FD2 Series
FlexDraper® Header with FM200 Float Module

Unloading and Assembly Instructions (North America)

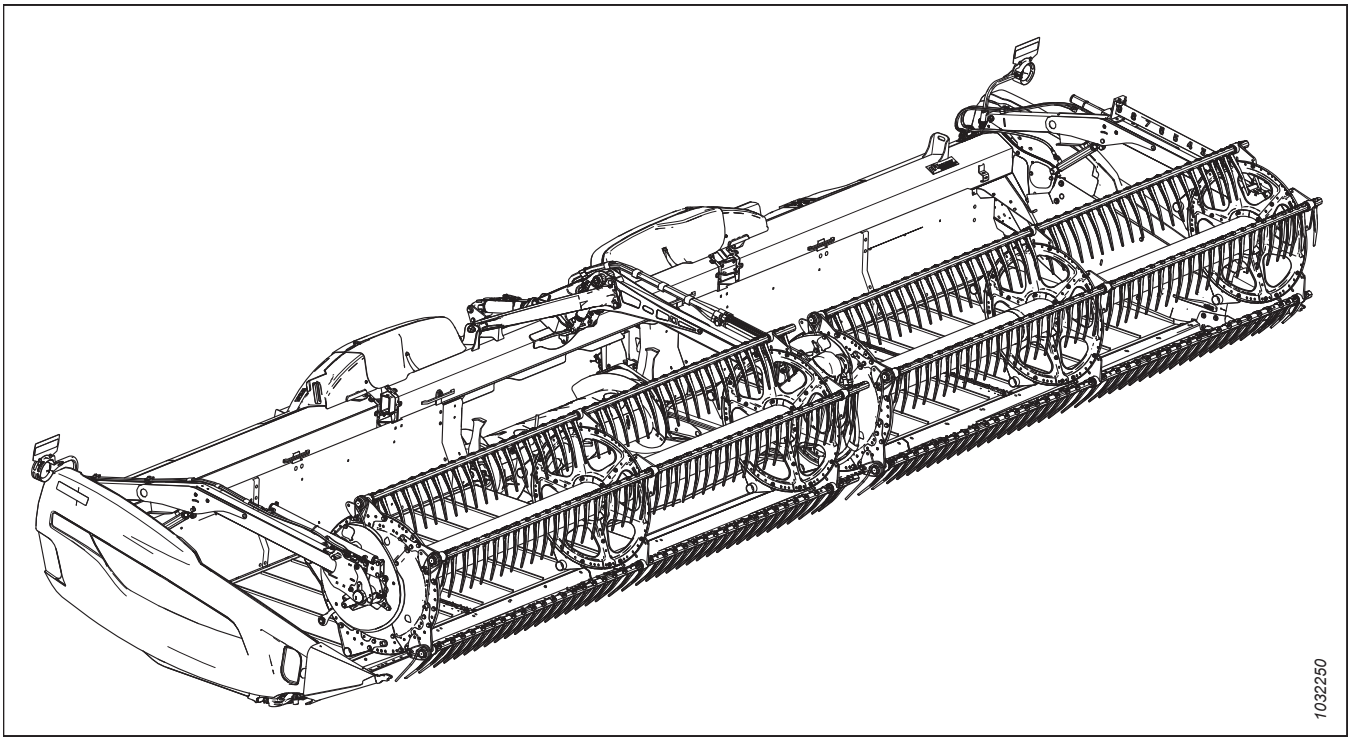
215552 Revision B

Original Instruction

Featuring MacDon FLEX-FLOAT Technology™

The Harvesting Specialists.

FD2 Series FlexDraper® Header



Published: April 2022

Introduction

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

To ensure the best performance from 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.

If the shipment is damaged or is missing parts, contact *shortageanddamage@macdon.com*.

Retain this instruction for future reference.

NOTE:

Keep your MacDon publications up-to-date. The latest version can be downloaded from our website (*www.macdon.com*) or from our Dealer portal (*https://portal.macdon.com*) (login required).

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
—	Removed the unnecessary auger configuration topics.	Product Support
—	Deleted topic titled “Knife Speed Information”. Moved the specifications contained in this topic to:*10.1 Checking Knife Speed, page 426*	Technical Publications
2.4 Removing Upper Cross Auger from Shipping Location – Option, page 16	Added note to avoid damaging deflectors.	Product Support
2.5 Removing Parts from Shipping Location, page 18	Added a note that parts can be removed after the header is lowered to the field position.	Product Support
2.6 Connecting Stop Linkage, page 20	Update images and instructions to reflect new location for shipping tag.	ECN 62665
2.7 Lowering Header to Field Position – Double Reel, page 22	Changed the order so that blocks are placed before header is lowered.	Product Support
2.8 Lowering Header to Field Position – Triple Reel, page 25	Changed the order so that blocks are placed before header is lowered.	Product Support
2.9 Removing Shipping Stands, page 27	Removed steps. Reel tines no longer removed for some North American shipping configurations.	ECN 62497
3.1 Installing Reel Lift Cylinders – Double Reel, page 33	Adjusted knife shield illustration angle, and added steps to installed hardware at right knife cover.	Product Support
3.1 Installing Reel Lift Cylinders – Double Reel, page 33	Added step to tighten hydraulic fittings on center reel lift cylinders.	ECR 30610
3.2 Installing Reel Lift Cylinders – Triple Reel, page 41	Adjusted knife shield illustration angle, and added steps to installed hardware at right knife cover.	Product Support
3.2 Installing Reel Lift Cylinders – Triple Reel, page 41	Added step to tighten hydraulic fittings on center reel lift cylinders.	ECR 30610
3.11 Installing Driveline Connecting Float Module to Combine, page 112	Added driveline support bracket install, and changed order of driveline install.	Product Support
3.13 Installing Driveline – FM200 equipped with Sidehill/Hillside Drivelines MD #B7180, MD #B7181, or MD #B7182, page 116	Update storage location image.	ECN 62076
5.5.1 Attaching Header to John Deere Combine, page 145	Updated images.	ECN 62346 ECN 62076 ECN 62101
5.7.1 Attaching Header to Rostselmash Combine, page 153	Added topic.	ECN 62102
6.1 Installing Clearance Lights, page 157	Added step to shut down the engine.	Publications
6.3 Removing Shipping Supports, page 165	Reordered the steps to remove the shipping straps and bracket.	Product Support
7.7.4 Adjusting Center Hold-Down – Pointed Knife Guards, page 182	Corrected instructions for increasing and decreasing clearance, and updated illustrations.	Product Support
7.7.8 Adjusting Center Hold-Down – Short Knife Guards, page 185	Corrected instructions for increasing and decreasing clearance, and updated illustrations.	Product Support
7.9 Checking Reel Clearance and Centering Reel, page 189	Added illustration of Reel Fore-Aft Indicator.	Engineering

Section	Summary of Change	Internal Use Only
7.11.1 Changing Float Spring Configuration – Float Levers with Two Holes, page 197	Added weights for upper cross auger configurations and corrected vertical knife weight specification.	Product Support
7.11.2 Changing Float Spring Configuration – Float Levers with One Hole, page 202	Corrected header row order in Float Spring Configuration table.	Product Support
7.11.2 Changing Float Spring Configuration – Float Levers with One Hole, page 202	Added weights for upper cross auger configurations and corrected vertical knife weight specification.	Product Support
7.12 Checking and Adjusting Top-Link, page 207	Notable change missed in previous revision: bell crank should be parallel with backtube.	Product Support
Setting up Auto Header Height Control – New Holland CR Series, page 397	Updated combine display image when setting header sub type.	Product Support
Checking Reel Height Sensor Voltages – New Holland CR Series, page 410	Corrected the reel sensor voltage range.	Product Support
Configuring Reel Fore-Aft, Header Tilt, and Header Type – New Holland CR Series, page 414	Added step to turn off the engine.	Product Support
9.1 Checking and Adjusting Reel Height Sensor, page 417	Add tightening instructions to jam nuts on height sensor adjuster rod.	ECN 62563
10.1 Checking Knife Speed, page 426 • Step *5, page 426*	Added IMPORTANT and table.	Product Support Technical Publications
10.1 Checking Knife Speed, page 426 • Step *6, page 426*	Revised step to specify the hydraulic temperature as a range.	Product Support
10.1 Checking Knife Speed, page 426 • Step *9, page 427*	Added NOTE and table.	Product Support
10.3 Adjusting Knife Speed – Fine Adjustment, page 431 • Step *5, page 431*	Added IMPORTANT and table.	Product Support Technical Publications
10.2 Adjusting Knife Speed – Coarse Adjustment, page 428 • Step *6, page 429*	Added IMPORTANT and table.	Product Support Technical Publications
10.2 Adjusting Knife Speed – Coarse Adjustment, page 428 • Step *8, page 429*	Added NOTE and table.	Product Support
10.3 Adjusting Knife Speed – Fine Adjustment, page 431 • Step *7, page 432*	Added NOTE and table.	Product Support
x*10.6 Installing Flex Linkage Covers – FD230, FD235, and FD240, page 437*	Replace snap rivet with Torx screw.	ECN 61442
10.7 Installing Flex Linkage Covers – FD245 and FD250, page 441	Replace snap rivet with Torx screw.	ECN 61442

Chapter 1: Safety

Understanding and consistently following these safety procedures will help to ensure the safety of those operating the machine and of bystanders.

1.1 Safety Alert Symbols

The safety alert symbol indicates important safety messages in this manual and on safety signs on the machine.

This symbol means:

- **ATTENTION!**
- **BECOME ALERT!**
- **YOUR SAFETY IS INVOLVED!**

Carefully read and follow the safety message accompanying this symbol.

Why is safety important to you?

- Accidents disable and kill
- Accidents cost
- Accidents can be avoided

Figure 1.1: Safety Symbol

1.2 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.

1.3 General Safety

Protect yourself when assembling, operating, and servicing machinery.

CAUTION

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

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

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

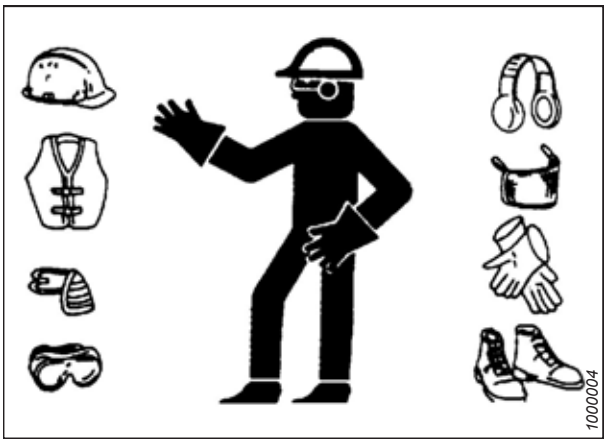


Figure 1.2: Safety Equipment

In addition, take the following precautions:

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

Figure 1.3: Safety Equipment

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

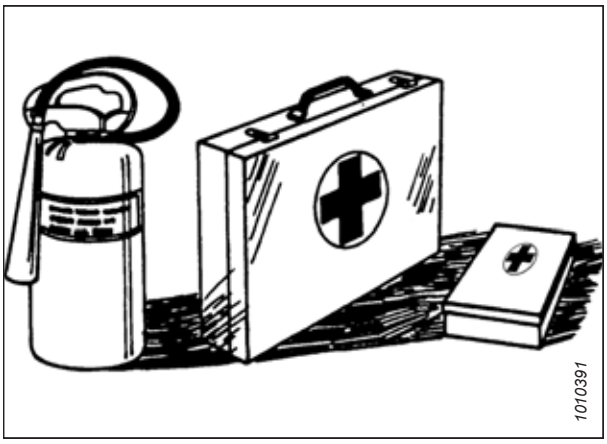


Figure 1.4: Safety Equipment

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

Figure 1.5: Safety around Equipment

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

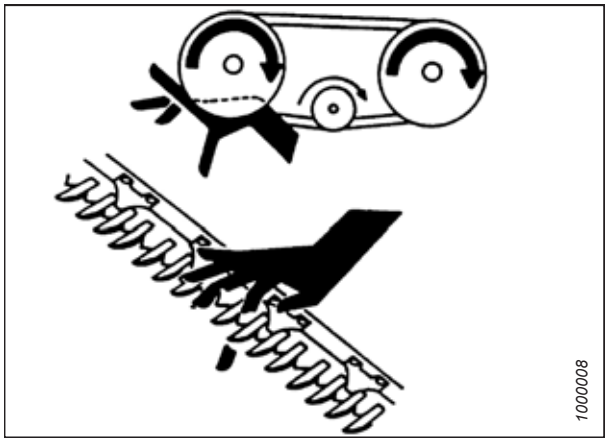


Figure 1.6: Safety around Equipment

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

Figure 1.7: Safety around Equipment

1.4 Maintenance Safety

Protect yourself when maintaining machinery.

To ensure your safety while maintaining the machine:

- Review the operator's manual and all safety items before operating or performing maintenance on the machine.
- Place all controls in Neutral, stop the engine, set the parking brake, remove the ignition key, and wait for all moving parts to stop before servicing, adjusting, or repairing the machine.
- Follow good shop practices:
  - Keep service areas clean and dry
  - Ensure that electrical outlets and tools are properly grounded
  - Keep the work area well lit

Figure 1.8: Safety around Equipment

- Relieve pressure from hydraulic circuits before servicing and/or disconnecting the machine.
- Ensure that all components are tight and that steel lines, hoses, and couplings are in good condition before applying pressure to hydraulic systems.
- Keep hands, feet, clothing, and hair away from all moving and/or rotating parts.
- Clear the area of bystanders, especially children, when carrying out any maintenance, repairs, or adjustments.
- Install the transport lock or place safety stands under the frame before working under the machine.
- If more than one person is servicing the machine at the same time, be aware that rotating a driveline or another mechanically driven component by hand (for example, accessing a lubricant fitting) will cause drive components in other areas (belts, pulleys, and knives) to move. Stay clear of driven components at all times.
- Wear protective gear when working on the machine.
- Wear heavy gloves when working on knife components.

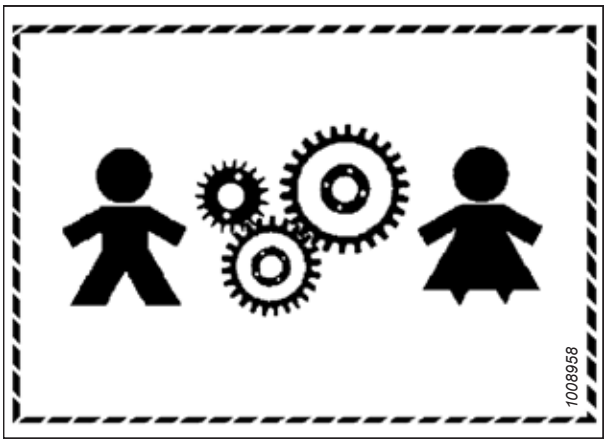


Figure 1.9: Equipment is NOT Safe for Children

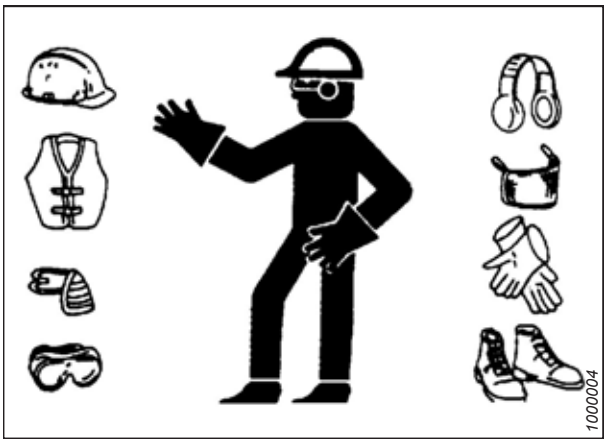


Figure 1.10: Safety Equipment

1.5 Hydraulic Safety

Protect yourself when assembling, operating, and servicing hydraulic components.

- Always place all hydraulic controls in Neutral before leaving the operator's seat.
- Make sure that all components in the hydraulic system are kept clean and in good condition.
- Replace any worn, cut, abraded, flattened, or crimped hoses and steel lines.
- Do **NOT** attempt any makeshift repairs to hydraulic lines, fittings, or hoses by using tapes, clamps, cements, or welding. The hydraulic system operates under extremely high pressure. Makeshift repairs can fail suddenly and create hazardous conditions.

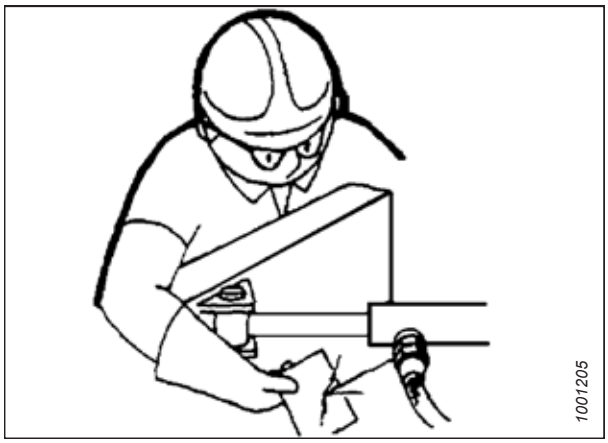


Figure 1.11: Testing for Hydraulic Leaks

- Wear proper hand and eye protection when searching for high-pressure hydraulic fluid leaks. Use a piece of cardboard as a backstop instead of your hands to isolate and identify a leak.
- If injured by a concentrated, high-pressure stream of hydraulic fluid, seek medical attention immediately. Serious infection or toxic reaction can develop from hydraulic fluid piercing the skin.

Figure 1.12: Hydraulic Pressure Hazard

- Ensure that all components are tight and that steel lines, hoses, and couplings are in good condition before applying pressure to a hydraulic system.

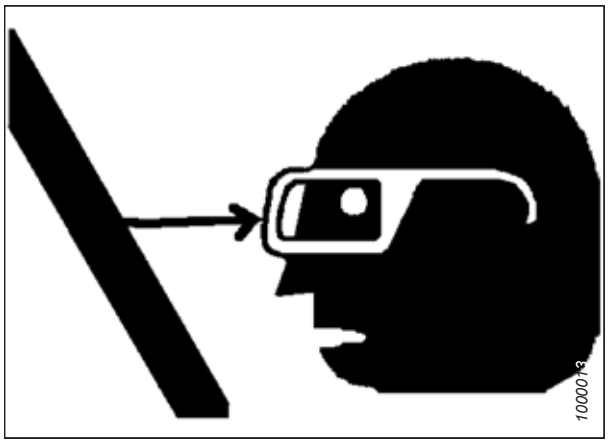


Figure 1.13: Safety around Equipment

1.6 Safety Signs

Safety signs are decals placed on the machine where there is a risk of personal injury, or where the Operator should take extra precautions before operating the controls. They are usually yellow.

- 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, ensure that the repair part displays the current safety sign.

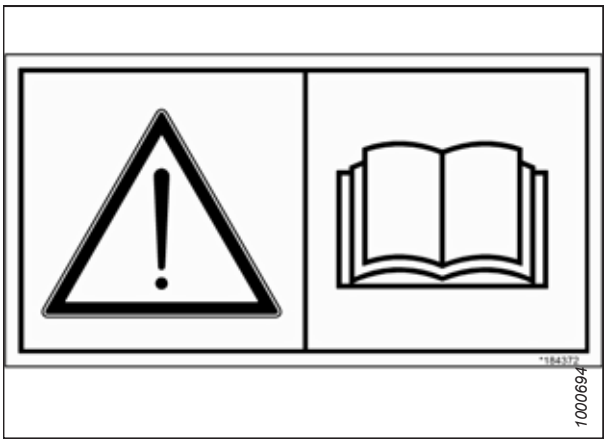


Figure 1.14: Operator's Manual Decal

1.6.1 Installing Safety Decals

Replace any safety decals that are worn or damaged.

1. Decide exactly where you are going to place the decal.
2. Clean and dry the installation area.
3. Remove the smaller portion of the split backing paper.
4. Place the decal in position and slowly peel back the remaining paper, smoothing the decal as it is applied.
5. Prick small air pockets with a pin and smooth them out.

Chapter 2: Unloading Header

Unload all header parts before beginning assembly. Carefully follow these procedures in the order in which they are presented.

2.1 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

The equipment used for loading or unloading a header must meet or exceed the requirements specified in this document. 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:

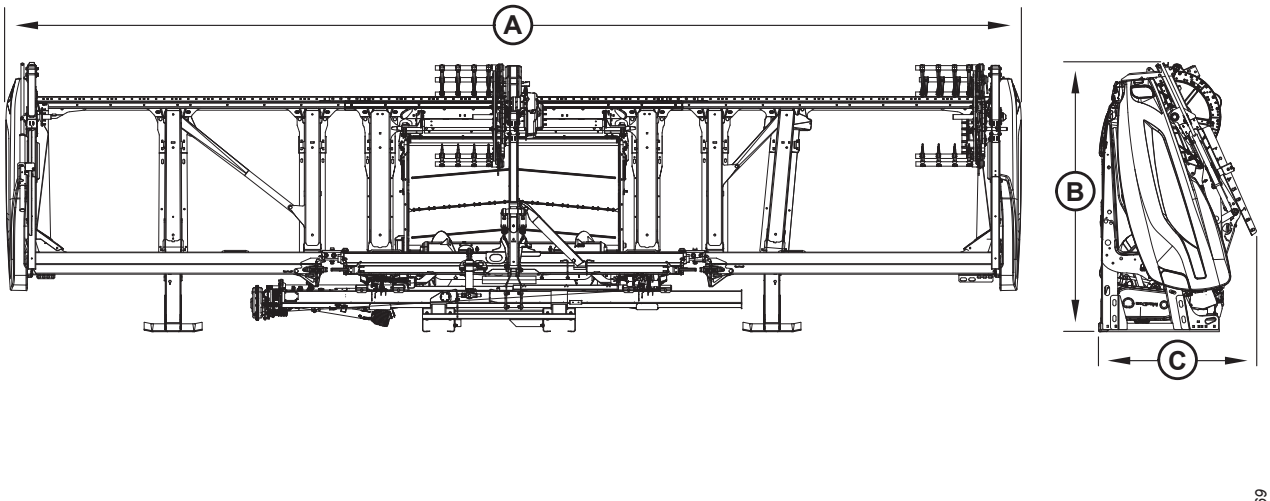
- For header weight, refer to Table *2.1, page 9*.
- For header dimensions (fully assembled header attached to shipping stands), refer to Table *2.2, page 10*.
- For spreader bar dimensions (for tipping triple-reel headers over), refer to Table *2.3, page 11*.

Table 2.1 Header Weight

IMPORTANT:
These are approximate weights for a **SINGLE HEADER** that include the bare header, upper cross auger (UCA), and shipping stands. When additional optional kits are installed, the weight will increase.

Header Model	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.)

Table 2.2 Header Dimensions – Fully Assembled and Attached to Shipping Stands

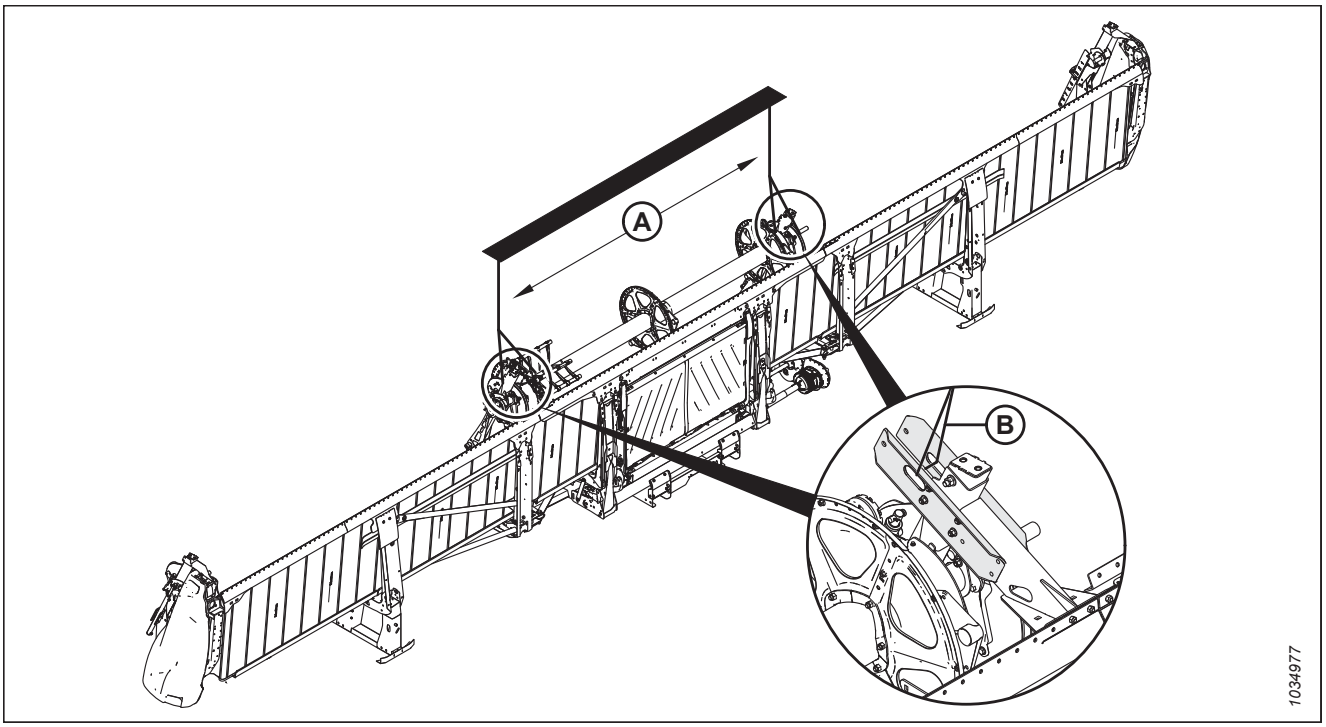


IMPORTANT:

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 Model	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.)		

Table 2.3 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 Model	Dimension (A)
FD240	3048 mm (10 ft.)
FD245	4572 mm (15 ft.)
FD250	4572 mm (15 ft.)

2.2 Unloading Header and Float Module from Trailer – Headers Shipped Flat

Depending on location and number of headers ordered. They may be shipped upright or flat.

DANGER

To prevent injury to bystanders caused by being struck by machinery, do NOT allow people to stand in the unloading area.

DANGER

The equipment used for loading or unloading a header must meet or exceed the requirements specified in this document. Using inadequate equipment may result in chain breakage, vehicle tipping, machine damage or bodily harm to operators or bystanders.

IMPORTANT:

To unload headers shipped flat, the forklift must have minimum 2286 mm (90 in.) fork length to ensure the forks extend beyond the cutterbar.

IMPORTANT:

Forklifts are normally rated with the load centered 610 mm (24 in.) from the back end of forks. To obtain forklift capacity for a load centered at 1220 mm (48 in.), check with your forklift distributor.

Table 2.4 Lifting Vehicle Requirements

Minimum Lifting Capacity	5216 kg (11,500 lb.) load center (A) at 1220 mm (48 in.) (B) from back of forks
Minimum Fork Length (C)	2286 mm (90 in.)

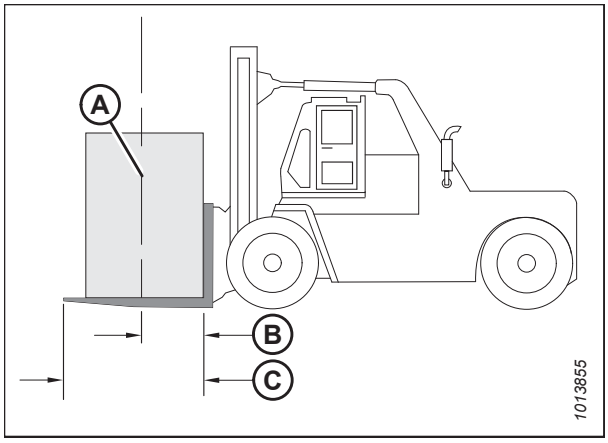


Figure 2.1: Minimum Lifting Capacity

A - Load Center of Gravity
B - Load Center 1220 mm (48 in.) from Back of Forks
C - Minimum Fork Length 2286 mm (90 in.)

1. Move the trailer into position, block the trailer wheels, and lower the trailer storage stands.
2. Approach header from the back and slide forks underneath the float module lower beam structure as far as possible.
3. Remove the hauler's tie-down straps, chains, and wooden blocks.

   IMPORTANT:

   Ensure that forks extend beyond the cutterbar prior to lifting the header. If the forks do not lift at the cutterbar, damage to the header may occur.
4. Slowly raise the header off the trailer deck until the header clears the trailer deck by 102–204 mm (4–8 in.).
5. Maintain adequate clearance between the header and the flat deck when lifting header off of the flat deck.

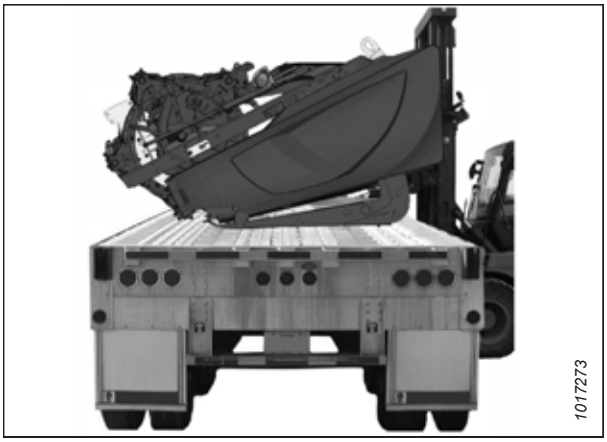


Figure 2.2: Header on Flat Deck

DANGER

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

6. Back up until the header clears the trailer and slowly lower it to 150 mm (6 in.) from the ground.
7. Take the header to the storage or setup area. Ensure the ground is flat and free of rocks or debris that could damage the header.
8. 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.

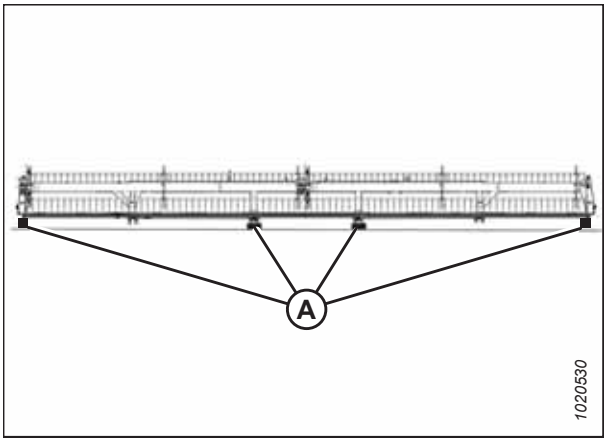


Figure 2.3: Blocks at Each End of Cutterbar

2.3 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 prevent injury to bystanders caused by being struck by machinery, do NOT allow people to stand in the unloading area.

DANGER

The equipment used for loading or unloading a header must meet or exceed the requirements specified in this document. 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 *2.1 Header Specifications for Unloading and Assembly, page 9*.

To unload the headers and float modules 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.

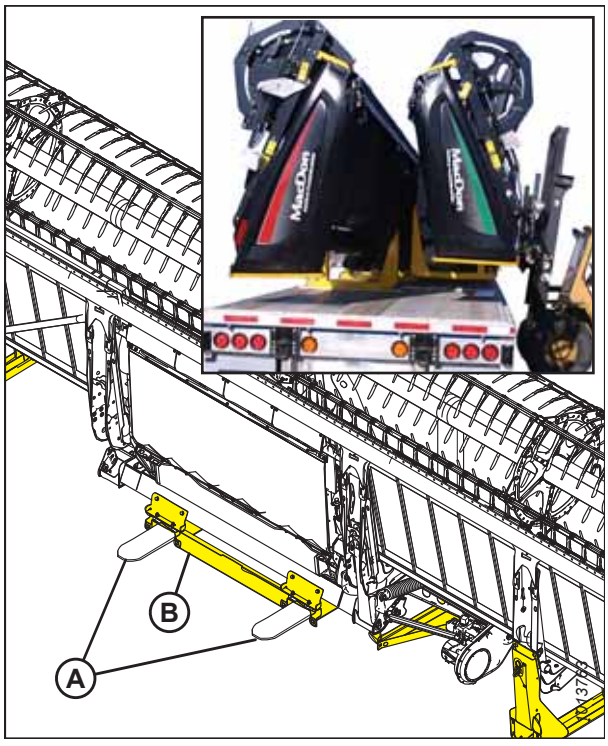


Figure 2.4: Header Shipping Supports

DANGER

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

7. Back up until the header clears the trailer and slowly lower it to 254 mm (10 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. Repeat the previous steps for unloading the second header.
10. Check for shipping damage and missing parts.

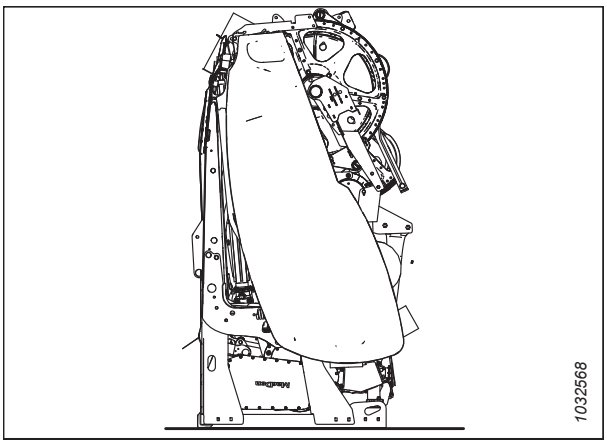


Figure 2.5: Header on Level Ground

2.4 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.

Two-piece UCAs

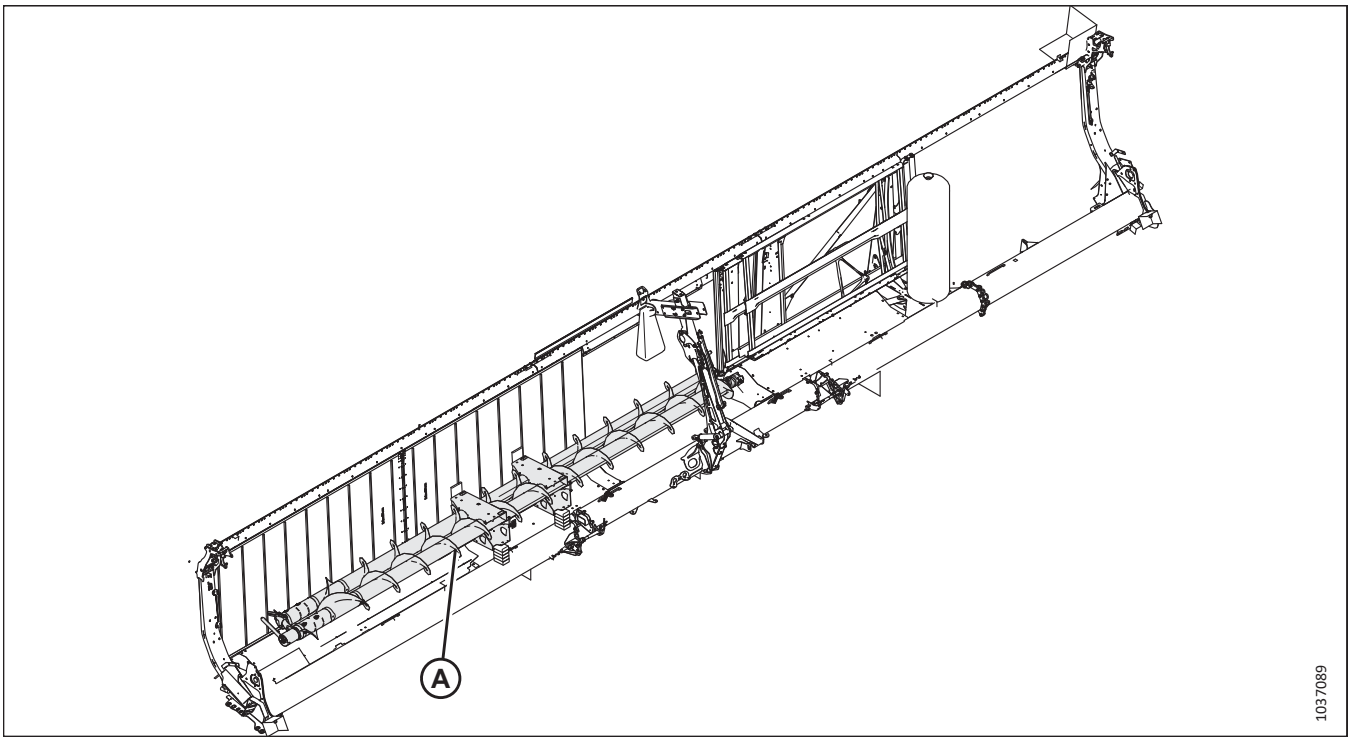


Figure 2.6: Double-Reel Header with Two-Piece Upper Cross Auger (UCA)

1. Remove any banding and blocks securing the two-piece upper cross auger (A) to the header.

   IMPORTANT:

   When positioning a forklift or lifting device under the UCA, avoid damaging the attached aluminum deflectors.

2. Set the UCA aside. It will be installed after the header is assembled.

Three-piece UCAs

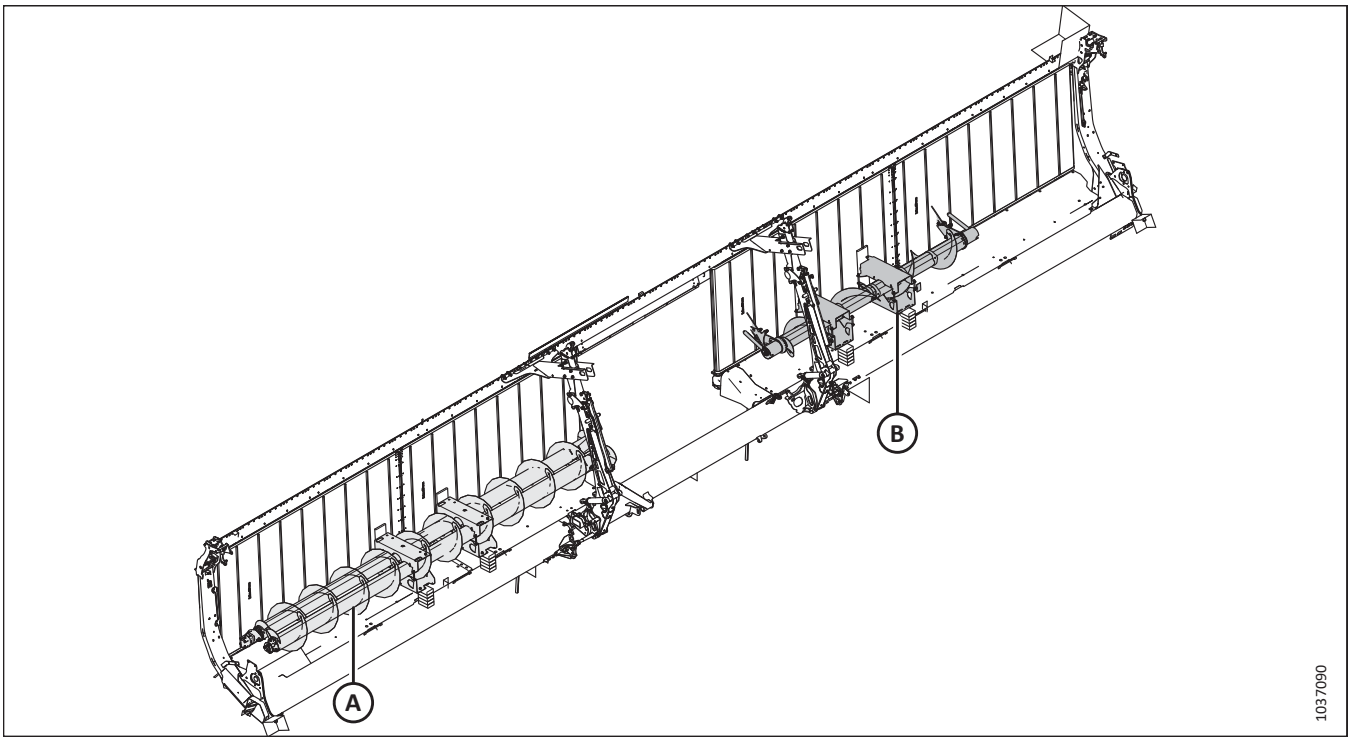


Figure 2.7: Triple Reel Header with Three-Piece Upper Cross Auger (UCA)

NOTE:

The illustration above shows an FD240 header. Three-piece UCAs are shipped in the same position on all triple-reel headers, regardless of where they are being shipped.

1. Remove any banding and blocks securing the three-piece UCA to the header. Two augers shipped attached to the left of the header at location (A). The third auger is attached at location (B).

2. Set the UCA aside. It will be installed after the header is assembled.

2.5 Removing Parts from Shipping Location

Remove the parts that need to be installed from their shipping locations.

NOTE:

Parts can also be removed after the header is lowered to the field position.

1. Remove left clearance light (A) and set aside for installation.

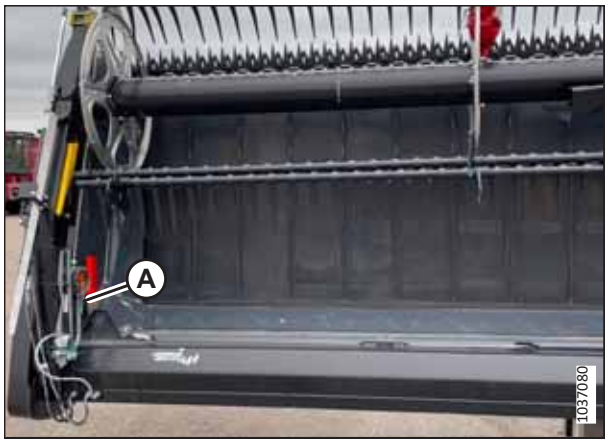


Figure 2.8: Removed Parts

2. Remove left flex linkage covers (A) from the reel tube and set aside for installation.

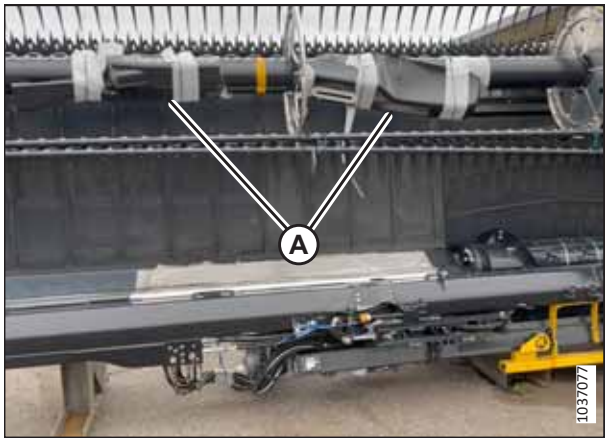


Figure 2.9: Removed Parts

3. Remove right flex linkage covers (A) from the reel tube and set aside for installation.
4. Remove parts box (B) from the reel tine tubes and set aside for installation
5. Remove driveline (C) attached to the center reel arm support

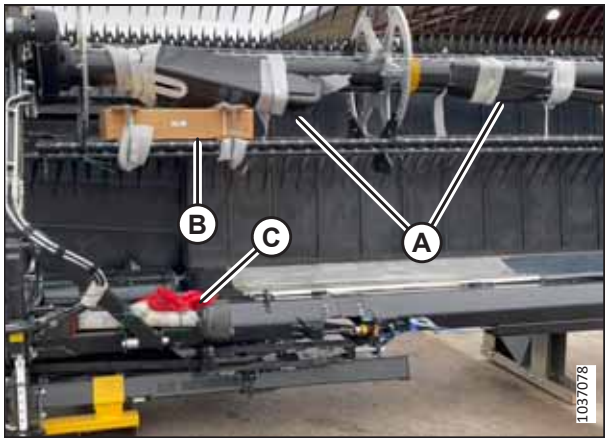


Figure 2.10: Removed Parts

6. Remove reel endshield bags (A) from the cutterbar and set aside for installation.
7. Remove right clearance light (B) and set aside for installation.

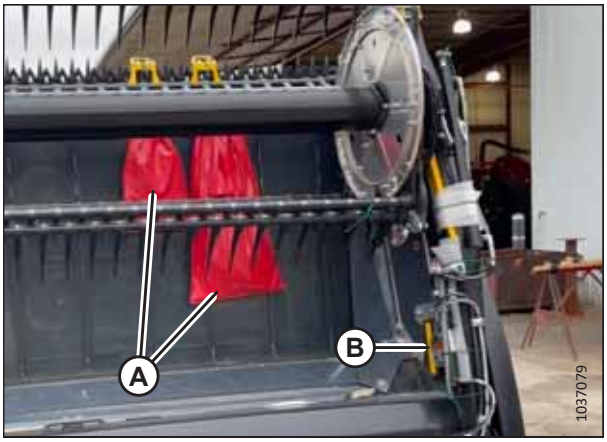


Figure 2.11: Removed Parts

2.6 Connecting Stop Linkage

The stop linkage parts need to be moved from the shipping location and installed on the header.

1. Remove and discard bolt (A) and nut (B) along with shipping tag (C) and the two (C-shaped) retainer plates secured by the bolt.

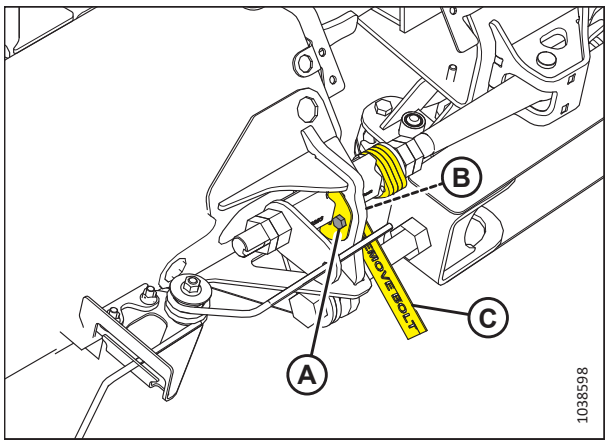


Figure 2.12: Stop Linkage – Left Side

2. Loosen jam nut (A) and nut (B).
3. Remove the stack of moon-shaped washers (C).

   IMPORTANT:

   Do **NOT** adjust the two inboard jam nuts. These are set at the factory for correct frame alignment.

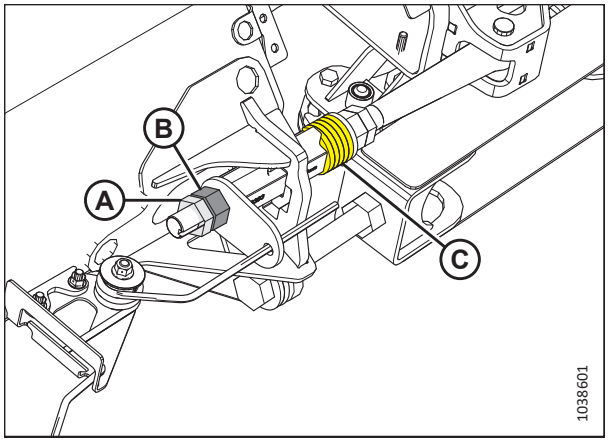


Figure 2.13: Stop Linkage – Left Side

4. Use a forklift to gently push shipping stand (A) under the header wing to close the gap left where the moon-shaped washers were located.

CAUTION

Using the stop linkage nuts to close up gap may cause damage to the stop linkage threads.

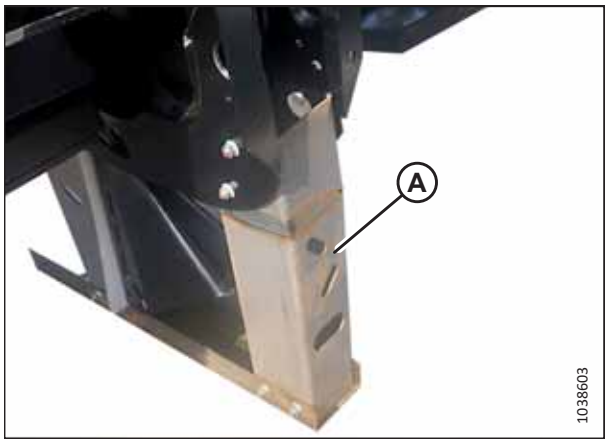


Figure 2.14: Shipping Stand– Left Side

5. Tighten nut (A) to 200 Nm (148 lbf·ft).
6. Hold nut (A), and tighten jam nut (B) to 200 Nm (148 lbf·ft).
7. Ensure that stop linkage spring lock (C) is in the locked position.

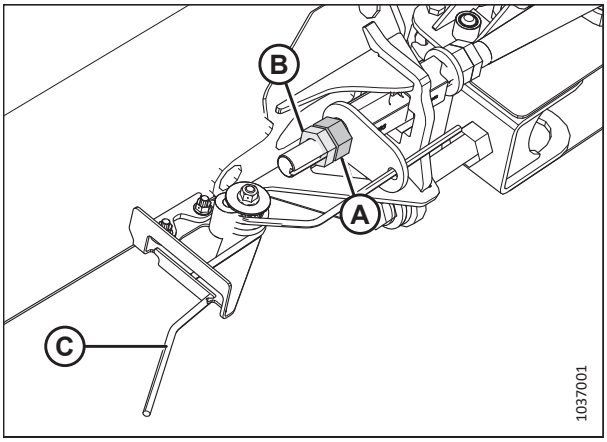


Figure 2.15: Stop Linkage – Left Side

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

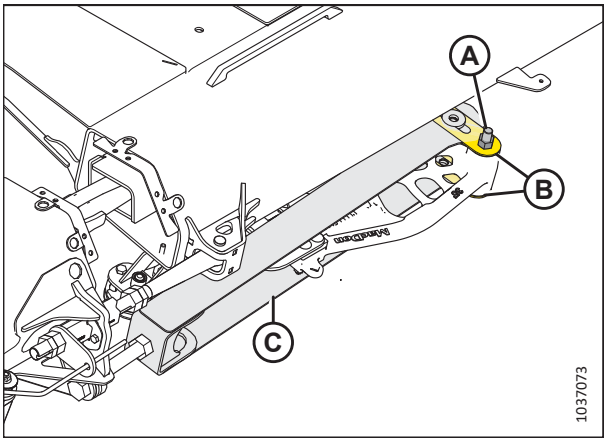


Figure 2.16: Top-Link

10. Retrieve M16 flange locknut (MD #152520) from the parts bag.
11. Position top-link (C) 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 *9, page 21*) and new flange locknut (A) (MD #152520). Tighten to 225 Nm (166 lbf·ft).
12. Repeat procedure on the opposite side of the header.

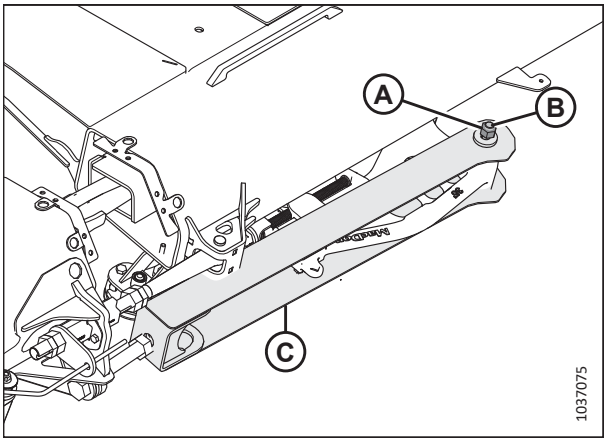


Figure 2.17: Top-Link

2.7 Lowering Header to Field Position – Double Reel

When the header is shipped upright, it needs to be lower to field position.

DANGER

The equipment used for loading or unloading a header must meet or exceed the requirements specified in this document. 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 *2.1 Header Specifications for Unloading and Assembly, page 9*.

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

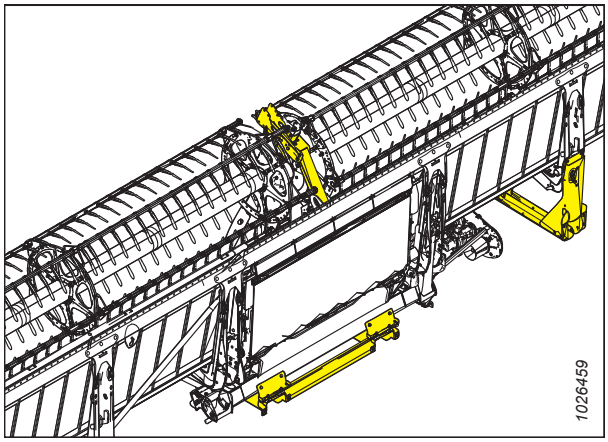


Figure 2.18: Underside of Header

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.

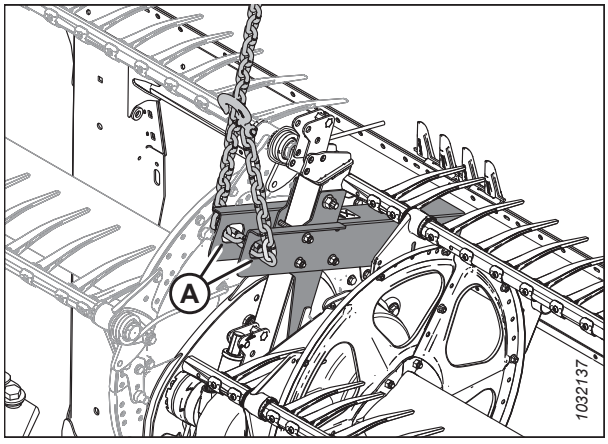


Figure 2.19: Chain Attachment Location – Double Reel

3. Place 254 mm (10 in.) blocks (A) under each end of the header, and one on each side of the float module.

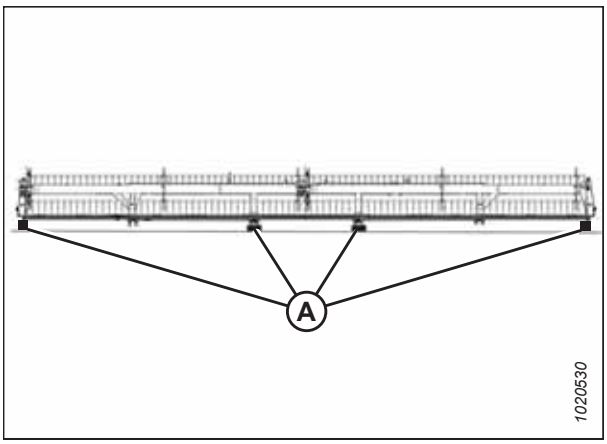


Figure 2.20: Blocks at Each End of Cutterbar

4. Back up **SLOWLY** while lowering forks until header rests on the blocks.

Figure 2.21: Header Lowered to Field Position

5. Remove the chain from both shipping supports.

2.8 Lowering Header to Field Position – Triple Reel

When the header is shipped upright, it needs to be lower to field position.

DANGER

The equipment used for loading or unloading a header must meet or exceed the requirements specified in this document. 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 *2.1 Header Specifications for Unloading and Assembly, page 9*.

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.

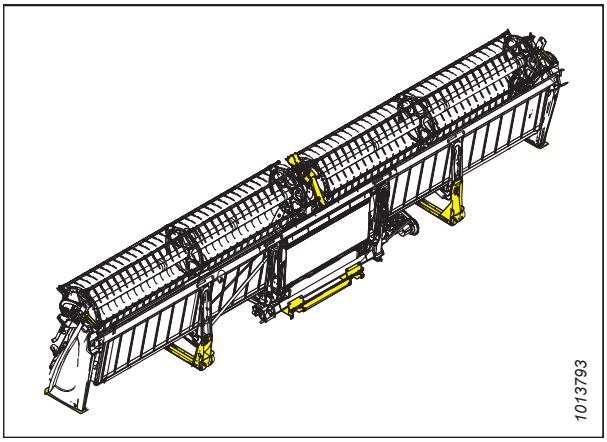


Figure 2.22: Underside of Header

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).

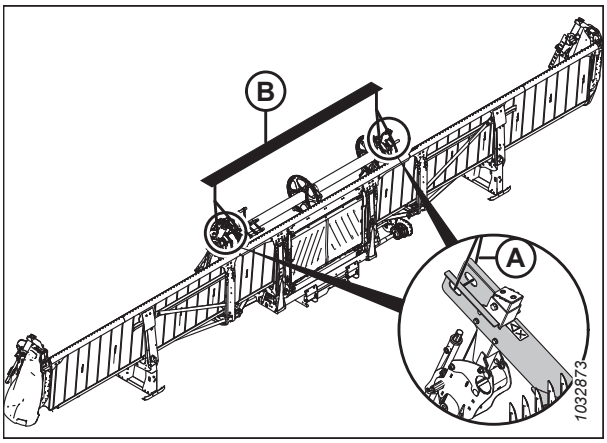


Figure 2.23: Shipping Support – Triple-Reel Header

5. Place 254 mm (10 in.) blocks (A) under each end of the header, and one on each side of the float module.

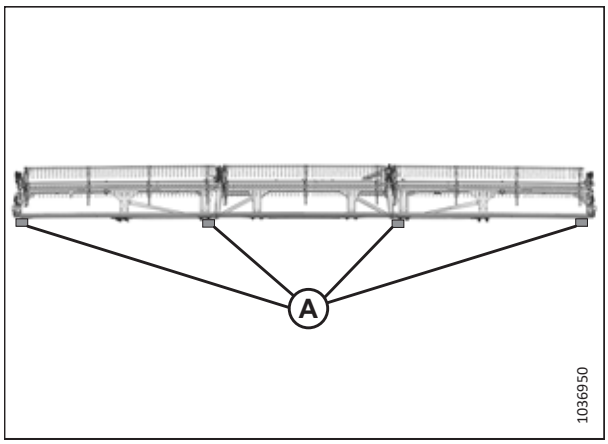


Figure 2.24: Blocks at Each End of Cutterbar

6. Back up **SLOWLY** while lowering spreader bar (A) until the cutterbar rests on the blocks.

   NOTE:

   Keep the tension on the chains as consistent as possible.

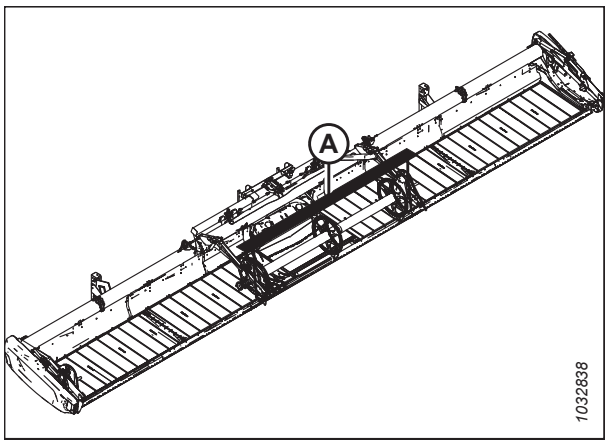


Figure 2.25: Header Lowered

7. Remove the chain from both shipping supports.

2.9 Removing Shipping Stands

Shipping stands prevent damage to the header and float module.

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.

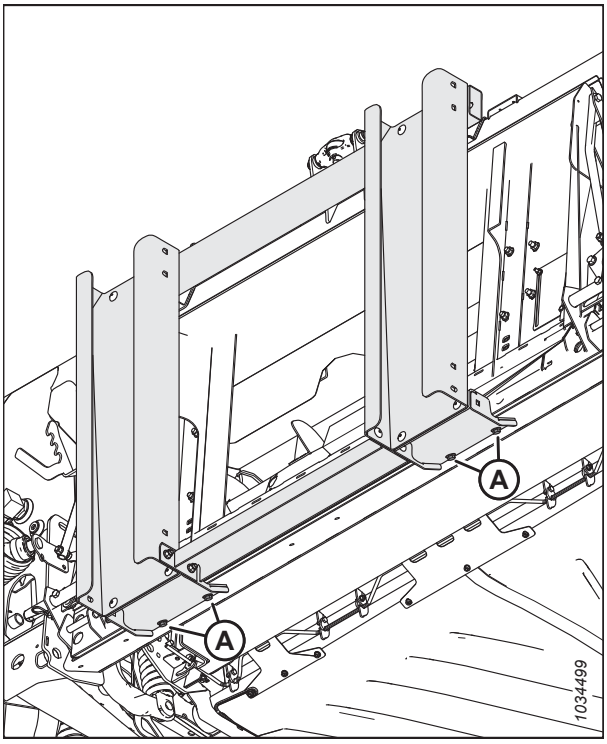


Figure 2.26: Shipping Supports – Bottom Rear of FM200

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

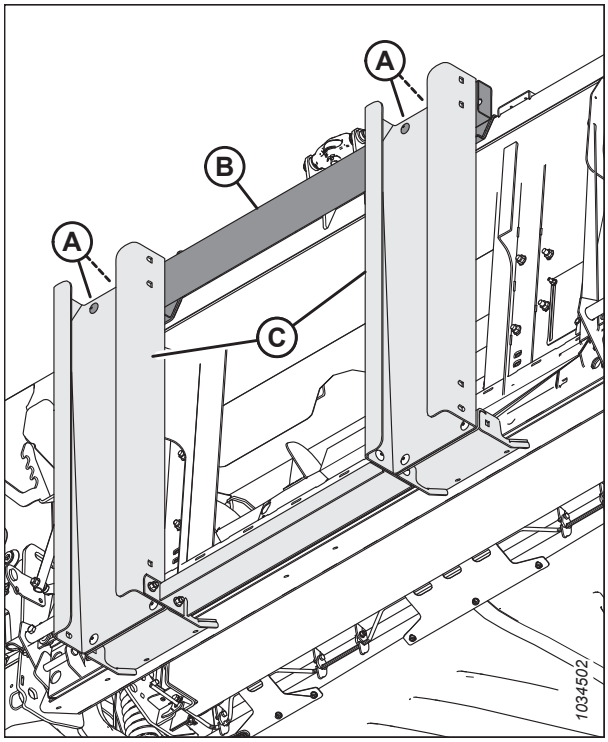


Figure 2.27: Shipping Supports – Bottom Rear of FM200

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

   NOTE:

   Do not remove shipping strap (C), as it is removed after the header is attached to the combine in order to release the load on the bolts by adjusting the tilt cylinder.

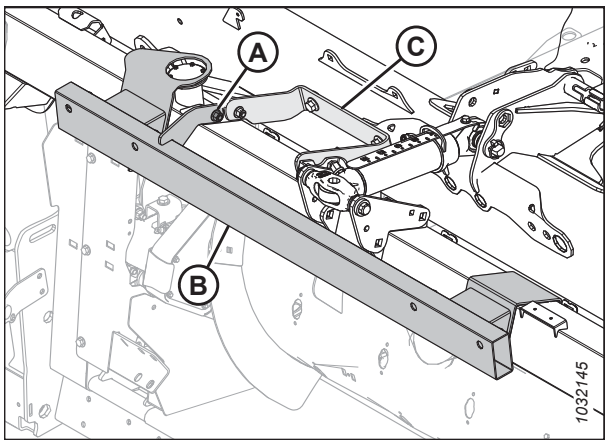


Figure 2.28: FM200 Shipping Supports

6. Remove banding (A), 2 x 4 wood (B), left and right covers (C), and cover hardware bag MD 357088 from the back of the feed auger.

7. Set aside the left and right covers, and the hardware bag MD #357088 for installation later. Discard the banding and wood.

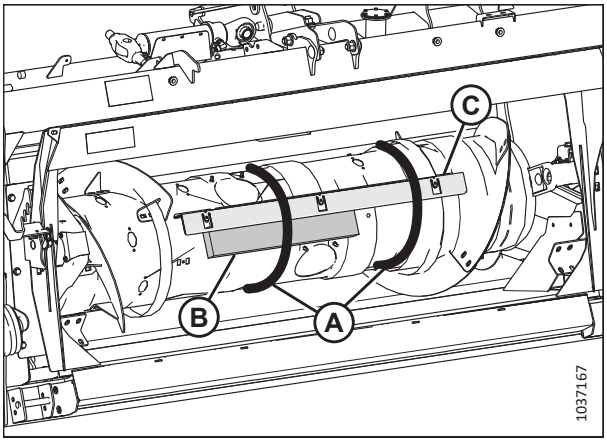


Figure 2.29: Feed Auger

8. Loosen bolt (A) securing divider cone (B) to the header leg shipping stand.

9. Slide the divider cone forward so that the bolt clears the keyhole, and remove divider cone from shipping position.

10. Remove and discard bolt (A).

11. Remove the second divider cone on the opposite shipping stand.

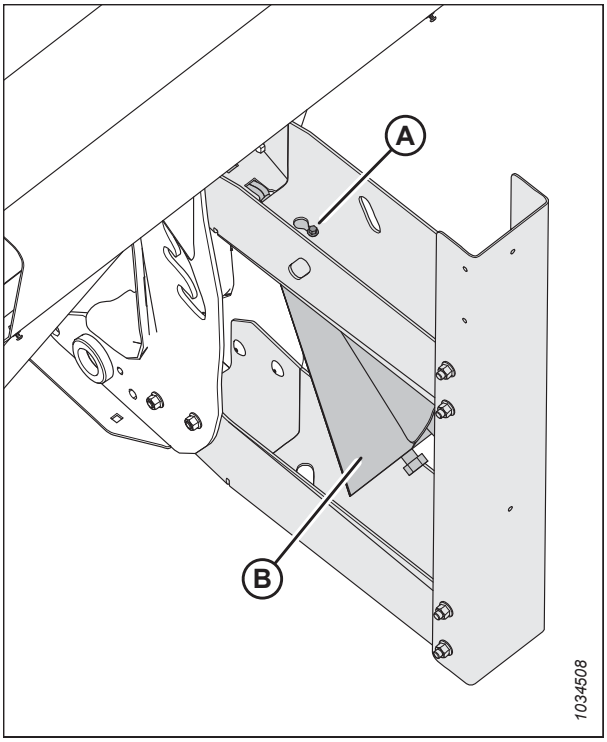


Figure 2.30: Divider Cone in Shipping Position

12. 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.

CAUTION

Support the reel to avoid accidental rotation.

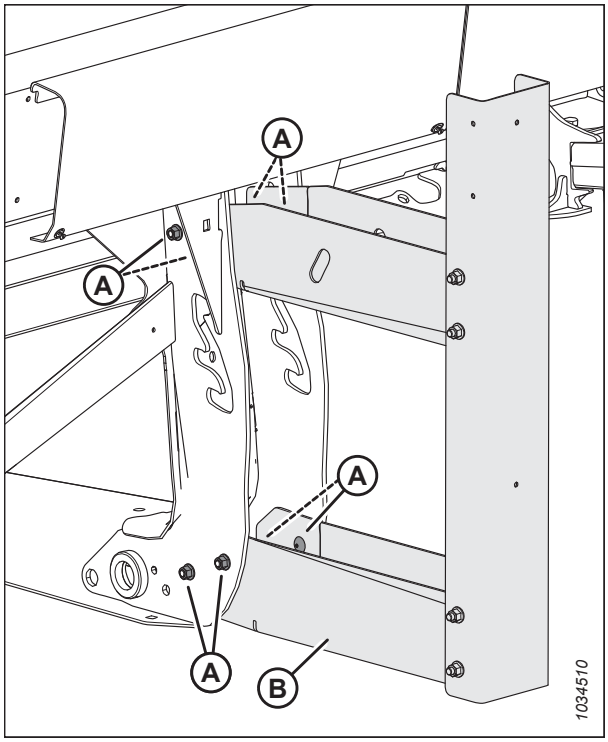


Figure 2.31: Shipping Stands at Outboard Legs – Right Side Shown

13. Support the reel to avoid accidental rotation.
14. At the right end of the header, between the reel and the endsheet, remove and discard hardware (A) and anti-rotation strap (B).
15. Remove the reel support.

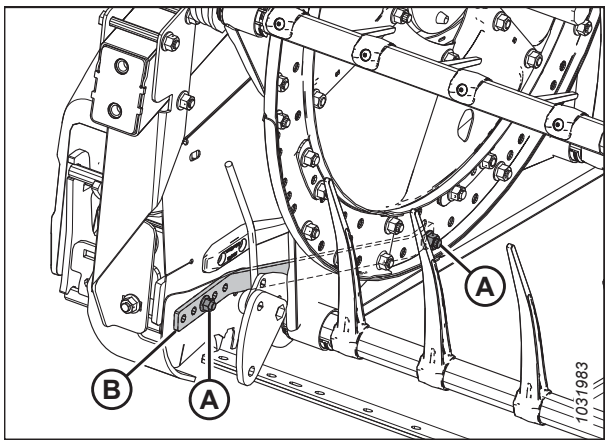


Figure 2.32: Reel Anti-Rotation Strap

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

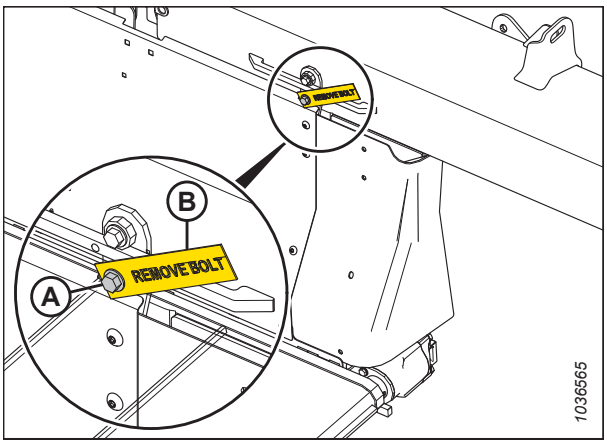


Figure 2.33: Deck Support Shipping Bolt

Chapter 3: Assembling Header and Float Module

When the header and Float Module is prepared for shipping, some parts are removed or relocated to prevent shipping damage. These parts need to be reinstalled before the header can be used.

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

3.1 Installing Reel Lift Cylinders – Double Reel

The reel lift cylinders are detached for shipping. They need to be reinstalled on the header.

CAUTION

Do NOT REMOVE the reel fore-aft shipping supports. 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 forward when the supports are removed.

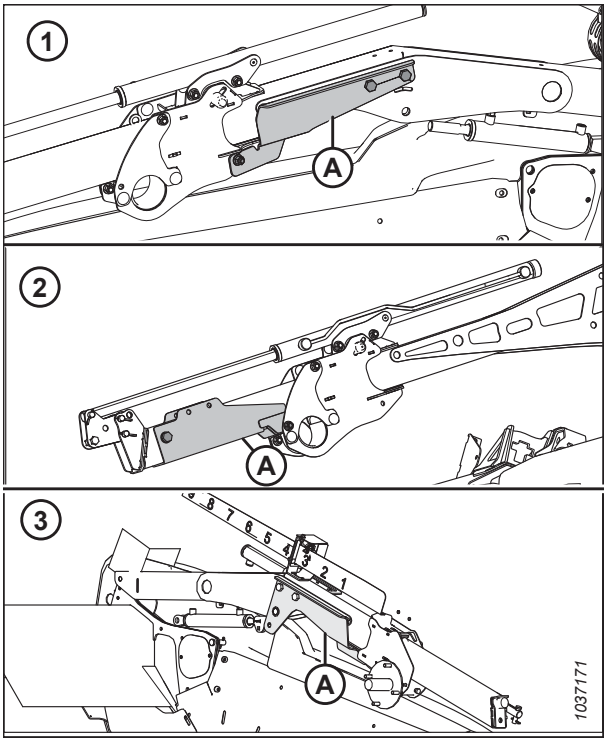


Figure 3.1: Fore-Aft Shipping Supports

1 - Outer Right Reel Arm **2 - Center Reel Arm**

3 - Outer Left Reel Arm

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.

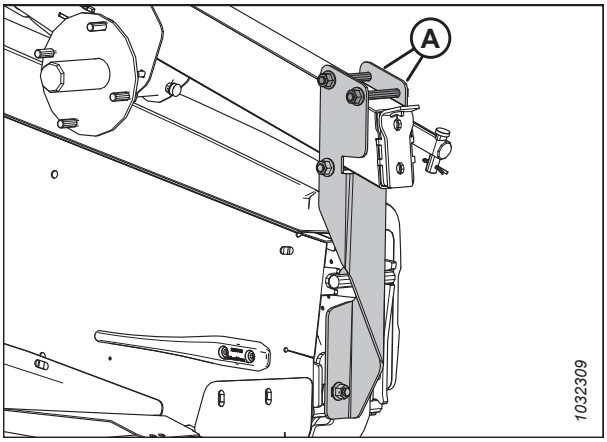


Figure 3.2: Outboard Arm Shipping Support – Left Side

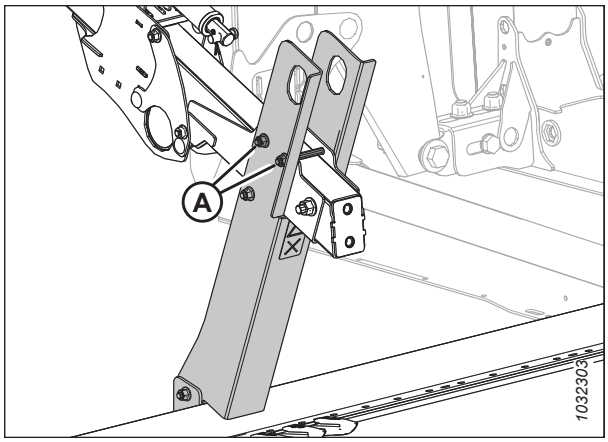


Figure 3.3: Center Arm Shipping Support

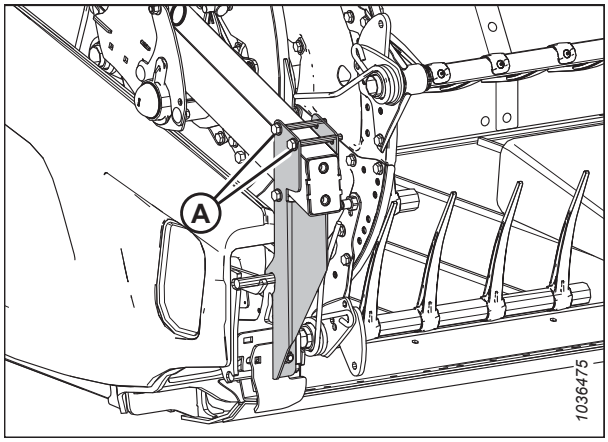


Figure 3.4: Outboard Arm Shipping Support – Right Side

2. Position a sling (A) around the reel tube, close to the left end of reel, and attach sling to a forklift (or equivalent).

3. Raise the end of reel with a forklift or crane until the reel lift cylinder can be attached.

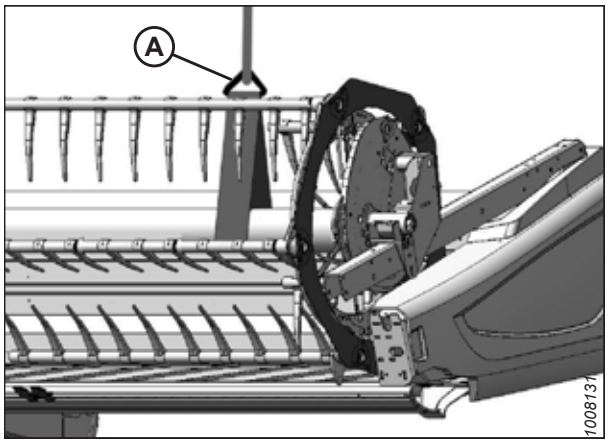


Figure 3.5: Left Reel Arm

4. Retrieve reel lift cylinder (A) that is tied to the reel support arm.
5. Remove the left light assembly that is strapped to the reel lift cylinder and set aside.

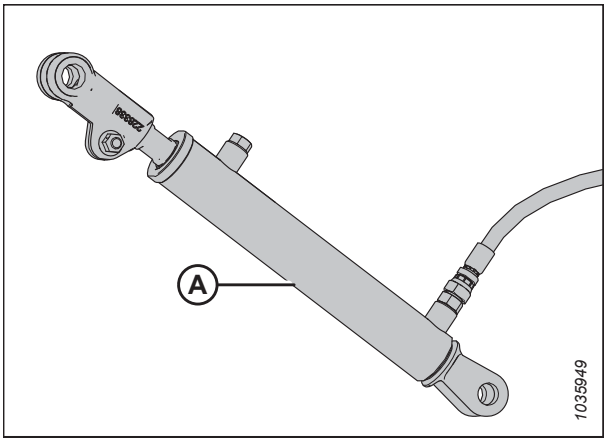


Figure 3.6: Reel Lift Cylinder and Reel Safety Prop

6. Remove and retain the two sets of pins (A) from the lug on the endsheet and the reel arm.
7. 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.

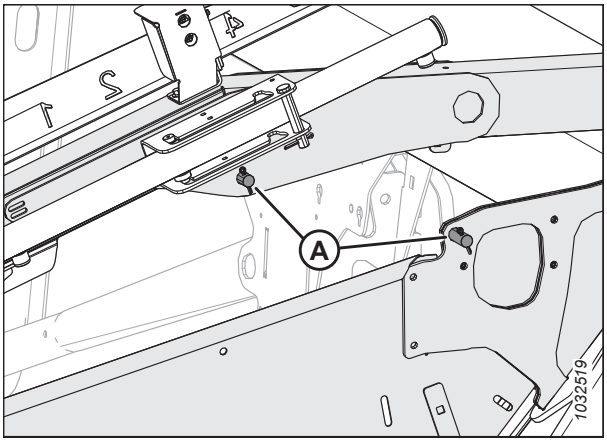


Figure 3.7: Left Reel Arm

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.
9. Move reel safety prop (B) up onto the hook under the reel arm.
10. Secure base of cylinder (A) to the endsheet using clevis pin (E) and cotter pin (F).

    IMPORTANT:

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

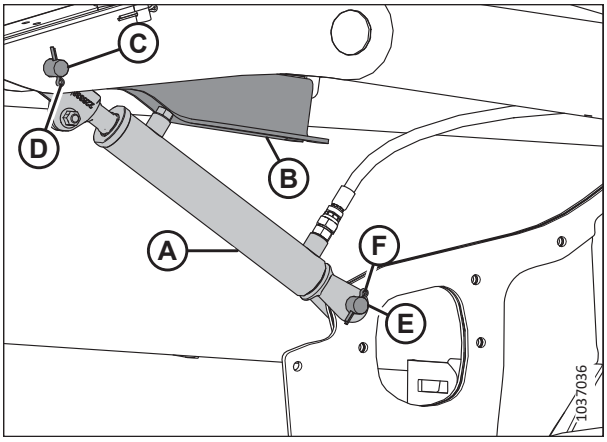


Figure 3.8: Left Lift Cylinder

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

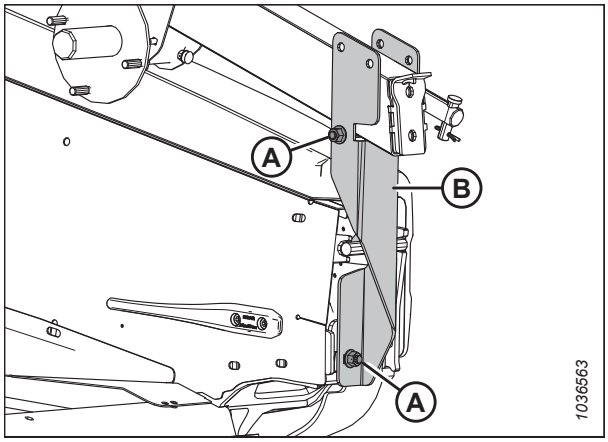


Figure 3.9: Reel Left Arm Support

12. Retrieve one M12 x 30 mm round head square neck bolt (B) and center lock hex flange nut from the shipping bag MD #347581, and install on knifehead guard (A) where the arm support hardware was removed.

13. Position knifehead guard (A) as close as possible to the bottom of guard (C). The inboard edge of shield (A) should be in line with or just inboard of the center of the first guard point.

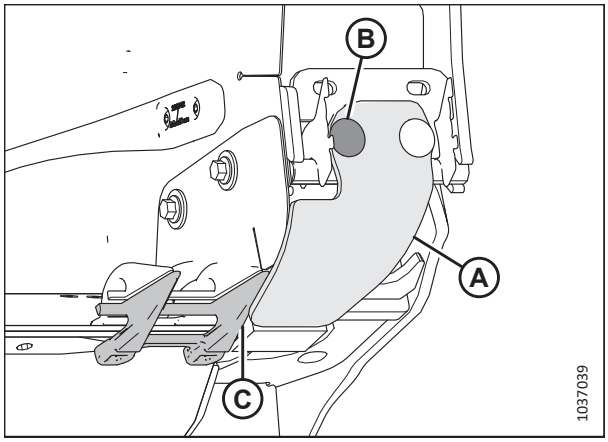


Figure 3.10: Left Knifehead Guard

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

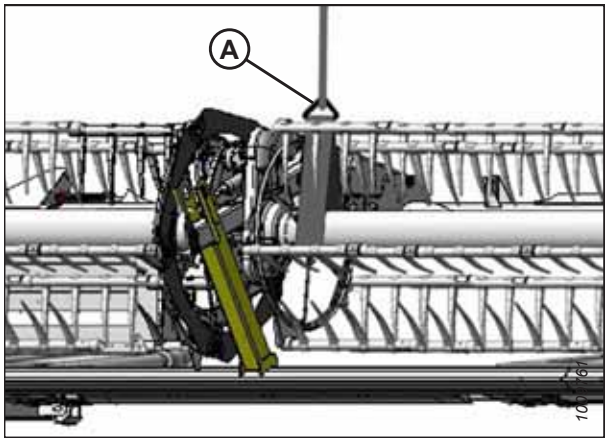


Figure 3.11: Center Arm Shipping Support

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

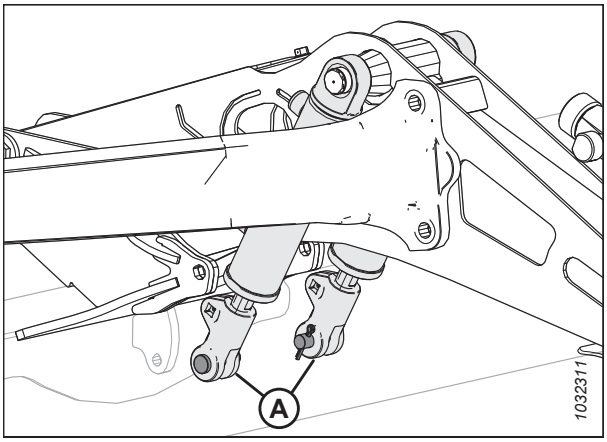


Figure 3.12: Lift Cylinders at Center Reel Arm

17. 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.

18. Ensure that the hydraulic fittings on cylinders (A) are tight.

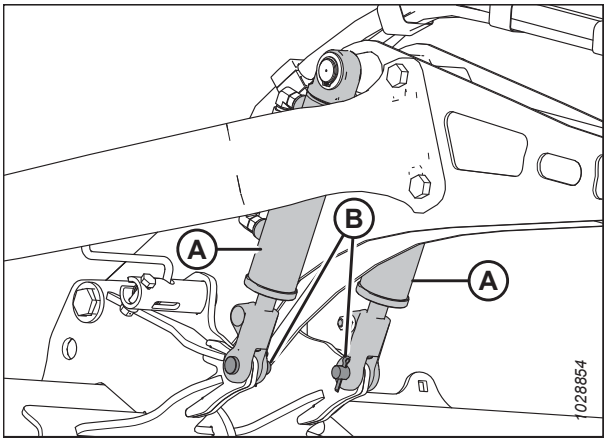


Figure 3.13: Lift Cylinders at Center Reel Arm

19. At the center arm, remove bolt (A).
20. Remove four bolts (B) (two shown) that clamp the shipping support to the cutterbar. Remove shipping support (C) and discard it.

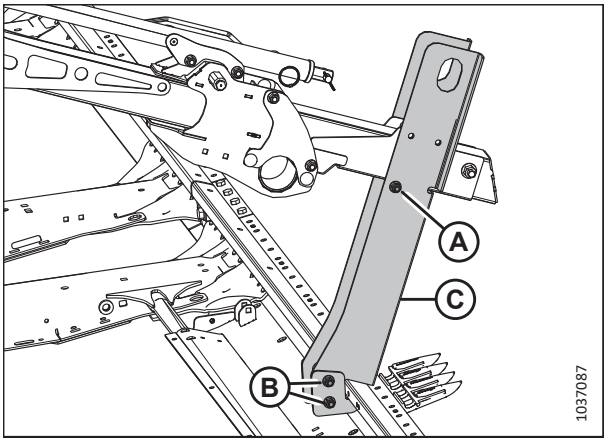


Figure 3.14: Center Reel Arm Support

21. Position a sling (A) around the reel tube, close to the right end of reel, and attach sling to a forklift (or equivalent).
22. Raise the end of reel with a forklift or crane until the reel lift cylinder can be attached.

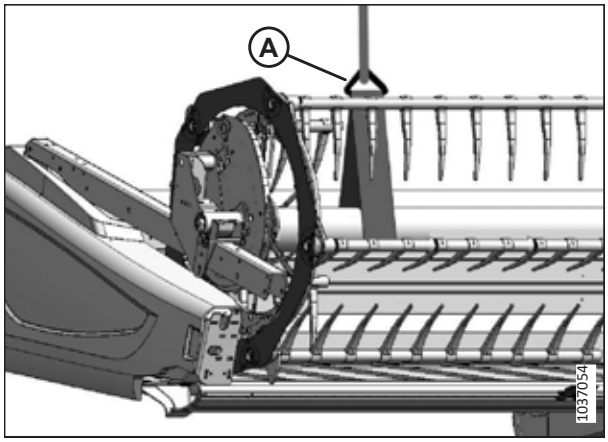


Figure 3.15: Right Reel Arm

23. Retrieve reel lift cylinder (A) that is tied to the reel support arm.
24. Remove the right light assembly that is strapped to the reel lift cylinder and set it aside.

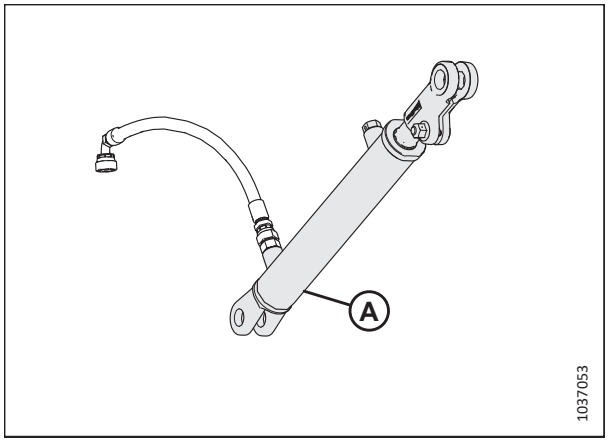


Figure 3.16: Reel Lift Cylinder

25. Remove and retain the two sets of pins (A) from the lug on the endsheet and the reel arm.
26. 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.

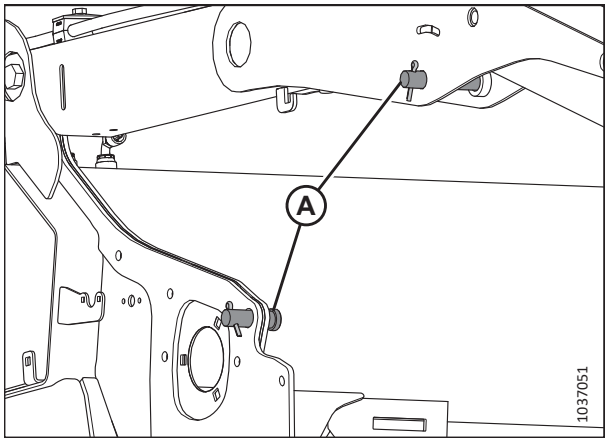


Figure 3.17: Right Reel Arm

27. 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.

28. Move reel safety prop (B) up onto the hook under the reel arm.

29. Secure base of cylinder (A) to the endsheet using clevis pin (E) and cotter pin (F).

    IMPORTANT:

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

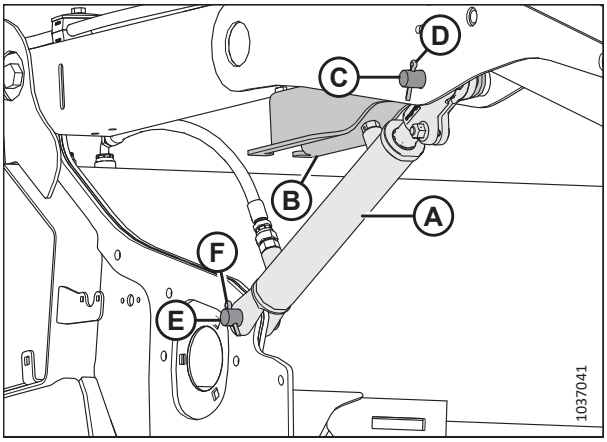


Figure 3.18: Right Lift Cylinder and Safety Prop

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

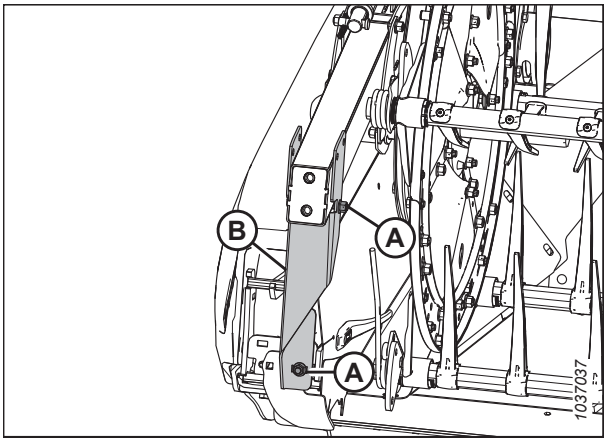


Figure 3.19: Right Reel Arm

31. Retrieve one M12 x 30 mm round head square neck bolt (B) and center lock hex flange nut from the shipping bag MD #347581, and install on knifehead guard (A) where the arm support hardware was removed.

32. Position knifehead guard (A) as close as possible to the bottom of guard (C). The inboard edge of shield (A) should be in line with or just inboard of the center of the first guard point.

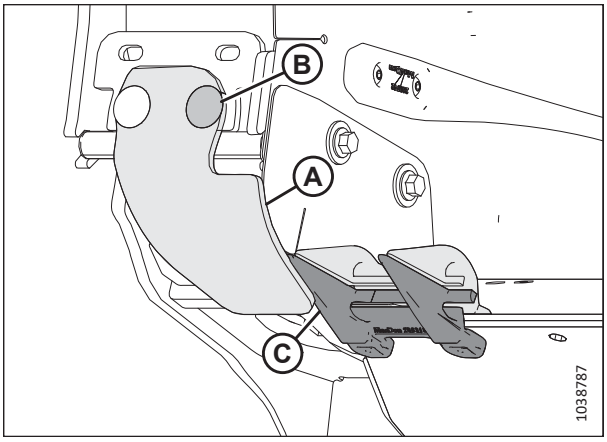


Figure 3.20: Right Knifehead Guard

33. Retrieve the hardware bag MD #347598 containing bolt (MD #184665), washer (MD #184712), and nut (MD #135799) (not shown).

34. Install supplied hardware through front hole (A) of cover where the reel shipping brace was installed previously.

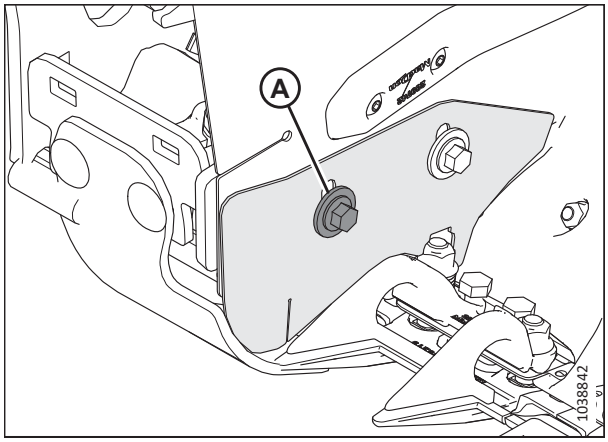


Figure 3.21: Right End Panel

3.2 Installing Reel Lift Cylinders – Triple Reel

The reel is raised by lift cylinders.

CAUTION

Do NOT REMOVE the reel fore-aft shipping supports. 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 forward when the supports are removed.

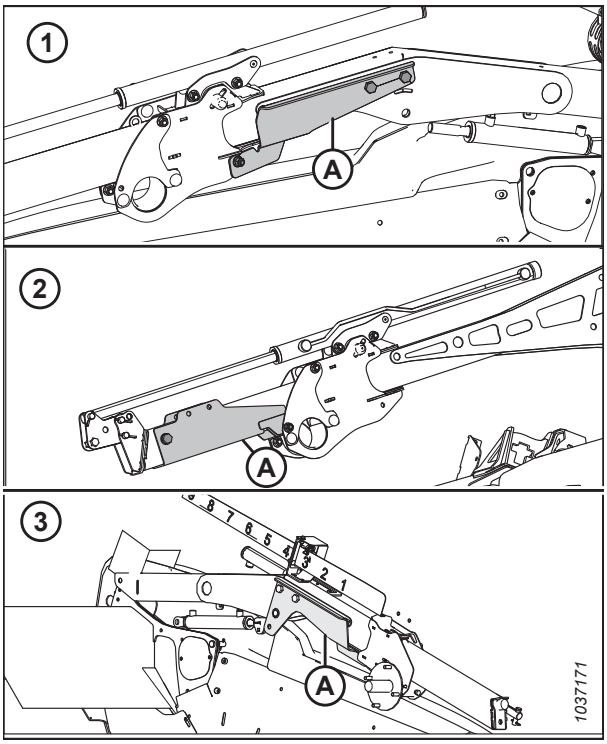


Figure 3.22: Fore-Aft Shipping Supports

1 - Outer Right Reel Arm **2 - Center Reel Arm**

3 - Outer Left Reel Arm

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.

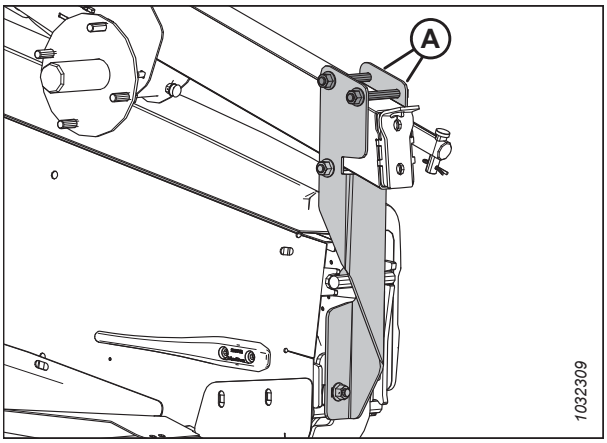


Figure 3.23: Outboard Arm Shipping Support – Left Side

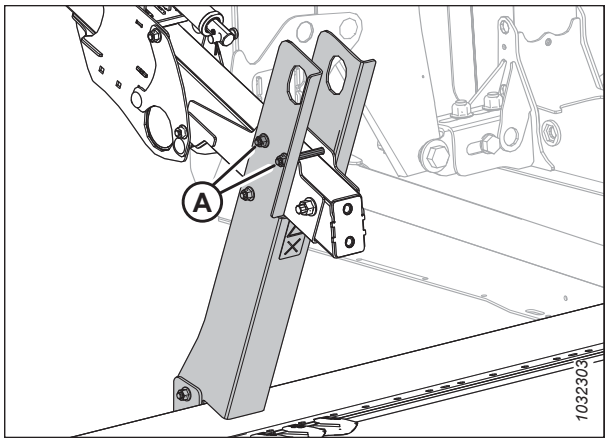


Figure 3.24: Center Arm Shipping Support

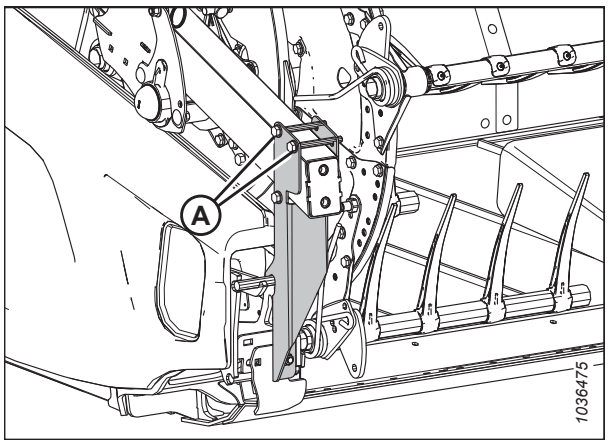


Figure 3.25: Outboard Arm Shipping Support – Right Side

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

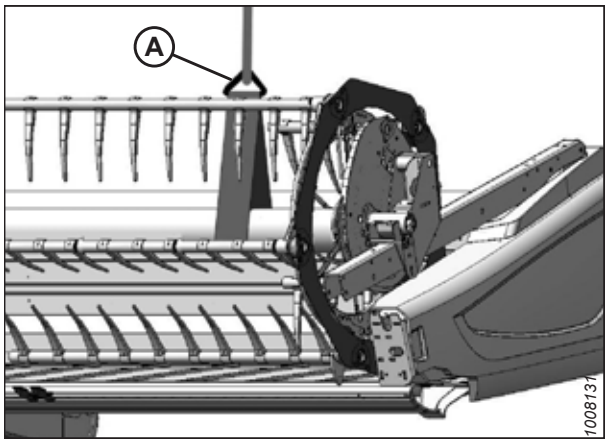


Figure 3.26: Left Reel Arm

4. Retrieve reel lift cylinder (A) that is tied to the reel support arm.
5. Remove the left light assembly that is strapped to the reel lift cylinder and set aside.

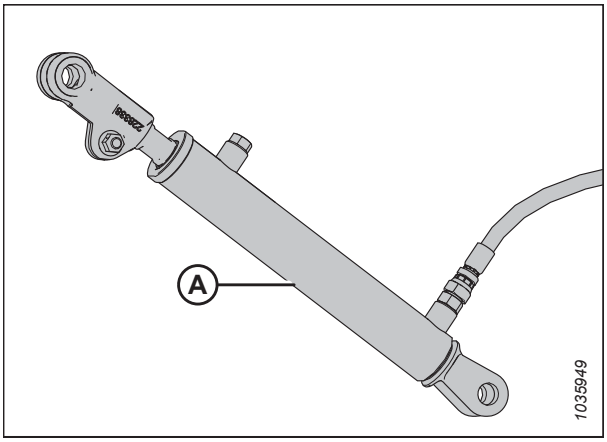


Figure 3.27: Reel Lift Cylinder and Reel Safety Prop

6. Remove and retain the two sets of pins (A) from the lug on the endsheet and the reel arm.
7. 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.

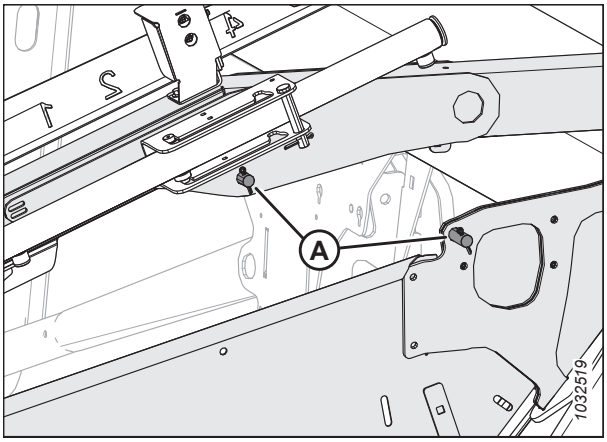


Figure 3.28: Left Reel Arm

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.
9. Move reel safety prop (B) up onto the hook under the reel arm.
10. Secure base of cylinder (A) to the endsheet using clevis pin (E) and cotter pin (F).

