). Position the other end of last segment **on top** of segment (C).
  - b. Install tabs of endshield supports (D) through the endshield segments.
  - c. Secure endshield supports using two M10 X 1.5 X 20 Torx® screws (E) and nuts (F).
  - d. Torque five M10 X 1.5 X 20 Torx® screws (E) and (G) to 39 Nm (29 lbf·ft). Rotate the reel to reach the screws if required.
6. Secure the two endshield supports to the reel disc using two M10 X 1.5 X 20 hex bolts (H) and nuts.
  7. Tighten five M10 X 1.5 X 20 hex bolts (H) and (J) and nuts that secure the endshield supports to the cam discs to 68.5 Nm (50.5 lbf·ft).

### 3.8 Connecting Flex Linkage

1. Loosen outer jam nuts (A) and remove shipping tag (B).

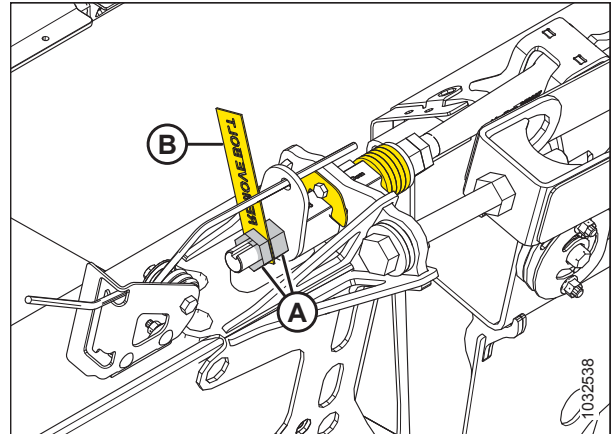


Figure 3.83: Flex Linkage – Left Side

2. Remove the stack of moon-shaped washers (B).

**IMPORTANT:**

Do **NOT** adjust the two inboard jam nuts (C). These are set at the factory for correct frame alignment. Adjust the two outer jam nuts (A) only.

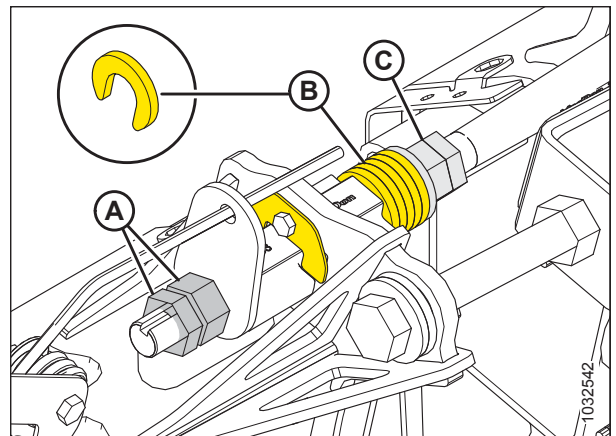


Figure 3.84: Flex Linkage – Left Side

3. Tighten outer jam nuts (A) to remove the gap created from the removed washers.
4. Tighten outer jam nuts (A) to 200 Nm (148 lbf·ft).
5. Remove bolt (B) and shipping plates (C) that keep the wing in the locked position.

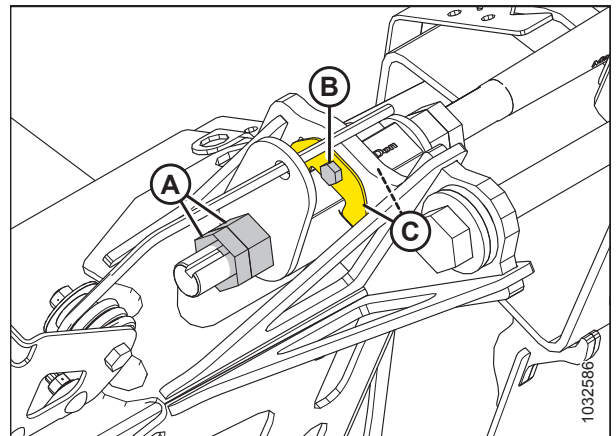


Figure 3.85: Flex Linkage – Left Side

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6. Cut the wire securing top-link (C) to shipping plates (B).
7. Remove M16 x 2 x 140 bolt (A) and nut. Retain bolt. Discard nut and shipping plates (B).

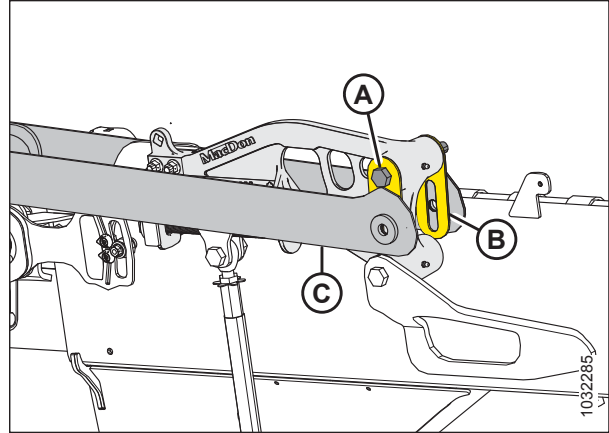


Figure 3.86: Top-Link

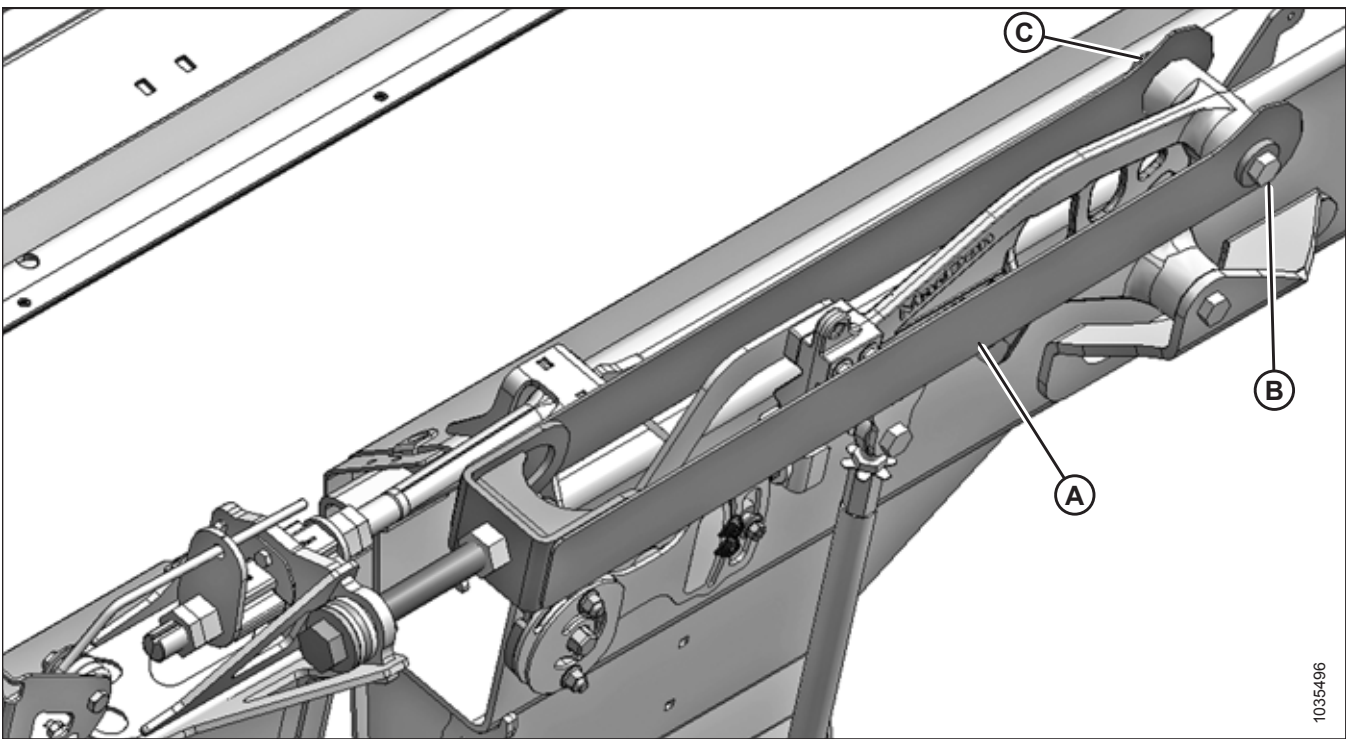


Figure 3.87: Top-Link

8. Retrieve M16 flange locknut (MD #152520) from the parts bag.
9. Position top-link (A) so it lines up with the holes in the bell crank where the bolt was removed, and install M16 x 2 x 140 bolt (B) (retained in Step 7, page 68) and flange locknut (MD #152520). Tighten to 225 Nm (166 lbf·ft).
10. Repeat procedure on the opposite side of the header.



### 3.9 Installing Flex Linkage Covers – FD230, FD235, and FD240

1. Position the left outboard linkage cover so that hole (A) goes over the wing lock.

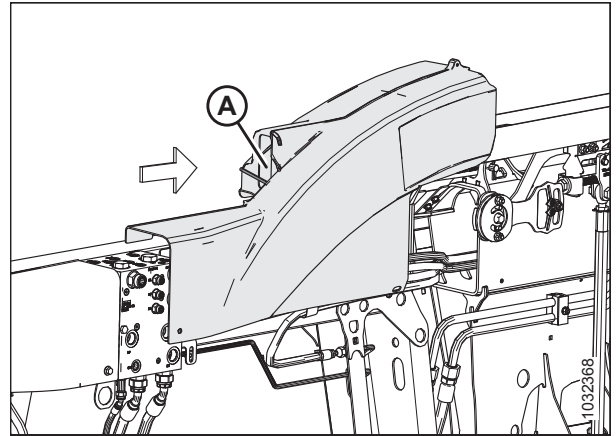


Figure 3.88: Left Linkage Cover – Rear of Header

2. Sit the notch in the cover behind bracket (A) on the backtube, and line up the end so it is flush with the manifold (B).

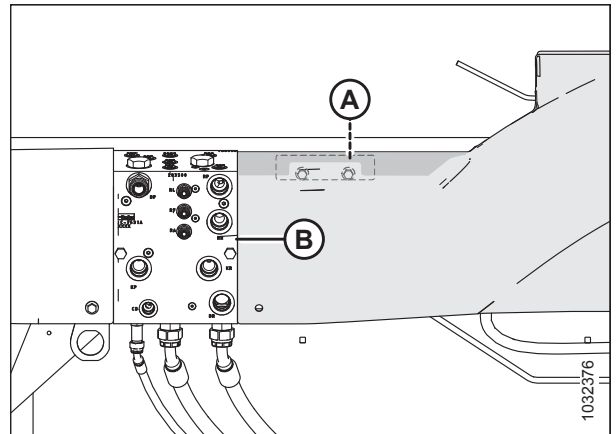


Figure 3.89: Left Linkage Cover – Rear of Header

3. Attach the cover to the manifold bracket using M10 x 20 mm hex flange bolt (A) and hex flange lock nut (B). Tighten the nut by hand until snug, and then tighten the nut another 1/8 of a turn.
4. Attach cover to hose clamp (C) using snap rivet (D). Ensure rivet is fully inserted. Turn screw until it bottoms out.

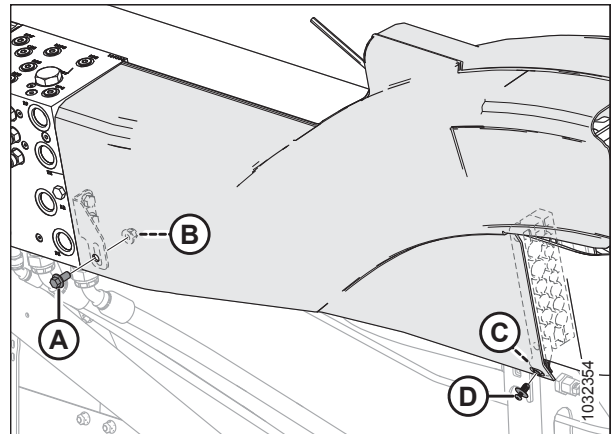


Figure 3.90: Left Linkage Cover – Rear of Header

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5. Attach the front of the cover to bracket (A) using M8 x 25 mm socket screw (B), flat washer (C), and M8 center lock hex nut (D). Tighten to 8 Nm (6 lbf-ft).

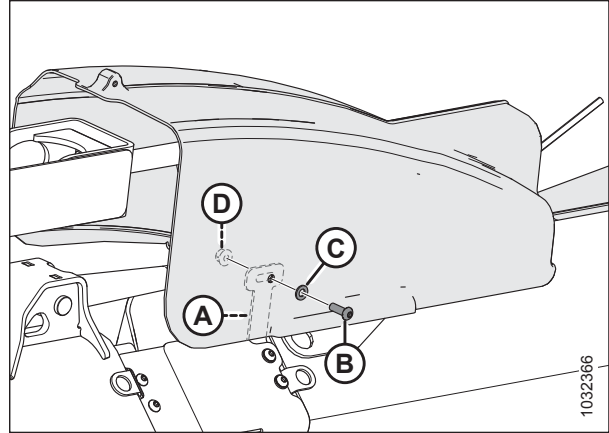


Figure 3.91: Left Linkage Cover – Front of Header

6. Position the right outboard linkage cover so that hole (A) goes over the wing lock.

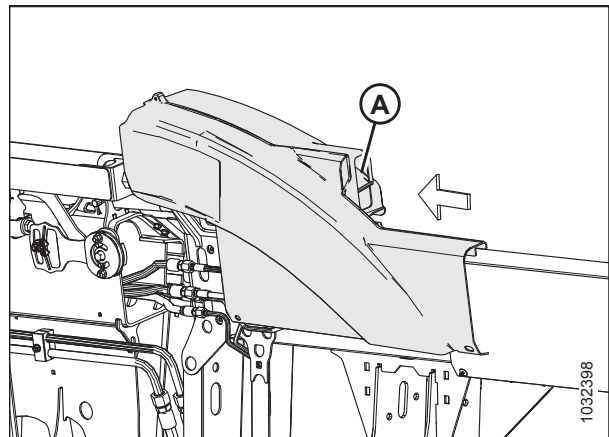


Figure 3.92: Right Linkage Cover – Rear of Header

7. Sit the notch in the cover behind hose clamp (A) on the backtube.

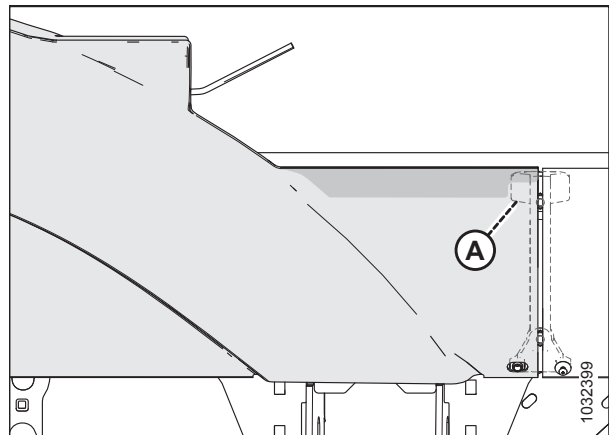


Figure 3.93: Right Linkage Cover – Rear of Header

## ASSEMBLING HEADER AND FLOAT MODULE

- Attach the cover to the hose clamps using snap rivets (A). Ensure rivets are fully inserted. Turn the screw until it bottoms out.

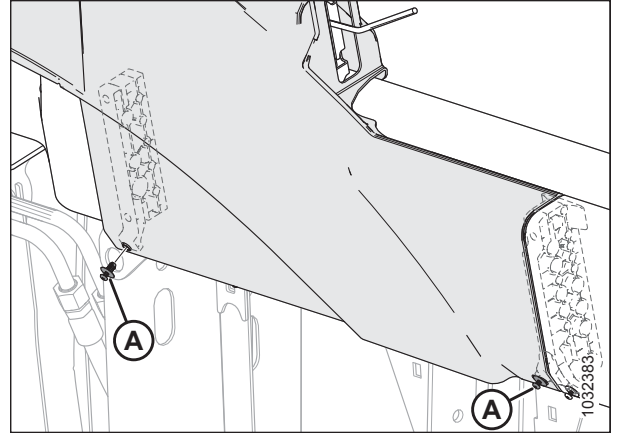


Figure 3.94: Right Linkage Cover – Rear of Header

- Attach the front of the cover to bracket (A) using M8 x 25 mm socket screw (B), flat washer (C), and M8 center lock hex nut (D). Tighten to 8 Nm (6 lbf-ft).

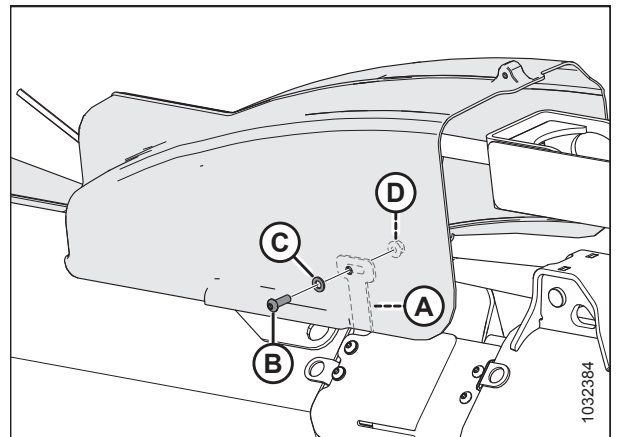


Figure 3.95: Right Linkage Cover – Front of Header

- Position left inboard linkage cover (A) over linkage. Ensure slots (B) lines up with tabs (C) and (D).
- Slide the cover outboard so tab (D) will extend beyond slot.

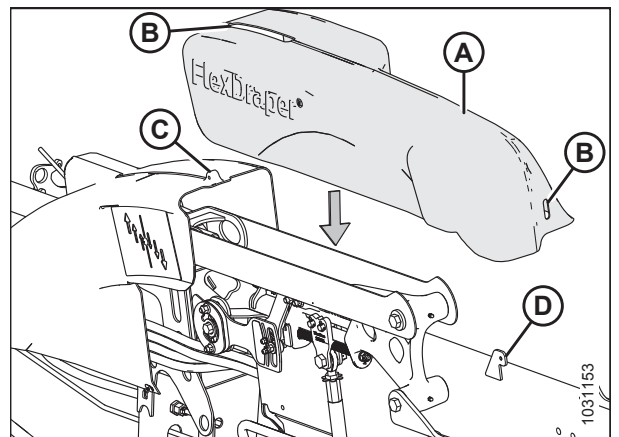


Figure 3.96: Left Linkage Cover

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12. Secure cover (C) in place with hair pin (A), and lynch pin (B).
13. Repeat Step 10, page 71 to Step 12, page 72 to install the right inboard linkage cover.

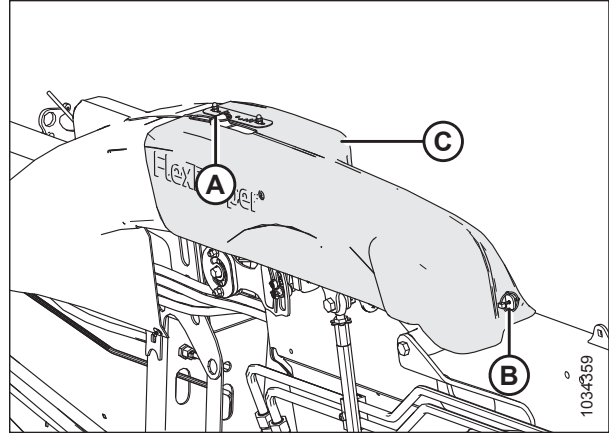


Figure 3.97: Left Linkage Cover

### 3.10 Installing Flex Linkage Covers – FD245 and FD250

1. Position the left outboard linkage cover so that hole (A) goes over the wing lock.

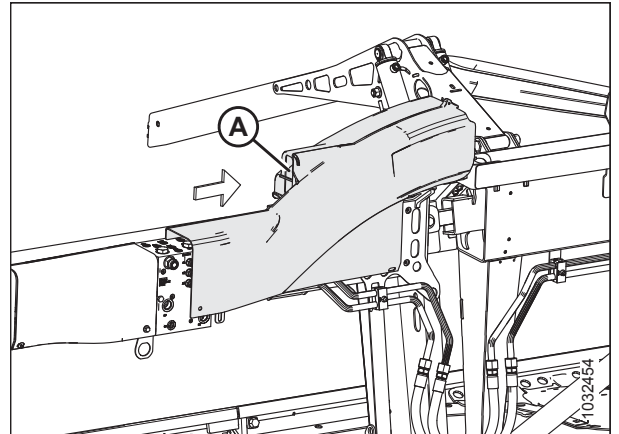


Figure 3.98: Left Linkage Cover – Rear of Header

2. Sit the notch in the cover behind bracket (A) on the backtube, and line up the end so it is flush with the manifold (B).

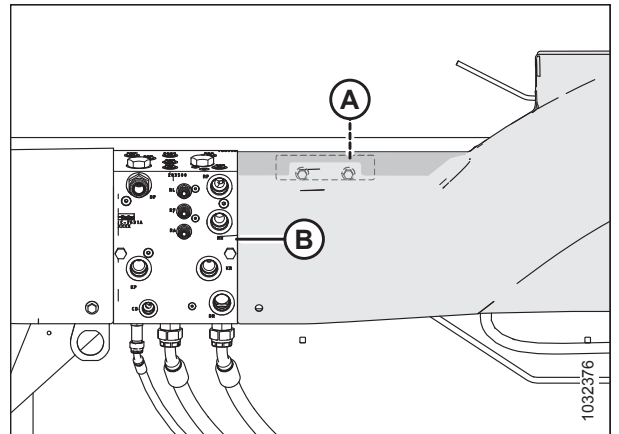


Figure 3.99: Left Linkage Cover – Rear of Header

3. Attach the cover to the manifold bracket using M10 x 20 mm hex flange bolt (A) and hex flange lock nut (B). Tighten the nut by hand until snug, and then tighten the nut another 1/8 of a turn.
4. Attach cover to hose clamp (C) using snap rivet (D). Ensure rivet is fully inserted. Turn screw until it bottoms out.

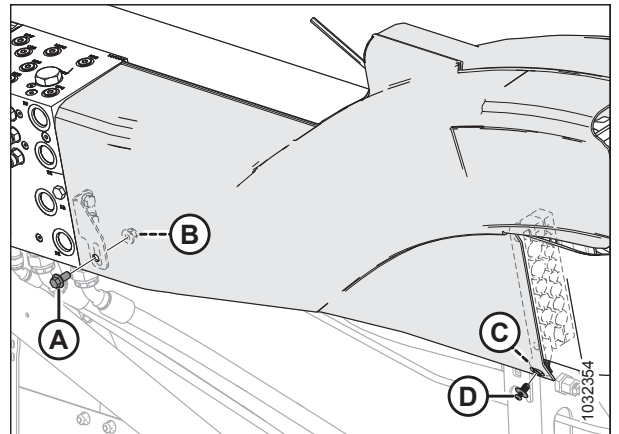


Figure 3.100: Left Linkage Cover – Rear of Header

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5. Attach the front of the cover to bracket (A) using M8 x 25 mm socket screw (B), flat washer (C), and M8 center lock hex nut (D). Tighten to 8 Nm (6 lbf-ft).

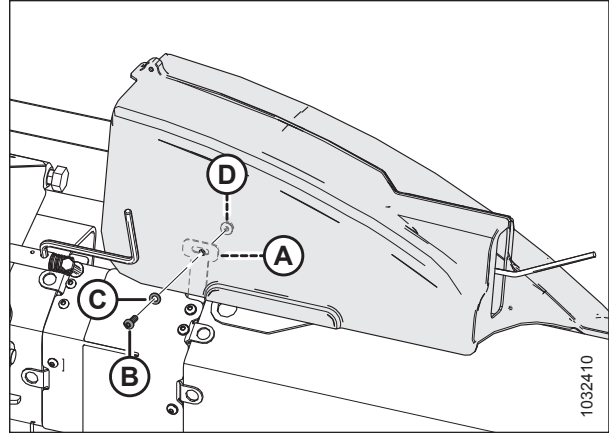


Figure 3.101: Left Linkage Cover – Front of Header

6. Position bracket (A) between top-link (B), and align the bracket with the two holes in the backtube.
7. Install bracket (A) using two M8 x 25 mm hex head bolts (C). This bracket supports the middle cover.

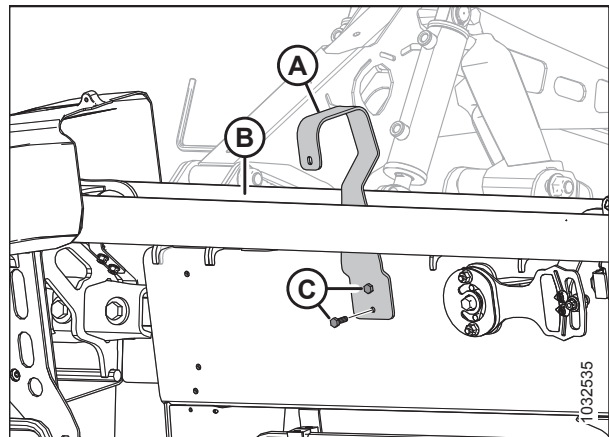


Figure 3.102: Support Bracket

8. Position left middle cover (A) over bracket (B). Align slot (C) with tab (D), and align slots (E) with mounting brackets (F).

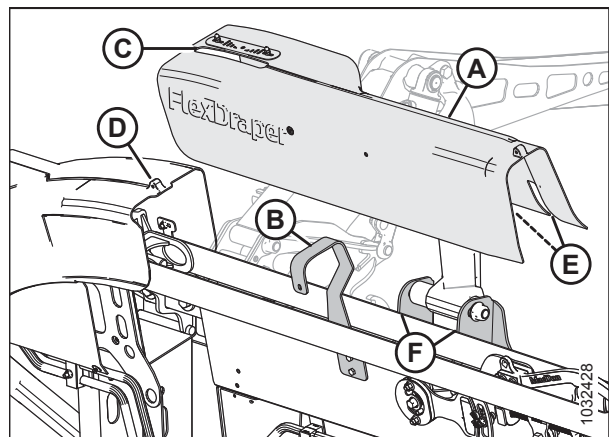


Figure 3.103: Left Linkage Cover – Rear of Header

## ASSEMBLING HEADER AND FLOAT MODULE

- Attach the cover to bracket (A) using M8 x 25 mm socket screw (B), flat washer (C), and M8 center lock hex nut (D). Tighten to 8 Nm (6 lbf·ft).
- Install lynch pin (E).

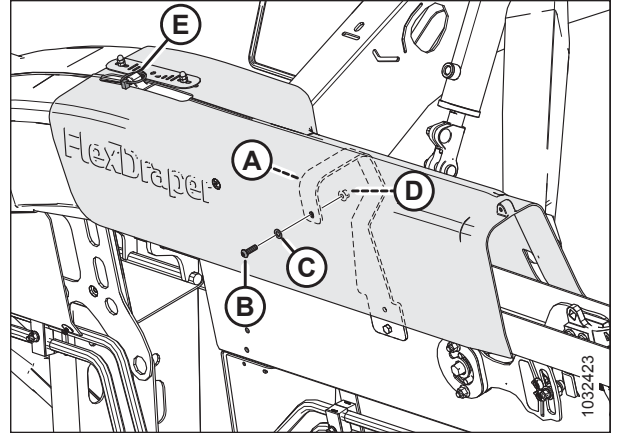


Figure 3.104: Left Linkage Cover – Rear of Header

- Position left inboard linkage cover (A) over linkage. Ensure slots (B) lines up with tabs (C) and (D).
- Slide the cover outboard so tab (D) will extend beyond slot.

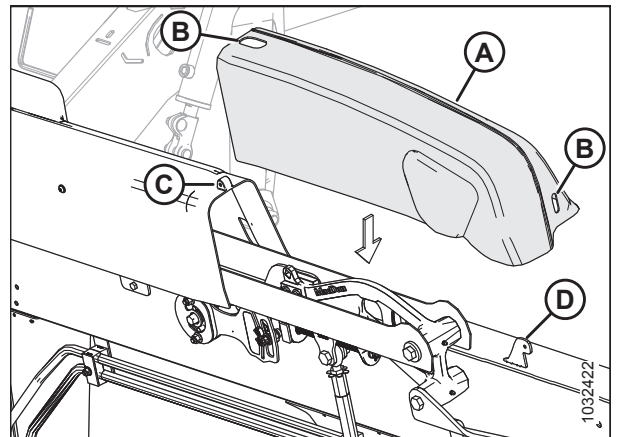


Figure 3.105: Left Linkage Cover

- Secure the cover in place with lynch pins (A).

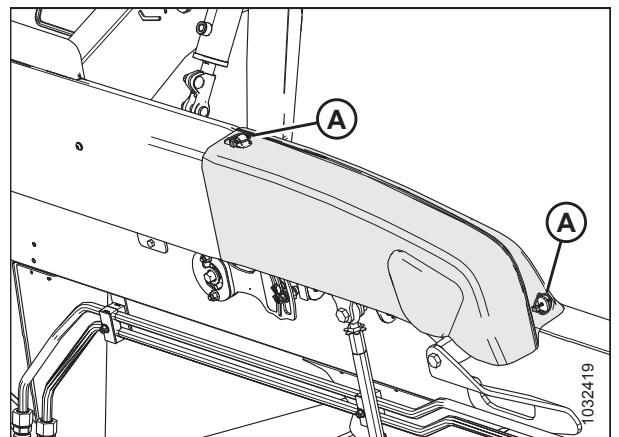


Figure 3.106: Left Linkage Cover

## ASSEMBLING HEADER AND FLOAT MODULE

14. Position the right outboard linkage cover so that hole (A) goes over the wing lock.

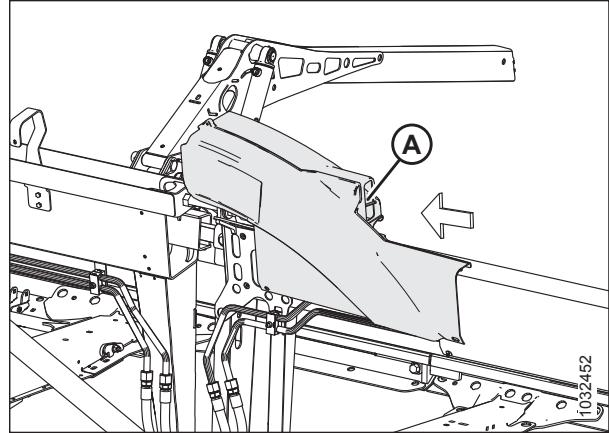


Figure 3.107: Right Linkage Cover – Rear of Header

15. Sit the notch in the cover behind hose clamp (A) on the backtube.

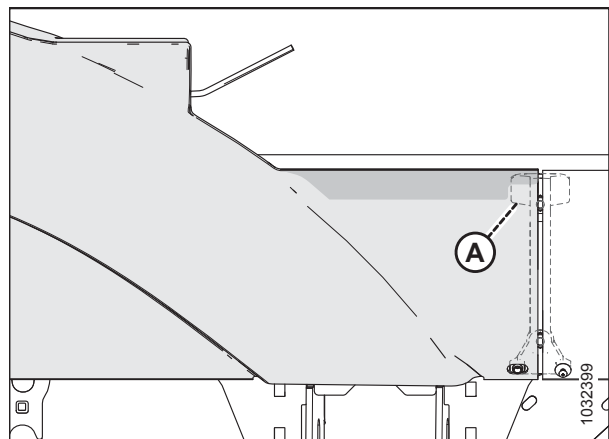


Figure 3.108: Right Linkage Cover – Rear of Header

16. Attach the cover to the hose clamps using snap rivets (A). Ensure rivets are fully inserted. Turn the screw until it bottoms out.

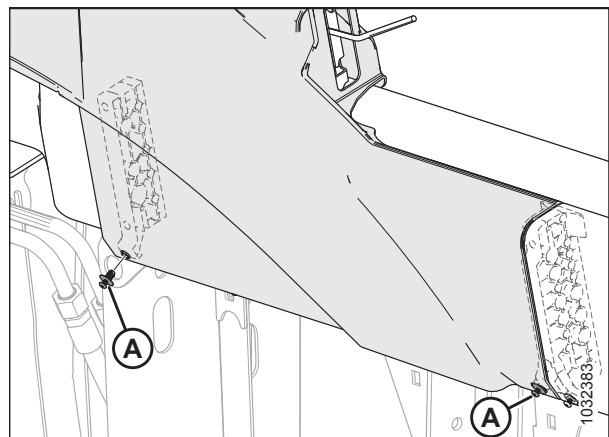


Figure 3.109: Right Linkage Cover – Rear of Header



## ASSEMBLING HEADER AND FLOAT MODULE

17. Attach the front of the cover to bracket (A) using M8 25 mm socket screw (B), flat washer (C), and M8 center lock hex nut (D). Tighten to 8 Nm (6 lbf·ft).

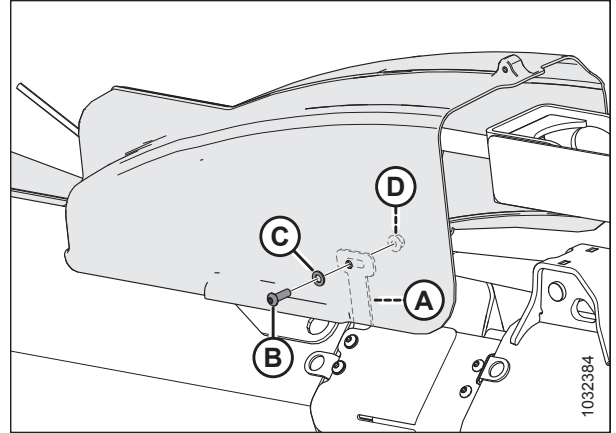


Figure 3.110: Right Linkage Cover – Front of Header

18. Repeat Step 6, page 74 to Step 13, page 75 for the two remaining covers (A) and (B) on the right linkage.

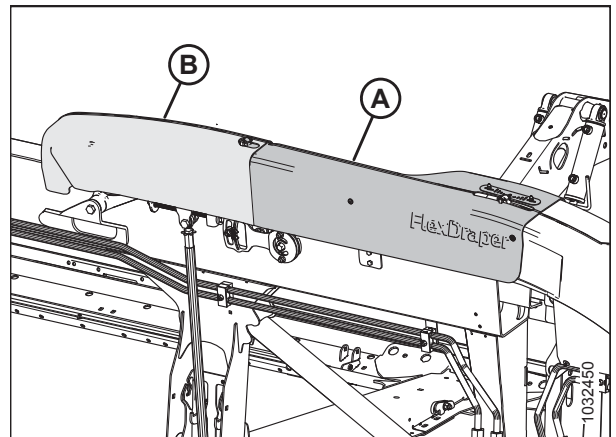


Figure 3.111: Right Linkage Covers – Rear of Header

### 3.11 Preparing Hydraulic Hoses

Hydraulic hoses on the left of the FM200 are temporarily secured during shipping.

1. On the left of the FM200, remove shipping wire (A) from hydraulic hoses.
2. **FD230, FD235, and FD240:** Place hose bundle (B) in bracket (C). Secure hose bundle to bracket by reinstalling strap (D) through bracket hole (E) and over the top of bracket (C).

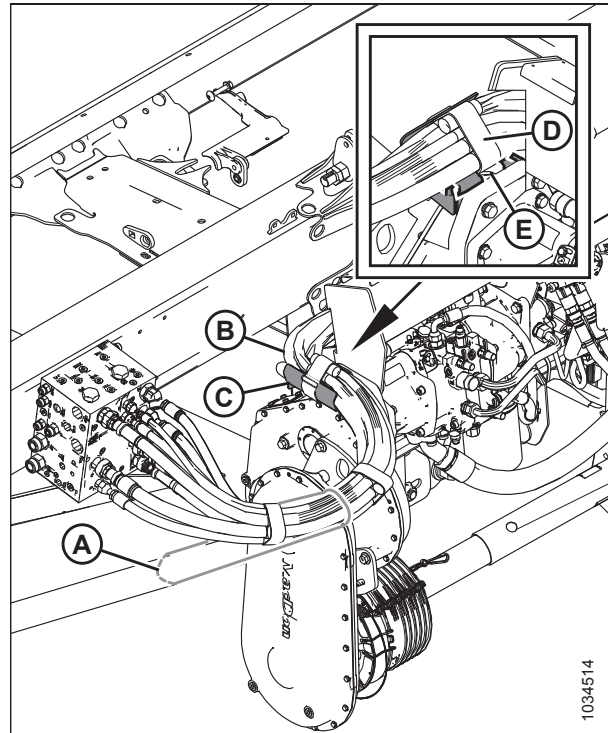


Figure 3.112: Hydraulic Hoses – Left of FM200

### 3.12 Repositioning Gearbox

Rotate the gearbox out of its shipping position.

1. Loosen hex bolt (A) on pump box bracket (B).

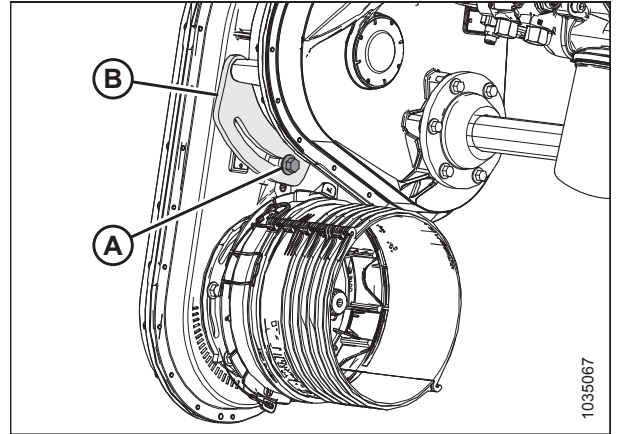


Figure 3.113: Shipping Position

2. Remove and retain two hex bolts (A) from bracket (B).
3. Swing gearbox rearward, and align mounting holes on bracket with mounting holes on pump box.

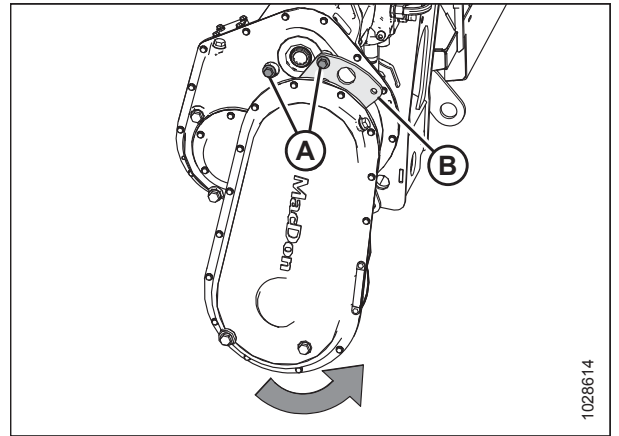


Figure 3.114: Shipping Position

4. Secure bracket (A) with two retained M12 hex bolts (B).
5. Tighten the three M12 hex bolts to 58 Nm (42 lbf·ft).

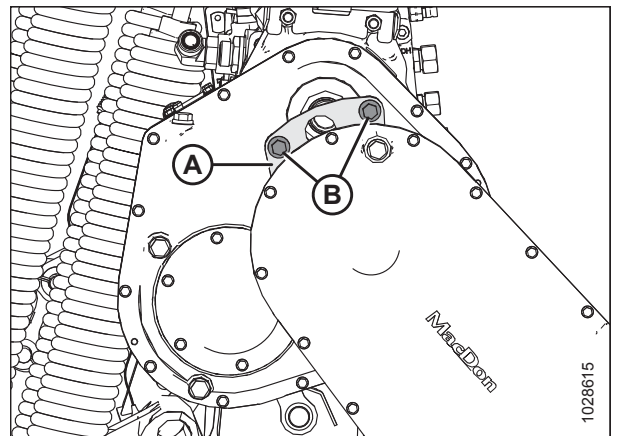


Figure 3.115: Working Position

### 3.13 Installing Driveline Chain – FM200 equipped with Drivelines MD #B7038 or MD #B7039

The driveline allows the combine to drive mechanical components of the header.

**CAUTION**

To prevent injury to the installer and damage to the driveline, hold the driveline so that it doesn't fall to the floor or ground.

1. Secure loose end of safety chain (A) to the ear on the aluminum plate.

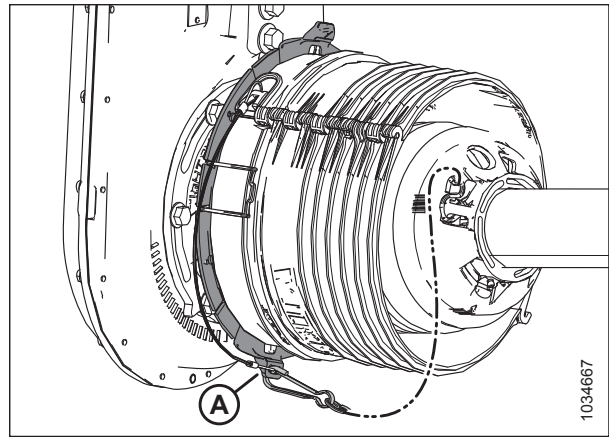


Figure 3.116: Gearbox End of Driveline

2. Position the combine end of the driveline (A) onto storage support (B), pull back the collar, and slide onto the shaft until the yoke locks onto the shaft. Release the collar.
3. Secure the loose end of safety chain (C) to the driveline storage support.

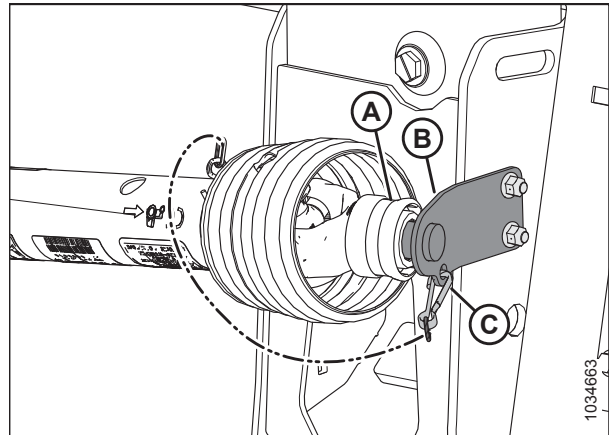


Figure 3.117: Driveline in Storage Position

### 3.14 Installing Driveline – FM200 equipped with Sidehill/Hillside Drivelines MD #B7180, MD #B7181, or MD #B7182

The driveline allows the combine to drive mechanical components of the header.

**CAUTION**

To prevent injury to the installer and damage to the driveline, hold the driveline so that it doesn't fall to the floor or ground.

**NOTE:**

The installation of this driveline requires a transition frame to be installed in the FM200.

1. Remove the packaged driveline from the FM200.
2. Attach driveline storage support (A) to the upper left side of transition frame (B) using one M10 x 1.5 x 25 carriage bolt and hex flange nut (B).

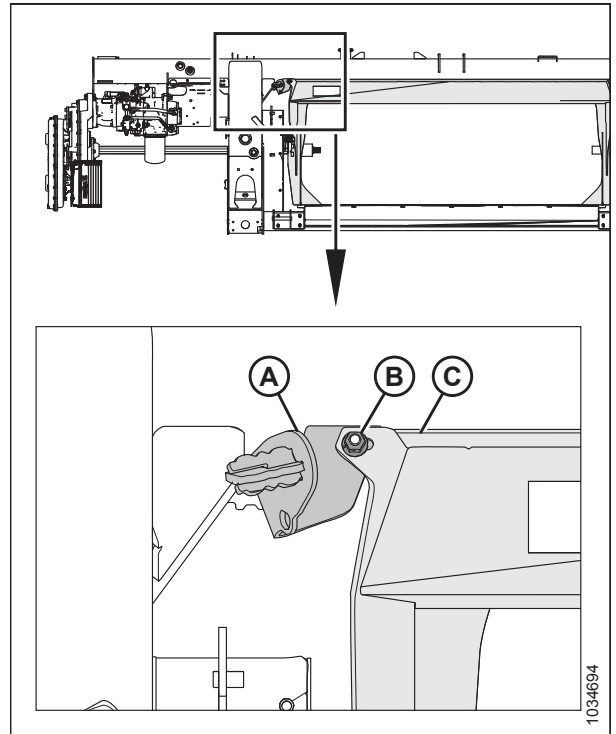


Figure 3.118: Driveline Support

3. At gearbox end, pry clips (A) off of shield (B) to remove shield.

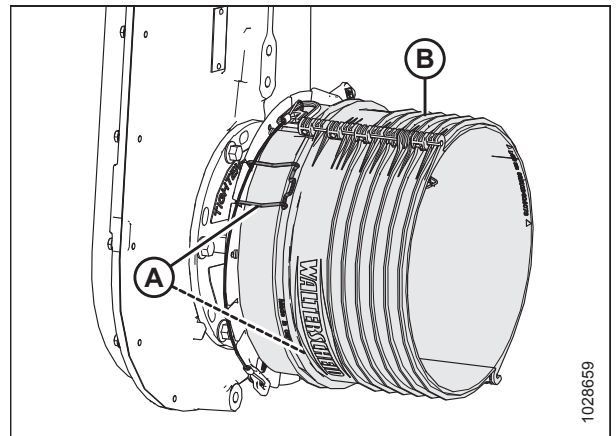


Figure 3.119: Gearbox End of Driveline

## ASSEMBLING HEADER AND FLOAT MODULE

### NOTE:

Before attaching the driveline, make sure the arrow on the driveline decal points **toward the combine**.

### NOTE:

The decal on your driveline may not look exactly like the one shown at right.



Figure 3.120: Sample Driveline Decal

- Slide shield (A) on driveline.
- Position the driveline quick disconnect onto the float module gearbox shaft, pull back the collar (B), and slide onto the shaft until the yoke locks onto the shaft. Release the collar.

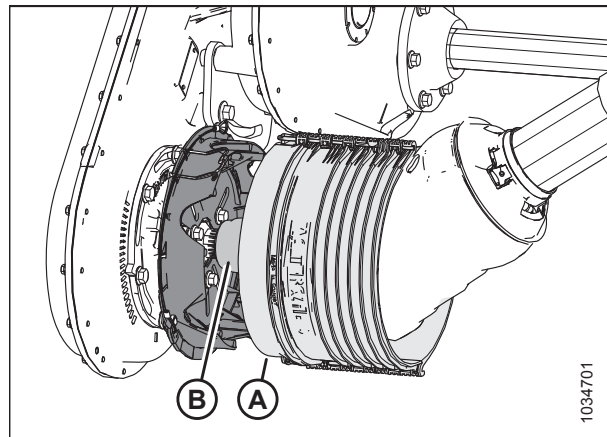


Figure 3.121: Gearbox End of Driveline

- Secure shield (A) with clips (B).

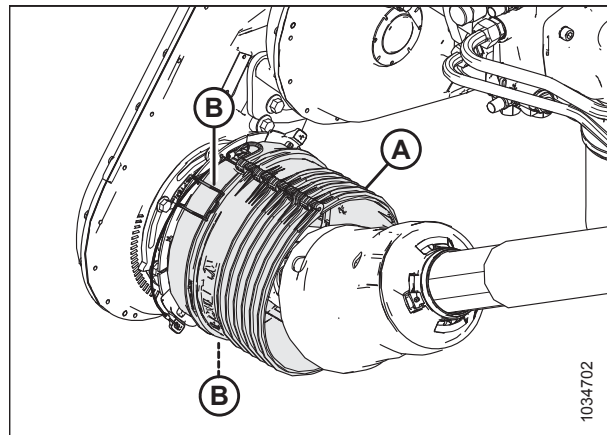


Figure 3.122: Gearbox End of Driveline

## ASSEMBLING HEADER AND FLOAT MODULE

- Secure loose end of safety chain (A) to the ear on the aluminum plate.

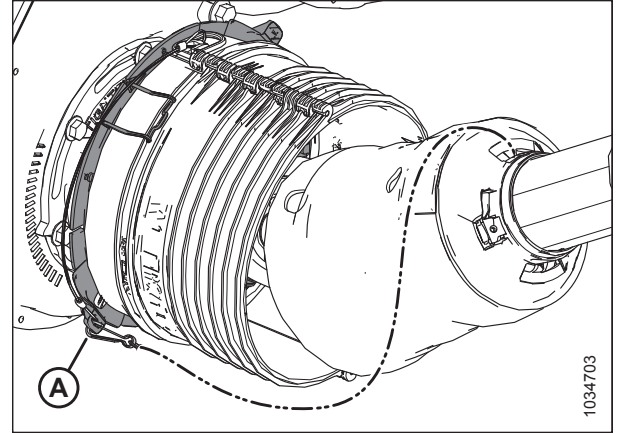


Figure 3.123: Gearbox End of Driveline

- Position the combine end of the driveline (A) onto storage support (B), pull back the collar, and slide onto the shaft until the yoke locks onto the shaft. Release the collar.
- Secure the loose end of safety chain (C) to the driveline storage support.

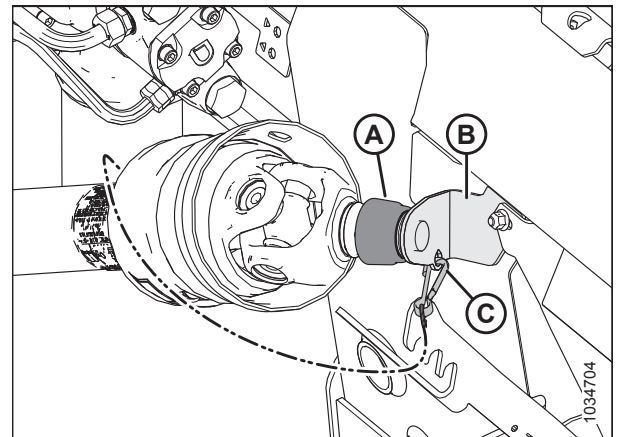
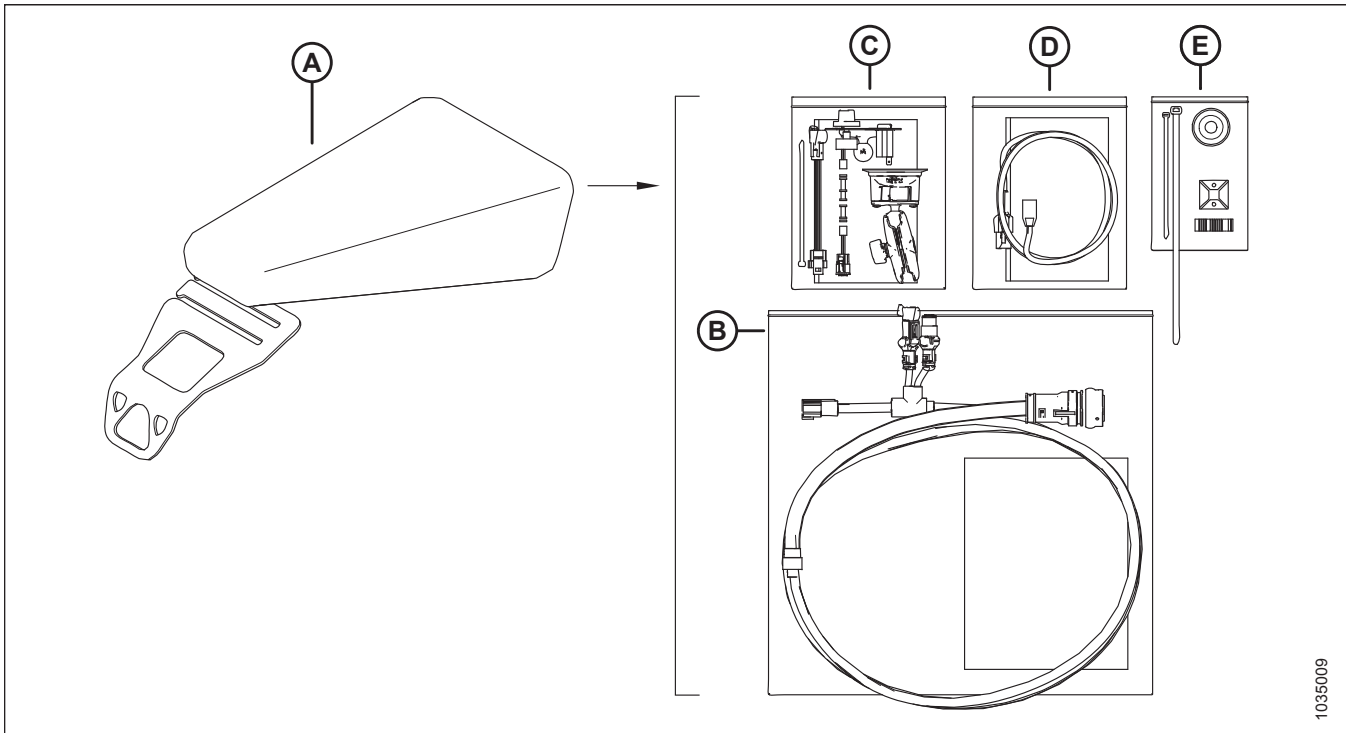


Figure 3.124: Driveline in Storage Position

### 3.15 Installing Cab Control Kits

Cab control kits supply the electrical parts required for the combine to operate the header.

Figure 3.125: Shipping Bag Containing Cab Control Kits – John Deere Kits Shown, Similar for all Combines



1. Retrieve shipping bag (A) that contains the cab control kits.
2. The float module is shipped configured for a specific brand of combine. Install all of the cab control kits onto a combine that is compatible with the float module. Separate instructions are supplied with each kit:
  - Combine Cab Control Harness Kit (B)
  - Generic In-Cab Side Draper Speed Control Kit (C)
  - Combine Cab Power Kits (D)
  - Supplementary parts (E) (referenced in at least one of the kit instructions listed above)



## Chapter 4: Setting up Float Module

Perform all the procedures in this chapter in the order in which they are listed.

### 4.1 Installing Filler Cap

1. Remove filler cap from bag (A).

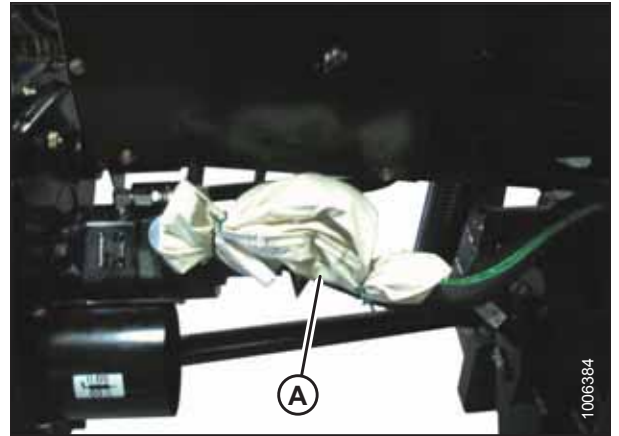


Figure 4.1: Hardware Bag

#### CAUTION

Fluid may be under pressure. Allow pressure to equalize by loosening screws and lifting the shipping cover slightly.

2. Remove and discard yellow shipping cover (A) from the float module frame.

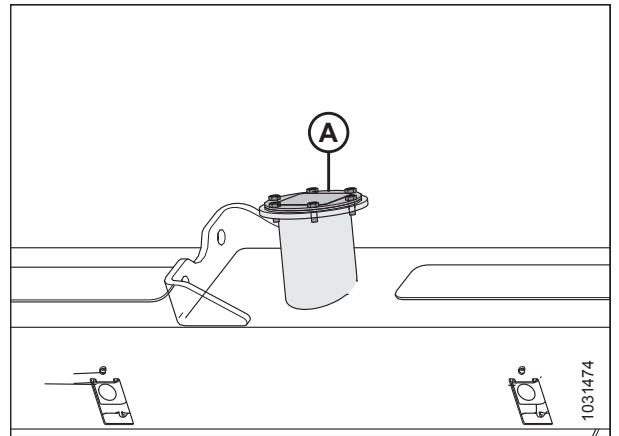


Figure 4.2: Yellow Shipping Cover

3. Remove and retain top gasket (A).

#### NOTE:

There are two gaskets—one on each side of the filler strainer flange.

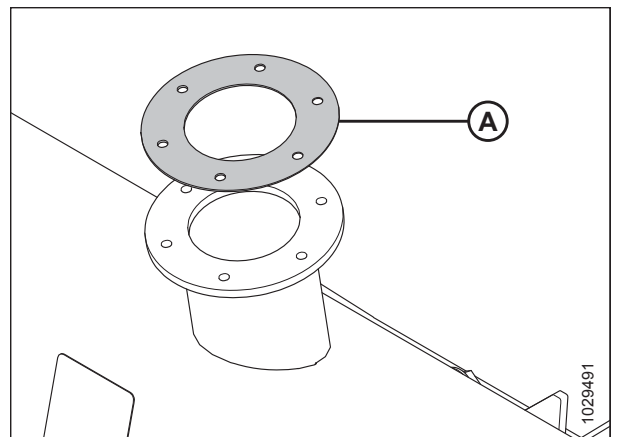


Figure 4.3: Top Gasket

## SETTING UP FLOAT MODULE

4. Place gasket (A) (removed from the top of the filler strainer) onto filler cap neck (B) and align holes.
5. Install #10-32 screws into filler cap neck (B) and push screws through gasket (A).

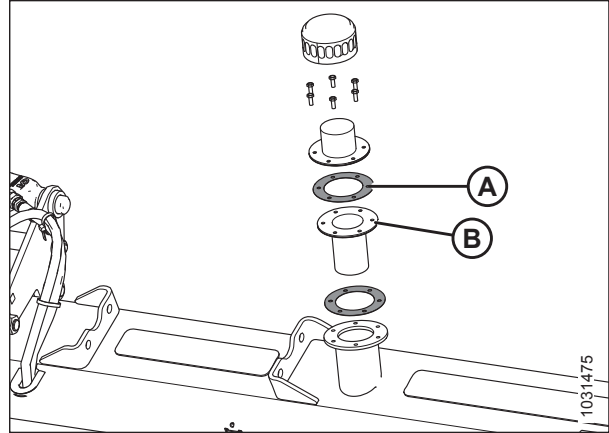


Figure 4.4: Filler Cap

6. Place filler cap neck (A) (complete with screws) over opening and ensure the machine screws are aligned with the threaded holes.
7. Carefully thread in the machine screws using a cross pattern (as shown) in order to prevent cross threading of tapped holes.
8. Repeat pattern to gradually tighten screws to 3.5 Nm (31 lbf-in).

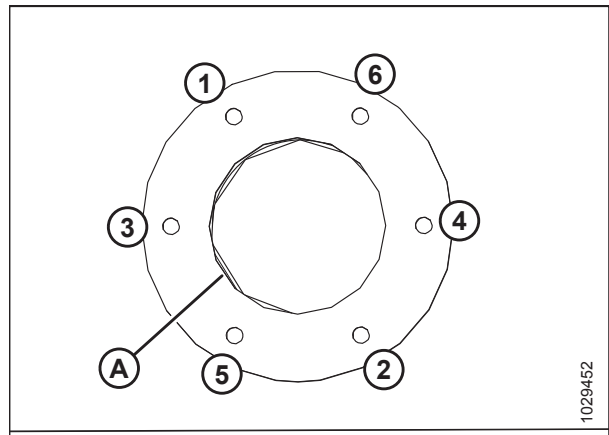


Figure 4.5: Screw Hole Locations

9. Install filler cap (A).

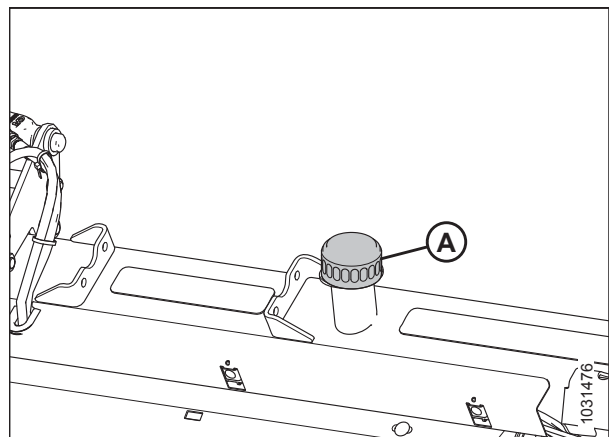


Figure 4.6: Filler Cap Neck

## 4.2 FM200 Feed Auger Configurations

The FM200 feed auger can be configured to suit various crop conditions; there are five configurations available. Standard configuration of feed augers from the factory is narrow or medium.

**NOTE:**

Dimensions (A) and (B) are the same for both ends of the auger. They should be within 15 mm (9/16 in.) of the numbers given.

**Narrow configuration** is a standard configuration for the following combines:

- IDEAL™ Series
- Gleaner® R6/75, R6/76, S6/77, S6/7/88, S96/7/8
- New Holland CR 920/940/960, 9020/40/60/65, 6090/7090, 8060/8070/8080

Narrow configuration uses 4 long bolt-on flightings (2 on the left and 2 on the right) and 18 feed auger fingers are recommended.

For more information on converting to Narrow configuration, refer to [4.2.1 Narrow Configuration – Auger Flighting, page 89](#).

**NOTE:**

Dimensions (A) and (B) are the same for both ends of the auger. They should be within 15 mm (9/16 in.) of the numbers given.

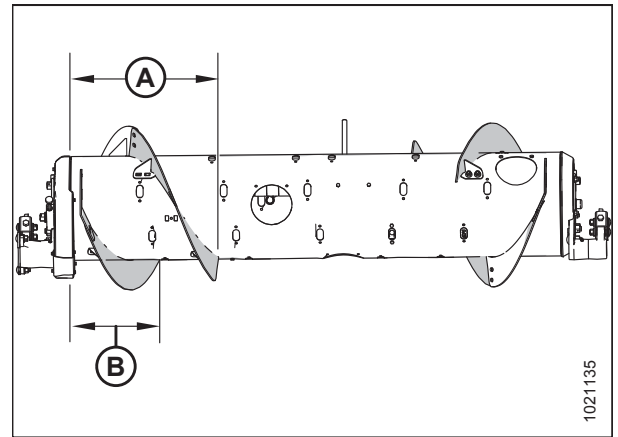
**Medium configuration** is a standard configuration for the following combines:

- Case IH 2300/2500 Series
- Case IH 5/6/7088, 7/8010, 7/8/9120, 5/6/7130, 7/8/9230, 5/6/7140, 7/8/9240, 5/6/7150, 7/8/9250
- Challenger® 66/67/680B, 54/560C, 54/560E
- CLAAS 56/57/58/590R, 57/58/595R, 62/63/64/65/66/670, 73/74/75/76/77/780, 7000/8000, Tucano
- John Deere 95/96/97/9860, 95/96/97/9870, S65/66/67/68/690, T670, S76/77/78/790
- Massey Ferguson® 96/97/9895, 9520/40/60, 9545/65, 9380
- New Holland CR 970/980, 9070/9080, 8090/9090, X.90, X.80, 10.80/10.90
- New Holland CX 8X0, 80X0, 8.X0, 8080/8090
- Rostselmash Torum 760/780
- Versatile RT490

**Medium configuration** is an optional configuration for IDEAL™ Series.

Medium configuration uses 4 short bolt-on flightings (2 on the left and 2 on the right) and 22 feed auger fingers are recommended.

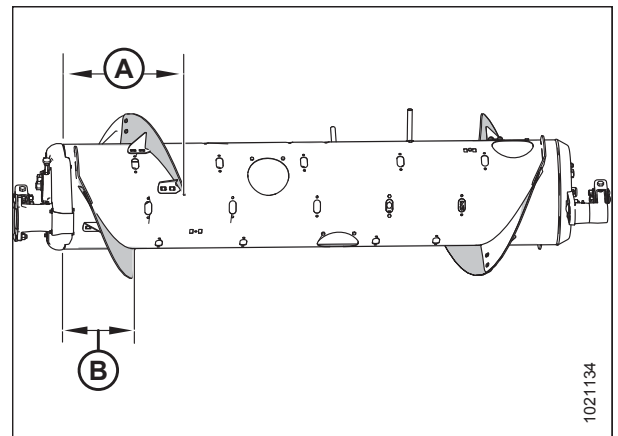
For more information on converting to Medium configuration, refer to [4.2.2 Medium Configuration – Auger Flighting, page 93](#).



**Figure 4.7: Narrow Configuration – Rear View**

A - 514 mm (20 1/4 in.)

B - 356 mm (14 in.)



**Figure 4.8: Medium Configuration – Rear View**

A - 410 mm (16 1/8 in.)

B - 260 mm (10 1/4 in.)

## SETTING UP FLOAT MODULE

### NOTE:

Dimensions (A) and (B) are the same for both ends of the auger. They should be within 15 mm (9/16 in.) of the numbers given.

**Wide configuration** is an optional configuration for the following combines:

- Challenger® 670B/680B, 540C/560C, 540E/560E
- CLAAS 590R/595R, 660/670, 760/770/780, 8000
- John Deere T670
- Massey Ferguson® 9895, 9540, 9560, 9545, 9565, 9380
- New Holland CX 8X0, 80X0, 8.X0

Wide configuration uses 2 short bolt-on flightings (1 on the left and 1 on the right) and 30 feed auger fingers are recommended.

### NOTE:

This configuration may increase combine capacity on wide feeder house combines in certain crop conditions.

For more information on converting to Wide configuration, refer to [4.2.3 Wide Configuration – Auger Flighting, page 95](#).

### NOTE:

Dimensions (A) and (B) are the same for both ends of the auger. They should be within 15 mm (9/16 in.) of the numbers given.

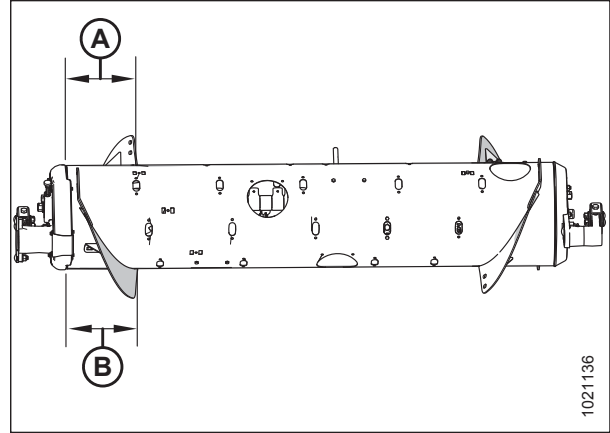
**Ultra Narrow configuration** is an optional configuration that may improve feeding performance on combines with narrow feeder houses. It may also be helpful when harvesting rice.

Ultra Narrow configuration uses 8 long bolt-on flightings (4 on the left and 4 on the right) and 18 auger fingers are recommended.

### NOTE:

You will need to drill holes in the flighting and in the drum to install the extra flighting.

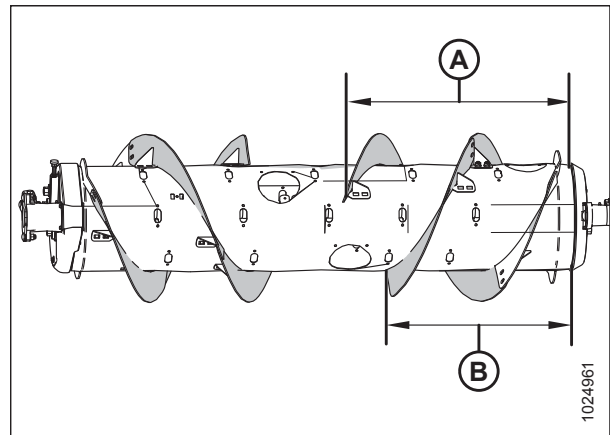
For more information on converting to Ultra Narrow configuration, refer to [4.2.4 Ultra Narrow Configuration – Auger Flighting, page 98](#).



**Figure 4.9: Wide Configuration – Rear View**

A - 257 mm (10 1/8 in.)

B - 257 mm (10 1/8 in.)



**Figure 4.10: Ultra Narrow Configuration – Rear View**

A - 760 mm (29 15/16 in.)

B - 602 mm (23 11/16 in.)

## SETTING UP FLOAT MODULE

**Ultra Wide configuration** is an optional configuration for the following combines:

- CLAAS 590R/595R, 660/670, 760/770/780/7000/8000

The Ultra Wide configuration uses no bolt on flighting; only factory-welded flighting (A) is responsible for conveying the crop.

**NOTE:**

This configuration may improve feeding for wide feeder house combines.

A total of 30 auger fingers are recommended for this configuration.

For more information on converting to Ultra Wide configuration, refer to [4.2.5 Ultra Wide Configuration – Auger Flighting, page 102](#).

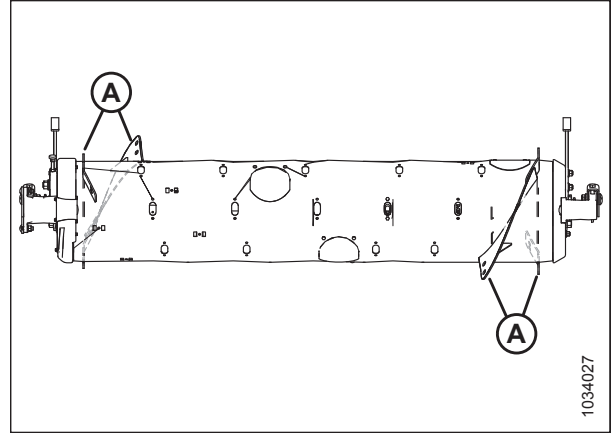


Figure 4.11: Ultra Wide Configuration – Rear View

### 4.2.1 Narrow Configuration – Auger Flighting

Narrow configuration uses four long bolt-on flightings (two on the left and two on the right), and 18 auger fingers are recommended.

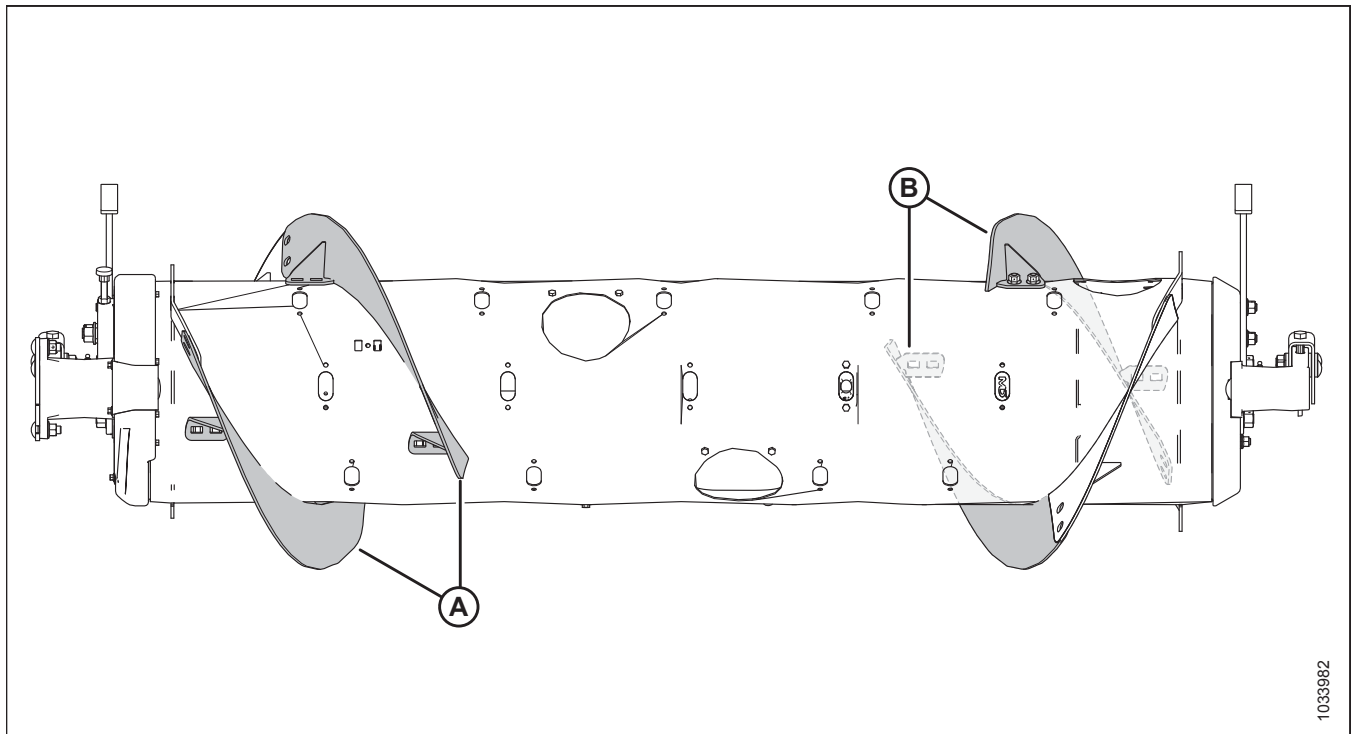


Figure 4.12: Narrow Configuration

A - Left Long Flighting (MD #287889)

B - Right Long Flighting (MD #287890)

## SETTING UP FLOAT MODULE

### To convert to Narrow configuration from Ultra Narrow Configuration:

Remove four flightings (A) from the auger and install additional auger fingers. A total of 18 auger fingers is recommended for this configuration.

- For flighting removal instructions, refer to [4.2.6 Removing Bolt-On Flighting, page 103](#).
- For finger installation instructions, refer to [4.2.10 Installing Feed Auger Fingers, page 113](#).

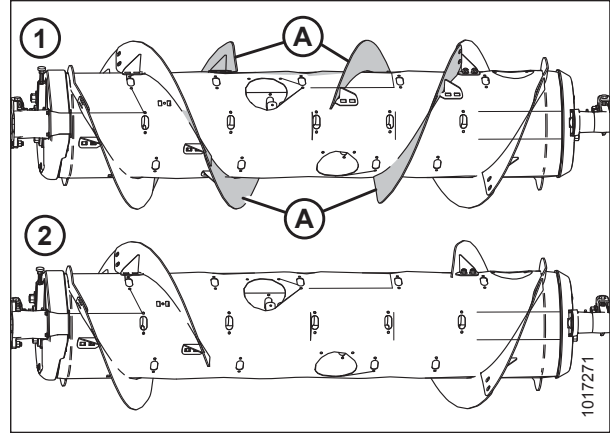


Figure 4.13: Auger Configurations – Rear View

1 - Ultra Narrow Configuration

2 - Narrow Configuration

### To convert to Narrow configuration from Medium, Wide, or Ultra Wide configuration:

Two flighting kits (MD #287032 or B6400<sup>1</sup>) are required. You will need to replace any of the existing short flightings (A)<sup>2</sup> with long flightings (B) and remove the extra auger fingers. A total of 18 auger fingers is recommended for this configuration.

#### IMPORTANT:

Extra hardware is included in these kits. Be sure to use the correct hardware in the correct location to prevent damage and to maximize performance.

- For flighting replacement instructions, refer to [4.2.6 Removing Bolt-On Flighting, page 103](#) and [4.2.7 Installing Bolt-On Flighting, page 105](#).
- For finger removal instructions, refer to [4.2.9 Removing Feed Auger Fingers, page 111](#).

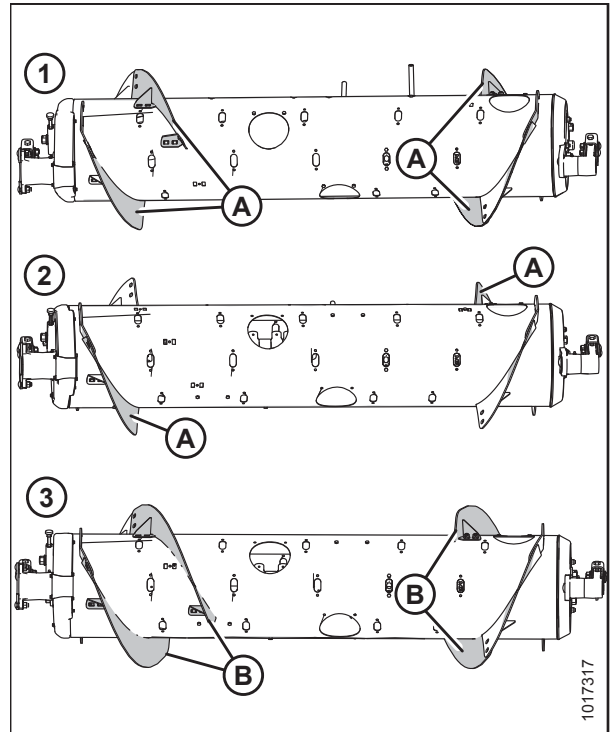


Figure 4.14: Auger Configurations – Rear View

1 - Medium Configuration

2 - Wide Configuration

3 - Narrow Configuration

1. MD #287032 is available only through MacDon Parts. B6400 is available only through Whole Goods. Both kits contain wear-resistant flightings.

2. The quantity of existing short flightings is either 0, 2, or 4, depending on the current configuration.

## SETTING UP FLOAT MODULE

**NOTE:**

If converting from Ultra Wide configuration, there is no existing bolt-on fighting to remove because that configuration uses only the factory-welded fighting (A).

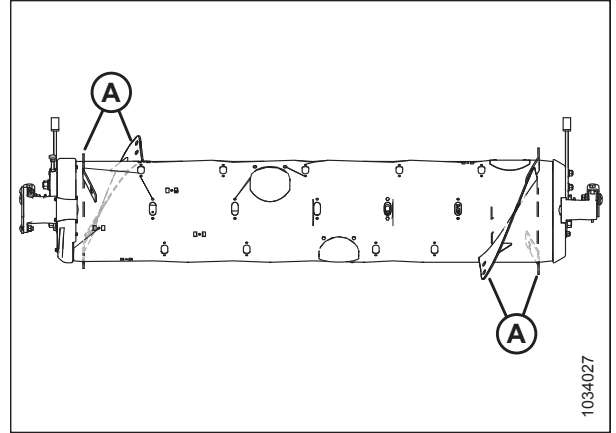
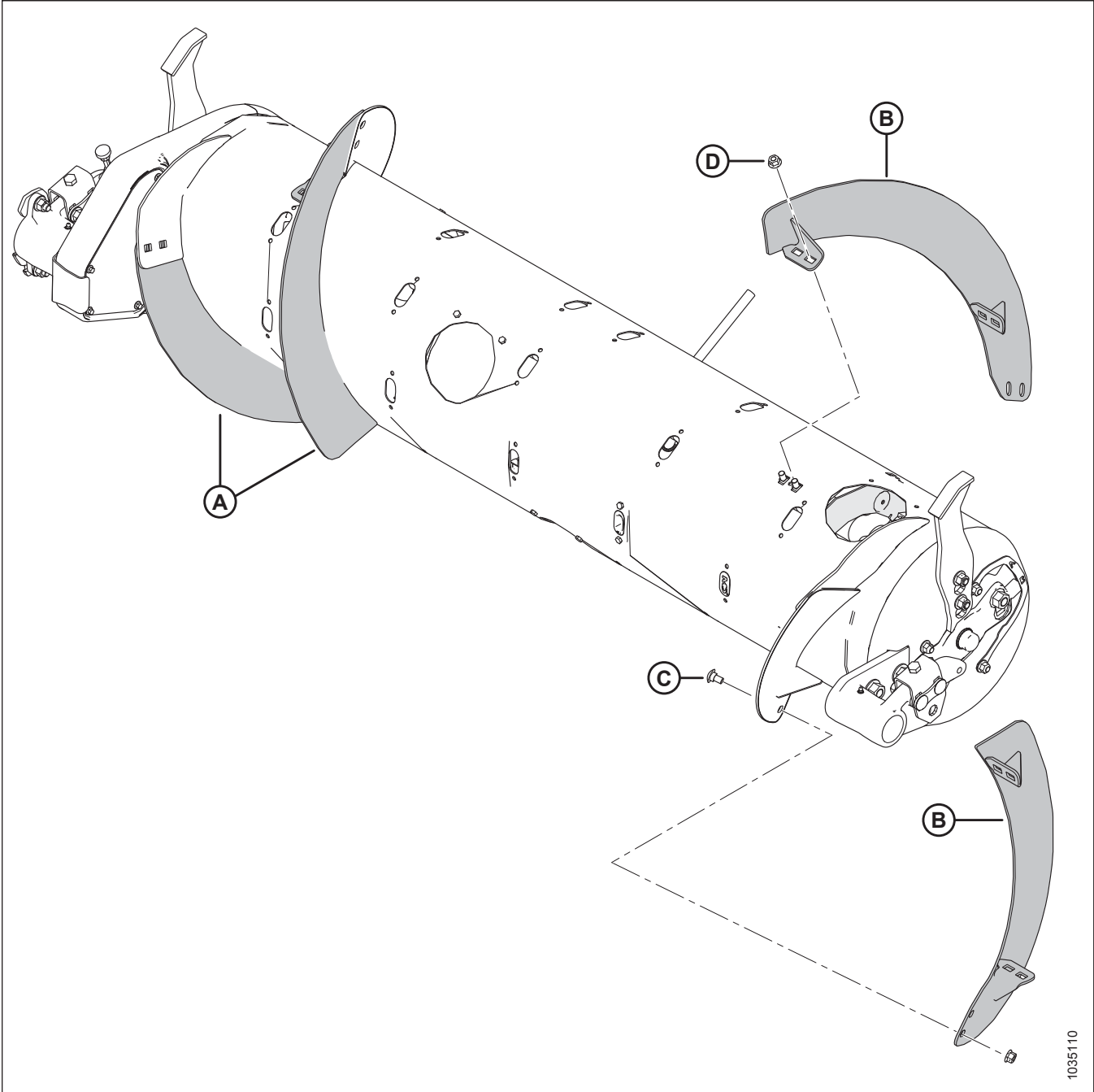


Figure 4.15: Ultra Wide Configuration

# SETTING UP FLOAT MODULE



**Figure 4.16: Narrow Configuration**

A - Left Long Fighting (MD #287889)

B - Right Long Fighting (MD #287890)

C - M10 x 20 mm Carriage Bolt (MD #136178)

D - M10 Center Lock Flange Nut (MD #135799)



## 4.2.2 Medium Configuration – Auger Flighting

Medium configuration uses four short bolt-on flightings (two on the left and two on the right), and 22 auger fingers are recommended.

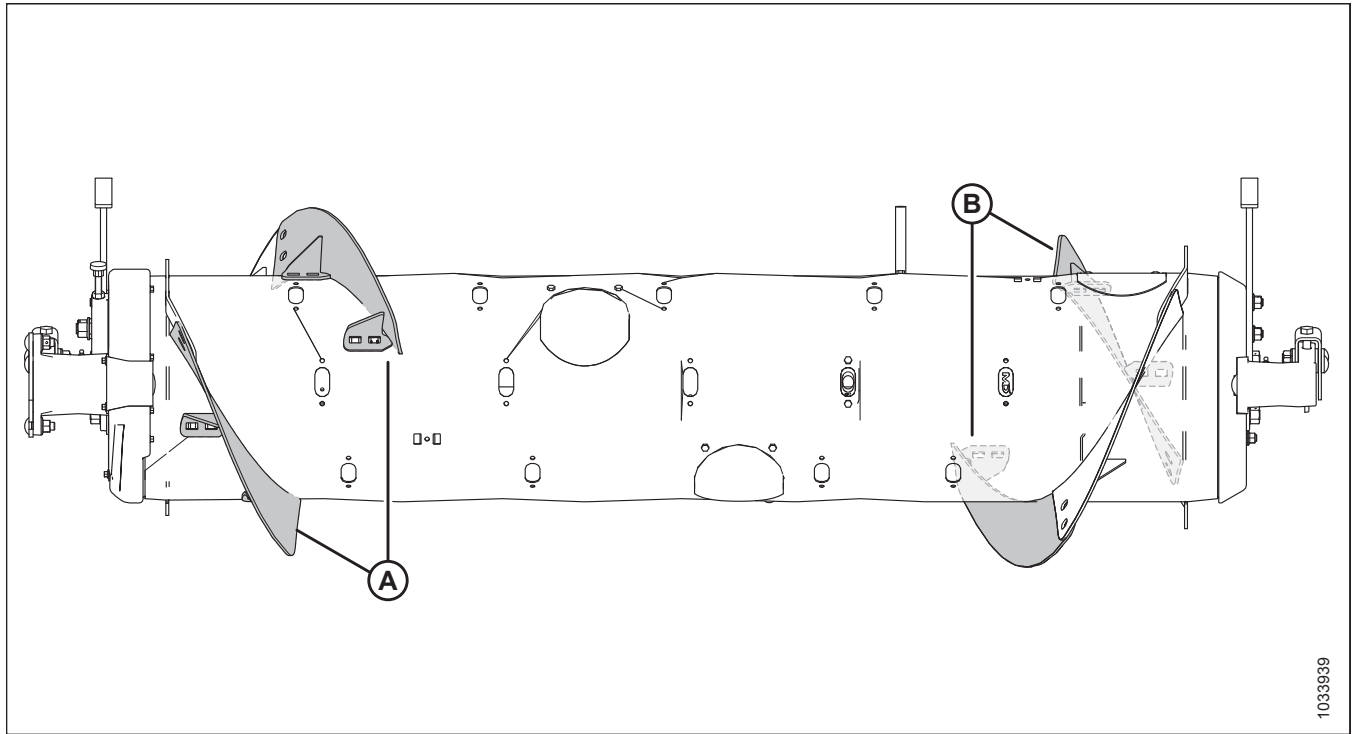


Figure 4.17: Medium Configuration

A - Left Short Flighting (MD #287888)

B - Right Short Flighting (MD #287887)

### To convert to Medium configuration from Wide configuration:

One flighting kit (MD #287031) is required. You will need to install new flightings (A) and remove the extra auger fingers. A total of 22 auger fingers is recommended for this configuration.

- For flighting installation instructions, refer to [4.2.7 Installing Bolt-On Flighting, page 105](#).
- For finger removal instructions, refer to [4.2.9 Removing Feed Auger Fingers, page 111](#).

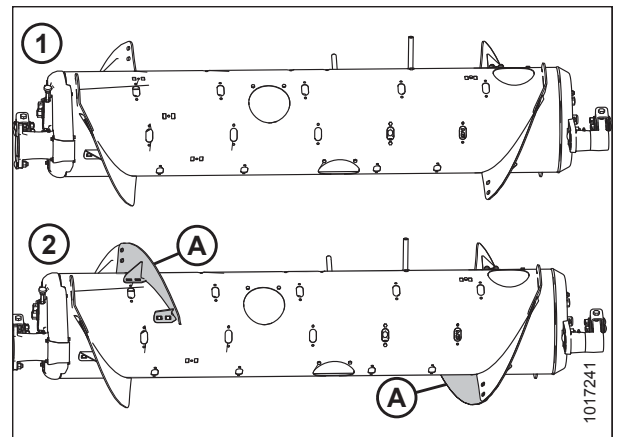


Figure 4.18: Auger Configurations – Rear View

1 - Wide Configuration

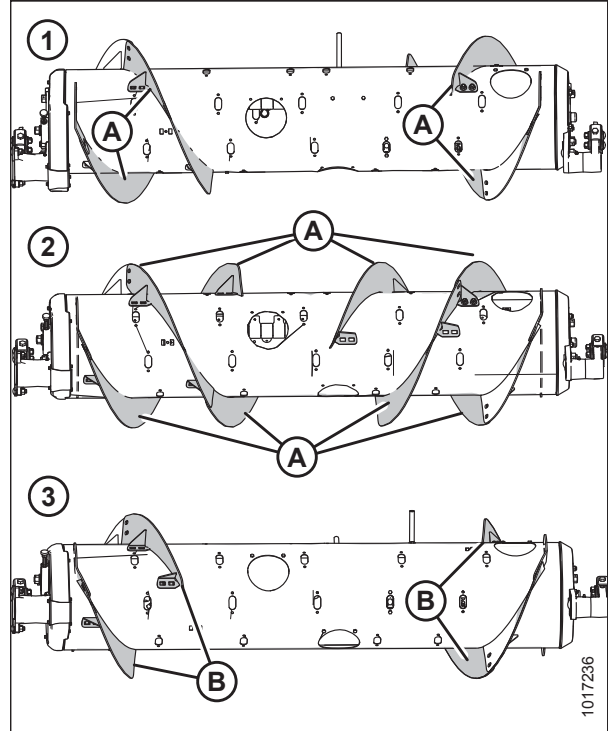
2 - Medium Configuration

## SETTING UP FLOAT MODULE

### To convert to Medium configuration from Narrow or Ultra Narrow configuration:

Two flighting kits (MD #287031) are required. You will need to replace long flightings (A)<sup>3</sup> with short flightings (B) and install additional auger fingers. A total of 22 auger fingers is recommended for this configuration.

- For flighting replacement instructions, refer to [4.2.6 Removing Bolt-On Flighting, page 103](#) and [4.2.7 Installing Bolt-On Flighting, page 105](#).
- For finger installation instructions, refer to [4.2.10 Installing Feed Auger Fingers, page 113](#).



**Figure 4.19: Auger Configurations – Rear View**

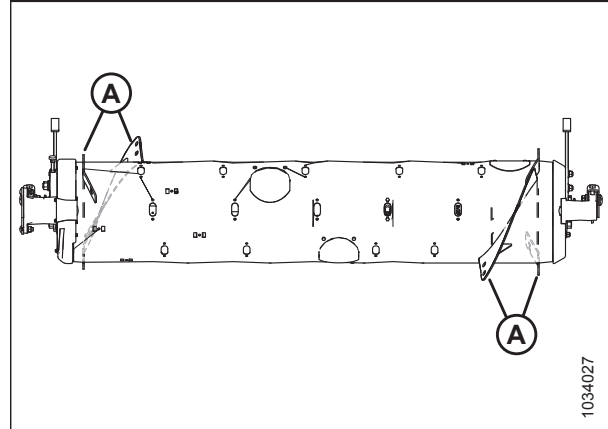
1 - Narrow Configuration  
3 - Medium Configuration

2 - Ultra Narrow Configuration

### To convert to Medium configuration from Ultra Wide configuration:

Two flighting kits (MD #287031) are required. You will need to install four short flightings onto the existing welded flightings (A) and remove the extra auger fingers. A total of 22 auger fingers is recommended for this configuration.

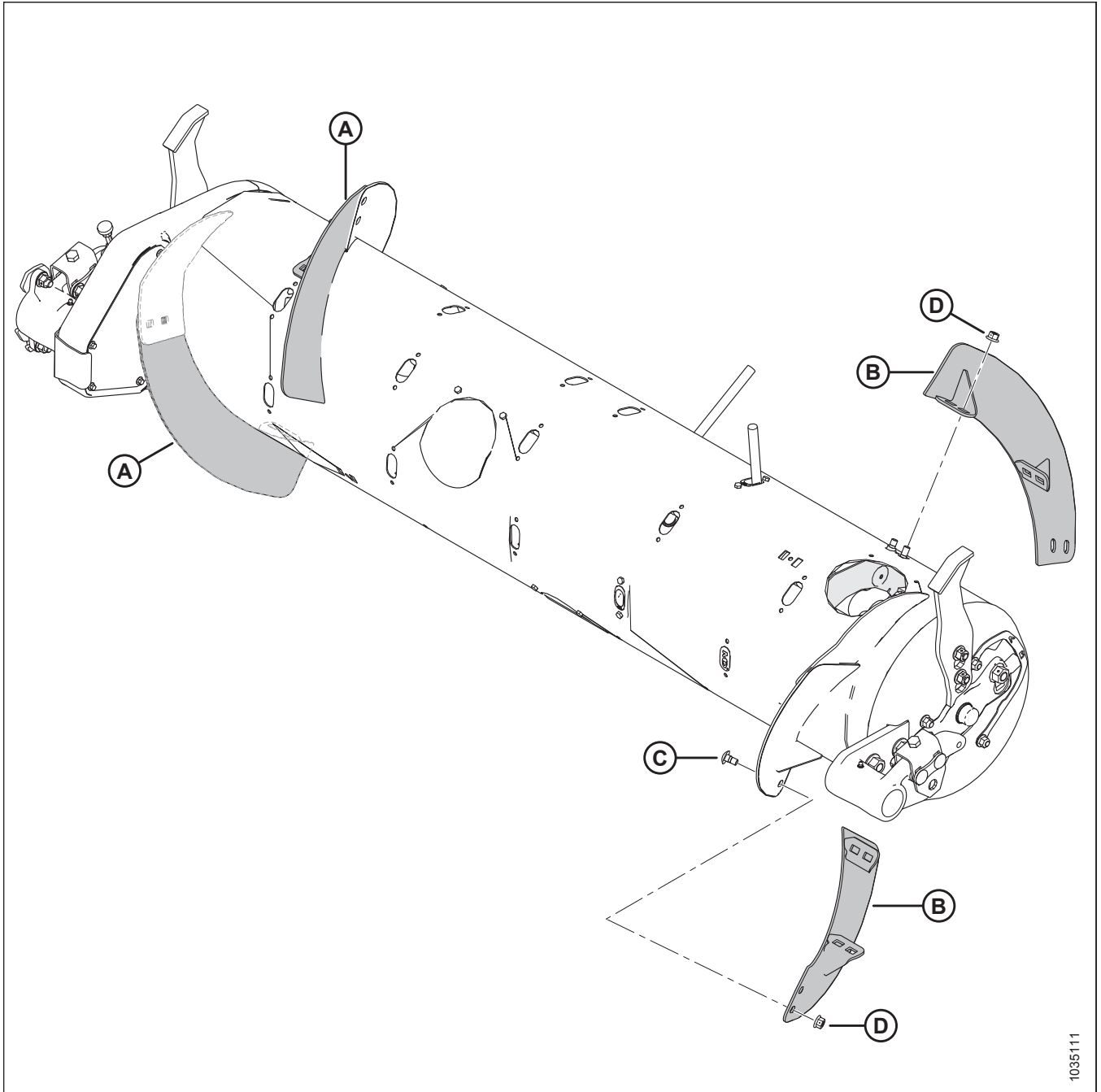
- For flighting installation instructions, refer to [4.2.7 Installing Bolt-On Flighting, page 105](#).
- For finger removal instructions, refer to [4.2.9 Removing Feed Auger Fingers, page 111](#).



**Figure 4.20: Ultra Wide Configuration**

3. The quantity of existing long flightings is either 4 or 8, depending on the current configuration.

## SETTING UP FLOAT MODULE



**Figure 4.21: Medium Configuration**

A - Left Short Flighting (MD #287888)

B - Right Short Flighting (MD #287887)

C - M10 x 20 mm Carriage Bolt (MD #136178)

D - M10 Center Lock Flange Nut (MD #135799)

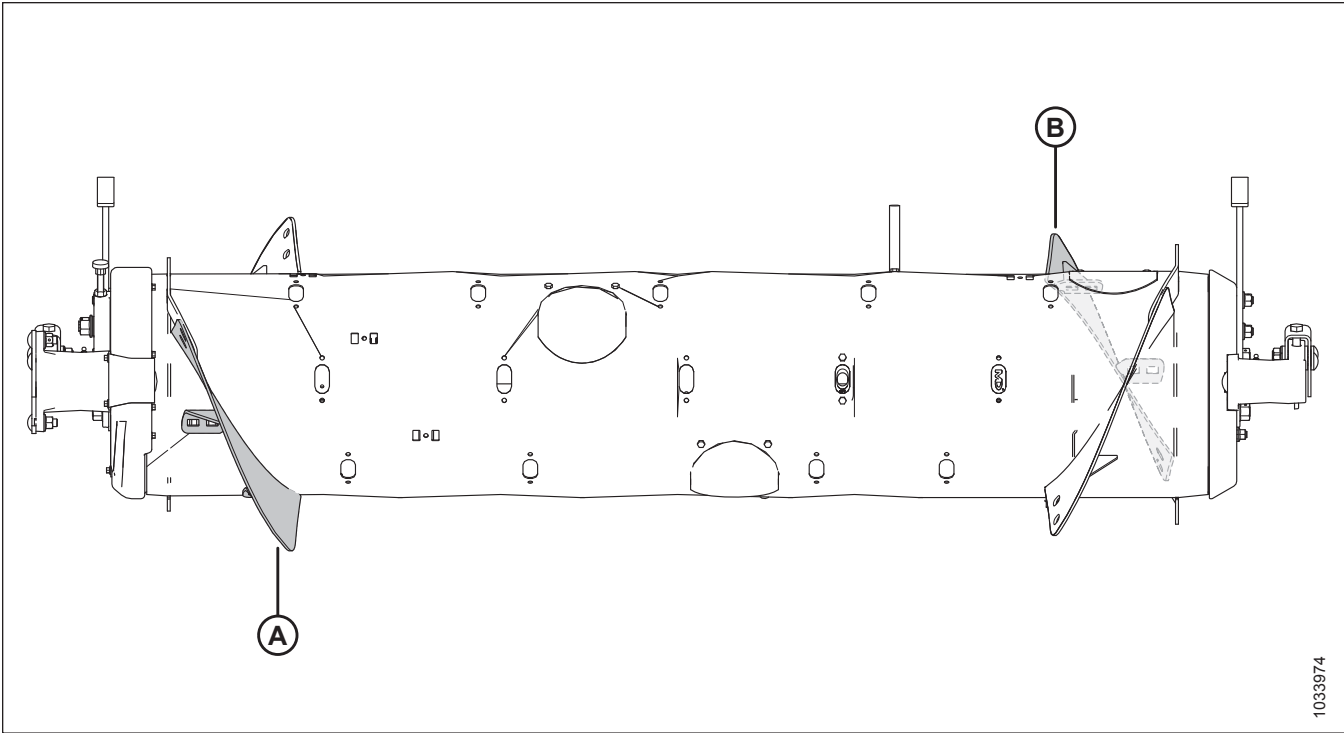
### 4.2.3 Wide Configuration – Auger Flighting

Wide configuration uses two short bolt-on flightings (one on the left and one on the right), and 30 auger fingers are recommended.

**NOTE:**

This configuration may increase combine capacity on wide feeder house combines in certain crop conditions.

## SETTING UP FLOAT MODULE



**Figure 4.22: Wide Configuration**

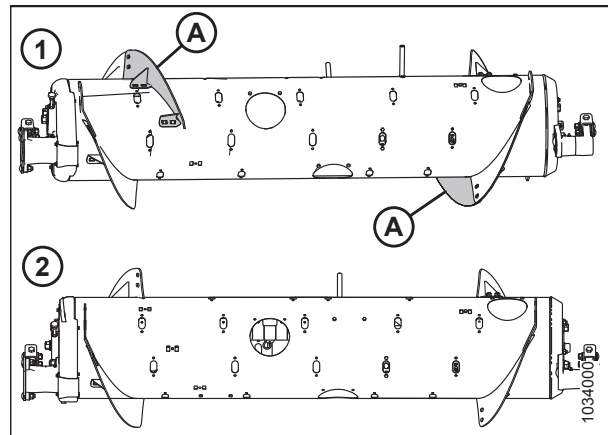
A - Left Short Flighting (MD #287888)

B - Right Short Flighting (MD #287887)

### To convert to Wide configuration from Medium Configuration:

Remove existing flightings (A) from the auger and install additional auger fingers. A total of 30 auger fingers is recommended for this configuration.

- For flighting removal instructions, refer to [4.2.6 Removing Bolt-On Flighting, page 103](#).
- For finger installation instructions, refer to [4.2.10 Installing Feed Auger Fingers, page 113](#).



**Figure 4.23: Auger Configurations – Rear View**

1 - Medium Configuration

2 - Wide Configuration

## SETTING UP FLOAT MODULE

### To convert to Wide configuration from Ultra Wide configuration:

One flighting kit (MD #287031) is required. You will need to install two short flightings onto the existing welded flightings (A). A total of 30 auger fingers is recommended for this configuration.

- For flighting installation instructions, refer to [4.2.7 Installing Bolt-On Flighting, page 105](#).
- If required to remove auger fingers, refer to [4.2.9 Removing Feed Auger Fingers, page 111](#).

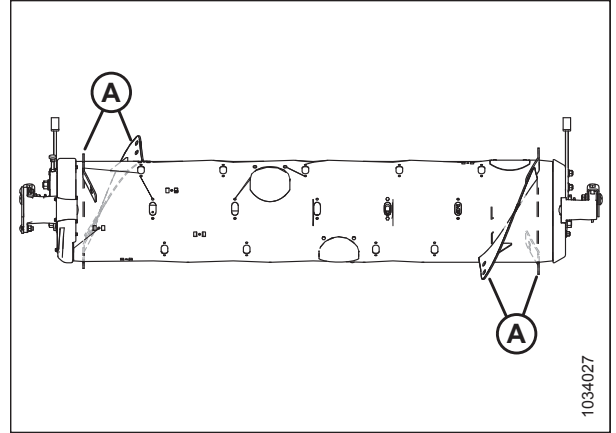


Figure 4.24: Ultra Wide Configuration

### To convert to Wide configuration from Narrow or Ultra Narrow configuration:

One flighting kit (MD #287031) is required. You will need to replace existing long flightings (A)<sup>4</sup> with short flightings (B) and install additional auger fingers. A total of 30 auger fingers is recommended for this configuration.

- For flighting replacement instructions, refer to [4.2.6 Removing Bolt-On Flighting, page 103](#) and [4.2.7 Installing Bolt-On Flighting, page 105](#).
- For finger installation instructions, refer to [4.2.10 Installing Feed Auger Fingers, page 113](#).

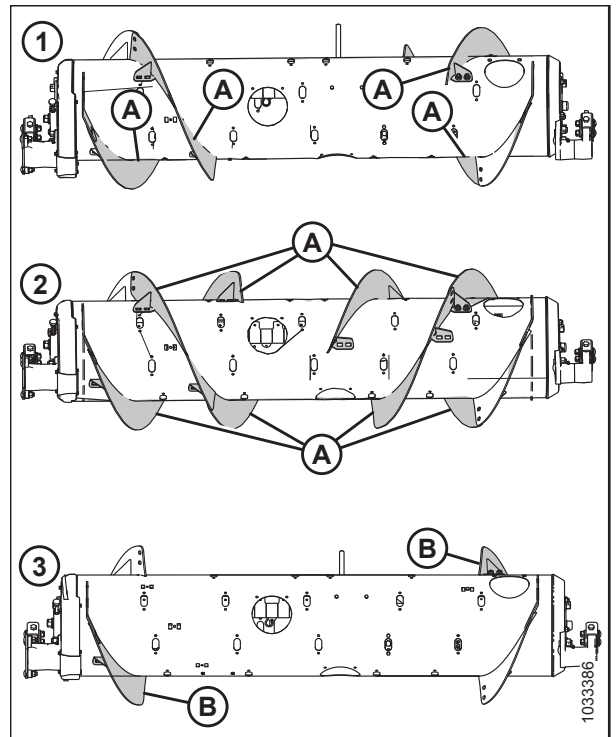


Figure 4.25: Auger Configurations – Rear View

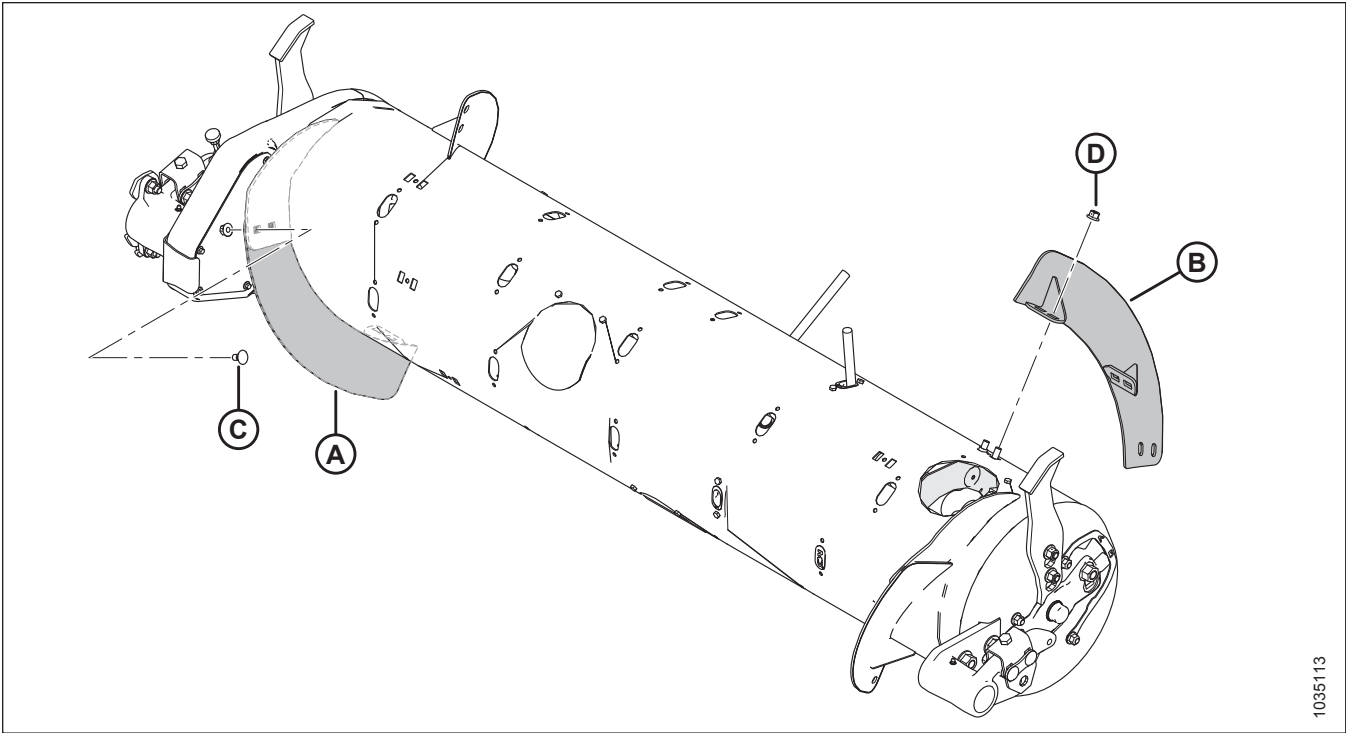
1 - Narrow Configuration

2 - Ultra Narrow Configuration

3 - Wide Configuration

4. The quantity of existing long flightings is either 4 or 8, depending on the current configuration.

## SETTING UP FLOAT MODULE



**Figure 4.26: Wide Configuration**

A - Left Short Flighting (MD #287888)

B - Right Short Flighting (MD #287887)

C - M10 x 20 mm Carriage Bolt (MD #136178)

D - M10 Center Lock Flange Nut (MD #135799)

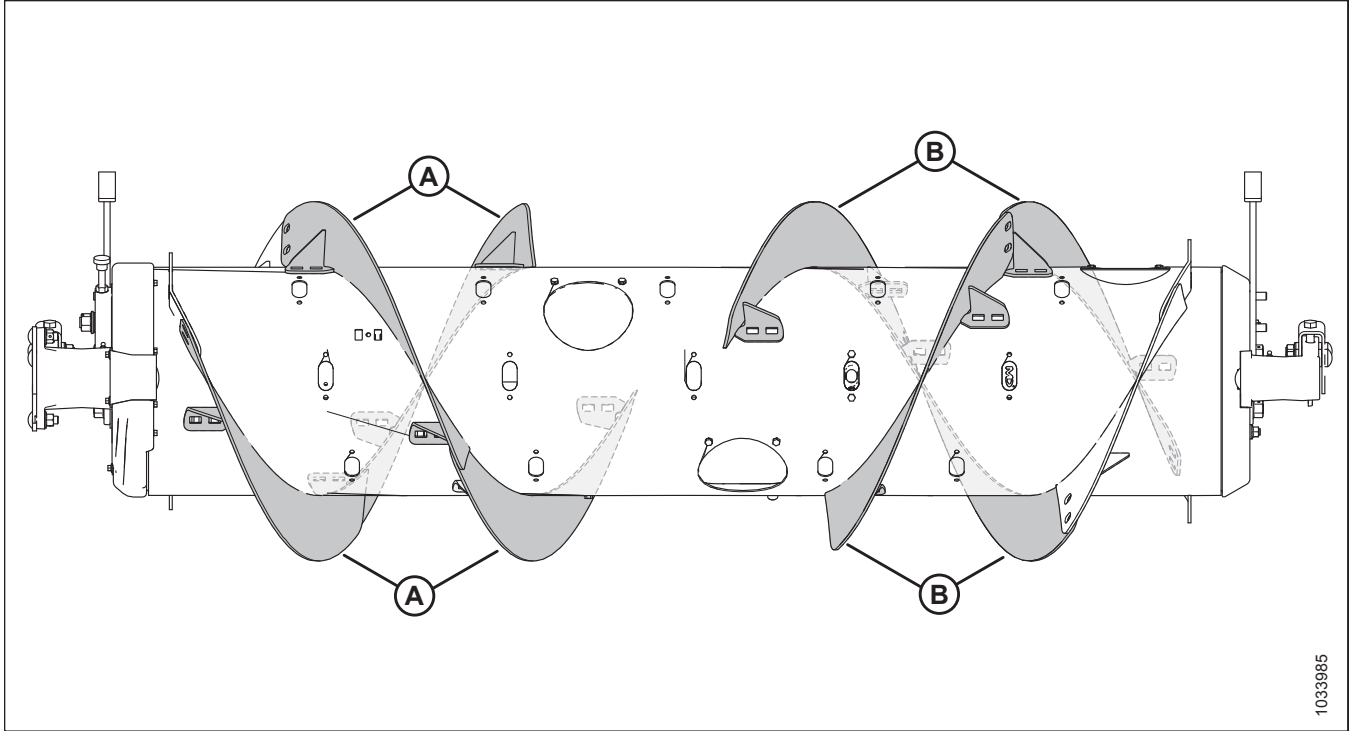
### 4.2.4 Ultra Narrow Configuration – Auger Flighting

Ultra Narrow configuration uses eight long bolt-on flightings (four on the left and four on the right), and 18 auger fingers are recommended.

**NOTE:**

You will need to drill holes in the flighting and in the drum to install the four additional flightings.

## SETTING UP FLOAT MODULE



**Figure 4.27: Ultra Narrow Configuration**

A - Left Long Flighting (MD #287889)

B - Right Long Flighting (MD #287890)

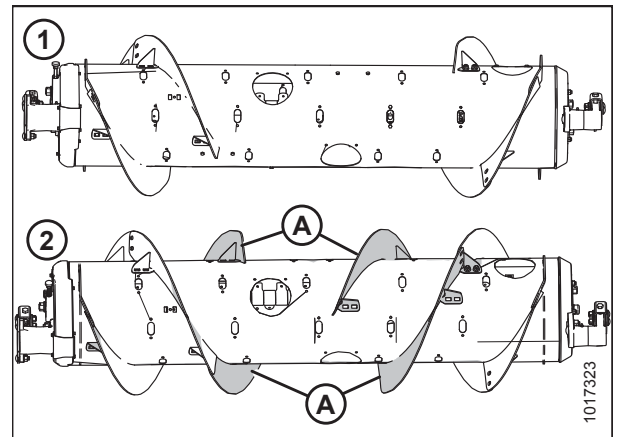
### To convert to Ultra Narrow configuration from Narrow Configuration:

Two flighting kits (MD #287032 or B6400<sup>5</sup>) and some hole-drilling are required to install flightings (A). Add or remove auger fingers as necessary to optimize feeding for your combine and crop conditions.

#### IMPORTANT:

Extra hardware is included in these kits. Be sure to use the correct hardware at the correct location to prevent damage and to maximize performance.

- For flighting installation instructions, refer to [4.2.7 Installing Bolt-On Flighting, page 105](#).
- To install the additional flightings that require hole drilling, refer to [4.2.8 Installing Additional Bolt-On Flighting – Ultra Narrow Configuration Only, page 108](#).
- For finger installation/removal instructions, refer to [4.2.10 Installing Feed Auger Fingers, page 113](#) and [4.2.9 Removing Feed Auger Fingers, page 111](#).