    IMPORTANT:

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

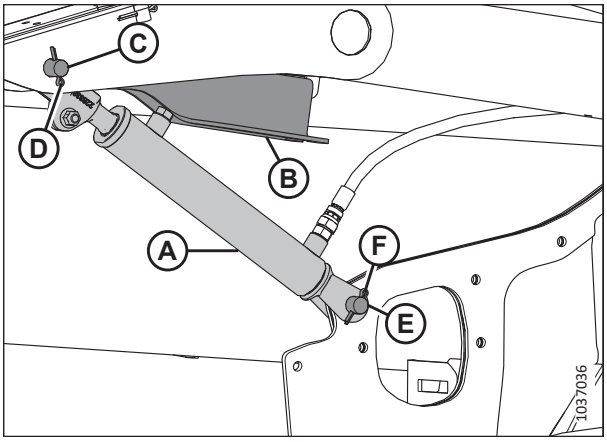


Figure 3.29: Left Lift Cylinder

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

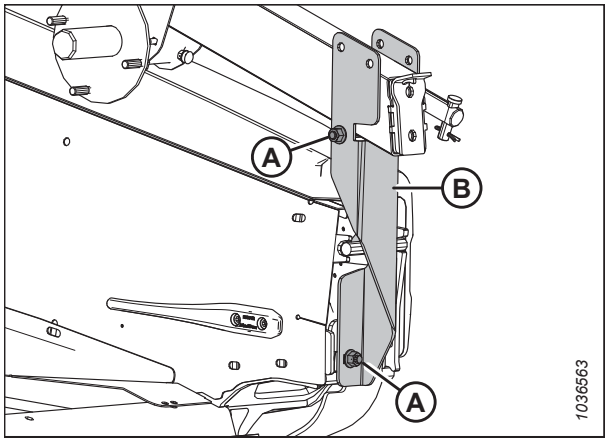


Figure 3.30: Reel Left Arm Support

12. Retrieve one M12 x 30 mm round head square neck bolt (B) and center lock hex flange nut from the shipping bag MD #347581, and install on knifehead guard (A) where the arm support hardware was removed.

13. Position knifehead guard (A) as close as possible to the bottom of guard (C). The inboard edge of shield (A) should be in line with or just inboard of the center of the first guard point.

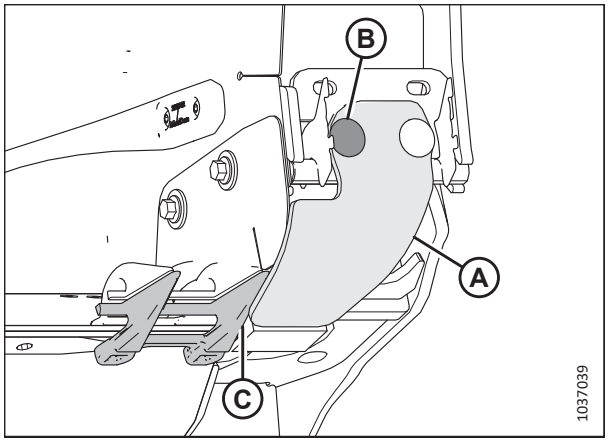


Figure 3.31: Left Knifehead Guard

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

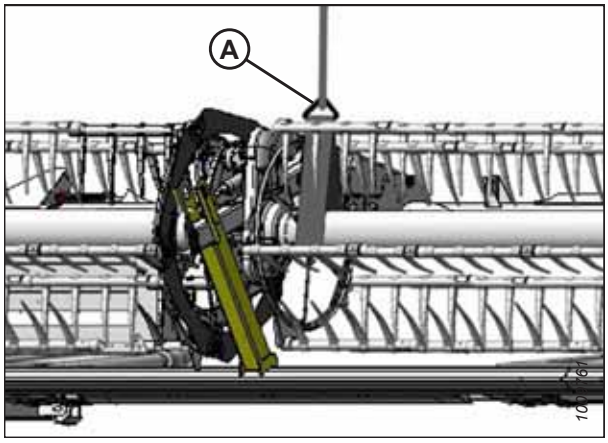


Figure 3.32: Center Arm Shipping Support

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

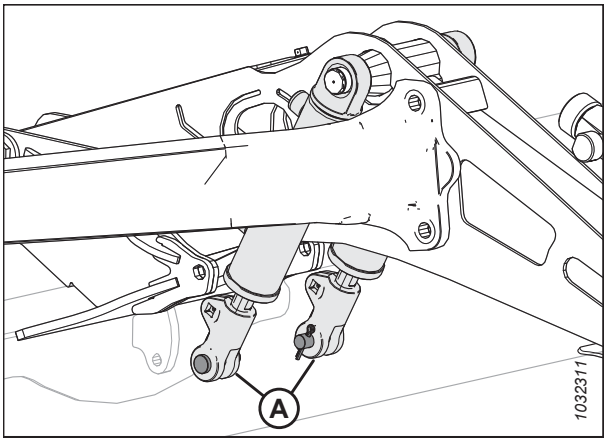


Figure 3.33: Lift Cylinders at Center Reel Arm

17. 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.

18. Ensure that the hydraulic fittings on cylinders (A) are tight.

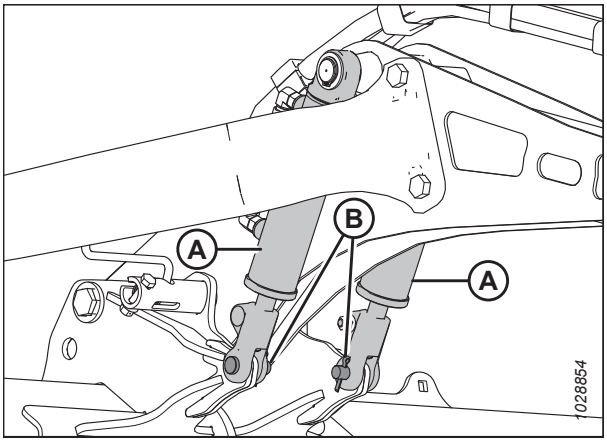


Figure 3.34: Lift Cylinders at Center Reel Arm

19. At the center arm, remove bolt (A).
20. Remove four bolts (B) (two shown) that clamp the shipping support to the cutterbar. Remove shipping support (C) and discard it.
21. Repeat Step *14, page 44* to Step *20, page 45* on the center right reel arm.

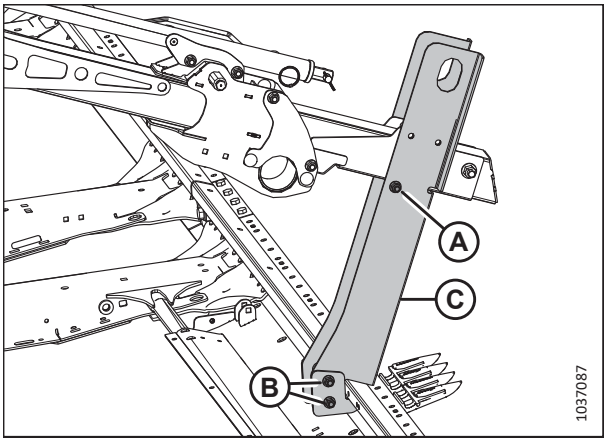


Figure 3.35: Center Reel Arm Support

22. Position a sling (A) around the reel tube, close to the right end of reel, and attach sling to a forklift (or equivalent).
23. Raise the end of reel with a forklift or crane until the reel lift cylinder can be attached.

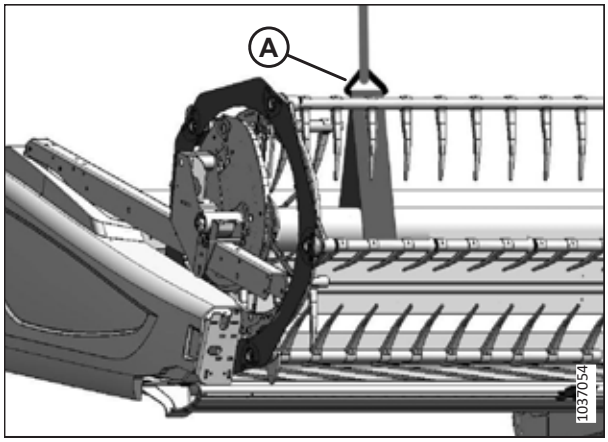


Figure 3.36: Right Reel Arm

24. Retrieve reel lift cylinder (A) that is tied to the reel support arm.
25. Remove the right light assembly that is strapped to the reel lift cylinder and set it aside.

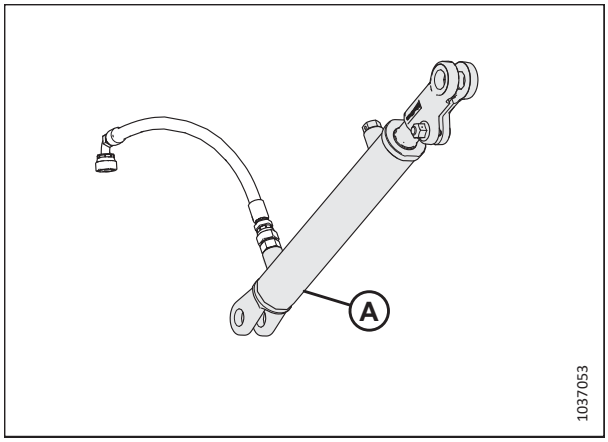


Figure 3.37: Reel Lift Cylinder

26. Remove and retain the two sets of pins (A) from the lug on the endsheet and the reel arm.
27. 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.

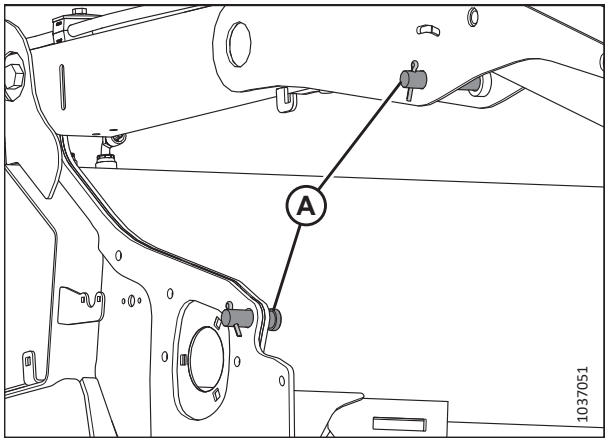


Figure 3.38: Right Reel Arm

28. 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.

29. Move reel safety prop (B) up onto the hook under the reel arm.

30. Secure base of cylinder (A) to the endsheet using clevis pin (E) and cotter pin (F).

    IMPORTANT:

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

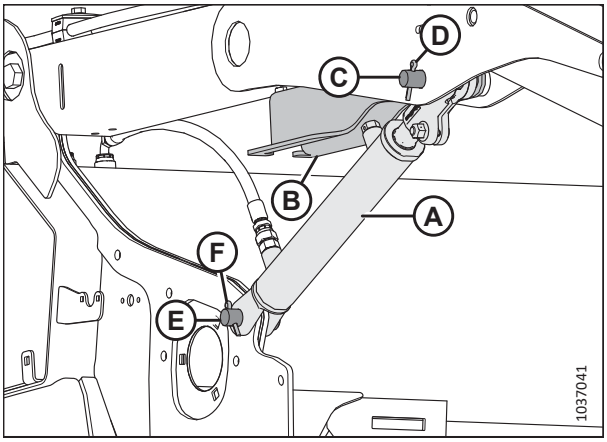


Figure 3.39: Right Lift Cylinder and Safety Prop

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

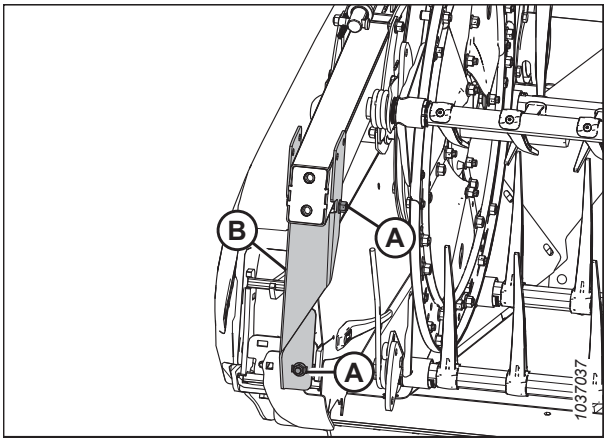


Figure 3.40: Right Reel Arm

32. Retrieve one M12 x 30 mm round head square neck bolt (B) and center lock hex flange nut from the shipping bag MD #347581, and install on knifehead guard (A) where the arm support hardware was removed.

33. Position knifehead guard (A) as close as possible to the bottom of guard (C). The inboard edge of shield (A) should be in line with or just inboard of the center of the first guard point.

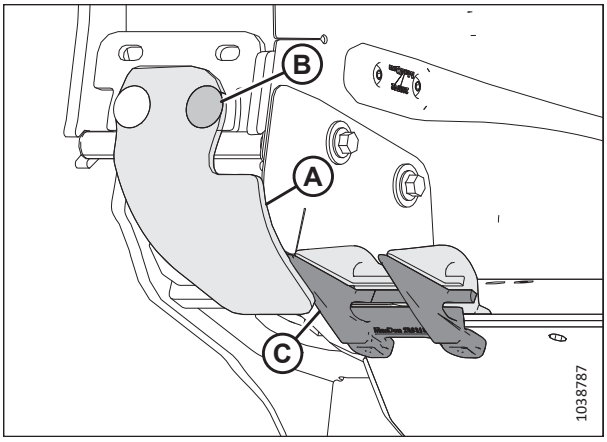


Figure 3.41: Right Knifehead Guard

34. Retrieve the hardware bag MD #347598 containing bolt (MD #184665), washer (MD #184712), and nut (MD #135799) (not shown).

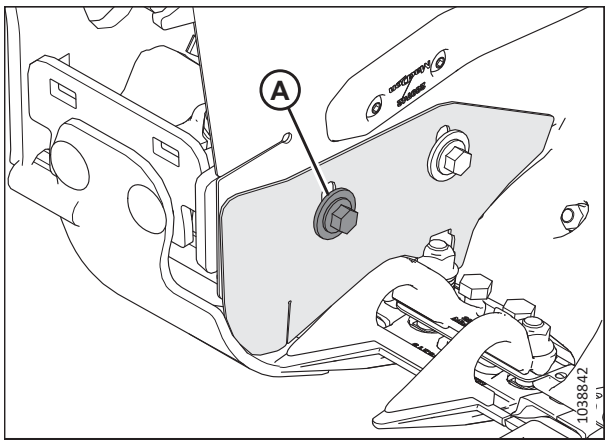


Figure 3.42: Right End Panel

3.3 Attaching Reel Height Sensor

The reel height sensor linkage (located inside the right endshield) is disconnected to prevent shipping damage.

1. Open the right header endshield. For reference, refer to *11.2.1 Opening Header Endshields, page 452*.
2. Remove cable ties (A) securing reel height sensor rod (B) to the top of the end panel.

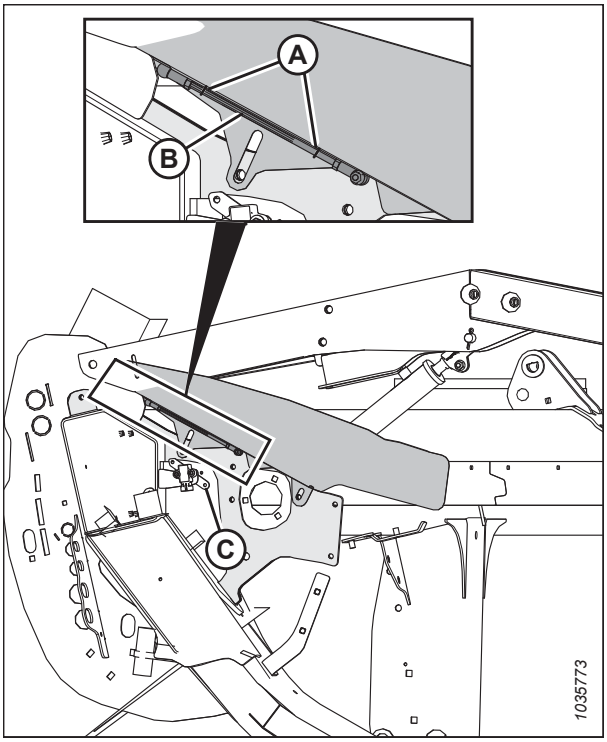


Figure 3.43: Reel Height Sensor Location

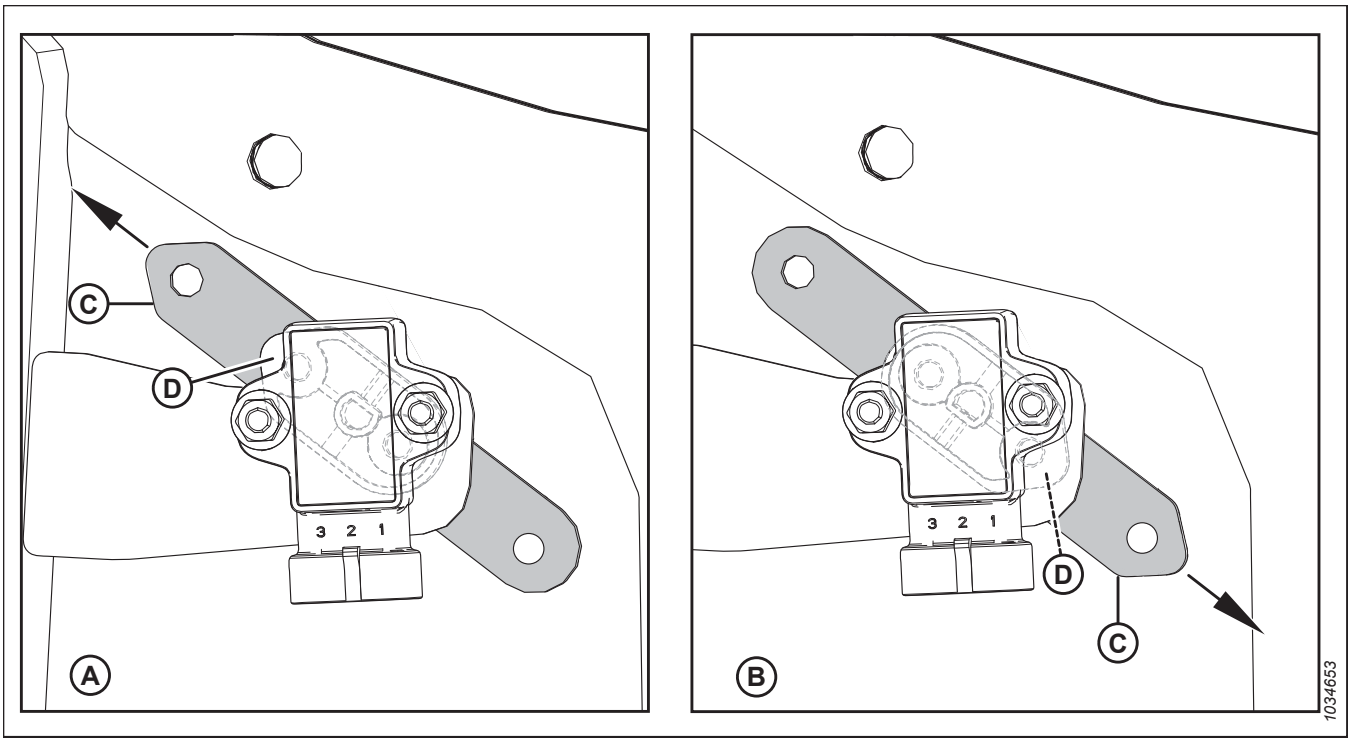


Figure 3.44: Sensor Arm/Pointer Configurations

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.

3. Check that sensor arm (C) and pointer (D) are configured properly for your combine. For instructions, refer to Figure *3.44, page 50*.

4. 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).

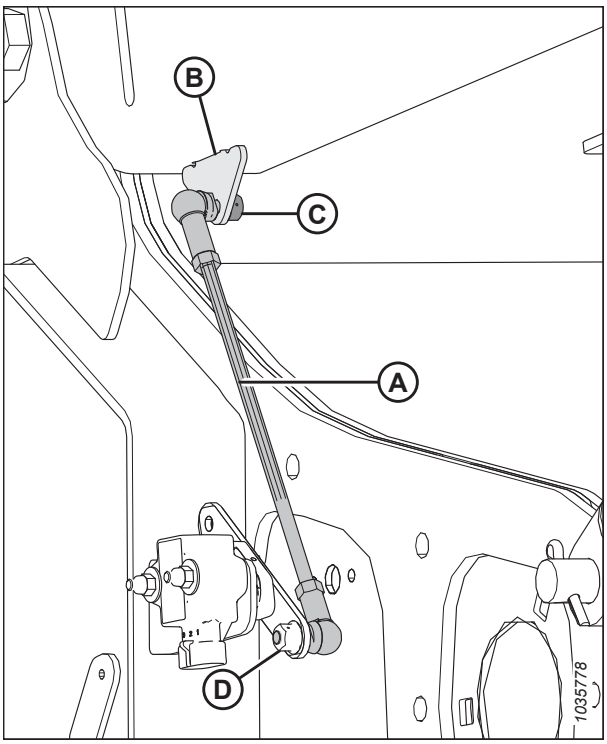


Figure 3.45: Reel Height Sensor

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 417* to achieve the correct voltage range.

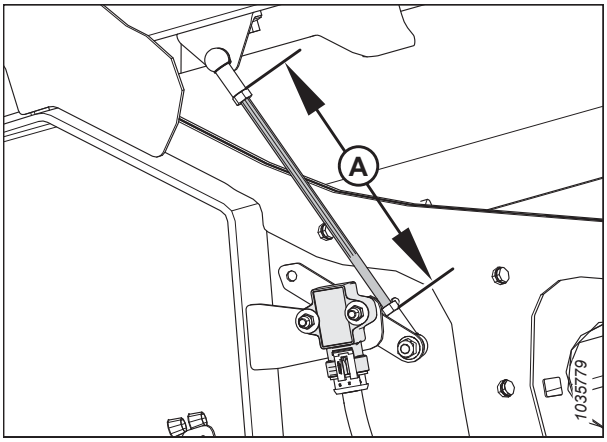


Figure 3.46: Reel Height Sensor – Right Reel Arm with Reel Down

5. Close the right header endshield. For instructions, refer to *11.2.2 Closing Header Endshields, page 453*.

3.4 Installing Reel Fore-Aft Hose Clamps

Some or all of the reel fore-aft hose clamps are detached from the reel arms for shipping purposes.

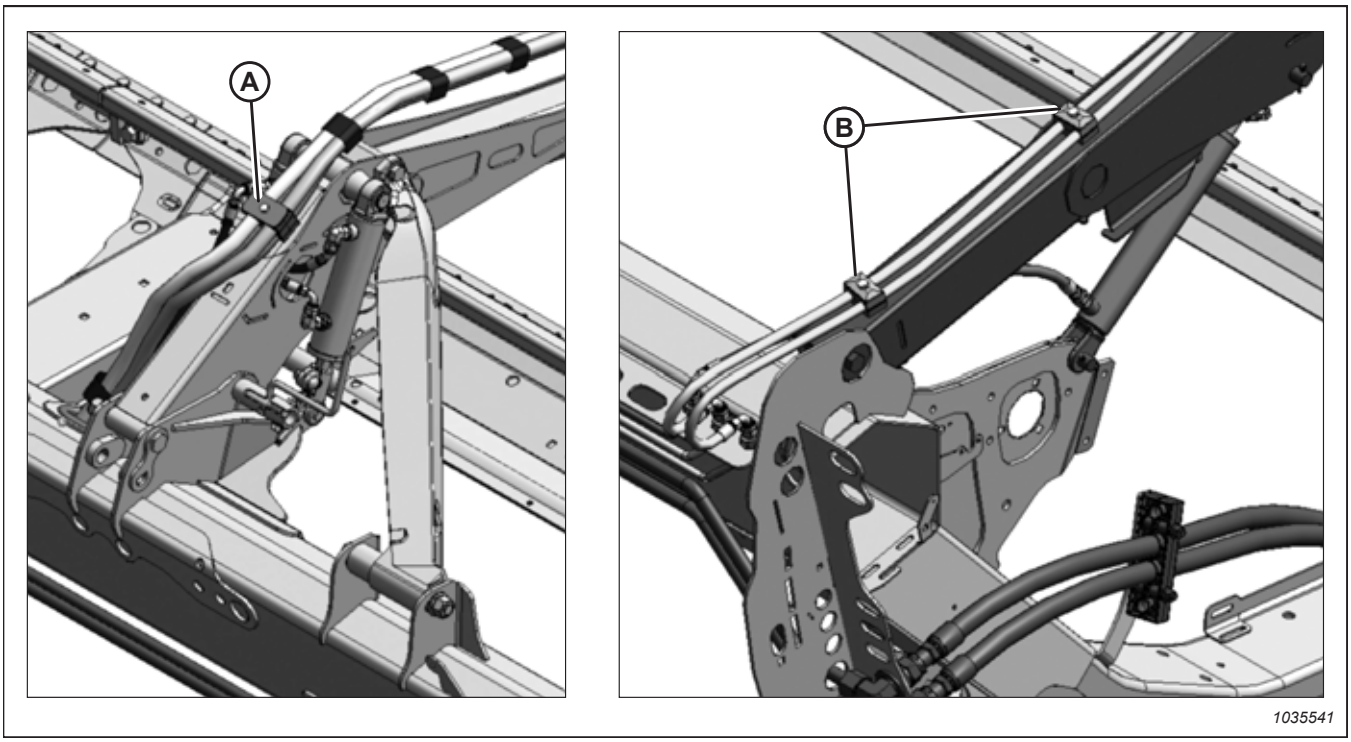


Figure 3.47: Reel Arm Fore-Aft Hose Clamps – Double Reel

1. **Double Reel:** A nut is installed on the bottom of the following fore-aft hose clamps for shipping purposes. Discard the nut and reinstall the clamp(s) at the following locations:

   - **FD230 and FD235:** Center reel arm (A)

     NOTE:

     Align the mark on the hoses with the bottom of the clamp. Ensure there is a loop in the hose bundle to allow the reel to move forward.

   - **FD241:** Center reel arm (A) and right reel arm (B)

     NOTE:

     Align the mark on the hoses with the bottom of the clamp. Ensure there is a loop in the hose bundle to allow the reel to move forward.

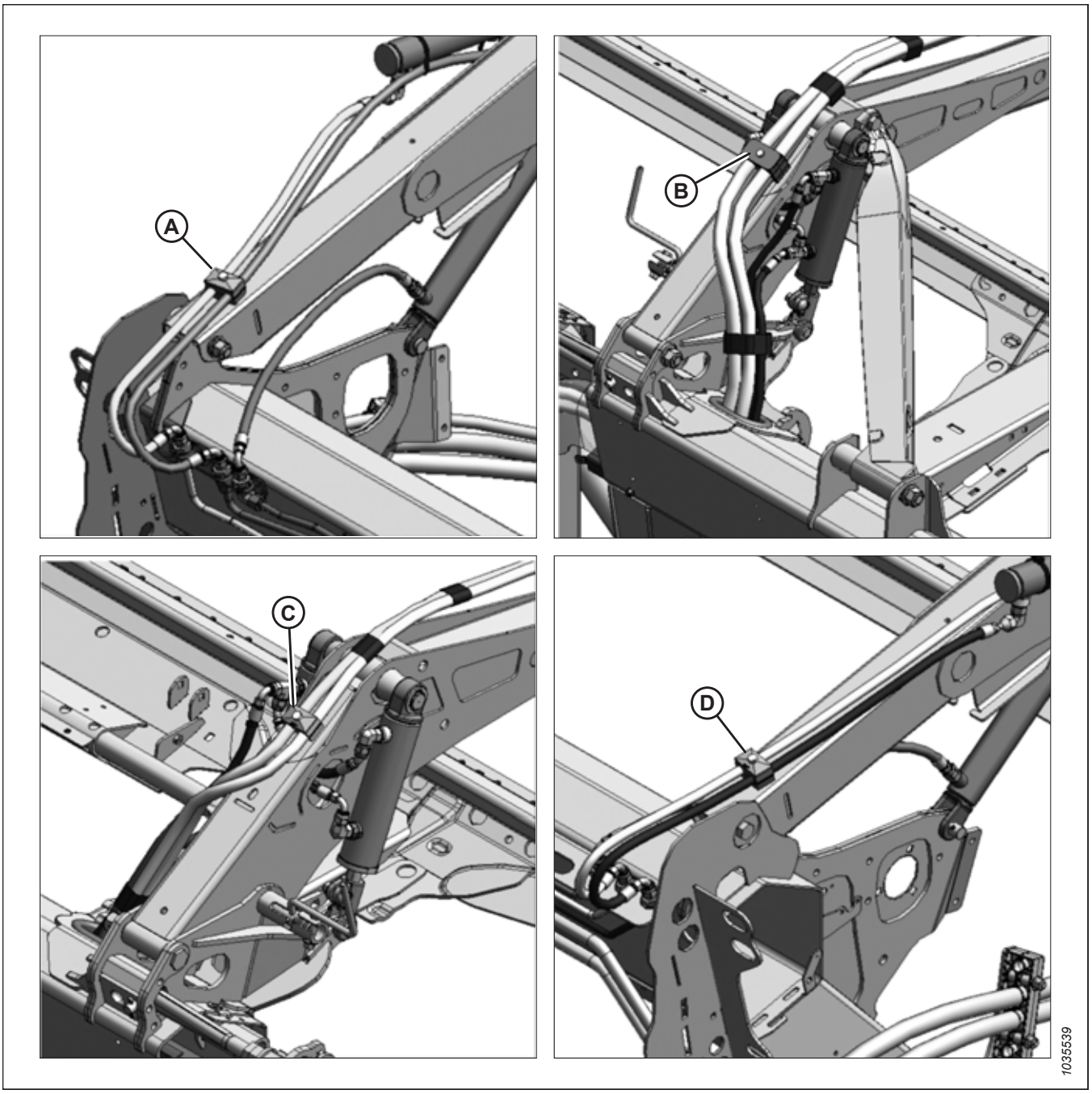


Figure 3.48: Reel Arm Fore-Aft Hose Clamps – Triple Reel

2. **Triple Reel:** A nut is installed on the bottom of the following fore-aft hose clamps for shipping purposes. Discard the nut and reinstall the clamp(s) at the following locations:

   - **FD245:** Center reel arms (B) and (C), and right reel arm (D)

     NOTE:

     Ensure there is a loop in the hose bundle to allow the reel to move forward.

   - **FD250:** Left reel arm (A), center reel arms (B) and (C), and right reel arm (D).

     NOTE:

     Ensure there is a loop in the hose bundle to allow the reel to move forward.

3.5 Installing Cutterbar Wearplates and Hold-Downs – Triple Reel

At both 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. Proceed to the correct procedure for your knife guard type:
   - *3.5.1 Installing Pointed Guard Hold-Downs and Wearplates, page 54*
   - *3.5.2 Installing Short Knife Guard Hold-Downs and Wearplates, page 56*

3.5.1 Installing Pointed Guard Hold-Downs and Wearplates

Parts are removed from the cutterbar for shipping.

NOTE:

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

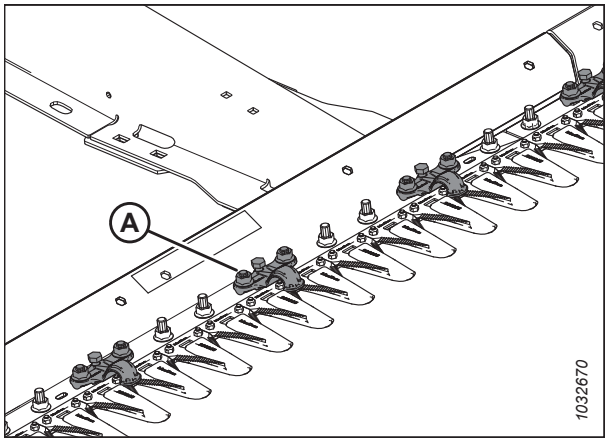


Figure 3.49: Pointed Knife Guard Configuration

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.

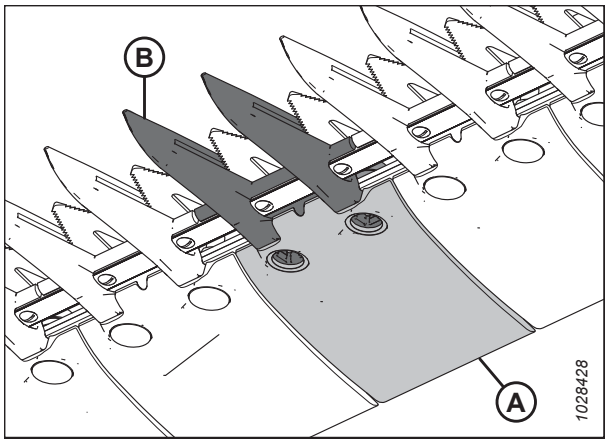


Figure 3.50: Pointed Knife Guard and Wearplate

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 85 Nm (63 lbf·ft).

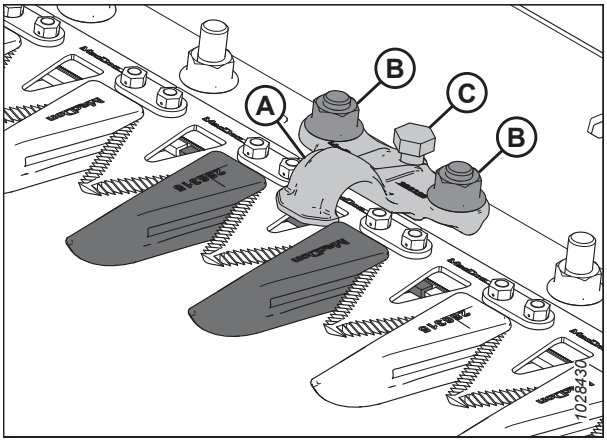


Figure 3.51: Pointed Knife Guards

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.).

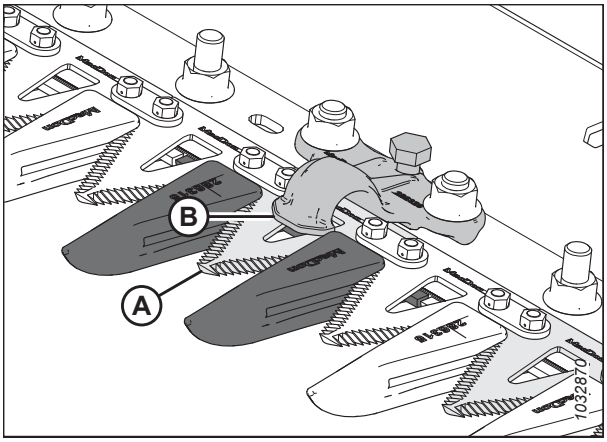


Figure 3.52: Pointed Hold-Down

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 85 Nm (63 lbf·ft).
7. Repeat this procedure to install the remaining hold-downs and wearplates.

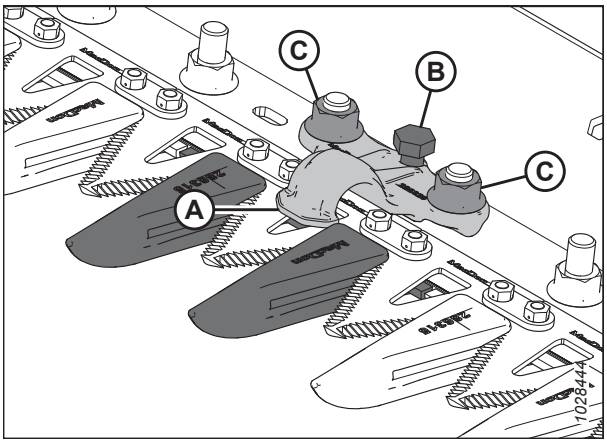


Figure 3.53: Pointed Hold-Down

3.5.2 Installing Short Knife Guard Hold-Downs and Wearplates

Parts have been removed for shipping.

NOTE:

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

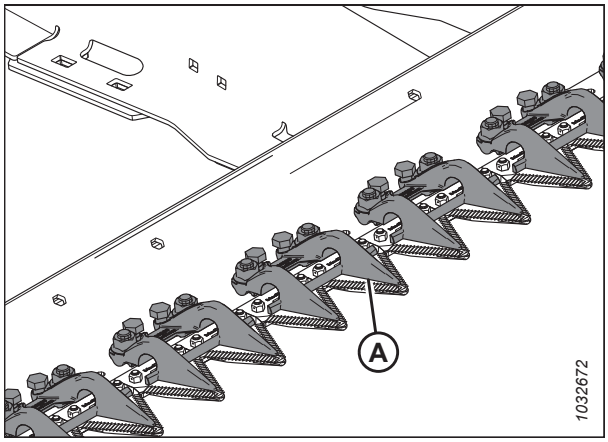


Figure 3.54: Short Knife Guard Configuration

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.

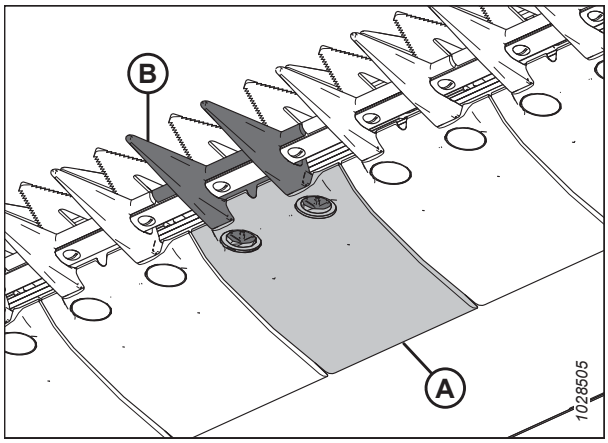


Figure 3.55: Short Knife Guard and Wearplate

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 85 Nm (63 lbf·ft).

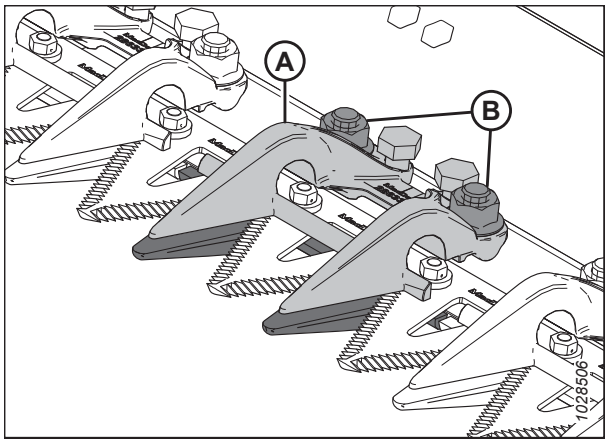


Figure 3.56: Short Knife Guard

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.).

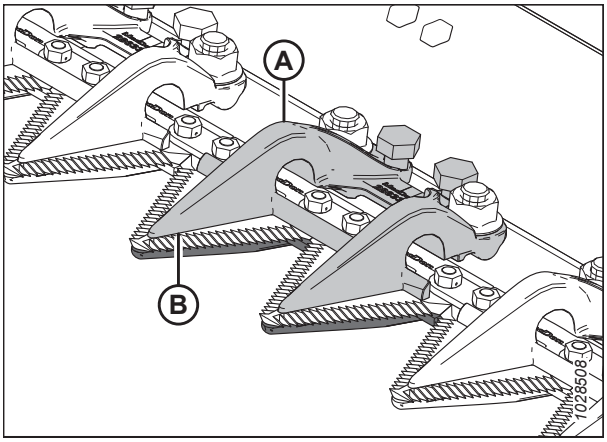


Figure 3.57: Short Knife Guards

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 85 Nm (63 lbf·ft).

   c. Recheck clearances, and make further adjustments if necessary.

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

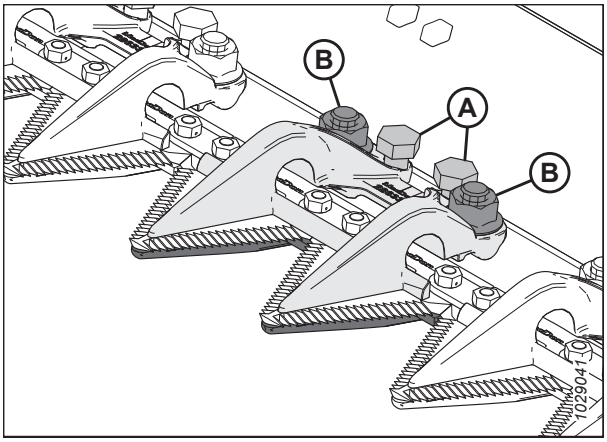


Figure 3.58: Short Knife Guard Hold-Down

3.6 Attaching Cam Arms

Some cam arms are disconnected from the tine tubes for shipping.

NOTE:

The cam arm installation is easier when completed one row at a time. Leave the shipping wire on other rows until ready to rotate the reel to the next position.

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.

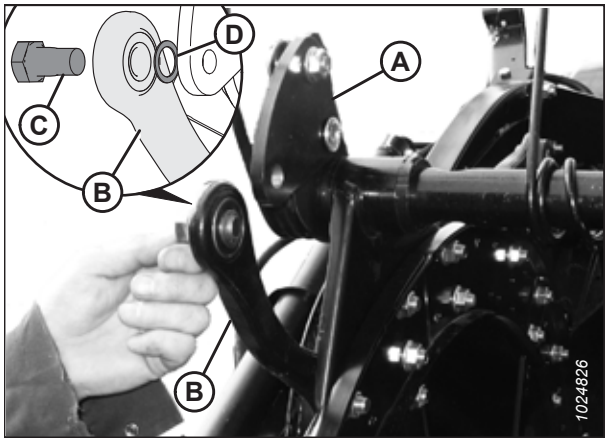


Figure 3.59: Bar Crank Attachment Holes and Link Alignment

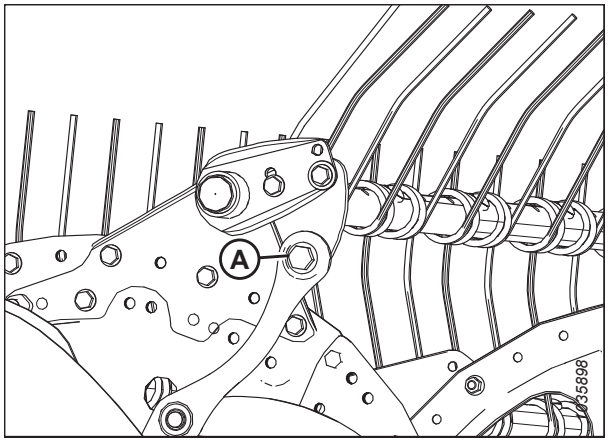


Figure 3.60: Right Reel with Cam Arms Attached

3.7 Retrieving Double-Reel Endshields

There are four kinds of endshields on a double reel. Be sure to install the correct endshield in each location.

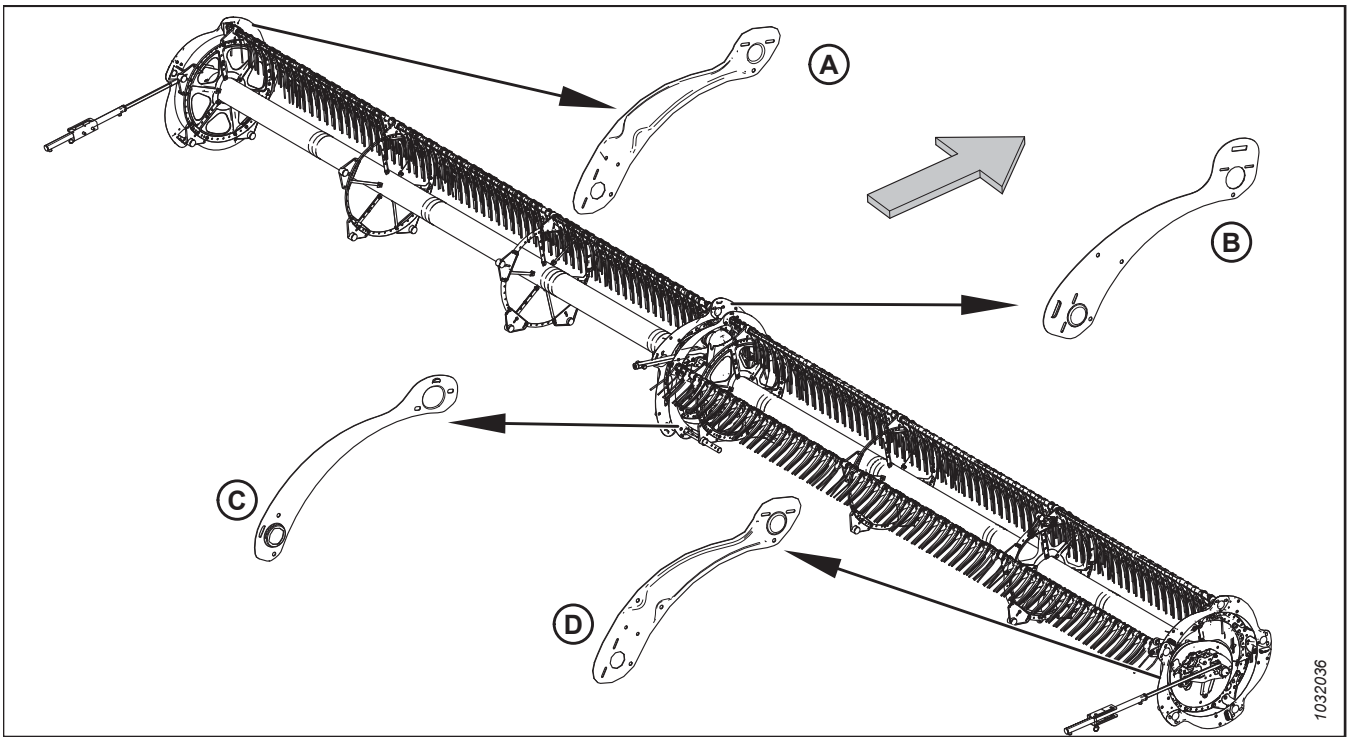


Figure 3.61: Reel Endshields – Double Reel (MD #340985, MD #340986)

A - Tail End, Outboard (MD #311695), Bag 1
B - Cam End, Inboard (MD #273823), Bag 2
C - Tail End, Inboard (MD #311795), Bag 3
D - Cam End, Outboard (MD #311694), Bag 4

NOTE:

The large arrow points to the front of the machine.

1. Retrieve shipping bag (A) containing the reel endshield parts that were removed from the cutterbar.

   - Five-bat double reel: MD #340985
   - Six-bat double reel: MD #340986

   The contents of shipping bag (A) are shown and listed below. The shipping bag contains multiple smaller bags. Do **NOT** mix up the contents of the smaller bags.

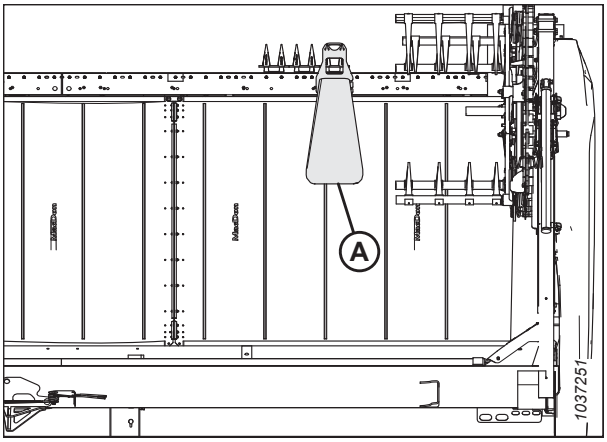


Figure 3.62: Reel Endshield Parts

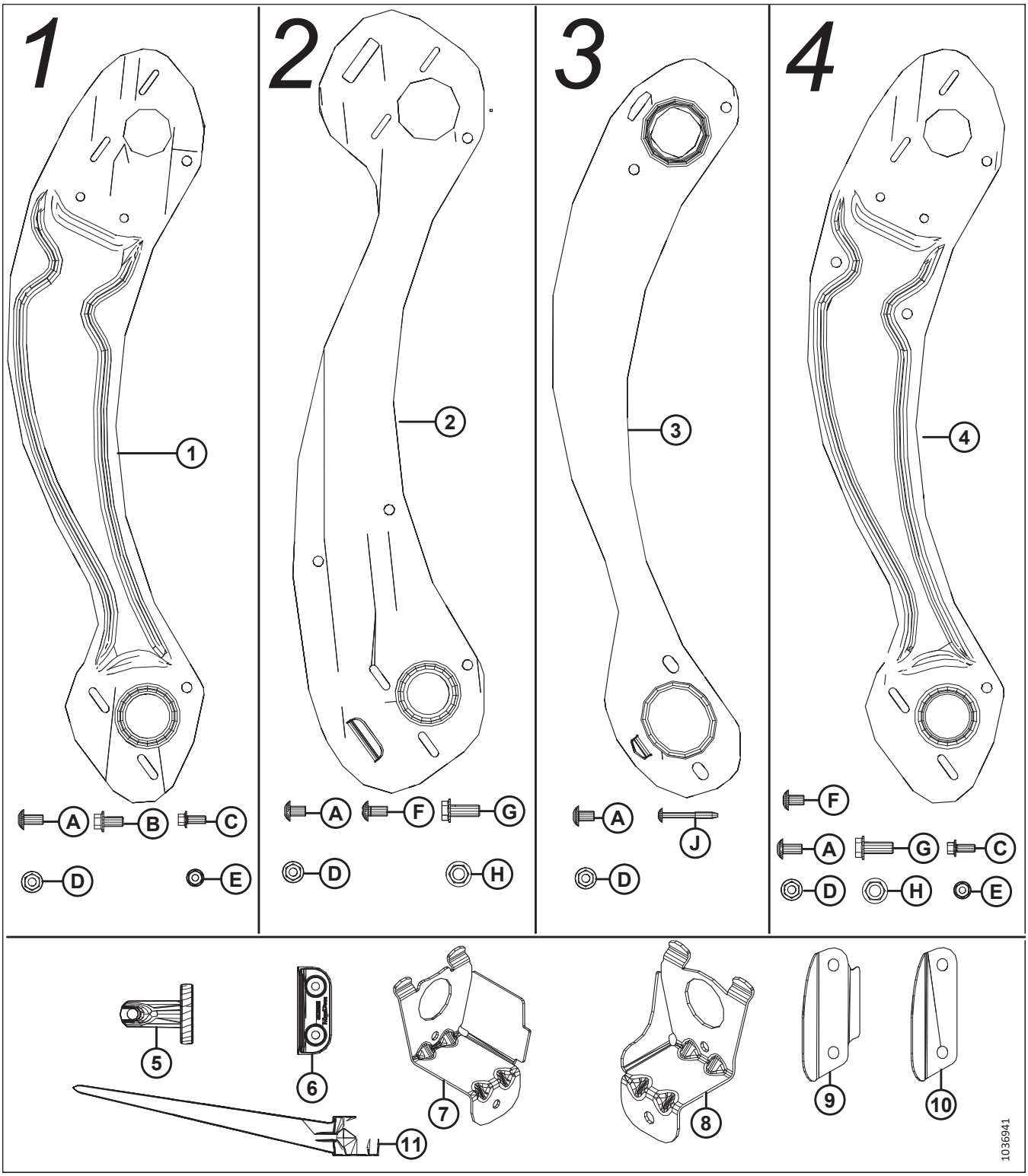


Figure 3.63: Five-Bat Double Reel Endshields – MD #340985

Table 3.1 Five-Bat Double Reel Bag – MD #340985

Ref	Part Number	Description	Qty
		Bag 1	
1	311695	SHIELD – 5-BAT LH OUTBOARD TAIL END	5
6	313035	PADDLE – REEL END, HYTREL	3
7	311965	SUPPORT – WELDT TAIL END	5
A	136395	SCR – TORX TRUSS HD M10X1.5X20XSPCL-8.8-A3L	5
B	152655	BOLT – HEX FLG HD M10X1.5X20-8.8-AA1J	5
C	136300	BOLT – HEX FLG HD TFL M8X1.25X20-8.8-AA3L	6
D	135799	NUT – HEX FLG CTR LOC M10X1.5-10	5
E	135337	NUT – HEX FLG CTR LK M8X1.25-8-AA1J	6
		Bag 2	
2	273823	SHIELD – 5-BAT LH REEL CAM END	5
8	311964	SUPPORT – WELDT CAM END	5
10	311906	DEFLECTOR – CAM INBOARD	5
A	136395	SCR – TORX TRUSS HD M10X1.5X20XSPCL-8.8-A3L	5
D	135799	NUT – HEX FLG CTR LOC M10X1.5-10	15
F	136640	SCR – TORX TRUSS HD M10X1.5X16XSPCL-8.8-AA1J	10
G	320180	BOLT – HEX FLG HD M12X1.75X30-SPCL-8.8-ZINC	5
H	136431	NUT – HEX FLG CTR LOC M12X1.75-10	5
		Bag 3	
3	311795	SHIELD – 5-BAT RH REEL TAIL END	5
5	273968	BUSHING – ENDSHIELD	5
11	311524	FINGER – PLASTIC, LH ANGLED (10 PACK)	1
A	136640	SCR – TORX TRUSS HD M10X1.5X16XSPCL-8.8-A3L	10
D	135337	NUT – HEX FLG CTR LOC M8X1.25-8-AA1J	10
J	252687	SCREW – 48° PLASTITE TWIN HELIX	5
		Bag 4	
4	311694	SHIELD – 5-BAT RH OUTBOARD CAM END	5
8	311964	SUPPORT – WELDT CAM END	5
6	313035	PADDLE – REEL END, HYTREL	3
9	311729	DEFLECTOR – CAM OUTBOARD	5
A	136395	SCR – TORX TRUSS HD M10X1.5X20XSPCL-8.8-A3L	5
C	136300	BOLT – HEX FLG HD TFL M8X1.25X20-8.8-AA3L	6
D	135799	NUT – HEX FLG CTR LOC M10X1.5-10	15
G	320180	BOLT – HEX FLG HD M12X1.75X30-SPCL-8.8-ZINC	5
H	136431	NUT – HEX FLG CTR LOC M12X1.75-10	5
E	135337	NUT – HEX FLG CTR LK M8X1.25-8-AA1J	6
F	136640	SCR – TORX TRUSS HD M10X1.5X16XSPCL-8.8-AA1J	10

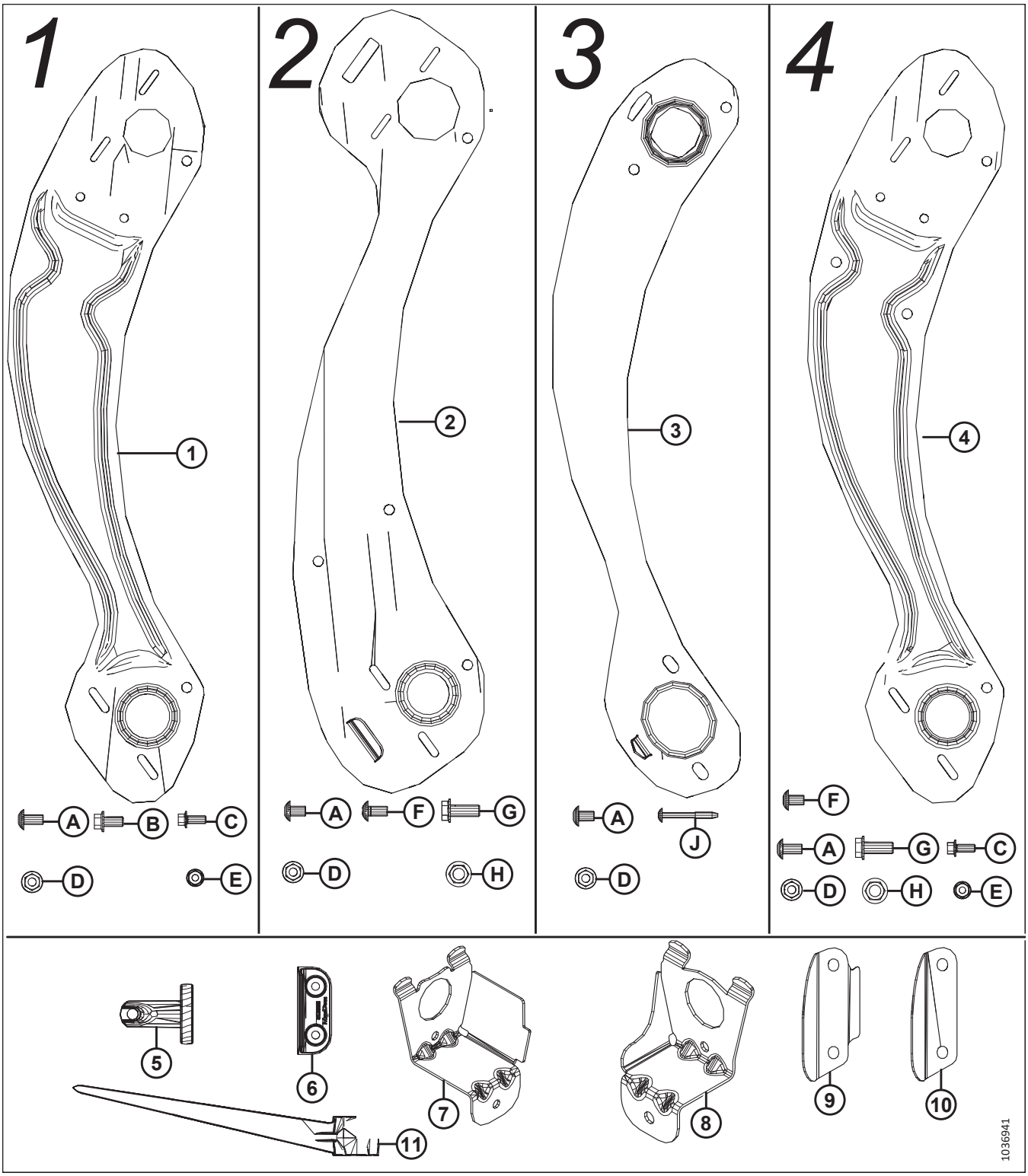


Figure 3.64: Double-Reel Six-Bat Endshields – FD241 (MD #340986)

Table 3.2 Six-Bat Double-Reel Bag – MD #340986

Ref	Part Number	Description	Qty
		Bag 1	
1	311753	SHIELD – 6-BAT LH OUTBOARD TAIL END	6
6	313035	PADDLE – REEL END, HYTREL	3
7	311965	SUPPORT – WELDT TAIL END	6
A	136395	SCR – TORX TRUSS HD M10X1.5X20XSPCL-8.8-A3L	6
B	152655	BOLT – HEX FLG HD M10X1.5X20-8.8-AA1J	6
C	136300	BOLT – HEX FLG HD TFL M8X1.25X20-8.8-AA3L	6
D	135799	NUT – HEX FLG CTR LOC M10X1.5-10	12
E	135337	NUT – HEX FLG CTR LK M8X1.25-8-AA1J	6
		Bag 2	
2	273813	SHIELD – 6-BAT LH INBOARD CAM END	6
8	311964	SUPPORT – WELDT CAM END	6
10	311906	DEFLECTOR – CAM INBOARD	6
A	136395	SCR – TORX TRUSS HD M10X1.5X20XSPCL-8.8-A3L	6
D	135799	NUT – HEX FLG CTR LOC M10X1.5-10	18
F	136640	SCR – TORX TRUSS HD M10X1.5X16XSPCL-8.8-AA1J	12
G	320180	BOLT – HEX FLG HD M12X1.75X30-SPCL-8.8-ZINC	5
H	136431	NUT – HEX FLG CTR LOC M12X1.75-10	6
		Bag 3	
3	311822	SHIELD – 6-BAT RH TAIL END	6
5	273968	BUSHING – ENDSHIELD	6
11	311482	FINGER – PLASTIC, LH ANGLED	6
A	136640	SCR – TORX TRUSS HD M10X1.5X16XSPCL-8.8-A3L	12
D	135799	NUT – HEX FLG CTR LOC M10X1.5-10	12
J	252687	SCREW – 48° PLASTITE TWIN HELIX	6
		Bag 4	
4	311752	SHIELD – 6-BAT RH OUTBOARD CAM END	6
8	311964	SUPPORT – WELDT CAM END	6
6	313035	PADDLE – REEL END, HYTREL	3
9	311729	DEFLECTOR – CAM OUTBOARD	6
A	136395	SCR – TORX TRUSS HD M10X1.5X20XSPCL-8.8-A3L	6
C	136300	BOLT – HEX FLG HD TFL M8X1.25X20-8.8-AA3L	6
D	135799	NUT – HEX FLG CTR LOC M10X1.5-10	18
G	320180	BOLT – HEX FLG HD M12X1.75X30-SPCL-8.8-ZINC	6
H	136431	NUT – HEX FLG CTR LOC M12X1.75-10	6
E	135337	NUT – HEX FLG CTR LK M8X1.25-8-AA1J	6
F	136640	SCR – TORX TRUSS HD M10X1.5X16XSPCL-8.8-AA1J	12

3.7.1 Installing Double Reel Endshields at Outboard Cam End

Endshields need to be installed at the cam end of the right reel to prevent crop from wrapping around the reel.

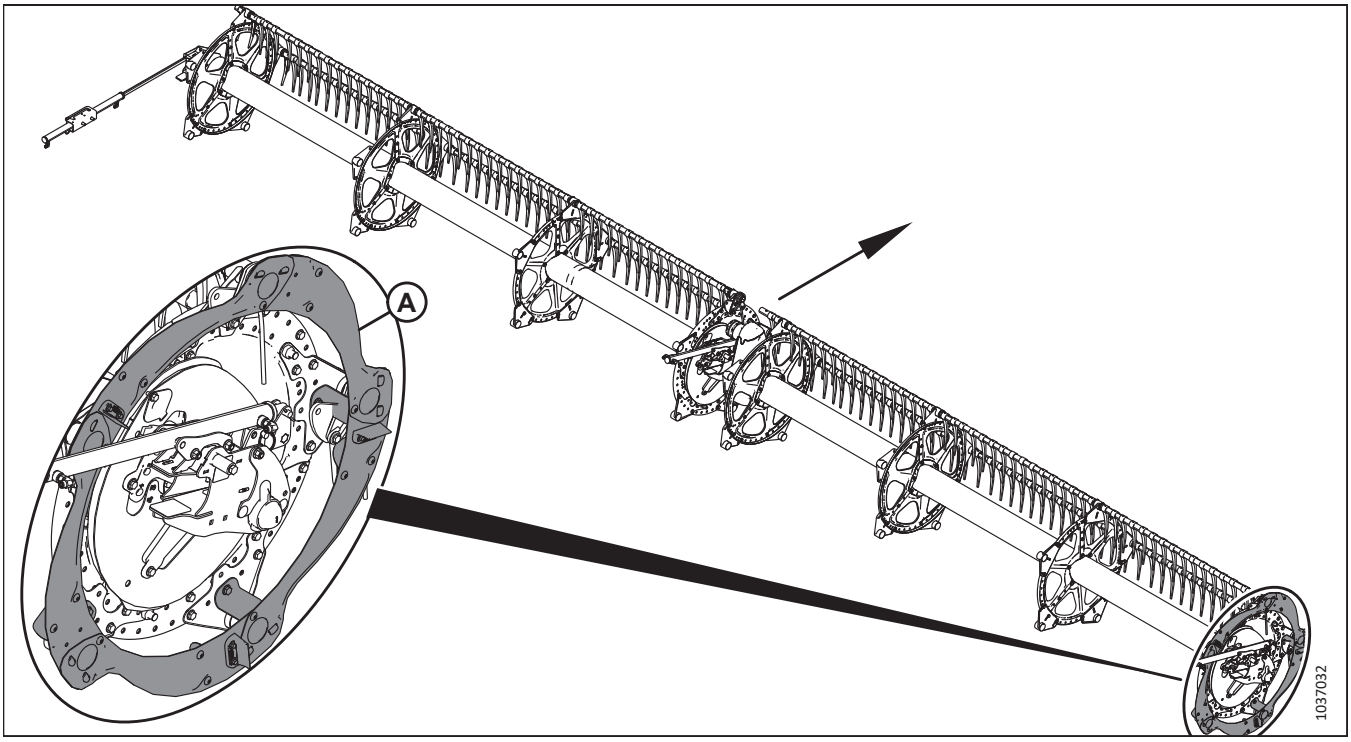


Figure 3.65: Five-Bat Double Reel

A - Five-Bat Cam-End Outboard Shield (MD #311694)

NOTE:

The arrow points to the front of the machine.

1. Retrieve bag 4 from inside the reel endshield shipping bag (MD #340985 or 340986 depending on the number of reel bats).

   NOTE:

   The illustrations in this procedure all show five-bat reel endshields. The procedure for installing six-bat endshields is the same, only the number of parts is different. The parts required for your specific reel type are all provided in bag 4.

2. Retrieve the Torx® Plus IP27 socket supplied in the manual case on the header.

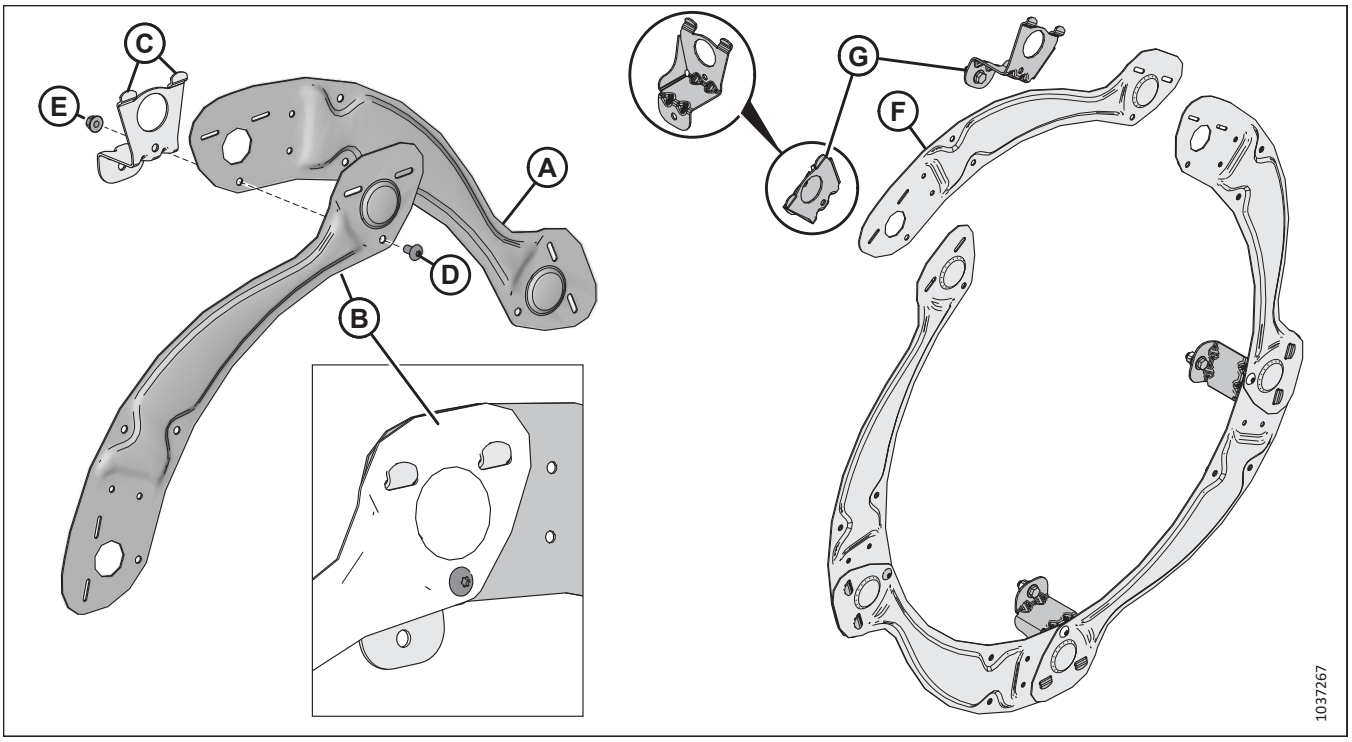


Figure 3.66: Five-Bat Reel – Initial Endshield Assembly

3. 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 the hardware.

   b. Repeat for remaining segments leaving last segment (F) and two support tabs (G) not installed.

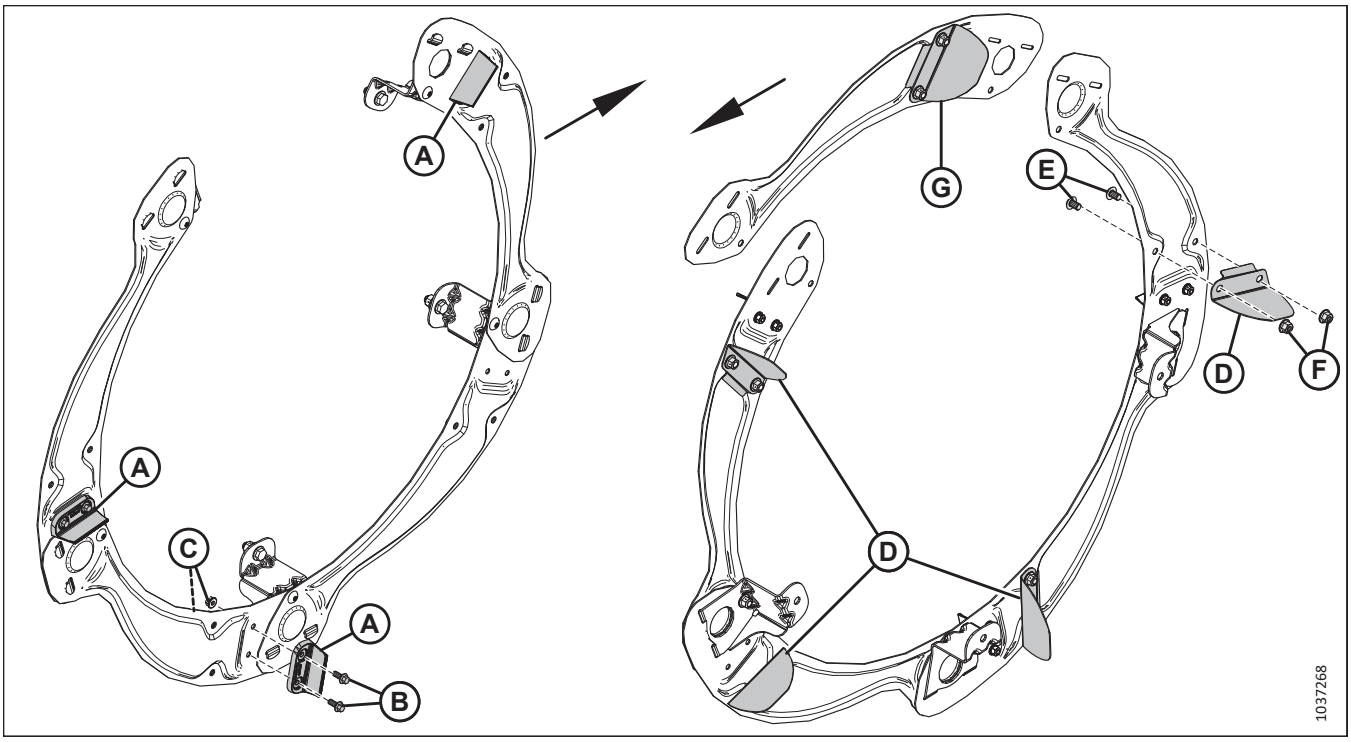


Figure 3.67: Five-Bat Reel – Rubber Paddles and Aluminum Cam Deflectors

IMPORTANT:

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

4. 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.

5. Install four **ALUMINUM** cam deflectors (D) (MD #311729) on the **INBOARD FACE** of the endshield assembly shown using two M10 X 1.5 X 16 Torx® screws (E) and hex nuts (F).

6. Install **ALUMINUM** cam deflector (G) (MD #311729) on the last segment as shown using two M10 X 1.5 X 16 Torx® screws and hex nuts.

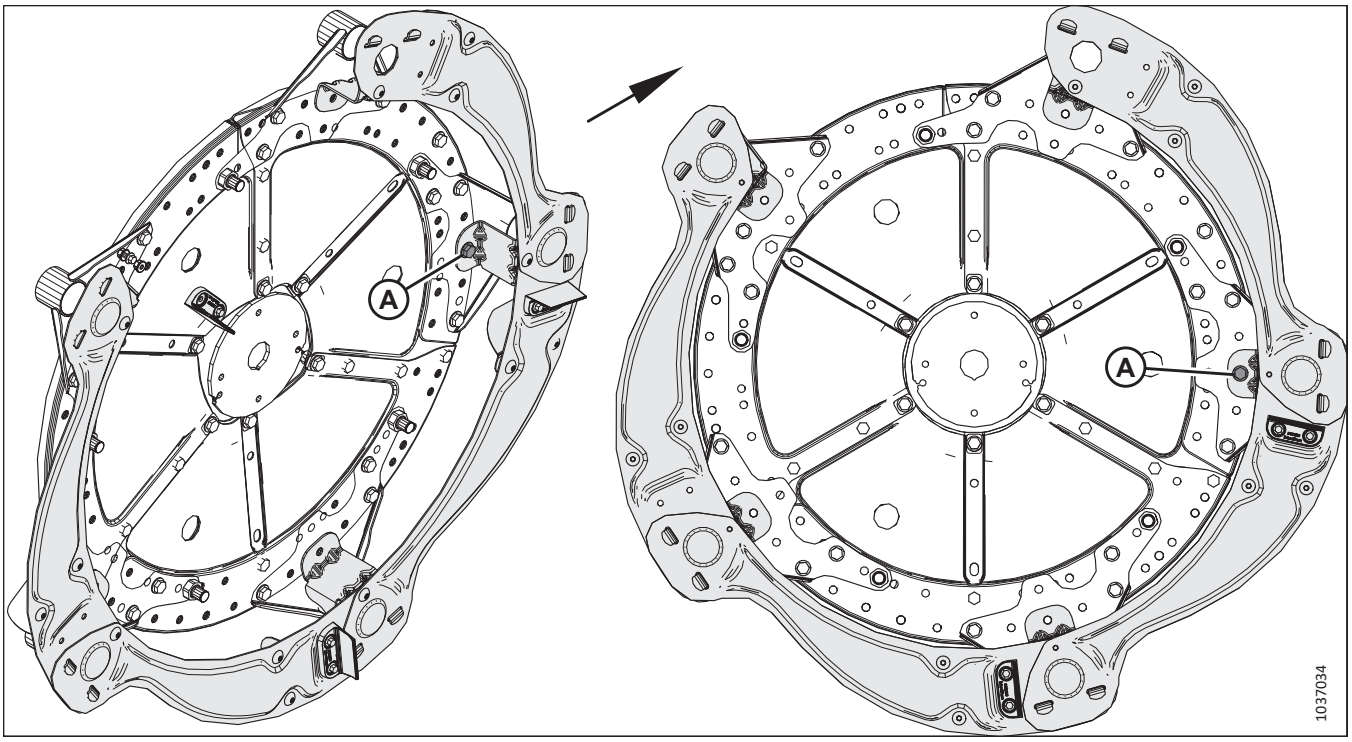


Figure 3.68: Five-Bat Reel – Partially Assembled Reel Endshields on Reel

NOTE:

The arrow points to the front of the machine.

7. Position the partially assembled reel endshield onto the reel.
8. Secure with one M12 X 1.75 X 30 hex bolt (A) and nut. Do **NOT** tighten the hardware.

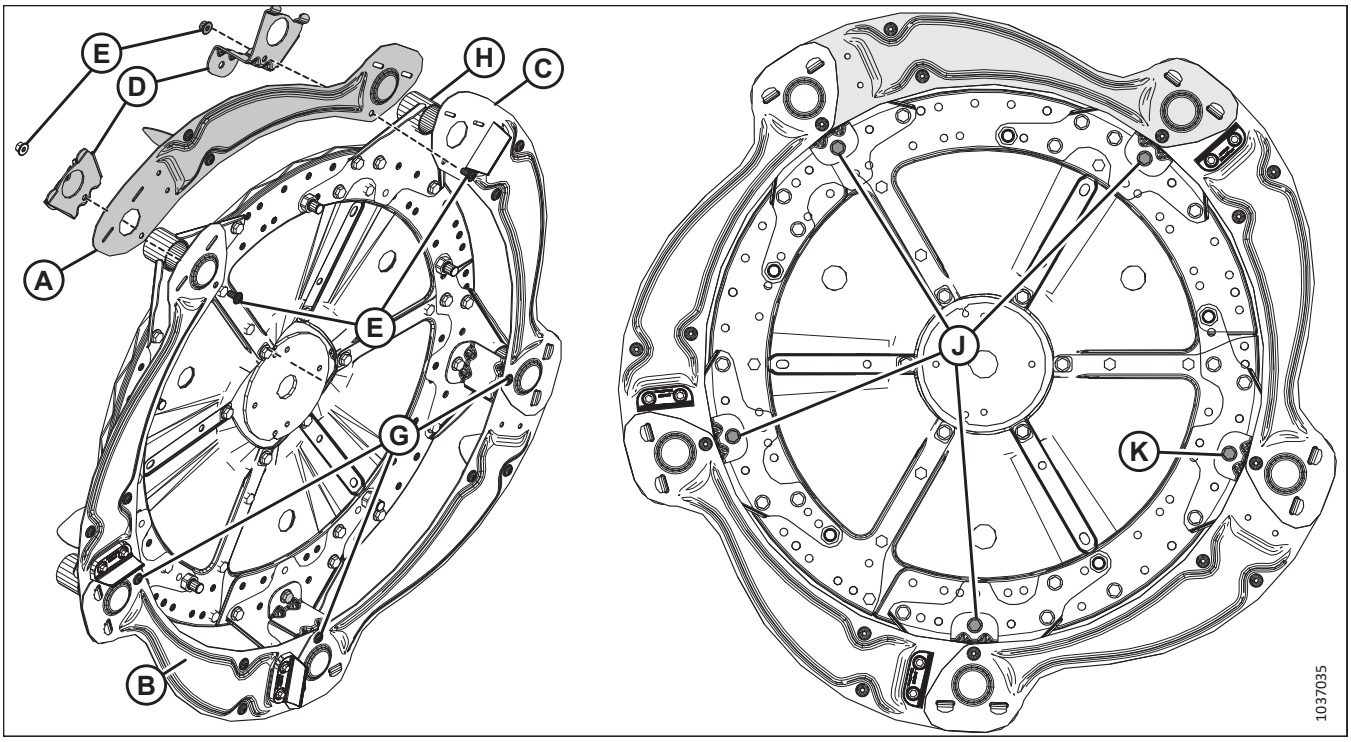


Figure 3.69: Five-Bat Reel – Partially Assembled Reel Endshields on Reel

9. 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.
10. Slip the endshield supports onto tine tubes (H).

    NOTE:

    Not all of the tine tubes are shown in the illustration.

11. Secure the remaining endshield supports to the reel disc using one M12 X 1.75 X 30 hex bolt (J) and nut per endshield support.
12. Tighten M12 X 1.75 X 30 hex bolts (J) and (K) and the nuts that secure the endshield supports to the cam discs to 68.5 Nm (50.5 lbf·ft).

3.7.2 Installing Double Reel Endshields at Inboard Tail End

Endshields need to be installed on the tail end of the right reel to prevent crop from wrapping around the reel.

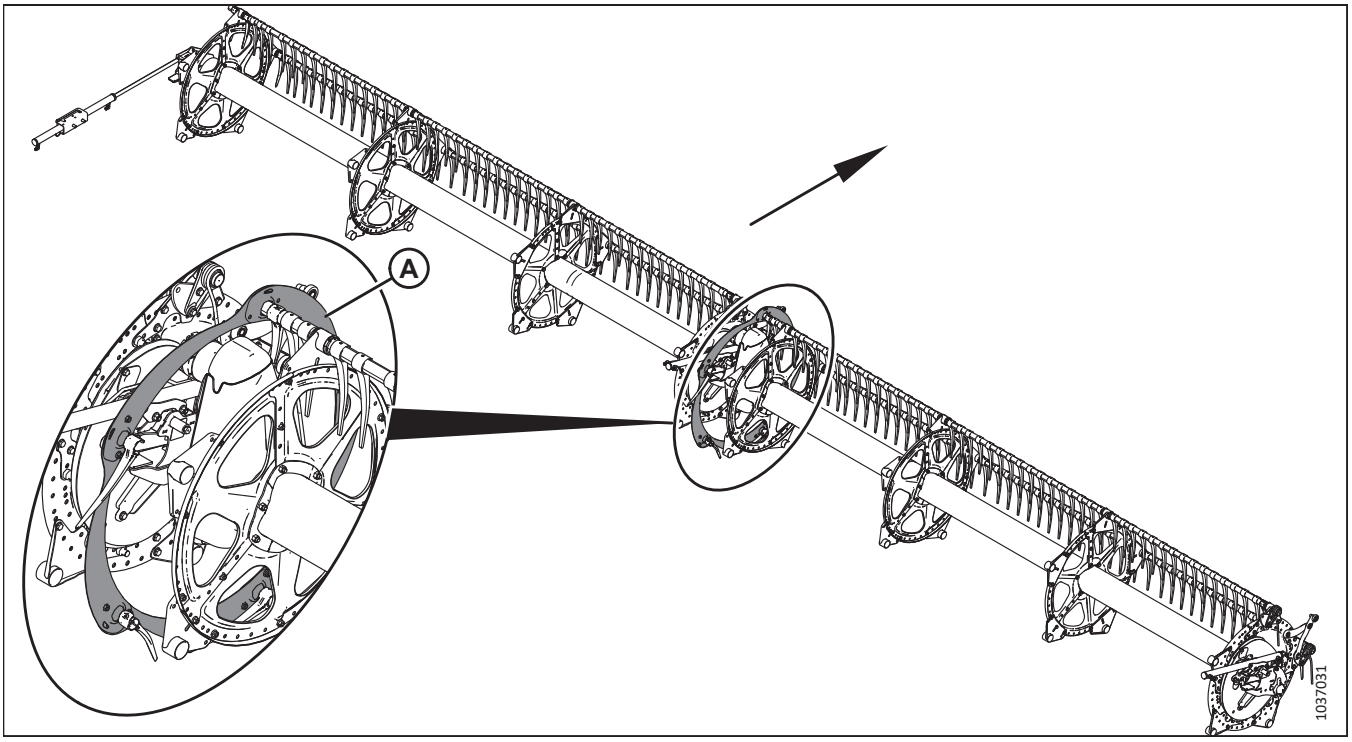


Figure 3.70: Five-Bat Double Reel

A - Five-Bat, Inboard, Tail Endshield (MD #311795)

NOTE:

The arrow points to the front of the machine.

1. Retrieve bag 3 from inside the reel endshields shipping bag (MD #340985 or 340986 depending on the number of reel bats).

   NOTE:

   The illustrations in this procedure all show five-bat reel endshields. The procedure for installing six-bat endshields is the same, only the number of parts is different. The parts required for your specific reel type are all provided in bag 1.

2. Use the Torx® Plus IP27 socket supplied in the manual case on the header.

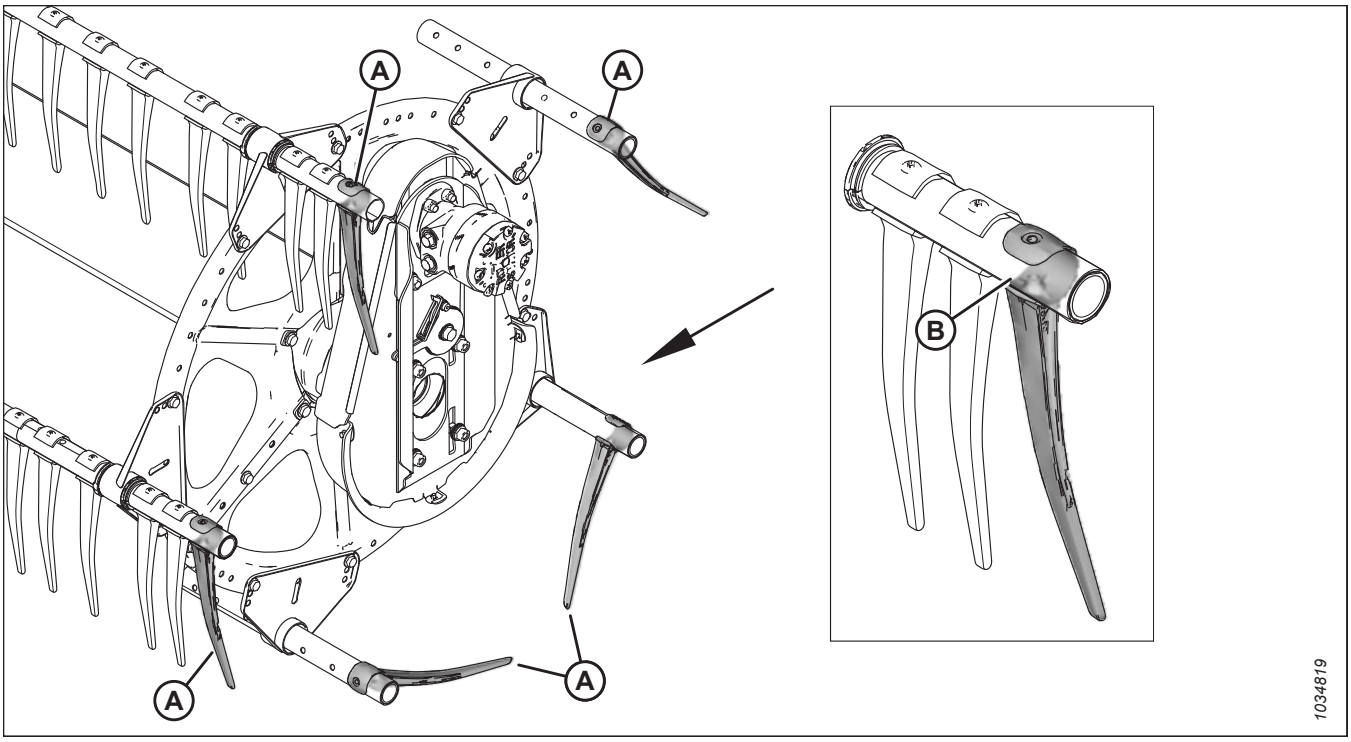


Figure 3.71: Fingers Placed on Tine Tubes

3. Place one finger (A) onto each tine tube. Make sure **OPEN FACE** (B) of the fingers face the **FRONT** of the machine.

   NOTE:

   The arrow points to the front of the machine.

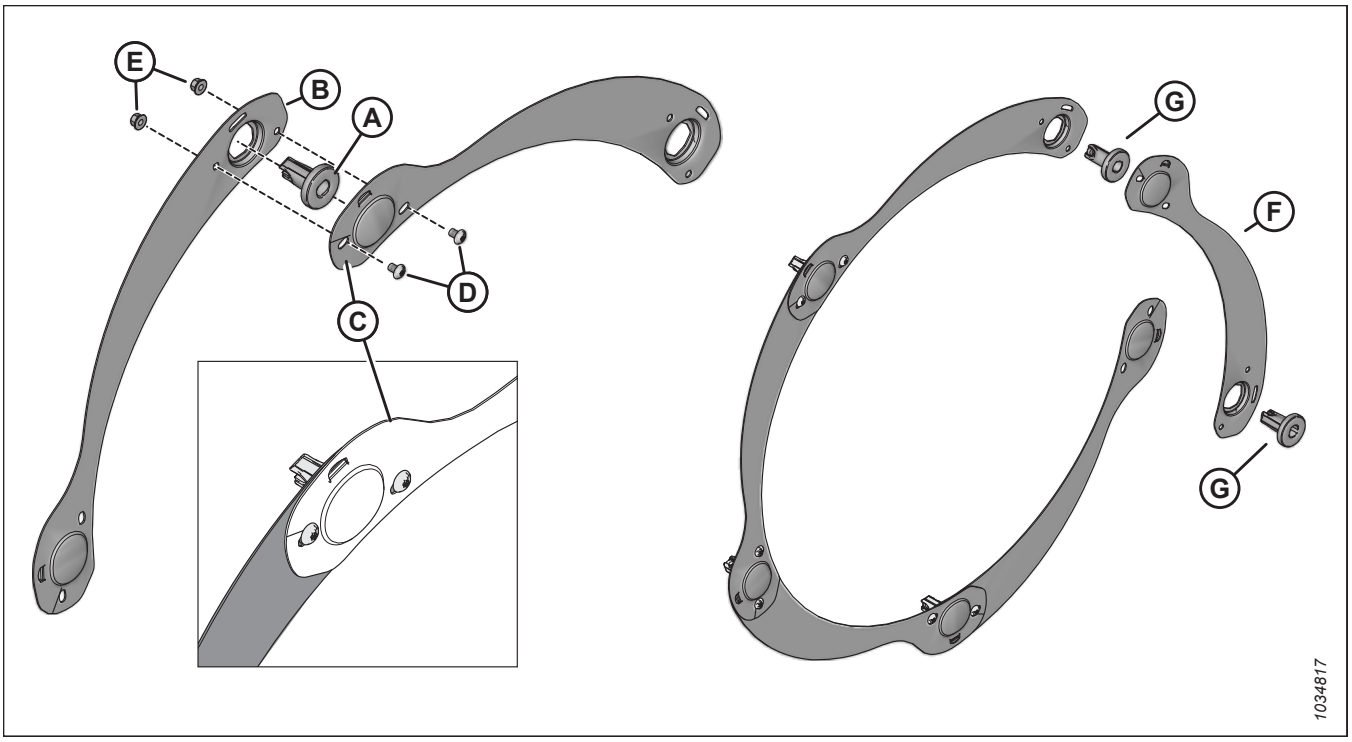


Figure 3.72: Endshield Subassembly

4. 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 the segments using two M10 X 1.5 X 16 Torx® screws (D) and nuts (E). Do **NOT** tighten the hardware.

   c. Repeat the above steps for the remaining segments. Do not install last segment (F) and two bushings (G).

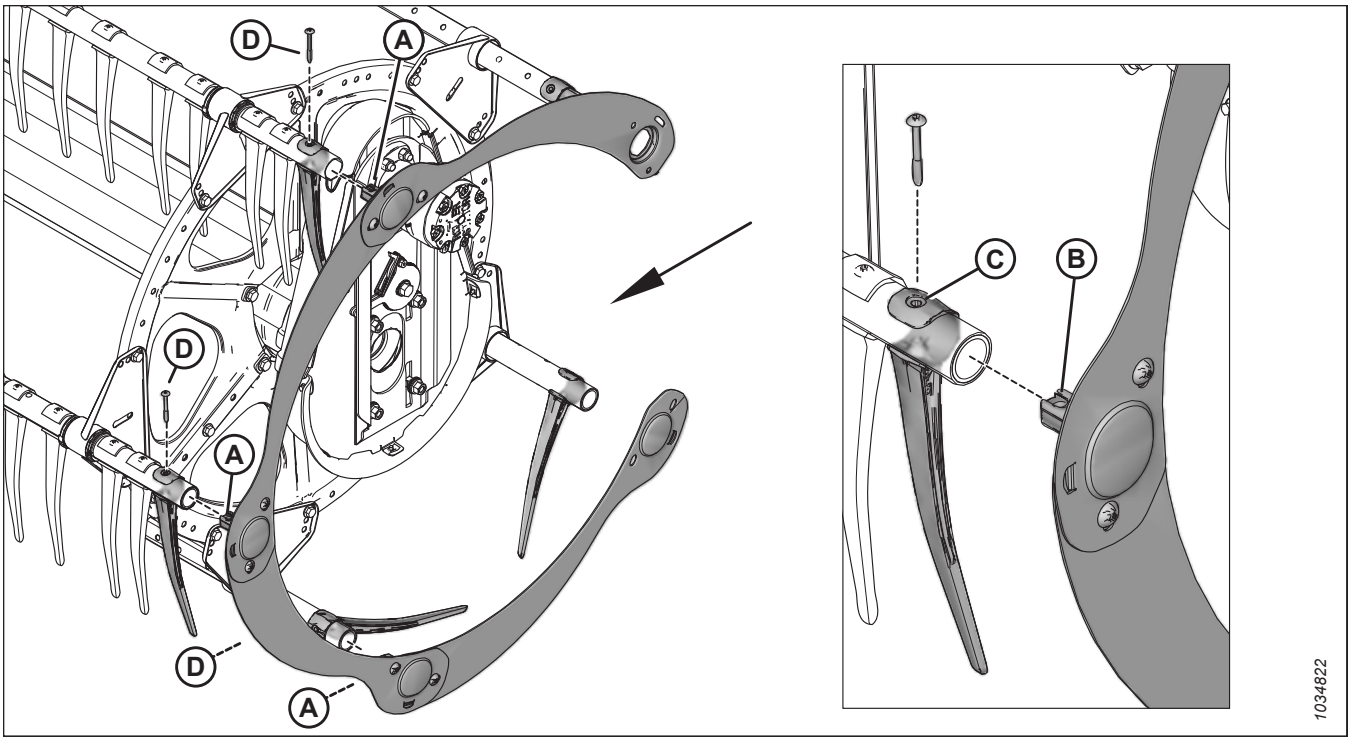


Figure 3.73: Endshield Mounted onto Reel

5. Mount the endshield onto the reel as follows:

   a. Insert three bushings (A) into the tine tubes. Align the holes in bushing (B) and finger (C) with the hole in the tine tube.

   b. Secure the bushings and the fingers using Torx® Plastite® screws (D). Do **NOT** tighten the hardware.

   NOTE:

   The arrow points to the front of the machine.

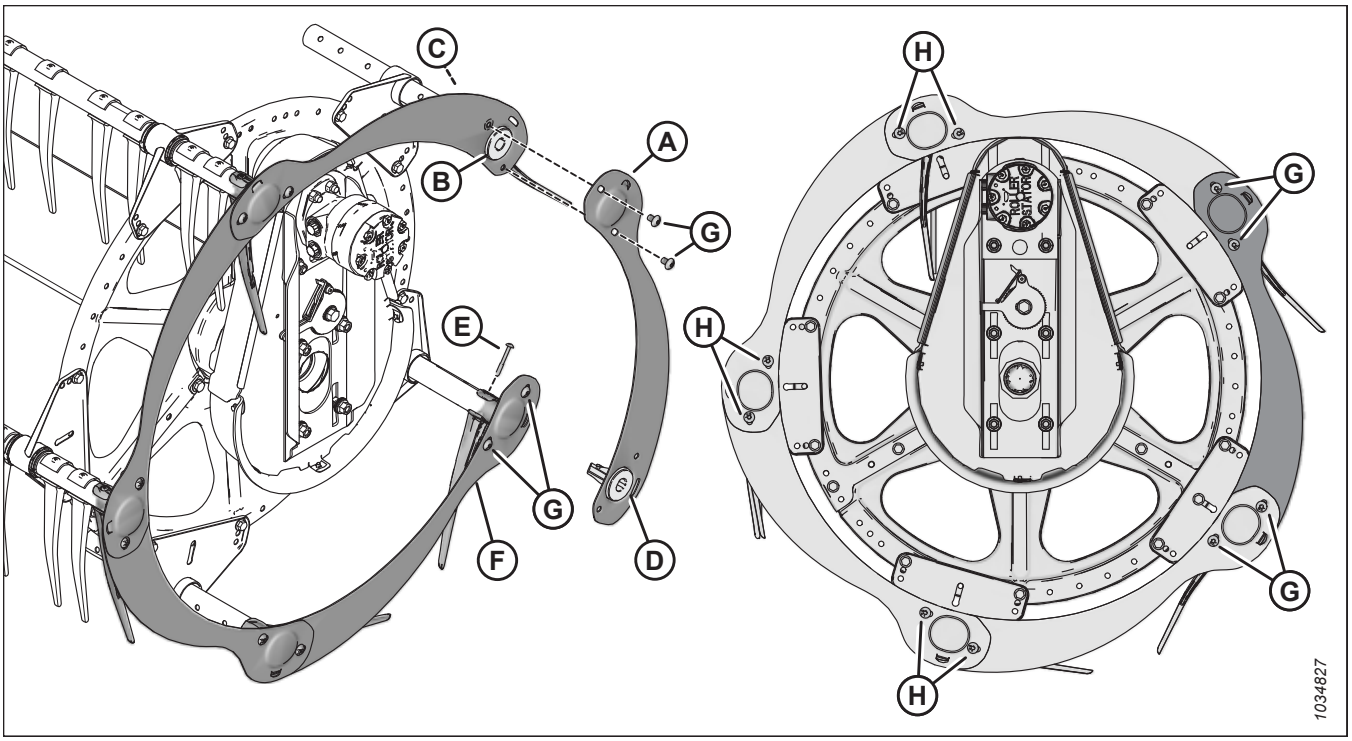


Figure 3.74: Completed Endshield Assembly

6. Install remaining endshield segment (A) as follows:

    a. Install bushing (B) into the endshield segment and the tine tube. Secure with Torx® Plastite® screw (C). Do **NOT** tighten the hardware.

    b. Install bushing (D) into the endshield segment.

    c. Insert the end of the segment with bushing (D) into the tine tube. Secure it with Torx® Plastite® screw (E). Do **NOT** tighten the hardware.

    d. Place the cupped end of segment (F) **ON TOP** of segment (A).

    e. Secure the endshield segments with M10 X 1.5 X 16 Torx® screws and nuts (G).

7. Tighten all the tine tube finger Torx® Plastite® screws to 9 Nm (7 lbf·ft). Do **NOT** overtighten the screws; overtightening will flatten the tubes.

8. Torque all M10 X 1.5 X16 Torx® screws (G) and (H) to 39 Nm (29 lbf·ft).

3.7.3 Installing Double Reel Endshields at Inboard Cam End

Endshields need to be installed at the cam end of the left reel to prevent crop from wrapping around the reel.

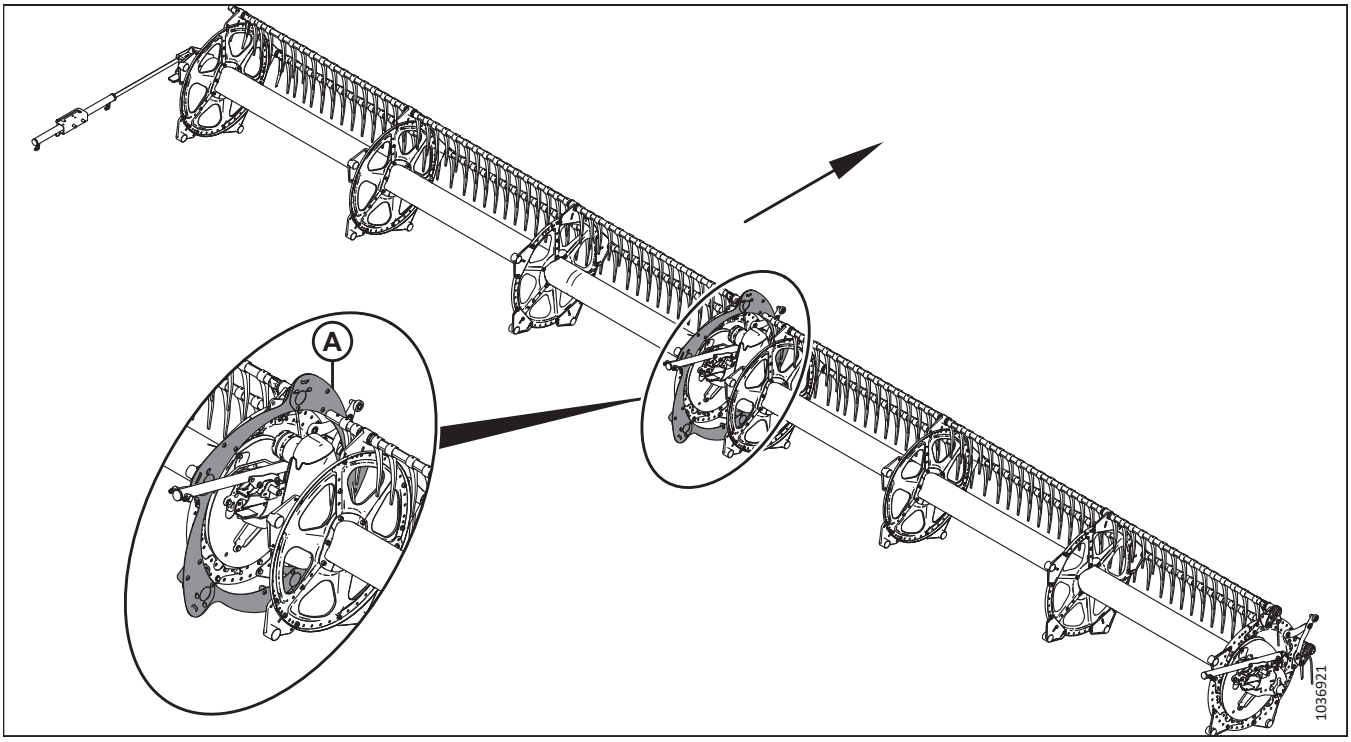


Figure 3.75: Five-Bat Double Reel

A - Five-Bat, Cam-End, Inboard Shield (MD #273823)

NOTE:

The arrow points to the front of the machine.

1. Retrieve bag 2 from inside the reel endshield shipping bag (MD #340985 or 340986 depending on the number of reel bats).

   NOTE:

   The illustrations in this procedure all show five-bat reel endshields. The procedure for installing six-bat endshields is the same, only the number of parts is different. The parts required for your specific reel type are all provided in bag 4.

2. Retrieve the Torx® Plus IP27 socket supplied in the manual case on the header.

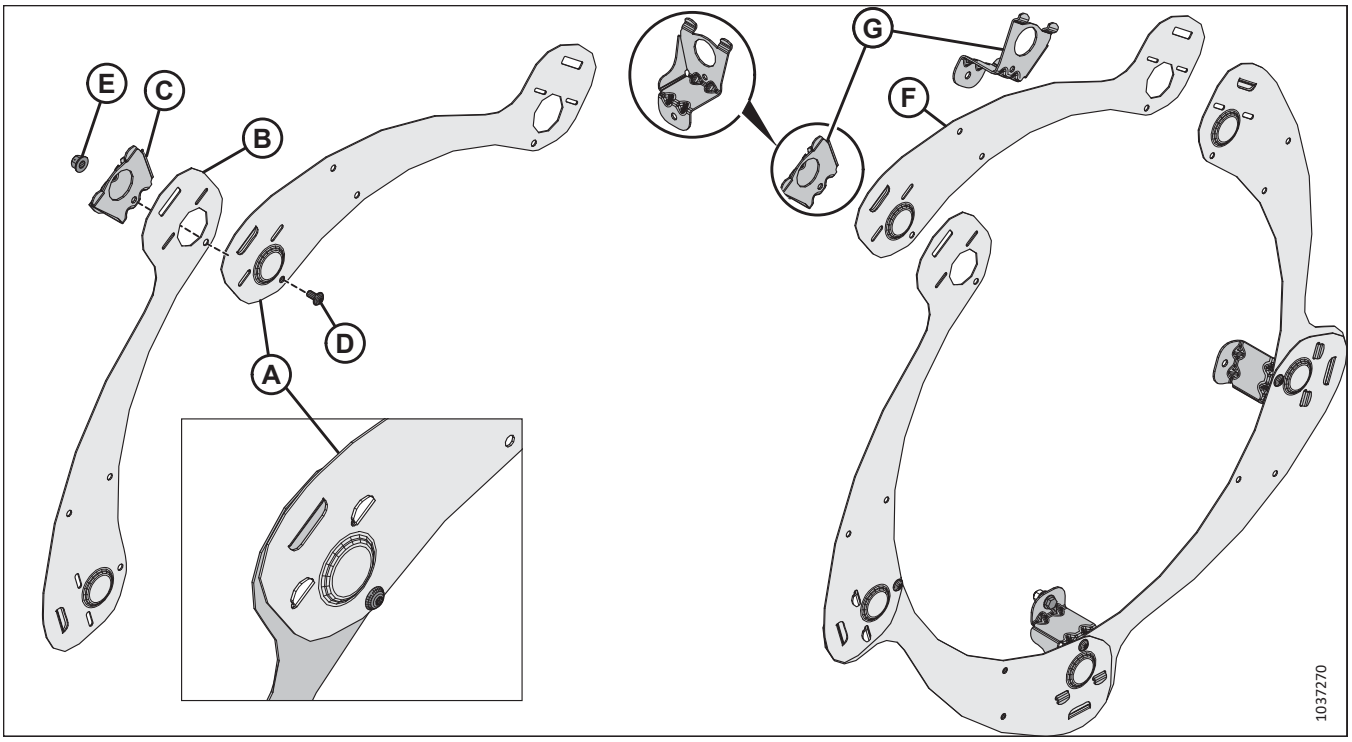


Figure 3.76: Five-Bat Reel – Initial Endshield Assembly

3. 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.

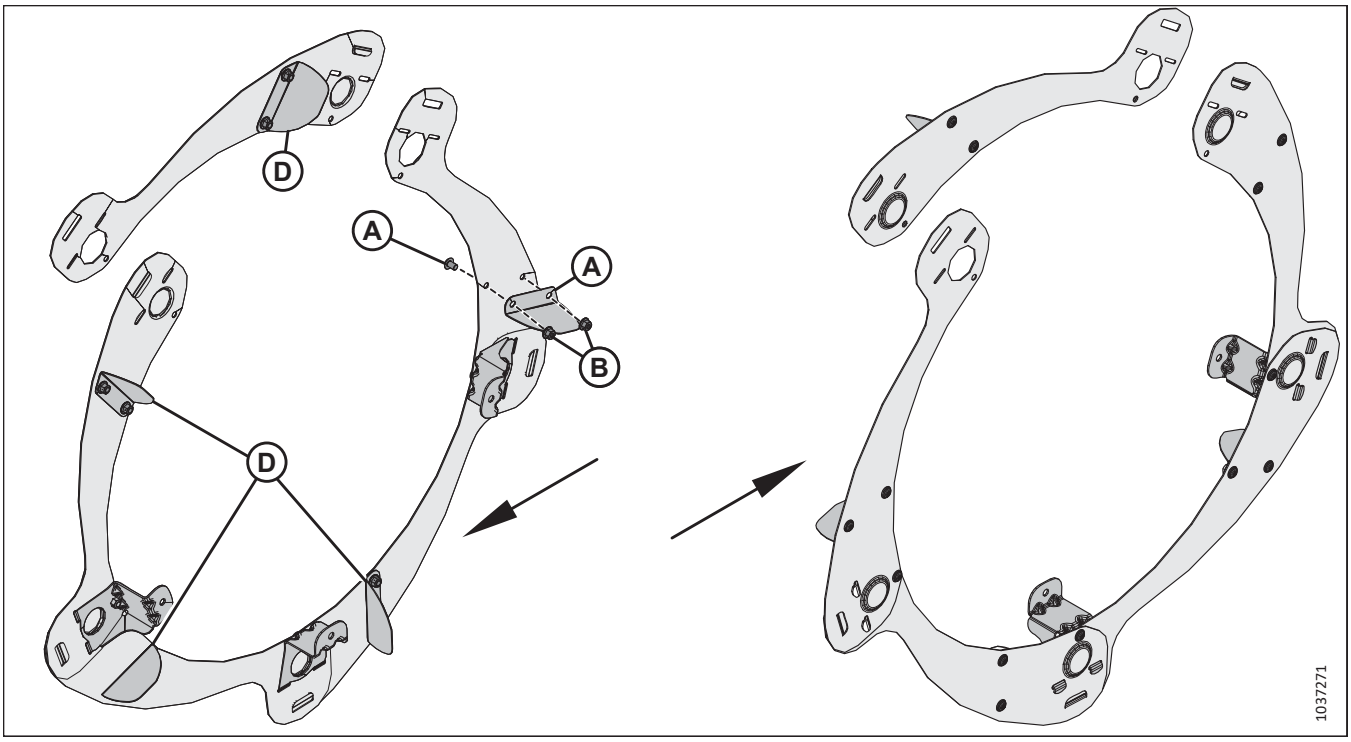


Figure 3.77: Five-Bat Reel – Aluminum Cam Deflectors

IMPORTANT:

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

4. Install four **ALUMINUM** cam deflectors (A) (MD #311906) on the **INBOARD FACE** of the endshield assembly shown using two M10 X 1.5 X 16 Torx® screws (B) and hex nuts (C).

5. Install **ALUMINUM** cam deflector (D) (MD #311906) on the last segment as shown using two M10 X 1.5 X 16 Torx® screws and hex nuts.

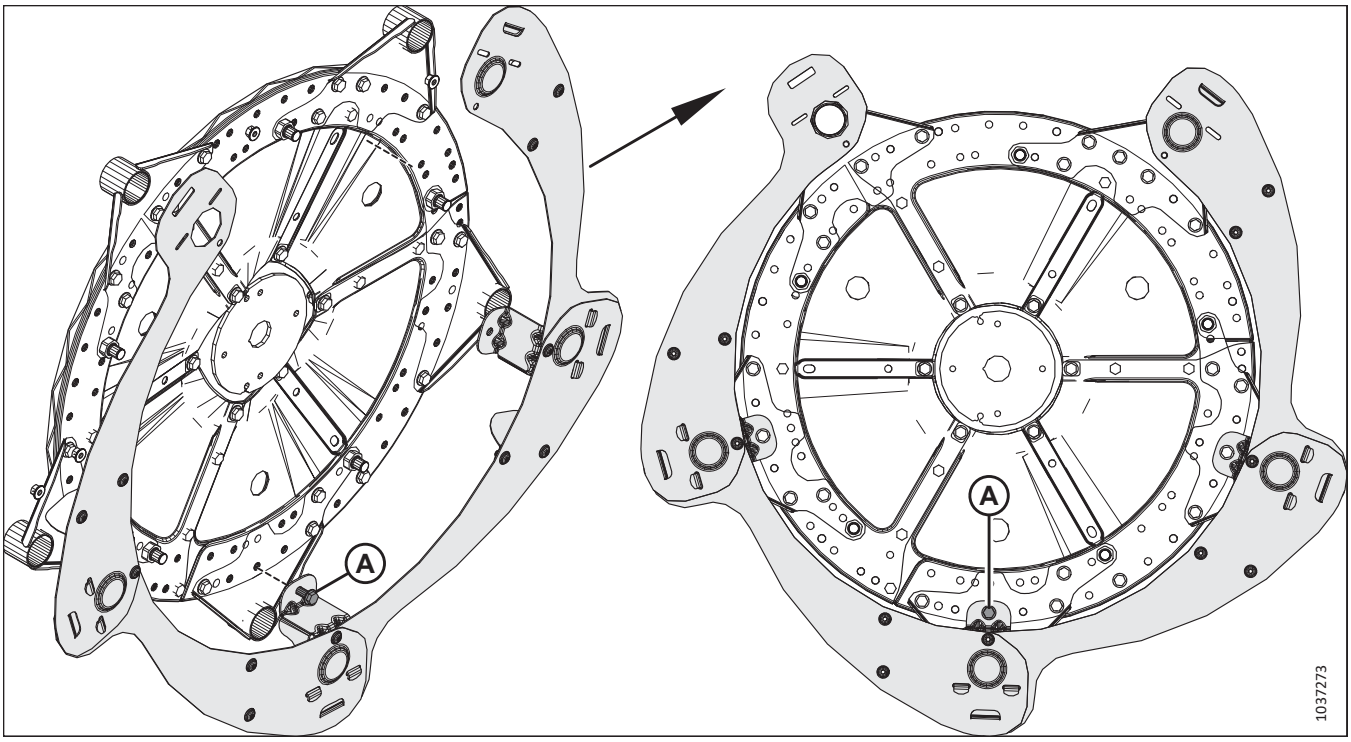


Figure 3.78: Five-Bat Reel – Partially Assembled Reel Endshields on Reel

6. Position partially assembled reel endshield onto reel.

   NOTE:

   The arrow points to the front of the machine.

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

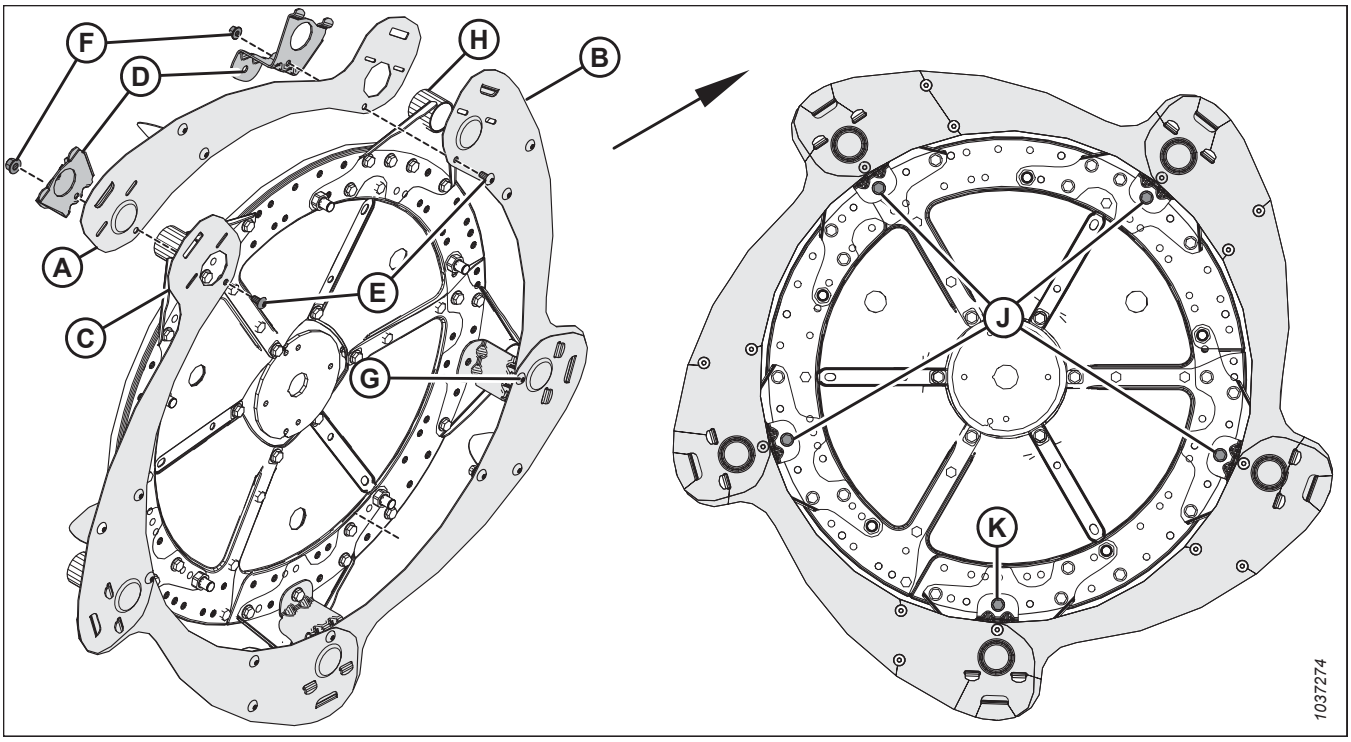


Figure 3.79: Five-Bat Reel – Assembled Reel Endshields on Reel

8. 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.

9. Slip endshield supports onto tine tubes (H).

   NOTE:

   Not all tine tubes shown in illustration.

10. Secure the remaining endshield supports to the reel disc using one M12 X 1.75 X 30 hex bolts (J) and nut per endshield support.

11. Tighten M12 X 1.75 X 30 hex bolts (J) and (K) and the nuts that secure the endshield supports to the cam discs to 68.5 Nm (50.5 lbf·ft).

3.7.4 Installing Double Reel Endshields at Outboard Tail End

Endshields need to be installed on the tail end of the left reel to prevent crop from wrapping around the reel.

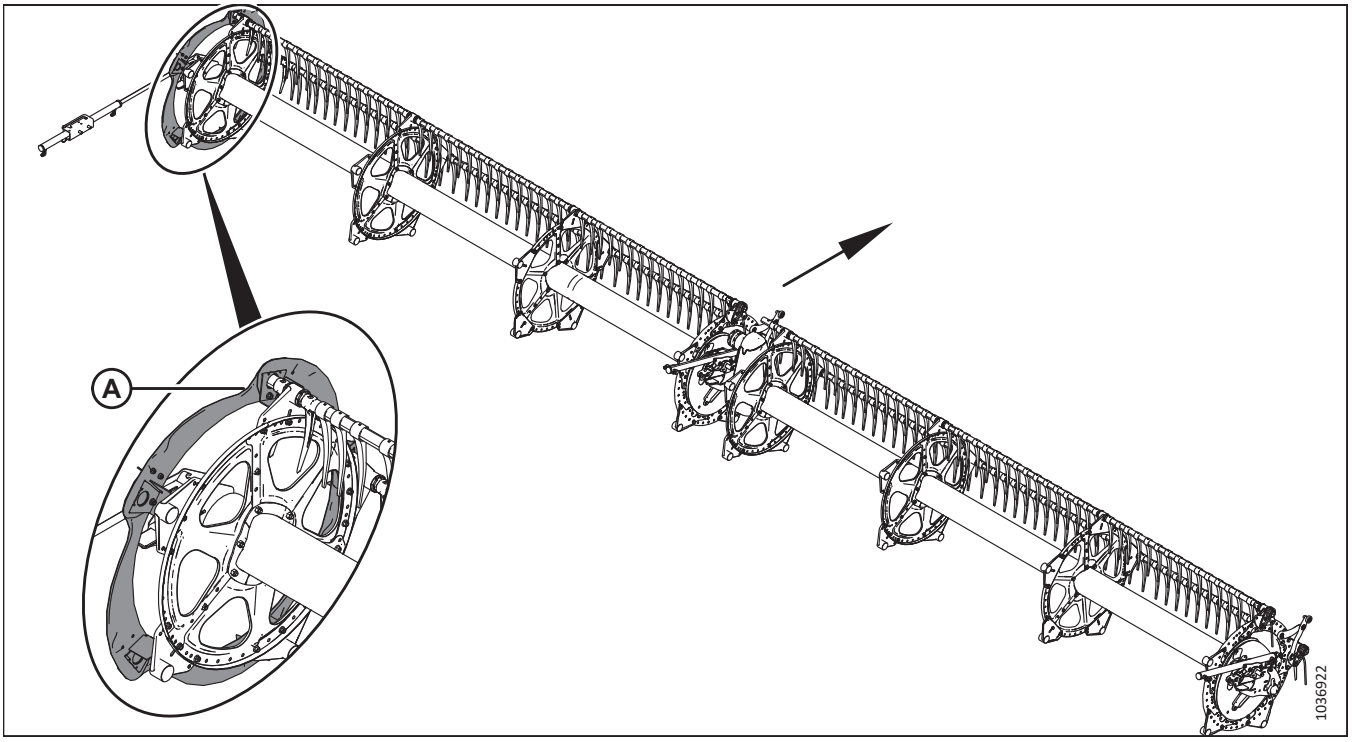


Figure 3.80: Five-Bat Double Reel

A - Five-Bat Outboard Tail End Endshield (MD #311695)

1. Retrieve bag 1 from inside the reel endshields shipping bag (MD #340985 or 340986 depending on the number of reel bats).

   NOTE:

   The illustrations in this procedure all show five-bat reel endshields. The procedure for installing six-bat endshields is the same, only the number of parts is different. The parts required for your specific reel type are all provided in bag 1.

2. Retrieve the Torx® Plus IP27 socket supplied in the manual case on the header.

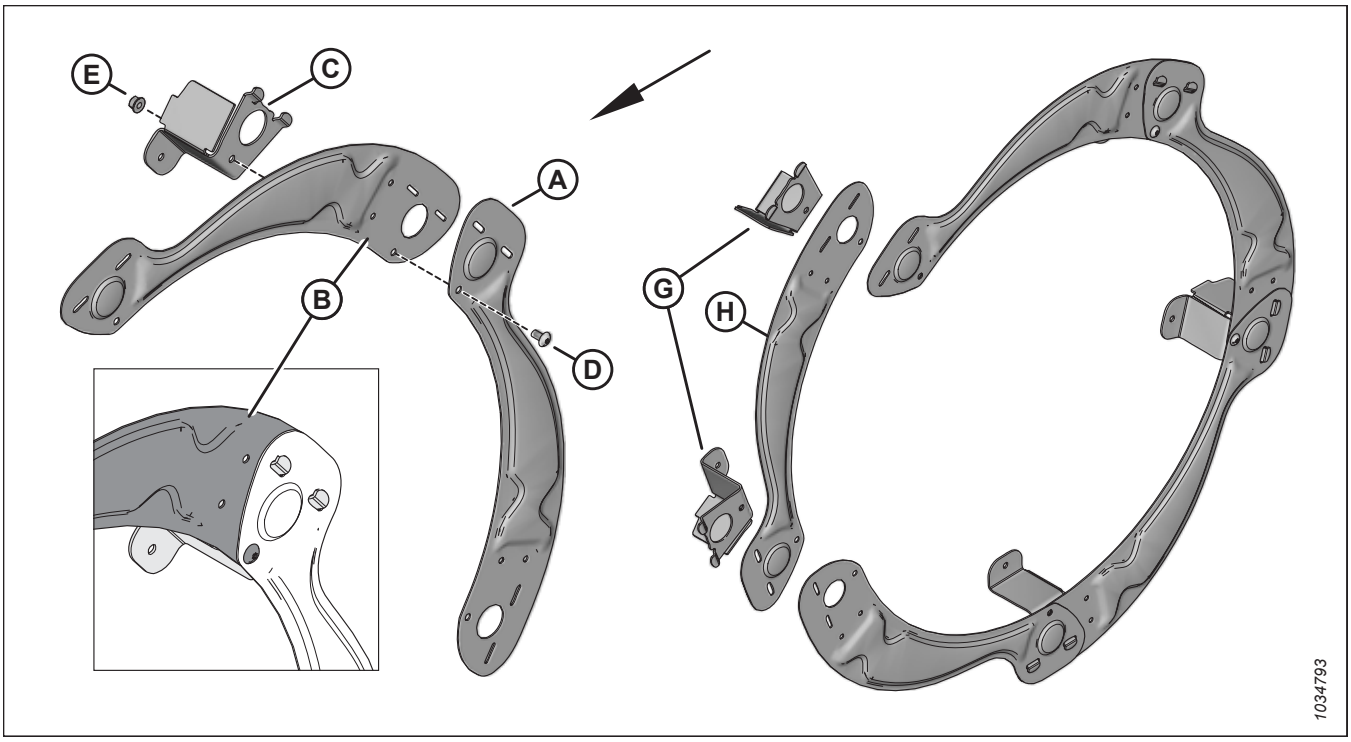


Figure 3.81: Five-Bat Reel – Initial Endshield Assembly

3. 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 the hardware.

   b. Repeat for remaining segments leaving last segment (H) and two support tabs (G) uninstalled.

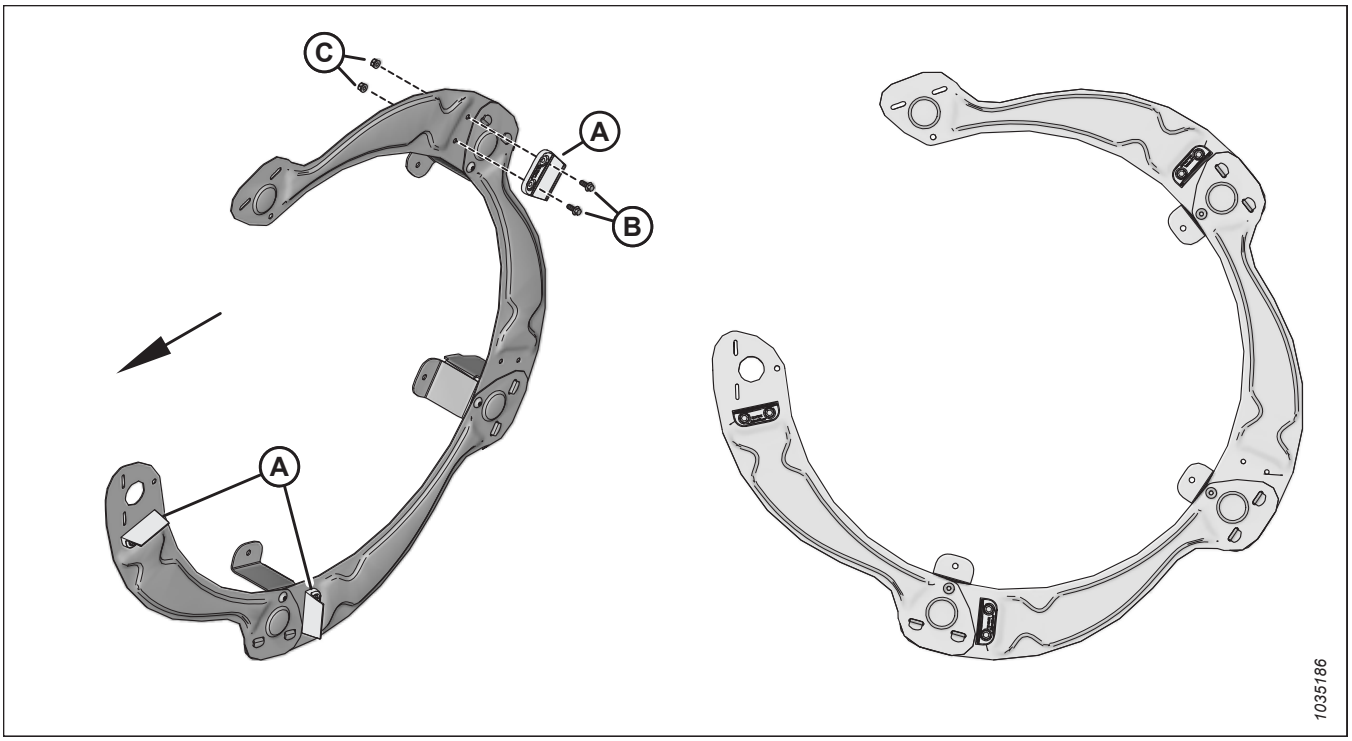


Figure 3.82: Five-Bat Reel – Rubber Paddles

4. 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.

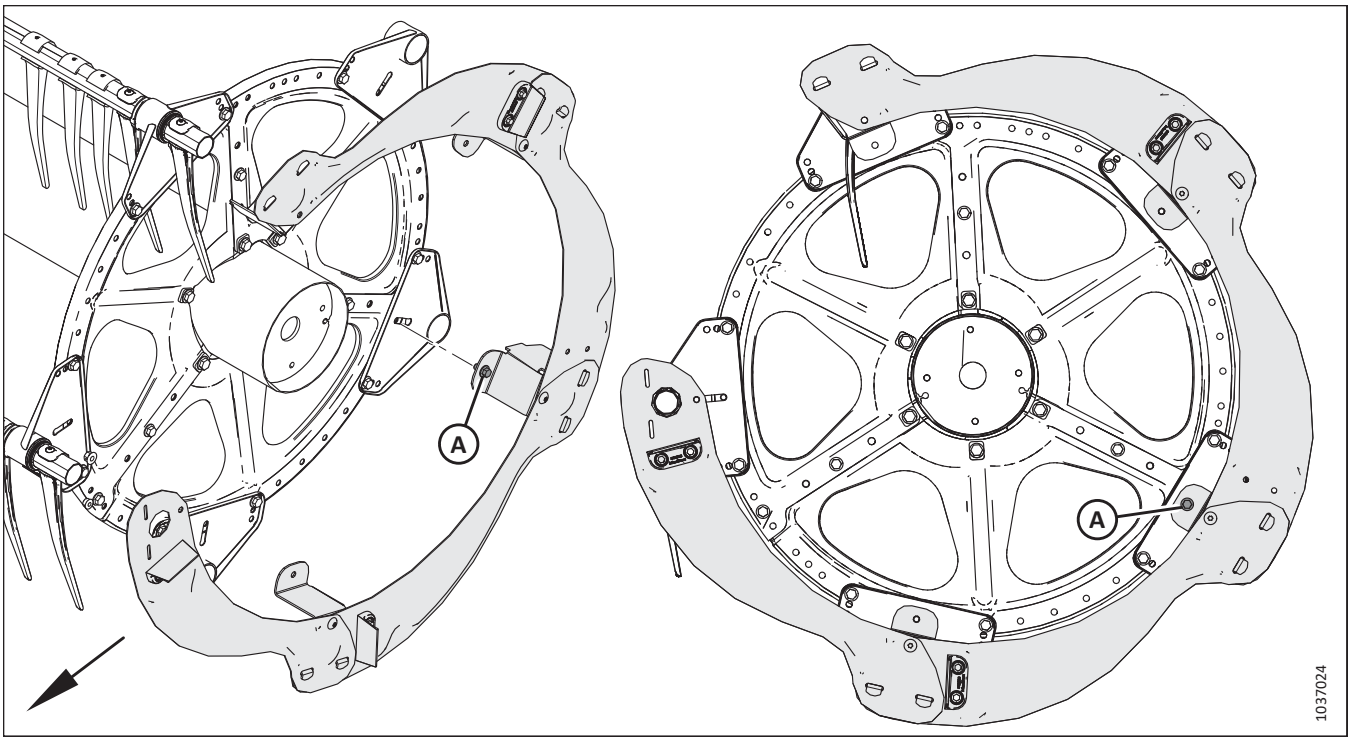


Figure 3.83: Five-Bat Reel – Partially Assembled Reel Endshields on Reel

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

   NOTE:

   The arrow points to the front of the machine.

6. Identify the endshield support tab that is opposite the opening in the circle of endshield segments. Secure it to the reel with one M10 X 1.5 X 20 hex bolt (A) and nut. Do **NOT** tighten the hardware.

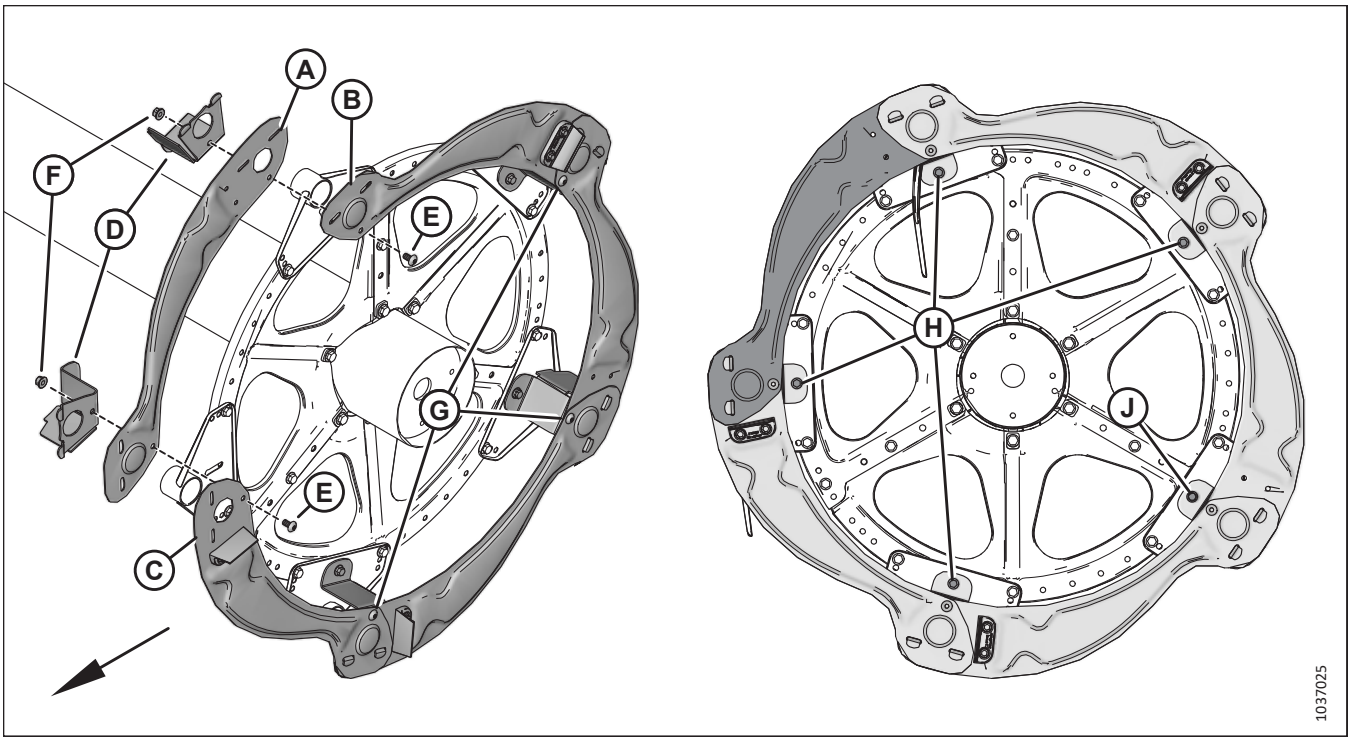


Figure 3.84: Five-Bat Reel – Partially Assembled Reel Endshields on Reel

7. 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 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. Secure the endshield supports to the reel disc using one M10 X 1.5 X 20 hex bolt (H) and nut per endshield support.

9. Tighten M10 X 1.5 X 20 hex bolts (H) and (J) and the nuts that secure the endshield supports to the cam discs to 68.5 Nm (50.5 lbf·ft).

3.8 Retrieving Triple Reel Endshields

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

NOTE:

The large arrow points to the front of the machine.

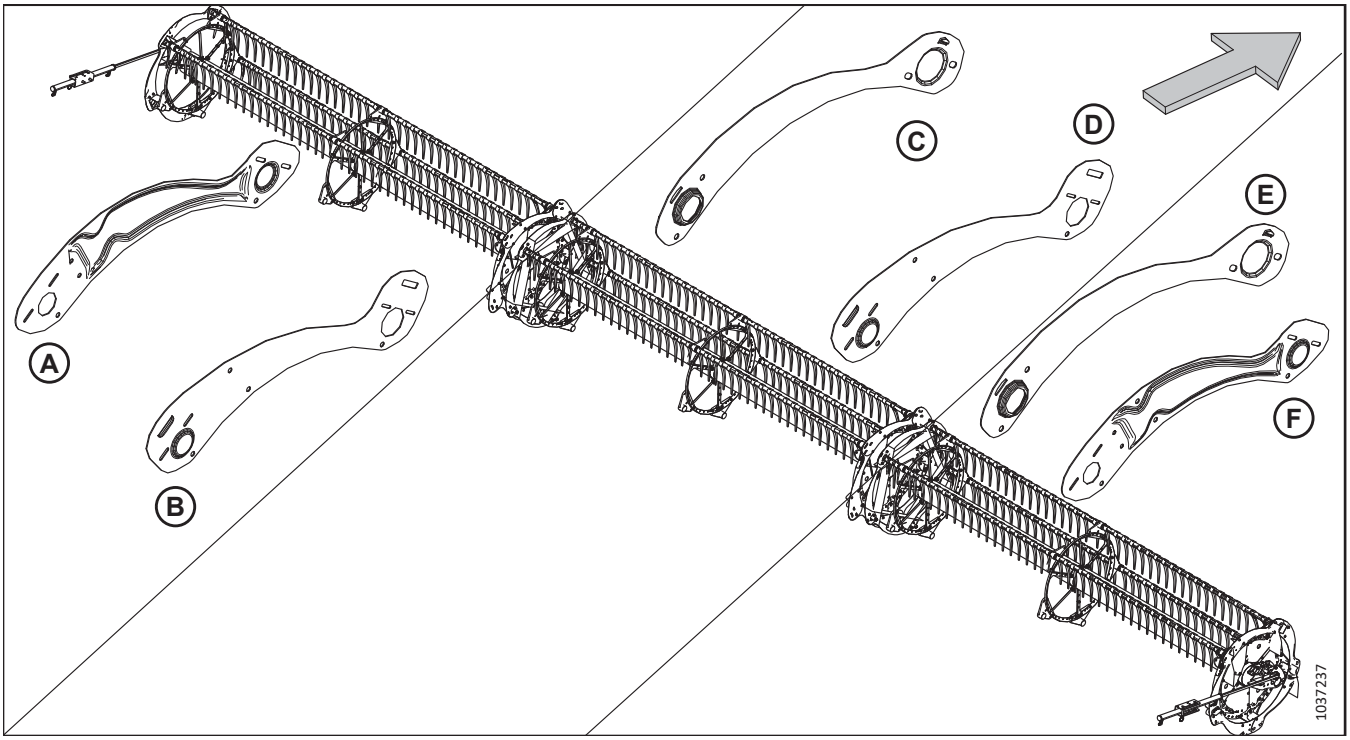


Figure 3.85: Reel Endshields – Triple Reel (MD #340987 [Bags 1–3], MD #340988 [Bags 4–6])

A - Tail End, LH Outboard (MD #311695), Bag 1
B - Cam End, LH Inboard (MD #273823), Bag 2
C - Tail End, LH Center Inboard (MD #311795), Bag 3
D - Cam End, RH Center Outboard (MD #273823), Bag 4
E - Tail End, RH Inboard (MD #311795) Bag 5
F - Cam End, RH Outboard (MD #311694), Bag 6

1. Retrieve shipping bag (A) (MD #340987) and shipping bag (B) (MD #340988) containing the reel endshield parts that were removed from the cutterbar.

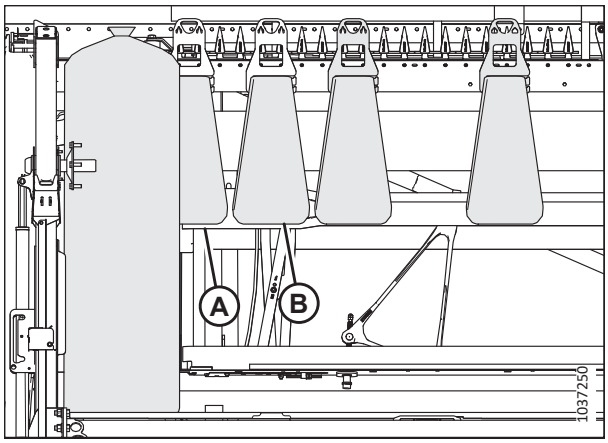


Figure 3.86: Reel Endshield Parts

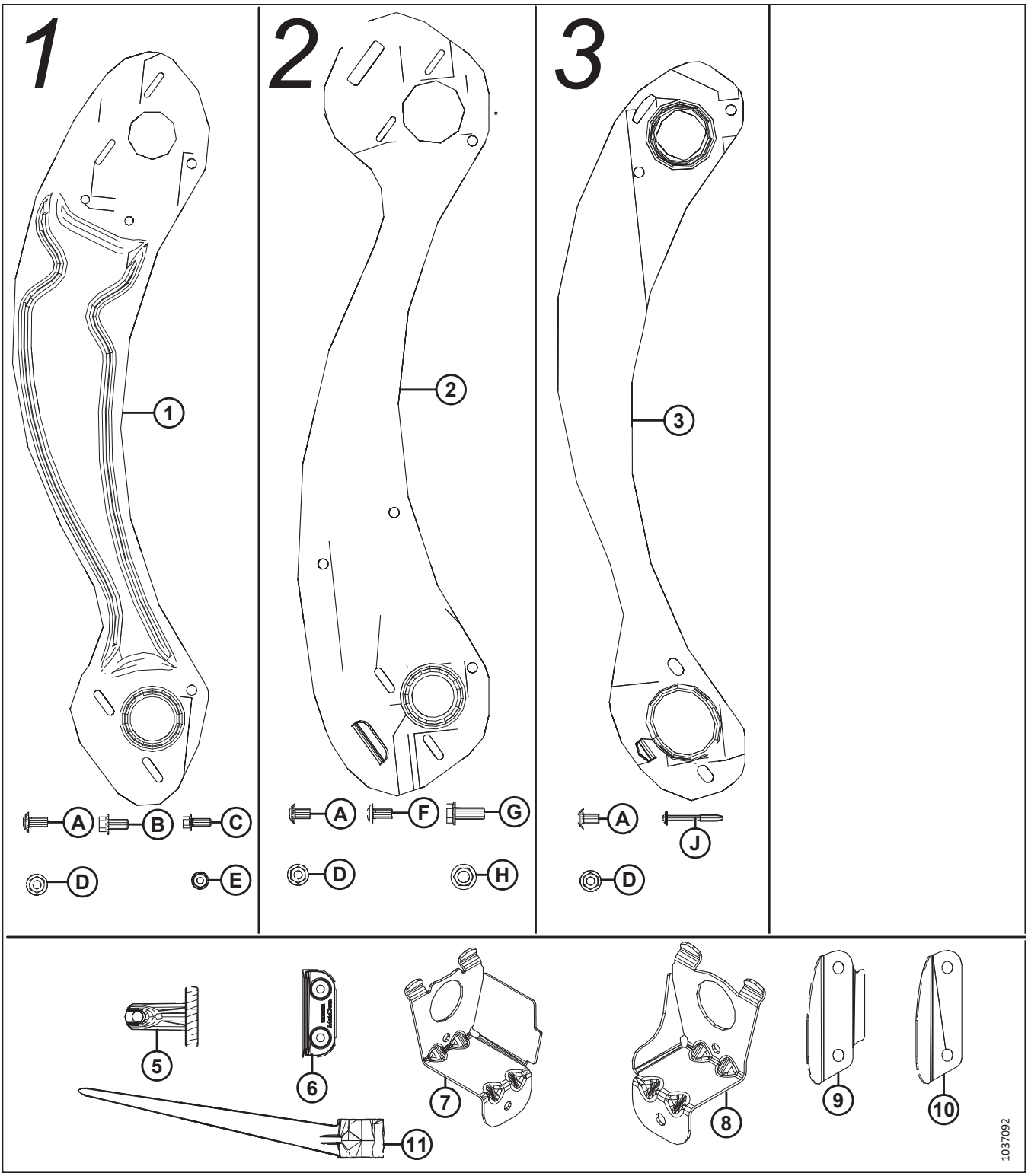


Figure 3.87: Left Triple-Reel Bag – MD #340987

Table 3.3 Left Triple-Reel Bag – MD #340987

Ref	Part Number	Description	Qty
		Bag 1	
1	311695	SHIELD – 5-BAT LH OUTBOARD TAIL END	5
6	313035	PADDLE – REEL END, HYTREL	3
7	311965	SUPPORT – WELDT TAIL END	5
A	136395	SCR – TORX TRUSS HD M10X1.5X20XSPCL-8.8-A3L	5
B	152655	BOLT – HEX FLG HD M10X1.5X20-8.8-AA1J	5
C	136300	BOLT – HEX FLG HD TFL M8X1.25X20-8.8-AA3L	6
D	135799	NUT – HEX FLG CTR LOC M10X1.5-10	5
E	135337	NUT – HEX FLG CTR LK M8X1.25-8-AA1J	6
		Bag 2	
2	273823	SHIELD – 5-BAT LH INBOARD CAM END	5
8	311964	SUPPORT – WELDT CAM END	5
10	311906	DEFLECTOR – CAM INBOARD	5
A	136395	SCR – TORX TRUSS HD M10X1.5X20XSPCL-8.8-A3L	5
D	135799	NUT – HEX FLG CTR LOC M10X1.5-10	15
F	136640	SCR – TORX TRUSS HD M10X1.5X16XSPCL-8.8-AA1J	10
G	320180	BOLT – HEX FLG HD M12X1.75X30-SPCL-8.8-ZINC	5
H	136431	NUT – HEX FLG CTR LOC M12X1.75-10	5
		Bag 3	
3	311795	SHIELD – 5-BAT CENTER TAIL END	5
5	273968	BUSHING – ENDSHIELD	5
11	311524	FINGER – PLASTIC, LH ANGLED (10 PACK)	1
A	136640	SCR – TORX TRUSS HD M10X1.5X16XSPCL-8.8-A3L	10
D	135337	NUT – HEX FLG CTR LOC M8X1.25-8-AA1J	10
J	252687	SCREW – 48° PLASTITE TWIN HELIX	5

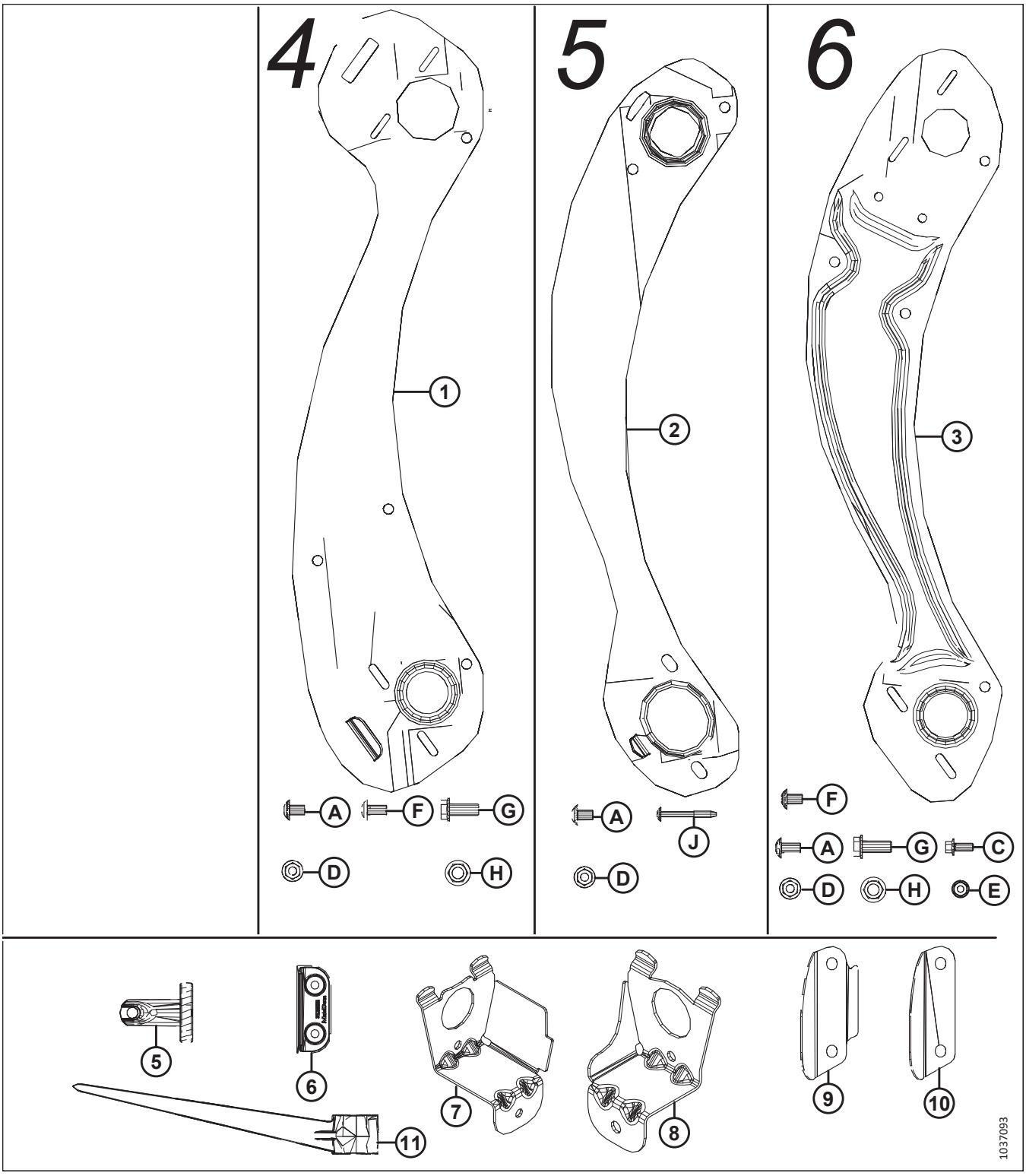


Figure 3.88: Right Triple-Reel Bag – MD #340988

Table 3.4 Right Triple-Reel Bag – MD #340988

Ref	Part Number	Description	Qty
		Bag 4	
1	273823	SHIELD – 5-BAT CENTER INBOARD CAM END	5
8	311964	SUPPORT – WELDT CAM END	5
10	311906	DEFLECTOR – CAM INBOARD	5
A	136395	SCR – TORX TRUSS HD M10X1.5X20XSPCL-8.8-A3L	5
D	135799	NUT – HEX FLG CTR LOC M10X1.5-10	15
F	136640	SCR – TORX TRUSS HD M10X1.5X16XSPCL-8.8-AA1J	10
G	320180	BOLT – HEX FLG HD M12X1.75X30-SPCL-8.8-ZINC	5
H	136431	NUT – HEX FLG CTR LOC M12X1.75-10	5
		Bag 5	
2	311795	SHIELD – 5-BAT RH INBOARD TAIL END	5
5	273968	BUSHING – ENDSHIELD	5
11	311524	FINGER – PLASTIC, LH ANGLED (10 PACK)	1
A	136640	SCR – TORX TRUSS HD M10X1.5X16XSPCL-8.8-A3L	10
D	135337	NUT – HEX FLG CTR LOC M8X1.25-8-AA1J	10
J	252687	SCREW – 48° PLASTITE TWIN HELIX	5
		Bag 6	
3	311694	SHIELD – 5-BAT RH OUTBOARD CAM END	5
8	311964	SUPPORT – WELDT CAM END	5
6	313035	PADDLE – REEL END, HYTREL	3
9	311729	DEFLECTOR – CAM OUTBOARD	5
A	136395	SCR – TORX TRUSS HD M10X1.5X20XSPCL-8.8-A3L	5
C	136300	BOLT – HEX FLG HD TFL M8X1.25X20-8.8-AA3L	6
D	135799	NUT – HEX FLG CTR LOC M10X1.5-10	15
G	320180	BOLT – HEX FLG HD M12X1.75X30-SPCL-8.8-ZINC	5
H	136431	NUT – HEX FLG CTR LOC M12X1.75-10	5
E	135337	NUT – HEX FLG CTR LK M8X1.25-8-AA1J	6
F	136640	SCR – TORX TRUSS HD M10X1.5X16XSPCL-8.8-AA1J	10

3.8.1 Installing Triple Reel Endshields at Outboard Cam End

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

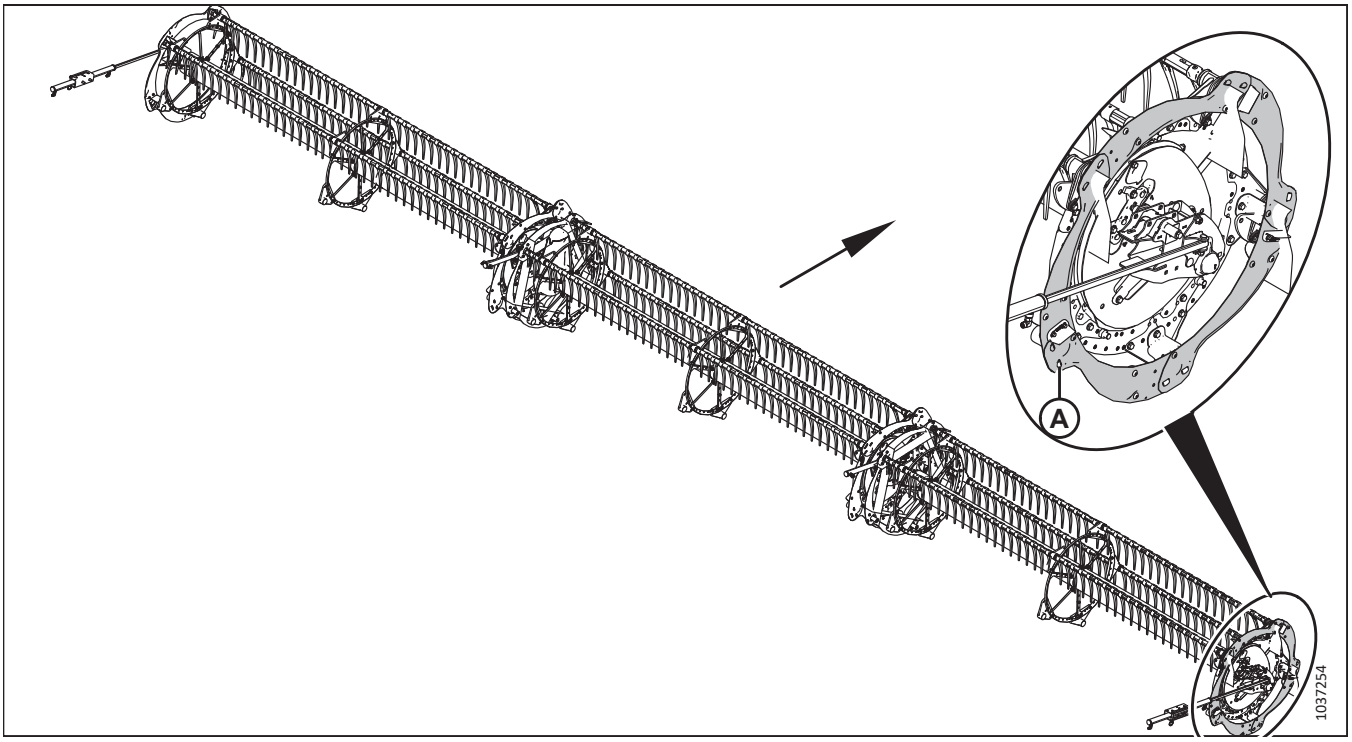


Figure 3.89: Triple Reel Shown

A - Cam End, RH Outboard (MD #311694)

NOTE:

The arrow points to the front of the machine.

1. Retrieve bag 6 from inside triple reel bag MD #340988.
2. Retrieve the Torx® Plus IP27 socket supplied in the manual case on the header.

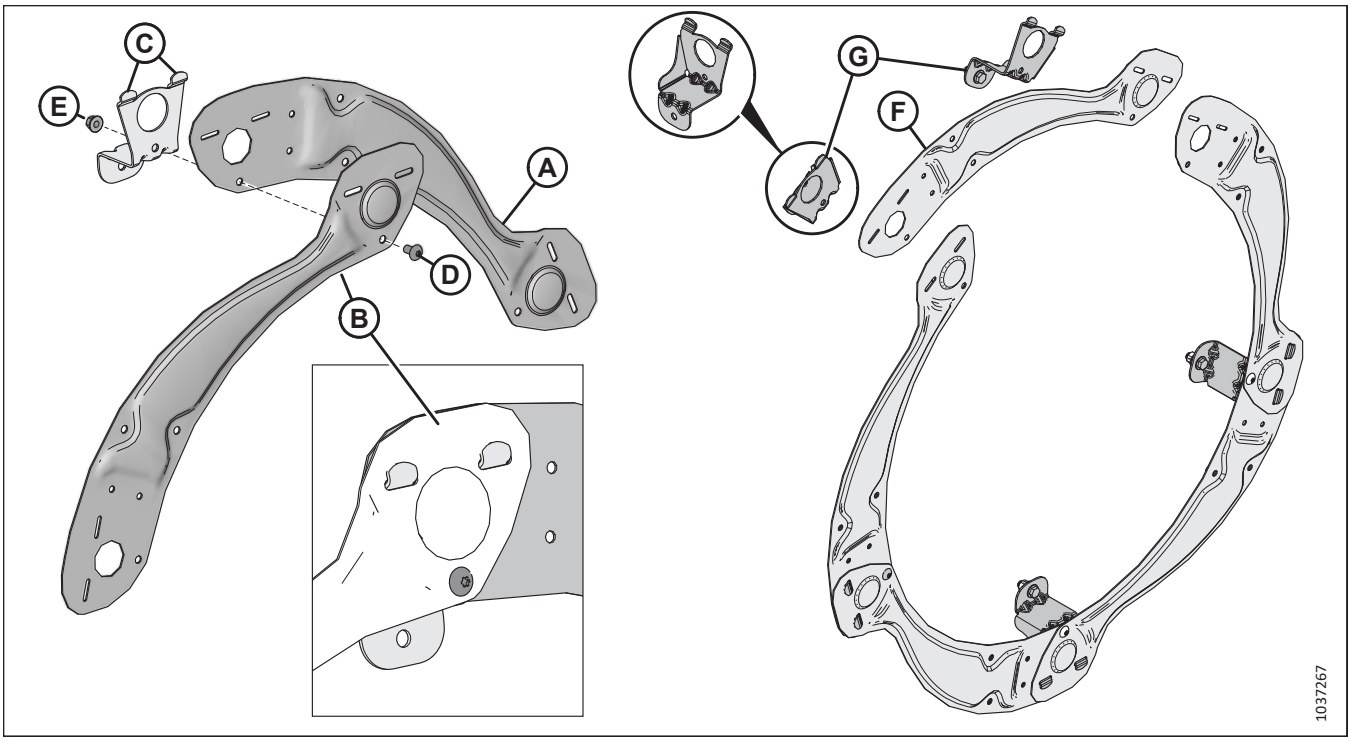


Figure 3.90: Five-Bat Reel – Initial Endshield Assembly

3. 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 the hardware.

   b. Repeat for remaining segments leaving last segment (F) and two support tabs (G) not installed.

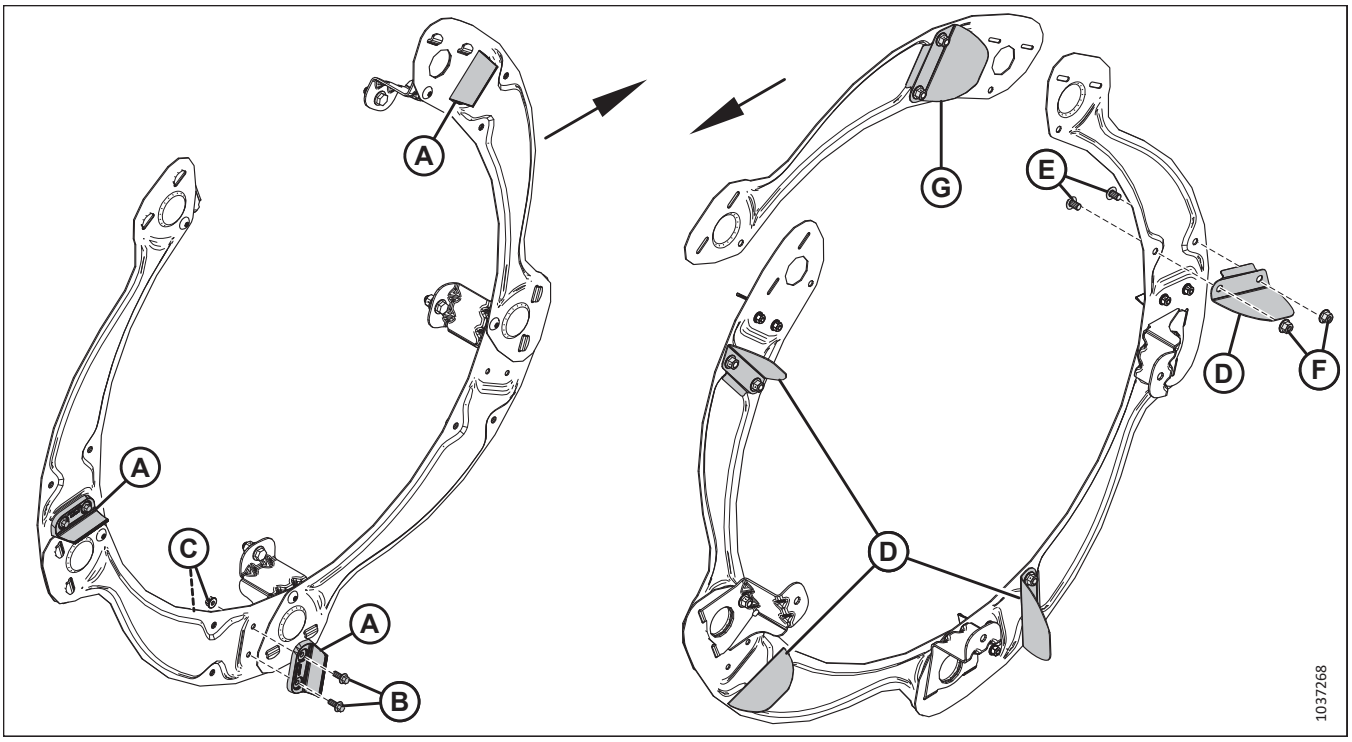


Figure 3.91: Five-Bat Reel – Rubber Paddles and Aluminum Cam Deflectors

IMPORTANT:

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

4. 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.

5. Install four **ALUMINUM** cam deflectors (D) (MD #311729) on the **INBOARD FACE** of the endshield assembly shown using two M10 X 1.5 X 16 Torx® screws (E) and hex nuts (F).

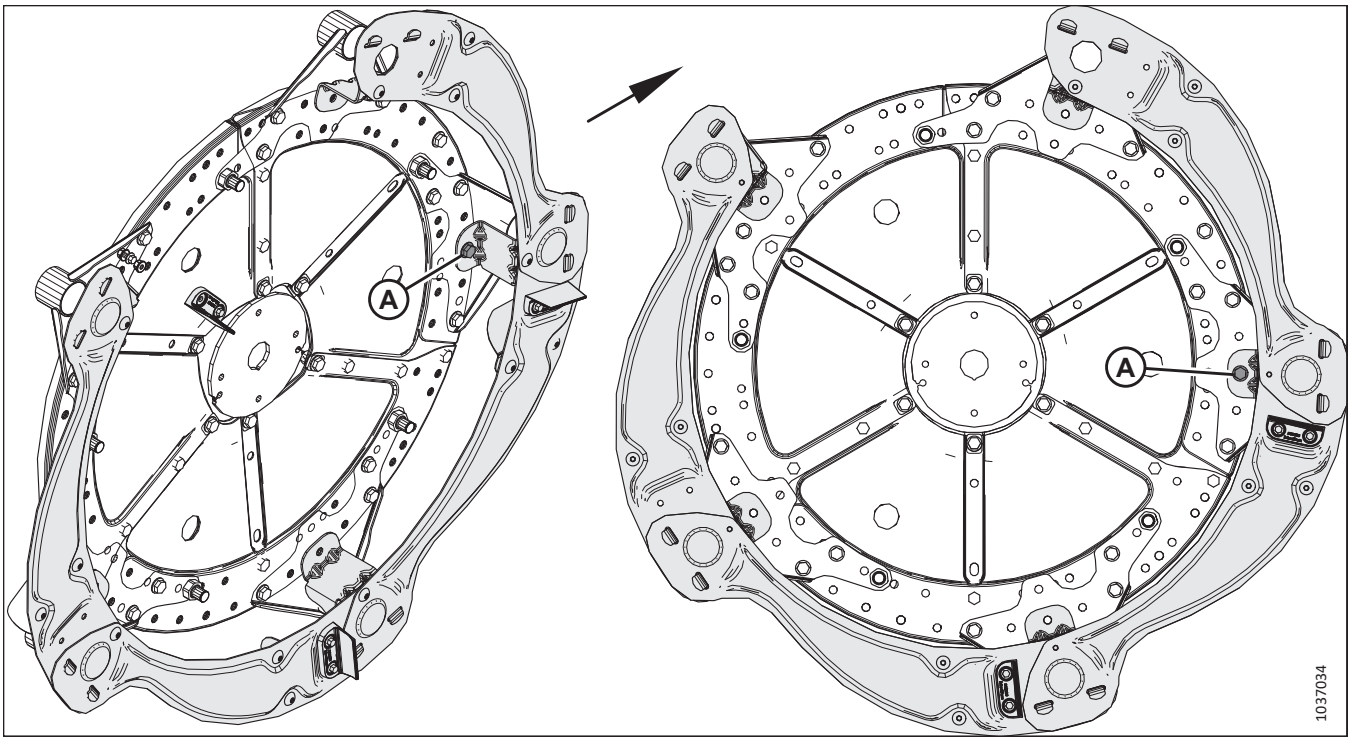


Figure 3.92: Five-Bat Reel – Partially Assembled Reel Endshields on Reel

NOTE:

The arrow points to the front of the machine.

6. Position the partially assembled reel endshield onto the reel.
7. Secure with one M12 X 1.75 X 30 hex bolt (A) and nut. Do **NOT** tighten the hardware.

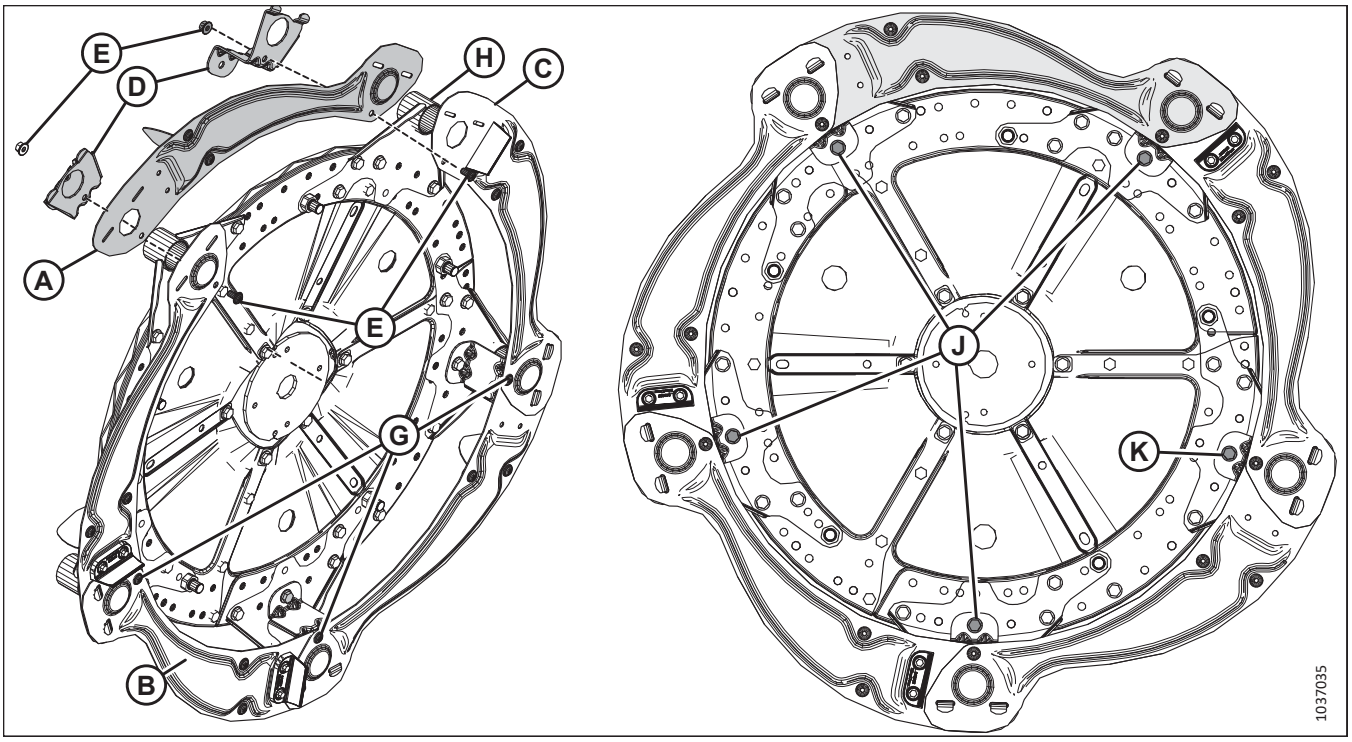


Figure 3.93: Five-Bat Reel – Partially Assembled Reel Endshields on Reel

8. 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.

9. Slip the endshield supports onto tine tubes (H).

    NOTE:

    Not all of the tine tubes are shown in the illustration.

10. Secure the remaining endshield supports to the reel disc using one M12 X 1.75 X 30 hex bolt (J) and nut per endshield support.

11. Tighten M12 X 1.75 X 30 hex bolts (J) and (K) and the nuts that secure the endshield supports to the cam discs to 68.5 Nm (50.5 lbf·ft).

3.8.2 Installing Triple Reel Endshields at Inboard Tail End

The endshields are installed on the reel to prevent crop from wrapping around the reel.

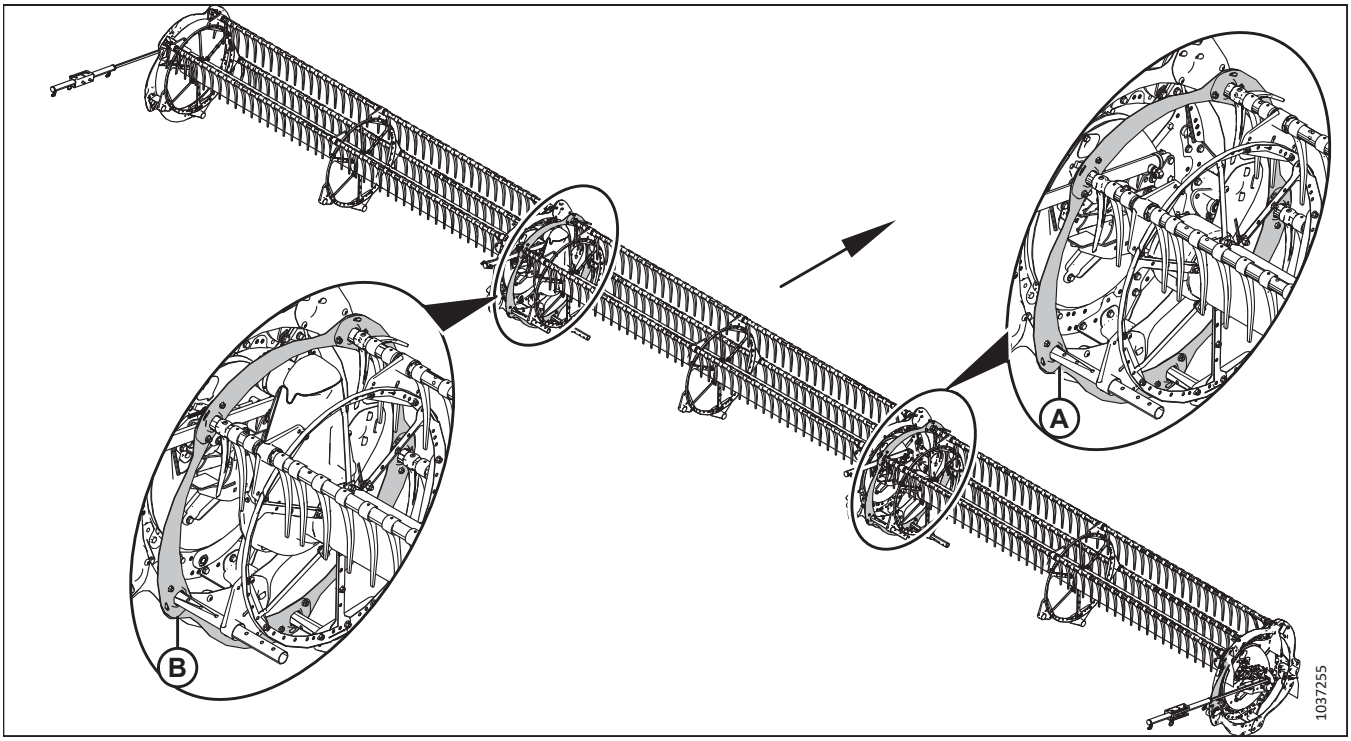


Figure 3.94: Triple Reel Shown

A - Inboard Tail End Endshield (MD #311795); Bag 5

B - Inboard Tail End Endshield (MD #311795); Bag 3

1. For the right reel, retrieve bag 5 from inside triple reel bag MD #340988
2. For the center reel, retrieve bag 3 from inside triple reel bag MD #340987.
3. Retrieve the Torx® Plus IP27 socket supplied in the manual case on the header.

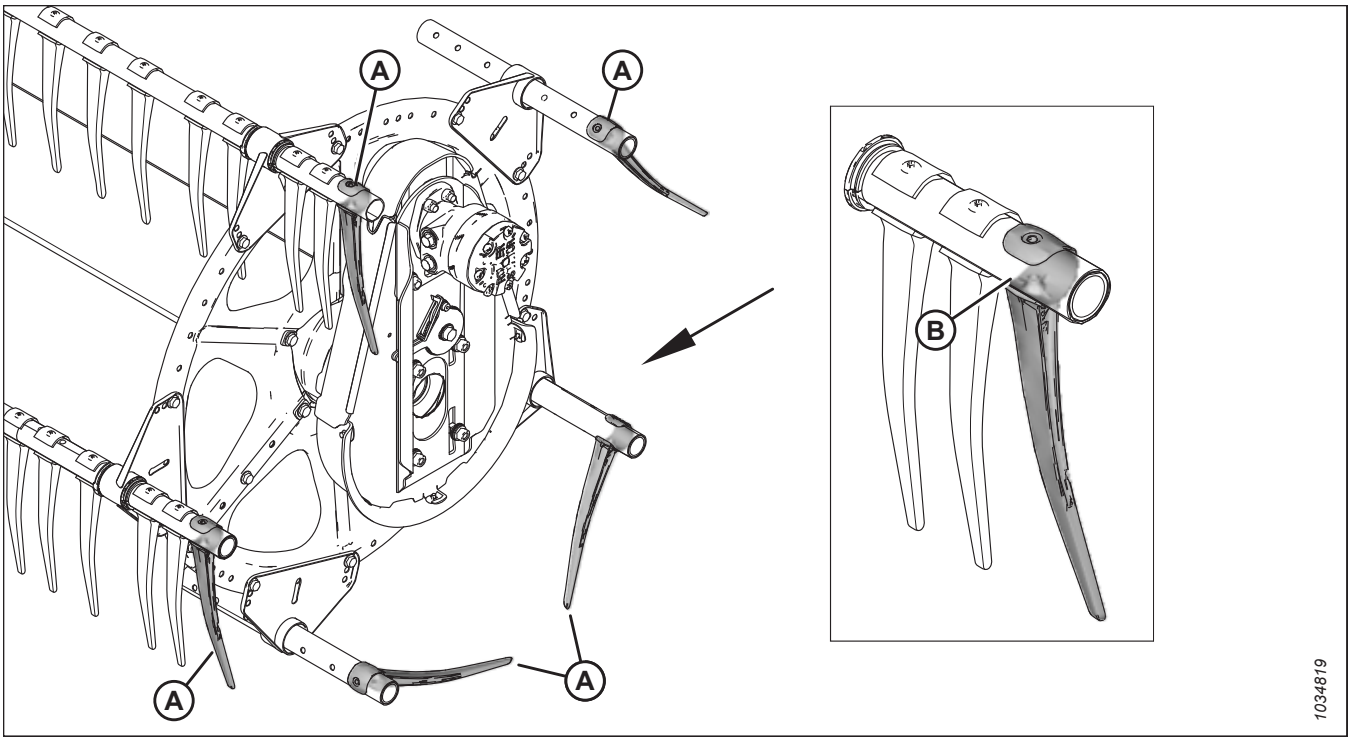


Figure 3.95: Fingers Placed on Tine Tubes

4. Place one finger (A) onto each tine tube. Make sure **OPEN FACE** (B) of the fingers face the **FRONT** of the machine.

   NOTE:

   The arrow points to the front of the machine.

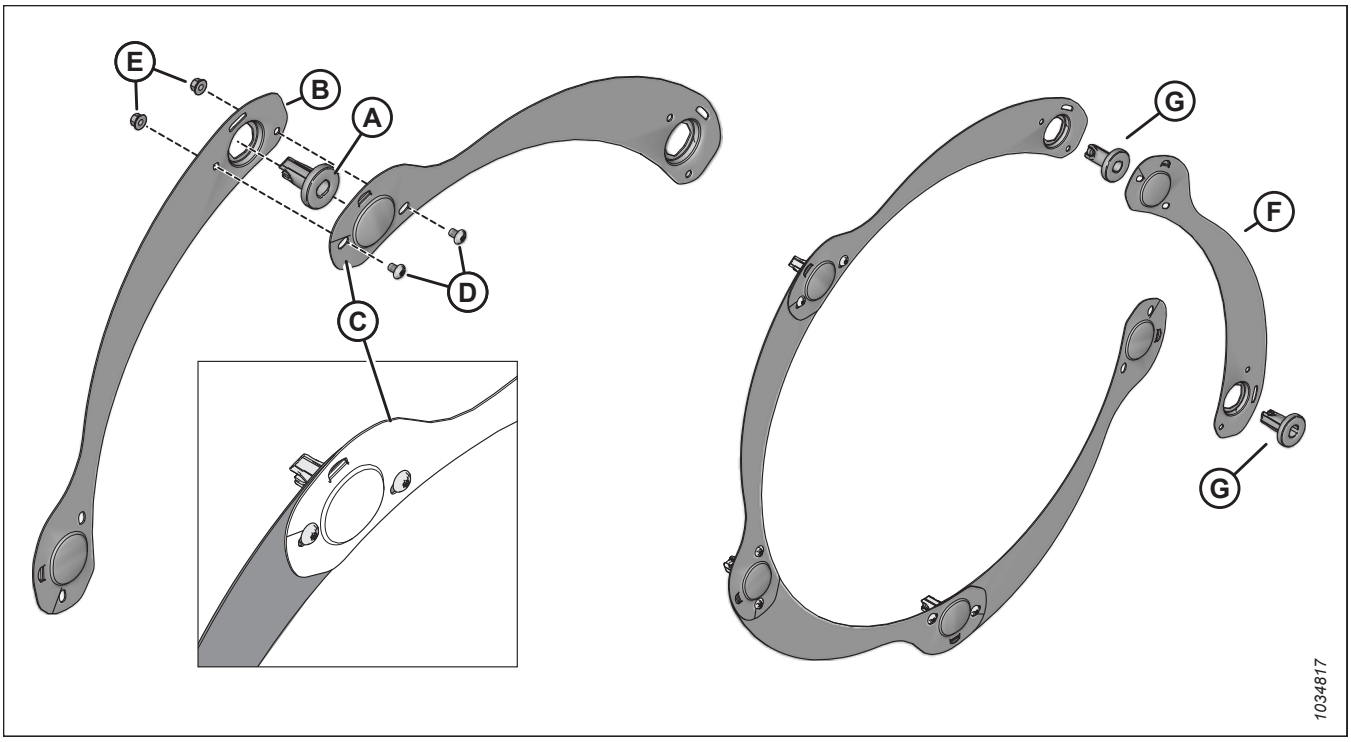


Figure 3.96: Endshield Subassembly

5. 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 the segments using two M10 X 1.5 X 16 Torx® screws (D) and nuts (E). Do **NOT** tighten the hardware.

   c. Repeat the above steps for the remaining segments. Do not install last segment (F) and two bushings (G).

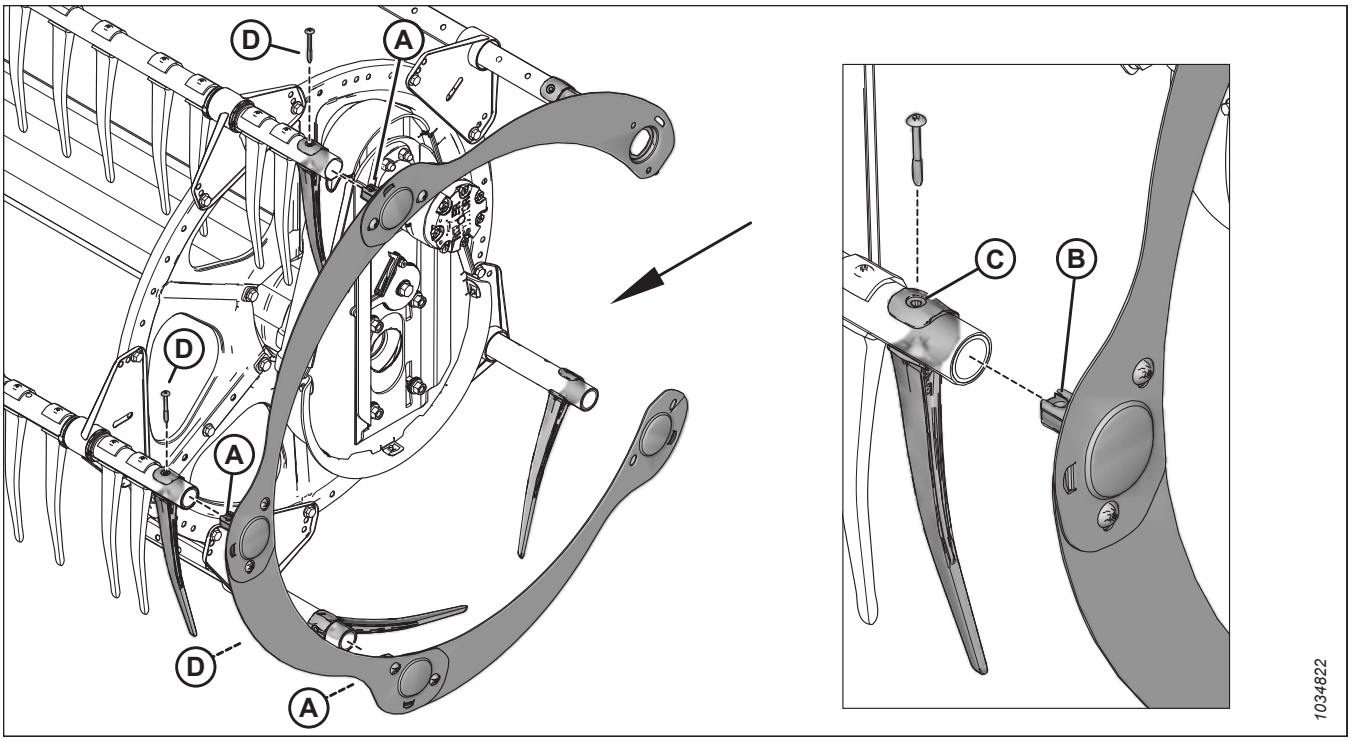


Figure 3.97: Endshield Mounted onto Reel

6. Mount the endshield onto the reel as follows:

   a. Insert three bushings (A) into the tine tubes. Align the holes in bushing (B) and finger (C) with the hole in the tine tube.

   b. Secure the bushings and the fingers using Torx® Plastite® screws (D). Do **NOT** tighten the hardware.

   NOTE:

   The arrow points to the front of the machine.

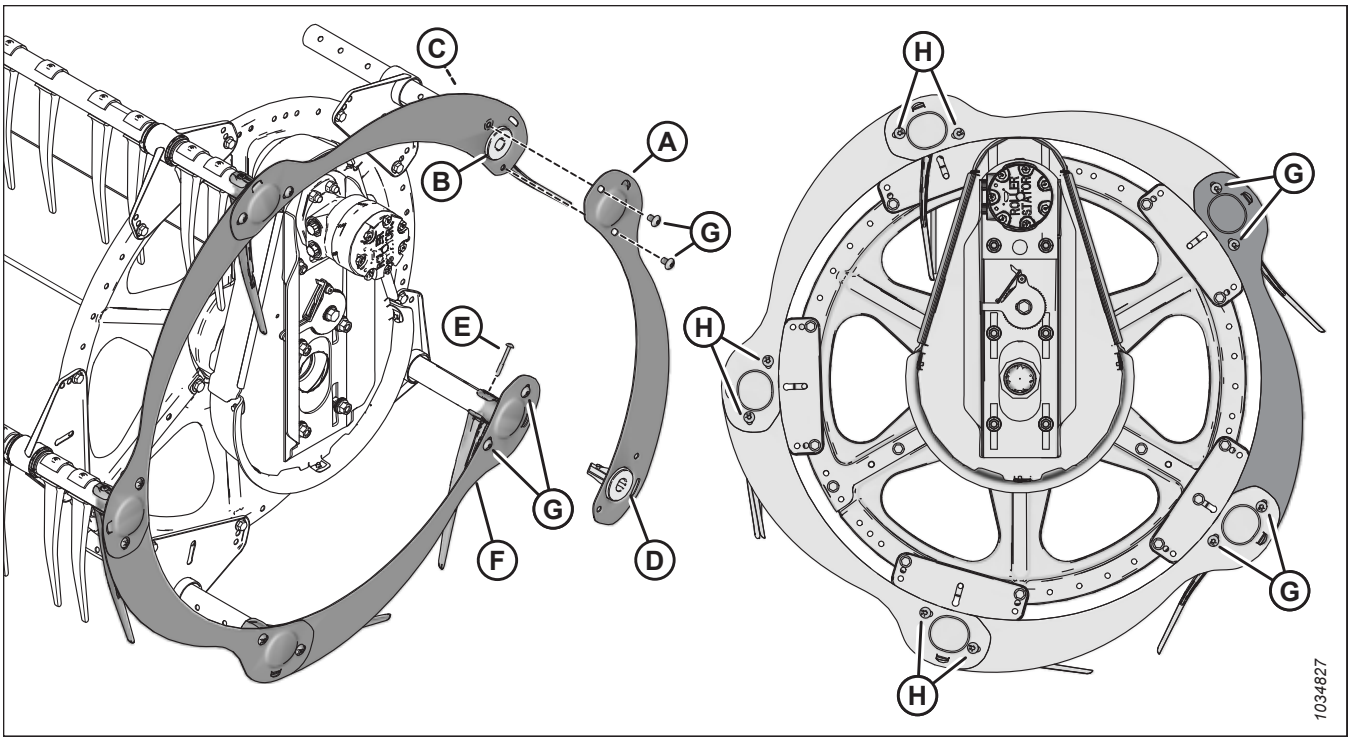


Figure 3.98: Completed Endshield Assembly

7. Install remaining endshield segment (A) as follows:

    a. Install bushing (B) into the endshield segment and the tine tube. Secure with Torx® Plastite® screw (C). Do **NOT** tighten the hardware.

    b. Install bushing (D) into the endshield segment.

    c. Insert the end of the segment with bushing (D) into the tine tube. Secure it with Torx® Plastite® screw (E). Do **NOT** tighten the hardware.

    d. Place the cupped end of segment (F) **ON TOP** of segment (A).

    e. Secure the endshield segments with M10 X 1.5 X 16 Torx® screws and nuts (G).

8. Tighten all the tine tube finger Torx® Plastite® screws to 9 Nm (7 lbf·ft). Do **NOT** overtighten the screws; overtightening will flatten the tubes.

9. Torque all M10 X 1.5 X16 Torx® screws (G) and (H) to 39 Nm (29 lbf·ft).

3.8.3 Installing Triple Reel Endshields at Center Reel

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

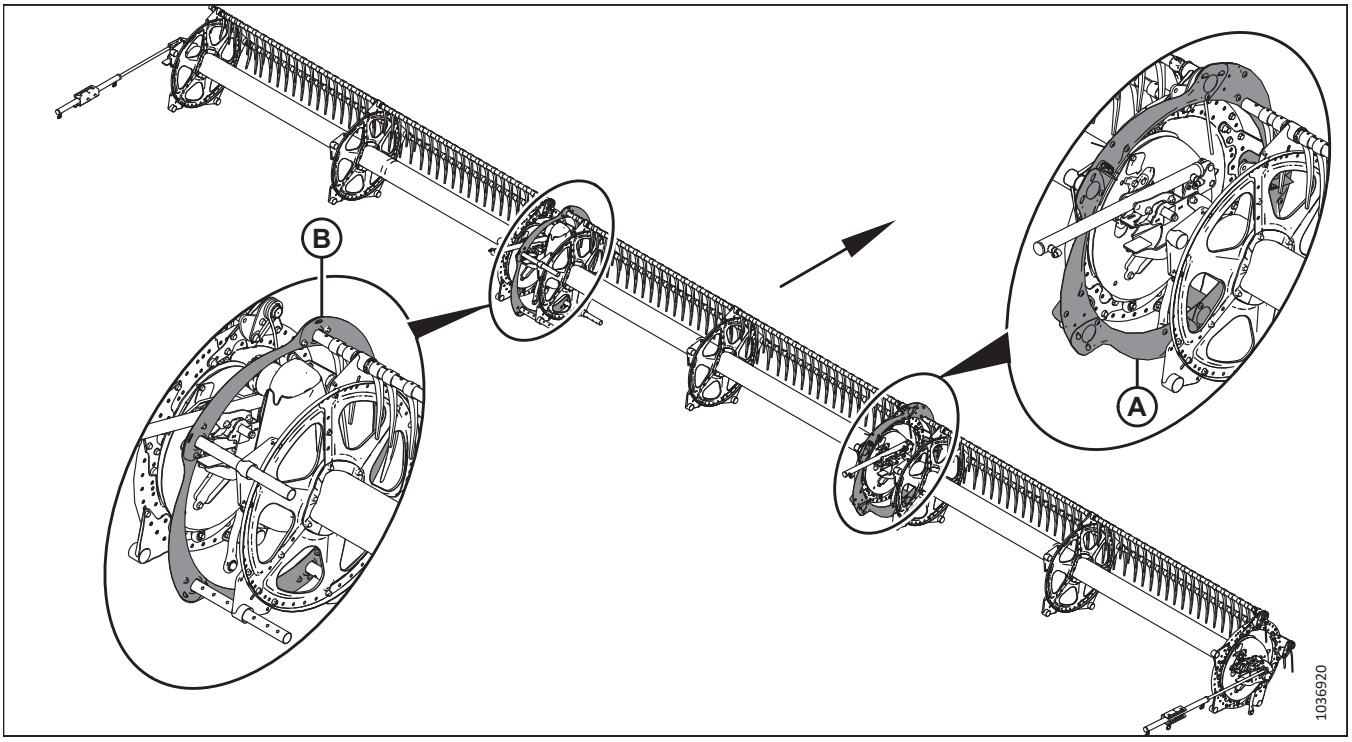


Figure 3.99: Triple Reel Shown

A - Triple Center Reel Cam End, (MD #273823)

B - Triple Center Reel Tail End (MD #311795)

1. Retrieve bag 4 from inside triple reel bag MD #340988. Install the outboard cam end endshield (A). For instructions, refer to *3.8.1 Installing Triple Reel Endshields at Outboard Cam End, page 89*.
2. Retrieve bag 3 from inside triple reel bag MD #340987. Install the inboard tail end endshield (B). For instructions, refer to *3.8.2 Installing Triple Reel Endshields at Inboard Tail End, page 94*.

3.8.4 Installing Triple Reel Endshields at Inboard Cam End

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

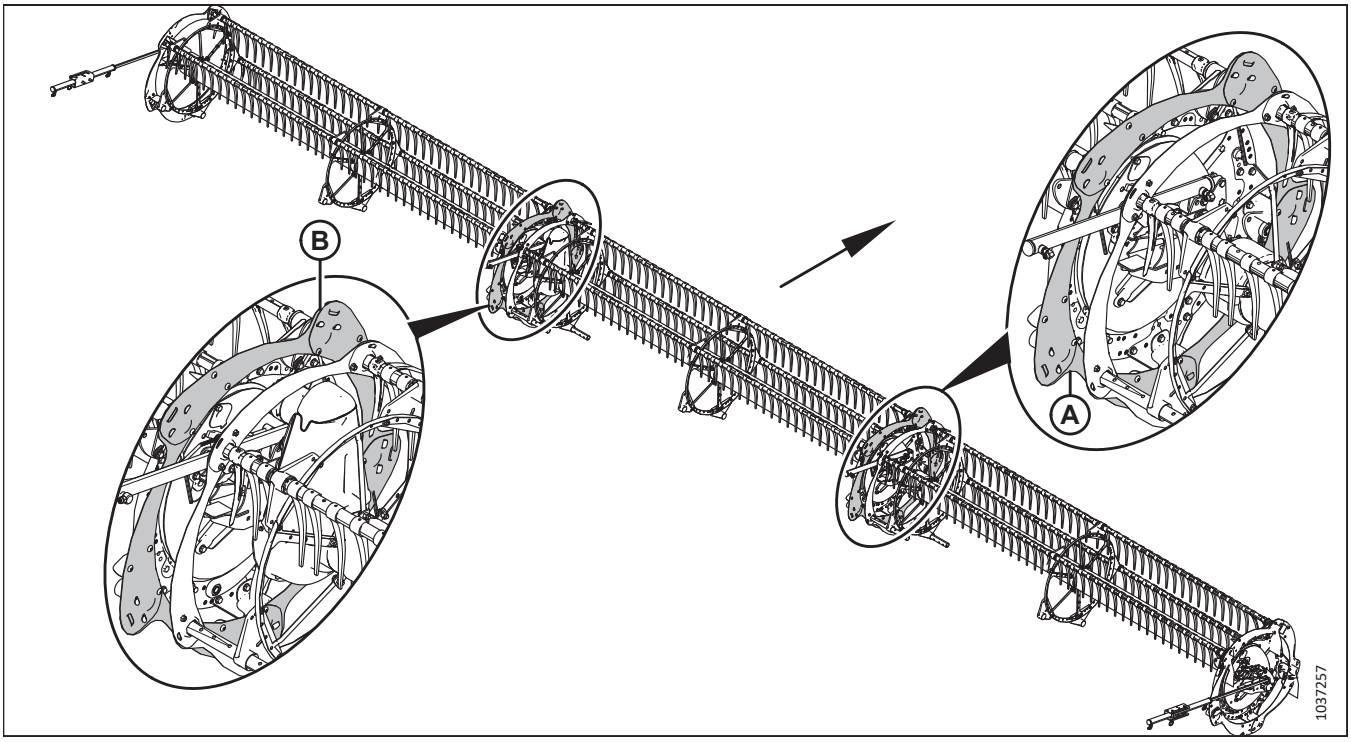


Figure 3.100: Triple Reel Shown

A - Cam End, LH Inboard Endshield (MD #273823)

B - Cam End, LH Inboard Endshield (MD #273823)

1. For the left reel, retrieve bag 2 from inside triple reel bag MD #340987.
2. For the center reel, retrieve bag 4 from inside triple reel bag MD #340988.
3. Retrieve the Torx® Plus IP27 socket supplied in the manual case on the header.

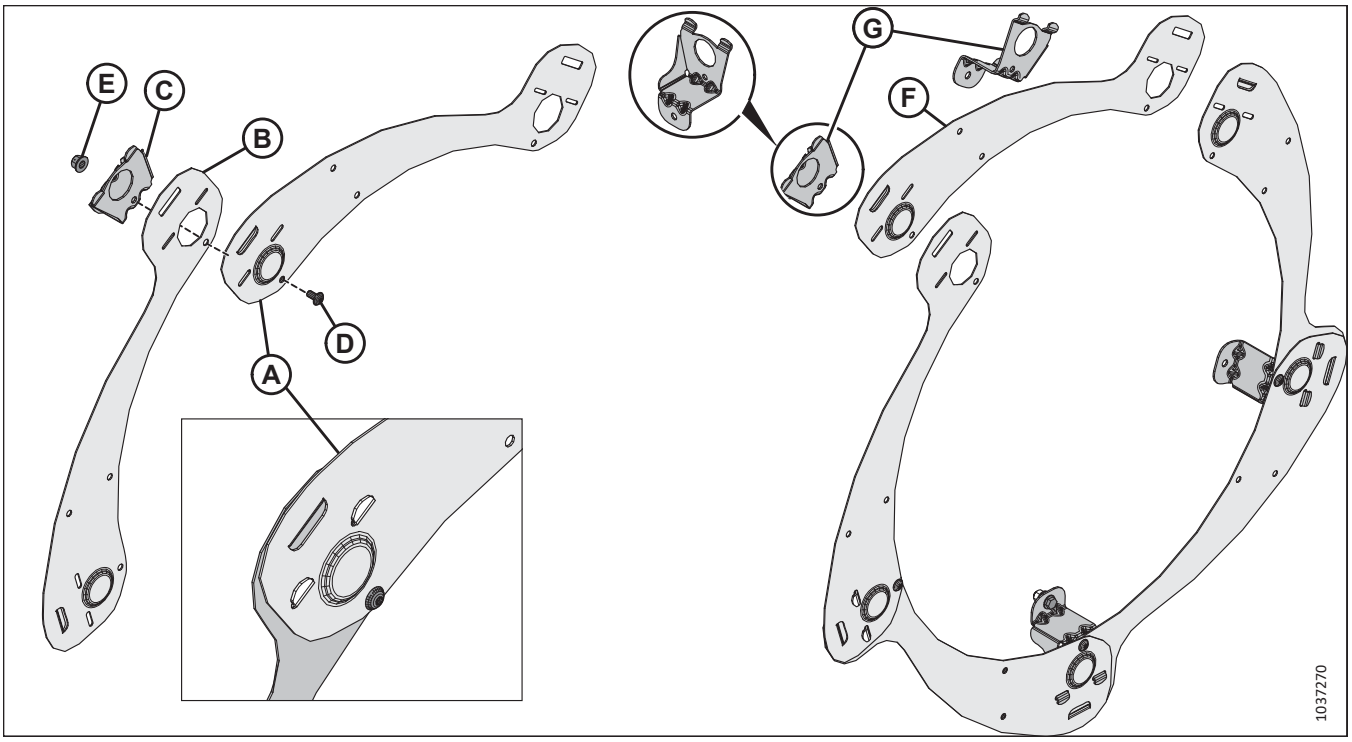


Figure 3.101: Five-Bat Reel – Initial Endshield Assembly

4. 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.

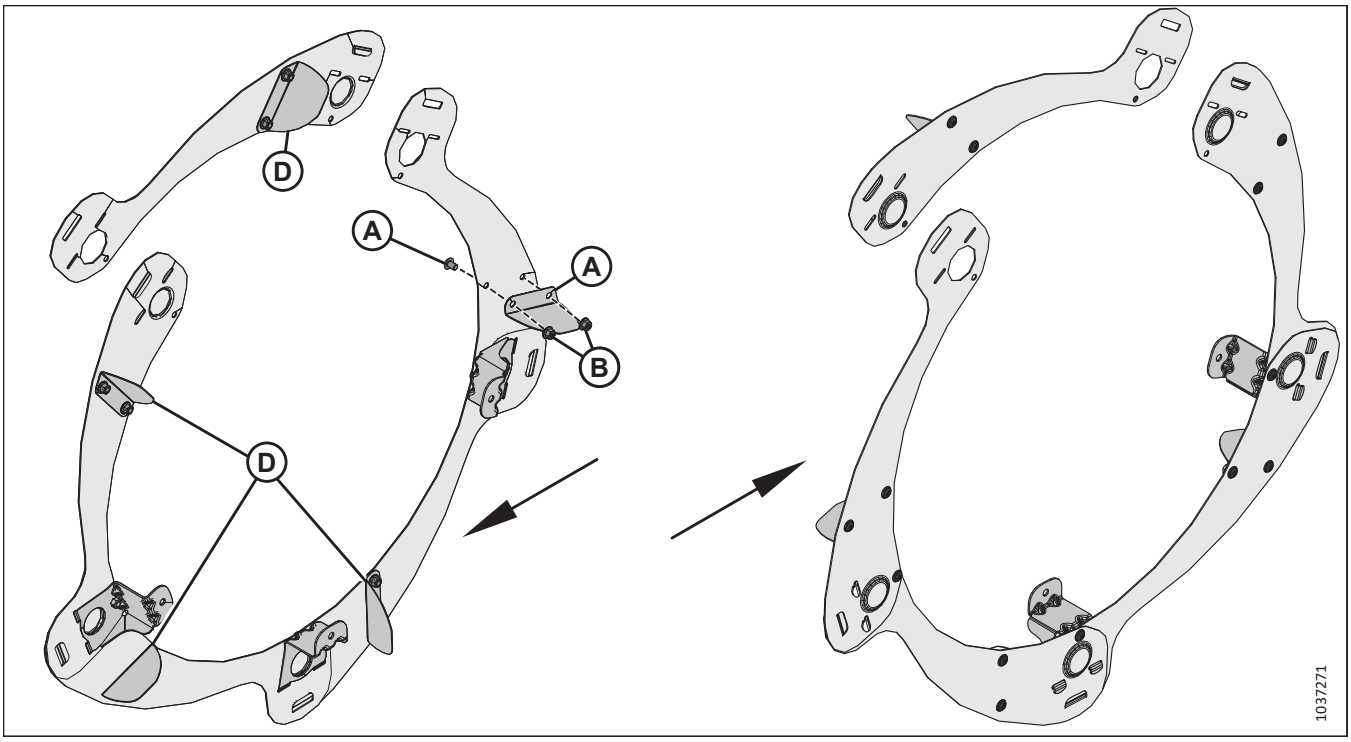


Figure 3.102: Five-Bat Reel – Aluminum Cam Deflectors

IMPORTANT:

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

5. Install four **ALUMINUM** cam deflectors (A) (MD #311906) on the **INBOARD FACE** of the endshield assembly shown using two M10 X 1.5 X 16 Torx® screws (B) and hex nuts (C).

6. Install **ALUMINUM** cam deflector (D) (MD #311906) on the last segment as shown using two M10 X 1.5 X 16 Torx® screws and hex nuts.