**Figure 4.28: Auger Configurations – Rear View**

1 - Narrow Configuration

2 - Ultra Narrow Configuration

5. MD #287032 is available only through MacDon Parts. B6400 is available only through Whole Goods.

## SETTING UP FLOAT MODULE

### To convert to Ultra Narrow configuration from Medium, Wide, or Ultra Wide configuration:

Four flighting kits (MD #287032 or B6400<sup>6</sup>) and some hole-drilling is required to convert to this configuration.

You will need to replace existing short flightings (A)<sup>7</sup> with long flightings (B). Add or remove auger fingers as necessary to optimize feeding for your combine and crop conditions.

#### IMPORTANT:

Extra hardware is included in these kits. Be sure to use the correct hardware in the correct location to prevent damage and to maximize performance.

- For flighting replacement instructions, refer to [4.2.6 Removing Bolt-On Flighting, page 103](#) and [4.2.7 Installing Bolt-On Flighting, page 105](#).
- To install the additional flightings that require hole drilling, refer to [4.2.8 Installing Additional Bolt-On Flighting – Ultra Narrow Configuration Only, page 108](#).
- For finger installation/removal instructions, refer to [4.2.10 Installing Feed Auger Fingers, page 113](#) and [4.2.9 Removing Feed Auger Fingers, page 111](#).

#### NOTE:

If converting from Ultra Wide configuration, there is no existing bolt-on flighting to remove because that configuration uses only the factory-welded flighting (A).

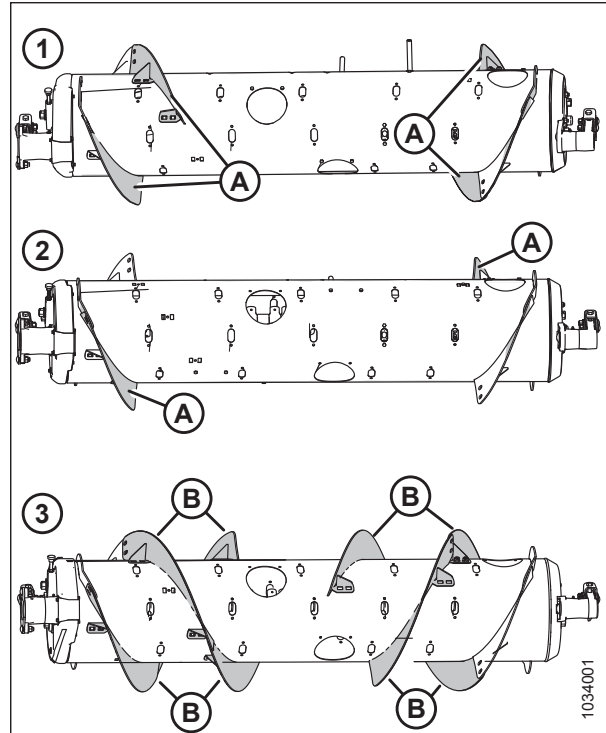


Figure 4.29: Auger Configurations – Rear View

1 - Medium Configuration

2 - Wide Configuration

3 - Ultra Narrow Configuration

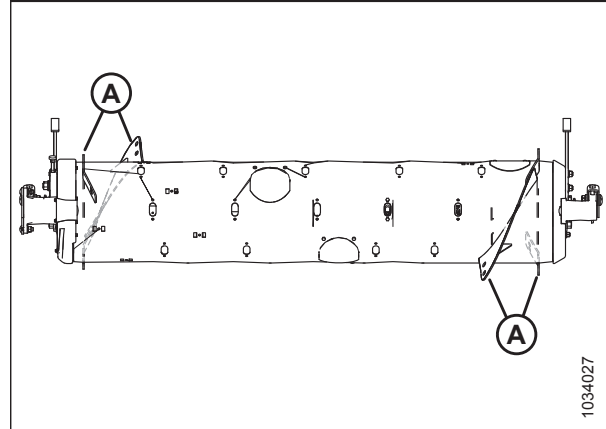


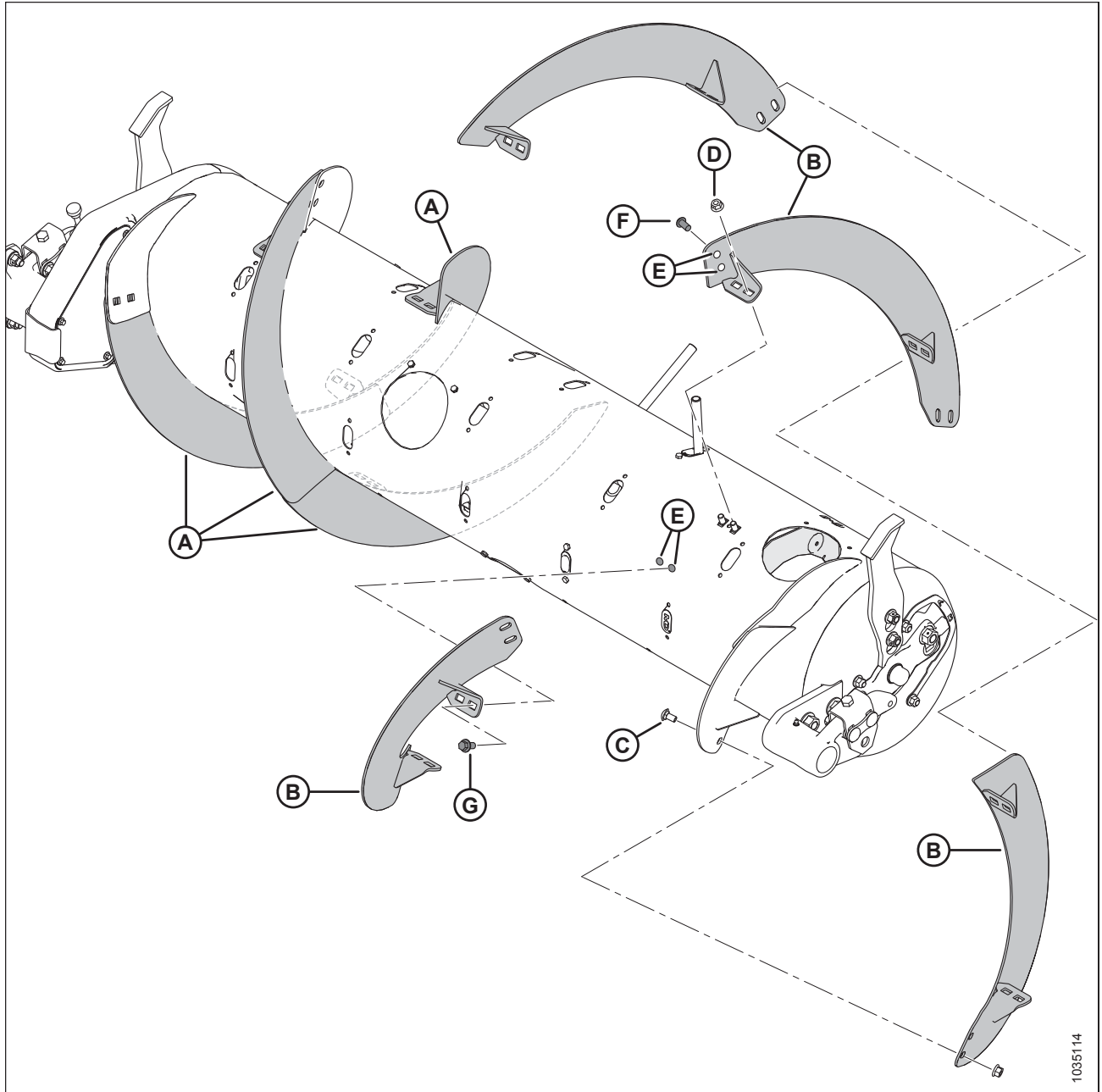
Figure 4.30: Ultra Wide Configuration

6. MD #287032 is available only through MacDon Parts. B6400 is available only through Whole Goods.

7. The quantity of existing short flightings is either 0, 2, or 4, depending on the current configuration.



## SETTING UP FLOAT MODULE



**Figure 4.31: Ultra Narrow Configuration**

A - Left Long Flighting (MD #287889)

B - Right Long Flighting (MD #287890)

C - M10 x 20 mm Carriage Bolt (MD #136178)

D - M10 Center Lock Flange Nut (MD #135799)

E - Drilled Holes – 11 mm (7/16 in.)<sup>8</sup>

F - M10 x 20 mm Button Head Bolt (MD #135723)<sup>9</sup>

G - M10 x 20 mm Flange Head Bolt (MD #152655)<sup>10</sup>

8. Each of the four additional flightings require six drilled holes to install (four in the auger and two in the adjacent flighting).

9. Used on the holes drilled in the existing flighting.

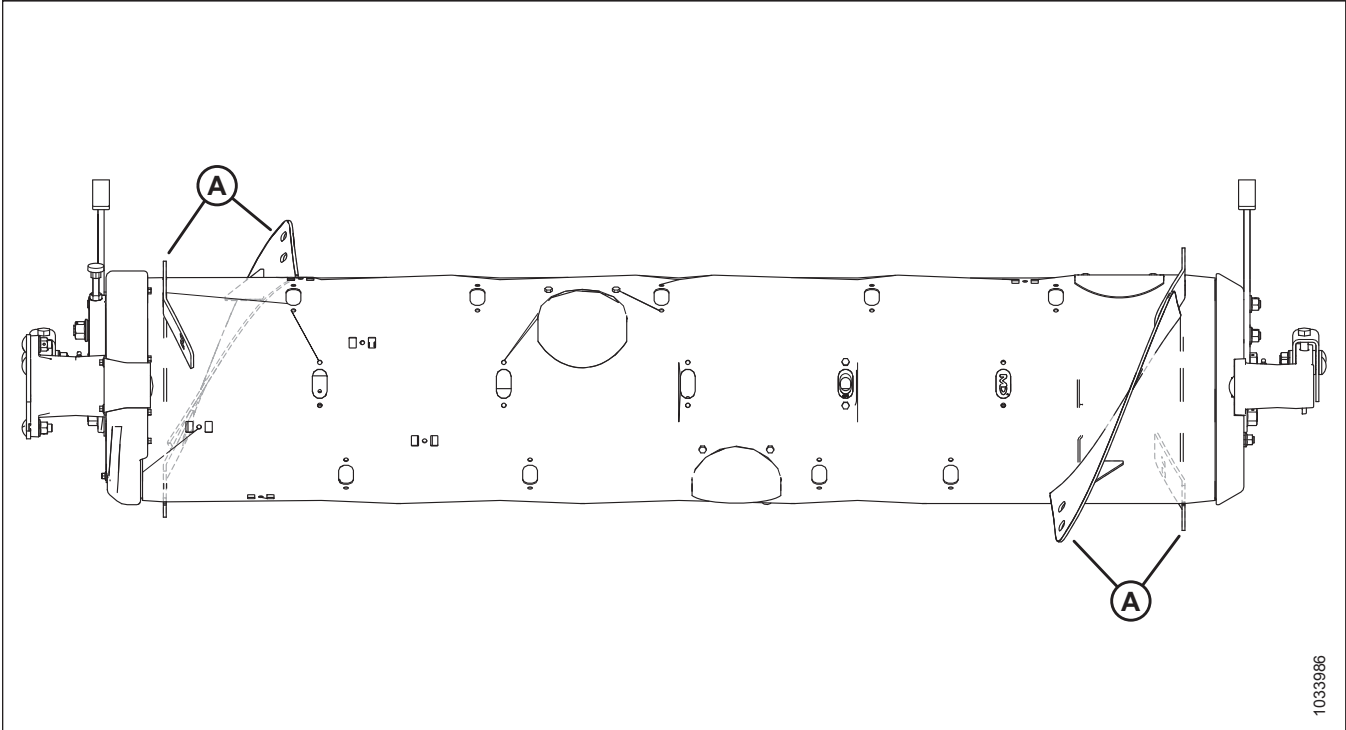
10. Used on the holes drilled in the auger.

### 4.2.5 Ultra Wide Configuration – Auger Flighting

Ultra Wide configuration uses no bolt-on flighting; only factory-welded flighting is responsible for conveying the crop. A total of 30 auger fingers is recommended for this configuration.

**NOTE:**

This configuration may increase combine capacity on wide feeder house combines in certain crop conditions.



**Figure 4.32: Ultra Wide Configuration**

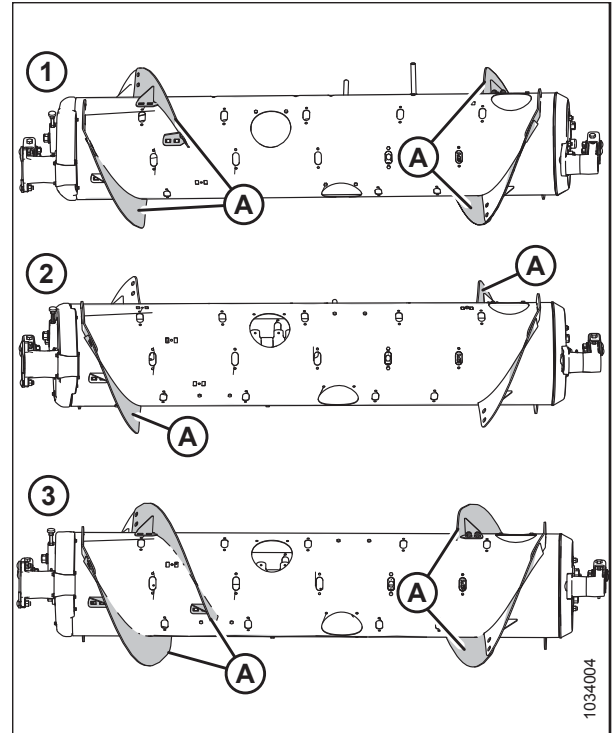
A - Factory-Welded Flighting

## SETTING UP FLOAT MODULE

### To convert to Ultra Wide configuration:

Remove all existing bolt-on flightings (A) from the auger and install additional auger fingers if required. A total of 30 auger fingers is recommended for this configuration.

- For flighting removal instructions, refer to [4.2.6 Removing Bolt-On Flighting, page 103](#).
- For finger installation instructions, refer to [4.2.10 Installing Feed Auger Fingers, page 113](#).



**Figure 4.33: Auger Configurations – Rear View**

1 - Medium Configuration  
3 - Narrow Configuration

2 - Wide Configuration

## 4.2.6 Removing Bolt-On Flighting

Before removing the bolt-on flighting, determine the quantity and type of flighting required. For information on the different flighting configurations, refer to [4.2 FM200 Feed Auger Configurations, page 87](#).

To remove bolt-on flighting, follow these steps:

### **DANGER**

**To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop engine and remove key before leaving the operator's seat, and always engage safety props before going under the machine for any reason.**

1. To improve access, remove the float module from the combine. For instructions, refer to the header operator's manual or technical manual.

#### **NOTE:**

All illustrations show the feed auger separated from the float module for clarity. The procedure can be performed with the feed auger installed in the float module.

## SETTING UP FLOAT MODULE

2. Rotate the auger as required.
3. Remove bolts (A) and access cover (B). Retain for reassembly. If necessary, remove multiple access covers.

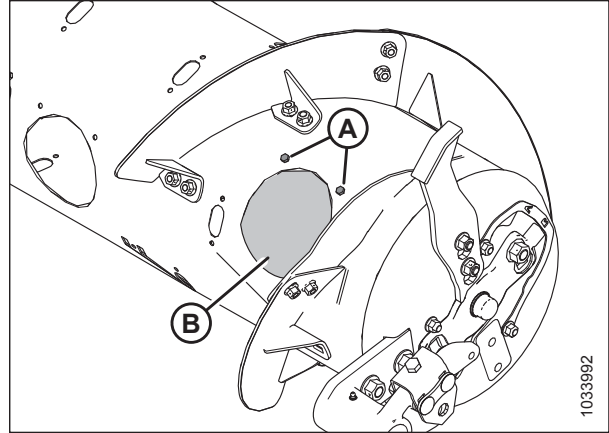


Figure 4.34: Auger Access Cover – Right Side

4. Remove bolts and nuts (B) and remove flighting (A).

**IMPORTANT:**

Replace and secure one flighting at a time, the internal magnetic reverser shield (C) is held in place by the flighting bolts.

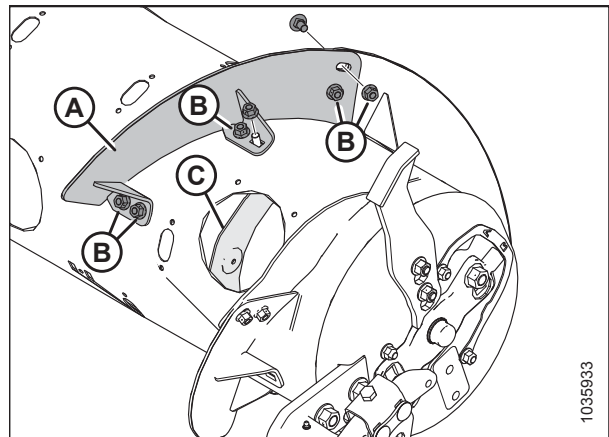


Figure 4.35: Short Flighting – Right Side

**NOTE:**

Illustration shows new long flighting (A) installed.

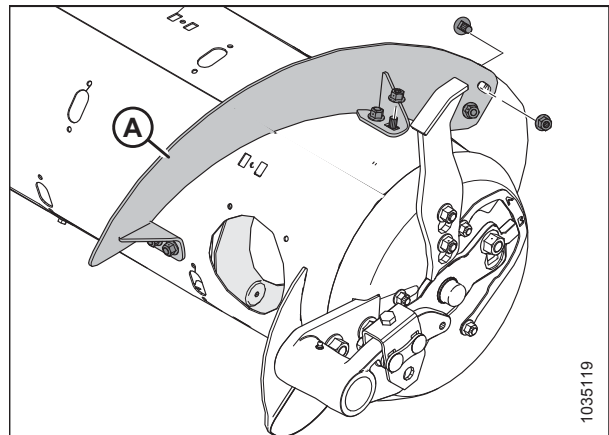


Figure 4.36: Long Flighting – Right Side

## SETTING UP FLOAT MODULE

5. Install slot plug (A) with M6 bolt (B) and tee nut (C) at each location the flighting was removed from the auger. Torque to 9 Nm (80 lbf-in).

**NOTE:**

If plug bolts are **NOT** new, coat bolts with medium-strength threadlocker (Loctite® 243 or equivalent) prior to installation.

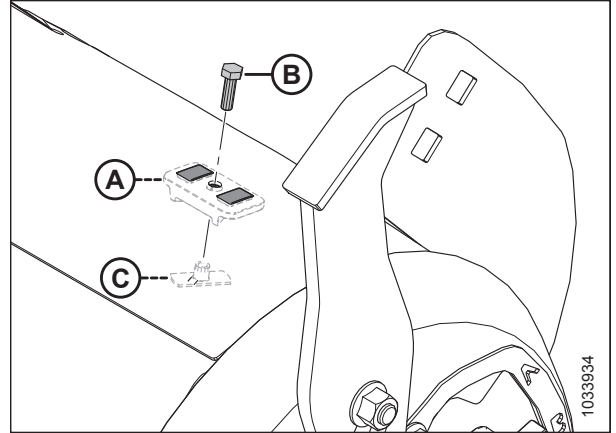


Figure 4.37: Installing Slot Plugs

6. Repeat the procedure to remove flighting (A) from the left side of the auger.

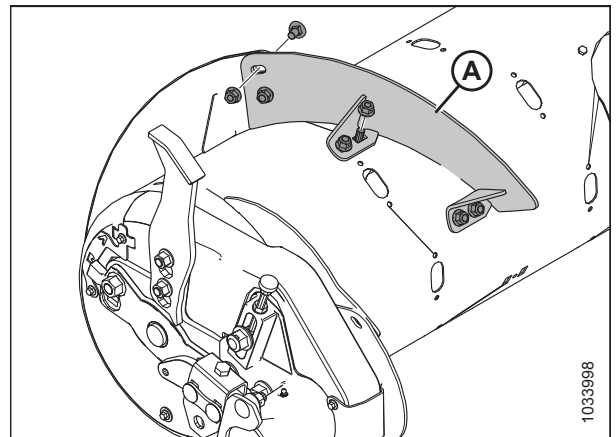


Figure 4.38: Short Flighting – Left Side

7. Reinstall access cover(s) (A) using retained bolts (B) and the welded nuts inside the auger. Coat bolts with medium-strength threadlocker (Loctite® 243 or equivalent) and torque to 9 Nm (80 lbf-in).

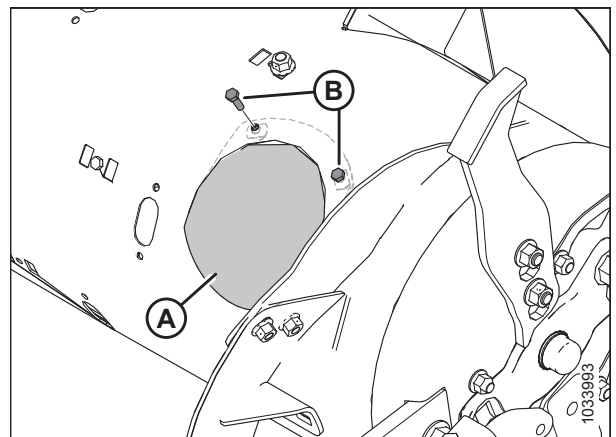


Figure 4.39: Access Cover – Right Side

### 4.2.7 Installing Bolt-On Flighting

Before installing the bolt-on flighting, determine the quantity and type of flighting required. For information on the different flighting configurations, refer to [4.2 FM200 Feed Auger Configurations, page 87](#).

## SETTING UP FLOAT MODULE

To install bolt-on flighting, follow these steps:

### DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop engine and remove key before leaving the operator's seat, and always engage safety props before going under the machine for any reason.

1. To improve access and ease installation, remove the float module from the combine. For instructions, refer to the header operator's manual or technical manual.

#### NOTE:

All illustrations show the feed auger separated from the float module for clarity. The procedure can be performed with the feed auger installed in the float module.

2. Rotate the auger as required.
3. Remove bolts (A) and access cover (B). Retain for reassembly. If necessary, remove multiple access covers.

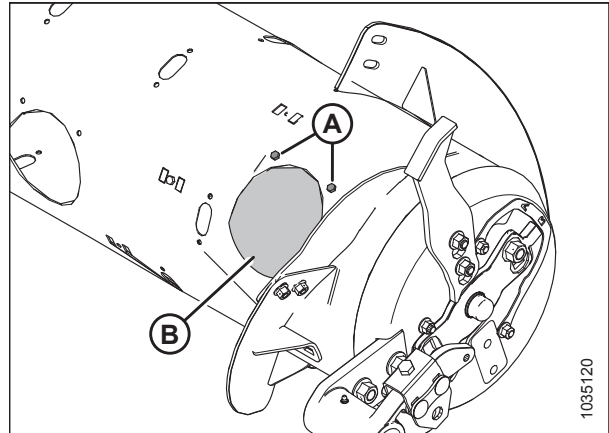


Figure 4.40: Auger Access Cover – Right Side

4. Line up the new bolt-on flighting (A) in position to determine which slot plugs need to be removed from the auger. The new flighting overlaps on the outboard side of the adjacent flighting.

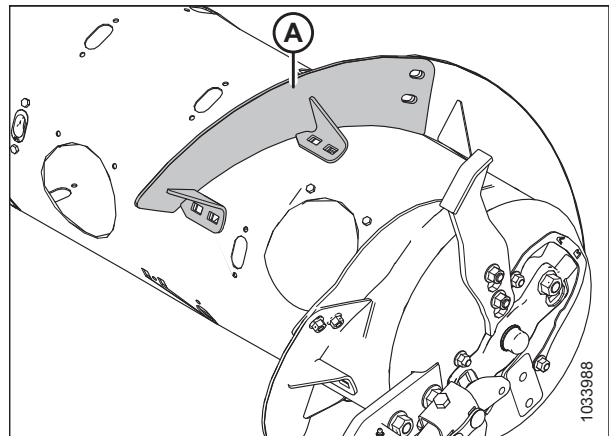


Figure 4.41: Right Side of Auger

## SETTING UP FLOAT MODULE

5. Remove applicable slot plugs(s) (A).

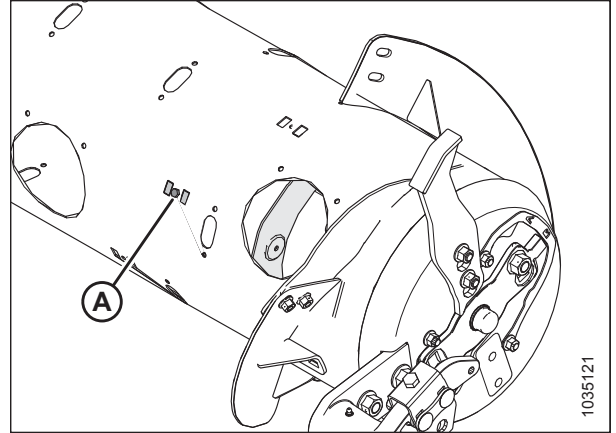


Figure 4.42: Right Side of Auger

6. Install flighting (A) using M10 x 20 mm square neck carriage bolts and center lock nuts at locations (B).

**IMPORTANT:**

Bolt heads must be installed on the inside of the auger to avoid damaging internal components.

**IMPORTANT:**

The bolts that attach the flightings to each other must have the bolt heads on the inboard (crop side) of the flighting.

7. Torque the six nuts and bolts to 47 Nm (35 lbf-ft) to eliminate deflection on the flighting, then retorque them to 61 Nm (45 lbf-ft).

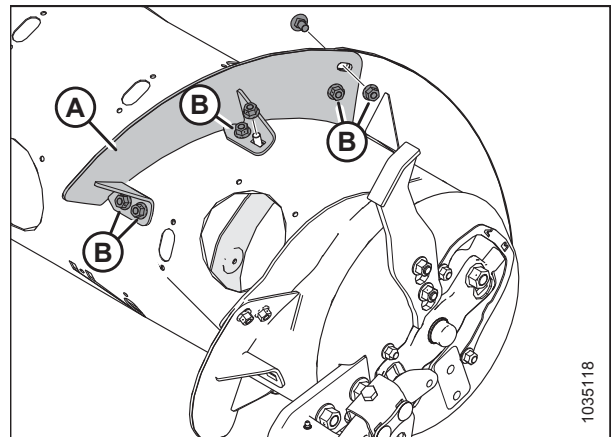


Figure 4.43: Short Flighting – Right Side

**NOTE:**

The illustration shows long flighting (A) installed.

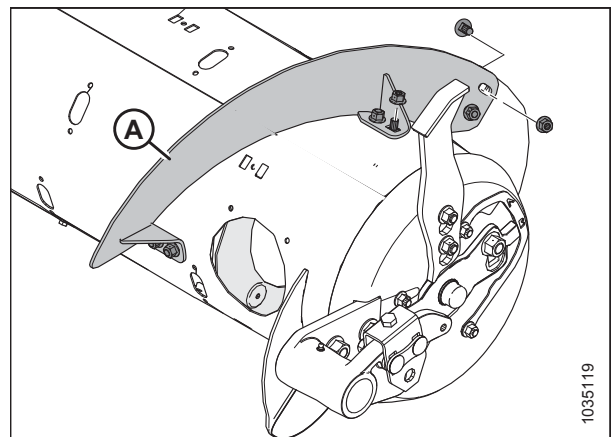


Figure 4.44: Long Flighting – Right Side

## SETTING UP FLOAT MODULE

- Repeat the procedure to install flighting (A) on the left side of the auger.

**NOTE:**

Flighting performs best when no gaps are present. If desired, use silicone sealant to fill the gaps.

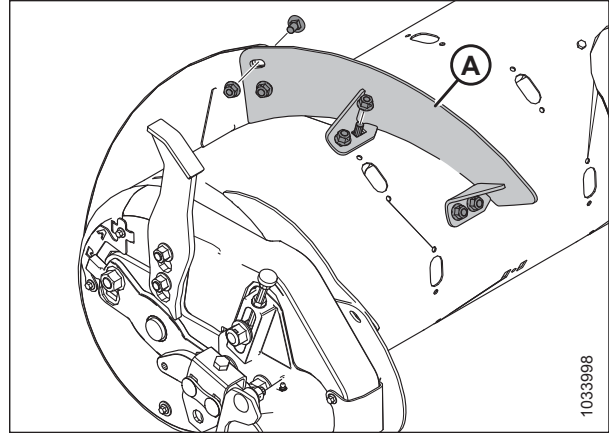


Figure 4.45: Short Flighting – Left Side

- Reinstall access cover(s) (A) using retained bolts (B) and the welded nuts inside the auger. Coat bolts with medium-strength threadlocker (Loctite® 243 or equivalent) and torque to 9 Nm (80 lbf-in).

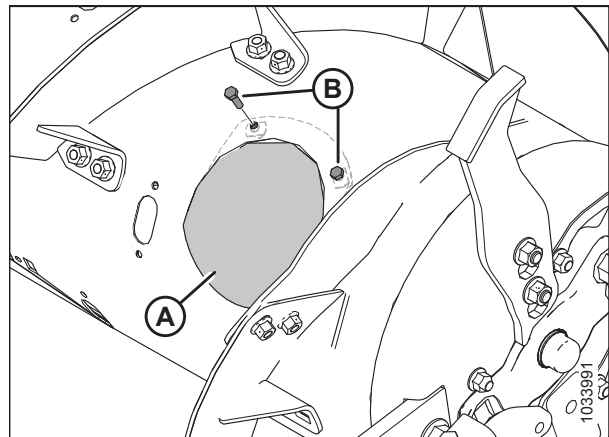


Figure 4.46: Access Cover – Right Side

- If converting to Ultra Narrow configuration and drilling is required to install the remaining flighting, proceed to [4.2.8 Installing Additional Bolt-On Flighting – Ultra Narrow Configuration Only](#), page 108.

### 4.2.8 Installing Additional Bolt-On Flighting – Ultra Narrow Configuration Only

When converting to Ultra Narrow configuration, some hole drilling is required to install the additional flighting.

**NOTE:**

This procedure assumes the feed auger is currently in Narrow configuration (4 long flightings [A] installed).

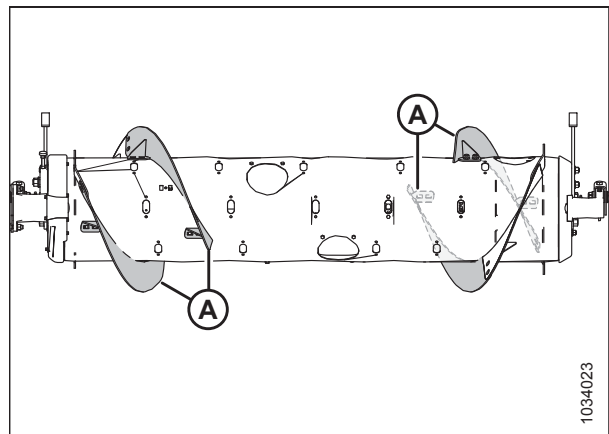


Figure 4.47: Narrow Configuration



## SETTING UP FLOAT MODULE

To install the four additional long flightings for Ultra Narrow configuration, follow these steps:

### DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop engine and remove key before leaving the operator's seat, and always engage safety props before going under the machine for any reason.

1. To improve access and ease installation, remove the float module from the combine. For instructions, refer to the header operator's manual or technical manual.

#### NOTE:

All illustrations show the feed auger separated from the float module for clarity. The procedure can be performed with the feed auger installed in the float module.

2. Rotate the auger as required.
3. Place new flighting (A) outboard of existing flighting (B) on the left side of the auger, as shown.
4. Mark hole locations (C) onto existing flighting (B).
5. Remove nearest access cover to existing flighting (B). Retain hardware for reassembly.
6. Remove existing bolt-on flighting (B) from the auger. Retain hardware for reassembly.

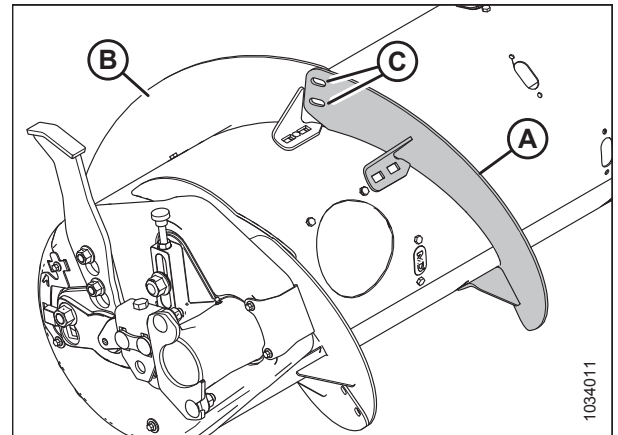


Figure 4.48: Left Side of Auger

7. Drill two 11 mm (7/16 in.) holes at the marked locations (A) on the existing flighting.
8. Reinstall the existing bolt-on flighting.

#### IMPORTANT:

Ensure carriage bolt heads are on the inside of the auger to prevent damage to internal components.

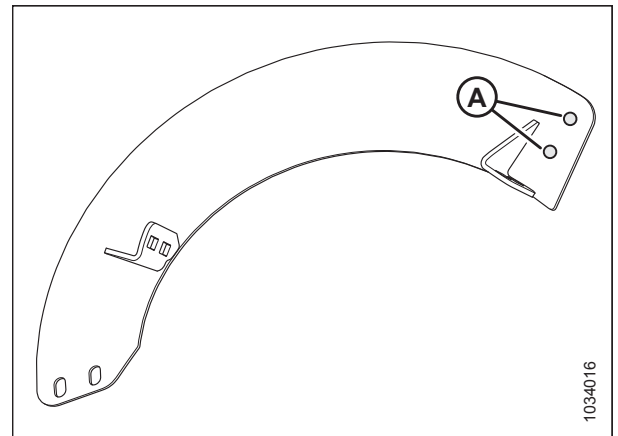


Figure 4.49: Drilling Locations

## SETTING UP FLOAT MODULE

- Place new flighting (A) into position on the auger, outboard of existing flighting (B).
- Secure with two M10 x 20 mm button head bolts and center lock nuts (C).

### IMPORTANT:

Ensure bolt heads are on the inboard (crop side) and nuts are on the outboard side of the flighting.

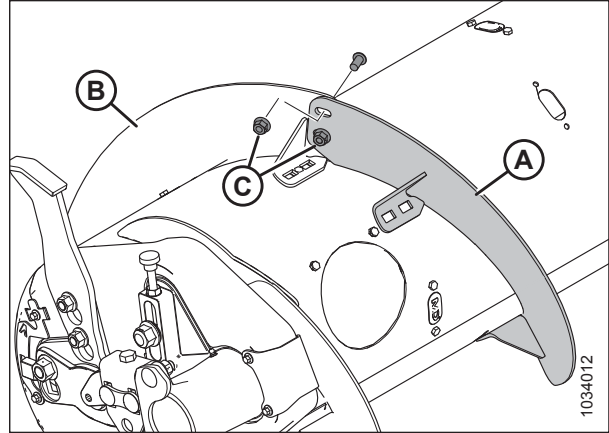


Figure 4.50: Left Side of Auger

- Stretch flighting (A) to fit auger tube as shown. Use slotted holes on flighting to get the best fit around the auger tube.

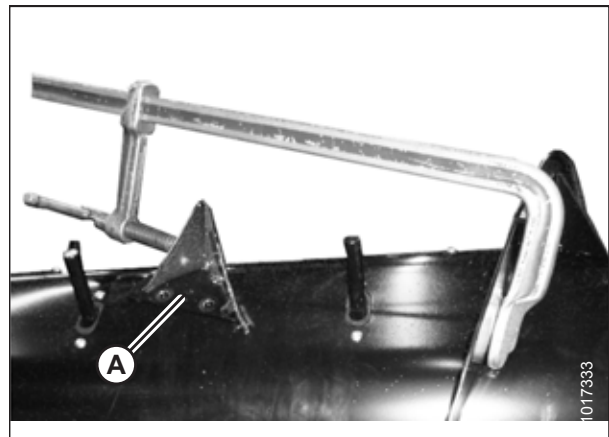


Figure 4.51: Flighting Stretched Axially

- With flighting in desired position, mark four hole locations (A) and drill 11 mm (7/16 in.) holes in the auger tube.

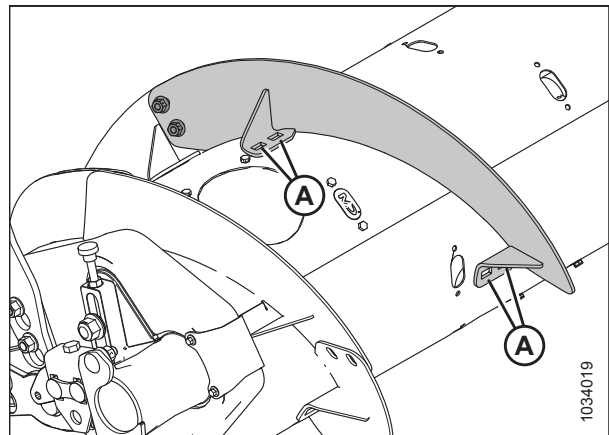


Figure 4.52: Flighting on Left Side of Auger

## SETTING UP FLOAT MODULE

13. Remove nearest access cover(s) (B). Retain for reinstallation.
14. Secure flighting to the auger at drilled holes (A) using four M10 x 20 mm flange head bolts and center lock nuts.
15. Repeat Step 2, page 109 to Step 14, page 111 for the other flighting on the left side of the auger.
16. Repeat Step 2, page 109 to Step 14, page 111 for both flightings on the right side of the auger.
17. Torque all flighting nuts and bolts to 47 Nm (35 lbf-ft) to eliminate deflection on flighting, then torque nuts and bolts again to 61 Nm (45 lbf-ft).

### NOTE:

Flighting performs best when no gaps are present. If desired, use silicone sealant to fill the gaps.

18. Add or remove auger fingers as necessary to optimize feeding for your combine and crop conditions. For instructions, refer to 4.2.9 *Removing Feed Auger Fingers*, page 111 or 4.2.10 *Installing Feed Auger Fingers*, page 113.
19. If not adding or removing auger fingers, reinstall all access covers and secure with bolts. Coat bolts with medium-strength threadlocker (Loctite® 243 or equivalent) and torque to 9 Nm (80 lbf-in).

## 4.2.9 Removing Feed Auger Fingers

### IMPORTANT:

When removing auger fingers, work from outside inward. Make sure there is an equal number of fingers on both sides of the auger when complete.

1. Remove bolts (A) and access cover (B) closest to the finger you are removing. Retain parts for reinstallation.

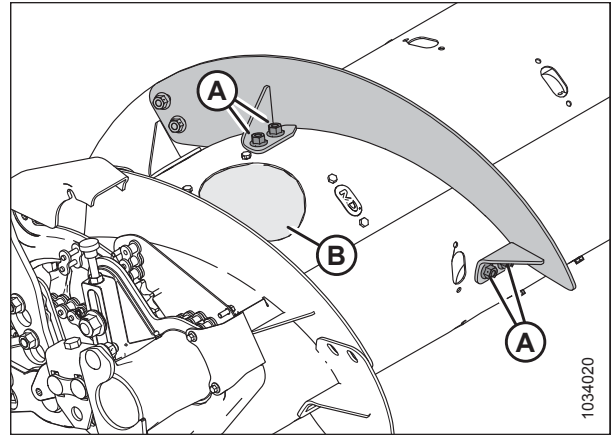


Figure 4.53: Left Side of Auger

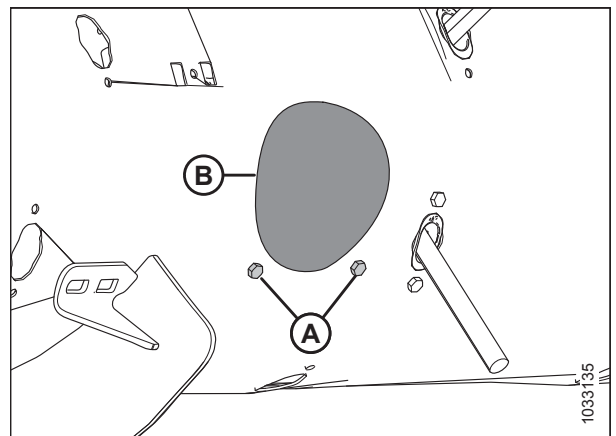


Figure 4.54: Auger Access Hole Cover

## SETTING UP FLOAT MODULE

2. Remove finger as follows
  1. Remove hairpin (A). Pull finger (B) out of finger holder (C).
  2. Push finger (B) through guide (D) and into the drum. Pull the finger out of the drum access hole.

**NOTE:**

If the finger is broken, remove any remnants from holder (C) and from inside the drum.

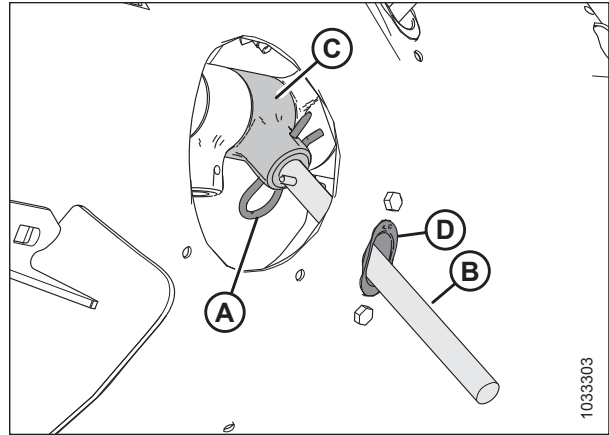


Figure 4.55: Auger Finger

3. Remove and retain two bolts (A) and tee nuts (not shown) securing finger guide (B) to the auger. Remove guide (B).

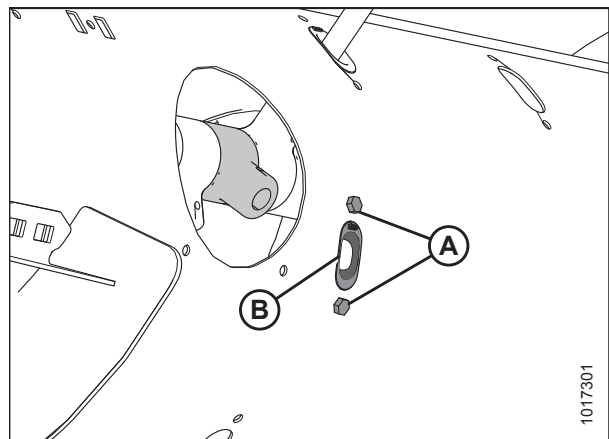


Figure 4.56: Auger Finger Hole

4. Position plug (A) into the hole from inside the auger. Secure with two M6 hex head bolts (B) and tee nuts. Torque to 9 Nm (80 lbf·in).

**NOTE:**

Bolts (B) come with a threadlocker patch that will wear off if the bolts are removed. If reinstalling bolts (B), apply medium-strength threadlocker (Loctite® 243 or equivalent) before installation.

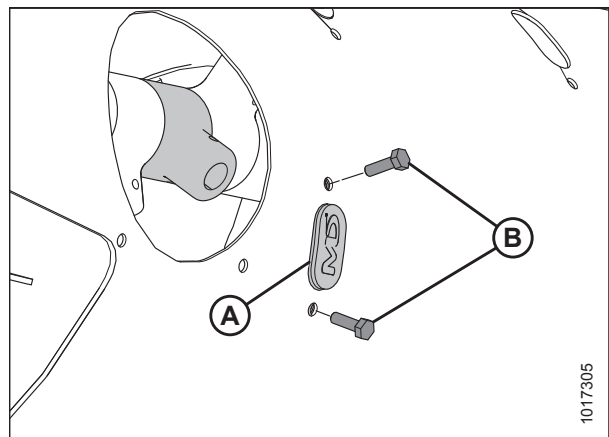


Figure 4.57: Plug

## SETTING UP FLOAT MODULE

- Secure access cover (B) in place with bolts (A). Torque bolts to 9 Nm (80 lbf-in).

**NOTE:**

Bolts (A) come with a threadlocker patch that will wear off if the bolts are removed. If reinstalling bolts (A), apply medium-strength threadlocker (Loctite® 243 or equivalent) before installation.

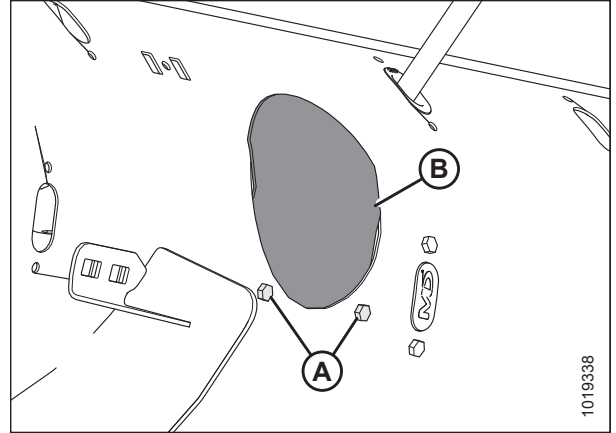


Figure 4.58: Auger Access Hole Cover

### 4.2.10 Installing Feed Auger Fingers

**IMPORTANT:**

When installing additional fingers, ensure you install an equal number on each side of the auger.

- Remove bolts (A) and access cover (B) closest to the finger you are removing. Retain parts for reinstallation.

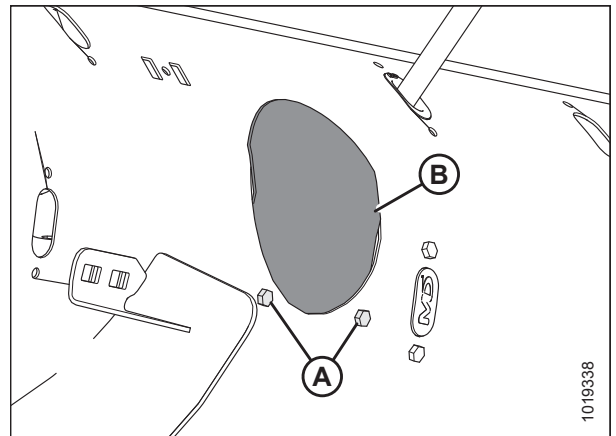


Figure 4.59: Auger Access Hole Cover

- Insert guide (B) from inside the auger and secure it with bolts (A) and tee nuts (not shown).

**IMPORTANT:**

Always install a new guide when replacing a solid finger.

**NOTE:**

Bolts (A) come with a threadlocker patch that will wear off if the bolts are removed. If reinstalling bolts (A), apply medium-strength threadlocker (Loctite® 243 or equivalent) before installation.

- Torque bolts (A) to 9 Nm (80 lbf-in).

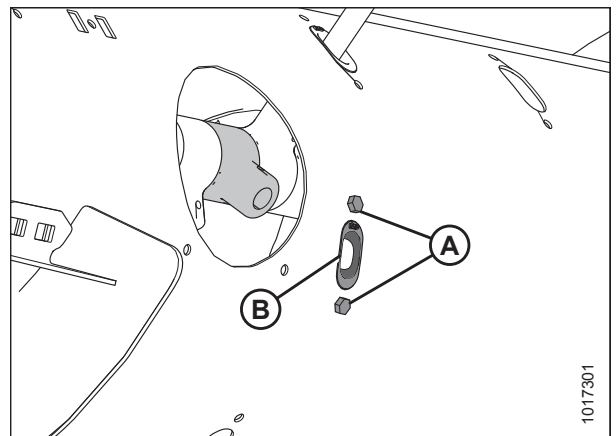


Figure 4.60: Auger Finger Hole

## SETTING UP FLOAT MODULE

- Place auger finger (A) inside the drum. Insert auger finger (A) up through the bottom of guide (B) and insert other end into holder (C).
- Secure the finger by inserting hairpin (D) into the holder. Make sure the round end (S-shaped side) of the hairpin faces the chain drive side of the auger. Make sure the closed end of the hairpin points in the direction of auger-forward rotation.

### IMPORTANT:

Position the hairpin correctly as described in this step to prevent the hairpin from falling out during operation. If fingers are lost, the header might not be able to feed crop into the combine properly. Fingers that fall into the drum might damage internal components.

- Secure access cover (B) in place with bolts (A). Torque bolts to 9 Nm (80 lbf-in).

### NOTE:

Bolts (A) come with a threadlocker patch that will wear off if the bolts are removed. If reinstalling bolts (A), apply medium-strength threadlocker (Loctite® 243 or equivalent) before installation.

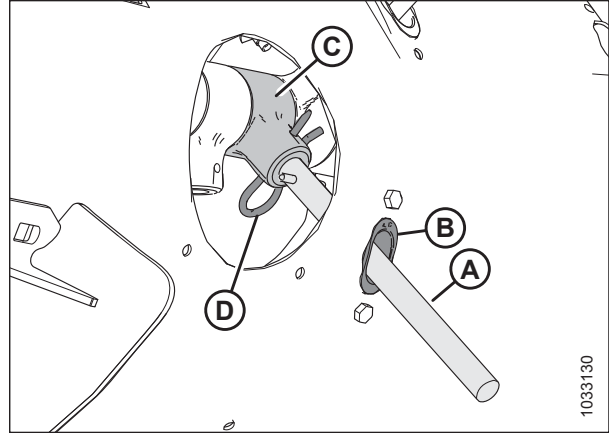


Figure 4.61: Auger Finger

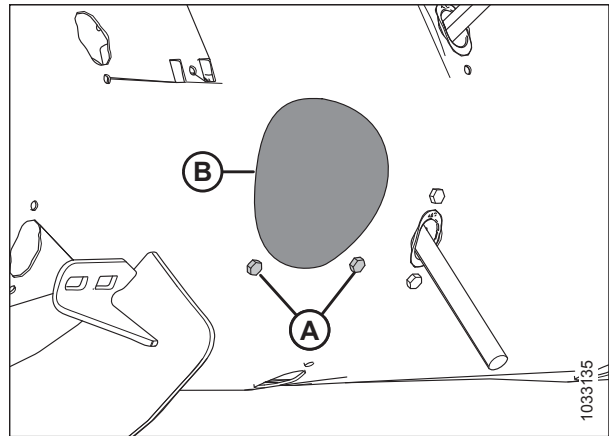


Figure 4.62: Auger Access Hole Cover

## 4.3 FM200 Stripper Bars and Feed Deflectors

### 4.3.1 Removing Stripper Bars

Stripper bar kits may have been supplied with your header to improve feeding in certain crops such as rice. They are **NOT** recommended for cereal crops.

**NOTE:**

The following procedure does **NOT** apply to New Holland CR960, 9060, 970, 9070, and 9080 combines. For these combines, refer to [4.3.2 CR Feeder Deflectors, page 115](#).

If necessary, remove auger stripper bars as follows:

1. Remove four bolts (A) and nuts securing bars (B) to float module frame. Remove bars.
2. Repeat for opposite set of stripper bars.

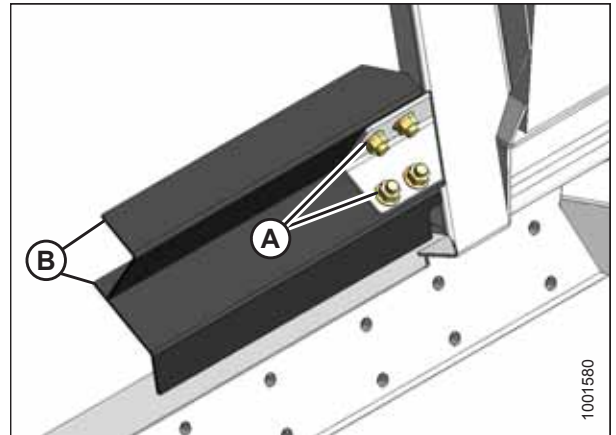


Figure 4.63: Auger Stripper Bar

### 4.3.2 CR Feeder Deflectors

This section is for New Holland CR combines only. If operating a New Holland CX combine, remove feed deflectors.

**For New Holland CR combines only:** Wide feeder deflectors have been factory-installed on the float module to improve feeding into the feeder house. Remove the feeder deflectors if necessary. For instructions, refer to [4.3.3 Replacing Feed Deflectors on New Holland CR Combines, page 116](#).

Long feeder kits are provided for narrow feeder house combines and can be installed to replace the short feeder deflectors.

Table 4.1 FM200 Feeder Kits for CR Model Combines

Feeder House Size	Feeder Kit Size	MacDon Part Number
1250–1350 mm (49–65 in.)	Narrow: 200 mm (7 7/8 in.)	MD #328082, 328083
1100 mm (43-1/2 in.) and below	Wide: 325 mm (12 13/16 in.)	MD #314690, 314691

### 4.3.3 Replacing Feed Deflectors on New Holland CR Combines

This section is for New Holland CR combines only. If operating a New Holland CX combine, remove feed deflectors.

1. Remove two bolts and nuts (B) securing feed deflector (A) to the float module frame, and remove the feed deflector.
2. Position replacement feed deflector (A), and secure with bolts and nuts (B) (ensure the nuts are facing the combine). Do **NOT** tighten nuts.

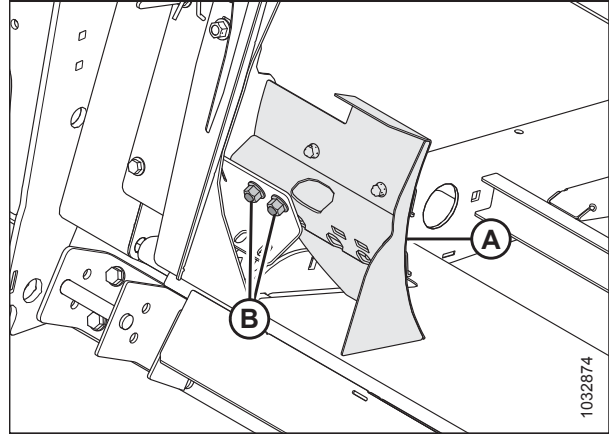


Figure 4.64: Feed Deflector

3. Adjust deflector (A) so that distance (C) between pan and deflector is 4–6 mm (5/32–1/4 in.).
4. Tighten nuts (B).
5. Repeat for opposite deflector.
6. Attach header to the combine. For instructions, refer to Chapter 5 *Attaching Header to Combine*, page 117.
7. After attaching the header to the combine, fully extend the center-link and check the gap between the deflector and pan. Maintain the 4–6 mm (5/32–1/4 in.) gap.

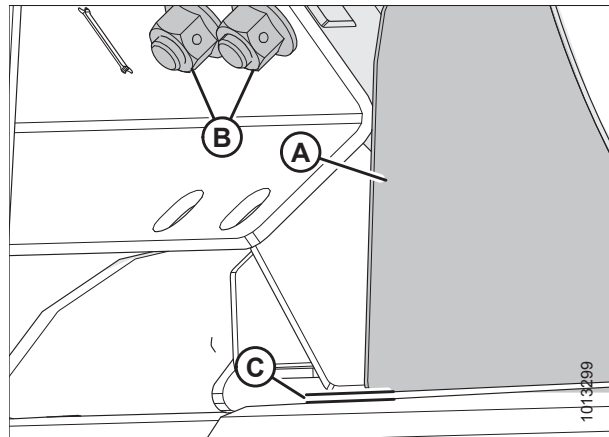


Figure 4.65: Pan and Deflector Distance



# Chapter 5: Attaching Header to Combine

The procedures for attaching the header to a combine vary depending on the combine model. Refer to the following table for the appropriate procedure:

**Table 5.1 Combine Model Header Attachment Procedures**

Combine	Refer to
AGCO Gleaner® R and S Series; Challenger® 660, 670, 680B, 540C, and 560C; Massey Ferguson® 9690, 9790, 9895, 9520, 9540, and 9560	<i>5.1 AGCO Challenger®, Gleaner®, and Massey Ferguson® Combines, page 117</i>
IDEAL™	<i>5.2 IDEAL™ Series Combines, page 122</i>
Case IH 7010, 8010, 7120, 8120, 9120, 5088, 6088, 7088, 5130, 6130, 7130, 7230, 8230, and 9230	<i>5.3 Case IH Combines, page 125</i>
CLAAS 500, 600, and 700 (R Series)	<i>5.4 CLAAS Combines, page 129</i>
John Deere 60, 70, S, and T Series	<i>5.5 John Deere Combines, page 134</i>
New Holland CR and CX	<i>5.6 New Holland Combines, page 139</i>

**IMPORTANT:**

Ensure applicable functions (automatic header height control [AHC], Draper Header Option, Hydraulic Center-Link Option, Hydraulic Reel Drive, etc.) are enabled on the combine and in the combine computer. Failure to do so may result in improper header operation.

## 5.1 AGCO Challenger®, Gleaner®, and Massey Ferguson® Combines

### 5.1.1 Attaching Header to an AGCO Challenger®, Gleaner®, or Massey Ferguson® Combine

**⚠ DANGER**

To avoid injury or death from unexpected start-up of the machine, always stop the engine and remove the key from the ignition before leaving the operator’s seat for any reason.

1. Shut down the engine, and remove the key from the ignition.
2. Use lock handle (B) to retract lugs (A) at the base of the feeder house.

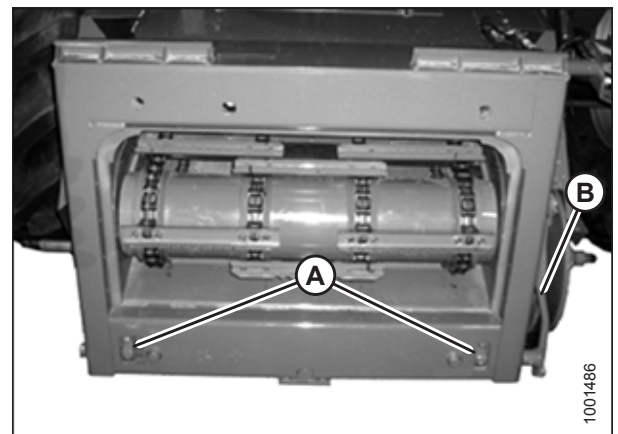


Figure 5.1: AGCO Group Feeder House

## ATTACHING HEADER TO COMBINE

### DANGER

Never start or move the machine until you are sure all bystanders have cleared the area.

3. Start the engine and slowly approach the header until the feeder house is directly under float module top cross member (A) and alignment pins (C) (refer to Figure 5.3, page 118) on the feeder house are aligned with holes (B) in the float module frame.

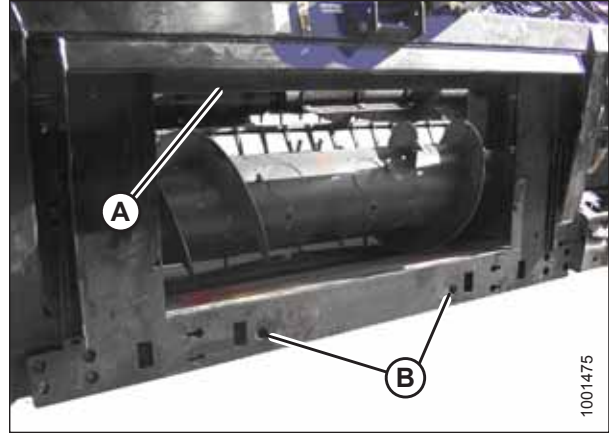


Figure 5.2: Float Module

### NOTE:

Your combine feeder house may not be exactly as shown.

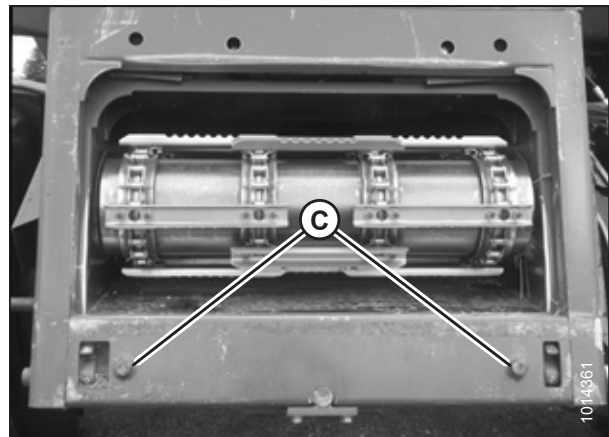


Figure 5.3: AGCO Group Alignment Pins

4. Raise the feeder house slightly to lift the header, ensuring feeder house saddle (A) is properly engaged in the float module frame.
5. Shut down the engine, and remove the key from the ignition.



Figure 5.4: Feeder House and Float Module

## ATTACHING HEADER TO COMBINE

- Use lock handle (B) to engage lugs (A) with the float module.

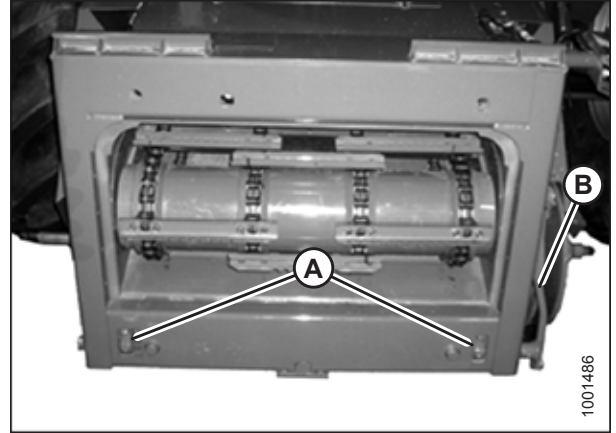


Figure 5.5: AGCO Group Feeder House

### DANGER

Never start or move the machine until you are sure all bystanders have cleared the area.

- Start the engine. For instructions, refer to the combine operator's manual.
- Lower the header fully.

#### NOTE:

The float module is equipped with a multicoupler that connects to the combine. If your combine is equipped with individual connectors, a multicoupler kit (single-point connector) must be installed. Refer to Table for a list of kits and installation instructions that are available through your combine Dealer.

Table 5.2 Multicoupler Kits

Combine	AGCO Kit Number
Challenger®	71530662
Gleaner® R/S Series	71414706
Massey Ferguson®	71411594

- Raise handle (A) to release multicoupler (B) from float module.

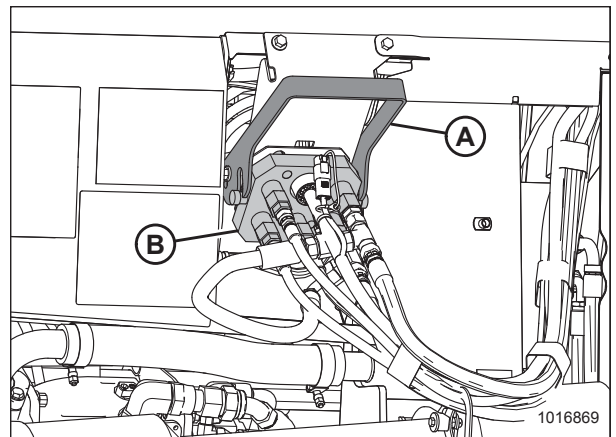


Figure 5.6: Float Module Multicoupler

## ATTACHING HEADER TO COMBINE

10. Push handle (A) on the combine to the fully-open position.
11. Clean the mating surfaces of multicoupler (B) and receptacle if necessary.

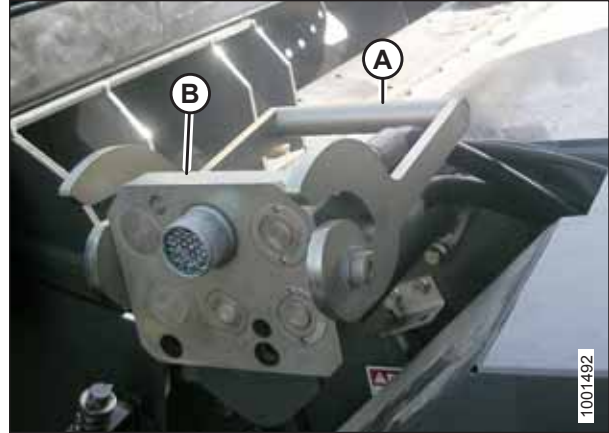


Figure 5.7: Combine Receptacle

12. Position multicoupler (A) onto the combine receptacle, and pull handle (B) to fully engage the multicoupler into the receptacle.
13. Connect reel fore-aft/header tilt selector harness (C) to combine harness (D).

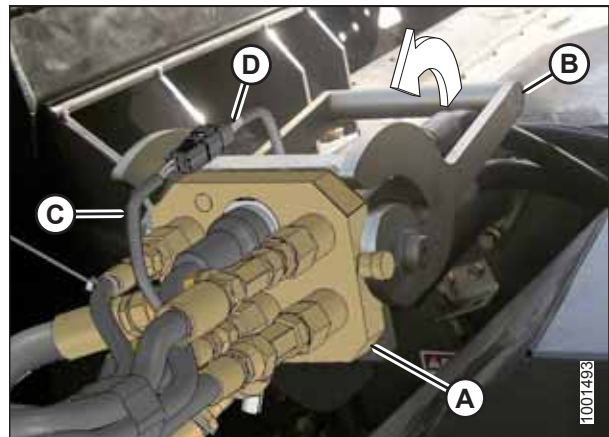


Figure 5.8: Multicoupler

14. Detach safety chain (C) from support bracket (B).
15. Pull driveline collar (A) back to release driveline from support bracket. Remove the driveline from support bracket.

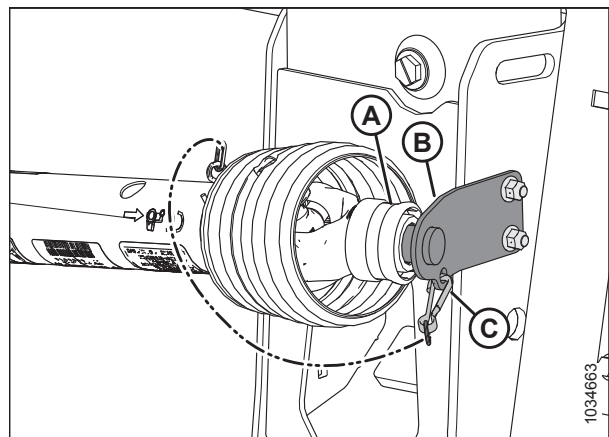


Figure 5.9: Driveline in Storage Position – Driveline MD #B7038 or MD #B7039

## ATTACHING HEADER TO COMBINE

16. Pull back collar (A) on the end of the driveline, and push the driveline onto combine output shaft (B) until the collar locks.

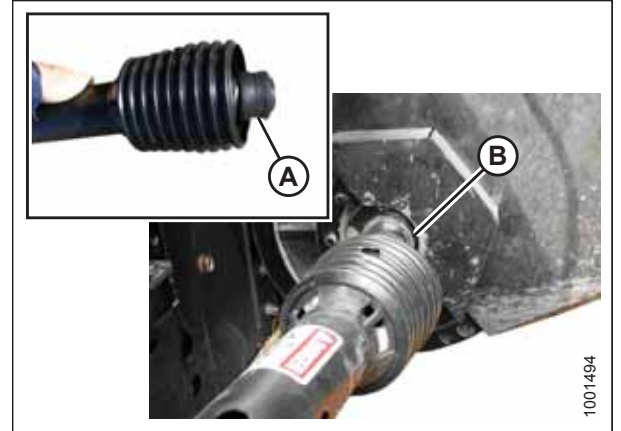


Figure 5.10: Driveline

## 5.2 IDEAL™ Series Combines

### 5.2.1 Attaching Header to an IDEAL™ Series Combine

**⚠ DANGER**

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

1. Shut down the engine, and remove the key from the ignition.
2. Pull lever (A) up to retract pins (B) at the bottom left and right sides of the feeder house.
3. Start the engine. For instructions, refer to the combine operator's manual.

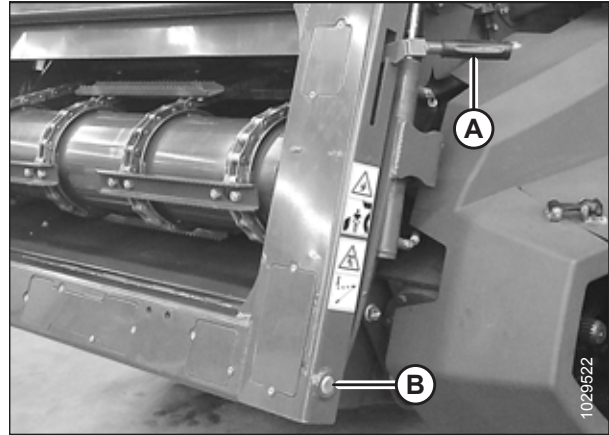
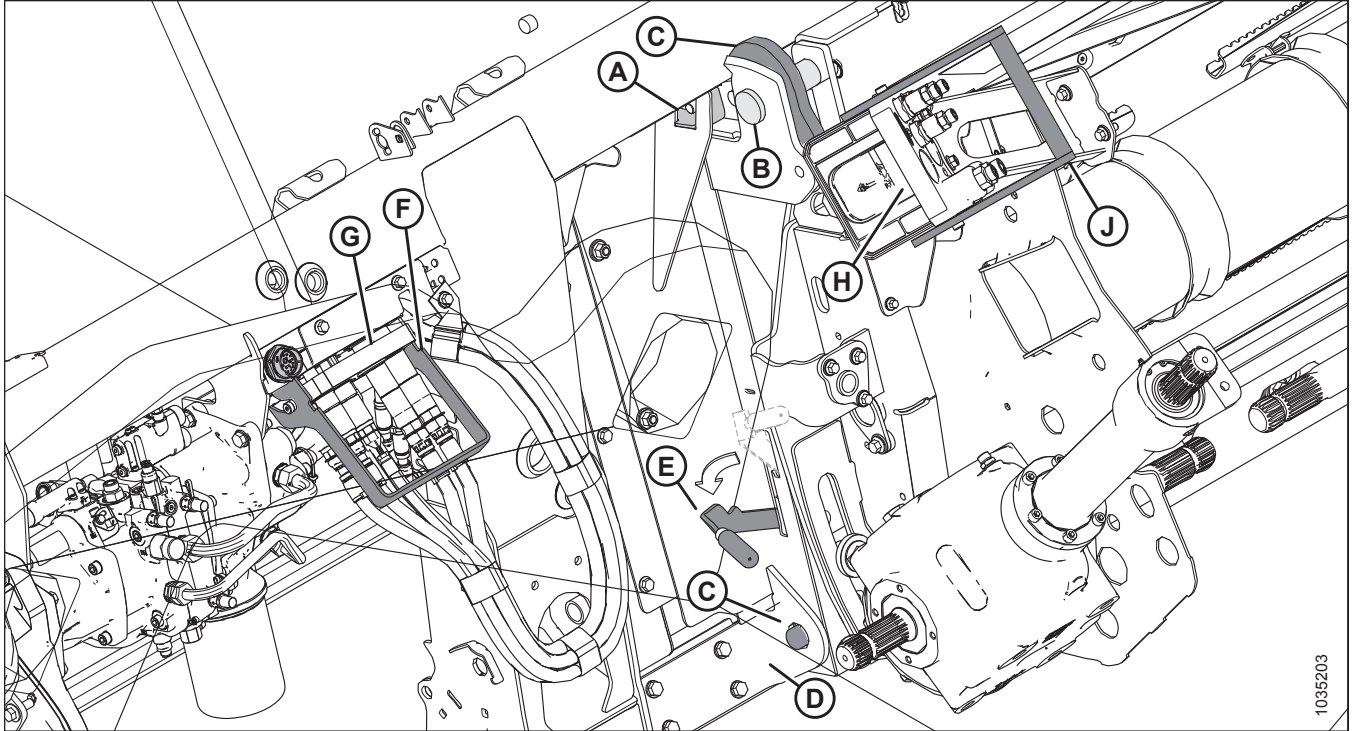


Figure 5.11: Feeder House

## ATTACHING HEADER TO COMBINE



**Figure 5.12: Feeder House**

4. Drive the combine slowly up to the header until the feeder house is directly under top beam (A), and pins (B) are under hooks (C) on the transition frame.
5. Raise feeder house until transition frame top beam (A) is fully resting on the feeder house. Raise the header slightly off the ground.

**IMPORTANT:**

The full weight of the header must be on the feeder house, **NOT** on pins (B).

6. Position bottom of feeder house so that locking pins (C) align with the holes in mount (D).
7. Push lever (E) down to extend locking pins (C) so they engage in mount (D).
8. Lower handle (F) to release multicoupler (G) from header.
9. Open cover on the combine receptacle (H).
10. Push handle (J) to fully open position.
11. Clean mating surfaces of coupler and receptacle if necessary.
12. Position coupler (G) onto combine receptacle (H), and pull handle (J) to fully engage multicoupler into receptacle.

## ATTACHING HEADER TO COMBINE

13. Detach safety chain (C) from support bracket (B).
14. Pull driveline collar (A) back to release driveline from support bracket. Remove the driveline from support bracket.

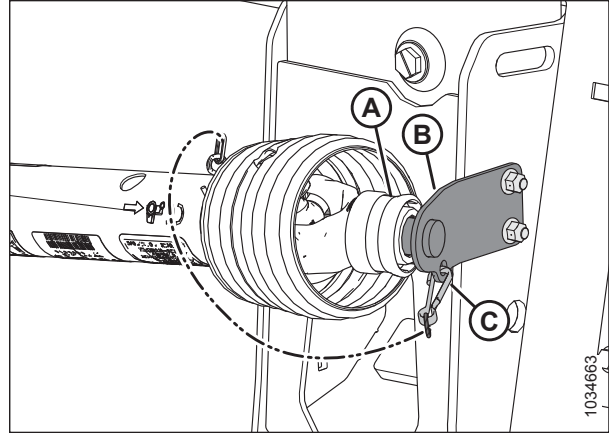


Figure 5.13: Driveline in Storage Position – Driveline MD #B7038 or MD #B7039

15. Pull back collar (A) on end of driveline and push onto combine output shaft (B) until collar locks.

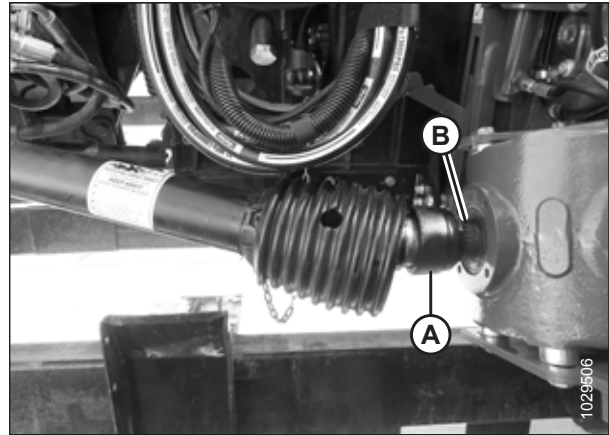


Figure 5.14: Connecting Driveline to Combine



## 5.3 Case IH Combines

### 5.3.1 Attaching Header to Case IH Combine

#### DANGER

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

1. Shut down the engine, and remove the key from the ignition.
2. On the combine, ensure lock handle (A) is positioned so hooks (B) can engage the float module.

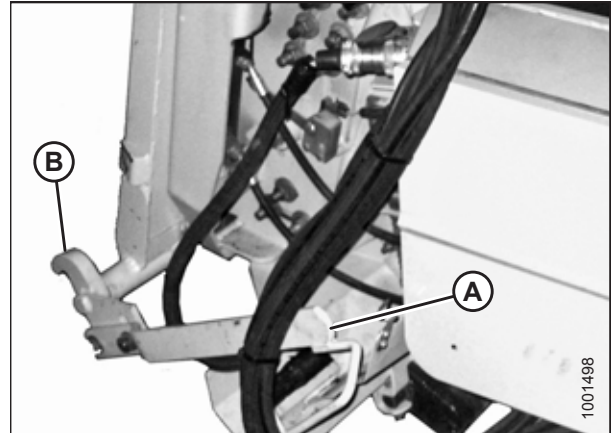


Figure 5.15: Feeder House Locks

#### DANGER

Never start or move the machine until you are sure all bystanders have cleared the area.

3. Start the engine and slowly drive the combine up to the header until feeder house saddle (A) is directly under float module top cross member (B).
4. Raise the feeder house slightly to lift the header, ensuring the feeder saddle is properly engaged in the float module frame.
5. Shut down the engine, and remove the key from the ignition.

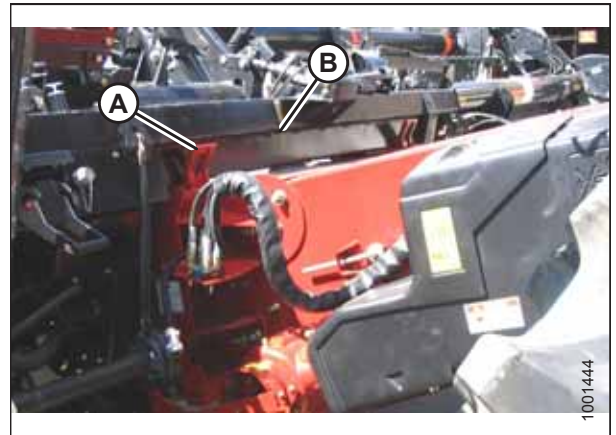


Figure 5.16: Combine and Float Module

## ATTACHING HEADER TO COMBINE

6. On the left side of the feeder house, lift lever (A) on the float module and push handle (B) on the combine to engage locks (C) on both sides of the feeder house.
7. Push down on lever (A) so the slot in the lever engages the handle and locks the handle in place.
8. If lock (C) does not fully engage the pin on the float module, loosen bolts (D) and adjust lock. Retighten bolts.

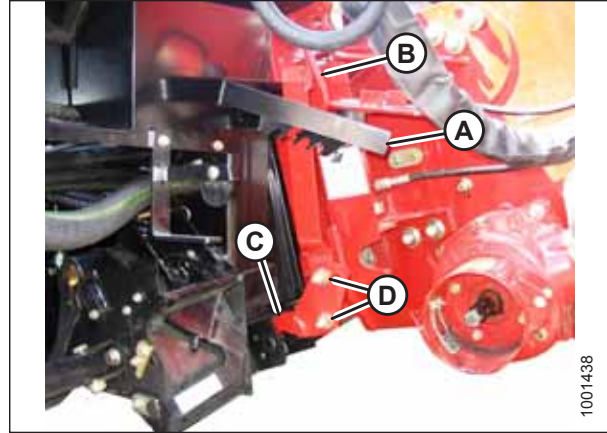


Figure 5.17: Combine and Float Module

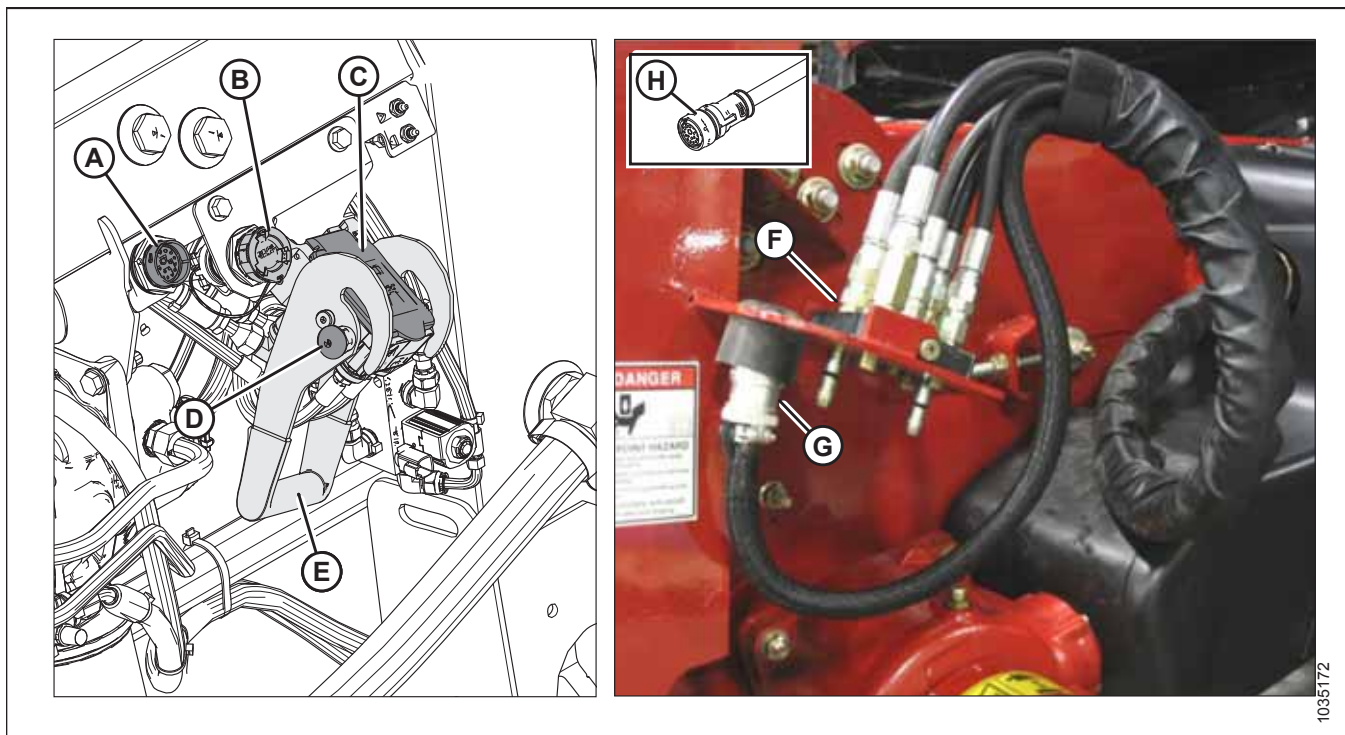


Figure 5.18: Multicoupler and Electrical Connections

9. Remove caps from connectors C81B (A) and (B).
10. Remove cover from hydraulic receptacle (C). Clean the receptacle mating surfaces.
11. Push in lock button (D) and pull handle (E) to the fully open position.
12. Remove hydraulic quick coupler (F) from the storage plate on the combine. Clean the mating surface of the coupler.
13. Position coupler (F) onto the float module receptacle (C), and push handle (E) to engage the pins into the receptacle.
14. Push handle (E) to closed position until lock button (D) snaps out.
15. Remove the combine connector (G) from the storage location on the combine and connect it to receptacle (B). Turn the collar on the connector to lock it in place.
16. Remove cab control kit connector C81A (H) from the storage location on the combine and connect it to C81B (A). Turn the collar on the connector to lock it in place.

## ATTACHING HEADER TO COMBINE

17. Detach safety chain (C) from support bracket (B).
18. Pull driveline collar (A) back to release the driveline from the support bracket. Remove the driveline from the support bracket.

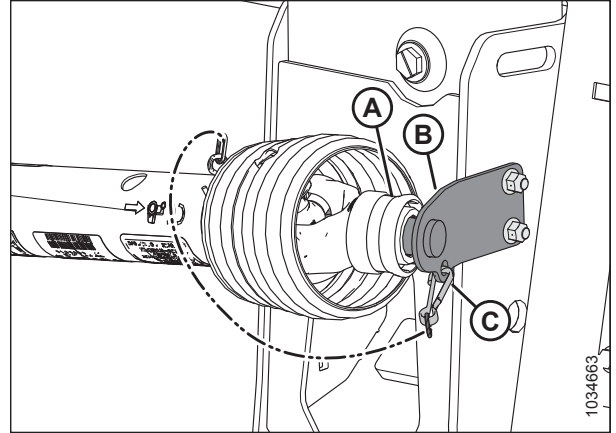


Figure 5.19: Driveline in Storage Position – Driveline MD #B7038 or MD #B7039

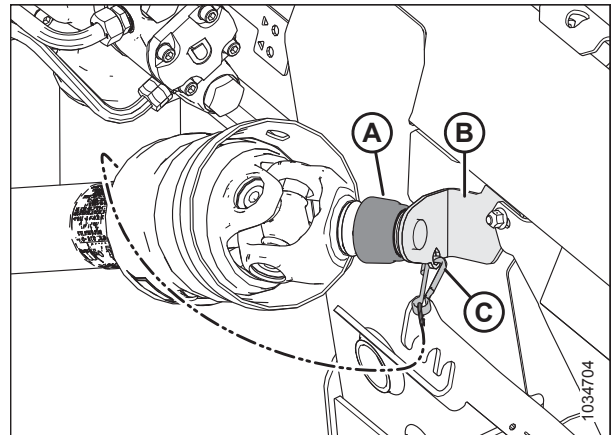


Figure 5.20: Driveline in Storage Position – Sidehill/Hillside Driveline MD #B7180, MD #B7181, or MD #B7182

19. Pull back collar (A) on the end of the driveline, and push the driveline onto combine output shaft (B) until the collar locks.

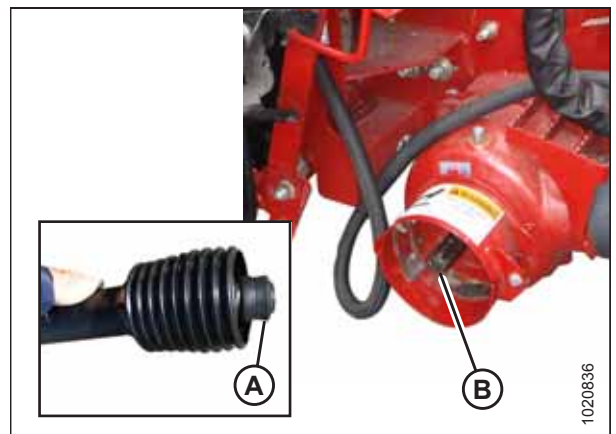


Figure 5.21: Combine Output Shaft

## ATTACHING HEADER TO COMBINE

20. Disengage the float locks by pulling each float lock handle (A) away from the float module and setting it in unlocked position (B).

**NOTE:**

Illustration at right shows the right side of the header. Float lock on left side of header opposite.

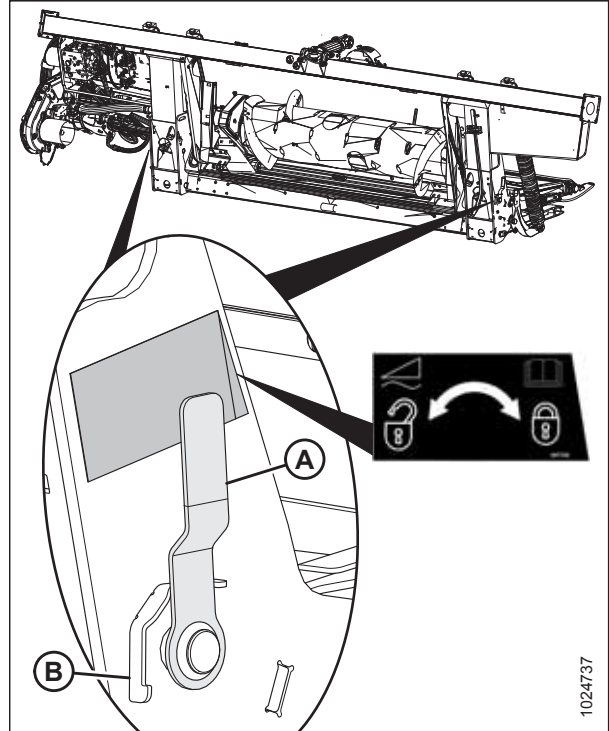


Figure 5.22: Float Lock Handle

## 5.4 CLAAS Combines

The FD2 Series FlexDraper® Header is compatible with CLAAS Lexion 500, 600, and 700 series, Tucano, and 7000, 8000 series combines.

### 5.4.1 Attaching Header to CLAAS Combine

#### DANGER

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

1. Shut down the engine, and remove the key from the ignition.
2. Move handle (A) on the float module into the raised position, and ensure pins (B) at the bottom corners of the float module are retracted.

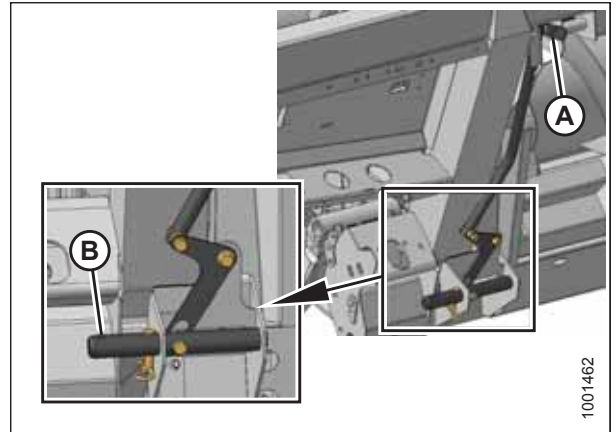


Figure 5.23: Pins Retracted

#### DANGER

Never start or move the machine until you are sure all bystanders have cleared the area.

3. Start the engine and slowly drive the combine up to the header until feeder house saddle (A) is directly under float module top cross member (B).
4. Raise the feeder house slightly to lift the header, ensuring the feeder saddle is properly engaged in the float module frame.
5. Shut down the engine, and remove the key from the ignition.

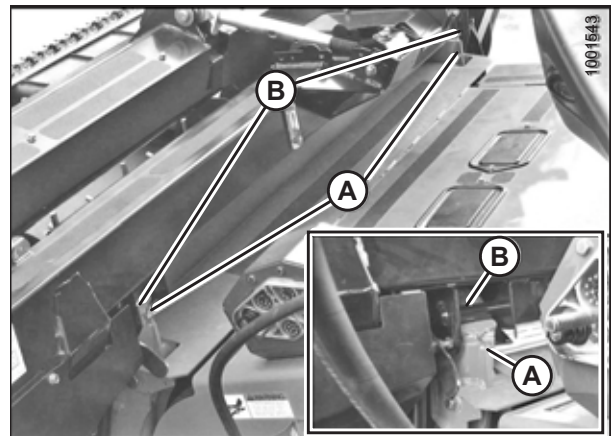


Figure 5.24: Header on Combine

## ATTACHING HEADER TO COMBINE

- Remove locking pin (B) from float module pin (A).

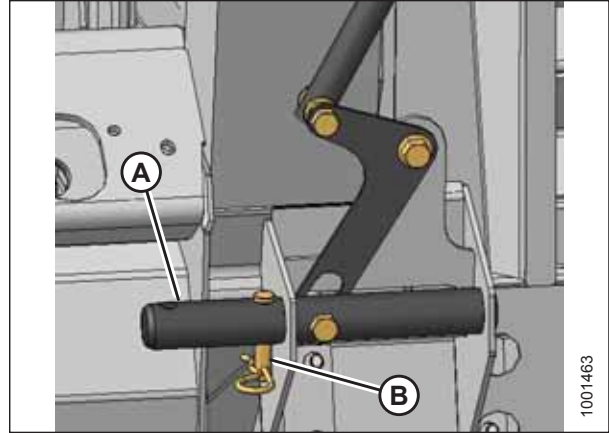


Figure 5.25: Locking Pins

- Lower handle (A) to engage float module pins (B) into the feeder house. Reinsert locking pin (C) and secure with the hairpin.
- Remove the blocks from under the cutterbar.

### DANGER

Never start or move the machine until you are sure all bystanders have cleared the area.

- Start the engine. For instructions, refer to the combine operator's manual.
- Lower the header fully.
- Shut down the engine, and remove the key from the ignition.
- Remove float module receptacle cover (A). Clean the receptacle.

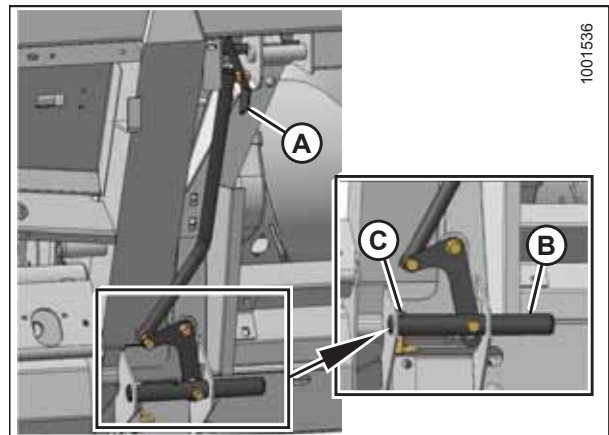


Figure 5.26: Engaging Pins

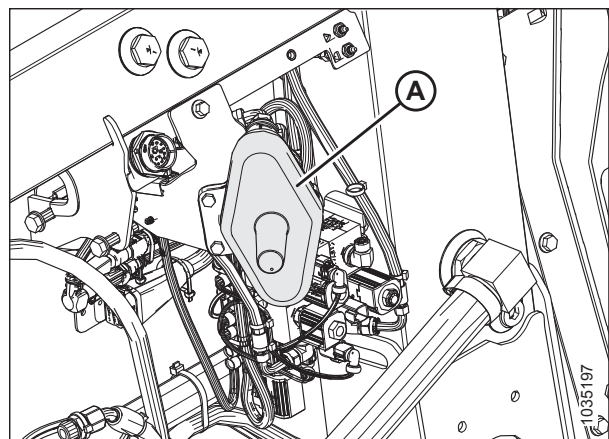
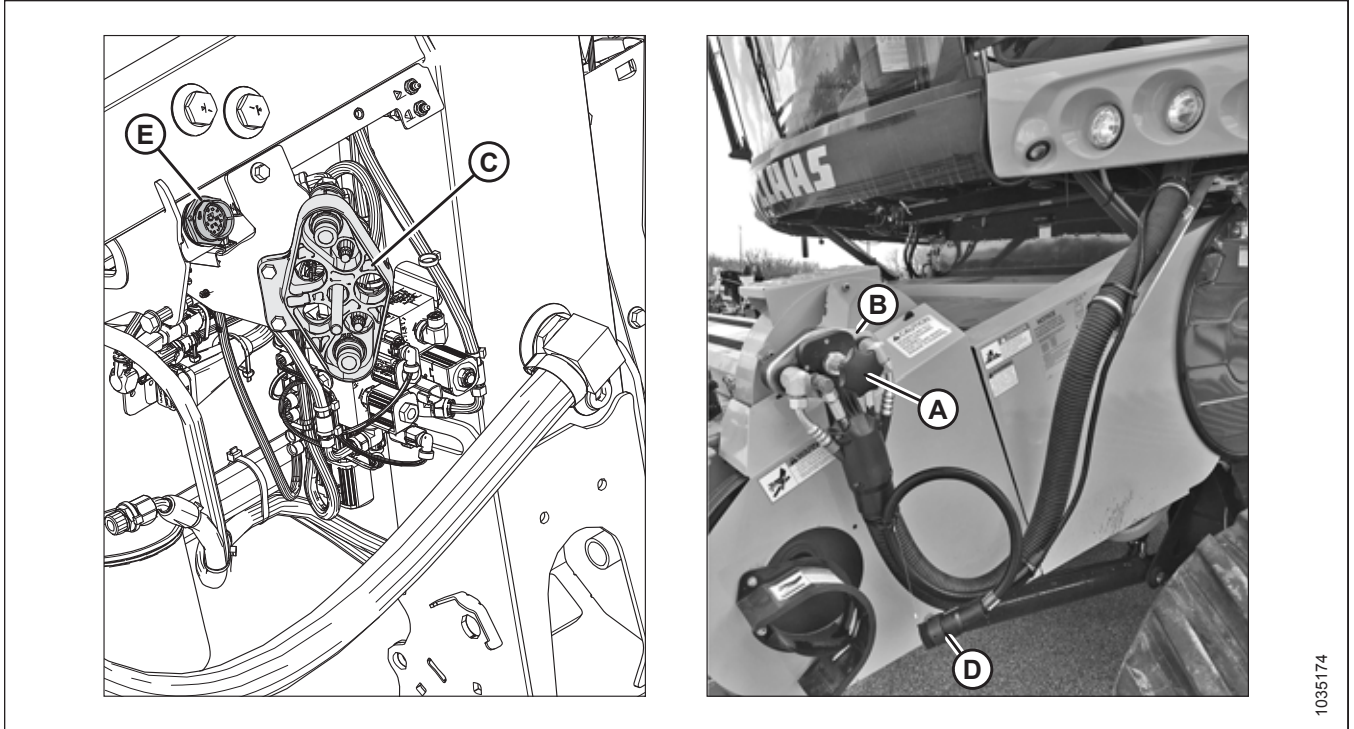


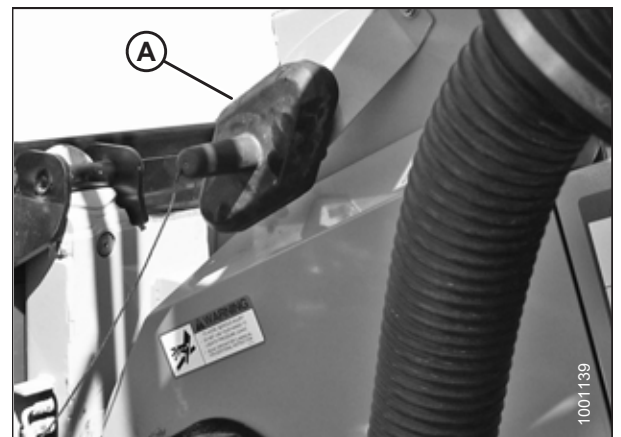
Figure 5.27: Receptacle Cover

## ATTACHING HEADER TO COMBINE



**Figure 5.28: Multicoupler and Electrical Connections**

13. Unscrew knob (A) on combine coupler (B) to release the coupler from the receptacle.
14. Clean coupler (B) and receptacle.
15. Install combine coupler (B) onto float module receptacle (C) and secure using knob (A).
16. Remove cab control kit connector C81A (D) from the storage location on the combine and connect it to C81B (E) on the float module. Turn the collar on the connector to lock it in place.
17. Place float module receptacle cover (A) onto the combine receptacle.



**Figure 5.29: Receptacle Cover**

## ATTACHING HEADER TO COMBINE

18. Detach safety chain (C) from support bracket (B).
19. Pull driveline collar (A) back to release driveline from support bracket. Remove the driveline from support bracket.

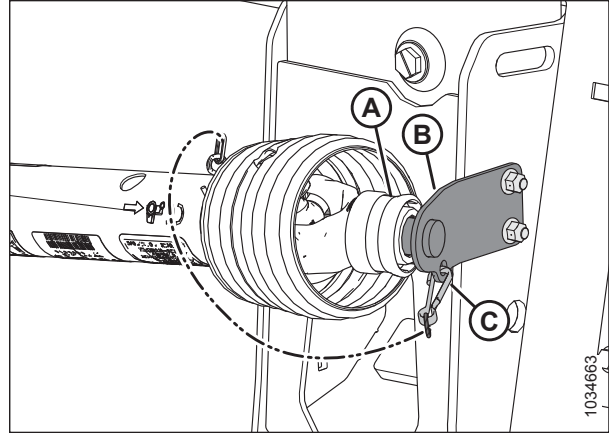


Figure 5.30: Driveline in Storage Position – Driveline MD #B7038 or MD #B7039

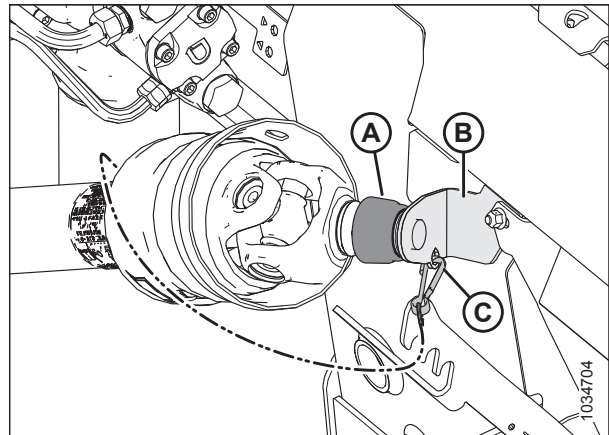


Figure 5.31: Driveline in Storage Position – Sidehill/Hillside Driveline MD #B7180, MD #B7181, or MD #B7182

20. Attach driveline (A) to the combine output shaft.

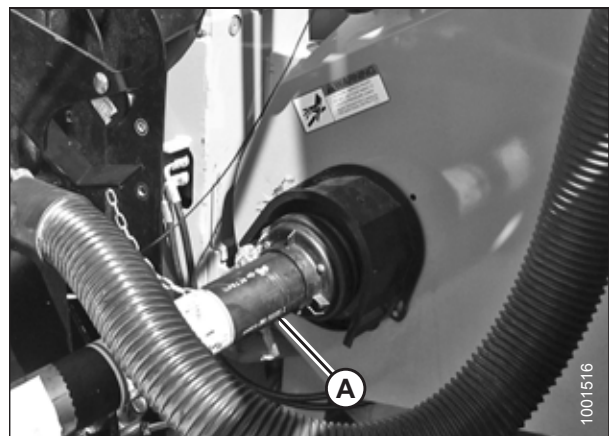


Figure 5.32: Driveline and Output Shaft



## ATTACHING HEADER TO COMBINE

21. Disengage both header float locks by pulling each float lock handle (A) away from the float module and setting it in unlocked position (B).

**NOTE:**

Illustration at right shows the right side of the header. Float lock on left side of header opposite.

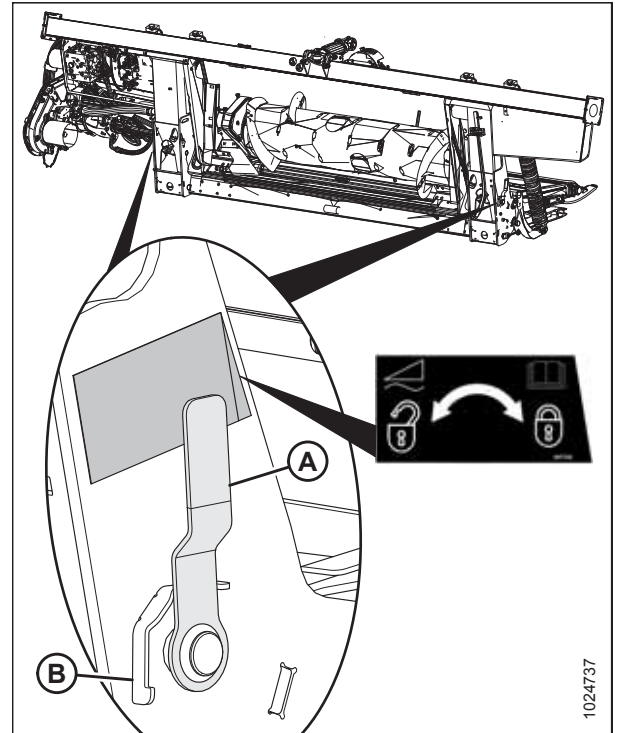


Figure 5.33: Float Lock Handle

## 5.5 John Deere Combines

The FD2 Series FlexDraper® Header is compatible with John Deere 60, 70, S, and T Series combines.

### 5.5.1 Attaching Header to John Deere Combine

**⚠ DANGER**

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

1. Shut down the engine, and remove the key from the ignition.
2. Push handle (A) on the combine multicoupler receptacle towards the feeder house to retract pins (B) at the bottom corners of the feeder house. Clean the receptacle.

**⚠ DANGER**

Never start or move the machine until you are sure all bystanders have cleared the area.

3. Start the engine and slowly drive the combine up to the header until feeder house saddle (C) is directly under float module top cross member (D).
4. Raise the feeder house slightly to lift the header ensuring the feeder house saddle is properly engaged in the float module frame.
5. Shut down the engine, and remove the key from the ignition.
6. Pull handle (A) on the float module to release multicoupler (B) from the storage position. Remove the multicoupler, and push the handle back into the float module to store.

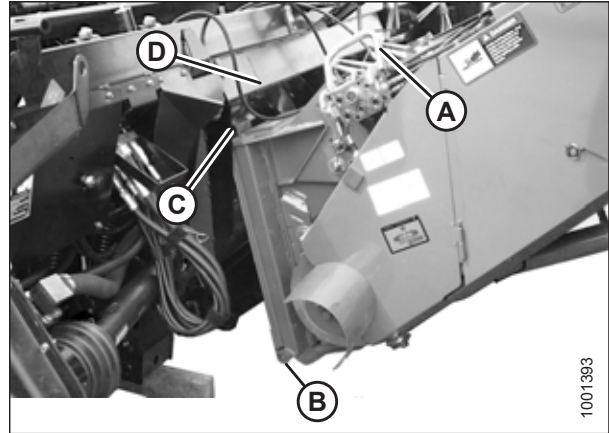


Figure 5.34: Combine and Float Module

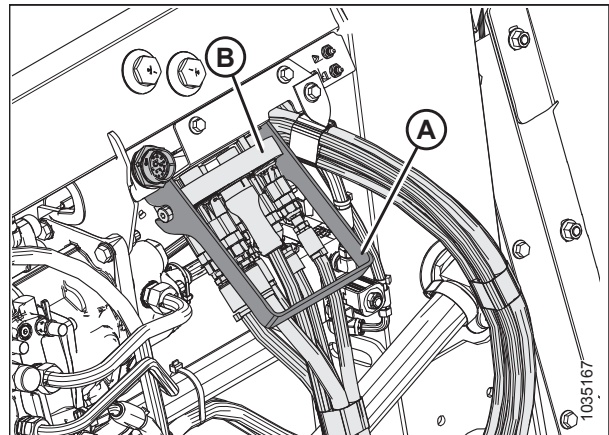


Figure 5.35: Multicoupler Storage

## ATTACHING HEADER TO COMBINE

7. Position multicoupler (A) onto the receptacle, and pull handle (B) to engage the lugs on the multicoupler into the handle.
8. Pull handle (B) to a horizontal position and ensure multicoupler (A) is fully engaged into the receptacle.

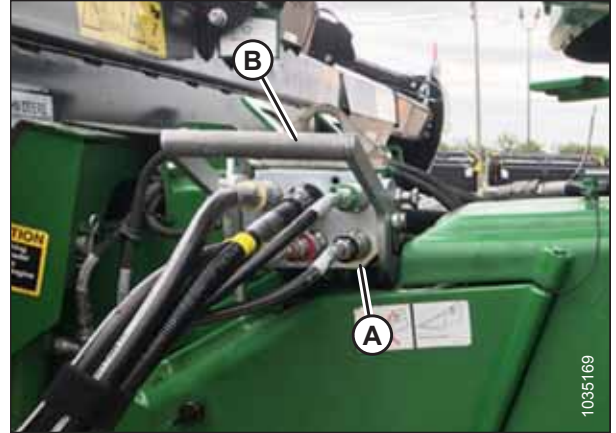


Figure 5.36: Multicoupler

9. Ensure that both feeder house pins (A) are fully engaged into the float module brackets.

**NOTE:**

If pins (A) do not fully engage the float module brackets, loosen bolts (B) and adjust the bracket as required.

10. Tighten bolts (B).

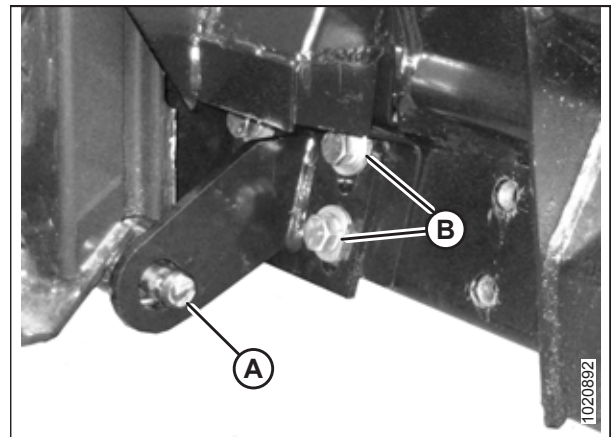
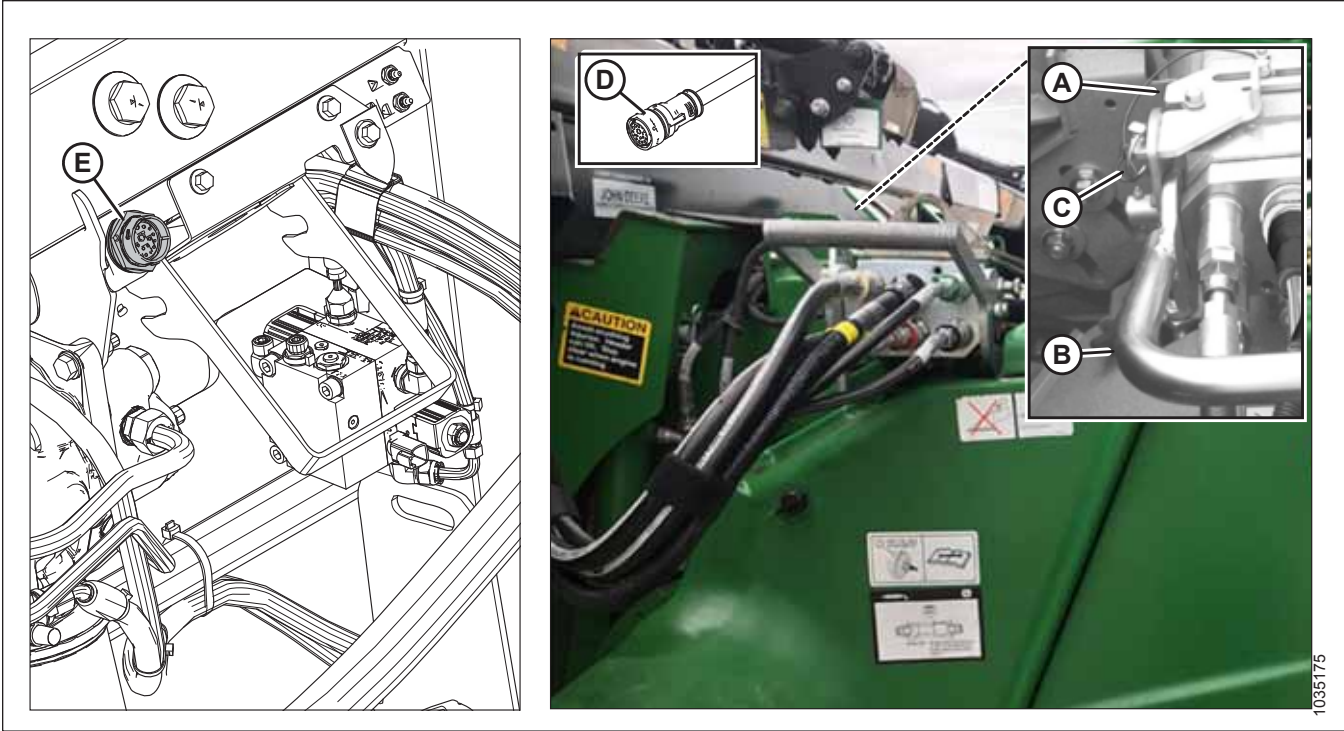


Figure 5.37: Feeder House Pin

## ATTACHING HEADER TO COMBINE



**Figure 5.38: Multicoupler Lock, Electrical Connections**

11. Slide latch (A) to lock handle (B) in position and secure with lynch pin (C).
12. Remove cab control kit connector C81A (D) from the storage location on the combine and connect it to C81B (E) on the float module. Turn the collar on the connector to lock it in place.

## ATTACHING HEADER TO COMBINE

13. Detach safety chain (C) from support bracket (B).
14. Pull driveline collar (A) back to release driveline from support bracket. Remove the driveline from support bracket.

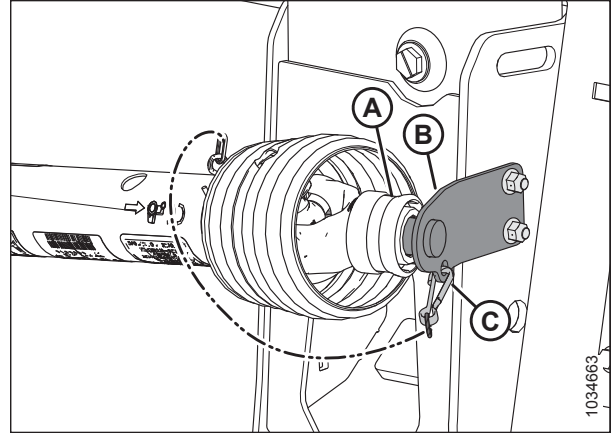


Figure 5.39: Driveline in Storage Position – Driveline MD #B7038 or MD #B7039

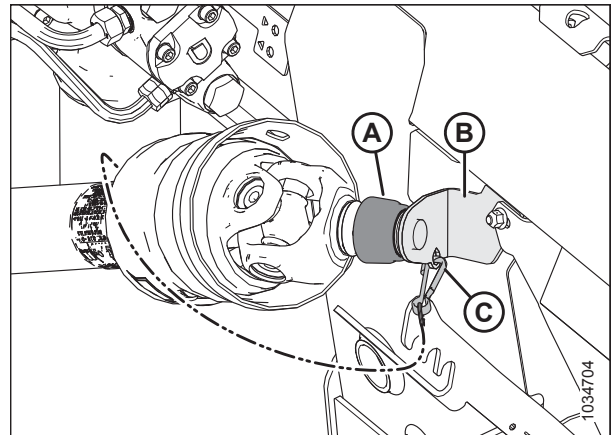


Figure 5.40: Driveline in Storage Position – Sidehill/Hillside Driveline MD #B7180, MD #B7181, or MD #B7182

15. Pull back collar (A) on the end of the driveline, and push the driveline onto combine output shaft (B) until the collar locks.