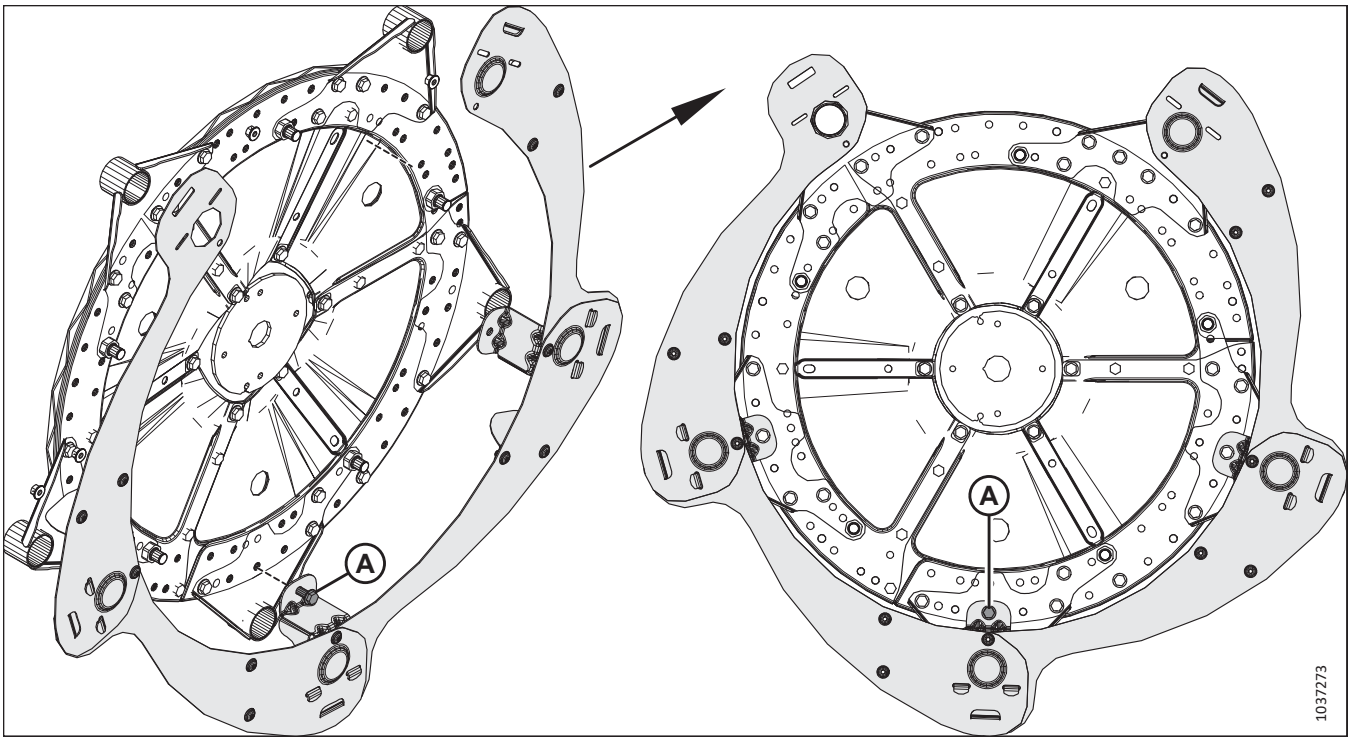


Figure 3.103: Five-Bat Reel – Partially Assembled Reel Endshields on Reel

7. Position partially assembled reel endshield onto reel.

   NOTE:

   The arrow points to the front of the machine.

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

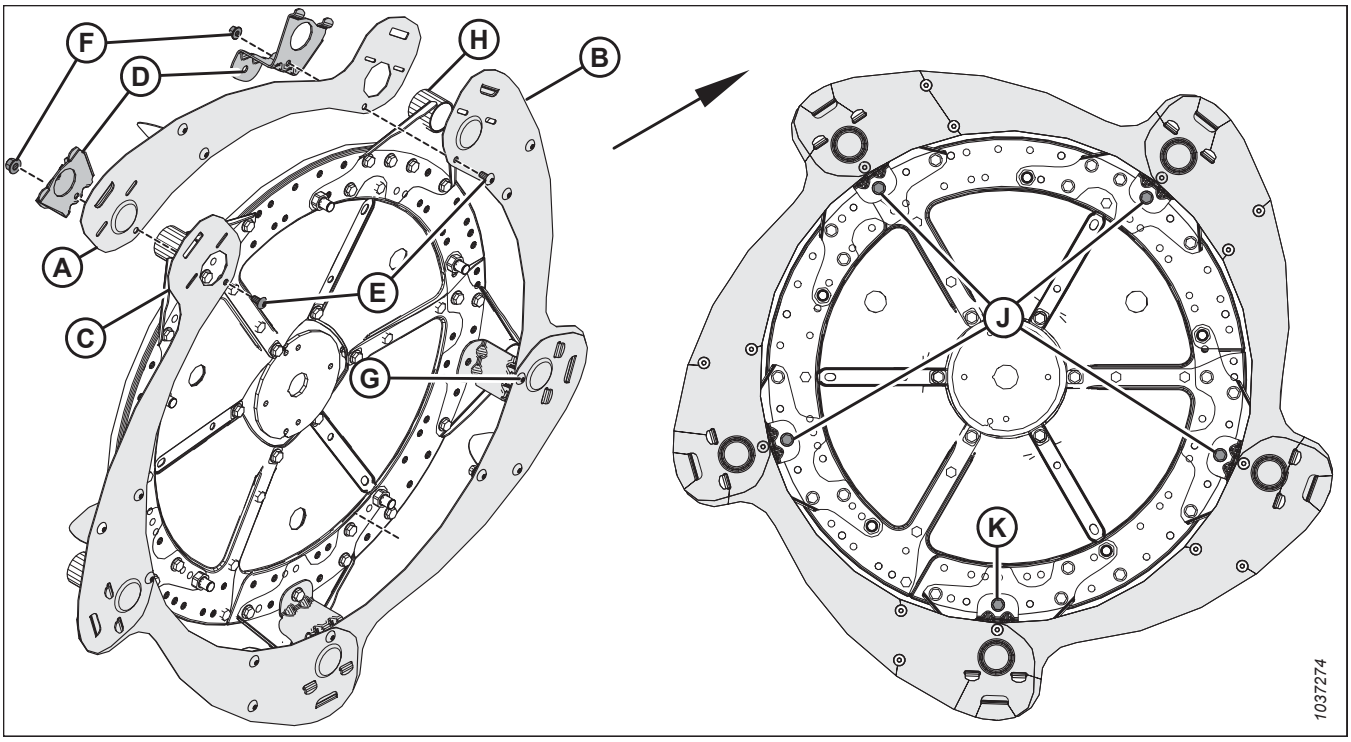


Figure 3.104: Five-Bat Reel – Assembled Reel Endshields on Reel

9. 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.

10. Slip endshield supports onto tine tubes (H).

    NOTE:

    Not all tine tubes shown in illustration.

11. Secure the remaining endshield supports to the reel disc using one M12 X 1.75 X 30 hex bolts (J) and nut per endshield support.

12. Tighten M12 X 1.75 X 30 hex bolts (J) and (K) and the nuts that secure the endshield supports to the cam discs to 68.5 Nm (50.5 lbf·ft).

3.8.5 Installing Triple Reel Endshields at Outboard Tail End

The endshields are installed on the reel to prevent crop from wrapping around the reel.

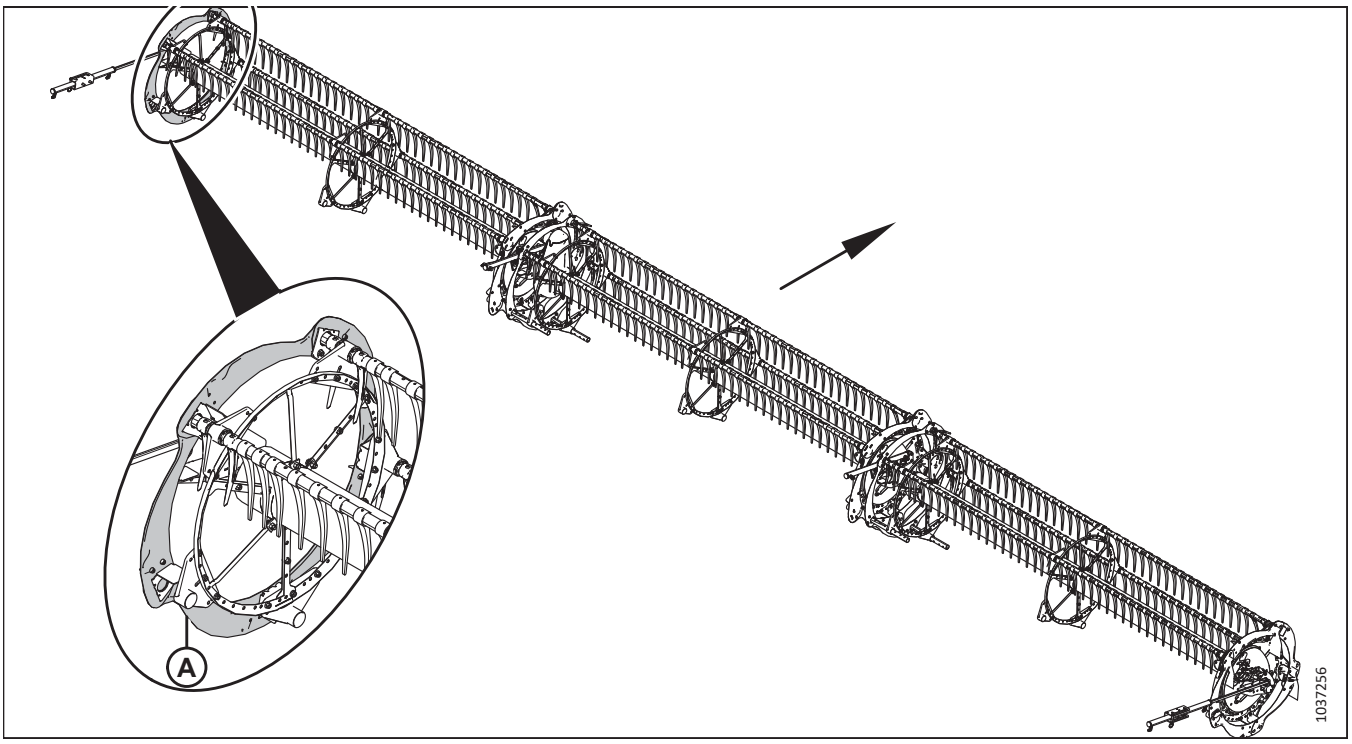


Figure 3.105: Triple Reel Shown

A - Outboard Tail End Endshield (MD #311695)

1. Retrieve bag 1 from inside triple reel bag MD #340987.
2. Retrieve the Torx® Plus IP27 socket supplied in the manual case on the header.

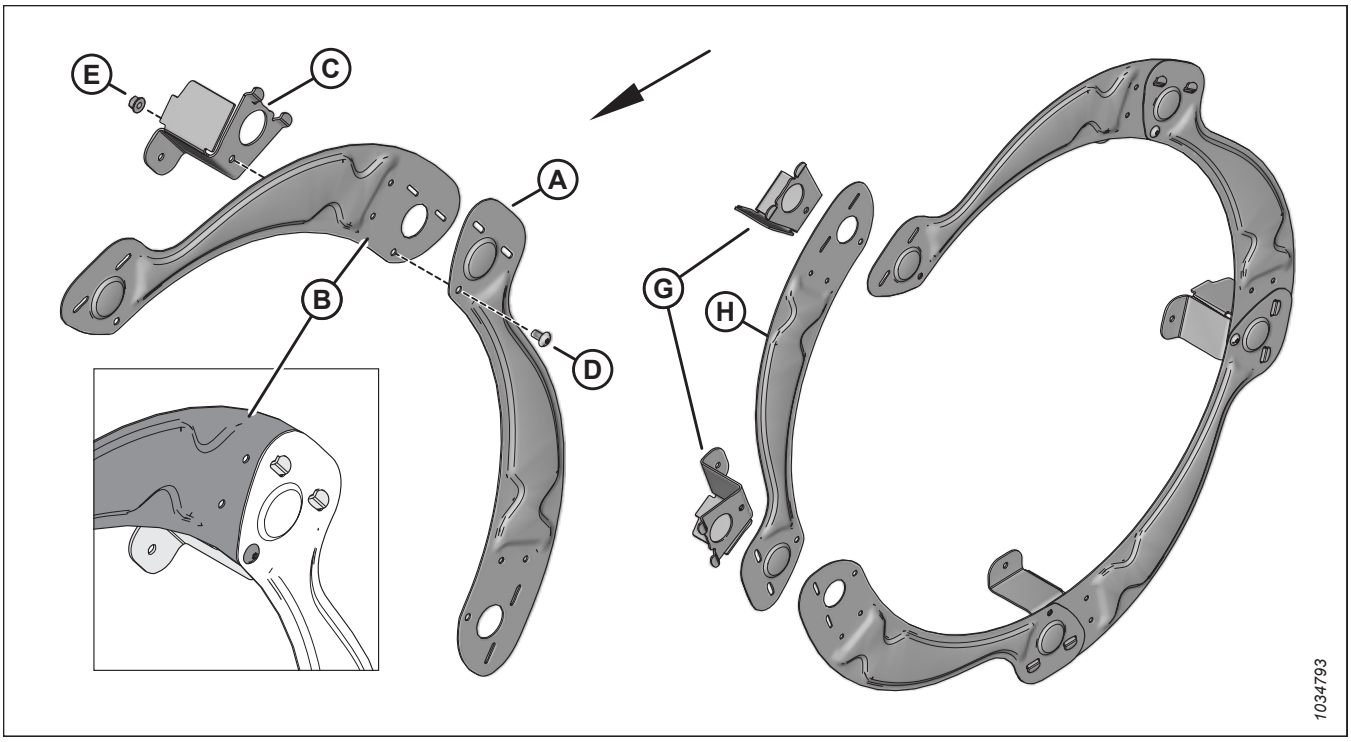


Figure 3.106: Five-Bat Reel – Initial Endshield Assembly

3. 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 the hardware.

   b. Repeat for remaining segments leaving last segment (H) and two support tabs (G) uninstalled.

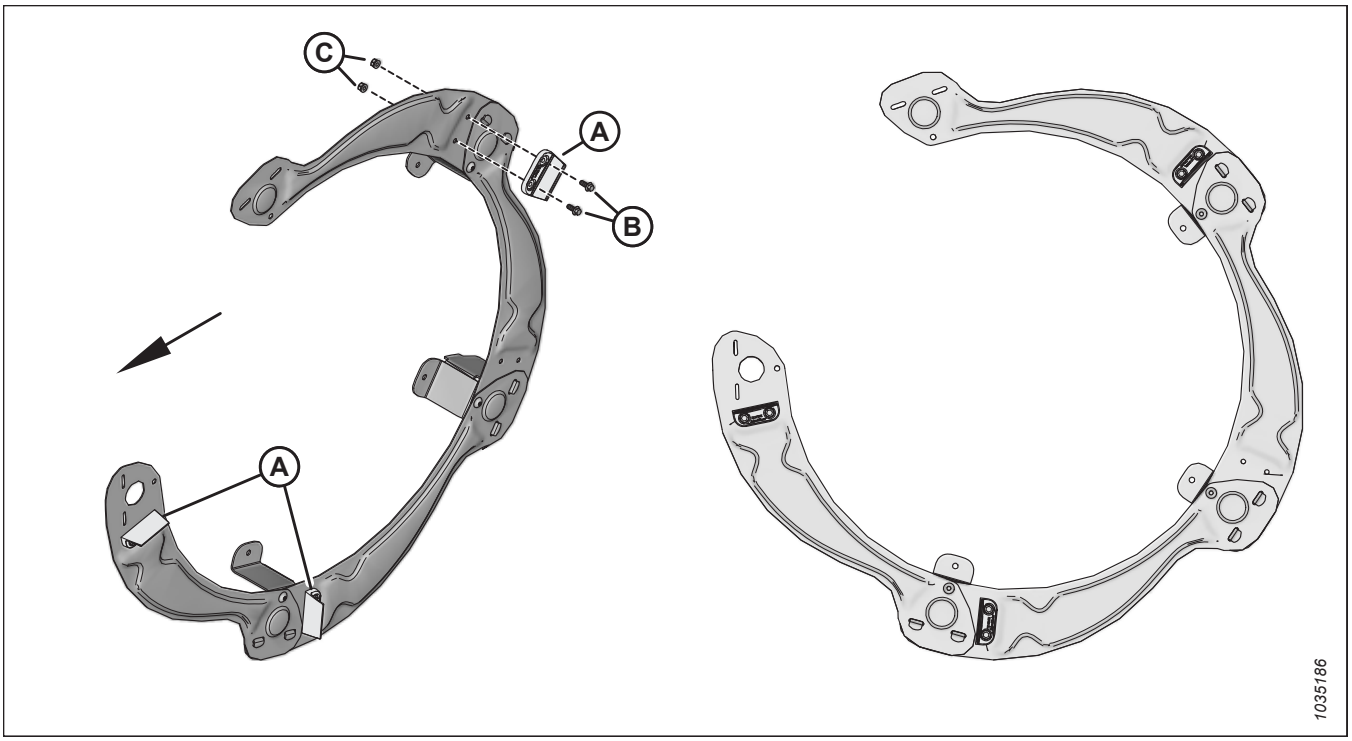


Figure 3.107: Five-Bat Reel – Rubber Paddles

4. 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.

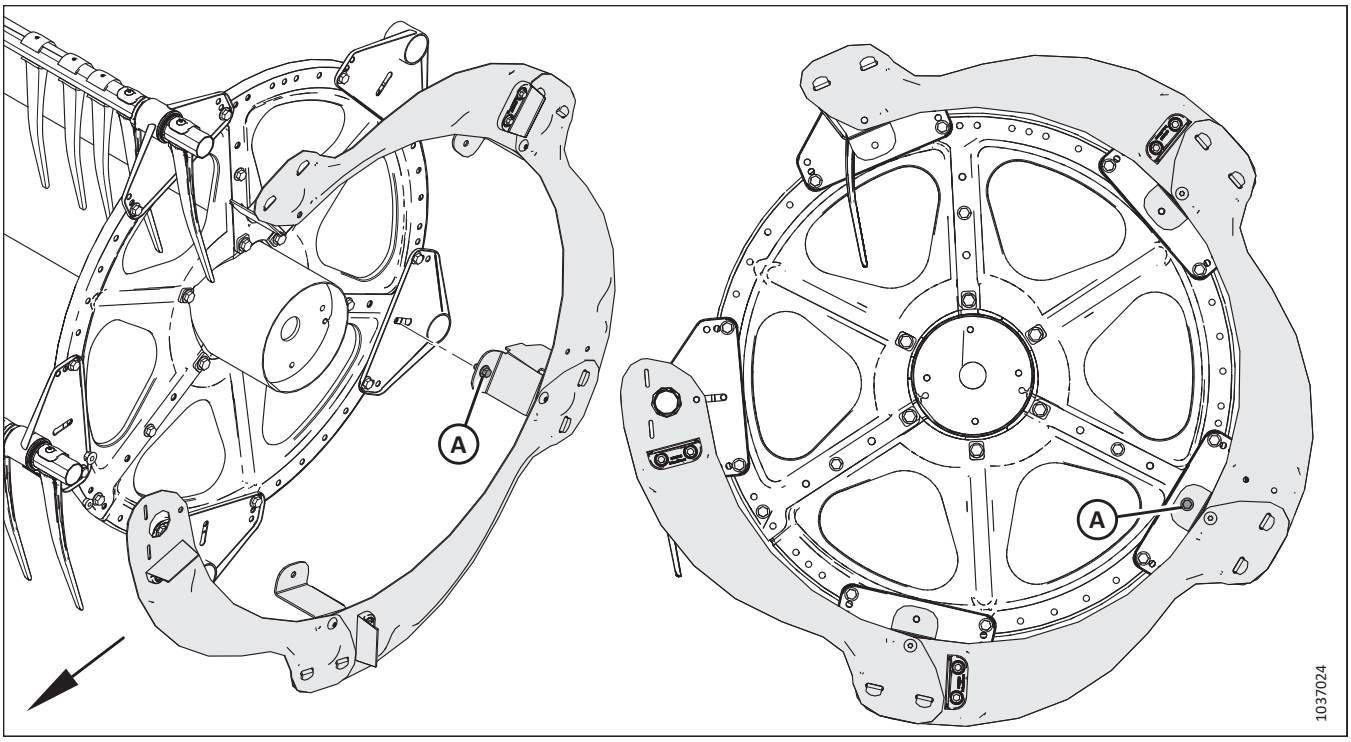


Figure 3.108: Five-Bat Reel – Partially Assembled Reel Endshields on Reel

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

   NOTE:

   The arrow points to the front of the machine.

6. Identify the endshield support tab that is opposite the opening in the circle of endshield segments. Secure it to the reel with one M10 X 1.5 X 20 hex bolt (A) and nut. Do **NOT** tighten the hardware.

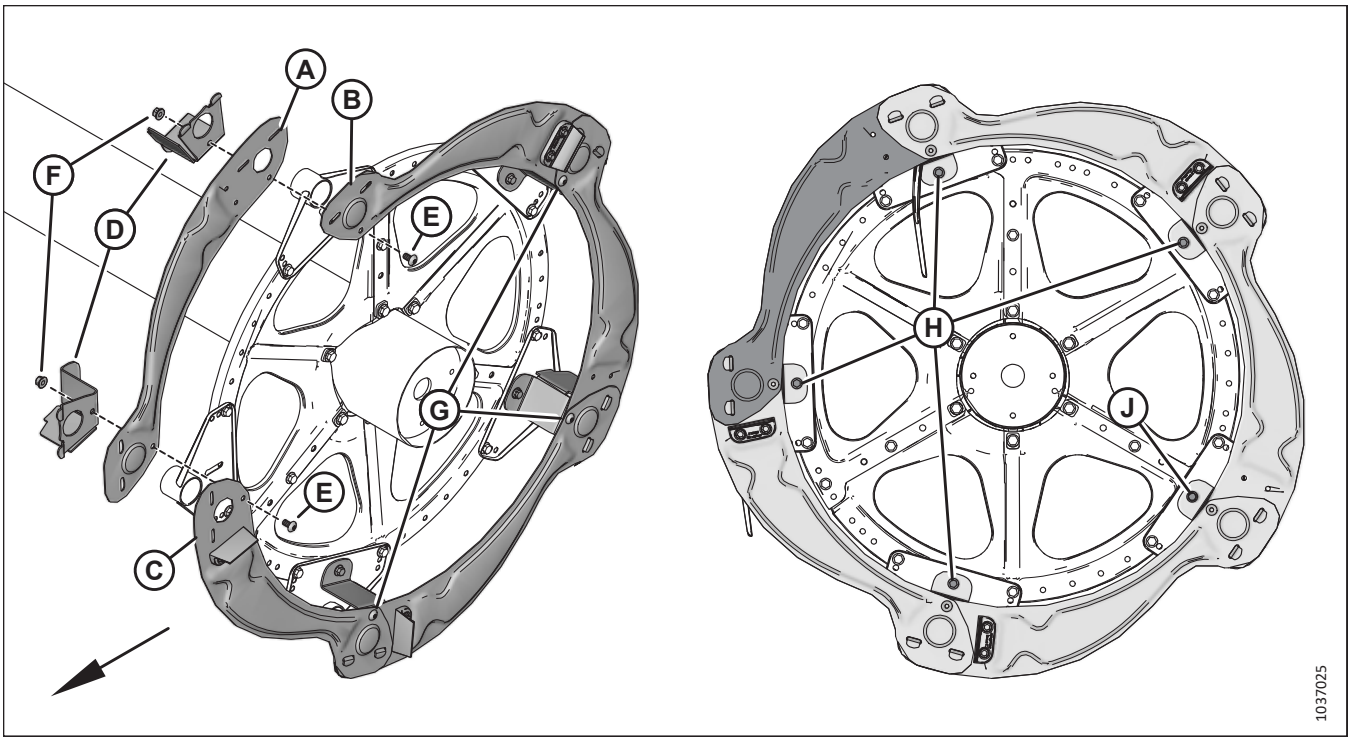


Figure 3.109: Five-Bat Reel – Partially Assembled Reel Endshields on Reel

7. 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 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. Secure the endshield supports to the reel disc using one M10 X 1.5 X 20 hex bolt (H) and nut per endshield support.

9. Tighten M10 X 1.5 X 20 hex bolts (H) and (J) and the nuts that secure the endshield supports to the cam discs to 68.5 Nm (50.5 lbf·ft).

3.9 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. 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).

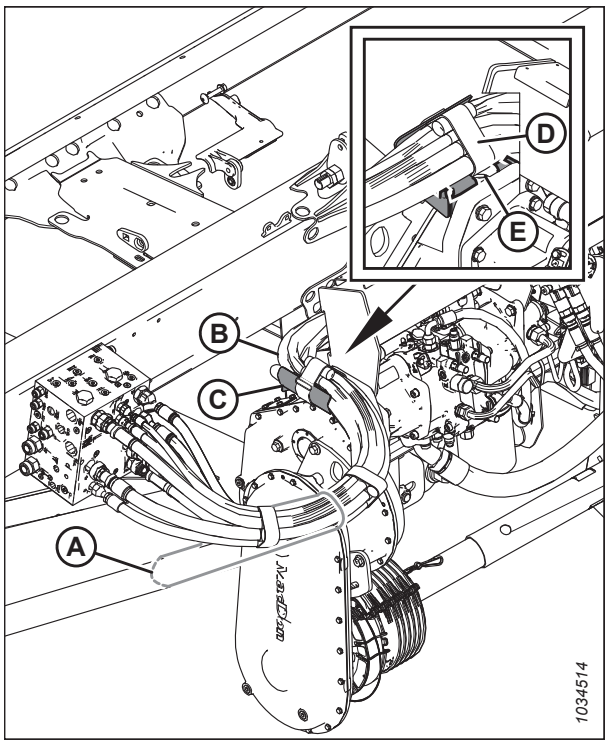


Figure 3.110: Hydraulic Hoses – Left of FM200

3.10 Repositioning Completion Gearbox to Working Position

Rotate the completion gearbox from the shipping position to the working postion.

1. Loosen hex bolt (A) on main gearbox bracket (B).

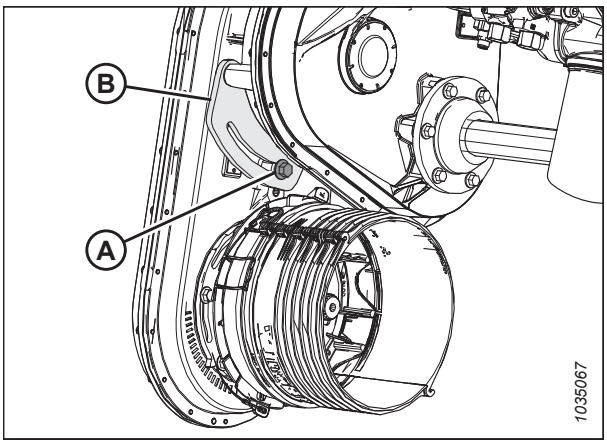


Figure 3.111: Shipping Position

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

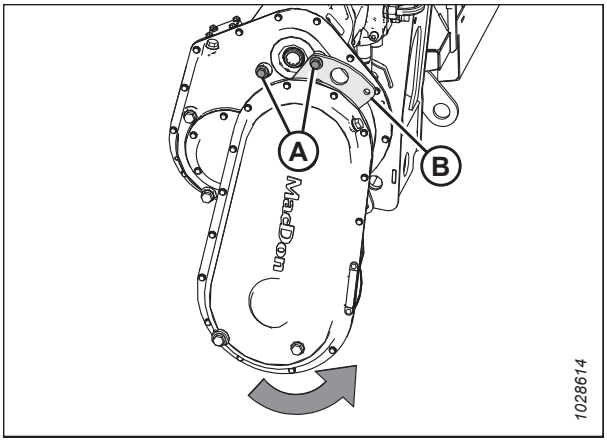


Figure 3.112: Shipping Position

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

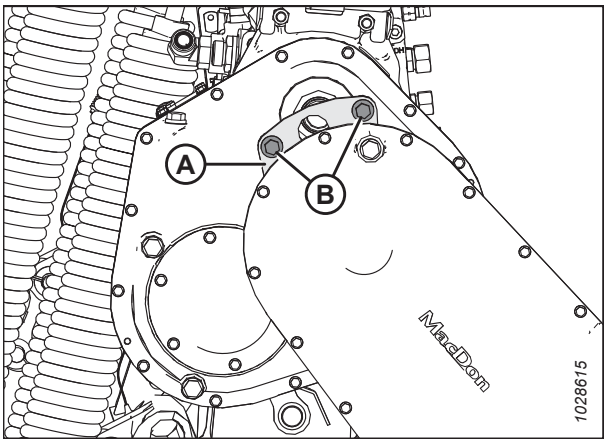


Figure 3.113: Working Position

3.11 Installing Driveline Connecting Float Module to Combine

The driveline transfers power from the combine PTO to the header float module completion gearbox.

DANGER

To prevent injury or death from the 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. Retrieve the driveline bundle that was previously removed from the shipping location.

2. Attach driveline support bracket (A) (supplied with driveline) to the left inside of the FM200 with two M10, 30 mm bolts and flange nuts (B).

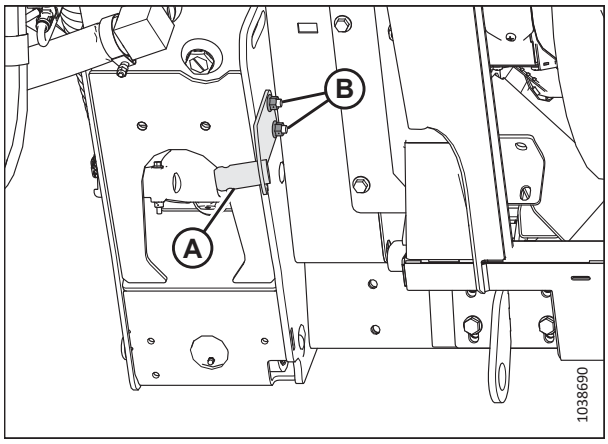


Figure 3.114: Driveline Support Bracket

3. On the end of driveline (D) with arrow (C) pointing toward collar, pull back quick disconnect collar (A).
4. Slide the yoke onto support bracket (B).
5. Connect safety chain (E) to the support bracket.

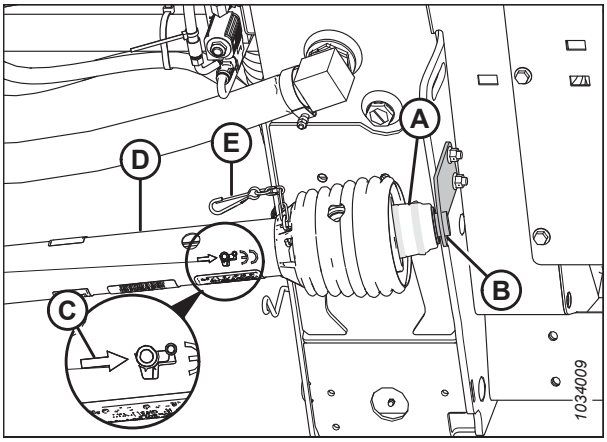


Figure 3.115: Driveline Shield

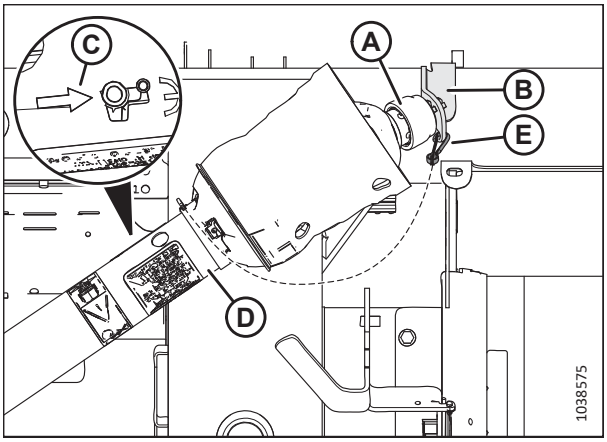


Figure 3.116: Optional Side-Hill Driveline Shield

6. Pry clips (A) up to release shield (B).

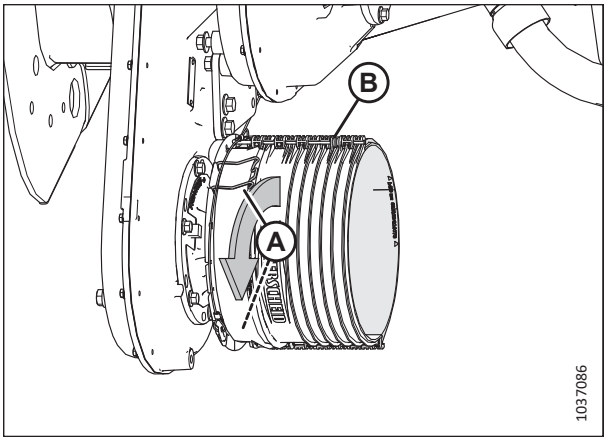


Figure 3.117: Driveline Shield

7. Slide the driveline through shield (A). Pull back the quick disconnect collar (B), to release the driveline yoke.

8. Slide the driveline onto the gearbox shaft until it locks onto the shaft.

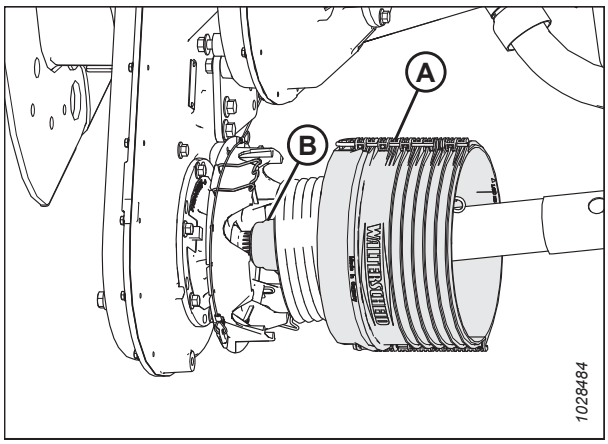


Figure 3.118: Driveline Shield

9. Slide the shield towards the gearbox until clips (A) secure shield (B).

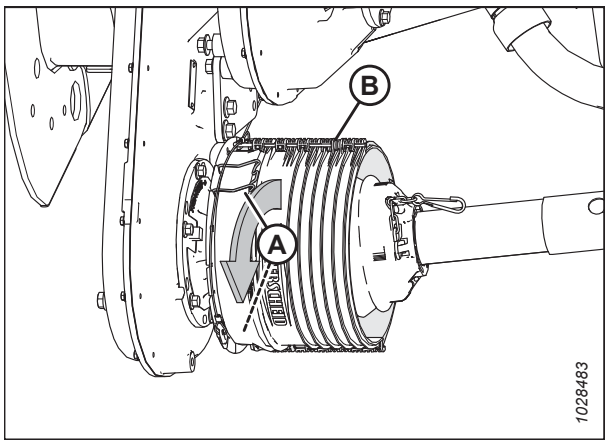


Figure 3.119: Driveline Shield

10. Attach driveline safety chain (A) to the slot on the aluminum plate.

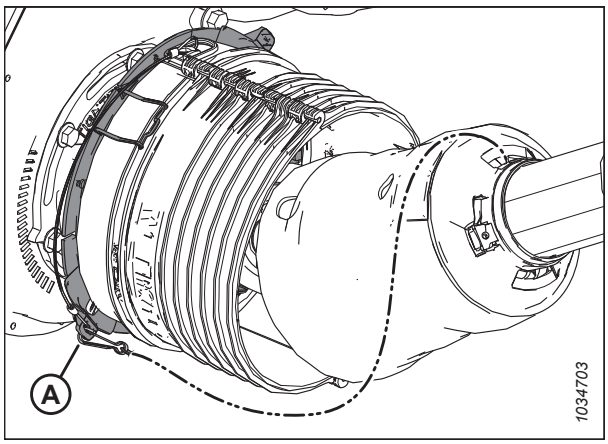


Figure 3.120: Driveline Shield

3.12 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.

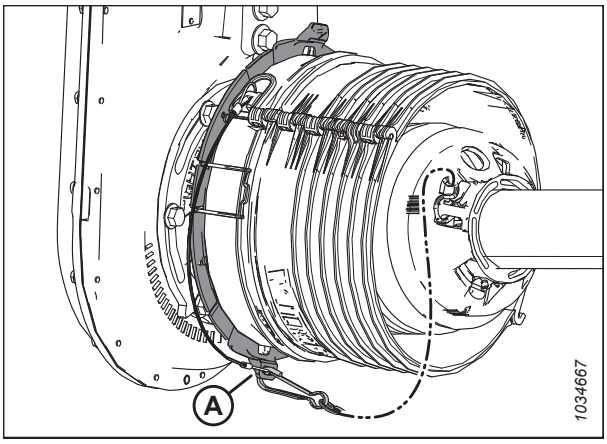


Figure 3.121: Gearbox End of Driveline

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.

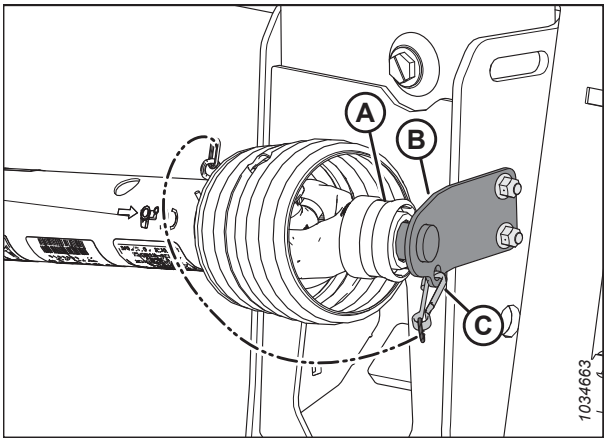


Figure 3.122: Driveline in Storage Position

3.13 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 (C) using one M10 x 1.5 x 25 carriage bolt and hex flange nut (B).

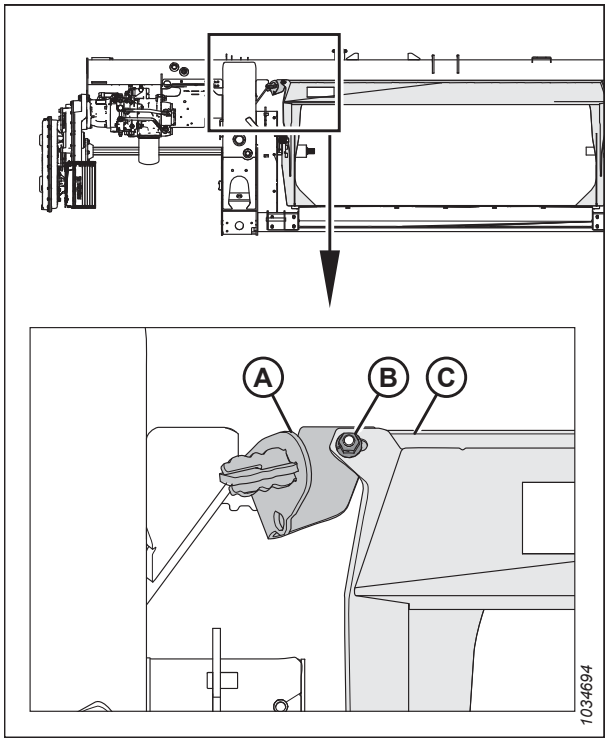


Figure 3.123: Driveline Support

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

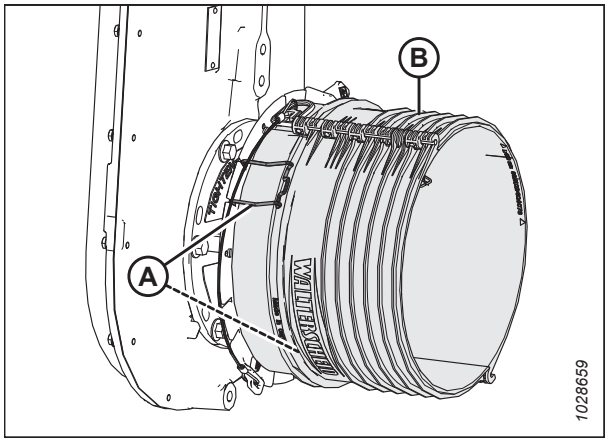


Figure 3.124: Gearbox End of Driveline

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 3.125: Sample Driveline Decal

4. Slide shield (A) on driveline.
5. 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.

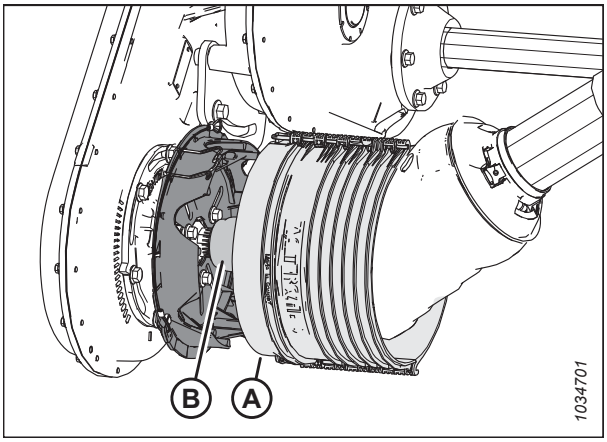


Figure 3.126: Gearbox End of Driveline

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

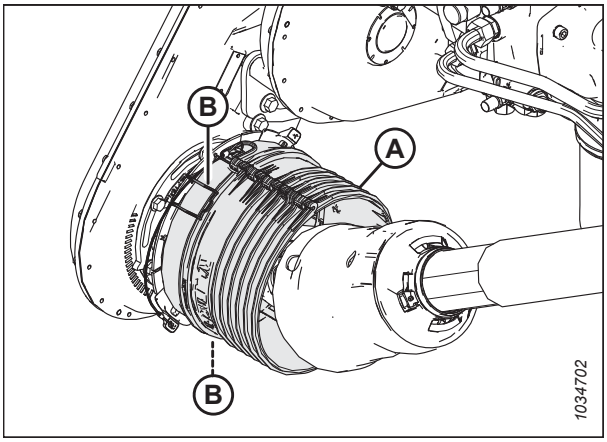


Figure 3.127: Gearbox End of Driveline

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

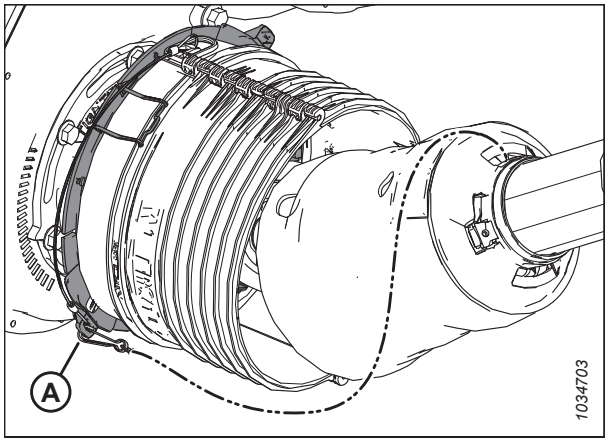


Figure 3.128: Gearbox End of Driveline

8. 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.

9. Secure the loose end of safety chain (C) to the driveline storage support.

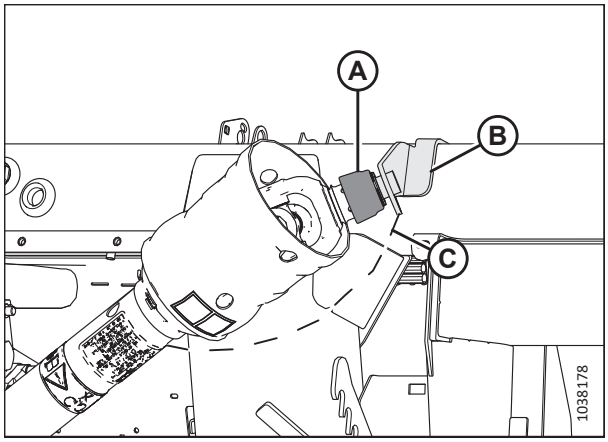
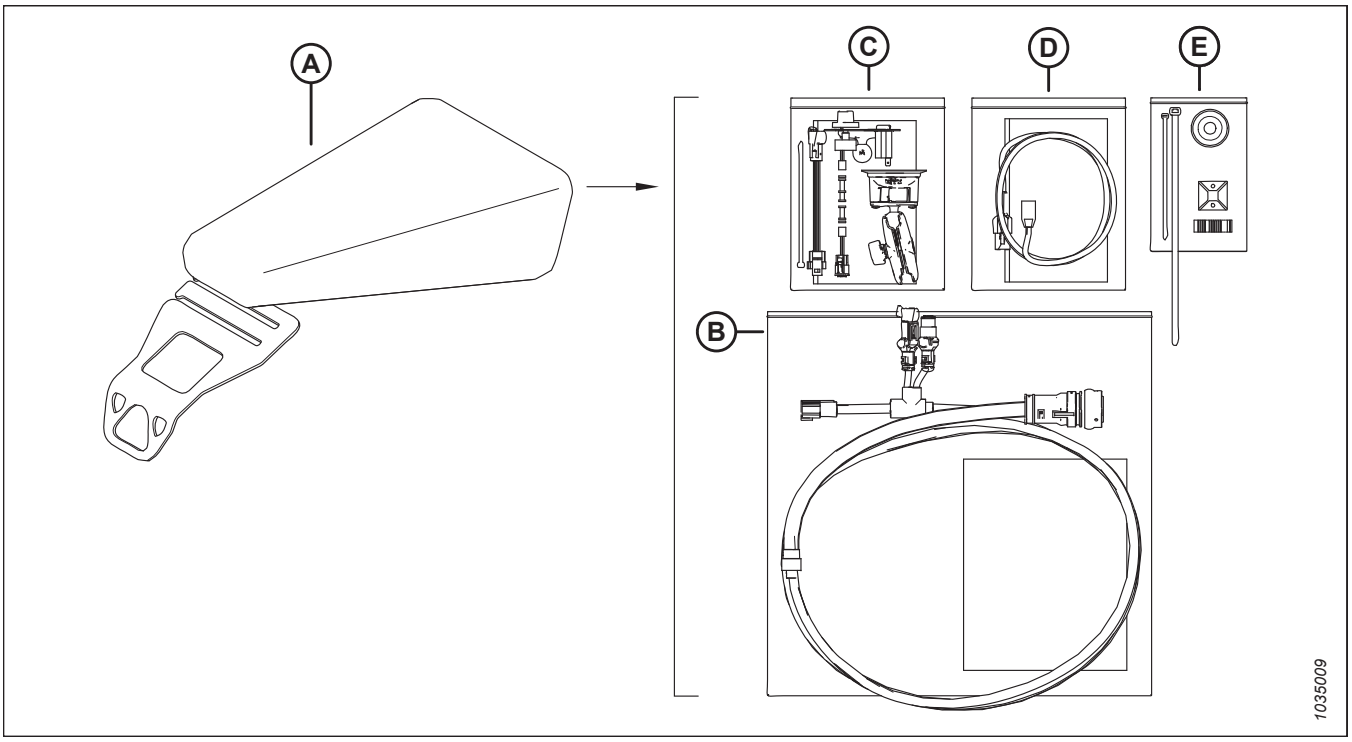


Figure 3.129: Driveline in Storage Position – Sidehill/ Hillside Driveline

3.14 Installing Cab Control Kits

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

Figure 3.130: 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 are 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

The filler cap gets installed on top of the float module frame and facilitates the addition of hydraulic oil to the float module.

CAUTION

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

1. Loosen the screws and remove yellow shipping cover (A) from the float module frame.

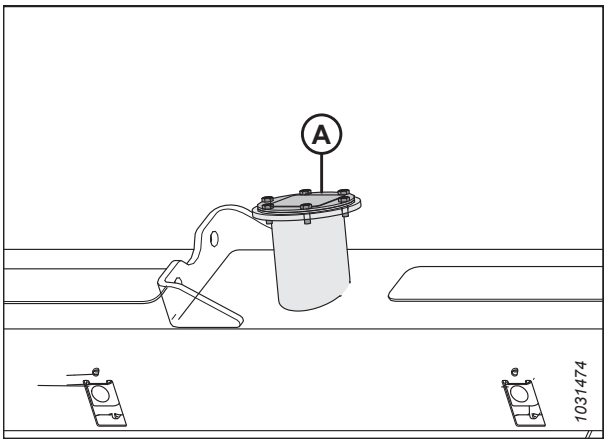


Figure 4.1: Yellow Shipping Cover

2. Retain top gasket (A) and discard the yellow shipping cover.

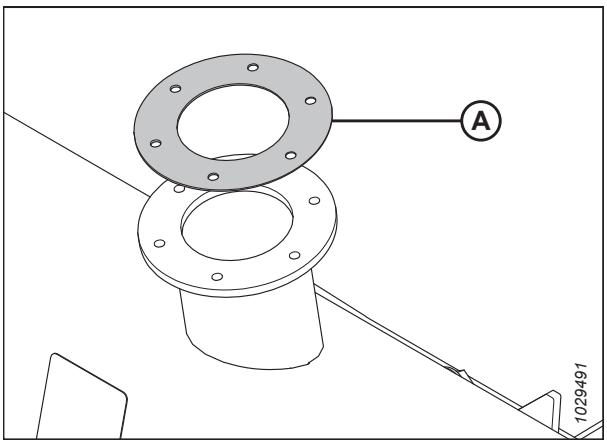


Figure 4.2: Top Gasket

3. Retrieve the filler cap assembly from bag (A).

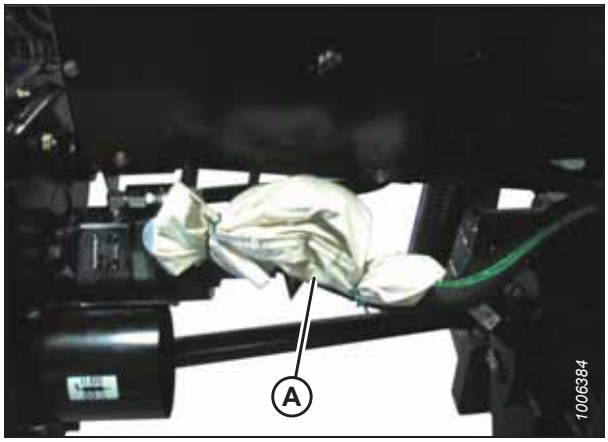


Figure 4.3: Hardware Bag

4. Place gasket (B) (retained from Step *3, page 121*) onto filler cap neck (A) and align the holes.
5. Place gasket (D) onto strainer (C) and align the holes.
6. Place bayonet (E) on top of gasket (D) and align the holes.
7. Secure the bayonet, gaskets, and strainer to the filler neck using #10-32 screws (F) (if supplied with the cap; otherwise, use existing screws), and by following the pattern described in the next step.

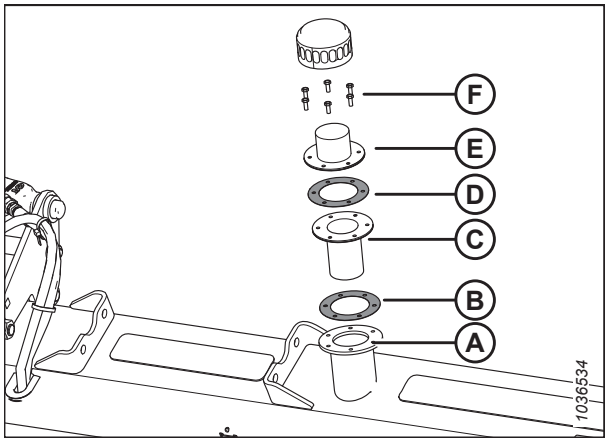


Figure 4.4: Filler Cap

8. Carefully thread the screws into bayonet (A) using a cross pattern, as shown.

   IMPORTANT:

   Using a cross pattern will prevent cross-threading of the tapped holes.

9. Repeat the pattern to gradually tighten the bolts to 3.5 Nm (31 lbf·in).

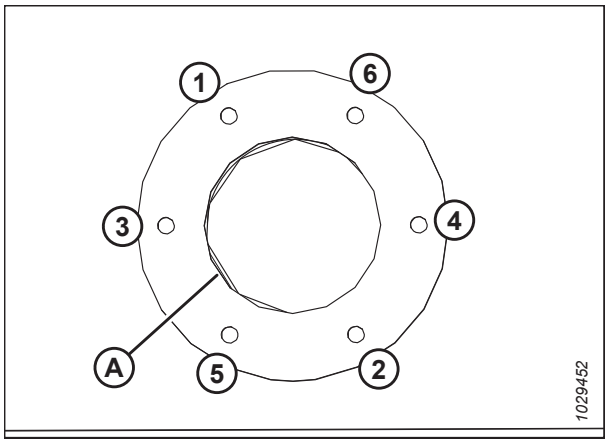


Figure 4.5: Filler Cap Screw Tightening Pattern

10. Install filler cap (A) by screwing the cap onto the threads of the bayonet.

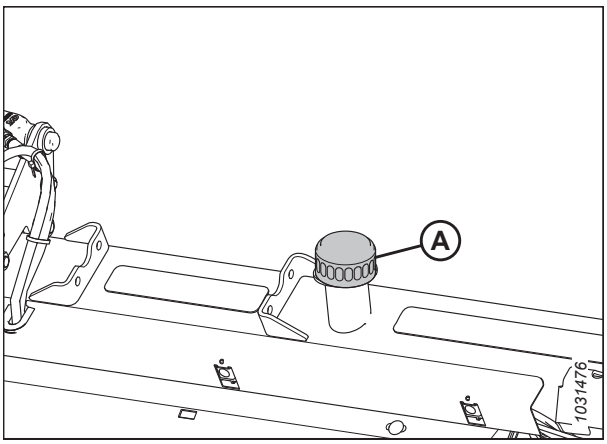


Figure 4.6: Filler Cap Neck

4.2 Installing Tank Covers

Covers protect electrical and hydraulic lines.

1. Retrieve tank cover hardware bag MD #357088 and the left and right covers that were strapped to the feed auger for shipping.
2. Install covers (A) and (B) on the front of the float module.
3. Secure with push-in clips (C).

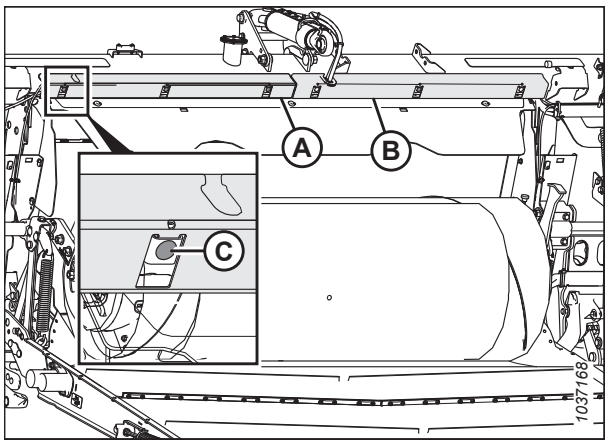


Figure 4.7: Tank Covers

4.3 FM200 Stripper Bars

Stripper bars improve feeding in certain crops such as rice.

4.3.1 Removing Stripper Bars

Stripper bars should be removed if the header is going to be used to harvest 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 Feeder Deflectors – New Holland CR Series Combines, page 125*.

If necessary, remove auger stripper bars as follows:

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

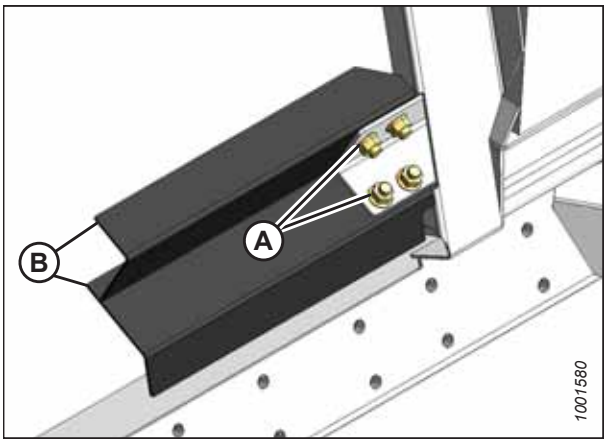


Figure 4.8: Auger Stripper Bar

4.3.2 Feeder Deflectors – New Holland CR Series Combines

On New Holland CR Series combines, feeder deflectors may need to be installed. Feeder deflectors are **NOT** necessary on New Holland CX Series combines.

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 126*.

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

Feed deflectors are used with New Holland CR combines only.

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 it with bolts and nuts (B) (ensure the nuts are facing the combine). Do **NOT** tighten the nuts.

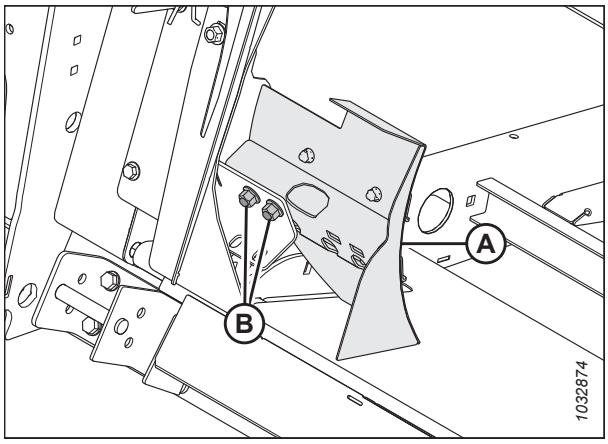


Figure 4.9: Feed Deflector

3. Adjust deflector (A) so that distance (C) between the pan and the deflector is 4–6 mm (5/32–1/4 in.).
4. Tighten nuts (B).
5. Repeat the previous steps for the opposite deflector.
6. Attach the header to the combine. For instructions, refer to Chapter *5 Attaching Header to Combine, page 129*.
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.

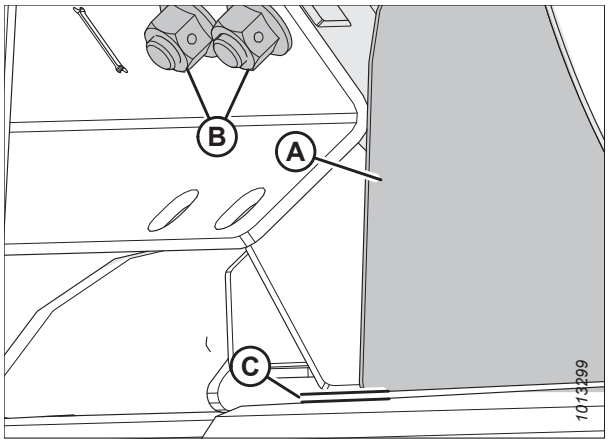


Figure 4.10: Pan and Deflector Distance

4.4 Converting Gleaner R/S configured Float Module to Massey or Challenger Configured

When installing the float module on Massey, Fendt, and Laverda (EU) combines, there are different completion packages required. Follow the table below to determine which bundles are required for your combine.

Table 4.2 Conversion Table

Description	Part Number	Massey/ Challenger/ Gleaner Completion Package	Gleaner	Massey/ Challenger	Massey/ Challenger Class 6 Axial Combine	Laverda (EU)
Transition Frame	347480	Installed	Required	Required	Required	Required
S-Series Gleaner Fillers	337862, 337863	Installed	Required	Remove	Remove	Remove
Class 6 Axial Fillers	B#7309	Separate	—	—	Required	Remove
Laverda (EU) Fillers	B#7309	Separate	—	—	Remove	Required
Gleaner Deflectors	B#7314	Installed	Required	Remove	Remove	Remove
Reel Speed (Gleaner)	B#7064	Installed	Required	Remove	Remove	Remove
Reel Speed (Massey/Challenger)	B#7065	Separate	—	Install	Install	Install

Chapter 5: Attaching Header to Combine

Once the header has been assembled at the dealership, it should be attached to a combine for final assembly and testing. 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	*5.1 Challenger®, Gleaner, and Massey Ferguson® Combines, page 129*
IDEAL™	*5.2 IDEAL™ Series Combines, page 134*
Case IH 7010, 8010, 7120, 8120, 9120, 5088, 6088, 7088, 5130, 6130, 7130, 7230, 8230, and 9230	*5.3 Case IH Combines, page 136*
CLAAS 500, 600, and 700 (R Series)	*5.4 CLAAS Combines, page 140*
John Deere 60, 70, S, and T Series	*5.5 John Deere Combines, page 145*
New Holland CR and CX	*5.6 New Holland Combines, page 149*

IMPORTANT:

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

NOTE:

Ensure the combine feeder house lugs are free of dirt and debris. Check the locking mechanism for freedom of movement, and ensure that it is free of damage; make any necessary repairs to the locking mechanism prior to attaching the header to the combine.

NOTE:

Ensure all electrical and hydraulic connectors are clean and free of dust and debris.

5.1 Challenger®, Gleaner, and Massey Ferguson® Combines

To attach the header to or to detach it from a Challenger®, Gleaner, or Massey Ferguson® combine, follow the relevant procedure in this section.

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

Each combine model has specific instructions on how to attach the header.

DANGER

To prevent injury or death from the 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.

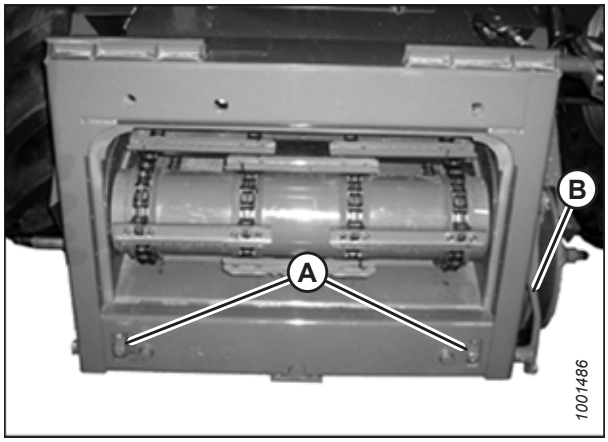


Figure 5.1: AGCO Group Feeder House

DANGER

Never start or move the machine until you are sure that 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 130*) on the feeder house are aligned with holes (B) in the float module frame.

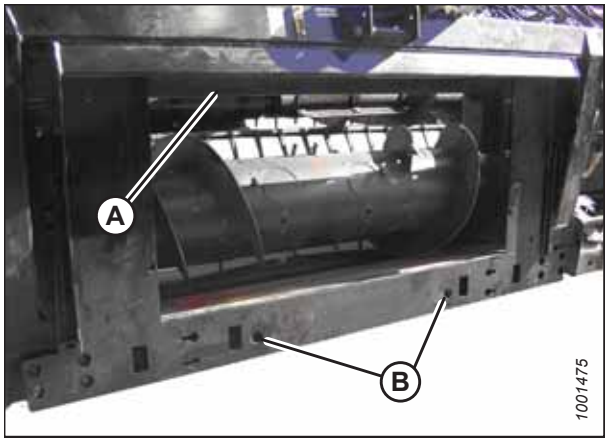


Figure 5.2: Float Module

NOTE:

Your combine feeder house may not be exactly as shown.

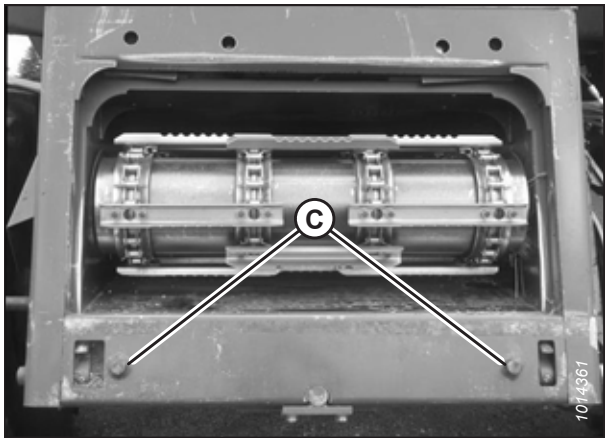


Figure 5.3: AGCO Group Alignment Pins

4. Raise the feeder house slightly to lift the header, ensuring feeder house saddle (A) is properly engaged in the float module frame.

Figure 5.4: Feeder House and Float Module

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

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

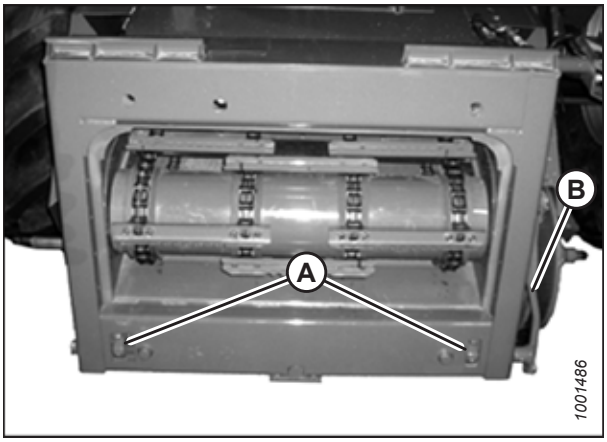


Figure 5.5: AGCO Group Feeder House

DANGER

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

7. Start the engine. For instructions, refer to the combine operator's manual.

8. 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 *5.2, page 131* 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

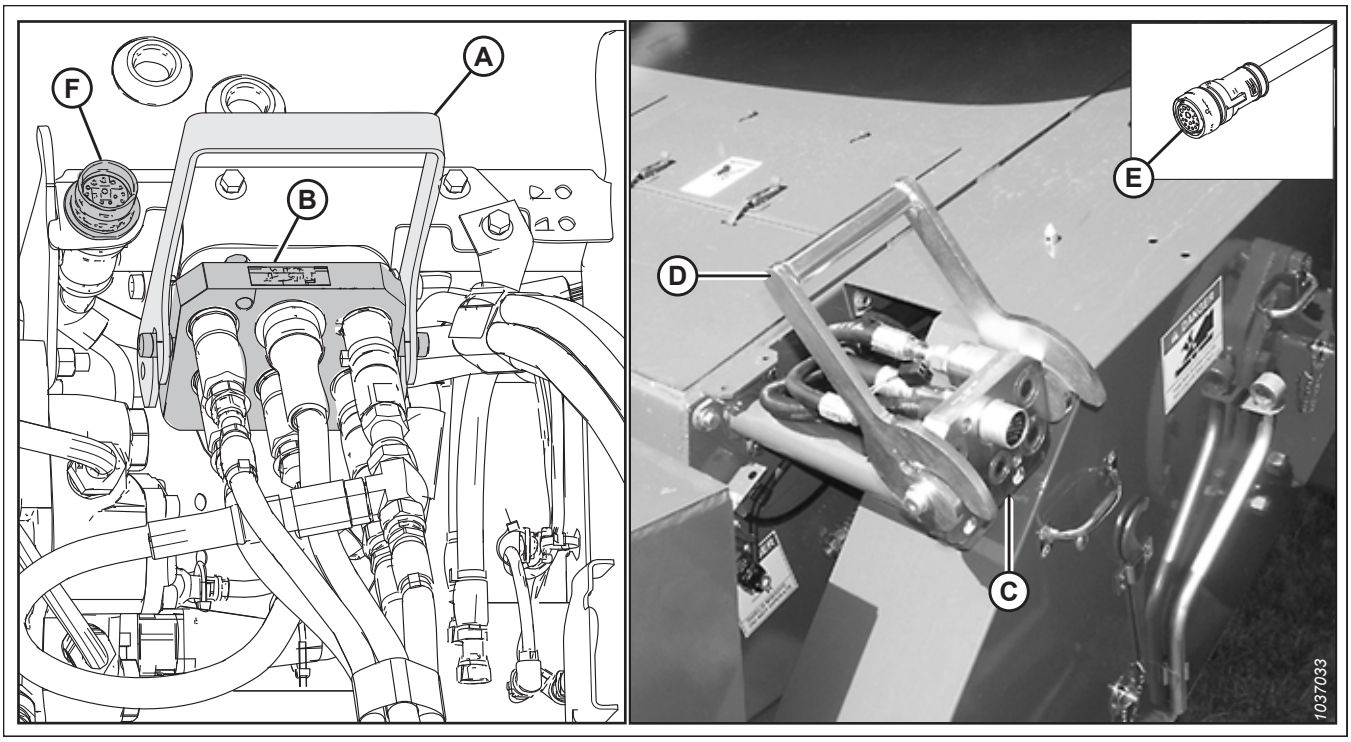


Figure 5.6: Hydraulics and Electrical Multicoupler

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

10. Raise handle (D) on the combine to the fully-opened position, and clean the mating surfaces of multicoupler (B) and receptacle (C).

11. Position multicoupler (B) onto the combine receptacle (C), and pull handle (D) to fully engage the multicoupler into the receptacle.

12. Retrieve cab control kit connector C81A (E) from the storage location on the combine and connect it to C81B (F) on the float module. Turn the collar on the connector to lock it in place.

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 the support bracket.

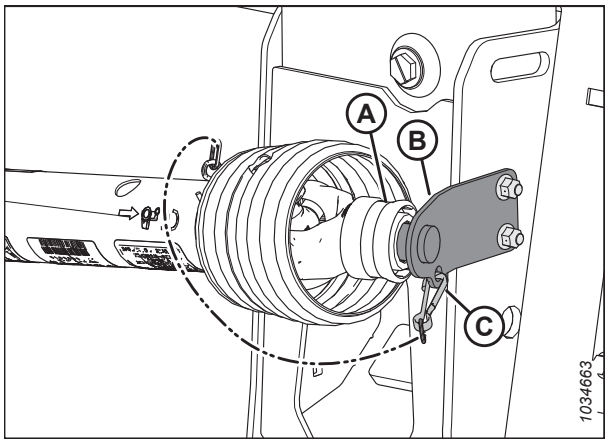


Figure 5.7: Driveline in Storage Position – Driveline MD #B7038 or MD #B7039

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

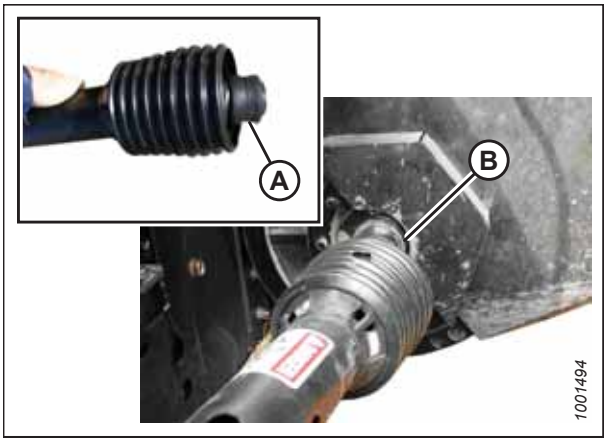


Figure 5.8: Driveline

5.2 IDEAL™ Series Combines

To attach the header to or detach it from an IDEAL™ combine, follow the relevant procedure in this section.

5.2.1 Attaching Header to an IDEAL™ Series Combine

Each combine model has specific instructions on how to attach the header.

DANGER

To prevent injury or death from the 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.

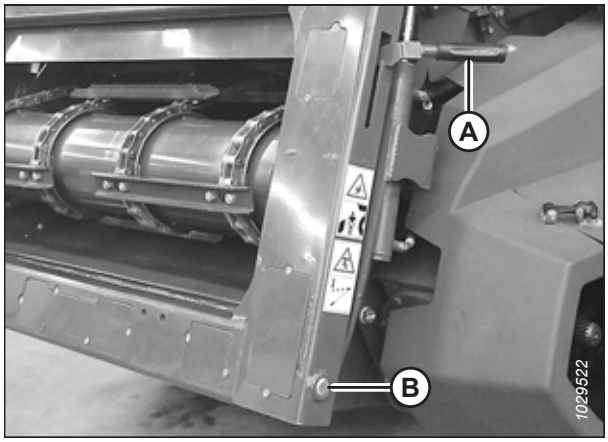


Figure 5.9: Feeder House

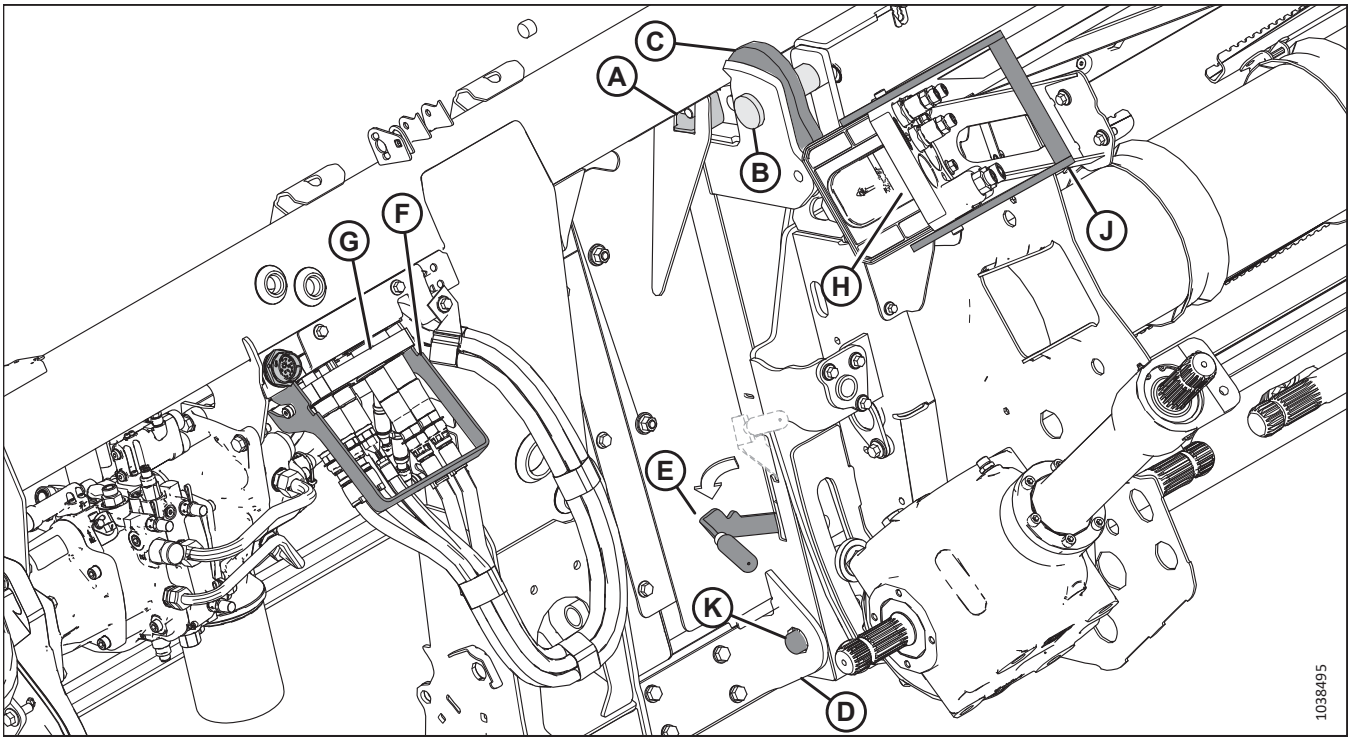


Figure 5.10: Float Module

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 the 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 the bottom of the feeder house so that locking pins (K) align with the holes in mount (D).
7. Push lever (E) down to extend locking pins (K) so they engage in mount (D).
8. Lower handle (F) to release multicoupler (G) from the header.
9. Open the cover on the combine receptacle (H).
10. Push handle (J) to the fully open position.
11. Clean the mating surfaces of the coupler and receptacle if necessary.
12. Position coupler (G) onto combine receptacle (H), and pull handle (J) to fully engage the multicoupler into the receptacle.
13. Detach safety chain (C) from support bracket (B).
14. Pull driveline collar (A) back to release the driveline from the support bracket. Remove the driveline from the support bracket.

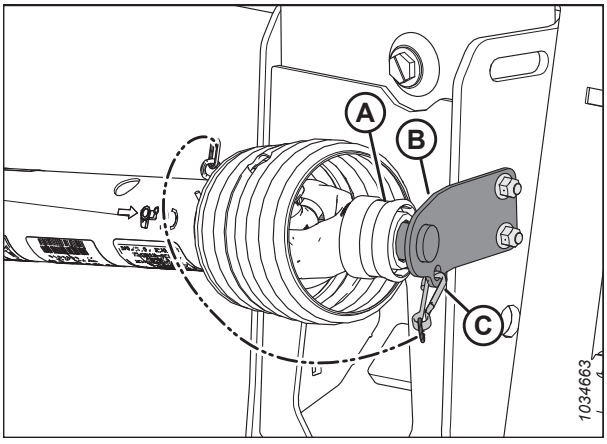


Figure 5.11: Driveline in Storage Position

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

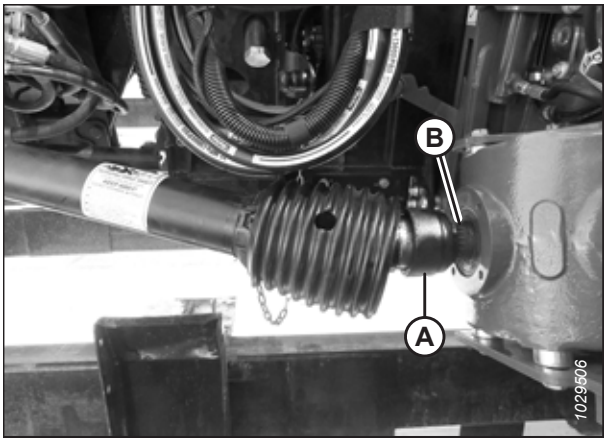


Figure 5.12: Connecting Driveline to Combine

5.3 Case IH Combines

To attach the header to or detach it from a Case IH combine, follow the relevant procedure in this section.

5.3.1 Attaching Header to Case IH Combine

Each combine model has specific instructions on how to attach the header.

DANGER

To prevent injury or death from the 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.

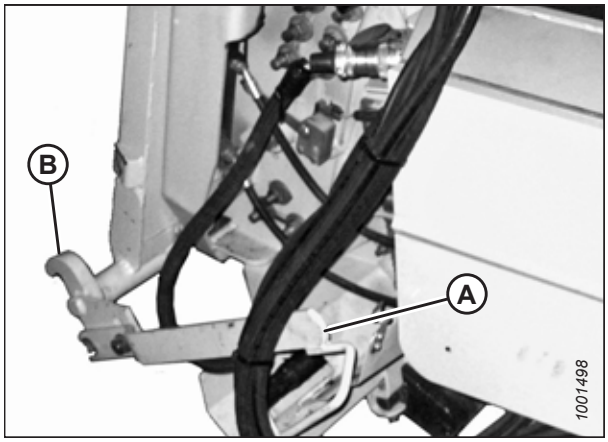


Figure 5.13: Feeder House Locks

DANGER

Never start or move the machine until you are sure that 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.

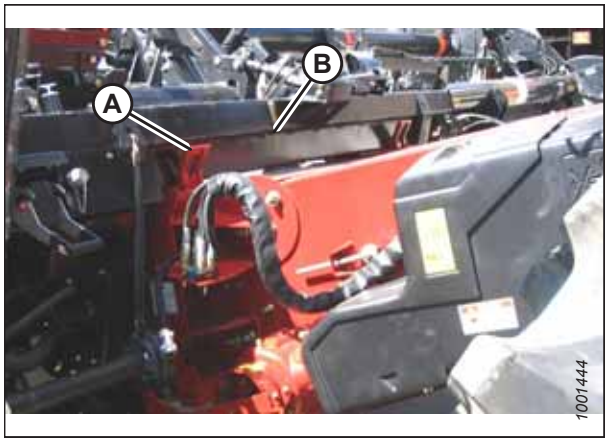


Figure 5.14: Combine and Float Module

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 the bolts.

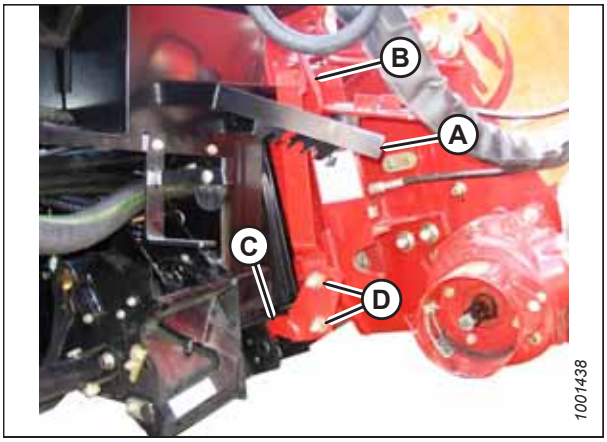


Figure 5.15: Combine and Float Module

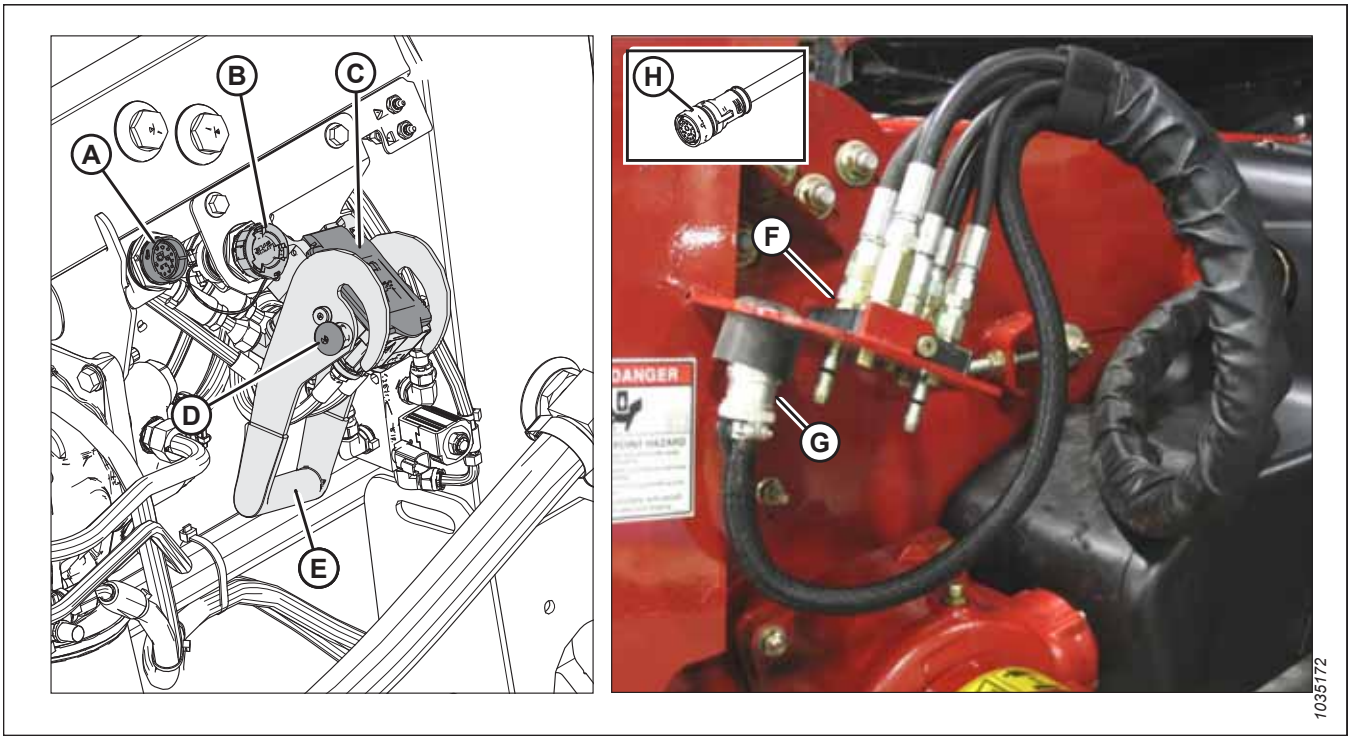


Figure 5.16: Multicoupler and Electrical Connections

9. Remove the caps from connectors C81B (A) and (B).

10. Remove the 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 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.

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.

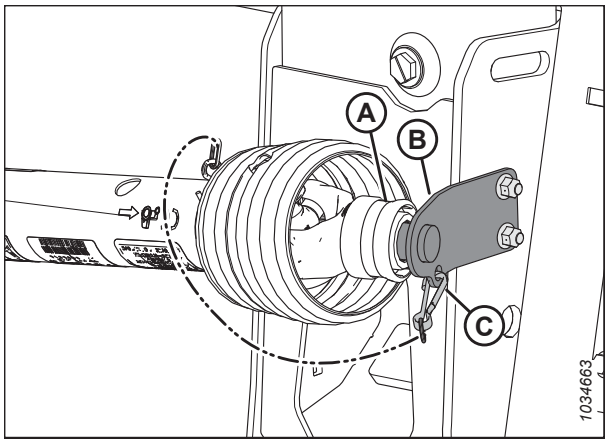


Figure 5.17: Driveline in Storage Position – Driveline MD #B7038 or MD #B7039

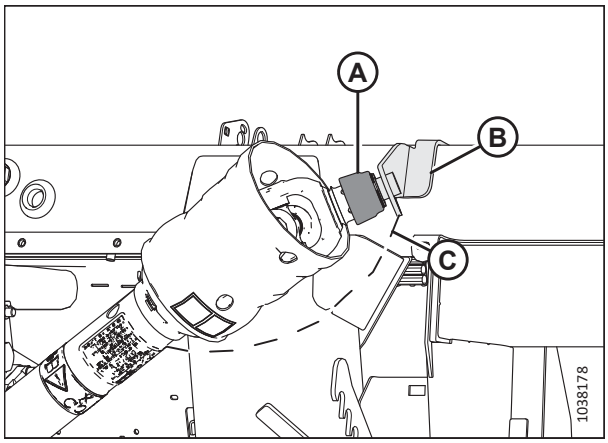


Figure 5.18: Driveline in Storage Position – Sidehill/ Hillside Driveline MD #B7180, MD #B7181, or MD #B7326

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

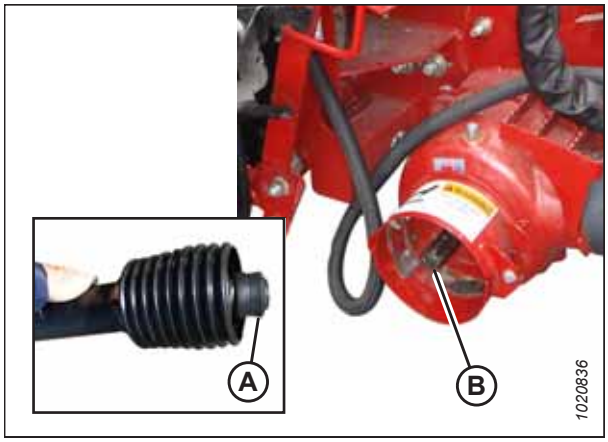


Figure 5.19: Combine Output Shaft

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:

    The illustration at the right shows the right side of the header. The float lock on the left side of the header is opposite.

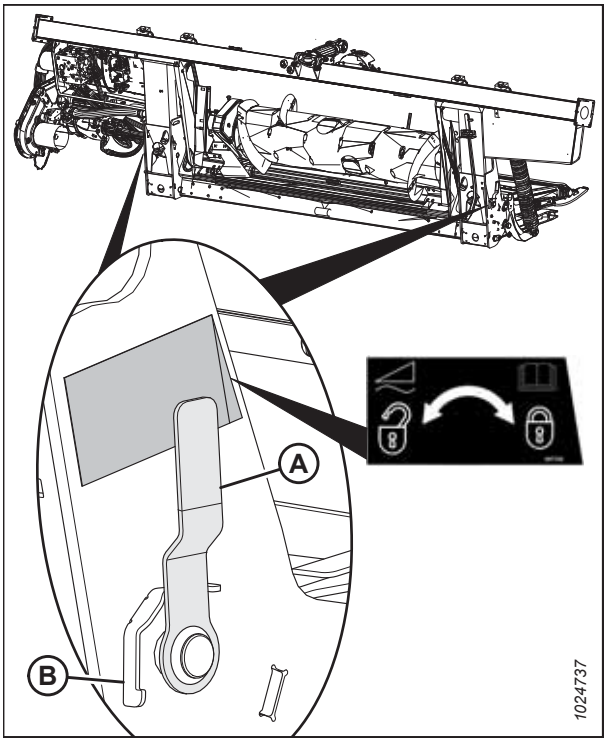


Figure 5.20: Float Lock Handle

5.4 CLAAS Combines

To attach the header to or detach it from a CLAAS combine, follow the relevant procedure in this section.

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

Each combine model has specific instructions on how to attach the header.

DANGER

To prevent injury or death from the 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.

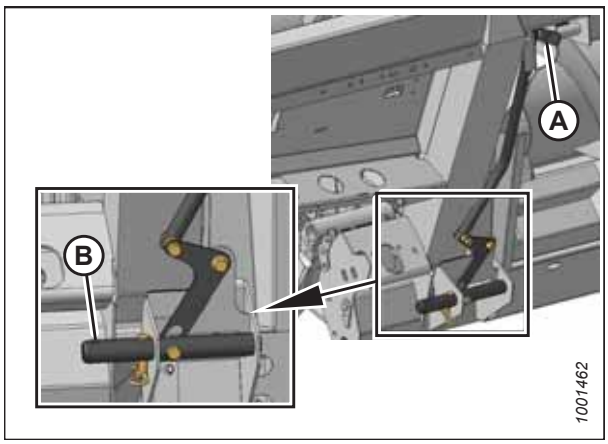


Figure 5.21: Pins Retracted

DANGER

Never start or move the machine until you are sure that 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.

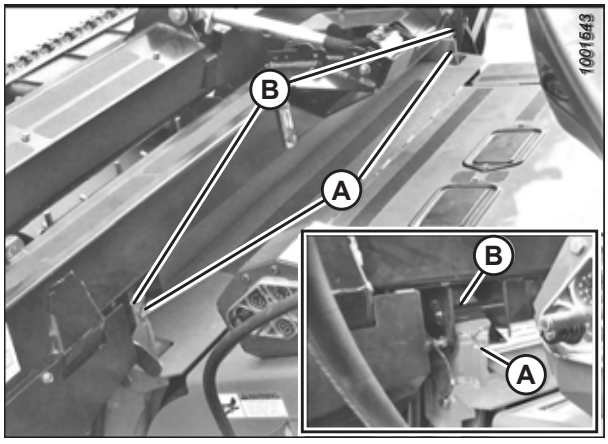


Figure 5.22: Header on Combine

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

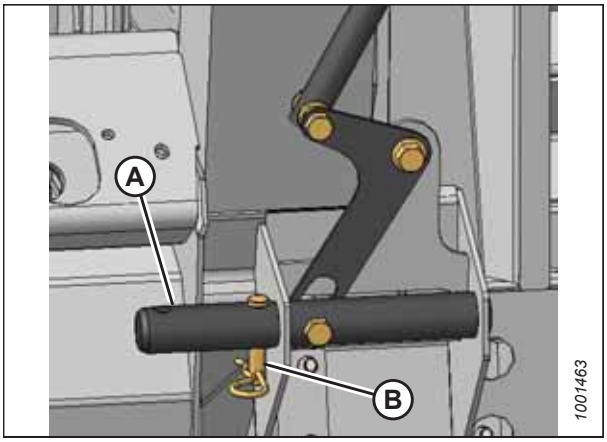


Figure 5.23: Locking Pins

7. Lower handle (A) to engage float module pins (B) into the feeder house. Reinsert locking pin (C) and secure with the hairpin.

8. Remove the blocks from under the cutterbar.

DANGER

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

9. Start the engine. For instructions, refer to the combine operator's manual.

10. Lower the header fully.

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

12. Remove float module receptacle cover (A). Clean the receptacle.

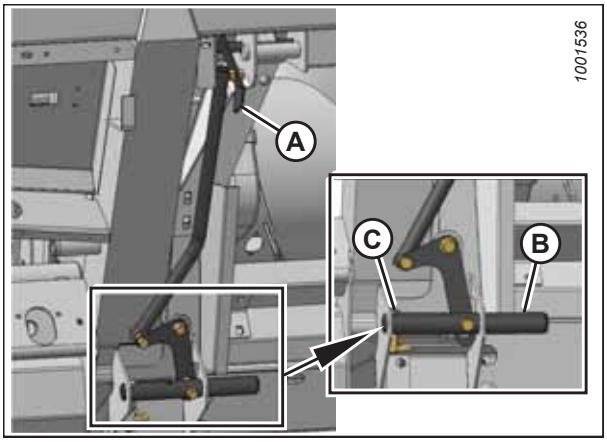


Figure 5.24: Engaging Pins

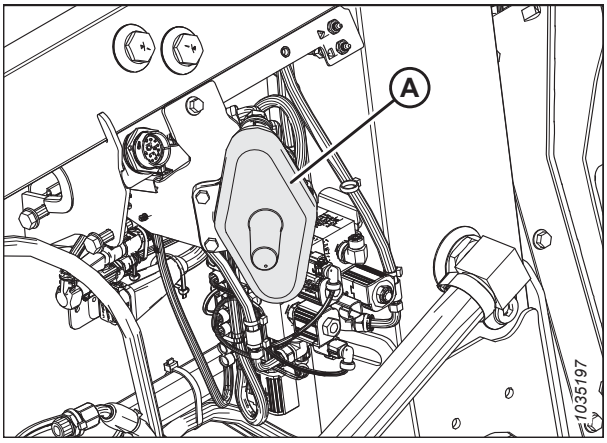


Figure 5.25: Receptacle Cover

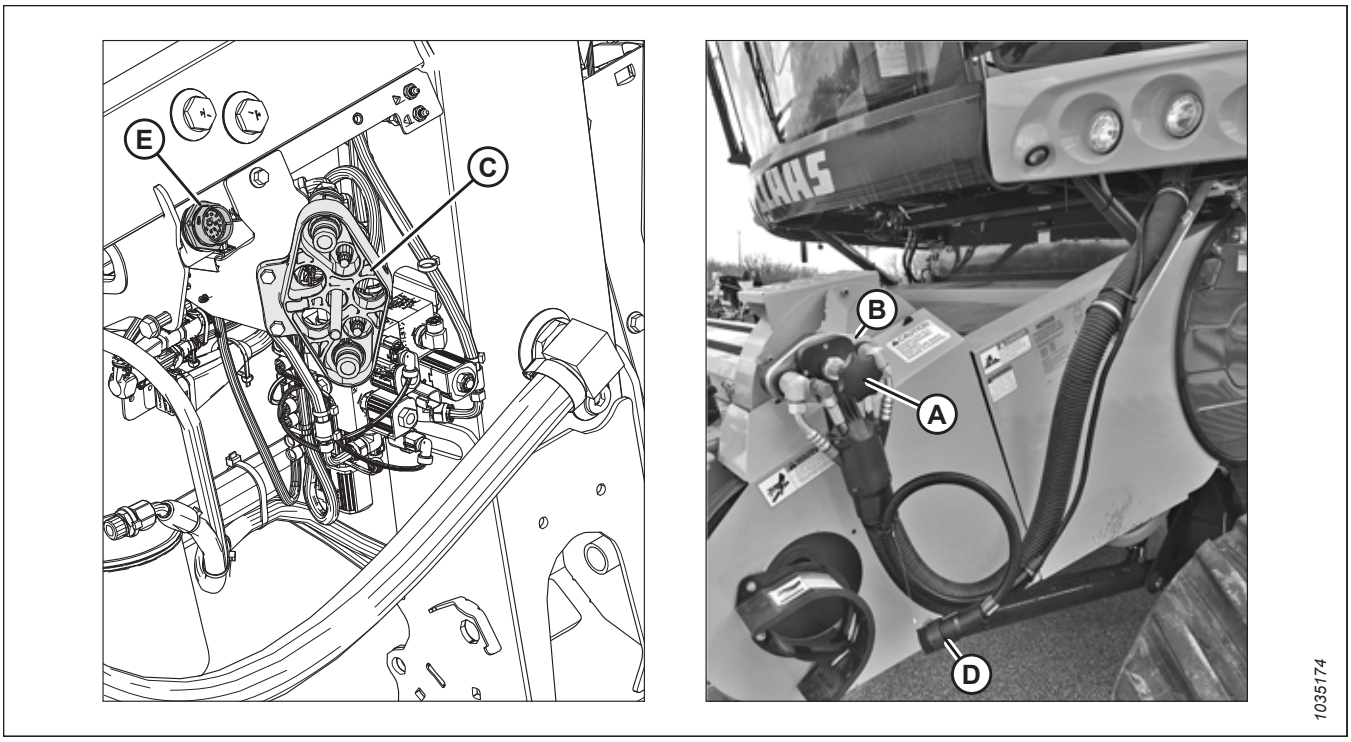


Figure 5.26: Multicoupler and Electrical Connections

13. Unscrew knob (A) on combine coupler (B) to release the coupler from the receptacle.
14. Clean coupler (B), and the 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.

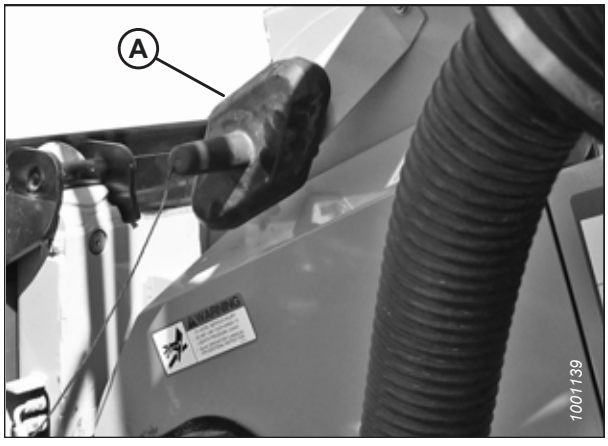


Figure 5.27: Receptacle Cover

18. Detach safety chain (C) from support bracket (B).

19. Pull driveline collar (A) back to release driveline from the support bracket. Remove the driveline from the support bracket.

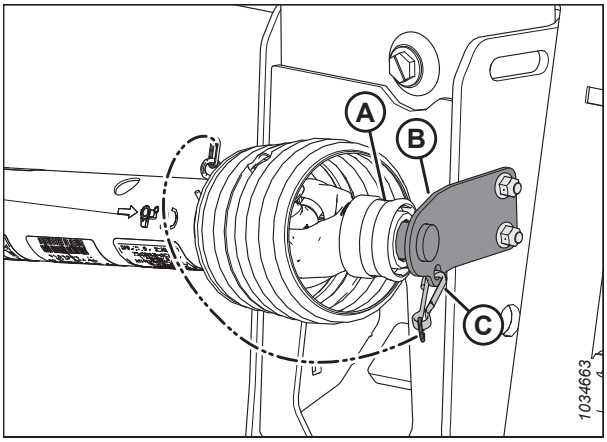


Figure 5.28: Driveline in Storage Position – Driveline MD #B7039

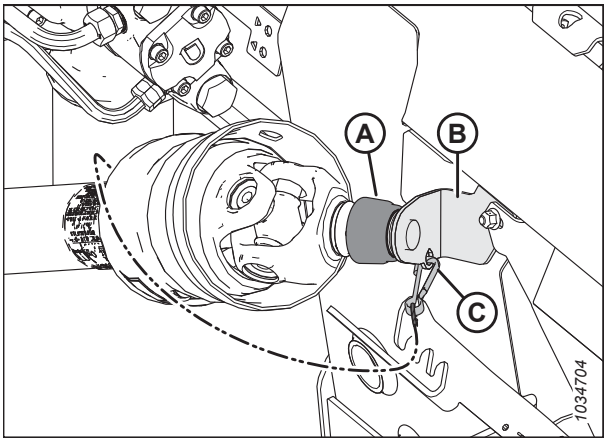


Figure 5.29: Driveline in Storage Position – Sidehill/ Hillside Driveline MD #B7182

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

Figure 5.30: Driveline and Output Shaft

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:

    The illustration at the right shows the right side of the header. The float lock on the left side of the header is opposite.

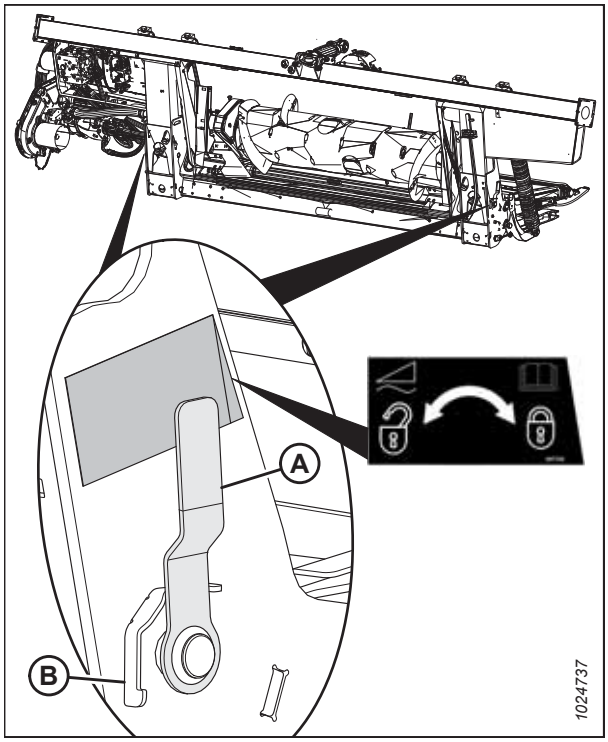


Figure 5.31: Float Lock Handle

5.5 John Deere Combines

To attach the header to or detach it from a John Deere combine, follow the relevant procedure in this section.

The FD2 Series FlexDraper® Header is compatible with John Deere 60, 70, S, T, and X9 Series combines.

5.5.1 Attaching Header to John Deere Combine

Each combine model has specific instructions on how to attach the header.

DANGER

To prevent injury or death from the 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.

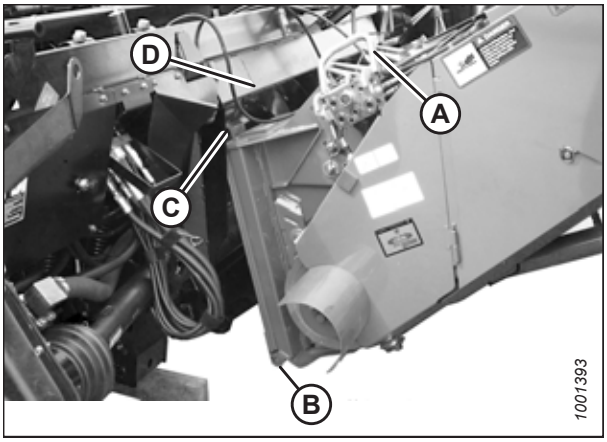


Figure 5.32: Combine and Float Module

DANGER

Never start or move the machine until you are sure that 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.

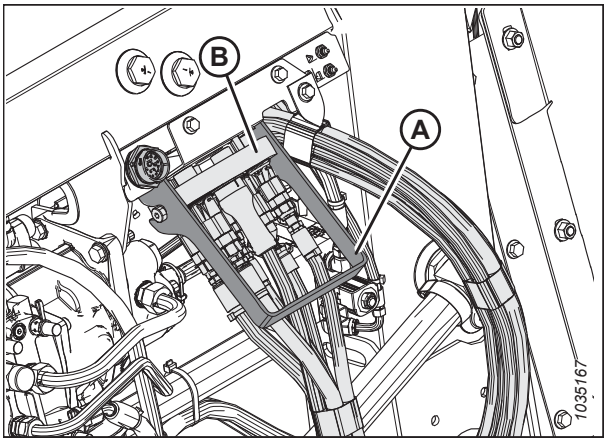


Figure 5.33: Multicoupler Storage

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.

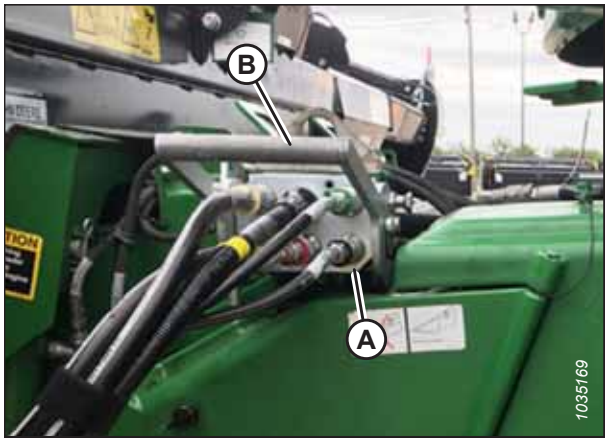


Figure 5.34: Multicoupler

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).

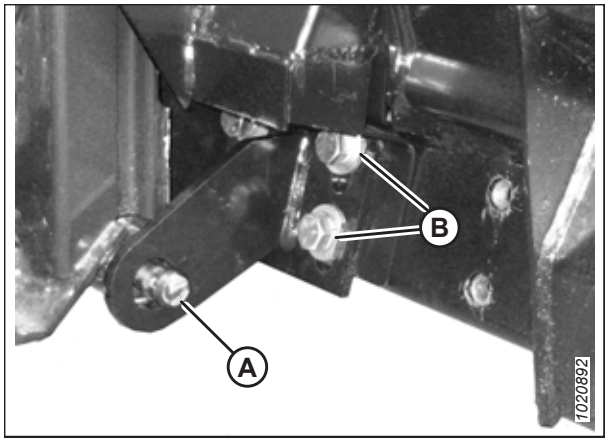


Figure 5.35: Feeder House Pin

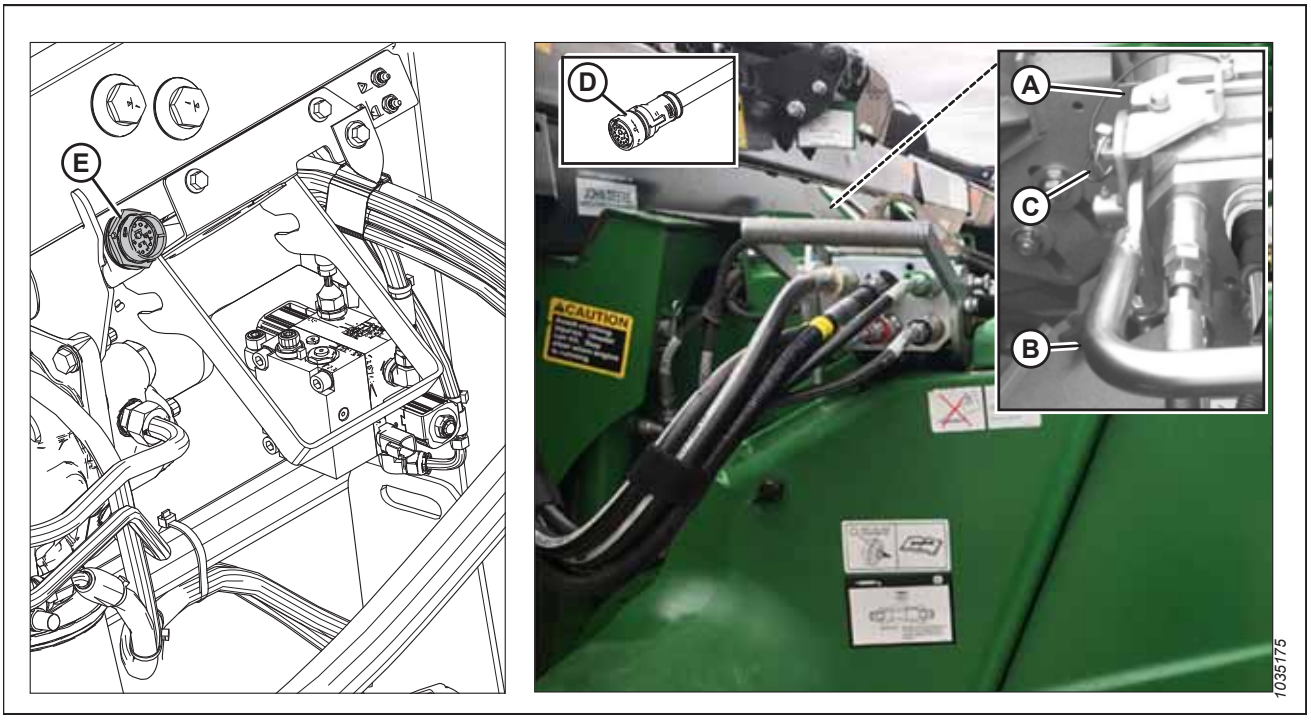


Figure 5.36: Multicoupler Lock, Electrical Connections

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.

13. Detach safety chain (C) from support bracket (B).

14. Pull driveline collar (A) back to release the driveline from the support bracket. Remove the driveline from the support bracket.

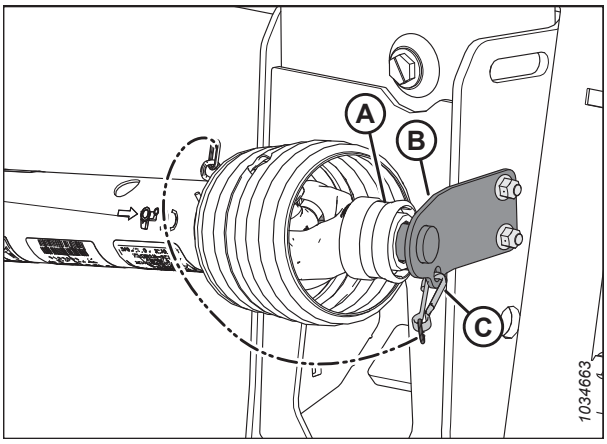


Figure 5.37: Driveline in Storage Position – Driveline MD #B7038 or MD #B7039

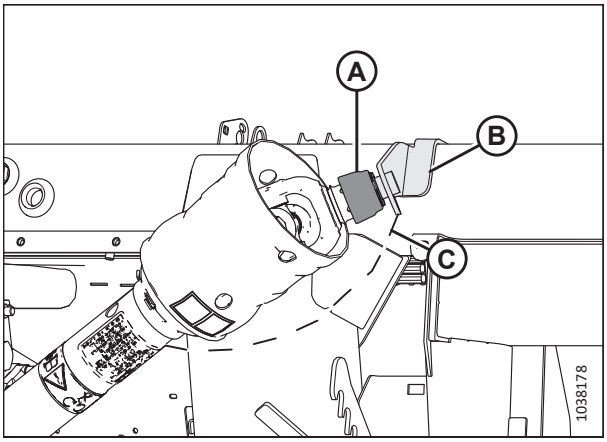


Figure 5.38: Driveline in Storage Position – Sidehill/ Hillside Driveline MD #B7326,, or MD #B7182

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

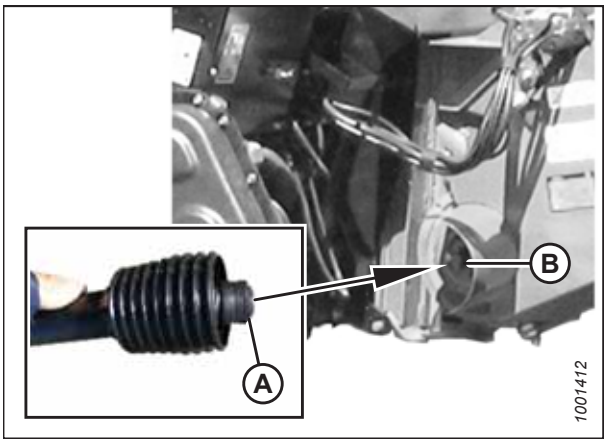


Figure 5.39: Driveline

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:

    The illustration at the right shows the right side of the header. The float lock on the left side of the header is opposite.

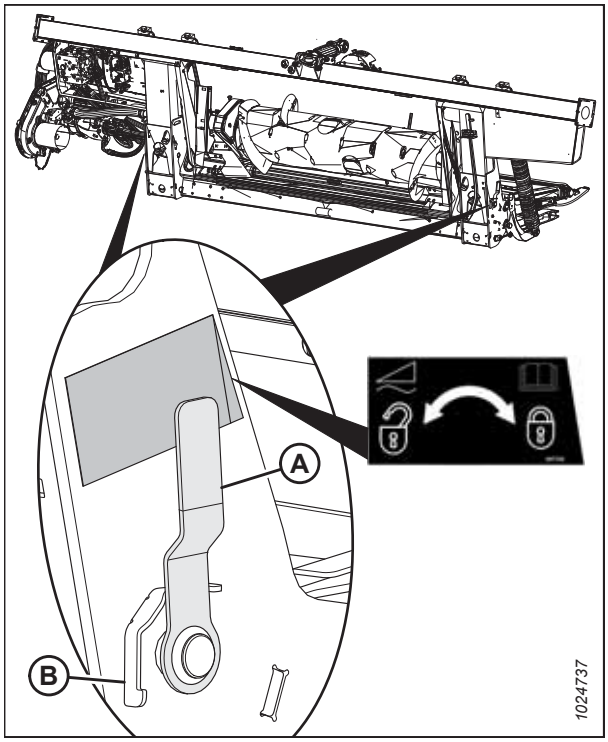


Figure 5.40: Float Lock Handle

5.6 New Holland Combines

To attach the header to or detach it from a New Holland combine, follow the relevant procedure in this section.

Refer to the table below for information on the New Holland combine models that are compatible with this header.

Table 5.3 New Holland Combine Compatibility

New Holland Combine 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

Each combine model has specific instructions on how to attach the header.

DANGER

To prevent injury or death from the 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.

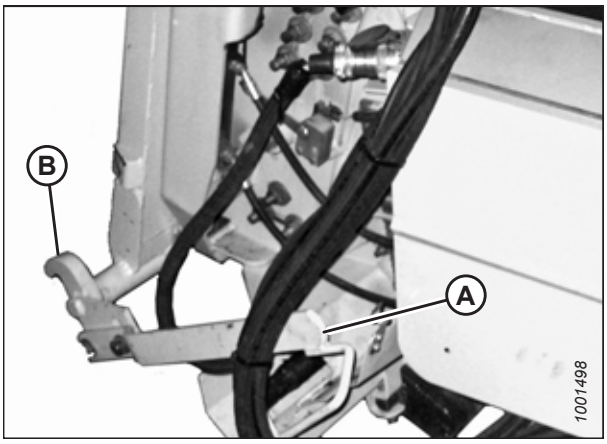


Figure 5.41: Feeder House Locks

DANGER

Never start or move the machine until you are sure that 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.

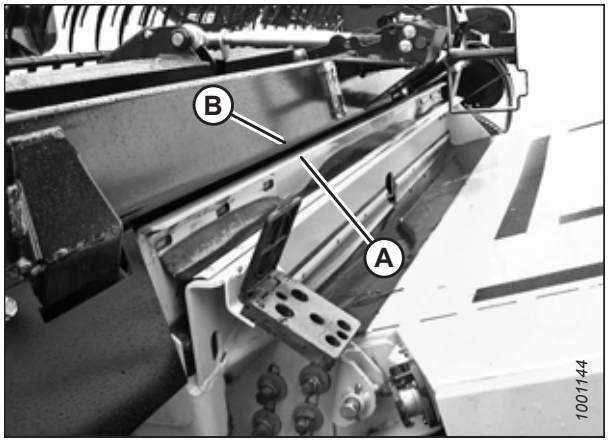


Figure 5.42: Header on Combine

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 the bolts.

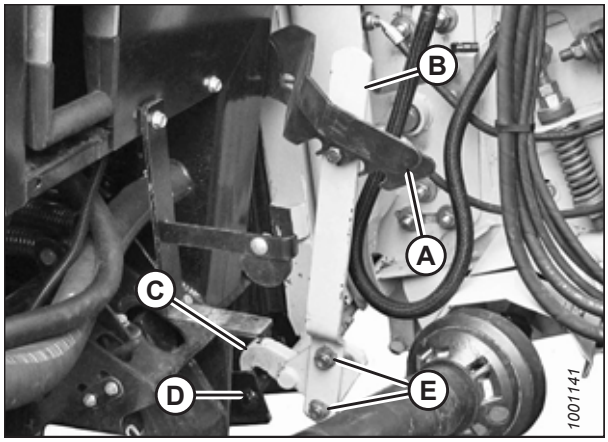


Figure 5.43: Feeder House Locks

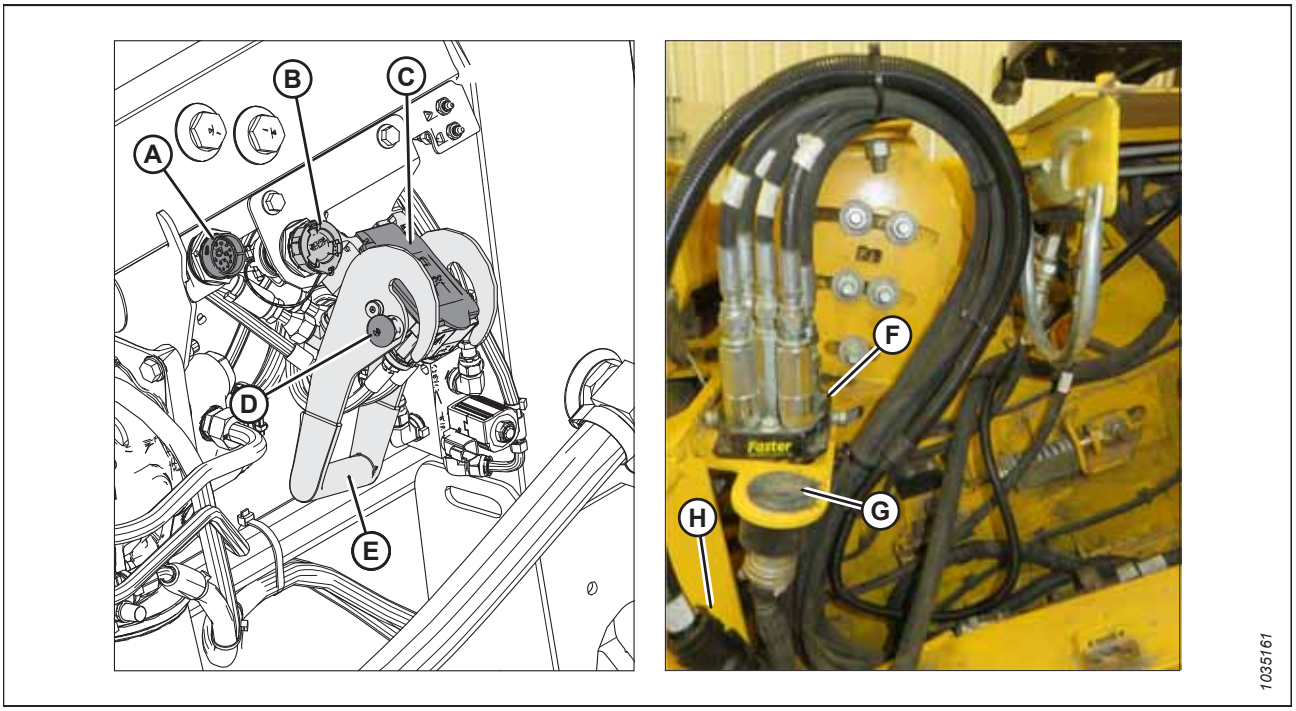


Figure 5.44: Multicoupler and Electrical Connections

9. Remove the caps from connectors C81B (A) and (B).
10. Remove the 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 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.
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.

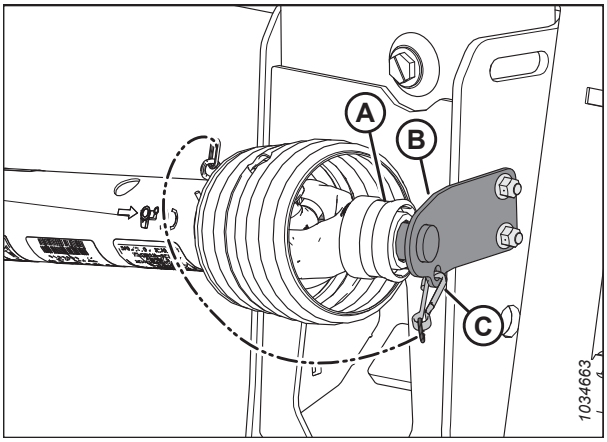


Figure 5.45: Driveline in Storage Position – Driveline MD #B7038 or MD #B7039

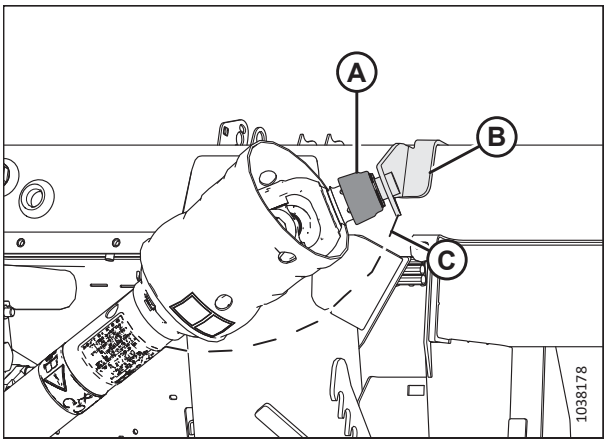


Figure 5.46: Driveline in Storage Position – Sidehill/ Hillside Driveline MD #B7180, MD #B7181, or MD #B7326

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

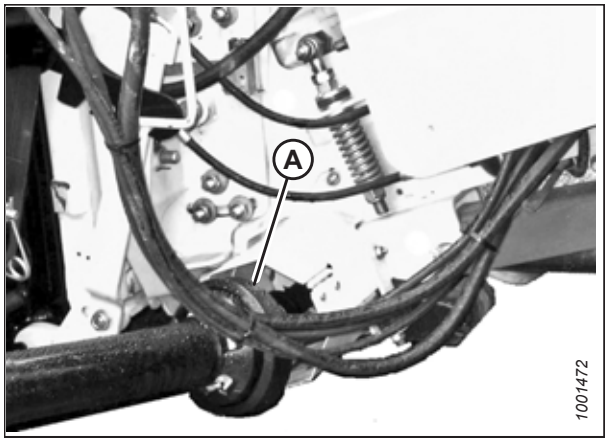


Figure 5.47: Driveline and Output Shaft

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:

    The illustration at the right shows the right side of the header. The float lock on the left side of the header is opposite.

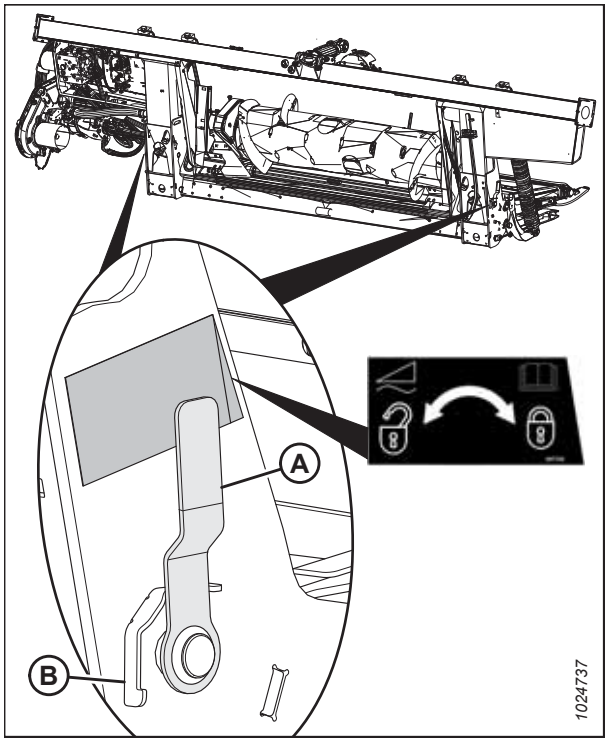


Figure 5.48: Float Lock Handle

5.7 Rostselmash Series Combines

5.7.1 Attaching Header to Rostselmash Combine

Each combine model has specific instructions on how to attach the header.

DANGER

To prevent injury or death from the 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.

DANGER

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

1. 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).
2. Raise the feeder house slightly to lift the header ensuring the feeder house saddle is properly engaged in the float module frame.
3. Shut down the engine, and remove the key from the ignition.

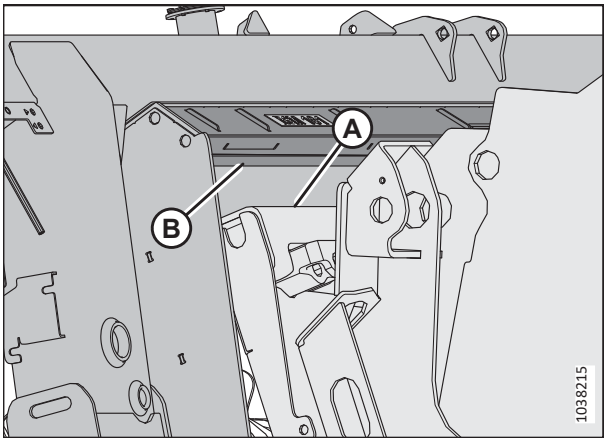


Figure 5.49: Combine and Float Module

4. Pull pin (A) outward and rotate handle (B) until both feeder house pins (C) are fully engaged into float module brackets (D).

   NOTE:

   If pins (C) do not fully engage the float module brackets, loosen bolts (E) and adjust brackets (D) as required.
5. Tighten nuts (E).

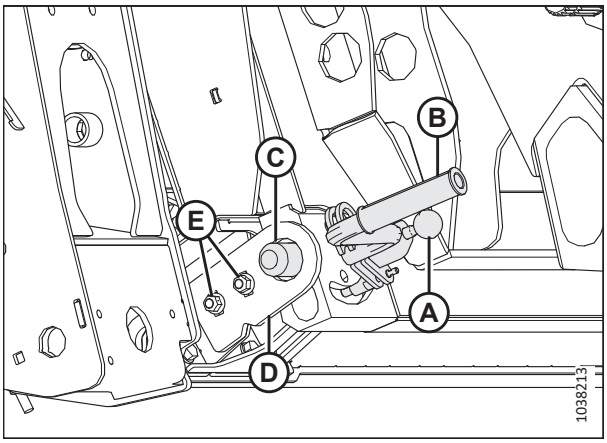


Figure 5.50: Feeder House Pin

6. Push in lock button (A) and pull handle (B) to the fully open position.
7. Remove the hydraulic quick coupler from the storage plate on the combine. Clean the mating surface of the coupler.
8. Position the combine coupler onto the float module receptacle. Push down on the handle to engage the pins into the receptacle.
9. Push the handle down to the closed position until lock button (B) snaps out.
10. Remove the combine connector from the storage location on the combine and connect it to receptacle (C). Turn the collar on the connector to lock it in place.
11. Remove the cab control kit connector C81A from the storage location on the combine and connect it to C81B (D). Turn the collar on the connector to lock it in place.

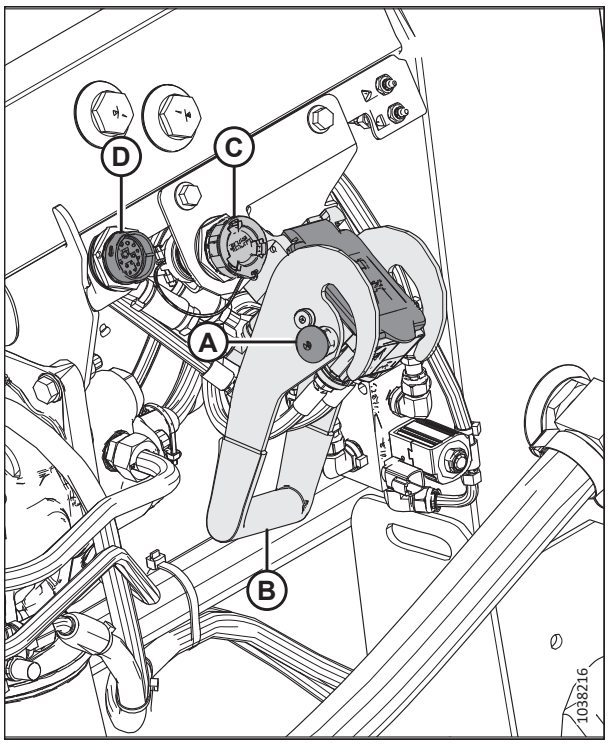


Figure 5.51: Multicoupler Storage

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

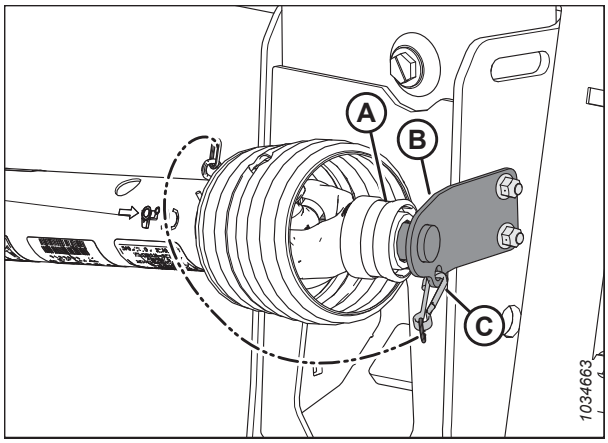


Figure 5.52: Driveline in Storage Position – Driveline MD #B7038 or MD #B7039

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

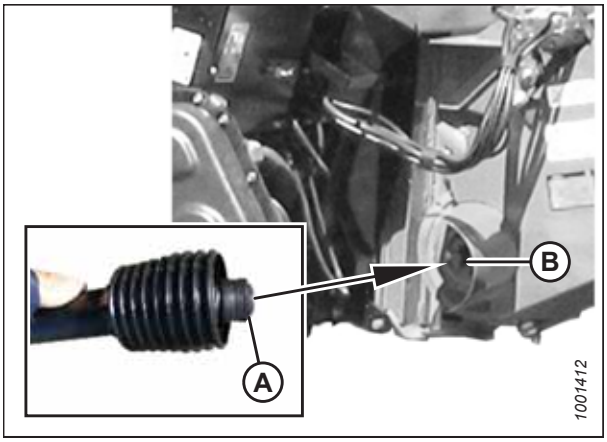


Figure 5.53: Driveline

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

    NOTE:

    The illustration at the right shows the right side of the header. The float lock on the left side of the header is opposite.

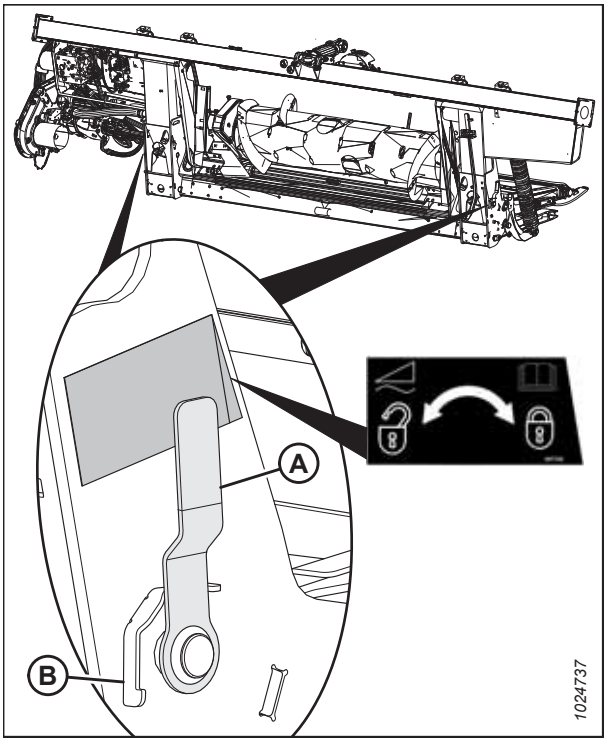


Figure 5.54: Float Lock Handle

Chapter 6: Completing Header Assembly

The header has to be completely assembled before it can be operated.

6.1 Installing Clearance Lights

Clearance lights are used when transporting the header. They are secured to the sides of the reel arms for shipping purposes and must be repositioned for field use.

DANGER

To prevent bodily injury or death from the unexpected start-up of the 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. Retrieve left clearance light assembly (A) that was previously removed.
3. Remove two M10 locking flange nuts (C) and two M10 X 1.5 X 35 mm bolts (B).

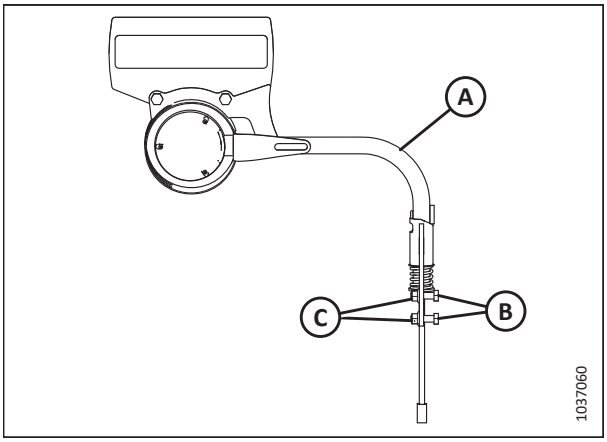


Figure 6.1: Left Clearance Light

4. Position left clearance light assembly (A) on the outboard side of the left reel arm support.
5. Secure left clearance light assembly (A) to the left reel arm support with two M10 X 1.5 X 35 mm bolts (B) and two M10 locking flange nuts (C).
6. Connect electrical harness (D) to the header harness.

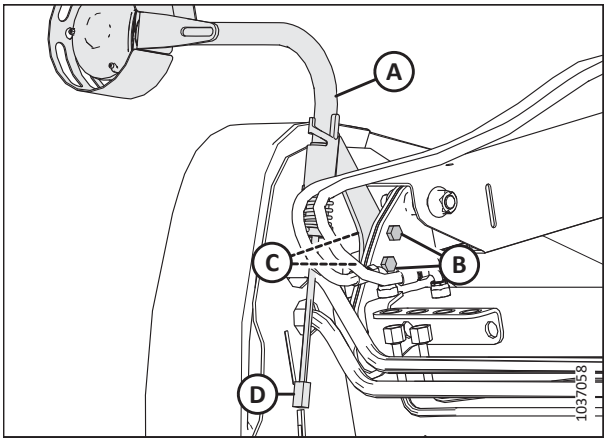


Figure 6.2: Left Clearance Light

7. Retrieve right clearance light assembly (A) that was previously removed.
8. Remove two M10 locking flange nuts (C) and M10 X 1.5 X 35 mm bolts (B).

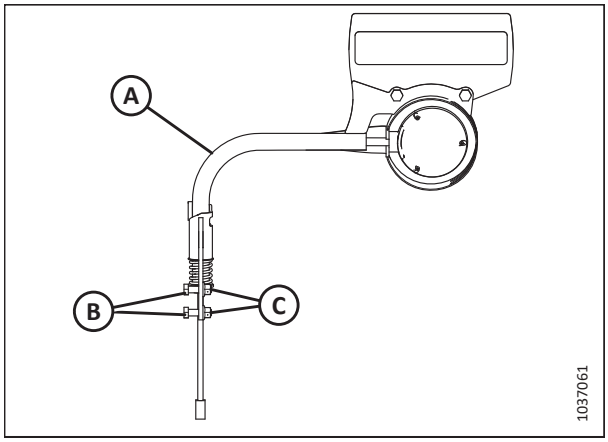


Figure 6.3: Right Clearance Light

9. Position right clearance light assembly (A) on the outboard side of the right reel arm support.
10. Secure right clearance light assembly (A) to the right reel arm support with two M10 X 1.5 X 35 mm bolts (B) and two M10 locking flange nuts (C).
11. Connect electrical harness (D) to the header harness.

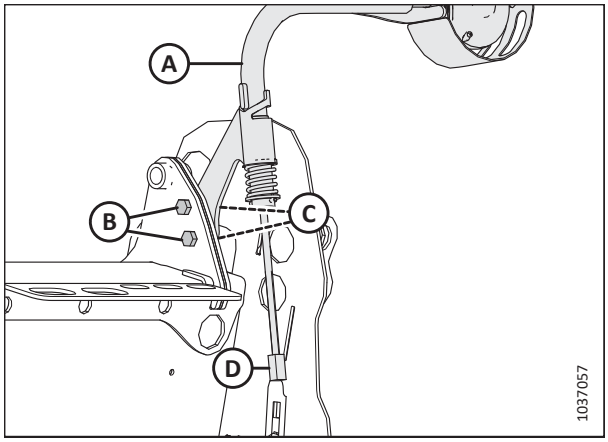


Figure 6.4: Right Clearance Light

6.2 Connecting Reel to Fore-Aft Cylinders

Fore-aft cylinders move the reel fore and aft on the reel arms.

DANGER

To prevent injury or death from the 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 the header hydraulics are connected to the combine. Lift the reel to level the 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.

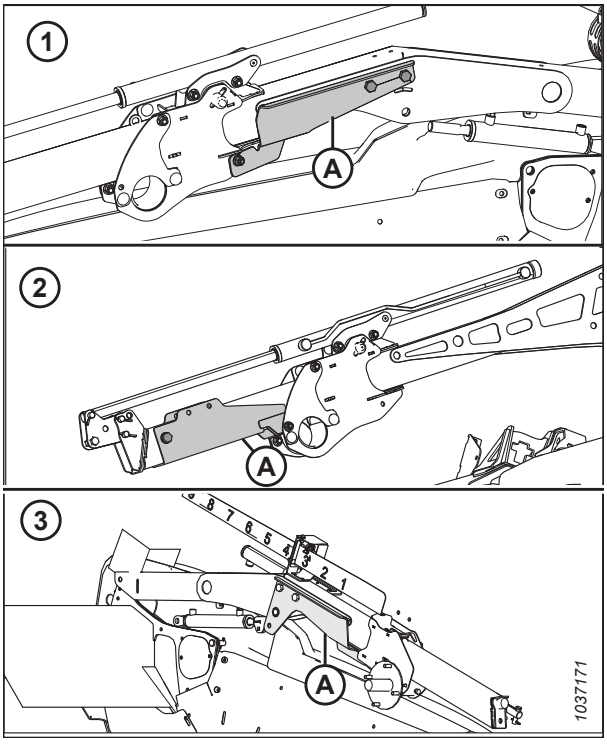


Figure 6.5: Fore-Aft Shipping Supports

1 - Outer Right Reel Arm **2 - Center Reel Arm**

3 - Outer Left Reel Arm

DANGER

Clear the area of other persons, pets, etc. Keep children away from the 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 arms until they are level.
3. Shut down the engine, and remove the key from the ignition.

Double reel center arm / triple reel left center reel arm

4. Retrieve fore-aft support parts bags MD #347580 from one of the reel discs on the reel.

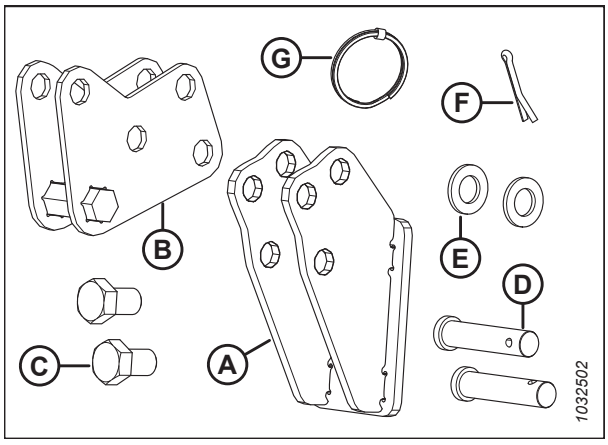


Figure 6.6: Fore-Aft Support Parts Bag MD #347580

Table 6.1 Fore-Aft Support Parts Bag MD #347580

Ref	Part Number	Description	Quantity
A	311237	SUPPORT – FRONT ANCHOR WEDLT	2
B	311238	ANCHOR – FORE AFT SUBWELDT	2
C	136143	BOLT – HEX HD TFL M16X2X30-10.9 AA1J	4
D	18704	PIN – CLEVIS	4
E	184717	WASHER – FLAT REG M16-200HV-AA1J	4
F	18607	PIN – COTTER 5/32 DIA X 1.5 ZP	2
G	320207	RING – SPLIT	2

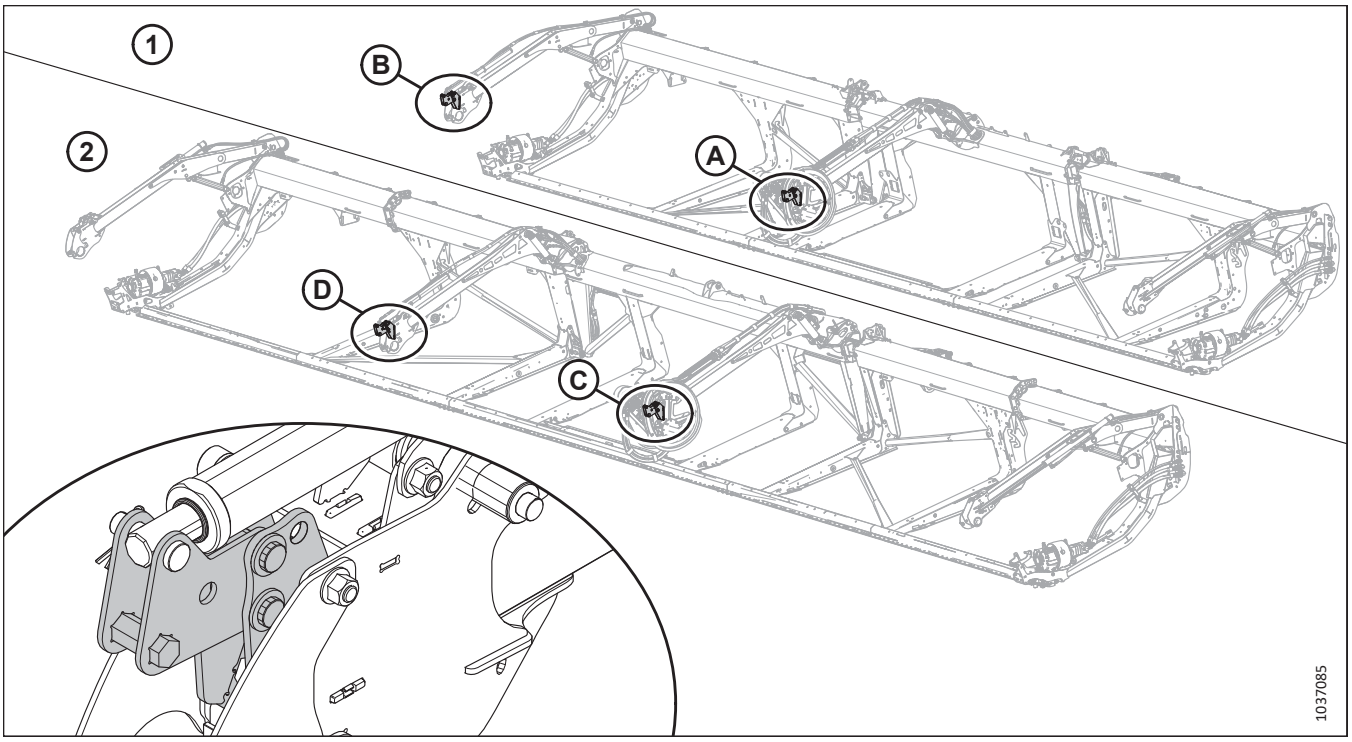


Figure 6.7: Fore-Aft Support Locations

1 - Double Reel **2 - Triple Reel**

5. Install the fore-aft support parts in the following locations:
   - On double-reel headers, the above parts need to be installed on center arm (A) and right arm (B).
   - On triple-reel headers, the above parts need to be installed on center-left arm (C) and center-right arm (D).

Double reel right and center reel arms, triple reel left and right center reel arms

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

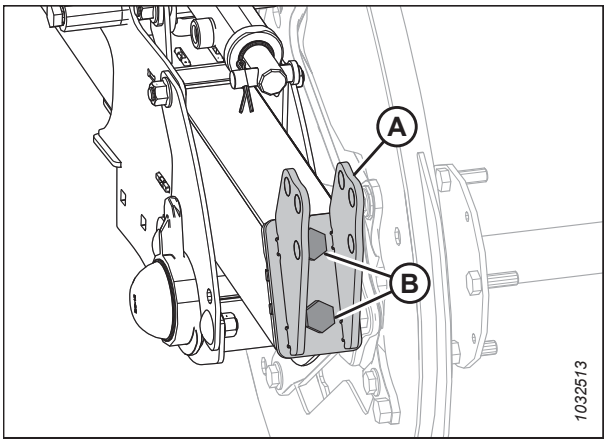


Figure 6.8: Front Support – Center Arm Shown

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

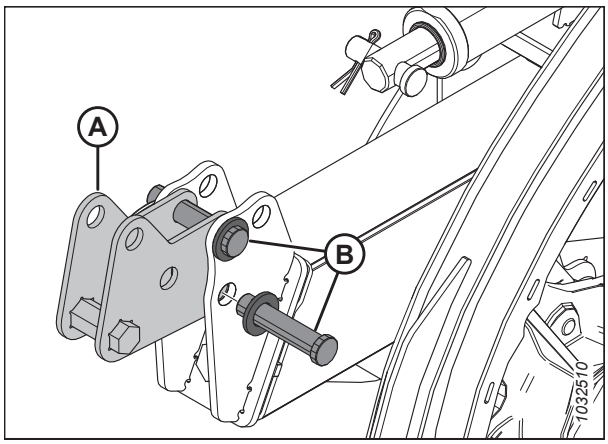


Figure 6.9: Fore-Aft Anchor – Center Arm

8. Secure the top clevis pin with split ring (A), and secure the 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.

9. Remove and retain the cotter pin and clevis pin (C) from the cylinder rod.

10. Install the second set of fore-aft support parts on the other reel arm. Repeat Step *6, page 161* to *9, page 162*.

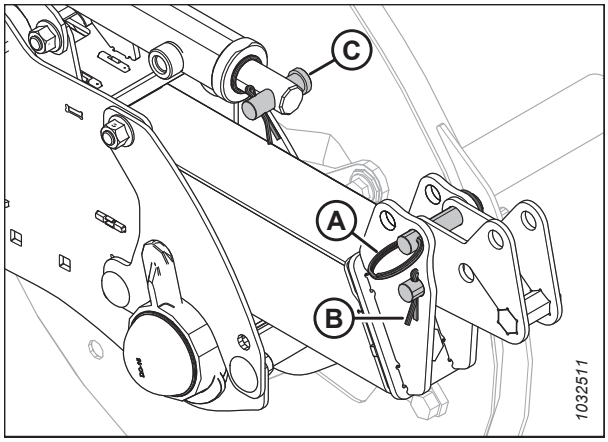


Figure 6.10: Center Arm

Double reel left reel arm, triple reel right and left reel arms

11. 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.

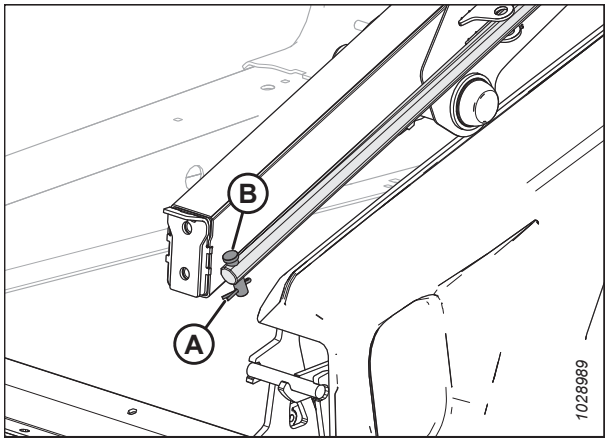


Figure 6.11: Left Reel Arm Shown

DANGER

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

12. Start the engine. For instructions, refer to the combine operator's manual.

Securing the cylinders to the reel arms

13. Use the combine controls or move the reel by hand to align the reel arm mounting holes with the fore-aft cylinders.

14. **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).

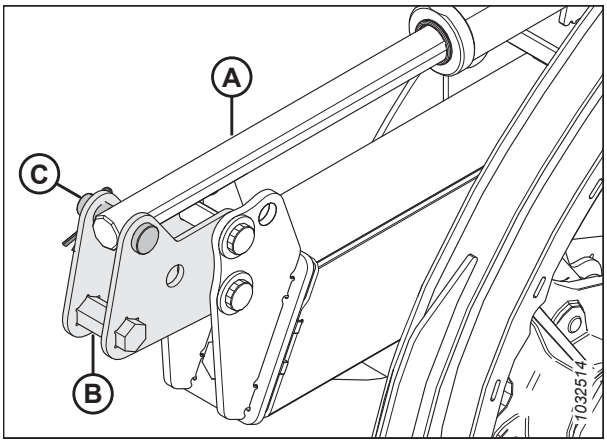


Figure 6.12: Cylinder Secured to Reel Arm

15. On the left arm, attach fore-aft cylinder (A) to reel end support (B) with clevis pin and cotter pin (C).

16. **Triple-reel headers:** Repeat Step *15, page 163* on the outer-right reel arm.

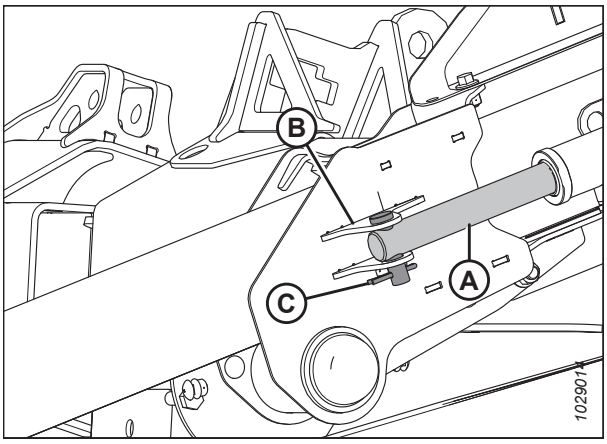


Figure 6.13: Cylinder Secured to Left Reel Arm

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

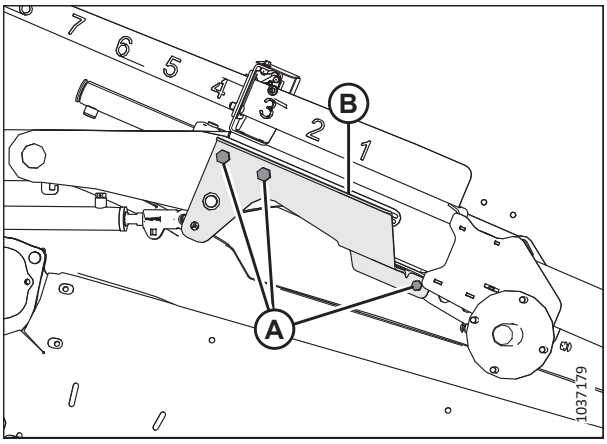


Figure 6.14: Left Reel Arm Shipping Support

18. 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).

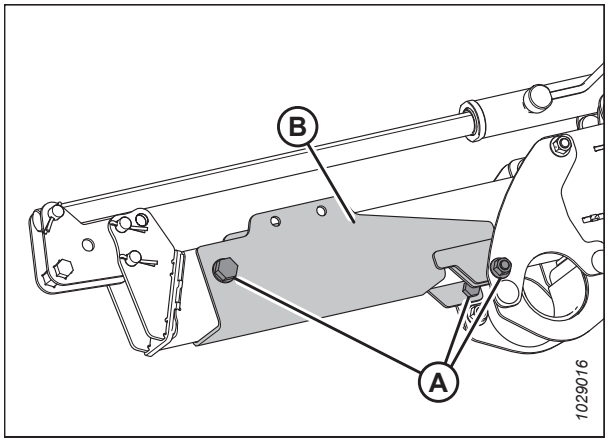


Figure 6.15: Center Reel Arm Shipping Support

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

20. Phase the fore-aft cylinders by adjusting the reel fully forward and fully rearward two or three times.

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

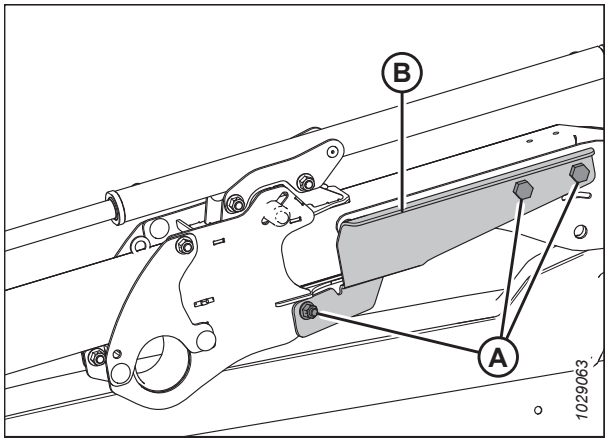


Figure 6.16: Right Reel Arm Shipping Support

NOTE:

The reel from factory is set up in the fore position. This allows the reel to reach lodged crop ahead of the cutterbar and carry it onto the drapers. For delicate and shatter prone crops, you may need to reposition the fore-aft cylinders to the aft position. This allows the reel to be positioned over the drapers preventing seed loss. For instructions, refer to the operators manual.

NOTE:

If installing vertical knifes the fore-aft cylinders will need to be in the aft position to avoid contact. For instructions, refer to the operators manual.

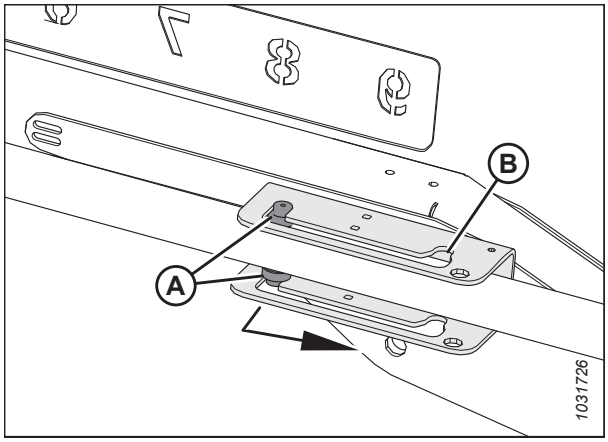


Figure 6.17: Left Arm Cylinder – Forward Position

6.3 Removing Shipping Supports

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

DANGER

To prevent injury or death from the 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:

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

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

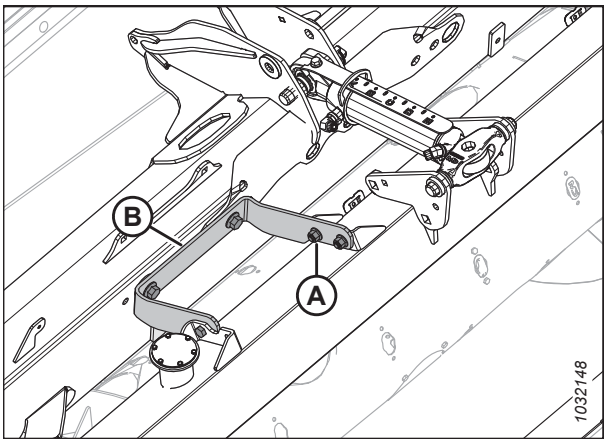


Figure 6.18: Shipping Brace

2. Remove bolts (A) as follows:

   NOTE:

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

   a. Remove the rear bolts from the straps (B) on both sides of the float module.

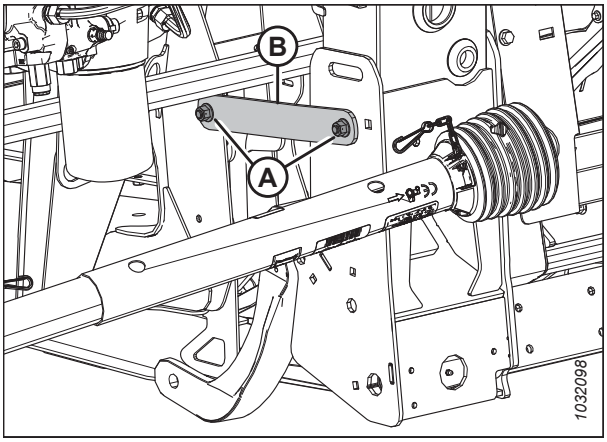


Figure 6.19: Strap on Center Frame

DANGER

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

   b. Start the engine and use the tilt cylinder to extend the guard angle.

   c. Remove the front bolts and straps (B) on both sides of the float module.

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

6.4 Crop Dividers

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

Standard crop dividers are provided with all headers. Optional floating crop dividers may also be purchased (MD #B7346).

6.4.1 Installing Crop Dividers

Crop dividers are used to separate standing crop from the crop being cut.

NOTE:

This procedure applies to the standard crop dividers shipped with every header. If you are installing the optional Floating Crop Dividers Kit (MD #B7346), refer to the installation instructions provided with the kit.

1. Open the left endshield. For instructions, refer to *11.2.1 Opening Header Endshields, page 452*.
2. Remove hairpin (A) securing multi-tool (B) to the bracket on the left endsheet.
3. Remove multi-tool (B), and reinstall the hairpin to the bracket.
4. Retrieve the crop dividers, which were previously removed from their shipping location.

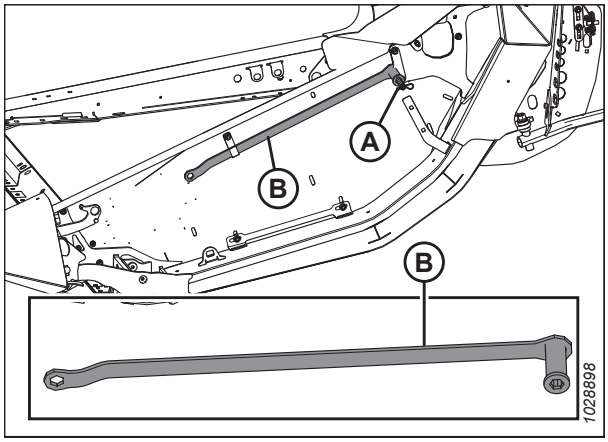


Figure 6.20: Left Endsheet

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

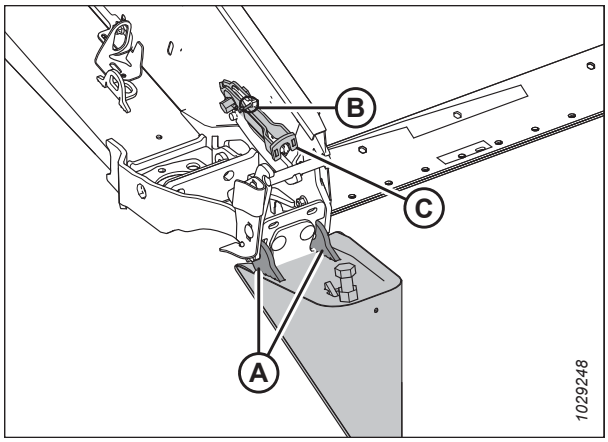


Figure 6.21: Crop Divider

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

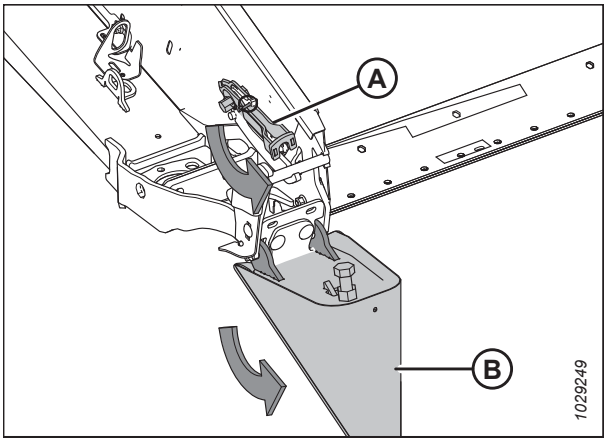


Figure 6.22: Crop Divider

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

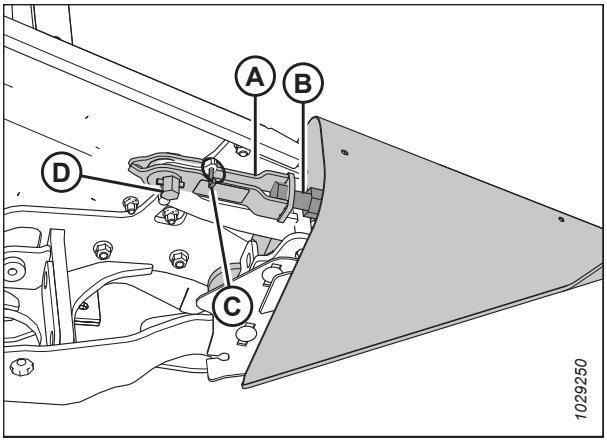


Figure 6.23: Crop Divider

13. Ensure there is contact between plate (A) and guide (B).
14. Return the multi-tool to the left end panel.
15. Close the left endshield. For instructions, refer to *11.2.2 Closing Header Endshields, page 453*.

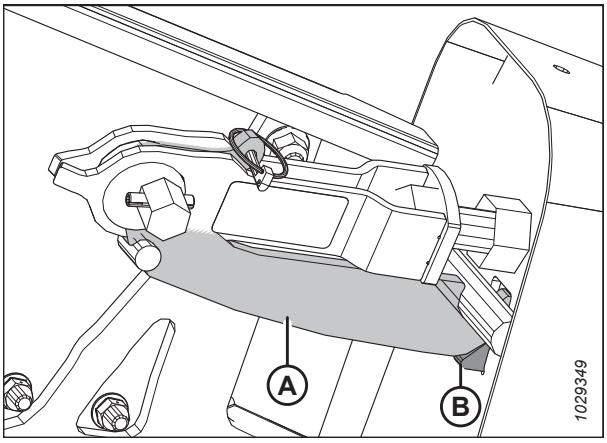


Figure 6.24: Crop Divider's Latch

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 the crop divider is illustrated transparent for clarity.

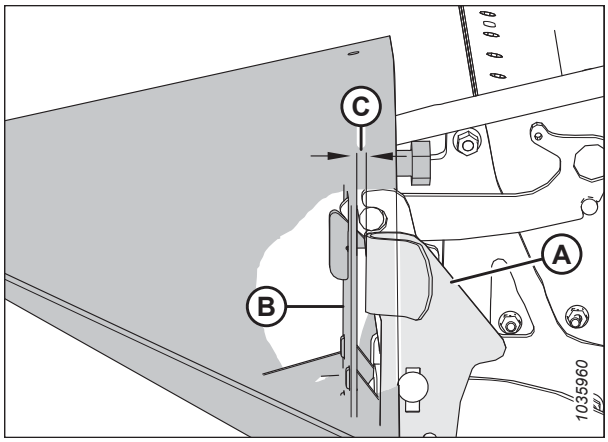


Figure 6.25: Front Support

6.4.2 Installing Crop Divider Rods

The crop divider rods are used assist with separate tall standing crop from the crop being cut. They can be installed on the ends of the crop dividers.

1. Open the right endshield. For instructions, refer to *11.2.1 Opening Header Endshields, page 452*.
2. Undo lynch pin (A) securing divider rods (B) to the header endsheet, and remove the divider rods from the shipping location.
3. Reinstall lynch pin (A).

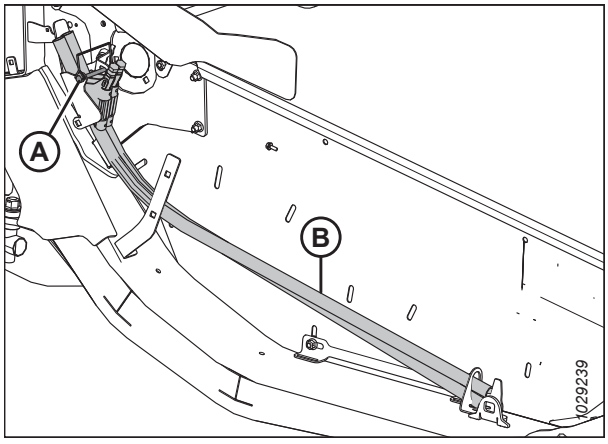


Figure 6.26: Divider Rods in Shipping Storage at Right Header Endsheet

4. Position crop divider rod (A) on the tip of the crop divider as shown and tighten bolt (B).
5. Repeat the procedure at the opposite end of the header.
6. Close the right endshield. For instructions, refer to *11.2.2 Closing Header Endshields, page 453*.

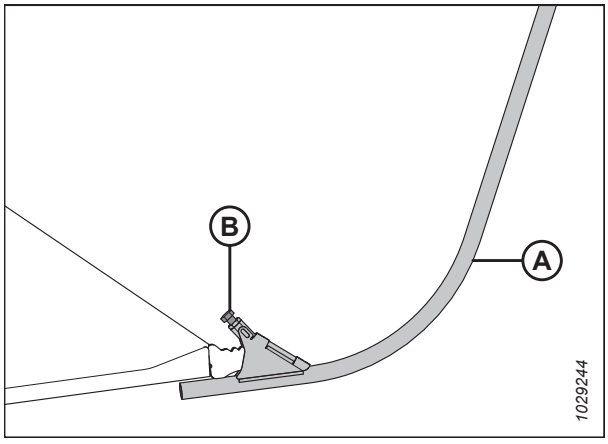


Figure 6.27: Divider Rod on Crop Divider

6.5 Installing Options

Options are available to enhance the operation of the header.

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 171*.

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 467*) 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 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)

7.2 Checking Wheel Bolt Torque

The wheel bolts securing the transport wheels must be torqued correctly before the header can be safely transported.

1. Measure the torque value of each wheel bolt. A correctly torqued wheel bolt will show a torque reading of 115 Nm (85 lbf·ft).
2. If a wheel bolt is not set to the correct torque value, adjust its torque as needed.
3. Tighten all wheel bolts according to the bolt-tightening pattern depicted in the illustration at right.

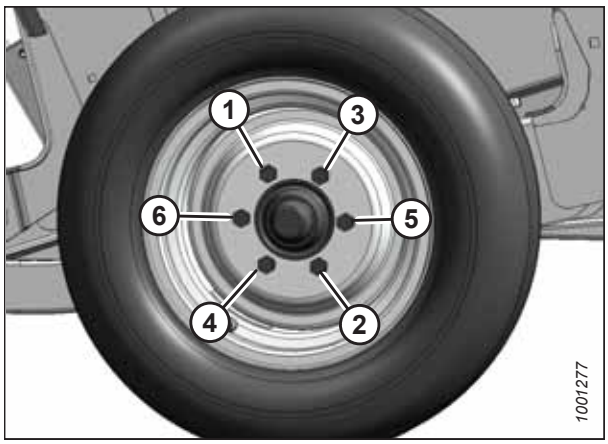


Figure 7.1: Sequence for Tightening Bolts

7.3 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 prevent bodily injury or death from the unexpected start-up of the machine, always stop the engine and remove the key before making adjustments to the machine.

1. Lower the header fully.
2. Adjust the header angle so that the top of the knife drive box is level with the ground.
3. Shut down the engine, and remove the key from the ignition.
4. Push release lever (B) using access hole (A) located on the backside of the endshield to unlock the shield.

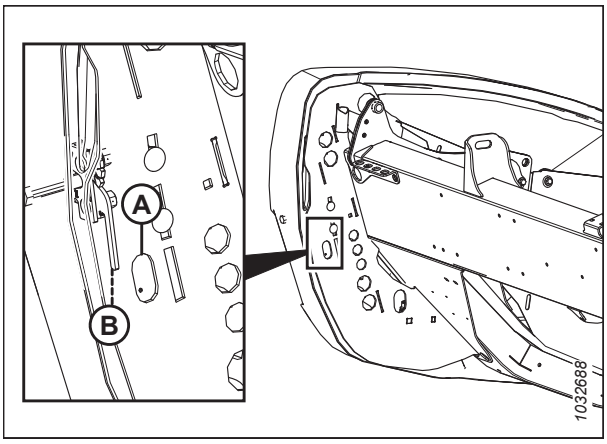


Figure 7.2: Left Endshield

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

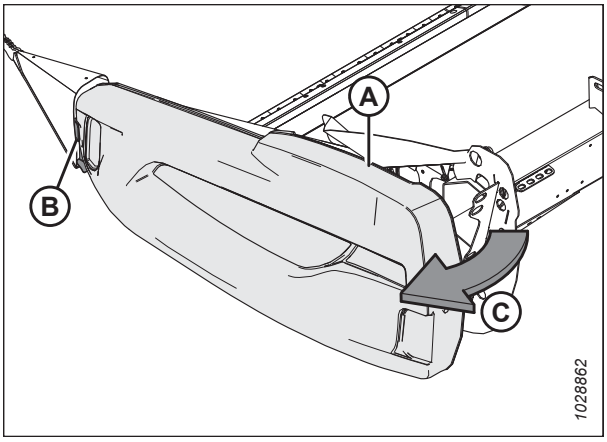


Figure 7.3: Left Endshield

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

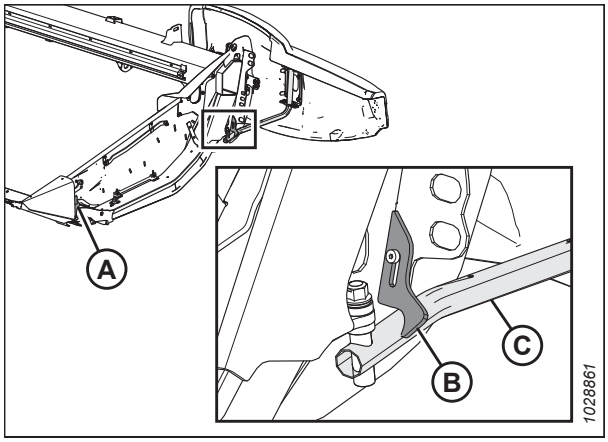


Figure 7.4: Left Endshield

8. Remove oil level dipstick (A) and check the oil level. The oil level must be within range (B), that is, between the lines near the bottom of the dipstick.

   NOTE:

   Before checking the oil level, ensure the top of the knife drive box is horizontal and oil level dipstick (A) is screwed in.

9. Add oil if required. For instructions, refer to the operator's manual.
10. Reinstall oil level dipstick (A), and tighten to 23 Nm (17 lbf·ft).
11. If the header is configured with a dual knife system, repeat the oil level check on the opposite side of the header.

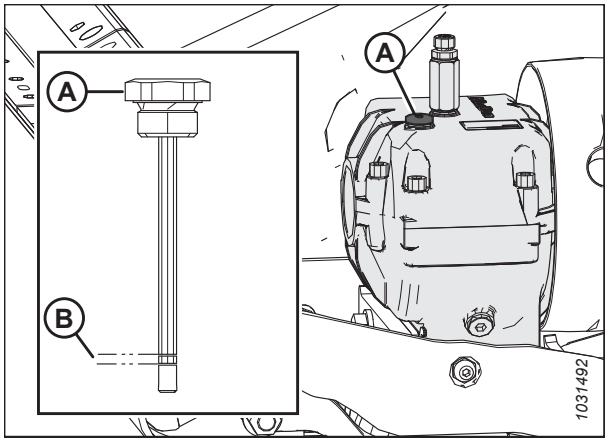


Figure 7.5: Knife Drive Box

7.4 Checking Oil Level in Header Drive Main Gearbox

Check the header drive gearbox oil level when setting up the header for operation.

DANGER

To prevent injury or death from the 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 fully.
2. Shut down the engine, and remove the key from the ignition.
3. Remove oil level plug (A) from main gearbox (B) and check that the oil level is up to the bottom of the hole.
4. Add oil if required. For instructions, refer to the operator's manual.
5. Reinstall oil level plug (A).

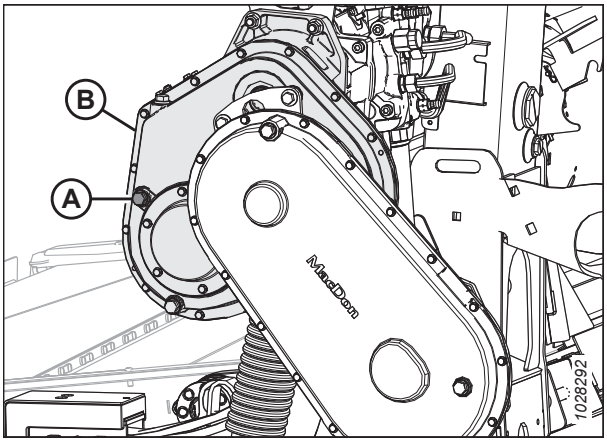


Figure 7.6: Header Drive Main Gearbox

7.5 Checking Oil Level in Header Drive Completion Gearbox

Check the header drive gearbox oil level before operating the float module.

DANGER

To prevent injury or death from the 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 fully.
2. Shut down the engine, and remove the key from the ignition.
3. Make sure the completion gearbox has been moved to the working position. For instructions, refer to *3.10 Repositioning Completion Gearbox to Working Position, page 111*.
4. Remove oil level plug (A) from completion gearbox (B) and check that the oil level is up to the bottom of the hole.
5. Add oil if required. For instructions, refer to the operator's manual.
6. Reinstall oil level plug (A).

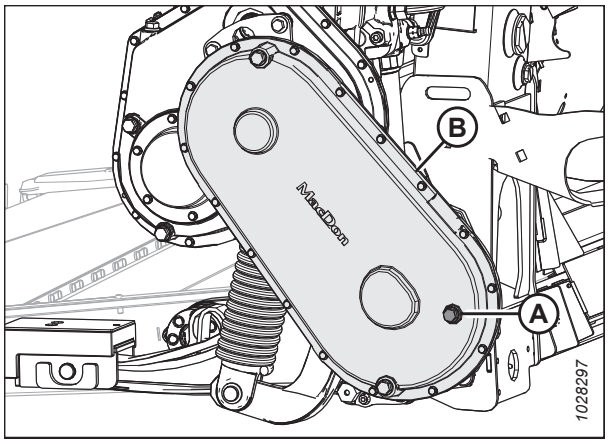


Figure 7.7: Header Drive Completion Gearbox

7.6 Checking Oil Level in Hydraulic Reservoir

The oil used to operate the float module is stored in the reservoir. Check that the level is adequate for proper machine operation.

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 (1):** Maintain level so lower sight (A) is full, and upper sight (B) is empty.
   - **Hilly terrain (2):** Maintain level so lower sight (A) is full, and upper sight (B) is up to one-half filled.

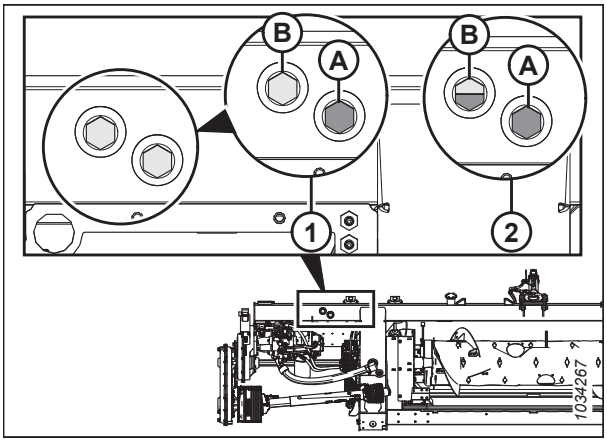


Figure 7.8: Oil Level Sight Glasses

7.7 Guard Identification

There are two different guard options available, pointed knife guards and the shorter PlugFree™ knife guards (referred to as “short knife guards” hereafter). Determine which guards are installed on the header and follow the correct checking and adjusting procedures for that guard type.

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.

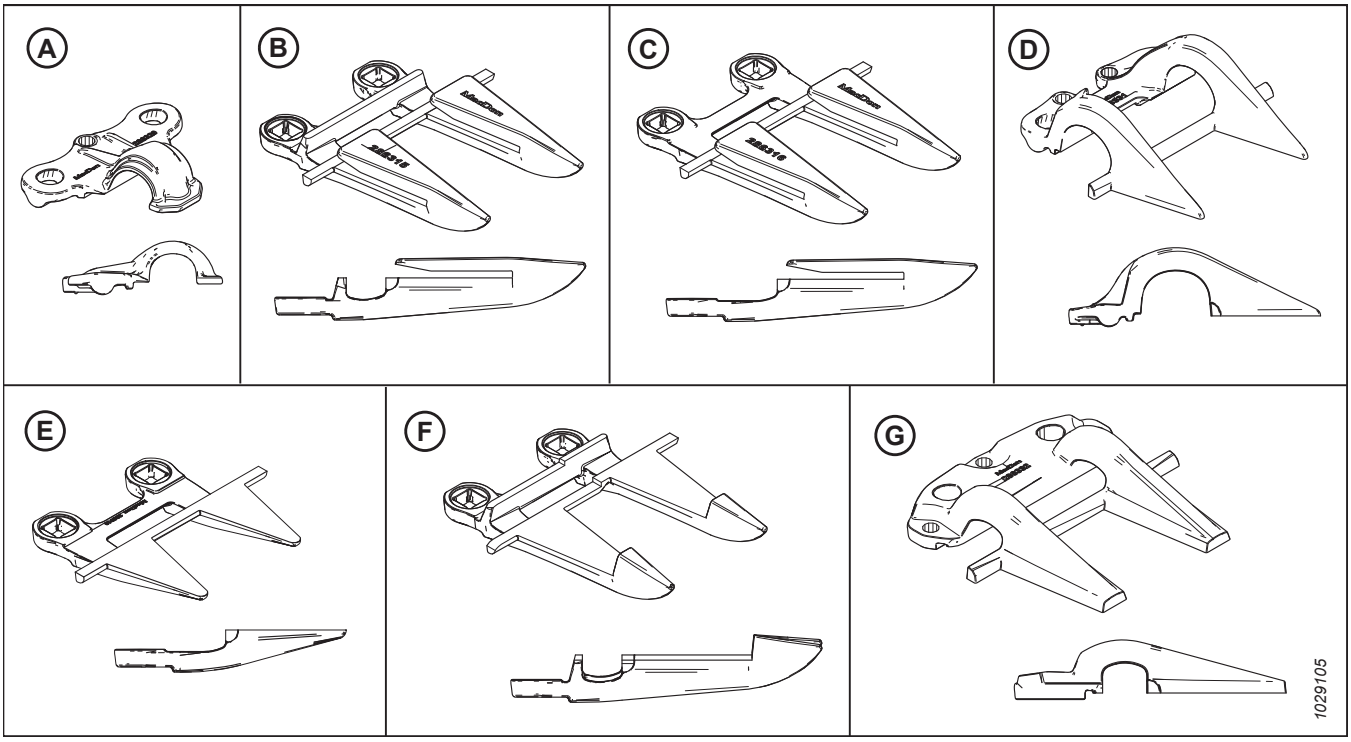


Figure 7.9: Guard and Hold-Down Types used in Pointed Knife Guard Configurations

A - Pointed Hold-Down (MD #286329)
B - Pointed Knife Guard (MD #286315)
C - Pointed-End Knife Guard (without Wear Bar) (MD #286316)[1]
D - PlugFree™ End Hold-Down (MD #286331)
E -PlugFree™ End Knife Guard (without Wear Bar) (MD #286319)[2]
F - Pointed Center Knife Guard (MD #286317)[3]
G - Pointed Center Hold-Down (MD #286332)

Follow these procedures for checking and adjusting pointed knife guards:

- *7.7.1 Checking Hold-Down – Pointed Knife Guards, page 179*
- *7.7.2 Adjusting Hold-Down – Pointed Knife Guards, page 180*
- *7.7.3 Checking Center Hold-Down – Pointed Knife Guards, page 181*
- *7.7.4 Adjusting Center Hold-Down – Pointed Knife Guards, page 182*

1. Installed in positions 2, 3, and 4 on drive side(s). Refer to the chapters in the above list for reference.
2. Installed in position 1 on drive side(s). Single-knife headers use standard guard (MD #286318) on the right end.
3. Double-knife headers only.

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

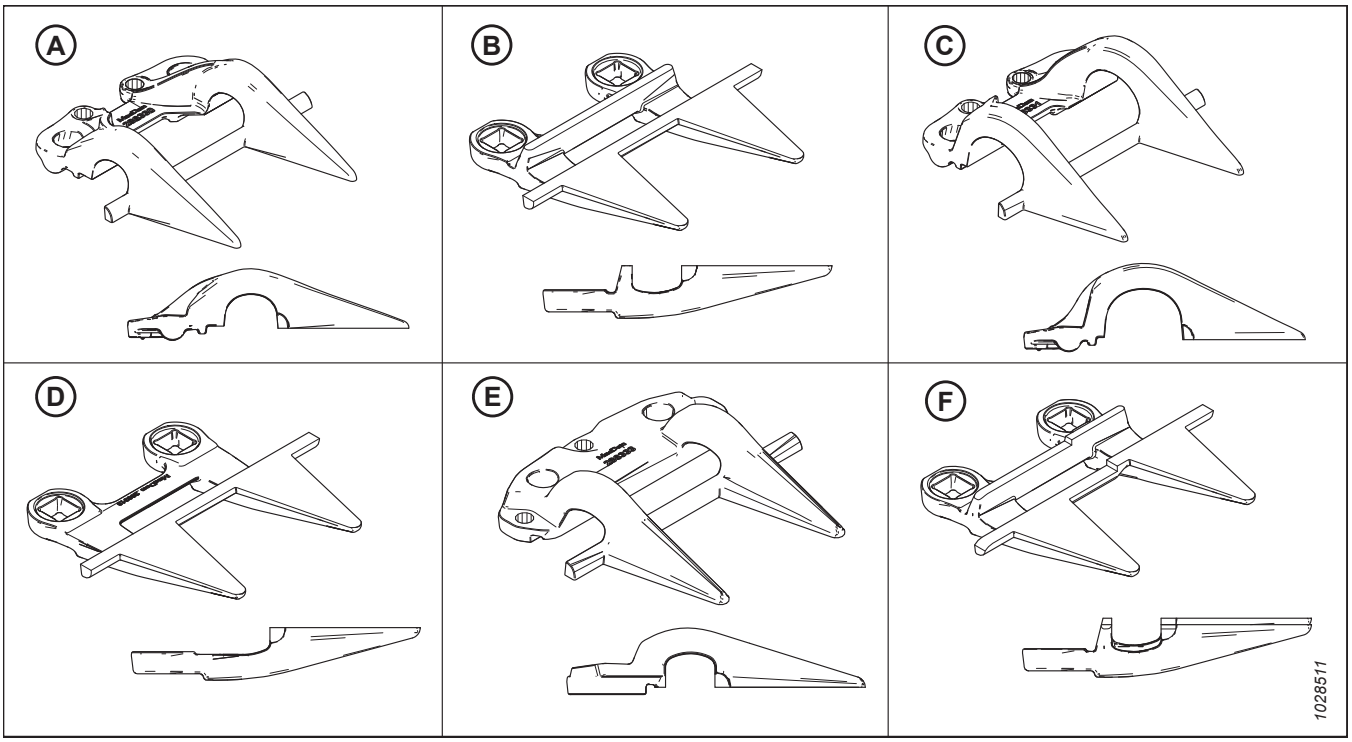


Figure 7.10: Guard and Hold-Down Types used in Short Knife Guard Configurations

A - PlugFree™ Hold-Down (MD #286330)
B - PlugFree™ Knife Guard (MD #286318)
C - PlugFree™ End Hold-Down (MD #286331)[4]
D - PlugFree™ End Knife Guard (without Wear Bar) (MD #286319)[5]
E - PlugFree™ Center Hold-Down (MD #286333)
F - PlugFree™ Center Knife Guard (MD #286320)[6]

Follow these procedures for checking and adjusting short knife guards:

- *7.7.5 Checking Hold-Down – Short Knife Guards, page 183*
- *7.7.6 Adjusting Hold-Down – Short Knife Guards, page 183*
- *7.7.7 Checking Center Hold-Down – Short Knife Guards, page 184*
- *7.7.8 Adjusting Center Hold-Down – Short Knife Guards, page 185*

7.7.1 Checking Hold-Down – Pointed Knife Guards

Perform **DAILY** inspections to ensure the knife hold-downs are preventing the knife sections from lifting off the guards while permitting the knife to slide without binding.

This procedure is for standard hold-downs. To check the center hold-down on double-knife headers, refer to *7.7.3 Checking Center Hold-Down – Pointed Knife Guards, page 181*.

4. 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.
5. 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.
6. Double-knife headers only.

DANGER

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

WARNING

Wear heavy gloves when working around or handling knives.

1. Shut down the engine, and remove the key from the ignition.
2. Raise the reel fully.
3. Shut down the engine, and remove the key from the ignition.
4. Engage the reel safety props. For instructions, refer to *11.1.1 Engaging Reel Safety Props, page 449*.
5. Manually stroke the knife to position knife section (A) under hold-down (B).
6. Push down on knife section (A) with approximately 44 N (10 lbf) of force, 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.).
7. If adjustment is required, refer to *7.7.2 Adjusting Hold-Down – Pointed Knife Guards, page 180*.

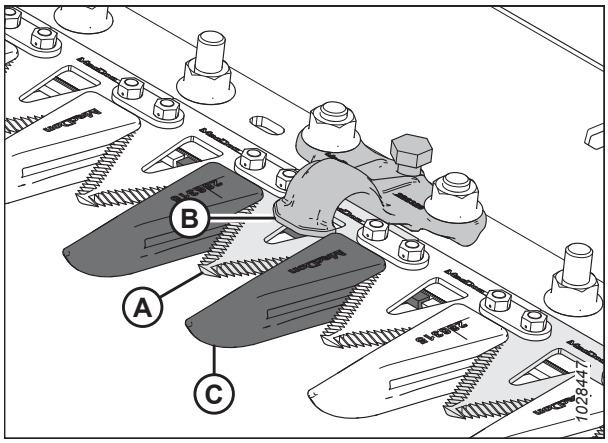


Figure 7.11: Pointed Hold-Down

7.7.2 Adjusting Hold-Down – Pointed Knife Guards

Perform **DAILY** inspections to ensure the knife hold-downs are preventing the knife sections from lifting off the guards while permitting the knife to slide without binding.

This procedure is for standard hold-down. To adjust the center hold-down on double-knife headers, refer to *7.7.4 Adjusting Center Hold-Down – Pointed Knife Guards, page 182*.

DANGER

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

WARNING

Wear heavy gloves when working around or handling knives.

1. Raise the reel fully.
2. Shut down the engine, and remove the key from the ignition.
3. Engage the reel safety props. For instructions, refer to *11.1.1 Engaging Reel Safety Props, page 449*.

4. 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 85 Nm (63 lbf·ft).

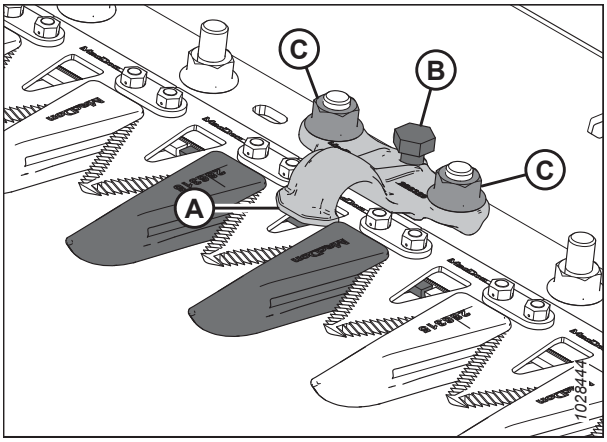


Figure 7.12: Pointed Hold-Down

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

   IMPORTANT:

   Insufficient hold-down clearance will result in overheating of the knife and guards.

7.7.3 Checking Center Hold-Down – Pointed Knife Guards

Perform **DAILY** inspections to ensure the knife hold-downs are preventing the knife sections from lifting off the guards while permitting the knife to slide without binding.

WARNING

To prevent bodily injury from the fall of a raised reel, always engage the reel safety props before going under the raised reel for any reason.

WARNING

Wear heavy gloves when working around or handling knives.

1. Raise the reel fully.
2. Shut down the engine, and remove the key from the ignition.
3. Engage the reel safety props. For instructions, refer to *11.1.1 Engaging Reel Safety Props, page 449*.
4. Manually stroke both knives to their inboard end so that the knife sections are under hold-down (A).
5. Push down on the knife section with approximately 44 N (10 lbf) of force, 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.)
6. If adjustment is required, refer to *7.7.4 Adjusting Center Hold-Down – Pointed Knife Guards, page 182*.

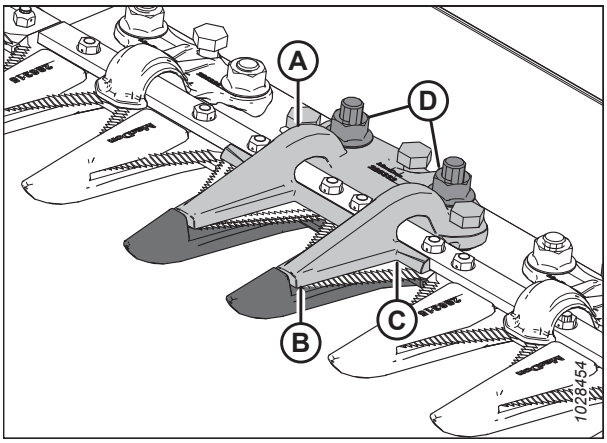


Figure 7.13: Pointed Center Hold-Down

7. If no adjustment is required, tighten nuts (D) to 85 Nm (63 lbf·ft).
8. Recheck clearance after tightening nuts, and adjust if necessary.

7.7.4 Adjusting Center Hold-Down – Pointed Knife Guards

Perform **DAILY** inspections to ensure the knife hold-downs are preventing the knife sections from lifting off the guards while permitting the knife to slide without binding.

WARNING

To prevent bodily injury from the fall of a raised reel, always engage the reel safety props before going under the raised reel for any reason.

WARNING

Wear heavy gloves when working around or handling knives.

1. Raise the reel fully.
2. Shut down the engine, and remove the key from the ignition.
3. Engage the reel safety props. For instructions, refer to *11.1.1 Engaging Reel Safety Props, page 449*.
4. Loosen mounting hardware (B).
5. Turn adjuster bolts (A) as follows:
   - To increase clearance, turn adjuster bolts (A) clockwise (tighten).
   - To decrease clearance, turn adjuster bolts (A) counterclockwise (loosen).
6. To adjust clearance at tip only, adjust using only center (rear) adjustment bolt (C).
   - To increase clearance, turn adjuster bolt (C) counterclockwise (loosen).
   - To decrease clearance, turn adjuster bolt (C) clockwise (tighten).

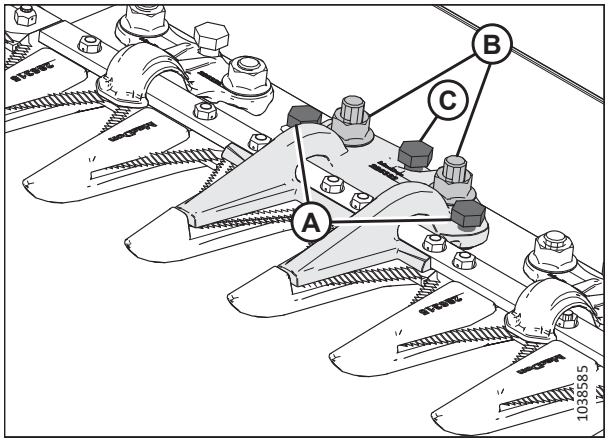


Figure 7.14: Pointed Center Hold-Down

7. Tighten nuts (B) to 85 Nm (63 lbf·ft).
8. Recheck clearances, and make further adjustments if necessary.
9. 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.

7.7.5 Checking Hold-Down – Short Knife Guards

Perform **DAILY** inspections to ensure the knife hold-downs are preventing the knife sections from lifting off the guards while permitting the knife to slide without binding.

To check the center hold-down on double-knife headers, refer to *7.7.7 Checking Center Hold-Down – Short Knife Guards, page 184*.

DANGER

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

WARNING

Wear heavy gloves when working around or handling knives.

1. Raise the reel fully.
2. Shut down the engine, and remove the key from the ignition.
3. Engage the reel safety props. For instructions, refer to *11.1.1 Engaging Reel Safety Props, page 449*.
4. Manually stroke the knife to position the section under hold-down (A).
5. Push down on knife section with approximately 44 N (10 lbf) of force, 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.).
6. If adjustment is required, refer to *7.7.6 Adjusting Hold-Down – Short Knife Guards, page 183*.

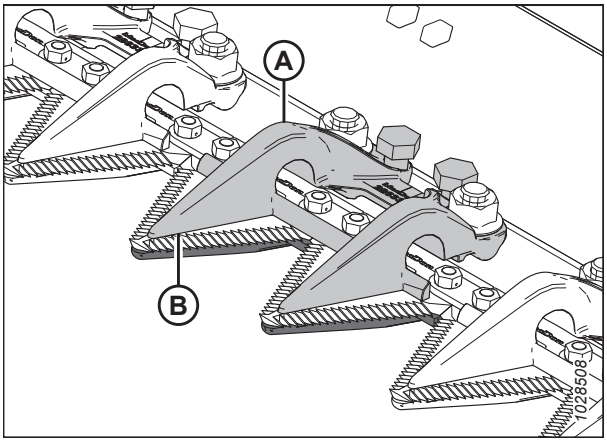


Figure 7.15: Short Knife Guards

7.7.6 Adjusting Hold-Down – Short Knife Guards

Perform **DAILY** inspections to ensure the knife hold-downs are preventing the knife sections from lifting off the guards while permitting the knife to slide without binding.

To adjust the center hold-down on double-knife headers, refer to *7.7.8 Adjusting Center Hold-Down – Short Knife Guards, page 185*.

DANGER

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

WARNING

Wear heavy gloves when working around or handling knives.

1. Raise the reel fully.
2. Shut down the engine, and remove the key from the ignition.
3. Engage the reel safety props. For instructions, refer to *11.1.1 Engaging Reel Safety Props, page 449*.
4. 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 85 Nm (63 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.

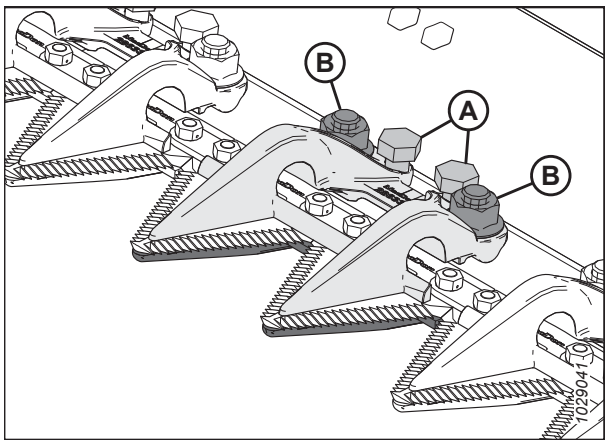


Figure 7.16: Short Knife Guard Hold-Down

5. Recheck clearances, and make further adjustments if necessary.
6. After making the hold-down adjustments, run the header at low engine speed, and listen for noise caused by insufficient clearance. Readjust as necessary.

   IMPORTANT:

   Insufficient hold-down clearance will result in overheating of the knife and guards.

7.7.7 Checking Center Hold-Down – Short Knife Guards

Perform **DAILY** inspections to ensure the knife hold-downs are preventing the knife sections from lifting off the guards while permitting the knife to slide without binding.

DANGER

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

WARNING

Wear heavy gloves when working around or handling knives.

1. Raise the reel fully.
2. Shut down the engine, and remove the key from the ignition.
3. Engage the reel safety props. For instructions, refer to *11.1.1 Engaging Reel Safety Props, page 449*.

4. Manually stroke both knives to their inboard end so that knife sections are under hold-down (A).
5. Push down on knife section with approximately 44 N (10 lbf) of force, 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.)
6. If adjustment is required, refer to *7.7.8 Adjusting Center Hold-Down – Short Knife Guards, page 185*.
7. If no adjustment is required, tighten nuts (D) to 85 Nm (63 lbf·ft).
8. Recheck clearance after tightening nuts.

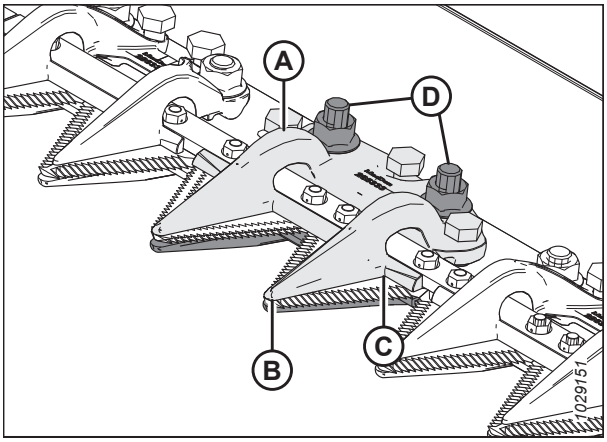


Figure 7.17: Center Knife Guard Hold-Down

7.7.8 Adjusting Center Hold-Down – Short Knife Guards

Perform **DAILY** inspections to ensure the knife hold-downs are preventing the knife sections from lifting off the guards while permitting the knife to slide without binding.

DANGER

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

WARNING

Wear heavy gloves when working around or handling knives.

1. Raise the reel fully.
2. Shut down the engine, and remove the key from the ignition.
3. Engage the reel safety props. For instructions, refer to *11.1.1 Engaging Reel Safety Props, page 449*.
4. Loosen mounting hardware (B).
5. Turn adjuster bolts (A) as follows:
   - To increase clearance, turn adjuster bolts (A) clockwise (tighten).
   - To decrease clearance, turn adjuster bolts (A) counterclockwise (loosen).
6. To adjust clearance at tip only, adjust using only center (rear) adjustment bolt (C).
   - To increase clearance, turn adjuster bolt (C) counterclockwise (loosen).
   - To decrease clearance, turn adjuster bolt (C) clockwise (tighten).
7. Tighten nuts (B) to 85 Nm (63 lbf·ft).

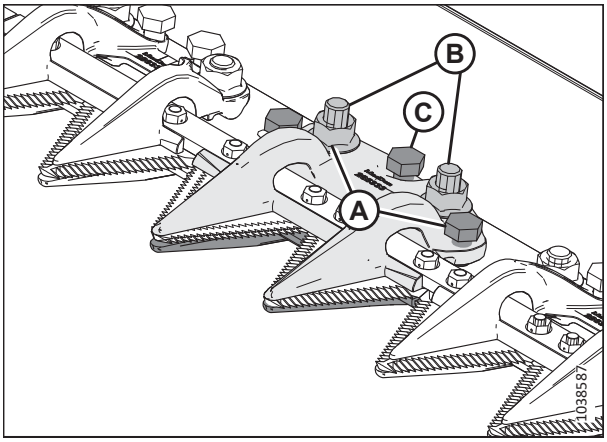


Figure 7.18: Center Hold-Down

8. Run the header at low engine speed, and listen for noise caused by insufficient clearance. Readjust as necessary.

   IMPORTANT:

   Insufficient hold-down clearance will result in overheating of the knife and guards.

7.8 Checking and Adjusting Fore-Aft Position Sensor

There is a sensor that informs the combine where the reel is positioned when adjusted in the fore and aft directions, and displays that information for the operator. The sensor arm's orientation and the sensor's output voltage range must be set correctly for your machine.

Checking and adjusting the orientation of the sensor arm

DANGER

To prevent injury or death from the 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. Park the combine on a level surface.
2. Shut down the engine, and remove the key from the ignition.
3. Check the orientation of sensor arm (C) and hardware (D). Ensure that the sensor arm is configured properly for your machine; refer to Figure *7.19, page 187*.

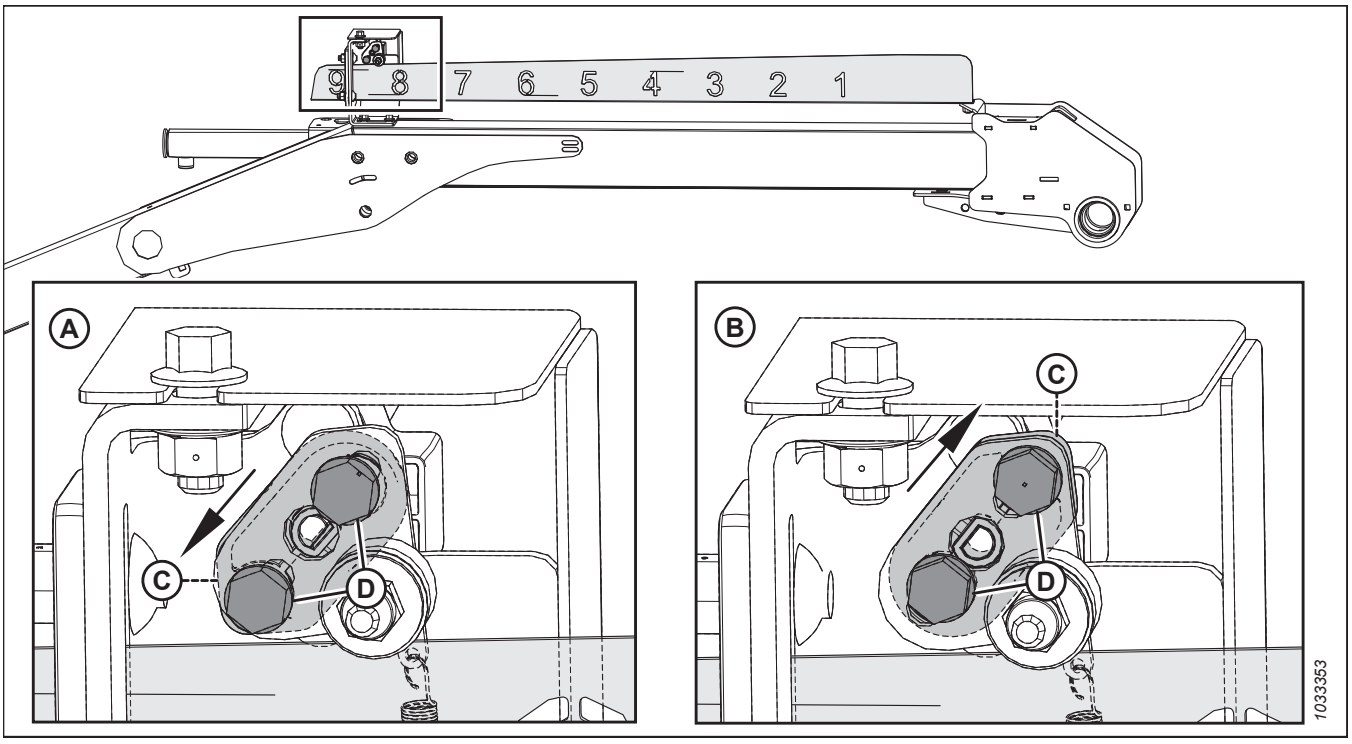


Figure 7.19: Sensor Arm Configurations

A - John Deere, CLAAS, IDEAL™ Configuration

B - Case/New Holland Configuration

C - Sensor Arm

D - Mounting Hardware

4. If sensor arm (C) is not oriented correctly, remove it and then reinstall it in the correct orientation.

Checking and adjusting the sensor's output voltage

WARNING

Check to be sure all bystanders have cleared the area.