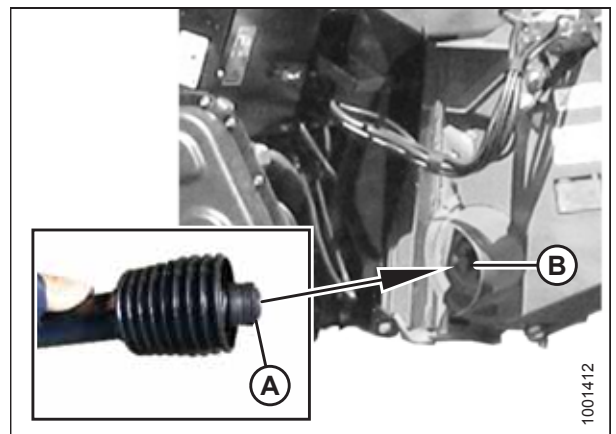


Figure 5.41: Driveline

## ATTACHING HEADER TO COMBINE

16. Disengage the float locks by pulling each float lock handle (A) away from the float module, and setting it in unlocked position (B).

**NOTE:**

Illustration at right shows the right side of the header. Float lock on left side of header opposite.

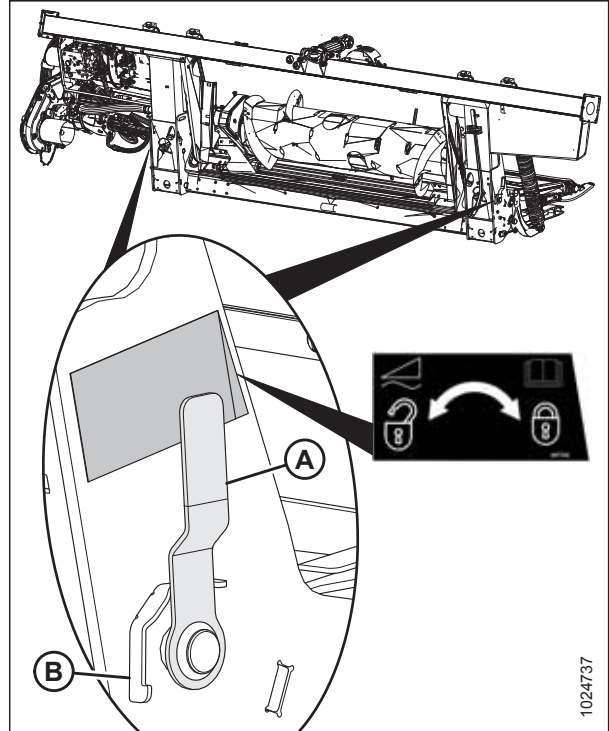


Figure 5.42: Float Lock Handle

## 5.6 New Holland Combines

The header is compatible with specific models of New Holland combines.

**Table 5.3 Header and Combine Compatibility**

Series	Combine Model
CR	920, 940, 960, 970, 980
	9020, 9040, 9060, 9065, 9070, 9080
	6090, 7090, 8080, 8090, 9090
	6.80, 6.90, 7.90, 8.90, 9.90, 10.90
CX	840, 860, 870, 880
	8070, 8080, 8090
	8080 Elevation, 8090 Elevation

### 5.6.1 Attaching Header to New Holland CR/CX Combine

#### DANGER

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

1. Shut down the engine, and remove the key from the ignition.
2. Ensure handle (A) is positioned so hooks (B) can engage the float module.

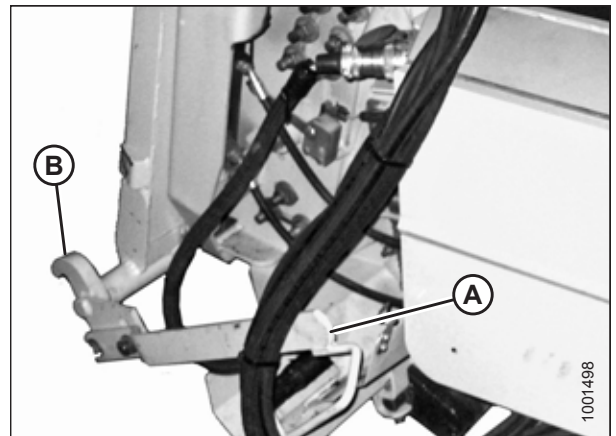


Figure 5.43: Feeder House Locks

## ATTACHING HEADER TO COMBINE

### DANGER

Never start or move the machine until you are sure all bystanders have cleared the area.

3. Start the engine and slowly drive the combine up to the float module until feeder house saddle (A) is directly under float module top cross member (B).
4. Raise the feeder house slightly to lift the header, ensuring the feeder saddle is properly engaged in the float module frame.
5. Shut down the engine, and remove the key from the ignition.
6. Lift lever (A) on the float module on the left side of the feeder house, and push handle (B) on the combine to engage locks (C) on both sides of the feeder house.
7. Push down on lever (A) so the slot in the lever engages the handle and locks the handle in place.
8. If the lock does not fully engage pin (D) on the float module when lever (A) and handle (B) are engaged, loosen bolts (E) and adjust lock (C). Retighten bolts.

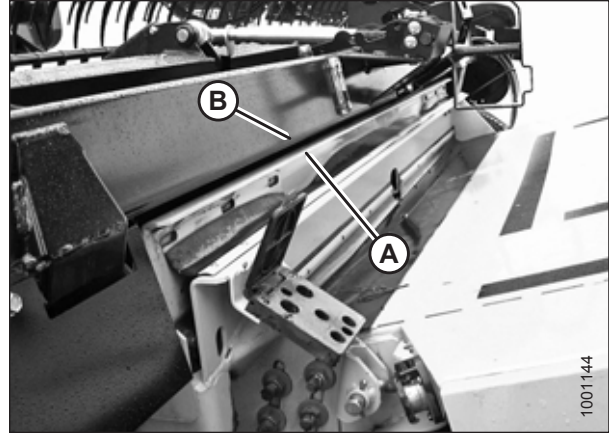


Figure 5.44: Header on Combine

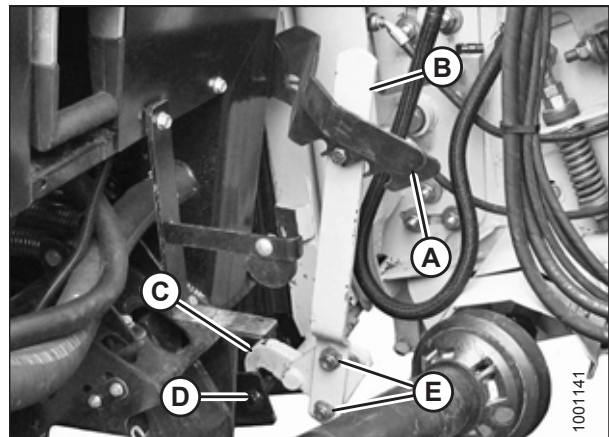
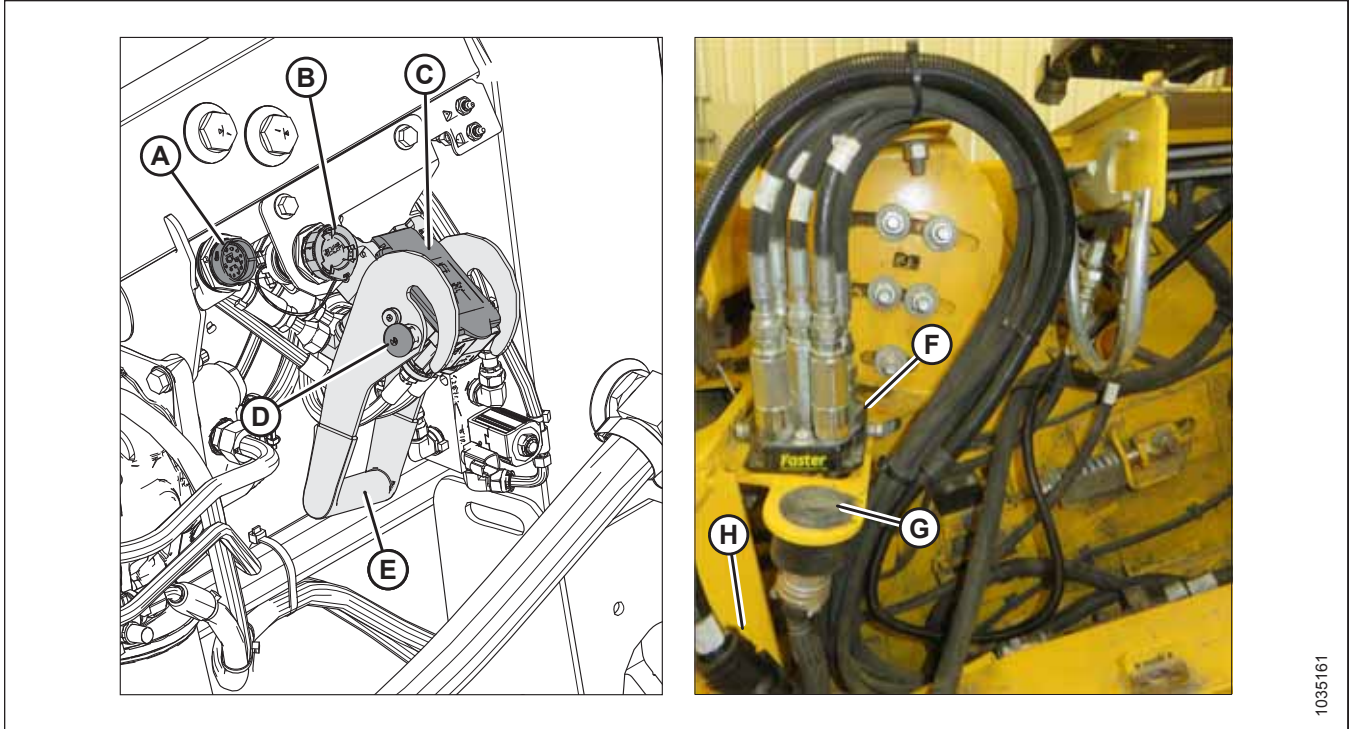


Figure 5.45: Feeder House Locks



## ATTACHING HEADER TO COMBINE



**Figure 5.46: Multicoupler and Electrical Connections**

9. Remove caps from connectors C81B (A) and (B).
10. Remove cover from hydraulic receptacle (C). Clean the receptacle mating surfaces
11. Push in lock button (D) and pull handle (E) to the fully open position.
12. Remove hydraulic quick coupler (F) from the storage plate on the combine. Clean the mating surface of the coupler.
13. Position coupler (F) onto the float module receptacle (C), and push handle (E) to engage the pins into the receptacle.
14. Push handle (E) to closed position until lock button (D) snaps out.
15. Remove the combine connector (G) from the storage location on the combine and connect it to receptacle (B). Turn the collar on the connector to lock it in place.
16. Remove cab control kit connector C81A (H) from the storage location on the combine and connect it to C81B (A). Turn the collar on the connector to lock it in place.

## ATTACHING HEADER TO COMBINE

17. Detach safety chain (C) from support bracket (B).
18. Pull driveline collar (A) back to release driveline from support bracket. Remove the driveline from support bracket.

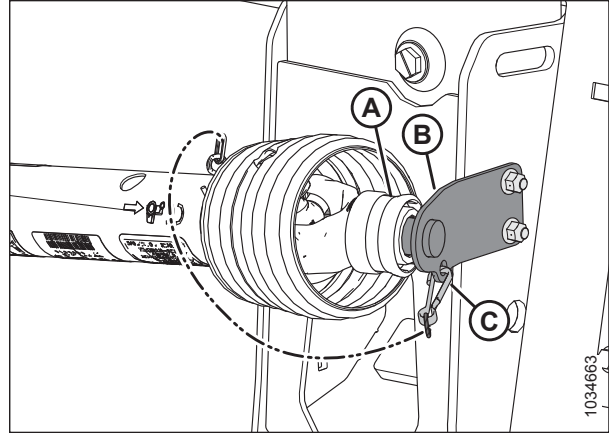


Figure 5.47: Driveline in Storage Position – Driveline MD #B7038 or MD #B7039

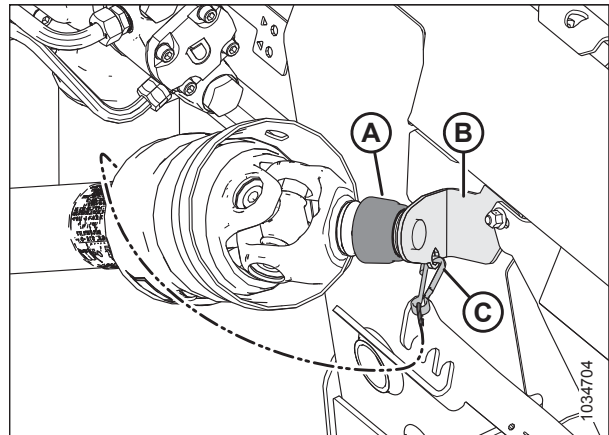


Figure 5.48: Driveline in Storage Position – Sidehill/Hillside Driveline MD #B7180, MD #B7181, or MD #B7182

19. Pull back the collar on the end of the driveline, and push the driveline onto combine output shaft (A) until the collar locks.

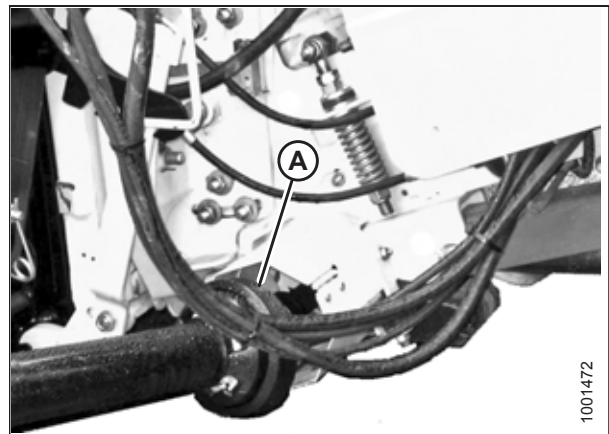


Figure 5.49: Driveline and Output Shaft

## ATTACHING HEADER TO COMBINE

20. Disengage the float locks by pulling each float lock handle (A) away from the float module and setting it in unlocked position (B).

**NOTE:**

Illustration at right shows the right side of the header. Float lock on left side of header opposite.

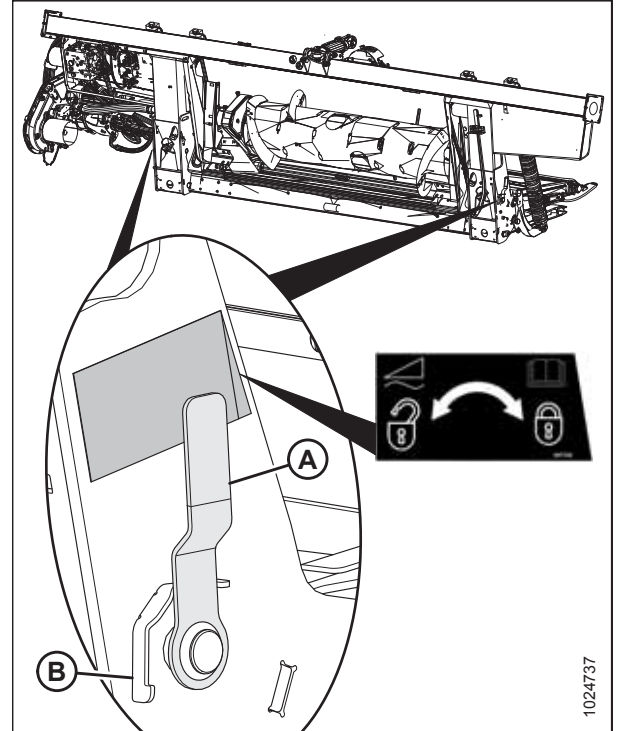


Figure 5.50: Float Lock Handle



## Chapter 6: Completing Header Assembly

### 6.1 Connecting Reel to Fore-Aft Cylinders

#### DANGER

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

#### CAUTION

Ensure header hydraulics are connected to the combine. Lift the reel to level reel support arms, this will prevent the reel from moving when removing fore-aft shipping supports and connecting fore-aft cylinders.

#### CAUTION

The reel fore-aft hydraulic cylinders must be connected to the reel prior to removing the fore-aft shipping supports (A). Failure to do so may result in the reel sliding full forward when the supports are removed.

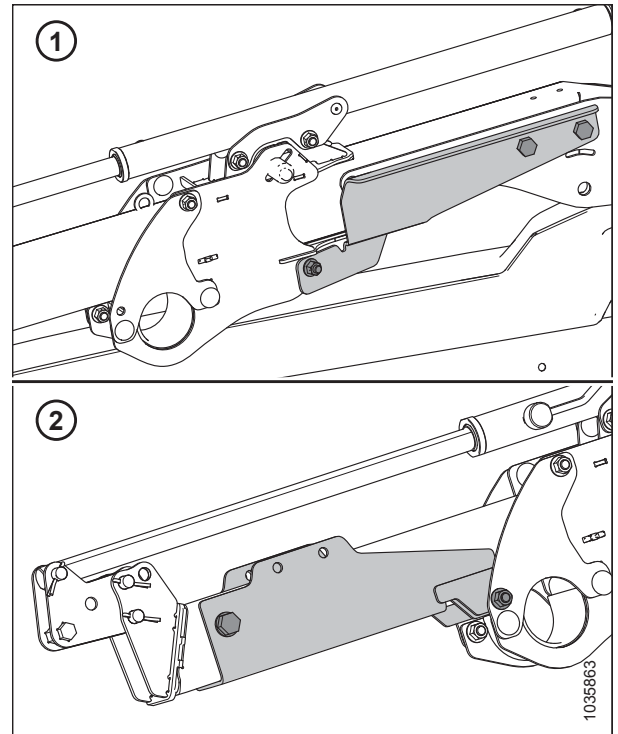


Figure 6.1: Fore-Aft Shipping Supports

- 1 - Outer Reel Arm
- 2 - Center Reel Arm

#### WARNING

Clear the area of other persons, pets etc. Keep children away from machinery. Walk around the machine to be sure no one is under, on, or close to it.

1. Start the engine. For instructions, refer to the combine operator's manual.
2. Raise the reel arm until they are level.
3. Shut down the engine, and remove the key from the ignition.

## COMPLETING HEADER ASSEMBLY

5. Retrieve front supports (A), fore-aft anchors (B), M16 x 30 mm bolts (C), clevis pins (D), flat washers (E), cotter pin (F), and split ring (G) from shipping bag.

**NOTE:**

One set of parts is shown; two sets are needed.

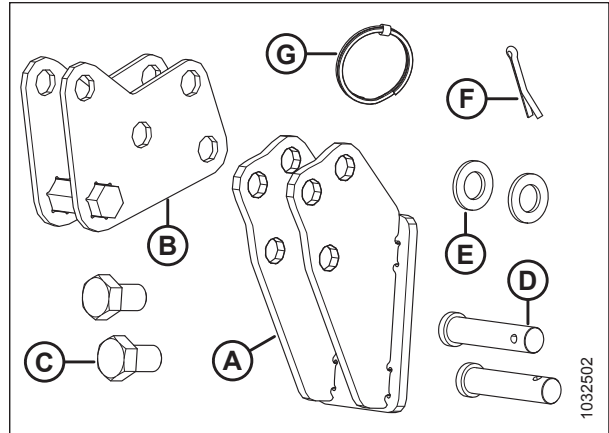


Figure 6.2: Fore-Aft Support Parts

6. Note where to install the fore-aft support parts:

- On double-reel headers, the above parts need to be installed on the center arm (A) and the right arm (B).
- On triple-reel headers, the above parts need to be installed on the center-left arm (C) and the center-right arm (D).

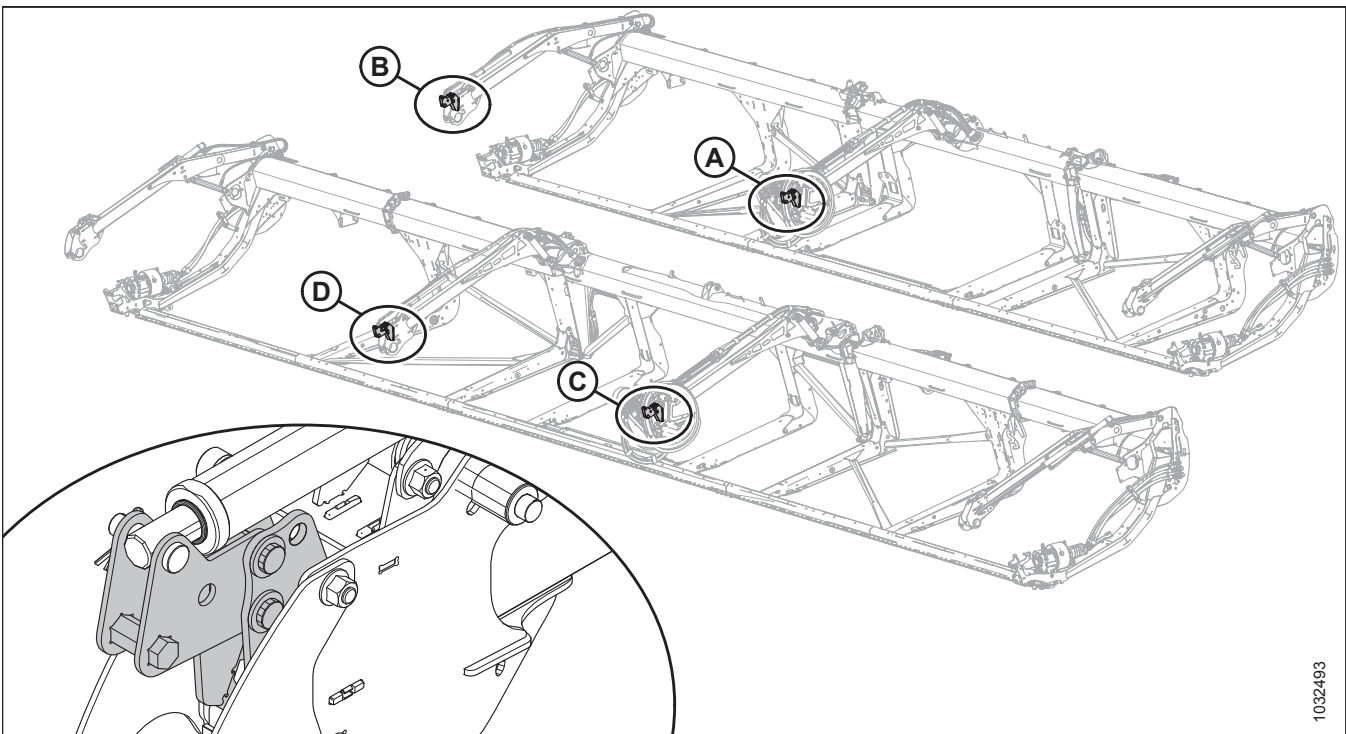


Figure 6.3: Fore-Aft Support Locations

## COMPLETING HEADER ASSEMBLY

7. Install front support (A) on the end of the reel arm using two M16 x 30 mm bolts (B) as shown. Tighten to 249 Nm (184 lbf-ft).

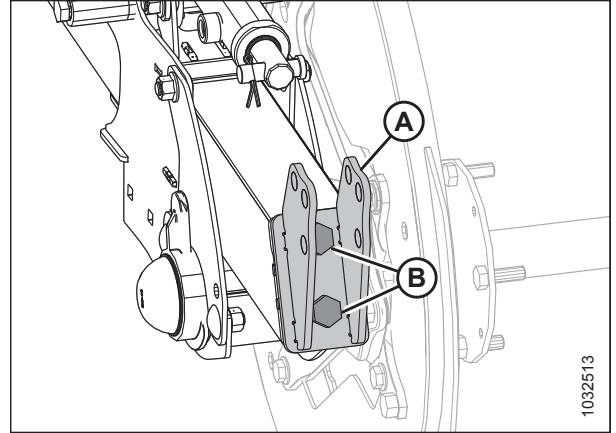


Figure 6.4: Front Support – Double Reel, Right Arm

8. Attach fore-aft anchor (A) to the front support using two clevis pins (B) and washers.

### IMPORTANT:

Ensure anchor (A) is installed in the forward position as shown. The cylinder on the left arm is installed in the forward position from the factory, and all fore-aft cylinders must be installed in the same position to prevent damage to the reel during operation.

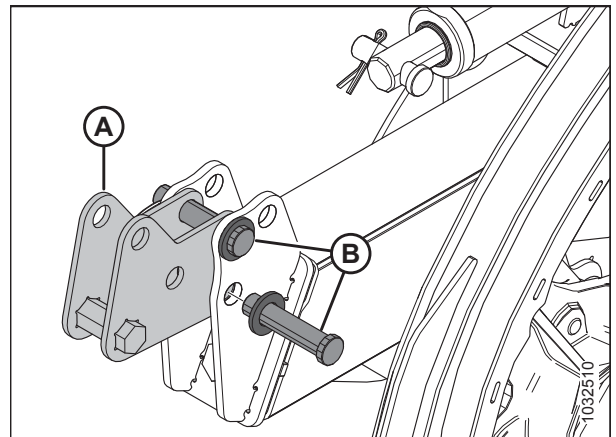


Figure 6.5: Fore-Aft Anchor – Double Reel, Right Arm

9. Secure top clevis pin with split ring (A), and secure bottom clevis pin with cotter pin (B).

### NOTE:

The split ring gets installed on the top clevis pin to make it easier for the Operator to toggle between the two cylinder positions.

10. Remove and retain cotter pin and clevis pin (C) from the cylinder rod.
11. Repeat Step 4, page 146 to Step 10, page 147 to install the second set of fore-aft support parts.

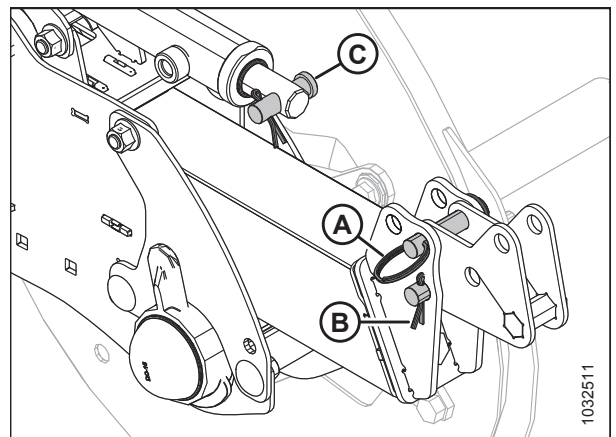


Figure 6.6: Double Reel, Right Arm

## COMPLETING HEADER ASSEMBLY

- On the left reel arm, remove and retain cotter pin (A) and clevis pin (B) from the fore-aft cylinder rod, and remove the shipping wire securing the cylinder rod to the reel support.
- Triple-reel headers:** Repeat Step 12, page 148 on the outer-right reel arm.

### WARNING

Clear the area of other persons, pets etc. Keep children away from machinery. Walk around the machine to be sure no one is under, on, or close to it.

- Start the engine. For instructions, refer to the combine operator's manual.
- Phase the fore-aft cylinders by adjusting the reel fully forward and fully rearward two or three times.
- Use the combine controls to align the fore-aft cylinders with the reel arm mounting holes.
- Double-reel headers:** On the right and center arms, attach fore-aft cylinder (A) to fore-aft anchor (B) with retained clevis pin and cotter pin (C).
- Triple-reel headers:** On the center-right and center-left arms, attach fore-aft cylinder (A) to fore-aft anchor (B) with retained clevis pin and cotter pin (C).

- On the left arm, attach fore-aft cylinder (A) to reel end support (B) with clevis pin and cotter pin (C).
- Triple-reel headers:** Repeat Step 18, page 148 on the outer-right reel arm.

### CAUTION

Ensure all fore-aft cylinders are connected before removing the shipping supports.

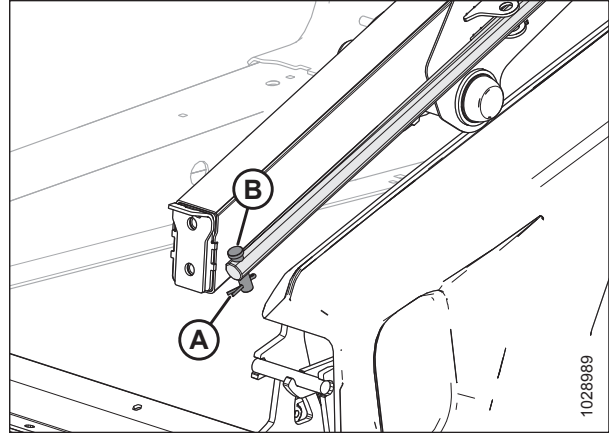


Figure 6.7: Left Reel Arm

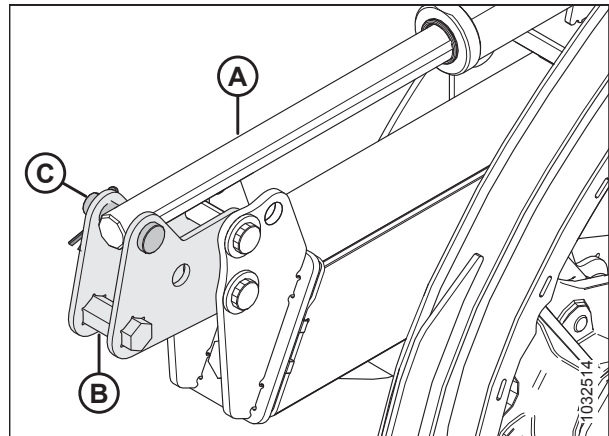


Figure 6.8: Cylinder Secured to Reel Arm

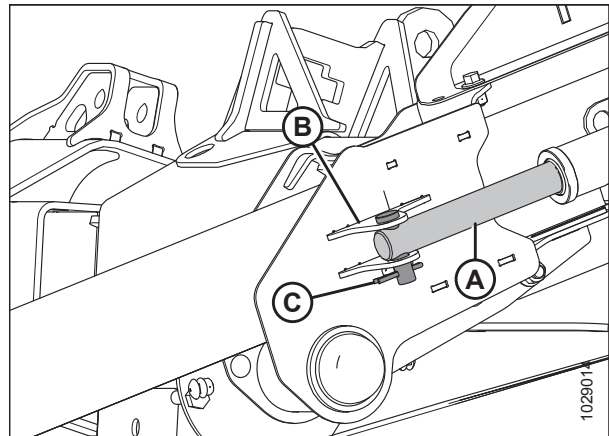


Figure 6.9: Cylinder Secured to Left Reel Arm



## COMPLETING HEADER ASSEMBLY

20. On the left reel arm, remove hardware (A) and shipping support (B).

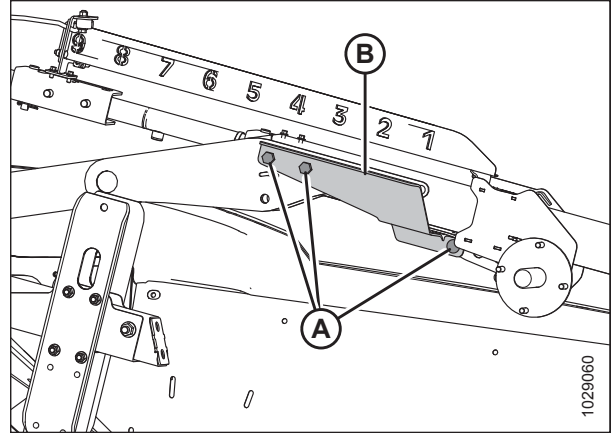


Figure 6.10: Left Reel Arm Shipping Support

21. **Double-reel headers:** On the center reel arm, remove hardware (A) and shipping support (B).

**Triple-reel headers:** On the center-left and center-right reel arms, remove hardware (A) and shipping support (B).

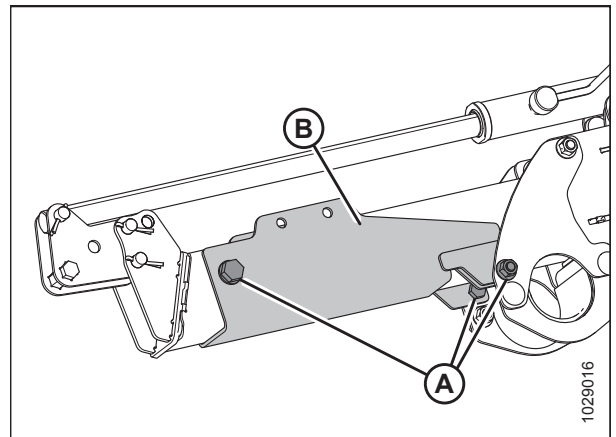


Figure 6.11: Center Reel Arm Shipping Support

22. On the right reel arm, remove hardware (A) and shipping support (B).

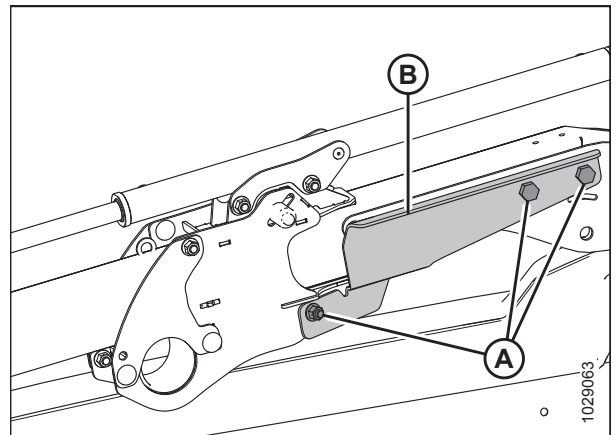


Figure 6.12: Right Reel Arm Shipping Support

## 6.2 Removing Shipping Supports

The removable supports are painted yellow. Refer to illustrations and remove the remaining supports as follows:

**NOTE:**

Unless otherwise specified, discard supports as well as all shipping material and hardware.

1. If necessary, move the tilt cylinder in small increments to take the load off bolts (A).
2. Remove two bolts (A) and remove strap (B) from both sides of center frame.

**NOTE:**

If strap is difficult to remove, lift on one end of header to release the load on the strap so that bolts can be removed.

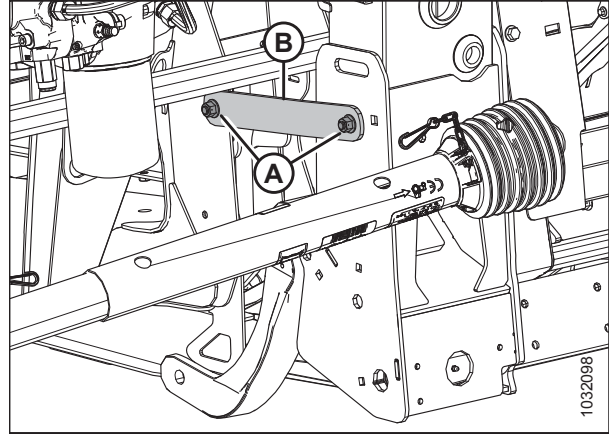


Figure 6.13: Strap on Center Frame

3. Remove five bolts (A) that secure shipping brace (B) to the top of the header and float module, and remove shipping brace (B).

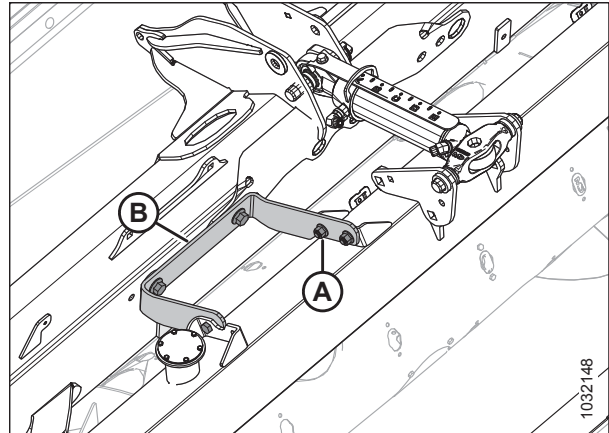


Figure 6.14: Shipping Brace

## 6.3 Crop Dividers

Crop dividers are used to help divide the crop when harvesting. They are removable to allow installation of vertical knives and to decrease transport width.

### 6.3.1 Opening Header Endshields

1. Push release lever (B) using access hole (A) on the backside of the header endshield to unlock the shield.

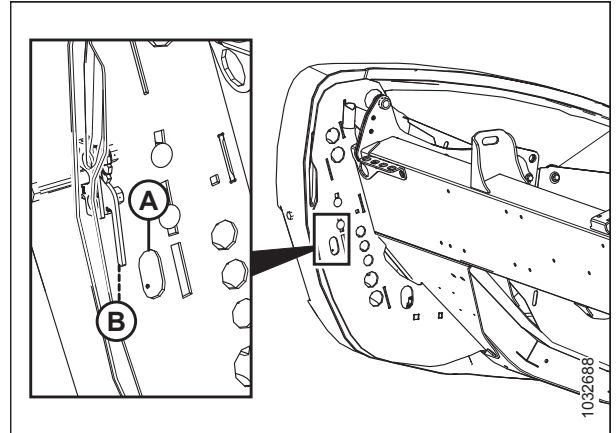


Figure 6.15: Left Header Endshield

2. Pull header endshield (A) open. The header endshield is retained by tab (B) and will open in direction (C).

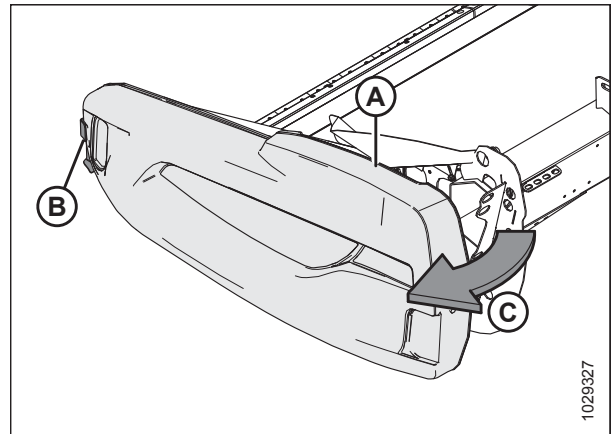


Figure 6.16: Left Header Endshield

3. If additional clearance is required, pull the header endshield free of tab (A) and the swing shield toward the rear of the header.
4. Engage safety latch (B) on hinge arm (C) to secure the shield in the fully open position.

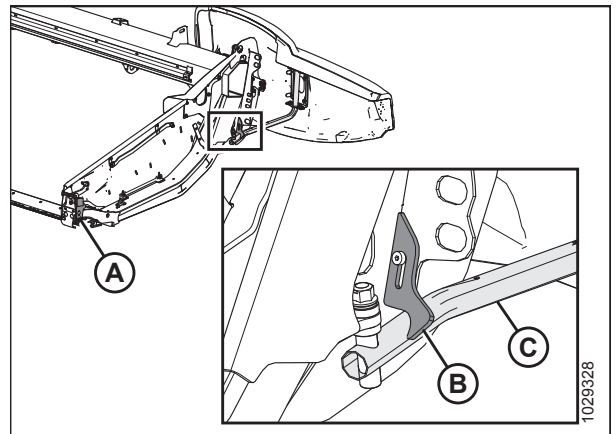


Figure 6.17: Left Header Endshield

### 6.3.2 Installing Crop Dividers

1. Remove hairpin (A) securing tool to bracket on left endsheet.
2. Remove tool (B), and reinstall hairpin to bracket.
3. Retrieve crop dividers, previously removed from the shipping location.

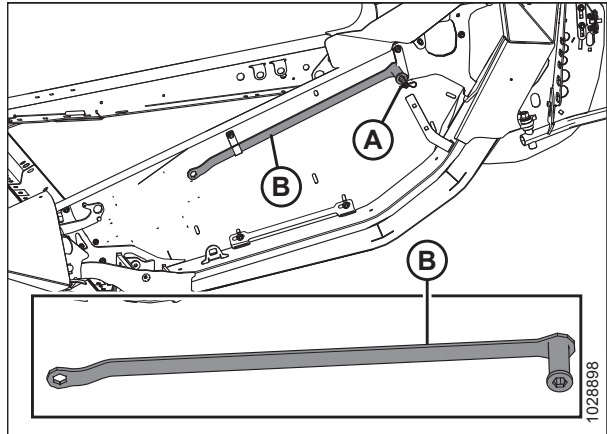


Figure 6.18: Left Endsheet

4. Insert lugs (A) of crop divider into holes in the knife drive box support as shown.
5. Remove lynch pin (B) from latch (C).

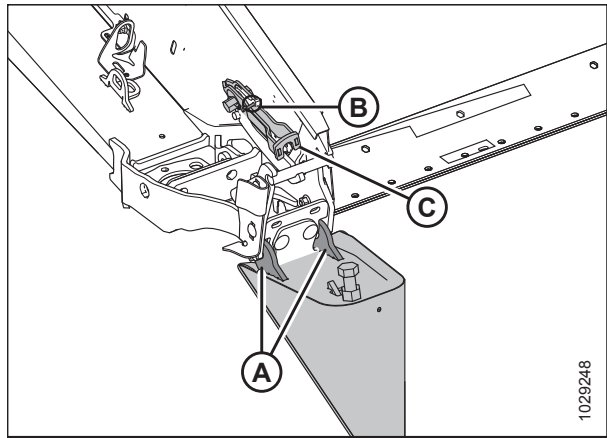


Figure 6.19: Crop Divider

6. Lift forward end of latch (A) and crop divider (B).

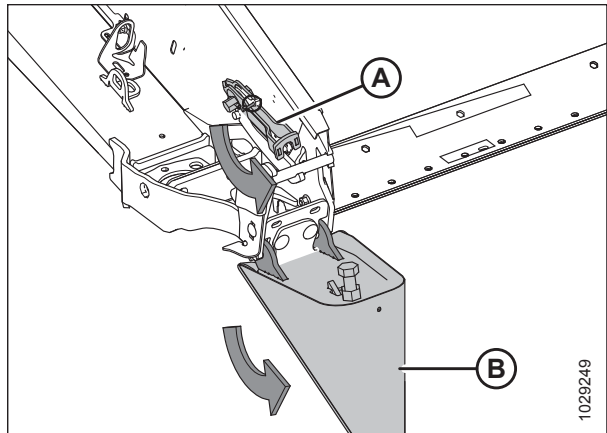


Figure 6.20: Crop Divider

## COMPLETING HEADER ASSEMBLY

7. Engage latch (A) to crop divider bolt (B).
8. Attach tool (stored on left endsheet) to latch locking bolt (D) and rotate **COUNTER CLOCKWISE** to lock latch (B).
9. Secure latch (A) with lynch pin (C).
10. To close latch, torque hex shaft (D) to 40–54 Nm (30–40 lbf·ft).
11. Tighten bolt (B) to increase torque to close latch or back off bolt to decrease torque to close latch.

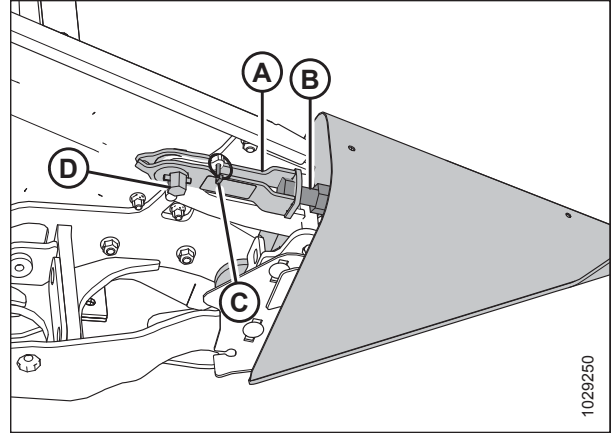


Figure 6.21: Crop Divider

12. Ensure there is contact between plate (A) and guide (B).
13. Return wrench to the left end panel.
14. Close the left endshield.

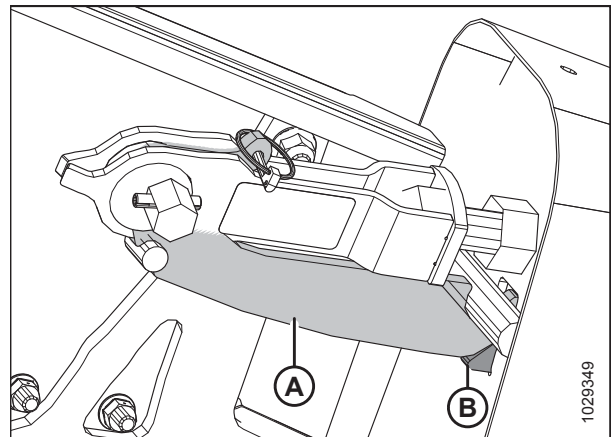


Figure 6.22: Crop Divider's Latch

### IMPORTANT:

Watch for contact between front support (A) and the back of the crop divider (B). If there is too much contact, the front support may bend. There should be a gap of 10 mm (3/8 in.) (C) from the end panel and the front support to allow it to expand.

### NOTE:

Part of crop divider made transparent.

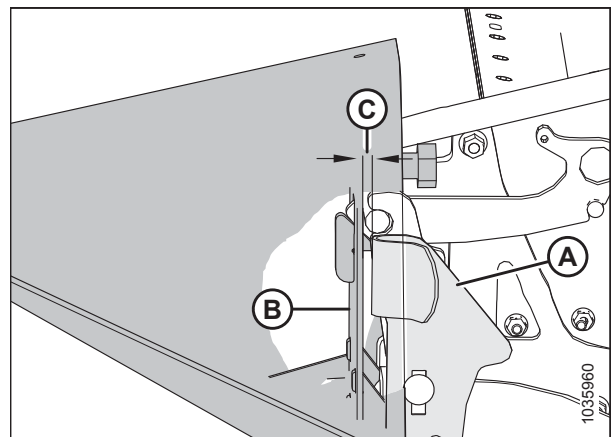


Figure 6.23: Front Support

## COMPLETING HEADER ASSEMBLY

### 6.3.3 Installing Crop Divider Rods

1. Undo lynch pin (A) securing divider rods (B) to the header endsheet, and remove divider rods from shipping location.
2. Reinstall lynch pin (A).

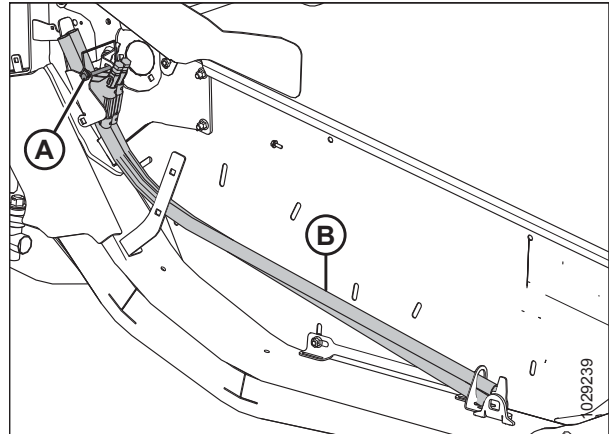


Figure 6.24: Divider Rods in Shipping Storage at Right Header Endsheet

3. Position crop divider rod (A) on tip of crop divider as shown and tighten bolt (B).
4. Repeat procedure at opposite end of header.

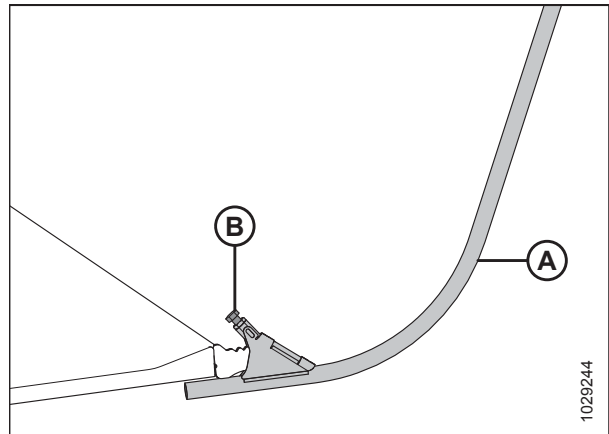


Figure 6.25: Divider Rod on Crop Divider

### 6.3.4 Closing Header Endshields

1. If the endshield is fully opened and secured behind the header, disengage lock (A) to allow header endshield (B) to move.
2. Rotate header endshield toward the front of the header.

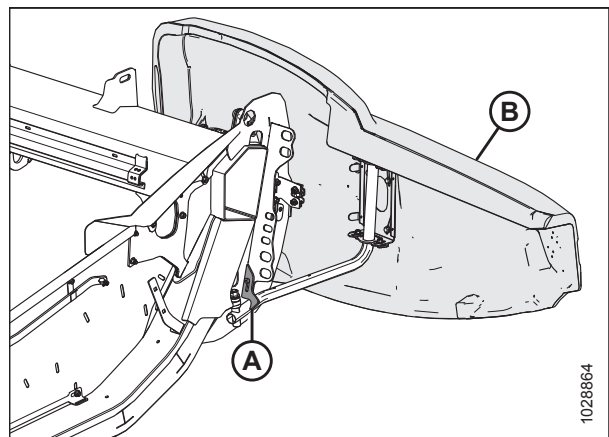


Figure 6.26: Left Header Endshield

## COMPLETING HEADER ASSEMBLY

3. While closing, ensure header endshield (A) does not contact the top of endsheet (B).

### IMPORTANT:

The aluminum endsheet will be damaged if the weight of the plastic endshield rests on it.

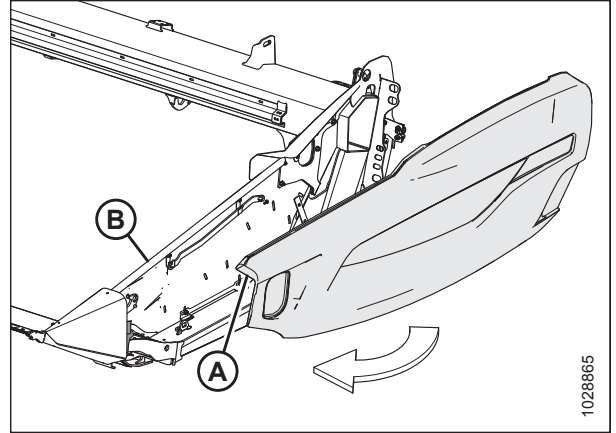


Figure 6.27: Left Header Endshield

4. Insert the front of the header endshield behind hinge tab (B) and into the divider cone.
5. Swing the header endshield in direction (A) into closed position. Engage two-stage latch (C) with a firm push.

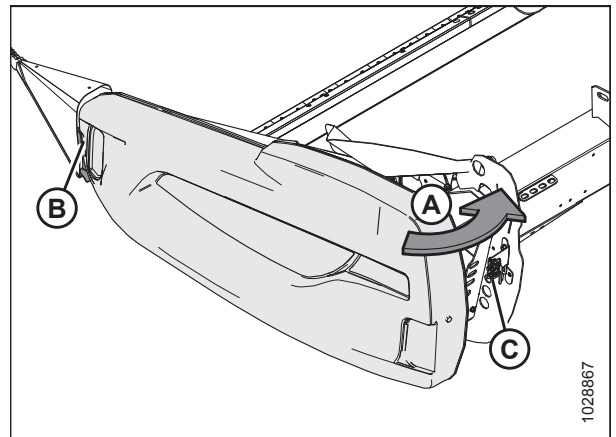


Figure 6.28: Left Header Endshield

### IMPORTANT:

Check that the header endshield is locked. Ensure bolt (A) is fully engaged on two-stage latch (B) to prevent the header endshield from opening while operating the header.

### NOTE:

The header endshield is transparent in the illustration to show the latch.

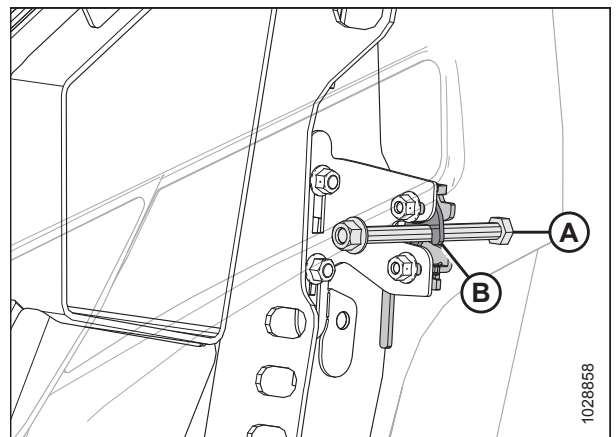


Figure 6.29: Two-Stage Latch

## 6.4 Removing Shipping Wire from Skid Shoes

The two skid shoes at both ends of the header are tied for shipping purposes.

Remove shipping wire (A) from two skid shoes (B) and (C).

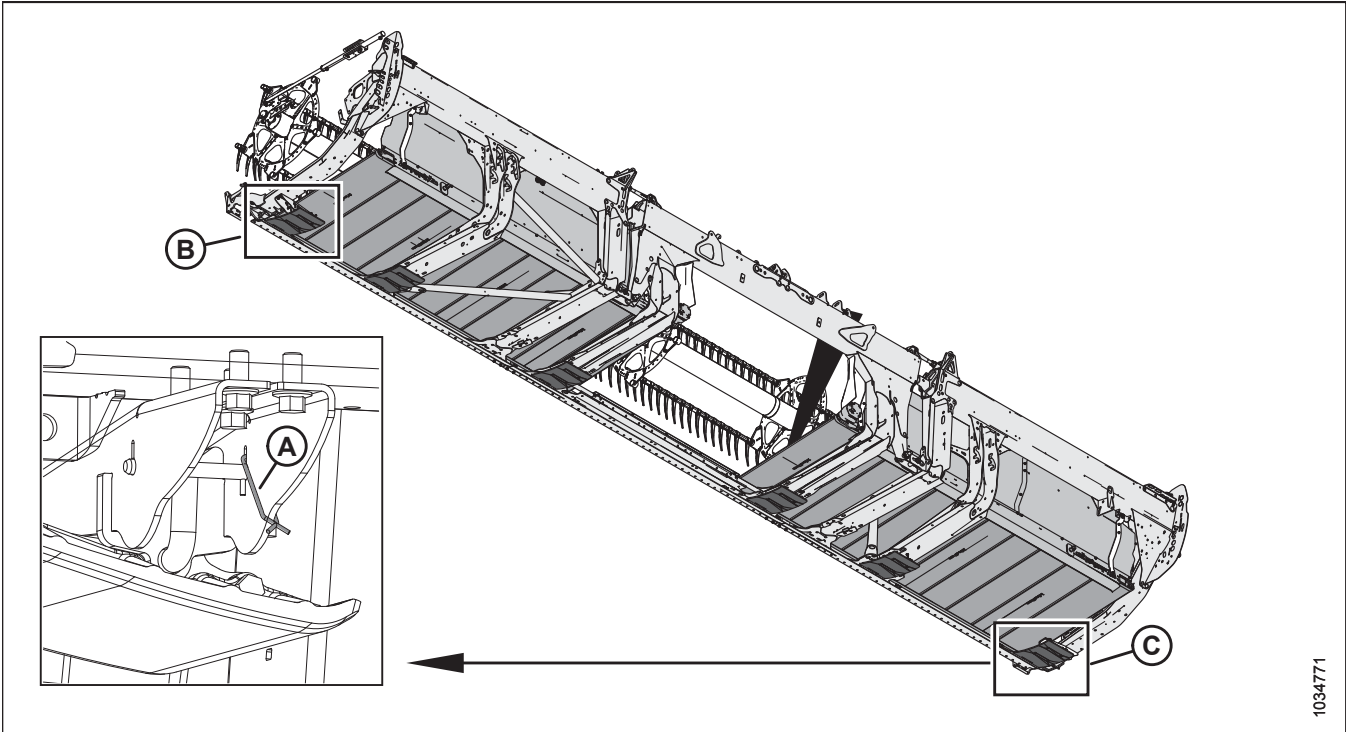


Figure 6.30: Skid Shoes with Shipping Wire



## 6.5 Installing Options

1. Retrieve the kits supplied as options with the header, and install them according to the instructions supplied with each kit.
2. Proceed to Chapter [7 Performing Predelivery Checks, page 159](#).



# Chapter 7: Performing Predelivery Checks

The following checks will ensure your machine provides maximum performance. If adjustments are necessary, follow the procedures in this chapter.

## **WARNING**

To avoid bodily injury or death from unexpected startup of machine, always stop engine and remove key before adjusting machine.

### **IMPORTANT:**

To avoid machine damage, check that no shipping material has fallen into the machine.

1. Perform the final checks as listed on the **Predelivery Checklist** (yellow sheet attached to this instruction – [Predelivery Checklist, page 429](#)) to ensure the machine is field-ready. Refer to the following pages for detailed instructions as indicated on the Checklist. The completed Checklist should be retained by either the Operator or the Dealer.

## 7.1 Recording Model and Serial Number

Record the model number, serial number, and model year of the header, float module, and transport/stabilizer wheel option (if installed) in the spaces provided.

Record the machine serial numbers on the Predelivery Checklist.

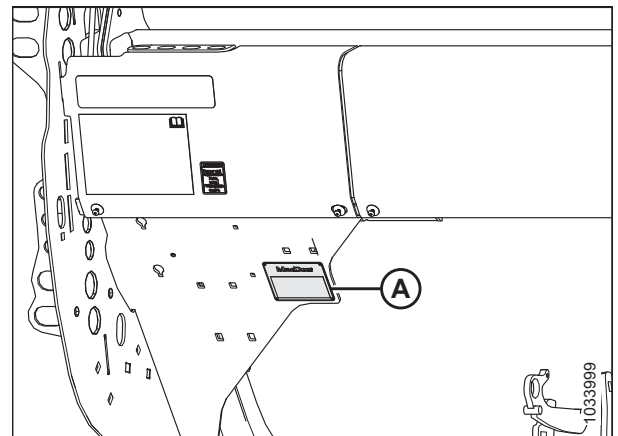
### **FD2 Series FlexDraper® Header**

Header Model: \_\_\_\_\_

Serial Number: \_\_\_\_\_

Model Year: \_\_\_\_\_

The header's serial number plate (A) is located on the back of the header, beside the left endsheet.



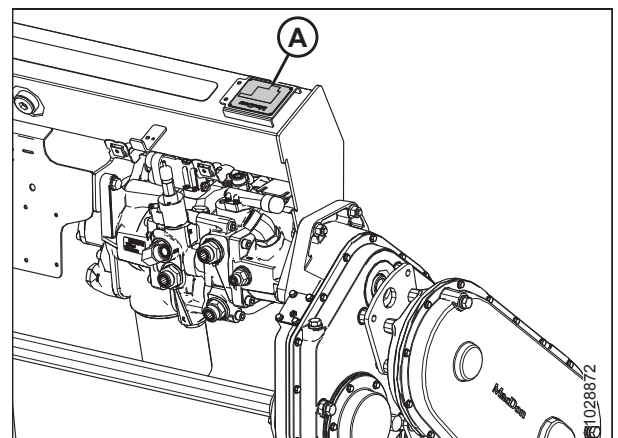
**Figure 7.1: Header Serial Number Plate Location**

### **FM200 Float Module for Combine**

Serial Number: \_\_\_\_\_

Model Year: \_\_\_\_\_

The float module's serial number plate (A) is located on the top left side of the float module.



**Figure 7.2: Float Module Serial Number Plate Location**

## PERFORMING PREDELIVERY CHECKS

### EasyMove™ Transport Option

Serial Number: \_\_\_\_\_

Model Year: \_\_\_\_\_

The EasyMove™ transport's serial number plate (A) is located on the right axle assembly.

**NOTE:**

The transport is an option and may not be installed on this machine.

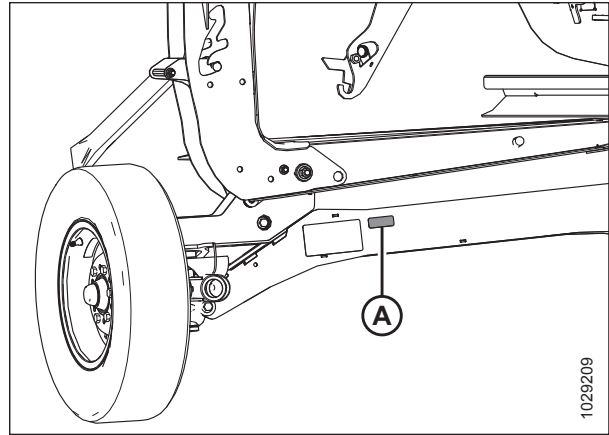


Figure 7.3: EasyMove™ Transport Option

## 7.2 Checking Tire Pressure – Stabilizer Wheels, or Transport with Stabilizer Wheels (Option)

Check tire inflation pressure. If necessary, inflate tires according to the following table:

**Table 7.1 Tire Inflation Pressure**

Size	Load Range	Pressure
225/75 R15	E	552 kPa (80 psi)

### 7.3 Checking Wheel Bolt Torque – Transport and Stabilizer Wheels

Check the torque on all transport and stabilizer wheel bolts to make sure the wheels are installed properly.

Follow these steps to check the torque:

1. Check that wheel bolt torque is 115 Nm (85 lbf·ft).
2. If necessary, adjust torque. Refer to bolt tightening sequence illustration at right.

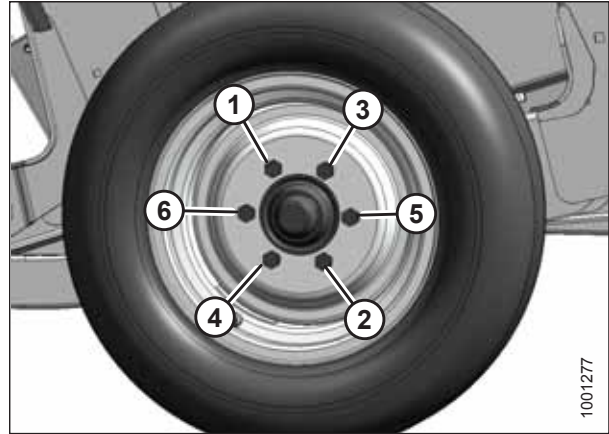


Figure 7.4: Sequence for Tightening Bolts

## 7.4 Checking Oil Level in Knife Drive Box

Single-knife headers have one knife-drive box and double-knife headers have two knife-drive boxes. To access the knife drive box(es), the endshield(s) must be fully opened.

### DANGER

To avoid bodily injury or death from unexpected startup of machine, always stop the engine and remove the key before making adjustments to the machine.

1. Shut down the engine, and remove the key from the ignition.
2. Push release lever (B) using access hole (A) located on the backside of the endshield to unlock the shield.

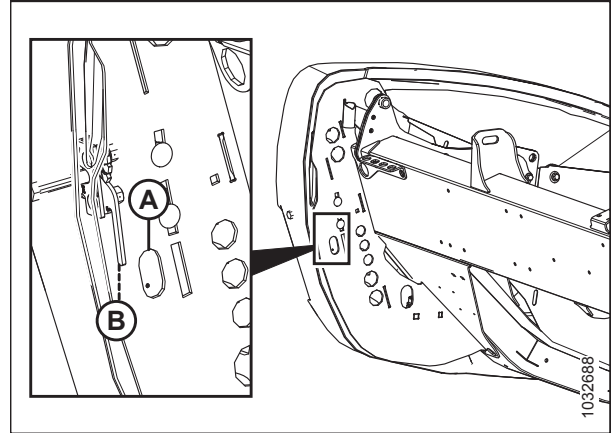


Figure 7.5: Left Endshield

3. Pull endshield (A) open. The endshield is retained by a tab (B) and will open in direction (C).

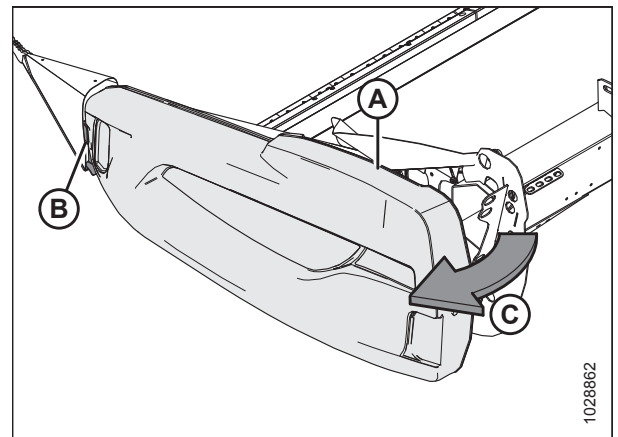


Figure 7.6: Left Endshield

## PERFORMING PREDELIVERY CHECKS

4. Pull the endshield free of tab (A) and swing the shield toward the rear of the header.
5. Engage safety latch (B) on hinge arm (C) to secure the shield in fully open position.

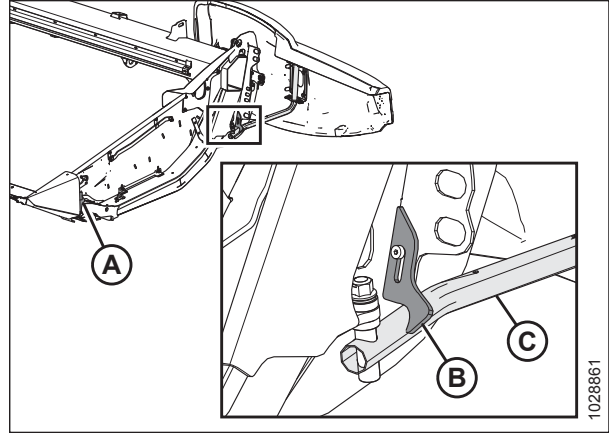


Figure 7.7: Left Endshield

6. Remove oil level dipstick (A) and check the oil level. The oil level must be within range (B).

**NOTE:**

Check the oil level with the top of the knife drive box horizontal and with oil level dipstick (A) screwed in.

7. Reinstall oil level dipstick (A), and tighten to 23 Nm (17 lbf-ft).

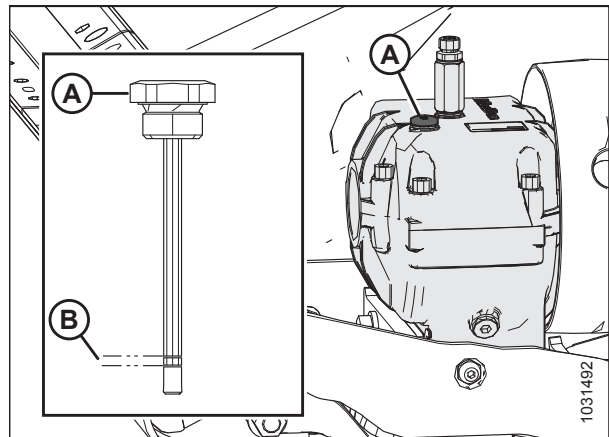


Figure 7.8: Knife Drive Box



## 7.5 Checking Oil Level in Header Drive Main Gearbox

### DANGER

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

1. Lower the cutterbar to the ground and ensure main gearbox (B) is in working position.
2. Shut down the engine, and remove the key from the ignition.
3. Remove oil level plug (A) from the main gearbox and check that the oil level is up to the bottom of the hole.
4. Reinstall oil level plug (A).

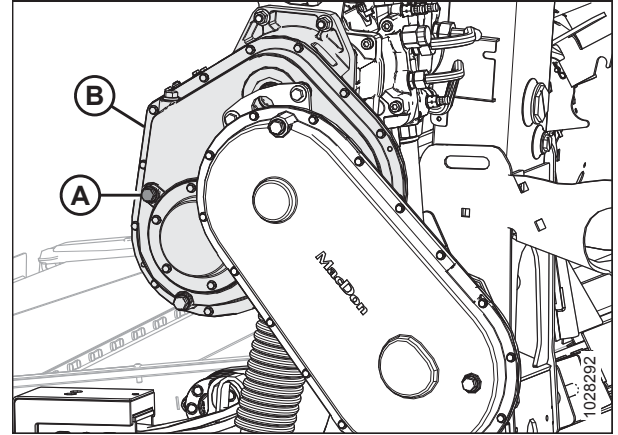


Figure 7.9: Header Drive Main Gearbox

## 7.6 Checking Oil Level in Header Drive Completion Gearbox

### DANGER

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

1. Lower the header to the ground and ensure the completion gearbox (B) is in working position.
2. Shut down the engine, and remove the key from the ignition.
3. Remove oil level plug (A) from the completion gearbox and check that the oil level is up to the bottom of the hole.
4. Reinstall oil level plug (A).

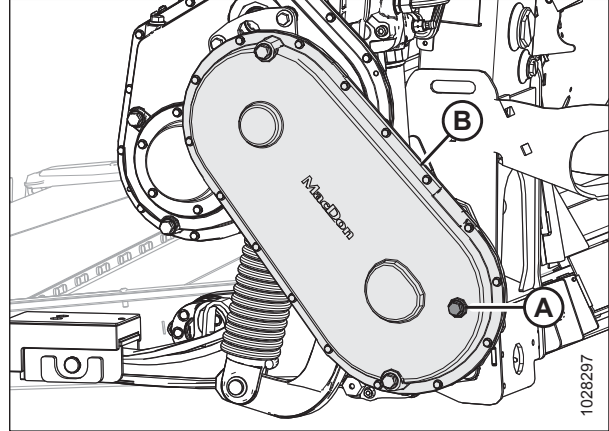


Figure 7.10: Header Drive Completion Gearbox

## 7.7 Checking Oil Level in Hydraulic Reservoir

**NOTE:**

Check the level when the oil is cold.

1. Check the oil level using lower sight (A) and upper sight (B) with the cutterbar just touching the ground and with the center-link retracted.
2. Ensure the oil is at the appropriate level for the terrain as follows:
  - **Normal terrain (C):** Maintain level so lower sight (A) is full, and upper sight (B) is empty.
  - **Hilly terrain (D):** Maintain level so lower sight (A) is full, and upper sight (B) is up to one-half filled.

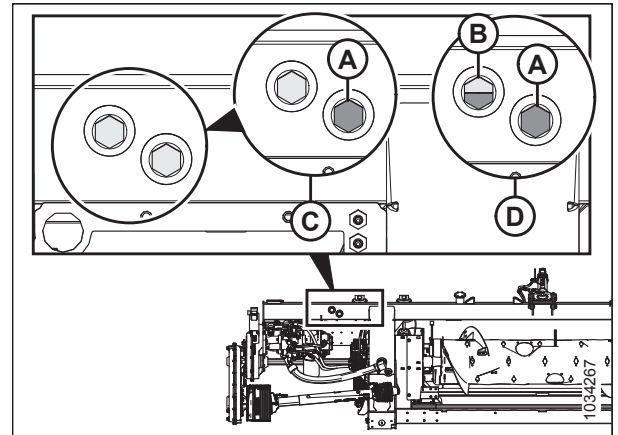


Figure 7.11: Oil Level Sight Glasses

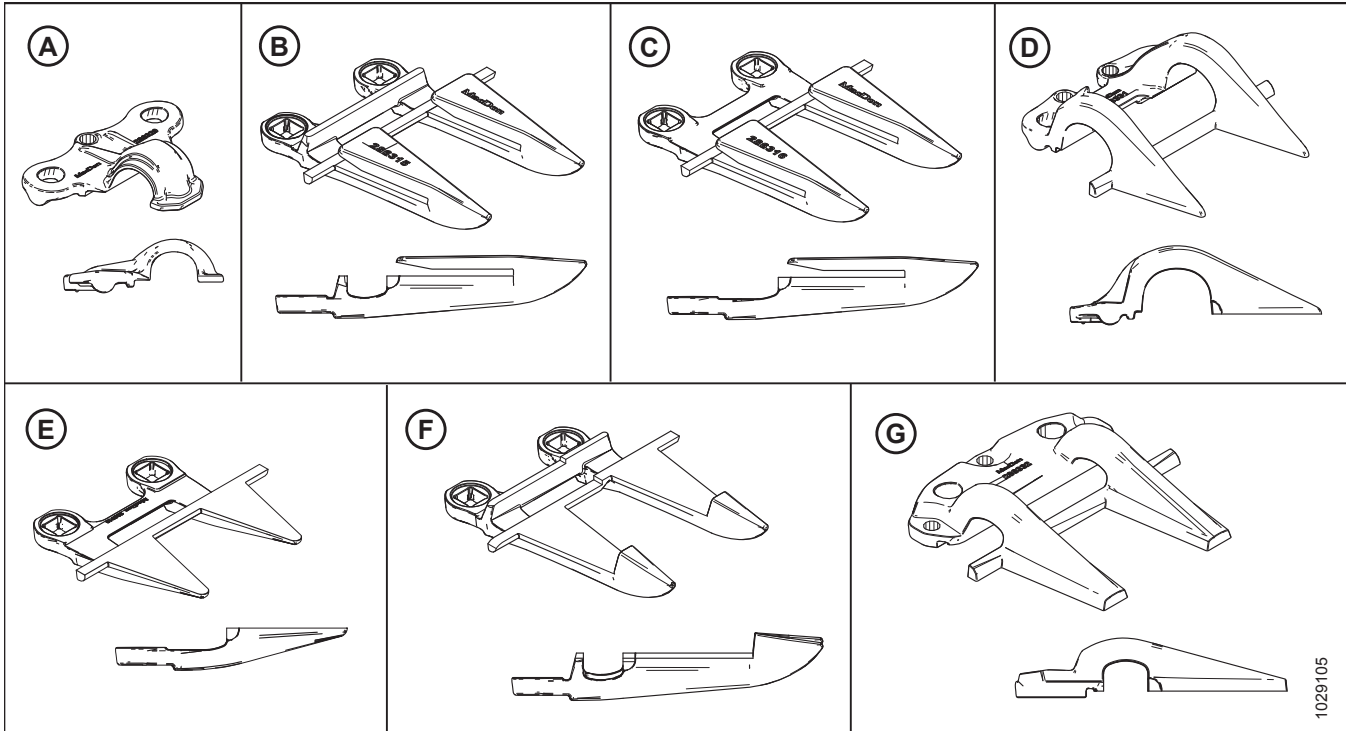
## 7.8 Guard Identification

There are two different guard options available, pointed knife guards and short knife guards. Determine which guards are installed on the header and follow the correct checking procedure.

The following knife guards and hold-downs are used in pointed guard configurations:

**NOTE:**

Pointed knife guard configurations require two short knife guards; one at each end of the cutterbar.



**Figure 7.12: Guard and Hold-Down Types used in Pointed Knife Guard Configurations**

A - Pointed Hold-Down (MD #286329)

C - Pointed End Knife Guard (without Wear Bar) (MD #286316)<sup>11</sup>

E - Short Knife Guard (without Wear Bar) (MD #286319)<sup>12</sup>

G - Pointed Center Hold-Down (MD #286332)

B - Pointed Knife Guard (MD #286315)

D - Short Knife Hold-Down (MD #286331)

F - Pointed Center Knife Guard (MD #286317)<sup>13</sup>

Follow these procedures for checking and adjusting pointed knife guards:

- [7.8.1 Checking Hold-Down – Pointed Knife Guards, page 169](#)
- [7.8.2 Adjusting Hold-Down – Pointed Knife Guards, page 170](#)
- [7.8.3 Checking Center Hold-Down – Pointed Knife Guards, page 171](#)
- [7.8.4 Adjusting Center Hold-Down – Pointed Knife Guards, page 171](#)

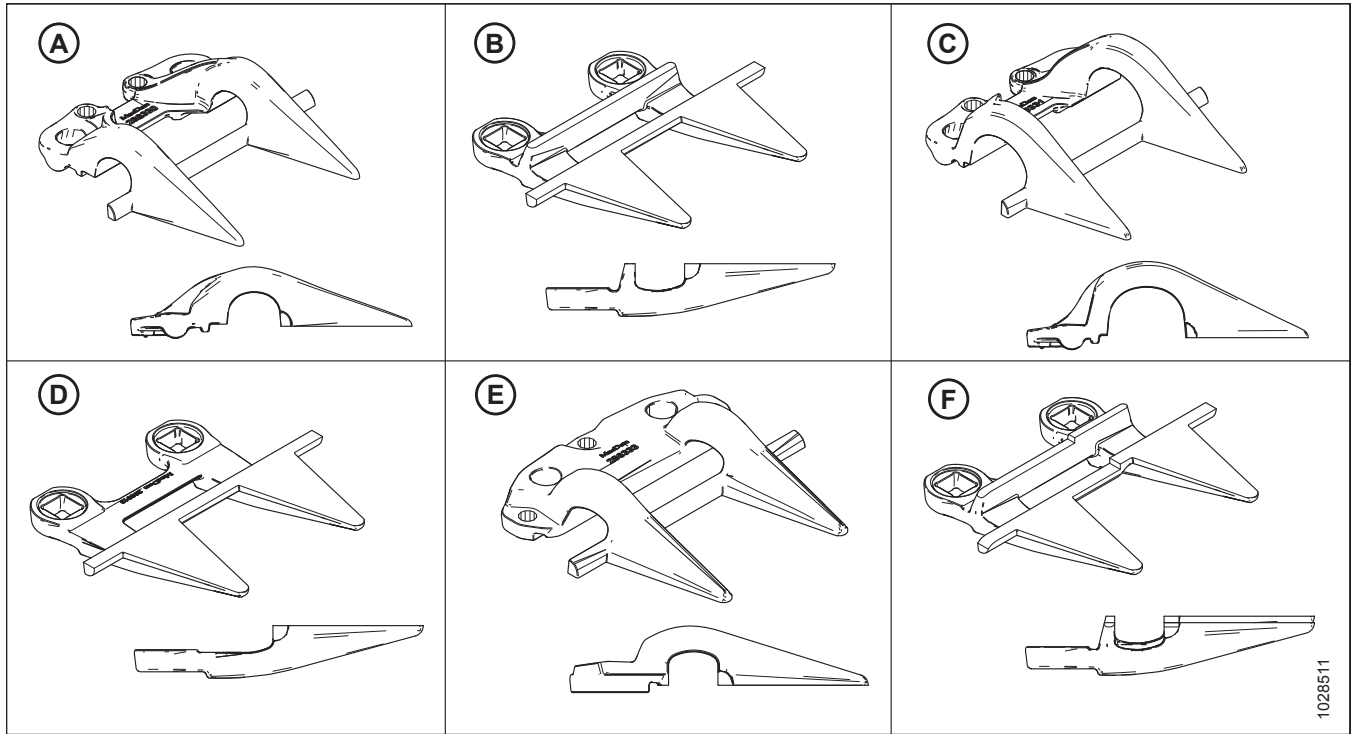
11. Installed in positions 2, 3, and 4 on drive side(s). Refer to the chapters in the above list for reference.

12. Installed in position 1 on drive side(s). Single-knife headers use standard guard (MD #286318) on the right end.

13. Double-knife headers only.

## PERFORMING PREDELIVERY CHECKS

The following knife guards and hold-downs are used in short knife guard configurations:



**Figure 7.13: Guard and Hold-Down Types used in Short Knife Guard Configurations**

A - Short Knife Hold-Down (MD #286330)

C - Short Knife End Hold-Down (MD #286331)<sup>14</sup>

E - Short Knife Center Hold-Down (MD #286333)

B - Short Knife Guard (MD #286318)

D - Short Knife End Knife Guard (without Wear Bar) (MD #286319)<sup>15</sup>

F - Short Knife Center Knife Guard (MD #286320)<sup>16</sup>

Follow these procedures for checking and adjusting short knife guards:

- [7.8.5 Checking Hold-Down – Short Knife Guards, page 172](#)
- [7.8.6 Adjusting Hold-Down – Short Knife Guards, page 173](#)
- [7.8.7 Checking Center Hold-Down – Short Knife Guards, page 173](#)
- [7.8.8 Adjusting Center Hold-Down – Short Knife Guards, page 174](#)

### 7.8.1 Checking Hold-Down – Pointed Knife Guards

This procedure is for standard hold-down. To check the center hold-down on double-knife headers, refer to [7.8.3 Checking Center Hold-Down – Pointed Knife Guards, page 171](#).



#### **WARNING**

To avoid bodily injury or death from the unexpected startup of the machine, always stop engine and remove the key before adjusting the machine.

14. Installed in positions 1–3 on drive side(s); installed in position 1 at right end of single-knife headers. Refer to the chapters in the above list for reference.

15. Installed in positions 1–4 on drive side(s). Single-knife headers use standard guard (MD #286318) on the right end. Refer to the chapters in the above list for reference.

16. Double-knife headers only.

**CAUTION**

Wear heavy gloves when working around or handling knives.

1. Shut down the engine, and remove the key from the ignition.
2. Manually stroke the knife to position knife section (A) under hold-down (B).
3. Push down on knife section (A) with approximately 44 N (10 lbf), and use a feeler gauge to measure the clearance between hold-down (B) and the knife section. Ensure the clearance is 0.1–0.5 mm (0.004–0.020 in.).
4. If adjustment is required, refer to [7.8.2 Adjusting Hold-Down – Pointed Knife Guards](#), page 170.

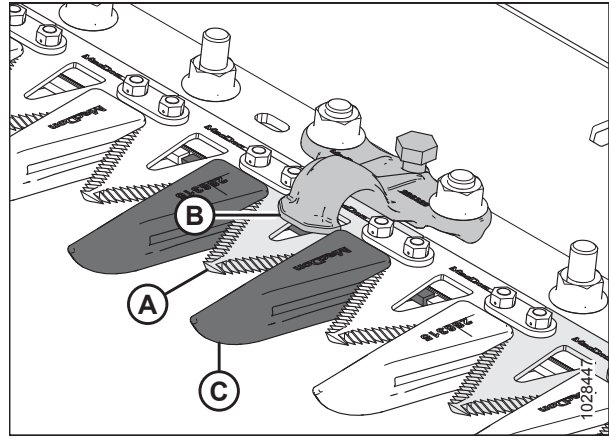


Figure 7.14: Pointed Hold-Down

### 7.8.2 Adjusting Hold-Down – Pointed Knife Guards

This procedure is for standard hold-down. To adjust the center hold-down on double-knife headers, refer to [7.8.4 Adjusting Center Hold-Down – Pointed Knife Guards](#), page 171.

**WARNING**

To avoid bodily injury or death from the unexpected startup of the machine, always stop engine and remove the key before adjusting the machine.

**CAUTION**

Wear heavy gloves when working around or handling knives.

1. Shut down the engine, and remove the key from the ignition.
2. Adjust the hold-down clearance as follows:
  - a. To lower the front of hold-down (A) and decrease clearance, turn adjuster bolt (B) clockwise.
  - b. To raise the front of hold-down (A) and increase clearance, turn adjuster bolt (B) counterclockwise.

**NOTE:**

For larger adjustments, it may be necessary to loosen nuts (C) before turning adjuster bolt (B). After adjustment, retighten nuts to 100 Nm (74 lbf-ft).

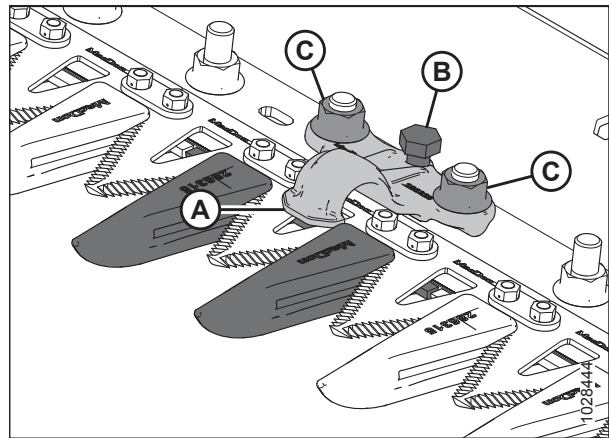


Figure 7.15: Pointed Hold-Down

3. After making the hold-down adjustments, run the header at low engine speed, and listen for noise caused by insufficient clearance.

**IMPORTANT:**

Insufficient hold-down clearance will result in overheating of the knife and guards—readjust as necessary.

### 7.8.3 Checking Center Hold-Down – Pointed Knife Guards

**⚠ WARNING**

To avoid bodily injury or death from the unexpected startup of the machine, always stop engine and remove the key before adjusting the machine.

**⚠ CAUTION**

Wear heavy gloves when working around or handling knives.

1. Shut down the engine, and remove the key from the ignition.
2. Manually stroke both knives to their inboard end so that knife sections are under hold-down (A).
3. Push down on knife section with approximately 44 N (10 lbf), and use a feeler gauge to measure the clearance between hold-down (A) and the knife section. Ensure the clearance is as follows:
  - At tip (B) of hold-down: 0.1–0.5 mm (0.004–0.020 in.)
  - At rear (C) of hold-down: 0.1–1.0 mm (0.004–0.040 in.)
4. If adjustment is required, refer to [7.8.4 Adjusting Center Hold-Down – Pointed Knife Guards, page 171](#).
5. If no adjustment is required, tighten nuts (D) to 100 Nm (74 lbf-ft).
6. Recheck clearance after tightening nuts, and adjust if necessary.

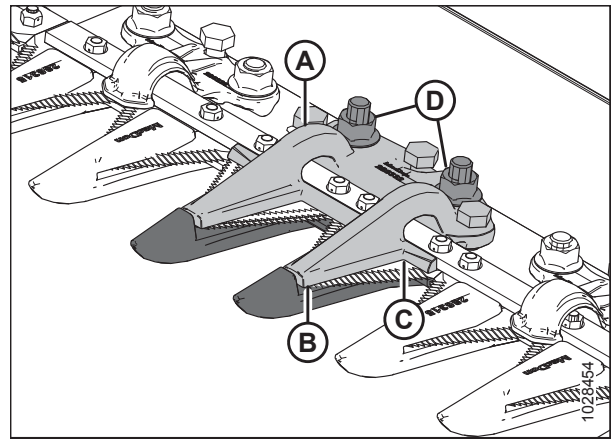


Figure 7.16: Pointed Center Hold-Down

### 7.8.4 Adjusting Center Hold-Down – Pointed Knife Guards

**⚠ WARNING**

To avoid bodily injury or death from the unexpected startup of the machine, always stop engine and remove the key before adjusting the machine.

**⚠ CAUTION**

Wear heavy gloves when working around or handling knives.

1. Shut down the engine, and remove the key from the ignition.

## PERFORMING PREDELIVERY CHECKS

2. To increase clearance, do the following:
  - a. Loosen mounting hardware (B).
  - b. Turn adjuster bolts (A).
3. To decrease clearance, turn adjuster bolts (A) clockwise (tighten).
4. To increase clearance, turn adjuster bolts (A) counterclockwise (loosen).
5. To adjust clearance at tip only, adjust using only center (rear) adjustment bolt.
6. Tighten nuts (B) to 100 Nm (74 lbf-ft).
7. Recheck clearances, and make further adjustments if necessary.
8. After making the hold-down adjustments, run the header at low engine speed, and listen for noise caused by insufficient clearance.

### IMPORTANT:

Insufficient hold-down clearance will result in overheating of the knife and guards—readjust as necessary.

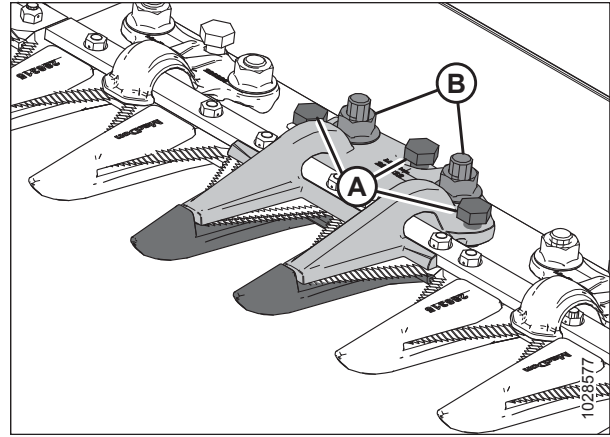


Figure 7.17: Pointed Center Hold-Down

## 7.8.5 Checking Hold-Down – Short Knife Guards

To check the center hold-down on double-knife headers, refer to [7.8.7 Checking Center Hold-Down – Short Knife Guards](#), page 173.

### WARNING

To avoid bodily injury or death from the unexpected startup of the machine, always stop engine and remove the key before adjusting the machine.

### CAUTION

Wear heavy gloves when working around or handling knives.

1. Shut down the engine, and remove the key from the ignition.
2. Manually stroke knife to position section under hold-down (A).
3. Push down on knife section with approximately 44 N (10 lbf), and use a feeler gauge to measure the clearance between the tip of hold-down (B) and the knife section. Ensure the clearance is 0.1–0.5 mm (0.004–0.020 in.).
4. If adjustment is required, refer to [7.8.6 Adjusting Hold-Down – Short Knife Guards](#), page 173.

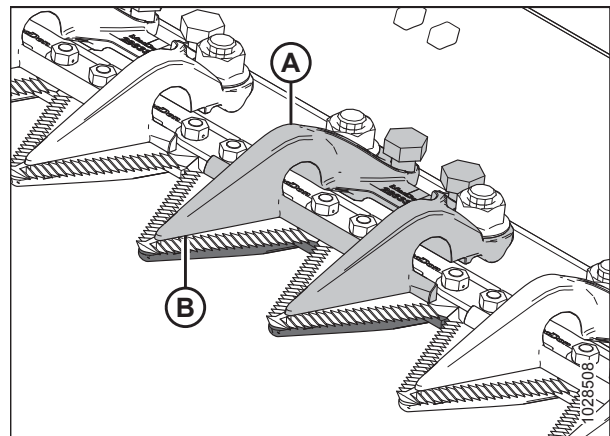


Figure 7.18: Short Knife Guards



### 7.8.6 Adjusting Hold-Down – Short Knife Guards

To adjust the center hold-down on double-knife headers, refer to [7.8.8 Adjusting Center Hold-Down – Short Knife Guards](#), page 174.

#### **WARNING**

To avoid bodily injury or death from the unexpected startup of the machine, always stop engine and remove the key before adjusting the machine.

#### **CAUTION**

Wear heavy gloves when working around or handling knives.

1. Shut down the engine, and remove the key from the ignition.
2. Adjust the hold-down clearance as follows:
  - a. To decrease clearance, turn adjuster bolts (A) clockwise.
  - b. To increase clearance, turn adjuster bolts (A) counterclockwise.

**NOTE:**

For larger adjustments, it may be necessary to loosen nuts (B) before turning adjuster bolts (A). After adjustment, retighten nuts to 100 Nm (74 lbf-ft).

- c. Recheck the first point after adjusting the second point, as adjustments to each side can influence the other.
  - d. Make further adjustments as necessary.
3. Recheck clearances, and make further adjustments if necessary.
4. After making the hold-down adjustments, run the header at low engine speed, and listen for noise caused by insufficient clearance.

**IMPORTANT:**

Insufficient hold-down clearance will result in overheating of the knife and guards—readjust as necessary.

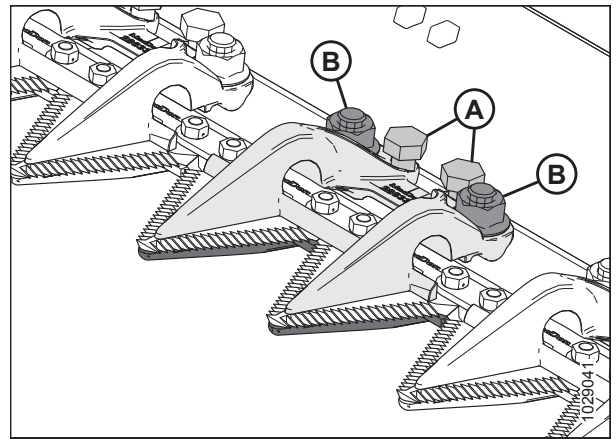


Figure 7.19: Short Knife Guard Hold-Down

### 7.8.7 Checking Center Hold-Down – Short Knife Guards

#### **WARNING**

To avoid bodily injury or death from the unexpected startup of the machine, always stop engine and remove the key before adjusting the machine.

#### **CAUTION**

Wear heavy gloves when working around or handling knives.

1. Shut down the engine, and remove the key from the ignition.

## PERFORMING PREDELIVERY CHECKS

2. Manually stroke both knives to their inboard end so that knife sections are under hold-down (A).
3. Push down on knife section with approximately 44 N (10 lbf), and use a feeler gauge to measure the clearance between hold-down (A) and the knife section. Ensure the clearance is as follows:
  - **At tip (B) of hold-down:** 0.1–0.5 mm (0.004–0.020 in.)
  - **At rear (C) of hold-down:** 0.1–1.0 mm (0.004–0.040 in.)
4. If adjustment is required, refer to *7.8.8 Adjusting Center Hold-Down – Short Knife Guards*, page 174.
5. If no adjustment is required, tighten nuts (D) to 100 Nm (74 lbf-ft).
6. Recheck clearance after tightening nuts, and adjust if necessary.

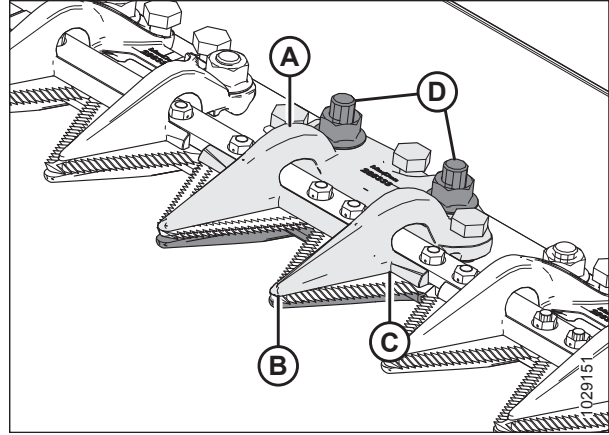


Figure 7.20: Center Knife Guard Hold-Down

### 7.8.8 Adjusting Center Hold-Down – Short Knife Guards

#### WARNING

To avoid bodily injury or death from the unexpected startup of the machine, always stop engine and remove the key before adjusting the machine.

#### CAUTION

Wear heavy gloves when working around or handling knives.

1. Shut down the engine, and remove the key from the ignition.
2. To increase clearance, do the following:
  - a. Loosen mounting hardware (B).
  - b. Turn adjuster bolts (A).
3. To decrease clearance, turn adjuster bolts (A) clockwise (tighten).
4. To increase clearance, turn adjuster bolts (A) counterclockwise (loosen).
5. To adjust clearance at tip only, adjust using only center (rear) adjustment bolt.
6. Tighten nuts (B) to 100 Nm (74 lbf-ft).
7. Recheck clearances, and make further adjustments if necessary.
8. After making the hold-down adjustments, run the header at low engine speed, and listen for noise caused by insufficient clearance.

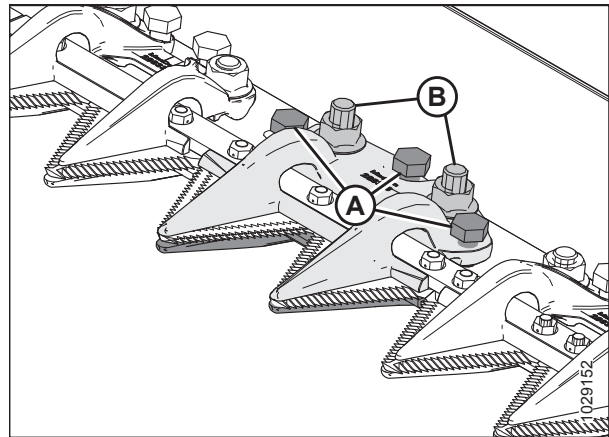


Figure 7.21: Center Hold-Down

#### IMPORTANT:

Insufficient hold-down clearance will result in overheating of the knife and guards—readjust as necessary.

## 7.9 Checking and Adjusting Fore-Aft Position Sensor

Note the orientation of sensor arm (C) and hardware (D). Ensure that the sensor arm is configured properly for your machine; refer to Figure 7.22, page 175.

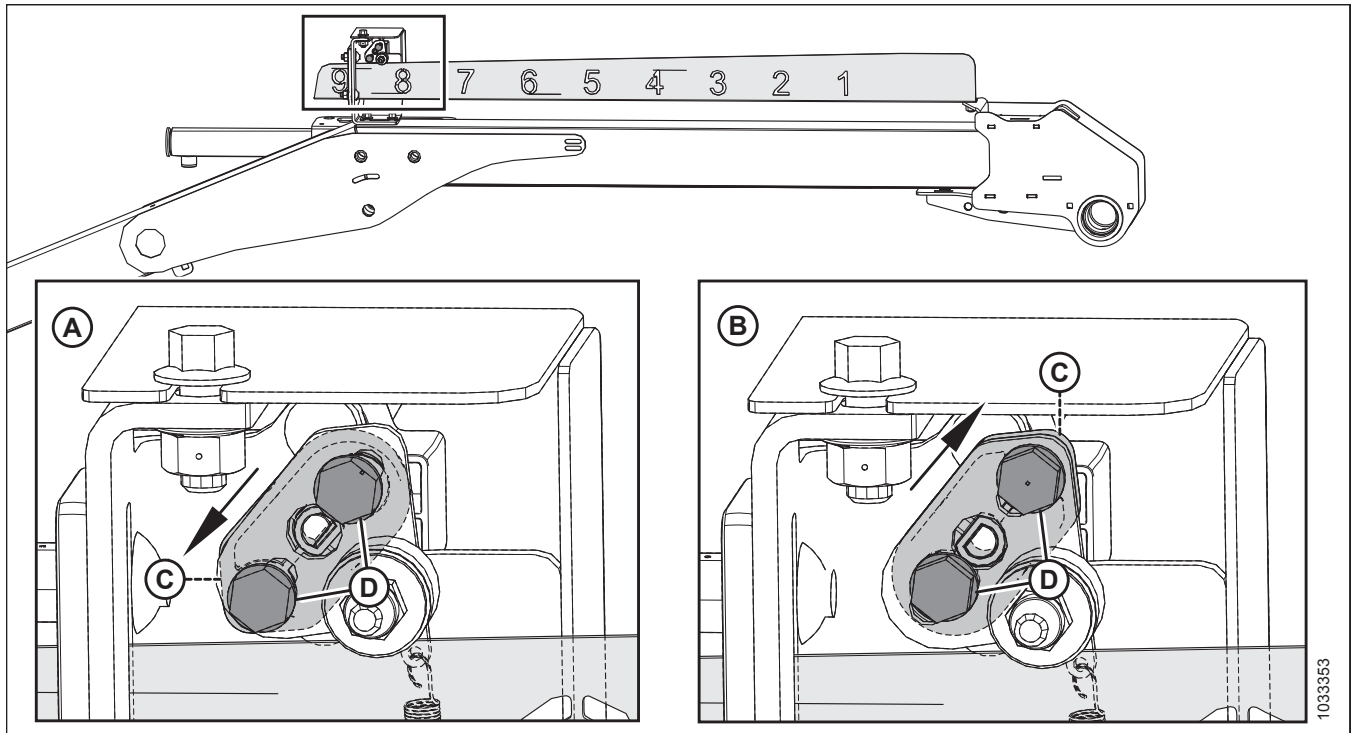


Figure 7.22: Sensor Arm Configurations

A - John Deere, CLAAS, IDEAL Configuration

B - Case/New Holland Configuration

C - Sensor Arm

D - Mounting Hardware

### IMPORTANT:

To measure the output voltage of the fore-aft sensor, the combine engine needs to be running and supplying power to the sensor. Always engage the combine parking brake and stay away from the reel.

### DANGER

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

### WARNING

Check to be sure all bystanders have cleared the area.

## PERFORMING PREDELIVERY CHECKS

1. Start the engine.
2. Adjust the reel to the fully forward position. Dimension (B) (from the sensor bracket to the end of the indicator) should be 62.1–72.1 mm (2.4–2.8 in.).

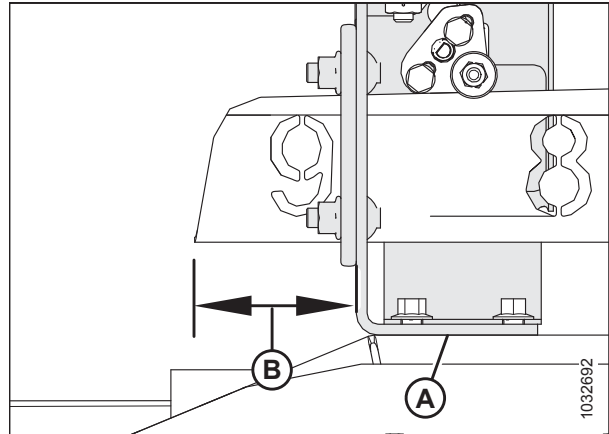


Figure 7.23: Fore-Aft Bracket

3. Use the combine display or a voltmeter (if measuring the sensor manually) to measure voltage range. If using a voltmeter, check sensor (A) voltage between pin 2 (ground) and pin 3 (signal).

Table 7.2 Fore-Aft Sensor Voltage Range

CNH	0.7–1.1 V
John Deere, CLAAS, AGCO	3.9–4.3 V

4. Shut down the engine, and remove the key from the ignition.
5. If adjustment is required, loosen hardware (A) and rotate sensor (B) until voltage is in the correct range.
6. Once sensor adjustment is complete, torque the hardware to 2.1 Nm (22 lbf-in).

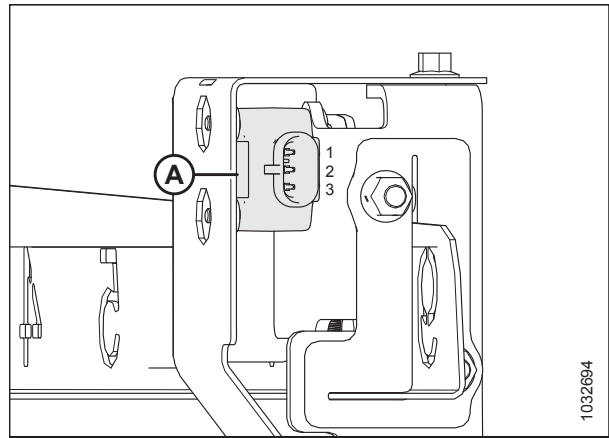


Figure 7.24: Fore-Aft Sensor

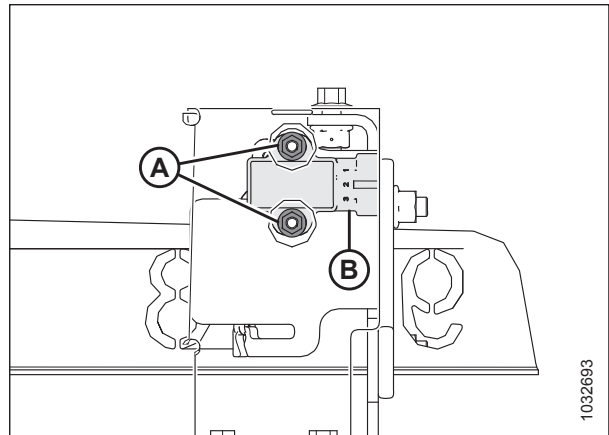


Figure 7.25: Fore-Aft Sensor

## 7.10 Checking Reel Clearance and Centering Reel

### DANGER

To avoid bodily injury or death from unexpected startup of machine, always stop the engine and remove the key before making adjustments to the machine.

### WARNING

Check to be sure all bystanders have cleared the area.

1. Start the engine and set the cutterbar height at approximately 254–356 mm (10–14 in.) above the ground.
2. Lower reel and adjust fore-aft position to 5 on reel arm indicator decal.
3. Shut down the engine, and remove the key from the ignition.
4. Engage the float locks and wing locks.
5. Manually rotate the reel to position a tine tube above the cutterbar.
6. Measure clearance (A) at locations (B) between reel tine tube and endsheet at both ends of header.

**NOTE:**

The clearances should be the same if the reel is centered. If you need to center the reel, proceed to the next step.

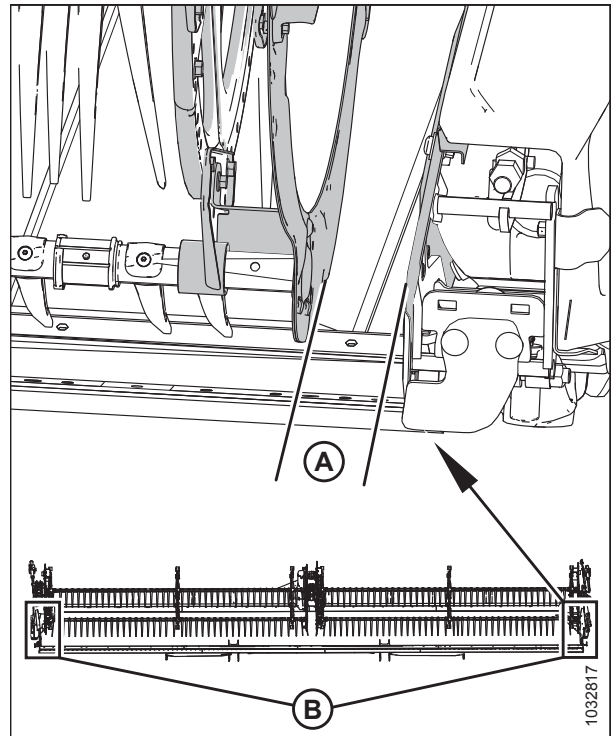
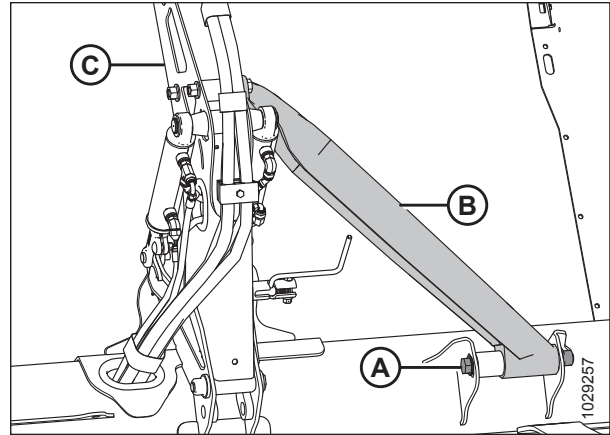


Figure 7.26: Reel Clearance – Double Reel Shown, All Other Reels are Similar

## PERFORMING PREDELIVERY CHECKS

7. **Double-reel and triple-reel headers:** Center the reel as follows:
- Loosen bolt (A) on brace (B) at the center support arm.
  - Move the forward end of reel support arm (C) laterally as required to center the reel.
  - Tighten bolt (A) and torque to 457 Nm (337 lbf-ft).



**Figure 7.27: Center Support Arm – Double Reel Shown, Triple Reel is Similar**

## 7.11 Reel Clearance to Cutterbar

The minimum clearance between the reel fingers and the cutterbar ensures that the reel fingers do not contact the cutterbar during operation. The clearance is set at the factory, but some adjustment may be necessary before operation.

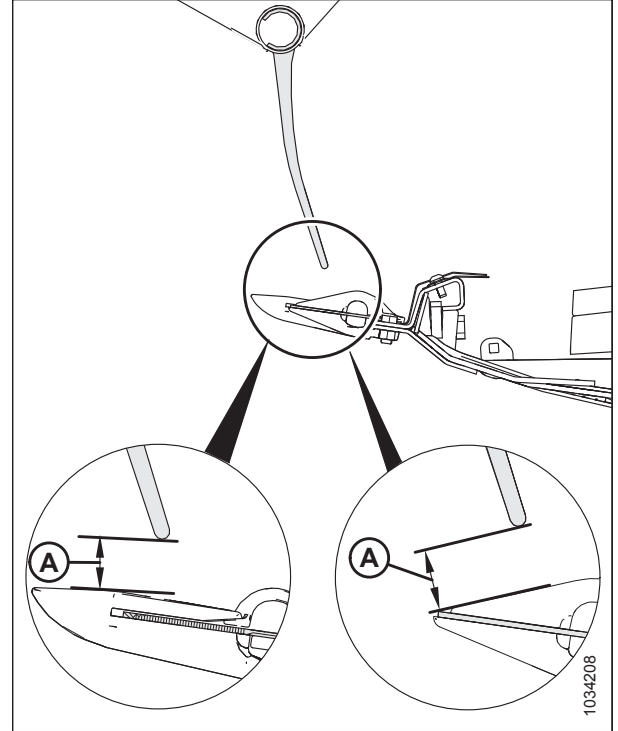
The finger to guard/cutterbar clearance (A) is shown in the tables below.

**Table 7.3 Finger to Guard/Cutterbar Clearance – Double Reel**

Header	End Panels	At Hinge Points
FD230	20 mm (0.80 in.)	45 mm (1.77 in.)
FD235 FD240	20 mm (0.80 in.)	20 mm (0.80 in.)

**Table 7.4 Finger to Guard/Cutterbar Clearance – Triple Reel**

Header	Outer End Panels	Beside Center Arms
FD240 FD245 FD250	20 mm (0.80 in.)	20 mm (0.80 in.)



**Figure 7.28: Finger Clearance**

### 7.11.1 Measuring Reel Clearance

#### DANGER

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

#### DANGER

Never start or move the machine until you are sure all bystanders have cleared the area.

## PERFORMING PREDELIVERY CHECKS

1. Park the combine on a level surface.
2. Adjust the reel fore-aft position until the number seven on fore-aft indicator (A) is hidden by sensor support (B).
3. Shut down the engine, and remove the key from the ignition.

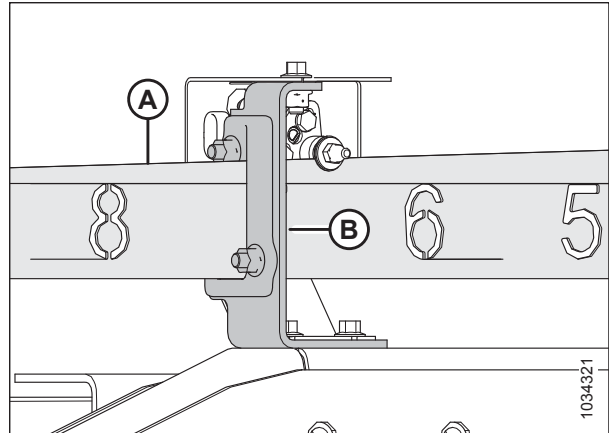


Figure 7.29: Fore-Aft Position

4. Place two 254 mm (10 in.) blocks (A) under the cutterbar, just inboard of the wing flex points.

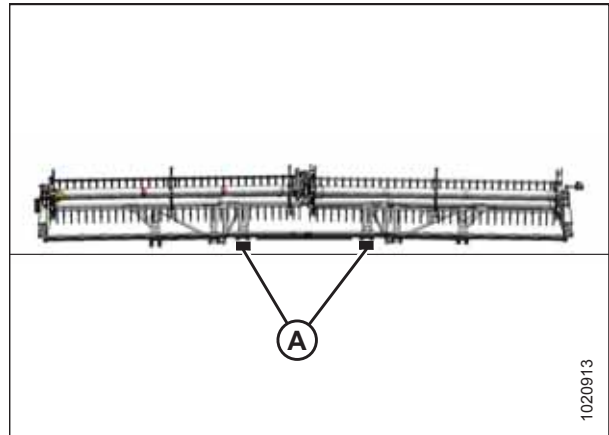


Figure 7.30: FlexDraper® Block Locations

5. Move wing lock spring handles (A) down to UNLOCK position.
6. Lower header fully, allowing it to flex into full frown mode.