5. Engage the parking brake.

   IMPORTANT:

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

6. Start the engine.

7. Adjust the reel to the fully forward position. Dimension (B) (from the sensor bracket to the end of the indicator) should be 62–72 mm (2.4–2.8 in.).

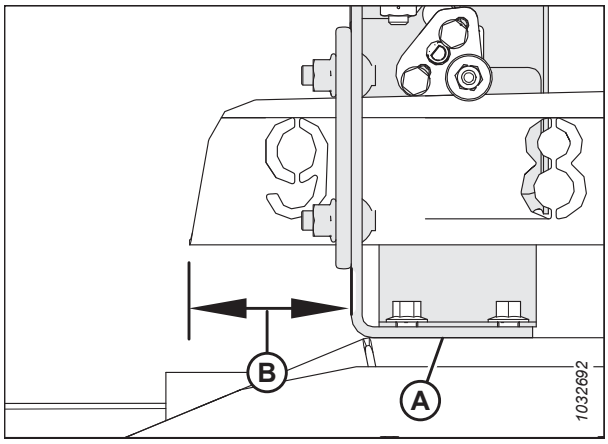


Figure 7.20: Fore-Aft Bracket

8. Use the combine display or a voltmeter (if measuring the sensor manually) to measure the voltage range. If using a voltmeter, check sensor (A) voltage between pin 2 (ground) and pin 3 (signal). The range should be
   - For Case and New Holland combines: 0.7–1.1 V
   - For AGCO, CLAAS, and John Deere combines: 3.9–4.3 V

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

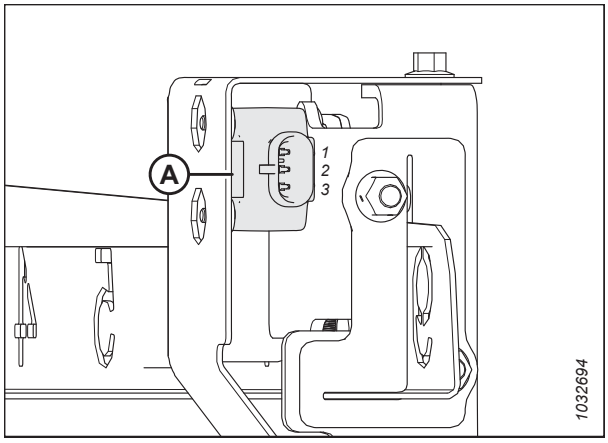


Figure 7.21: Fore-Aft Sensor

10. If adjustment is required, loosen hardware (A) and rotate sensor (B) until the voltage is in the correct range.

11. Once sensor adjustment is complete, torque the hardware to 2.1 Nm (22 lbf·in).

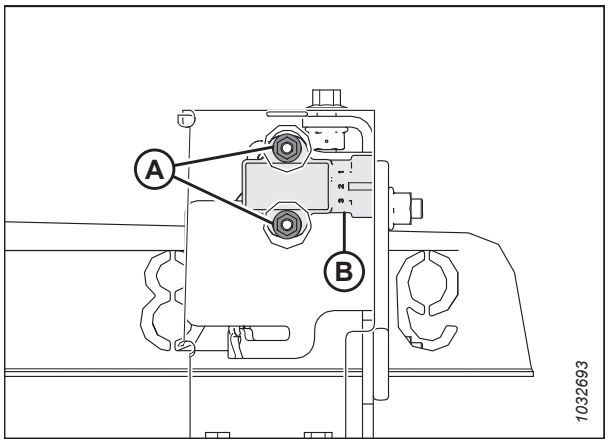


Figure 7.22: Fore-Aft Sensor

7.9 Checking Reel Clearance and Centering Reel

To avoid issues when harvesting, make sure the reel is set up properly.

DANGER

To prevent bodily injury or death from the unexpected start-up of the 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 the reel, and adjust the fore-aft position until the number five on reel fore-aft indicator (A) is hidden by sensor support (B).
3. Shut down the engine, and remove the key from the ignition.
4. Engage the float locks and the wing locks.
5. Manually rotate the reel to position a tine tube above the cutterbar.

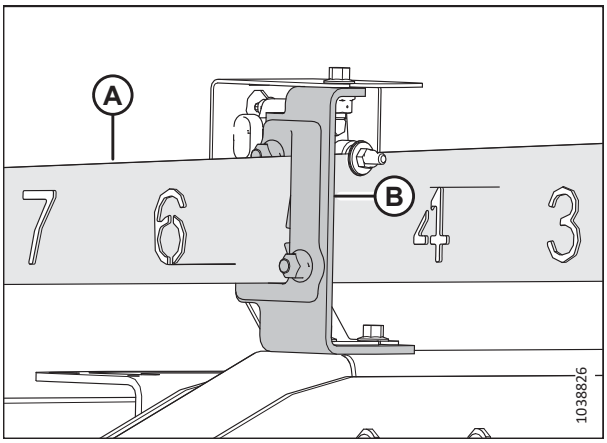


Figure 7.23: Reel Fore-Aft Indicator

6. Measure clearance (A) at locations (B) between the reel tine tube and the endsheet at both ends of the header.

   NOTE:

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

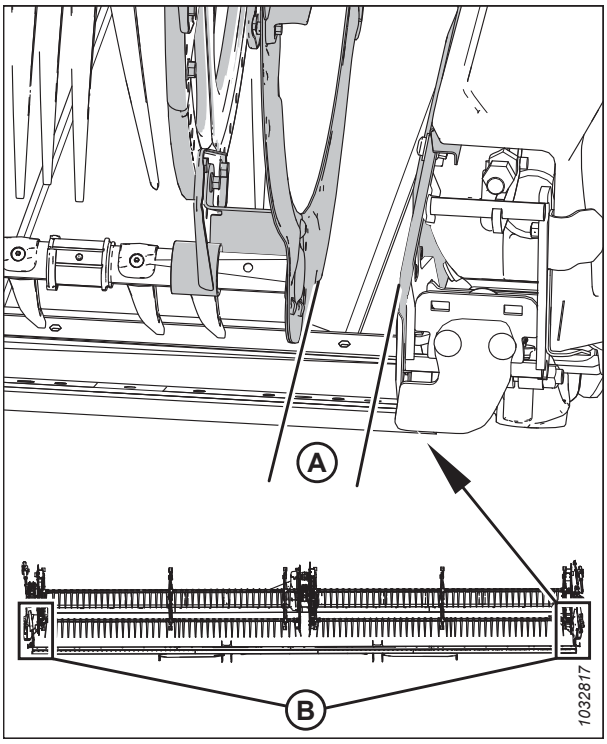


Figure 7.24: Reel Clearance – Double Reel Shown, All Other Reels are Similar

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

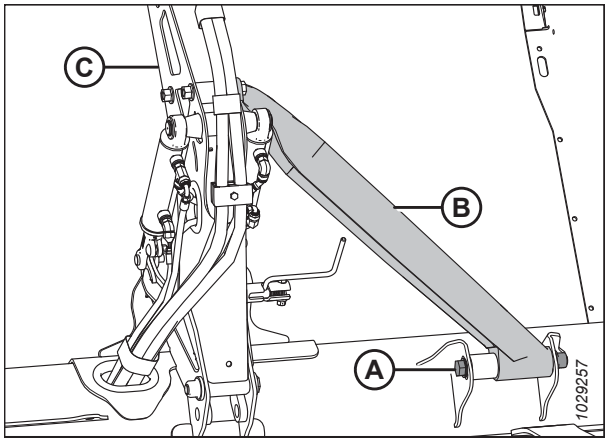


Figure 7.25: Center Support Arm – Double Reel Shown, Triple Reel is Similar

7.10 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 tip to pointed guard (B), short guard (C) to cutterbar clearance (A) is shown in the tables below.

Table 7.2 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 7.3 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.)

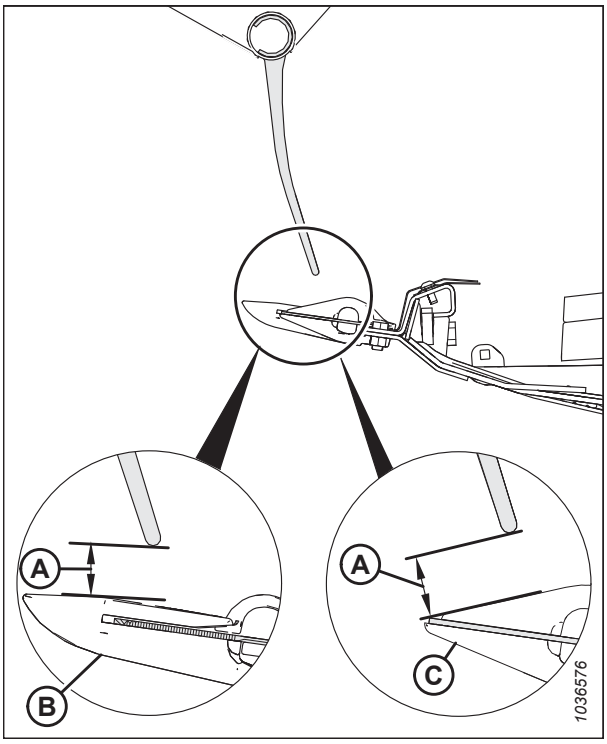


Figure 7.26: Finger Clearance

7.10.1 Measuring Reel Clearance

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

DANGER

To prevent injury or death from the 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.

DANGER

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

1. Start the engine. For instructions, refer to the combine operator's manual.
2. Park the combine on a level surface.

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

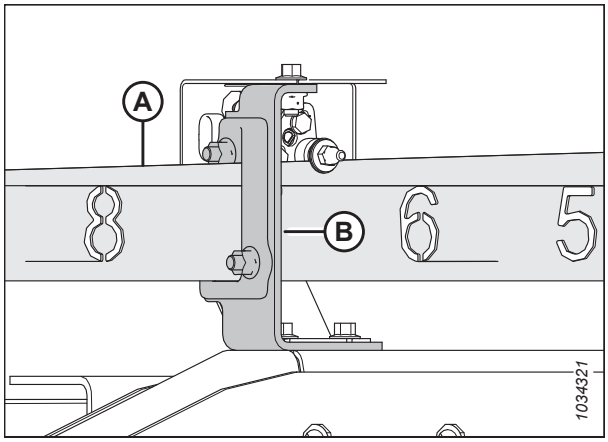


Figure 7.27: Fore-Aft Position

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

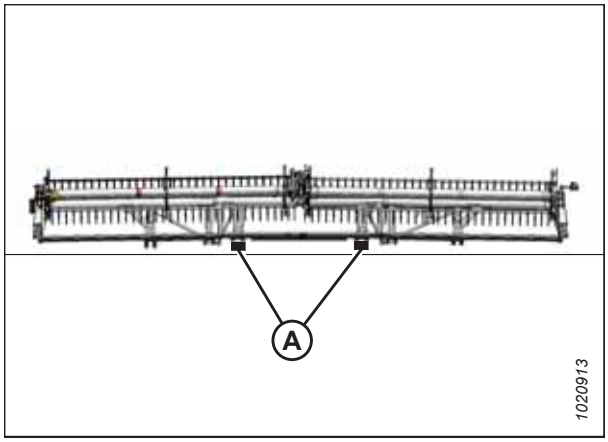


Figure 7.28: FlexDraper® Block Locations – Double Reel

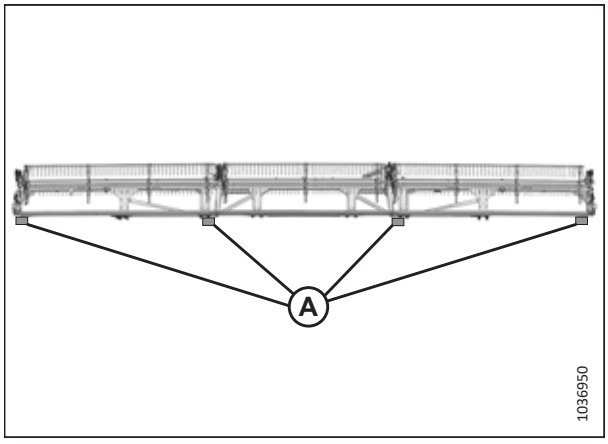


Figure 7.29: FlexDraper® Block Locations – Triple Reel

6. Move wing lock spring handles (A) down to **UNLOCK** position.
7. Ensure all bystanders have cleared the area, and then start the engine.
8. Lower the header fully, allowing it to flex into full frown mode.

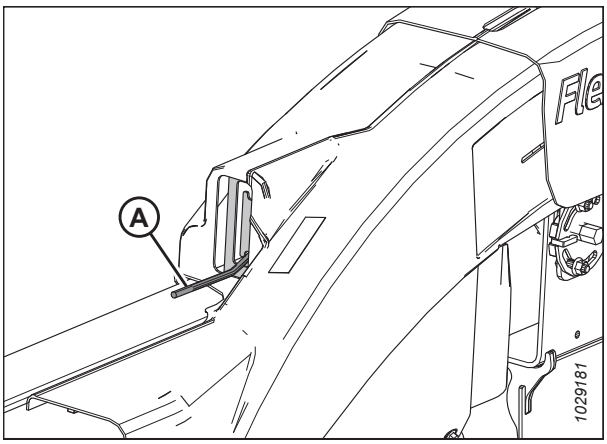


Figure 7.30: Wing Lock in UNLOCK Position

9. Measure clearance (A) between the finger tip and pointed guard (B) or short guard (C) at the ends of the reels. For clearance specifications, refer to *7.10 Reel Clearance to Cutterbar, page 191*.

   For measurement locations, refer to:

   - Figure *7.32, page 194* – double reel
   - Figure *7.33, page 194* – triple reel

10. Adjust the reel clearance, if required. For instructions, refer to *7.10.2 Adjusting Clearance between Reel and Cutterbar, page 195*.

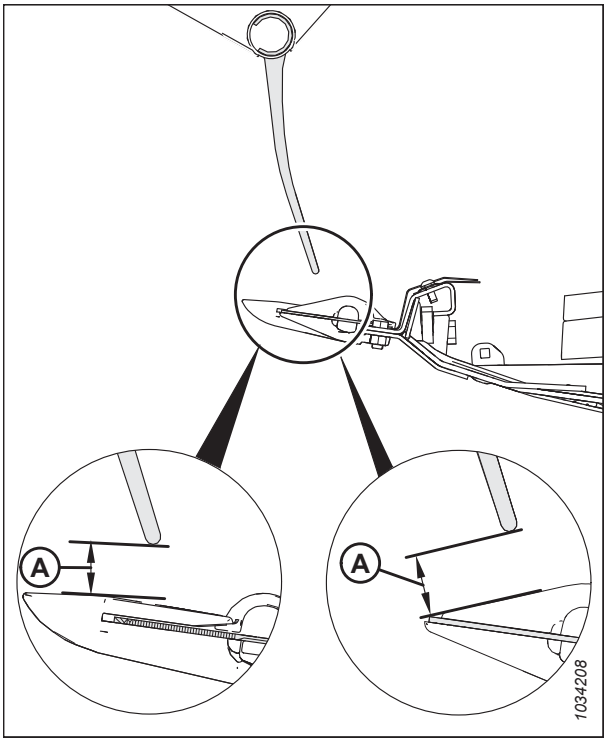


Figure 7.31: Measurement from Finger Tip to Guard

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

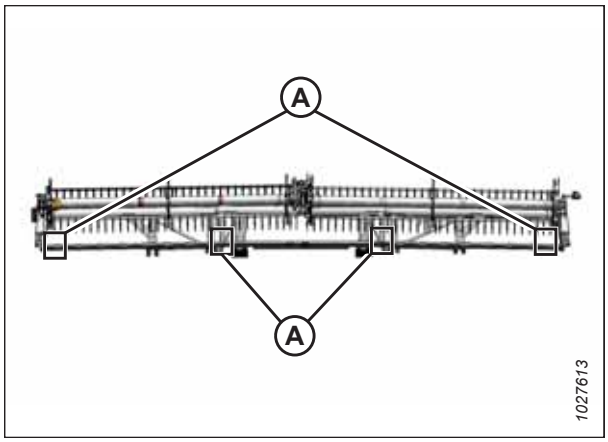


Figure 7.32: FlexDraper® Measurement Locations – Double Reel

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

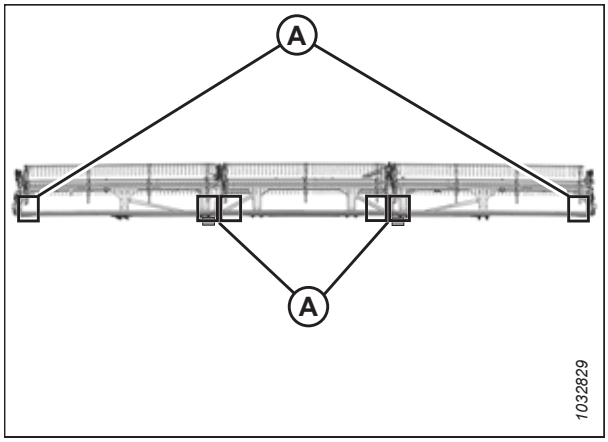


Figure 7.33: FlexDraper® Measurement Locations – Triple Reel

7.10.2 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.

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.

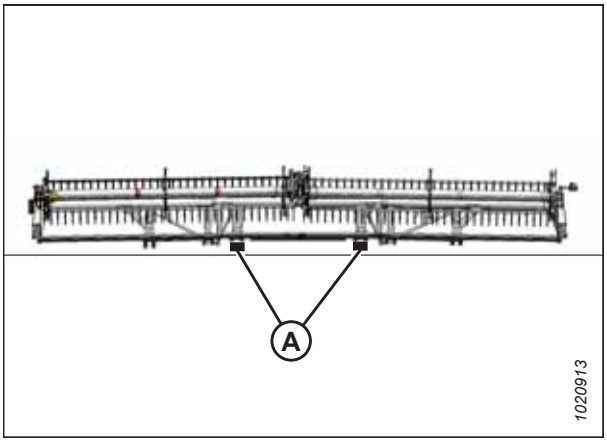


Figure 7.34: FlexDraper® Block Locations

WARNING

Check to be sure all bystanders have cleared the area.

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

DANGER

To prevent injury or death from the 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.

3. Shut down the engine, and remove the key from the ignition.
4. Adjust the clearance at the outboard ends of the reel as follows:
   a. Loosen bolt (A) on the outer arm cylinder.
   b. 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.
   c. Tighten bolt (A).
5. Repeat Step *4, page 195* at opposite side of the header.

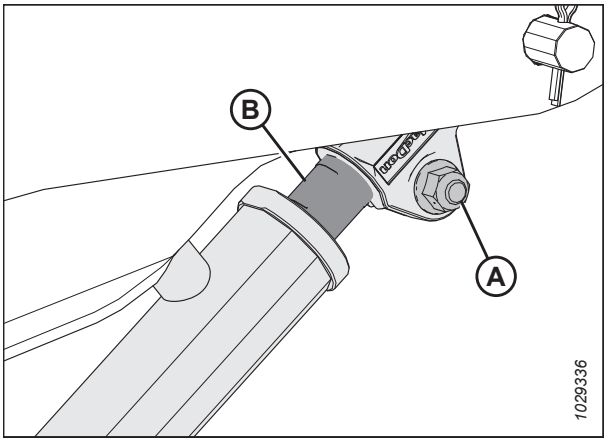


Figure 7.35: Outside Arm Cylinder

6. Loosen bolts (A) on both center arm cylinders.
7. 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.
8. 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).
9. 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.
10. Tighten bolts (A).

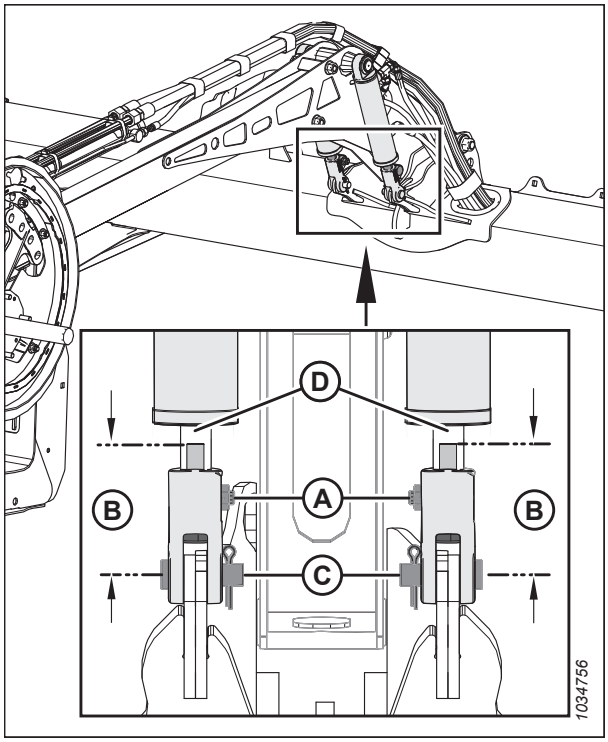


Figure 7.36: Center Arm Cylinders

11. **Triple reel:** Repeat Step *6, page 196* to Step *10, page 196* for the other center reel arm.

WARNING

Check to be sure all bystanders have cleared the area.

12. Start the engine. Lower the reel fully, and continue holding the control button down to phase the cylinders.
13. Shut down the engine, and remove the key from the ignition.
14. Check measurements and, if necessary, repeat the adjustment procedures.
15. Move the reel back to ensure the steel end fingers do not contact the deflector shields.
16. 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.
17. Periodically check for evidence of contact during operation, and adjust clearance as required.

7.11 Changing Float Spring Configuration – Confirming Type of Float Lever

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 float levers attached to the float springs have two holes (A) or one hole (B).

- If the float levers have two holes (A), refer to *7.11.1 Changing Float Spring Configuration – Float Levers with Two Holes, page 197*.
- If the float levers have one hole (B), refer to *7.11.2 Changing Float Spring Configuration – Float Levers with One Hole, page 202*.

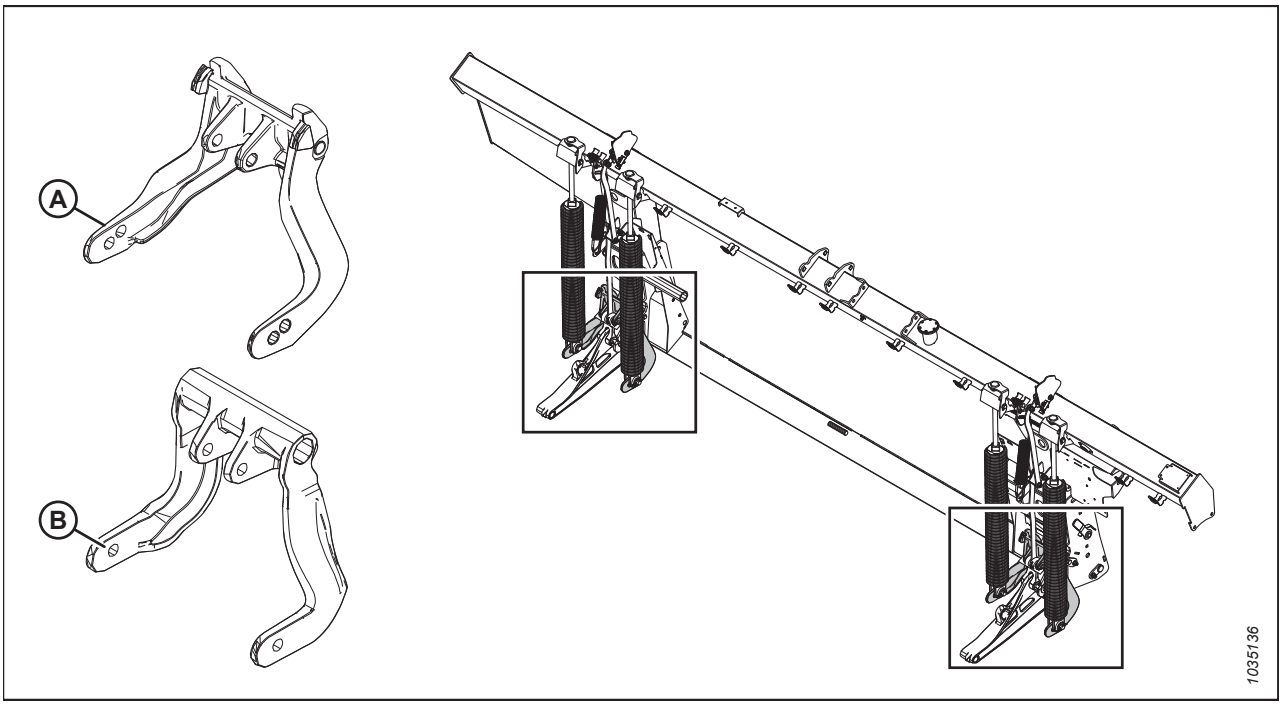


Figure 7.37: Float Lever With One Hole Versus Two Holes

7.11.1 Changing Float Spring Configuration – Float Levers 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 prevent injury or death from the 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.

2. Calculate the float spring configuration as follows:

   a. Determine the total header weight based on Table *7.4, page 198*.

      - **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 *7.5, page 199* and determine if the float springs should be installed in front hole (A) or back hole (B) in the float lever.

      - **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 float levers.

        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 float levers because the header is now in the "Heavier Weight Range."

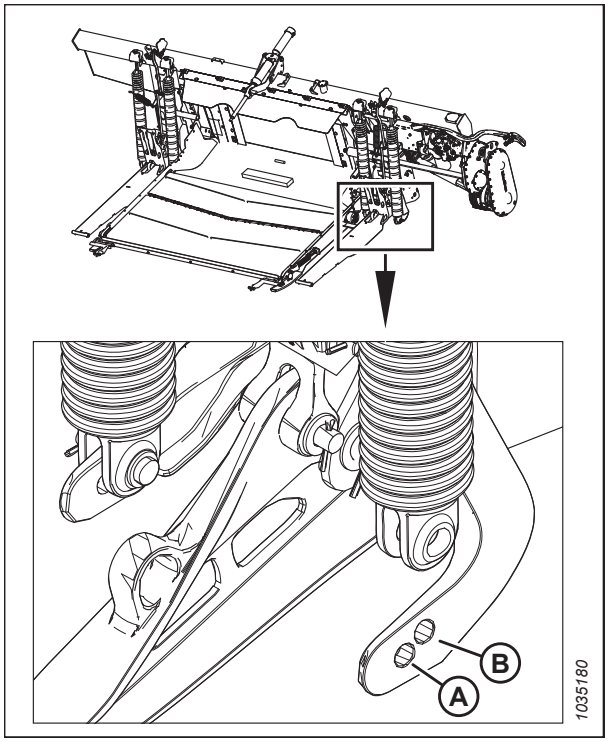


Figure 7.38: Left Float Spring – Installed in Rear Float Lever Hole

Table 7.4 Header Weight Calculator

Total weight = Header weight **without** dividers and options (A) + **one** divider option (B) + sum of optional equipment (C) and (D).		
Category	**Description**	**Weight**
(A) Base Header – select **one**	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 float lever.
	FD245 double knife	3225 kg (7100 lb.)
	FD250 double knife	3400 kg (7500 lb.)
(B) Dividers – select **one**, if installed	Rice divider rods	20 kg (50 lb.)
	Vertical knives	185 kg (407 lb.)[7]
(C) Optional Upper Cross Auger – select **one** if installed[8]	9.1 m (30 ft.) two piece auger	142 kg (312 lb.)
	10.7 m (35 ft.) two piece	156 kg (343 lb.)
	12.2 m (40 ft.) three piece	168 kg (370 lb.)
	12.5 m (41 ft.) two piece	163 kg (360 lb.)
	13.7 m (45 ft.) three piece	191 kg (420 lb.)

7. Weight includes hydraulic package for FD250.
8. Add 24.5 kg (54 lbs) for hydraulic plumbing if required.

Table 7.4 Header Weight Calculator (continued)

	15.2 m (50 ft.) three piece	212 kg (468 lb.)
(D) Other Options – add any installed options	Slow speed transport	360 kg (800 lb.)
	Contour wheels	205 kg (450 lb.)
	Stabilizer wheels	160 kg (350 lb.)

Table 7.5 Float Spring Installation Location in Float Lever

Header	Lighter Weight Range	Float Lever Hole	Heavier Weight Range	Float Lever 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 float lever.			
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

3. Lock the header float by pulling the 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).

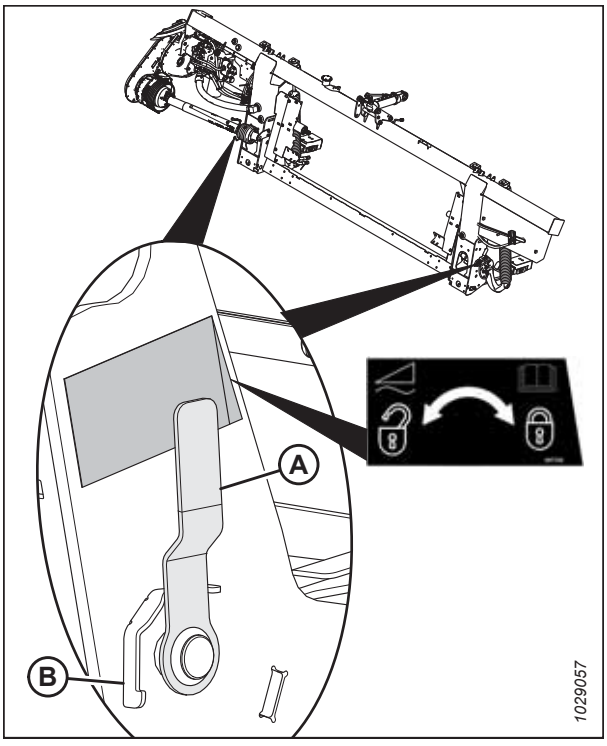


Figure 7.39: Header Float Lock in Locked Position

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.

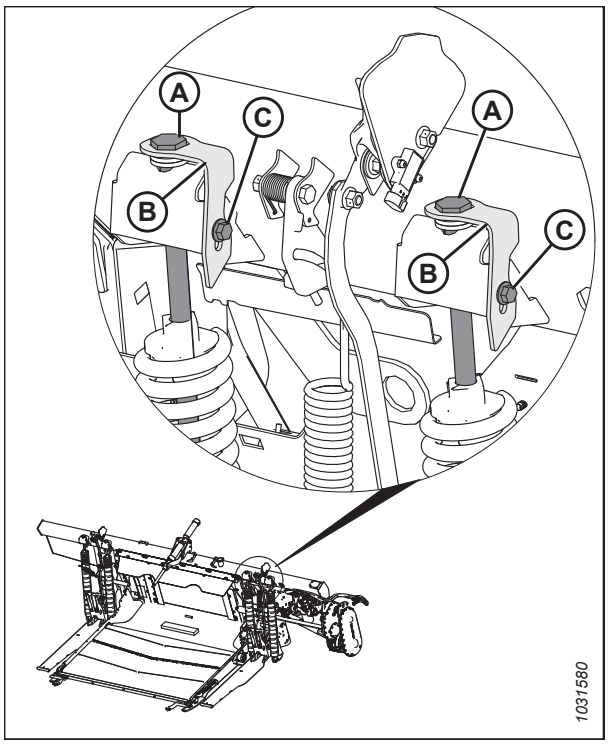


Figure 7.40: Float Adjustment – Left

6. Remove cotter pin (C) from pin (A).

7. Remove pin (A) and washers (B).

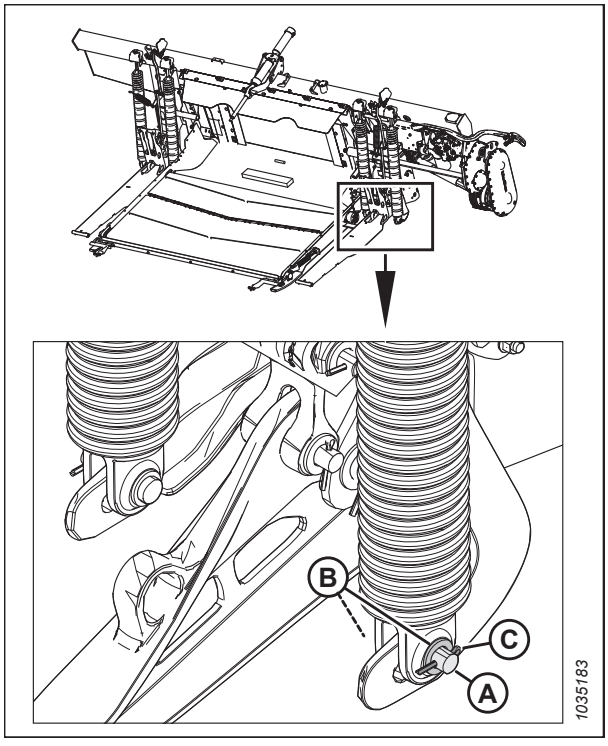


Figure 7.41: Left Float Spring – Installed in Rear Float Lever Hole

8. Align spring to the front (A) or back (B) float lever hole according to the float requirements in Table *7.5, page 199*.

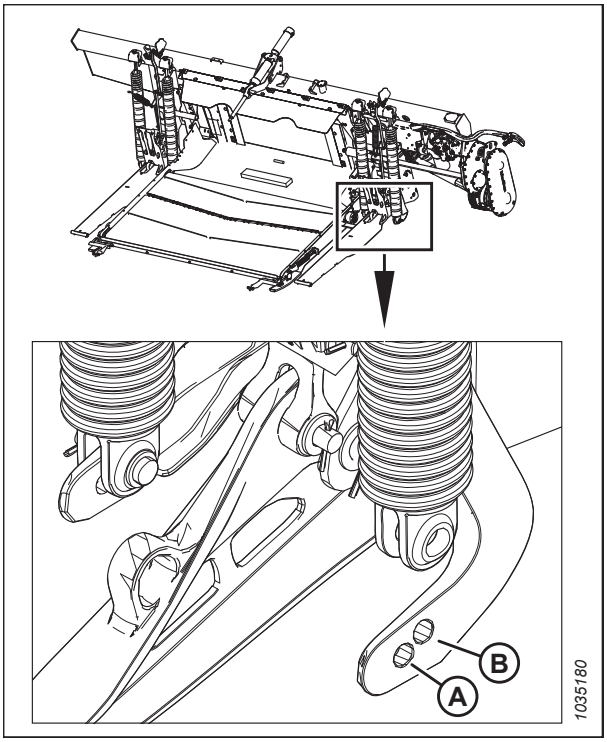


Figure 7.42: Left Float Spring – Installed in Rear Float Lever Hole

9. Install pin (A) with two washers (B) into the new hole.
10. Secure pin with cotter pin (C).
11. Repeat Step *6, page 200* to Step *10, page 201* for other spring (D).

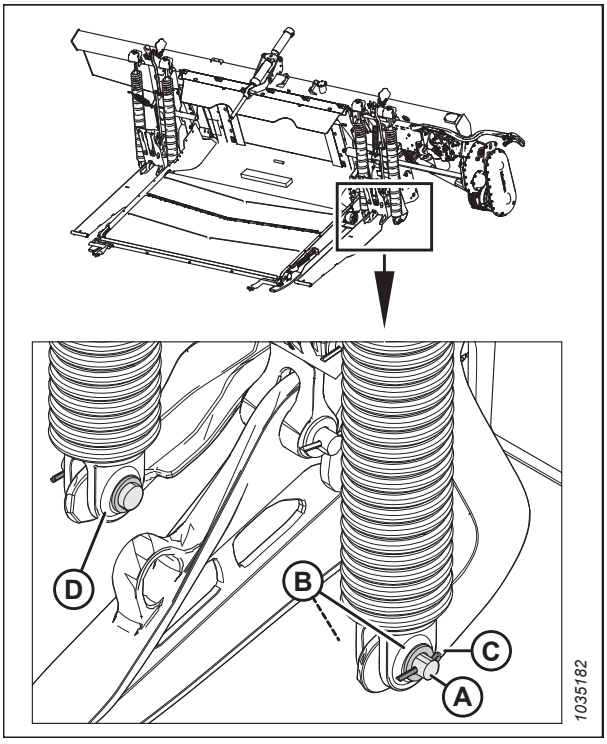


Figure 7.43: Left Float Spring – Installed in Rear Float Lever Hole

12. Retighten adjustment bolts (A) an equal amount to ensure the float springs are the same length.
13. Repeat Step *4, page 200* to Step *12, page 202* on the pair of float springs (B) on the opposite side of the float module.
14. Check the float. For instructions, refer to *7.13 Checking and Adjusting Header Float, page 209*.

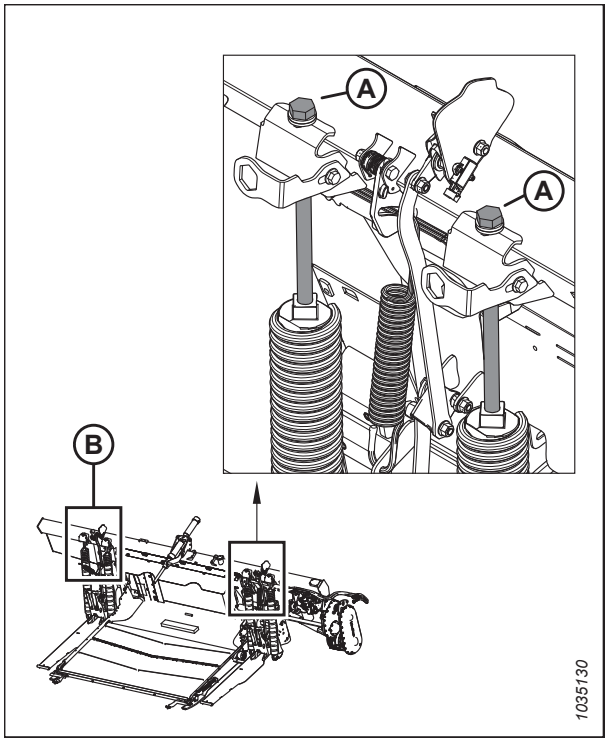


Figure 7.44: Float Adjustment – Left

7.11.2 Changing Float Spring Configuration – Float Levers 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 prevent injury or death from the 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 float lever with one hole will require you to change the type of spring(s). Part numbers are included in *7.8, page 204*.

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 *7.6, page 203*.
   b. Determine which configuration "1" to "5" to use for the total header weight according to Table *7.7, page 203*.
   c. If the header is in a different configuration than in Substep 2b then refer to Table *7.8, page 204*. Change the float spring(s) according to the table.

Table 7.6 Header Weight Calculator

Category	Description	Weight
Total weight = Header weight **without** dividers and options (A) + **one** divider option (B) + sum of optional equipment (C) and (D).		
(A) Base Header – select **one**	FD230 single knife	Only configuration "1" is used. For configuration details, refer to Table *7.8, page 204*.
	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 *7.8, page 204*.
	FD245 double knife	3225 kg (7100 lb.)
	FD250 double knife	3400 kg (7500 lb.)
(B) Dividers – select **one**, if installed	Rice divider rods	20 kg (50 lb.)
	Vertical knives	185 kg (407 lb.)[9]
(C) Optional Upper Cross Auger – select **one** if installed[10]	9.1 m (30 ft.) two piece auger	142 kg (312 lb.)
	10.7 m (35 ft.) two piece	156 kg (343 lb.)
	12.2 m (40 ft.) three piece	168 kg (370 lb.)
	12.5 m (41 ft.) two piece	163 kg (360 lb.)
	13.7 m (45 ft.) three piece	191 kg (420 lb.)
	15.2 m (50 ft.) three piece	212 kg (468 lb.)
(D) Other Options – add any installed options	Slow speed transport	360 kg (800 lb.)
	Contour wheels	205 kg (450 lb.)
	Stabilizer wheels	160 kg (350 lb.)

Table 7.7 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			

9. Weight includes hydraulic package for FD250.
10. Add 24.5 kg (54 lbs) for hydraulic plumbing if required.

Table 7.7 Float Spring Configuration According to Total Header Weight (continued)

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

Table 7.8 Float Spring Configuration

Configuration	Outer Left Spring	Inner Left Spring	Inner Right Spring	Outer 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 the 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).

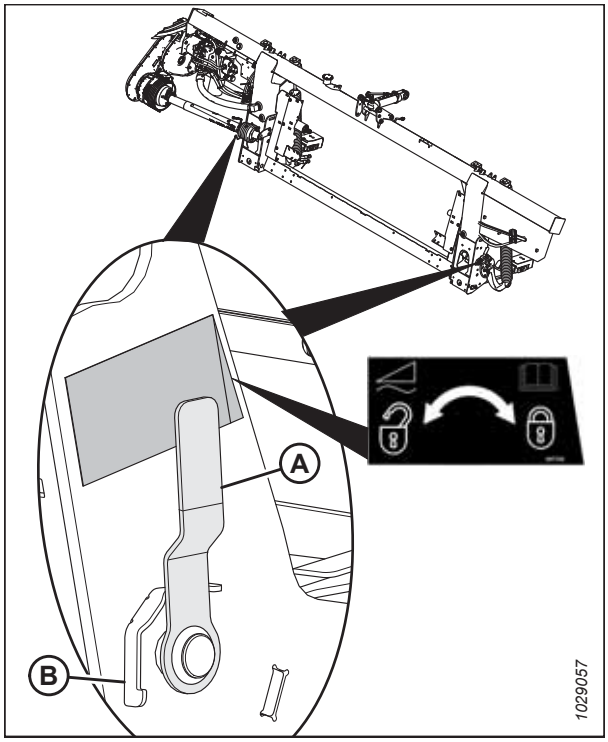


Figure 7.45: Header Float Lock in Locked Position

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.

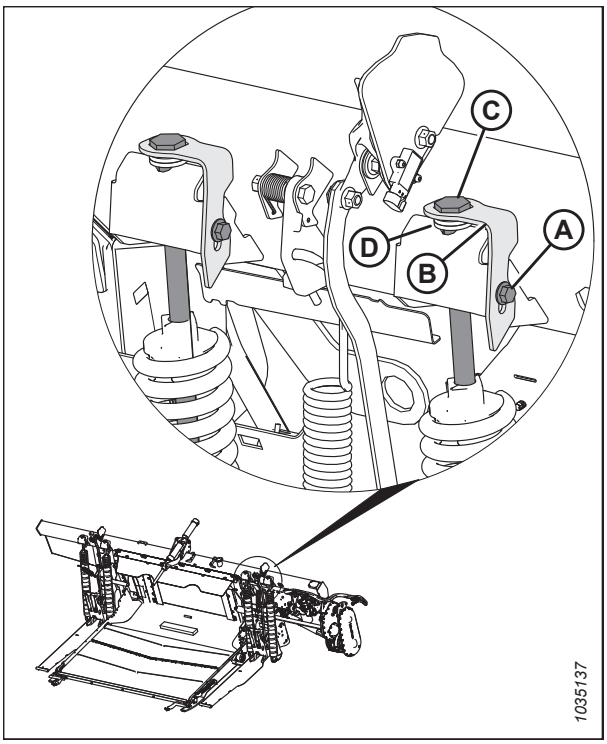


Figure 7.46: Float Adjustment Bolts – Left Shown, Right is Similar

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).

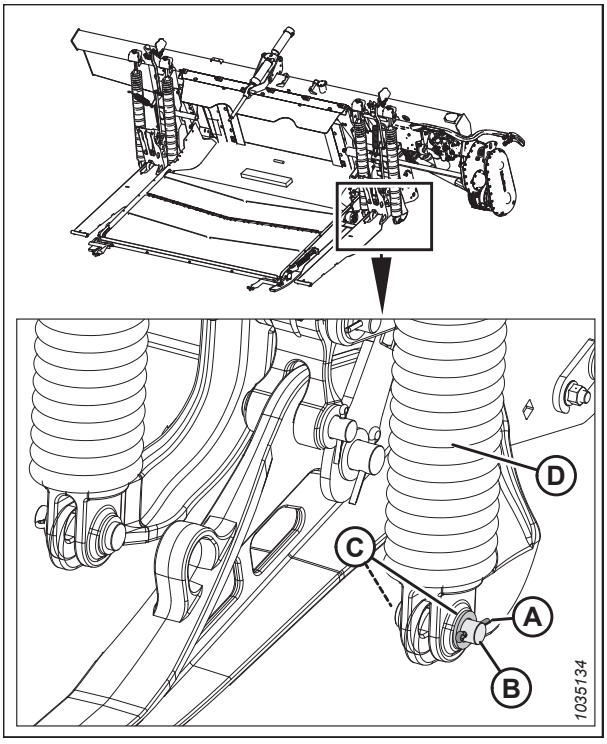


Figure 7.47: Outer Left Float Spring Shown

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 205* to Step *11, page 206* for remaining springs.

13. Check the float. For instructions, refer to *7.13 Checking and Adjusting Header Float, page 209*.

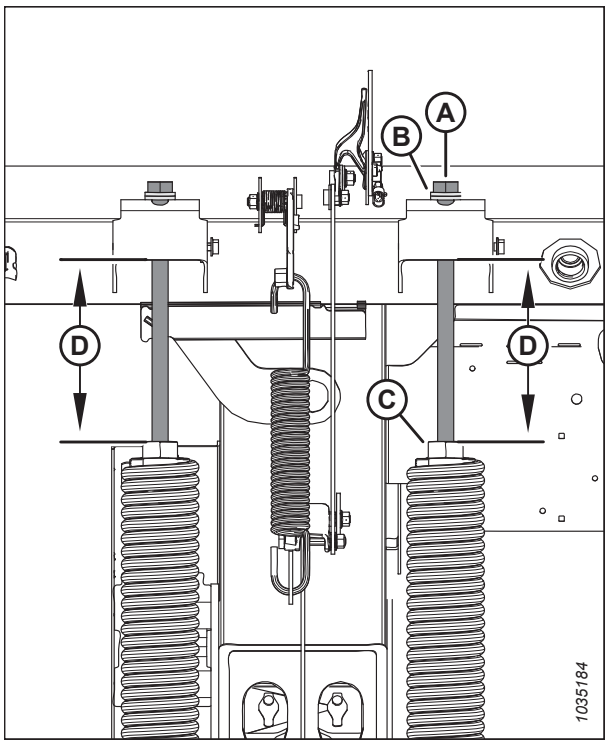


Figure 7.48: Left Float Springs

7.12 Checking and Adjusting Top-Link

For proper wing movement, the top-link should be parallel to the backtube.

DANGER

To prevent bodily injury or death from the unexpected start-up of the 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 to the backtube.

1. Shut down the engine, and remove the key from the ignition.
2. Lock wing (A).
3. Visually check that the cutterbar is straight. If not, refer to the header technical manual for the straightening procedure.

   NOTE:

   Some parts are hidden in the illustration for clarity.
4. Attach flex checker cable (B) to flex checker cable lock (C).
5. Place multi-tool (D) on bolt (E).

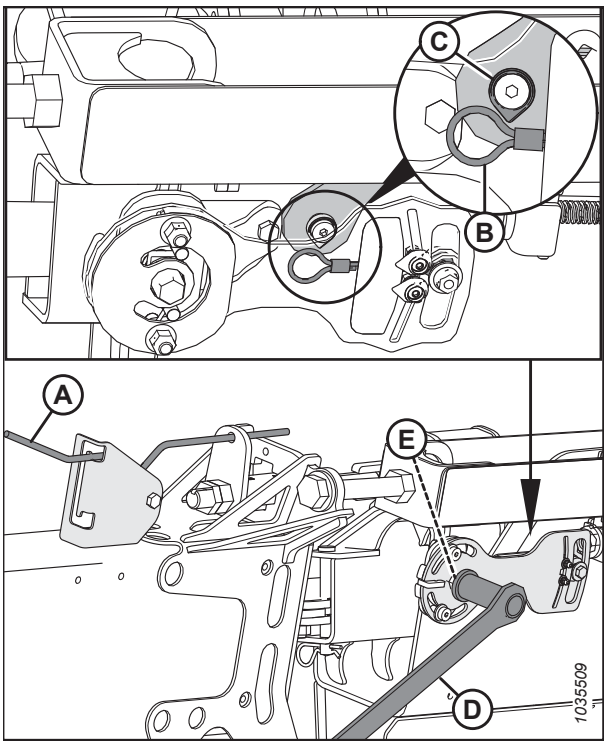


Figure 7.49: Wing in Locked Position – Left Side Shown

6. Check that the bottom edge of bell crank (A) is parallel with backtube (B) at any point while moving the multi-tool up and down.

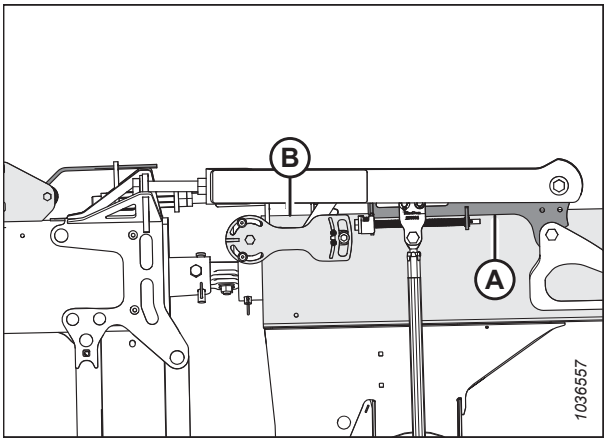


Figure 7.50: Bottom Edge of Bell Crank Parallel with Backtube

7. If the bell crank and the backtube 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 illustrated transparent for clarity.

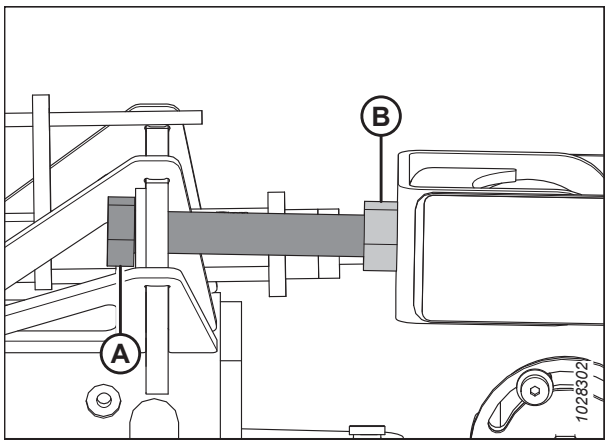


Figure 7.51: Adjustment Bolt

   NOTE:

   Some parts are hidden in the illustration for clarity.

8. Disconnect flex checker cable (A) from flex checker cable lock (B).

9. Repeat the procedure on the opposite side.

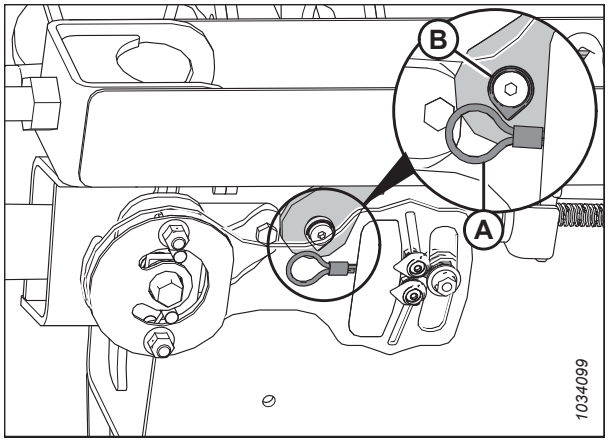


Figure 7.52: Flex Checker Cable Lock – Left Side

7.13 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 prevent injury or death from the 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, soil build-up at the cutterbar in wet conditions, and excessive wear to the poly skid plates.
- 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.

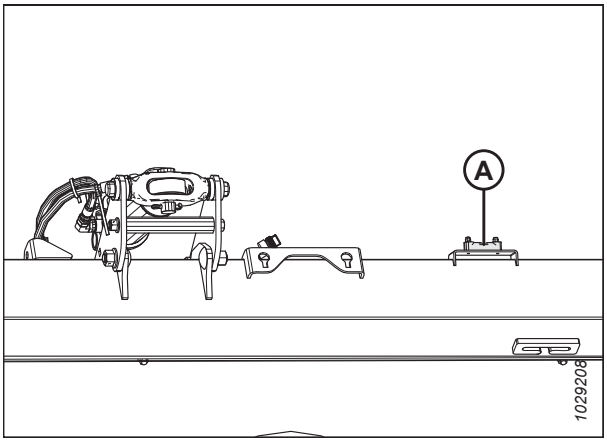


Figure 7.53: Spirit Level

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

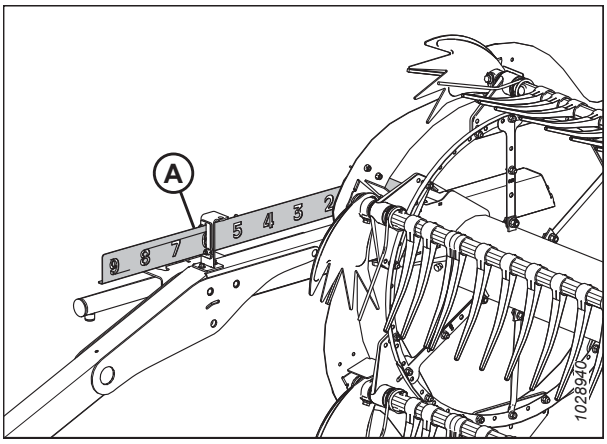


Figure 7.54: Fore-Aft Position

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.

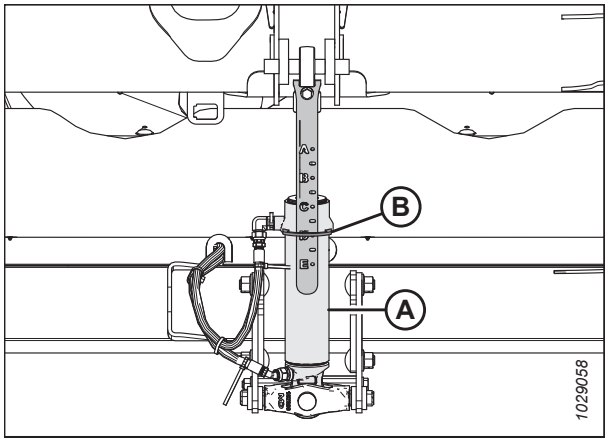


Figure 7.55: Center-Link

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**).

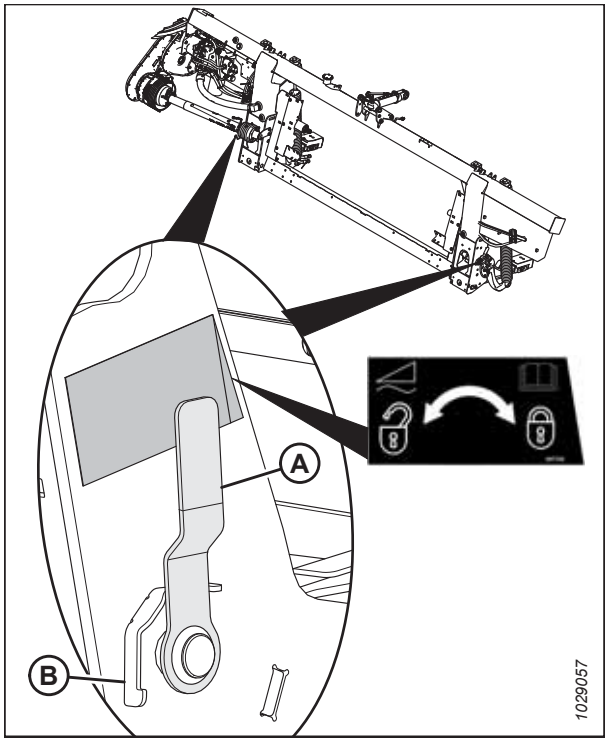


Figure 7.56: Header Float Lock in Locked Position

11. Open the left endshield.
12. Remove hairpin (A) securing multi-tool (B) to the holder bracket on the left endsheet.
13. Remove multi-tool (B), and reinstall the hairpin to the tool holder.

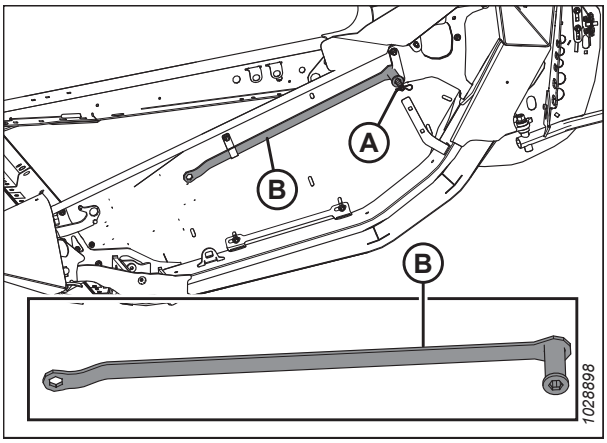


Figure 7.57: Multi-Tool Location

14. Lift float setting lever (A) by hand to remove any slack.
15. Place multi-tool (B) on the float setting lever. The multi-tool should be slightly angled towards the front of the header.

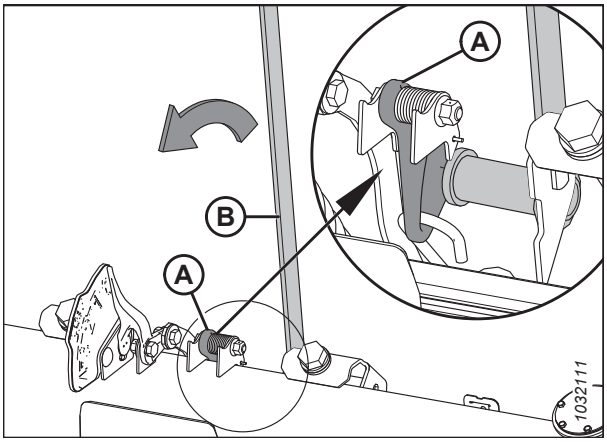


Figure 7.58: Float Setting Assembly – Left

16. Pull down on multi-tool (B) towards the back of the header until lever (A) is over center and will not return to its original position. Remove the multi-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.

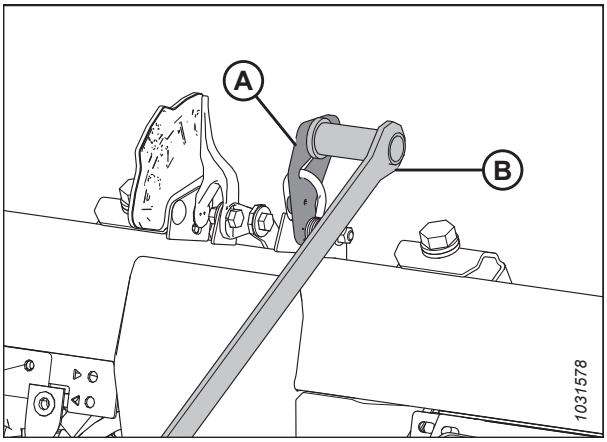


Figure 7.59: Float Setting Assembly – Left

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.

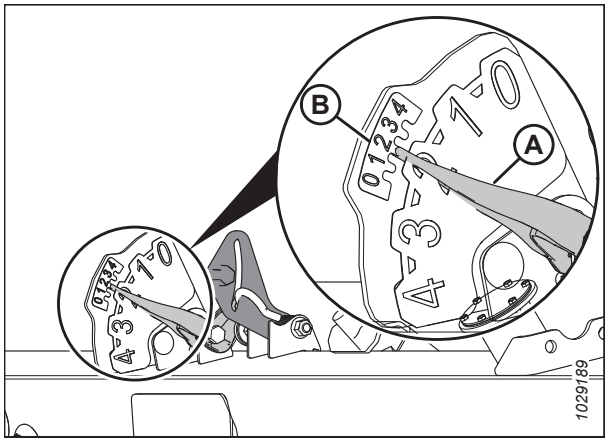


Figure 7.60: Float Setting Indicator – Left

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 the adjustment on the opposite side.

    To decrease the float and (increase ground force), turn left adjustment bolts (A) counterclockwise. Repeat the adjustment on the opposite side.

21. Repeat the sequence of shaking the header, and then checking the FSI reading between adjustments (Steps *17, page 211* to *20, page 212*) 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 the spring locks in place.

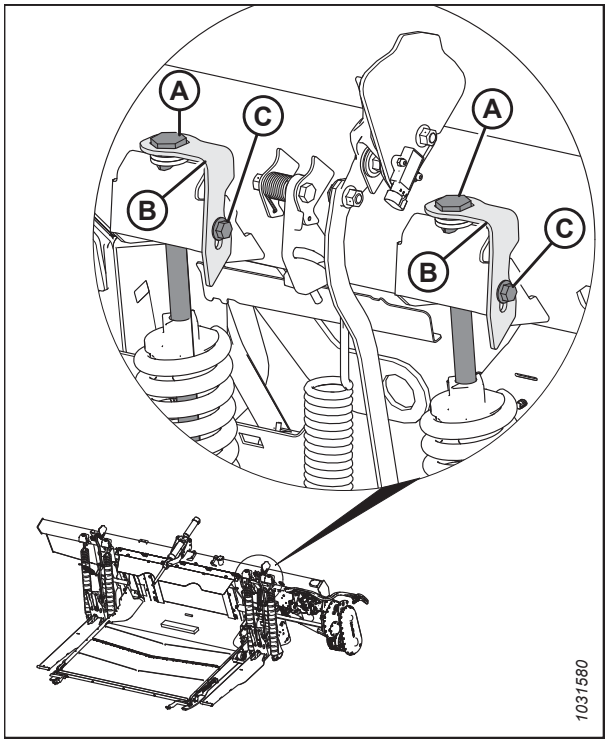


Figure 7.61: Float Adjustment – Left

23. Once the float adjustment is complete, use the tubular portion of multi-tool (A) to push float setting lever (B) over. Repeat this step on the opposite side.

    NOTE:

    Do **NOT** use the box end of the multi-tool, as the float setting lever will snap over and could pull the multi-tool out of the operator's hands.

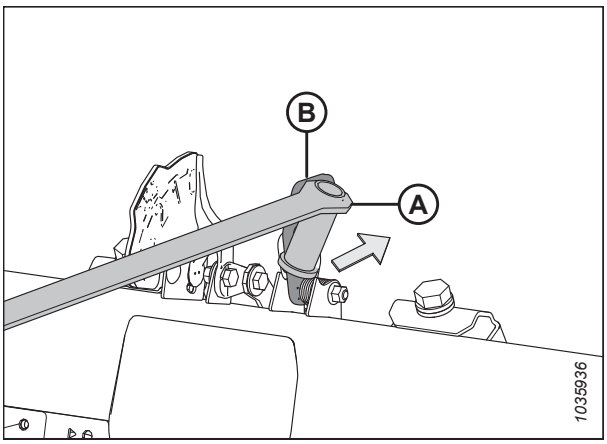


Figure 7.62: Float Adjustment – Left

7.14 Checking and Adjusting Wing Balance

Wing balance is important for ground following. Operators should adjust the balance of each wing if the header is not following the ground contours properly.

DANGER

To prevent bodily injury or death from the unexpected start-up of the 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 *7.13 Checking and Adjusting Header Float, page 209*. 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.

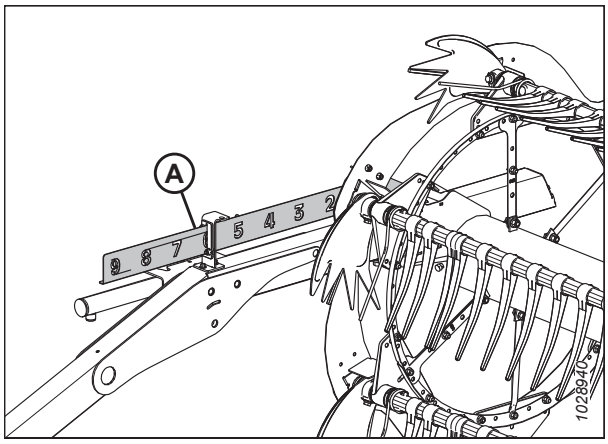


Figure 7.63: Fore-Aft Position

3. Adjust center-link (A) so that indicator (B) is at position **D** on the gauge.
4. If installed, move the transport wheels so that they are supported by the header. Refer to the 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.

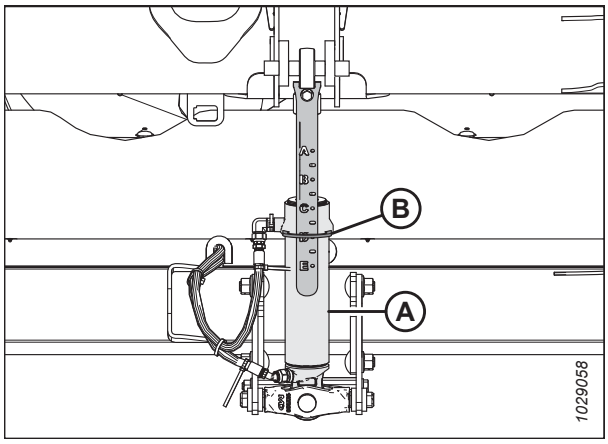


Figure 7.64: Center-Link

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.

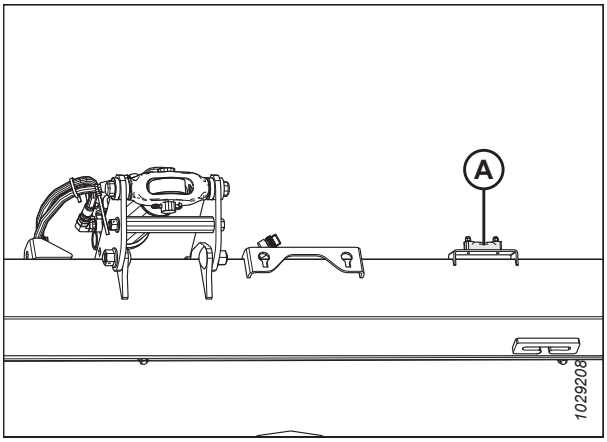


Figure 7.65: Spirit Level

9. Remove linkage cover (A).

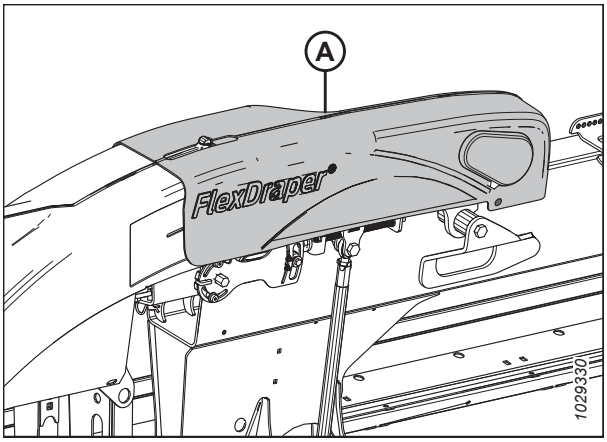


Figure 7.66: Linkage Cover

NOTE:

Parts illustrated hidden for clarity.

10. Attach flex checker cable (A) to flex checker cable lock (B).
11. Open the left header endshield. For instructions, refer to *11.2.1 Opening Header Endshields, page 452*.

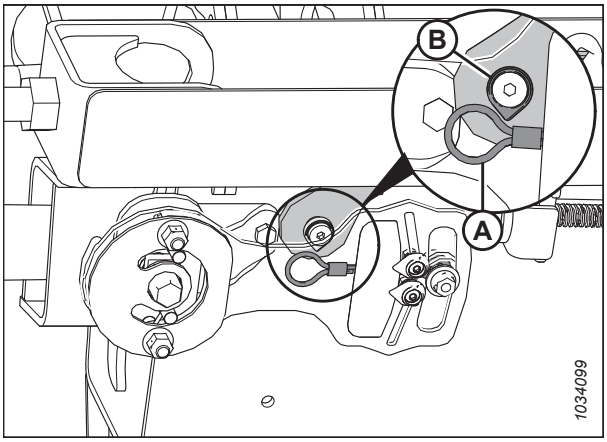


Figure 7.67: Flex Checker Cable Lock – Left Side

12. Remove hairpin (A) securing the multi-tool to tool holder bracket on the left endsheet.
13. Remove multi-tool (B), and reinstall the hairpin to the tool holder.

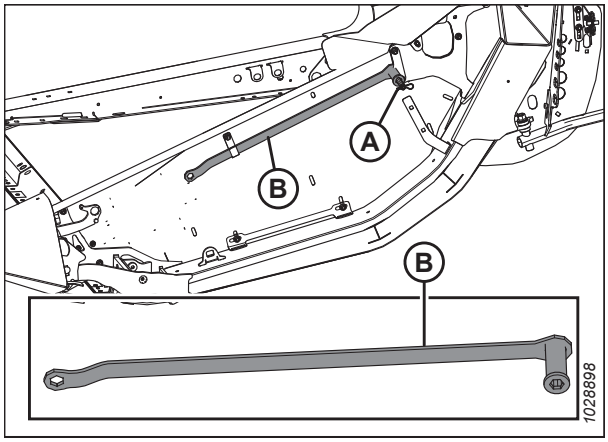


Figure 7.68: Left Endsheet

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 multi-tool (B) until you hear an audible click.

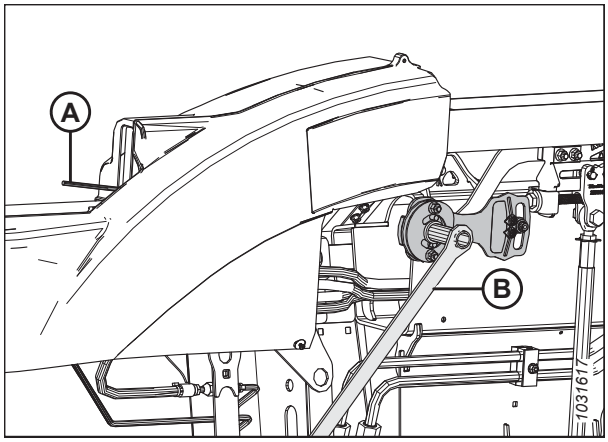


Figure 7.69: Wing Unlocked Position

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.

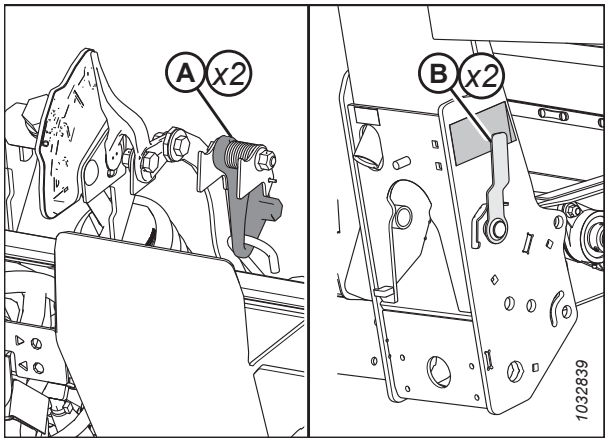


Figure 7.70: Checker Plate Assembly

18. On the flex checker plate, pinch indicators (A) and (B) together with your fingers.

19. Use multi-tool (C) to rotate the flex checker plate up until the pin reaches the end of the slot. Lower indicator (B) will move down to give the first reading.

20. Use multi-tool (C) to rotate the flex checker plate down until pin reaches the end of the slot. Upper indicator (A) will move up to give the second reading.

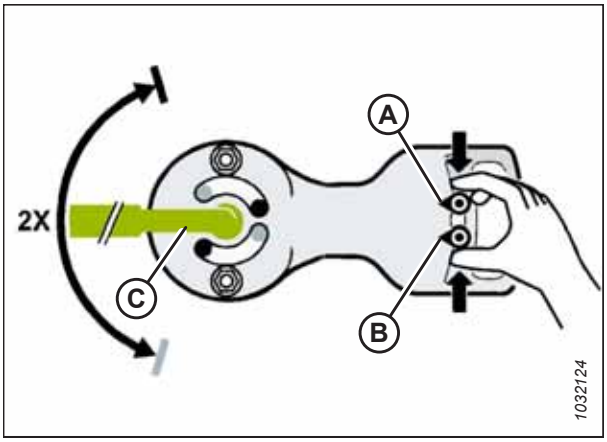


Figure 7.71: Wing Balance Adjustment – Left Side Shown

21. 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 the 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 the 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.

22. Move the spring handle to the upper **(LOCK)** position.

23. If the lock does not engage, move the wing up and down with multi-tool until it locks.

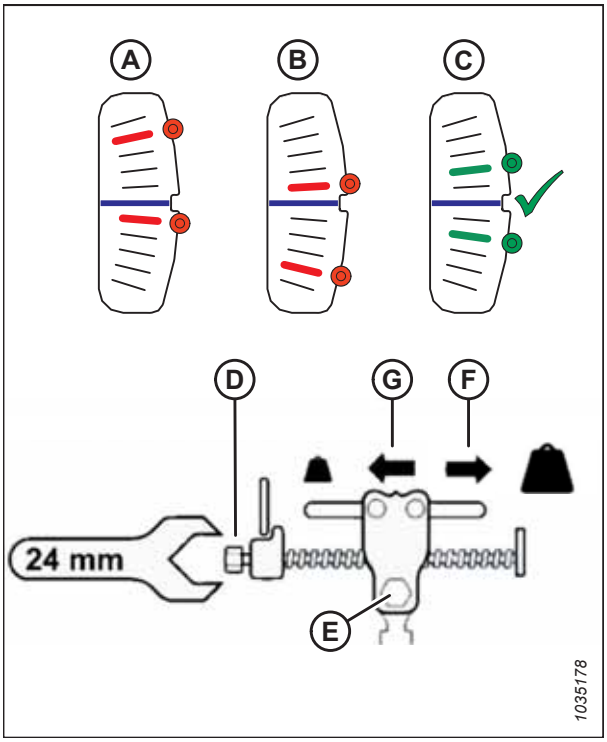


Figure 7.72: Wing Balance Adjustment – Left Side Shown

NOTE:

Some parts hidden in the illustration for clarity.

24. Remove flex checker cable (A) from flex checker cable lock (B).

IMPORTANT:

Damage to the checker cable may occur if it is left attached.

25. Repeat the procedure on the opposite side.

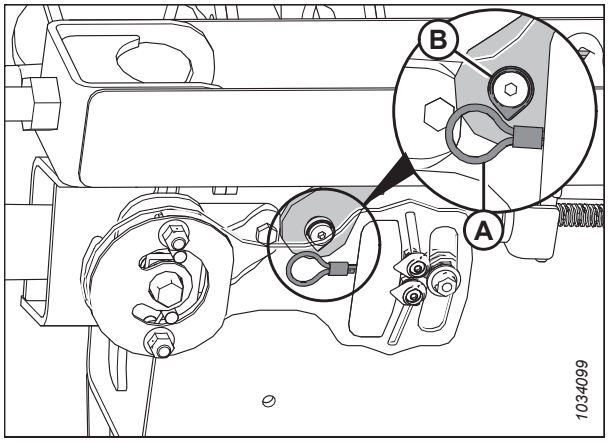


Figure 7.73: Flex Checker Cable Lock – Left Side

26. Return multi-tool (B) to its storage position, and secure it with hairpin (A).

27. Reinstall the linkage covers.

NOTE:

Adjustment to the main float may be required to maintain good wing balance when operating in the field. For instructions, refer to *7.13 Checking and Adjusting Header Float, page 209*.

28. If the cutterbar is not straight when the wings are in lock mode, then further adjustments are required.For instructions, refer to the header technical manual.

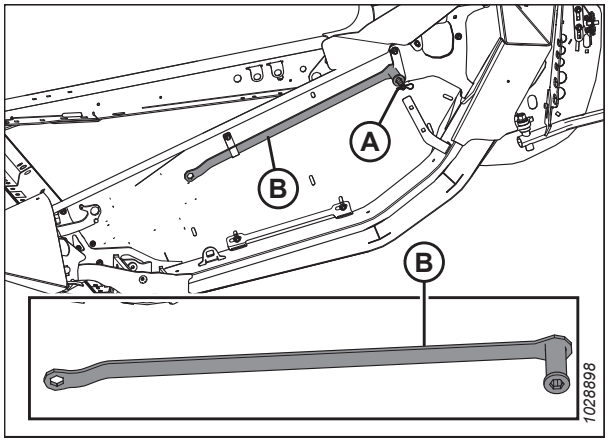


Figure 7.74: Left Endsheet

7.15 Adjusting Feed Auger to Pan Clearance

Operators should maintain an appropriate distance between the feed auger and the feed auger pan.

DANGER

To prevent injury or death from the 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.

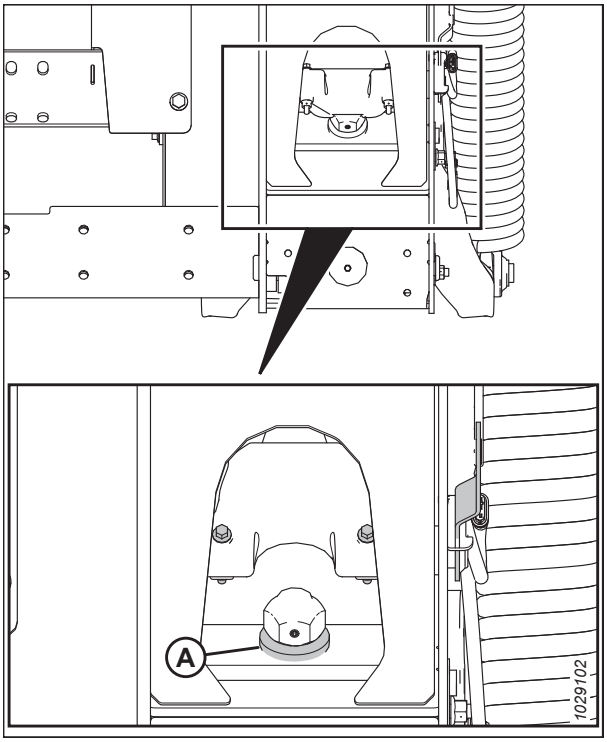


Figure 7.75: Down Stop Washer

5. Before adjusting the auger-to-pan clearance, check the auger float position to determine how much clearance is required:

   IMPORTANT:

   Make sure bolts (A) are set at the same location on both ends of the header to avoid damaging the machine during operation.

   - If bolt head (A) is closest to floating symbol (B), the auger is in the floating position.

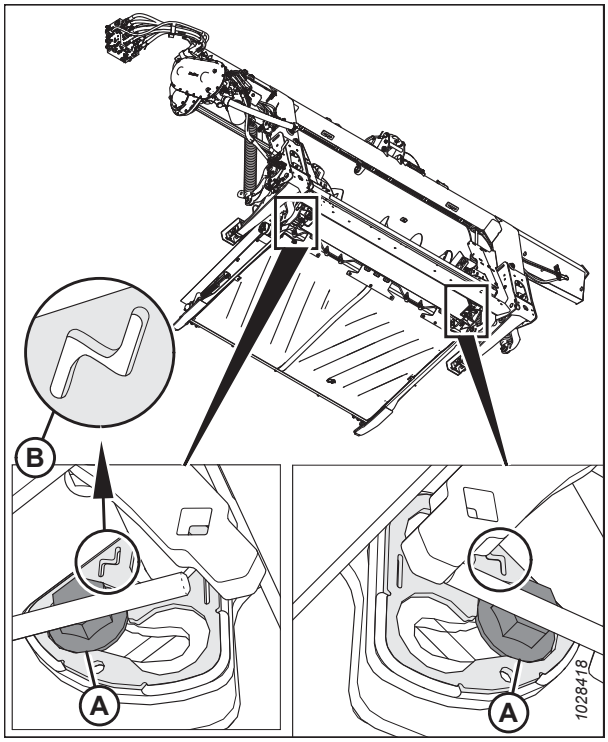


Figure 7.76: Floating Position

   - If bolt head (A) is closest to fixed symbol (B), the auger is in the fixed position.

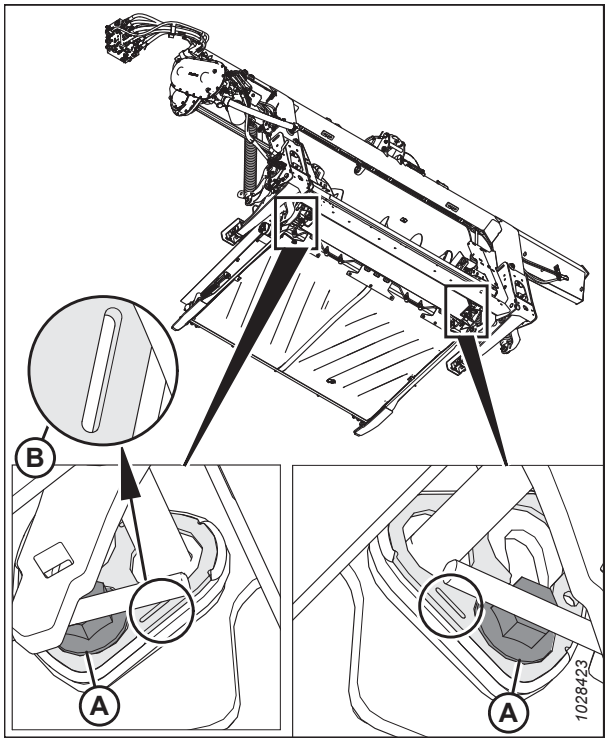


Figure 7.77: Fixed Position

6. Check clearance (C) between the feed auger flighting to the pan.
   - If the feed auger is in the fixed position, clearance should be between 24–28 mm (15/16–1 1/8 in.).
   - If the feed auger is in the floating position, clearance should be between 11.5–15.5 mm (7/16–5/8 in.).
7. If adjustment is required, loosen two nuts (B) and rotate the auger to position the flighting over the feed pan.
8. 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.
9. Repeat Step *6, page 221* and Step *8, page 221* 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.
10. Tighten nuts (B) on both ends of the feed auger. Torque the nuts to 96 Nm (70 lbf·ft).
11. Rotate the feed auger and double-check clearances.

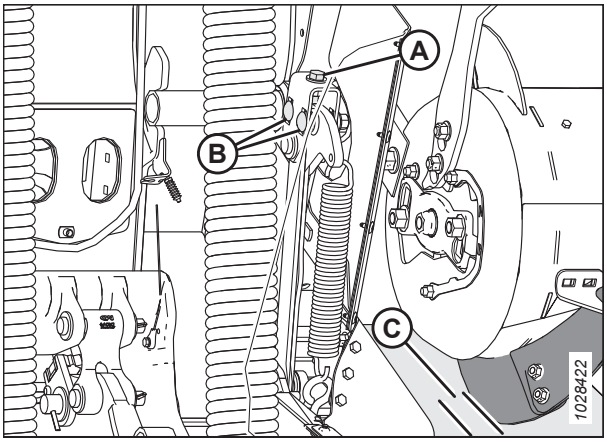


Figure 7.78: Auger Clearance

7.16 Checking and Adjusting Side Draper Tension

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.

DANGER

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

1. Ensure tensioner indicator (A) covers the inboard half of 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's safety props. For instructions, refer to the combine operator's manual.

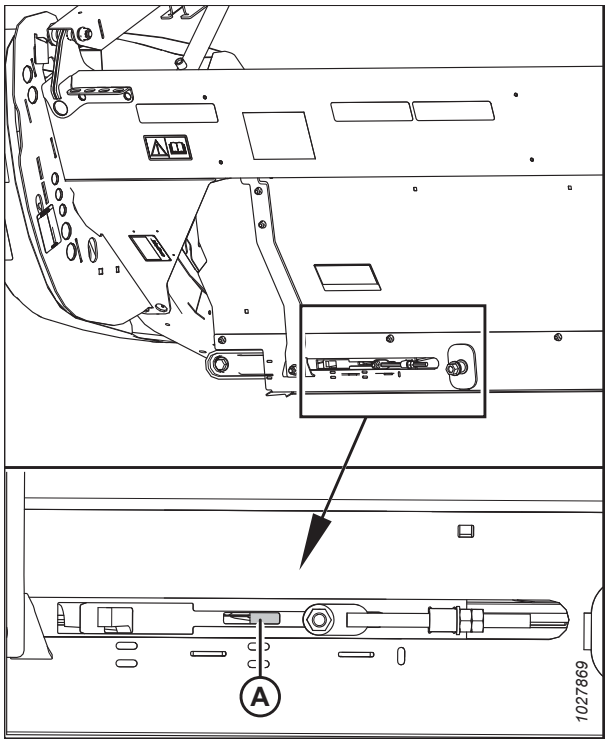


Figure 7.79: Checking Tension Adjuster – Left Side Shown, Right Side Opposite

6. Check that the draper guide (the rubber track on the underside of the draper) is properly engaged in groove (A) of the drive roller.

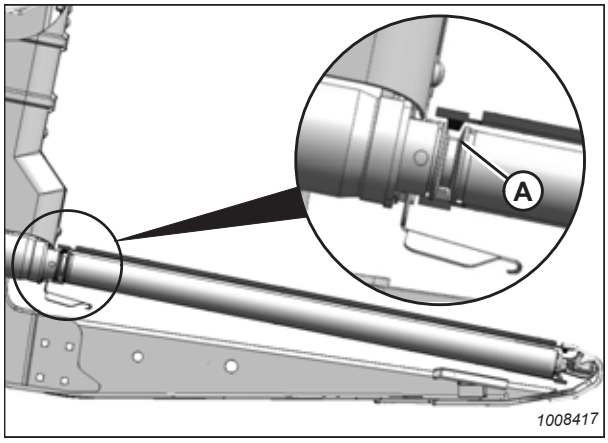


Figure 7.80: Drive Roller

7. Check that idler roller (A) is between guides (B).

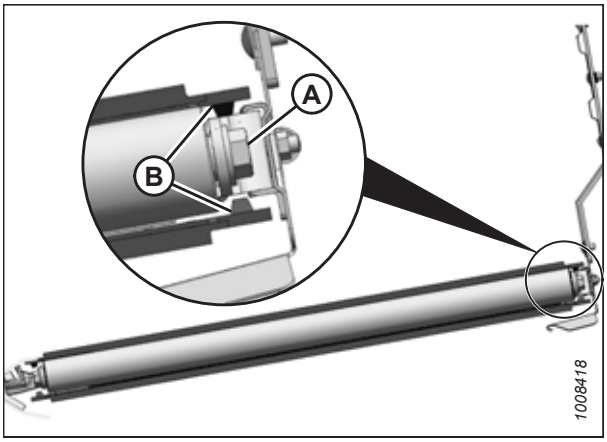


Figure 7.81: Idler Roller

IMPORTANT:

Do **NOT** adjust nut (C). This nut is used for draper alignment only.

8. Turn adjuster bolt (A) clockwise to tighten, and counterclockwise to loosen. Tensioner indicator (B) will move inboard to show that the draper is tightening. Tighten the adjuster bolt until the tensioner indicator covers the inboard half of the window.

IMPORTANT:

To avoid premature failure of the draper, draper rollers, and/or tightener components, do **NOT** operate the header with the tensioner indicator not visible.

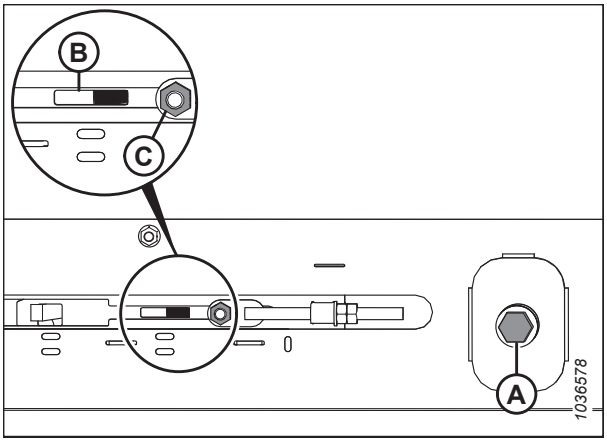


Figure 7.82: Adjusting Tensioner – Left Side Shown, Right Side Opposite

7.17 Checking Draper Seal

The draper seal stops dirt and dust from getting inside the draper.

To check the draper seal, follow these steps:

DANGER

To prevent bodily injury or death from the unexpected startup of the machine, always stop the engine and remove the key before adjusting the 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 the measurements at deck front hooks (A) with the header in the working position. Depending on the header size, there are between four and seven deck front hooks per deck.

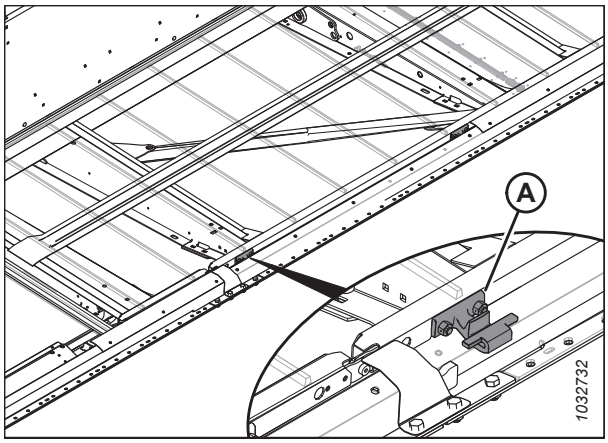


Figure 7.83: Draper Deck Front Hooks

4. Check that clearance (A) between draper (B) and metal seal (C) is 0–2 mm (0–0.08 in.).

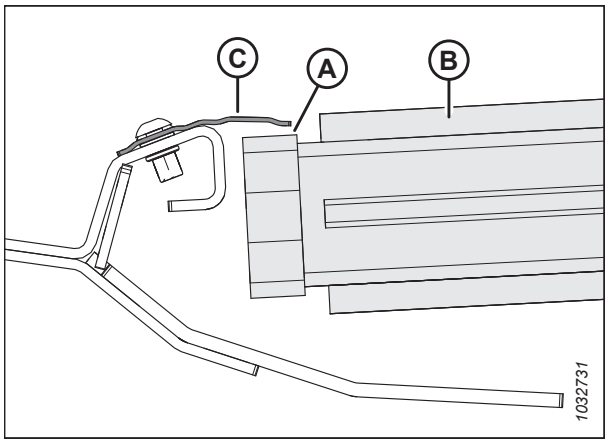


Figure 7.84: Draper Seal

If adjustment is required, proceed as follows:

5. Loosen the draper tension. For instructions, refer to *7.16 Checking and Adjusting Side Draper Tension, page 222*.
6. Lift front edge of draper (A) past cutterbar (B) to expose the deck front hook.
7. Measure and note the thickness of the draper belt.

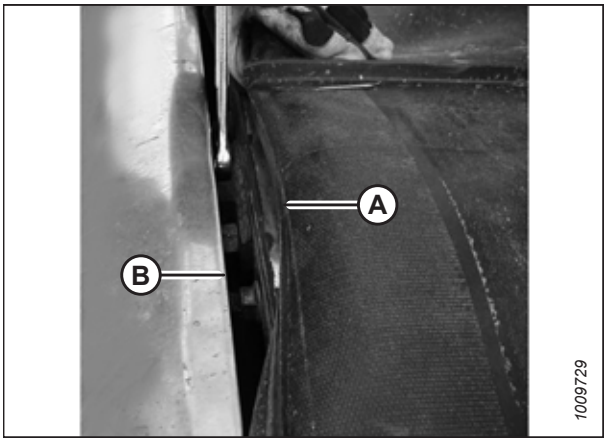


Figure 7.85: Deck Front Hook

8. This step is not required, but to have increased access to the deck front hooks, remove screws (B) and cutterbar seal (A) that are above the deck front hooks.

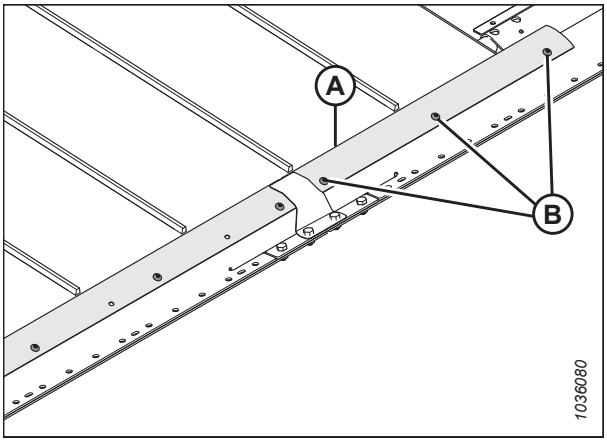


Figure 7.86: Deck Seal

9. Loosen two lock nuts (A) on deck front hook (B) one half-turn **ONLY**.
10. Tap deck (C) with a hammer and block of wood to lower the deck relative to the deck front hooks. Tap deck front hook (B) using a punch to raise the deck relative to the deck front hooks.

    NOTE:

    The deck is shown with parts removed for clarity. The number of deck front hooks (B) is determined by the header width as follows:

    - **FD230:** Eight deck front hooks
    - **FD235, FD240:** Ten deck front hooks
    - **FD245:** Twelve deck front hooks
    - **FD250:** Fourteen deck front hooks

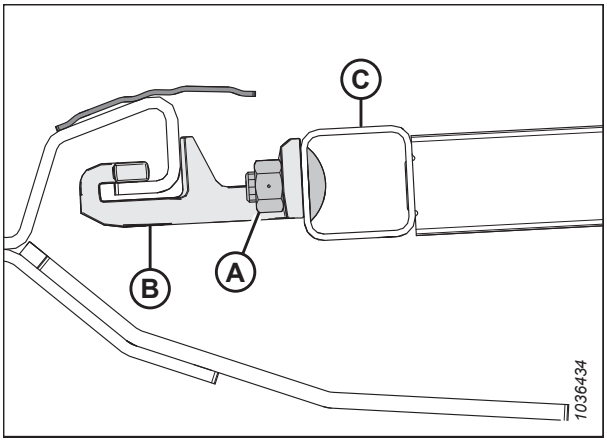


Figure 7.87: Deck Support

11. 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.

12. 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.

13. Tighten hardware (D).

14. Recheck gap (B) with thickness gauge. For instructions, refer to Step *11, page 226*.

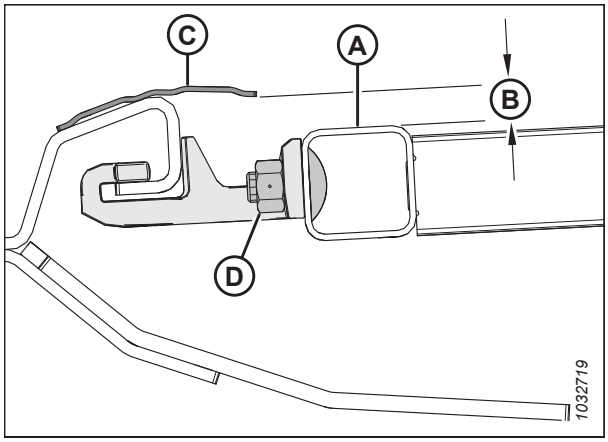


Figure 7.88: Deck Front Hook

7.18 Lubricating the Header

Proper lubrication of moving parts will increase their lifespan.

Table 7.9 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

7.18.1 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 prevent injury or death from the 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 the grease fitting with a clean cloth before greasing to avoid injecting it with dirt and grit.

   IMPORTANT:

   Use clean, high-temperature, extreme-pressure grease only.

2. Inject the grease through the fitting with a grease gun until grease overflows the fitting (except where noted).
3. Leave the excess grease on the fitting to keep the dirt out.
4. Replace any loose or broken grease fittings immediately.
5. Remove and thoroughly clean any fitting that will not take grease. Also clean the lubricant passageway. Replace the fitting if necessary.

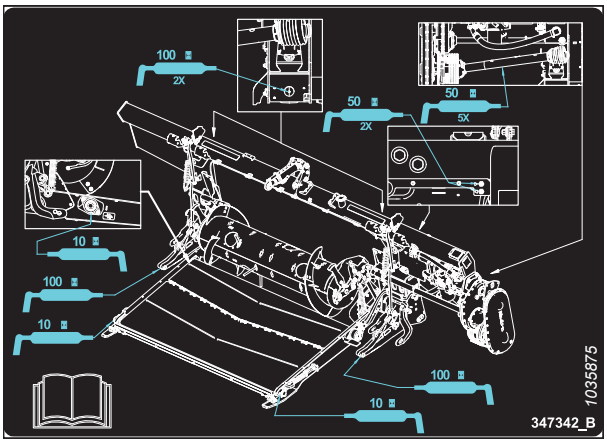


Figure 7.89: FM200 Grease Point Layout Decal

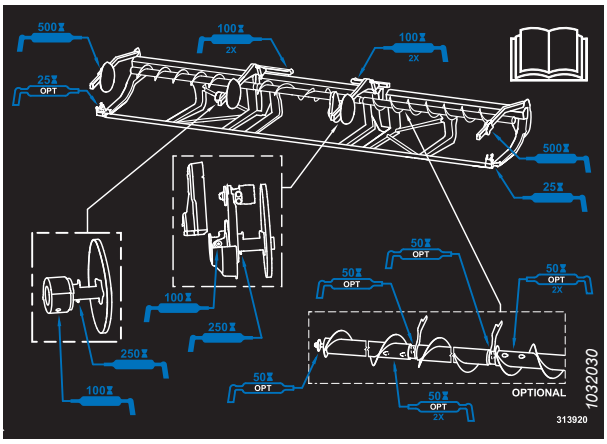


Figure 7.90: FD2 Series Grease Point Layout Decal

7.18.2 Lubrication Points

There are multiple lubrication points on the header.

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 the area after greasing.

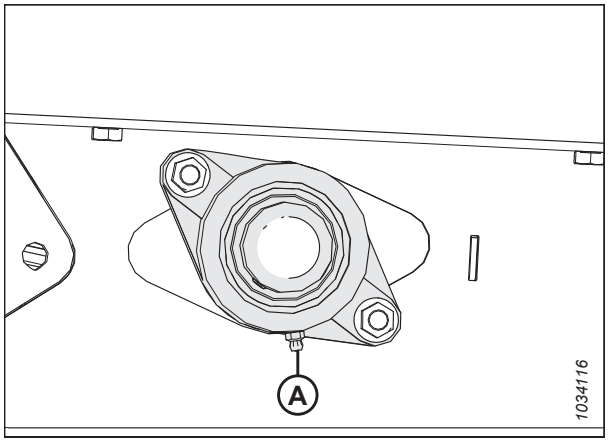


Figure 7.91: Feed Draper Drive Roller

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 the area after greasing.

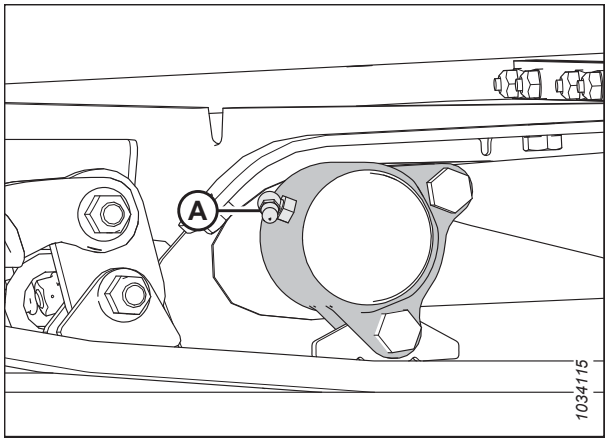


Figure 7.92: Feed Draper Idler Roller

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.

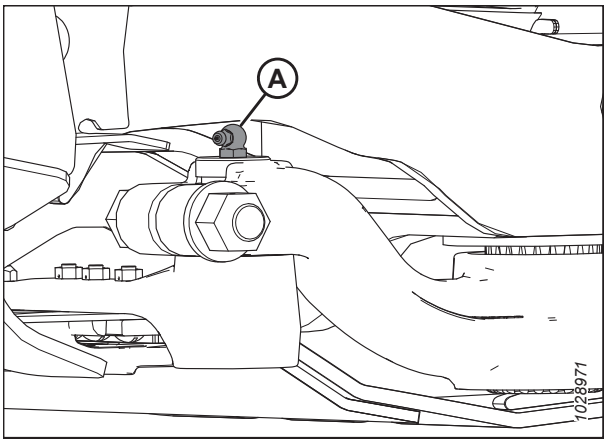


Figure 7.93: Knifehead

- When greasing for the first time, ensure the cavity is full of grease, and movement is not being caused by trapped air in the bearing.
- 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, or remove the fitting.

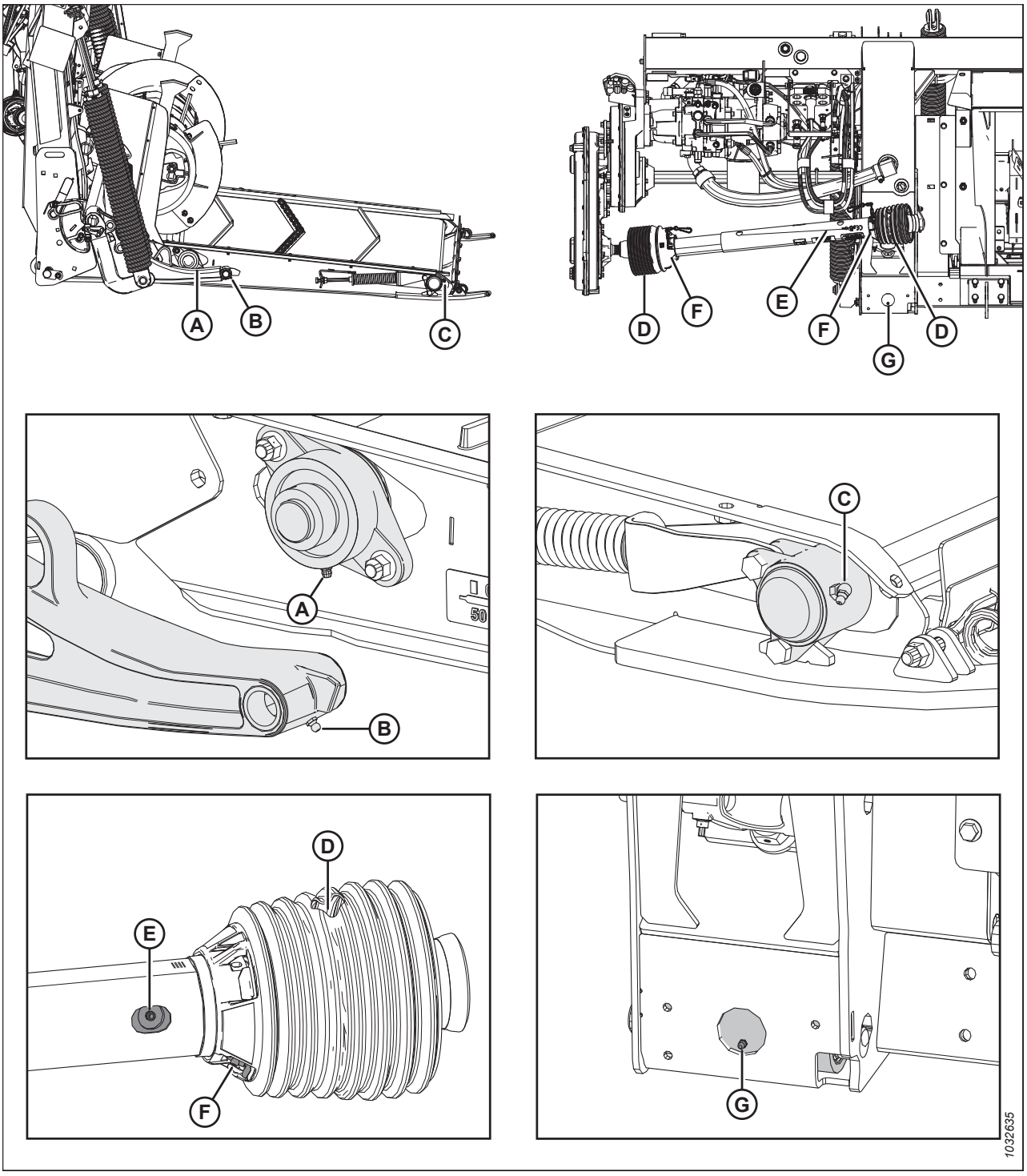


Figure 7.94: FM200

A - Drive Roller Bearing
B - Lower Link Bearing (Two Places)
C - Idler Roller Bearing (Two Places)
D - Driveline Universal (Two Places)
E - Driveline Slip Joint[11]
F - Driveline Guards (Two Places)
G - Float Pivots (Right and Left)

11. Use high temperature extreme pressure (EP2) performance grease with 10% max molybdenum disulphide (NLGI Grade 2) lithium base.

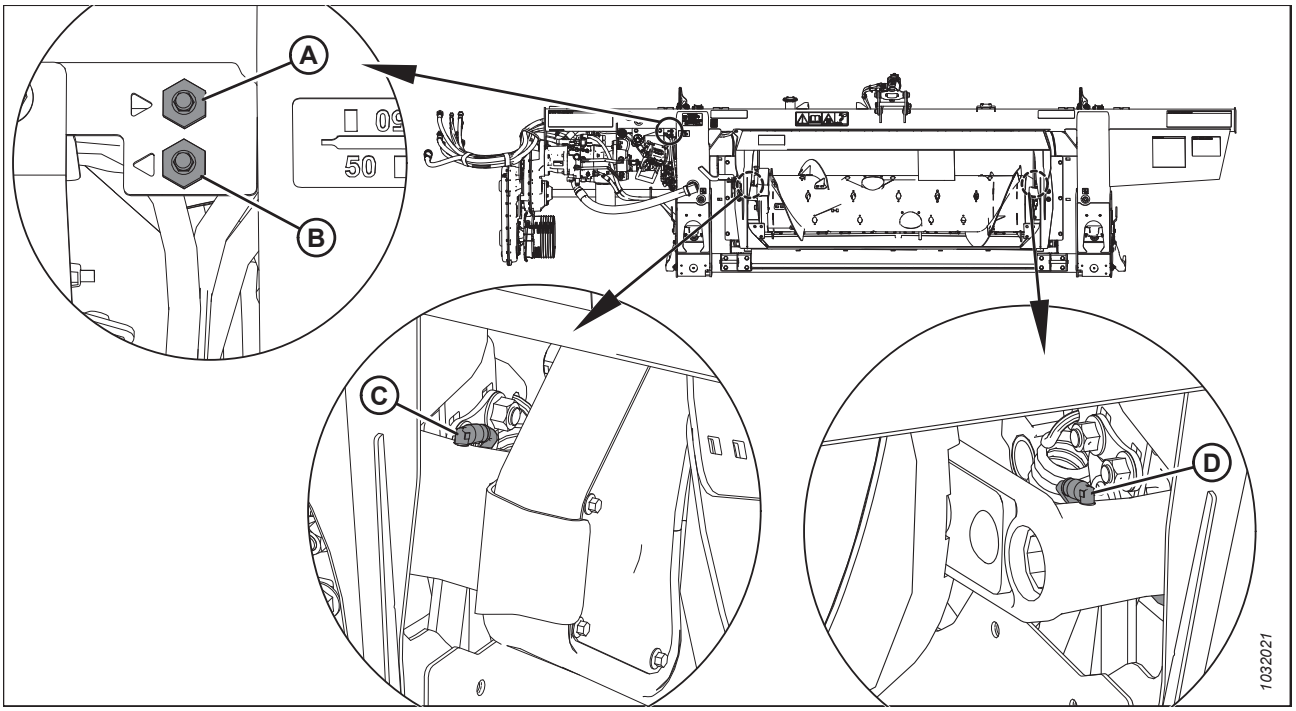


Figure 7.95: FM200

A - Remote Grease Line for Auger Pivot (Right Side)
B - Remote Grease Line for Auger Pivot (Left Side)
C - Auger Pivot (Left Side)
D - Auger Pivot (Right Side)

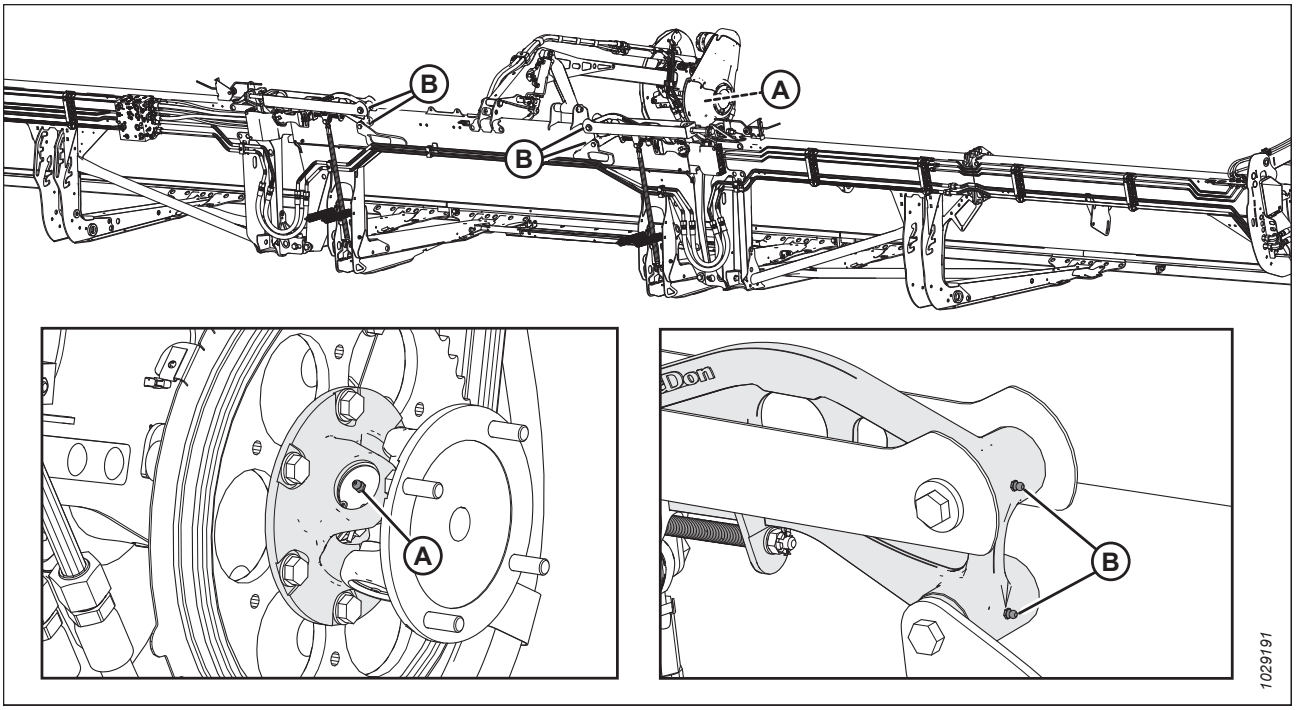


Figure 7.96: Reel U-Joint and Flex Linkage

A - Reel U-joint (One Place)[12]
B - Flex Linkage (Two Places) – Both Sides

12. 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.

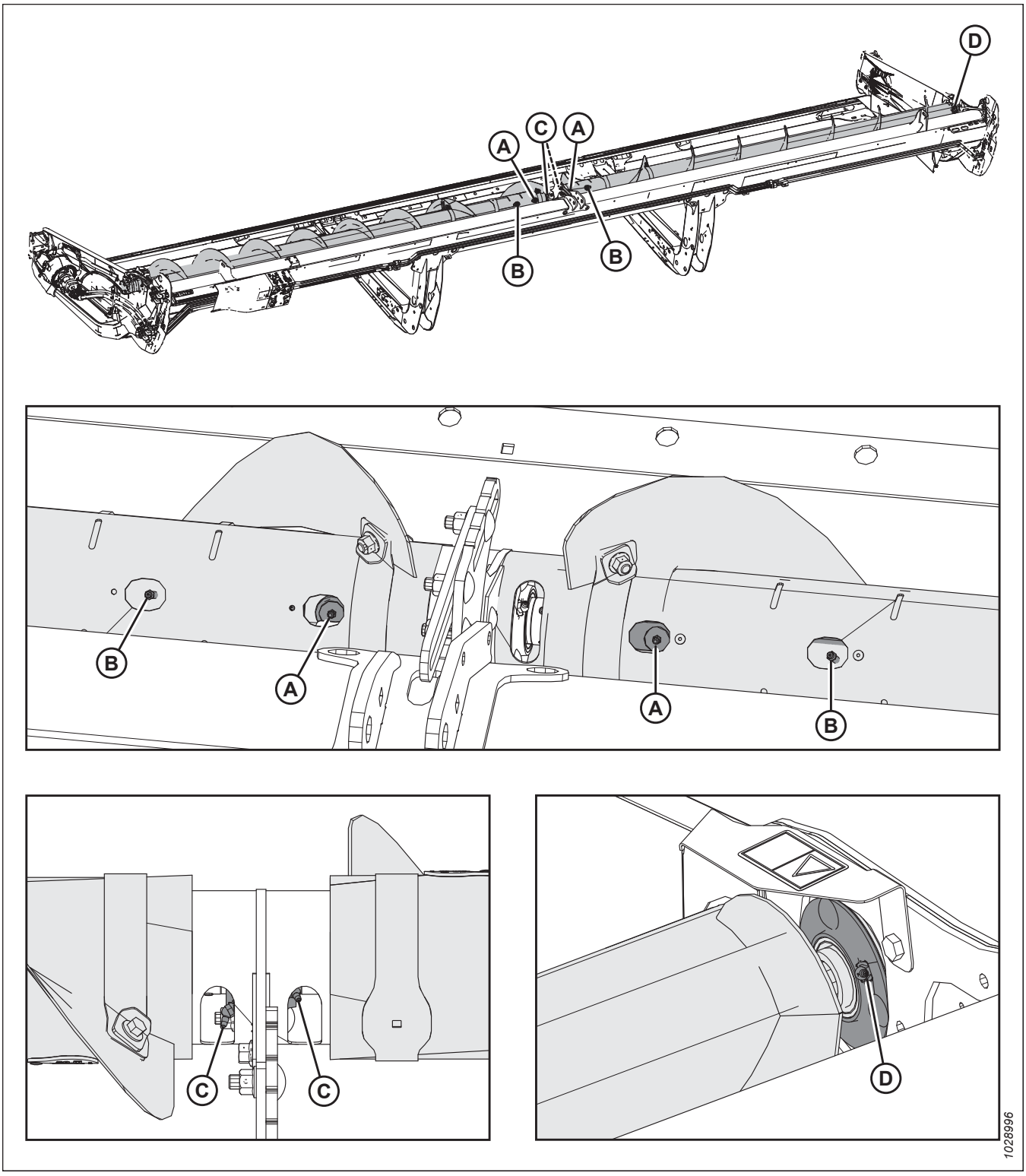


Figure 7.97: Two-Piece Upper Cross Auger

A - Upper Cross Auger U-joints (Two Places)
B - Upper Cross Auger Sliding Hubs (Two Places)
C - Upper Cross Auger Center Bearings (Two Places)
D - Right End Bearing

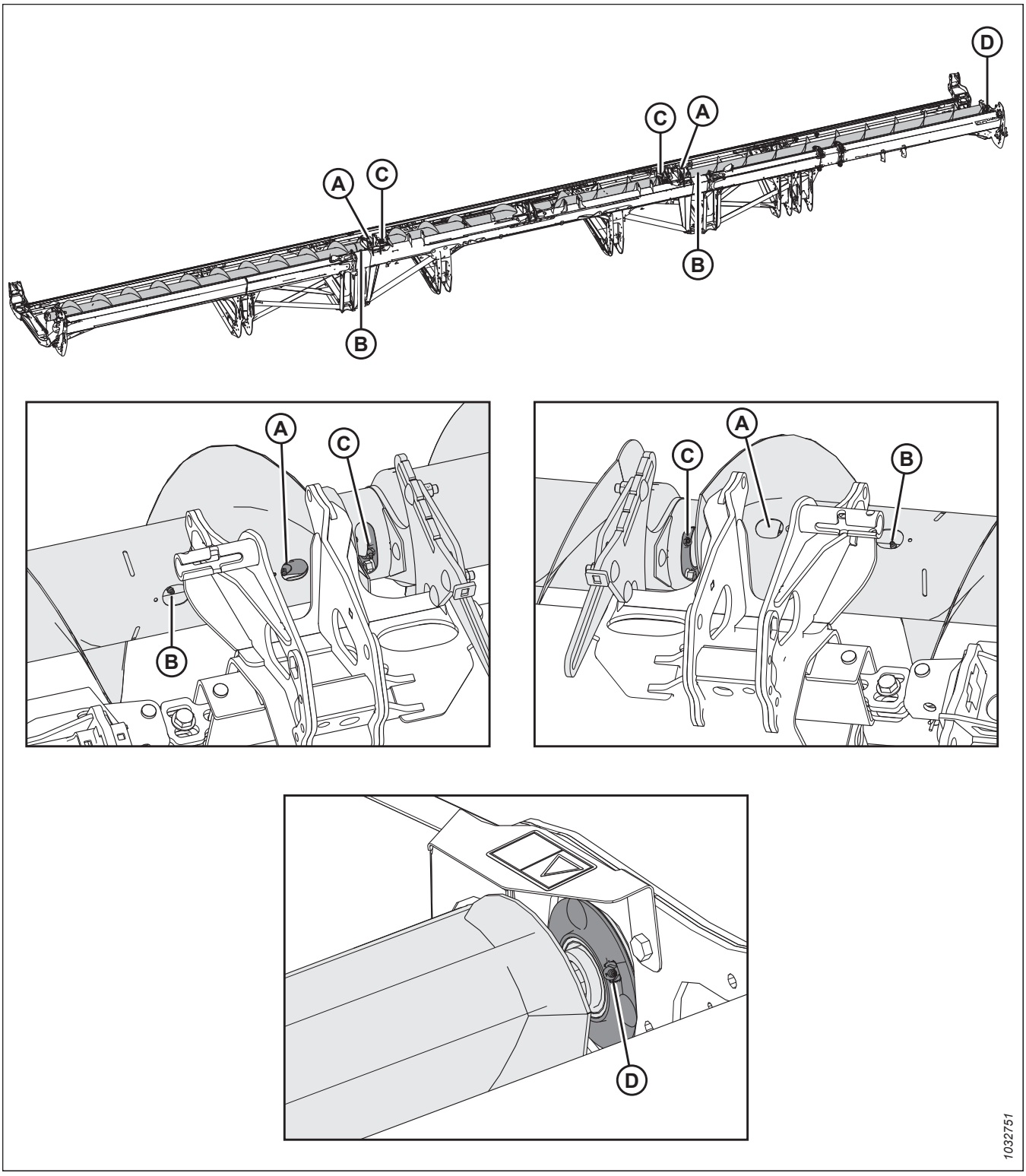


Figure 7.98: Three-Piece Upper Cross Auger

A - Upper Cross Auger U-joints (Two Places)
B - Upper Cross Auger Sliding Hubs (Two Places)
C - Upper Cross Auger Center Bearings (Two Places)
D - Right End Bearing

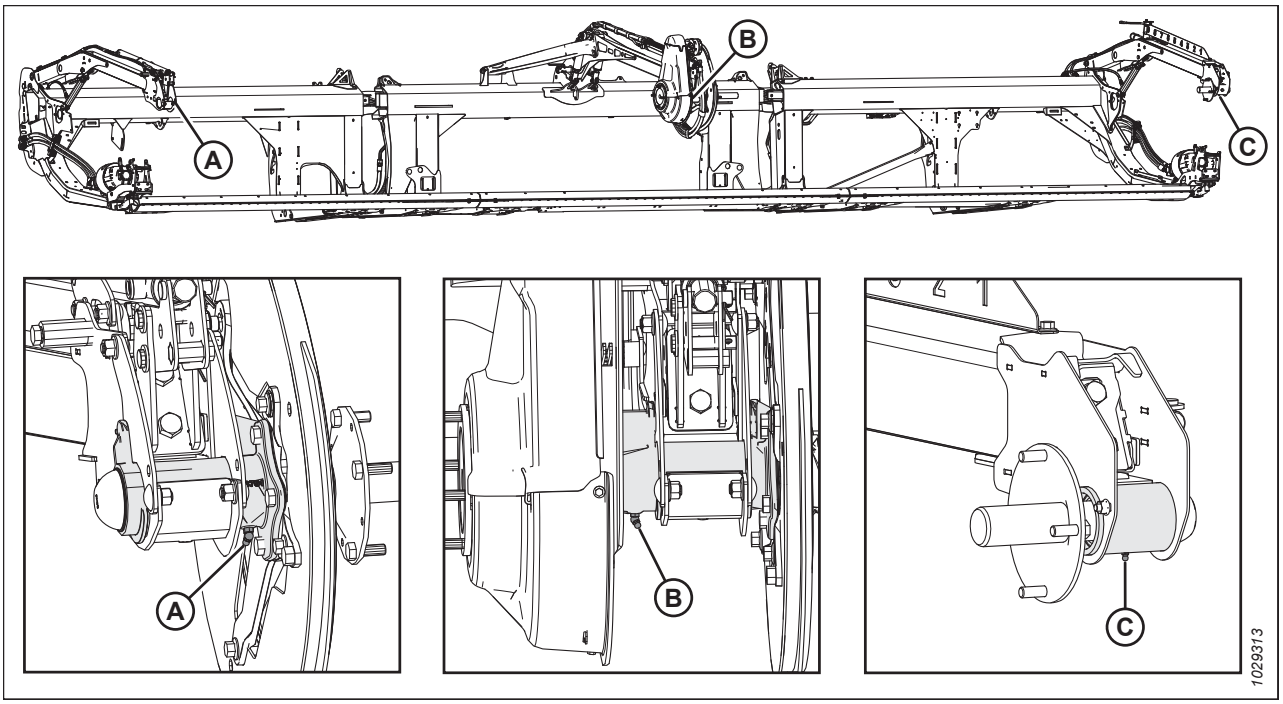


Figure 7.99: Double Reel

A - Reel Right Bearing (One Place) **B - Reel Center Bearing (One Place)** **C - Reel Left Bearing (One Place)**

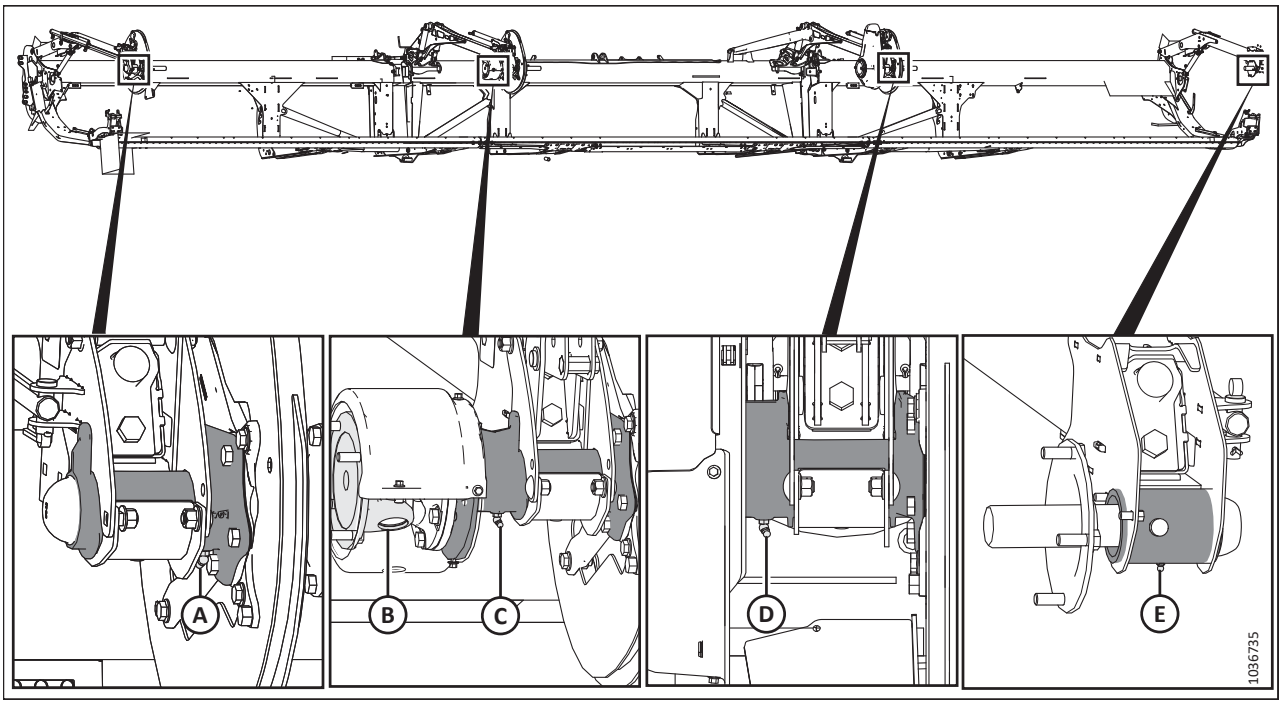


Figure 7.100: Triple Reel

A - Reel Right Bearing (One Place) **B - Reel Right Center U-joint (One Place)** **C - Reel Right Center Bearing (One Place)**
D - Reel Left Center Bearing (One Place) **E - Reel Left Bearing (One Place)**

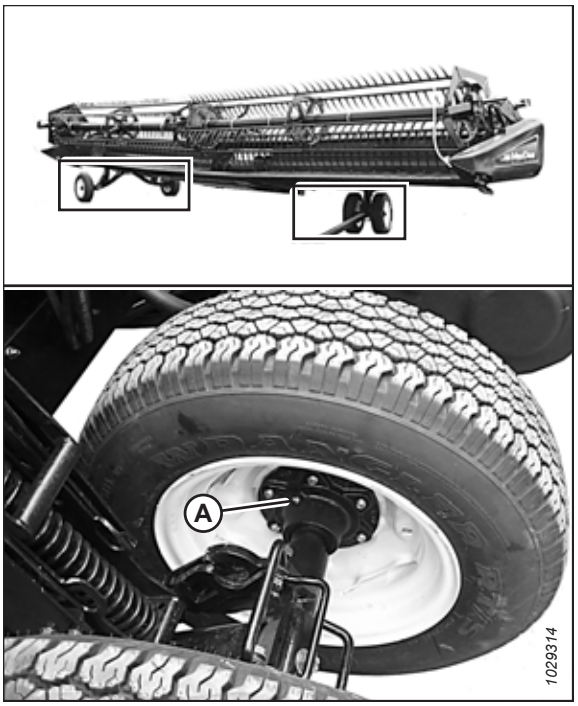


Figure 7.101: Transport Wheel Bearings

A - Wheel Bearings (Four Places)

7.19 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.).

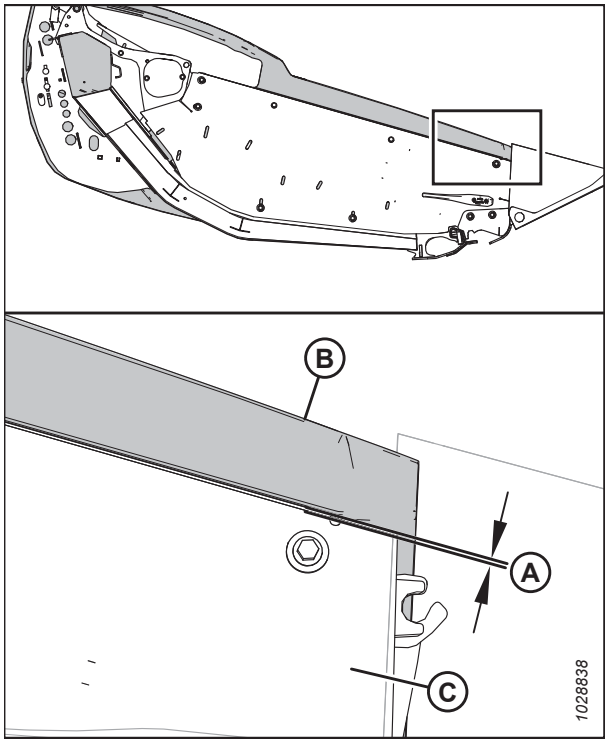


Figure 7.102: Gap between Header Endshield and Endsheet

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 the correct clearance.
   c. Retighten the hardware.

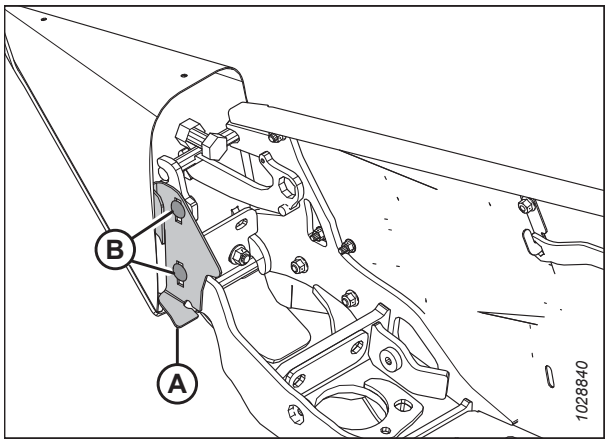


Figure 7.103: Header Endshield Support Bracket

3. Check if gap (A) between the front of the header endshield and support bracket (B) is 6–10 mm (1/4–3/8 in.).

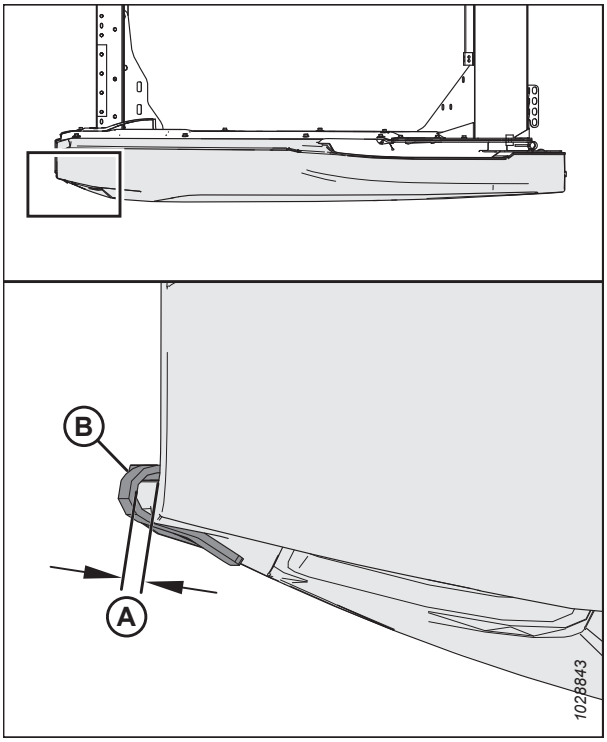


Figure 7.104: Gap between Header Endshield and Support Bracket

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 the correct clearance.
   c. Retighten the hardware.

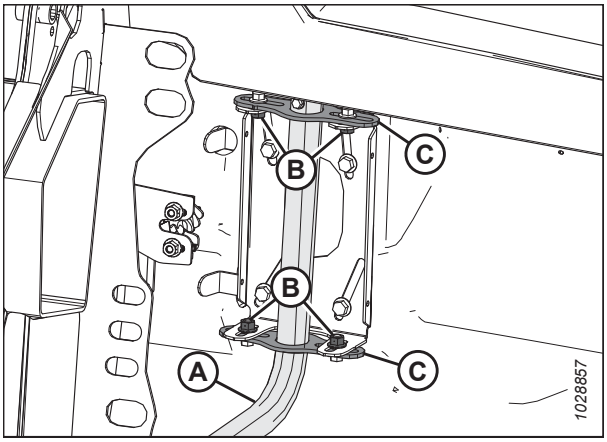


Figure 7.105: Left Header Endshield

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.

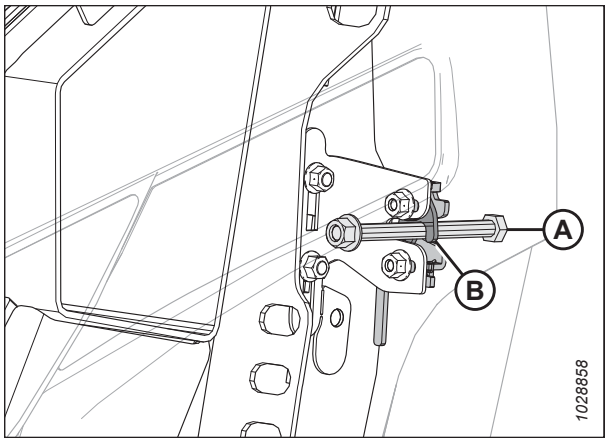


Figure 7.106: Two-Stage Latch

7.20 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.

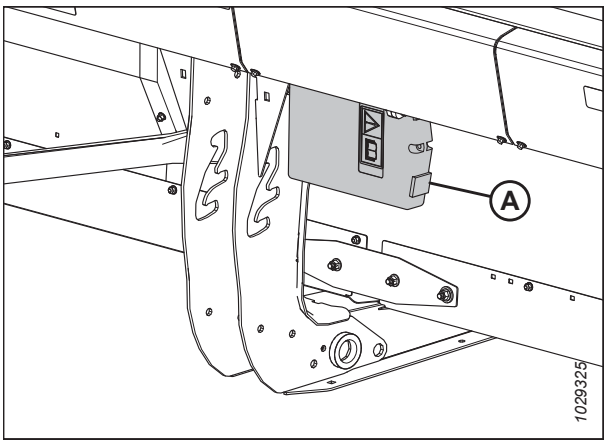


Figure 7.107: Manual Case

Chapter 8: Setting up Auto Header Height Control

Follow the steps below to set up the auto header height control feature.

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 hall-effect 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.

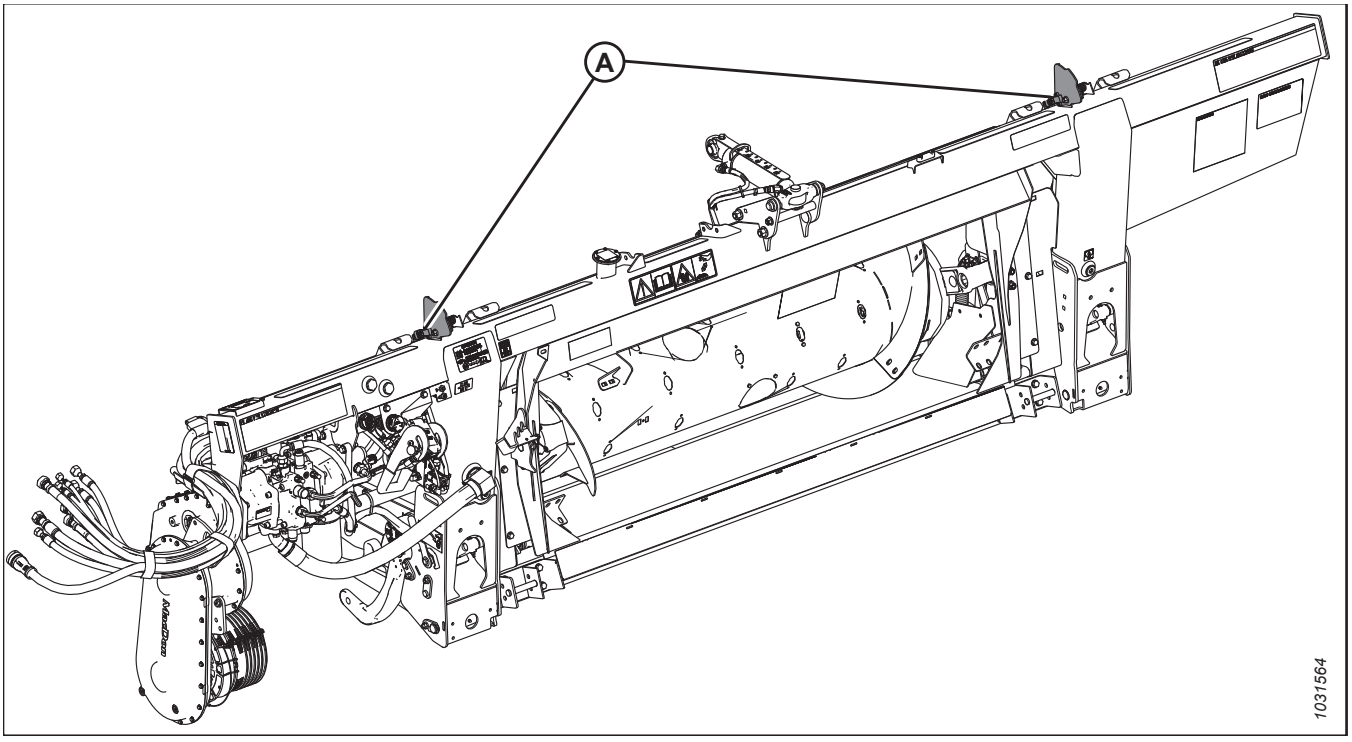


Figure 8.1: FM200 Float Module

To configure the AHHC system for your specific combine model, refer to the relevant procedure:

- *8.1.6 Case IH 130 and 140 Series Mid-Range Combines, page 249*
- *8.1.7 Case IH 120, 230, 240, and 250 Series Combines, page 258*
- *8.1.8 Challenger® and Massey Ferguson® 6 and 7 Series Combines, page 273*
- *8.1.9 CLAAS 500 Series Combines, page 281*
- *8.1.10 CLAAS 600 and 700 Series Combines, page 290*
- *8.1.11 CLAAS 7000 and 8000 Series Combines, page 301*
- *8.1.12 Gleaner R65/R66/R75/R76 and S Series Combines, page 311*
- *8.1.13 Gleaner S9 Series Combines, page 321*
- *8.1.14 IDEAL™ Series Combines, page 336*
- *8.1.15 John Deere 70 Series Combines, page 349*
- *8.1.16 John Deere S and T Series Combines, page 356*

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.

Sensors

Two hall-effect sensors are installed on float indicator needles (A). As the header follows ground contours, the sensors communicate with the combine causing it to raise and lower the feeder house to maintain a consistent cutting height and optimum float.

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 an increase in header height. Any sensor error results in a 0 V signal, which indicates either a faulty sensor or lack of supply voltage.

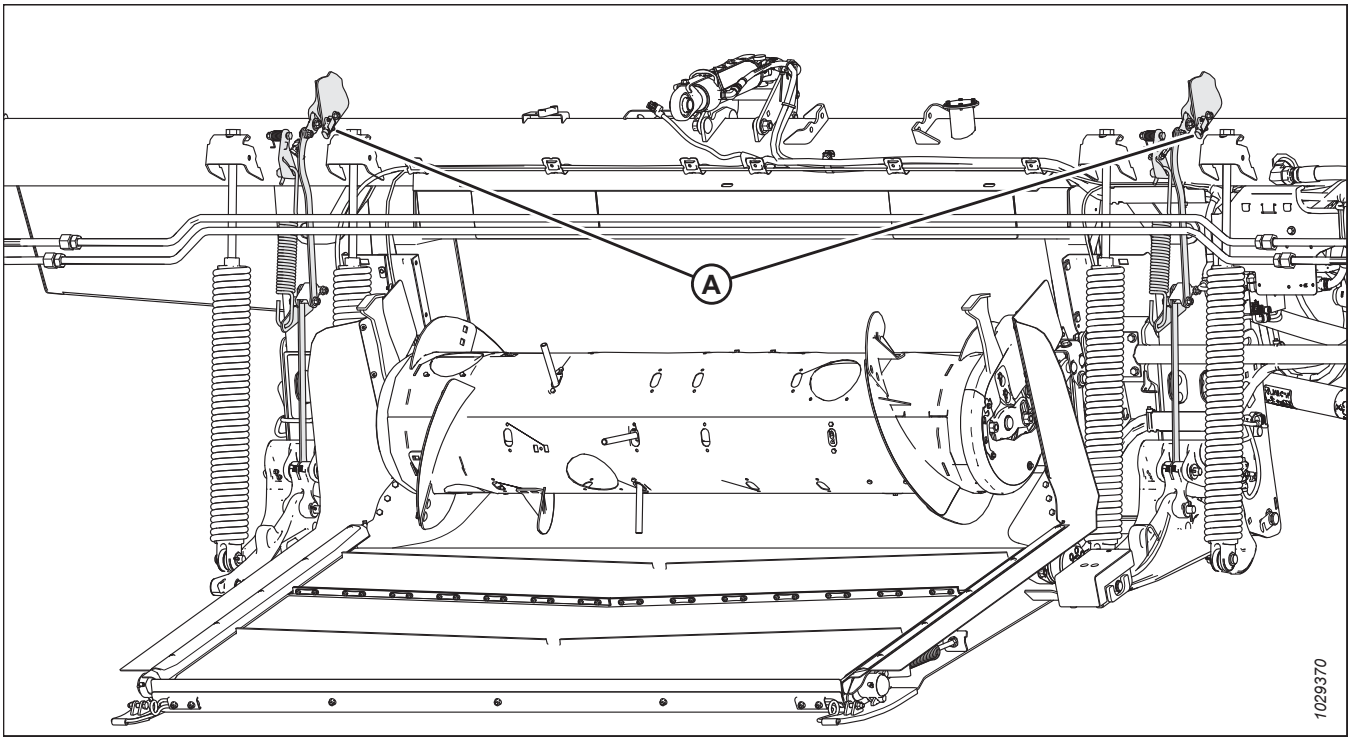


Figure 8.2: FM200 Float Module

Before using the AHHC feature, you must do the following:

1. Prepare the combine to use the AHHC feature (applies only to some combine models—refer to the following instructions for your combine).
2. Calibrate the AHHC system so that the combine can correctly interpret data from the hall-effect sensors 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 operators manual).

Sensor voltage must be between 0.5–4.5 V. If the voltage is too close to either end of the voltage range, there will be difficulty with calibration and operation of the AHHC. A properly set sensor will have room on both ends of the voltage range.

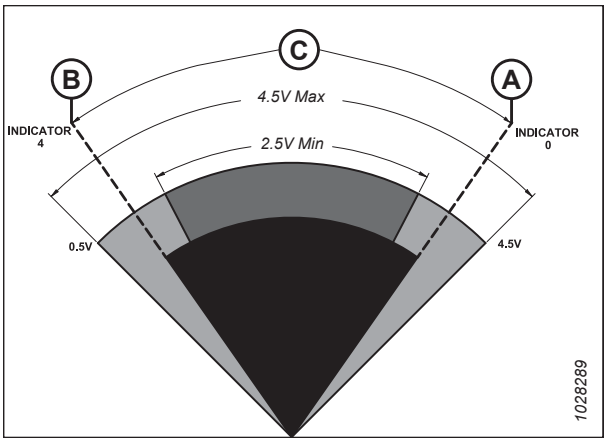


Figure 8.3: AHHC – Properly Set

A - High Voltage **B - Low Voltage**

C - Sensor Operating Range

A sensor that is adjusted too close to the high voltage or low voltage limit will have difficulty staying within the sensor's operating range of 0.5–4.5 V. If the sensor moves out of range, the AHHC will stop functioning correctly.

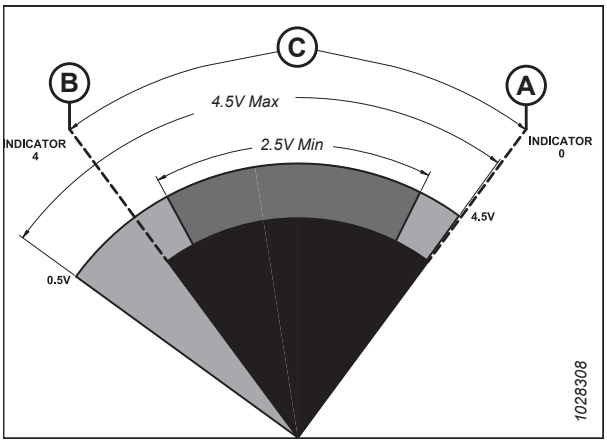


Figure 8.4: AHHC – Sensor Range too Close to the High Voltage Limit

A - High Voltage **B - Low Voltage**

C - Sensor Operating Range

A sensor with a voltage range that is too narrow will have difficulty staying within the set range. The combine will continually seek to keep the sensor within the set range.

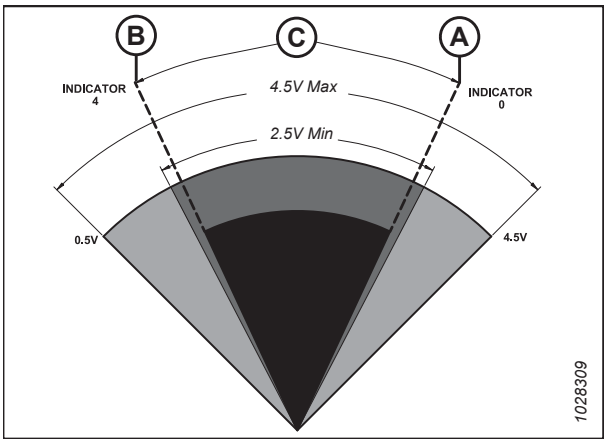


Figure 8.5: AHHC – Sensor Range too Narrow

A - High Voltage **B - Low Voltage**

C - Sensor Operating Range

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	Lower Voltage Limit	Upper 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

8.1.3 Manually Checking Voltage Limits

In order for the auto header height to function properly the voltage needs to be set properly.

DANGER

To prevent injury or death from the 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**.

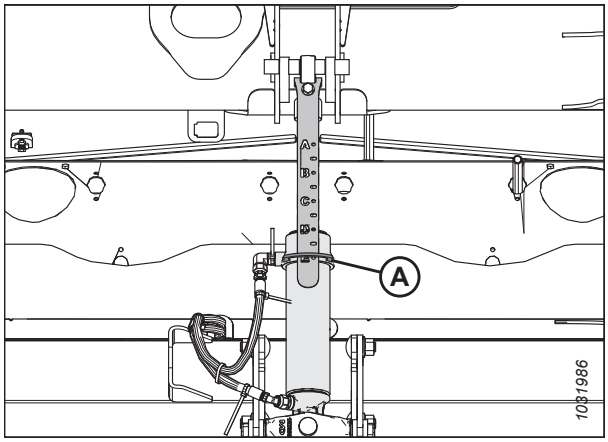


Figure 8.6: Center-Link

5. Float indicator pointer (A) should be at 0 (B).

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

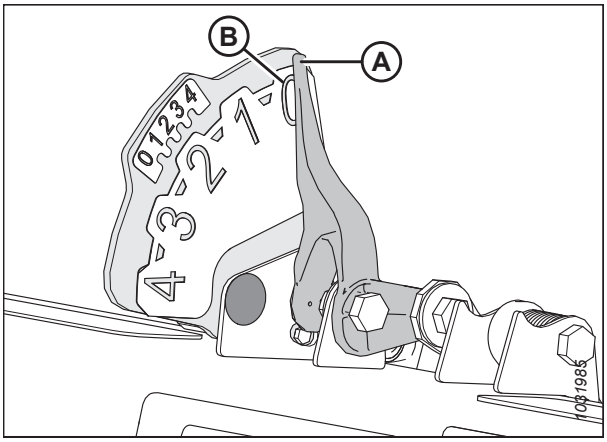


Figure 8.7: Left Float Indicator – View from Rear

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.

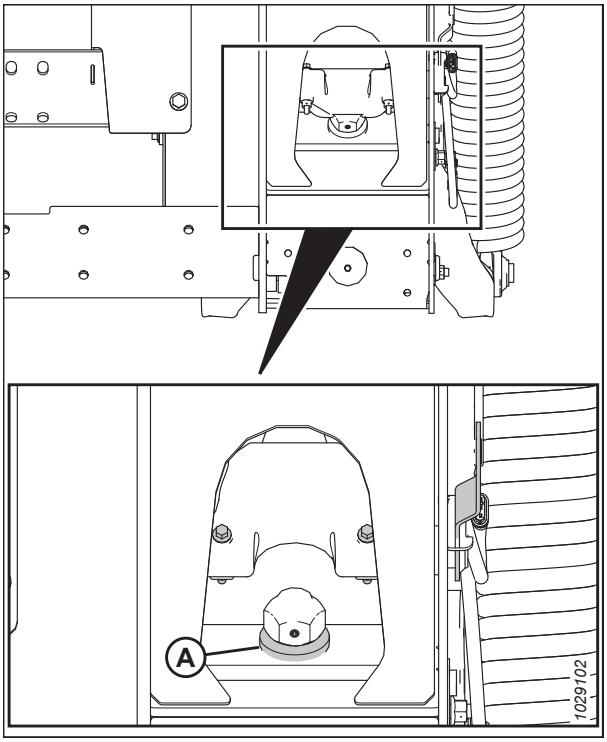


Figure 8.8: Down Stop Washer

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 – power
    - 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

    NOTE:

    If the standard plug is installed in P600, the plug sends the average of both sensors to the combine. If the optional lateral tilt plug is installed, then the plug sends separate voltage signals from both sensors to the combine.

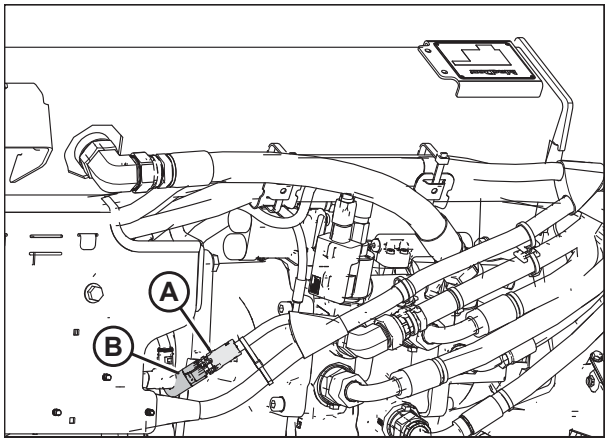


Figure 8.9: Left Float Indicator – View from Rear

Checking sensor low voltage limit

13. Extend the guard angle until header angle indicator (A) is at **E**.

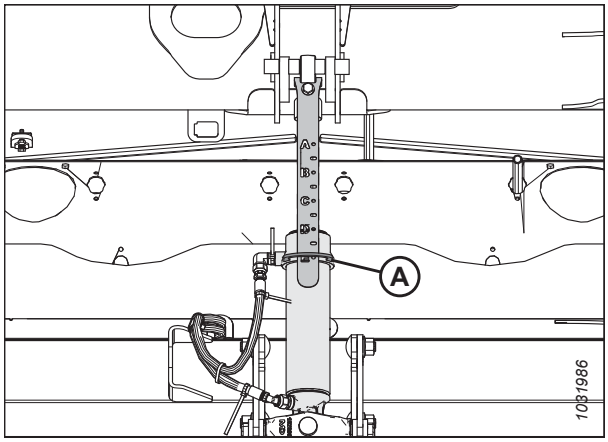


Figure 8.10: Center-Link

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 the standard plug is installed in P600, the plug sends the average of both sensors to the combine. If the optional lateral tilt plug is installed, then the plug sends separate voltage signals from both sensors to the combine.

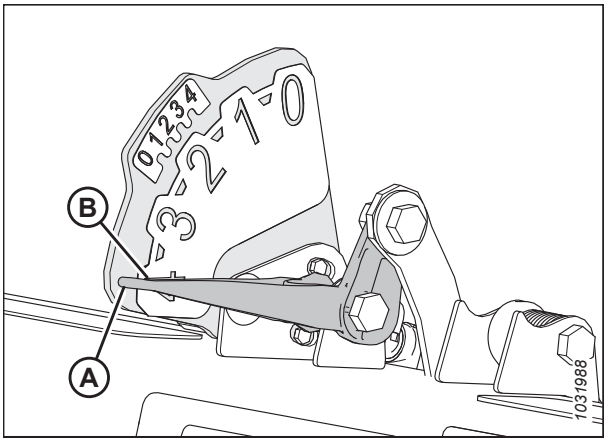


Figure 8.11: Left Float Indicator – View from Rear

8.1.4 Replacing Float Height Sensor

Two magnetic sensors are installed on the float setting indicators. As the header follows ground contours, the sensors communicate with the combine causing it to raise and lower the feeder house to maintain a consistent cutting height and optimum float.

DANGER

To prevent injury or death from the 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.
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) complete with the sensor.

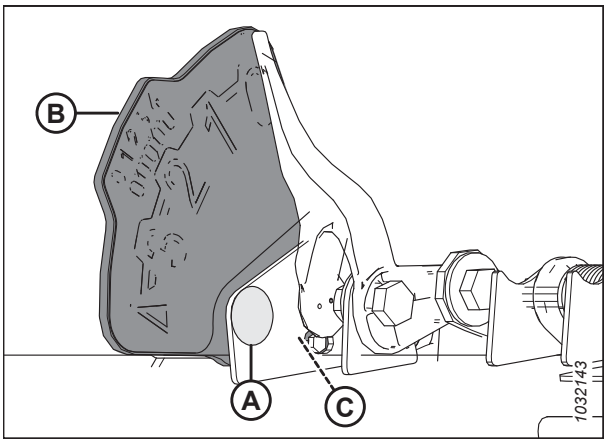


Figure 8.12: Float Setting Indicator – Left

8. Remove two bolts and nuts (A).
9. Remove and discard old sensor (B).
10. Install new sensor (B), with the plug facing down.
11. Install two bolts and nuts (A).

    NOTE:
    Bolt heads should be on the same side as the decal.

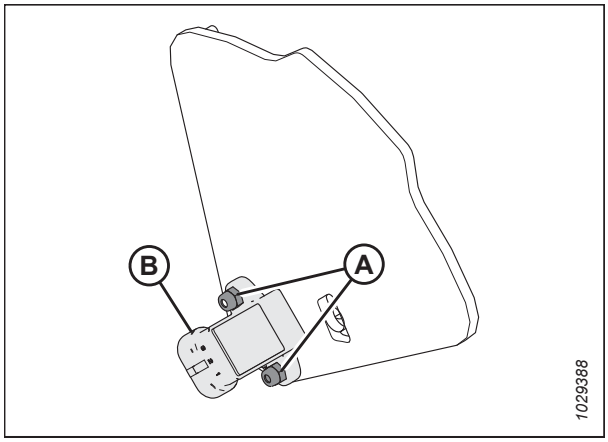


Figure 8.13: Float Height Sensor

12. Install indicator plate (B) complete with the sensor.
13. Install bolt (A).
14. Connect harness plug (C).

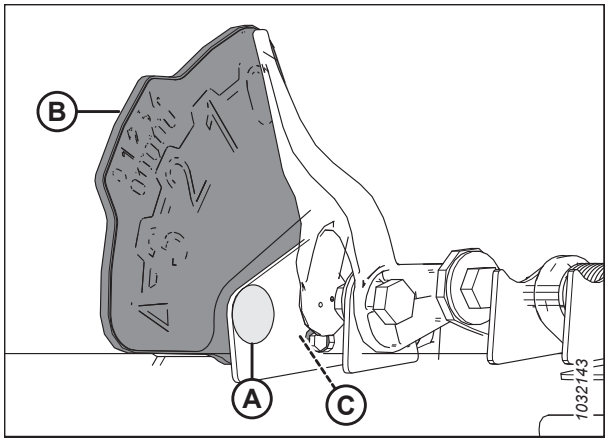


Figure 8.14: Float Setting Indicator – Left

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 (MD #B7241) for calibration of the auto header height control (AHHC) feature.

If a 10 V New Holland combine does not have adapter (A) installed, the AHHC output will always read 0 V regardless of the sensor position.

To check sensor voltages, refer to *8.1.3 Manually Checking Voltage Limits, page 244*.

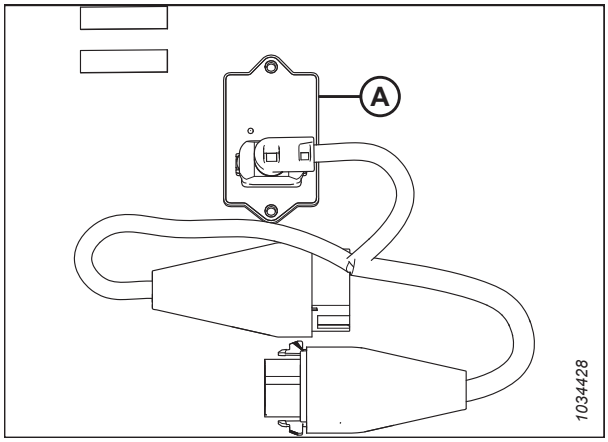


Figure 8.15: 10 V Adapter (MD #B7241)

8.1.6 Case IH 130 and 140 Series Mid-Range Combines

To make your header's auto header height control (AHHC) system compatible with Case IH 130 and 140 Series mid-range combines, you must set your combine's header configuration options for the particular model of header, configure the reel speed settings, set up the AHHC controls, and calibrate the AHHC system to ensure that it is working correctly.

Checking Voltage Range from Combine Cab – Case IH 5130/6130/7130; 5140/6140/7140

The auto header height control sensor needs to operate in a specific voltage range in order to work properly.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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.
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.

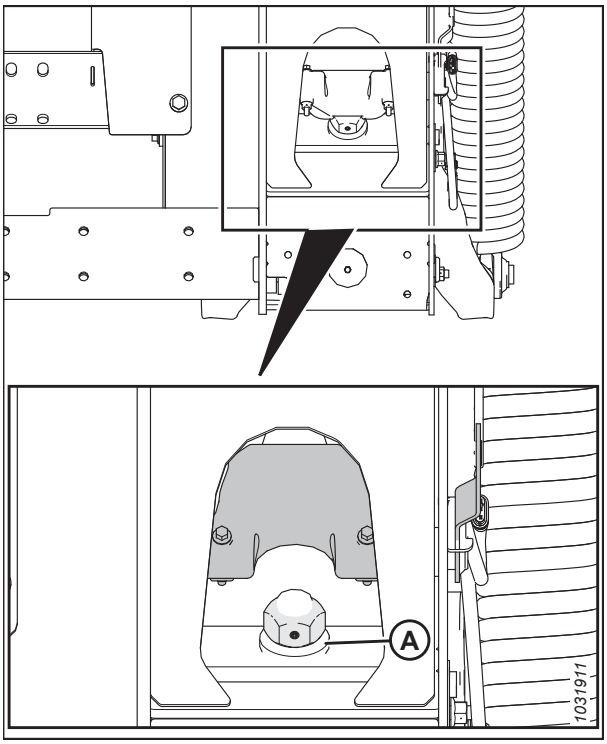


Figure 8.16: Float Lock

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).

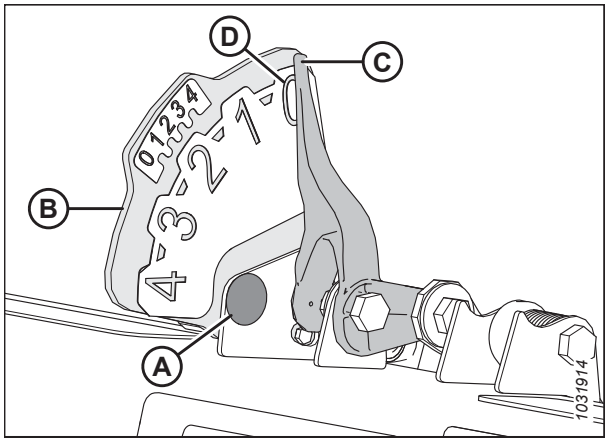


Figure 8.17: Float Indicator

5. Ensure the header float is unlocked.
6. On the main page of the combine display, select DIAGNOSTICS (A). The DIAGNOSTICS page appears.

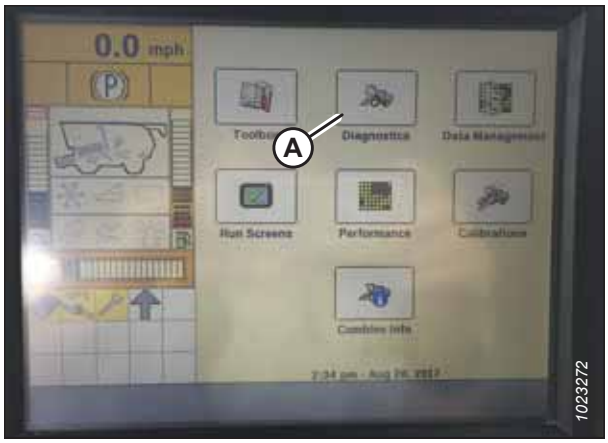


Figure 8.18: Case IH Combine Display

7. Select SETTINGS (A). The SETTINGS page appears.
8. From the GROUP menu, select HEADER (B).

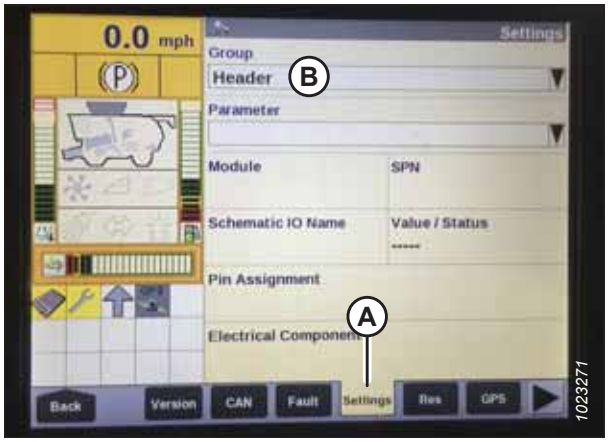


Figure 8.19: Case IH Combine Display

9. From the PARAMETER menu, select LEFT HEIGHT/TILT SENSOR (A).

Figure 8.20: Case IH Combine Display

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 8.21: Case IH Combine Display

Header Settings Quick Reference – Case IH 130 and 140 Series

Use the information in the following table to quickly reference the recommended settings for a 2 Series draper header.

For detailed instructions, proceed to the Case IH 130 and 140 Series combine header setup and calibration procedures.

Table 8.2 Header Settings – Case IH 130 and 140 Series

Setup Parameter	Suggested Setting	
Cutting Type	Platform	
Header Pressure Float	Not installed	
HHC Height Sensitivity[13]	Two sensor system	250
	One sensor system	180
HHC Tilt Sensitivity	150	
Reel Drive Type	Standard 19-tooth drive sprocket	4
	Optional high-torque 14-tooth drive sprocket	5
	Optional high-torque 10-tooth drive sprocket	6
Reel Height Sensor	Yes	

13. If hunting occurs during operation, decrease the HUNTING setting by 20 points at a time until hunting no longer occurs.

Table 8.2 Header Settings – Case IH 130 and 140 Series (continued)

Setup Parameter	Suggested Setting	
Autotilt	Two sensor system	YES
	One sensor system	NO

Setting up Header on Combine Display – Case IH 5130/6130/7130; 5140/6140/7140

To set up the header to work with a Case IH 5130/6130/7130 or 5140/6140/7140 combine, you will need to access the HEADER SETUP page on the combine display.

1. On the main page of the combine display, select TOOLBOX (A).

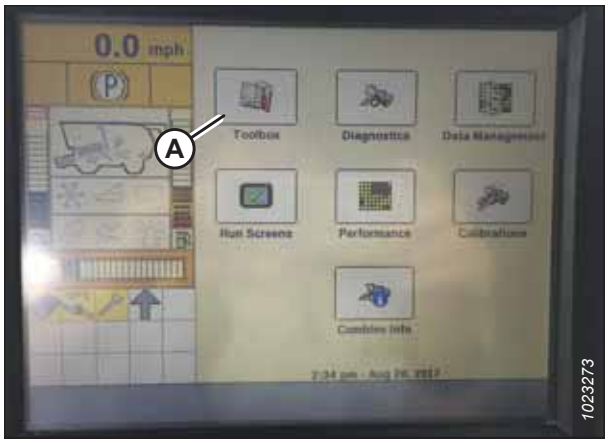


Figure 8.22: Case IH Combine Display

2. Select HEAD 1 tab (A). The HEADER SETUP page appears.

   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.

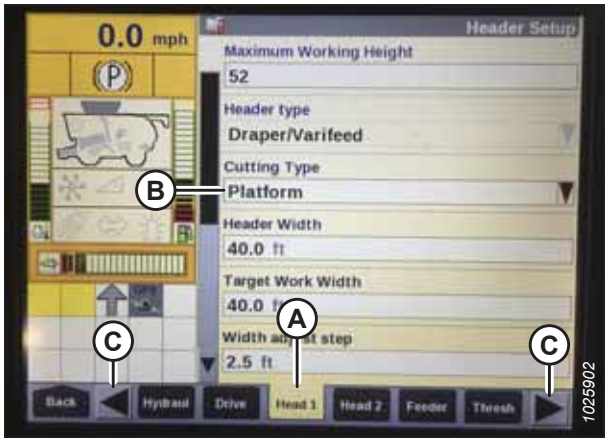


Figure 8.23: Case IH Combine Display

4. Select HEAD 2 tab (A). The HEADER SETUP 2 page appears.
5. From HEADER PRESSURE FLOAT menu (B), select NOT INSTALLED.
6. From DRAPER GRAIN HEADER STYLE menu (C), select FLEX 2000 SERIES.

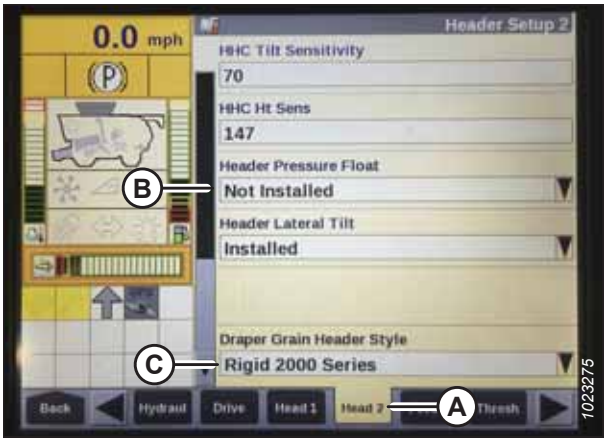


Figure 8.24: Case IH Combine Display

7. Locate HHC HEIGHT SENSITIVITY field (A). Enter the following settings:
   - **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 the HUNTING 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 8.25: 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.

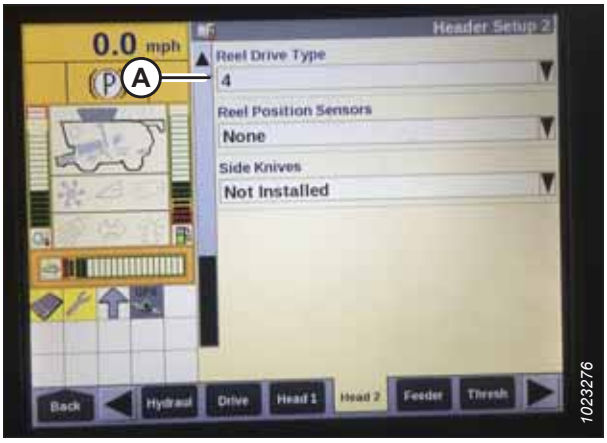


Figure 8.26: Case IH Combine Display

10. From REEL HEIGHT SENSOR menu (A), select YES.

Figure 8.27: 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.

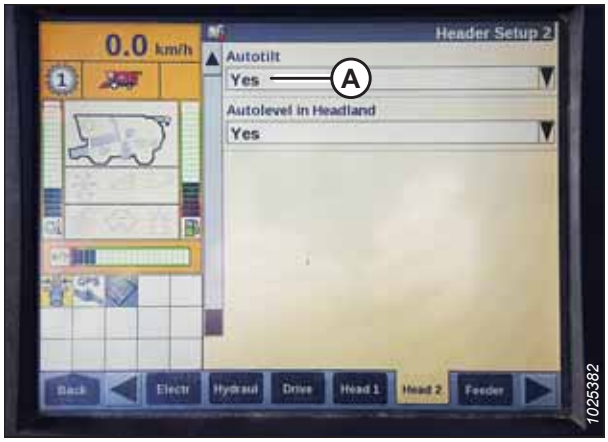


Figure 8.28: Case IH Combine Display

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:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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 Auto Header Height Control – Case IH Combines with Version 28.00 or Higher Software, page 266*.

1. To view the software version, select the DIAGNOSTICS button from the Home Screen, then select VERSION tab (A).

Figure 8.29: Case IH Combine Display

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 the best performance of the auto header height control (AHHC) system, perform the ground calibration with the center-link set to **D**. When calibration is complete, adjust the center-link back to the desired header angle. For instructions, refer to the header operator's manual.

2. Ensure that the center-link is set to **D**.
3. Confirm that all electrical and hydraulic connections between the header and float module are functional.
4. Start the combine engine, but do **NOT** engage the separator or the feeder house.
5. Locate the HEADER CONTROL switch on the right console, and set to HT (this is AHHC mode).
6. 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).
7. 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.

   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

Once the cab combine display has been configured, the preset cutting heights can be used.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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.

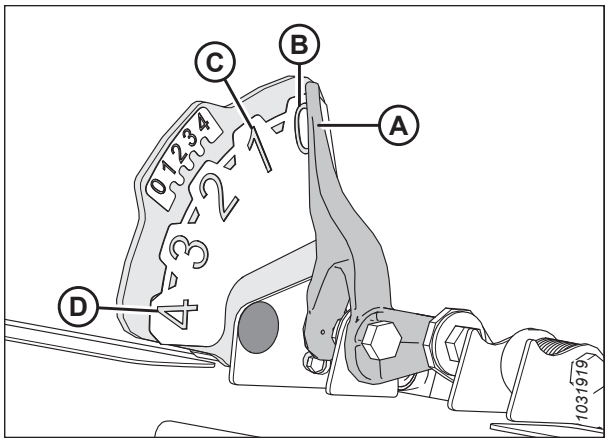


Figure 8.30: Float Indicator

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.
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 8.31: Case Combine Console

Figure 8.32: 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 8.33: 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 8.34: Case Combine Control Handle

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 8.35: 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 8.36: Case Combine Console

8.1.7 Case IH 120, 230, 240, and 250 Series Combines

To make your header's auto header height control (AHHC) system compatible with Case IH 120, 230, 240, and 250 series combines, you must set your combine's header configuration options for the particular model of header, configure the reel speed settings, set up the AHHC controls, and calibrate the AHHC system to ensure that it is working correctly.

Checking Voltage Range from Combine Cab – Case IH, 120, 230, 240, and 250 Series Combines

In order for the auto header height control (AHHC) system to work correctly, the header height sensors must be sending the correct voltage readings. The sensor outputs can be viewed using the combine display.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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.

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.

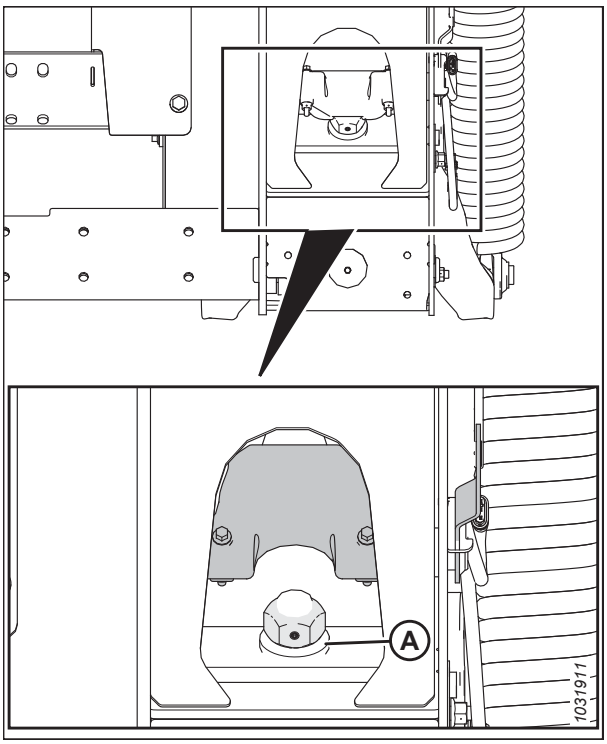


Figure 8.37: Float Lock

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).

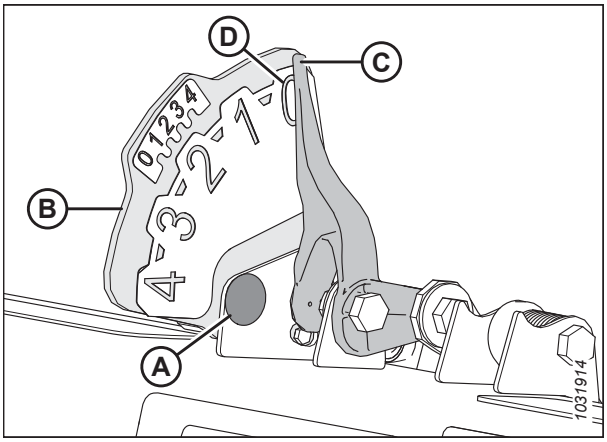


Figure 8.38: Float Indicator

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.

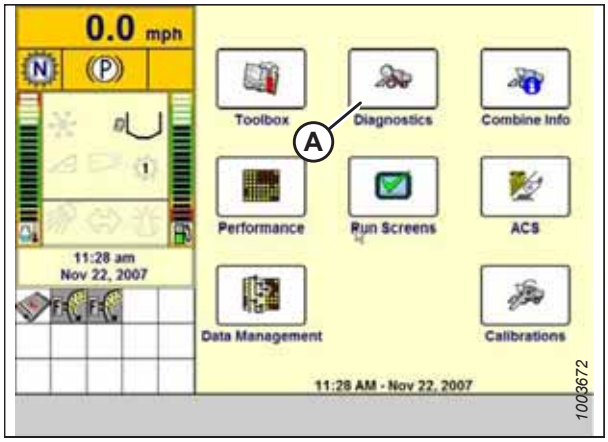


Figure 8.39: Case IH Combine Display

8. Select GROUP drop-down menu (A). The GROUP dialog box opens.

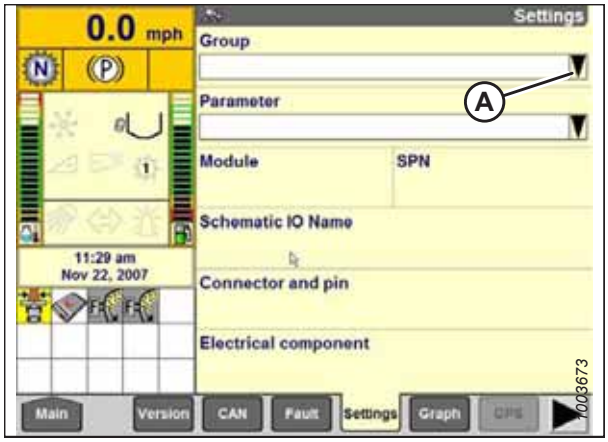


Figure 8.40: Case IH Combine Display

9. Select HEADER HEIGHT/TILT (A). The PARAMETER page opens.

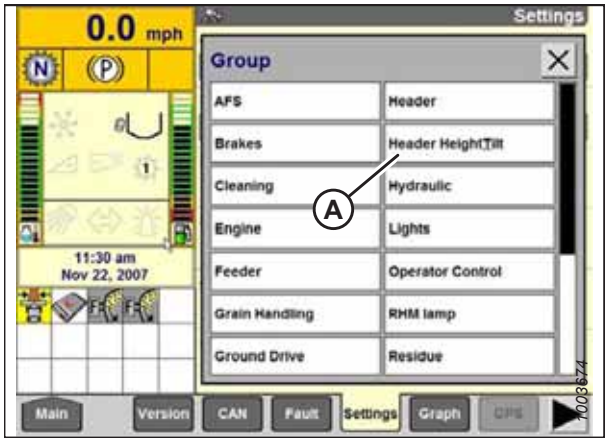


Figure 8.41: Case IH Combine Display

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.

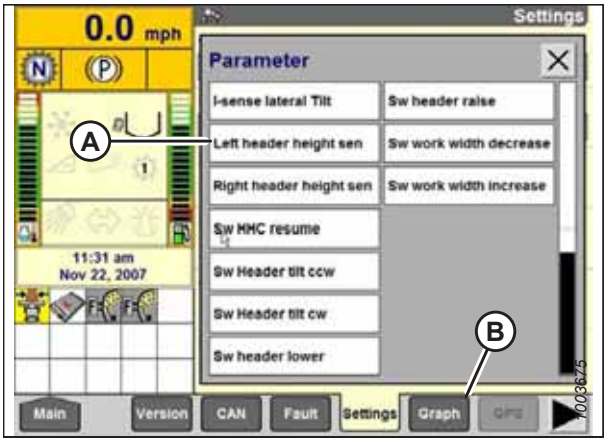


Figure 8.42: Case IH Combine Display

Header Settings Quick Reference – Case IH 120, 230, 240, and 250 Series

Use the information in the following table to quickly reference the recommended settings for a 2 Series draper header.

NOTE:

The setting options vary based on the combine software version. For version 28.00 or higher, refer to Table*8.3, page 261*; for lower versions, refer to Table*8.4, page 262*.

For detailed instructions, proceed to the Case IH 120, 230, 240, and 250 Series combine header setup and calibration procedures.

Table 8.3 Header Settings – Case IH 120, 230, 240, and 250 Series (Software Version 28.00 or Higher)

Setup Parameter	Suggested Setting	
Header Sub Type	2000	
Frame Type	Flex	
Header Sensors	Enable	
Header Pressure Float	No	
Height/Tilt Response	Fast	
Auto Height Override	Yes	
HHC Height Sensitivity[14]	Two sensor system	250
	One sensor system	180
HHC Tilt Sensitivity	150	
Reel Height Sensor	Yes	
Autotilt	Two sensor system	YES
	One sensor system	NO

14. If hunting occurs during operation, decrease the HUNTING setting by 20 points at a time until hunting no longer occurs.

Table 8.4 Header Settings – Case IH 120, 230, 240, and 250 Series (Below Software Version 28.00)

Setup Parameter	Suggested Setting	
Header Style	Flexhead	
Auto Reel Speed Slope	133	
Header Pressure Float	No	
Reel Drive	Hydraulic	
Reel Fore-Back	Yes	
HHC Height Sensitivity[15]	Two sensor system	250
	One sensor system	180
HHC Tilt Sensitivity	150	
Fore/Aft Control	Yes	
Hdr Fore/Aft Tilt	Yes	
Header Type (Head2 Tab)	Draper	
Cutting Type	Platform	
Header Width	Set according to header specification	
Header Usage	Set according to header specification	
Reel Height Sensor	Yes	
Autotilt	Two sensor system	YES
	One sensor system	NO

Calibrating 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 bystanders. Keep children away from the machinery. Walk around the machine to be sure that 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 Auto Header Height Control – Case IH Combines with Version 28.00 or Higher Software, page 266*.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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.

15. If hunting occurs during operation, decrease the HUNTING setting by 20 points at a time until hunting no longer occurs.

1. Ensure the center-link is set to **D**.
2. Confirm that all electrical and hydraulic connections between the header and float module are functional.
3. Select TOOLBOX (A) on the MAIN page.

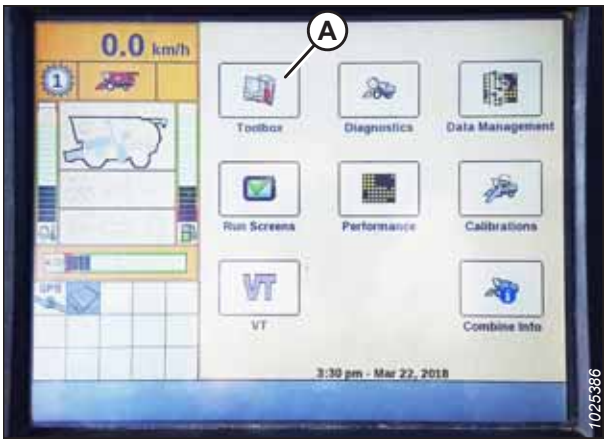


Figure 8.43: Case IH Combine Display

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 HEADER STYLE (B).

Figure 8.44: 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 faster than the ground speed. The reel's speed should be faster than the combine's ground speed; however, adjust the value according to crop conditions.

7. Set HEADER PRESSURE FLOAT to NO if equipped, and ensure REEL DRIVE is set to HYDRAULIC.

Figure 8.45: Case IH Combine Display

8. Set REEL FORE-BACK to YES (if applicable).

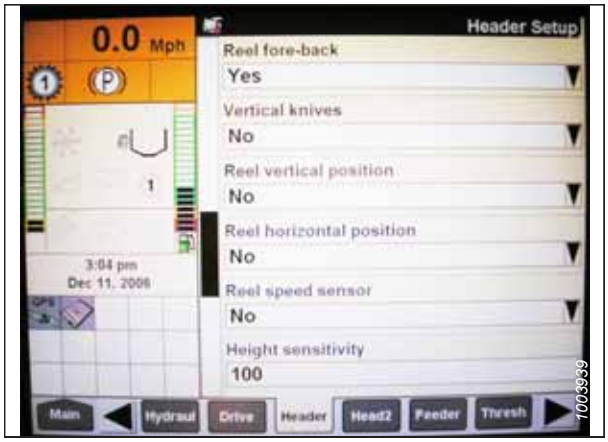


Figure 8.46: Case IH Combine Display

9. Locate HHC HEIGHT SENSITIVITY field (A), and set it 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.

10. Set HHC TILT SENSITIVITY (B) to 150. Increase or decrease sensitivity as desired.

Figure 8.47: Case IH Combine Display

11. Set FORE/AFT CONTROL and HDR FORE/AFT TILT to YES (if applicable).

Figure 8.48: Case IH Combine Display

12. Press HEAD2 (A) at the bottom of the page.
13. Ensure HEADER TYPE (B) is set to 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 HEADER WIDTH (D) and HEADER USAGE (E) to the appropriate values.

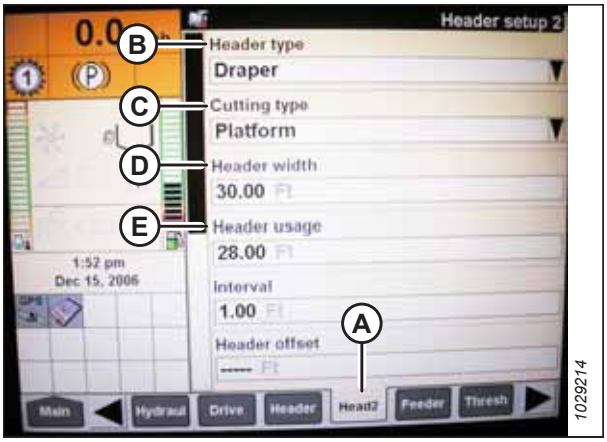


Figure 8.49: Case IH Combine Display

16. From the REEL HEIGHT SENSOR menu, select YES (A).

Figure 8.50: Case IH Combine Display

17. Locate AUTOTILT field (A) and set it as follows:

    - **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 changed to a heavier setting to complete the AHHC calibration procedure, adjust it to the recommended operating float after the calibration is complete.

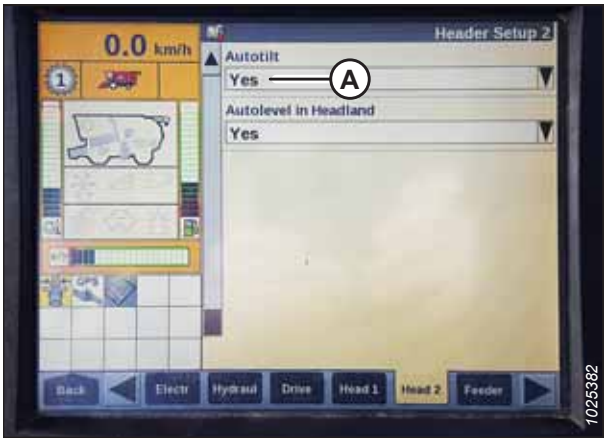


Figure 8.51: Case IH Combine Display

Calibrating Auto Header Height Control – Case IH Combines with Version 28.00 or Higher Software

Calibrate the auto header height control (AHHC) sensor output for each combine, or the AHHC feature will not work properly.

DANGER

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

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

1. To view the software version, select the DIAGNOSTICS button from the Home Screen, then select VERSION tab (A).

Figure 8.52: Case IH Combine Display

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 operator's manual.

2. Set the header center-link to **D**.
3. Raise the header onto the down stops and unlock the float.
4. Place the wings in the locked position.

Adjusting settings in the combine display

5. Select TOOLBOX (A) on the MAIN page.

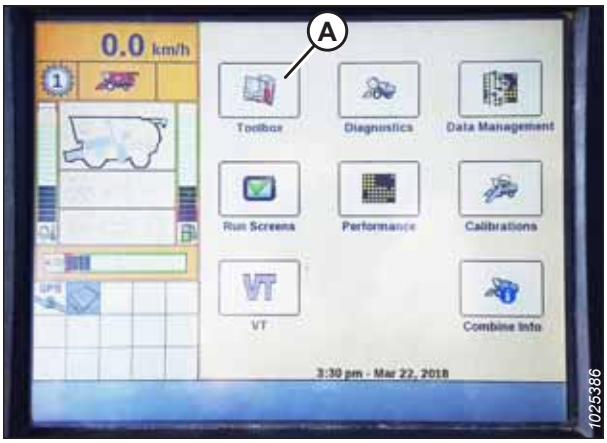


Figure 8.53: Case IH Combine Display

6. Select HEAD 1 tab (A).

   NOTE:

   To locate the HEAD 1 tab, you may need to scroll to the right using side arrows (B).

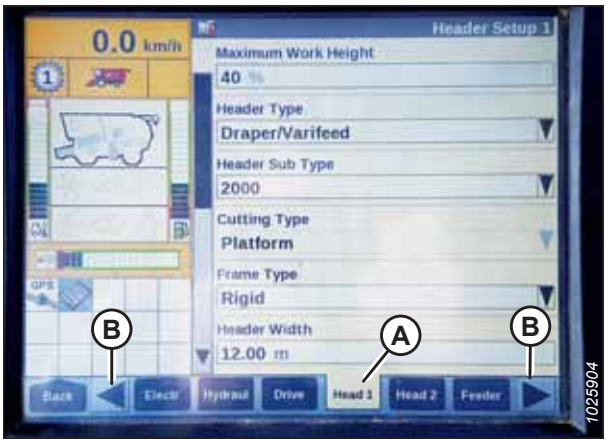


Figure 8.54: Case IH Combine Display

7. Locate the HEADER SUB TYPE field.
8. Select 2000 (A).

Figure 8.55: Case IH Combine Display

9. Return to the Head 1 page and choose FLEX from FRAME TYPE drop-down menu (A).

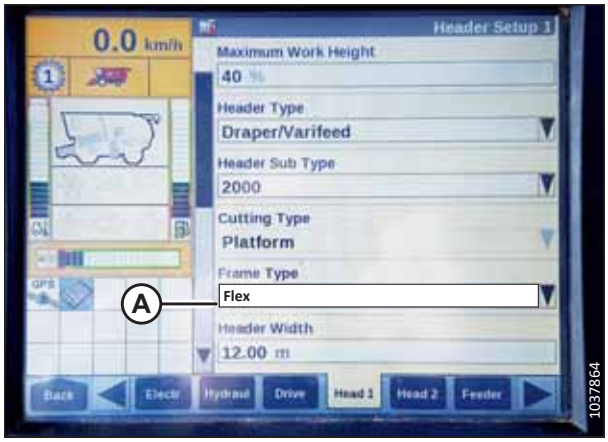


Figure 8.56: Case IH Combine Display

10. Select HEAD 2 tab (A).
11. In HEADER SENSORS field (B), select ENABLE.
12. In HEADER PRESSURE FLOAT field (C), select NO.
13. In HEIGHT/TILT RESPONSE field (D), select FAST.
14. In AUTO HEIGHT OVERRIDE field (E), select YES.
15. Press down arrow (F) to go to the next page.

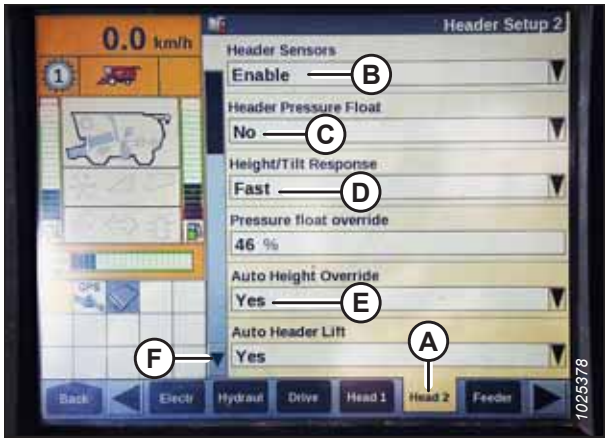


Figure 8.57: Case IH Combine Display

16. Locate HHC HEIGHT SENSITIVITY field (A), and set it 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.
17. Set HHC TILT SENSITIVITY (B) to 150. Increase or decrease the sensitivity as desired.

Figure 8.58: Case IH Combine Display

18. From the REEL HEIGHT SENSOR menu, select YES (A).

Figure 8.59: Case IH Combine Display

19. Scroll to the AUTOTILT field (A), and set it as follows:

    - **If using a two-sensor system:** Select YES in the AUTOTILT field.
    - **If using a single-sensor system:** Select NO in the AUTOTILT field.

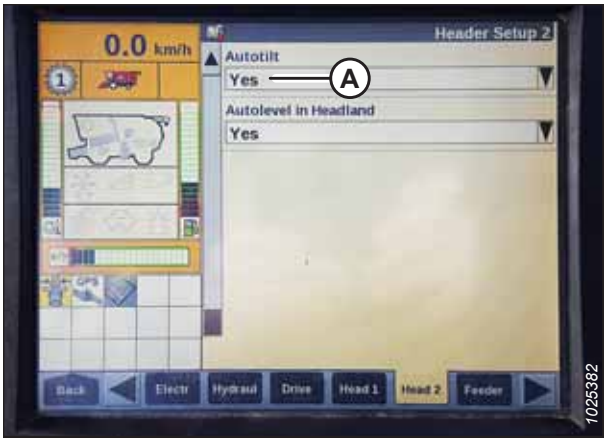


Figure 8.60: Case IH Combine Display

Calibrating Auto Header Height Control

20. Select CALIBRATION on the combine display and press the right arrow navigation key to enter the information box.

21. Select HEADER (A), and press ENTER. The CALIBRATION dialog box opens.

    NOTE:

    Use the UP and DOWN navigation keys to move between options.

Figure 8.61: Case IH Combine Display

22. 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 over 3 minutes will stop the calibration procedure.

    NOTE:

    Refer to your combine operator's manual for an explanation of any error codes.

Figure 8.62: Case IH Combine Display

23. When all steps have been completed, CALIBRATION SUCCESSFUL message displays 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.

24. Ensure AUTO HEIGHT icon (A) appears on the monitor 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:

    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.

    NOTE:

    AUTO HEIGHT field (B) may appear on any of the RUN tabs and not necessarily on the RUN 1 tab.

Figure 8.63: Case IH Combine Display

Checking Reel Height Sensor Voltages – Case IH Combines

The voltage output of the reel height sensors can be inspected using the combine display in the cab.

DANGER

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

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

1. On the main page of the combine display, select DIAGNOSTICS (A). The DIAGNOSTICS page appears.

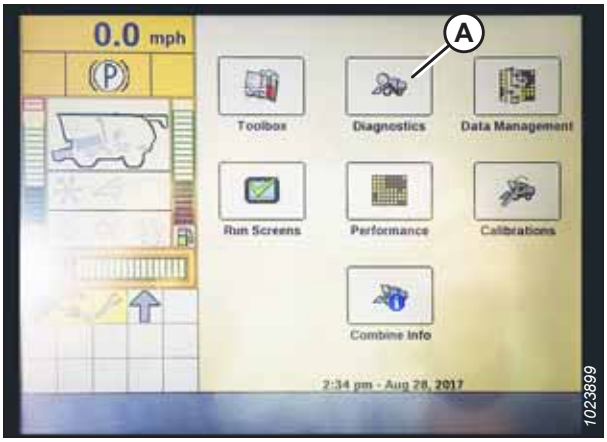


Figure 8.64: Case IH Combine Display

2. Select SETTINGS tab (A). The SETTINGS page appears.
3. From the GROUP menu, select HEADER (B).
4. From the PARAMETER menu, select REEL VERTICAL POSITION (C).

Figure 8.65: Case IH Combine Display

5. Select GRAPH tab (A). The REEL VERTICAL POSITION graph appears.
6. Lower the reel to view upper voltage (B). The voltage should be 4.1–4.5 V.
7. Raise the reel to view lower 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 417*.

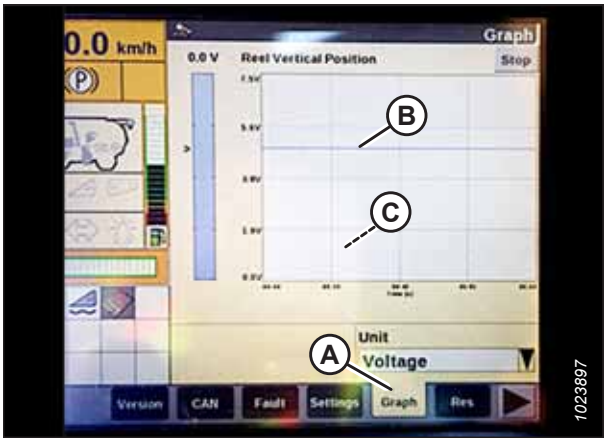


Figure 8.66: Case IH Combine Display

Setting Preset Cutting Height – Case IH, 120, 230, 240, and 250 Series Combines

Once the auto header height control (AHHC) system has been configured to work with the header, the preset cutting height can be set.

DANGER

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

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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.

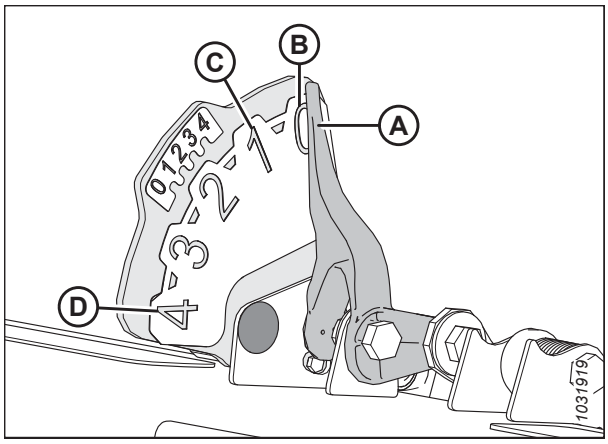


Figure 8.67: Float Indicator

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). The light beside switch (A) will illuminate.

   NOTE:

   Use switch (C) 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 be saved.
4. Manually raise or lower the reel to the desired position.
5. Press SET #1 switch (A). The light beside switch (A) will light up.
6. Manually raise or lower the header to a second desired cutting height.
7. Press SET #2 switch (B). The light beside switch (B) will light up.

Figure 8.68: Case Combine Controls

8. Manually raise or lower the reel to a second desired working position.
9. Press SET #2 switch (B). The light beside switch (B) will light up.
10. To swap between the set points, press HEADER RESUME (A).
11. To raise the header, press and hold SHIFT button (B) at the back of the control handle and press HEADER RESUME switch (A). To lower the header, press HEADER RESUME switch (A) once to return to the header preset height.

    NOTE:

    Pressing HEADER RAISE/LOWER switches (C) and (D) disengages AUTO HEIGHT mode. Press HEADER RESUME (A) to re-engage AUTO HEIGHT mode.

Figure 8.69: Case Combine Controls

8.1.8 Challenger® and Massey Ferguson® 6 and 7 Series Combines

To make your header's auto header height control (AHHC) system compatible with Challenger® and Massey Ferguson® 6 and 7 Series combines, you must set your combine's header configuration options for the particular model of header, configure the reel speed settings, set up the AHHC controls, and calibrate the AHHC system to ensure that it is working correctly.

Checking Voltage Range from Combine Cab – Challenger® and Massey Ferguson®

The auto header height control sensor needs to operate in a specific voltage range in order to work properly.

DANGER

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

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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.

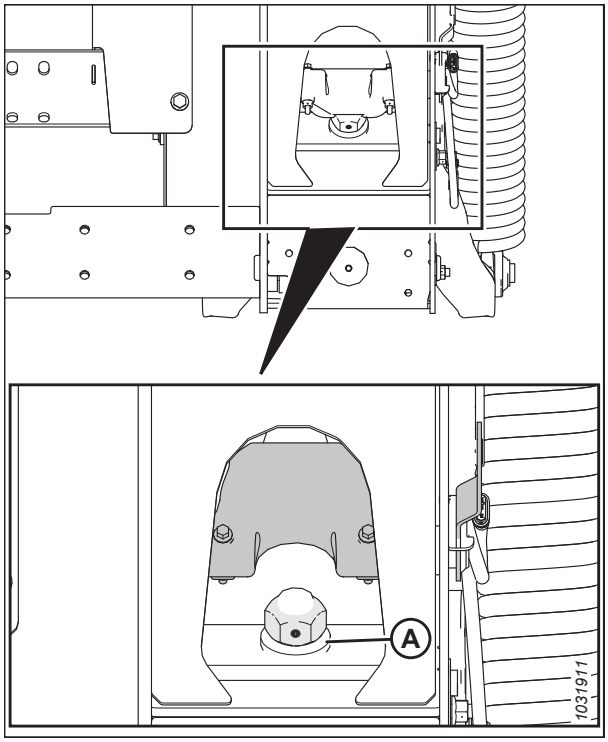


Figure 8.70: Float Lock

3. Loosen bolt (A) and slide float indicator plate (B) until pointer (C) is on 0 (D).
4. Tighten bolt (A).

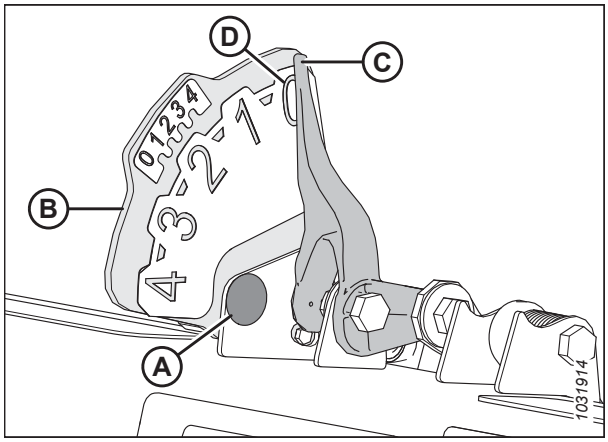


Figure 8.71: Float Indicator

5. Go to the FIELD page on the combine monitor, and then press the diagnostics icon. The MISCELLANEOUS page displays.

6. Press VMM DIAGNOSTIC button (A). The VMM DIAGNOSTIC page displays.

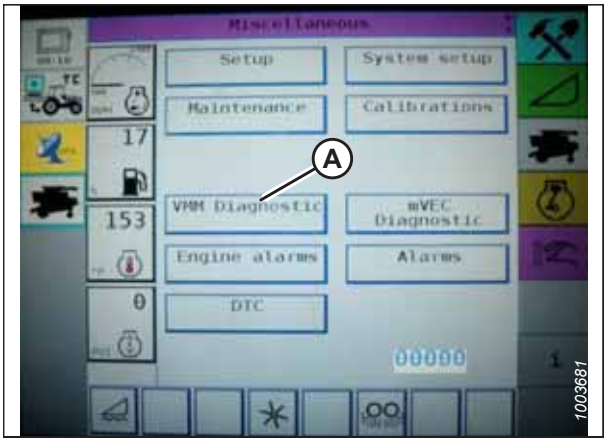


Figure 8.72: Challenger® Combine Display

7. 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.