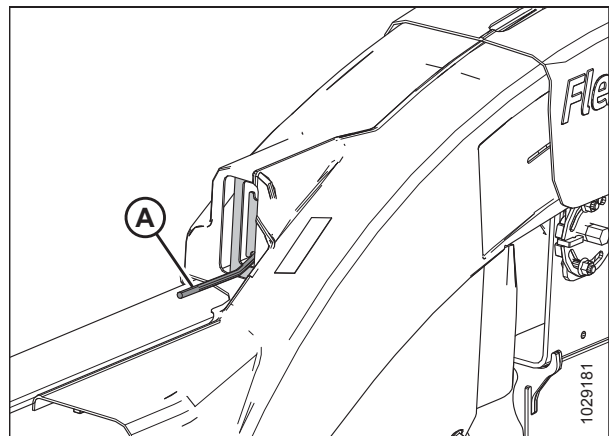


Figure 7.31: Wing Lock in UNLOCK Position



## PERFORMING PREDELIVERY CHECKS

7. Measure clearance (A) at the ends of the reels. For clearance specifications, refer to [7.11 Reel Clearance to Cutterbar, page 179](#).

For measurement locations, refer to:

- Figure 7.33, page 181 – double reel
- Figure 7.34, page 182 – triple reel

8. Adjust the reel clearance, if required. For instructions, refer to [7.11.2 Adjusting Clearance between Reel and Cutterbar, page 182](#).

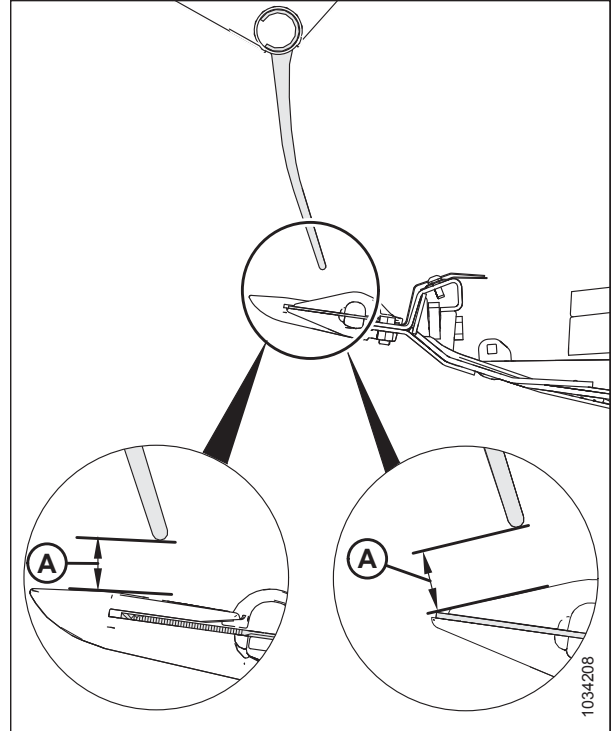


Figure 7.32: Measurement from Finger Tip to Guard

**FlexDraper® double reel measurement location (A):** Outer ends of the reels and at both hinge points (four places).

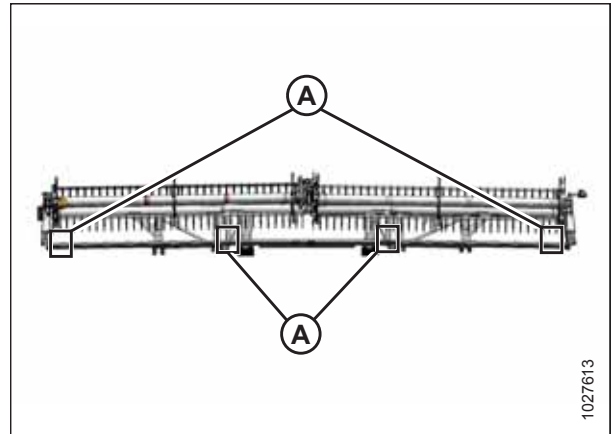


Figure 7.33: FlexDraper® Measurement Locations – Double Reel

## PERFORMING PREDELIVERY CHECKS

**FlexDraper® triple reel measurement location (A):** Both ends of three reels (six places).

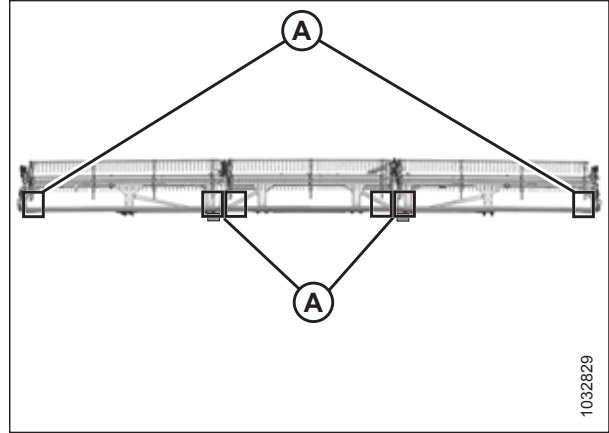


Figure 7.34: FlexDraper® Measurement Locations – Triple Reel

### 7.11.2 Adjusting Clearance between Reel and Cutterbar

Make sure there is sufficient clearance between the reel and cutterbar to prevent the knife from cutting reel finger tips off during operation.

#### DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.

To adjust the clearance between the reel and cutterbar, follow these steps:

1. Place two 254 mm (10 in.) blocks (A) under the cutterbar, just inboard of the wing flex points.
2. Shut down the engine, and remove the key from the ignition.

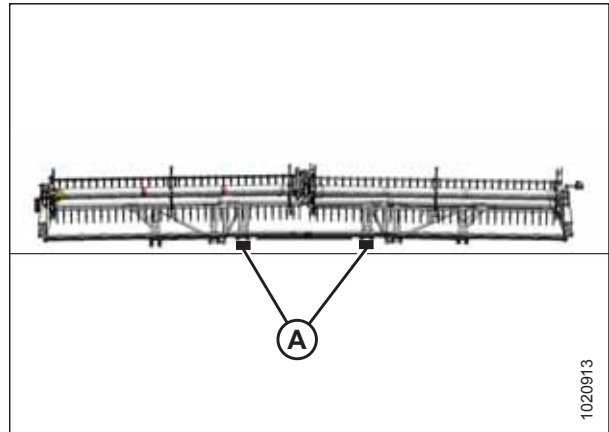


Figure 7.35: FlexDraper® Block Locations

## PERFORMING PREDELIVERY CHECKS

- Loosen bolts (A) on both center arm cylinders.
- Ensure distance measurement (B) is equal on both cylinders.

### NOTE:

Distance measurement (B) is from the center of mounting pins (C) to the tops of the **notches** in cylinder rods (D).

- Verify that both mounting pins (C) cannot be rotated by hand. If one of the mounting pins is free to rotate, then adjust cylinder rods (D) as required until both cylinder rods take the load:
  - Turn cylinder rod **out** of the clevis to increase the load on the cylinder rod.
  - Turn cylinder rod **into** the clevis to decrease the load on the cylinder rod.
- Tighten bolts (A).
- Triple reel:** Repeat Step 3, page 183 to Step 6, page 183 for the other center reel arm.
- Start the engine. Lower the reel fully, and continue holding the control button down to phase the cylinders.
- Shut down the engine, and remove the key from the ignition.
- Adjust the clearance at the outboard ends of the reel as follows:
  - Loosen bolt (A) on the outer arm cylinder.
  - Adjust cylinder rod (B) as required:
    - To increase clearance to the cutterbar, turn cylinder rod (B) out of clevis to raise the reel.
    - To decrease clearance to the cutterbar, turn cylinder rod (B) into clevis to lower the reel.
  - Tighten bolt (A).
- Repeat Step 10, page 183 at opposite side of the header.

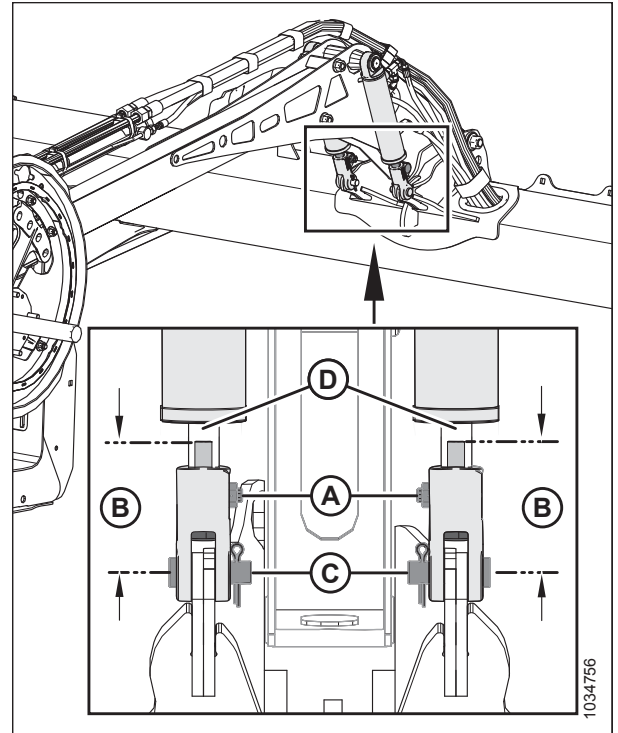


Figure 7.36: Center Arm Cylinders

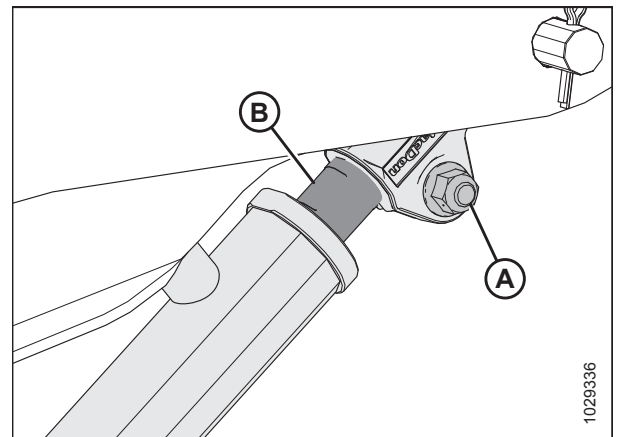


Figure 7.37: Outside Arm Cylinder

## PERFORMING PREDELIVERY CHECKS

12. Loosen bolts (A) on both center arm cylinders.
13. Adjust the clearance as follows:

### IMPORTANT:

Adjust both cylinder rods equally.

- To increase clearance to the cutterbar, turn cylinder rods (D) out of clevis to raise the reel.
- To decrease clearance to the cutterbar, turn cylinder rods (D) into clevis to lower the reel.

14. Ensure distance measurement (B) is equal on both cylinders.

### NOTE:

Distance measurement (B) is from the center of mounting pins (C) to the tops of the **notches** in cylinder rods (D).

15. Verify that both mounting pins (C) cannot be rotated by hand. If one of the mounting pins is free to rotate, then adjust cylinder rods (D) as required until both cylinder rods take the load:
  - Turn cylinder rod **out** of the clevis to increase the load on the cylinder rod.
  - Turn cylinder rod **into** the clevis to decrease the load on the cylinder rod.

16. Tighten bolts (A).

17. **Triple reel:** Repeat Step 12, page 184 to Step 16, page 184 for the other center reel arm.

18. Start the engine. Lower the reel fully, and continue holding the control button down to phase the cylinders.

19. Shut down the engine, and remove the key from the ignition.

20. Check measurements and, if necessary, repeat adjustment procedures.

21. Move the reel back to ensure the steel end fingers do not contact the deflector shields.

22. If contact occurs, adjust the reel upward to maintain the clearance at all reel fore-aft positions. If contact cannot be avoided after adjusting the reel, trim the steel end fingers to obtain proper clearance.

23. Periodically check for evidence of contact during operation, and adjust clearance as required.

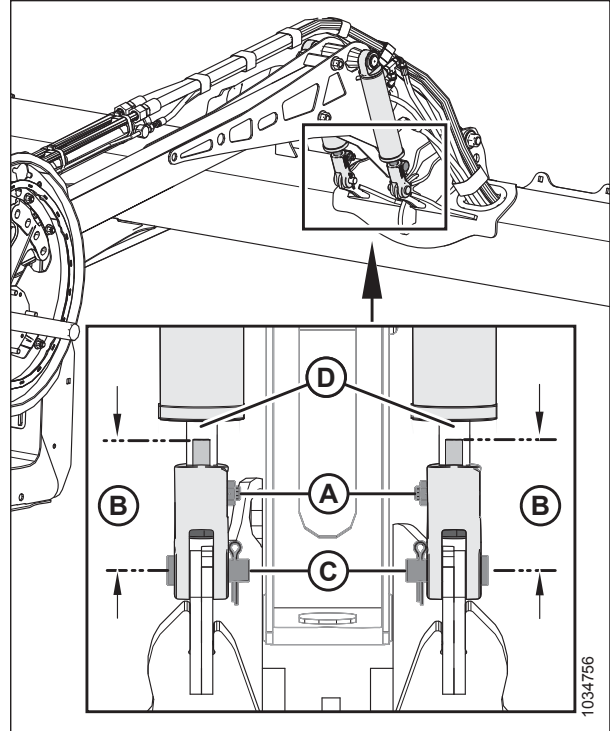


Figure 7.38: Center Arm Cylinders

## 7.12 Changing Float Spring Configuration – Confirming Type of Bell Crank

Float springs are configured according to the weight of the header. You may have to change the float spring configuration if optional equipment is added or removed from the header.

**NOTE:**

The following procedures are only intended for when the weight of the header has changed significantly due to the removal or addition of optional equipment.

Check if the bell cranks attached the float springs have two holes (A) or one hole (B).

- If the bell cranks have two holes (A), refer to [7.12.1 Changing Float Spring Configuration – Bell Cranks with Two Holes, page 185](#).
- If the bell cranks have one hole (B), refer to [7.12.2 Changing Float Spring Configuration – Bell Cranks with One Hole, page 190](#).

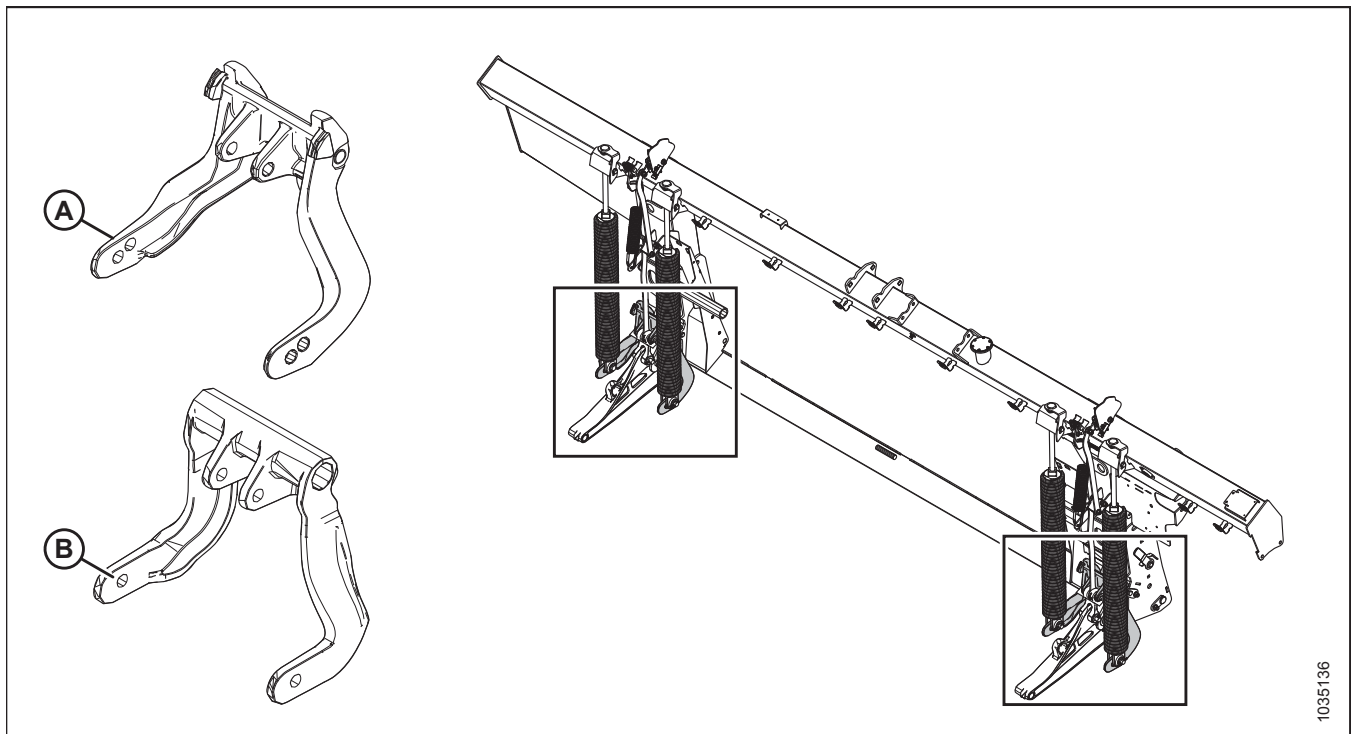


Figure 7.39: Bell Cranks With One Hole Versus Two Holes

### 7.12.1 Changing Float Spring Configuration – Bell Cranks with Two Holes

Float springs are configured according to the weight of the header. You may have to change the float spring configuration if optional equipment is added or removed from the header.

**⚠ DANGER**

To avoid injury or death from unexpected start-up of the machine, always stop the engine and remove the key from the ignition before leaving the operator’s seat for any reason.

**NOTE:**

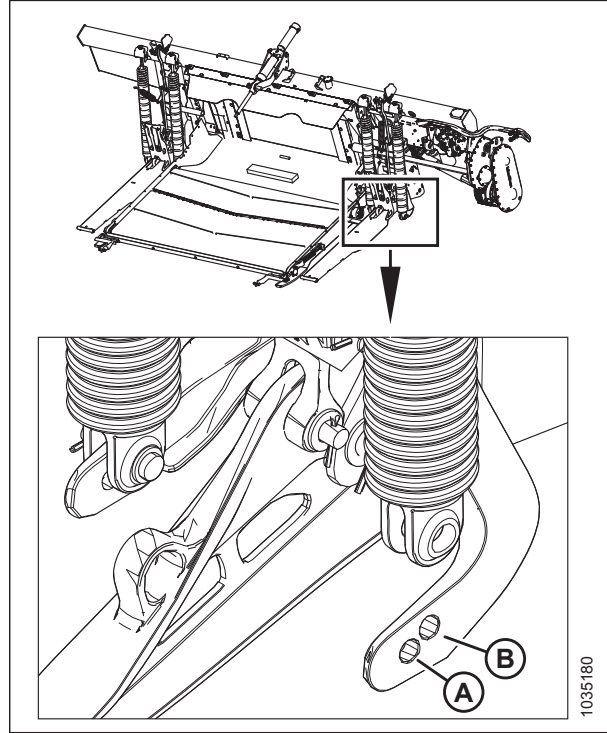
FD240 double knife uses one type of float spring configuration. This procedure is not required. The spring should be placed in the front hole.

1. Shut down the engine, and remove the key from the ignition.

## PERFORMING PREDELIVERY CHECKS

2. Calculate the float spring configuration as follows:
  - a. Determine the total header weight based on Table 7.5, page 186.
    - **Example:** FD235 single knife base header weight [2600 kg (5750 lb.)]+ vertical knives [70 kg (150 lb.)] + no options = 2670 kg (5900 lb.)
  - b. Compare the total weight to Table 7.6, page 187 and determine if the float springs should be installed in front hole (A) or back hole (B) in the bell crank.
    - **Example:**  
FD235 base header [2600 kg (5750 lb.)] + vertical knives [70 kg (150 lb.)] + no options = 2670 kg (5900 lb.)  
This FD235 is in the “Lighter Weight Range,” and therefore the float springs must be installed in the back hole of the bell cranks.

If you add the optional upper cross auger [180 kg (400 lb.)] and the slow speed transport [360 kg (800 lb.)], the total weight will increase to 3210 kg (7100 lb.), and you will have to move the float springs to the front hole in the bell cranks because the header is now in the “Heavier Weight Range.”



**Figure 7.40: Left Float Spring – Installed in Rear Bell Crank Hole**

**Table 7.5 Header Weight Calculator**

Total weight = Header weight <b>without</b> dividers and options (A) + <b>one</b> divider option (B) + sum of optional equipment (C).		
Category	Description	Weight
(A) Base Header – select <b>one</b>	FD230 Single Knife	2400 kg (5300 lb.)
	FD235 Single Knife	2600 kg (5750 lb.)
	FD235 Double Knife	2700 kg (5950 lb.)
	FD240 Single Knife	2800 kg (6150 lb.)
	FD240 Double Knife	Use the front hole on the bell crank.
	FD245 Double Knife	3225 kg (7100 lb.)
	FD250 Double Knife	3400 kg (7500 lb.)
(B) Dividers – select <b>one</b> , if installed	Rice Divider Rods	20 kg (50 lb.)
	Vertical Knives	70 kg (150 lb.)
(C) Other Options – add any installed options	Full-Length Upper Cross Auger	180 kg (400 lb.)
	Slow Speed Transport	360 kg (800 lb.)
	Contour Wheels	205 kg (450 lb.)
	Stabilizer Wheels	160 kg (350 lb.)

PERFORMING PREDELIVERY CHECKS

Table 7.6 Float Spring Installation Location in Bell Crank

Header	Lighter Weight Range	Bell Crank Hole	Heavier Weight Range	Bell Crank Hole
FD230 Single Knife	2400 – 2675 kg (5300 – 5900 lb.)	Back	2676 – 3215 kg 5901 – 7100 lb.	Front
FD235 Single Knife	2600 – 3050 kg (5750 – 6700 lb.)	Back	3051 – 3415 kg 6701 – 7550 lb.	Front
FD235 Double Knife	2700 – 3150 kg (5950 – 6900 lb.)	Back	3151 – 3515 kg (6901 – 7750 lb.)	Front
FD240 Single Knife	2800 – 3200 kg (6150 – 7000 lb.)	Back	3201 – 3615 kg (7001 – 7950 lb.)	Front
FD240 Double Knife	Use the front hole on the bell crank.			
FD245 Double Knife	3225 – 3475 kg (7100 – 7650 lb.)	Back	3476 – 4050 kg (7651 – 8900 lb.)	Front
FD250 Double Knife	3400 – 3800 kg (7500 – 8350 lb.)	Back	3801 – 4215 kg (8351 - 9300 lb.)	Front

- Lock the header float by pulling float lock handle into position (A) on both sides of the float module.

**NOTE:**

The float is unlocked when the handle is in position (B).

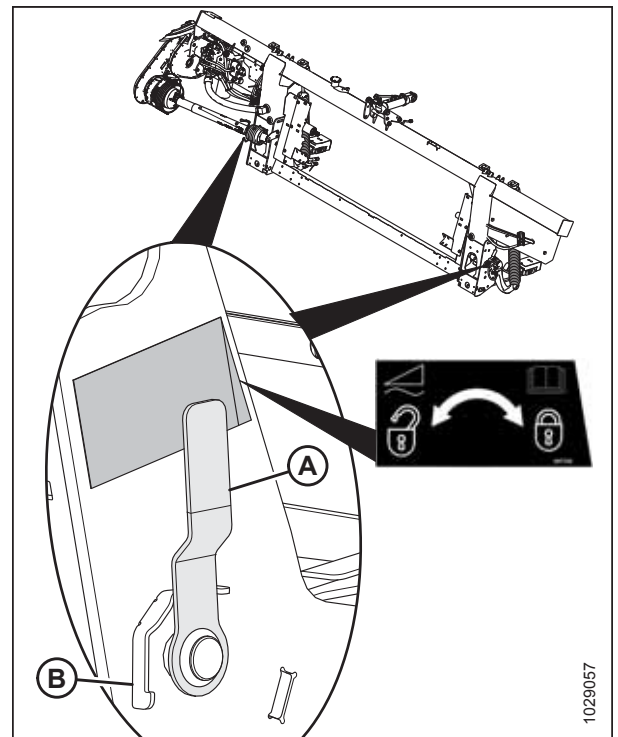


Figure 7.41: Header Float Lock in Locked Position

## PERFORMING PREDELIVERY CHECKS

4. Access float spring adjustment bolts (A) by loosening bolts (C) and rotating spring locks (B) forward.
5. Loosen adjustment bolts (A) equally until the springs are loose.

**NOTE:**

The adjustment bolts will rise slightly above the washers when the springs are loose.

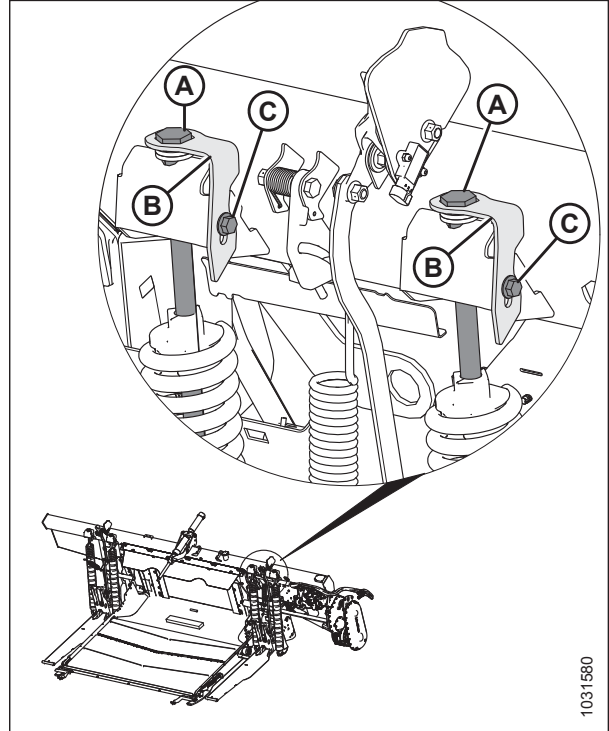


Figure 7.42: Float Adjustment – Left

6. Remove cotter pin (C) from pin (A).
7. Remove pin (A) and washers (B).

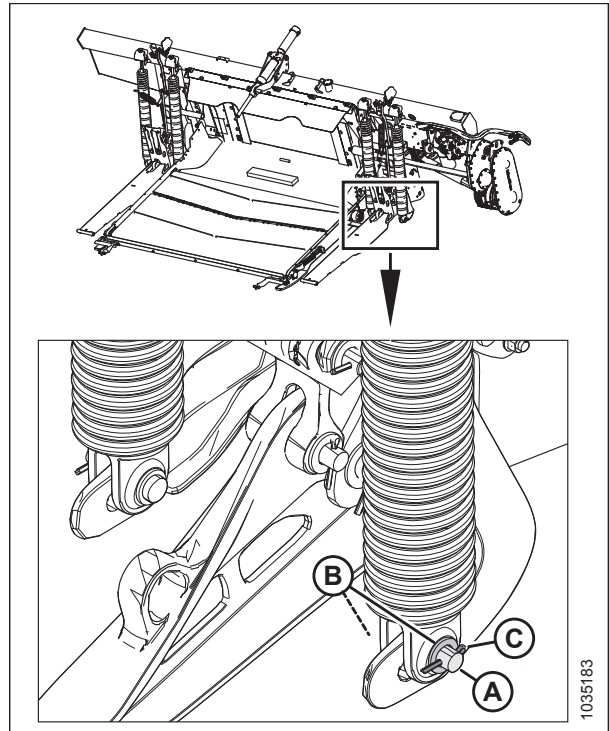


Figure 7.43: Left Float Spring – Installed in Rear Bell Crank Hole



## PERFORMING PREDELIVERY CHECKS

- Align spring to the front (A) or back (B) bell crank hole according to the float requirements in Table 7.6, page 187.

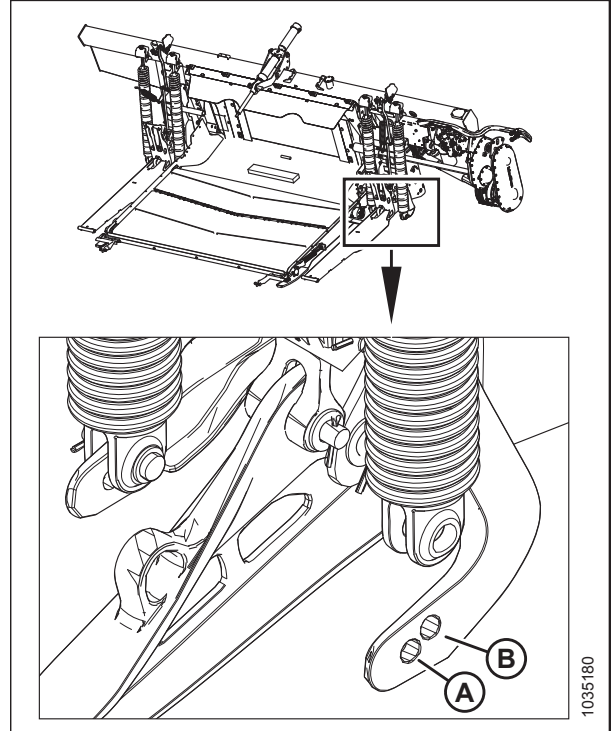


Figure 7.44: Left Float Spring – Installed in Rear Bell Crank Hole

- Install pin (A) with two washers (B) into the new hole.
- Secure pin with cotter pin (C).
- Repeat Step 6, page 188 to Step 10, page 189 for other spring (D).

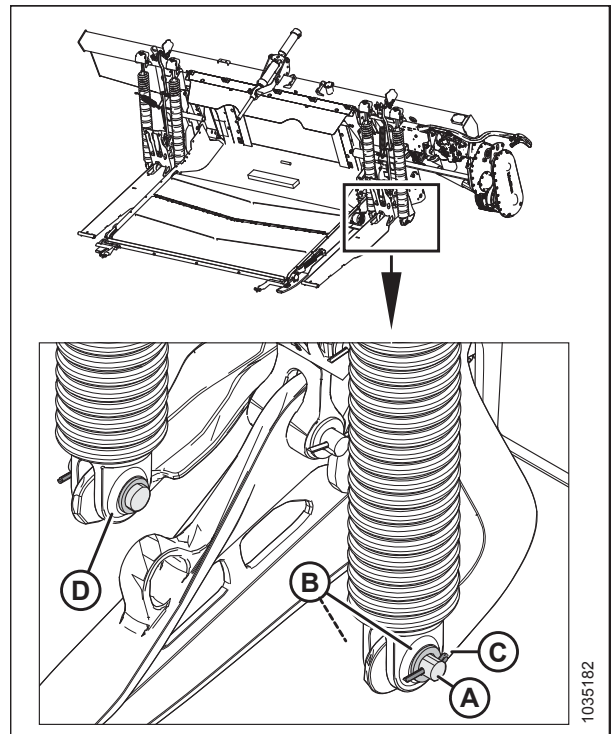


Figure 7.45: Left Float Spring – Installed in Rear Bell Crank Hole

## PERFORMING PREDELIVERY CHECKS

12. Retighten adjustment bolts (A) an equal amount to ensure the float springs are the same length.
13. Repeat Step 4, [page 188](#) to Step 12, [page 190](#) on the pair of float springs (B) on the opposite side of the float module.
14. Check the float. For instructions, refer to [7.14 Checking and Adjusting Header Float](#), [page 197](#).

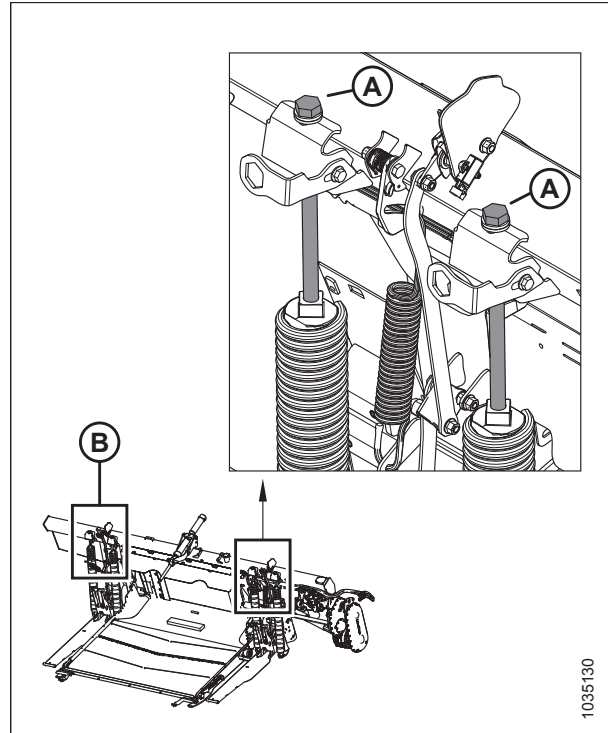


Figure 7.46: Float Adjustment – Left

### 7.12.2 Changing Float Spring Configuration – Bell Cranks with One Hole

Float springs are configured according to the weight of the header. You may have to change the float spring configuration if optional equipment is added or removed from the header.

#### DANGER

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

#### NOTE:

FD230 uses one type of float spring configuration. This procedure is not required.

#### NOTE:

FD240 **double knife** uses one type of float spring configuration. This procedure should not be required. Changing the float spring configuration on a bell crank with one hole will require you to change the type of spring(s). Part numbers are included in [7.9, page 192](#).

1. Shut down the engine, and remove the key from the ignition.
2. Calculate the float spring configuration as follows:
  - a. Determine the total header weight based on [Table 7.7, page 191](#).
  - b. Determine which configuration "1" to "5" to use for the total header weight according to [Table 7.8, page 191](#).
  - c. If the header is in a different configuration than in Step then refer to [Table 7.9, page 192](#), and change the float spring(s) according to Table.

**PERFORMING PREDELIVERY CHECKS**

**Table 7.7 Header Weight Calculator**

Total weight = Header weight <b>without</b> dividers and options (A) + <b>one</b> divider option (B) + sum of optional equipment (C).		
Category	Description	Weight
(A) Base Header – select <b>one</b>	FD230 Single Knife	Only configuration “1” is used. For configuration details, refer to Table 7.9, page 192.
	FD235 Single Knife	2600 kg (5750 lb.)
	FD235 Double Knife	2700 kg (5950 lb.)
	FD240 Single Knife	2800 kg (6150 lb.)
	FD240 Double Knife	Only configuration “2” is used. For configuration details, refer to Table 7.9, page 192.
	FD245 Double Knife	3225 kg (7100 lb.)
	FD250 Double Knife	3400 kg (7500 lb.)
(B) Dividers – select <b>one</b> , if installed	Rice Divider Rods	20 kg (50 lb.)
	Vertical Knives	70 kg (150 lb.)
(C) Other Options – add any installed options	Full-Length Upper Cross Auger	180 kg (400 lb.)
	Slow Speed Transport	360 kg (800 lb.)
	Contour Wheels	205 kg (450 lb.)
	Stabilizer Wheels	160 kg (350 lb.)

**Table 7.8 Float Spring Configuration According to Total Header Weight**

Header	Lighter Weight Range	Configuration	Heavier Weight Range	Configuration
FD230 Single Knife		1		
FD235 Single Knife	2600 – 3050 kg (5750 – 6700 lb.)	1	3051 – 3415 kg 6701 – 7550 lb.	3
FD235 Double Knife	2700 – 3150 kg (5950 – 6900 lb.)	1	3151 – 3515 kg (6901 – 7750 lb.)	2
FD240 Single Knife	2800 – 3200 kg (6150 – 7000 lb.)	1	3201 – 3615 kg (7001 – 7950 lb.)	3
FD240 Double Knife		2		
FD245 Double Knife	3225 – 3475 kg (7100 – 7650 lb.)	2	3476 – 4050 kg (7651 – 8900 lb.)	4
FD250 Double Knife	3400 – 3800 kg (7500 – 8350 lb.)	2	3801 – 4215 kg (8351 - 9300 lb.)	5

## PERFORMING PREDELIVERY CHECKS

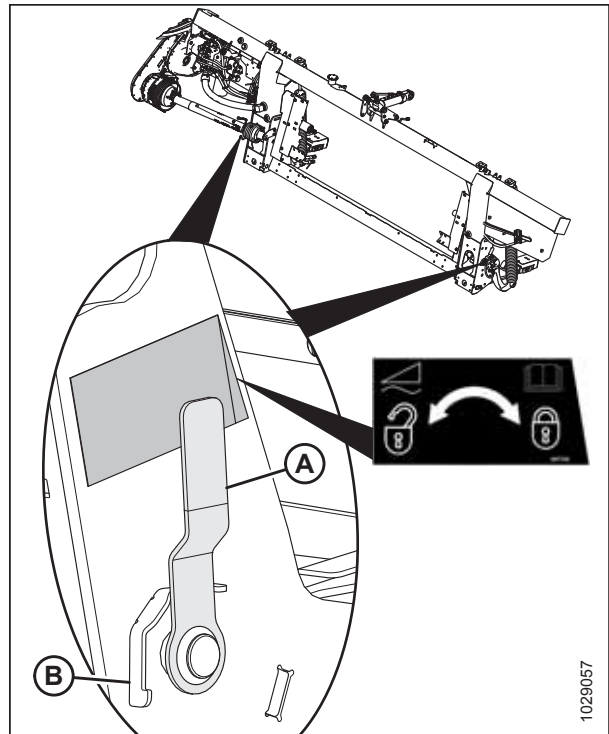
**Table 7.9 Float Spring Configuration**

Configuration	Outer Left Spring	Inner Left Spring	Outer Right Spring	Inner Right Spring
1	Single (MD #308878)	Single	Single	Single
2	Single	Single	Single	Double
3	Double (MD #308879)	Single	Single	Single
4	Double	Single	Single	Double
5	Double	Single	Double	Double

3. Lock the header float by pulling float lock handle into position (A) on both sides of the float module.

**NOTE:**

The float is unlocked when the handle is in position (B).



**Figure 7.47: Header Float Lock in Locked Position**

## PERFORMING PREDELIVERY CHECKS

4. Determine which float spring you are changing. The outer left spring is changed in this procedure as an example. Access the corresponding adjustment bolt (C) by loosening bolt (A) and rotating spring lock (B).
5. Unscrew and remove the adjustment bolt (C) and washers (D) from the spring.

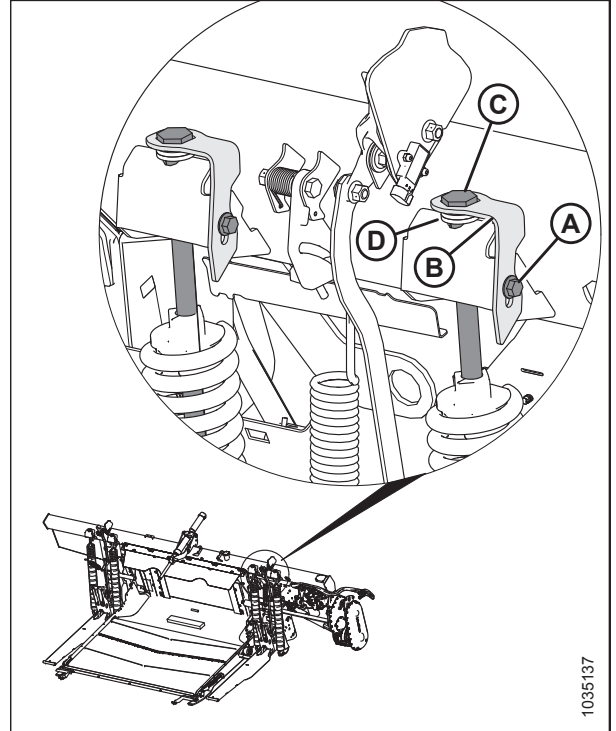


Figure 7.48: Float Adjustment Bolts – Left Shown, Right is Similar

6. Remove cotter pin (A) from pin (B).
7. Remove pin (B) and two washers (C).
8. Change spring (D).
9. Reinstall pin (B) and two washers (C).
10. Reinstall cotter pin (A).

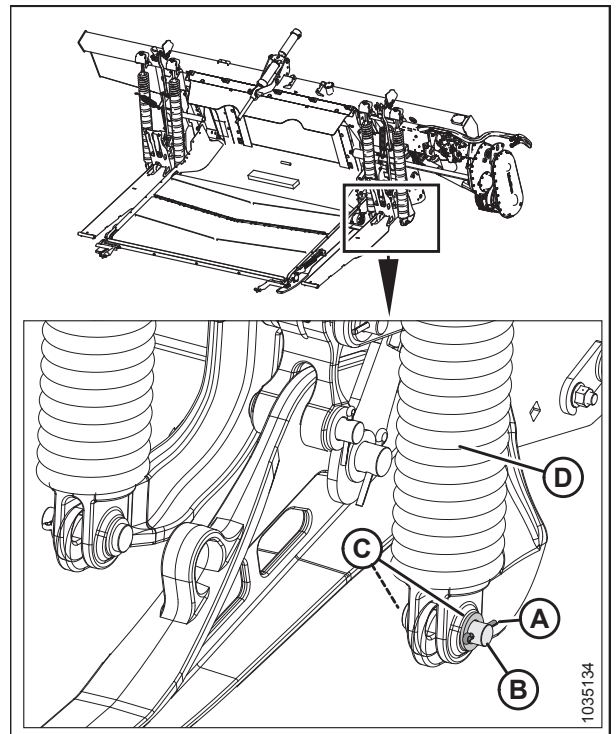


Figure 7.49: Outer Left Float Spring Shown

## PERFORMING PREDELIVERY CHECKS

11. Reinstall bolt (A) and washers (B) into spring (C). Make sure **both** float springs are of equal length (D) (even if you only changed one spring).
12. Repeat Step 4, [page 193](#) to Step 11, [page 194](#) for remaining springs.
13. Check the float. For instructions, refer to [7.14 Checking and Adjusting Header Float](#), [page 197](#).

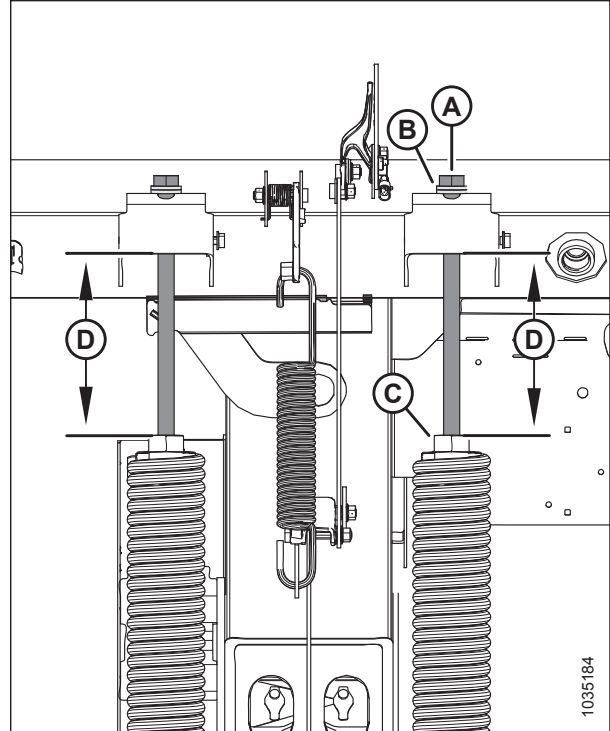


Figure 7.50: Left Float Springs

## 7.13 Checking that Top-Link is Parallel

### DANGER

To avoid bodily injury or death from unexpected startup of machine, always stop the engine and remove the key before making adjustments to the machine.

**NOTE:**

Cutterbar should be straight when checking that the top-link is parallel.

1. Shut down the engine, and remove the key from the ignition.
2. Lock wing (A).

**NOTE:**

Some parts are hidden for clarity.

3. Attach flex checker cable (B) to flex checker cable lock (C).
4. Place torque wrench (D) on bolt (E).

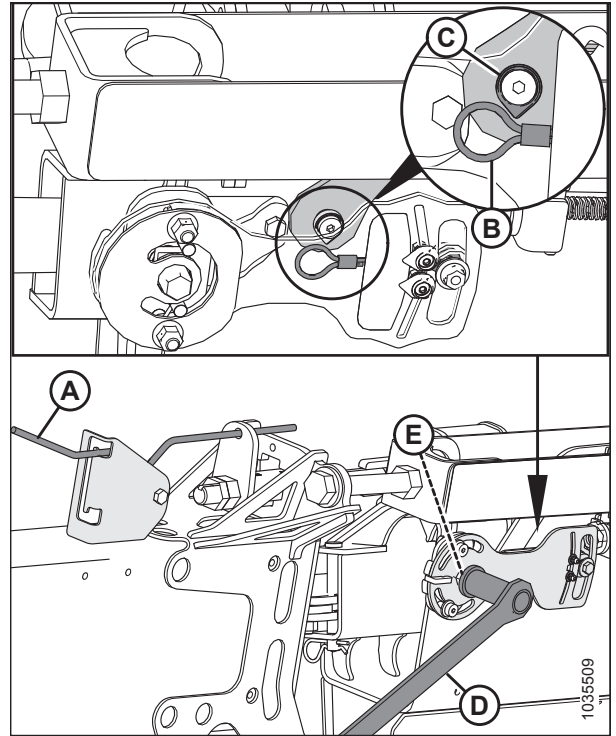


Figure 7.51: Wing in Locked Position – Left Side Shown

5. Check that bottom edge of bell crank (A) is parallel with top-link (B) when moving wrench up and down.

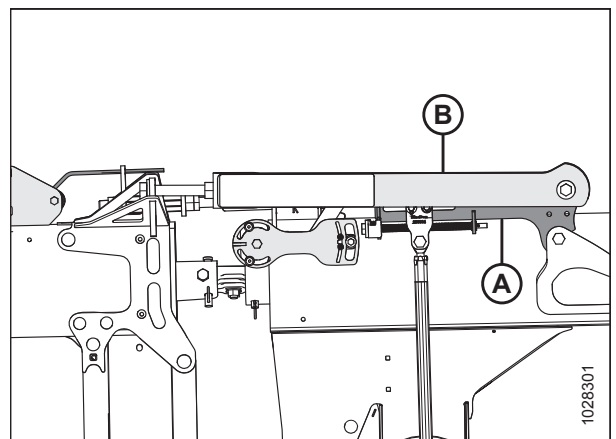


Figure 7.52: Bottom Edge of Bell Crank Parallel with Top-Link

## PERFORMING PREDELIVERY CHECKS

6. If the bell crank and top-link are not parallel, adjust as follows:
  - a. Unlock nuts (B), and turn bolt (A) until edges are parallel.
  - b. Lock nuts (B).

**NOTE:**

Some parts are transparent for clarity.

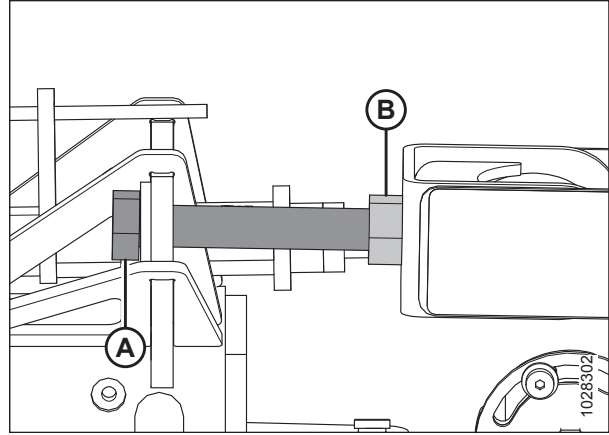


Figure 7.53: Adjustment Bolt

**NOTE:**

Some parts are hidden for clarity.

7. Disconnect flex checker cable (A) from flex checker cable lock (B).
8. Reinstall linkage cover.
9. Repeat procedure on opposite side.

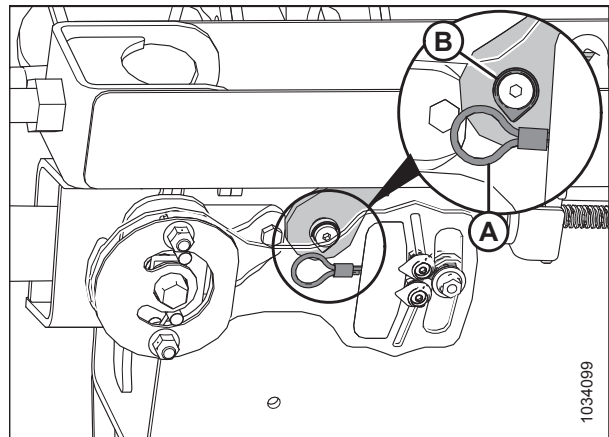


Figure 7.54: Flex Checker Cable Lock – Left Side



## 7.14 Checking and Adjusting Header Float

The header is equipped with a suspension system that floats the header over the ground to compensate for ridges, trenches, and other variations in ground contour. If the header float is not set properly, it may cause the cutterbar to push into the ground or leave uncut crop. This procedure describes how to check the header float and adjust to the factory-recommended settings.

**IMPORTANT:**

Do **NOT** use the float module springs to level the header.

**⚠ DANGER**

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

Use the following guidelines when adjusting the float:

- Set the header float as light as possible (without causing excessive bouncing) to prevent knife component breakage, pushing soil, and soil build-up at the cutterbar in wet conditions.
- To avoid excessive bouncing and an uneven cut with a light float setting, use a slower ground speed.
- When cutting off the ground, use the stabilizer wheels in conjunction with the header float to minimize bouncing at the header ends and to control cut height.

1. Park the combine on a level surface.
2. Locate spirit level (A) on top of the float module frame. Check that the bubble is in the center.
3. Position the header so that the cutterbar is 254–356 mm (10–14 in.) off the ground.

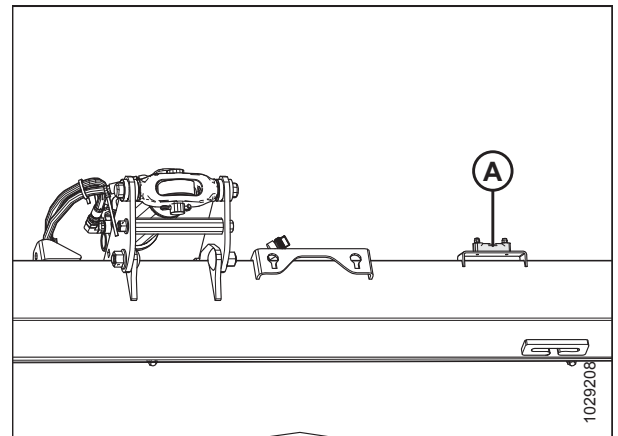


Figure 7.55: Spirit Level

4. Adjust the reel fore-aft to position 6 on indicator bracket (A) located on the left arm.

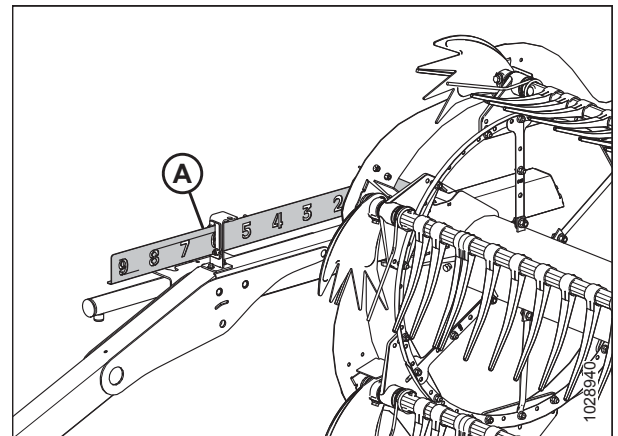


Figure 7.56: Fore-Aft Position

## PERFORMING PREDELIVERY CHECKS

5. Adjust center-link (A) so that indicator (B) is at position **D** on the gauge.
6. Lower the reel fully.
7. Shut down the engine, and remove the key from the ignition.
8. Lock the header wings.
9. If installed, move the transport wheels (A) so that they are supported by the header.

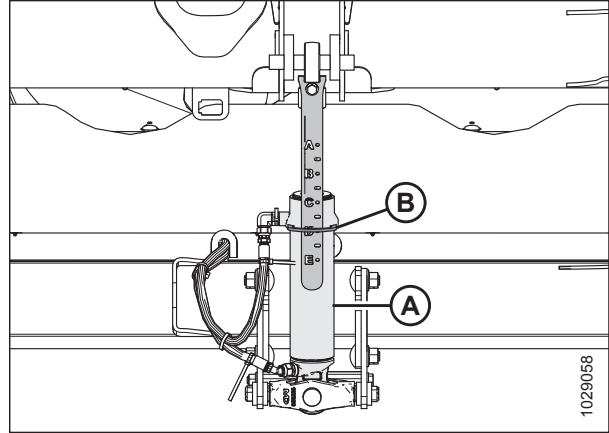


Figure 7.57: Center-Link

10. Disengage both header float locks by pulling float lock handle (A) away from the float module and pushing the float lock handle down and into position (B) (**UNLOCK**).

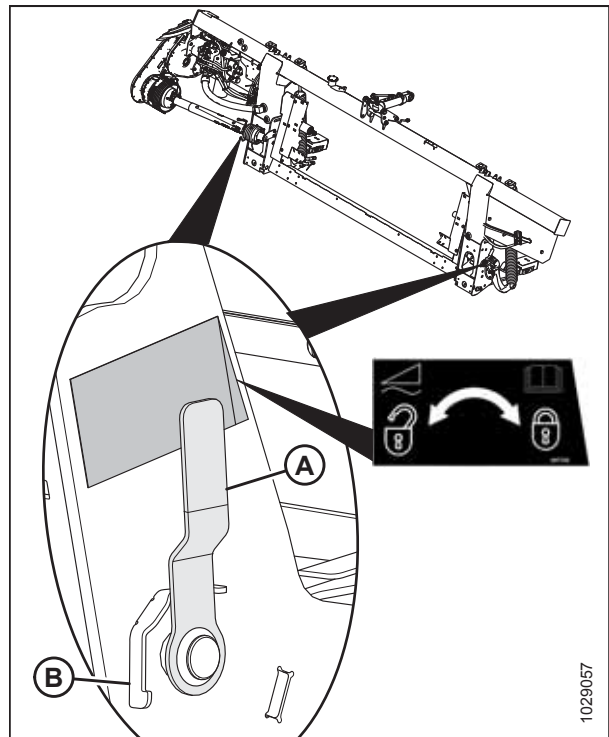


Figure 7.58: Header Float Lock in Locked Position

## PERFORMING PREDELIVERY CHECKS

11. Open the left endshield.
12. Remove hairpin (A) securing tool (B) to tool holder bracket on the left endsheet.
13. Remove tool (B), and reinstall hairpin to tool holder.

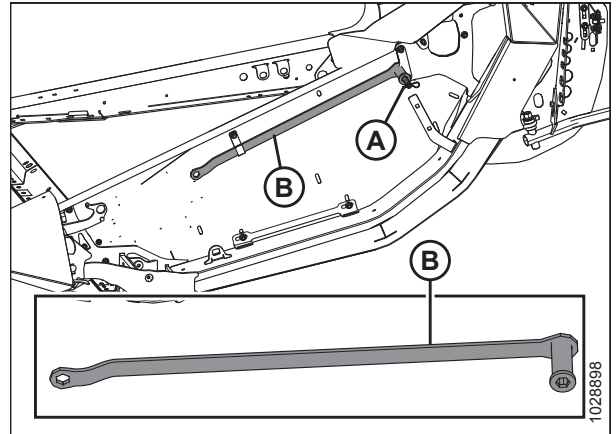


Figure 7.59: Tool Location

14. Lift float setting lever (A) by hand to remove any slack.
15. Place tool (B) on the float setting lever. The tool should be slightly angled towards the front of the header.

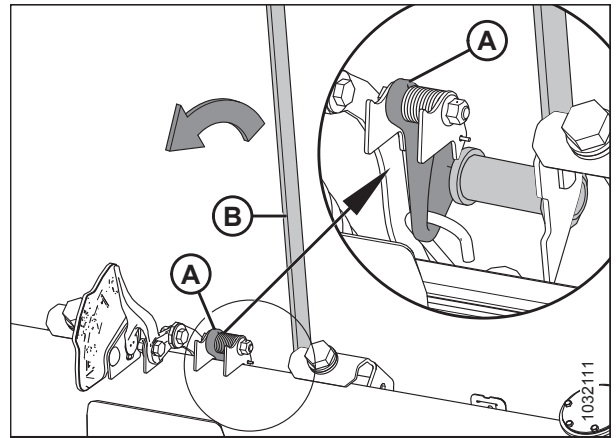


Figure 7.60: Float Setting Assembly – Left

16. Pull down on tool (B) towards the back of the header until lever (A) is over center and will not return to its original position. Remove the tool and repeat on the opposite side.
17. On the same side that you are adjusting, push header down 76 mm (3 in.) and then let go, and recheck the float setting. If the setting remains out of range, proceed with adjustment.

**NOTE:**

Pushing down on (shaking) the header releases friction and prevents gauge errors.

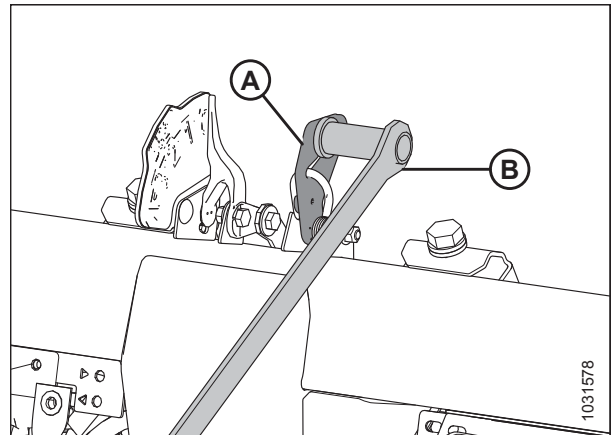


Figure 7.61: Float Setting Assembly – Left

## PERFORMING PREDELIVERY CHECKS

18. Check smaller float setting indicator (FSI) (B) for the current float value. The arm on the FSI should be pointed at the 2.

- If arm (A) on FSI (B) is higher than 2, the header is heavy.
- If the reading on FSI (B) is lower than 2, the header is light.

**NOTE:**

The larger numbers are for the float height indicator and used when operating the header in the field.

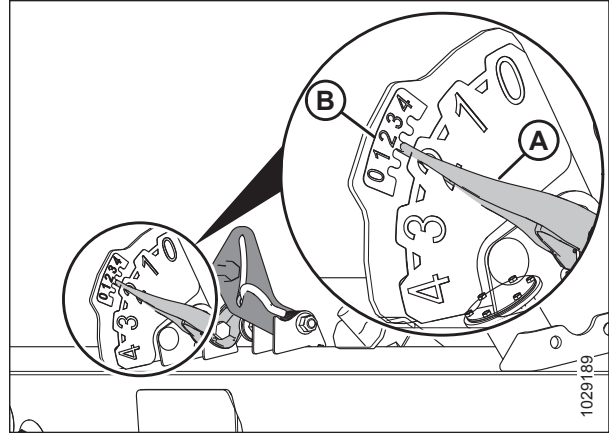


Figure 7.62: Float Setting Indicator – Left

19. To access float spring adjustment bolts (A), loosen bolts (C) and rotate spring locks (B).

**NOTE:**

For the following step, each pair of bolts (A) must be adjusted equally.

20. To increase float and (decrease ground force), turn both adjustment bolts (A) on the left side of the header clockwise. Repeat adjustment at opposite side.

To decrease the float and (increase ground force), turn left adjustment bolts (A) counterclockwise. Repeat adjustment at opposite side.

21. Repeat the sequence of shaking the header, and then checking the FSI reading between adjustments (Steps 17, page 199 to 20, page 200) until both FSI gauges read 2, or until the desired value is achieved on both sides of the header.

22. Lock adjustment bolts (A) with spring locks (B). Ensure bolt heads (A) are engaged in the spring lock cutouts. Tighten bolts (C) to secure spring locks in place.

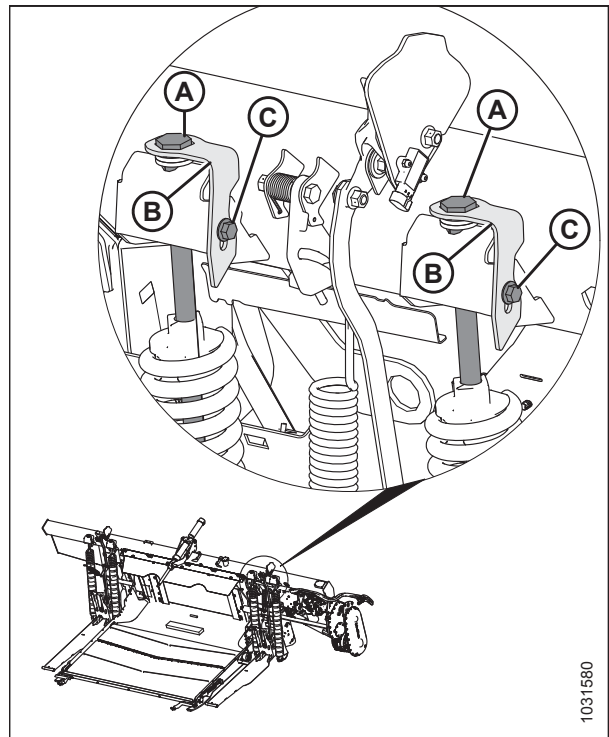


Figure 7.63: Float Adjustment – Left

## PERFORMING PREDELIVERY CHECKS

23. Once the float adjustment is complete, use the tubular portion of the tool (A) to push the float setting lever (B) over. Repeat at opposite side.

**NOTE:**

Do **NOT** use the box end of the tool, as the float setting lever will snap over and could pull the tool out of the operators hands.

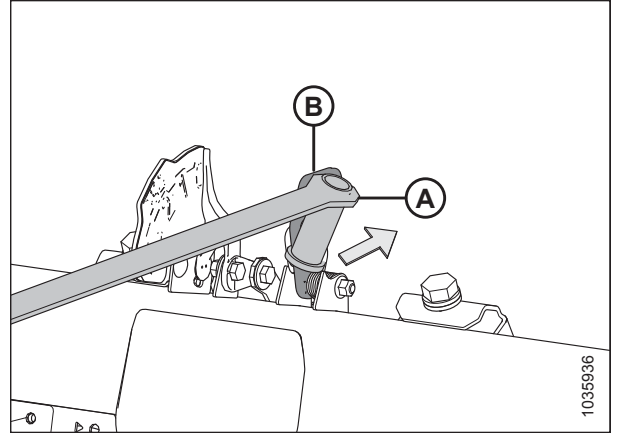


Figure 7.64: Float Adjustment – Left

## 7.15 Checking and Adjusting Wing Balance

Wing balance is important for ground following. Operators should adjust the balance of each wing if there are issues with following the ground.

### DANGER

To avoid bodily injury or death from unexpected startup of machine, always stop the engine and remove the key before making adjustments to the machine.

### DANGER

Check to be sure all bystanders have cleared the area.

#### IMPORTANT:

To ensure correct wing balance readings, make sure the header float is set properly before proceeding. For instructions, refer to [7.14 Checking and Adjusting Header Float, page 197](#). The float module must be sitting level before performing any adjustments.

#### NOTE:

The header wings are balanced when it takes an equal amount of force to move a wing up or down.

1. Adjust the reel fore-aft to position 6 on indicator bracket (A) located on the left arm.
2. Lower the reel fully.

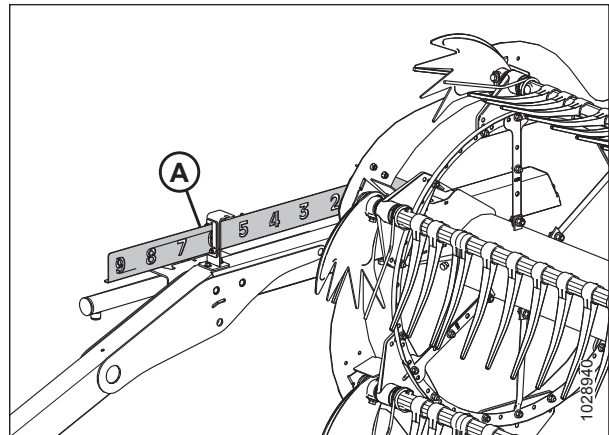


Figure 7.65: Fore-Aft Position

3. Adjust center-link (A) so that indicator (B) is at position D on the gauge.
4. If installed, move transport wheels so that they are supported by the header. Refer to instructions provided with the transport system.
5. Park the combine on a level surface.
6. Position the header until it is 254–356 mm (10–14 in.) off the ground.

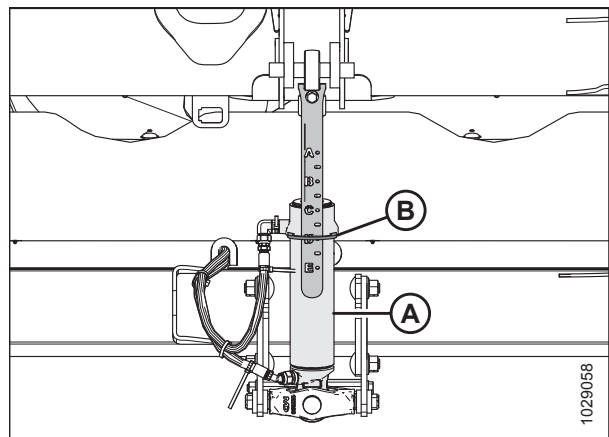


Figure 7.66: Center-Link

## PERFORMING PREDELIVERY CHECKS

7. Locate spirit level (A) on top of the float module frame. Check that the bubble is in the center.
8. Shut down the engine, and remove the key from the ignition.

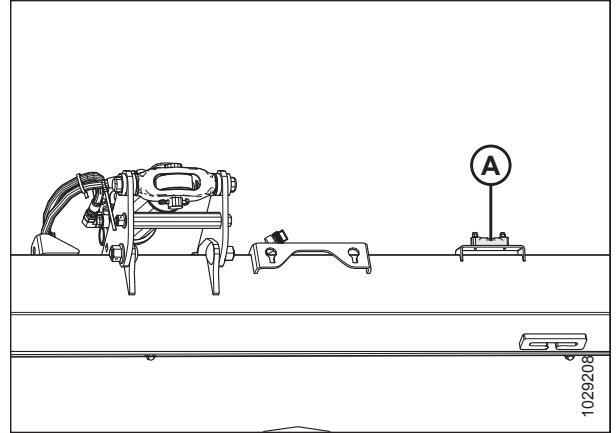


Figure 7.67: Spirit Level

9. Remove linkage cover (A).

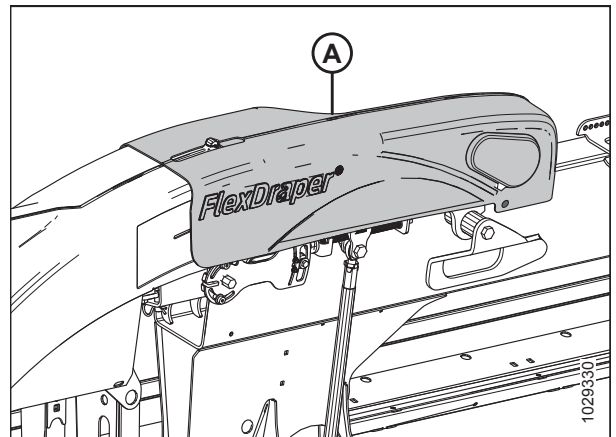


Figure 7.68: Wing Imbalance

### NOTE:

Parts hidden for clarity.

10. Attach flex checker cable (A) to flex checker cable lock (B).
11. Open left header endshield. For instructions, refer to [6.3.1 Opening Header Endshields, page 151](#).

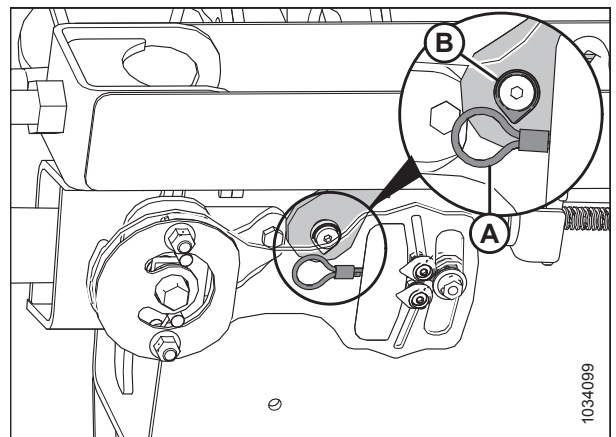


Figure 7.69: Flex Checker Cable Lock – Left Side

## PERFORMING PREDELIVERY CHECKS

12. Remove hairpin (A) securing tool to tool holder bracket on left endsheet.
13. Remove tool (B), and reinstall hairpin to tool holder.

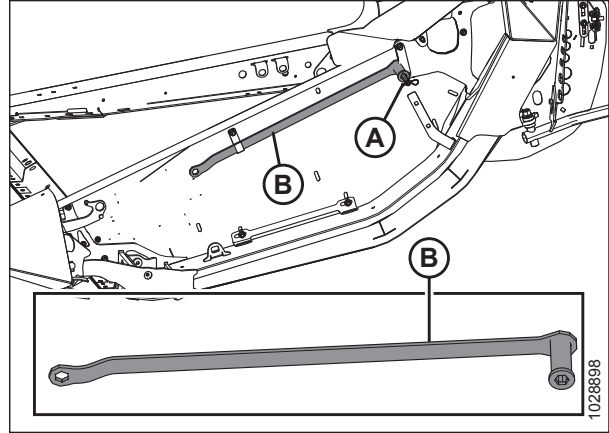


Figure 7.70: Left Endsheet

14. Unlock the wing you are checking by moving spring handle (A) to the lower (UNLOCK) position. Unlock **ONLY** the wing you are checking. Ensure the opposite wing is locked.

**NOTE:**

There should be an audible click when you move the spring handle indicating that the internal mechanism engaged or disengaged.

15. If the internal lock mechanism does not engage, move the wing with tool (B) until you hear an audible click.

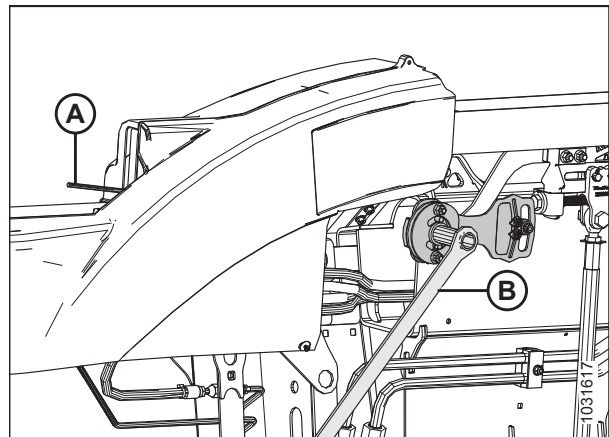


Figure 7.71: Wing Unlocked Position

16. Ensure float checking toggles (A) are disengaged (down) on both sides of the float module.
17. Ensure float locks (B) are engaged (up) on both sides of the float module.

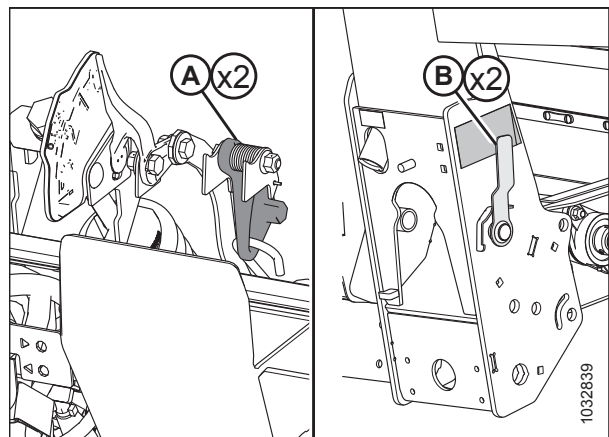


Figure 7.72: Checker Plate Assembly



## PERFORMING PREDELIVERY CHECKS

18. On flex checker plate, pinch indicators (A) and (B) together with your fingers.
19. Use tool (C) to rotate flex checker plate up until pin reaches the end of slot. The lower indicator (B) will move down to give the first reading.
20. Use tool (C) to rotate flex checker plate down until pin reaches the end of slot. The upper indicator (A) will move up to give the second reading.
21. Repeat Step 19, page 205 and Step 20, page 205 on the opposite side of the header.

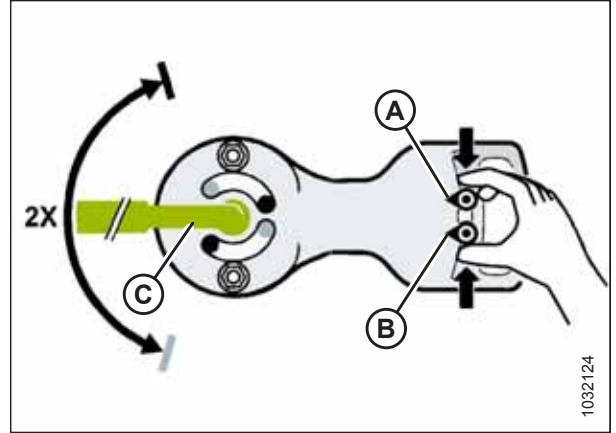


Figure 7.73: Wing Balance Adjustment – Left Side Shown

22. Interpret the reading on the flex checker plate as follows:
  - If the wing is too light (A), make it heavier by turning adjuster bolt (D) to move clevis (E) in direction (F). Recheck wing balance. Adjust as required until wing is balanced (C), and then proceed to the next step.
  - If the wing is too heavy (B), make it lighter by turning adjuster bolt (D) to move clevis (E) in direction (G). Recheck wing balance. Adjust as required until wing is balanced (C), and then proceed to the next step.
  - If the wing is balanced (C), no action is required. Proceed to the next step.
23. Move the spring handle to the upper (LOCK) position.
24. If the lock does not engage, move the wing up and down with tool until it locks.

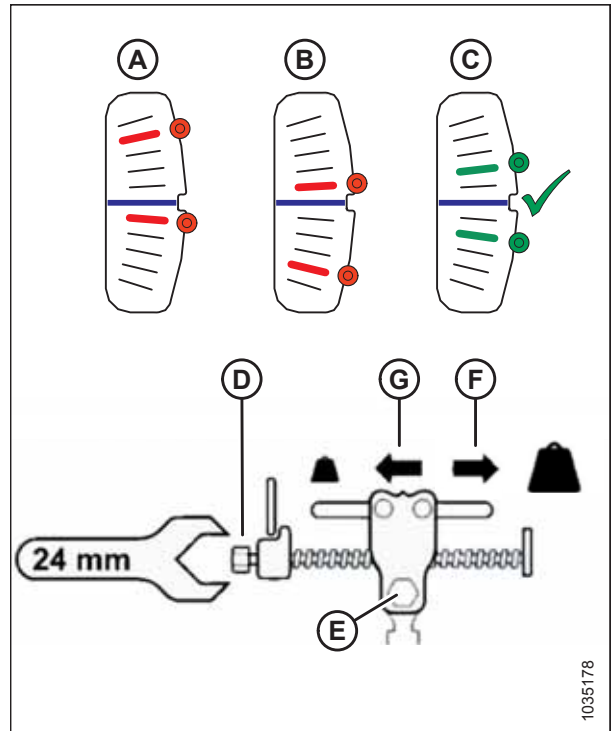


Figure 7.74: Wing Balance Adjustment – Left Side Shown

## PERFORMING PREDELIVERY CHECKS

### NOTE:

Some parts hidden for clarity.

25. Remove flex checker cable (A) from flex checker cable lock (B).

### IMPORTANT:

Damage to checker cable may occur if left attached.

26. Repeat the procedure on the opposite side.

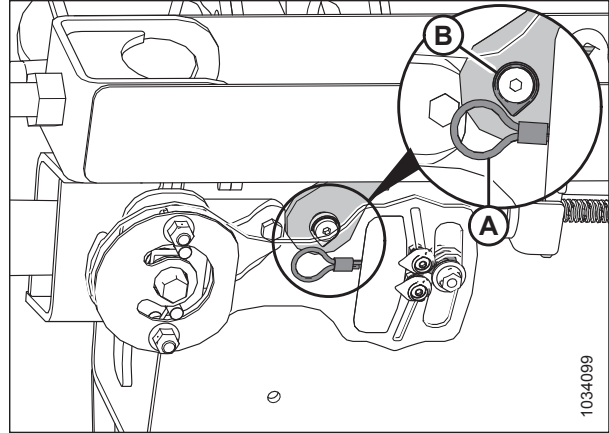


Figure 7.75: Flex Checker Cable Lock – Left Side

27. Return tool (B) to its storage position, and secure with hairpin (A).
28. Reinstall the linkage cover.

### NOTE:

Adjustment to the main float may be required to maintain good wing balance when operating in the field. For instructions, refer to [7.14 Checking and Adjusting Header Float](#), page 197.

29. If the cutterbar is not straight when the wings are in lock mode, then further adjustments are required.

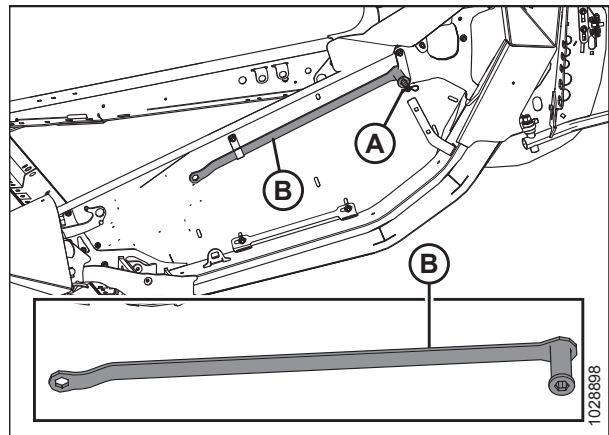


Figure 7.76: Left Endsheets

## 7.16 Adjusting Feed Auger to Pan Clearance

### DANGER

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

#### IMPORTANT:

Maintain an appropriate distance between the feed auger and the feed auger pan. Too little clearance may result in the fingers or flighting contacting and damaging the feed draper or pan when operating the header at certain angles. Look for evidence of contact when greasing the float module.

1. Extend the center-link to the steepest header angle (setting E), and position the header 254–356 mm (10–14 in.) off the ground.
2. Lock the header wings.
3. Shut down the engine, and remove the key from the ignition.
4. Check that the float lock linkage is on the down stops (washer [A] cannot be rotated) at both locations.

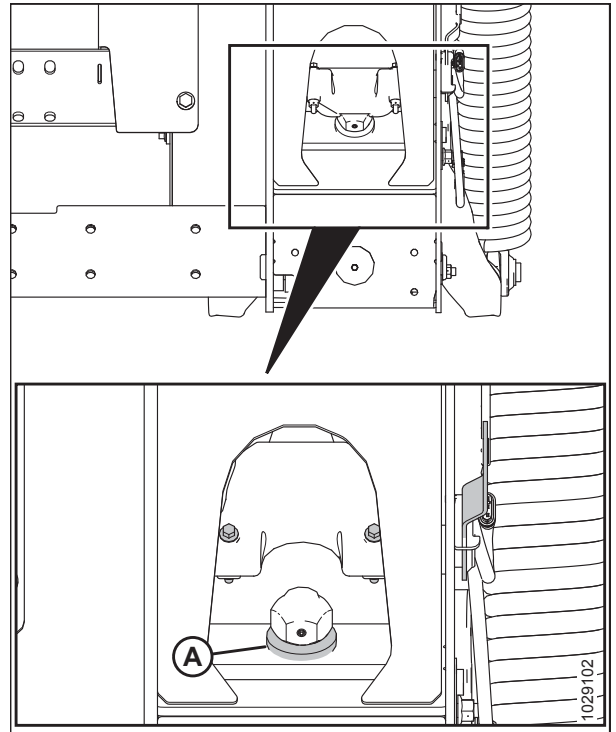


Figure 7.77: Down Stop Washer

## PERFORMING PREDELIVERY CHECKS

- Before adjusting the auger to pan clearance, check the auger float position to determine how much clearance is required:
  - If bolt head (A) is closest to floating symbol (B), the auger is in the floating position.

### IMPORTANT:

Make sure bolts (A) are set at the same location on both ends of the header to prevent damaging the machine during operation.

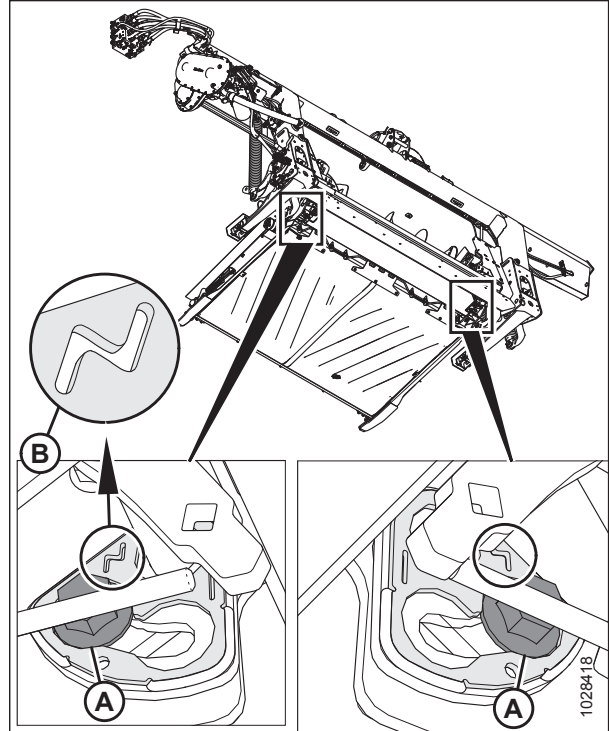


Figure 7.78: Floating Position

- If bolt head (A) is closest to fixed symbol (B), the auger is in the fixed position.

### IMPORTANT:

Make sure bolts (A) are set at the same location on both ends of the header to prevent damaging the machine during operation.

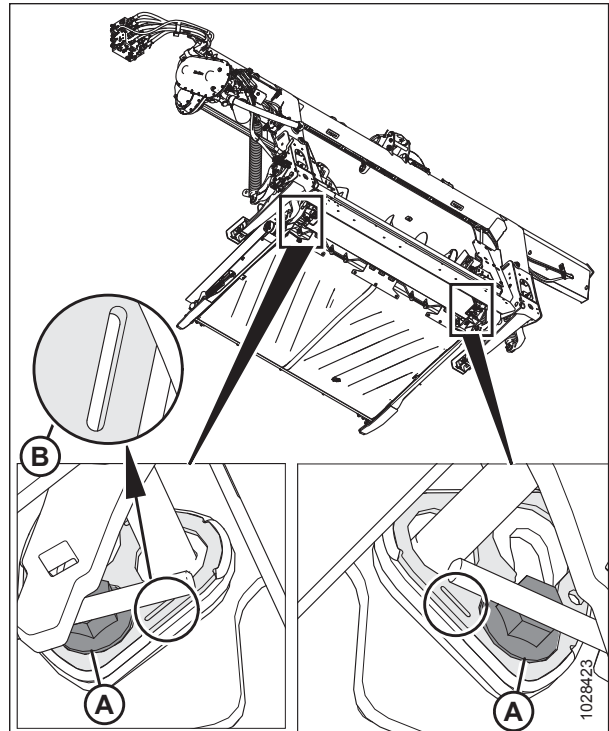


Figure 7.79: Fixed Position

## PERFORMING PREDELIVERY CHECKS

6. Loosen two nuts (B) and rotate the auger to position the flighting over the feed pan.
7. Turn bolt (A) clockwise to increase clearance (C); turn bolt (A) counterclockwise to decrease clearance (C).
  - If the feed auger is in the fixed position, set clearance to 24–28 mm (15/16–1 1/8 in.).
  - If the feed auger is in the floating position, set clearance to 11.5–15.5 mm (7/16–5/8 in.).

**NOTE:**

The clearance increases between 25–40 mm (1–1 1/2 in.) when the center-link is fully retracted.

8. Repeat Steps 6, [page 209](#) and 7, [page 209](#) for the opposite end of the auger.

**IMPORTANT:**

Adjusting one side of the auger can affect the other side. Always double-check both sides of the auger after making final adjustments.

9. Tighten nuts (B) on both ends of the feed auger. Torque the nuts to 93–99 Nm (68–73 lbf·ft).
10. Rotate the drum and double-check clearances.

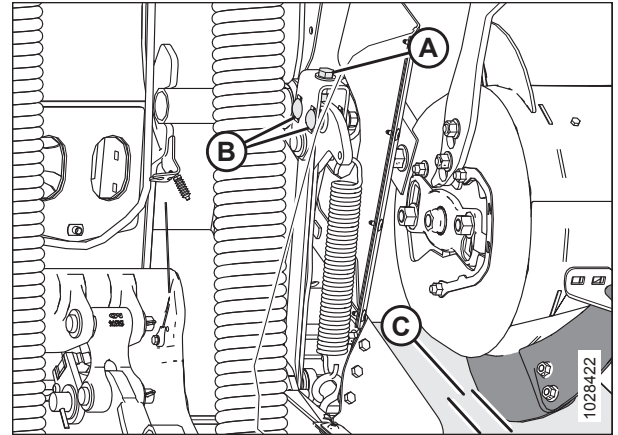


Figure 7.80: Auger Clearance

## 7.17 Checking and Adjusting Side Draper Tension

### DANGER

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

The drapers are tensioned at the factory and should **NOT** require adjustment. If adjustment is required, draper tension should be just enough to prevent slipping and to keep the draper from sagging below the cutterbar.

1. Ensure tensioner indicator (A) is approximately halfway in the window.

### DANGER

Check to be sure all bystanders have cleared the area.

2. Start the engine. For instructions, refer to the combine operator's manual.
3. Raise the header fully.
4. Shut down the engine, and remove the key from the ignition.
5. Engage the header safety props.

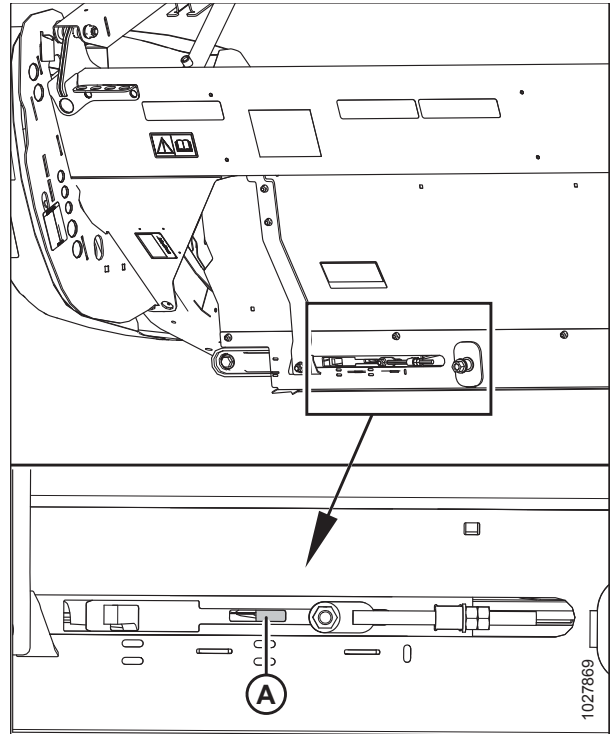


Figure 7.81: Tension Adjuster – Left Side Shown, Right Side Opposite

6. Check that draper guide (rubber track on underside of draper) is properly engaged in groove (A) of drive roller.

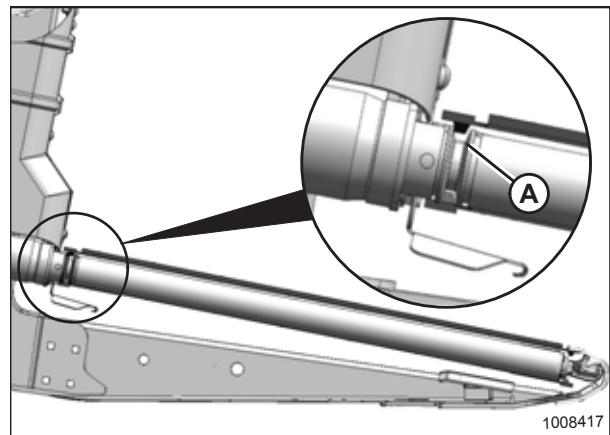


Figure 7.82: Drive Roller

## PERFORMING PREDELIVERY CHECKS

7. Check that idler roller (A) is between guides (B).

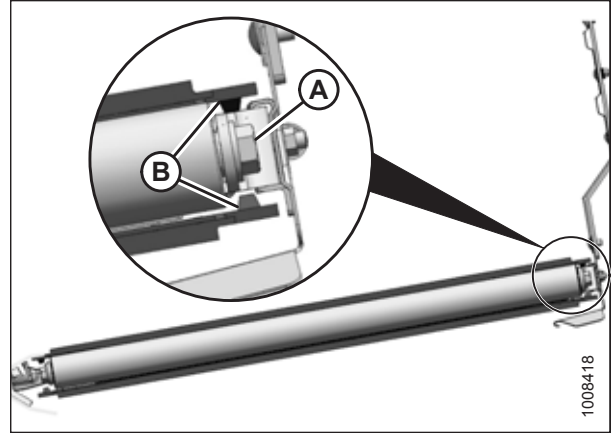


Figure 7.83: Idler Roller

### IMPORTANT:

Do **NOT** adjust nut (C). This nut is used for draper alignment only.

8. Turn adjuster bolt (A) counterclockwise to loosen. Loosen until the adjuster bolt runs out of adjustment and hits a hard stop.
9. Turn adjuster bolt (A) clockwise to tighten. Tensioner indicator (B) will move inboard to indicate that the draper is tightening. Tighten until the bar is about halfway in the window.

### IMPORTANT:

To avoid premature failure of the draper, draper rollers, and/or tightener components, do not operate with the tensioner indicator not visible.

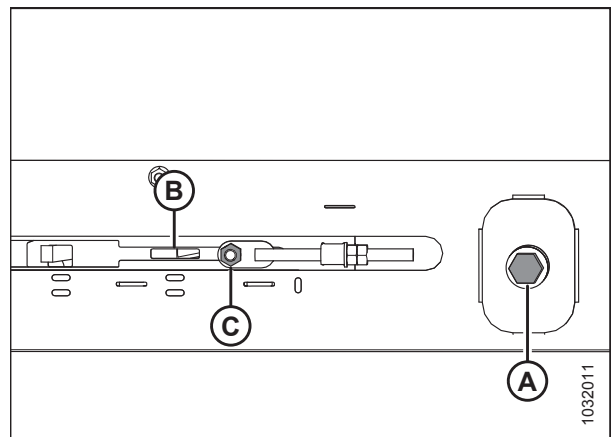


Figure 7.84: Tension Adjuster – Left Side Shown, Right Side Opposite

## 7.18 Checking Draper Seal

### WARNING

To avoid bodily injury or death from unexpected startup of machine, always stop engine and remove key before adjusting machine.

1. Start the engine. For instructions, refer to the combine operator's manual.
2. Lower the header to working position.
3. Shut down the engine, and remove the key from the ignition.

#### NOTE:

Take measurements at deck supports (A) with the header in working position. Depending on the header size, there are between four and seven supports per deck.

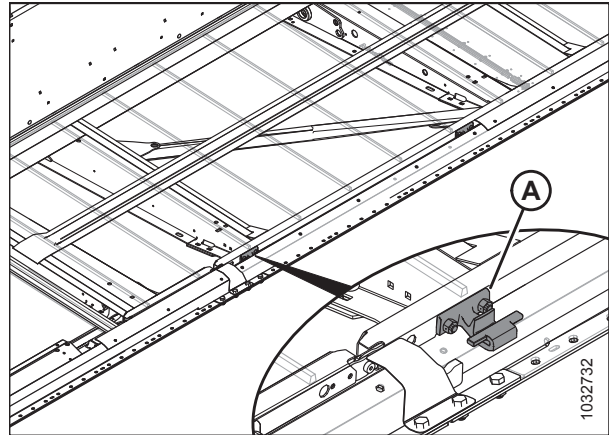


Figure 7.85: Draper Deck Supports

4. Check that clearance (A) between draper (B) and metal seal (C) is 1–3 mm (0.04–0.12 in.).

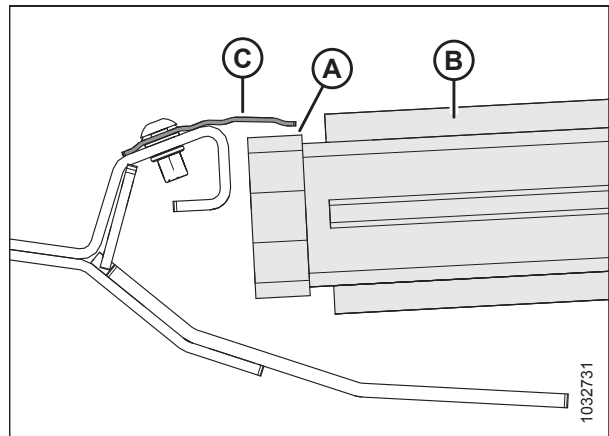


Figure 7.86: Draper Seal



## PERFORMING PREDELIVERY CHECKS

*If adjustment is required, proceed as follows:*

5. Loosen the draper tension. For instructions, refer to [7.17 Checking and Adjusting Side Draper Tension, page 210](#).
6. Lift front edge of draper (A) past cutterbar (B) to expose the deck support.
7. Measure and note the thickness of the draper belt.

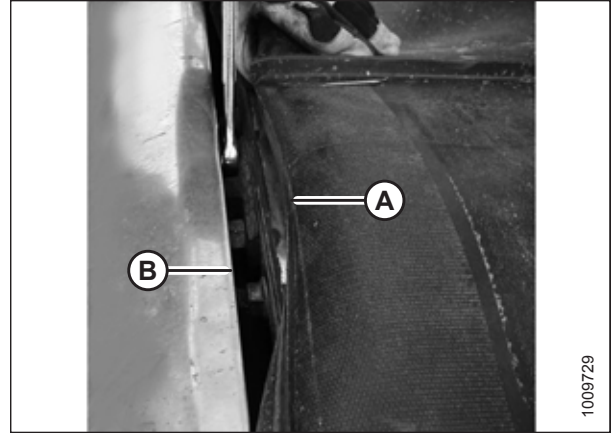


Figure 7.87: Deck Support

8. Loosen two lock nuts (A) on deck support (B) one half-turn **ONLY**.

**NOTE:**

The deck is shown with the draper removed. The number of deck supports (B) is determined by the header width as follows:

- **FD230:** Eight supports
- **FD235, FD240:** Ten supports
- **FD245:** Twelve supports
- **FD250:** Fourteen supports

9. Tap deck (C) with a hammer and block of wood to lower the deck relative to the deck supports. Tap deck support (B) using a punch to raise the deck relative to the deck supports.
10. Locate a gauge that is the same thickness as the draper belt, plus 1 mm (0.04 in.). Slide the thickness gauge along deck (A) under the metal seal (C) in order to properly set the gap.
11. To create a seal, adjust deck (A) so that clearance (B) between metal seal (C) and deck is the same thickness as the draper belt plus 1 mm (0.04 in.).

**NOTE:**

When checking clearance at either roller, measure from the roller tube, **NOT** the deck.

12. Tighten deck support hardware (D).
13. Recheck gap (B) with thickness gauge. For instructions, refer to [Step 10, page 213](#).

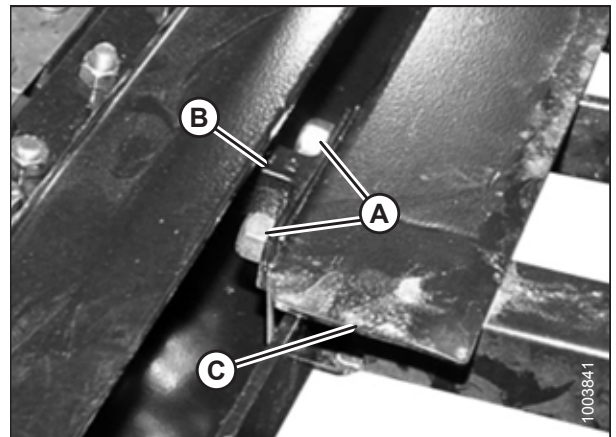


Figure 7.88: Deck Support

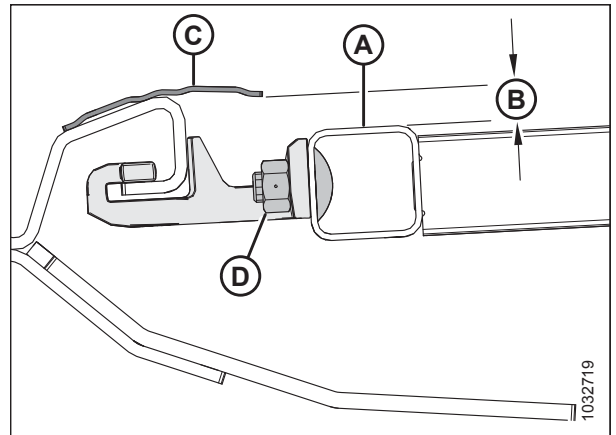


Figure 7.89: Deck Support

## 7.19 Lubricating the Header

Table 7.10 Recommended Lubricant

Specification	Description	Use
SAE multipurpose	High temperature, extreme pressure (EP2) performance with 1% max molybdenum disulphide (NLGI Grade 2) lithium base	As required unless otherwise specified
SAE multipurpose	High temperature, extreme pressure (EP) performance with 10% max molybdenum disulphide (NLGI Grade 2) lithium base	Driveline slip-joints

### 7.19.1 Greasing Procedure

Greasing points are identified on the machine by decals showing a grease gun and grease interval in hours of operation. Grease point layout decals are located on the header and on the right side of the float module.

#### DANGER

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

1. Wipe grease fitting with a clean cloth before greasing to avoid injecting dirt and grit.

**IMPORTANT:**

Use clean, high-temperature, extreme-pressure grease only.

2. Inject grease through fitting with grease gun until grease overflows fitting (except where noted).
3. Leave excess grease on fitting to keep out dirt.
4. Replace any loose or broken fittings immediately.
5. Remove and thoroughly clean any fitting that will not take grease. Also clean lubricant passageway. Replace fitting if necessary.

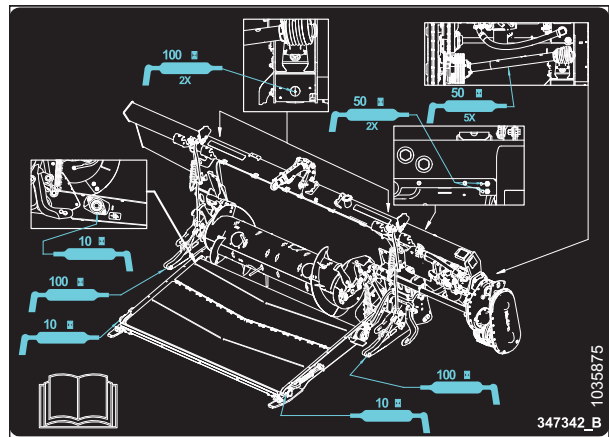


Figure 7.90: FM200 Grease Point Layout Decal

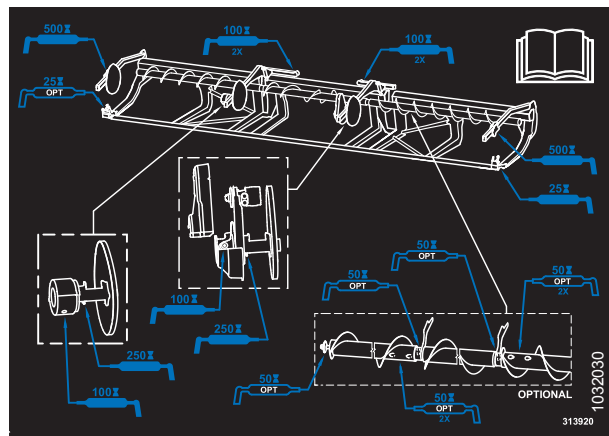


Figure 7.91: FD2 Series Grease Point Layout Decal

## 7.19.2 Lubrication Points

**NOTE:**

Use high temperature extreme pressure (EP2) performance with 1% max molybdenum disulphide (NLGI Grade 2) lithium base grease unless otherwise specified.

**Feed Draper**

**Feed Draper Drive Roller:**

**IMPORTANT:**

When greasing, clear any debris and excess grease from around the bearing and bearing housing. Inspect the condition of the bearing and bearing housing. Grease the feed draper drive roller bearing until grease comes out of the seal. Wipe any excess grease from area after greasing.

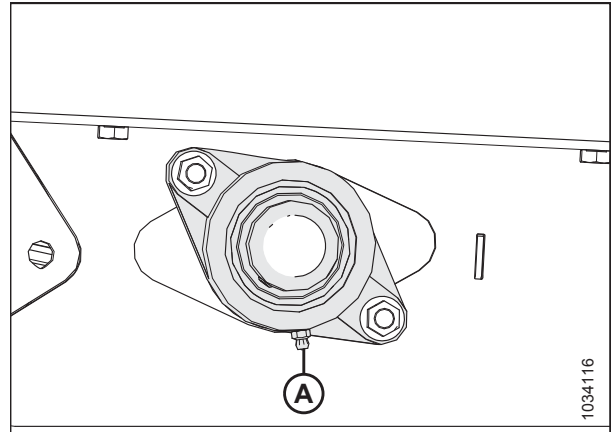


Figure 7.92: Feed Draper Drive Roller

**Feed Draper Idler Roller:**

**IMPORTANT:**

When greasing, clear any debris, and excess grease from around the bearing housing. Inspect the condition of the roller and bearing housing. Grease the feed draper idler roller bearing until grease comes out of the seal. Initial greasing on a new header may require additional grease (may require 5-10 pumps). Wipe any excess grease from area after greasing.

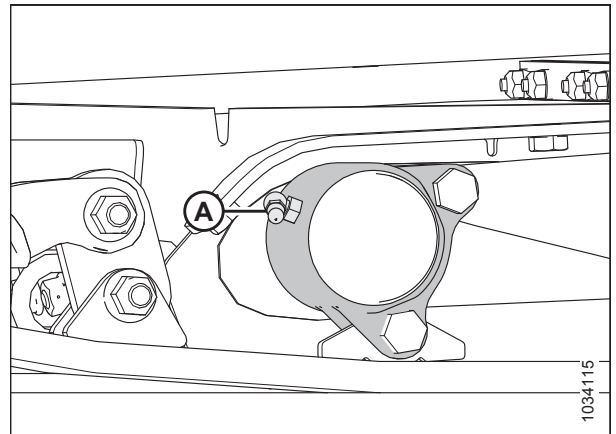


Figure 7.93: Feed Draper Idler Roller

## PERFORMING PREDELIVERY CHECKS

### *Knifehead*

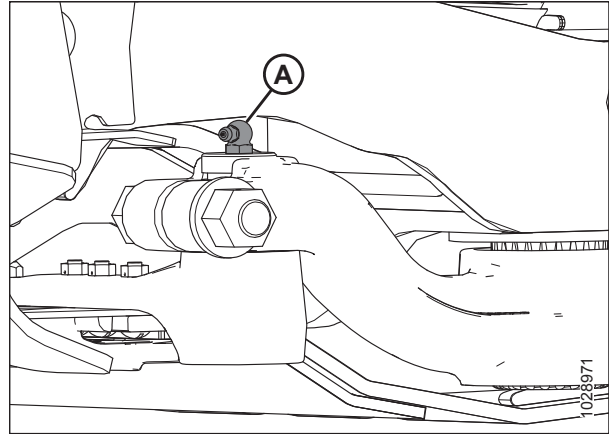
#### **NOTE:**

There is one knifehead on a single knife and two on a double knife.

#### **IMPORTANT:**

Overgreasing can cause the knife to bend and make contact with the guards closest to the knifehead. Check for signs of excessive heating on first few guards after greasing. If required, relieve some pressure by removing the grease fitting.

- To prevent binding and/or excessive wear caused by knife pressing on guards, do **NOT** overgrease the knifehead (A).
- Apply only 1–2 pumps of grease with a grease gun, or just until the knifehead starts to move away from the arm. Do **NOT** use an electric grease gun.
- If more than 6–8 pumps of the grease gun are required to fill the cavity, replace the seal in the knifehead.
- Check for signs of excessive heating on first few guards after greasing. If required, relieve pressure by pressing check-ball in grease fitting.



**Figure 7.94: Knifehead**

PERFORMING PREDELIVERY CHECKS

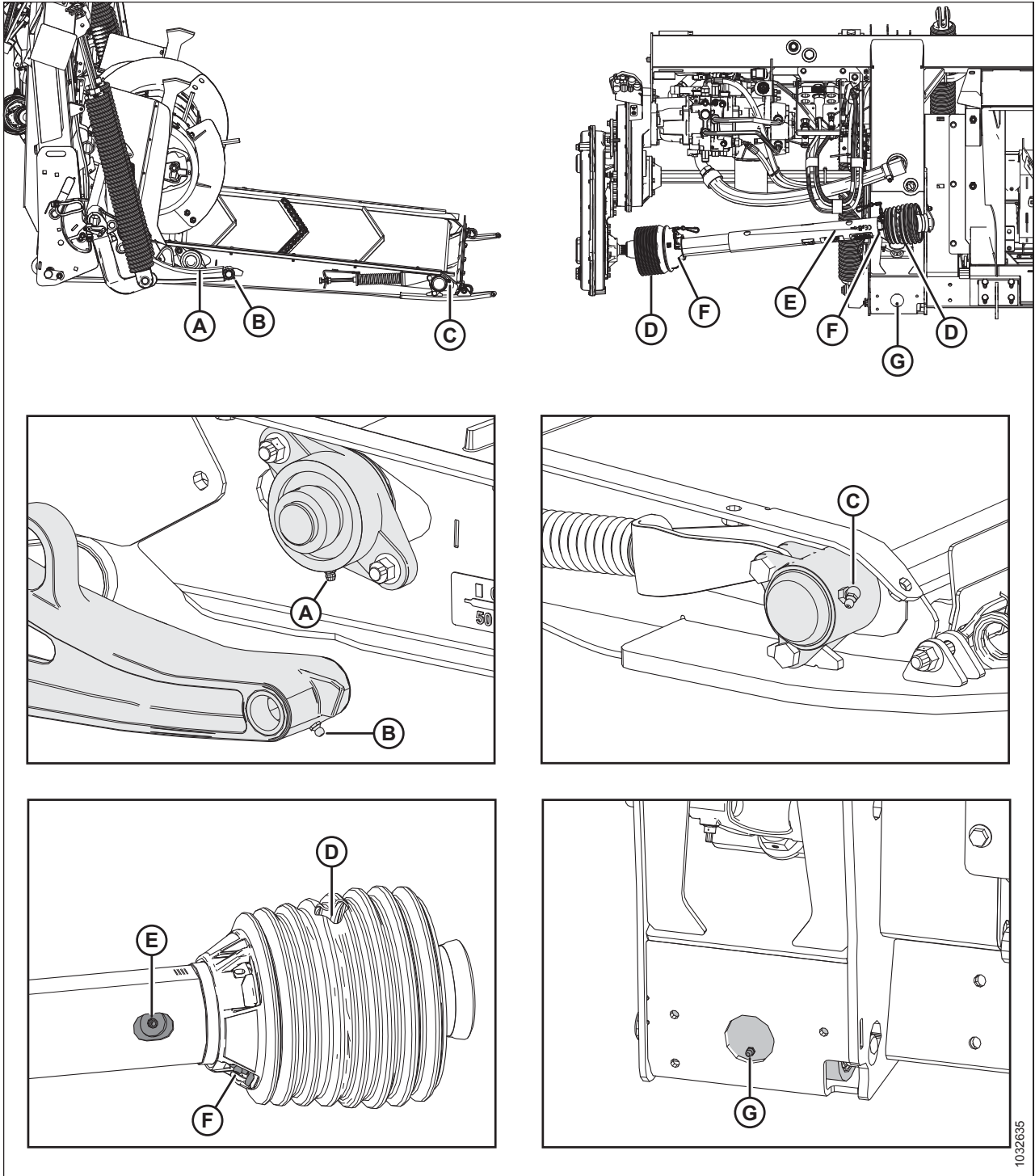


Figure 7.95: FM200

- A - Drive Roller Bearing
- C - Idler Roller Bearing (Two Places)
- E - Driveline Slip Joint<sup>17</sup>
- G - Float Pivots (Right and Left)

- B - Lower Link Bearing (Two Places)
- D - Driveline Universal (Two Places)
- F - Driveline Guards (Two Places)

17. Use high temperature extreme pressure (EP2) performance grease with 10% max molybdenum disulphide (NLGI Grade 2) lithium base.

PERFORMING PREDELIVERY CHECKS

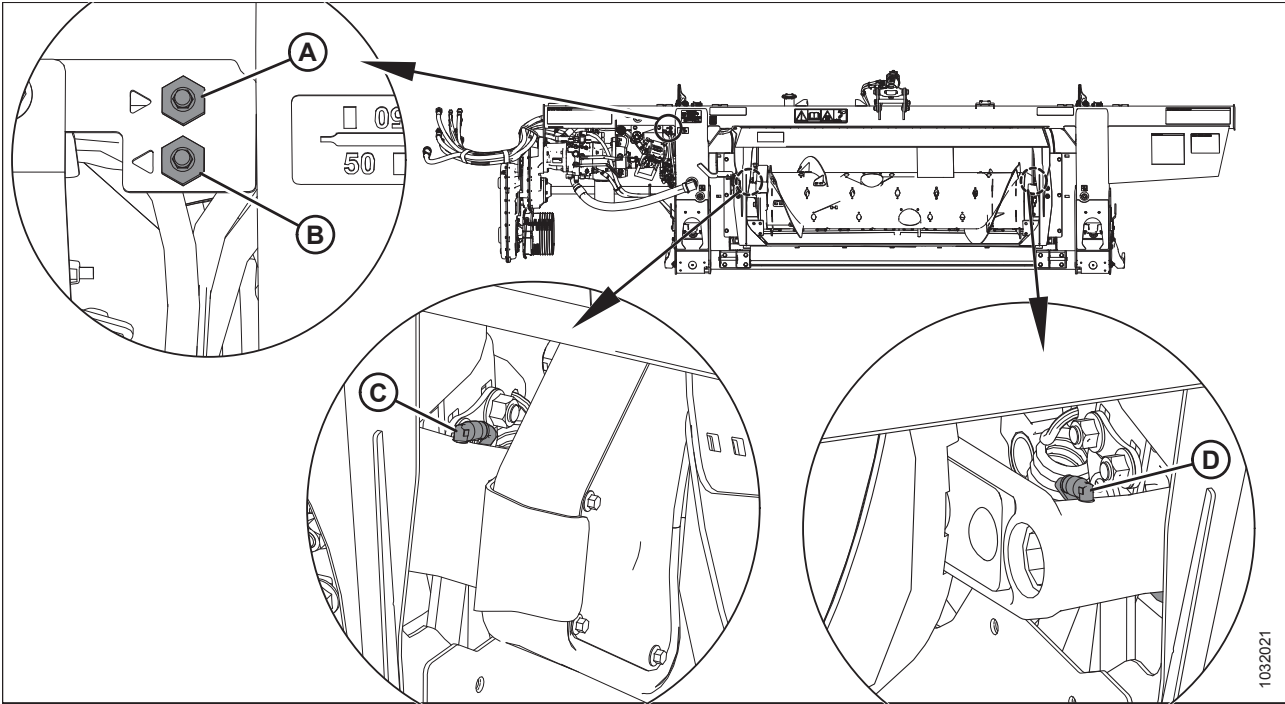


Figure 7.96: FM200

A - Remote Grease Line for Auger Pivot (Right Side)  
 C - Auger Pivot (Left Side)

B - Remote Grease Line for Auger Pivot (Left Side)  
 D - Auger Pivot (Right Side)

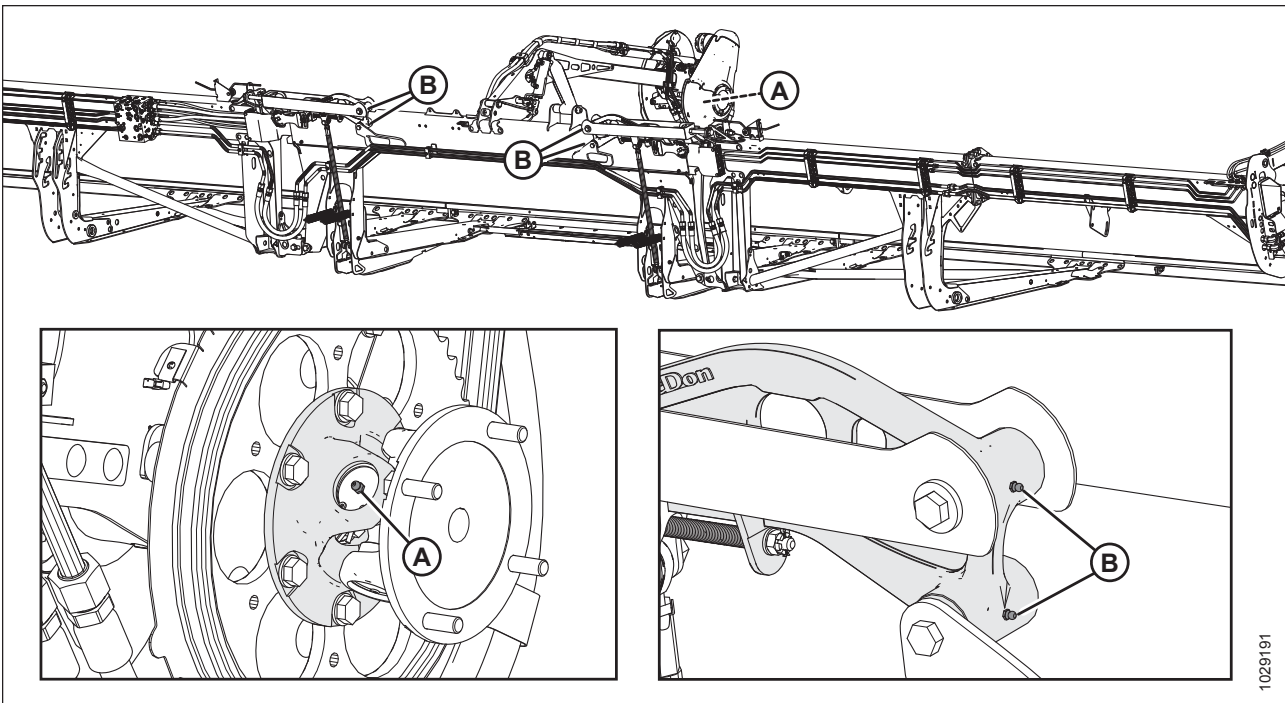


Figure 7.97: Reel U-Joint and Flex Linkage

A - Reel U-joint (One Place)<sup>18</sup>

B - Flex Linkage (Two Places) – Both Sides

18. U-joint has an extended lubrication cross and bearing kit. Stop greasing when greasing becomes difficult or if U-joint stops taking grease. Overgreasing will damage U-joint. Six to eight pumps are sufficient at first grease (factory). Decrease the grease interval as the U-joint wears and requires more than six pumps.

PERFORMING PREDELIVERY CHECKS

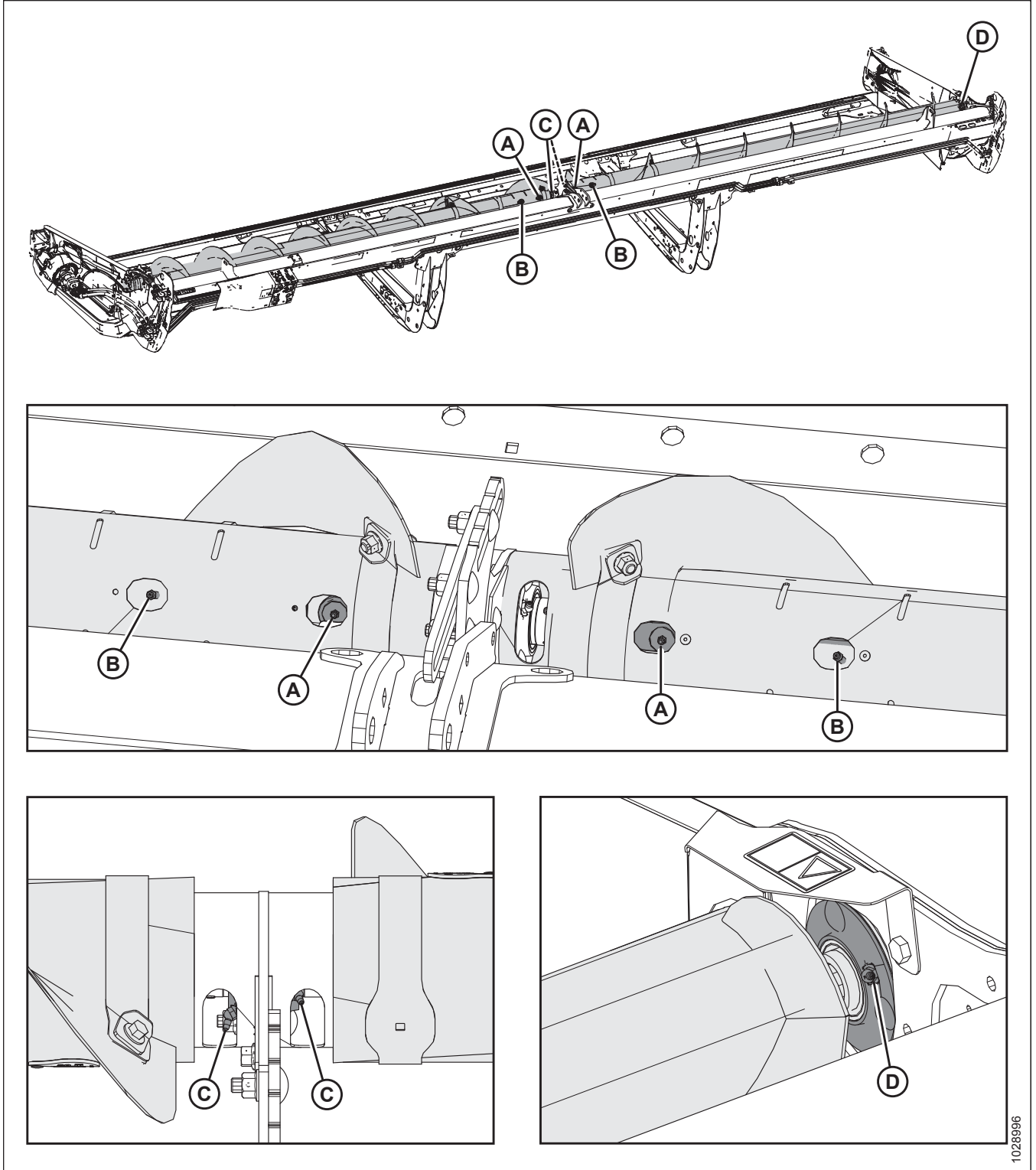
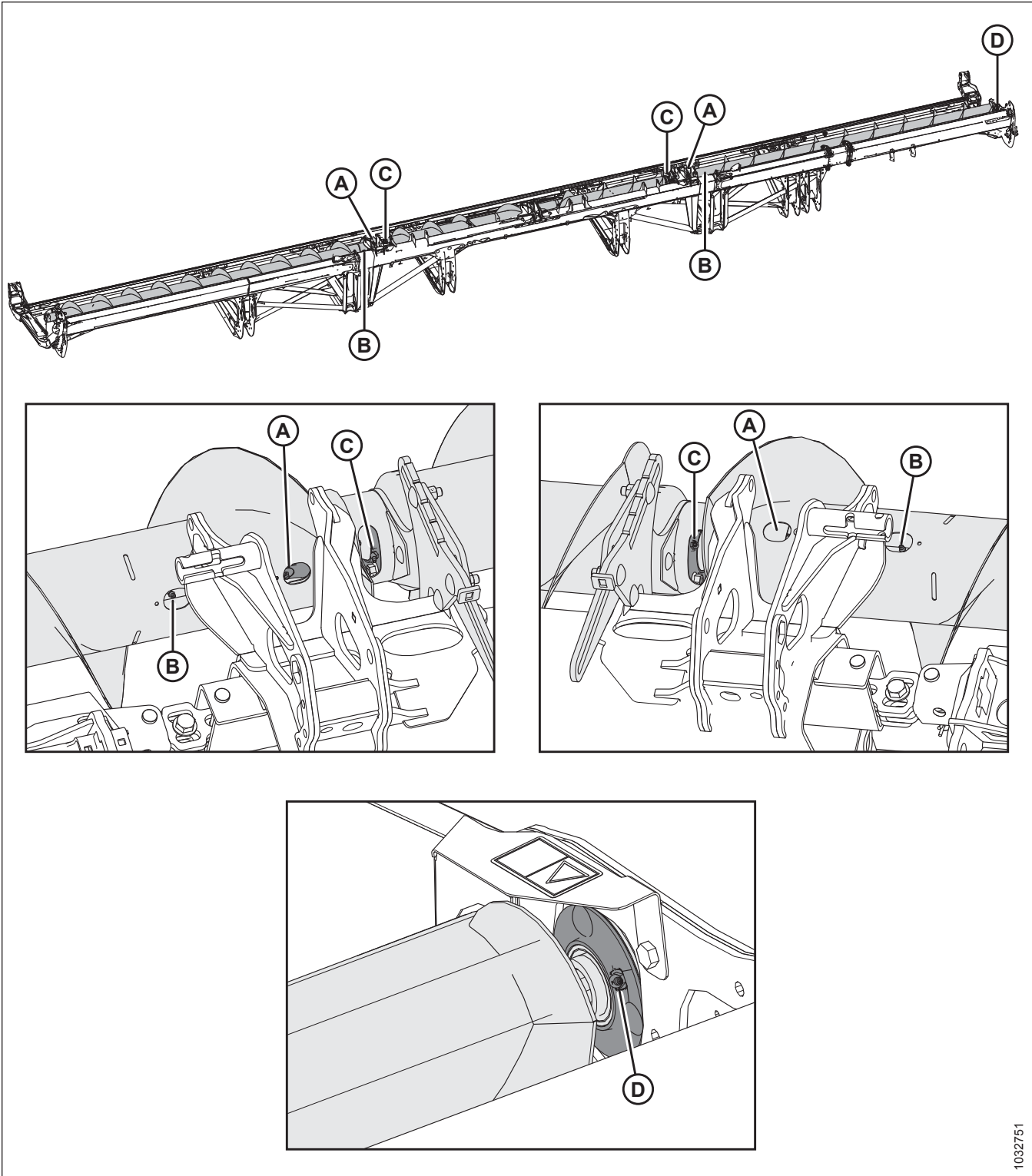


Figure 7.98: Two-Piece Upper Cross Auger

- A - Upper Cross Auger U-joints (Two Places)
- C - Upper Cross Auger Center Bearings (Two Places)

- B - Upper Cross Auger Sliding Hubs (Two Places)
- D - Right End Bearing

PERFORMING PREDELIVERY CHECKS



1032751

Figure 7.99: Three-Piece Upper Cross Auger

A - Upper Cross Auger U-joints (Two Places)

C - Upper Cross Auger Center Bearings (Two Places)

B - Upper Cross Auger Sliding Hubs (Two Places)

D - Right End Bearing



PERFORMING PREDELIVERY CHECKS

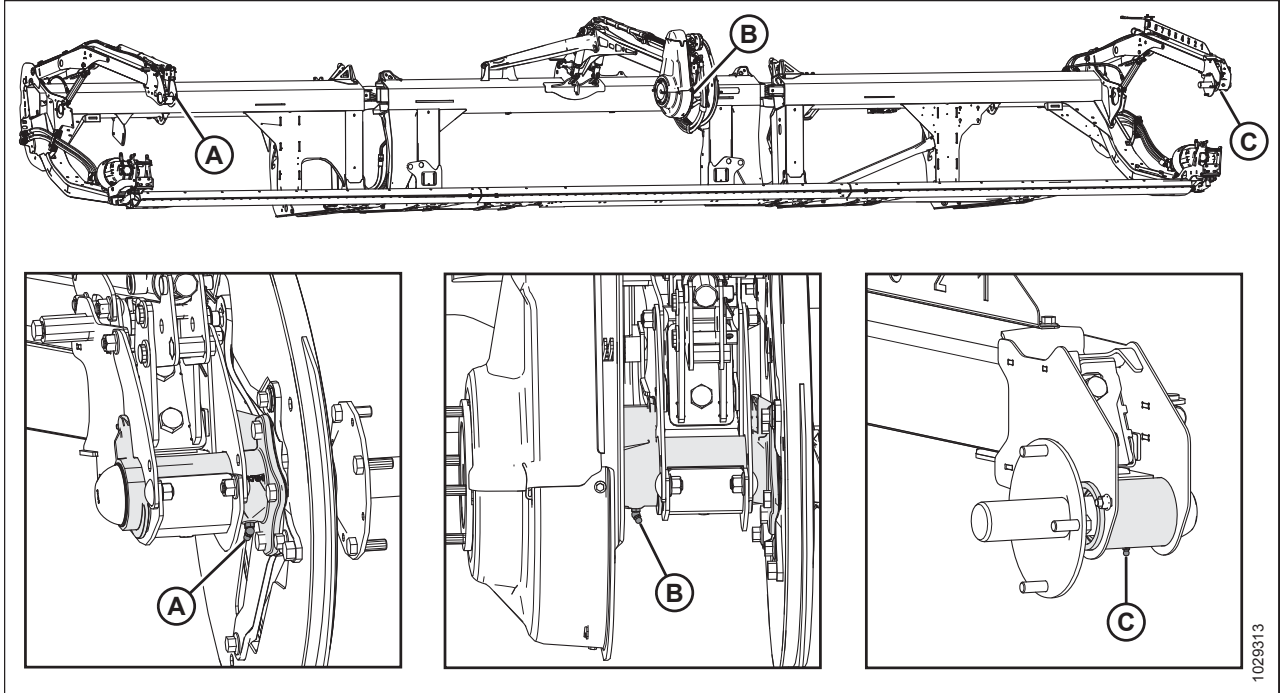


Figure 7.100: Reel

A - Reel Right Bearing (One Place)

B - Reel Center Bearing (One Place)

C - Reel Left Bearing (One Place)

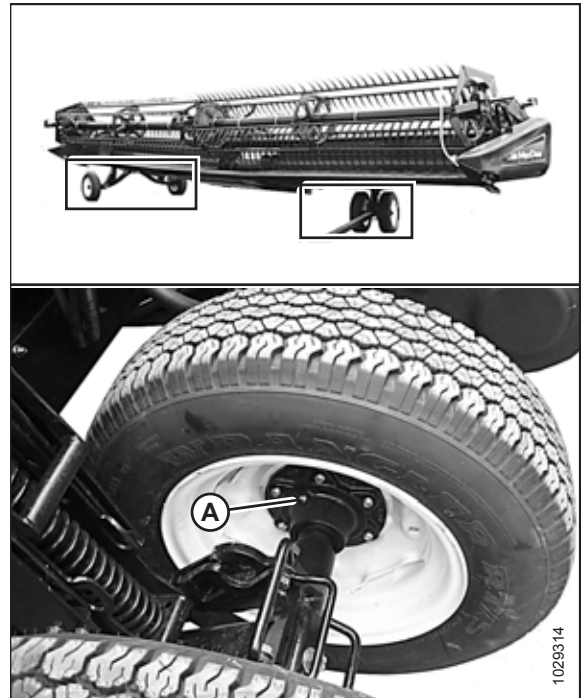


Figure 7.101: Transport Wheel Bearings

A - Wheel Bearings (Four Places)

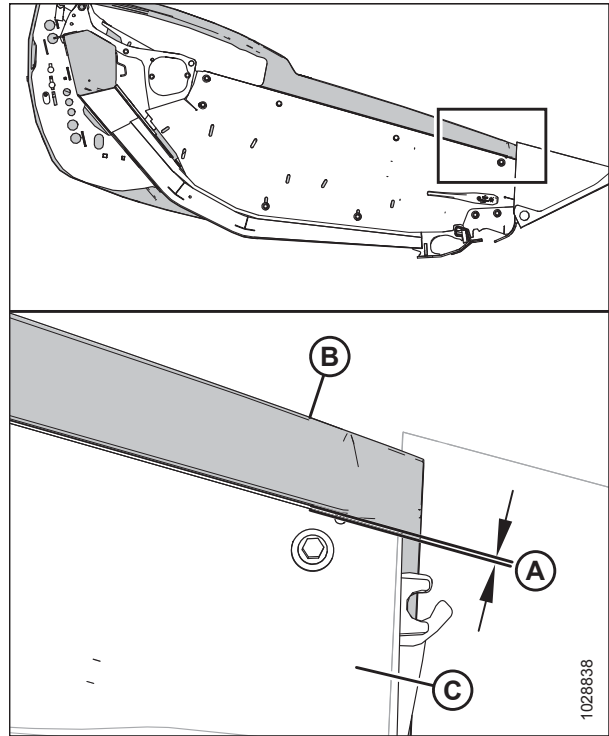
## 7.20 Checking and Adjusting Header Endshields

Header endshields are subject to expansion or contraction caused by large temperature variations. The position of the header endshield can be adjusted to compensate for dimensional changes.

**IMPORTANT:**

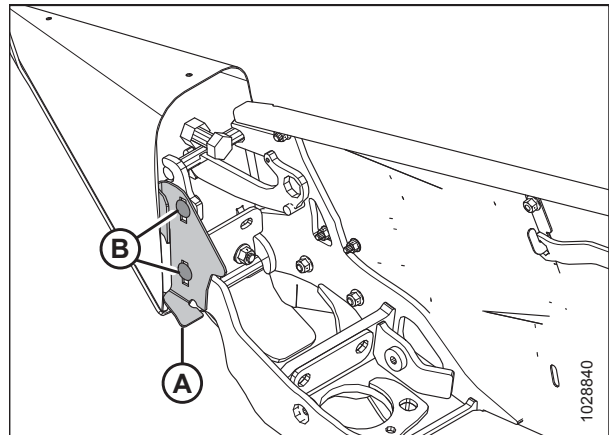
Damage to the aluminum endsheet will result if the weight of the plastic header endshield rests on it.

1. Check if gap (A) between header endshield (B) and endsheet (C) is 1–3 mm (0.04–0.12 in.).



**Figure 7.102: Gap between Header Endshield and Endsheet**

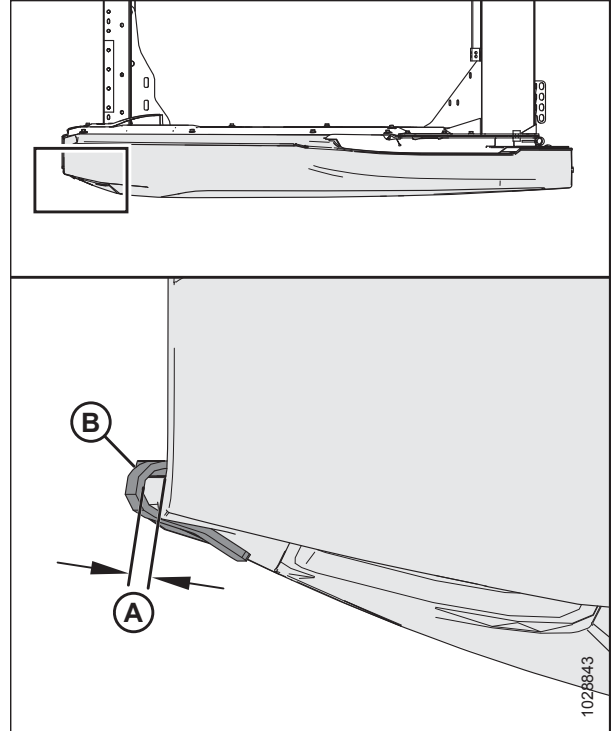
2. If adjustment is required, adjust support bracket (A) as follows:
  - a. Loosen bolts (B).
  - b. Move support bracket (A) up or down as required to achieve correct clearance.
  - c. Retighten hardware.



**Figure 7.103: Header Endshield Support Bracket**

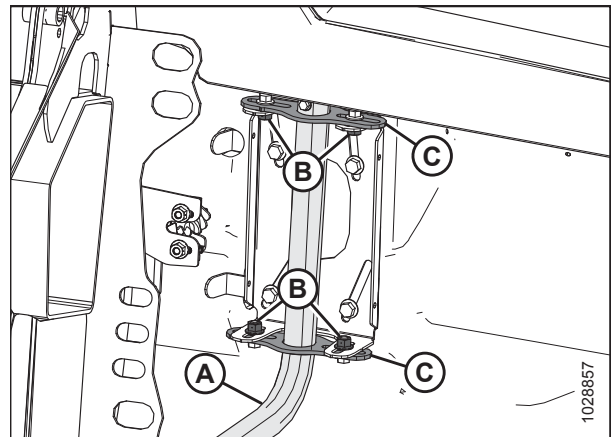
## PERFORMING PREDELIVERY CHECKS

3. Check if gap (A) between front of the header endshield and support bracket (B) is 6–10 mm (1/4–3/8 in.).



**Figure 7.104: Gap between Header Endshield and Support Bracket**

4. If adjustment is required, adjust the position of hinge arm (A) as follows:
  - a. Loosen four nuts (B).
  - b. Slide brackets (C) and hinge arm (A) fore or aft as required to achieve correct clearance.
  - c. Retighten hardware.



**Figure 7.105: Left Header Endshield**

## PERFORMING PREDELIVERY CHECKS

### IMPORTANT:

After making adjustments, ensure bolt (A) is fully engaged on two-stage latch (B) to prevent the header endshield from opening during operation.

### NOTE:

The header endshield is shown transparent in the illustration.

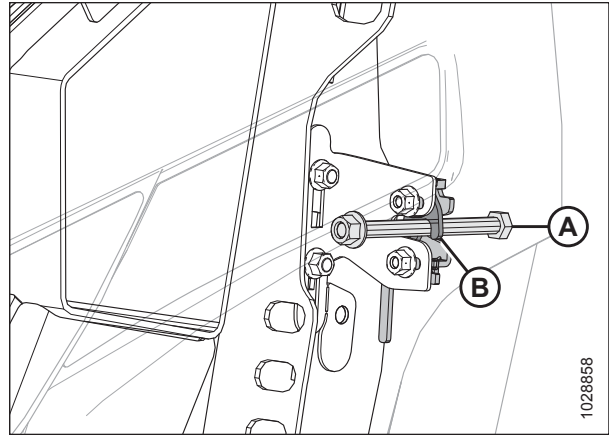


Figure 7.106: Two-Stage Latch

## 7.21 Checking Manuals

Check the manual case contents. The manual storage case is located at the rear of the header, beside the right outer leg.

1. Remove the cable tie on manual case (A).
2. Confirm that the case contains the following manuals:
  - FD2 Series FlexDraper® Combine Header with FM200 Float Module Operator's Manual
  - FD2 Series FlexDraper® Combine Header with FM200 Float Module Quick Card
  - FD2 Series FlexDraper® Combine Header with FM200 Float Module Parts Catalog
3. Close the manual storage case.

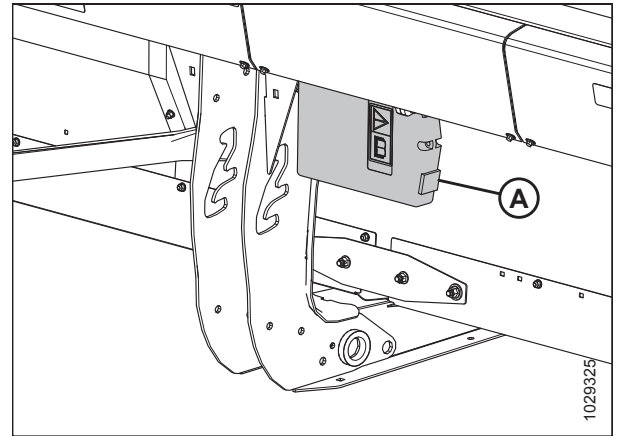


Figure 7.107: Manual Case

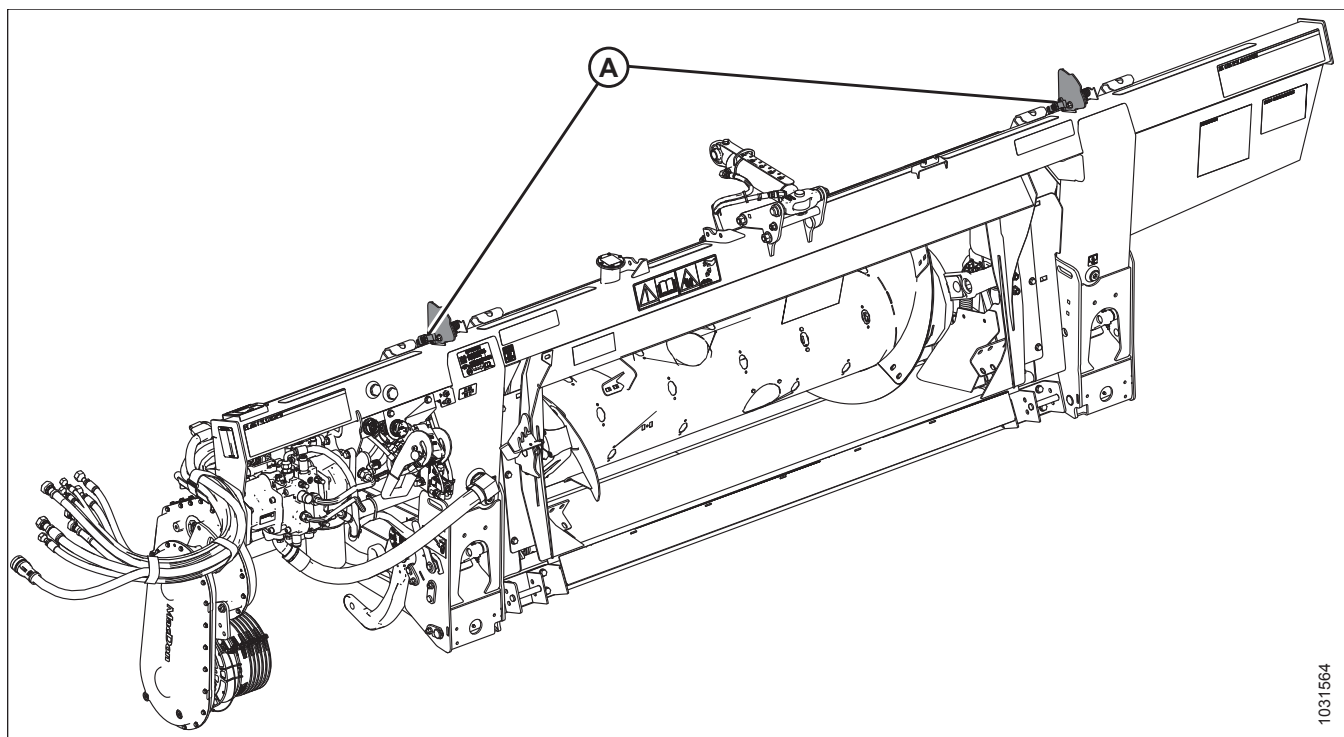


# Chapter 8: Setting up Auto Header Height Control

## 8.1 Auto Header Height Control

MacDon's auto header height control (AHHC) feature works in conjunction with the AHHC option available on certain combine models.

There are two float height sensors (A) installed on the float setting indicators on the float module. These sensors send signals to the combine allowing it to maintain a consistent cutting height and an optimum float as the header follows ground contours.



**Figure 8.1: FM200 Float Module**

FM200 Float Modules are factory-equipped for AHHC; however, before using the AHHC feature, you must do the following:

1. Ensure that the AHHC sensor's output voltage range is appropriate for the combine. For more information, refer to [8.1.2 Sensor Output Voltage Range – Combine Requirements, page 228](#).
2. Prepare the combine to use the AHHC feature (applies only to some combine models—refer to the following instructions for your combine).
3. Calibrate the AHHC system so that the combine can correctly interpret data from the height sensor on the float module (refer to the following instructions for your combine).

**NOTE:**

Once calibration is complete, you are ready to use the AHHC feature in the field. Individual combine settings can improve AHHC performance (refer to your combine instruction manual).

Refer to the following instructions for your specific combine model:

- [8.1.6 IDEAL™ Series Combines, page 233](#)
- [8.1.8 Case IH, 120, 230, 240, and 250 Series Combines, page 253](#)
- [8.1.9 Challenger and Massey Ferguson 6 and 7 Series Combines, page 267](#)

## SETTING UP AUTO HEADER HEIGHT CONTROL

- [8.1.10 CLAAS 500 Series Combines, page 274](#)
- [8.1.11 CLAAS 600 and 700 Series Combines, page 283](#)
- [8.1.13 Gleaner R65/R66/R75/R76 and S Series Combines, page 303](#)
- [8.1.14 Gleaner S9 Series Combines, page 312](#)
- [8.1.15 John Deere 70 Series Combines, page 325](#)
- [8.1.16 John Deere S and T Series Combines, page 332](#)
- [8.1.18 New Holland Combines – CR/CX Series – 2014 and Prior, page 362](#)
- [8.1.19 New Holland Combines – CR Series – 2015 and Later, page 371](#)

### 8.1.1 Sensor Operation

The position sensors supplied with the auto header height control (AHHC) system are hall-effect sensors. Normal operating signal voltages for the sensors fall between 10% (0.5 VDC) and 90% (4.5 VDC). An increase in sensor voltage correlates to a decrease in ground pressure, or if you are cutting off the ground on gauge wheels an increase in the header cut height.

Sensor errors result in a 0 V signal, indicating a faulty sensor, incorrect supply voltage, or a damaged wiring harness.

### 8.1.2 Sensor Output Voltage Range – Combine Requirements

The auto header height control (AHHC) sensor output must be within a specific voltage range for each combine, or the AHHC feature will not work properly.

**Table 8.1 Combine Voltage Limits**

Combine	Low Voltage Limit	High Voltage Limit	Range
Case IH 5088/6088/7088, 5130/6130/7130, 7120/8120/9120, 7230/8230/9230, and 7240/8240/9240	0.5 V	4.5 V	2.5 V
Challenger B, C, and IDEAL™ Series	0.5 V	4.5 V	2.5 V
CLAAS 500/600/700 Series, 7000/8000 Series, and Tucano Series	0.5 V	4.5 V	2.5 V
Fendt IDEAL™ Series	0.5 V	4.5 V	2.5 V
Gleaner A6, R, and S Series	0.5 V	4.5 V	2.5 V
John Deere 70, S, and T Series	0.5 V	4.5 V	2.5 V
Massey Ferguson 9005, 9500, and IDEAL™ Series	0.5 V	4.5 V	2.5 V
New Holland CR/CX - 5 V system	0.7 V	4.3 V	2.5 V
New Holland CR/CX - 10 V system	2.8 V	7.2 V	4.1–4.4 V
Rostelmash Torum and RSM161 Series	0.5 V	4.5 V	2.5 V
Versatile RT490	0.5 V	4.5 V	2.5 V



### 8.1.3 Checking Voltage Limits

#### DANGER

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

1. Start the engine. For instructions, refer to the combine operator's manual.
2. Park the combine on a level surface.
3. Position the header so that the cutterbar is 254–356 mm (10–14 in.) off the ground.

#### *Checking sensor high voltage limit:*

4. Extend the guard angle until header angle indicator (A) is at E.

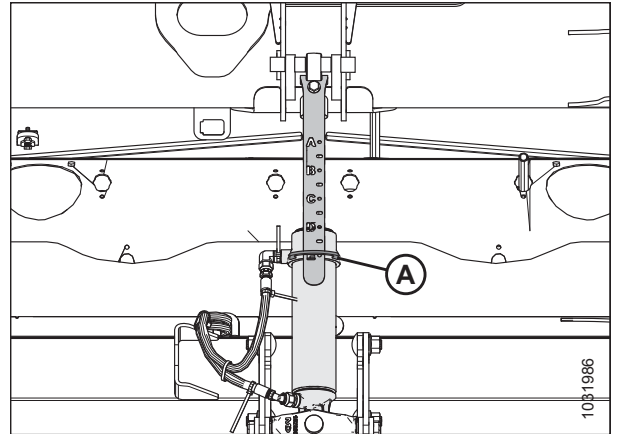


Figure 8.2: Center-Link

5. Float indicator pointer (A) should be at 0 (B).
6. Shut down the engine, and remove the key from the ignition.

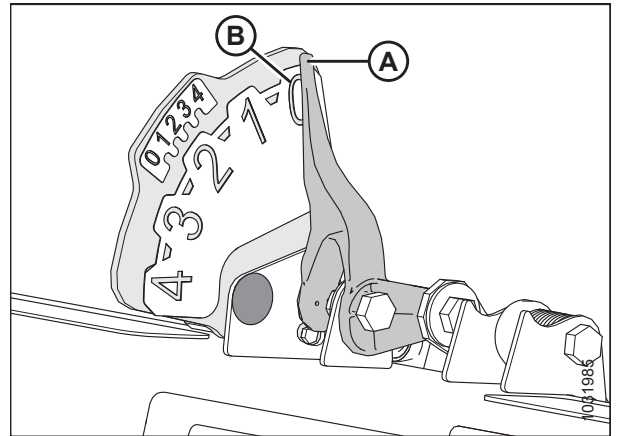


Figure 8.3: Left Float Indicator – View from Rear

## SETTING UP AUTO HEADER HEIGHT CONTROL

7. Check that the float lock linkage is on the down stops (washer [A] cannot be moved) at both locations.

### NOTE:

If the header is **NOT** on its down stops, the voltage may go out of range during operation causing a malfunction of the AHHC system.

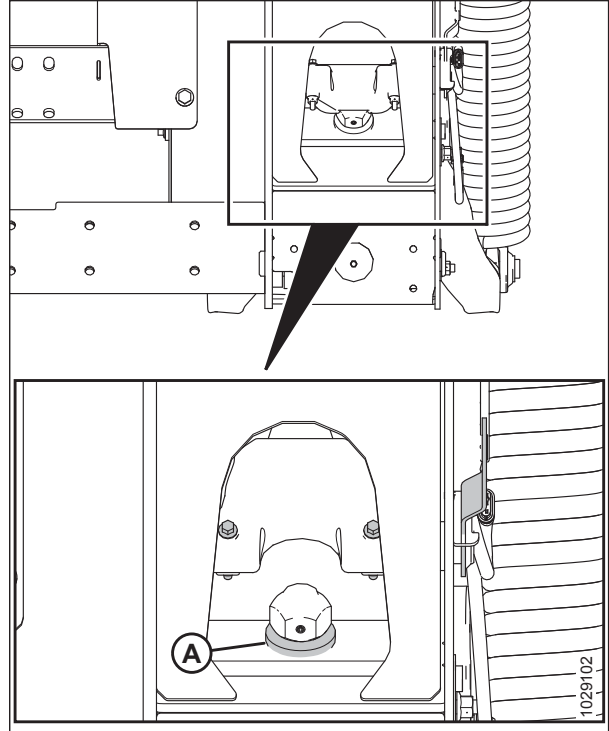


Figure 8.4: Down Stop Washer

8. Locate connector P600 (A) at the left front of the float module.
9. Remove plug cap (B).
10. Turn the key to the run position.
11. Check P600 for power from the combine. There should be 5V at pin 7.
  - Pin 7 - FM2215E – signal
  - Pin 8 - FM2515E – ground
12. On connector P600, confirm voltage of 3.8–4.3 V from left sensor (pins 1 and 8), and right sensor (pins 3 and 8).
  - Pin 1 - FM3326A – left sensor signal
  - Pin 3 - FM3328A – right sensor signal
  - Pin 8 - FM2515E – ground

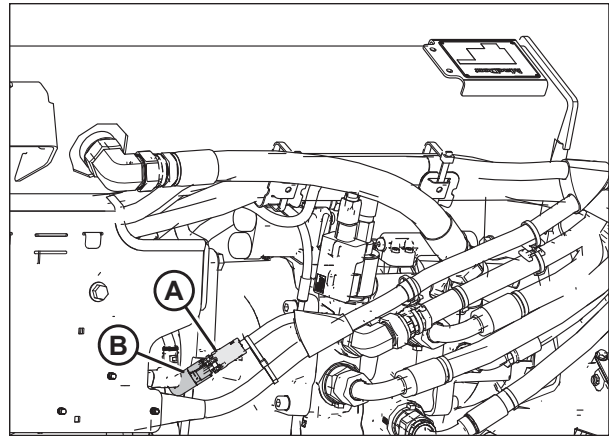


Figure 8.5: Left Float Indicator – View from Rear

### NOTE:

If standard plug (MD #328560) is installed in P600, the plug sends one signal (the average of both sensors) to the combine. If the optional lateral tilt plug [MD #328318 (kit MD #B7196)] is installed, then the plug sends separate voltage signals from both sensors to the combine.

## SETTING UP AUTO HEADER HEIGHT CONTROL

### Checking sensor low voltage limit:

13. Extend the guard angle until header angle indicator (A) is at E.

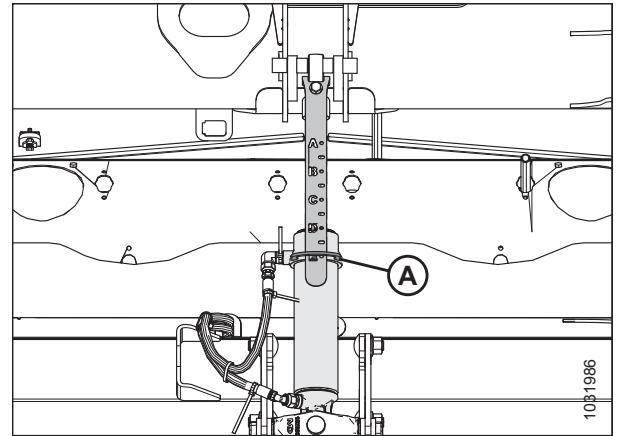


Figure 8.6: Center-Link

14. Fully lower header on the ground, float indicator pointer (A) should be at 4 (B).
15. Turn the key to the run position.
16. On connector P600, confirm voltage of 0.7–1.2 V from left sensor (pins 1 and 8), and right sensor (pins 3 and 8).
  - Pin 1 - FM3326A – left sensor signal
  - Pin 3 - FM3328A – right sensor signal
  - Pin 8 - FM2515E – ground

#### NOTE:

If standard plug MD # 328560 is installed in P600, the plug sends one signal (the average of both sensors) to the combine. If the optional lateral tilt plug MD #328318 (kit MD #B7196) is installed, then the plug sends separate voltage signals from both sensors to the combine.

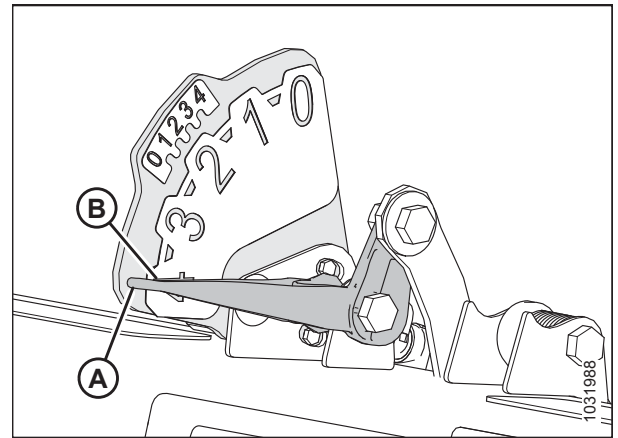


Figure 8.7: Left Float Indicator – View from Rear

### 8.1.4 Replacing Float Height Sensor

#### DANGER

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

#### NOTE:

This procedure can be completed on either side of the float module.

1. Park the combine on a level surface.
2. Lower the header fully.
3. Lower the reel fully.
4. Shut down the engine, and remove the key from the ignition.

## SETTING UP AUTO HEADER HEIGHT CONTROL

5. Disconnect harness plug P537 (C) from the sensor on the left side of the float module.

**NOTE:**

If replacing the float height indicator sensor on the right side of the float module, disconnect plug P539.

6. Remove bolt (A).
7. Remove indicator plate (B) with sensor.

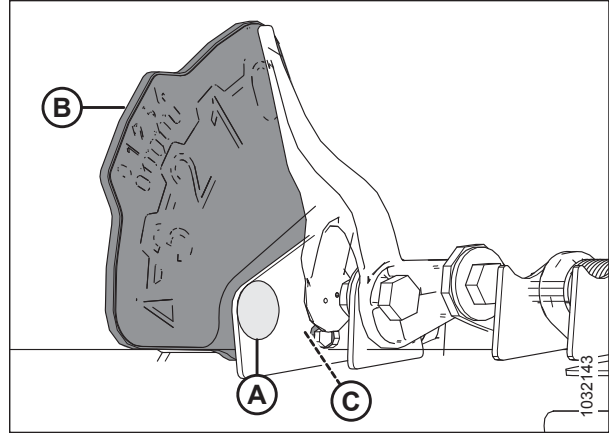


Figure 8.8: Float Setting Indicator – Left

8. Remove two bolts and nuts (A).
9. Remove and discard old sensor (B).
10. Install new sensor (B), so the plug is facing down.
11. Install two bolts and nuts (A).

**NOTE:**

Bolt heads should be on the same side as the decal.

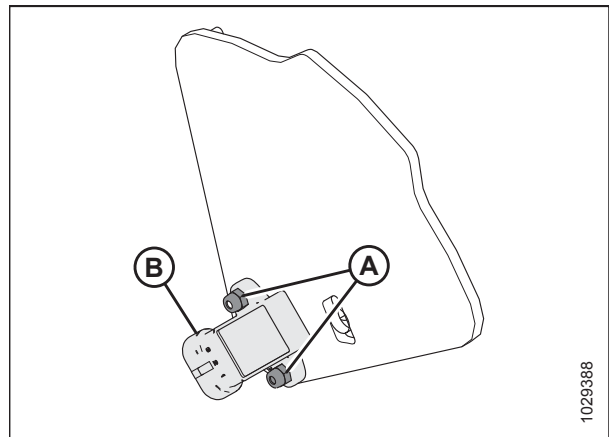


Figure 8.9: Float Height Sensor

12. Install indicator plate (B) with sensor.
13. Install bolt (A).
14. Connect harness plug (C).

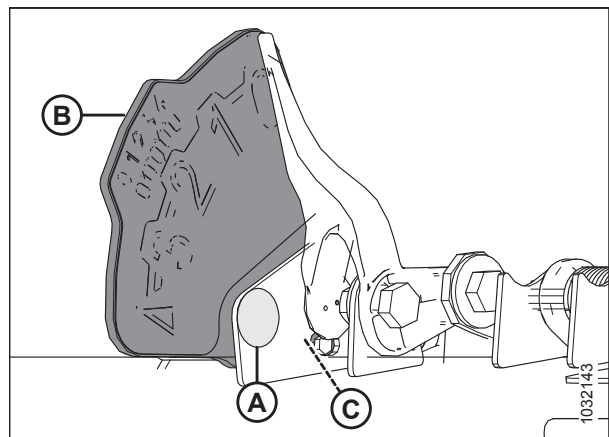


Figure 8.10: Float Setting Indicator – Left

## SETTING UP AUTO HEADER HEIGHT CONTROL

### 8.1.5 10 Volt Adapter (MD #B7241) – New Holland Combines Only

New Holland combines with a 10 V system require the 10 V adapter (A) (MD #B7241) for proper calibration of the auto header height control (AHHC) feature.

If a 10 V New Holland combine does not have the adapter installed, the AHHC output will always read 0 V, regardless of sensor position.

To check sensor voltages, refer to [8.1.3 Checking Voltage Limits](#), page 229.

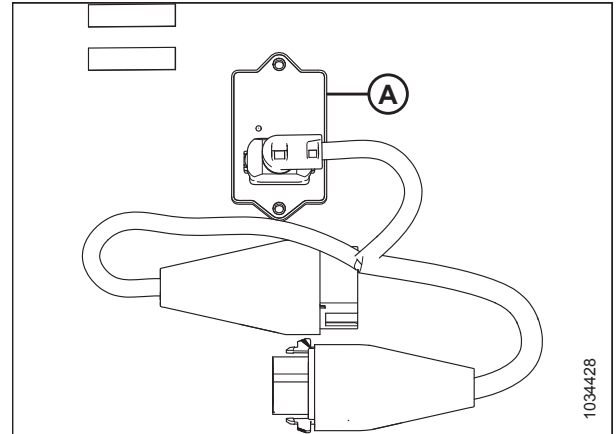


Figure 8.11: 10 V Adapter (MD #B7241)

### 8.1.6 IDEAL™ Series Combines

#### Setting up the Header – IDEAL™ Series

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

AGCO Tyton terminal (A) is used to set up and manage a MacDon header on an IDEAL™ series combine. Use the touch screen display to select the desired item on the page.



Figure 8.12: IDEAL™ Operator Station

A - Tyton Terminal      B - Control Handle  
C - Throttle            D - Header Control Cluster

## SETTING UP AUTO HEADER HEIGHT CONTROL

1. On the top right of the home page, touch COMBINE icon (A). The COMBINE MAIN MENU opens.

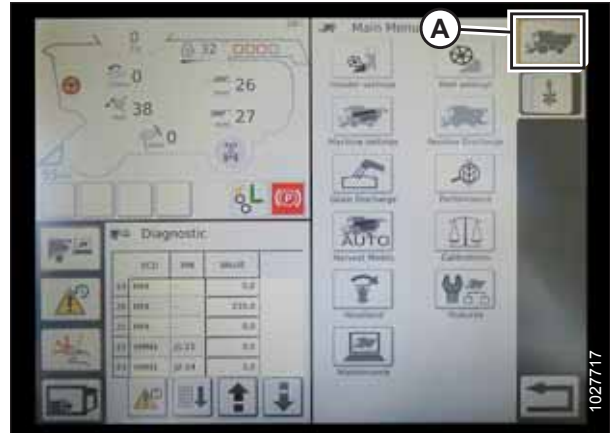


Figure 8.13: Combine Icon on Home Page

2. On the COMBINE MAIN MENU, touch HEADER SETTINGS (A). The HEADER SETTINGS page opens.

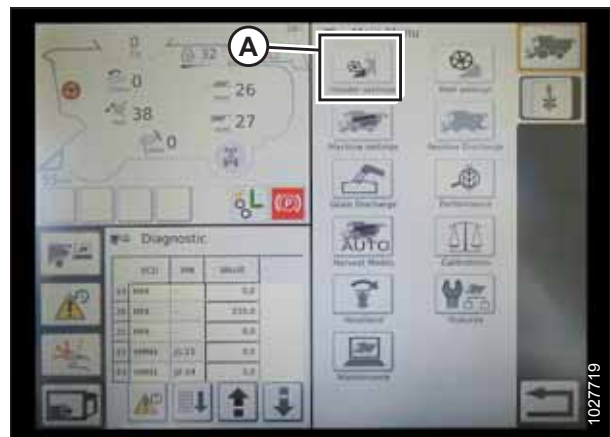


Figure 8.14: Header Settings in Combine Main Menu

## SETTING UP AUTO HEADER HEIGHT CONTROL

3. Touch **HEADER CONFIGURATION** field (A). A dialog box showing predefined headers opens.
  - If your MacDon header is already set up, it appears on the header list. Touch the MacDon header title (B) to highlight the selection in blue, and then touch green check mark (E) to continue.
  - If only default header (D) is shown, touch ABC button (C), and use the on-screen keyboard to enter the MacDon header information. When complete, select one of the following options to return to the **HEADER SETTINGS** page:
    - Green check mark (E) saves the settings
    - Garbage can icon (F) deletes the highlighted header from the list
    - Red X (G) cancels the change(s)

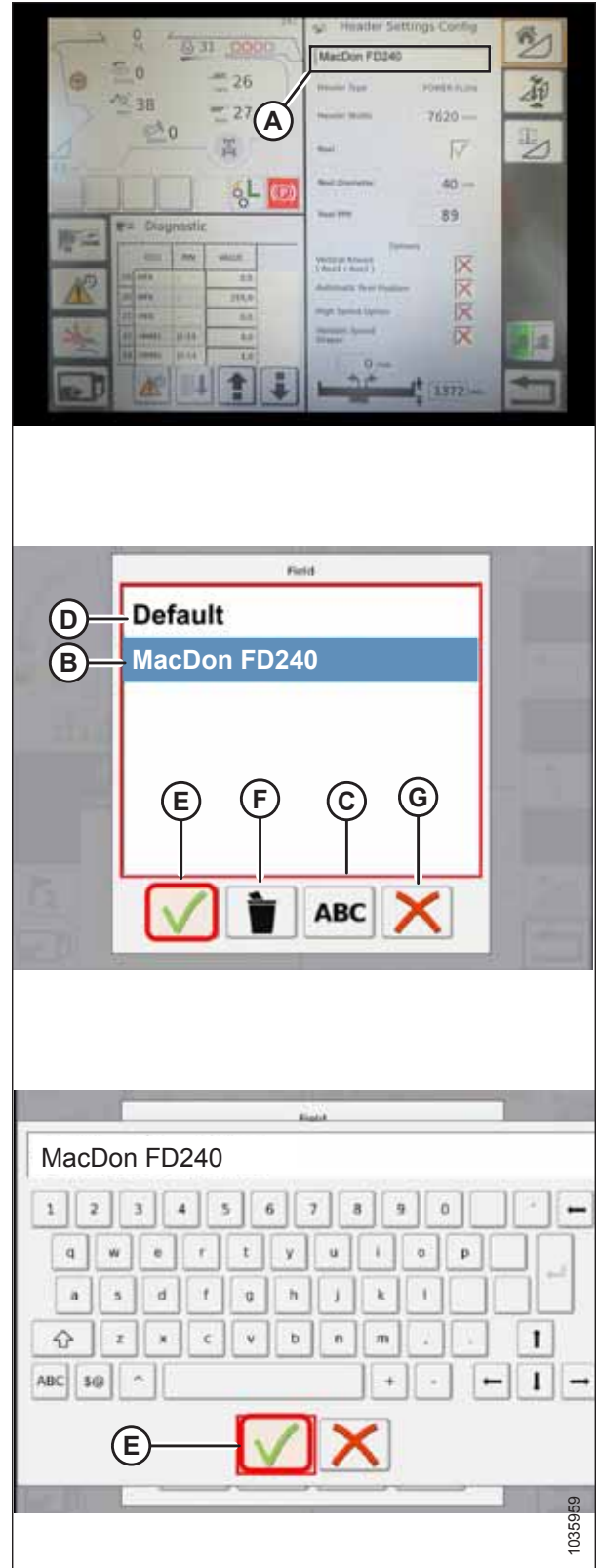


Figure 8.15: Header Configuration Menu on Header Settings Page

## SETTING UP AUTO HEADER HEIGHT CONTROL

- To specify the type of header installed on the machine, touch HEADER TYPE field (A).

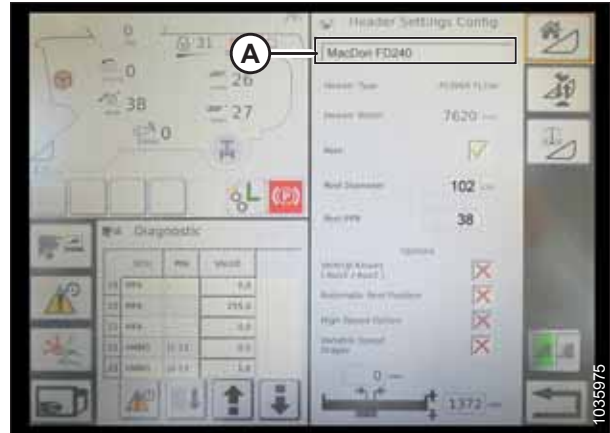


Figure 8.16: Header Settings

- From the list of predefined header types, touch POWER FLOW (A).
- Touch green check mark (B) to save the selection and continue.

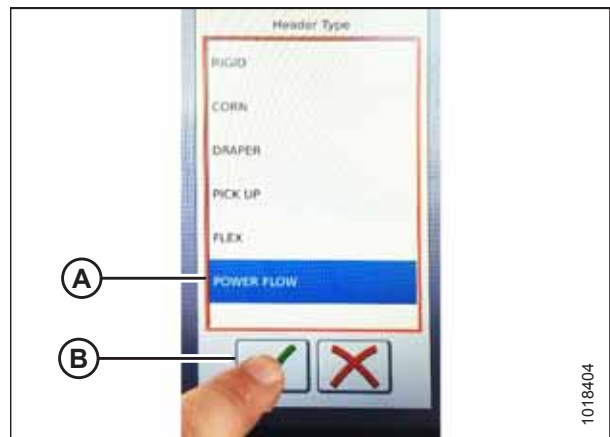


Figure 8.17: Header Type

- Make sure that REEL check box (A) is checked.

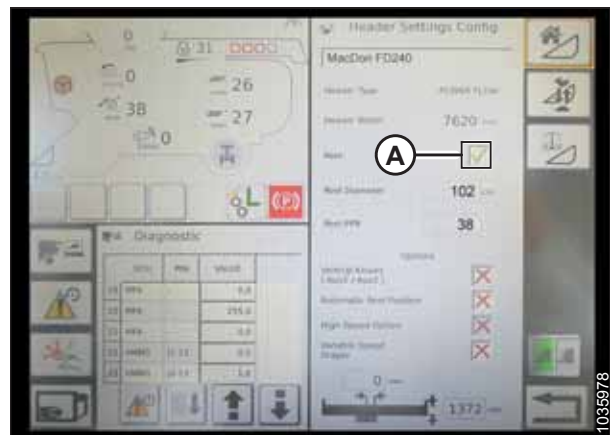


Figure 8.18: Header Settings



## SETTING UP AUTO HEADER HEIGHT CONTROL

- Touch REEL DIAMETER field (A) and a numeric keypad displays. Enter **102** for a MacDon reel.

**NOTE:**

If reel speed does not index correctly, reel diameter can be increased to 44.

- Touch REEL PPR (Pulses Per Revolution) field (B) and enter **38** as the value for your MacDon header.

**NOTE:**

With two-speed reel drive, PPR is 34 for high speed and 61 for high torque.

**NOTE:**

PPR is determined by the number of teeth on the reel speed sprocket.

- Touch green check mark (B) at the bottom of numeric keypad (A) when complete, or the red X to cancel.

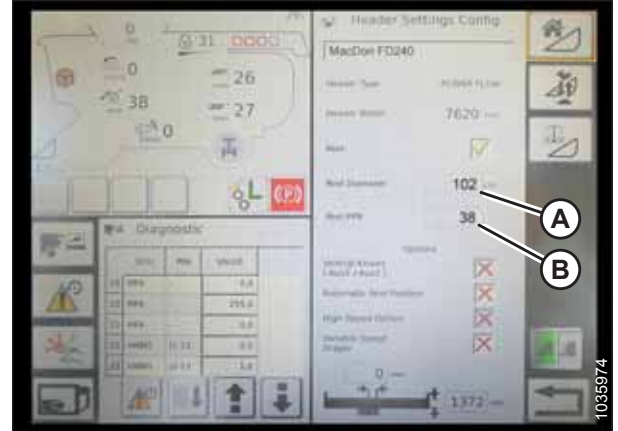


Figure 8.19: Header Settings

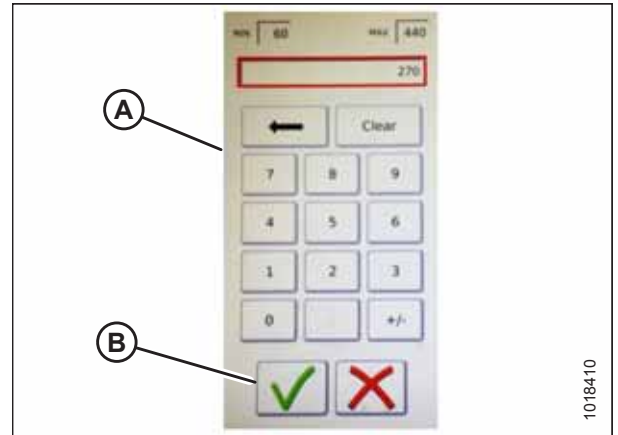


Figure 8.20: Numeric Keypad

- When complete, touch green check mark (A) at the bottom of the HEADER SETTINGS page.

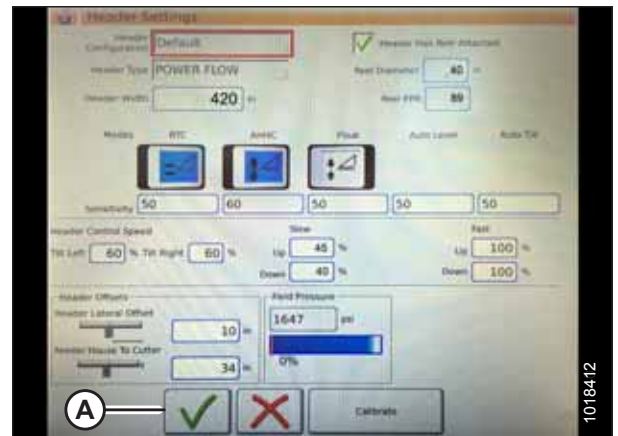


Figure 8.21: Header Settings Page

### Setting Minimum Reel Speed and Calibrating Reel – IDEAL™ Series



## DANGER

Clear the area of other persons, pets etc. Keep children away from machinery. Walk around the machine to be sure no one is under, on, or close to it.

## SETTING UP AUTO HEADER HEIGHT CONTROL

### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

1. From the COMBINE MAIN MENU, touch REEL SETTINGS (A) to open the REEL SETTINGS page.

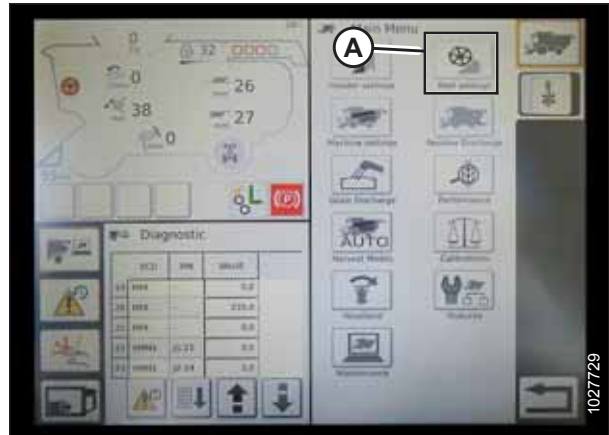


Figure 8.22: Reel Settings on Combine Main Menu

2. To set minimum reel speed, touch SPEED MINIMUM FIELD (B). The on-screen keyboard displays. Enter the desired value. Touch the green check mark to accept the new value, or the red X to cancel. The reel speed is shown in miles per hour (mph) and rotations per minute (rpm).

### NOTE:

At the bottom of the REEL SETTINGS page, the reel diameter and reel pulses per revolution (PPR) are displayed. These values have already been set in the HEADER SETTINGS page.

3. Reel speed is calibrated on the REEL SETTINGS page by touching CALIBRATE button (A) in the top right of the page.

### NOTE:

The CALIBRATION WIZARD opens and displays a hazard warning.

4. Make sure to meet all the conditions listed in the CALIBRATION WIZARD warning. Press the green check mark to accept and start reel calibration. Pressing the red X will cancel the calibration procedure.

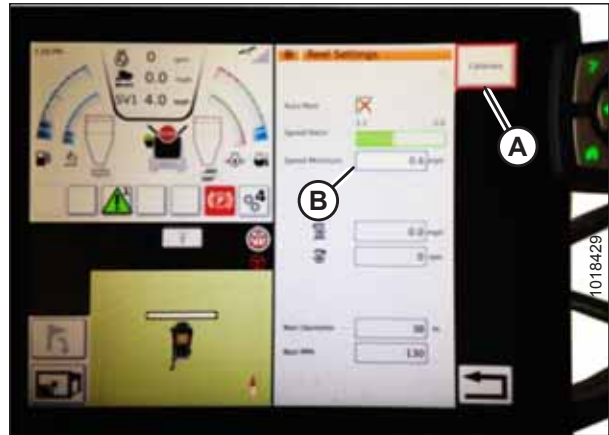


Figure 8.23: Reel Settings Calibration



Figure 8.24: Calibration Wizard

## SETTING UP AUTO HEADER HEIGHT CONTROL

5. A message appears in the CALIBRATION WIZARD stating that reel calibration has started. The reel will begin turning slowly and increase to high speed. A progress bar is provided. If necessary, touch the red X (not shown) to cancel. Otherwise, wait for the message that reel calibration has completed successfully. Touch the green check mark to save the calibrated settings.



Figure 8.25: Calibration Progress

### Setting up Automatic Header Controls – IDEAL™ Series

Automatic header functions are configured on the HEADER SETTINGS page.

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

1. **Automatic Control Functions:** There are toggle (OFF/ON) switches on the HEADER SETTINGS page for the automatic control functions. For MacDon headers, ensure the following two functions are enabled as shown:

- RTC (return to cut) (A)
- AHHC (automatic header height control) (B)

All other switches are disabled (not highlighted).

2. **Sensitivity** setting (C) controls how responsive a control (RTC or AHHC) is to a given change in sensor feedback. The setting fields are located directly below the toggle switches. To enter a new sensitivity setting, touch the setting field below the specific toggle switch, and enter the new value in the on-screen keyboard.

- Increase sensitivity if the combine does not change the feeder position quickly enough when in Auto Mode.
- Decrease sensitivity if the combine hunts for a position in Auto Mode.

#### NOTE:

Recommended sensitivity starting points for MacDon headers are:

- **50** for RTC (A)
- **60** for AHHC (B)

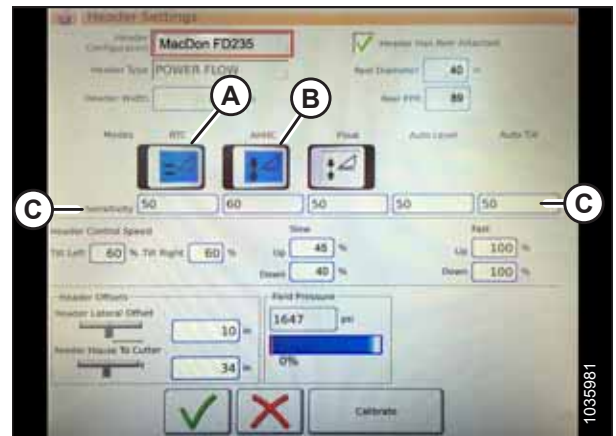


Figure 8.26: Automatic Controls and Sensitivity Settings

## SETTING UP AUTO HEADER HEIGHT CONTROL

3. **Header Speed:** HEADER CONTROL SPEED area (A) on the HEADER SETTINGS page is used to adjust the following speeds:

- Tilt left and right is the lateral tilt of the combine faceplate
- Header up and down (slow and fast speeds) is a two-stage button with slow speed on the first detent and fast on the second

**NOTE:**

Recommended header control speed starting points are:

- Slow: Up 45/Down 40
- Fast: Up 100/Down 100

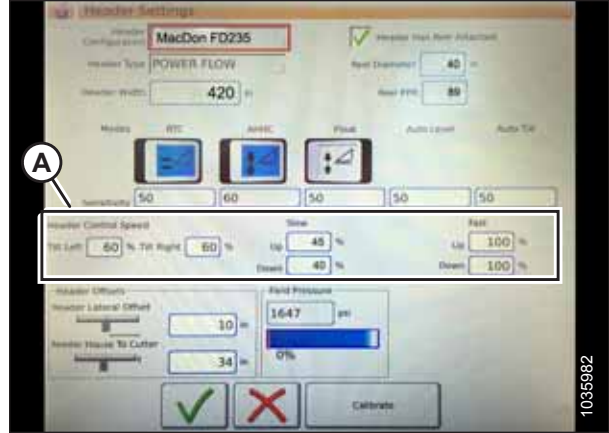


Figure 8.27: Header Speed Control Settings

4. **Header Offsets (A):** Offset distances are important for yield mapping. There are two adjustable dimensions on the HEADER SETTINGS page:

- Header Lateral Offset: the distance between the centerline of the header and the centerline of the machine. This should be set at **0** for a MacDon header.
- Feeder House to Cutter: the distance from the machine interface to the cutterbar. This should be set at **68** for a MacDon header.

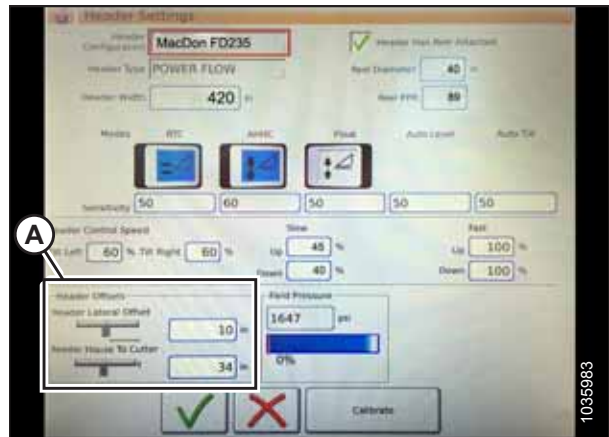


Figure 8.28: Header Offset Settings

### Calibrating the Header – IDEAL™ Series

The auto header height control (AHHC) sensor output must be calibrated for each combine, or the AHHC feature will not work properly.

**⚠ DANGER**

Clear the area of other persons, pets etc. Keep children away from machinery. Walk around the machine to be sure no one is under, on, or close to it.

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator’s manual for updates.

## SETTING UP AUTO HEADER HEIGHT CONTROL

1. On the COMBINE MAIN MENU, touch HEADER SETTINGS (A).

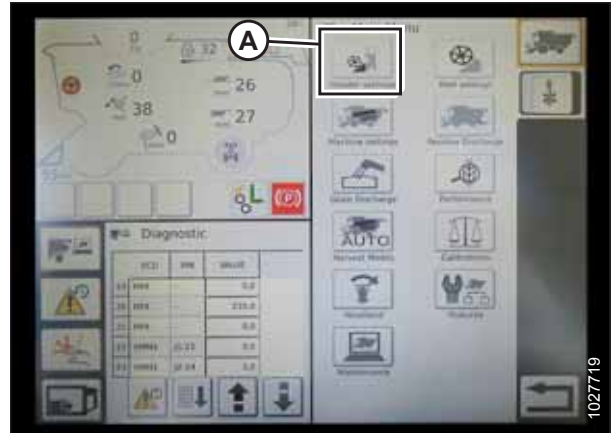


Figure 8.29: Combine Main Menu

2. Touch HEADER CALIBRATE (A) at the right side of the HEADER SETTINGS CONFIG page.

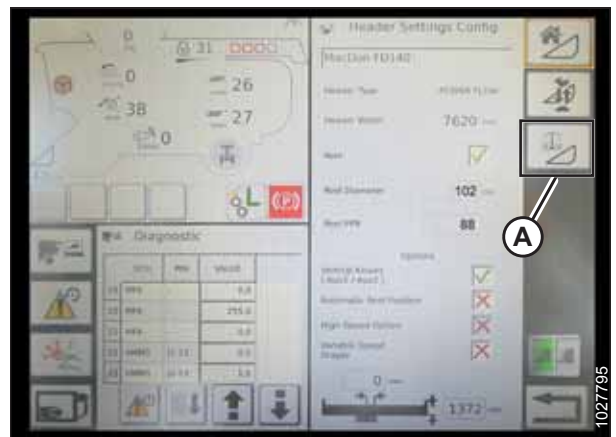


Figure 8.30: Header Settings Page

3. The hazard warning for HEADER CALIBRATION appears. Make sure that all conditions are met.
4. Touch the green check mark at the bottom of the page to start the calibration and follow the on-screen commands.



Figure 8.31: Header Calibration Warning

## SETTING UP AUTO HEADER HEIGHT CONTROL

A progress bar is provided and the calibration can be stopped by touching the red X. The header moves automatically and erratically during this process.

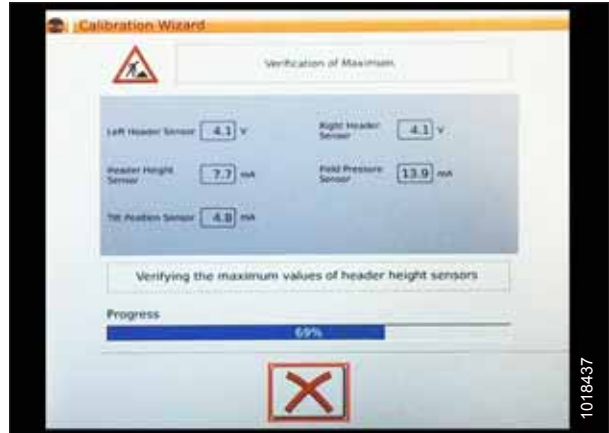


Figure 8.32: Calibration in Progress

5. When the calibration is complete:

- Review summary information (A)
- Review green check marks confirming calibrated functions (B)
- Touch check mark (C) to save

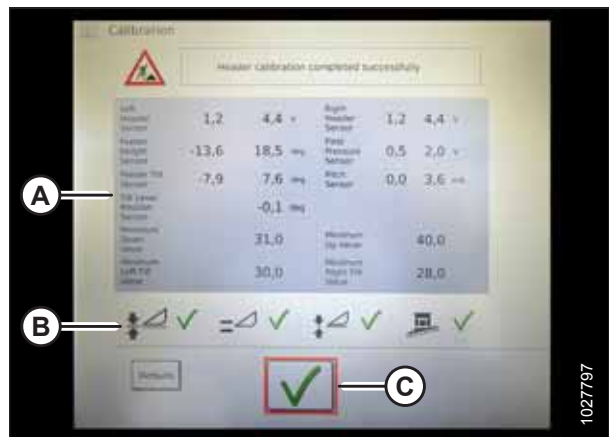


Figure 8.33: Completed Calibration Page

### NOTE:

Touch CALIBRATIONS icon (A) on the MAIN MENU page to display the CALIBRATION MENU where you can choose from a variety of calibrations including header and reel calibration.

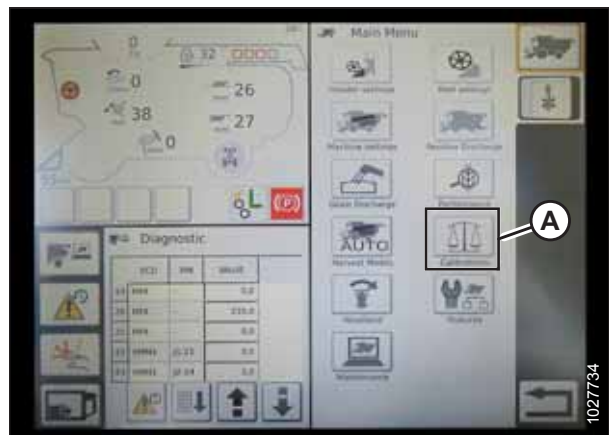


Figure 8.34: Direct Calibration Menu

## SETTING UP AUTO HEADER HEIGHT CONTROL

### Operating the Header – IDEAL™ Series

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

The following controls are used to operate the auto header height control (AHHC) functions:

- Tyton terminal (A)
- Control handle (B)
- Throttle (C)
- Header control cluster (D)

For instructions, refer to the combine operator's manual to familiarize yourself with the controls.



Figure 8.35: IDEAL™ Operator Station

1. With the header running, set lateral tilt to MANUAL by pressing switch (A) so the light above switch is off.
2. Engage the AHHC by pressing switch (B) so light above switch is on.



Figure 8.36: Header Control Cluster

3. Press AHHC control switch (A) on the control handle to engage the AHHC. The header moves to the current setpoint position.



Figure 8.37: AHHC on Control Handle

## SETTING UP AUTO HEADER HEIGHT CONTROL

4. Use HEADER HEIGHT SETPOINT control dial (A) as necessary to fine-tune the position.



Figure 8.38: Header Control Cluster

### Reviewing Header In-Field Settings – IDEAL™ Series

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

1. To view header group settings, touch HEADER icon (A) on the right side of the home page.
2. The following information is displayed:
  - CURRENT POSITION of header (B).
  - SETPOINT cut-off position (C) (indicated by red line)
  - HEADER symbol (D) – touch to adjust the setpoint cut-off position using the adjustment wheel on the right side of the Tyton terminal.
  - CUT HEIGHT for AHHC (E) – fine-tune with the header height setpoint control dial on the header control cluster.
  - HEADER WORKING WIDTH (F)
  - HEADER PITCH (G)
3. Touching a field opens the on-screen keyboard so that values can be adjusted. Enter the new value and touch the green check mark when complete.

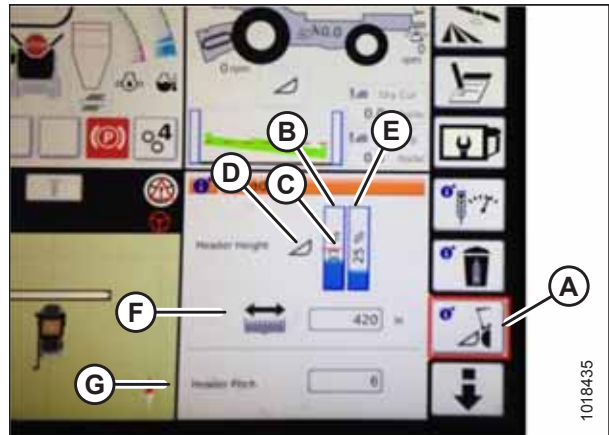


Figure 8.39: Header Groups



Figure 8.40: Adjustment Wheel on Right of Tyton Terminal



## SETTING UP AUTO HEADER HEIGHT CONTROL

**NOTE:**

HEADER HEIGHT SETPOINT control dial (A) is on the header control cluster.



Figure 8.41: Header Control Cluster

### 8.1.7 Case IH 130 and 140 Series Mid-Range Combines

#### Setting up the Header on the Combine Display – Case IH 5130/6130/7130; 5140/6140/7140

1. On the main page of the combine display, select TOOLBOX (A).

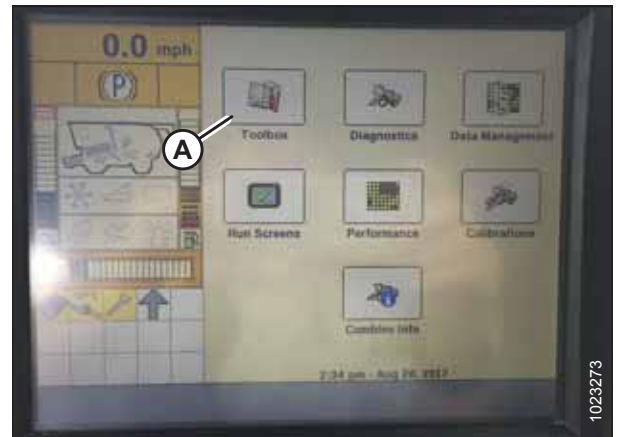


Figure 8.42: Case IH Combine Display

2. Select HEAD 1 tab (A). The HEADER SETUP page displays.

**NOTE:**

To locate the HEAD 1 tab, you may need to scroll to the right using side arrows (C).

3. From CUTTING TYPE menu (B), select PLATFORM.

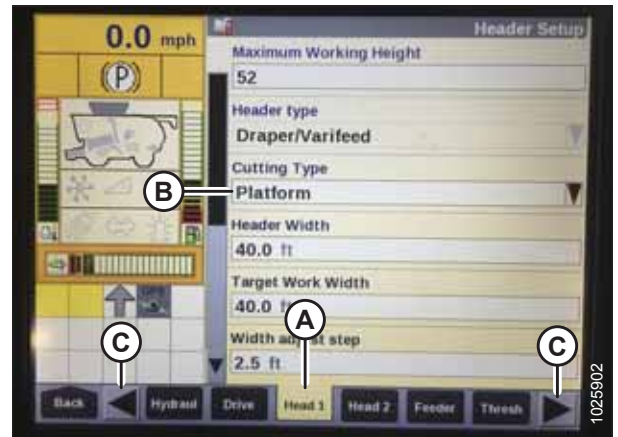


Figure 8.43: Case IH Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

4. Select HEAD 2 tab (A). The HEADER SETUP 2 page displays.
5. From HEADER PRESSURE FLOAT menu (B), select NOT INSTALLED.
6. From DRAPER GRAIN HEADER STYLE menu (C), select FLEX 2000 SERIES.

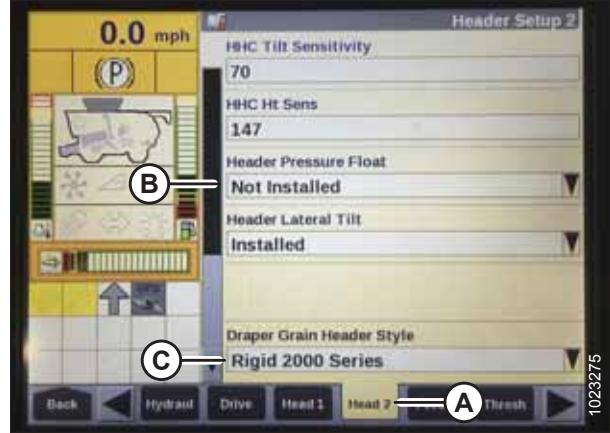


Figure 8.44: Case IH Combine Display

7. Locate HHC HEIGHT SENSITIVITY field (A), and set as follows:
  - **If using a two-sensor system:** Set HHC HEIGHT SENSITIVITY to 250.
  - **If using a single-sensor system:** Set HHC HEIGHT SENSITIVITY to 180.

**NOTE:**

If hunting occurs during operation, decrease this setting by 20 points at a time until hunting no longer occurs.

8. Set HHC TILT SENSITIVITY (B) to 150. Increase or decrease as desired.



Figure 8.45: Case IH Combine Display

9. From REEL DRIVE TYPE menu (A), select one of the following:
  - 4 if you are using a standard 19-tooth drive sprocket.
  - 5 if you are using an optional high-torque 14-tooth drive sprocket.
  - 6 if you are using an optional high-torque 10-tooth drive sprocket.

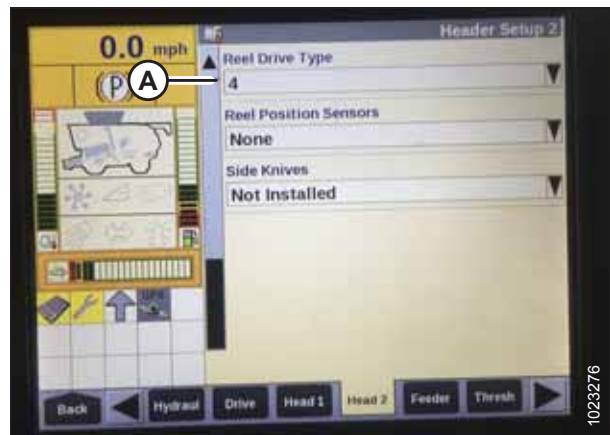


Figure 8.46: Case IH Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

10. From REEL HEIGHT SENSOR menu (A), select YES.



Figure 8.47: Case IH Combine Display

11. Locate AUTOTILT field (A).

- **If using a two-sensor system:** Select YES in the AUTOTILT field.
- **If using a single-sensor system:** Select NO in the AUTOTILT field.



Figure 8.48: Case IH Combine Display

### *Checking Voltage Range from Combine Cab – Case IH 5130/6130/7130; 5140/6140/7140*

#### **NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.



#### **WARNING**

**Check to be sure all bystanders have cleared the area.**

1. Position the header 254–356 mm (10–14 in.) above the ground, and unlock the float.

## SETTING UP AUTO HEADER HEIGHT CONTROL

2. Check that the float lock linkage is on the down stops (washer [A] cannot be moved) at both locations.

**NOTE:**

If the header is not on the down stops during the next two steps, the voltage may go out of range during operation causing a malfunction of the auto header height control (AHHC) system.

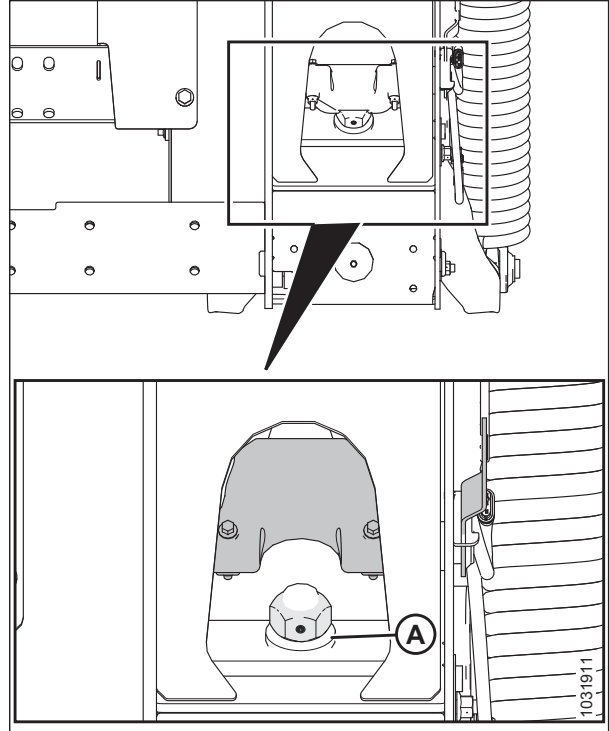


Figure 8.49: Float Lock

3. If the pointer is not on zero, loosen bolt (A) and slide float indicator plate (B) until pointer (C) is on 0 (D).
4. Tighten bolt (A).

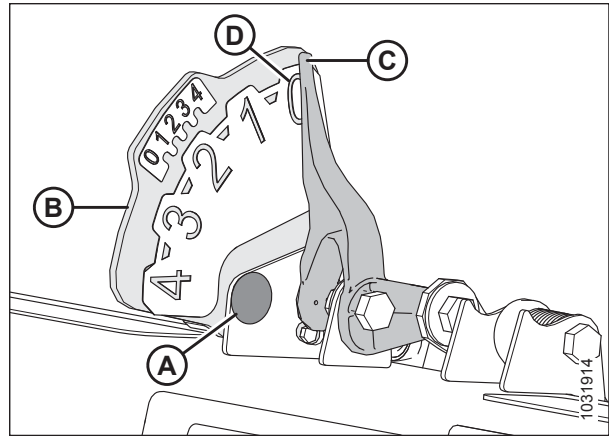


Figure 8.50: Float Indicator

## SETTING UP AUTO HEADER HEIGHT CONTROL

5. Ensure the header float is unlocked.
6. On the main page of the combine display, select DIAGNOSTICS (A). The DIAGNOSTICS page opens.

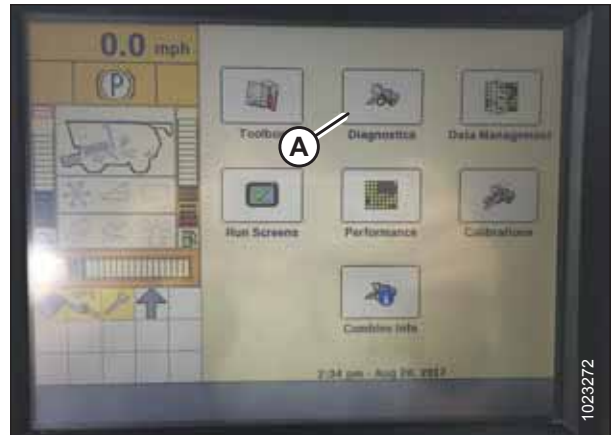


Figure 8.51: Case IH Combine Display

7. Select SETTINGS (A). The SETTINGS page opens.
8. From the GROUP menu, select HEADER (B).

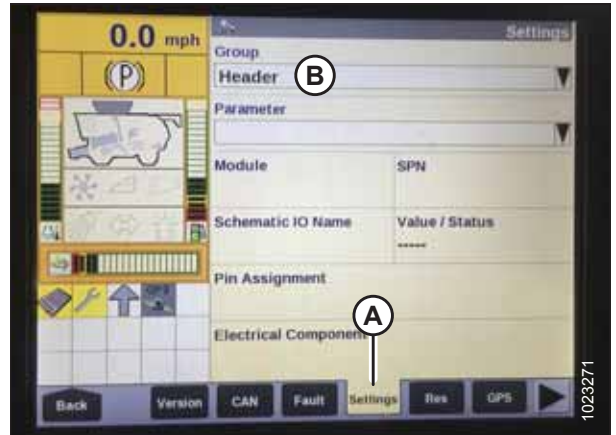


Figure 8.52: Case IH Combine Display

9. From the PARAMETER menu, select LEFT HEIGHT/TILT SENSOR (A).



Figure 8.53: Case IH Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

10. The SETTINGS page updates to display the voltage in VALUE/STATUS field (A). Lower the feeder house fully, and then raise it 254–356 mm (10–14 in.) off the ground to view the full range of voltage readings.



Figure 8.54: Case IH Combine Display

### Calibrating Auto Header Height Control – Case IH 5130/6130/7130, 5140/6140/7140

The auto header height control (AHHC) sensor output must be calibrated for each combine, or the AHHC feature will not work properly.

#### **WARNING**

Check to be sure all bystanders have cleared the area.

#### **NOTE:**

This procedure applies to combines with a software version below 28.00. For instructions on calibrating the AHHC for combines with a software version 28.00 or above, refer to *Calibrating the Auto Header Height Control – Case IH Combines with Version 28.00 or Higher Software, page 260*.

#### **NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

#### **NOTE:**

If the header float is set too light, it can prevent the calibration of the AHHC. In order to prevent the header from separating from the float module, it may be necessary to change the float to a heavier setting during the calibration procedure.

#### **NOTE:**

For best performance of the auto header height control (AHHC) system, perform ground calibration with center-link set to **D**. When calibration is complete, adjust the center-link back to desired header angle. For instructions, refer to the header operator's manual

1. Ensure that the center-link is set to **D**.
2. Ensure that the header and float module electrical and hydraulic connections are made.
3. Start the combine engine, but do **NOT** engage the separator or the feeder house.
4. Locate the HEADER CONTROL switch on the right console, and set to HT (this is AHHC mode).
5. Hold the DOWN button for 10 seconds, or until the combine feeder house has been lowered all the way down (the feeder house will stop moving).
6. Push the RAISE button and hold it until the feeder house travels all the way up. It will stop 61 cm (2 ft.) above the ground for 5 seconds, then it will resume traveling upward. This is an indication that calibration is successful.

## SETTING UP AUTO HEADER HEIGHT CONTROL

### NOTE:

If the float was changed to a heavier setting to complete the AHHC calibration procedure, adjust it to the recommended operating float weight after the calibration is complete.

### Setting Preset Cutting Height – Case 5130/6130/7130, 5140/6140/7140

### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

### WARNING

Check to be sure all bystanders have cleared the area.

### NOTE:

Indicator (A) should be at position 0 (B) with the header 254–356 mm (10–14 in.) off the ground. When the header is on the ground, the indicator should be at position 1 (C) for low ground pressure, and at position 4 (D) for high ground pressure. Crop and soil conditions determine the amount of float to use. The ideal setting is as light as possible without header bouncing or missing crop. Operating with heavy settings prematurely wears the cutterbar wearplates.

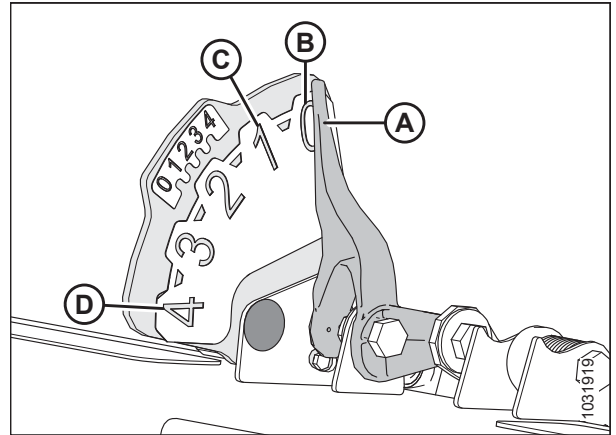


Figure 8.55: Float Indicator

1. Engage the separator and header.
2. Manually raise or lower the header to the desired cutting height.
3. Press 1 on button (A). A yellow light next to the button will illuminate.

### NOTE:

When setting presets, always set the header position before setting the reel position. If the header and the reel are set at the same time, the reel setting will not be saved.

4. Manually raise or lower the reel to the desired working position.
5. Press 1 on button (A). A yellow light next to the button will illuminate.



Figure 8.56: Case Combine Console

## SETTING UP AUTO HEADER HEIGHT CONTROL

6. Manually raise or lower the header to a second desired cutting height.
7. Press 2 on button (A). A yellow light next to the button will illuminate.
8. Manually raise or lower the reel to the desired working position.
9. Press 2 on button (A). A yellow light next to the button will illuminate.



Figure 8.57: Case Combine Console

Up and down arrows should now appear in MANUAL HEIGHT box (A) on the RUN 1 page on the combine display. This indicates that the auto header height control (AHHC) is functioning.



Figure 8.58: Case Combine Display – Run 1 Page

10. To enable the presets, activate AHHC button (A) to place the header on the ground. To enable the first preset, tap the button once. To enable the second preset, tap the button twice.

To lift the header to maximum working height, hold the SHIFT button on the back of the control handle while tapping AHHC button (A).



Figure 8.59: Case Combine Control Handle



## SETTING UP AUTO HEADER HEIGHT CONTROL

11. The maximum working height can be adjusted on the HEADER SETUP page on the combine display. Enter the desired height in MAXIMUM WORKING HEIGHT field (A).



Figure 8.60: Case Combine Display – Header Setup Page

12. If you need to change the position of one of the presets, you can fine-tune this setting with button (A) on the combine console.



Figure 8.61: Case Combine Console

### 8.1.8 Case IH, 120, 230, 240, and 250 Series Combines

#### *Checking Voltage Range from the Combine Cab – Case IH, 120, 230, 240, and 250 Series Combines*

##### **NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

#### **⚠ DANGER**

**Check to be sure all bystanders have cleared the area.**

1. Position the header 254–356 mm (10–14 in.) above the ground, and unlock the float.

## SETTING UP AUTO HEADER HEIGHT CONTROL

2. Check that the float lock linkage is on the down stops (washer [A] cannot be moved) at both locations.

**NOTE:**

If the header is not on the down stops during the next two steps, the voltage may go out of range during operation causing a malfunction of the auto header height control (AHHC) system.

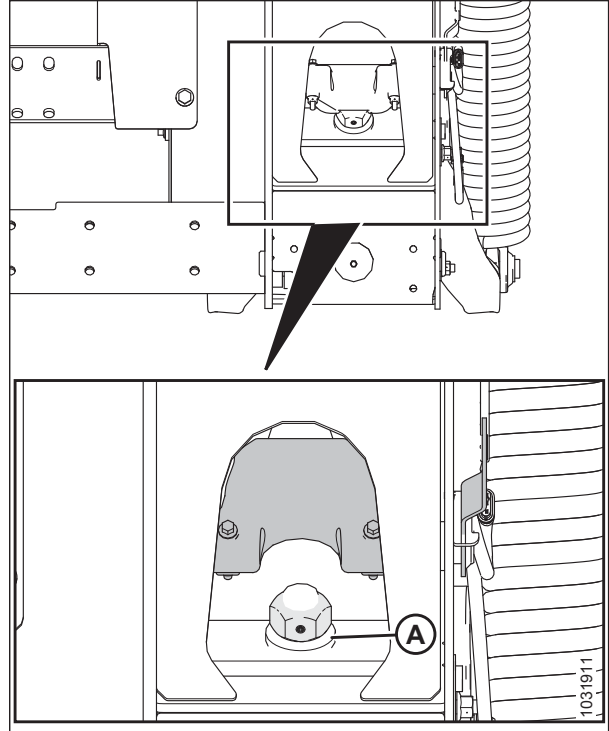


Figure 8.62: Float Lock

3. If the pointer is not on zero, loosen bolt (A) and slide float indicator plate (B) until pointer (C) is on 0 (D).
4. Tighten bolt (A).

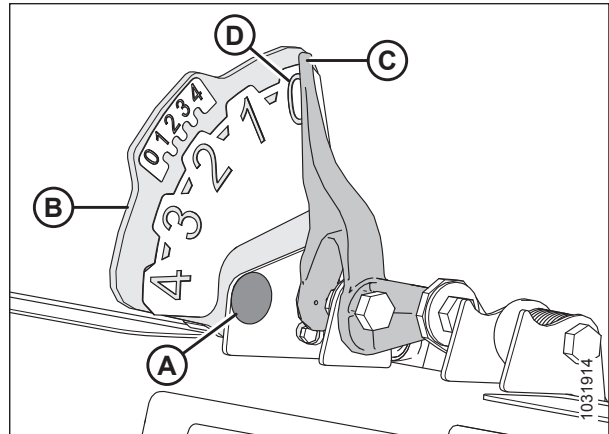


Figure 8.63: Float Indicator

## SETTING UP AUTO HEADER HEIGHT CONTROL

5. Ensure the header float is unlocked.
6. Select DIAGNOSTICS (A) on the MAIN page. The DIAGNOSTICS page opens.
7. Select SETTINGS. The SETTINGS page opens.

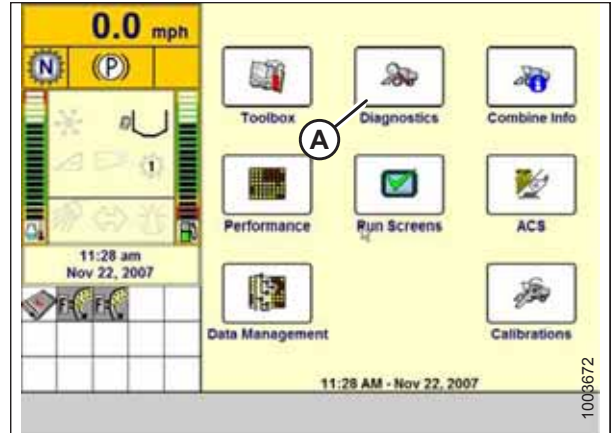


Figure 8.64: Case IH Combine Display

8. Select GROUP arrow (A). The GROUP dialog box opens.

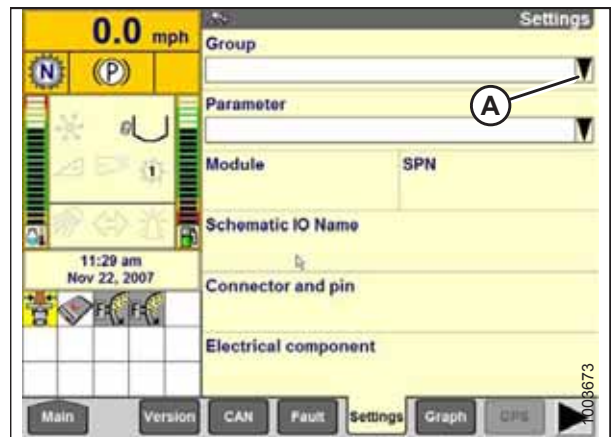


Figure 8.65: Case IH Combine Display

9. Select HEADER HEIGHT/TILT (A). The PARAMETER page opens.

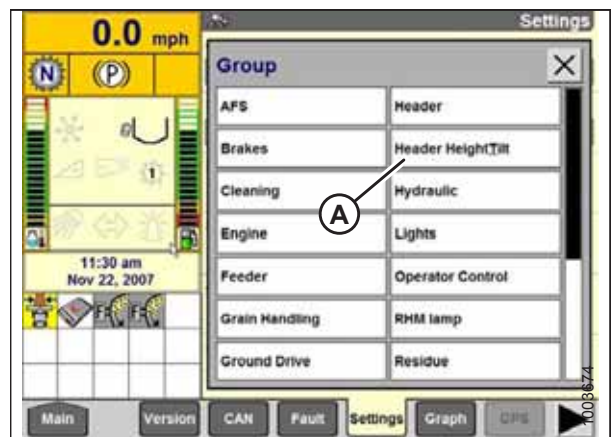


Figure 8.66: Case IH Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

10. Select LEFT HEADER HEIGHT SEN (A), and then select GRAPH button (B). The exact voltage is displayed at top of page. Raise and lower the header to see the full range of voltage readings.

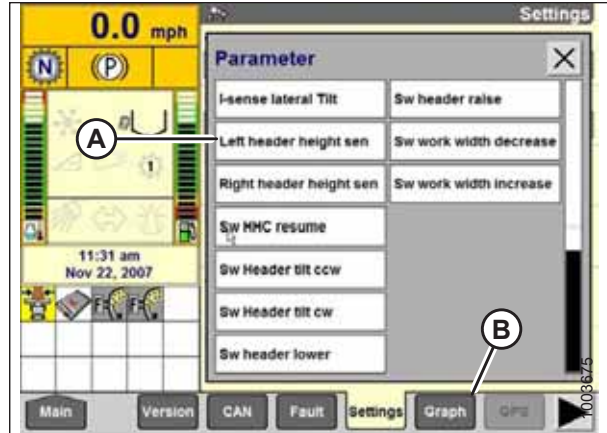


Figure 8.67: Case IH Combine Display

### Calibrating the Auto Header Height Control – Case IH120, 230, 240, and 250 Series Combines

The auto header height control (AHHC) sensor output must be calibrated for each combine, or the AHHC feature will not work properly.

#### DANGER

Clear the area of other persons, pets etc. Keep children away from machinery. Walk around the machine to be sure no one is under, on, or close to it.

#### NOTE:

This procedure applies to combines with a software version below 28.00. For instructions on calibrating the AHHC for combines with software version 28.00 or above, refer to [Calibrating the Auto Header Height Control – Case IH Combines with Version 28.00 or Higher Software, page 260](#).

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

#### NOTE:

If the header float is set too light, it can prevent the calibration of the AHHC. You may need to set the float heavier for calibration procedure so the header does not separate from the float module.

#### NOTE:

For best performance of the auto header height control (AHHC), perform these procedures with the center-link set to **D**. When setup and calibration are complete, adjust the center-link back to desired header angle. For instructions, refer to the header operator's manual.

1. Ensure the center-link is set to **D**.
2. Ensure the header and float module electrical and hydraulic connections are made.

## SETTING UP AUTO HEADER HEIGHT CONTROL

3. Select TOOLBOX (A) on the MAIN page.

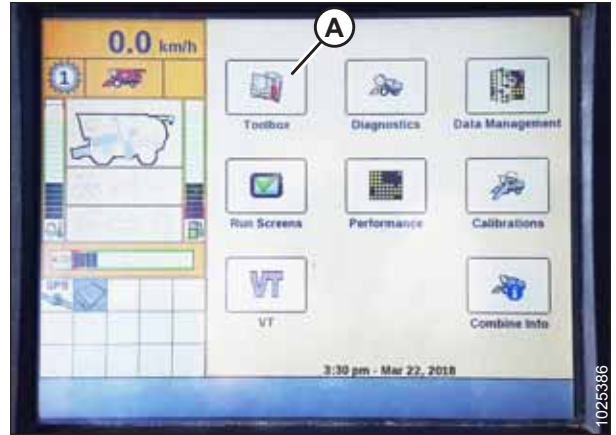


Figure 8.68: Case IH Combine Display

4. Select HEADER tab (A).

**NOTE:**

To locate the HEADER tab, you may need to scroll to the right using side arrows (C).

5. Set the appropriate HEADER STYLE (B).



Figure 8.69: Case IH Combine Display

6. Set AUTO REEL SPEED SLOPE.

**NOTE:**

The AUTO REEL SPEED SLOPE value automatically maintains the speed of the reel relative to ground speed. For example, if the value is set to 133, then the reel will turn be faster than ground speed. The reel should normally be slightly faster than ground speed; however, adjust the value according to crop conditions.

7. Set HEADER PRESSURE FLOAT to NO if equipped, and ensure REEL DRIVE is HYDRAULIC.



Figure 8.70: Case IH Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

- Install REEL FORE-BACK to YES (if applicable).



Figure 8.71: Case IH Combine Display

- Locate HHC HEIGHT SENSITIVITY field (A), and set as follows:

- If using a two-sensor system:** Set HHC HEIGHT SENSITIVITY to 250.
- If using a single-sensor system:** Set HHC HEIGHT SENSITIVITY to 180.

**NOTE:**

If hunting occurs during operation, decrease this setting by 20 points at a time until hunting no longer occurs.

- Set HHC TILT SENSITIVITY (B) to 150. Increase or decrease as desired.



Figure 8.72: Case IH Combine Display

- Install FORE/AFT CONTROL and HDR FORE/AFT TILT (if applicable).

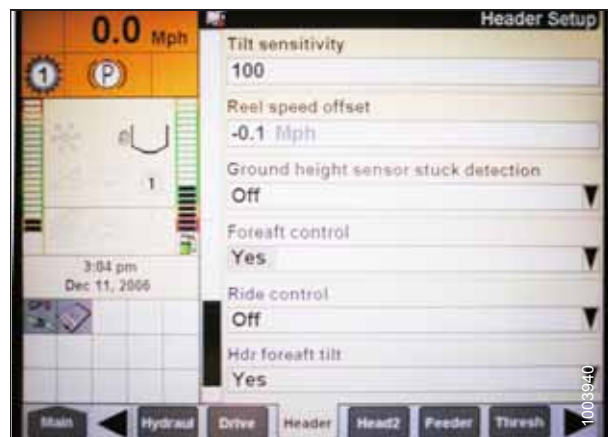


Figure 8.73: Case IH Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

12. Press HEAD2 (A) at the bottom of the page.
13. Ensure HEADER TYPE (B) is DRAPER.

**NOTE:**

If the recognition resistor is plugged in to the header harness, you will not be able to change this.

14. Set CUTTING TYPE (C) to PLATFORM.
15. Set the appropriate HEADER WIDTH (D) and HEADER USAGE (E).

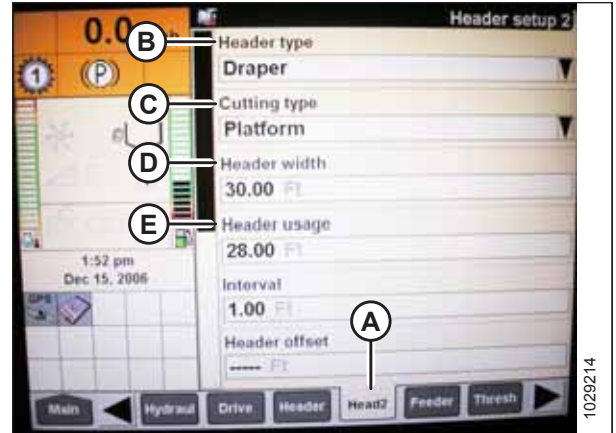


Figure 8.74: Case IH Combine Display

16. From the REEL HEIGHT SENSOR menu, select YES (A).



Figure 8.75: Case IH Combine Display

17. Locate AUTOTILT field (A).

- **If using a two-sensor system:** Select YES in the AUTOTILT field.
- **If using a single-sensor system:** Select NO in the AUTOTILT field.

**NOTE:**

If the float was set heavier to complete the AHHC calibration procedure, adjust it to the recommended operating float after the calibration is complete.



Figure 8.76: Case IH Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

### *Calibrating the Auto Header Height Control – Case IH Combines with Version 28.00 or Higher Software*

The auto header height control (AHC) sensor output must be calibrated for each combine, or the AHC feature will not work properly.

#### **DANGER**

Clear the area of other persons, pets etc. Keep children away from machinery. Walk around the machine to be sure no one is under, on, or close to it.

#### **NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

#### **NOTE:**

If the header float is set too light, it can prevent the calibration of the AHC. You may need to set the float heavier for the calibration procedure so the header does not separate from the float module.

#### **NOTE:**

For best performance of the auto header height control (AHC), perform these procedures with the center-link set to **D**. When setup and calibration are complete, adjust the center-link back to desired header angle. For instructions, refer to the header operator's manual.

1. Ensure the header center-link is set to **D**.
2. Raise the header onto the down stops and unlock the float.
3. Place the wings in the locked position.
4. Select TOOLBOX (A) on the MAIN page.

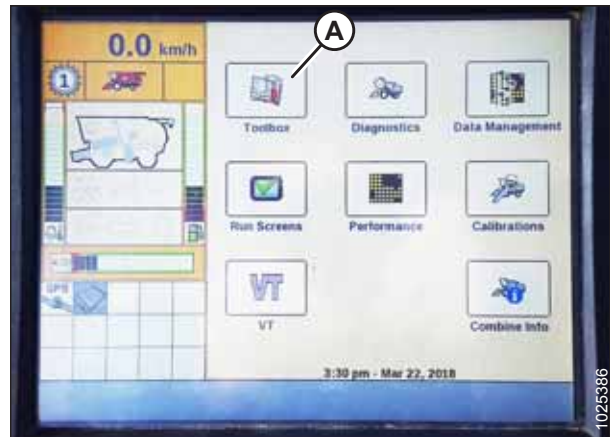


Figure 8.77: Case IH Combine Display



## SETTING UP AUTO HEADER HEIGHT CONTROL

5. Select HEAD 1 tab (A).

**NOTE:**

To locate the HEAD 1 tab, you may need to scroll to the right using side arrows (B).

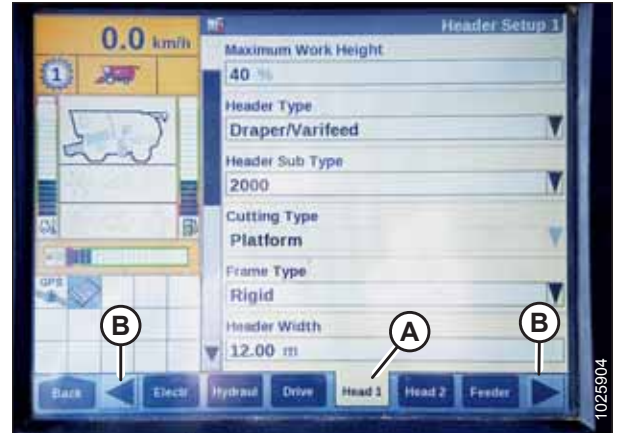


Figure 8.78: Case IH Combine Display

6. Locate the HEADER SUB TYPE field.

7. Select 2000 (A).



Figure 8.79: Case IH Combine Display

8. Select HEAD 2 tab (A).

9. In HEADER SENSORS field (B), select ENABLE.

10. In HEADER PRESSURE FLOAT field (C), select NO.

11. In HEIGHT/TILT RESPONSE field (D), select FAST.

12. In AUTO HEIGHT OVERRIDE field (E), select YES.

13. Press down arrow (F) to go to the next page.

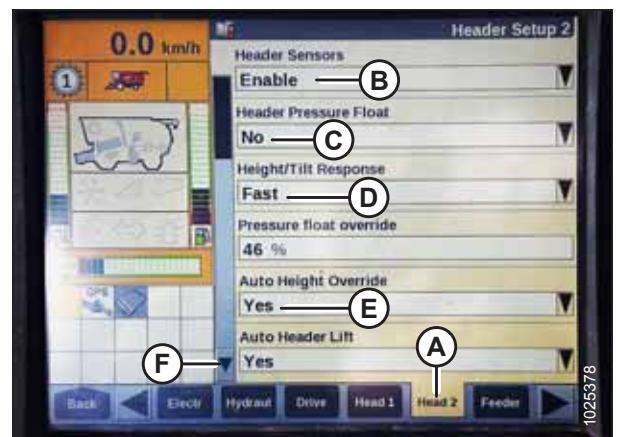


Figure 8.80: Case IH Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

14. Locate HHC HEIGHT SENSITIVITY field (A), and set as follows:

- **If using a single-sensor system:** Set HHC HEIGHT SENSITIVITY to 180.
- **If using a two-sensor system:** Set HHC HEIGHT SENSITIVITY to 250.

**NOTE:**

If hunting occurs during operation, decrease this setting by 20 points at a time until hunting no longer occurs.

15. Set HHC TILT SENSITIVITY (B) to 150. Increase or decrease as desired.



Figure 8.81: Case IH Combine Display

16. From the REEL HEIGHT SENSOR menu, select YES (A).



Figure 8.82: Case IH Combine Display

17. Locate AUTOTILT field (A).

- **If using a two-sensor system:** Select YES in the AUTOTILT field.
- **If using a single-sensor system:** Select NO in the AUTOTILT field.

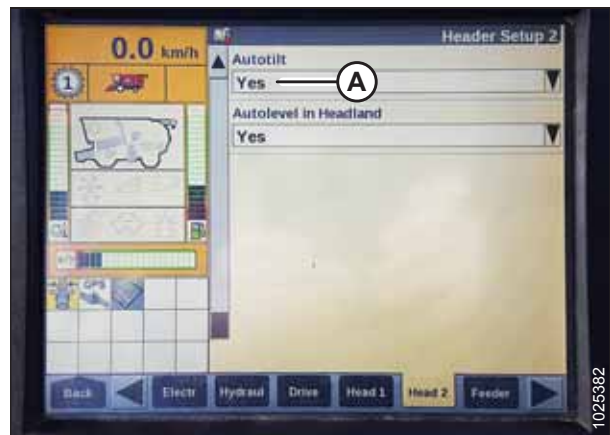


Figure 8.83: Case IH Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

### NOTE:

Icons (A) and (B) appear on the monitor only after engaging the separator and header, and then pressing HEADER RESUME button on the control panel.

- Ensure AUTO HEIGHT icon (A) appears on the monitor and is displayed as shown at location (B). When the header is set for cutting on the ground, this verifies that the combine is correctly using the sensor on the header to sense ground pressure.

### NOTE:

AUTO HEIGHT field (B) may appear on any of the RUN tabs and not necessarily on the RUN 1 tab.



Figure 8.84: Case IH Combine Display

- Select CALIBRATION on the combine display, and press the right arrow navigation key to enter the information box.
- Select HEADER (A), and press ENTER. The CALIBRATION dialog box opens.

### NOTE:

You can use the up and down navigation keys to move between options.

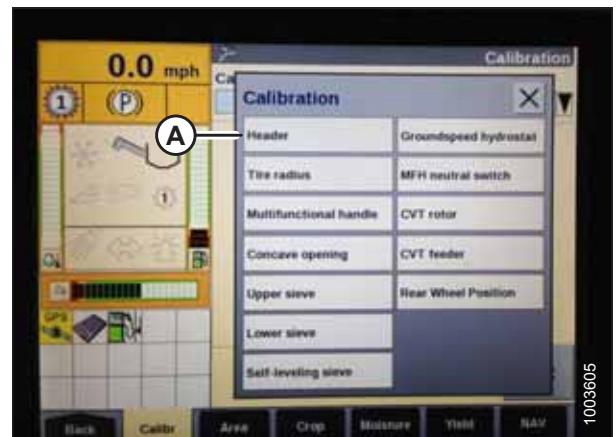


Figure 8.85: Case IH Combine Display

- Follow the calibration steps in the order in which they appear in the dialog box. As you proceed through the calibration process, the display will automatically update to show the next step.

### NOTE:

Pressing the ESC key during any of the steps or letting the system sit idle for more than 3 minutes will cause the calibration procedure to stop.

### NOTE:

Refer to your combine operator's manual for an explanation of any error codes.



Figure 8.86: Case IH Combine Display

- When all steps have been completed, CALIBRATION SUCCESSFUL message is displayed on the page. Exit the CALIBRATION menu by pressing the ENTER or ESC key.

### NOTE:

If the float was set heavier to complete the AHHC calibration procedure, adjust it to the recommended operating float after the calibration is complete.

## SETTING UP AUTO HEADER HEIGHT CONTROL

### Checking Reel Height Sensor Voltages – Case IH Combines

#### DANGER

Clear the area of other persons, pets etc. Keep children away from machinery. Walk around the machine to be sure no one is under, on, or close to it.

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

1. On the main page of the combine display, select DIAGNOSTICS (A). The DIAGNOSTICS page opens.

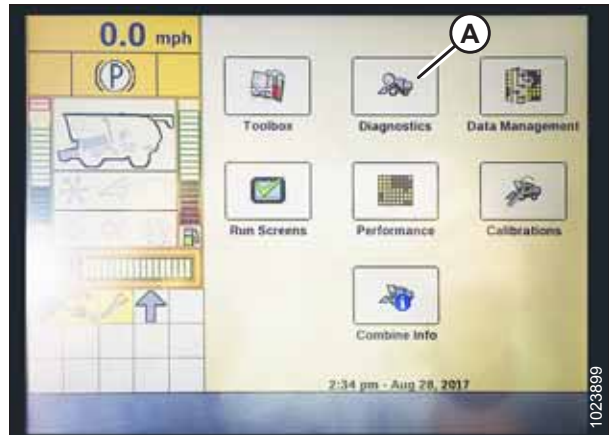


Figure 8.87: Case IH Combine Display

2. Select SETTINGS tab (A). The SETTINGS page opens.
3. From the GROUP menu, select HEADER (B).
4. From the PARAMETER menu, select REEL VERTICAL POSITION (C).



Figure 8.88: Case IH Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

5. Select GRAPH tab (A). The REEL VERTICAL POSITION graph displays.
6. Lower the reel to view high voltage (B). The voltage should be 4.1–4.5 V.
7. Raise the reel to view low voltage (C). The voltage should be 0.5–0.9 V.
8. If either voltage is out of range, refer to [9.1 Checking and Adjusting Reel Height Sensor](#), page 389.

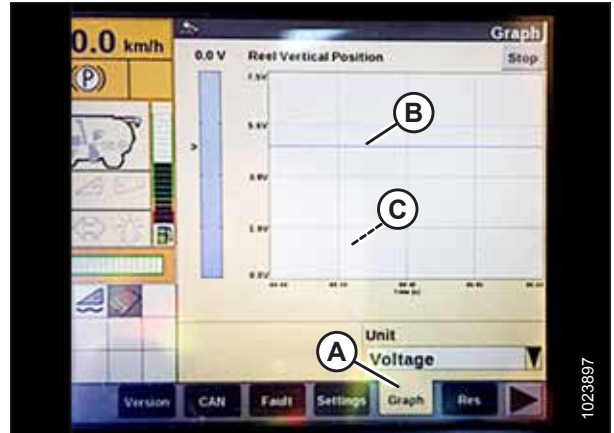


Figure 8.89: Case IH Combine Display

### Setting Preset Cutting Height – Case IH, 120, 230, 240, and 250 Series Combines

#### DANGER

Clear the area of other persons, pets etc. Keep children away from machinery. Walk around the machine to be sure no one is under, on, or close to it.

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

#### NOTE:

Indicator (A) should be at position 0 (B) with the header 254–356 mm (10–14 in.) off the ground. When the header is on the ground, the indicator should be at position 1 (C) for low ground pressure, and at position 4 (D) for high ground pressure. Crop and soil conditions determine the amount of float to use. The ideal setting is as light as possible without header bouncing or missing crop. Operating with heavy settings prematurely wears the cutterbar wearplates.

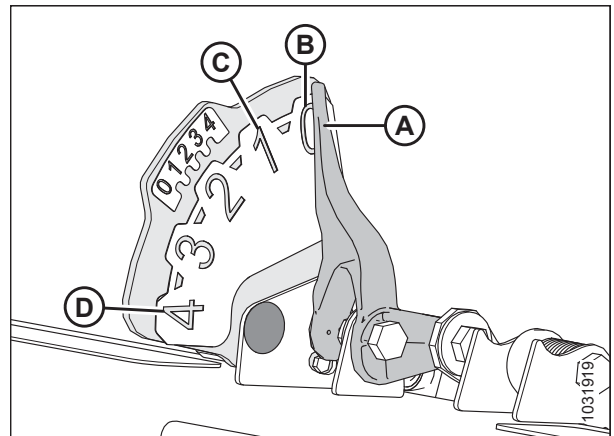


Figure 8.90: Float Indicator

## SETTING UP AUTO HEADER HEIGHT CONTROL

1. Engage the separator and the header.
2. Manually raise or lower the header to a desired cutting height.
3. Press SET #1 switch (A). Light (C) beside switch (A) will illuminate.

**NOTE:**

Use switch (E) for fine adjustments.

**NOTE:**

When setting the presets, always set the header position before setting the reel position. If the header and the reel are set at the same time, the reel setting will not save.

4. Manually raise or lower the reel to the desired position.
5. Press SET #1 switch (A). Light (C) beside switch (A) will illuminate.
6. Manually raise or lower the header to a second desired cutting height.
7. Press SET #2 switch (B). Light (D) beside switch (B) will illuminate.
8. Manually raise or lower the reel to a second desired working position.
9. Press SET #2 switch (B). Light (D) beside switch (B) will illuminate.
10. To swap between the set points, press HEADER RESUME (A).
11. To raise the header at headlands, press and hold SHIFT button (B) at the back of the control handle and press HEADER RESUME switch (A). To lower header, press HEADER RESUME switch (A) once to return to header preset height.

**NOTE:**

Pressing HEADER RAISE/LOWER switches (C) and (D) disengages AUTO HEIGHT mode. Press HEADER RESUME (A) to re-engage.

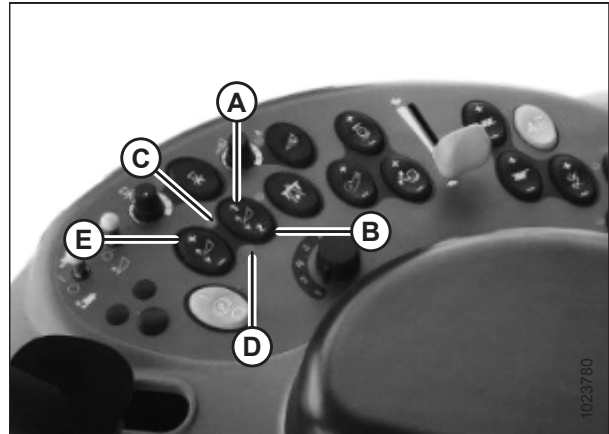


Figure 8.91: Case Combine Controls



Figure 8.92: Case Combine Controls

## 8.1.9 Challenger and Massey Ferguson 6 and 7 Series Combines

### Checking Voltage Range from the Combine Cab – Challenger and Massey Ferguson

#### DANGER

Clear the area of other persons, pets etc. Keep children away from machinery. Walk around the machine to be sure no one is under, on, or close to it.

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

1. Position the header 254–356 mm (10–14 in.) above the ground, and unlock the float.
2. Check that the float lock linkage is on the down stops (washer [A] cannot be moved) at both locations.

#### NOTE:

If the header is not on the down stops during the next two steps, the voltage may go out of range during operation, causing a malfunction of the auto header height control (AHHC) system.

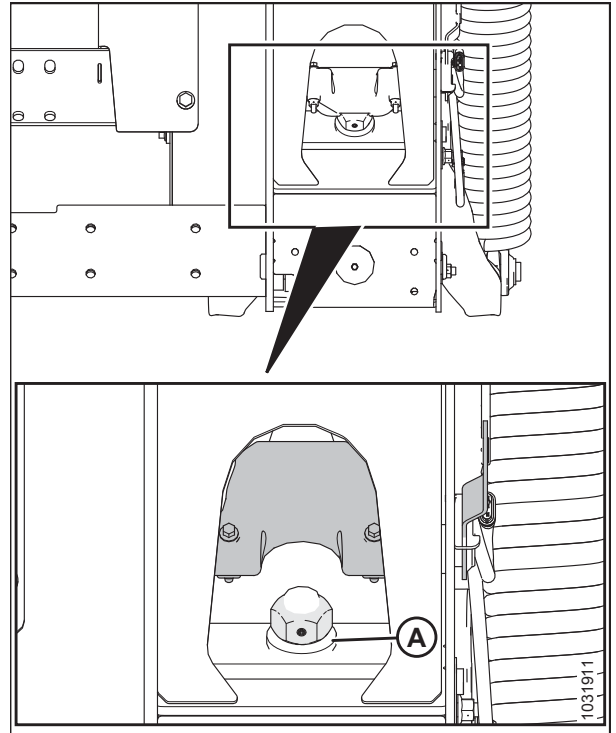


Figure 8.93: Float Lock

3. Loosen bolt (A) and slide float indicator plate (B) until pointer (C) is on 0 (D).
4. Tighten bolt (A).

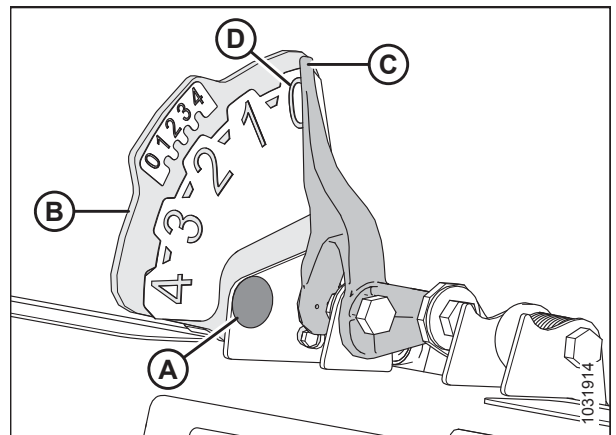


Figure 8.94: Float Indicator

## SETTING UP AUTO HEADER HEIGHT CONTROL

- Go to the FIELD page on the combine monitor, and then press the diagnostics icon. The MISCELLANEOUS page displays.
- Press VMM DIAGNOSTIC button (A). The VMM DIAGNOSTIC page displays.

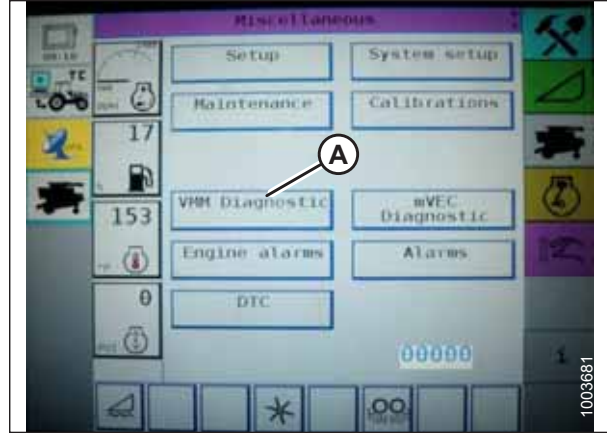


Figure 8.95: Challenger Combine Display

- Go to ANALOG IN tab (A), and then select VMM MODULE 3 by pressing the text box below the four tabs. The voltage from the AHHC sensor is now displayed on page as HEADER HEIGHT RIGHT POT and HEADER HEIGHT LEFT POT. The readings may be slightly different.

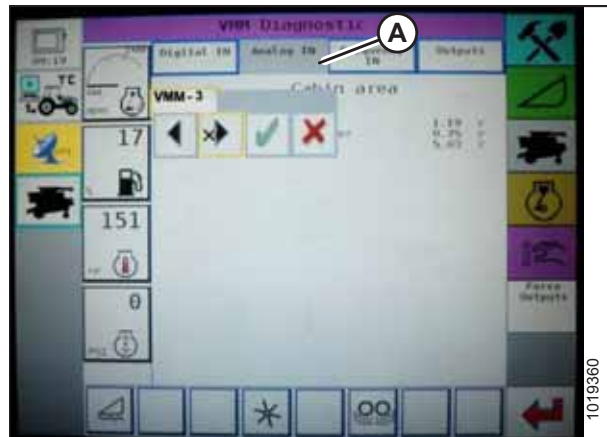


Figure 8.96: Challenger Combine Display

- Fully lower the combine feeder house (float module should be fully separated from the header).

**NOTE:**

You may need to hold the HEADER DOWN switch for a few seconds to ensure the feeder house is fully lowered.

- Read the voltage.
- Raise the header 254–356 mm (10–14 in.) above the ground, and unlock the float.
- Read the voltage.
- If the sensor voltage is not within the low and high limits, or if the range between the low and high limits is insufficient, adjust the voltage limits. For instructions, refer to or [8.1.3 Checking Voltage Limits, page 229](#).



Figure 8.97: Challenger Combine Display

### Engaging the Auto Header Height Control – Challenger® and Massey Ferguson®

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator’s manual for updates.

The following system components are required in order for the auto header height control (AHHC) to work:



## SETTING UP AUTO HEADER HEIGHT CONTROL

- Main module (PCB board) and header driver module (PCB board) mounted in card box in fuse panel module (FP)
  - Multifunction control handle operator inputs
  - Operator inputs mounted in the control console module (CC) panel
  - The electrohydraulic header lift control valve is an integral part of the system.
1. Scroll through the header control options on the combine display using the header control switch until AHHC icon (A) is displayed in the first message box. The AHHC will adjust the header height in relation to the ground according to the height setting and sensitivity setting.



Figure 8.98: Challenger Combine Display

### *Calibrating the Auto Header Height Control – Challenger and Massey Ferguson*

The auto header height control (AHHC) sensor output must be calibrated for each combine, or the AHHC feature will not work properly.

#### **DANGER**

**Clear the area of other persons, pets etc. Keep children away from machinery. Walk around the machine to be sure no one is under, on, or close to it.**

#### **NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

#### **NOTE:**

If the header float is set too light, it can prevent the AHHC calibration. You may need to set the float heavier for the calibration procedure so the header doesn't separate from the float module.

#### **NOTE:**

For best performance of the auto header height control (AHHC) system, perform these procedures with the center-link set to **D**. When setup and calibration are complete, adjust the center-link back to desired header angle. For instructions, refer to Header Angle in the header operator's manual.

## SETTING UP AUTO HEADER HEIGHT CONTROL

1. Ensure the center-link is set to **D**.
2. On the FIELD page, press DIAGNOSTICS icon (A). The MISCELLANEOUS page appears.

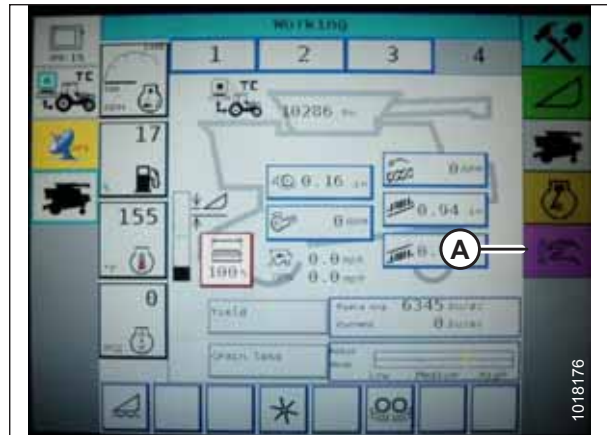


Figure 8.99: Challenger Combine Display

3. Press CALIBRATIONS button (A). The CALIBRATIONS page appears.

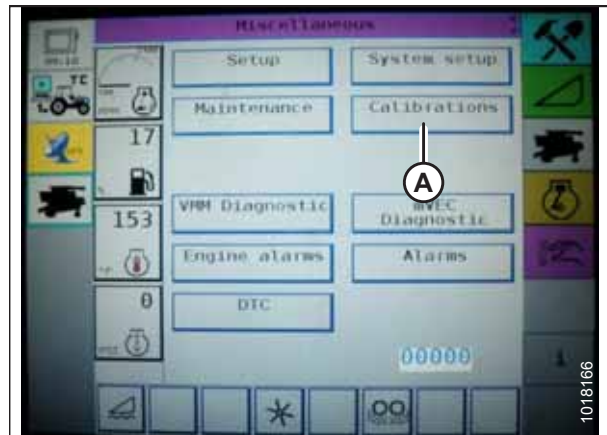


Figure 8.100: Challenger Combine Display

4. Press HEADER button (A). The HEADER CALIBRATION page displays a warning.

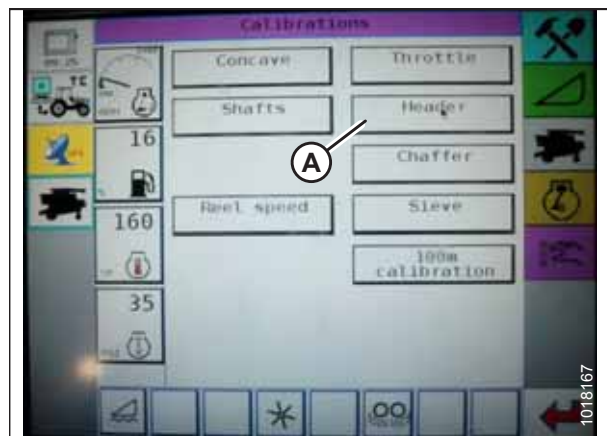


Figure 8.101: Challenger Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

5. Read the warning message, and then press the green check mark button.

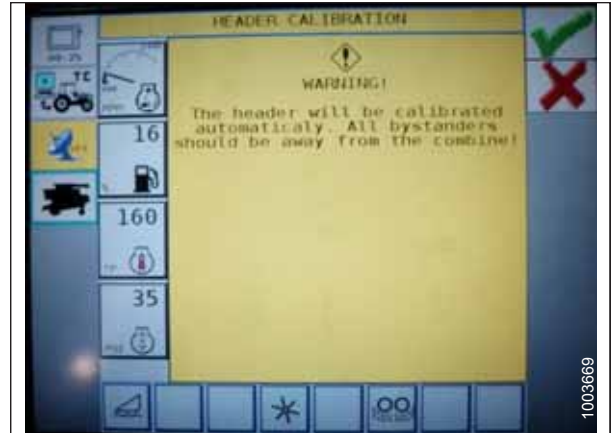


Figure 8.102: Challenger Combine Display

6. Follow the on-screen prompts to complete calibration.

### NOTE:

The calibration procedure can be canceled at any time by pressing the CANCEL button in the bottom right corner of the screen. While the header calibration is running, the calibration can also be canceled by using the UP, DOWN, TILT RIGHT, or TILT LEFT buttons on the control handle.

### NOTE:

If the combine does not have HEADER TILT installed or if it is inoperable, you may receive warnings during calibration. Press the green check mark if these warnings appear. This will not affect the AHHC calibration.

### NOTE:

If the float was set heavier to complete the AHHC calibration procedure, adjust to the recommended operating float after the calibration is complete.

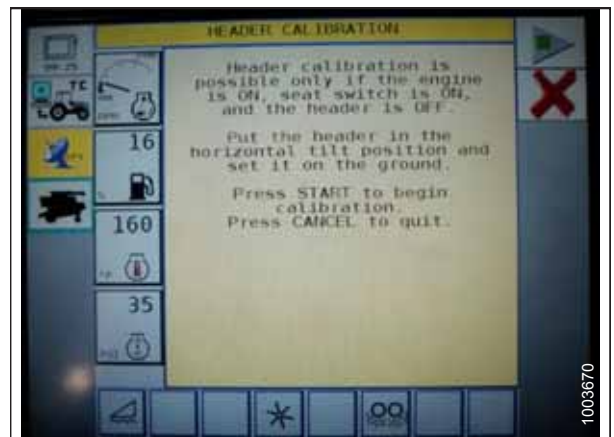


Figure 8.103: Challenger Combine Display

### *Adjusting the Header Height – Challenger and Massey Ferguson*

The auto header height control (AHHC) feature allows the operator to set specific header heights.



### **DANGER**

**Clear the area of other persons, pets etc. Keep children away from machinery. Walk around the machine to be sure no one is under, on, or close to it.**

### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

## SETTING UP AUTO HEADER HEIGHT CONTROL

Once the auto header height control (AHHC) is activated, press and release the HEADER LOWER button on the control handle. The AHHC will automatically lower the header to the selected height setting.

You can adjust the selected AHHC height using HEIGHT ADJUSTMENT knob (A) on the control console. Turning the knob clockwise increases the selected height, and turning the knob counterclockwise decreases the selected height.



Figure 8.104: Height Adjustment Knob on the Combine Control Console

### *Adjusting the Header Raise/Lower Rate – Challenger and Massey Ferguson*

#### **NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

1. Press Header icon (A) on the FIELD page. The HEADER page displays.

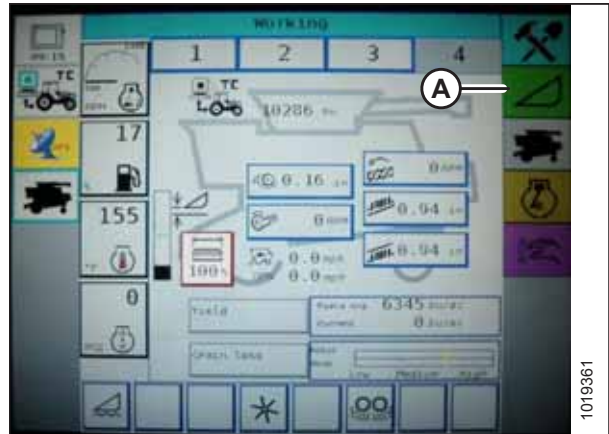


Figure 8.105: Challenger Combine Display

2. Press HEADER CONTROL (A). The HEADER CONTROL page displays.

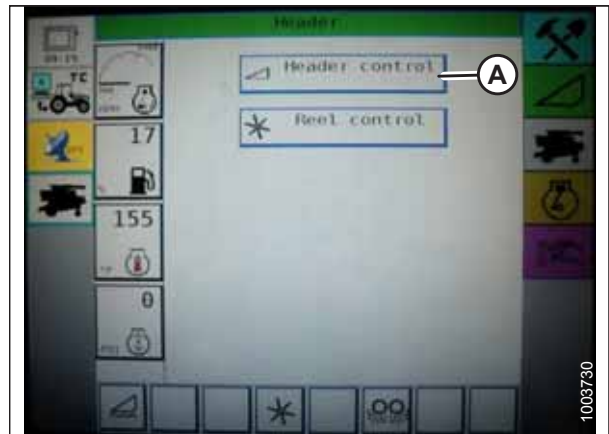


Figure 8.106: Challenger Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

3. Go to the TABLE SETTINGS tab.
4. Press the up arrow on MAX UP PWM to increase the percentage number and increase the raise speed. Press the down arrow on MAX UP PWM to decrease the percentage number and decrease the raise speed.
5. Press the up arrow on MAX DOWN PWM to increase the percentage number and increase the lower speed. Press the down arrow on MAX DOWN PWM to decrease the percentage number and decrease the lower speed.

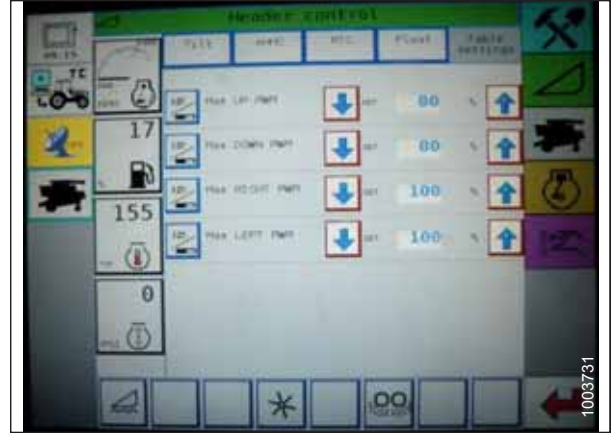


Figure 8.107: Challenger Combine Display

### *Setting the Sensitivity of the Auto Header Height Control – Challenger® and Massey Ferguson®*

The sensitivity adjustment controls the distance the cutterbar must travel up or down before the auto header height control (AHHC) reacts and raises or lowers the feeder house. When the sensitivity is set to maximum, only small changes in ground height are needed to cause the system to raise or lower the feeder house. When the sensitivity is set to minimum, large changes in the ground height are needed to cause the system to raise or lower the feeder house.

### **DANGER**

**Clear the area of other persons, pets etc. Keep children away from machinery. Walk around the machine to be sure no one is under, on, or close to it.**

#### **NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

1. Press the HEADER icon on the FIELD page. The HEADER page appears.
2. Press HEADER CONTROL button (A). The HEADER CONTROL page appears. You can adjust sensitivity on this page using the up and down arrows.

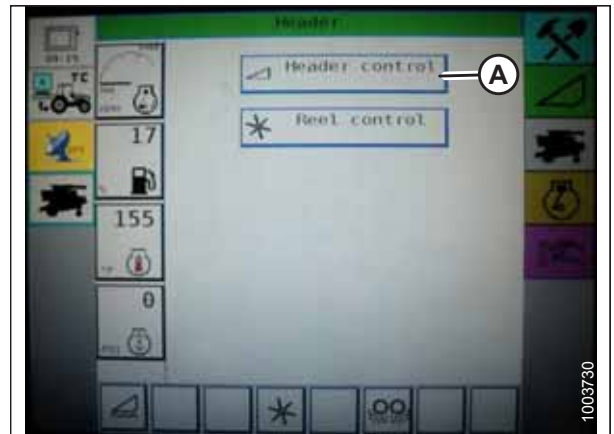


Figure 8.108: Challenger® Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

3. Adjust the sensitivity to the maximum setting.
4. Activate the AHHC, and press the HEADER LOWER button on the control handle.
5. Decrease the sensitivity until the feeder house remains steady and does not bounce up and down.

**NOTE:**

This is the maximum sensitivity and is only an initial setting. The final setting must be made in the field, as the system reaction will vary with changing surfaces and operating conditions.

**NOTE:**

If maximum sensitivity is not needed, a less sensitive setting will reduce the frequency of header height corrections and component wear. Partially opening the accumulator valve will cushion the action of the header lift cylinders and reduce header hunting.



Figure 8.109: Challenger® Combine Display

### 8.1.10 CLAAS 500 Series Combines

#### *Calibrating the Auto Header Height Control – CLAAS 500 Series*

The auto header height control (AHHC) sensor output must be calibrated for each combine, or the AHHC feature will not work properly.

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

**NOTE:**

If the header float is set too light, it can prevent the calibration of the AHHC. You may need to set the float heavier for the calibration procedure so the header does not separate from the float module.

**NOTE:**

For best performance of the auto header height control (AHHC), perform these procedures with the center-link set to **D**. When setup and calibration are complete, adjust the center-link back to desired header angle. For instructions, refer to The Header Angle in the header operator's manual for instructions.

1. Ensure the center-link is set to **D**.
2. Use < key (A) or > key (B) to select AUTO HEADER, and press OK key (C). The E5 page indicates whether the automatic header height is on or off.

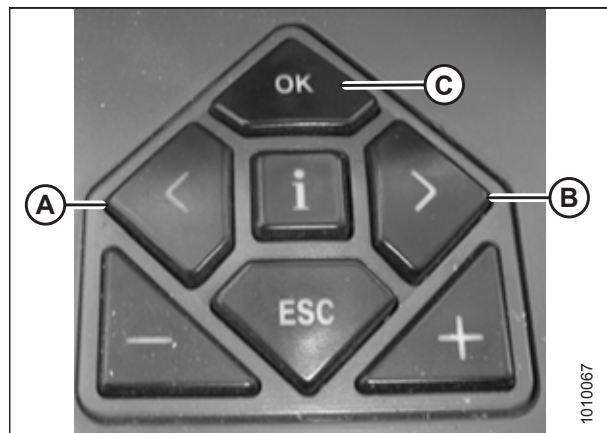


Figure 8.110: CLAAS Combine Controls

## SETTING UP AUTO HEADER HEIGHT CONTROL

- Use – key (A) or + key (B) to turn the AHHC on, and press OK key (C).
- Engage the threshing mechanism and the header.

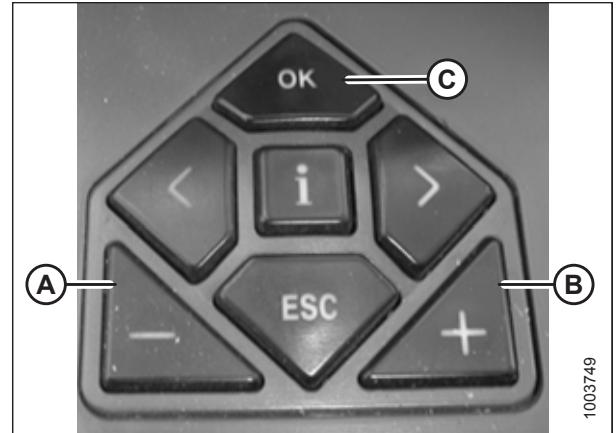


Figure 8.111: CLAAS Combine Controls

- Use the < or > key to select CUTT. HEIGHT LIMITS, and press the combine control's OK key.
- Follow the procedure displayed on the screen to program the upper and lower limits of the header into the CEBIS.

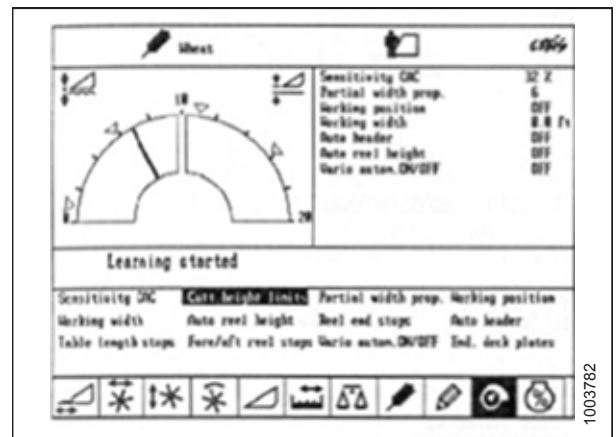


Figure 8.112: CLAAS Combine Display

- Use the < or > key to select SENSITIVITY CAC, and press the combine control's OK key.

**NOTE:**

Setting the sensitivity of the AHHC system affects the reaction speed of the AHHC on the header.

- Use the – key or the + key to change the reaction speed setting, and press the combine control's OK key.

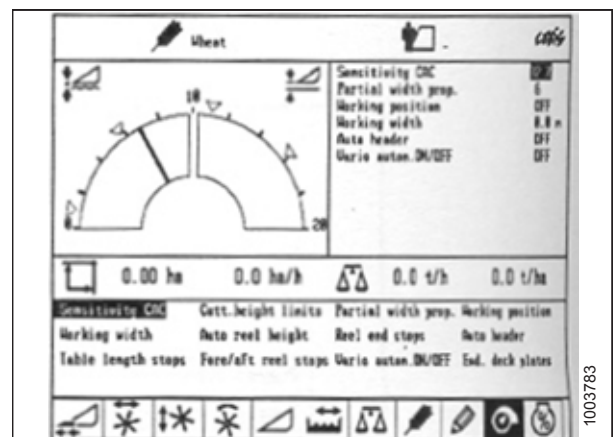


Figure 8.113: CLAAS Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

9. Use line (A) or value (B) to determine the sensitivity setting.

**NOTE:**

The setting can be adjusted from 0–100%. When sensitivity is adjusted to 0%, the signals from the sensing bands have no effect on the automatic cutting height adjustment. When sensitivity is adjusted to 100%, the signals from the sensing bands have maximum effect on the automatic cutting height adjustment. The recommended starting point is 50%.

**NOTE:**

If the float was set heavier to complete the AHHC calibration procedure, adjust it to the recommended operating float after the calibration is complete.

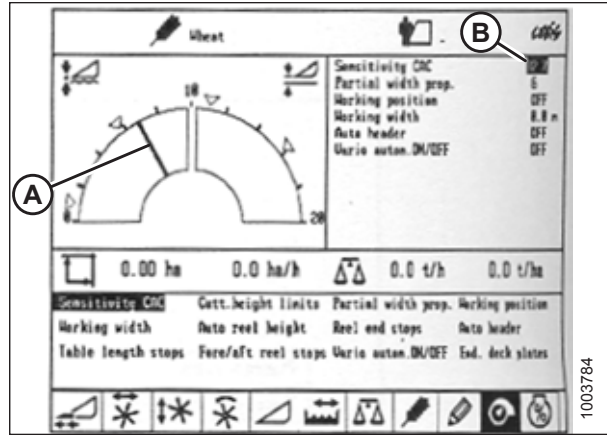


Figure 8.114: CLAAS Combine Display

### Setting Cutting Height – CLAAS 500 Series

Cutting heights can be programmed into the preset cutting height and auto contour systems. Use the preset cutting height system for cutting heights above 150 mm (6 in.), and use the auto contour system for cutting heights below 150 mm (6 in.).

### Setting Preset Cutting Height – CLAAS 500 Series



## DANGER

Check to be sure all bystanders have cleared the area.

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

1. Start the engine.
2. Activate the machine enable switch.
3. Engage the threshing mechanism.
4. Engage the header.
5. Briefly press button (A) in order to activate the auto contour system, or briefly press button (B) in order to activate the preset cutting height system.

**NOTE:**

Button (A) is used only with auto header height control (AHHC) function. Button (B) is used only with the return to cut function.



Figure 8.115: Control Handle Buttons



## SETTING UP AUTO HEADER HEIGHT CONTROL

6. Use < key (C) or > key (D) to select the CUTTING HEIGHT page, and press OK key (E).
7. Use – key (A) or + key (B) to set the desired cutting height. An arrow indicates the selected cutting height on the scale.

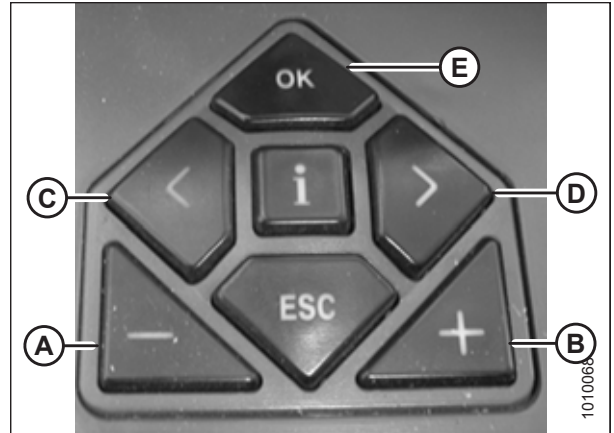


Figure 8.116: CLAAS Combine Controls

8. Briefly press button (A) or button (B) in order to select the set point.
9. Repeat Step 7, [page 277](#) for the set point.



Figure 8.117: Control Handle Buttons

### Setting Cutting Height Manually – CLAAS 500 Series

#### **DANGER**

Check to be sure all bystanders have cleared the area.

#### **NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

## SETTING UP AUTO HEADER HEIGHT CONTROL

1. Use button (A) to raise the header, or button (B) to lower the header to the desired cutting height.
2. Press and hold button (C) for 3 seconds to store the cutting height into the CEBIS (an alarm will sound when the new setting has been stored).
3. Program a second set point, if desired, by using button (A) to raise the header, or button (B) to lower the header to the desired cutting height, and briefly press button (C) to store the second set point into the CEBIS (an alarm will sound when the new setting has been stored).

### NOTE:

For above-the-ground cutting, repeat Step 1, page 278, and use button (D) instead of button (C) while repeating Step 2, page 278.



Figure 8.118: Control Handle Buttons

### Setting the Sensitivity of the Auto Header Height Control – CLAAS 500 Series

The sensitivity adjustment controls the distance the cutterbar must travel up or down before the auto header height control (AHHC) reacts and raises or lowers the feeder house. When the sensitivity is set to maximum, only small changes in ground height are needed to cause the system to raise or lower the feeder house. When the sensitivity is set to minimum, large changes in the ground height are needed to cause the system to raise or lower the feeder house.

### NOTE:

The upper and lower limits of the header must be programmed into CEBIS before adjusting the sensitivity of the AHHC system. The setting can be adjusted from 0–100%. When the sensitivity is adjusted to 0%, the signals from the sensing bands have no effect on the automatic cutting height adjustment. When the sensitivity is adjusted to 100%, the signals from the sensing bands have maximum effect on the automatic cutting height adjustment. The recommended starting point is 50%.

### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

1. Use < key (C) or > key (D) to select SENSITIVITY CAC, and press OK key (E).
2. Use – key (A) or + (B) key to change the reaction speed setting, and press OK key (E).

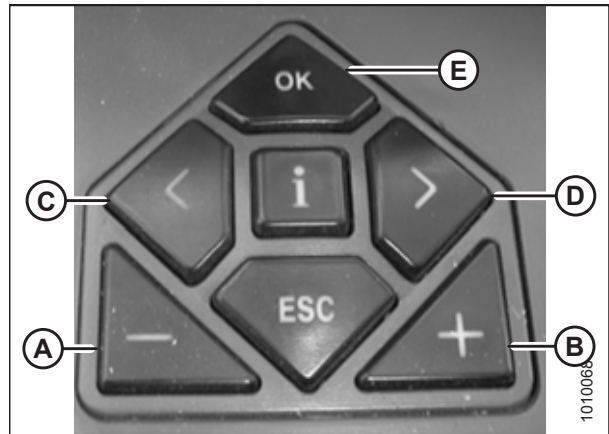


Figure 8.119: CLAAS Combine Controls

SETTING UP AUTO HEADER HEIGHT CONTROL

3. Use line (A) or value (B) to determine the sensitivity setting.

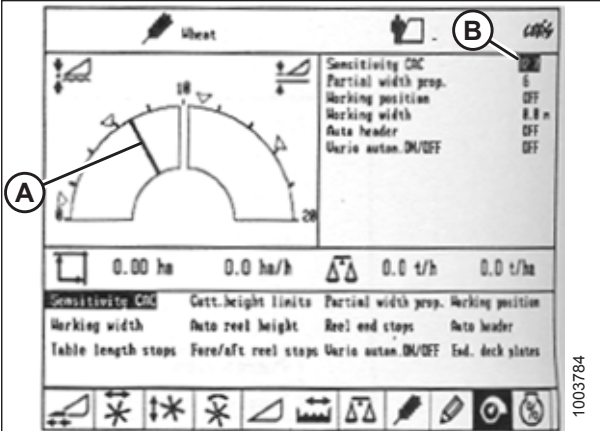
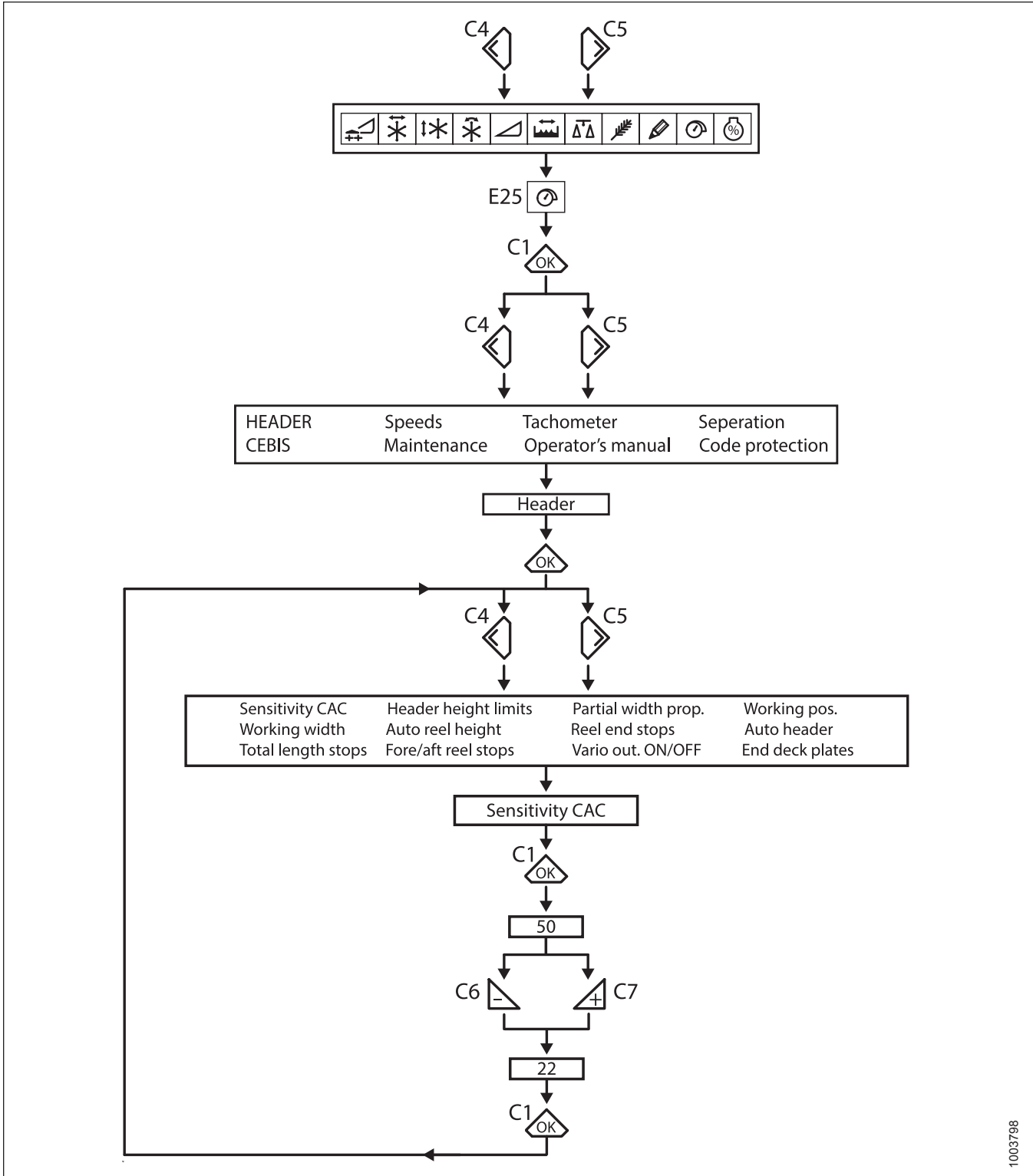


Figure 8.120: CLAAS Combine Display

SETTING UP AUTO HEADER HEIGHT CONTROL



1003798

Figure 8.121: Flow Chart for Setting the Sensitivity of the Float Optimizer

## SETTING UP AUTO HEADER HEIGHT CONTROL

### Adjusting Auto Reel Speed – CLAAS 500 Series

The preset reel speed can be set when the automatic header functions are activated.

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

1. Use the < or > key to select REEL WINDOW. Window E15 will display the current advance or retard speed of the reel in relation to the ground speed.

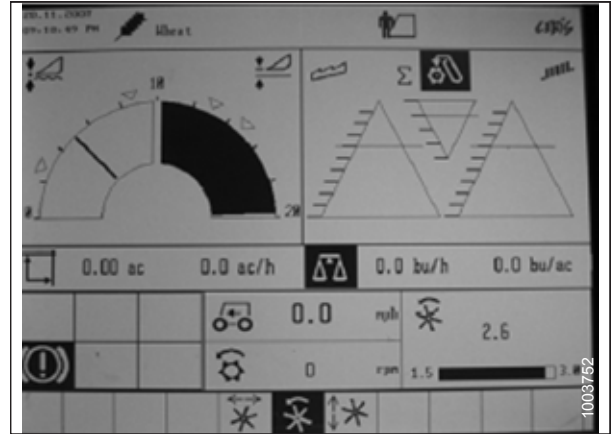


Figure 8.122: CLAAS Combine Display

2. Press OK key (C) to open the REEL SPEED window.
3. Use – key (A) or + key (B) to set the reel speed in relation to the current ground speed. Window E15 will display the selected reel speed.

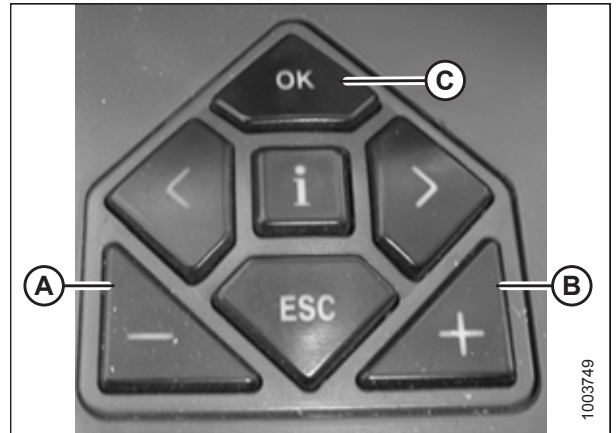


Figure 8.123: CLAAS Combine Controls

4. Manually adjust the reel speed by rotating the rotary switch to reel position (A), and then use the – or + key to set the reel speed.



Figure 8.124: CLAAS Combine Rotary Switch

## SETTING UP AUTO HEADER HEIGHT CONTROL

5. Press and hold button (A) or button (B) for 3 seconds to store the setting into the CEBIS (an alarm will sound when the new setting has been stored).

**NOTE:**

Whenever button (A) or button (B) is pressed for 3 seconds, the current positions for reel speed and cutting height are stored.



Figure 8.125: CLAAS Control Handle Buttons

6. Use the < or > key to select the REEL WINDOW. Window E15 will display the current advance or retard speed of the reel in relation to the ground speed.



Figure 8.126: CLAAS Combine Display

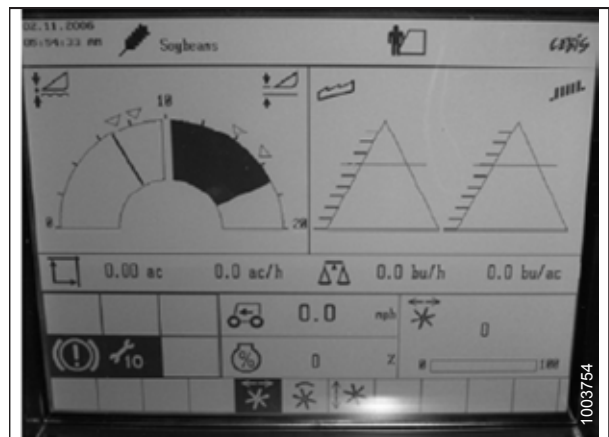


Figure 8.127: CLAAS Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

- Press OK key (E), and use < key (C) or > key (D) to select the REEL FORE AND AFT window.
- Use – key (A) or + key (B) to set the reel fore-aft position.

**NOTE:**

Control handle button (A) or button (B) (as shown in Figure 8.129, page 283) can also be used to set the reel fore-aft position.

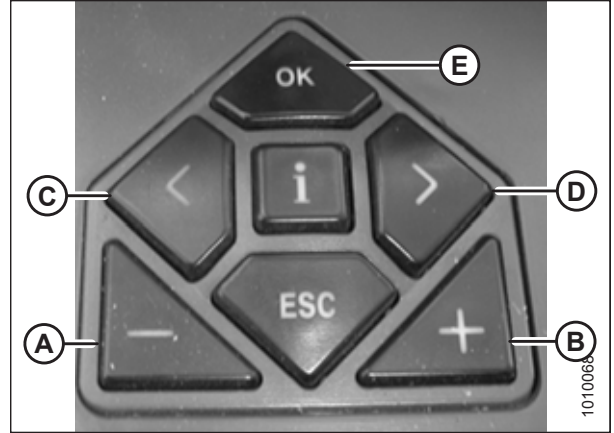


Figure 8.128: CLAAS Combine Controls

- Press and hold button (A) or button (B) for 3 seconds to store the setting into the CEBIS (an alarm will sound when the new setting has been stored).

**NOTE:**

Whenever button (A) or button (B) is pressed for 3 seconds, the current positions for reel speed and cutting height are stored.



Figure 8.129: CLAAS Control Handle Buttons

### 8.1.11 CLAAS 600 and 700 Series Combines

#### *Calibrating the Auto Header Height Control – CLAAS 600 and 700 Series*

The auto header height control (AHHC) sensor output must be calibrated for each combine, or the AHHC feature will not work properly.

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

**NOTE:**

If the header float is set too light, it can prevent the AHHC calibration. You may need to set the float heavier for the calibration procedure so the header does not separate from the float module.

**NOTE:**

For best performance of the auto header height control (AHHC), perform these procedures with the center-link set to **D**. When setup and calibration are complete, adjust the center-link back to desired header angle. For instructions, refer to Header Angle in the header operator's manual for instructions.

- Ensure the center-link is set to **D**.
- Ensure that the header float is unlocked.

## SETTING UP AUTO HEADER HEIGHT CONTROL

- Place the wings in the locked position.
- Use control knob (A) to highlight AUTO CONTOUR icon (B) and press control knob (A) to select it.



Figure 8.130: CLAAS Combine Display, Console, and Control Handle

- Use control knob (A) to highlight the icon that resembles a header with up and down arrows (not shown). Press control knob (A) to select it. Highlighted header icon (B) will be displayed on the screen.



Figure 8.131: CLAAS Combine Display, Console, and Control Handle

- Use control knob (A) to highlight the icon that resembles a header with up and down arrows (B). Press control knob (A) to select it.



Figure 8.132: CLAAS Combine Display, Console, and Control Handle



## SETTING UP AUTO HEADER HEIGHT CONTROL

7. Use control knob (A) to highlight the icon that resembles a screwdriver (B).
8. Engage the combine separator and feeder house.
9. Press control knob (A) and a progress bar will appear.



Figure 8.133: CLAAS Combine Display, Console, and Control Handle

10. Fully raise the feeder house. Progress bar (A) will advance to 25%.
11. Fully lower the feeder house. Progress bar (A) will advance to 50%.
12. Fully raise the feeder house. Progress bar (A) will advance to 75%.
13. Fully lower the feeder house. Progress bar (A) will advance to 100%.



Figure 8.134: CLAAS Combine Display, Console, and Control Handle

14. Ensure progress bar (A) displays 100%. The calibration procedure is now complete.

**NOTE:**

If the voltage is not within the range of 0.5–4.5 V at any time throughout the calibration process, the monitor will indicate learning procedure not concluded.

**NOTE:**

If the float was set heavier to complete the ground calibration procedure, adjust it to the recommended operating float after the calibration is complete.



Figure 8.135: CLAAS Combine Display, Console, and Control Handle

## SETTING UP AUTO HEADER HEIGHT CONTROL

### Setting Cutting Height – CLAAS 600 and 700 Series

The cutting height can have two different heights saved in the system. When harvesting they can be selected from the control handle.

#### DANGER

Check to be sure all bystanders have cleared the area.

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

1. Lower the header to desired the cutting height or ground pressure setting. The float indicator box should be set to 1.5.
2. Hold the left side of header raise and lower switch (A) until you hear a ping sound.

#### NOTE:

You can set two different cutting heights.



Figure 8.136: CLAAS Combine Display, Console, and Control Handle

### Setting the Sensitivity of the Auto Header Height Control – CLAAS 600 and 700 Series

The sensitivity adjustment controls the distance the cutterbar must travel up or down before the auto header height control (AHHC) reacts and raises or lowers the feeder house. When the sensitivity is set to maximum, only small changes in ground height are needed to cause the feeder house to raise or lower. When the sensitivity is set to minimum, large changes in the ground height are needed to cause the feeder house to raise or lower.

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

## SETTING UP AUTO HEADER HEIGHT CONTROL

1. Use control knob (A) to highlight HEADER/REEL icon (B). Press control knob (A) to select it. The HEADER/REEL dialog box opens.
2. Select the HEADER icon.

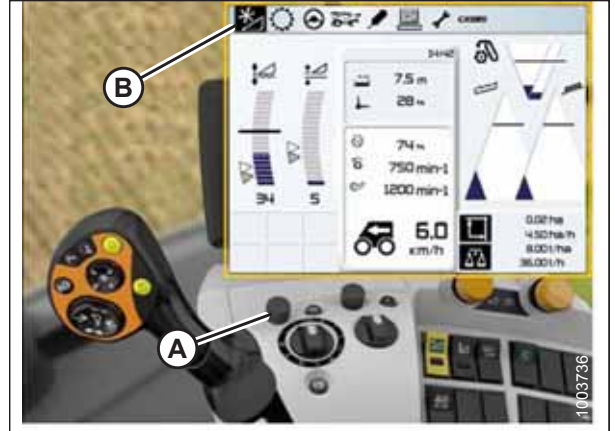


Figure 8.137: CLAAS Combine Display, Console, and Control Handle

3. Select FRONT ATTACHMENT PARAMETER SETTINGS icon (A). A list of settings appears.
4. Select SENSITIVITY CAC (B) from the list.



Figure 8.138: CLAAS Combine Display, Console, and Control Handle

5. Select SENSITIVITY CAC icon (A).

### NOTE:

To set the sensitivity, you will have to change CUTTING HEIGHT ADJUSTMENT (B) from the 0 default. The settings from 1–50 provide a faster response, whereas the settings from -1 to 50 provide a slower response. For best results, make adjustments in increments of 5.

6. If the reaction time between the header and the float module is too slow while cutting on the ground, increase the CUTTING HEIGHT ADJUSTMENT setting. If the reaction time between the header and the float module is too fast, decrease the CUTTING HEIGHT ADJUSTMENT setting.
7. If the header is lowered too slowly, increase the sensitivity. If the header hits the ground too hard or is lowered too quickly, decrease the sensitivity.



Figure 8.139: CLAAS Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

### Adjusting Auto Reel Speed – CLAAS 600 and 700 Series

The preset reel speed can be set when the automatic header functions are activated.

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

1. Use control knob (A) to highlight HEADER/REEL icon (B). Press control knob (A) to select it. The HEADER/REEL dialog box opens.

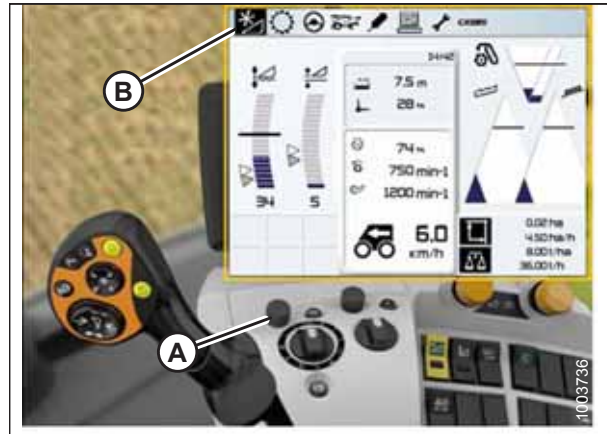


Figure 8.140: CLAAS Combine Display, Console, and Control Handle

2. Use control knob (A) to select REEL SPEED (B), and adjust the reel speed (if you are **NOT** using Auto Reel Speed). A graph displays in the dialog box.



Figure 8.141: CLAAS Combine Display, Console, and Control Handle

## SETTING UP AUTO HEADER HEIGHT CONTROL

3. Select ACTUAL VALUE (A) from the AUTO REEL SPEED dialog box (if you are using Auto Reel Speed). The ACTUAL VALUE dialog box indicates the auto reel speed.



Figure 8.142: CLAAS Combine Display, Console, and Control Handle

4. Use control knob (A) to raise or lower the reel speed.

**NOTE:**

This option is only available with the engine at full throttle.



Figure 8.143: CLAAS Combine Display, Console, and Control Handle

### *Calibrating Reel Height Sensor and Reel Fore-Aft Sensor – CLAAS 600 and 700 Series*

The auto header height control (AHHC) sensor output must be calibrated for each combine, or the AHHC feature will not work properly.

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

**NOTE:**

Calibrating the reel fore-aft sensor is only possible if the optional CLAAS integration kit (MD #B7231) is installed

**NOTE:**

If the header float is set too light, it can prevent the calibration of the AHHC. You may need to set the float heavier for the calibration procedure so the header does not separate from the float module.

**NOTE:**

For best performance of the auto header height control (AHHC) system, perform ground calibration with center-link set to **D**. When calibration is complete, adjust the center-link back to desired header angle. For instructions, refer to the header operator's manual

## SETTING UP AUTO HEADER HEIGHT CONTROL

1. Start the engine.
2. Position the header 254–356 mm (10–14 in.) off the ground.

### IMPORTANT:

Do **NOT** turn off the engine. The combine has to be at full idle for the sensors to calibrate properly.

3. Use control knob (A) to highlight FRONT ATTACHMENT icon (B). Press control knob (A) to select it.



Figure 8.144: CLAAS Combine Display, Console, and Control Handle

4. Use control knob (A) to highlight REEL icon (B). Press control knob (A) to select it.

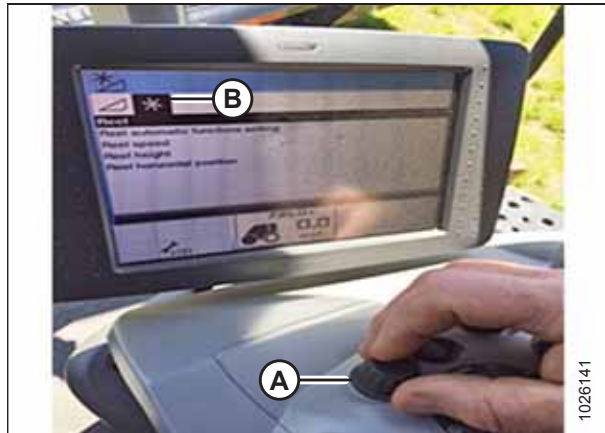


Figure 8.145: CLAAS Combine Display and Console

5. Highlight REEL HEIGHT icon (A). Press the control knob to select it.
6. Select LEARNING END STOPS (B) from the list.

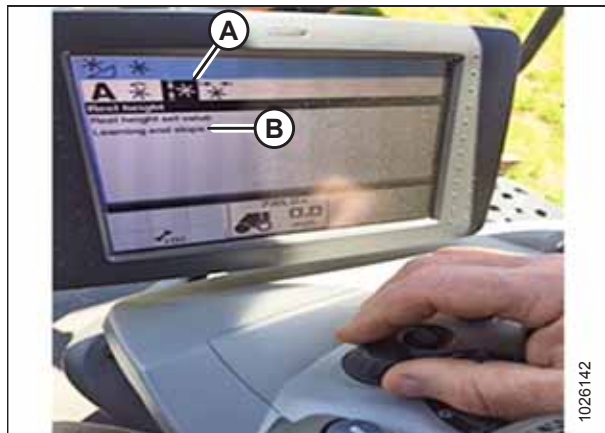


Figure 8.146: CLAAS Combine Display and Console

## SETTING UP AUTO HEADER HEIGHT CONTROL

7. Use control knob (A) to highlight screwdriver icon (B).



Figure 8.147: CLAAS Combine Display, Console, and Control Handle

8. Press the control knob. A progress bar chart (A) will appear.
9. Follow the prompts on the screen to raise the reel.
10. Follow the prompts on the screen to lower the reel.



Figure 8.148: CLAAS Combine Display, Console, and Control Handle

11. Ensure progress bar chart displays 100% (A). The calibration procedure is now complete.



Figure 8.149: CLAAS Combine Display, Console, and Control Handle

## SETTING UP AUTO HEADER HEIGHT CONTROL

12. **If equipped with CLAAS integration kit (MD #B7231):**  
Calibrate the reel fore-aft sensor by selecting REEL HORIZONTAL POSITION (A), then LEARNING END STOPS (B), and then repeating Step 7, page 291 to Step 11, page 291.



Figure 8.150: CLAAS Combine Display and Console

### Adjusting Auto Reel Height – CLAAS 600 and 700 Series

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

1. Use HOTKEY rotary dial (A) to select REEL icon (B).

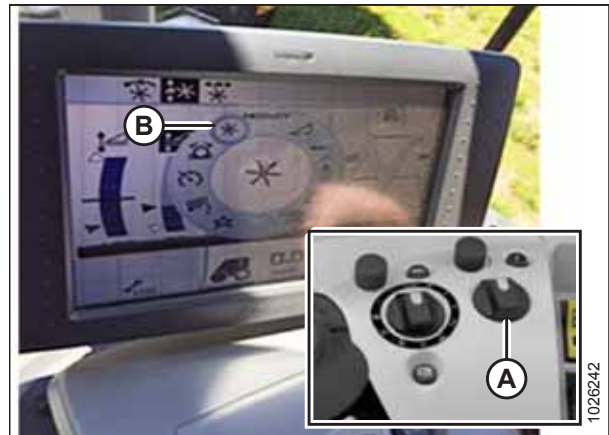


Figure 8.151: CLAAS Combine Display and Console

2. Use control knob (A) to select AUTO REEL HEIGHT icon (B) at the top of the page.

#### NOTE:

AUTO REEL HEIGHT icon (C) at the center of the page should be highlighted black. If it is not black, either the end stops have not been set or the AHHC is not active. For instructions, refer to [Calibrating Reel Height Sensor and Reel Fore-Aft Sensor – CLAAS 600 and 700 Series, page 289](#).

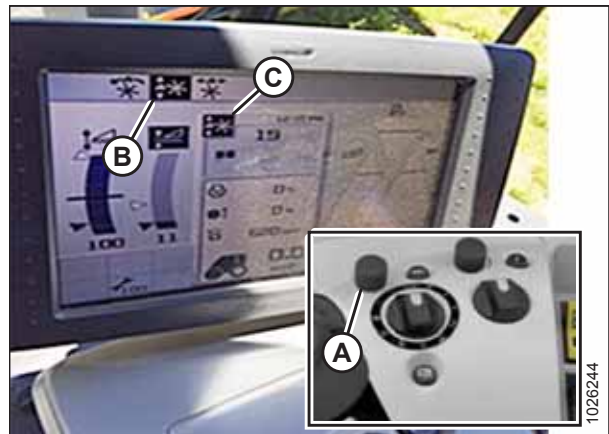


Figure 8.152: CLAAS Combine Display and Console



## SETTING UP AUTO HEADER HEIGHT CONTROL

- Adjust the auto reel height position for the current AHHC position using outer scroll knob (A). To lower the preset reel position, turn the scroll knob counterclockwise; to raise the preset reel position, turn the scroll knob clockwise. The display will update current setting (B).

**NOTE:**

If the AUTO REEL HEIGHT icon in the center of the page is not black, an AHHC position is not currently active.

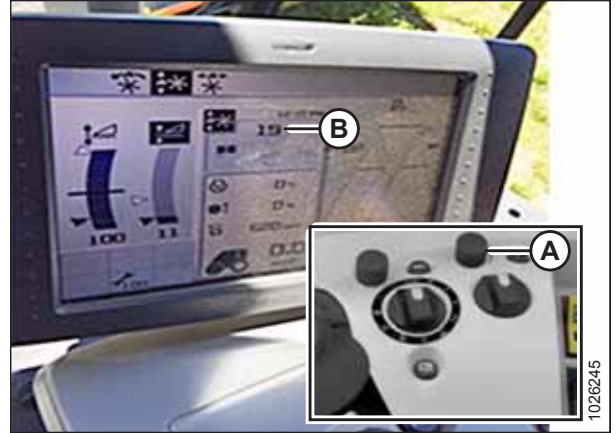


Figure 8.153: CLAAS Combine Display and Console

### 8.1.12 CLAAS 7000/8000 Series Combines

#### Setting up the Header – CLAAS 7000/8000 Series

Follow these steps to set up a MacDon header:

**⚠ DANGER**

Clear the area of other persons, pets etc. Keep children away from machinery. Walk around the machine to be sure no one is under, on, or close to it.

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

- From the main page, select FRONT ATTACHMENT (A).



Figure 8.154: CEBIS Main Page

## SETTING UP AUTO HEADER HEIGHT CONTROL

- From the drop down list, select FRONT ATTACHMENT PARAMETERS (A).



Figure 8.155: Front Attachment Page

- From the FRONT ATTACHMENT PARAMETERS page, select FRONT ATTACHMENT TYPE (A).
- From the drop down list, select FLEX CUTTERBAR PRODUCT BY OTHER MANUFACTURER (B).

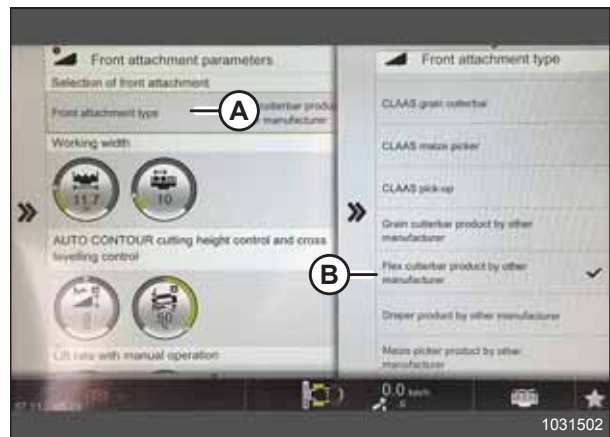


Figure 8.156: Attachment Parameters Page

- From the FRONT ATTACHMENT PARAMETERS page, select WORKING WIDTH (A).
- Set the header width by sliding adjuster arrow (B) up or down.
- Select check mark (C) to save the settings.

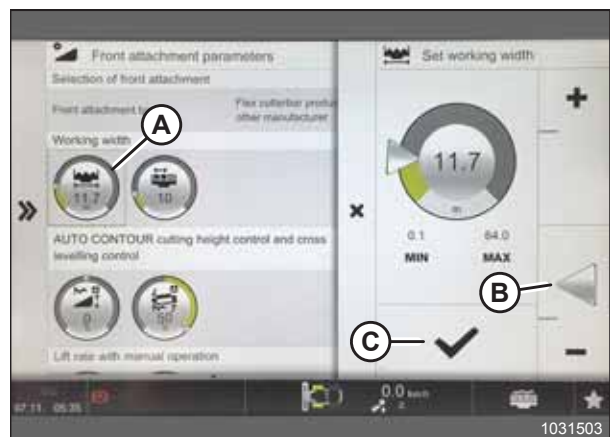


Figure 8.157: Attachment Parameters Page

## SETTING UP AUTO HEADER HEIGHT CONTROL

### Calibrating the Auto Header Height Control – CLAAS 7000/8000 Series

The auto header height control (AHHC) sensor output must be calibrated for each combine, or the AHHC feature will not work properly.

#### DANGER

Clear the area of other persons, pets etc. Keep children away from machinery. Walk around the machine to be sure no one is under, on, or close to it.

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

#### NOTE:

If the header float is set too light, it can prevent the calibration of the AHHC. You may need to set the float heavier for the calibration procedure so the header does not separate from the float module.

#### NOTE:

For best performance of the auto header height control (AHHC) system, perform ground calibration with center-link set to **D**. When calibration is complete, adjust the center-link back to desired header angle. For instructions, refer to the header operator's manual

1. From the MAIN page, select FRONT ATTACHMENT (A).



Figure 8.158: CEBIS Main Page

2. Select LEARNING PROCEDURES (A) from the menu.
3. SELECT FRONT ATTACHMENT HEIGHT (B).

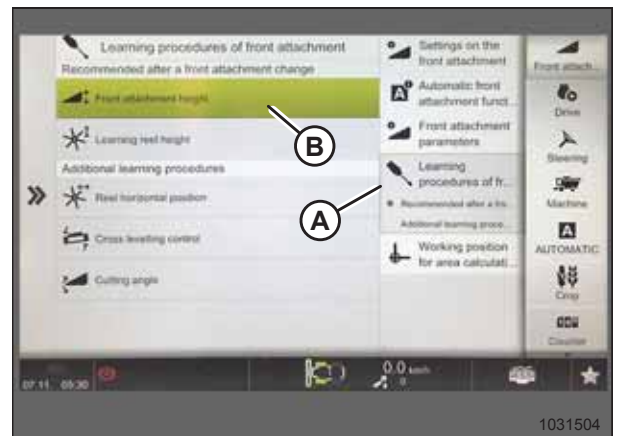


Figure 8.159: Learning Procedures Page

## SETTING UP AUTO HEADER HEIGHT CONTROL

4. Follow the prompts that appear in DESCRIPTION and NOTES fields (A).



Figure 8.160: Front Attachment Height Page

5. When prompted, select OK button (A) to start the learning procedure.



Figure 8.161: Operator Controls

## SETTING UP AUTO HEADER HEIGHT CONTROL

6. When prompted, raise the front attachment with button (A) on the multifunction lever.
7. When prompted, lower the front attachment with button (B) on the multifunction lever.
8. Repeat as prompted until calibration is complete.



Figure 8.162: Multifunction Lever

## SETTING UP AUTO HEADER HEIGHT CONTROL

### Setting Cut and Reel Height Preset – CLAAS 7000/8000 Series

The reel and cut height setting can be stored in the combine. When harvesting the setting can be selected from the control handle.

#### DANGER

Clear the area of other persons, pets etc. Keep children away from machinery. Walk around the machine to be sure no one is under, on, or close to it.

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

1. Set the desired cutting height with feeder house raise/lower buttons (A) on the multifunction lever.
2. Set the desired reel position with buttons (B).
3. Press and hold AUTO HEIGHT PRESET button (C) to store the settings.



Figure 8.163: Multifunction Lever

A triangle (A) appears on the header height gauge indicating the preset level.



Figure 8.164: CEBIS Main Page

### Setting the Sensitivity of the Auto Header Height Control – CLAAS 7000/8000 Series

The sensitivity adjustment controls the distance the cutterbar must travel up or down before the auto header height control (AHHC) reacts and raises or lowers the feeder house. When the sensitivity is set to maximum, only small changes in ground height are needed to cause the system to raise or lower the feeder house. When the sensitivity is set to minimum, large changes in the ground height are needed to cause the system to raise or lower the feeder house.

#### DANGER

Clear the area of other persons, pets etc. Keep children away from machinery. Walk around the machine to be sure no one is under, on, or close to it.

## SETTING UP AUTO HEADER HEIGHT CONTROL

### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

1. From the main page, select FRONT ATTACHMENT (A).



Figure 8.165: CEBIS Main Page

2. From the drop down list, select FRONT ATTACHMENT PARAMETERS (A).



Figure 8.166: Front Attachment Parameters Page

3. Scroll through the list and select DROP RATE WITH AUTO CONTOUR icon (A).
4. Adjust the drop rate by sliding adjuster arrow (B) up or down.
5. Select check mark (C) to confirm the settings.



Figure 8.167: Drop Rate with Auto Contour Page

## SETTING UP AUTO HEADER HEIGHT CONTROL

### Adjusting Auto Reel Speed – CLAAS 7000/8000 Series

The preset reel speed can be set when the automatic header functions are activated.

#### DANGER

Clear the area of other persons, pets etc. Keep children away from machinery. Walk around the machine to be sure no one is under, on, or close to it.

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

1. From the main page, select FRONT ATTACHMENT (A).



Figure 8.168: CEBIS Main Page

2. From the list, select SETTINGS ON FRONT ATTACHMENT (A).
3. Select REEL TARGET VALUES (B).
4. Select REEL SPEED ADJUST icon (C).



Figure 8.169: Settings on Front Attachment Page



## SETTING UP AUTO HEADER HEIGHT CONTROL

- Adjust the reel speed target value by sliding adjuster arrow (A) up or down.
- Select check mark (B) to save the setting.



Figure 8.170: Reel Speed Target Value Page

### Calibrating Reel Height Sensor and Reel Fore-Aft Sensor – CLAAS 7000/8000 Series

The auto header height control (AHHC) sensor output must be calibrated for each combine, or the AHHC feature will not work properly.

#### DANGER

Clear the area of other persons, pets etc. Keep children away from machinery. Walk around the machine to be sure no one is under, on, or close to it.

#### NOTE:

Calibrating the reel fore-aft sensor is only possible if the optional CLAAS integration kit (MD #B7231) is installed

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

- Position the header 254–356 mm (10–14 in.) off the ground.

#### NOTE:

Do **NOT** turn off the engine. The combine has to be at full idle for the sensors to calibrate properly.

- From the main page, select FRONT ATTACHMENT (A).



Figure 8.171: CEBIS Main Page

## SETTING UP AUTO HEADER HEIGHT CONTROL

3. Select LEARNING PROCEDURES FOR FRONT ATTACHMENT (A).
4. Select LEARNING REEL HEIGHT (B).

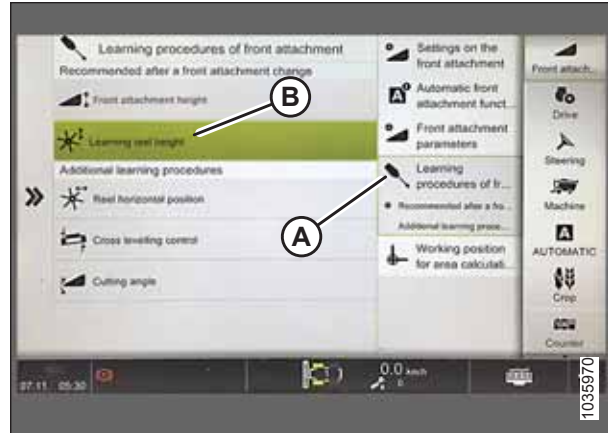


Figure 8.172: Front Attachment Page

5. Follow the prompts that appear in DESCRIPTION and NOTES fields (A).

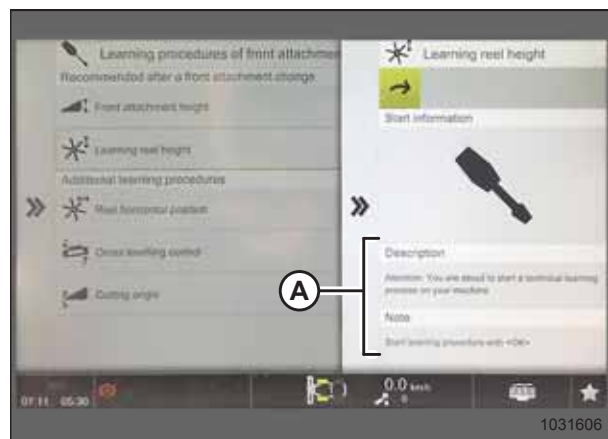


Figure 8.173: Learning Reel Height Page

## SETTING UP AUTO HEADER HEIGHT CONTROL

- When prompted, select OK button (A) to start the learning procedure.



Figure 8.174: Operator Controls

- If equipped with CLAAS integration kit (MD #B7231):** Calibrate the reel fore-aft sensor by selecting REEL HORIZONTAL POSITION (A) as the learning procedure and follow the prompts.



Figure 8.175: Front Attachment Page

### 8.1.13 Gleaner R65/R66/R75/R76 and S Series Combines

#### Checking Voltage Range from the Combine Cab – Gleaner R65/R66/R75/R76 and Pre-2016 S Series

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

- Position the header 254–356 mm (10–14 in.) above the ground.
- Unlock the float.

## SETTING UP AUTO HEADER HEIGHT CONTROL

3. Check that the float lock linkage is on the down stops (washer [A] cannot be moved) at both locations.

### NOTE:

If the header is not on the down stops during the next two steps, the voltage may go out of range during operation causing a malfunction of the auto header height control (AHHC) system.

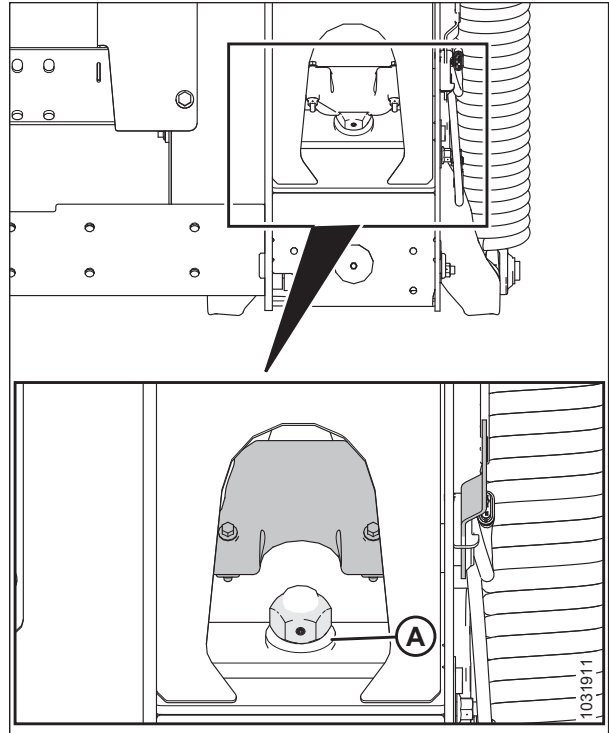


Figure 8.176: Float Lock

4. If the pointer is not on zero, loosen bolt (A) and slide float indicator plate (B) until pointer (C) is on 0 (D).
5. Tighten bolt (A).

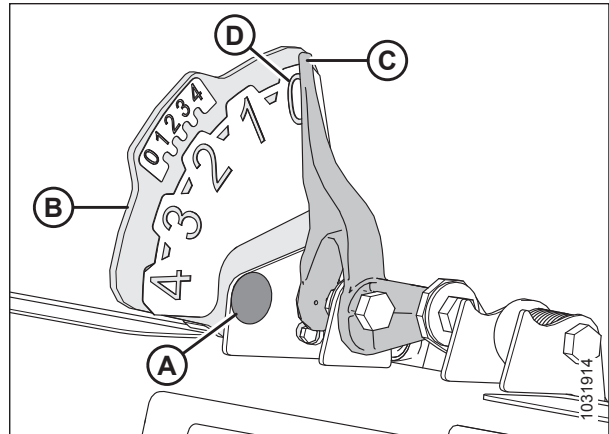


Figure 8.177: Float Indicator

## SETTING UP AUTO HEADER HEIGHT CONTROL



**Figure 8.178: Combine Heads-Up Display**

6. Ensure the header float is unlocked.
7. Press and hold button (A) on the heads-up display for 3 seconds to enter diagnostic mode.
8. Scroll down using button (B) until LEFT is displayed on the LCD screen.
9. Press OK button (C). The number indicated on the LCD screen is the voltage reading from the sensor of the auto header height control (AHHC). Raise and lower the header to see the full range of the voltage readings.

### *Engaging the Auto Header Height Control – Gleaner R65/R66/R75/R76 and Pre-2016 S Series*

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

The following system components are required in order for the auto header height control (AHHC) to work:

- Main module and header driver module mounted in card box in fuse panel (FP) module.
- Multifunction control handle operator inputs.
- Operator inputs mounted in the control console (CC) module panel.
- The electrohydraulic header lift control valve is an integral part of the system.

## SETTING UP AUTO HEADER HEIGHT CONTROL



Figure 8.179: Combine Auto Header Height Controls

1. Press AUTO MODE button (A) until AHHC LED light (B) begins flashing. If the RTC light is flashing, press AUTO MODE button (A) again until it switches to the AHHC.

### WARNING

Check to be sure all bystanders have cleared the area.

2. Briefly press button (A) on the control handle. The AHHC light should change from flashing to solid. The header should drop to the ground. The AHHC is now engaged and can be adjusted for height and sensitivity.
3. Use the controls to adjust the height and sensitivity to the constant changing ground conditions such as shallow gullies and field drainage trenches.

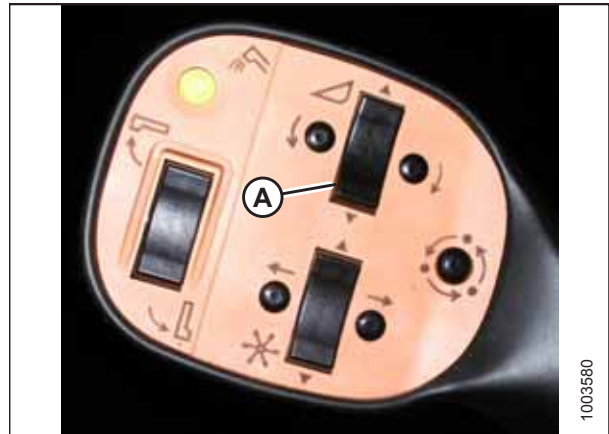


Figure 8.180: Control Handle

### *Calibrating the Auto Header Height Control – Gleaner R65/R66/R75/R76 and Pre-2016 S Series*

The auto header height control (AHHC) sensor output must be calibrated for each combine, or the AHHC feature will not work properly.

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

## SETTING UP AUTO HEADER HEIGHT CONTROL

### NOTE:

If the header float is set too light, it can prevent the calibration of the AHHC. You may need to set the float heavier for calibration procedure so the header does not separate from the float module.

### NOTE:

For best performance of the auto header height control (AHHC) system, perform ground calibration with center-link set to **D**. When calibration is complete, adjust the center-link back to desired header angle. For instructions, refer to the header operator's manual.



**Figure 8.181: Combine Auto Header Height Controls**

A - AUTO MODE Button  
D - Raise Header  
G - CAL2 Button

B - AHHC Light  
E - Lower Header

C - CAL1 Button  
F - AUTO Mode

### NOTE:

For best performance of the AHHC, perform these procedures with the center-link set to **D**. When setup and calibration are complete, adjust the center-link back to desired header angle. For instructions, refer to Header Angle in the header operator's manual for instructions.

### NOTE:

Calibration should be done on flat, level ground without the header engaged. The header height and header tilt functions must not be in auto or standby modes. The engine rpm must be above 2000 rpm. The header tilt option on 2004 and earlier model combines does not work with MacDon headers. This system will have to be removed and disabled in order to calibrate the auto header height control (AHHC). For instructions, refer to the combine operator's manual.

1. Ensure the center-link is set to **D**.
2. Press AUTO MODE button (A) until AHHC light (B) is illuminated.
3. Press and hold CAL1 button (C) until you see the following lights flash: raise header (D), lower header (E), tilt auto mode (F), and AHHC (B).
4. Fully lower the header, and continue to hold the HEADER LOWER button for 5–8 seconds to ensure the float module has separated from the header.

## SETTING UP AUTO HEADER HEIGHT CONTROL

5. Press CAL2 button (G) until lower header light (E) stops flashing, and release it when raise header light (D) begins flashing.
6. Raise the header to its maximum height (ensure the header is resting on the down-stop pads).
7. Press CAL2 button (G) until raise header light (D) turns off.

**NOTE:**

The following steps are applicable only to 2005 and newer combines with the Smartrac feeder house.

8. Wait for the HEADER TILT LEFT light (not shown) to start flashing, and then tilt header to the maximum left position.
9. Press CAL2 button (G) until the HEADER TILT LEFT light (not shown) stops flashing, and release the button when the HEADER TILT RIGHT light (not shown) begins flashing.
10. Tilt the header to the maximum right position.
11. Press CAL2 button (G) until all of the following lights flash: raise header (D), lower header (E), height auto mode (A), right header and left header (not shown), and tilt auto mode (F).
12. Center the header.
13. Press CAL1 button (C) to exit calibration and save all values to the memory. All lights should stop flashing.

**NOTE:**

If the float was set heavier to complete the AHHC calibration procedure, adjust it to the recommended operating float after the calibration is complete.

### *Turning off the Accumulator – Gleaner R65/R66/R75/R76 and Pre-2016 S Series*

The accumulator will affect the combine's reaction time and greatly inhibit the auto header height control's performance.

Refer to the combine operator's manual for proper procedure when turning the accumulator off and on. For best performance, turn the feeder house accumulator off.

**NOTE:**

The accumulator is located in front of the front left axle beam.



**Figure 8.182: Combine Accumulator ON/OFF Switch**

A - Accumulator Lever (Off Position)



## SETTING UP AUTO HEADER HEIGHT CONTROL

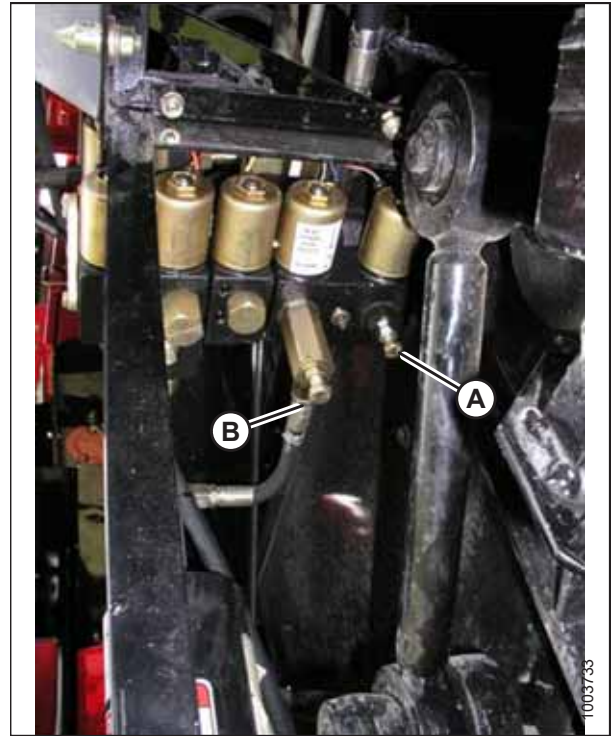
### *Adjusting the Header Raise/Lower Rate – Gleaner R65/R66/R75/R76 and Pre-2016 S Series*

The auto header height control (AHHC) system's stability is affected by hydraulic flow rates. Ensure that header raise (A) and header lower (B) adjustable restrictor's in the hydraulic manifold are adjusted so that it takes approximately 6 seconds to raise the header from ground level to maximum height (hydraulic cylinders fully extended), and approximately 6 seconds to lower the header from maximum height to ground level.

If there is too much header movement (for example, hunting) when the header is on the ground, adjust the lower rate to a slower rate of drop: 7 or 8 seconds.

#### **NOTE:**

Make this adjustment with the hydraulic system at normal operating temperature (54.4°C [130°F]) and the engine running at full throttle.



**Figure 8.183: Header Raise and Lower Adjustable Restrictor's**

### *Adjusting Ground Pressure – Gleaner R65/R66/R75/R76 and Pre-2016 S Series*

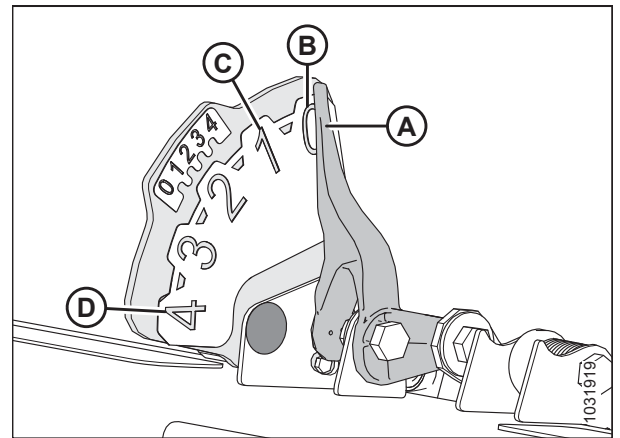
#### **NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

1. Ensure indicator (A) is at position 0 (B) with the header 254–356 mm (10–14 in.) off the ground. If not, the float sensor output voltage should be checked. For instructions, refer to [Checking Voltage Range from the Combine Cab – Gleaner R65/R66/R75/R76 and Pre-2016 S Series, page 303](#).

#### **NOTE:**

When the header is on the ground, the indicator should be at position 1 (C) for low ground pressure, and at position 4 (D) for high ground pressure. Crop and soil conditions determine the amount of float to use. The ideal setting is as light as possible without header bouncing or missing crop. Operating with heavy settings prematurely wears the cutterbar wearplates.



**Figure 8.184: Float Indicator**

## SETTING UP AUTO HEADER HEIGHT CONTROL

2. Ensure the header is in auto header height control (AHHC) mode. This is indicated by AUTO MODE LED light (A) displaying a continuous, solid light.
3. The header will lower to the height (ground pressure) corresponding to the position selected with height control knob (B). Turn the knob counterclockwise for minimum ground pressure, and clockwise for maximum ground pressure.



Figure 8.185: AHHC Console

### Adjusting the Sensitivity of the Auto Header Height Control – Gleaner R65/R66/R75/R76 and Pre-2016 S Series

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.



Figure 8.186: Auto Header Height Control Console

SENSITIVITY ADJUSTMENT dial (A) controls the distance the cutterbar must travel up or down before the auto header height control (AHHC) reacts and raises or lowers the feeder house.

When SENSITIVITY ADJUSTMENT dial (A) is set to maximum (turned completely clockwise), only small changes in ground height are needed to cause the feeder house to raise or lower. In this position, the cutterbar moves up and down approximately 19 mm (3/4 in.) before the control module signals the hydraulic control valve to raise or lower the header frame.

## SETTING UP AUTO HEADER HEIGHT CONTROL

When SENSITIVITY ADJUSTMENT dial (A) is set to minimum (turned completely counterclockwise), large changes in ground height are needed to cause the feeder house to raise or lower. In this position, the cutterbar moves up and down approximately 51 mm (2 in.) before the control module signals the hydraulic control valve to raise or lower the header frame.

The HEADER SENSE LINE input also changes the range of the sensitivity. When connected to a draper, the counterclockwise position (least sensitive) allows for approximately 102 mm (4 in.) of vertical travel before correction is made.

### *Troubleshooting Alarms and Diagnostic Faults – Gleaner R65/R66/R75/R76 and Pre-2016 S Series*

#### **NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

#### **Display type:**

Displayed on tachometer (A) as XX or XXX.



Figure 8.187: Tachometer

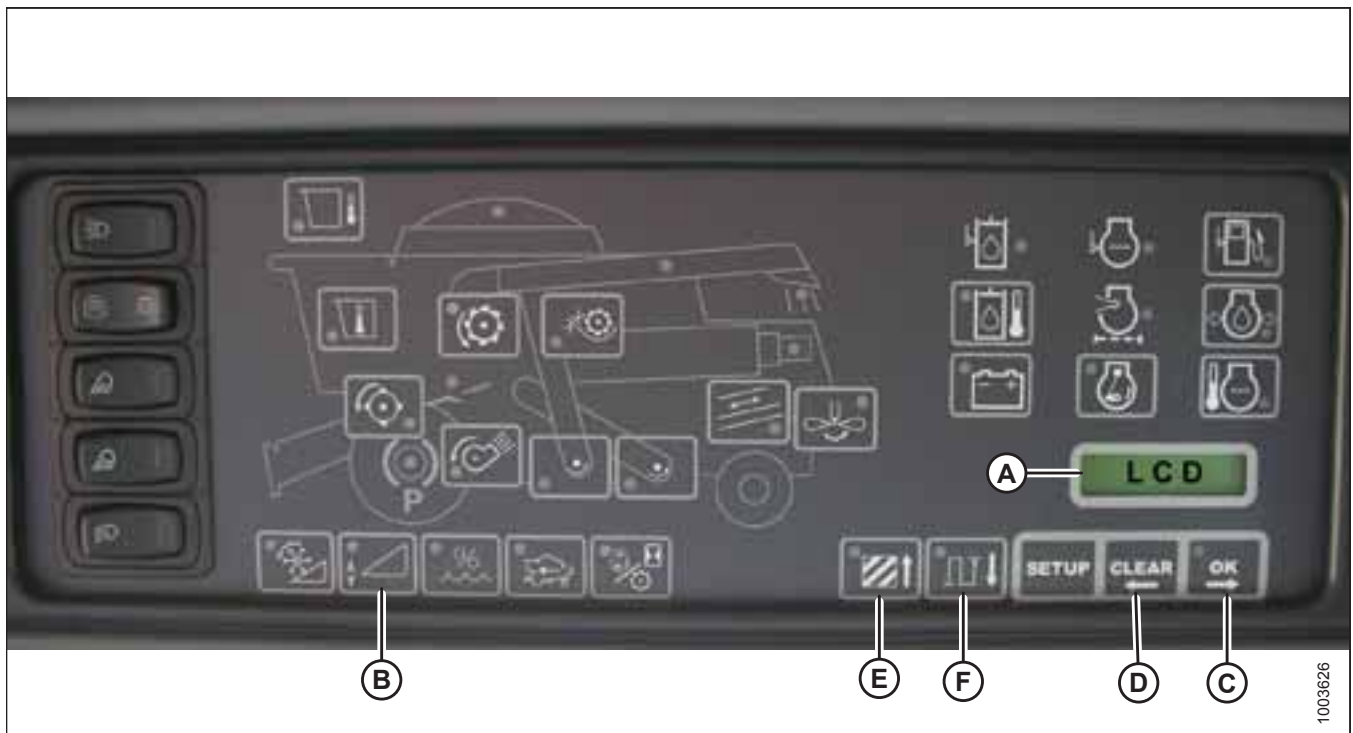


Figure 8.188: Combine Electronic Instrument Panel (EIP)

## SETTING UP AUTO HEADER HEIGHT CONTROL

### NOTE:

Displayed on LCD (A) as XX in. or XXX cm.

### **Alarm conditions:**

If an error message is received from the fuse panel, an audible alarm sounds. The alarm buzzer sounds five times every 10 seconds. The LCD (A) on the electronic instrument panel (EIP) indicates the header system in error as HDR CTRL followed by HGT ERR for height, and HDR CTRL followed by TILT ERR for tilt. The header height LED flashes yellow two times every second.

When an alarm condition occurs, a green LED flashes on and off (green, yellow, or red depending on the input). In addition, a message is displayed on the LCD to identify the nature of the alarm. For example, HYD TEMP, OPEN, SHRT will be flashed alternately.

### **Diagnostic fault failures:**

Refer to Figure [8.188, page 311](#).

Pressing header height switch (B) for a minimum of 5 seconds will put the EIP in header diagnostic mode. The LCD (shown on previous screen) will display the message HDR DIAG when the EIP has entered header diagnostic mode.

In this mode, after 3 seconds, header fault parameter labels are displayed on the EIP LCD. All the information displayed is read-only.

OK (C) and CLEAR (D) buttons allow you to scroll through the list of parameters. If there are no active fault codes, the EIP LCD will display NO CODE.

When a parameter is displayed, its label is displayed for 3 seconds, after which its value is automatically displayed.

Pressing OK button (C) while the value is displayed will advance to the next parameter and display its label.

When a parameter label is displayed and OK button (C) is pressed before 3 seconds, the parameter's value will be displayed.

Pressing AREA (E) will cycle through the options. When LEFT is displayed on the LCD, press OK button (C), and the auto header height control (AHHC) voltage will be shown on the display.

Press DIST button (F) to cycle back through the table.

Press CLEAR button (D) to exit header diagnostics and return to normal mode.

### **8.1.14 Gleaner S9 Series Combines**

#### *Setting up the Header – Gleaner S9 Series*

### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

## SETTING UP AUTO HEADER HEIGHT CONTROL

AGCO Tyton terminal (A) is used to set up and manage a MacDon draper header on a Gleaner S9 Series combine. Use the touch screen display to select the desired item on the screen.



Figure 8.189: Gleaner S9

A - Tyton Terminal      B - Control Handle  
C - Throttle              D - Header Control Cluster

1. On the top right quadrant of the home page, touch COMBINE icon (A). The COMBINE MAIN MENU opens.



Figure 8.190: Combine Icon on Home Page

2. On the COMBINE MAIN MENU, touch HEADER SETTINGS (A). The HEADER SETTINGS page opens.



Figure 8.191: Header Settings in Combine Main Menu

## SETTING UP AUTO HEADER HEIGHT CONTROL

3. Touch **HEADER CONFIGURATION** field (A). A dialog box showing predefined headers opens.
  - If your MacDon header is already set up, it appears on the header list. Touch MacDon header title (B) to highlight the selection in blue, and then touch green check mark (E) to continue.
  - If only default header (D) is shown, touch ABC button (C), and use the on-screen keyboard to enter the MacDon header information. When complete, select one of the following options to return to the **HEADER SETTINGS** page:
    - Green check mark (E) saves the settings
    - Garbage can icon (F) deletes the highlighted header from the list
    - Red X (G) cancels the change(s)

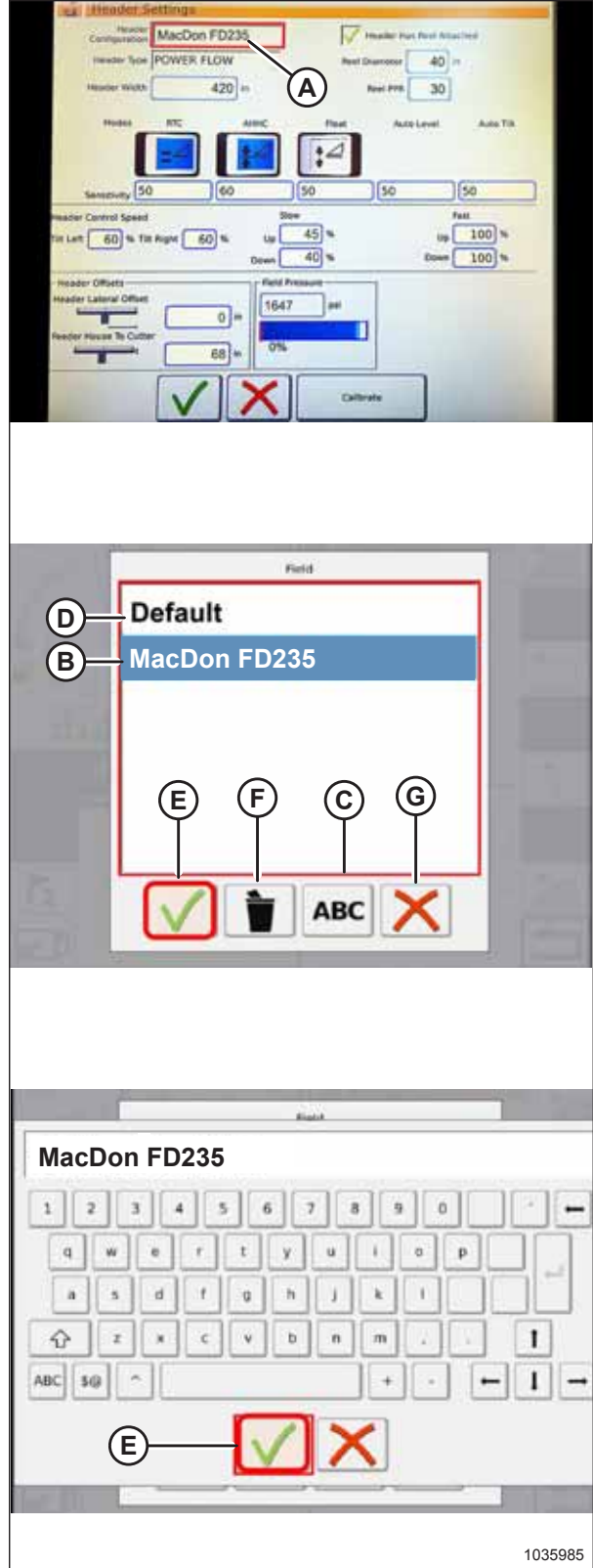


Figure 8.192: Header Configuration Menu on Header Settings Page

## SETTING UP AUTO HEADER HEIGHT CONTROL

- To specify the type of header installed on the machine, touch HEADER TYPE field (A).

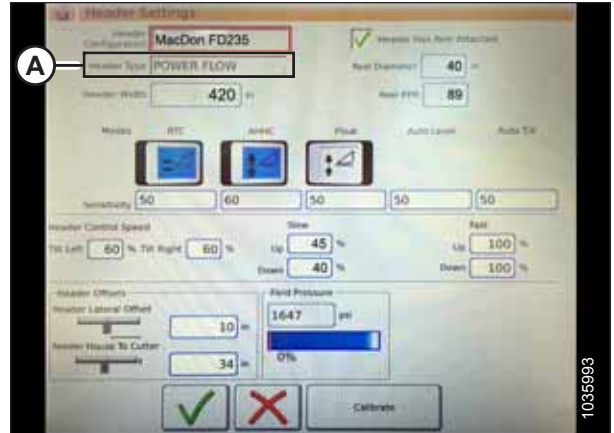


Figure 8.193: Header Settings

- A list of predefined header types appears.
  - For MacDon FD2 Series FlexDraper® headers, touch POWER FLOW (A)
  - Touch green check mark (B) to save the selection and continue

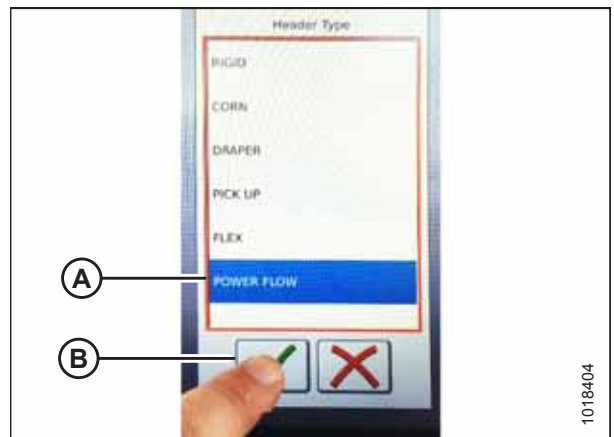


Figure 8.194: Header Type

- Make sure that HEADER HAS REEL ATTACHED check box (A) is checked.

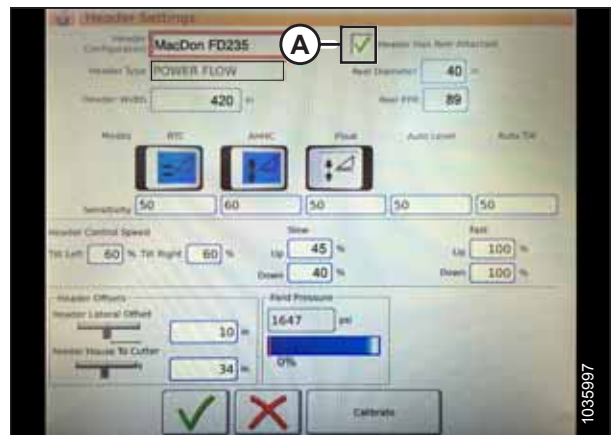


Figure 8.195: Header Settings

## SETTING UP AUTO HEADER HEIGHT CONTROL

7. Touch REEL DIAMETER field (A) and a numeric keypad displays. Enter **40** for a MacDon reel.
8. Touch REEL PPR (Pulses Per Revolution) field (B) and enter **30** as the value for your MacDon header.

**NOTE:**

PPR is determined by the number of teeth on the reel speed sprocket.

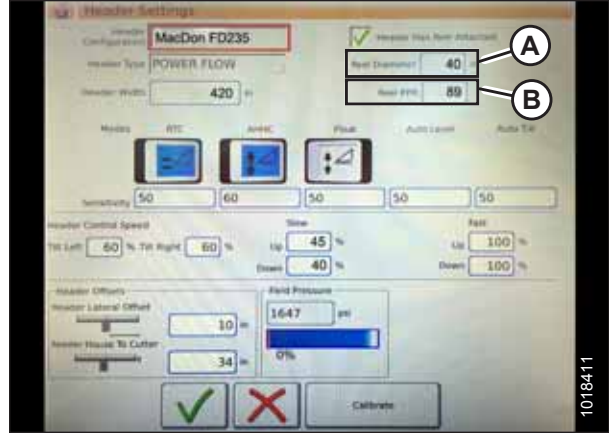


Figure 8.196: Header Settings

9. Touch green check mark (B) at the bottom of numeric keypad when complete, or the red X to cancel.

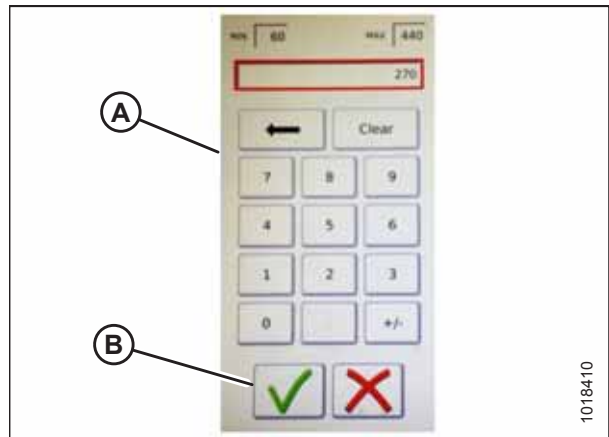


Figure 8.197: Numeric Keypad

10. When complete, touch green check mark (A) at the bottom of the HEADER SETTINGS page.

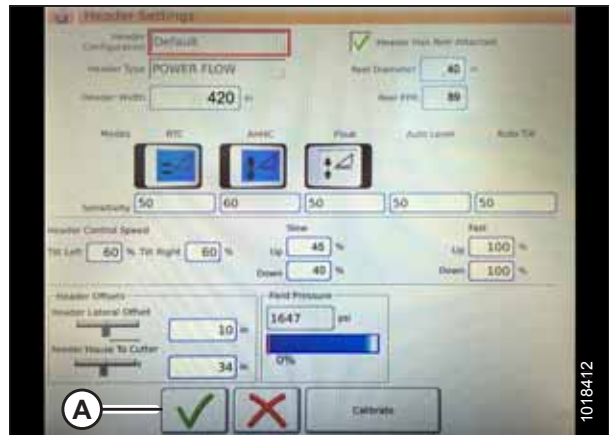


Figure 8.198: Header Settings Page

### Setting Minimum Reel Speed and Calibrating Reel – Gleaner S9 Series

**⚠ DANGER**

Clear the area of other persons, pets etc. Keep children away from machinery. Walk around the machine to be sure no one is under, on, or close to it.



## SETTING UP AUTO HEADER HEIGHT CONTROL

### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

1. From the COMBINE MAIN MENU, touch REEL SETTINGS (A) to open the REEL SETTINGS page.



Figure 8.199: Reel Settings on Combine Main Menu

2. To set the minimum reel speed, touch SPEED MINIMUM FIELD (B). The on-screen keyboard displays. Enter the desired value. Touch the green check mark to accept the new value, or the red X to cancel. The reel speed is shown in mph and rpm.

### NOTE:

At the bottom of the REEL SETTINGS page, the reel diameter and reel pulses per revolution (PPR) are displayed. These values have already been set in the HEADER SETTINGS page.

3. The reel speed is calibrated on the REEL SETTINGS page by touching CALIBRATE button (A) in the top right of the page.
4. The CALIBRATION WIZARD opens and displays a hazard warning.
5. Make sure to meet all the conditions listed in the CALIBRATION WIZARD warning. Press green check mark (A) to accept and start reel calibration. Pressing red X (B) will cancel the calibration procedure.



Figure 8.200: Reel Settings Calibration

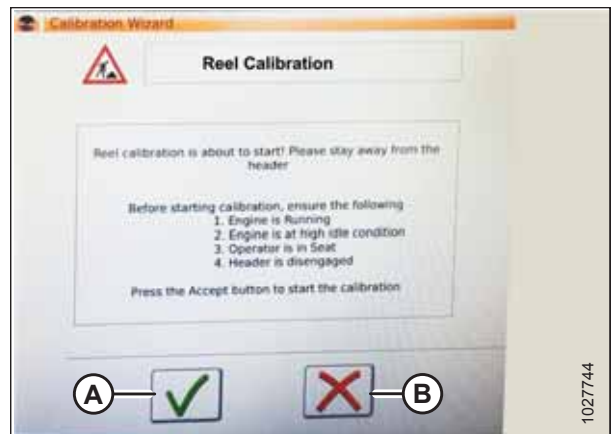


Figure 8.201: Calibration Wizard

## SETTING UP AUTO HEADER HEIGHT CONTROL

- A message appears in the CALIBRATION WIZARD stating that reel calibration has started. The reel will begin turning slowly and increase to high speed. A progress bar is provided. If necessary, touch the red X to cancel. Otherwise, wait for the message that reel calibration has completed successfully. Touch the green check mark to save the calibrated settings.



Figure 8.202: Calibration Progress

### Setting up Automatic Header Controls – Gleaner S9 Series

Automatic header functions are configured on the HEADER SETTINGS page.

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

- Automatic Control Functions:** There are toggle (OFF/ON) switches on the HEADER SETTINGS page for the automatic control functions. For MacDon headers, ensure the following two functions are enabled as shown:

- RTC (return to cut) (A)
- AHHC (automatic header height control) (B)

All other switches are disabled (not highlighted).

- Sensitivity** setting (C) controls how responsive a control (RTC or AHHC) is to a given change in sensor feedback. The setting fields are located directly below the toggle switches. To enter a new sensitivity setting, touch the setting field below the specific toggle switch, and enter the new value in the on-screen keyboard.

- Increase sensitivity if the combine does not change the feeder position quickly enough when in Auto Mode.
- Decrease sensitivity if the combine hunts for a position in Auto Mode.

#### NOTE:

Recommended sensitivity starting points for MacDon headers are:

- **50** for RTC (A)
- **60** for AHHC (B)

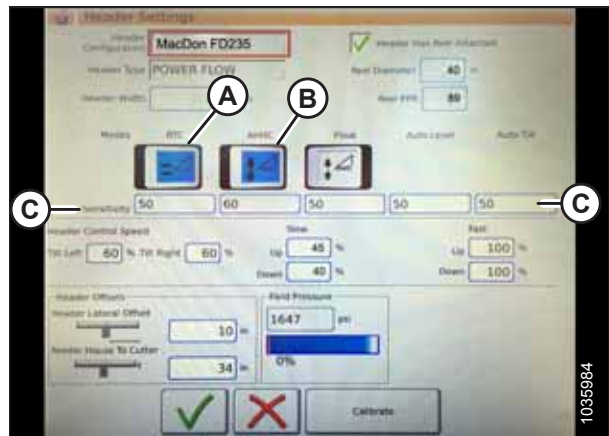


Figure 8.203: Automatic Controls and Sensitivity Settings

## SETTING UP AUTO HEADER HEIGHT CONTROL

- Header Speed:** HEADER CONTROL SPEED area (A) on the HEADER SETTINGS page is used to adjust the following speeds:

- Tilt left and right is the lateral tilt of the combine faceplate
- Header up and down (slow and fast speeds) is a two-stage button with slow speed on the first detent and fast on the second

**NOTE:**

Recommended header control speed starting points

- Slow: 45 up / 40 down
- Fast: 100 up / 100 down

- Header Offsets (A):** Offset distances are important for yield mapping. There are two adjustable dimensions on the HEADER SETTINGS page:

- Header Lateral Offset: the distance between the centerline of the header and the centerline of the machine. Set to **0** for a MacDon header.
- Feeder House to Cutter: the distance from the machine interface to the cutterbar. Set to **68** for a MacDon header.

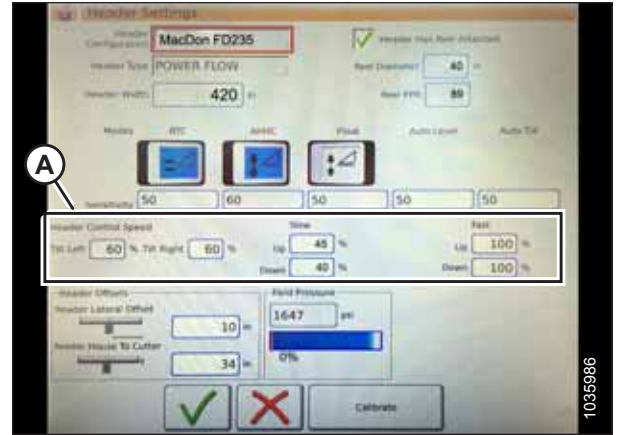


Figure 8.204: Header Speed Control Settings

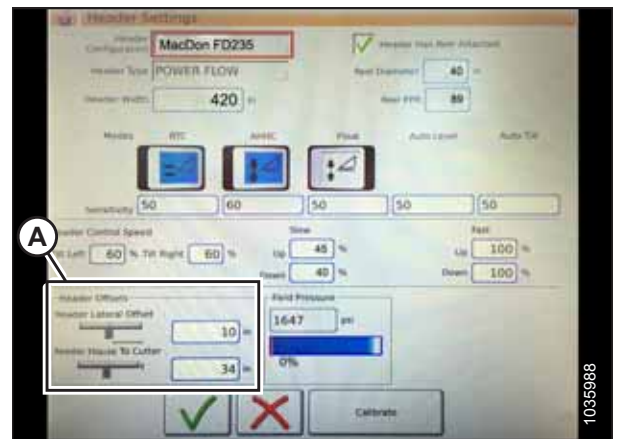
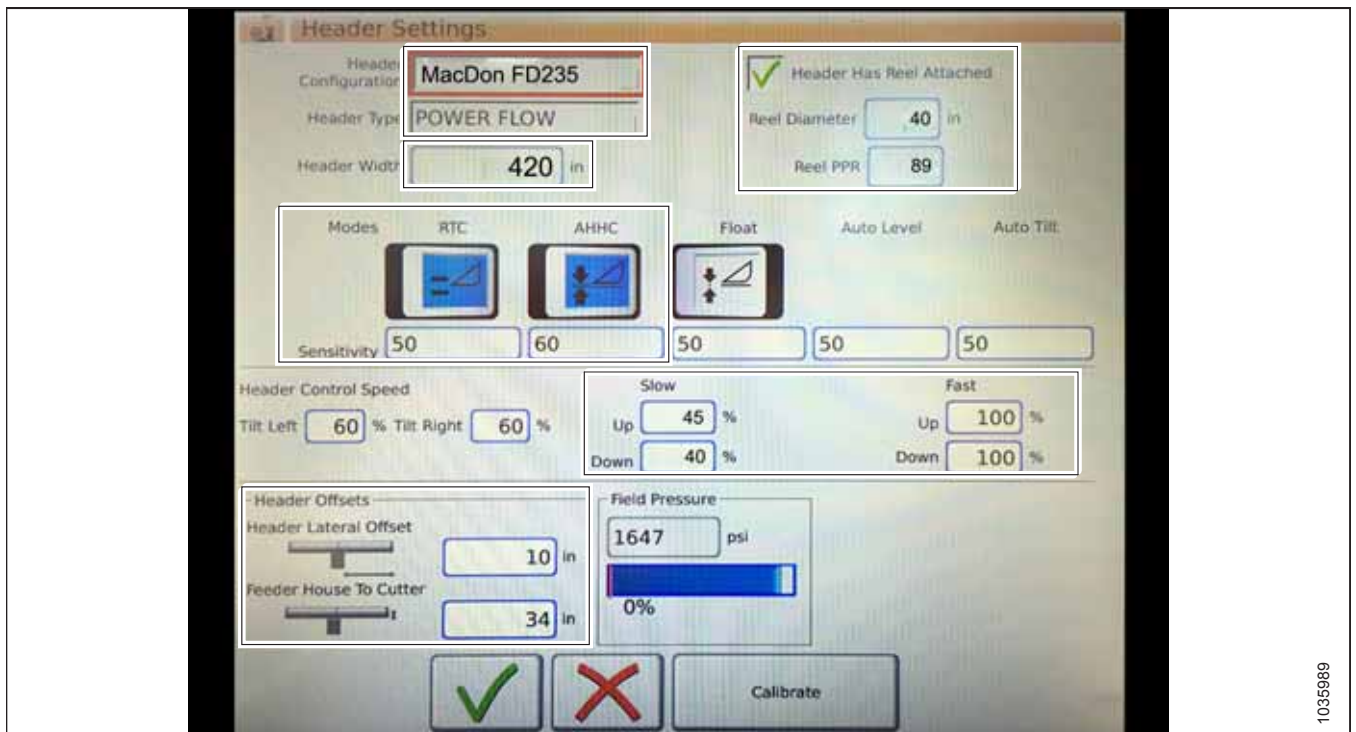


Figure 8.205: Header Offset Settings



## SETTING UP AUTO HEADER HEIGHT CONTROL

Figure 8.206: MacDon Header Settings Inputs

### Calibrating the Auto Header Height Control – Gleaner S9 Series

The auto header height control (AHHC) sensor output must be calibrated for each combine, or the AHHC feature will not work properly.

#### DANGER

Clear the area of other persons, pets etc. Keep children away from machinery. Walk around the machine to be sure no one is under, on, or close to it.

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

#### NOTE:

If the header float is set too light, it can prevent the calibration of the AHHC. You may need to set the float heavier for the calibration procedure so the header does not separate from the float module.

#### NOTE:

For best performance of the auto header height control (AHHC) system, perform ground calibration with center-link set to **D**. When calibration is complete, adjust the center-link back to desired header angle. For instructions, refer to the header operator's manual

1. On the COMBINE MAIN MENU, touch HEADER SETTINGS (A).



Figure 8.207: Combine Main Menu

2. Touch CALIBRATE (A) at the bottom right of the page. The HEADER CALIBRATION page displays.

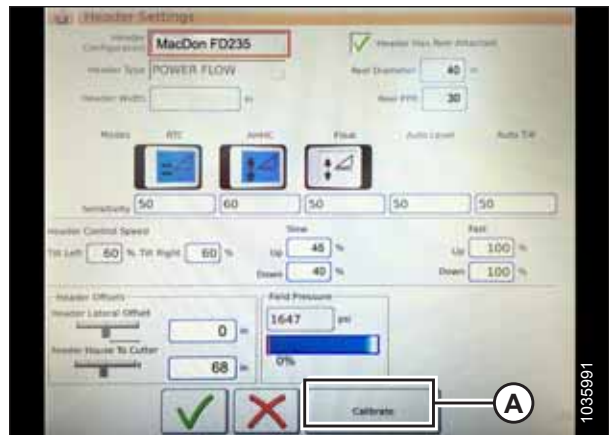


Figure 8.208: Header Settings Page

## SETTING UP AUTO HEADER HEIGHT CONTROL

The right side of the page shows Header Calibration information (A). Results are shown for a variety of sensors (B):

- Left and right header sensor (voltage) (values will be the same with MacDon headers)
- Header height sensor (mA)
- Tilt position sensor (mA)

The following valid modes are shown with check marks (C) below sensor values (B):

- Return to cut
- Automatic header height control

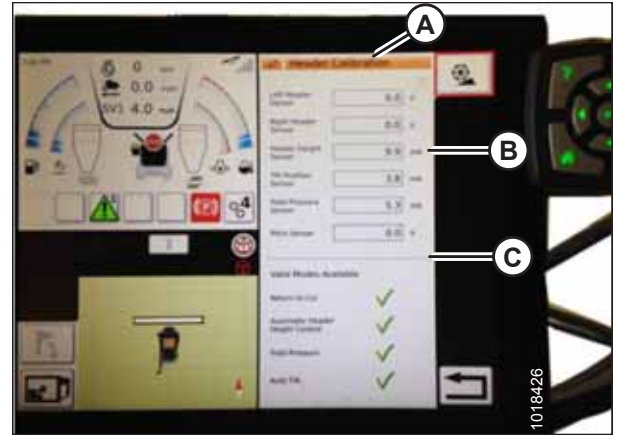


Figure 8.209: Header Calibration Page

### DANGER

Clear the area of other persons, pets etc. Keep children away from machinery. Walk around the machine to be sure no one is under, on, or close to it.

3. On the control handle, touch HEADER DOWN button (A). Sensor values start changing on the HEADER CALIBRATION page as the header lowers.



Figure 8.210: Header Down Switch

4. When the sensor values are stable, touch CALIBRATE icon (A).



Figure 8.211: Header Calibration

## SETTING UP AUTO HEADER HEIGHT CONTROL

- The hazard warning for HEADER CALIBRATION appears. Make sure that all conditions are met.
- Touch the green check mark at the bottom of the page to start the CALIBRATION WIZARD.



Figure 8.212: Header Calibration Warning

A calibration progress bar is displayed at the bottom of the screen. The process can be stopped at any time by touching the red X. The header moves automatically and erratically during this process.

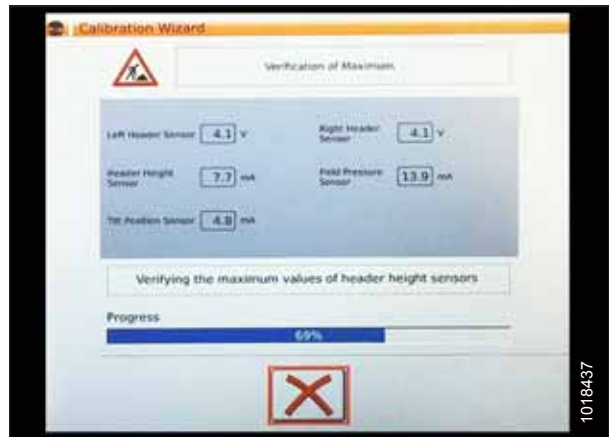


Figure 8.213: Calibration in Progress

- When the calibration is complete, a message displays, and summary information (A) is shown. Green check marks confirm the functions have been calibrated (B). Touch bottom green check mark (C) to save.



Figure 8.214: Completed Calibration Page

## SETTING UP AUTO HEADER HEIGHT CONTROL

### NOTE:

Touch CALIBRATION icon (A) on the COMBINE MAIN MENU page to display the CALIBRATION MENU where you can choose from a variety of calibrations including header and reel calibration.



Figure 8.215: Direct Calibration Menu

### Operating the Auto Header Height Control – Gleaner S9 Series

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

The following controls are used to operate the auto header height control (AHC) functions:

- Tyton terminal (A)
- Control handle (B)
- Throttle (C)
- Header control cluster (D)

Use the combine operator's manual to familiarize yourself with the controls.



Figure 8.216: Gleaner S9 Operator Controls

1. With the header running, set lateral tilt switch (A) to MANUAL.
2. Engage the AHC by pressing switch (B) upward to the I position.



Figure 8.217: Header Control Cluster

## SETTING UP AUTO HEADER HEIGHT CONTROL

3. Press AHHC control switch (A) on the control handle to engage the AHHC. The header moves to the current setpoint position.



Figure 8.218: AHHC on Control Handle

4. Use HEADER HEIGHT SETPOINT control dial (A) as necessary to fine-tune the position.



Figure 8.219: Header Control Cluster

### Reviewing Header In-Field Settings – Gleaner S9 Series

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

1. To view the header group settings, touch HEADER icon (A) on the right side of the home page.

The following information is displayed:

- CURRENT POSITION of header (B).
- SETPOINT cut-off position (C) (indicated by red line)
- HEADER symbol (D) – touch to adjust the setpoint cut-off position using the scroll wheel on the right side of the Tyton terminal.
- CUT HEIGHT for AHHC (E) – fine-tune with the header height setpoint control dial on the header control cluster.
- HEADER WORKING WIDTH (F)
- HEADER PITCH (G)

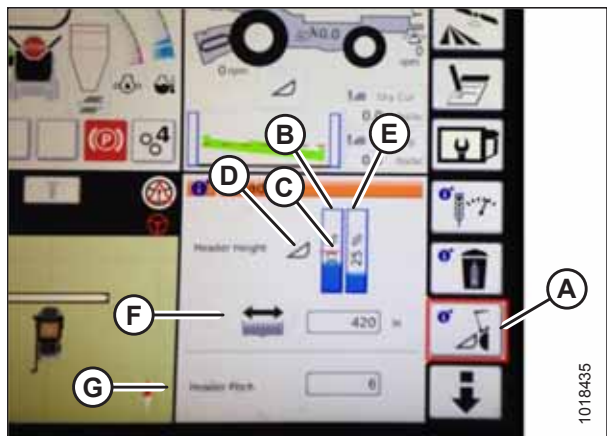


Figure 8.220: Header Groups



## SETTING UP AUTO HEADER HEIGHT CONTROL

2. Touching a field opens the on-screen keyboard, so that the values can be adjusted. Enter the new value and touch the green check mark when complete.

**NOTE:**

Scroll wheel (A) is located on the right side of the Tyton terminal.



Figure 8.221: Adjustment Wheel on Right Side of Tyton Terminal

**NOTE:**

HEADER HEIGHT SETPOINT control dial (A) is on the header control cluster.



Figure 8.222: Header Control Cluster

### 8.1.15 John Deere 70 Series Combines

#### *Checking Voltage Range from the Combine Cab – John Deere 70 Series*

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

**⚠ DANGER**

Check to be sure all bystanders have cleared the area.

1. Position the header 254–356 mm (10–14 in.) above the ground.
2. Unlock the float.

## SETTING UP AUTO HEADER HEIGHT CONTROL

3. Check that the float lock linkage is on the down stops (washer [A] cannot be moved) at both locations.

**NOTE:**

If the header is not on the down stops during the next two steps, the voltage may go out of range during operation causing a malfunction of the AHHC system.

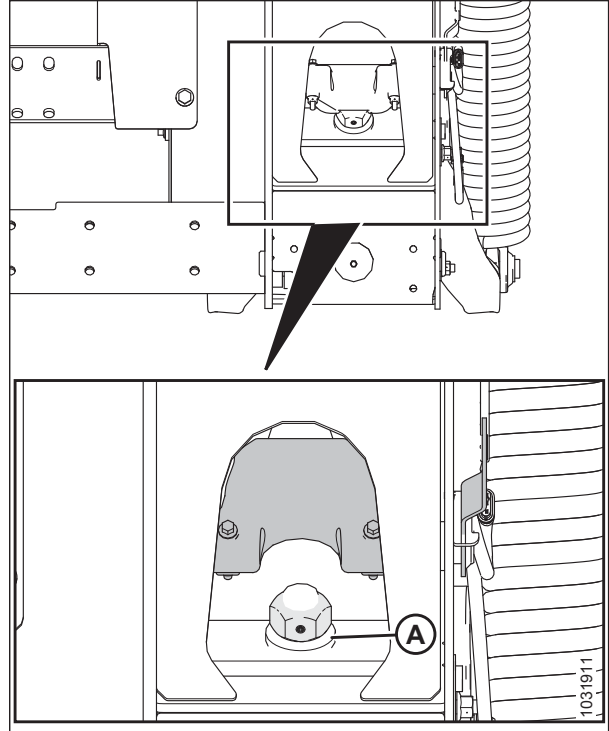


Figure 8.223: Float Lock

4. If the pointer is not on zero, loosen bolt (A) and slide float indicator plate (B) until pointer (C) is on 0 (D).
5. Tighten bolt (A).

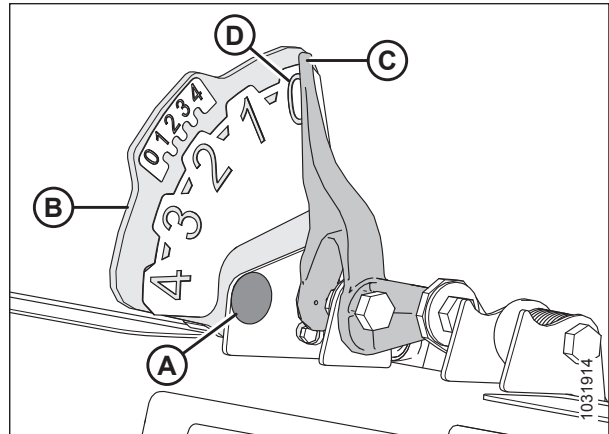


Figure 8.224: Float Indicator

## SETTING UP AUTO HEADER HEIGHT CONTROL

6. Press HOME PAGE button (A) on the main page of the screen.



Figure 8.225: John Deere Combine Display

7. Ensure three icons (A) shown in the illustration at right appear on the display.



Figure 8.226: John Deere Combine Display

8. Use scroll knob (A) to highlight the middle icon (the green i) and press check mark button (B) to select it. This will bring up the Message Center.

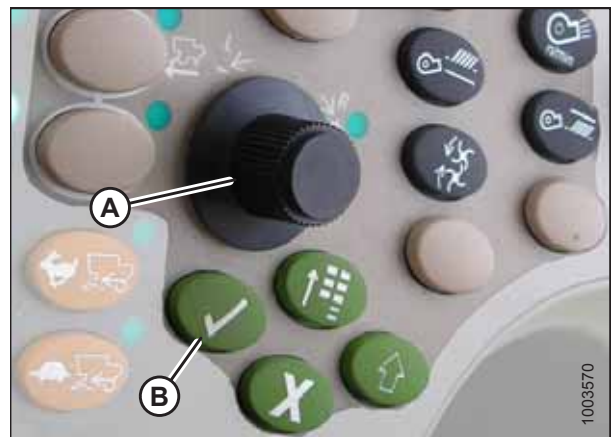


Figure 8.227: John Deere Combine Control Console

## SETTING UP AUTO HEADER HEIGHT CONTROL

9. Use the scroll knob to highlight DIAGNOSTIC ADDRESSES (A) from the right column and select it by pressing the check mark button.
10. Use the scroll knob to highlight drop-down box (B) and press the check mark button to select it.



Figure 8.228: John Deere Combine Display

11. Use the scroll knob to highlight LC 1.001 VEHICLE (A) and press the check mark button to select it.



Figure 8.229: John Deere Combine Display

12. Use the scroll knob to highlight down arrow (A) and press the check mark button to scroll through the list until 029 DATA (B) is displayed and voltage reading (C) appears on the display.

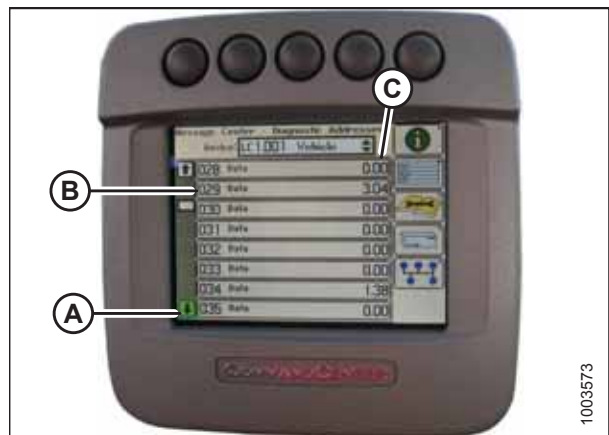


Figure 8.230: John Deere Combine Display

13. Ensure the header float is unlocked.
14. Start the combine and fully lower the feeder house to the ground.

**NOTE:**

You may need to hold the HEADER DOWN switch for a few seconds to ensure the feeder house is fully lowered.

15. Check the sensor reading on the display.

## SETTING UP AUTO HEADER HEIGHT CONTROL

16. Raise the header so it is just off the ground and recheck the sensor reading.

### *Calibrating Feeder House Speed – John Deere 70 Series*

The feeder house speed must be calibrated before you calibrate the auto header height control (AHHC) system. For instructions, refer to the combine operator's manual.

### *Adjusting the Manual Header Raise/Lower Rate – John Deere 70 Series*

The weight of the header will dictate the rate at which the header can be raised or lowered during operation.

#### **NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

1. Press button (A) and the current raise/lower rate setting will appear on the display (the lower the reading, the slower the rate).
2. Use scroll knob (B) to adjust the rate. The adjustment will be saved automatically.

#### **NOTE:**

If the display remains idle for a short period of time, it will automatically return to the previous page. Pressing check mark button (C) will also return the display to the previous page.

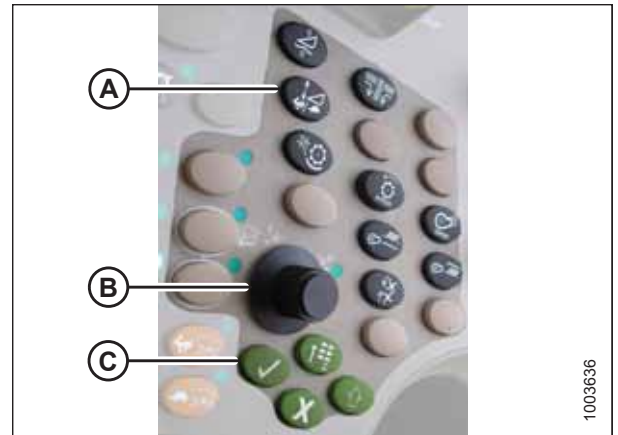


Figure 8.231: John Deere Combine Control Console

#### **NOTE:**

The numbers shown on the displays in these illustrations are for reference purposes only; they are not intended to represent the specific settings for your equipment.



Figure 8.232: John Deere Combine Display

### *Calibrating the Auto Header Height Control – John Deere 70 Series*

The auto header height control (AHHC) sensor output must be calibrated for each combine, or the AHHC feature will not work properly.



#### **DANGER**

Check to be sure all bystanders have cleared the area.

## SETTING UP AUTO HEADER HEIGHT CONTROL

### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

### NOTE:

If the header float is set too light, it can prevent the calibration of the AHHC. You may need to set the float heavier for the calibration procedure so the header does not separate from the float module.

### NOTE:

For best performance of the auto header height control (AHHC) system, perform ground calibration with center-link set to **D**. When calibration is complete, adjust the center-link back to desired header angle. For instructions, refer to the header operator's manual

1. Ensure the center-link is set to **D**.
2. Rest the header on the down stops.
3. Put the wings in locked position.
4. Unlock the float.
5. Start the combine.
6. Press the button located fourth from the left along the top of display (A) to select the icon that resembles an open book with a wrench on it (B).
7. Press top button (A) a second time to enter diagnostics and calibration mode.



Figure 8.233: John Deere Combine Display

8. Select **HEADER** in box (A) by scrolling down to the box using the scroll knob, and then pressing the check mark button (knob and button are shown in Figure 8.235, page 331).
9. Scroll down to the lower right icon that resembles an arrow in a diamond (B) and press the check mark button to select it.

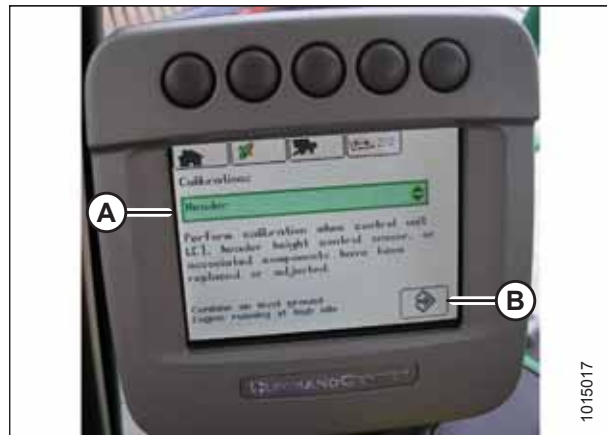


Figure 8.234: John Deere Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

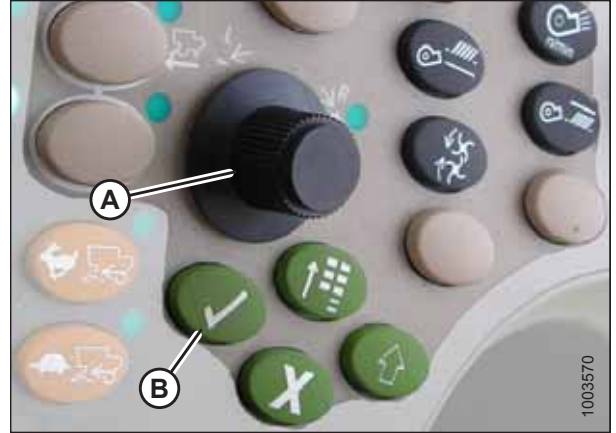


Figure 8.235: John Deere Combine Control Console

A - Scroll Knob

B - Check Mark Button

10. Follow the steps listed on the page to perform the calibration.

**NOTE:**

If an error code appears on the display, the sensor is not in the correct working range. Check and adjust the range. For instructions, refer to [Checking Voltage Range from the Combine Cab – John Deere S and T Series, page 332](#).

**NOTE:**

If the float was set heavier to complete the AHHC calibration procedure, adjust it to the recommended operating float after the calibration is complete.

### *Setting the Sensitivity of the Auto Header Height Control – John Deere 70 Series*

The sensitivity adjustment controls the distance the cutterbar must travel up or down before the auto header height control (AHHC) reacts and raises or lowers the feeder house.

When the sensitivity is set to maximum, only small changes in ground height are needed to cause the feeder house to raise or lower. When the sensitivity is set to minimum, large changes in the ground height are needed to cause the feeder house to raise or lower.

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

1. Press button (A) twice. The current sensitivity setting will appear on the display (the lower the reading, the lower the sensitivity).
2. Use scroll knob (B) to adjust the sensitivity setting. The adjustment will be saved automatically.

**NOTE:**

If the page remains idle for a short period of time, it will automatically return to the previous page. Pressing check mark button (C) also will return the display to the previous page.

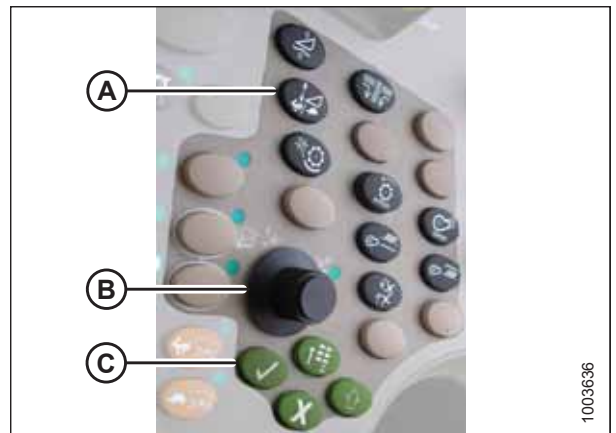


Figure 8.236: John Deere Combine Control Console

## SETTING UP AUTO HEADER HEIGHT CONTROL

### NOTE:

The numbers shown on the displays in these illustrations are for reference purposes only; they are not intended to represent the specific settings for your equipment.



Figure 8.237: John Deere Combine Display

### 8.1.16 John Deere S and T Series Combines

#### *Checking Voltage Range from the Combine Cab – John Deere S and T Series*

### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

### DANGER

Check to be sure all bystanders have cleared the area.

1. Position the header 254–356 mm (10–14 in.) above the ground.
2. Unlock the float.



## SETTING UP AUTO HEADER HEIGHT CONTROL

3. Check that the float lock linkage is on the down stops (washer [A] cannot be moved) at both locations.

**NOTE:**

If the header is not on the down stops during the next two steps, the voltage may go out of range during operation causing a malfunction of the AHHC system.

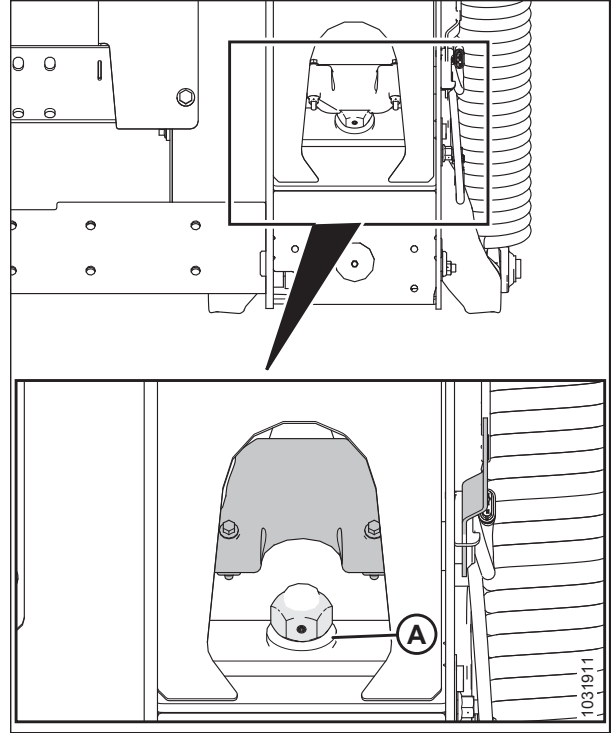


Figure 8.238: Float Lock

4. If the pointer is not on zero, loosen bolt (A) and slide float indicator plate (B) until pointer (C) is on 0 (D).
5. Tighten bolt (A).

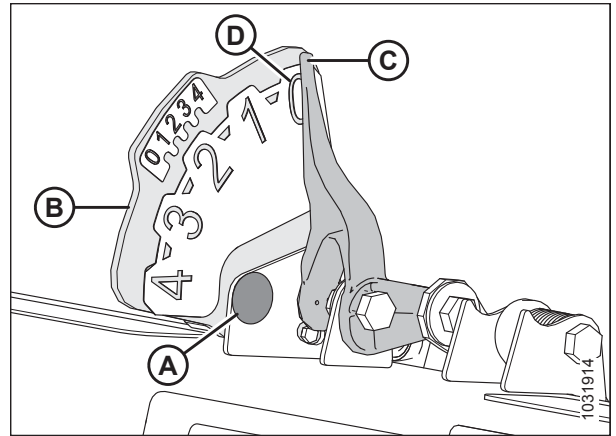


Figure 8.239: Float Indicator

## SETTING UP AUTO HEADER HEIGHT CONTROL

6. Press CALIBRATION icon (A) on the main page of the display. The CALIBRATION page appears.

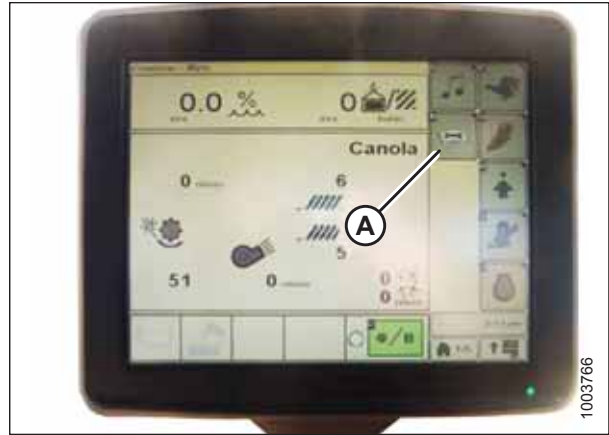


Figure 8.240: John Deere Combine Display

7. Press DIAGNOSTIC READINGS icon (A) on the CALIBRATION page. The DIAGNOSTIC READINGS page appears. This page provides access to calibrations, header options, and diagnostic information.

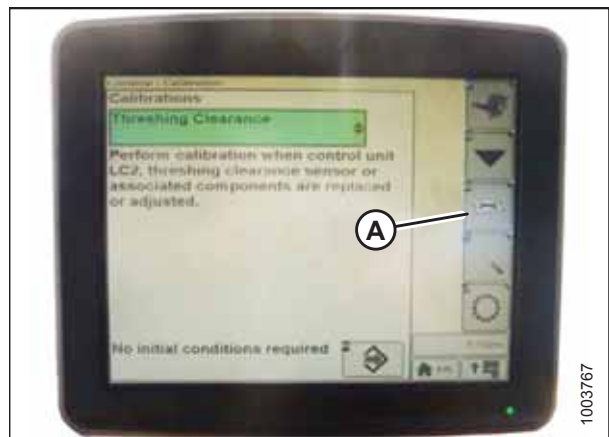


Figure 8.241: John Deere Combine Display

8. Select AHHC RESUME (A) and a list of calibration options appears.



Figure 8.242: John Deere Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

9. Select the AHHC SENSING option.
10. Press icon (A). The AHHC SENSING menu appears and five pages of information are displayed.



Figure 8.243: John Deere Combine Display

11. Press icon (A) until it reads Page 5 near the top of the page and the following sensor readings appear:
  - LEFT HEADER HEIGHT
  - CENTER HEADER HEIGHT
  - RIGHT HEADER HEIGHT

A reading is displayed for both the left and right sensors. On the MacDon header, there may be one sensor located in the float indicator box (standard) or two sensors located at the back of the float module side frame (optional).



Figure 8.244: John Deere Combine Display

12. Ensure the header float is unlocked.
13. Start the combine and fully lower the feeder house to the ground.

### NOTE:

You may need to hold the HEADER DOWN switch for a few seconds to ensure the feeder house is fully lowered.

14. Check the sensor reading on the display.

### *Adjusting the Manual Header Raise/Lower Rate – John Deere S and T Series*

### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

1. Put the wings in locked position.

## SETTING UP AUTO HEADER HEIGHT CONTROL

### NOTE:

Indicator (A) should be at position 0 (B) with the header 254–356 mm (10–14 in.) off the ground. When the header is on the ground, the indicator should be at position 1 (C) for low ground pressure, and at position 4 (D) for high ground pressure. Crop and soil conditions determine the amount of float to use. The ideal setting is as light as possible without header bouncing or missing crop. Operating with heavy settings prematurely wears the cutterbar wearplates.

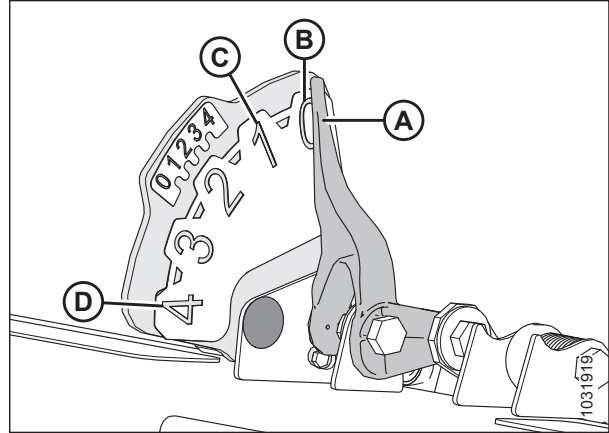


Figure 8.245: Float Indicator

2. Press button (A) and the current sensitivity setting will appear on the display.



Figure 8.246: John Deere Combine Command Center

3. Press – or + icons (A) to adjust rates.

### NOTE:

The numbers shown on the combine display in this illustration are for reference purposes only; they are not intended to represent the specific settings for your equipment.



Figure 8.247: John Deere Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

### *Calibrating the Auto Header Height Control – John Deere S and T Series*

The auto header height control (AHHC) sensor output must be calibrated for each combine, or the AHHC feature will not work properly.

#### **WARNING**

Check to be sure all bystanders have cleared the area.

#### **NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

#### **NOTE:**

If header float is set too light, it can prevent the calibration of the AHHC. You may need to set the float heavier for the calibration procedure so header does not physically separate from the float module.

#### **NOTE:**

For best performance of the auto header height control (AHHC) system, perform ground calibration with center-link set to **D**. When calibration is complete, adjust the center-link back to desired header angle. For instructions, refer to the header operator's manual

1. Ensure the center-link is set to **D**.
2. Rest the header on the down stops.
3. Unlock the float.
4. Put the wings in locked position.
5. Press DIAGNOSTIC icon (A) on the main page of the display. The CALIBRATION screen appears.



Figure 8.248: John Deere Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

6. Select THRESHING CLEARANCE (A) and a list of calibration options appears.

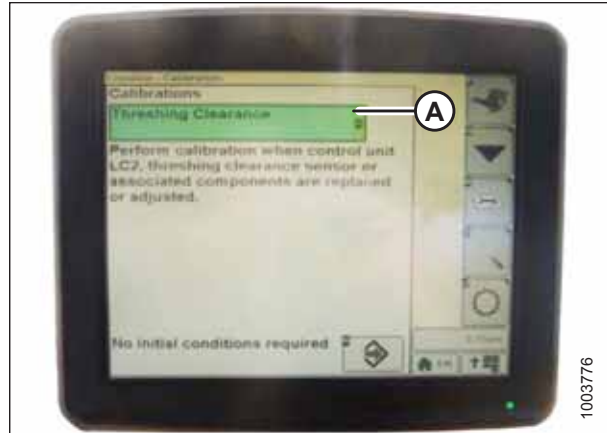


Figure 8.249: John Deere Combine Display

7. Select FEEDER HOUSE SPEED (A) from the list of calibration options.

**NOTE:**

Feeder house speed calibration must be done before header calibration.

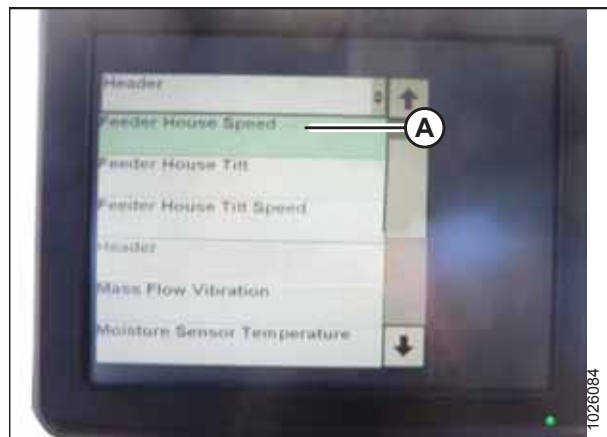


Figure 8.250: John Deere Combine Display

8. With FEEDER HOUSE SPEED selected, press icon (A). The icon will turn green.

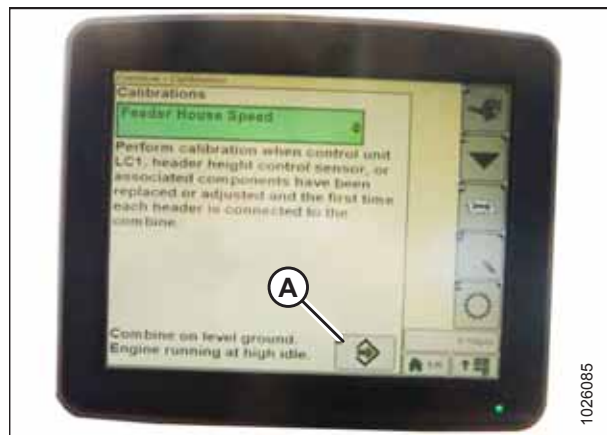


Figure 8.251: John Deere Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

9. Press icon (A) and instructions will appear on screen to guide you through the remaining calibration steps.



Figure 8.252: John Deere Combine Display

10. Select HEADER (A) from the list of calibration options.

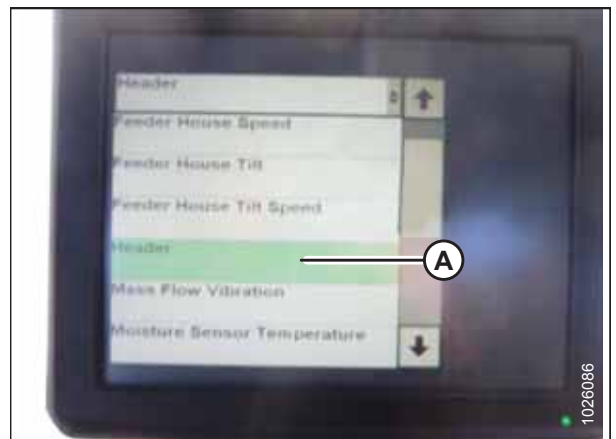


Figure 8.253: John Deere Combine Display

11. With HEADER selected, press icon (A). The icon will turn green.

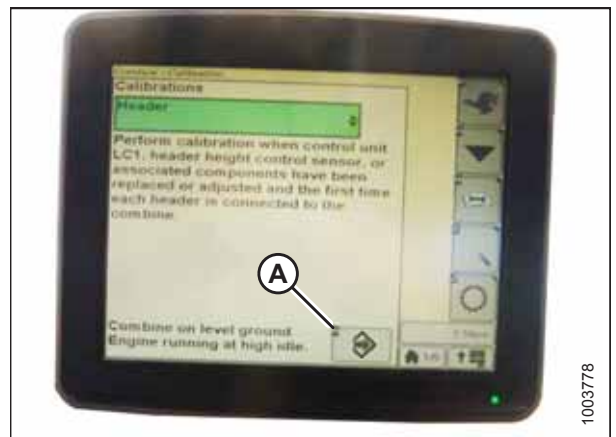


Figure 8.254: John Deere Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

12. Press icon (A) and instructions will appear on screen to guide you through the remaining calibration steps.

**NOTE:**

If an error code appears during calibration, the sensor is out of voltage range and will require adjustment. For instructions, refer to *Checking Voltage Range from the Combine Cab – John Deere S and T Series*, page 332.

**NOTE:**

If the float was set heavier to complete the AHHC calibration procedure, adjust it to the recommended operating float after the calibration is complete.



Figure 8.255: John Deere Combine Display

### *Setting the Sensitivity of the Auto Header Height Control – John Deere S and T Series*

The sensitivity adjustment controls the distance the cutterbar must travel up or down before the auto header height control (AHHC) reacts and raises or lowers the feeder house.

When the sensitivity is set to maximum, only small changes in ground height are needed to cause the feeder house to raise or lower. When the sensitivity is set to minimum, large changes in the ground height are needed to cause the feeder house to raise or lower.

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

1. Press button (A) twice and the current sensitivity setting will appear on the display.



Figure 8.256: John Deere Combine Command Center



## SETTING UP AUTO HEADER HEIGHT CONTROL

2. Press – or + icons (A) to adjust rates.

**NOTE:**

The numbers shown on the combine display in this illustration are for reference purposes only; they are not intended to represent the specific settings for your equipment.



Figure 8.257: John Deere Combine Display

### Setting Preset Cutting Height – John Deere S and T Series

The reel and cut height setting can be stored in the combine. When harvesting the setting can be selected from the control handle.

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

1. Ensure indicator (A) is at position 0 (B) with the header 254–356 mm (10–14 in.) off the ground.

**NOTE:**

When the header is on the ground, the indicator should be at position 1 (C) for low ground pressure, and at position 4 (D) for high ground pressure. Crop and soil conditions determine the amount of float to use. The ideal setting is as light as possible without header bouncing or missing crop. Operating with heavy settings prematurely wears the cutterbar wearplates.

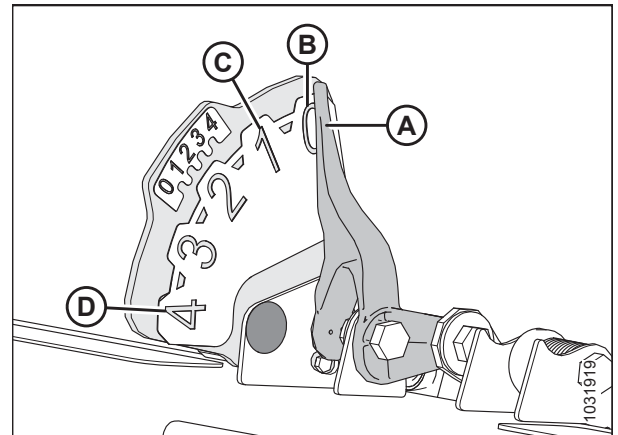


Figure 8.258: Float Indicator

## SETTING UP AUTO HEADER HEIGHT CONTROL

2. Press COMBINE – HEADER SETUP icon (A) on the main page. The COMBINE – HEADER SETUP page appears. This page is used to set various header settings such as reel speed, header width, and height of feeder house for acre counter engagement.



Figure 8.259: Combine Display

3. Select COMBINE – HEADER SETUP AHC icon (A). The COMBINE – HEADER SETUP AHC page appears.



Figure 8.260: Combine Display

4. Select AUTO HEIGHT SENSING (A), RETURN TO CUT (B), and REEL POSITION (C) icons.

**NOTE:**

If REEL POSITION icon (C) cannot be selected (no check mark), the reel height sensor requires calibration. For instructions, refer to *Calibrating Reel Height Sensor and Reel Fore-Aft Sensor – John Deere S and T Series, page 348*.

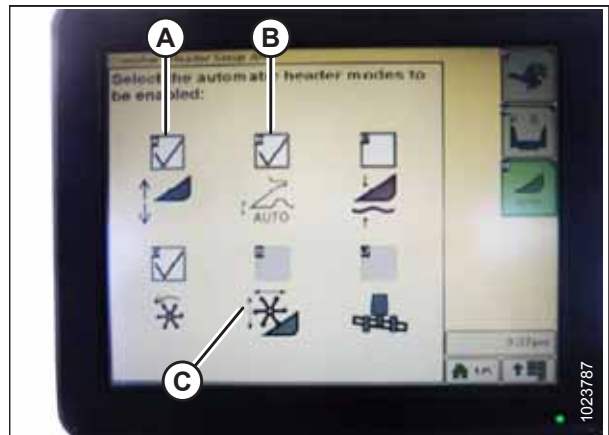


Figure 8.261: Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

- Engage the header.
- Move the header to the desired position and use knob (A) to fine tune the position.
- Move the reel to the desired position.



Figure 8.262: Combine Control Console

- Press and hold preset switch 2 (B) until 1 reel height icon flashes on display.
- Repeat previous three steps for preset switch 3 (C).
- Select an appropriate ground pressure setting. Use preset button 2 (B) on the control handle for a low ground pressure setting in muddy or soft soil conditions, and preset 3 (C) for a high ground pressure setting in firm soil conditions and a higher ground speed.

**NOTE:**

Preset button 1 (A) is reserved for header lift on the headland and is not used for cutting on the ground.



Figure 8.263: Control Handle Buttons

**NOTE:**

When the AHHC is engaged, AHHC icon (A) appears on the display and the number indicating which button was pressed (B) is shown on the page.

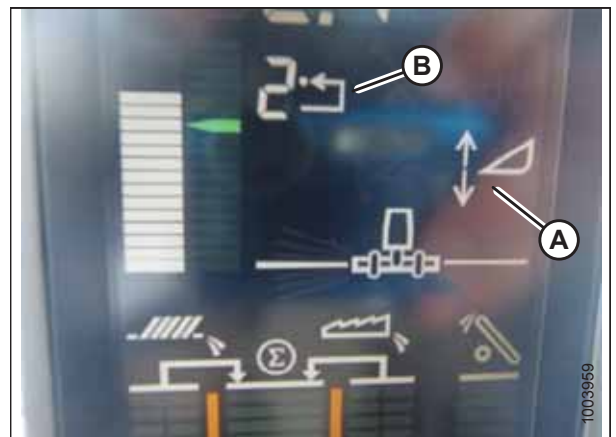


Figure 8.264: Combine Display

### *Calibrating Feeder House Fore-Aft Tilt Range – John Deere S and T Series*

For best performance of the auto header height control (AHHC), perform these procedures with the center-link set to **D**. When setup and calibration are complete, adjust the center-link back to desired header angle. For instructions, refer to the header operator's manual.

This procedure applies only to model year 2015 and later John Deere S and T Series combines.

## SETTING UP AUTO HEADER HEIGHT CONTROL

### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

The feeder house fore/aft tilt is controlled by buttons (C) and (D) at the back of the control handle.



Figure 8.265: John Deere Control Handle

### NOTE:

The feeder house fore/aft tilt controls can be changed to work with buttons E and F by pressing control handle icon (A) and then selecting FEEDER HOUSE FORE/AFT TILT from drop-down menu (B).

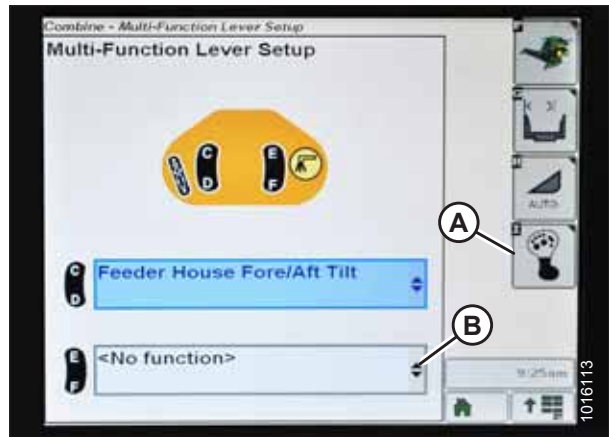


Figure 8.266: John Deere Combine Display

To calibrate the feeder house fore-aft tilt range, follow these steps:

1. Ensure the center-link is set to **D**.
2. Rest the header on the down stops and unlock the float.

## SETTING UP AUTO HEADER HEIGHT CONTROL

3. Press DIAGNOSTIC icon (A) on the main page of the display. The CALIBRATION page displays.



Figure 8.267: John Deere Combine Display

4. Select CALIBRATIONS drop-down menu (A) to view the list of calibration options.

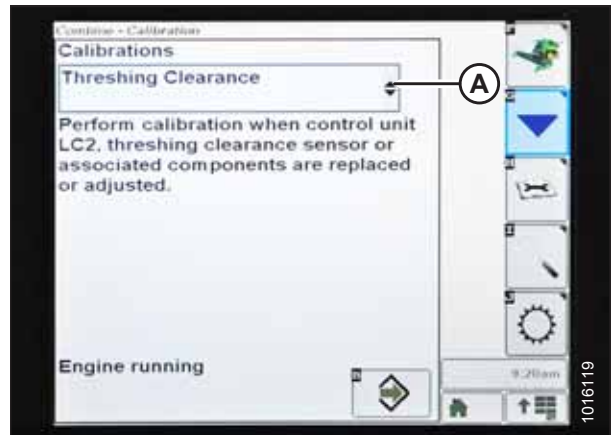


Figure 8.268: John Deere Combine Display

5. Press arrow (A) to cycle up through the calibration options and select FEEDER HOUSE FORE/AFT TILT RANGE.

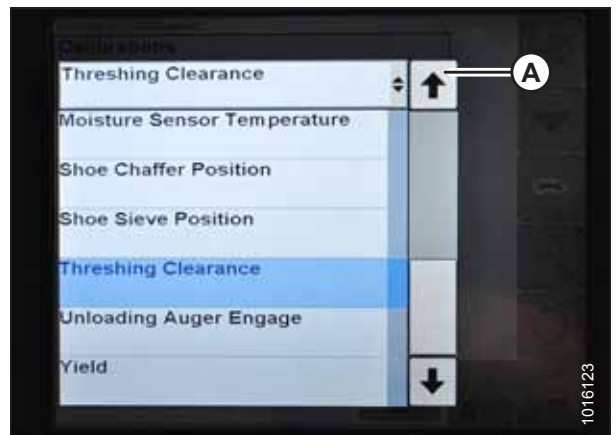


Figure 8.269: John Deere Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

6. Press ENTER icon (A).

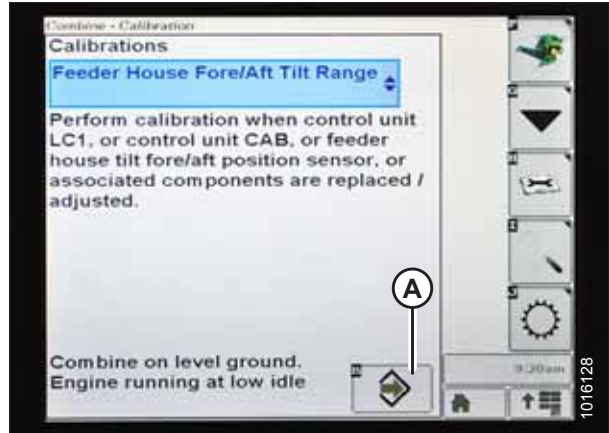


Figure 8.270: John Deere Combine Display

7. Follow the instructions that appear on the page. As you proceed through the calibration process, the display will automatically update to show the next step.

### NOTE:

If an error code appears during calibration, the sensor is out of voltage range and will require adjustment. For instructions, refer to [Checking Voltage Range from the Combine Cab – John Deere S and T Series, page 332](#).

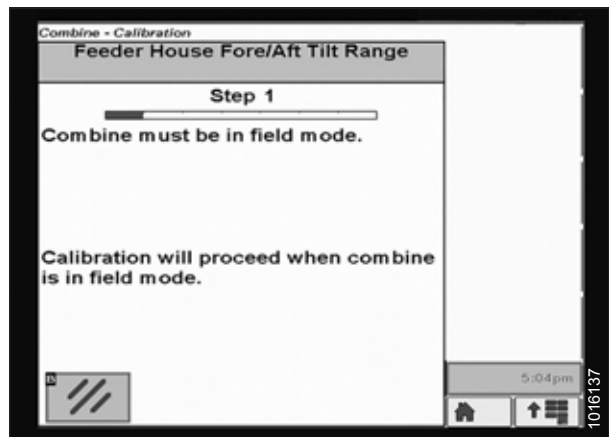


Figure 8.271: John Deere Combine Display

### Checking Reel Height Sensor Voltages – John Deere S and T Series

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

1. Press CALIBRATION icon (A) on the main page of the display. The CALIBRATION page appears.



Figure 8.272: John Deere Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

2. Press DIAGNOSTIC READINGS icon (A) on the CALIBRATION page. The DIAGNOSTIC READINGS page appears. This page provides access to calibrations, header options, and diagnostic information.

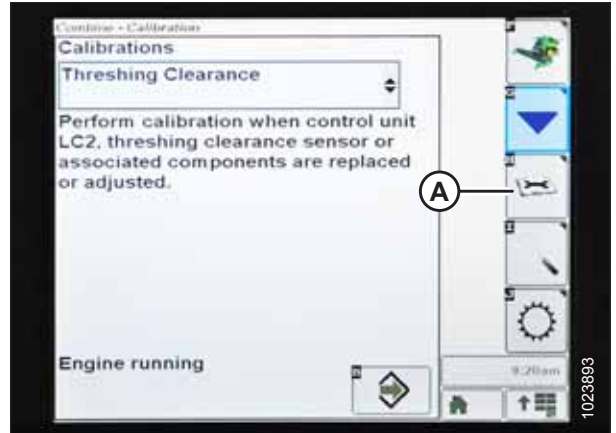


Figure 8.273: John Deere Combine Display

3. Select drop-down menu (A) to view the list of calibration options.

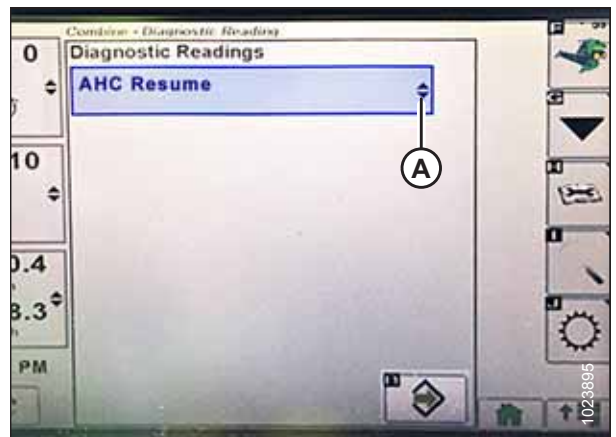


Figure 8.274: John Deere Combine Display

4. Scroll down and select REEL RESUME (A).

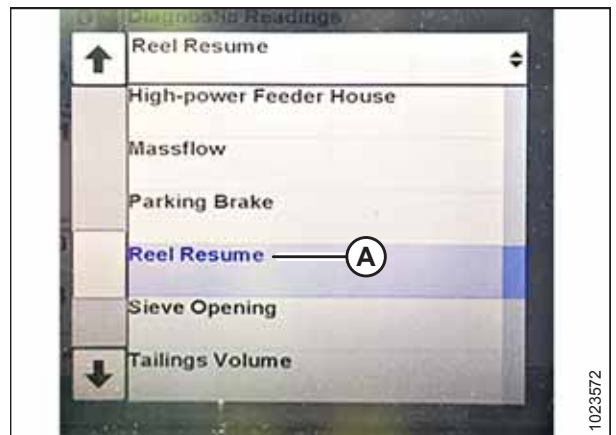


Figure 8.275: John Deere Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

5. Press ENTER icon (A). The REEL RESUME page displays.

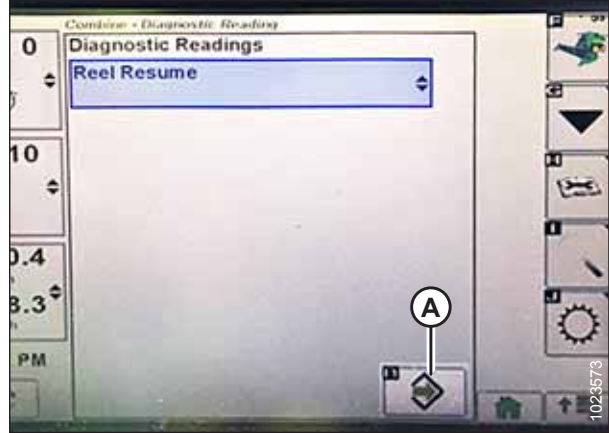


Figure 8.276: John Deere Combine Display

6. Press NEXT PAGE icon (A) to cycle to page 3.
7. Lower the reel to view low voltage (B). The voltage should be 0.5–0.9 V.

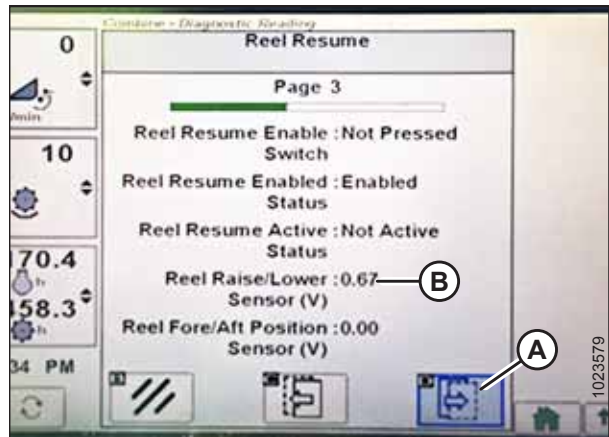


Figure 8.277: John Deere Combine Display

8. Raise the reel to view high voltage (A). The voltage should be 4.1–4.5 V.
9. If either voltage is not within the correct range, refer to [9.1 Checking and Adjusting Reel Height Sensor, page 389](#).

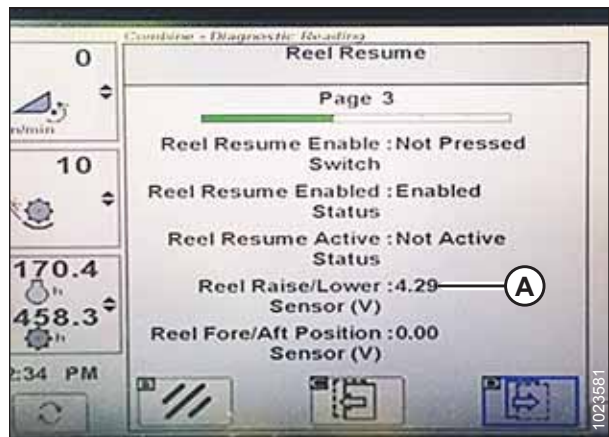


Figure 8.278: John Deere Combine Display

### Calibrating Reel Height Sensor and Reel Fore-Aft Sensor – John Deere S and T Series

This procedure applies only to model year 2015 and later John Deere S and T Series combines.

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.



## SETTING UP AUTO HEADER HEIGHT CONTROL

1. Position the header 254–356 mm (10–14 in.) off the ground.

### IMPORTANT:

Do **NOT** turn off the engine. The combine has to be at full idle for the sensors to calibrate properly.

2. Press DIAGNOSTIC icon (A) on the main page of the display. The CALIBRATION page is shown.



Figure 8.279: John Deere Combine Display

3. Select CALIBRATIONS drop-down menu (A) to view the list of calibration options.
4. Scroll through the list of options and select REEL POSITION.
5. Press ENTER icon (B).

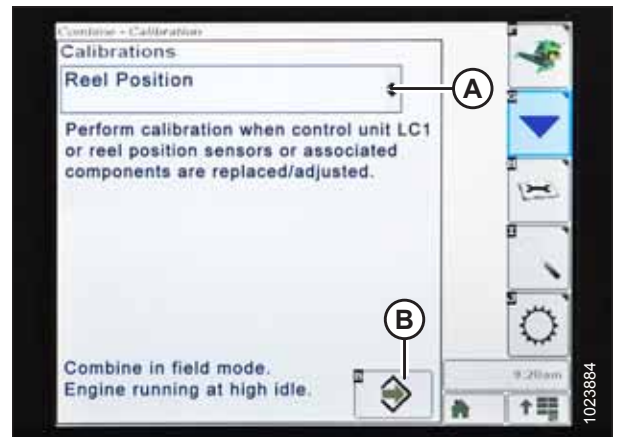


Figure 8.280: John Deere Combine Display

6. Follow the instructions that appear on the page. As you proceed through the calibration process, the display will automatically update to show the next step. This calibration requires you to use reel raise (A) and reel lower (B) switches on the control handle.



Figure 8.281: John Deere Control Handle

## SETTING UP AUTO HEADER HEIGHT CONTROL

7. Press and hold REEL LOWER switch until the reel is fully lowered. Continue holding REEL LOWER switch until prompted by the display.



Figure 8.282: John Deere Combine Display

8. Press and hold REEL RAISE switch until reel is fully raised. Continue holding REEL RAISE switch until prompted by the display.

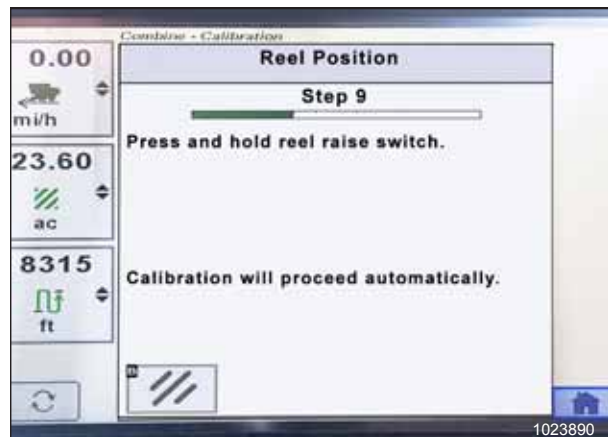


Figure 8.283: John Deere Combine Display

9. When all steps have been completed, CALIBRATION COMPLETE message is displayed on the page. Exit the CALIBRATION menu by pressing ENTER icon (A).

### NOTE:

If an error code appears during calibration, the sensor is out of voltage range and will require adjustment. For instructions, refer to [Checking Reel Height Sensor Voltages – John Deere S and T Series, page 346](#).



Figure 8.284: John Deere Combine Display

## 8.1.17 John Deere S7 Series Combines

### Setting up Header – John Deere S7 Series

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

## SETTING UP AUTO HEADER HEIGHT CONTROL

1. Press header button (A) on the panel below the display. The HEADER page opens.



Figure 8.285: John Deere S7 Display

2. Select HEADER TYPE field (A). The HEADER DETAILS dialog box opens.



Figure 8.286: John Deere S7 Display – Header Page

3. Verify correct header width is displayed under WIDTH.
4. To change header width, select field (A). The WIDTH dialog box opens.



Figure 8.287: John Deere S7 Display – Header Details Window

## SETTING UP AUTO HEADER HEIGHT CONTROL

- Use the on-screen keypad to enter the correct header width, and then press OK.



Figure 8.288: John Deere S7 Display – Setting Header Width

- Press close button (A) in the top right corner to return to the HEADER page.



Figure 8.289: John Deere S7 Display – Header Details Dialog Box

- Raise/lower speed (A), tilt speed (B), height sensitivity (C), and tilt sensitivity (D) can all be adjusted from this page. Select the option you would like to adjust. The following example shows the raise/lower speed adjustment.

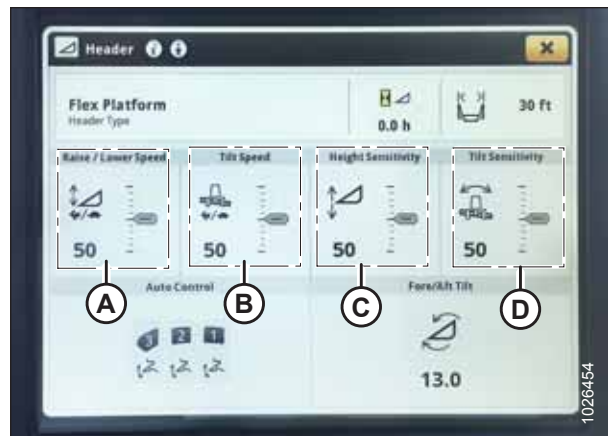


Figure 8.290: John Deere S7 Display – Header Page

## SETTING UP AUTO HEADER HEIGHT CONTROL

8. Use + and – buttons (A) to adjust the setting.
9. Press the close button in top right corner of the window to return to the HEADER page.

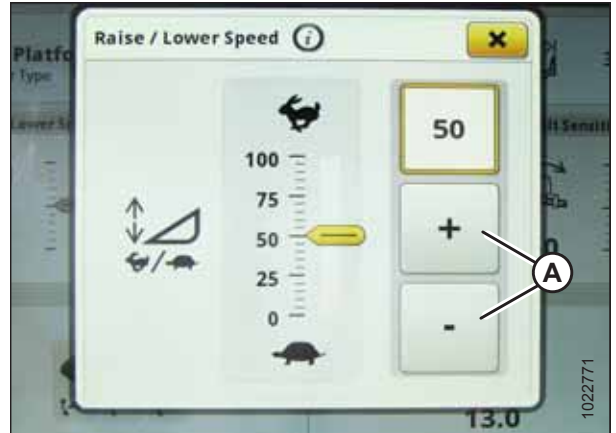


Figure 8.291: John Deere S7 Display – Raise/Lower Speed Adjustment

10. Select AUTO CONTROL icons (A). The AUTO HEADER CONTROLS page opens.

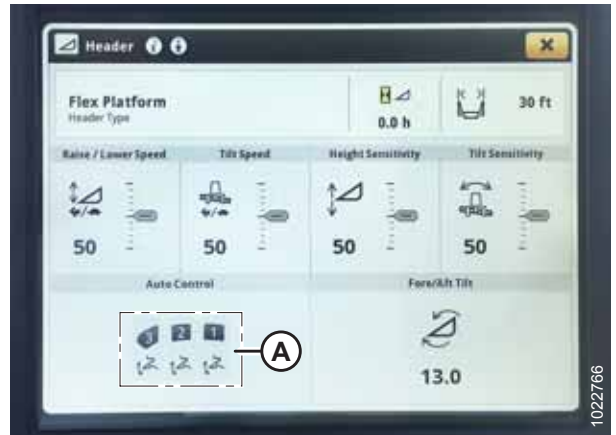


Figure 8.292: John Deere S7 Display – Header Page

11. If the header has not been calibrated yet, an error icon will appear on HEIGHT SENSING button (A). Select button (A) to view the error message.



Figure 8.293: John Deere S7 Display – Auto Header Controls

## SETTING UP AUTO HEADER HEIGHT CONTROL

12. Read the error message and then press OK.
13. Proceed to *Checking Voltage Range from the Combine Cab – John Deere S7 Series, page 354.*



Figure 8.294: John Deere S7 Display – Height Sensing Error Message

### *Checking Voltage Range from the Combine Cab – John Deere S7 Series*

The auto header height sensor output must be within a specific range, or the feature will not work properly.

**Table 8.2 Voltage Range**

Combine	Low Voltage Limit	High Voltage Limit	Minimum Range
John Deere S7 Series	0.5 V	4.5 V	3.0 V

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator’s manual for updates.

 **WARNING**

Check to be sure all bystanders have cleared the area.

1. Position the header 254–356 mm (10–14 in.) above the ground.
2. Unlock the float.

## SETTING UP AUTO HEADER HEIGHT CONTROL

3. Check that the float lock linkage is on the down stops (washer [A] cannot be moved) at both locations.

**NOTE:**

If the header is not on the down stops during next two steps, voltage may go out of range during operation causing a malfunction of auto header height control (AHHC) system.

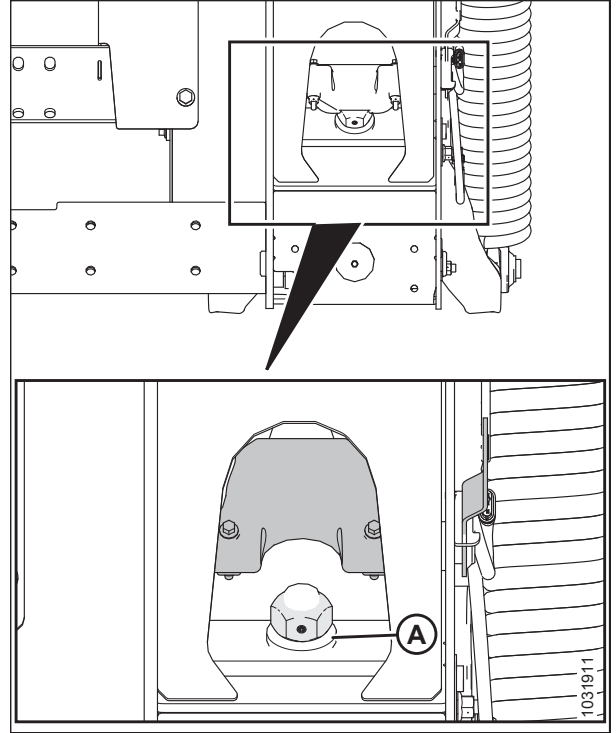


Figure 8.295: Float Lock

4. If the pointer is not on zero, loosen bolt (A) and slide float indicator plate (B) until pointer (C) is on 0 (D).
5. Tighten bolt (A).

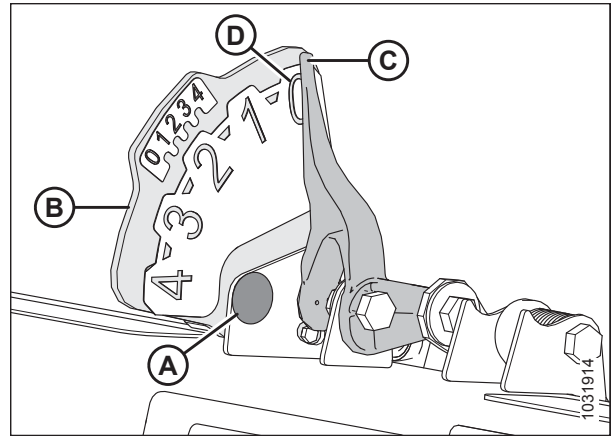


Figure 8.296: Float Indicator

## SETTING UP AUTO HEADER HEIGHT CONTROL

- On the HARVESTING page, select MENU icon (A) in the bottom right corner of the page.



Figure 8.297: John Deere S7 Display – Harvesting Page

- On the MENU page, select SYSTEM tab (A). The MENU opens.
- Select DIAGNOSTICS CENTER icon (B). The DIAGNOSTICS CENTER page opens.

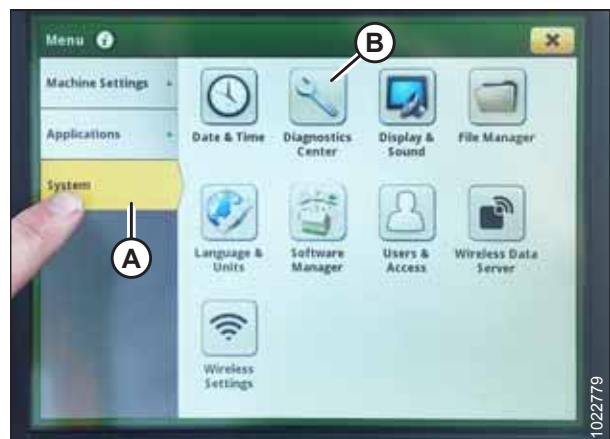


Figure 8.298: John Deere S7 Display – Menu

- Select AHC - SENSING (A). The AHC - SENSING\DIAGNOSTICS page displays.

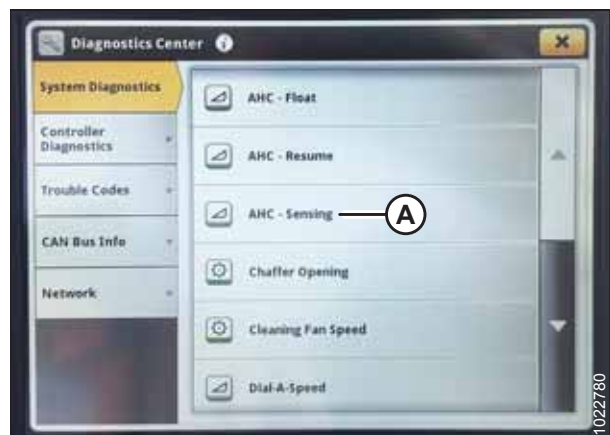


Figure 8.299: John Deere S7 Display – Diagnostics Center



## SETTING UP AUTO HEADER HEIGHT CONTROL

10. Select SENSOR tab (A) to view the sensor voltages. Center header height sensor voltage (B) must be between 0.5 and 4.5 V, with at least 3 V of variation between 0 and 4 on the float indicator box.

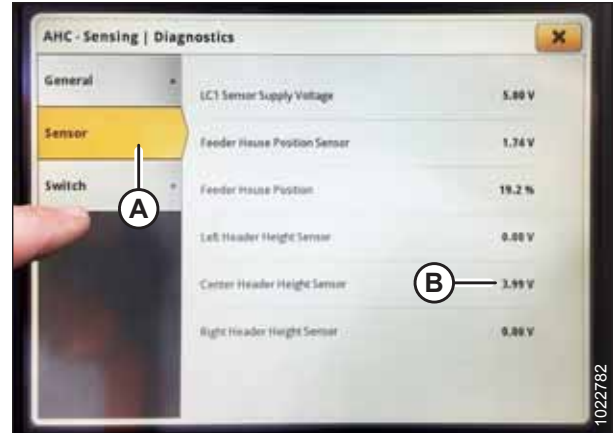


Figure 8.300: John Deere S7 Display – Checking Sensor Voltage

### Calibrating Feeder House – John Deere S7 Series

Feeder house calibration must be done before header calibration.

#### DANGER

Check to be sure all bystanders have cleared the area.

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

#### NOTE:

For best performance of the auto header height control (AHHC) system, perform ground calibration with center-link set to **D**. When calibration is complete, adjust the center-link back to desired header angle. For instructions, refer to the header operator's manual

1. Ensure the center-link is set to **D**.
2. Rest the header on the down stops and unlock the float.
3. On the HARVESTING page, select MENU icon (A) in the bottom right corner of page. The MENU opens.



Figure 8.301: John Deere S7 Display – Harvesting Page

## SETTING UP AUTO HEADER HEIGHT CONTROL

4. Select MACHINE SETTINGS tab (A).
5. Select CALIBRATIONS & PROCEDURES icon (B). The CALIBRATIONS & PROCEDURES page displays.



Figure 8.302: John Deere S7 Display – Machine Settings

6. Select HEADER tab (A).
7. Select FEEDER HOUSE RAISE SPEED CALIBRATION (B). The FH RAISE SPEED CALIBRATION page displays.

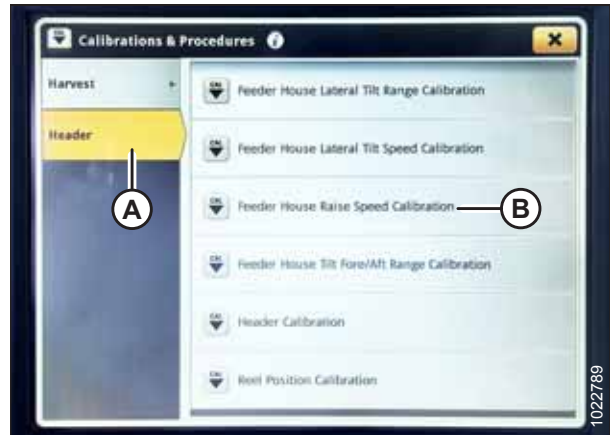


Figure 8.303: John Deere S7 Display – Calibrations and Procedures

8. Select CALIBRATE (A) at the bottom of the page. A calibration overview displays.

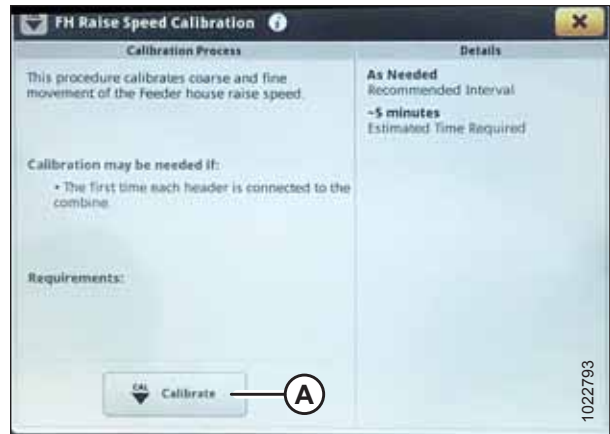


Figure 8.304: John Deere S7 Display – Feeder House Calibration

## SETTING UP AUTO HEADER HEIGHT CONTROL

9. Read the calibration overview, and then press START.



Figure 8.305: John Deere S7 Display – Feeder House Calibration

10. Follow the instructions on the page. As you proceed through the calibration process, the display will automatically update to show next step.



Figure 8.306: John Deere S7 Display – Feeder House Calibration

11. When calibration is complete, select SAVE to confirm calibration.



Figure 8.307: John Deere S7 Display – Feeder House Calibration

### Calibrating Header – John Deere S7 Series



Never start or move the machine until you are sure all bystanders have cleared the area.

## SETTING UP AUTO HEADER HEIGHT CONTROL

Feeder house calibration must be done before header calibration. If feeder house has not yet been calibrated, refer to *Calibrating Feeder House – John Deere S7 Series, page 357*.

### NOTE:

For best performance of the auto header height control (AHHC) system, perform ground calibration with center-link set to **D**. When calibration is complete, adjust the center-link back to desired header angle. For instructions, refer to the header operator's manual

### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

1. Ensure the center-link is set to **D**.
2. Rest the header on down stops and unlock the float.
3. On the HARVESTING page, select MENU icon (A) in the bottom right corner of screen. The MENU opens.



Figure 8.308: John Deere S7 Display – Harvesting Page

4. Select MACHINE SETTINGS tab (A).
5. Select CALIBRATIONS & PROCEDURES icon (B). The CALIBRATIONS & PROCEDURES page displays.

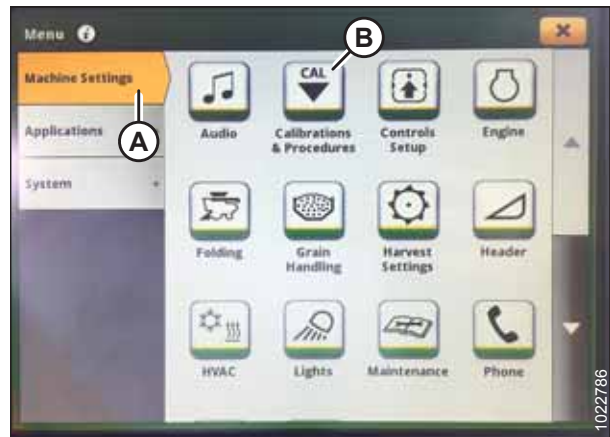


Figure 8.309: John Deere S7 Display – Machine Settings

## SETTING UP AUTO HEADER HEIGHT CONTROL

6. Select HEADER tab (A).
7. Select HEADER CALIBRATION (B). The HEADER CALIBRATION page displays.

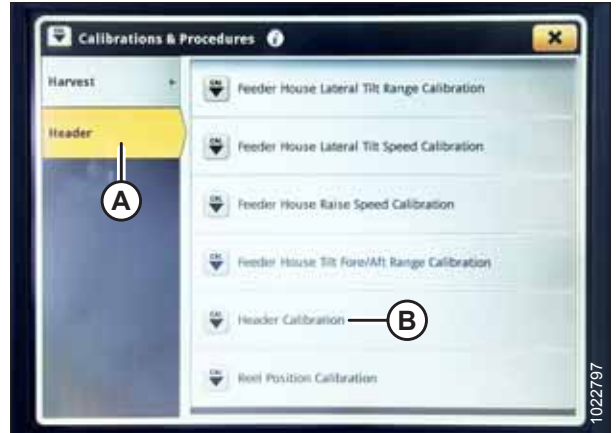


Figure 8.310: John Deere S7 Display – Calibrations and Procedures

8. Select CALIBRATE (A) at bottom of page. The calibration overview window opens.

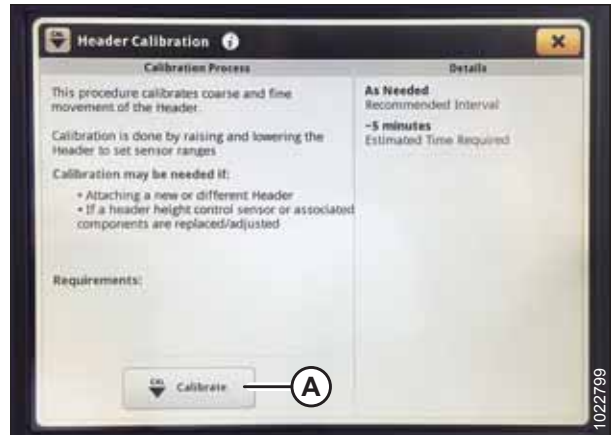


Figure 8.311: John Deere S7 Display – Header Calibration

9. Press button (A) on the console to set the engine to high idle.



Figure 8.312: John Deere S7 Console

## SETTING UP AUTO HEADER HEIGHT CONTROL

10. Select START on CALIBRATION OVERVIEW page.
11. Follow the instructions that appear on combine display. As you proceed through calibration process, display will automatically update to show next step.



Figure 8.313: John Deere S7 Display – Header Calibration

12. When calibration is complete, select SAVE to confirm calibration.



Figure 8.314: John Deere S7 Display – Header Calibration

### 8.1.18 New Holland Combines – CR/CX Series – 2014 and Prior

This section applies only to pre-2015 CR/CX models. For New Holland CR models 6.80, 6.90, 7.90, 8.90, 9.90, and 10.90, refer to [8.1.19 New Holland Combines – CR Series – 2015 and Later, page 371](#).

#### Checking Voltage Range from the Combine Cab – New Holland CR/CX Series

##### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

##### NOTE:

For New Holland CR models 6.80, 6.90, 7.90, 8.90, 9.90, and 10.90, refer to [8.1.19 New Holland Combines – CR Series – 2015 and Later, page 371](#).

### DANGER

Check to be sure all bystanders have cleared the area.

1. Position the header 254–356 mm (10–14 in.) above the ground.
2. Unlock the float.

## SETTING UP AUTO HEADER HEIGHT CONTROL

3. Check that the float lock linkage is on the down stops (washer [A] cannot be moved) at both locations.

**NOTE:**

If the header is not on the down stops during the next two steps, the voltage may go out of range during operation causing a malfunction of the AHHC system.

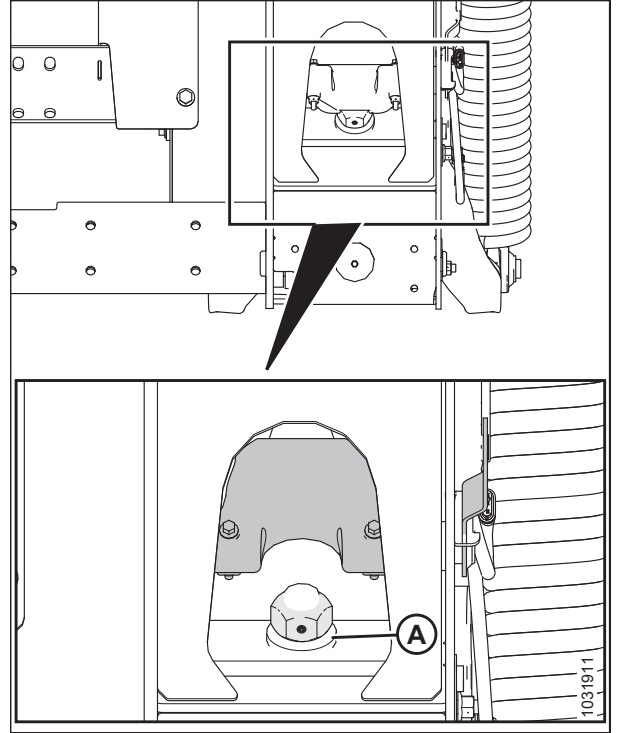


Figure 8.315: Float Lock

4. If the pointer is not on zero, loosen bolt (A) and slide float indicator plate (B) until pointer (C) is on 0 (D).
5. Tighten bolt (A).

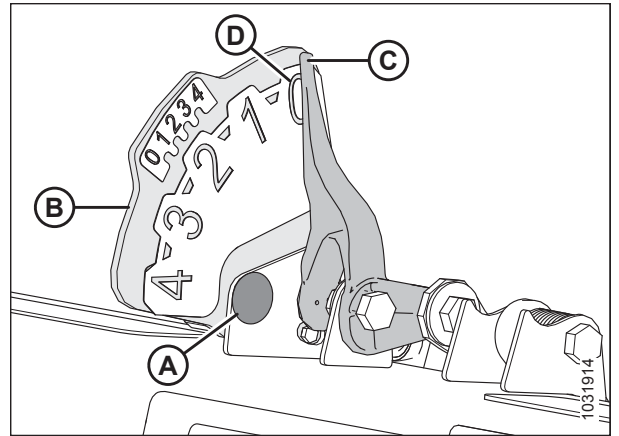


Figure 8.316: Float Indicator

## SETTING UP AUTO HEADER HEIGHT CONTROL

6. Ensure the header float is unlocked.
7. Select DIAGNOSTICS (A) on the main page. The DIAGNOSTICS page displays.
8. Select SETTINGS. The SETTINGS page displays.

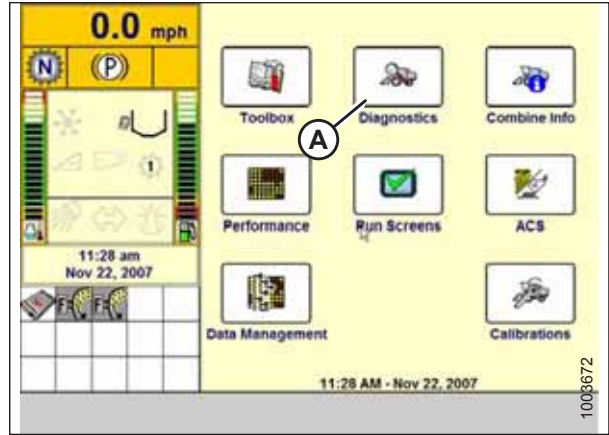


Figure 8.317: New Holland Combine Display

9. Select GROUP drop-down arrow (A). The GROUP dialog box displays.

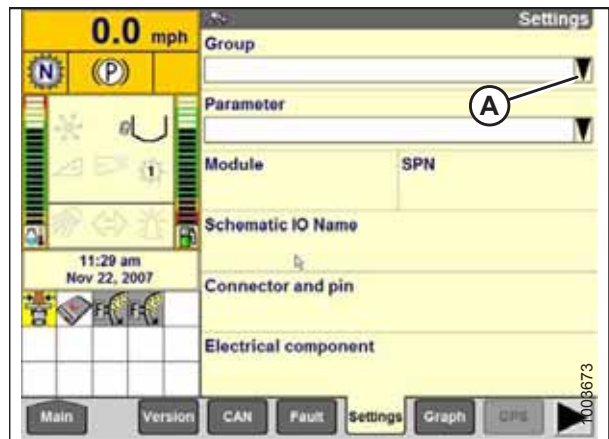


Figure 8.318: New Holland Combine Display

10. Select HEADER HEIGHT/TILT (A). The PARAMETER page displays.

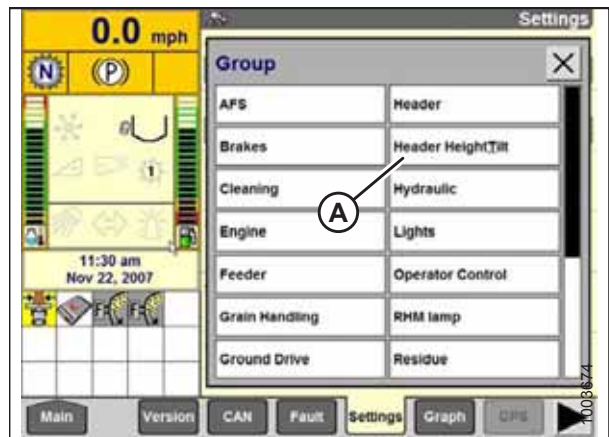


Figure 8.319: New Holland Combine Display



## SETTING UP AUTO HEADER HEIGHT CONTROL

11. Select LEFT HEADER HEIGHT SEN (A), and then select GRAPH button (B). The exact voltage is displayed at the top of the page.
12. Raise and lower the header to see the full range of voltage readings.

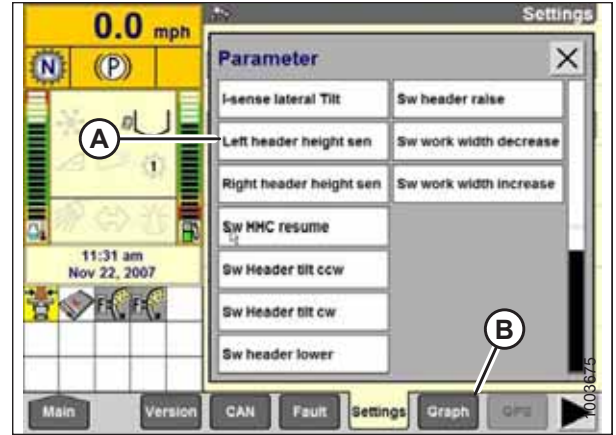


Figure 8.320: New Holland Combine Display

### Setting up Auto Header Height Control – New Holland CR/CX Series

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

**NOTE:**

For New Holland CR models 6.80, 6.90, 7.90, 8.90, 9.90, and 10.90, refer to [8.1.19 New Holland Combines – CR Series – 2015 and Later, page 371](#).

1. Select HEADER LATERAL FLOAT on the combine display, and press ENTER.
2. Use the up and down navigation keys to move between options, and select INSTALLED.



Figure 8.321: New Holland Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

3. Select HEADER AUTOFLOAT, and press ENTER.
4. Use the up and down navigation keys to move between options, and select INSTALLED.

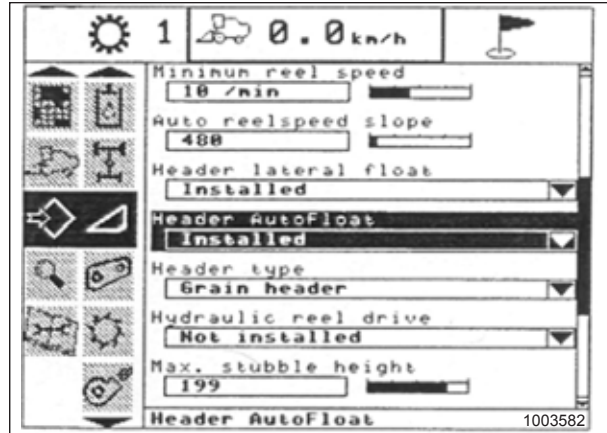


Figure 8.322: New Holland Combine Display

### Calibrating the Auto Header Height Control – New Holland CR/CX Series

The auto header height control (AHHC) sensor output must be calibrated for each combine, or the AHHC feature will not work properly.

#### DANGER

Check to be sure all bystanders have cleared the area.

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

#### NOTE:

For New Holland CR models 6.80, 6.90, 7.90, 8.90, 9.90, and 10.90, refer to [8.1.19 New Holland Combines – CR Series – 2015 and Later, page 371](#).

#### NOTE:

If the header float is set too light, it can prevent the calibration of the AHHC. You may need to set the float heavier for the calibration procedure so header does not separate from the float module.

#### NOTE:

For best performance of the auto header height control (AHHC) system, perform ground calibration with center-link set to **D**. When calibration is complete, adjust the center-link back to desired header angle. For instructions, refer to the header operator's manual

Check the following conditions before starting the header calibration procedure:

- The header is attached to the combine.
- The combine is on level ground, with the header level to the ground.
- The header is on down stops, and the center-link is set to **D**.
- The engine is running.
- The combine is not moving.
- No faults have been received from the Header Height Controller (HHC) module.
- The header/feeder is disengaged.

## SETTING UP AUTO HEADER HEIGHT CONTROL

- The lateral float buttons are **NOT** pressed.
- The ESC key is **NOT** pressed.

### To calibrate the AHHC, follow these steps:

1. Select CALIBRATION on the combine display, and press the RIGHT ARROW navigation key to enter the information box.
2. Select HEADER (A), and press ENTER. The CALIBRATION dialog box opens.

#### NOTE:

You can use the up and down navigation keys to move between the options.

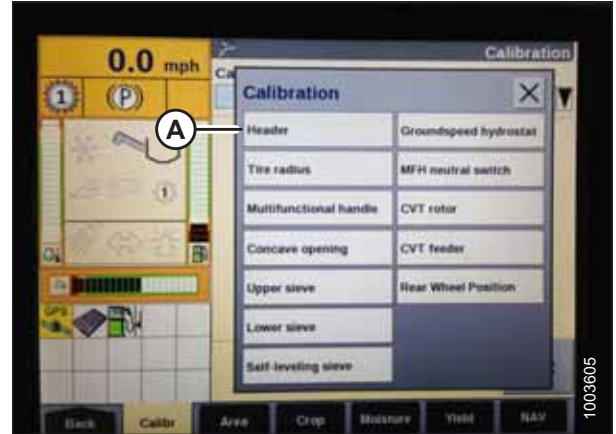


Figure 8.323: New Holland Combine Display

3. Follow the calibration steps in the order in which they appear in the dialog box. As you proceed through the calibration process, the display will automatically update to show the next step.

#### NOTE:

Pressing the ESC key during any of the steps or letting the system sit idle for more than 3 minutes will cause the calibration procedure to stop.

#### NOTE:

Refer to your combine operator's manual for an explanation of any error codes.



Figure 8.324: New Holland Combine Display

4. When all steps have been completed, a CALIBRATION SUCCESSFUL message is displayed on the screen. Exit the CALIBRATION menu by pressing the ENTER or ESC key.

#### NOTE:

If the float was set heavier to complete the AHHC calibration procedure, adjust it to the recommended operating float after the calibration is complete.

5. If the unit does not function properly, conduct the maximum stubble height calibration.

### Calibrating Maximum Stubble Height – New Holland CR/CX Series

This procedure describes how to calibrate the area counter to stop or start counting at the correct height. Program the header to a height that will never be reached while cutting. The area counter will stop counting when the header is above the programmed height, and will begin counting when the header is below the programmed height.

Select the height of the header that corresponds to the description above.

## SETTING UP AUTO HEADER HEIGHT CONTROL

### IMPORTANT:

- If the value is set too low, the area counter may **NOT** be accurate since the header is sometimes raised above this threshold although the combine is still cutting.
- If the value is set too high, the area counter will keep counting even when the header is raised (but below this threshold) and the combine is no longer cutting crop.

### DANGER

Check to be sure all bystanders have cleared the area.

1. Select the MAXIMUM STUBBLE HEIGHT calibration dialog box. As you proceed through the calibration process, the display will automatically update to show the next step.

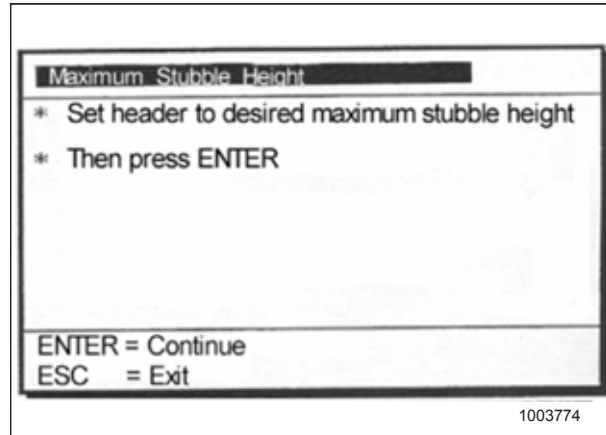


Figure 8.325: New Holland Calibration Dialog Box

2. Move the header to the desired maximum stubble height using the header up or down control switch on the multifunction handle.
3. Press ENTER to continue. As you proceed through the calibration process, the display will automatically update to show the next step.
4. Press ENTER or ESC to close the calibration screen. The calibration is now complete.

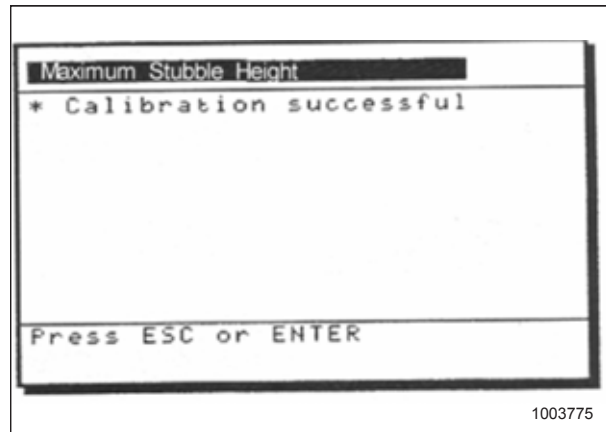


Figure 8.326: New Holland Calibration Dialog Box

### *Adjusting Header Raise Rate – New Holland CR/CX Series*

If necessary, the header raise rate (the first speed on the HEADER HEIGHT rocker switch of the multifunctional handle) can be adjusted.

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

#### NOTE:

For New Holland CR models 6.80, 6.90, 7.90, 8.90, 9.90, and 10.90, refer to [8.1.19 New Holland Combines – CR Series – 2015 and Later, page 371](#).

## SETTING UP AUTO HEADER HEIGHT CONTROL

1. Select HEADER RAISE RATE on the combine display.
2. Use the + or – buttons to change the setting.
3. Press ENTER to save the new setting.

**NOTE:**

The raise rate can be changed from 32–236 in increments of 34. The factory setting is 100.

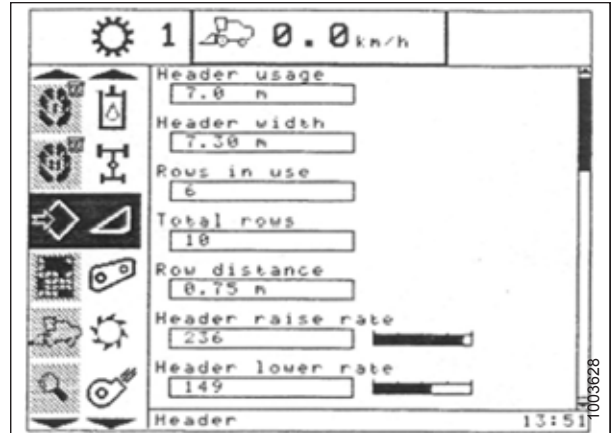


Figure 8.327: New Holland Combine Display

### Setting the Header Lower Rate – New Holland CR/CX Series

If necessary, the header lower rate (the automatic header height control button or second speed on the header height rocker switch of the multifunction handle) can be adjusted.

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

**NOTE:**

For New Holland CR models 6.80, 6.90, 7.90, 8.90, 9.90, and 10.90, refer to [8.1.19 New Holland Combines – CR Series – 2015 and Later, page 371](#).

1. Select HEADER LOWER RATE on the combine display.
2. Use the + or – buttons to change the setting to 50.
3. Press ENTER to save the new setting.

**NOTE:**

The header lower rate can be changed from 2–247 in increments of 7. It is factory-set to 100.

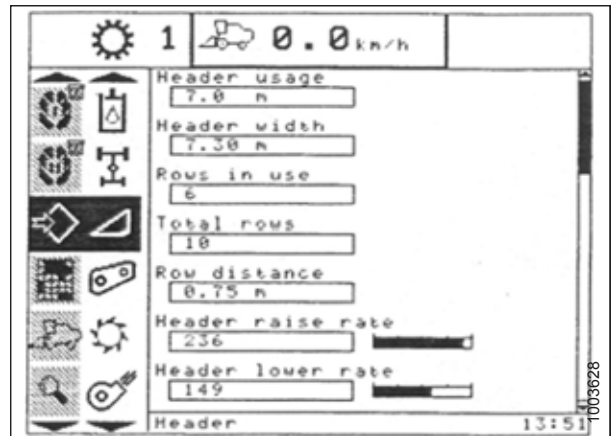


Figure 8.328: New Holland Combine Display

### Setting the Sensitivity of the Auto Header Height Control – New Holland CR/CX Series

The sensitivity adjustment controls the distance the cutterbar must travel up or down before the auto header height control (AHHC) reacts and raises or lowers the feeder house.

When the sensitivity is set to maximum, only small changes in ground height are needed to cause the feeder house to raise or lower. When the sensitivity is set to minimum, large changes in the ground height are needed to cause the feeder house to raise or lower.

## SETTING UP AUTO HEADER HEIGHT CONTROL

### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

### NOTE:

For New Holland CR models 6.80, 6.90, 7.90, 8.90, 9.90, and 10.90, refer to [8.1.19 New Holland Combines – CR Series – 2015 and Later, page 371](#).

## DANGER

Check to be sure all bystanders have cleared the area.

1. Engage the threshing mechanism and the feeder house.
2. Select HEIGHT SENSITIVITY on the combine display screen.
3. Use the + or – buttons to change the setting to 200.
4. Press ENTER to save the new setting.

### NOTE:

The sensitivity can be changed from 10–250 in increments of 10. It is factory-set to 100.



Figure 8.329: New Holland Combine Display

### Setting Preset Cutting Height – New Holland CR/CX Series

The cut height setting can be stored in the combine. When harvesting the setting can be selected from the control handle.

### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

### NOTE:

For New Holland CR models 6.80, 6.90, 7.90, 8.90, 9.90, and 10.90, refer to [8.1.19 New Holland Combines – CR Series – 2015 and Later, page 371](#).

### NOTE:

Indicator (A) should be at position 0 (B) with the header 254–356 mm (10–14 in.) off the ground. When the header is on the ground, the indicator should be at position 1 (C) for low ground pressure, and at position 4 (D) for high ground pressure. Crop and soil conditions determine the amount of float to use. The ideal setting is as light as possible without header bouncing or missing crop. Operating with heavy settings prematurely wears the cutterbar wearplates.

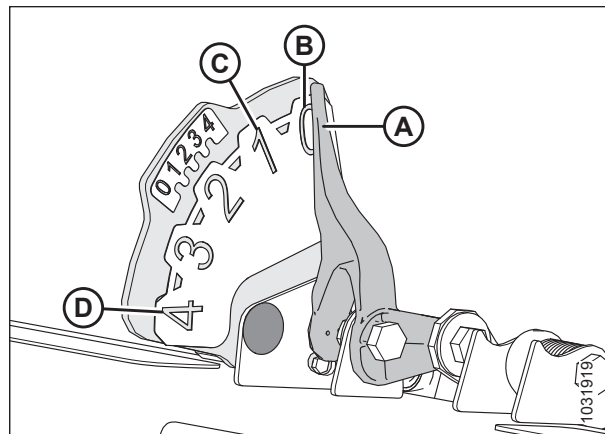


Figure 8.330: Float Indicator

## SETTING UP AUTO HEADER HEIGHT CONTROL

1. Engage the threshing mechanism and the feeder house with switches (A) and (B).
2. Set HEADER MEMORY rocker switch (D) in STUBBLE HEIGHT/AUTOFLOAT mode position (A) or (B).
3. Raise or lower the header to the desired cutting height using HEADER HEIGHT and HEADER LATERAL FLOAT momentary switch (C).
4. Lightly press AUTOMATIC HEADER HEIGHT CONTROL button (E) for a minimum of 2 seconds to store the height position. A beep will confirm the setting.

**NOTE:**

It is possible to store two different header height values by using HEADER MEMORY rocker switch (D) in STUBBLE HEIGHT/AUTOFLOAT mode position (A) or (B).

5. Raise or lower the reel to the desired working height using REEL HEIGHT momentary switch (E).
6. Lightly press AUTOMATIC HEADER HEIGHT CONTROL button (E) for a minimum of 2 seconds to store the height position. A beep will confirm the setting.
7. To change one of the memorized header height set points while the combine is in use, use HEADER HEIGHT AND HEADER LATERAL FLOAT rocker switch (A) (slow up/down) to raise or lower header to the desired value. Lightly press AUTOMATIC HEADER HEIGHT CONTROL button (B) for a minimum of 2 seconds to store the new height position. A beep will confirm setting.

**NOTE:**

Fully pressing AUTOMATIC HEADER HEIGHT CONTROL button (B) will disengage float mode.

**NOTE:**

It is not necessary to press rocker switch (C) again after changing header height set point.

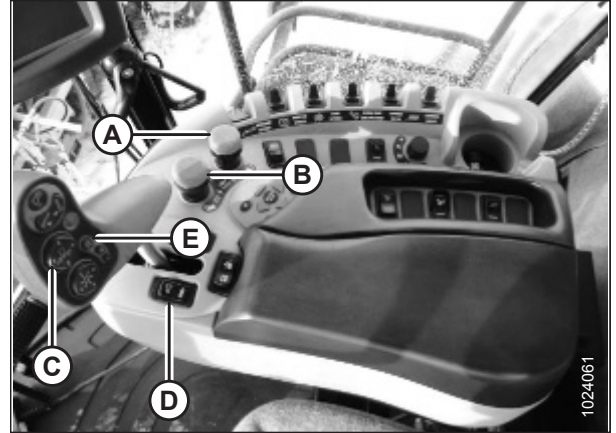


Figure 8.331: New Holland Combine Controls

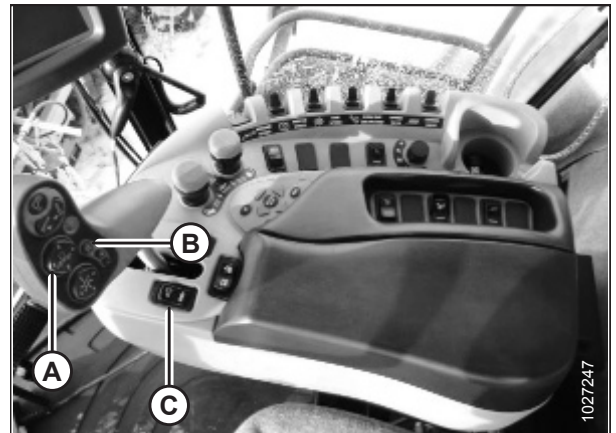


Figure 8.332: New Holland Combine Controls

### 8.1.19 New Holland Combines – CR Series – 2015 and Later

This section applies only to 2015 and later CR models (6.80, 6.90, 7.90, 8.90, 9.90, and 10.90). For other pre-2015 New Holland combine models, refer to [8.1.18 New Holland Combines – CR/CX Series – 2014 and Prior, page 362](#).

#### *Checking Voltage Range from the Combine Cab – New Holland CR Series*

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

**NOTE:**

This section applies only to 2015 and later CR models (6.80, 6.90, 7.90, 8.90, 9.90, and 10.90). For other pre-2015 New Holland combine models, refer to [8.1.18 New Holland Combines – CR/CX Series – 2014 and Prior, page 362](#).

## SETTING UP AUTO HEADER HEIGHT CONTROL

### DANGER

Check to be sure all bystanders have cleared the area.

1. Position the header 254–356 mm (10–14 in.) above the ground.
2. Unlock the float.
3. Check that the float lock linkage is on the down stops (washer [A] cannot be moved) at both locations.

#### NOTE:

If the header is not on the down stops during the next two steps, the voltage may go out of range during operation causing a malfunction of the auto header height control (AHHC) system.

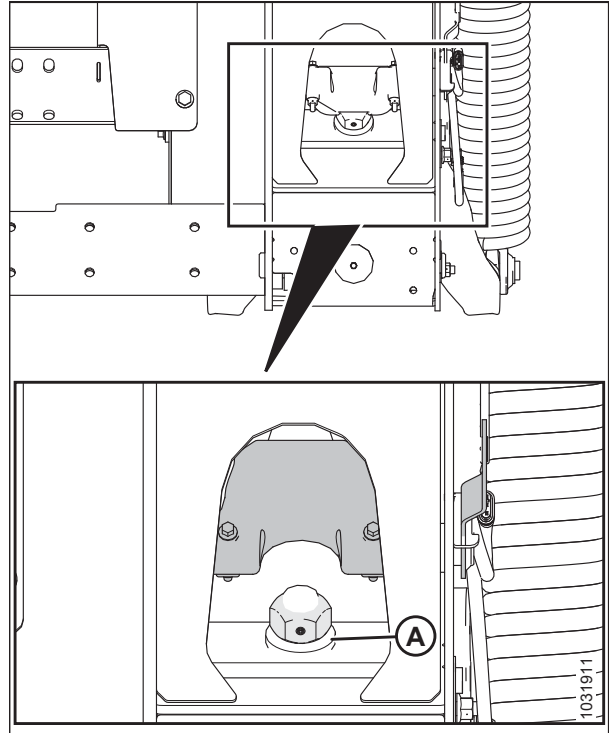


Figure 8.333: Float Lock

4. If the pointer is not on zero, loosen bolt (A) and slide float indicator plate (B) until pointer (C) is on 0 (D).
5. Tighten bolt (A).
6. Ensure the header float is unlocked.

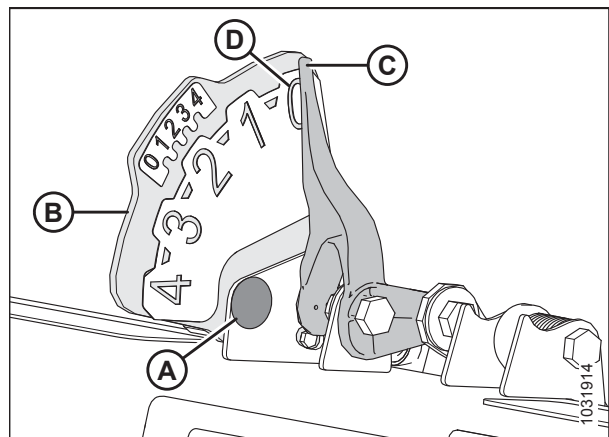


Figure 8.334: Float Indicator



## SETTING UP AUTO HEADER HEIGHT CONTROL

7. Select DIAGNOSTICS (A) on the main page. The DIAGNOSTICS page displays.



Figure 8.335: New Holland Combine Display

8. Select SETTINGS (A). The SETTINGS page displays.



Figure 8.336: New Holland Combine Display

9. Select HEADER HEIGHT/TILT (A) from the GROUP drop-down menu.
10. Select HEADER HEIGHT SENS. L (B) from the PARAMETER drop-down menu.



Figure 8.337: New Holland Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

11. Select GRAPH (A). The exact voltage (B) is displayed at the top of the page.
12. Raise and lower the header to see the full range of voltage readings.

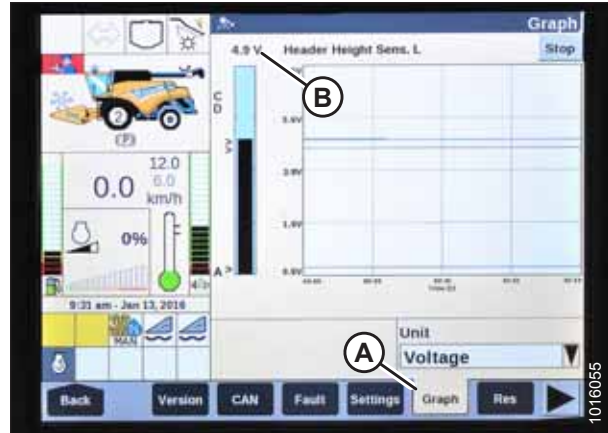


Figure 8.338: New Holland Combine Display

### Setting up Auto Header Height Control – New Holland CR Series

For best performance of the auto header height control (AHHC), perform these procedures with the center-link set to **D**. When setup and calibration are complete, adjust the center-link back to desired header angle.

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

#### NOTE:

This section applies only to 2015 and later CR models (6.80, 6.90, 7.90, 8.90, 9.90, and 10.90). For other pre-2015 New Holland combine models, refer to [8.1.18 New Holland Combines – CR/CX Series – 2014 and Prior, page 362](#).

1. Ensure the center-link is set to **D**.
2. Select TOOLBOX (A) on the main page. The TOOLBOX page displays.

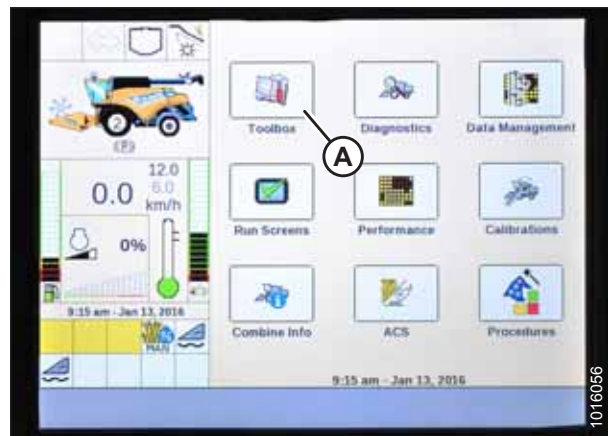


Figure 8.339: New Holland Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

3. Simultaneously press UNLOAD (A) and RESUME (B) buttons on the control handle.

**NOTE:**

Software in some New Holland combines may not allow you to change the header from FLEX to PLATFORM or the header type from DEFAULT to 80/90 at the main menu. This is now a dealer setting, and requires you to access the DEALER SETTING page by pressing and holding both the UNLOAD and RESUME buttons on the control handle for approximately 10 seconds. The DEALER SETTING page should appear and will allow you to change the header and header type settings.



Figure 8.340: New Holland Combine Controls

4. Select HEAD 1 (A). The HEADER SETUP 1 page displays.
5. Select CUTTING TYPE drop-down arrow (B) and change the CUTTING TYPE to PLATFORM (C).



Figure 8.341: New Holland Combine Display

6. Select HEADER SUB TYPE drop-down arrow (A). The HEADER SUB TYPE dialog box displays.



Figure 8.342: New Holland Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

- Set HEADER SUB TYPE to 80/90 (A) for a New Holland combine.



Figure 8.343: New Holland Combine Display

- Select HEAD 2 (A). The HEADER SETUP 2 page displays.



Figure 8.344: New Holland Combine Display

- Select the AUTOFLOAT drop-down arrow and set AUTOFLOAT to INSTALLED (A).
- Select the AUTO HEADER LIFT drop-down arrow and set AUTO HEADER LIFT to INSTALLED (B).

**NOTE:**

With AUTO HEADER LIFT installed and AHHC engaged, the header will lift up automatically when you pull back on the control handle.

- Set the values for MANUAL HHC RAISE RATE (C) and MANUAL HHC LOWER RATE (D) for best performance according to ground conditions.



Figure 8.345: New Holland Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

- Set the values for HHC HEIGHT SENSITIVITY (A) and HHC TILT SENSITIVITY (B) for best performance according to ground conditions.



Figure 8.346: New Holland Combine Display

- From REEL HEIGHT SENSOR menu (A), select YES.



Figure 8.347: New Holland Combine Display

### Calibrating the Auto Header Height Control – New Holland CR Series

The auto header height control (AHHC) sensor output must be calibrated for each combine, or the AHHC feature will not work properly.

#### **DANGER**

Check to be sure all bystanders have cleared the area.

#### **NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

#### **NOTE:**

This section applies only to 2015 and later CR models (6.80, 6.90, 7.90, 8.90, 9.90, and 10.90). For other pre-2015 New Holland combine models, refer to [8.1.18 New Holland Combines – CR/CX Series – 2014 and Prior, page 362](#).

#### **NOTE:**

If the header float is set too light, it can prevent the calibration of the AHHC. You may need to set the float heavier for the calibration procedure so the header does not separate from the float module.

## SETTING UP AUTO HEADER HEIGHT CONTROL

### NOTE:

For best performance of the auto header height control (AHHC) system, perform ground calibration with center-link set to **D**. When calibration is complete, adjust the center-link back to desired header angle. For instructions, refer to the header operator's manual.

Check the following conditions before starting the header calibration procedure:

- The header is attached to the combine.
- The combine is on level ground, with the header level to the ground.
- The header is on down stops, and the center-link is set to **D**.
- The engine is running.
- The combine is not moving.
- No faults have been received from the header height controller (HHC) module.
- The header/feeder is disengaged.
- The lateral float buttons are **NOT** pressed.
- The ESC key is **NOT** pressed.

To calibrate the AHHC, follow these steps:

1. Select CALIBRATIONS (A) on the main page. The CALIBRATION page is shown.



Figure 8.348: New Holland Combine Display

2. Select CALIBRATION drop-down arrow (A).



Figure 8.349: New Holland Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

3. Select HEADER (A) from the list of calibration options.



Figure 8.350: New Holland Combine Display

4. Follow the calibration steps in the order in which they appear on the page. As you proceed through the calibration process, the display will automatically update to show the next step.

**NOTE:**

Pressing the ESC key during any of the steps or letting the system sit idle for more than 3 minutes will cause the calibration procedure to stop.

**NOTE:**

Refer to your combine operator's manual for an explanation of any error codes.



Figure 8.351: New Holland Combine Display

5. When all steps have been completed, CALIBRATION COMPLETED message is displayed on the page.

**NOTE:**

If the float was set heavier to complete AHHC calibration procedure, adjust it to the recommended operating float after the calibration is complete.



Figure 8.352: New Holland Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

### Calibrating Reel Height Sensor and Reel Fore-Aft Sensor – New Holland CR Series

You must calibrate the reel position before operating the header for the first time. Calibrating the reel position calibrates the reel height sensor and the reel fore-aft sensor.

#### DANGER

Check to be sure all bystanders have cleared the area.

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

#### NOTE:

This section applies only to 2015 and later CR models (6.80, 6.90, 7.90, 8.90, 9.90, and 10.90).

To calibrate the reel position, follow these steps:

1. Position the header 254–356 mm (10–14 in.) off the ground.

#### IMPORTANT:

Do **NOT** turn off the engine. The combine has to be at full idle for the sensors to calibrate properly.

2. Select CALIBRATIONS (A) on the main page. The CALIBRATION page is shown.



Figure 8.353: New Holland Combine Display

3. Select CALIBRATION drop-down arrow (A).



Figure 8.354: New Holland Combine Display



## SETTING UP AUTO HEADER HEIGHT CONTROL

4. Select REEL POSITION (A) from the list of calibration options.

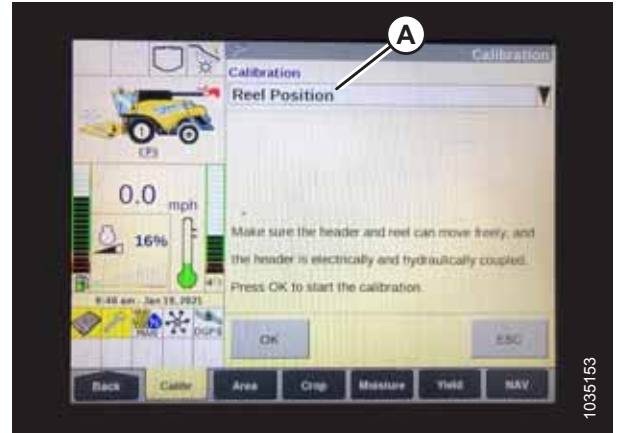


Figure 8.355: New Holland Combine Display

5. A CAUTION statement (A) will appear. Press ENTER.



Figure 8.356: New Holland Combine Display

6. If the statement "Confirm varifeed knife is completely retracted"(A) appears, press ENTER. The varifeed knife is not applicable to MacDon headers.

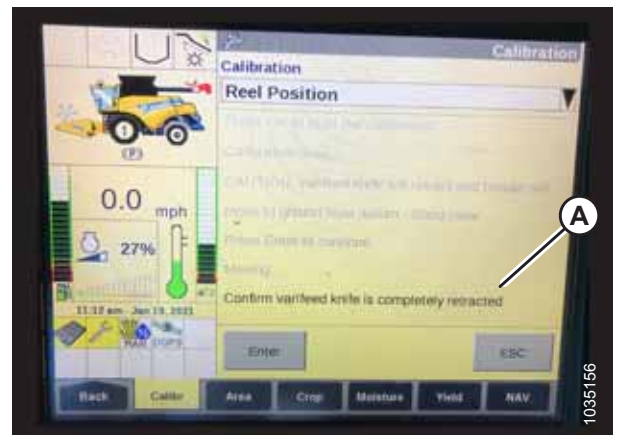


Figure 8.357: New Holland Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

- Follow the calibration steps (A) in the order in which they appear on the page. As you proceed through the calibration process, the display will automatically update to show the next step.

**NOTE:**

Pressing the ESC key during any of the steps or letting the system sit idle for more than 3 minutes will cause the calibration procedure to stop.

**NOTE:**

Refer to your combine operator's manual for an explanation of any error codes.

- When all steps have been completed, CALIBRATION COMPLETED message is displayed on the page.



Figure 8.358: New Holland Combine Display

### Checking Reel Height Sensor Voltages – New Holland CR Series

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

- On the main page of the combine display, select DIAGNOSTICS (A). The DIAGNOSTICS page opens.



Figure 8.359: New Holland Combine Display

- Select SETTINGS tab (A). The SETTINGS page opens.
- From GROUP menu (B), select HEADER.
- From PARAMETER menu (C), select REEL VERTICAL POSITION.

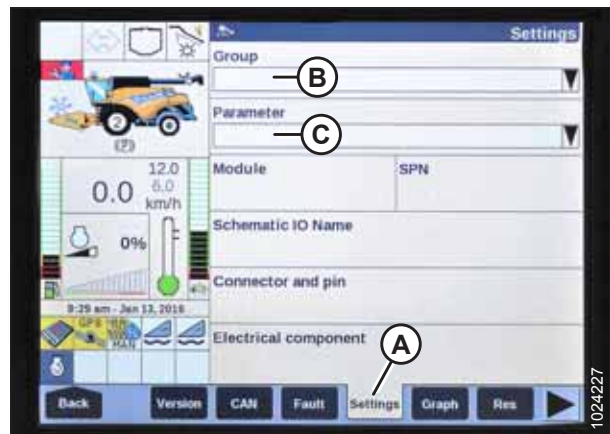


Figure 8.360: New Holland Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

5. Select GRAPH tab (A). The REEL VERTICAL POSITION graph displays.
6. Lower the reel to view high voltage (B). The voltage should be 4.1–4.5 V.
7. Raise the reel to view low voltage (C). The voltage should be 0.5–0.9 V.

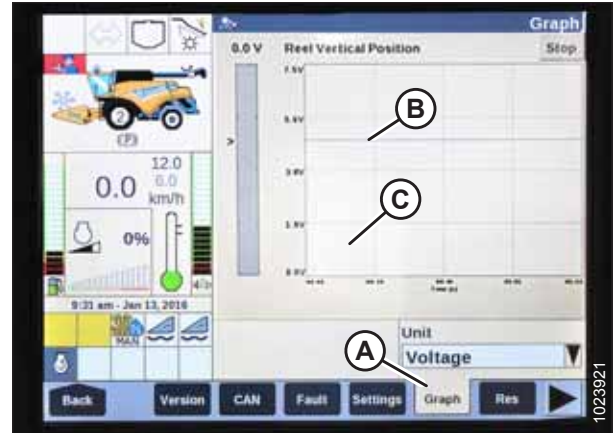


Figure 8.361: New Holland Combine Display

### Setting Preset Cutting Height – New Holland CR Series

The cut height setting can be stored in the combine. When harvesting the setting can be selected from the control handle.

#### NOTE:

This section applies only to 2015 and later CR models (6.80, 6.90, 7.90, 8.90, 9.90, and 10.90). For other pre-2015 New Holland combine models, refer to [8.1.18 New Holland Combines – CR/CX Series – 2014 and Prior, page 362](#).

The console has two buttons used for auto height presets. The toggle switch that was present on previous models is now configured as shown at right. MacDon headers only require first two buttons (A) and (B). Third button (C) is not configured.

#### DANGER

Check to be sure all bystanders have cleared the area.



Figure 8.362: New Holland Combine Controls

## SETTING UP AUTO HEADER HEIGHT CONTROL

*To set preset cutting height, follow these steps:*

1. Engage the separator and the header.
2. Select preset button 1 (A). A yellow light on the button will illuminate.
3. Raise or lower the header to the desired cutting height.



Figure 8.363: New Holland Combine Controls

4. Hold RESUME button (C) on the multifunction handle to set the preset.

**NOTE:**

When setting presets, always set the header position before setting the reel position. If the header and reel are set at the same time, the reel setting will not save.

5. Raise or lower the reel to the desired working position.
6. Hold RESUME button (C) on the multifunction handle to set the preset.
7. Repeat Step 2, page 384 to Step 6, page 384, using preset button 2.



Figure 8.364: New Holland Combine Multifunction Handle

8. Lower the header to the ground.
9. Select RUN SCREENS (A) on the main page.



Figure 8.365: New Holland Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

10. Select the RUN tab that shows MANUAL HEIGHT.

**NOTE:**

The MANUAL HEIGHT field may appear on any of the RUN tabs. When an auto height preset button is pressed, the display will change to AUTO HEIGHT (A).

11. Press one of the auto height preset buttons to select a preset cutting height.



Figure 8.366: New Holland Combine Display

### Setting Maximum Work Height – New Holland CR Series

**NOTE:**

This section applies only to 2015 and later CR models (6.80, 6.90, 7.90, 8.90, 9.90, and 10.90). For other pre-2015 New Holland combine models, refer to [8.1.18 New Holland Combines – CR/CX Series – 2014 and Prior](#), page 362.

1. Select TOOLBOX (A) on the main page. The TOOLBOX page displays.



Figure 8.367: New Holland Combine Display

2. Select FEEDER (A). The FEEDER SETUP page displays.
3. Select MAXIMUM WORK HEIGHT field (B).

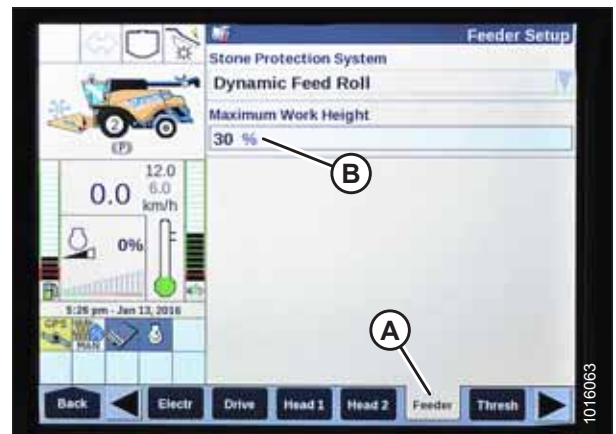


Figure 8.368: New Holland Combine Display

## SETTING UP AUTO HEADER HEIGHT CONTROL

4. Set MAXIMUM WORK HEIGHT to desired value.
5. Press SET and then press ENTER.



Figure 8.369: New Holland Combine Display

### *Configuring Reel Fore-Aft, Header Tilt, and Header Type – New Holland CR Series*

This procedure applies only to 2016 New Holland CR models 6.90, 7.90, 8.90, and 9.90.

#### **NOTE:**

Changes may have been made to the combine controls or display since this document was published. For instructions, refer to the combine operator's manual for updates.

1. Simultaneously press UNLOAD (A) and RESUME (B) buttons on the control handle.



Figure 8.370: New Holland Combine Controls

## SETTING UP AUTO HEADER HEIGHT CONTROL

- On the HEAD 1 page, change the CUTTING TYPE from FLEX to PLATFORM as shown at location (A).



Figure 8.371: New Holland Combine Display

- On the HEAD 2 page, change HEADER SUB TYPE from DEFAULT to 80/90 as shown at location (A).



Figure 8.372: New Holland Combine Display

There are now two different buttons for ON GROUND presets. The toggle switch that was present on previous models is now configured as shown at right. MacDon headers only require first two buttons (A) and (B). Third button down (C) is not configured.



Figure 8.373: New Holland Combine Controls





## Chapter 9: Setting up Reel Position Sensors

### 9.1 Checking and Adjusting Reel Height Sensor

The output voltage range of the auto reel height sensor can be checked from inside the combine or manually at the sensor. For in-cab instructions, refer to the combine operator's manual.

**IMPORTANT:**

Ensure minimum reel height is properly set before adjusting reel height sensor. For instructions, refer to [7.11 Reel Clearance to Cutterbar, page 179](#).

Reel height sensor (A) is located on the right endsheet and connects to the right reel arm.

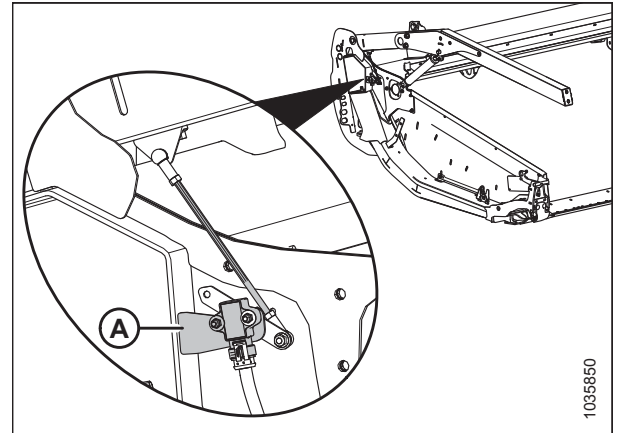
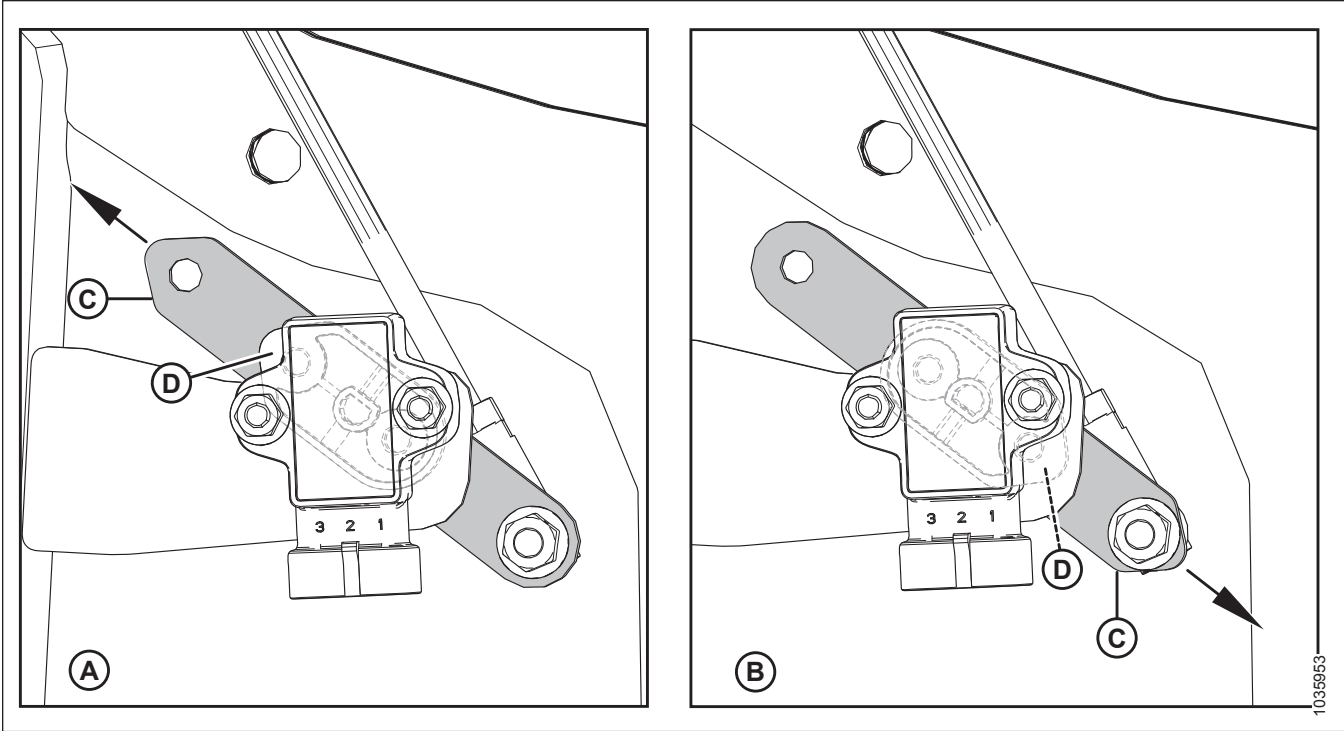


Figure 9.1: Reel Height Sensor Location

## SETTING UP REEL POSITION SENSORS



**Figure 9.2: Sensor Arm/Pointer Configurations**

A - John Deere, CLAAS, IDEAL™ Configuration

B - Case/New Holland Configuration

C - Sensor Arm

D - Sensor Pointer (Located Between Sensor and Sensor Arm)

### NOTE:

In configuration **A**, the arrow indicates that the pointed end of the sensor arm is pointed toward the back of the header. In configuration **B**, the arrow indicates that the pointed end of the sensor arm is pointed toward the front of the header.

Check that sensor arm (C) and pointer (D) are configured properly for your machine, refer to Figure 9.2, page 390.

### IMPORTANT:

To measure the output voltage of the reel height sensor, the combine engine needs to be running and supplying power to the sensor. Always engage the combine parking brake and stay away from the reel.

**Table 9.1 Reel Height Sensor Voltage Limits**

Combine Type	Voltage Range	
	X Voltage (Reel Raised)	Y Voltage (Reel Lowered)
IDEAL™	3.9–4.3 V	0.7–1.1 V
Case/New Holland	0.7–1.1 V	3.9–4.3 V
CLAAS	3.9–4.3 V	0.7–1.1 V
John Deere	3.9–4.3 V	0.7–1.1 V

### NOTE:

For CLAAS combines: To avoid a collision of the reel with the cab, the machine is equipped with an automatic reel height limitation. Some CLAAS combines have an automatic shutoff feature that engages when the automatic reel height limitation is reached. When raising the header by more than 80%, the reel is automatically lowered. The automatic lowering of the reel can be manually overridden, and a warning will appear on the CEBIS terminal.

## SETTING UP REEL POSITION SENSORS

### DANGER

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

### WARNING

Check to be sure all bystanders have cleared the area.

1. Engage combine parking brake.
2. Start the engine. For instructions, refer to the combine operator's manual.
3. Lower the reel fully.
4. Use the combine display or a voltmeter (if measuring the sensor manually) to measure voltage range **Y**. Refer to Table 9.1, page 390 for range requirements.
5. If using a voltmeter, measure the voltage between the ground (pin 2 wire) and the signal (pin 3 wire) at the reel height sensor (B).
6. Shut down the engine, and remove the key from the ignition.
7. Check if voltage is within voltage range **Y**. If the voltage is not within range **Y**, loosen jam nuts (D) and adjust the rod length.
8. Repeat checking and adjusting until voltage range **Y** is within the range specified.
9. Start the engine, and fully raise the reel.
10. Use the combine display or a voltmeter (if measuring the sensor manually) to measure voltage range **X**. Refer to Table 9.1, page 390 for range requirements.
11. If using a voltmeter, measure the voltage between the ground (pin 2 wire) and the signal (pin 3 wire) at the reel height sensor (A).
12. Shut down the engine, and remove the key from the ignition.
13. Loosen two M5 hex nuts (B) and rotate sensor (A) to achieve voltage range **X**.
14. Repeat checking and adjusting until voltage range **X** is within the range specified.
15. Start the engine and fully lower the reel.
16. Recheck voltage range **Y** and ensure it is still within the range specified. Adjust if required.
17. If the two jam nuts were loosened in Step 7, page 391, tighten them.

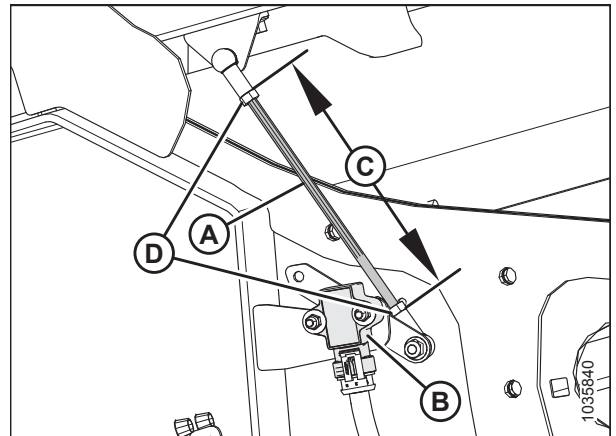


Figure 9.3: Reel Height Sensor – Right Reel Arm with Reel Down

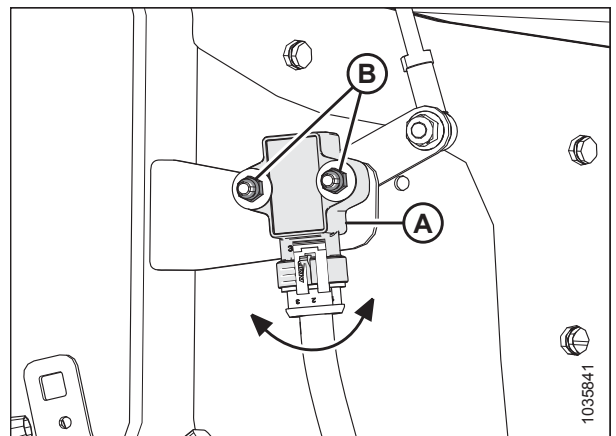


Figure 9.4: Reel Height Sensor – Right Reel Arm with Reel Up

## 9.2 Checking and Adjusting Fore-Aft Position Sensor

Note the orientation of sensor arm (C) and hardware (D). Ensure that the sensor arm is configured properly for your machine; refer to Figure 9.5, page 392.

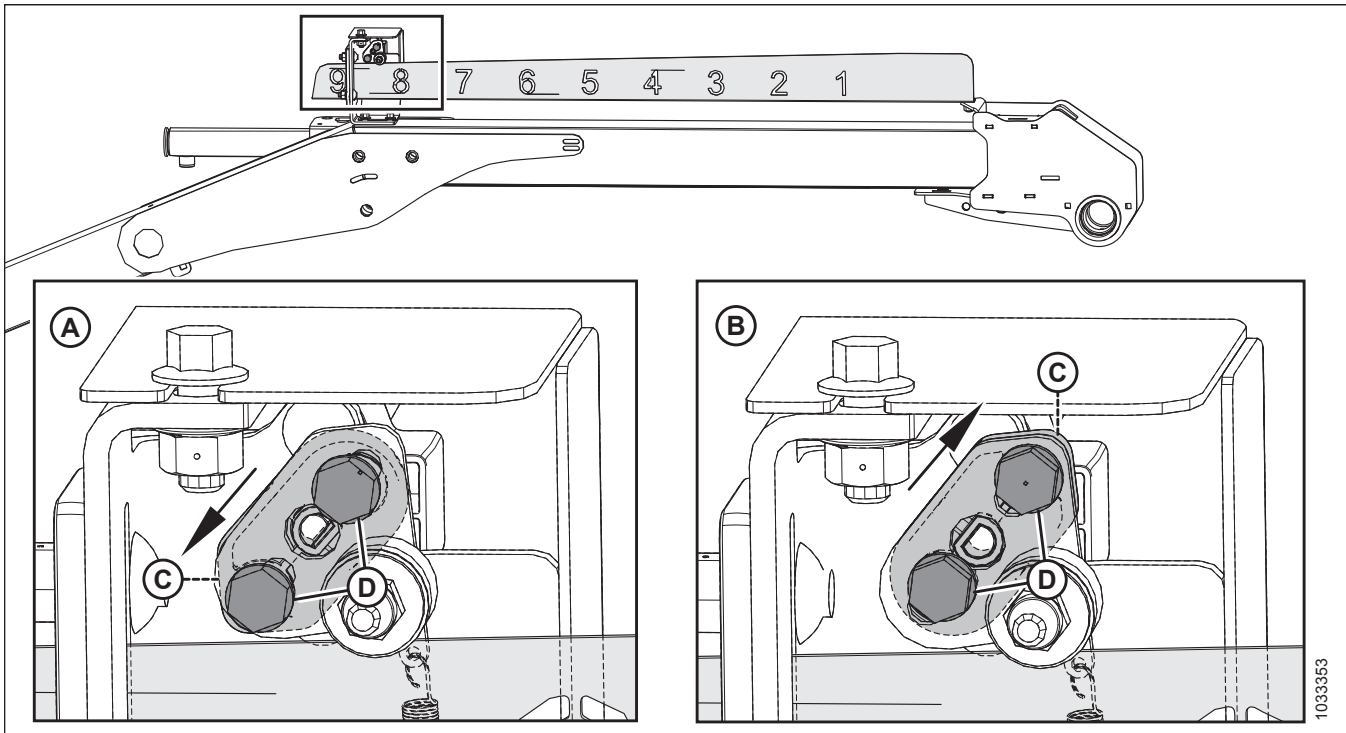


Figure 9.5: Sensor Arm Configurations

A - John Deere, CLAAS, IDEAL Configuration

B - Case/New Holland Configuration

C - Sensor Arm

D - Mounting Hardware

### IMPORTANT:

To measure the output voltage of the fore-aft sensor, the combine engine needs to be running and supplying power to the sensor. Always engage the combine parking brake and stay away from the reel.

### DANGER

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

### WARNING

Check to be sure all bystanders have cleared the area.

## SETTING UP REEL POSITION SENSORS

1. Start the engine.
2. Adjust the reel to the fully forward position. Dimension (B) (from the sensor bracket to the end of the indicator) should be 62.1–72.1 mm (2.4–2.8 in.).

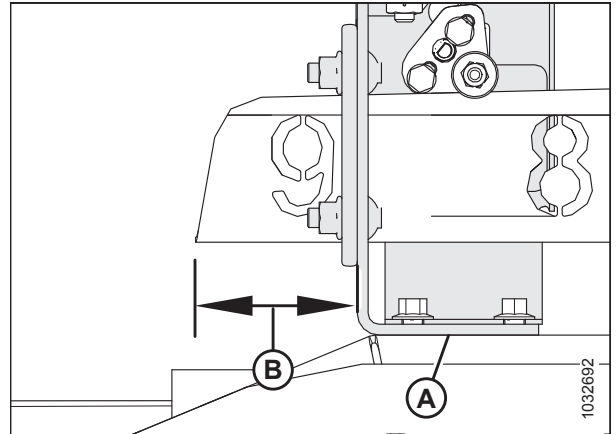


Figure 9.6: Fore-Aft Bracket

3. Use the combine display or a voltmeter (if measuring the sensor manually) to measure voltage range. If using a voltmeter, check sensor (A) voltage between pin 2 (ground) and pin 3 (signal).

Table 9.2 Fore-Aft Sensor Voltage Range

CNH	0.7–1.1 V
John Deere, CLAAS, AGCO	3.9–4.3 V

4. Shut down the engine, and remove the key from the ignition.
5. If adjustment is required, loosen hardware (A) and rotate sensor (B) until voltage is in the correct range.
6. Once sensor adjustment is complete, torque the hardware to 2.1 Nm (22 lbf-in).

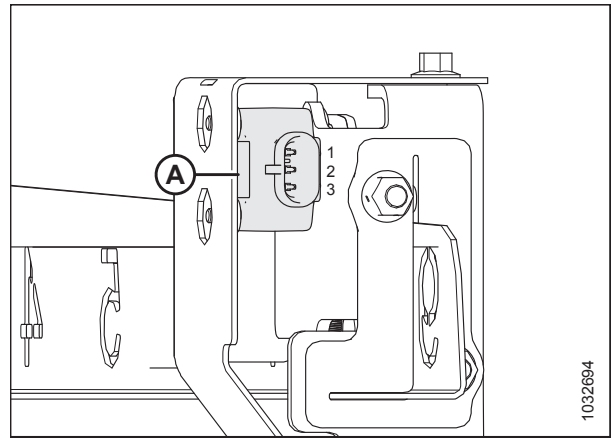


Figure 9.7: Fore-Aft Sensor

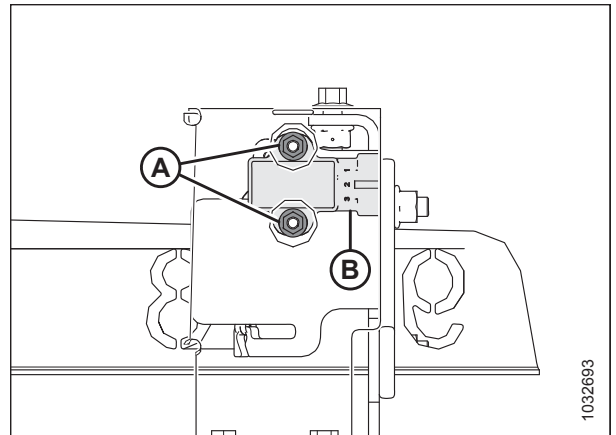


Figure 9.8: Fore-Aft Sensor



## Chapter 10: Running up Header

To run up the header, follow these steps:

### DANGER

To avoid bodily injury or death from the unexpected start-up or fall of a raised machine, always stop engine and remove key before leaving the operator's seat, and always engage safety props before going under the machine for any reason.

### DANGER

Never start or move the machine until you are sure all bystanders have cleared the area.

1. Start the engine. For instructions, refer to the combine operator's manual.
2. Raise the header fully.
3. Shut down the engine, and remove the key from the ignition.
4. Engage the header safety props.
5. Lower plastic pan under float module and check for shipping materials/debris that may have fallen under the float module draper.
6. Rotate latches (A) to unlock handles (B).
7. Hold pan (C) and rotate handles (B) to release pan. Lower pan to expose draper.

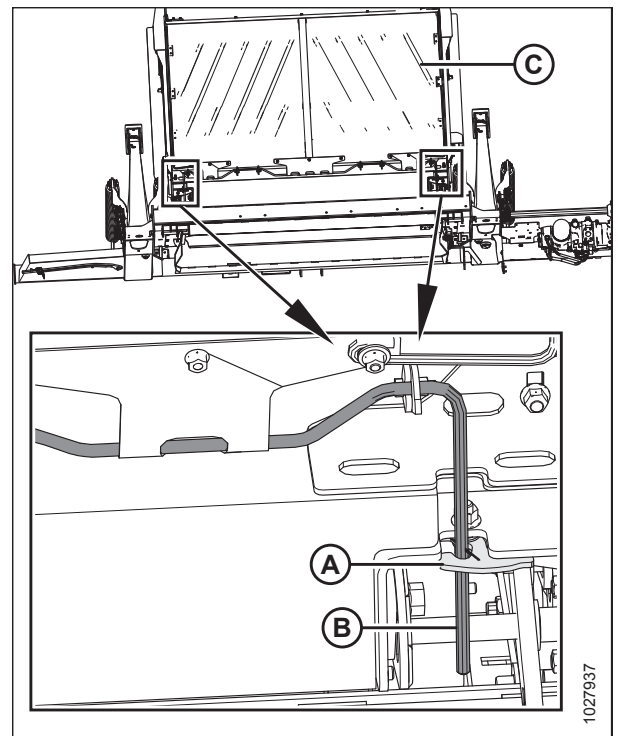


Figure 10.1: Float Module Plastic Pan

8. Check and remove debris from pan (A) and draper.

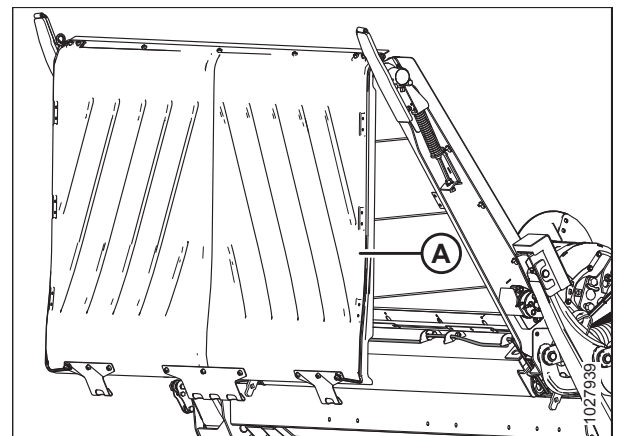


Figure 10.2: Float Module Plastic Pan

## RUNNING UP HEADER

9. Raise the pan and rotate handle (A) so that the rod engages clips (B) on the pan.

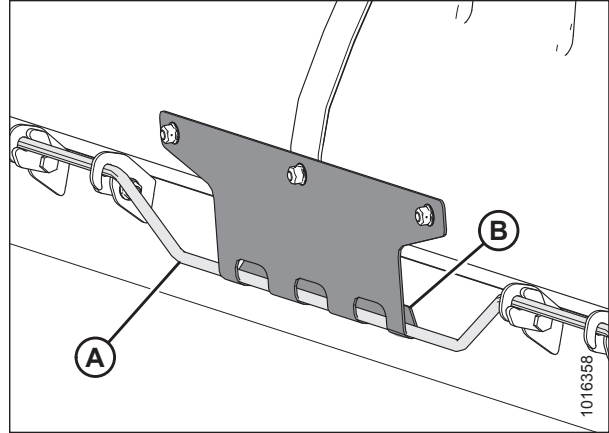


Figure 10.3: Clips Engaged

10. Push handle (A) into the slot and secure it with latches (B).
11. Open the left endshield.

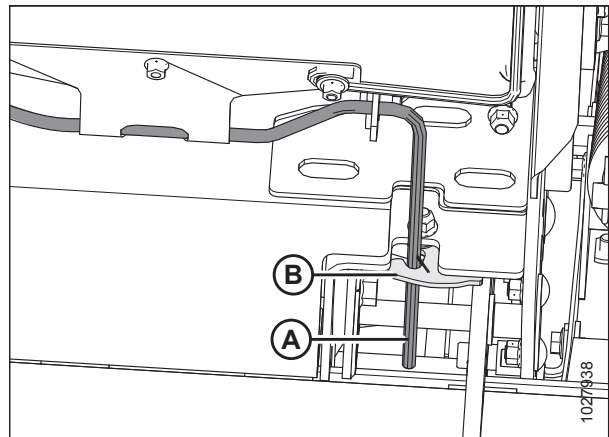


Figure 10.4: Latches Secured



## RUNNING UP HEADER

- Set the side draper flow to maximum using the in-cab control.

**NOTE:**

On the models of in-cab controls shown, turn the knob to “10” for maximum flow.

- Ensure the feeder house variable speed is set as follows:
  - CLAAS combines: Set the feeder house variable speed to **MAXIMUM**.
  - All brands of combine except CLAAS: Set the feeder house variable speed to **MINIMUM**.



### **DANGER**

Never start or move the machine until you are sure all bystanders have cleared the area.

- Start the engine. For instructions, refer to the combine operator’s manual.
- Run the machine slowly for 5 minutes while watching and listening **FROM THE OPERATOR’S SEAT** for binding or interfering parts.

**NOTE:**  
The reel and side drapers will not operate until oil flow fills the lines.
- Run the machine at operating speed for 15 minutes. Listen for any unusual sounds or abnormal vibration.
- Perform run-up check as listed on [Predelivery Checklist, page 429](#) (yellow sheet attached to this instruction) to ensure the machine is field-ready.
- Check the speed of the flywheel (A) using a hand-held photo tachometer.
- Compare the actual flywheel speed with values in [Table 10.2, page 398](#).



Figure 10.5: In-Cab Side Draper Speed Control – IDEAL™, Challenger®, CLAAS, Gleaner®, John Deere, and Massey Ferguson® Combines

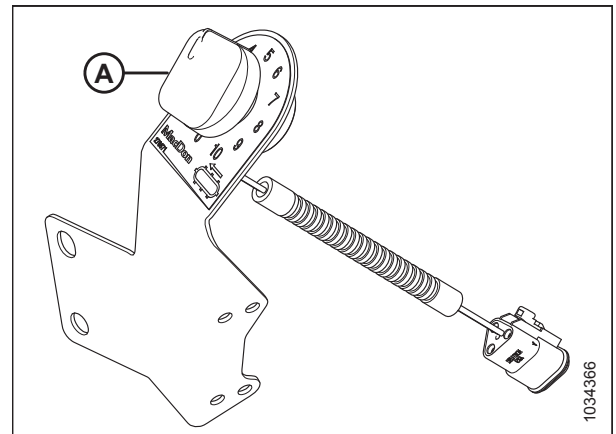


Figure 10.6: In-Cab Side Draper Speed Control – Case IH and New Holland Combines

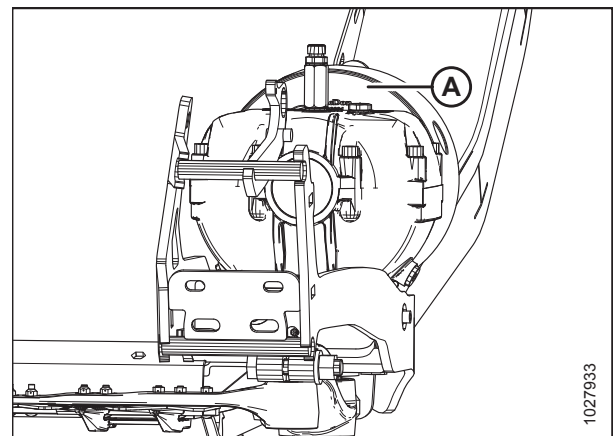


Figure 10.7: Knife Drive Box

## 10.1 Knife Speed Information

The header knife drive is powered by the integrated pump.

**Table 10.1 Feeder House Speed**

Combine	Feeder House Speed (rpm)
Case IH	580
Challenger	625
CLAAS <sup>19</sup>	420
Gleaner	625
John Deere	490
Massey Ferguson	625
New Holland	580

**NOTE:**

All sizes of headers are set to 650 rpm. This knife speed will work fine in normal cutting conditions.

**IMPORTANT:**

Ensure the knife speed is within the range of rpm values in Table 10.2, page 398. For instructions, refer to 10.1.1 *Checking Knife Speed*, page 398.

**IMPORTANT:**

To avoid causing the knife to over-speed, set the knife speed while the feederhouse speed is to set maximum speed.

**Table 10.2 FD2 Series Header Knife Speed**

Header	Recommended Knife Drive Speed Range (rpm)	
	Single-Knife Drive	Double-Knife Drive
FD230	600–750	—
FD235	600–700	600–750
FD240	600–650	600–750
FD245	—	600–750
FD250	—	600–750

### 10.1.1 Checking Knife Speed

 **DANGER**

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

1. Shut down the engine, and remove the key from the ignition.
2. Open the endshield. For instructions, refer to 11.2.1 *Opening Header Endshields*, page 410.

 **WARNING**

Check to be sure all bystanders have cleared the area.

3. Start the engine. For instructions, refer to the combine operator's manual.
4. Engage the header drive, and run the combine at operating rpm.

---

19. The rear shaft speed on CLAAS combines is 420 rpm (speed shown on cab display monitor also will be 420). The output shaft speed is actually 750 rpm.

## RUNNING UP HEADER

5. Run the float module and header for 10 minutes to warm up oil to 38°C (100°F).
6. Measure the rpm of flywheel (A) with a hand-held photo tachometer.

**NOTE:**

One revolution (rpm) is equivalent to two knife strokes (spm) (1 rpm=2 spm).

7. Shut down the engine, and remove the key from the ignition.
8. Compare flywheel rpm measurement with the rpm values in the knife speed chart. For more information, refer to [10.1 Knife Speed Information, page 398](#).
9. If knife speed is not within range, pump adjustment will be required. For instructions, refer to [10.1.3 Adjusting Knife Speed – Coarse Adjustment, page 400](#).

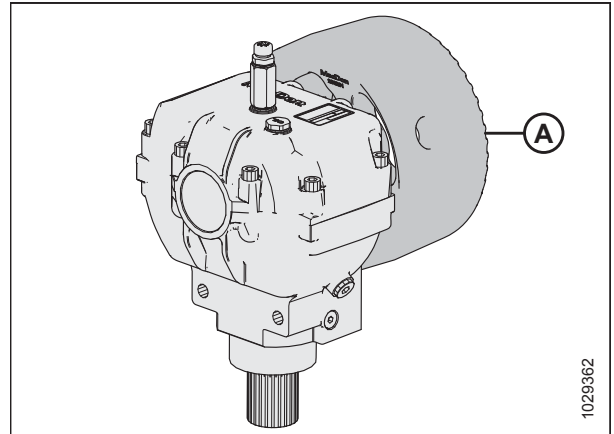


Figure 10.8: Flywheel

### 10.1.2 Adjusting Knife Speed – Fine Adjustment

The knife speed adjuster on the integrated pump, sets the maximum pump flow (knife drive [rpm]).



**DANGER**

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

1. Shut down the engine, and remove the key from the ignition.
2. Loosen bolt (A).
3. Turn knife drive adjuster clockwise to increase or counter clockwise to decrease the knife speed within the slot range to fine tune the flywheel rpm.
4. Open the endshield. For instructions, refer to [11.2.1 Opening Header Endshields, page 410](#).
5. Start the engine, engage the header and run at high idle.

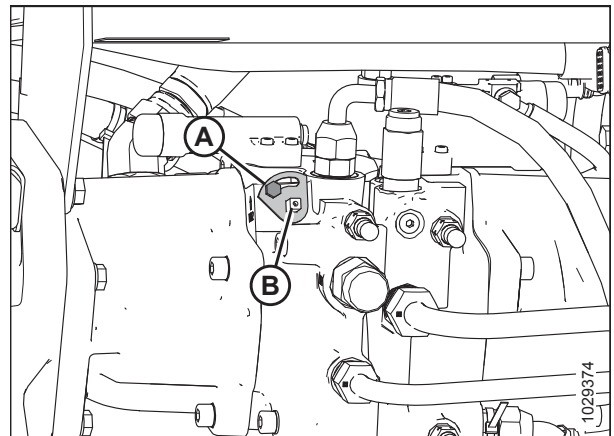


Figure 10.9: Integrated Pump

## RUNNING UP HEADER

- Using a photo tachometer, check the speed of flywheel (A). Adjust the pump until the desired flywheel rpm is achieved. Refer to [10.1 Knife Speed Information, page 398](#) for recommended settings.

### NOTE:

If the desired rpm cannot be achieved using the fine adjustment, use the coarse pump adjustment. Refer to [10.1.3 Adjusting Knife Speed – Coarse Adjustment, page 400](#). If the correct knife speed is still not obtainable after adjusting, testing the knife drive motor(s) or pump will be required.

For motor testing, refer to the header technical manual.

For pump testing, refer to the header technical manual.

- Close the endshield. For instructions, refer to [11.2.2 Closing Header Endshields, page 411](#).

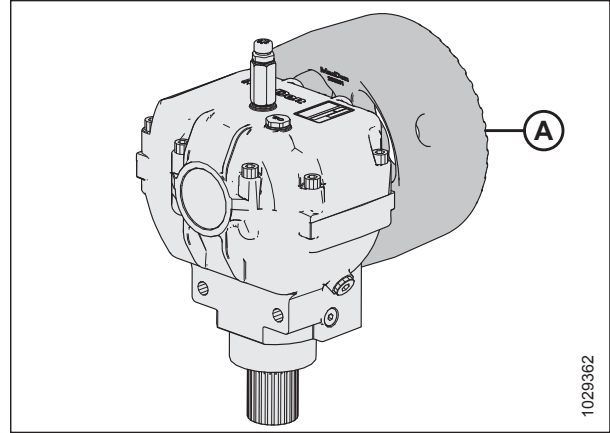


Figure 10.10: Knife Drive Flywheel

### 10.1.3 Adjusting Knife Speed – Coarse Adjustment

The knife speed adjuster on the integrated pump, sets the maximum pump flow (knife drive [rpm]).

#### DANGER

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

- Shut down the engine, and remove the key from the ignition.
- Remove bolt (A).
- Remove fine adjustment plate (B).

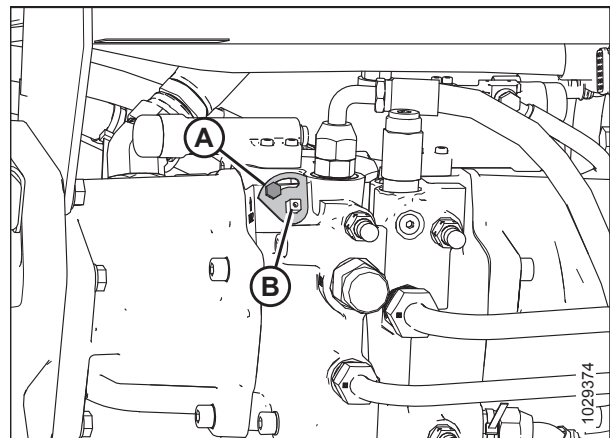


Figure 10.11: Integrated Pump

## RUNNING UP HEADER

4. Turn knife drive adjuster clockwise to increase or counter clockwise to decrease the knife speed.
5. Open the endshield. For instructions, refer to [11.2.1 Opening Header Endshields, page 410](#).
6. Start the engine, engage the header and run at high idle.

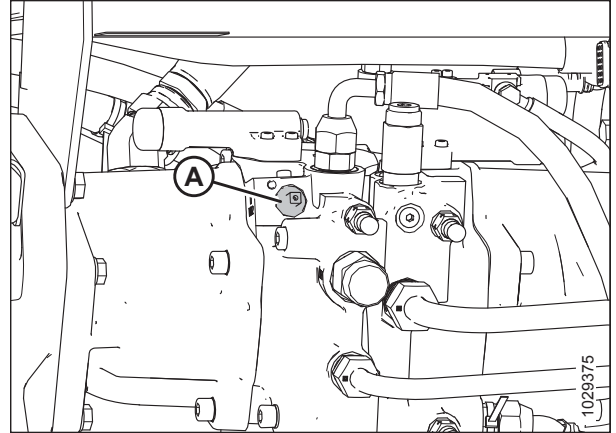


Figure 10.12: Integrated Pump

7. Using a photo tachometer, check the speed of flywheel (A). Adjust the pump until the desired flywheel rpm is achieved. Refer to [10.1 Knife Speed Information, page 398](#) for recommended settings.

**NOTE:**

For finer pump adjustment, refer to [10.1.2 Adjusting Knife Speed – Fine Adjustment, page 399](#).

8. Close the endshield. For instructions, refer to [11.2.2 Closing Header Endshields, page 411](#).

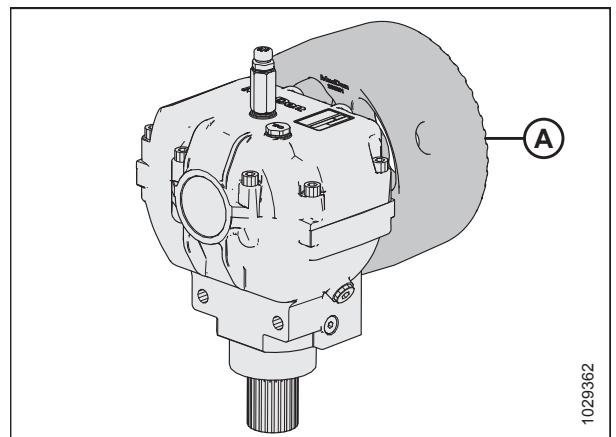


Figure 10.13: Knife Drive Flywheel

9. Install fine adjustment plate (B).
10. Install bolt (A).

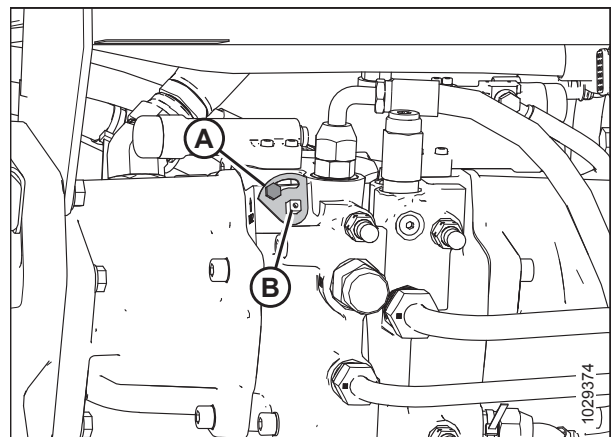


Figure 10.14: Integrated Pump

## 10.2 Adjusting Side Draper Tracking

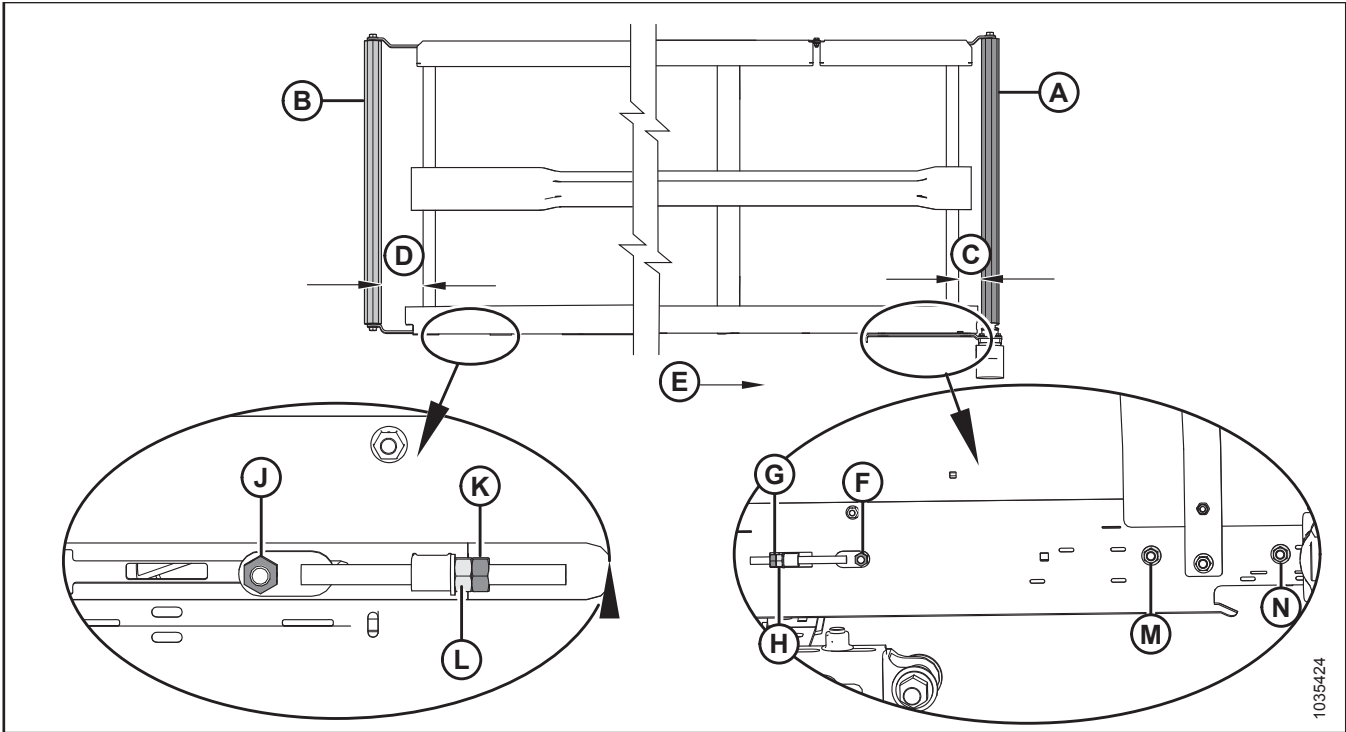
The side draper tracking is adjusted by aligning the drive and idler draper rollers.

**NOTE:**

The left draper deck is shown in the illustrations in this procedure. The right deck is opposite.

**NOTE:**

Some parts were removed from the illustration for clarity.



**Figure 10.15: Draper Tracking Adjustments**

- |                              |                                   |                              |
|------------------------------|-----------------------------------|------------------------------|
| A - Drive Roller             | B - Idler Roller                  | C - Drive Roller Adjust      |
| D - Idler Roller Adjust      | E - Draper Direction              | F - Nut on Drive Roller Side |
| G - Jam Nut for Drive Roller | H - Adjuster Nut for Drive Roller | J - Nut on Idler Roller Side |
| K - Jam Nut for Idler Roller | L - Adjuster Nut for Idler Roller | M - Nut on Drive Roller Side |
| N - Nut on Drive Roller Side |                                   |                              |

1. To determine which roller requires adjustment and which adjustments are necessary, refer to the following table:

**Table 10.3 Draper Tracking**

Tracking	At Location	Adjustment	Method
Backward	Drive roller	Increase C	Tighten adjuster nut (H)
Forward	Drive roller	Decrease C	Loosen adjuster nut (H)
Backward	Idler roller	Increase D	Tighten adjuster nut (L)
Forward	Idler roller	Decrease D	Loosen adjuster nut (L)

2. Adjust drive roller (A) to change C (refer to Table 10.3, page 402) as follows:

- a. Loosen nuts (F), (M), and (N), and jam nut (G).
- b. Turn adjuster nut (H).

## RUNNING UP HEADER

- c. Tighten nuts (F), (M), and (N), and jam nut (G).
3. Adjust idler roller (B) to change **D** (refer to Table [10.3, page 402](#)) as follows:
    - a. Loosen nut (J) and jam nut (K).
    - b. Turn adjuster nut (L).

**NOTE:**

If the draper does not track at the idler roller end after the idler roller adjustment, the drive roller is likely not square to the deck. Adjust the drive roller, and then readjust the idler roller.

- c. Tighten nut (J) and jam nut (K).

## 10.3 Performing Post Run-Up Adjustments

Stop engine and perform post run-up check as listed on the Predelivery Checklist (yellow sheet attached to this instruction *Predelivery Checklist, page 429*) to ensure machine is field-ready.

### DANGER

Never start or move the machine until you are sure all bystanders have cleared the area.

#### 10.3.1 Adjusting Knife

### DANGER

Never start or move the machine until you are sure all bystanders have cleared the area.

1. Shut down the engine, and remove the key from the ignition.
2. Check the guards for signs of heating during run-up due to insufficient clearance between the guard and the knife.
3. Check the gap (C) between knifehead (A) and drive arm (B). There should be 0.2–1.2 mm (1/64–3/64 in.) clearance.
4. If the clearance needs adjustment, loosen bolt (D) and slide arm (B) up or down on the output shaft to achieve the correct clearance.
5. Tighten bolt (D) to 220 Nm (162 lbf-ft).

#### IMPORTANT:

Overgreasing can cause the knife to bend and make contact with the guards closest to the knifehead. Check for signs of excessive heating on first few guards after greasing. If required, relieve some pressure by pressing the check-ball in grease fitting.

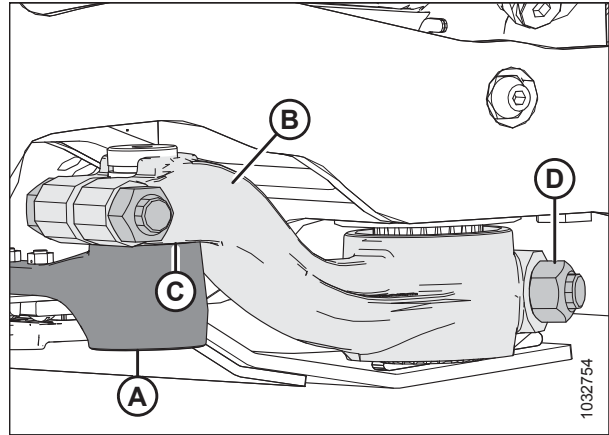


Figure 10.16: Knifehead and Drive Arm

#### 10.3.2 Checking and Adjusting Feed Draper Tension

### DANGER

To avoid bodily injury or death from the unexpected start-up or fall of a raised machine, always stop engine and remove key before leaving the operator's seat, and always engage safety props before going under the machine for any reason.

1. Start the engine. For instructions, refer to the combine operator's manual.
2. Raise the header fully.
3. Shut down the engine, and remove the key from the ignition.
4. Engage the header safety props.
5. Ensure the draper guide (the rubber track on the underside of the draper) is properly engaged in the groove on the drive roller and the idler roller is between the guides.

#### NOTE:

Illustrations show the left side of the float module. The right side is opposite.



## RUNNING UP HEADER

### NOTE:

The default position of spring retainer disc (A) is centered in the U shape on indicator (B); however, the position of the disc varies with draper tracking adjustment at the factory.

6. Check the position of spring retainer disc (A). If the feed draper tracks properly and the spring retainers on both sides of the draper are correctly positioned, then no adjustment is necessary.
7. If adjustment is necessary, proceed to Step 8, page 405.

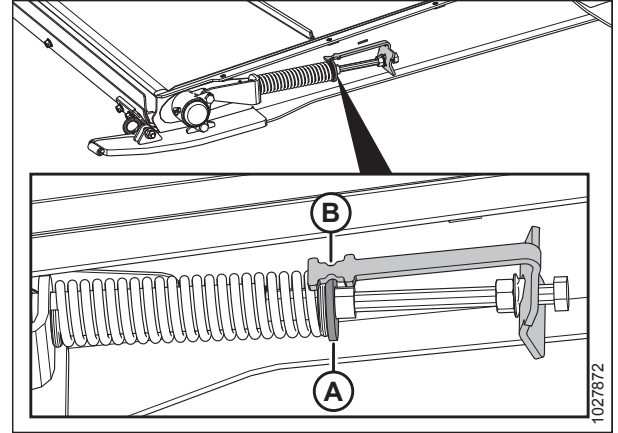


Figure 10.17: Feed Draper Tensioner

### Adjusting draper tension:

8. Adjust the draper tension by loosening jam nut (A) and turning bolt (B) clockwise to increase draper tension or counterclockwise to decrease draper tension. Retainer disc (C) should be in the middle of indicator (D).

### IMPORTANT:

For small tension adjustments, you may need to only adjust one side of the draper. For larger tension adjustments and to avoid uneven draper tracking, you may need to adjust both sides of the draper equally.

9. If the draper is not tracking properly, retainer disc (C) can be adjusted so that it is **NOT** in the middle of indicator (D), but within the following range:
  - Loosened to 3 mm (1/8 in.) Retainer disc (C) will move towards the front of the deck from center of indicator (D).
  - Tightened to 6 mm (1/4 in.) Retainer disc (C) will move towards the back of the deck from the center of indicator (D).

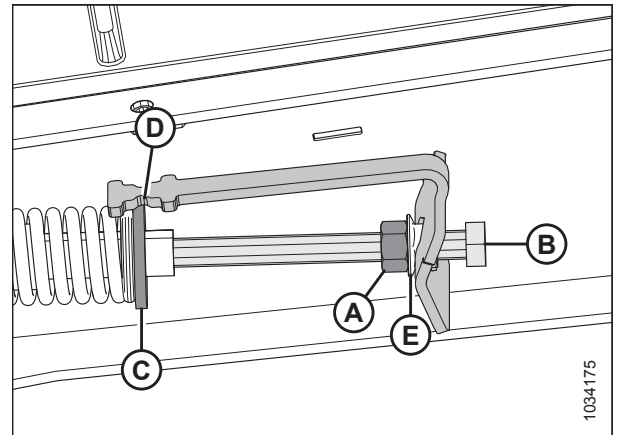


Figure 10.18: Feed Draper Tensioner – Left Side

### IMPORTANT:

For small tension adjustments, you may need to only adjust one side of the draper. For larger tension adjustments and to avoid uneven draper tracking, you may need to adjust both sides of the draper equally.

10. Tighten jam nut (A). Ensure flange nut (E) is tight against the indicator bracket.



# Chapter 11: Reference

Use this section as a source for reference information.

## 11.1 Reel Safety Props

The reel safety props are located on the reel support arms and prevent the reel from unexpectedly lowering.

### DANGER

To avoid bodily injury or death from the unexpected start-up or fall of a raised machine, always stop engine and remove key before leaving the operator's seat, and always engage safety props before going under the machine for any reason.

#### IMPORTANT:

To prevent damage to the reel support arms, do **NOT** transport the header with the reel safety props engaged.

### 11.1.1 Engaging Reel Safety Props

#### *Outer reel arms*

1. Raise reel to maximum height.
2. Lift up on safety prop (A) and push forward to remove prop off hook (B).
3. Lower safety prop (A) and engage on the cylinder shaft as shown. Repeat on the opposite arm.

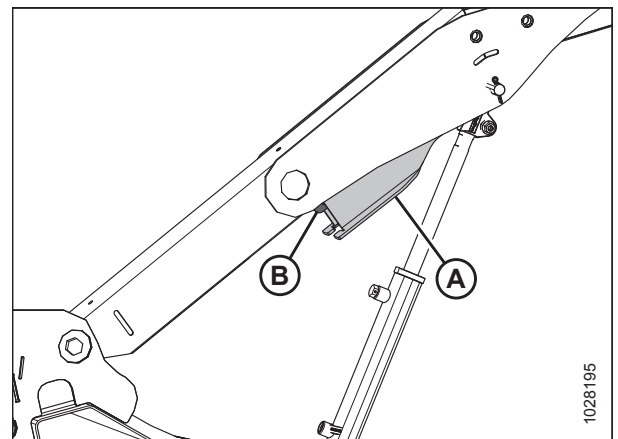


Figure 11.1: Outer Right Arm

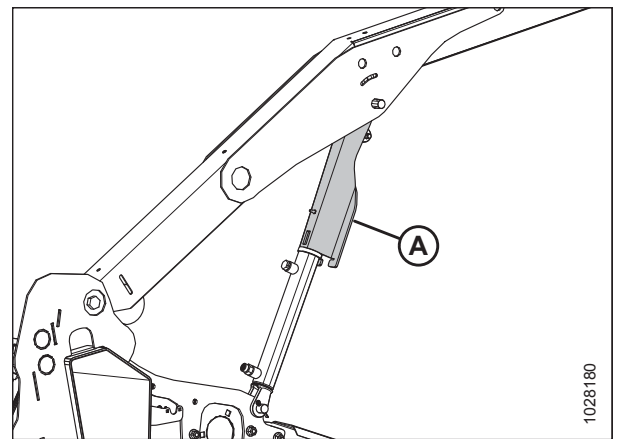


Figure 11.2: Engaged Reel Safety Prop – Outer Right Arm

## REFERENCE

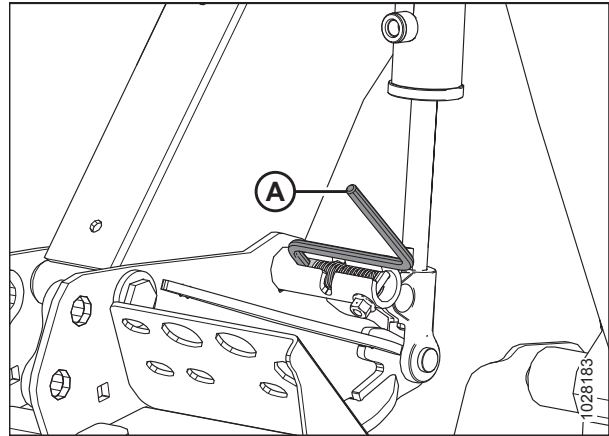
### *Center reel arm*

4. Rotate handle (A) to release the spring tension and allow the spring to guide the pin into the locked position.

#### **NOTE:**

For triple-reel headers, the illustration shows the center right arm. The center left arm is opposite.

5. On triple-reel headers, repeat previous step on the center left arm.
6. Lower reel until safety props contact the outer arm cylinder mounts and the center arm pins.

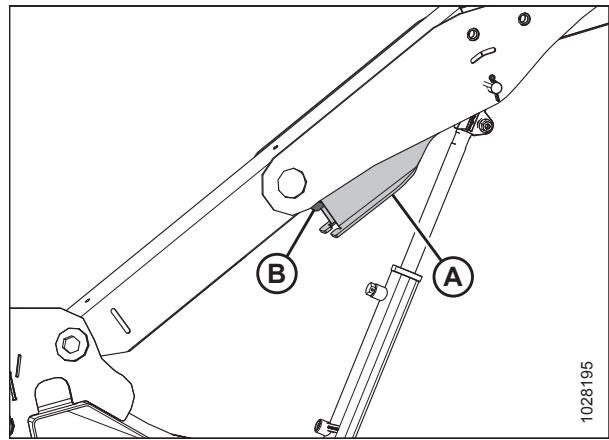


**Figure 11.3: Engaged Reel Safety Prop – Center Arm**

## 11.1.2 Disengaging Reel Safety Props

### *Outer reel arms*

1. Raise the reel to its maximum height.
2. Move reel safety prop (A) up onto hook (B) under the reel arm. Repeat on the opposite arm.



**Figure 11.4: Reel Safety Prop – Right Outer Arm**

## REFERENCE

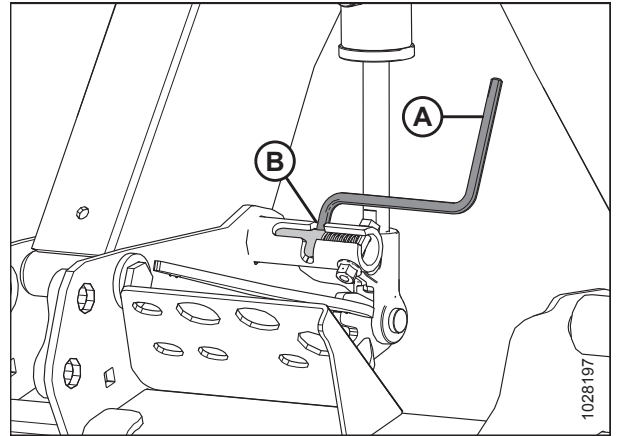
### *Center reel arm*

3. Move handle (A) outboard and into slot (B) to put the pin in the unlocked position.

**NOTE:**

For triple-reel headers, the illustration shows the center right arm. The center left arm is opposite.

4. On triple-reel headers, repeat previous step on the center left arm.



**Figure 11.5: Reel Safety Prop – Center Arm**

## 11.2 Header Endshields

A hinged, polyethylene endshield is fitted on each end of the header.

### 11.2.1 Opening Header Endshields

1. Push release lever (B) using access hole (A) on the backside of the header endshield to unlock the shield.

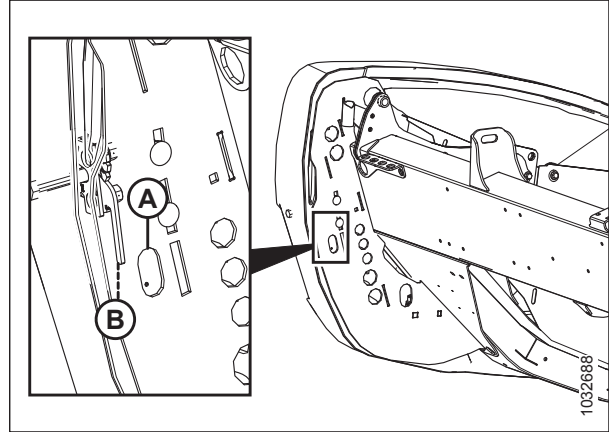


Figure 11.6: Left Header Endshield

2. Pull header endshield (A) open. The header endshield is retained by tab (B) and will open in direction (C).

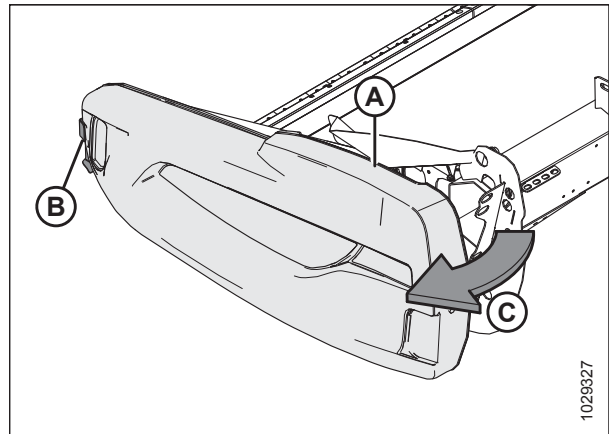


Figure 11.7: Left Header Endshield

3. If additional clearance is required, pull the header endshield free of tab (A) and the swing shield toward the rear of the header.
4. Engage safety latch (B) on hinge arm (C) to secure the shield in the fully open position.

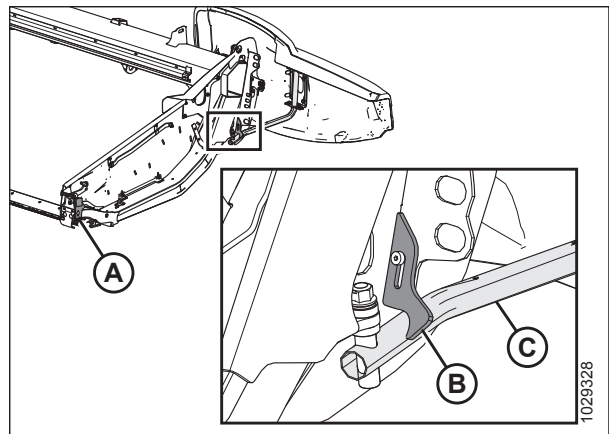


Figure 11.8: Left Header Endshield

### 11.2.2 Closing Header Endshields

1. If the endshield is fully opened and secured behind the header, disengage lock (A) to allow header endshield (B) to move.
2. Rotate header endshield toward the front of the header.

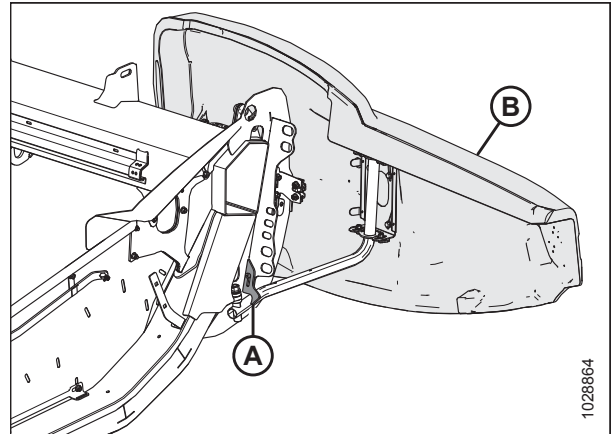


Figure 11.9: Left Header Endshield

3. While closing, ensure header endshield (A) does not contact the top of endsheet (B).

**IMPORTANT:**

The aluminum endsheet will be damaged if the weight of the plastic endshield rests on it.

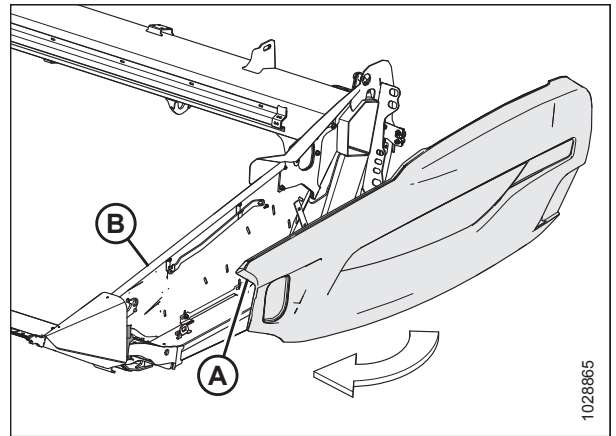


Figure 11.10: Left Header Endshield

4. Insert the front of the header endshield behind hinge tab (B) and into the divider cone.
5. Swing the header endshield in direction (A) into closed position. Engage two-stage latch (C) with a firm push.

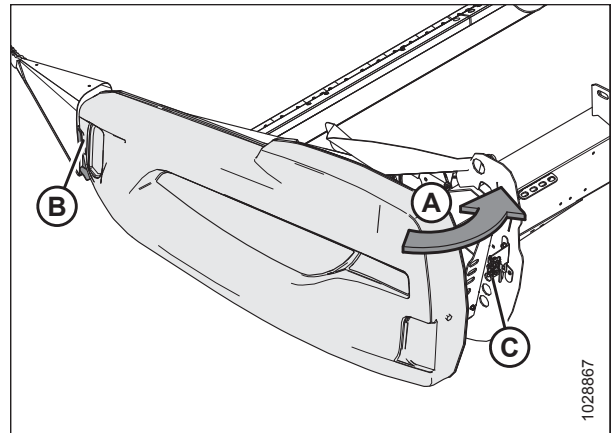


Figure 11.11: Left Header Endshield

## REFERENCE

### IMPORTANT:

Check that the header endshield is locked. Ensure bolt (A) is fully engaged on two-stage latch (B) to prevent the header endshield from opening while operating the header.

### NOTE:

The header endshield is transparent in the illustration to show the latch.

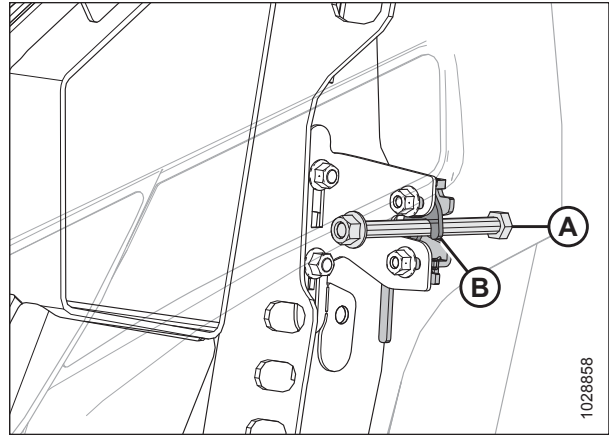


Figure 11.12: Two-Stage Latch



## 11.3 Torque Specifications

The following tables provide correct torque values for various bolts, cap screws, and hydraulic fittings.

- Tighten all bolts to torque values specified in charts (unless otherwise noted throughout this manual).
- Replace hardware with same strength and grade of bolt.
- Use torque value tables as a guide and periodically check tightness of bolts.
- Understand torque categories for bolts and cap screws by using their identifying head markings.

### *Jam nuts*

When applying torque to finished jam nuts, multiply the torque applied to regular nuts by  $f=0.65$ .

### *Self-tapping screws*

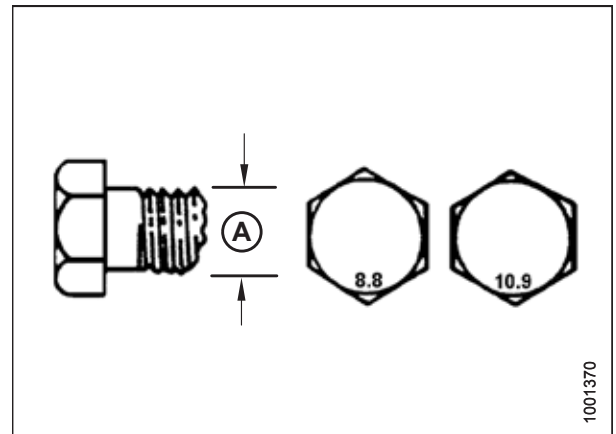
Standard torque is to be used (**NOT** to be used on critical or structurally important joints).

### 11.3.1 Metric Bolt Specifications

Torque values shown in following tables are valid for non-greased, or non-oiled threads and heads; therefore, do **NOT** grease or oil bolts or cap screws unless otherwise specified in this manual.

**Table 11.1 Metric Class 8.8 Bolts and Class 9 Free Spinning Nut**

Nominal Size (A)	Torque (Nm)		Torque (lbf·ft) (*lbf·in)	
	Min.	Max.	Min.	Max.
3-0.5	1.4	1.6	*13	*14
3.5-0.6	2.2	2.5	*20	*22
4-0.7	3.3	3.7	*29	*32
5-0.8	6.7	7.4	*59	*66
6-1.0	11.4	12.6	*101	*112
8-1.25	28	30	20	23
10-1.5	55	60	40	45
12-1.75	95	105	70	78
14-2.0	152	168	113	124
16-2.0	236	261	175	193
20-2.5	460	509	341	377
24-3.0	796	879	589	651



**Figure 11.13: Bolt Grades**

REFERENCE

Table 11.2 Metric Class 8.8 Bolts and Class 9 Distorted Thread Nut

Nominal Size (A)	Torque (Nm)		Torque (lbf·ft) (*lbf·in)	
	Min.	Max.	Min.	Max.
3-0.5	1	1.1	*9	*10
3.5-0.6	1.5	1.7	*14	*15
4-0.7	2.3	2.5	*20	*22
5-0.8	4.5	5	*40	*45
6-1.0	7.7	8.6	*69	*76
8-1.25	18.8	20.8	*167	*185
10-1.5	37	41	28	30
12-1.75	65	72	48	53
14-2.0	104	115	77	85
16-2.0	161	178	119	132
20-2.5	314	347	233	257
24-3.0	543	600	402	444

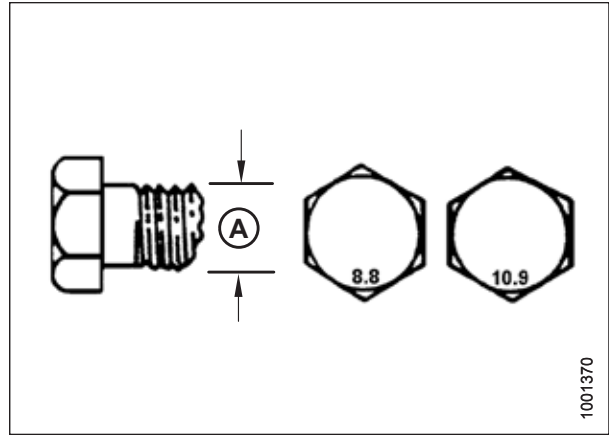


Figure 11.14: Bolt Grades

Table 11.3 Metric Class 10.9 Bolts and Class 10 Free Spinning Nut

Nominal Size (A)	Torque (Nm)		Torque (lbf·ft) (*lbf·in)	
	Min.	Max.	Min.	Max.
3-0.5	1.8	2	*18	*19
3.5-0.6	2.8	3.1	*27	*30
4-0.7	4.2	4.6	*41	*45
5-0.8	8.4	9.3	*82	*91
6-1.0	14.3	15.8	*140	*154
8-1.25	38	42	28	31
10-1.5	75	83	56	62
12-1.75	132	145	97	108
14-2.0	210	232	156	172
16-2.0	326	360	242	267
20-2.5	637	704	472	521
24-3.0	1101	1217	815	901

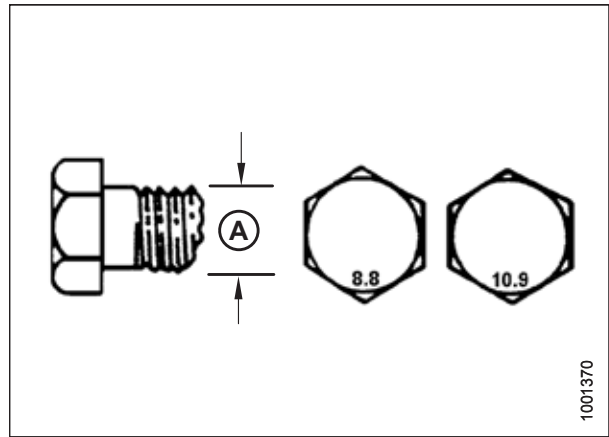


Figure 11.15: Bolt Grades

REFERENCE

Table 11.4 Metric Class 10.9 Bolts and Class 10 Distorted Thread Nut

Nominal Size (A)	Torque (Nm)		Torque (lbf-ft) (*lbf-in)	
	Min.	Max.	Min.	Max.
3-0.5	1.3	1.5	*12	*13
3.5-0.6	2.1	2.3	*19	*21
4-0.7	3.1	3.4	*28	*31
5-0.8	6.3	7	*56	*62
6-1.0	10.7	11.8	*95	*105
8-1.25	26	29	19	21
10-1.5	51	57	38	42
12-1.75	90	99	66	73
14-2.0	143	158	106	117
16-2.0	222	246	165	182
20-2.5	434	480	322	356
24-3.0	750	829	556	614

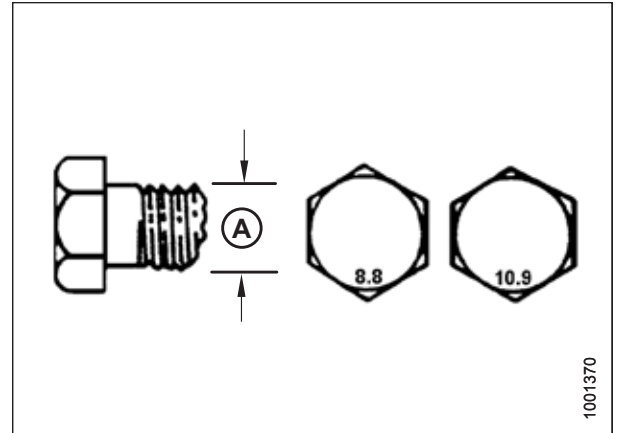


Figure 11.16: Bolt Grades

### 11.3.2 Metric Bolt Specifications Bolting into Cast Aluminum

Torque values shown in following tables are valid for non-greased, or non-oiled threads and heads; therefore, do **NOT** grease or oil bolts or cap screws unless otherwise specified in this manual.

Table 11.5 Metric Bolt Bolting into Cast Aluminum

Nominal Size (A)	Bolt Torque			
	8.8 (Cast Aluminum)		10.9 (Cast Aluminum)	
	Nm	lbf-ft	Nm	lbf-ft
M3	-	-	-	1
M4	-	-	4	2.6
M5	-	-	8	5.5
M6	9	6	12	9
M8	20	14	28	20
M10	40	28	55	40
M12	70	52	100	73
M14	-	-	-	-
M16	-	-	-	-

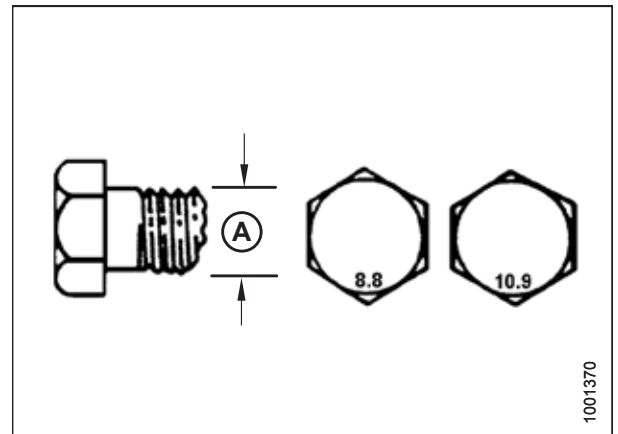


Figure 11.17: Bolt Grades

### 11.3.3 O-Ring Boss Hydraulic Fittings – Adjustable

Torque values are shown in following table below.

1. Inspect O-ring (A) and seat (B) for dirt or obvious defects.
2. Back off lock nut (C) as far as possible. Ensure that washer (D) is loose and is pushed toward lock nut (C) as far as possible.
3. Check that O-ring (A) is **NOT** on threads and adjust if necessary.
4. Apply hydraulic system oil to O-ring (A).

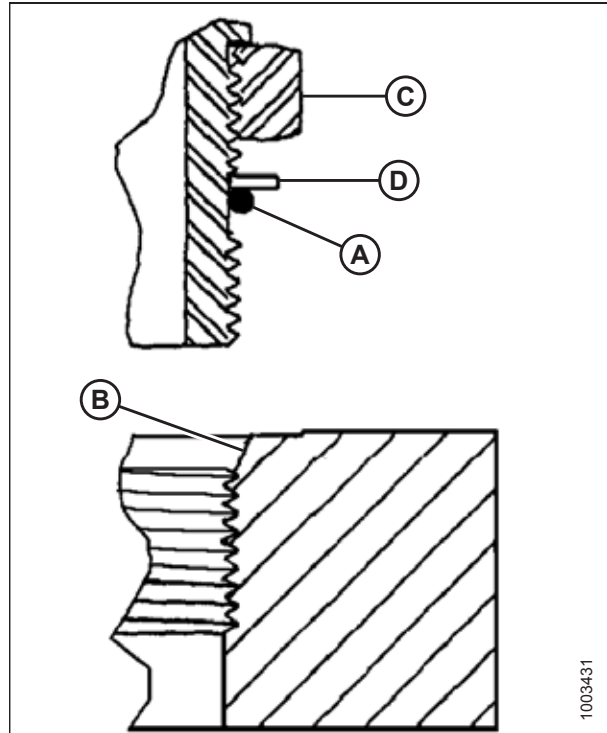


Figure 11.18: Hydraulic Fitting

5. Install fitting (B) into port until backup washer (D) and O-ring (A) contact part face (E).
6. Position the angle fittings by unscrewing no more than one turn.
7. Turn lock nut (C) down to washer (D) and tighten to torque shown. Use two wrenches, one on fitting (B) and other on lock nut (C).
8. Check the final condition of the fitting.

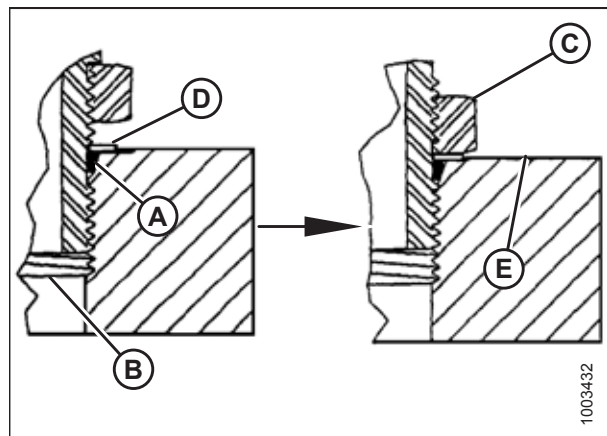


Figure 11.19: Hydraulic Fitting

REFERENCE

Table 11.6 O-Ring Boss (ORB) Hydraulic Fittings – Adjustable

SAE Dash Size	Thread Size (in.)	Torque Value <sup>20</sup>	
		Nm	lbf·ft (*lbf·in)
-2	5/16-24	6-7	*53-62
-3	3/8-24	12-13	*106-115
-4	7/16-20	19-21	14-15
-5	1/2-20	21-33	15-24
-6	9/16-18	26-29	19-21
-8	3/4-16	46-50	34-37
-10	7/8-14	75-82	55-60
-12	1 1/16-12	120-132	88-97
-14	1 3/8-12	153-168	113-124
-16	1 5/16-12	176-193	130-142
-20	1 5/8-12	221-243	163-179
-24	1 7/8-12	270-298	199-220
-32	2 1/2-12	332-365	245-269

20. Torque values shown are based on lubricated connections as in reassembly.

### 11.3.4 O-Ring Boss Hydraulic Fittings – Non-Adjustable

Torque values are shown in following table below.

1. Inspect O-ring (A) and seat (B) for dirt or obvious defects.
2. Check that O-ring (A) is **NOT** on the threads and adjust if necessary.
3. Apply hydraulic system oil to the O-ring.
4. Install fitting (C) into port until the fitting is hand-tight.
5. Torque fitting (C) according to values in Table 11.7, page 418.
6. Check the final condition of the fitting.

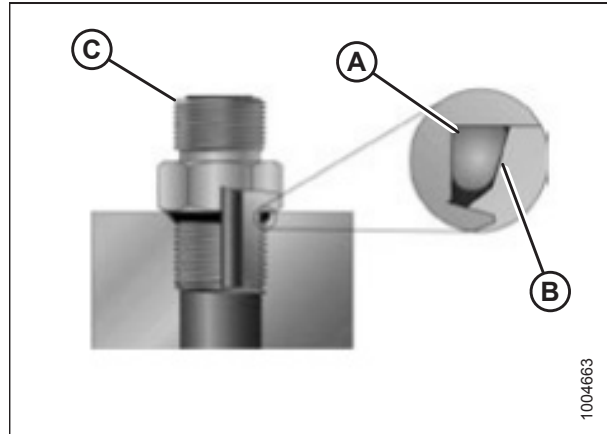


Figure 11.20: Hydraulic Fitting

Table 11.7 O-Ring Boss (ORB) Hydraulic Fittings – Non-Adjustable

SAE Dash Size	Thread Size (in.)	Torque Value <sup>21</sup>	
		Nm	lbf·ft (*lbf·in)
-2	5/16-24	6-7	*53-62
-3	3/8-24	12-13	*106-115
-4	7/16-20	19-21	14-15
-5	1/2-20	21-33	15-24
-6	9/16-18	26-29	19-21
-8	3/4-16	46-50	34-37
-10	7/8-14	75-82	55-60
-12	1 1/16-12	120-132	88-97
-14	1 3/8-12	153-168	113-124
-16	1 5/16-12	176-193	130-142
-20	1 5/8-12	221-243	163-179
-24	1 7/8-12	270-298	199-220
-32	2 1/2-12	332-365	245-269

21. Torque values shown are based on lubricated connections as in reassembly.

### 11.3.5 O-Ring Face Seal Hydraulic Fittings

Torque values are shown in following table below.

1. Check the components to ensure that the sealing surfaces and fitting threads are free of burrs, nicks, scratches, and any foreign material.



Figure 11.21: Hydraulic Fitting

2. Apply hydraulic system oil to O-ring (B).
3. Align the tube or hose assembly so that the flat face of sleeve (A) or (C) comes in full contact with O-ring (B).
4. Thread tube or hose nut (D) until it is hand-tight. The nut should turn freely until it is bottomed out.
5. Torque the fittings according to values in Table 11.8, page 419.

**NOTE:**

If applicable, hold the hex on fitting body (E) to prevent the rotation of fitting body and the hose when tightening fitting nut (D).

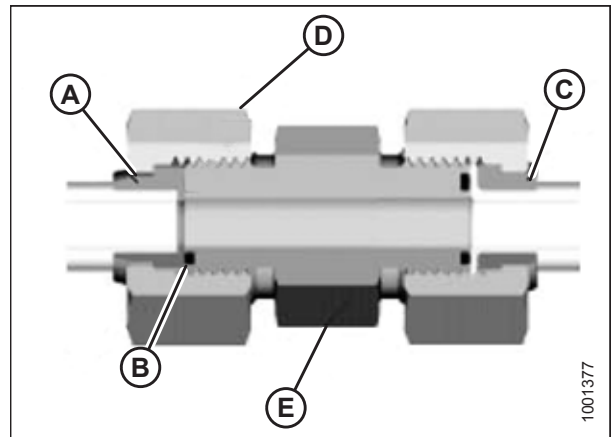


Figure 11.22: Hydraulic Fitting

6. Use three wrenches when assembling unions or joining two hoses together.
7. Check the final condition of the fitting.

**Table 11.8 O-Ring Face Seal (ORFS) Hydraulic Fittings**

SAE Dash Size	Thread Size (in.)	Tube O.D. (in.)	Torque Value <sup>22</sup>	
			Nm	lbf-ft
-3	Note <sup>23</sup>	3/16	–	–
-4	9/16	1/4	25–28	18–21
-5	Note <sup>23</sup>	5/16	–	–
-6	11/16	3/8	40–44	29–32
-8	13/16	1/2	55–61	41–45

22. Torque values and angles shown are based on lubricated connection as in reassembly.

23. O-ring face seal type end not defined for this tube size.

**REFERENCE**

**Table 11.8 O-Ring Face Seal (ORFS) Hydraulic Fittings (continued)**

SAE Dash Size	Thread Size (in.)	Tube O.D. (in.)	Torque Value <sup>24</sup>	
			Nm	lbf-ft
-10	1	5/8	80–88	59–65
-12	1 3/16	3/4	115–127	85–94
-14	Note <sup>23</sup>	7/8	–	–
-16	1 7/16	1	150–165	111–122
-20	1 11/16	1 1/4	205–226	151–167
-24	1–2	1 1/2	315–347	232–256
-32	2 1/2	2	510–561	376–414

### 11.3.6 Tapered Pipe Thread Fittings

Torque values are shown in following table below.

Assemble pipe fittings as follows:

1. Check components to ensure that the fitting and port threads are free of burrs, nicks, scratches, and any form of contamination.
2. Apply pipe thread sealant (paste type) to the external pipe threads.
3. Thread the fitting into the port until it is hand-tight.
4. Torque the connector to the appropriate torque angle. The turns from finger tight (TFFT) and flats from finger tight (FFFT) values are shown in Table 11.9, page 420. Make sure that the tube end of a shaped connector (typically 45° or 90°) is aligned to receive the incoming tube or hose assembly. Always finish alignment of fitting in the direction of tightening. Never back off (loosen) the pipe threaded connectors to achieve alignment.
5. Clean all the residue and any excess thread conditioner with an appropriate cleaner.
6. Assess the final condition of the fitting. Pay special attention to the possibility of cracks to port opening.
7. Mark the final position of the fitting. If a fitting leaks, disassemble the fitting and check it for damage.

**NOTE:**

Overtorque failure of fittings may not be evident until fittings are disassembled.

**Table 11.9 Hydraulic Fitting Pipe Thread**

Tapered Pipe Thread Size	Recommended TFFT	Recommended FFFT
1/8–27	2–3	12–18
1/4–18	2–3	12–18
3/8–18	2–3	12–18
1/2–14	2–3	12–18
3/4–14	1.5–2.5	12–18

24. Torque values and angles shown are based on lubricated connection as in reassembly.



REFERENCE

Table 11.9 Hydraulic Fitting Pipe Thread (continued)

Tapered Pipe Thread Size	Recommended TFFT	Recommended FFFT
1-11 1/2	1.5-2.5	9-15
1 1/4-11 1/2	1.5-2.5	9-15
1 1/2-11 1/2	1.5-2.5	9-15
2-11 1/2	1.5-2.5	9-15

## 11.4 Header Specifications for Unloading and Assembly

Header dimensions, weight, and spreader bar specifications are provided so that you can choose the correct equipment to lift, tip, or transport the header safely.

### DANGER

Equipment used for unloading must meet or exceed the requirements specified below. Using inadequate equipment may result in chain breakage, vehicle tipping, machine damage or bodily harm to operators or bystanders.

**NOTE:**

When a header and float module are ordered together, they are shipped with the float module already installed in the header.

Refer to the following specifications:

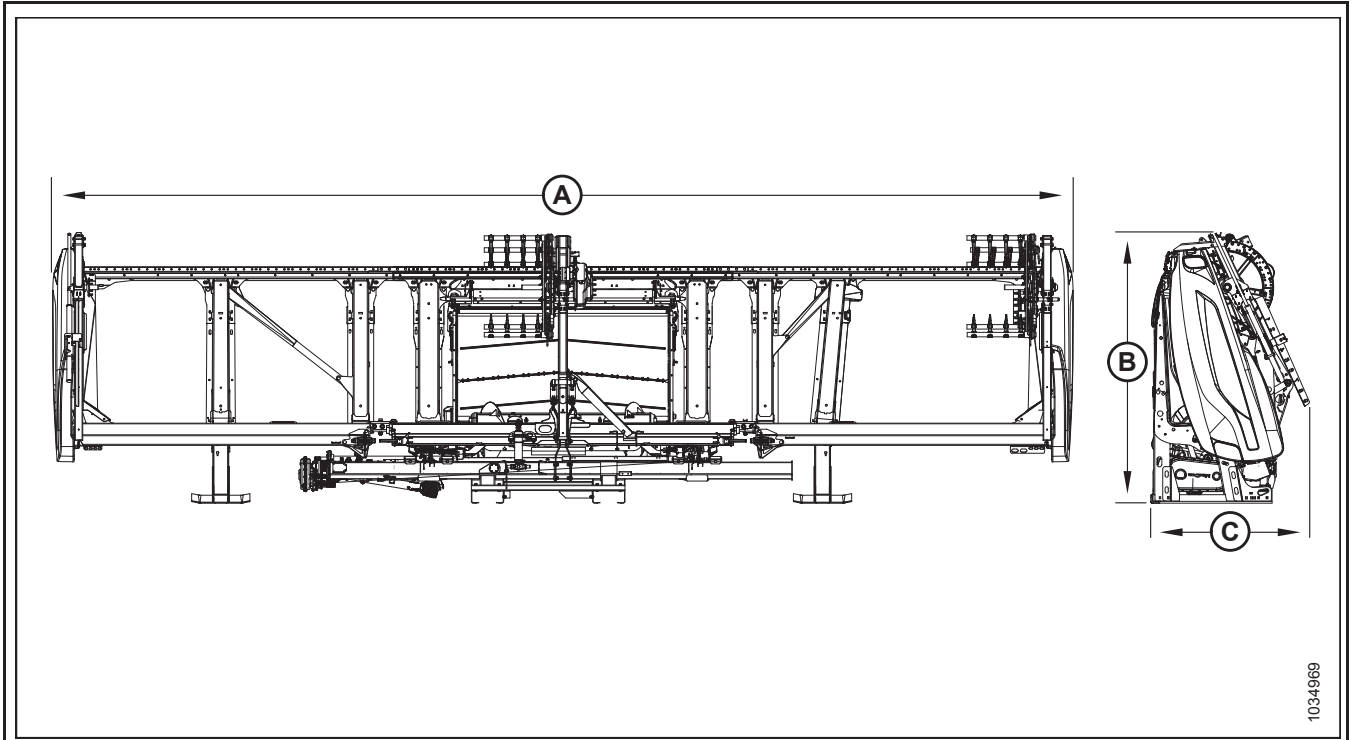
- For header weight, refer to Table [11.10, page 422](#).
- For header dimensions (fully assembled header attached to shipping stands), refer to Table [11.11, page 423](#).
- For spreader bar dimensions (for tipping triple-reel headers over), refer to Table [11.12, page 424](#).

**Table 11.10 Header Weight**

<b>IMPORTANT:</b>	
These are approximate weights for a <b>single header</b> that include the bare header, upper cross auger (UCA), and shipping stands. When additional optional kits are installed, the weight will increase.	
Header Size	Weight
FD230	4446 kg. (9800 lb.)
FD235	4650 kg. (10,250 lb.)
FD240 (Double Reel)	4854 kg. (10,700 lb.)
FD240 (Triple Reel)	4945 kg. (10,900 lb.)
FD245	5217 kg. (11,500 lb.)
FD250	5444 kg (12,000 lb.)

REFERENCE

Table 11.11 Header Dimensions – Fully Assembled and Attached to Shipping Stands



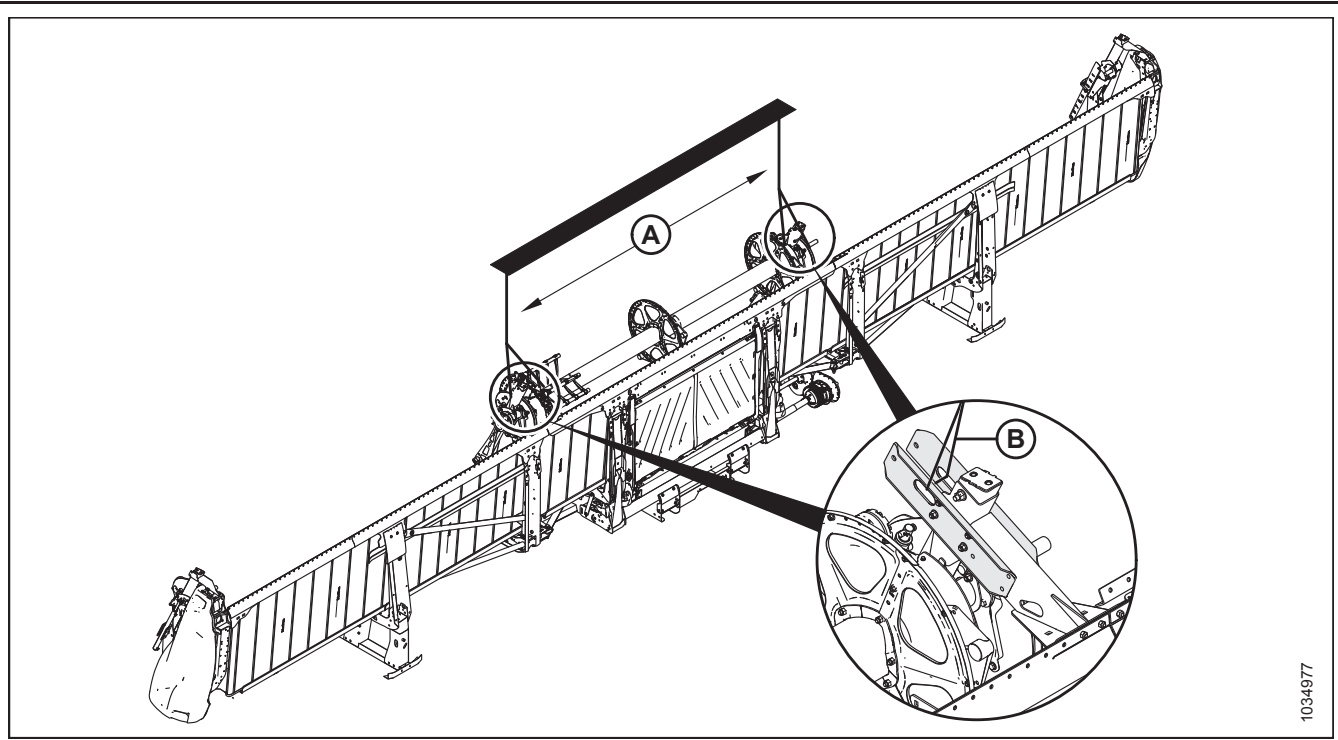
**IMPORTANT:**

These approximate dimensions are provided to help you choose the correct size of vehicle to lift or transport the header. These dimensions assume the header is assembled and attached to the shipping stands.

Header Size	Dimensions		
	A	B	C
FD230	9.6 m (31 ft. 7 in.)	2.6 m (8.4 ft.)	1.5 m (4.9 ft.)
FD235	11.2 m (36 ft. 7 in.)		
FD240	12.7 m (41 ft. 7 in.)		
FD245	14.2 m (46 ft. 7 in.)		
FD250	15.7 m (51 ft. 7 in.)		

REFERENCE

Table 11.12 Spreader Bar Specifications



**IMPORTANT:**

A spreader bar is required to tip an upright **triple-reel** header down to a flat position. The spreader bar must span the distance between the center reel arm supports [dimension (A)]. Route chains (B) through the center reel arm supports. Make sure the spreader bar is capable supporting the weight of the header. Do **NOT** use the spreader bar for any other purpose, such as lifting the header.

Header Size	Dimension (A)
FD240	3048 mm (10 ft.)
FD245	4572 mm (15 ft.)
FD250	4572 mm (15 ft.)

## 11.5 Conversion Chart

Both SI units (including metric) and US customary units (sometimes referred to as standard units) of measurement are used in this manual. A list of those units along with their abbreviations and conversion factors is provided here for your reference.

**Table 11.13 Conversion Chart**

Quantity	SI Units (Metric)		Factor	US Customary Units (Standard)	
	Unit Name	Abbreviation		Unit Name	Abbreviation
Area	hectare	ha	x 2.4710 =	acre	acres
Flow	liters per minute	L/min	x 0.2642 =	US gallons per minute	gpm
Force	Newton	N	x 0.2248 =	pound force	lbf
Length	millimeter	mm	x 0.0394 =	inch	in.
Length	meter	m	x 3.2808 =	foot	ft.
Power	kilowatt	kW	x 1.341 =	horsepower	hp
Pressure	kilopascal	kPa	x 0.145 =	pounds per square inch	psi
Pressure	megapascal	MPa	x 145.038 =	pounds per square inch	psi
Pressure	bar (Non-SI)	bar	x 14.5038 =	pounds per square inch	psi
Torque	Newton meter	Nm	x 0.7376 =	pound feet or foot pounds	lbf-ft
Torque	Newton meter	Nm	x 8.8507 =	pound inches or inch pounds	lbf-in
Temperature	degrees Celsius	°C	(°C x 1.8) + 32 =	degrees Fahrenheit	°F
Velocity	meters per minute	m/min	x 3.2808 =	feet per minute	ft/min
Velocity	meters per second	m/s	x 3.2808 =	feet per second	ft/s
Velocity	kilometers per hour	km/h	x 0.6214 =	miles per hour	mph
Volume	liter	L	x 0.2642 =	US gallon	US gal
Volume	milliliter	mL	x 0.0338 =	ounce	oz.
Volume	cubic centimeter	cm <sup>3</sup> or cc	x 0.061 =	cubic inch	in. <sup>3</sup>
Weight	kilogram	kg	x 2.2046 =	pound	lb.

**REFERENCE**

## 11.6 Definitions

The following terms, abbreviations, and acronyms may be used in this instruction.

Term	Definition
API	American Petroleum Institute
ASTM	American Society of Testing and Materials
Bolt	A headed and externally threaded fastener that is designed to be paired with a nut
Center-link	A hydraulic cylinder link between the header and machine used to change header angle
CGVW	Combined gross vehicle weight
Export header	Header configuration typical outside North America
FD2 Series header	MacDon FD230, FD235, FD240, FD241, FD245, or FD250 FlexDraper® header
FFFT	Flats from finger tight
Finger tight	Finger tight is a reference position where sealing surfaces or components are making contact with each other, and fitting has been tightened to a point where fitting is no longer loose
FM200	Float module used with a FD2 Series FlexDraper® header for combining
FSI	Float setting indicator
GVW	Gross vehicle weight
Hard joint	A joint made with use of a fastener where joining materials are highly incompressible
Hex key	A tool of hexagonal cross-section used to drive bolts and screws that have a hexagonal socket in head (internal-wrenching hexagon drive); also known as an Allen key and various other synonyms
hp	Horsepower
JIC	Joint Industrial Council: A standards body that developed standard sizing and shape for original 37° flared fitting
n/a	Not applicable
North American header	Header configuration typical in North America
NPT	National Pipe Thread: A style of fitting used for low-pressure port openings. Threads on NPT fittings are uniquely tapered for an interference fit
Nut	An internally threaded fastener that is designed to be paired with a bolt
ORB	O-ring boss: A style of fitting commonly used in port openings on manifolds, pumps, and motors
ORFS	O-ring face seal: A style of fitting commonly used for connecting hoses and tubes. This style of fitting is also commonly called ORS, which stands for O-ring seal
SAE	Society of Automotive Engineers
Screw	A headed and externally threaded fastener that threads into preformed threads or forms its own thread into a mating part
Soft joint	A joint made with use of a fastener where joining materials are compressible or experience relaxation over a period of time

## REFERENCE

Term	Definition
Tension	Axial load placed on a bolt or screw, usually measured in Newtons (N) or pounds (lb.)
TFFT	Turns from finger tight
Torque	The product of a force X lever arm length, usually measured in Newton-meters (Nm) or foot-pounds (lb-ft)
Torque angle	A tightening procedure where fitting is assembled to a precondition (finger tight) and then nut is turned farther a number of degrees to achieve its final position
Torque-tension	The relationship between assembly torque applied to a piece of hardware and axial load it induces in bolt or screw
UCA	Upper cross auger
Washer	A thin cylinder with a hole or slot located in the center that is to be used as a spacer, load distribution element, or locking mechanism





# Predelivery Checklist

Perform these checks prior to delivery to your Customer. **Adjustments are normally not required as the machine is factory-assembled and adjusted.** If adjustments are required, refer to the appropriate page number in this manual. The completed checklist should be retained by either the Operator or the Dealer.



## CAUTION

Carefully follow the instructions. Be alert for safety related messages that bring your attention to hazards and unsafe practices.

Header Serial Number:

Float Module Serial Number:

Table .14 FD2 Series FlexDraper® / FM200 Float Module Predelivery Checklist – North America

✓	Item	Reference
	Check for shipping damage or missing parts. Be sure all shipping dunnage is removed.	—
	Check for loose hardware. Tighten to required torque.	<i>11.3 Torque Specifications, page 413</i>
	Check tire pressure (transport/stabilizer option).	<i>7.2 Checking Tire Pressure – Stabilizer Wheels, or Transport with Stabilizer Wheels (Option), page 161</i>
	Check wheel bolt torque (transport/stabilizer option).	<i>7.3 Checking Wheel Bolt Torque – Transport and Stabilizer Wheels, page 162</i>
	Check the lubricant level in the knife drive box.	<i>7.4 Checking Oil Level in Knife Drive Box , page 163</i>
	Check the float module gearbox lube level.	<i>7.5 Checking Oil Level in Header Drive Main Gearbox, page 165</i>
	Check the hydraulic reservoir lube level before and after run-up.	<i>7.7 Checking Oil Level in Hydraulic Reservoir, page 167</i>
	Check if the reel is centered between header endsheets (header in full smile).	<i>7.10 Checking Reel Clearance and Centering Reel, page 177</i>
	Grease all bearings and drivelines.	<i>7.19 Lubricating the Header, page 214</i>
	Check side draper tension.	<i>7.17 Checking and Adjusting Side Draper Tension, page 210</i>
	Check draper seal.	<i>7.18 Checking Draper Seal, page 212</i>
	Check header float.	<i>7.14 Checking and Adjusting Header Float, page 197</i>
	Check wing balance.	<i>7.15 Checking and Adjusting Wing Balance, page 202</i>
	Check wing float lock adjustment / check that top-link is parallel.	<i>7.13 Checking that Top-Link is Parallel, page 195</i>
	Check reel tine to cutterbar clearance.	<i>7.11 Reel Clearance to Cutterbar, page 179</i>
	Check auger flighting to feed pan clearance.	<i>7.16 Adjusting Feed Auger to Pan Clearance, page 207</i>
	Check the knife hold-downs.	<i>7.8 Guard Identification, page 168</i>
	Ensure skid shoes are evenly adjusted and at a setting appropriate for crop.	—

**REFERENCE**

**Table .14 FD2 Series FlexDraper® / FM200 Float Module Predelivery Checklist – North America (continued)**

✓	Item	Reference
	Ensure feeder house variable speed is set to minimum.	—
	Ensure auto header height is calibrated and functioning correctly.	<i>8.1 Auto Header Height Control, page 227</i>
<b>Run-up procedure</b>		<i>10 Running up Header, page 395</i>
	Ensure the reel rotates in the correct direction.	—
	Check hydraulic hose and wiring harness routing for clearance when raising or lowering header and reel.	—
	Ensure the reel lift cylinders can extend fully.	—
	Ensure the reel moves fully fore and aft.	—
	Check knife speed.	<i>10.1 Knife Speed Information, page 398</i>
	Check/adjust side draper tracking	<i>10.2 Adjusting Side Draper Tracking, page 402</i>
<b>Post run-up check. Stop engine.</b>		<i>10.3 Performing Post Run-Up Adjustments, page 404</i>
	Check knife and reel drives for heated bearings.	<i>7.19 Lubricating the Header, page 214</i>
	Check knife sections for discoloration caused by misalignment of components. Adjust hold-downs as required.	<i>10.3.1 Adjusting Knife, page 404</i>
	Check/adjust feed draper tension	<i>10.3.2 Checking and Adjusting Feed Draper Tension, page 404</i>
	Check for hydraulic leaks.	—
	Check fitment of endshields.	<i>7.20 Checking and Adjusting Header Endshields, page 222</i>
	Check that manual storage case contains operator's manual.	<i>7.21 Checking Manuals, page 225</i>

**Date Checked:**

**Checked by:**



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