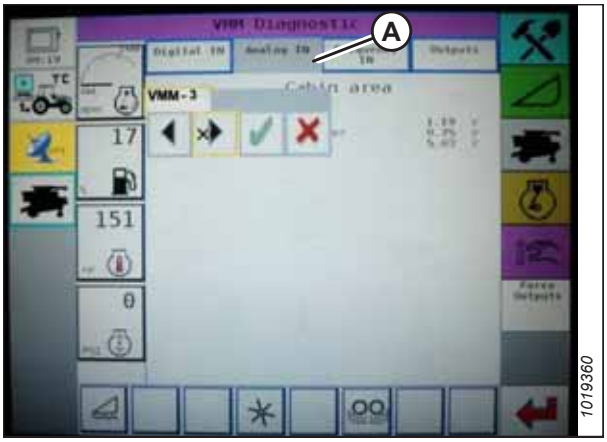


Figure 8.73: Challenger® Combine Display

8. Fully lower the combine feeder house (the 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.

9. Read the voltage.

10. Raise the header 254–356 mm (10–14 in.) above the ground, and unlock the float.

11. Read the voltage.

12. If the sensor voltage is not within the lower and upper limits, or if the range between the lower and upper limits is insufficient, adjust the voltage limits. For instructions, refer to *8.1.3 Manually Checking Voltage Limits, page 244*.

Figure 8.74: Challenger® Combine Display

Engaging Auto Header Height Control – Challenger® and Massey Ferguson®

The auto header height control (AHHC) system must be engaged before its features can be configured.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

The following system components are required in order for the auto header height control (AHHC) to work:

- Main module (PCB board) and header driver module (PCB board) mounted in the card box in the 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

To engage the auto header height control, follow these steps:

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.

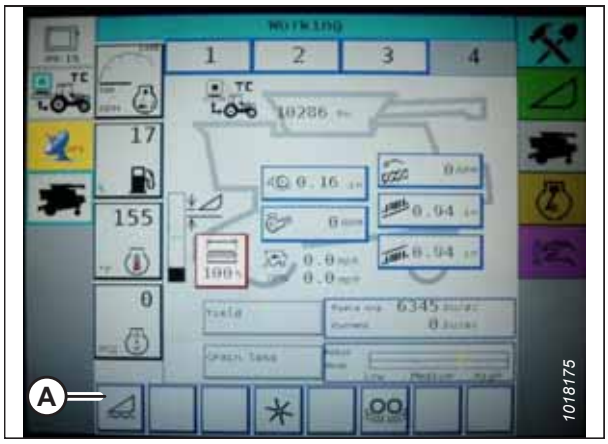


Figure 8.75: Challenger® Combine Display

Calibrating 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 bystanders. Keep children away from the machinery. Walk around the machine to be sure that no one is under, on, or close to it.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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.

1. Ensure the center-link is set to **D**.
2. On the FIELD page, press DIAGNOSTICS icon (A). The MISCELLANEOUS page appears.

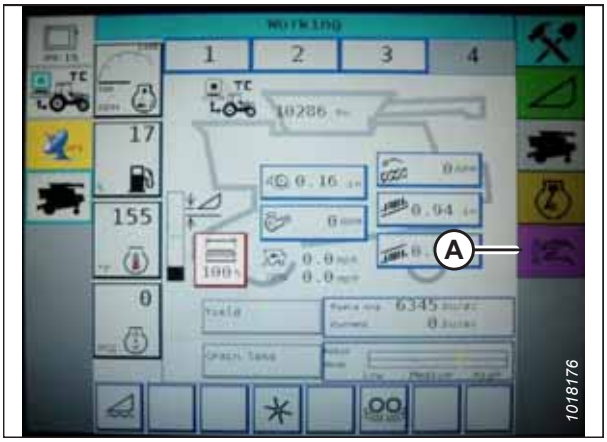


Figure 8.76: Challenger® Combine Display

3. Press CALIBRATIONS button (A). The CALIBRATIONS page appears.

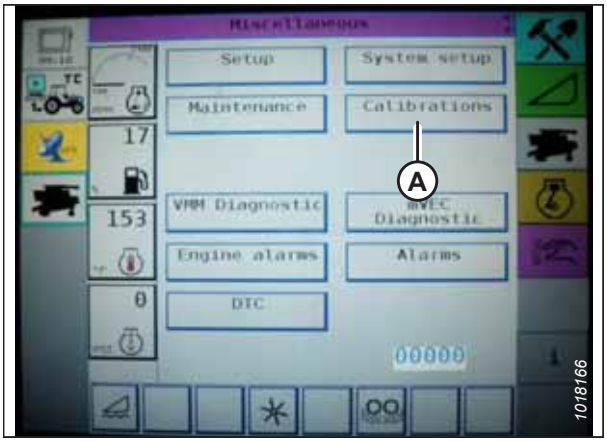


Figure 8.77: Challenger® Combine Display

4. Press HEADER button (A). The HEADER CALIBRATION page displays a warning.

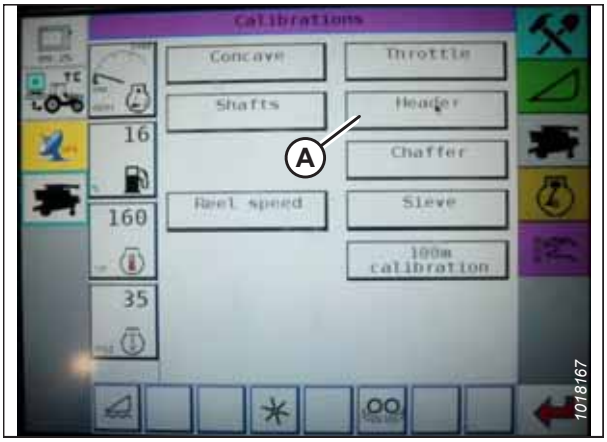


Figure 8.78: Challenger® Combine Display

5. Read the warning message, and then press the green check mark button.

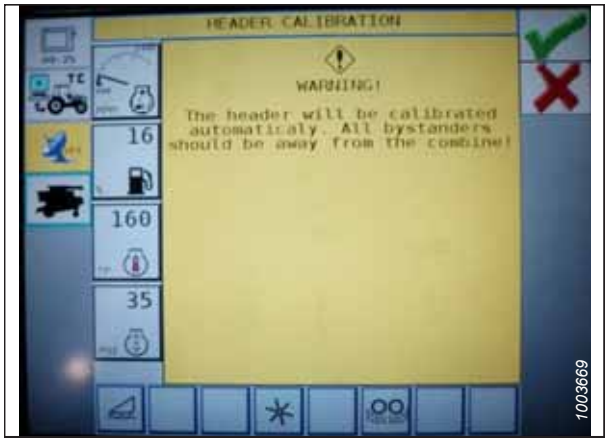


Figure 8.79: Challenger® Combine Display

6. Follow the on-screen prompts to complete calibration.

   NOTE:

   The calibration procedure can be canceled at any time by pressing the CANCEL button on 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.

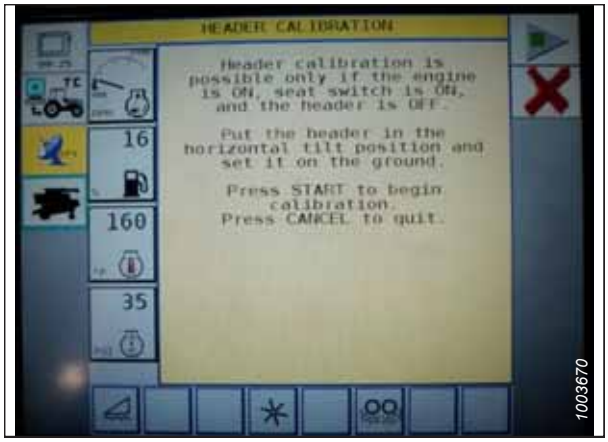


Figure 8.80: Challenger® Combine Display

Adjusting 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 bystanders. Keep children away from the machinery. Walk around the machine to be sure that no one is under, on, or close to it.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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 8.81: Height Adjustment Knob on the Combine Control Console

Adjusting Header Raise/Lower Rate – Challenger® and Massey Ferguson®

The rate at which the header rises and falls can be configured by accessing the HEADER CONTROL menu on the combine display.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

1. Press HEADER icon (A) on the FIELD page. The HEADER page displays.

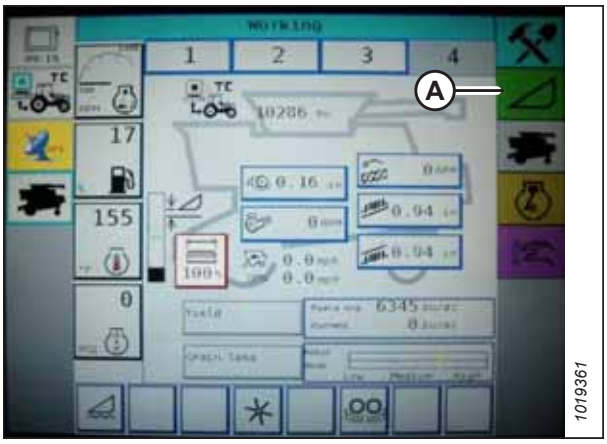


Figure 8.82: Challenger® Combine Display

2. Press HEADER CONTROL (A). The HEADER CONTROL page displays.

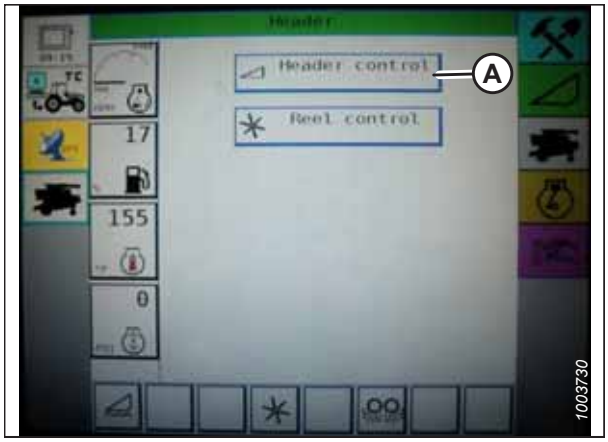


Figure 8.83: Challenger® Combine Display

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.

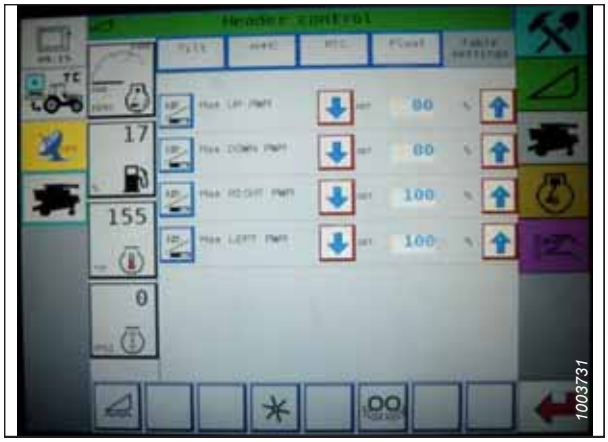


Figure 8.84: Challenger® Combine Display

Setting Auto Header Height Control Sensitivity – 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 bystanders. Keep children away from the machinery. Walk around the machine to be sure that no one is under, on, or close to it.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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.

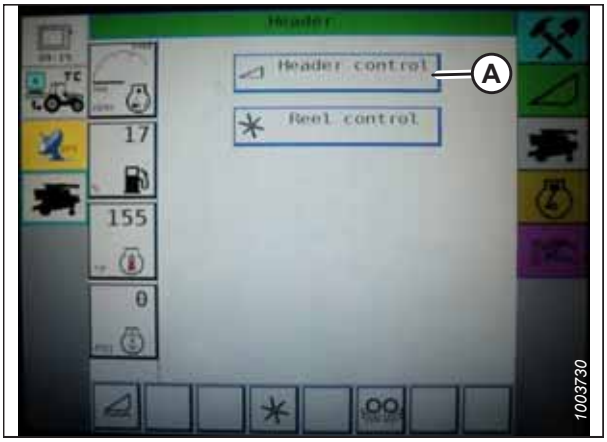


Figure 8.85: Challenger® Combine Display

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 8.86: Challenger® Combine Display

8.1.9 CLAAS 500 Series Combines

To make your header's auto header height control (AHHC) system compatible with CLAAS 500 series combines, you must set your combine's header configuration options for the particular model of header, configure the reel speed settings, set up the AHHC controls, and calibrate the AHHC system to ensure that it is working correctly.

Calibrating 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 the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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.

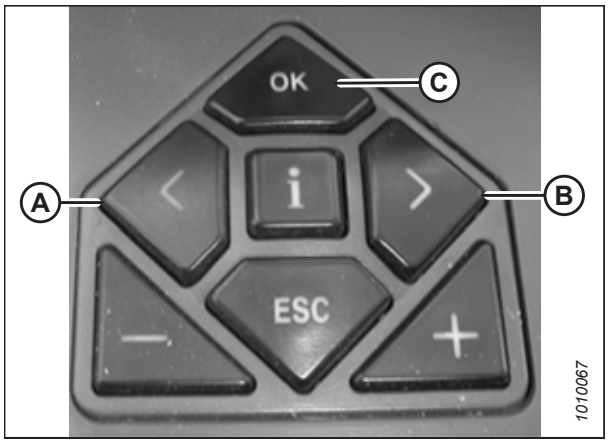


Figure 8.87: CLAAS Combine Controls

3. Use **–** key (A) or **+** key (B) to turn the AHHC on, and press OK key (C).
4. Engage the threshing mechanism and the header.

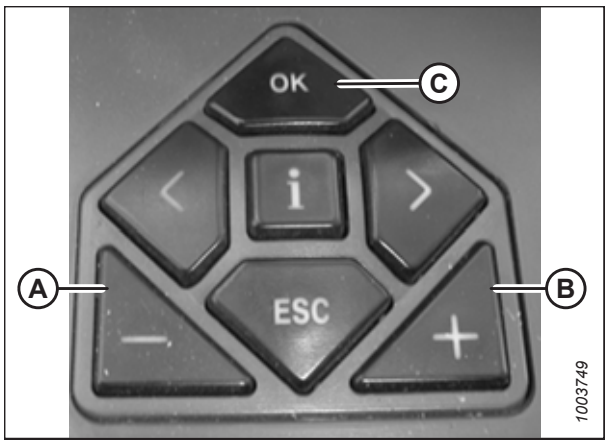


Figure 8.88: CLAAS Combine Controls

5. Use the < or > key to select CUTT. HEIGHT LIMITS, and press the combine control's OK key.
6. Follow the procedure displayed on the screen to program the upper and lower limits of the header into the CEBIS.

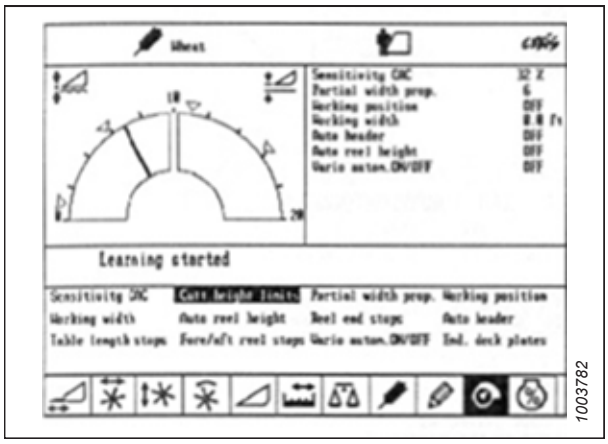


Figure 8.89: CLAAS Combine Display

7. 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.

8. Use the **–** key or the **+** key to change the reaction speed setting, and press the combine control's OK key.

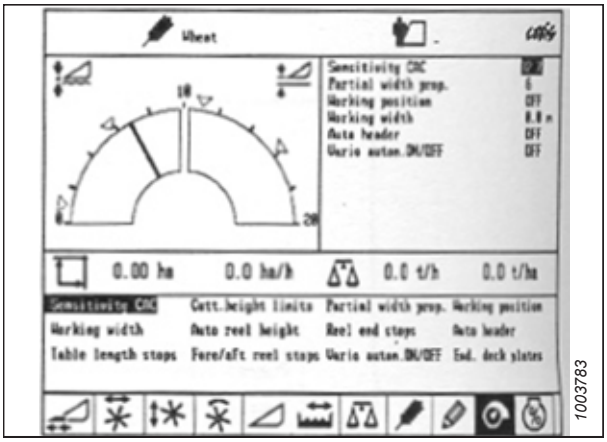


Figure 8.90: CLAAS Combine Display

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.

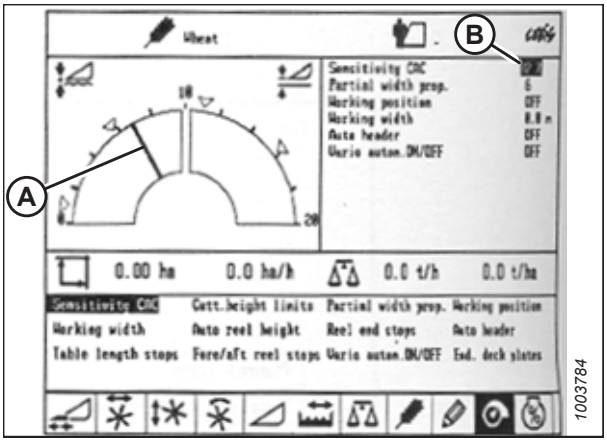


Figure 8.91: CLAAS Combine Display

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

Once the auto header height control (AHHC) system has been configured and activated, the preset cutting height can be set.

DANGER

Check to be sure all bystanders have cleared the area.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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 8.92: Control Handle Buttons

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.

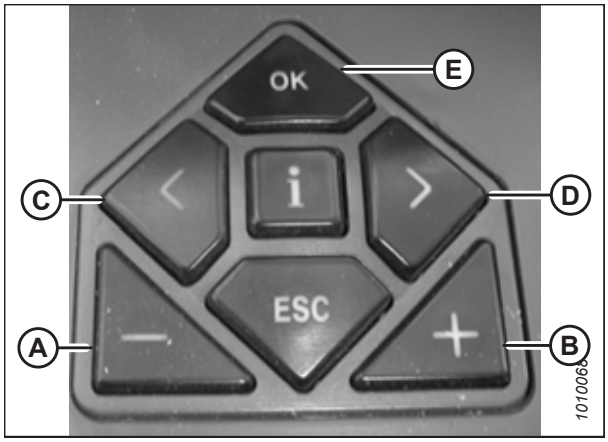


Figure 8.93: CLAAS Combine Controls

8. Briefly press button (A) or button (B) in order to select the set point.
9. Repeat Step *7, page 284* for the set point.

Figure 8.94: Control Handle Buttons

Setting Cutting Height Manually – CLAAS 500 Series

Once the auto header height control (AHHC) system has been configured and activated, the preset cutting height can be manually configured.

DANGER

Check to be sure all bystanders have cleared the area.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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 (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 (an alarm will sound when the new setting has been stored).

   NOTE:

   For above-the-ground cutting, repeat Step *1, page 285*, and use button (D) instead of button (C) while repeating Step *2, page 285*.

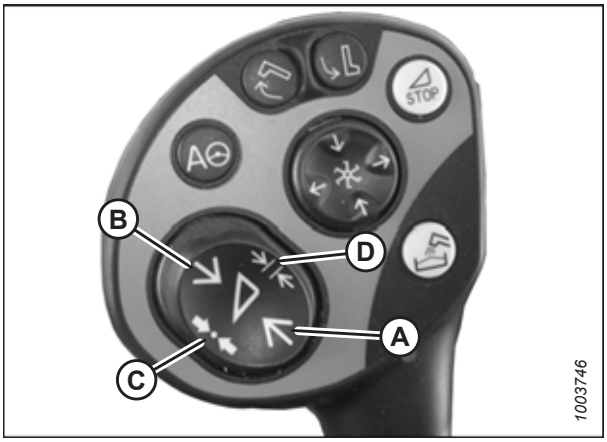


Figure 8.95: Control Handle Buttons

Setting Auto Header Height Control Sensitivity – 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 set 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 the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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).

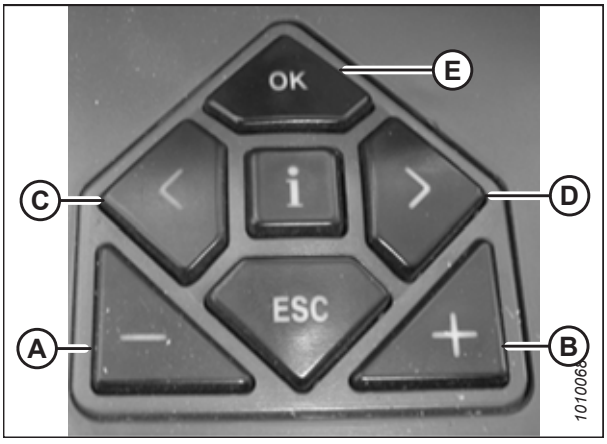


Figure 8.96: CLAAS Combine Controls

3. Use line (A) or value (B) to determine the sensitivity setting.

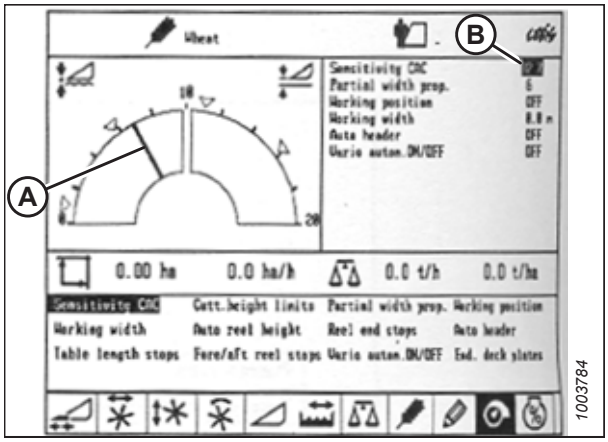


Figure 8.97: CLAAS Combine Display

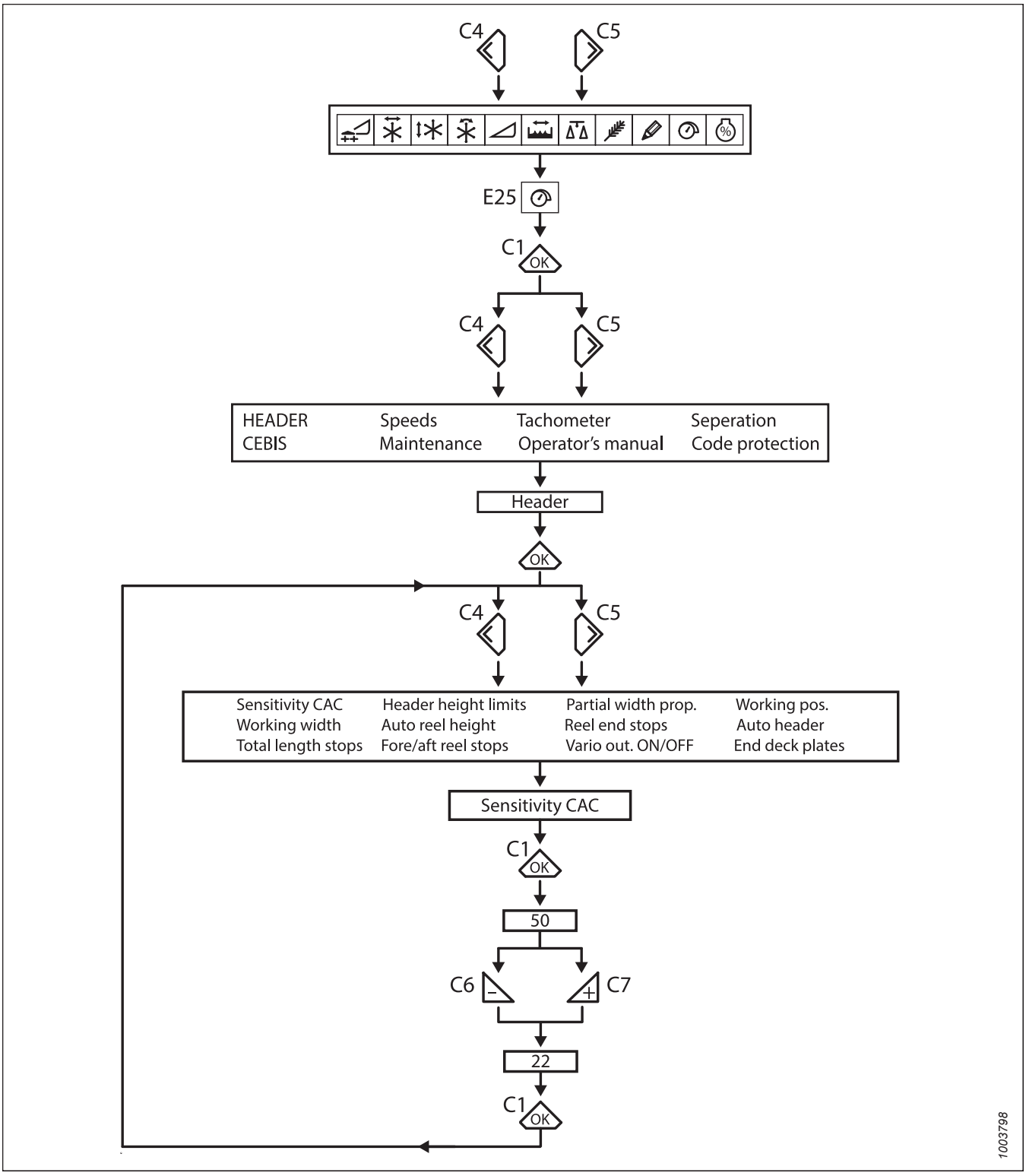


Figure 8.98: Flow Chart for Setting the Sensitivity of the Float Optimizer

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 the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

1. Use the **<** or **>** key to select REEL WINDOW. Window E15 displays the current advance or retard speed of the reel in relation to the ground speed.

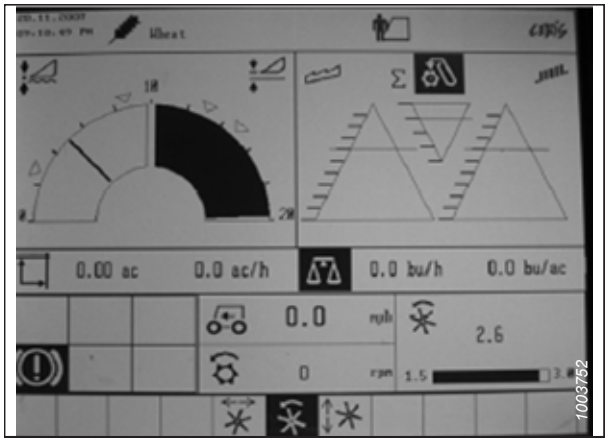


Figure 8.99: CLAAS Combine Display

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 displays the selected reel speed.

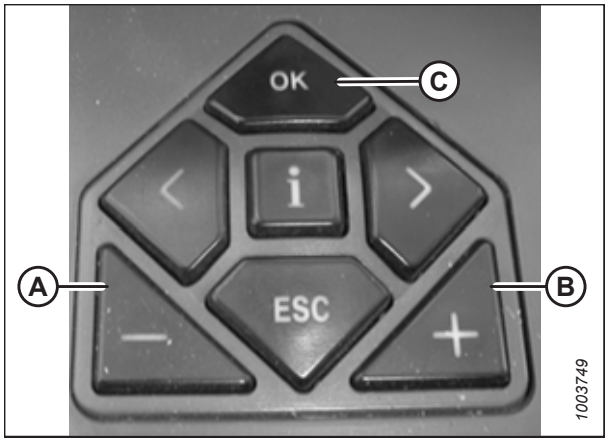


Figure 8.100: CLAAS Combine Controls

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 8.101: CLAAS Combine Rotary Switch

5. Press and hold button (A) or button (B) for 3 seconds to store the setting (an alarm sounds 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 8.102: CLAAS Control Handle Buttons

6. Use the **<** or **>** key to select the REEL WINDOW. Window E15 displays the current advance or retard speed of the reel in relation to the ground speed.

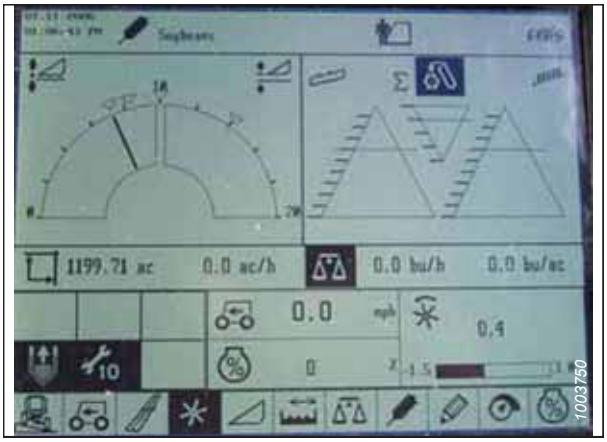


Figure 8.103: CLAAS Combine Display

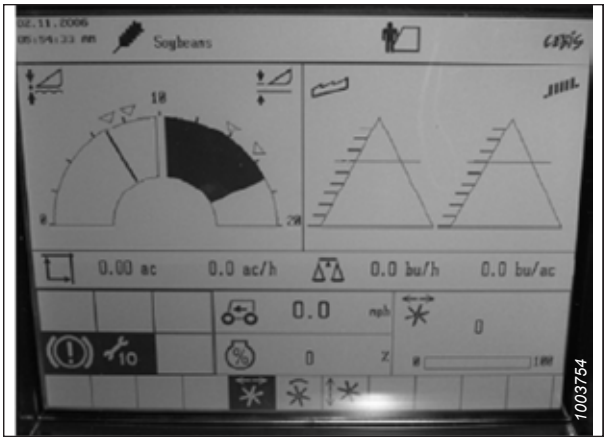


Figure 8.104: CLAAS Combine Display

7. Press OK key (E), and use < key (C) or > key (D) to select the REEL FORE AND AFT window.
8. 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 *8.106, page 290*) can also be used to set the reel fore-aft position.

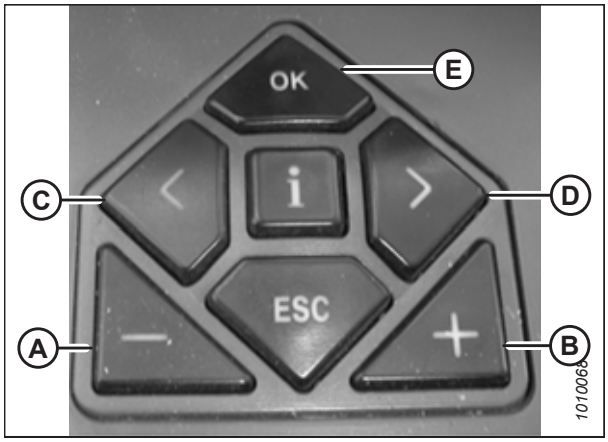


Figure 8.105: CLAAS Combine Controls

9. Press and hold button (A) or button (B) for 3 seconds to store the setting into the CEBIS (an alarm sounds 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 8.106: CLAAS Control Handle Buttons

8.1.10 CLAAS 600 and 700 Series Combines

To make your header's auto header height control (AHHC) system compatible with CLAAS 600 and 700 series combines, you must set your combine's header configuration options for the particular model of header, configure the reel speed settings, set up the AHHC controls, and calibrate the AHHC system to ensure that it is working correctly.

Calibrating 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 the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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.

1. Ensure the center-link is set to **D**.
2. Ensure that the header float is unlocked.
3. Place the wings in the locked position.
4. Use control knob (A) to highlight AUTO CONTOUR icon (B) and press control knob (A) to select it.

Figure 8.107: CLAAS Combine Display, Console, and Control Handle

5. 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) displays on the screen.

Figure 8.108: CLAAS Combine Display, Console, and Control Handle

6. Use control knob (A) to highlight header icon (B) with the up and down arrows. Press control knob (A) to select it.

Figure 8.109: CLAAS Combine Display, Console, and Control Handle

7. Use control knob (A) to highlight screwdriver icon (B).
8. Engage the combine separator and feeder house.
9. Press control knob (A). A progress bar appears.

Figure 8.110: CLAAS Combine Display, Console, and Control Handle

10. Fully raise the feeder house. Progress bar (A) advances to 25%.
11. Fully lower the feeder house. Progress bar (A) advances to 50%.
12. Fully raise the feeder house. Progress bar (A) advances to 75%.
13. Fully lower the feeder house. Progress bar (A) advances to 100%.

Figure 8.111: 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 8.112: CLAAS Combine Display, Console, and Control Handle

Setting Cutting Height – CLAAS 600 and 700 Series

The Operator can configure two different cutting height presets. The height presets can be selected using the combine's control handle.

DANGER

Check to be sure all bystanders have cleared the area.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

1. Lower the header to the desired cutting height or to the 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.

Figure 8.113: CLAAS Combine Display, Console, and Control Handle

Setting Auto Header Height Control Sensitivity – 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 the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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.

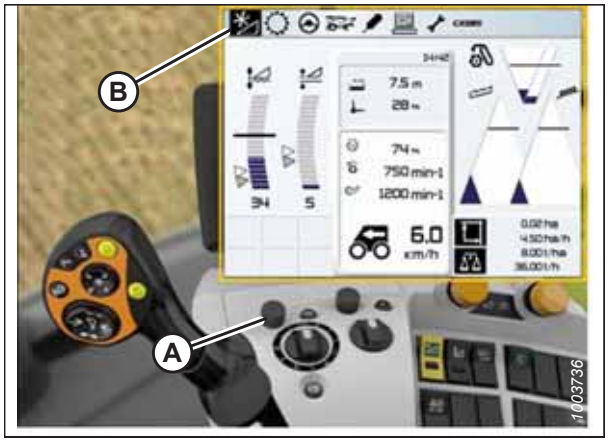


Figure 8.114: CLAAS Combine Display, Console, and Control Handle

3. Select FRONT ATTACHMENT PARAMETER SETTINGS icon (A). A list of settings appears.
4. Select SENSITIVITY CAC (B) from the list.

Figure 8.115: CLAAS Combine Display, Console, and Control Handle

5. Select SENSITIVITY CAC icon (A).

   NOTE:

   To set the sensitivity, 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.

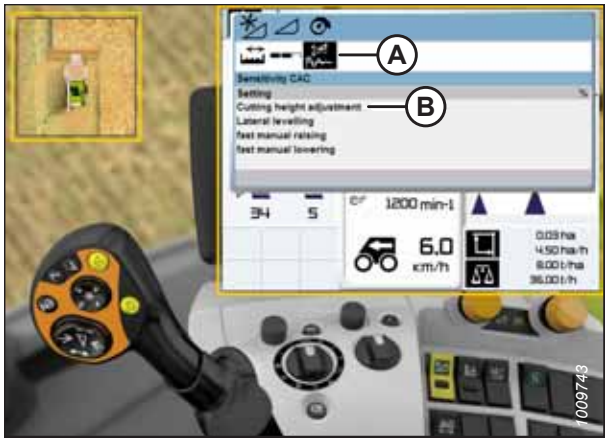


Figure 8.116: CLAAS Combine Display

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 the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

1. Use control knob (A) to highlight HEADER/REEL icon (B). Press control knob (A) to select it. The HEADER/REEL dialog box opens.

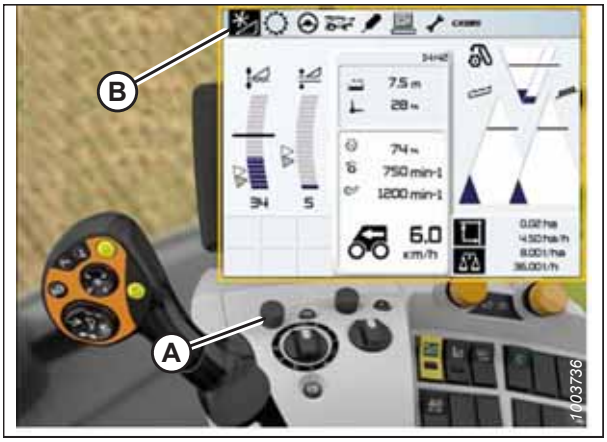


Figure 8.117: CLAAS Combine Display, Console, and Control Handle

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 appears in the dialog box.

Figure 8.118: CLAAS Combine Display, Console, and Control Handle

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 8.119: 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 8.120: 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 the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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 the best performance of the auto header height control (AHHC) system, perform the ground calibration with the center-link set to **D**. When calibration is complete, adjust the center-link back to the desired header angle. For instructions, refer to the header operator's manual.

DANGER

Check to be sure all bystanders have cleared the area.

1. Start the engine.
2. Position the header 254–356 mm (10–14 in.) off the ground. Keep the engine running.

   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.

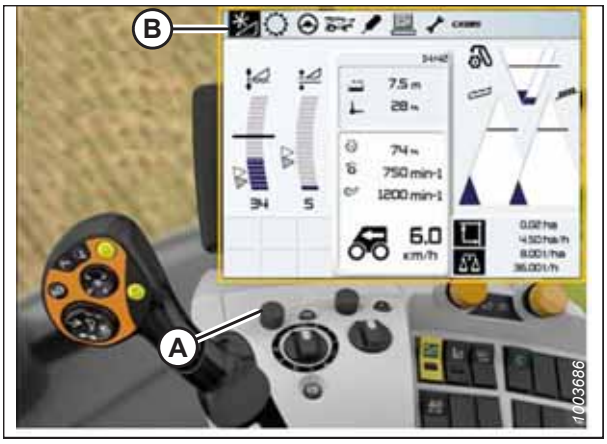


Figure 8.121: CLAAS Combine Display, Console, and Control Handle

4. Use control knob (A) to highlight REEL icon (B). Press control knob (A) to select it.

Figure 8.122: 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 8.123: CLAAS Combine Display and Console

7. Use control knob (A) to highlight screwdriver icon (B).
8. Press the control knob.

Figure 8.124: CLAAS Combine Display, Console, and Control Handle

WARNING

Check to be sure all bystanders have cleared the area.

9. Progress bar chart (A) appears on the screen.
10. Follow the prompts on the screen to raise and lower the reel.

Figure 8.125: CLAAS Combine Display, Console, and Control Handle

11. Ensure progress bar chart (A) displays 100%. When the progress bar chart displays 100%, the calibration procedure is complete.

Figure 8.126: CLAAS Combine Display, Console, and Control Handle

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). Then repeat Step *7, page 298* to Step *11, page 299*.

Figure 8.127: CLAAS Combine Display and Console

Adjusting Auto Reel Height – CLAAS 600 and 700 Series

The auto reel height setting can be configured by accessing the REEL menu on the combine display.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

1. Use HOTKEY rotary dial (A) to select REEL icon (B).

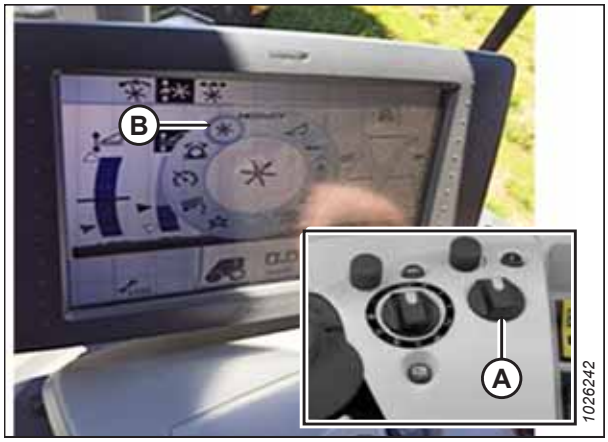


Figure 8.128: CLAAS Combine Display and Console

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 auto header height control (AHHC) is not active. For instructions, refer to *Calibrating Reel Height Sensor and Reel Fore-Aft Sensor – CLAAS 600 and 700 Series, page 296*.

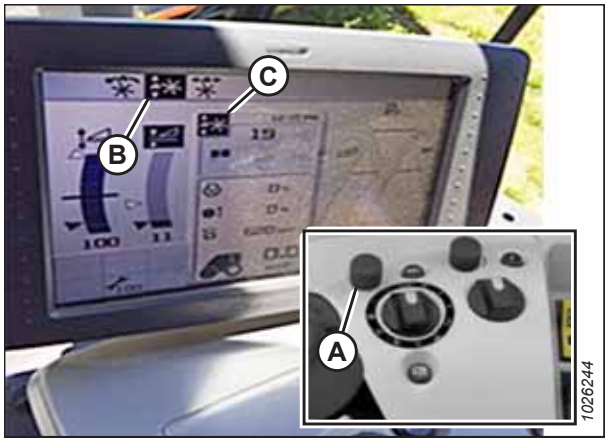


Figure 8.129: CLAAS Combine Display and Console

3. 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.

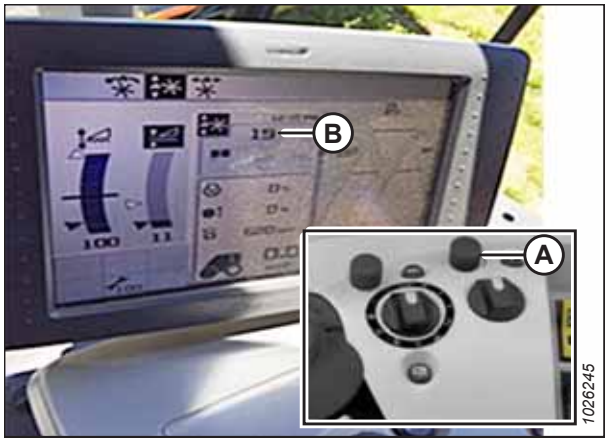


Figure 8.130: CLAAS Combine Display and Console

8.1.11 CLAAS 7000 and 8000 Series Combines

To make your header's auto header height control (AHHC) system compatible with CLAAS 7000 and 8000 series combines, you must set your combine's header configuration options for the particular model of header, configure the reel speed settings, set up the AHHC controls, and calibrate the AHHC system to ensure that it is working correctly.

Header Settings Quick Reference – Claas 7000 and 8000 Series

Use the information in the following table to quickly reference the recommended settings for a 2 Series draper header.

For detailed instructions, proceed to the Claas 7000 and 8000 Series combine header setup and calibration procedures.

Table 8.5 Header Settings – Claas Claas 7000 and 8000 Series

Setup Parameter	Suggested Setting
Front Attachment Type	Flex cutterbar product by other manufacturer
Working Width	Set header width
Drop rate with auto contour	Adjust to preference
Reel Speed Adjust	Adjust to preference

Setting up Header – CLAAS 7000 and 8000 Series

To set up a header to work with the auto header height control (AHHC) system, you will need to access the FRONT ATTACHMENT menu using the CEBIS terminal.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

1. From the main page, select FRONT ATTACHMENT (A).

Figure 8.131: CEBIS Main Page

2. From the drop down list, select FRONT ATTACHMENT PARAMETERS (A).

Figure 8.132: Front Attachment Page

3. From the FRONT ATTACHMENT PARAMETERS page, select FRONT ATTACHMENT TYPE (A).
4. From the drop down list, select FLEX CUTTERBAR PRODUCT BY OTHER MANUFACTURER (B).

Figure 8.133: Attachment Parameters Page

5. From the FRONT ATTACHMENT PARAMETERS page, select WORKING WIDTH (A).
6. Set the header width by sliding adjuster arrow (B) up or down.
7. Select check mark (C) to save the settings.

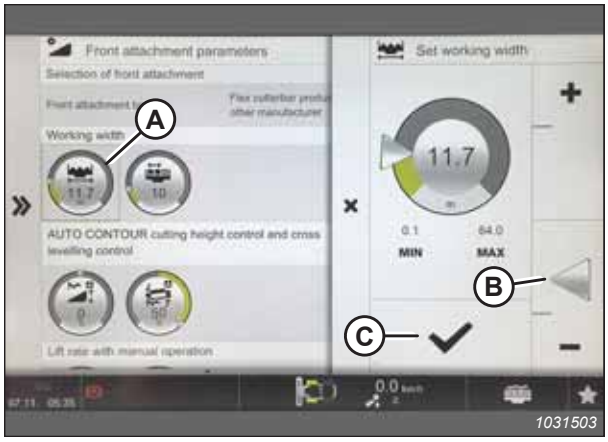


Figure 8.134: Attachment Parameters Page

Calibrating Auto Header Height Control – CLAAS 7000 and 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 bystanders. Keep children away from the machinery. Walk around the machine to be sure that no one is under, on, or close to it.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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 the best performance of the auto header height control (AHHC) system, perform the ground calibration with the center-link set to **D**. When calibration is complete, adjust the center-link back to the desired header angle. For instructions, refer to the header operator's manual.

1. From the MAIN page, select FRONT ATTACHMENT (A).

Figure 8.135: CEBIS Main Page

2. Select LEARNING PROCEDURES (A) from the menu.
3. SELECT FRONT ATTACHMENT HEIGHT (B).

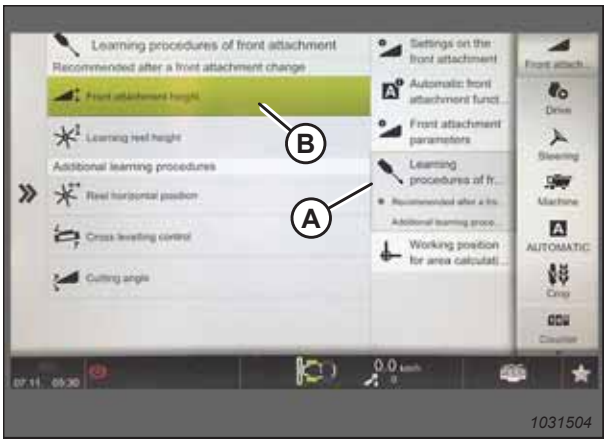


Figure 8.136: Learning Procedures Page

4. Follow the prompts that appear in DESCRIPTION and NOTES fields (A).

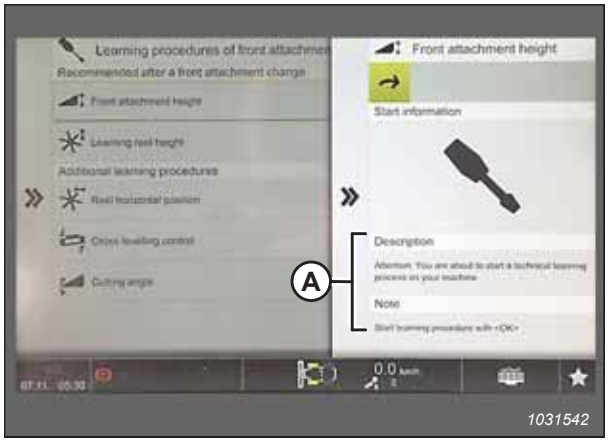


Figure 8.137: Front Attachment Height Page

5. When prompted, select OK button (A) to start the learning procedure.

Figure 8.138: Operator Controls

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 the previous steps as prompted until calibration is complete.

Figure 8.139: Multifunction Lever

Setting Cut and Reel Height Preset – CLAAS 7000 and 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 bystanders. Keep children away from the machinery. Walk around the machine to be sure that no one is under, on, or close to it.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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.

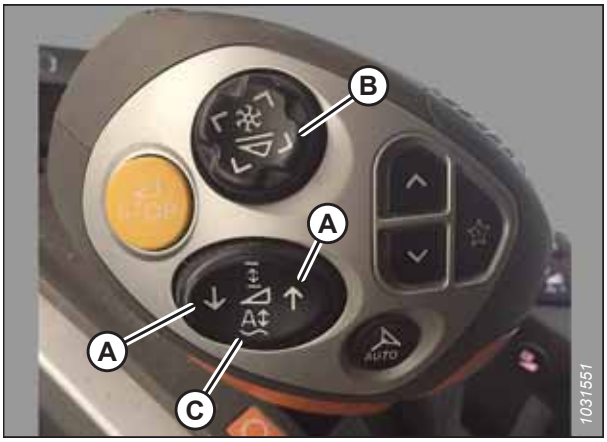


Figure 8.140: Multifunction Lever

Triangle (A) appears on the header height gauge indicating the preset level.

Figure 8.141: CEBIS Main Page

Setting Auto Header Height Control Sensitivity – CLAAS 7000 and 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 bystanders. Keep children away from the machinery. Walk around the machine to be sure that no one is under, on, or close to it.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

1. From the main page, select FRONT ATTACHMENT (A).

Figure 8.142: CEBIS Main Page

2. From the drop down list, select FRONT ATTACHMENT PARAMETERS (A).

Figure 8.143: 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.

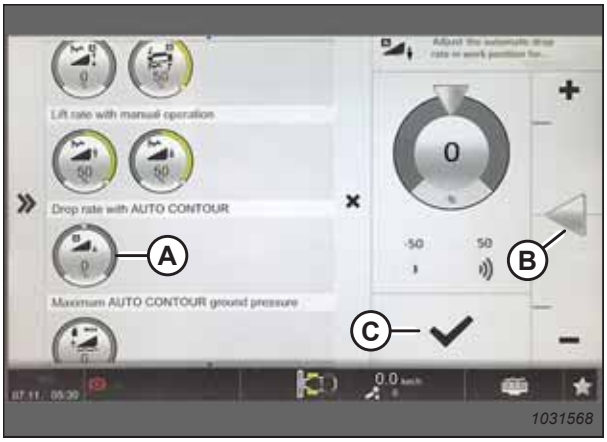


Figure 8.144: Drop Rate with Auto Contour Page

Adjusting Auto Reel Speed – CLAAS 7000 and 8000 Series

The preset reel speed can be set when the automatic header functions are activated.

DANGER

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

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

1. From the main page, select FRONT ATTACHMENT (A).

Figure 8.145: 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 8.146: Settings on Front Attachment Page

5. Adjust the reel speed target value by sliding adjuster arrow (A) up or down.
6. Select check mark (B) to save the setting.

Figure 8.147: Reel Speed Target Value Page

Calibrating Reel Height Sensor and Reel Fore-Aft Sensor – CLAAS 7000 and 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 bystanders. Keep children away from the machinery. Walk around the machine to be sure that 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 the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

1. 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.

2. From the main page, select FRONT ATTACHMENT (A).

Figure 8.148: CEBIS Main Page

3. Select LEARNING PROCEDURES FOR FRONT ATTACHMENT (A).
4. Select LEARNING REEL HEIGHT (B).

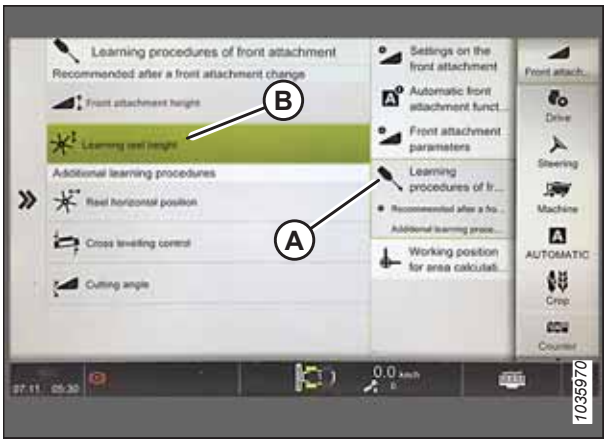


Figure 8.149: Front Attachment Page

5. Follow the prompts that appear in DESCRIPTION and NOTES fields (A).

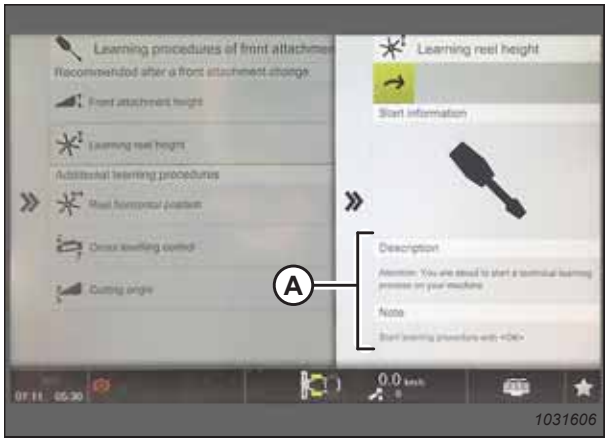


Figure 8.150: Learning Reel Height Page

6. When prompted, select OK button (A) to start the learning procedure.

Figure 8.151: Operator Controls

7. **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 8.152: Front Attachment Page

8.1.12 Gleaner R65/R66/R75/R76 and S Series Combines

To make your header's auto header height control (AHHC) system compatible with Gleaner R65/R66/R75/R76 and S series combines, you must set your combine's header configuration options for the particular model of header, configure the reel speed settings, set up the AHHC controls, and calibrate the AHHC system to ensure that it is working correctly.

Checking Voltage Range from the Combine Cab – Gleaner R65/R66/R75/R76 and Pre-2016 S Series

The auto header height control sensor needs to operate in a specific voltage range in order to work properly.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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.

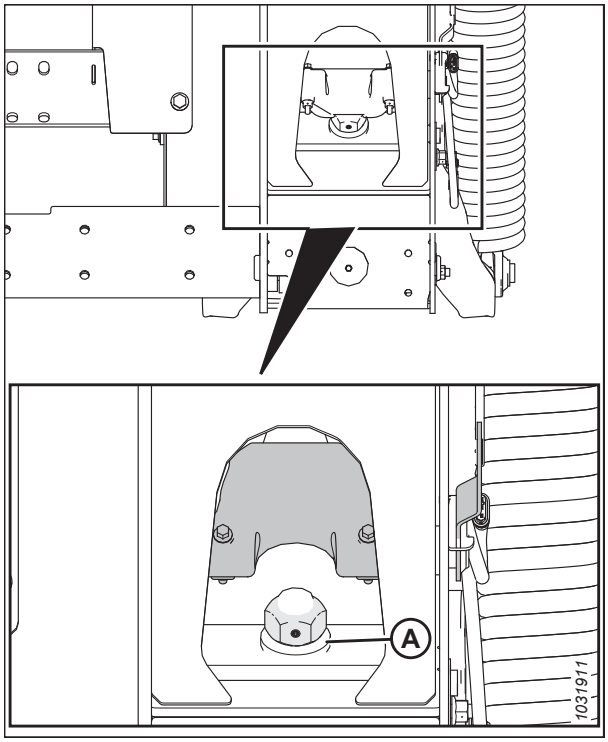


Figure 8.153: Float Lock

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).

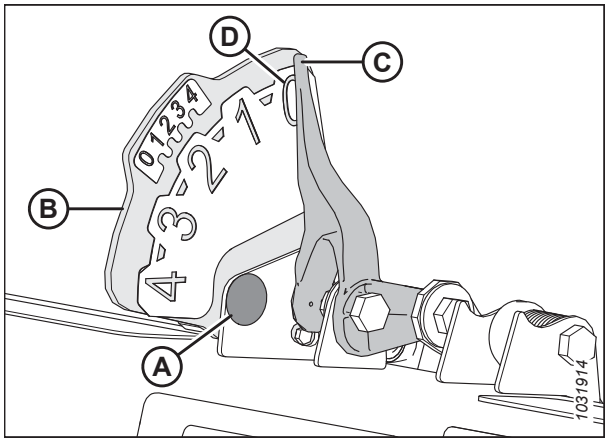


Figure 8.154: Float Indicator

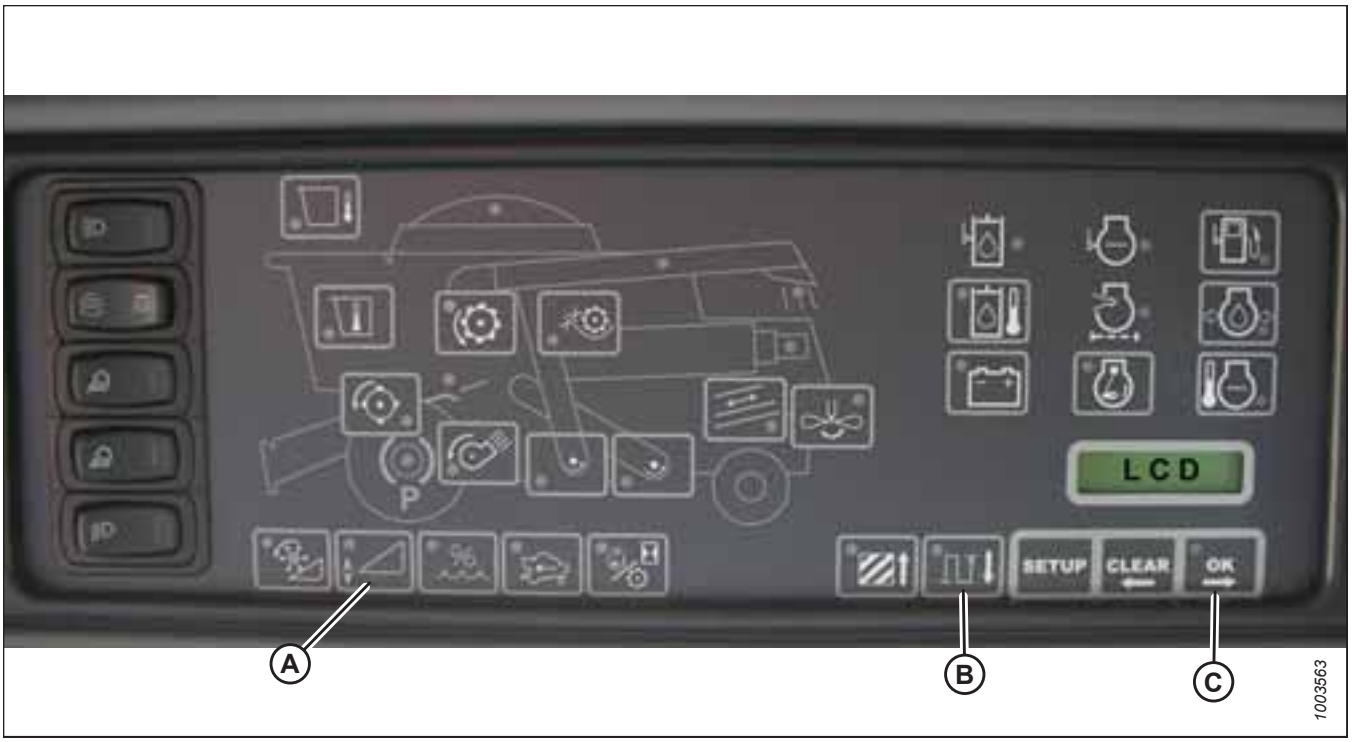


Figure 8.155: Combine Heads-Up Display

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.

Header Settings Quick Reference – Gleaner S9 Series Combines

Use the information in the following table to quickly reference the recommended settings for a 2 Series draper header.

For detailed instructions, proceed to the Gleaner S9 series combine header setup and calibration procedures.

Table 8.6 Header Settings – Gleaner S9 Series

Setup Parameter	Suggested Setting
Header Type	Power Flow
Header Has Reel Attached Check Box	Checked
Reel Diameter	40
Reel PPR[16]	30
Sensitivity (RTC)	50
Sensitivity (AHHC)	60
Header Control Speed[17]	Slow: Up 45/Down 40 Fast: Up 100/Down 100

16. Pulses per revolution
17. A two-stage button with slow speed on the first detent and fast on the second.

Table 8.6 Header Settings – Gleaner S9 Series (continued)

Setup Parameter	Suggested Setting
Header Lateral Offset	0
Feeder House to Cutter	68

Engaging Auto Header Height Control – Gleaner R65/R66/R75/R76 and Pre-2016 S Series

Engage the auto header height control (AHHC) before adjusting it for height and sensitivity.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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.
- Electrohydraulic header lift control valve.

Figure 8.156: 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.

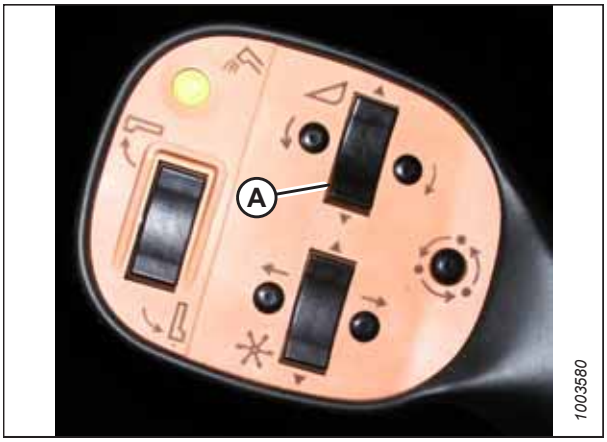


Figure 8.157: Control Handle

Calibrating 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 the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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.

Figure 8.158: Combine Auto Header Height Controls

A - AUTO MODE Button
B - AHHC Light
C - CAL1 Button
D - Raise Header Light
E - Lower Header Light
F - AUTO Mode
G - CAL2 Button

SETTING UP AUTO HEADER HEIGHT CONTROL

NOTE:

For the best performance of the auto header height control (AHHC) system, perform the ground calibration with the center-link set to **D**. When calibration is complete, adjust the center-link back to the desired header angle. For instructions, refer to the header operator's manual.

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 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) lights up.
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.
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, and 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 the 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. 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 Accumulator – Gleaner R65/R66/R75/R76 and Pre-2016 S Series

The accumulator being on will affect the combine's height adjustment reaction time, which can affect the auto header height control (AHHC) system's performance.

Refer to the combine operator's manual for the procedure for 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 8.159: Combine Accumulator ON/OFF Switch
A - Accumulator Lever (Off Position)

Adjusting 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. Adjust the header raise/lower rate to ensure the stability of the auto header height control system.

Ensure that header raise restrictor (A) and header lower restrictor (B) in the hydraulic manifold are adjusted so that it takes approximately 6 seconds to raise the header from ground level to maximum height (that is, to the point at which the hydraulic cylinders are fully extended), and approximately 6 seconds to lower the header from maximum height to ground level.

If there is excessive header movement (for example, hunting) when the header is on the ground, adjust the lower rate so that it takes 7 or 8 seconds for the header to drop down to ground level.

NOTE:

Make this adjustment with the hydraulic system at its normal operating temperature (54.4°C [130°F]) and the engine running at full throttle.

Figure 8.160: Header Raise and Lower Adjustable Restrictors

Adjusting Ground Pressure – Gleaner R65/R66/R75/R76 and Pre-2016 S Series

Adjust the header ground pressure setting so that the pressure is as light as possible, but sufficiently heavy that the header does not bounce while in operation.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

1. Ensure indicator (A) is at position 0 (B) with the header is 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 311*.

   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.

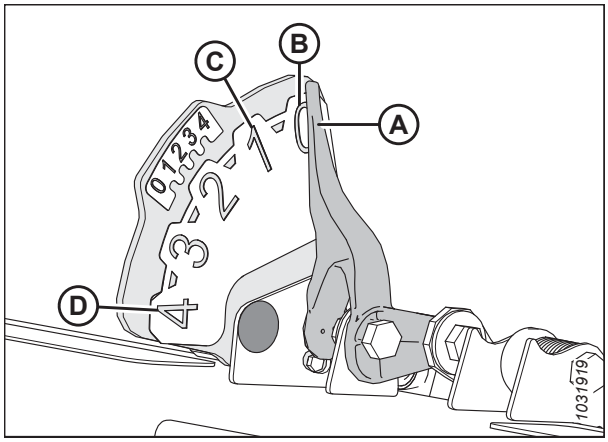


Figure 8.161: Float Indicator

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 8.162: AHHC Console

Adjusting Auto Header Height Control Sensitivity – Gleaner R65/R66/R75/R76 and Pre-2016 S Series

Auto header height control (AHHC) sensitivity refers to the distance that the cutterbar must travel up or down before the AHHC reacts and raises or lowers the feeder house.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

Figure 8.163: 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.

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

Refer to this section to learn the meaning of the alarms and faults related to the auto header height control (AHHC) system. Alarms and diagnostic faults are displayed on the combine's electronic instrument panel (EIP).

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

Display type:

Displayed on tachometer (A) as XX or XXX.

Figure 8.164: Tachometer

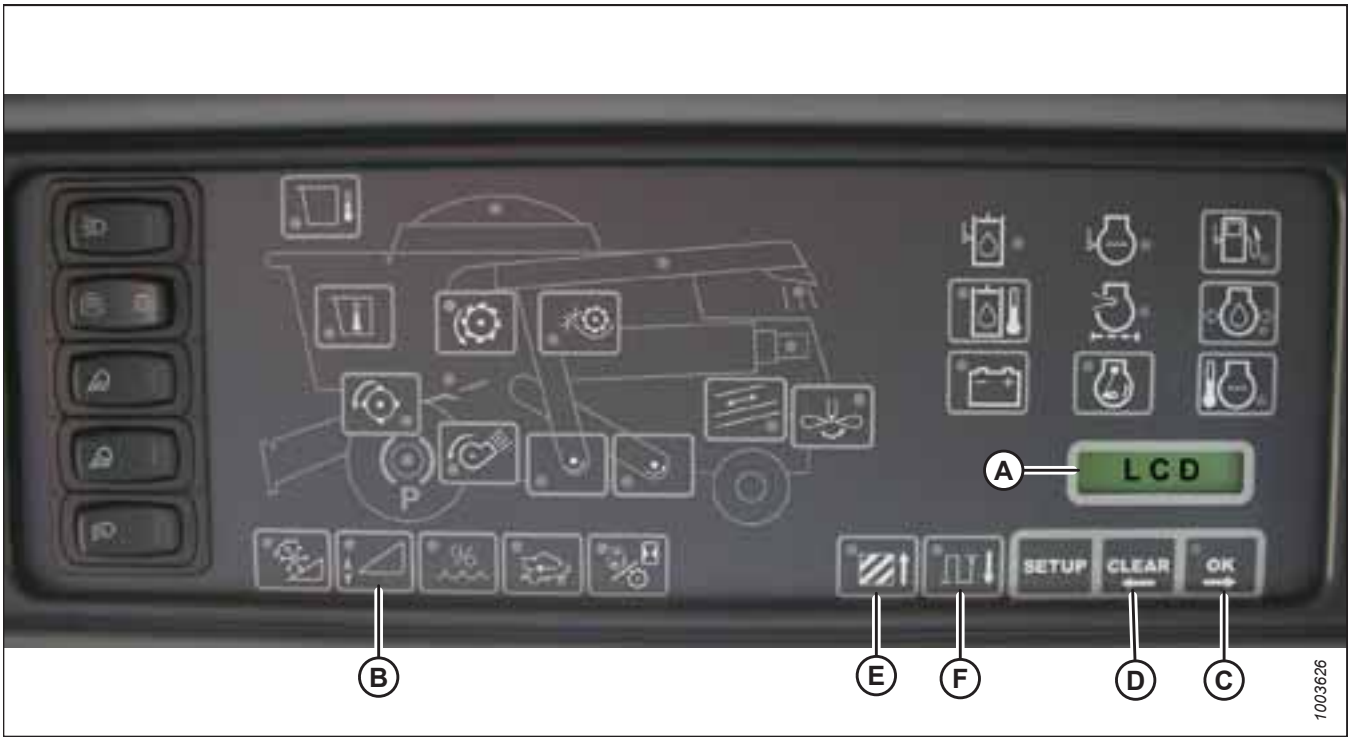


Figure 8.165: Combine Electronic Instrument Panel (EIP)

NOTE:

Displayed on LCD (A) as XX in. or XXX cm.

Alarm conditions:

If an error message is received from the fuse panel, an alarm sounds. The alarm buzzer sounds five times every 10 seconds. 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 (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 *8.165, page 320*.

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.

8.1.13 Gleaner S9 Series Combines

To make your header's auto header height control (AHHC) system compatible with Gleaner S9 series combines, you must set your combine's header configuration options for the particular model of header, configure the reel speed settings, set up the AHHC controls, and calibrate the AHHC system to ensure that it is working correctly.

Setting up Header – Gleaner S9 Series

To set up a header to work with the auto header height control (AHHC) system, you will need to access the HEADER SETTINGS menu using the Tyton terminal.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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 8.166: Operators Station – 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 8.167: Combine Icon on Home Page

2. On the COMBINE MAIN MENU, touch HEADER SETTINGS (A). The HEADER SETTINGS page opens.

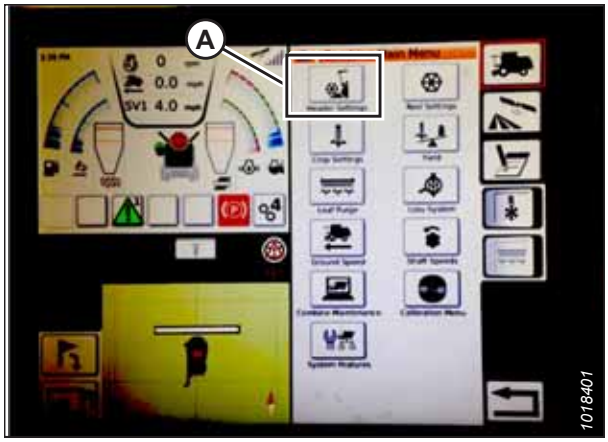


Figure 8.168: Header Settings in Combine Main Menu

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)

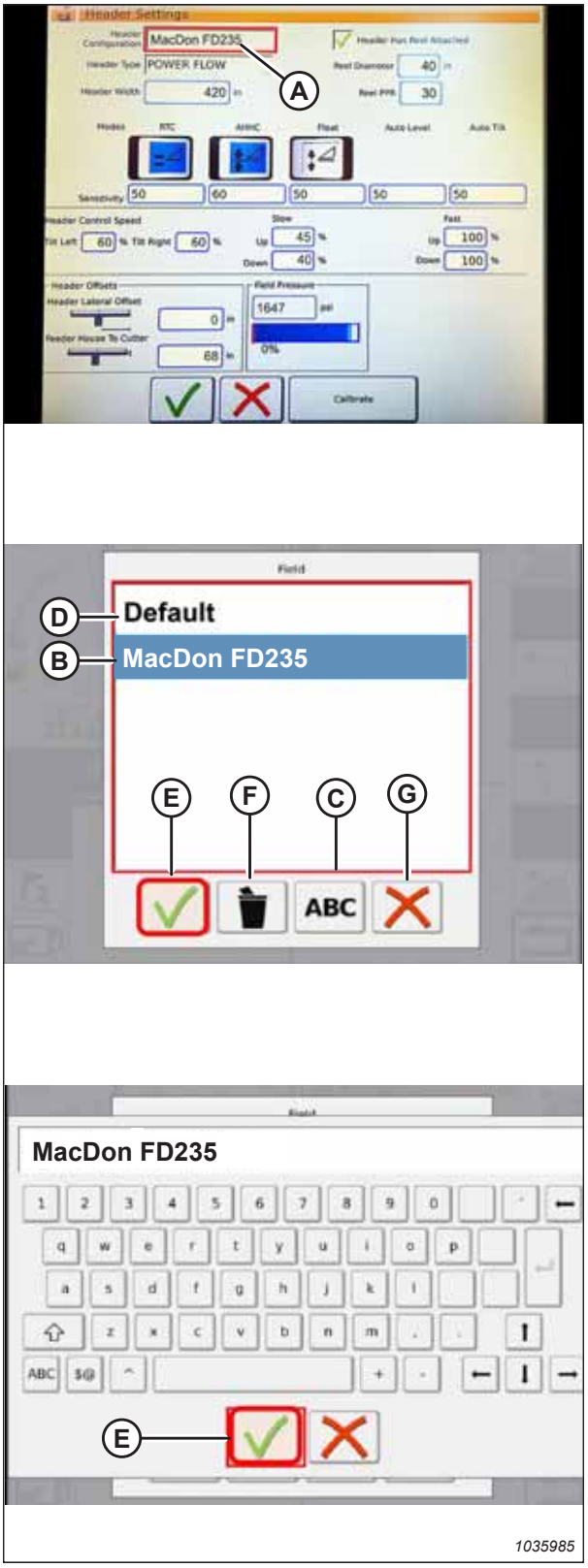


Figure 8.169: Header Configuration Menu on Header Settings Page

4. To specify the type of header installed on the machine, touch HEADER TYPE field (A).

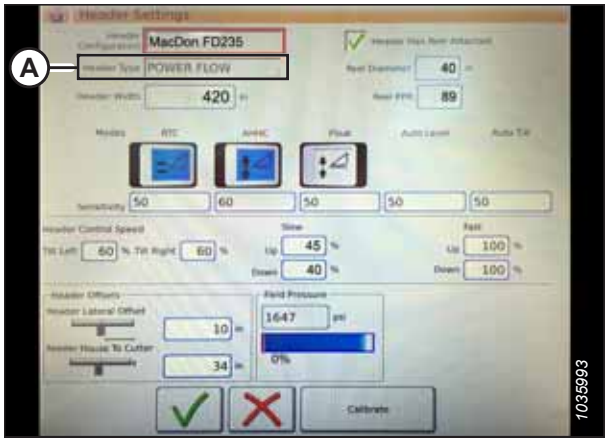


Figure 8.170: Header Settings

5. 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

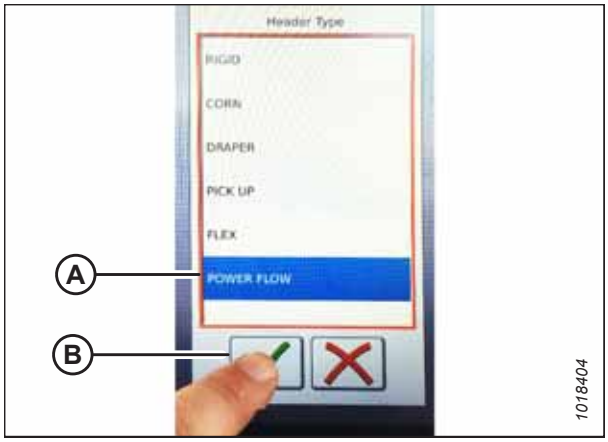


Figure 8.171: Header Type

6. Make sure that HEADER HAS REEL ATTACHED check box (A) is checked.

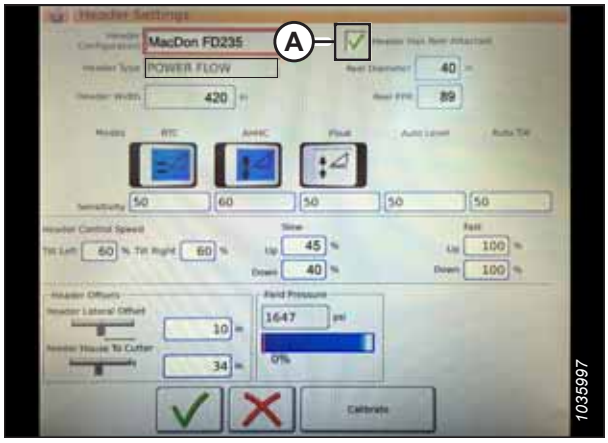


Figure 8.172: Header Settings

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.

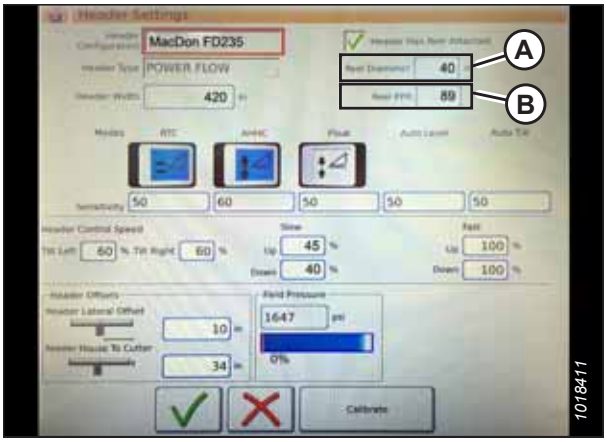


Figure 8.173: Header Settings

9. Touch green check mark (B) at the bottom of numeric keypad (A) when complete, or the red X to cancel.

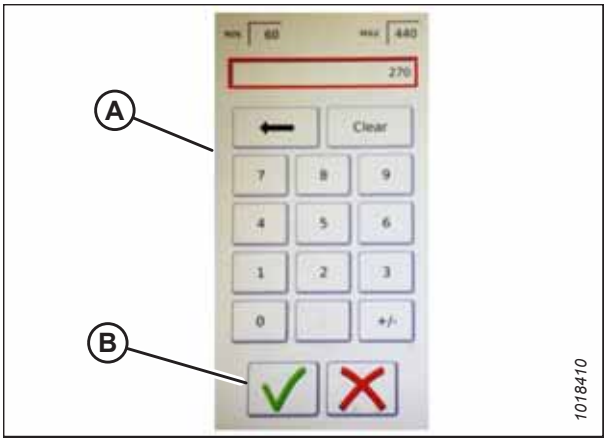


Figure 8.174: Numeric Keypad

10. When complete, touch green check mark (A) at the bottom of the HEADER SETTINGS page.

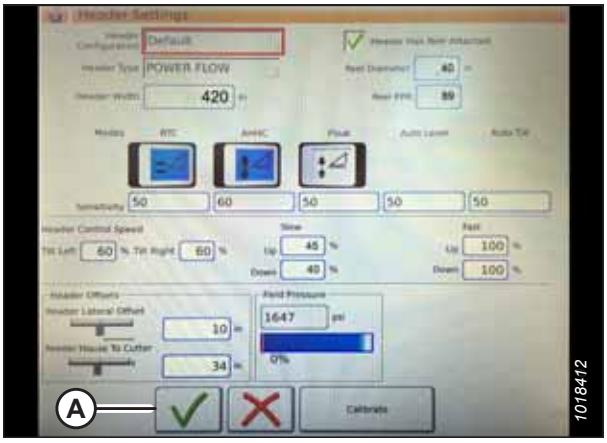


Figure 8.175: Header Settings Page

Setting Minimum Reel Speed and Calibrating Reel – Gleaner S9 Series

To set up the header's minimum reel speed to work with the auto header height control (AHHC) system, and to calibrate the reel, the REEL SETTINGS menu will need to be accessed.

DANGER

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

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

1. From the COMBINE MAIN MENU, touch REEL SETTINGS (A) to open the REEL SETTINGS page.

Figure 8.176: Reel Settings on Combine Main Menu

2. To set the minimum reel speed, touch SPEED MINIMUM FIELD (B). The on-screen keyboard appears. 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.

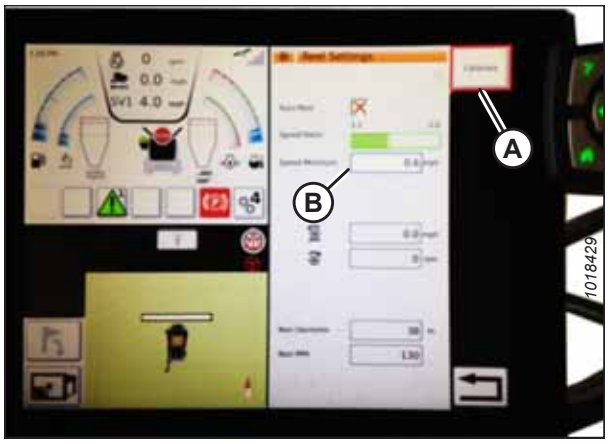


Figure 8.177: Reel Settings Calibration

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 the reel calibration. Pressing red X (B) will cancel the calibration procedure.

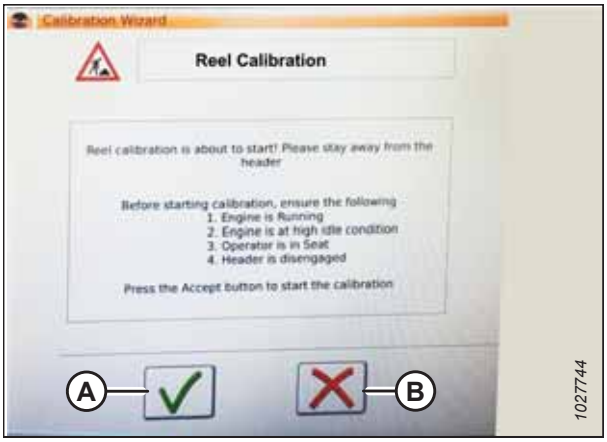


Figure 8.178: Calibration Wizard

6. A message appears in the CALIBRATION WIZARD stating that the reel calibration has started. The reel will begin turning slowly and the reel speed will 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 8.179: 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 the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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 the sensitivity if the combine does not change the feeder position quickly enough when in Auto Mode.
   - Decrease the sensitivity if the combine hunts for a position in Auto Mode.

   NOTE:

   The sensitivity starting points for MacDon headers are as follows:

   - **50** for RTC (A)
   - **60** for AHHC (B)

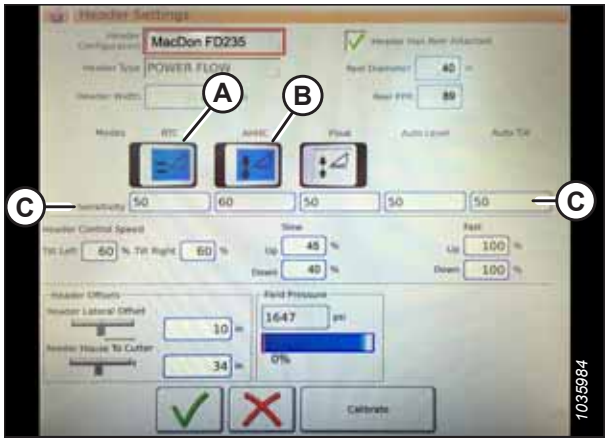


Figure 8.180: Automatic Controls and Sensitivity Settings

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:

   The control speed starting points for MacDon headers are as follows:

   - Slow: 45 up / 40 down
   - Fast: 100 up / 100 down

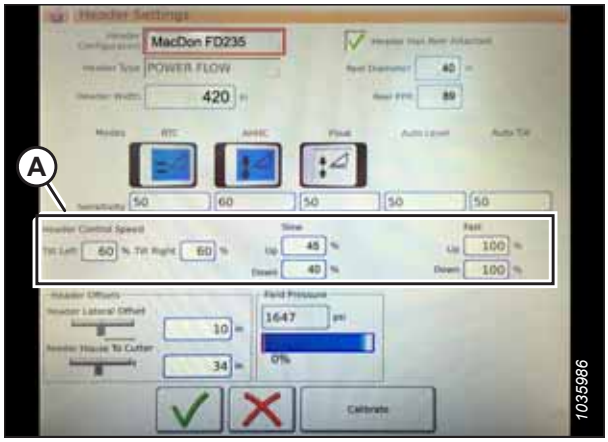


Figure 8.181: Header Speed Control Settings

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. 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.

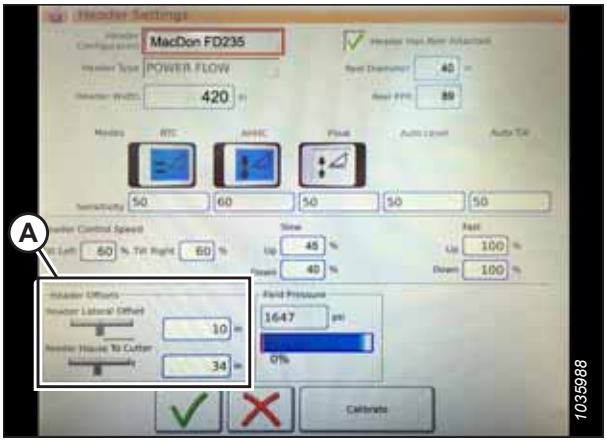


Figure 8.182: Header Offset Settings

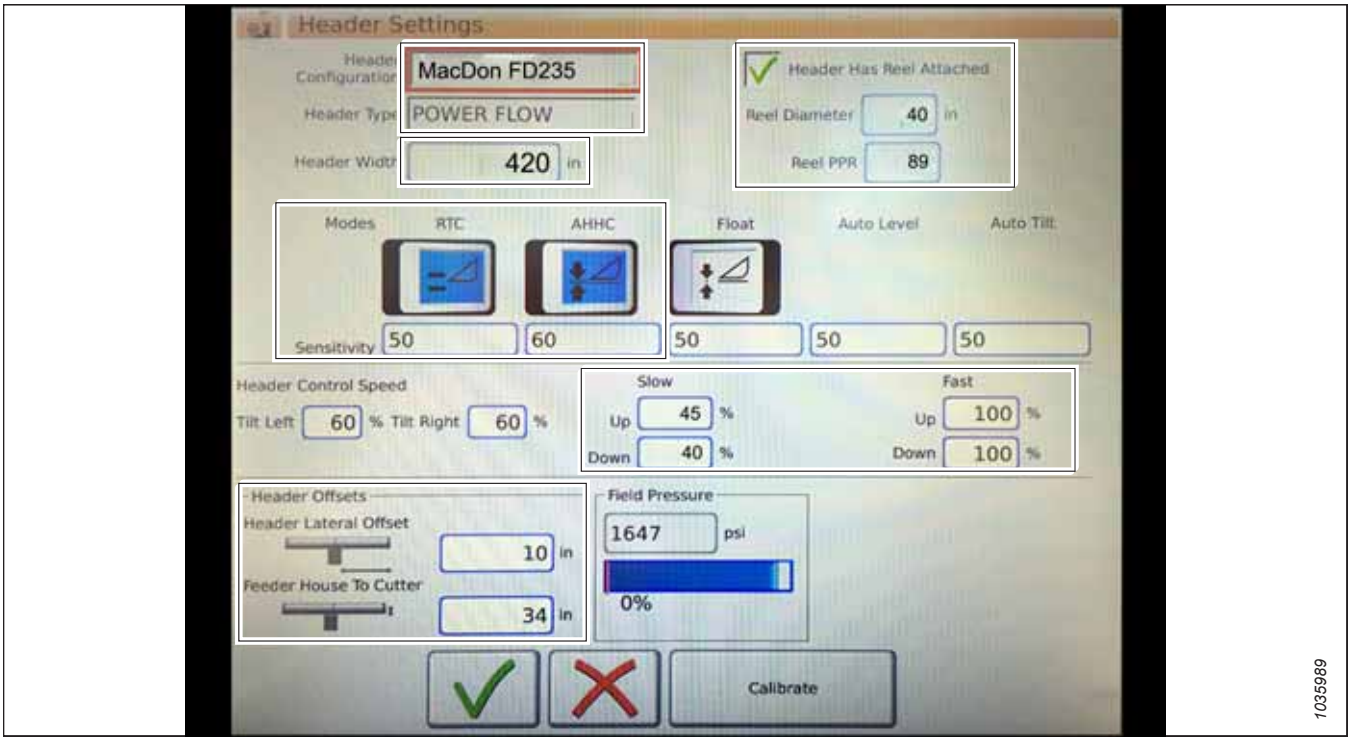


Figure 8.183: MacDon Header Settings Inputs

Calibrating 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 bystanders. Keep children away from the machinery. Walk around the machine to be sure that no one is under, on, or close to it.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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 the best performance of the auto header height control (AHHC) system, perform the ground calibration with the center-link set to **D**. When calibration is complete, adjust the center-link back to the desired header angle. For instructions, refer to the header operator's manual.

1. On the COMBINE MAIN MENU, touch HEADER SETTINGS (A).

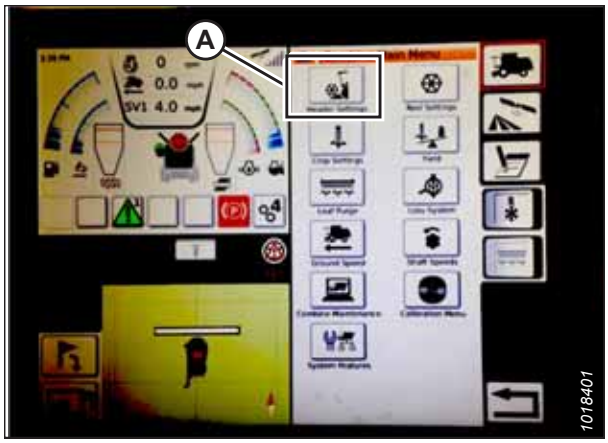


Figure 8.184: Combine Main Menu

2. Touch CALIBRATE (A) at the bottom right of the page. The HEADER CALIBRATION page appears.

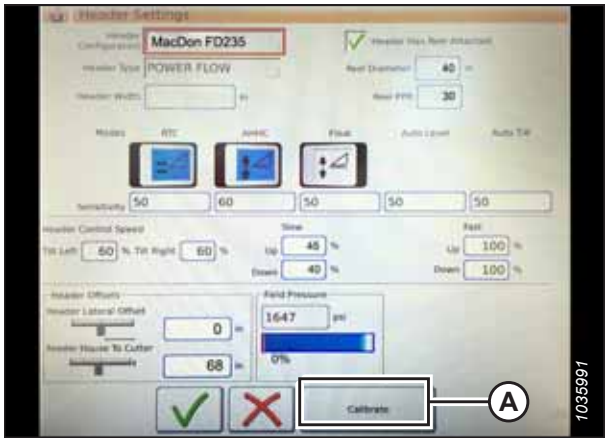


Figure 8.185: Header Settings Page

The right side of the page shows header calibration information (A). The 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

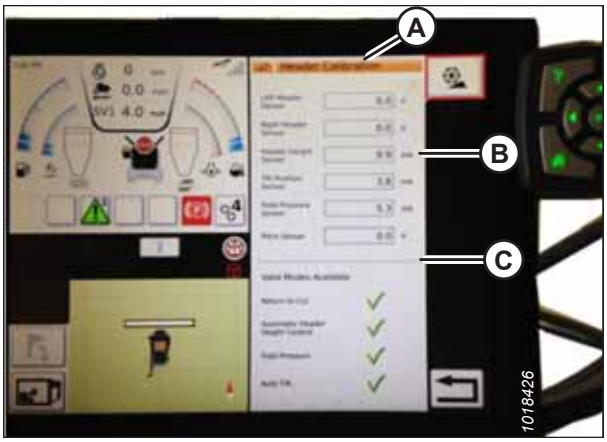


Figure 8.186: Header Calibration Page

3. On the control handle, touch HEADER DOWN button (A). Sensor values start changing on the HEADER CALIBRATION page as the header lowers.

Figure 8.187: Header Down Switch

4. When the sensor values are stable, touch CALIBRATE icon (A).

Figure 8.188: Header Calibration

5. The hazard warning for HEADER CALIBRATION appears. Make sure that all conditions are met.

6. Touch the green check mark at the bottom of the page to start the CALIBRATION WIZARD.

Figure 8.189: Header Calibration Warning

A calibration progress bar displays 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.

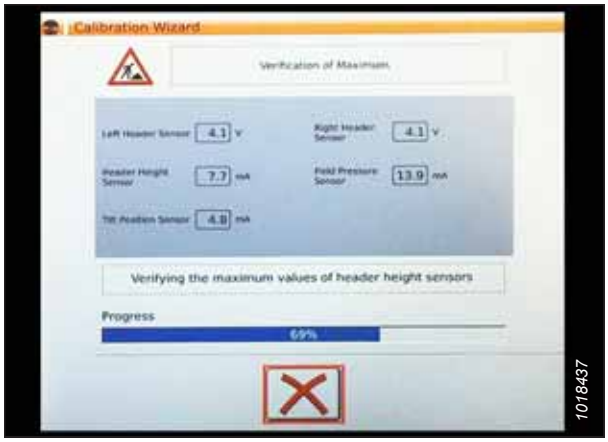


Figure 8.190: Calibration in Progress

7. 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 8.191: Completed Calibration Page

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 8.192: Direct Calibration Menu

Operating Auto Header Height Control – Gleaner S9 Series

Once the auto header height control (AHHC) system has been set up, follow these instructions to take advantage of its functions.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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)

Use the combine operator's manual to familiarize yourself with the controls.

Figure 8.193: Gleaner S9 Operator Controls

1. With the header running, set lateral tilt switch (A) to MANUAL.
2. Engage the AHHC by pressing switch (B) upward to the **I** position.

Figure 8.194: Header Control Cluster

3. Press AHHC control switch (A) on the control handle to engage the AHHC. The header moves to the current set point position.

Figure 8.195: AHHC on Control Handle

4. Use HEADER HEIGHT SETPOINT control dial (A) as necessary to fine-tune the position.

Figure 8.196: Header Control Cluster

Reviewing Header In-Field Settings – Gleaner S9 Series

The auto header height control (AHHC) settings can be reviewed at a glance by pressing the HEADER icon on the Tyton terminal's home page.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

1. To view the following header group settings, touch HEADER icon (A) on the right side of the home page:
   - CURRENT POSITION of header (B).
   - SETPOINT cut-off position (C) (indicated by the red line)
   - HEADER symbol (D) – touch to adjust the set point 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 set point control dial on the header control cluster.
   - HEADER WORKING WIDTH (F)
   - HEADER PITCH (G)

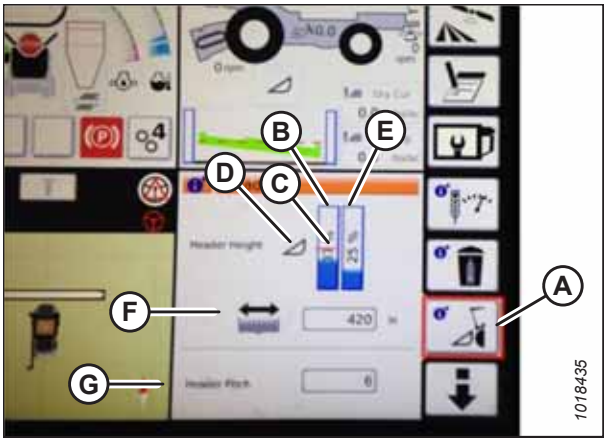


Figure 8.197: Header Groups

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.

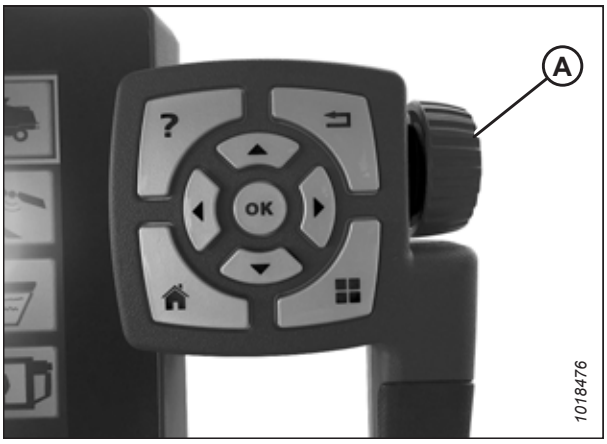


Figure 8.198: Adjustment Wheel on Right Side of Tyton Terminal

NOTE:

HEADER HEIGHT SETPOINT control dial (A) is on the header control cluster.

Figure 8.199: Header Control Cluster

8.1.14 IDEAL™ Series Combines

To make your header's auto header height control (AHHC) system compatible with IDEAL™ Series combines, you must set your combine's header configuration options for the particular model of header, configure the reel speed settings, set up the AHHC controls, and calibrate the AHHC system to ensure that it is working correctly.

Header Settings Quick Reference – IDEAL™

Use the information in the following table to quickly reference the recommended settings for a 2 Series draper header.

For detailed instructions, proceed to the IDEAL™ combine header setup and calibration procedures.

Table 8.7 Header Settings – IDEAL™

Setup Parameter	Suggested Setting		
Header Type	Power Flow		
Reel Check Box	Checked		
Reel Diameter	102 cm (40 in.)[18]		
Reel PPR[19]	Standard - 38	High torque sprocket - 68	High speed sprocket - 34
Sensitivity (RTC)	50		
Sensitivity (AHHC)	60		
Header Control Speed[20]	Slow: Up 45/Down 40 Fast: Up 100/Down 100		
Header Lateral Offset	0		
Feeder House to Cutter	68		

Setting up Header – IDEAL™ Series

Set these initial configuration options on your IDEAL™ Series combine when setting up the auto header height control (AHHC) system.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

18. If the reel speed does not index correctly, then the reel diameter can be increased to 112 cm (44 in.).
19. Pulses per revolution
20. A two-stage button with slow speed on the first detent and fast on the second.

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 8.200: IDEAL™ Series Operator Station

A - Tyton Terminal **B - Control Handle**
C - Throttle **D - Header Control Cluster**

1. On the top right of the home page, touch COMBINE icon (A). The COMBINE MAIN MENU opens.

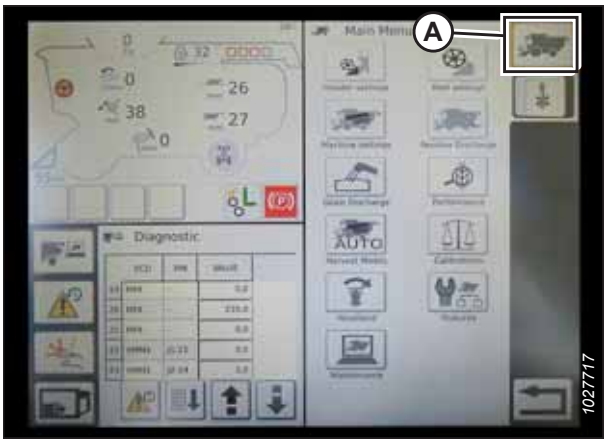


Figure 8.201: Combine Icon on Home Page

2. On the COMBINE MAIN MENU, touch HEADER SETTINGS (A). The HEADER SETTINGS page opens.

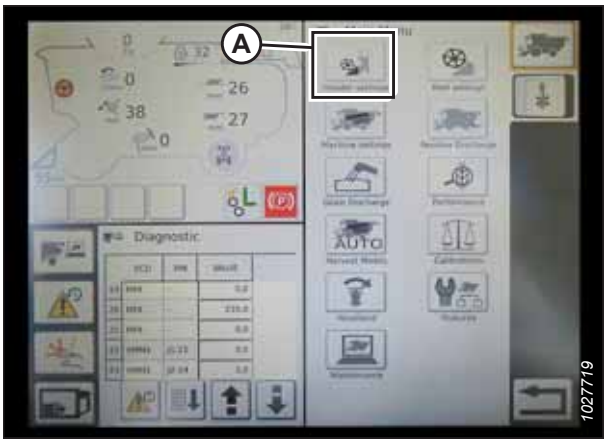


Figure 8.202: Header Settings in Combine Main Menu

3. Touch HEADER CONFIGURATION field (A). A dialog box showing a list of predefined header configuration profiles 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)

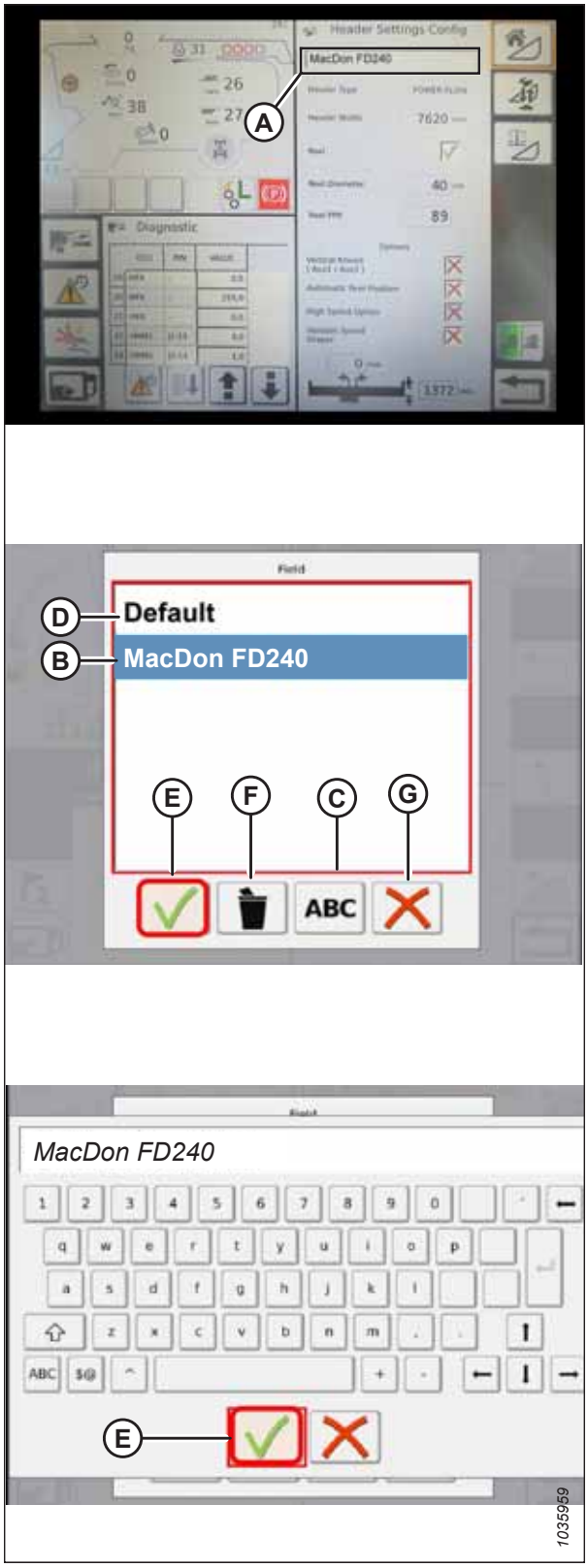


Figure 8.203: Header Configuration Menu on Header Settings Page

4. To specify the type of header installed on the machine, touch HEADER TYPE field (A).

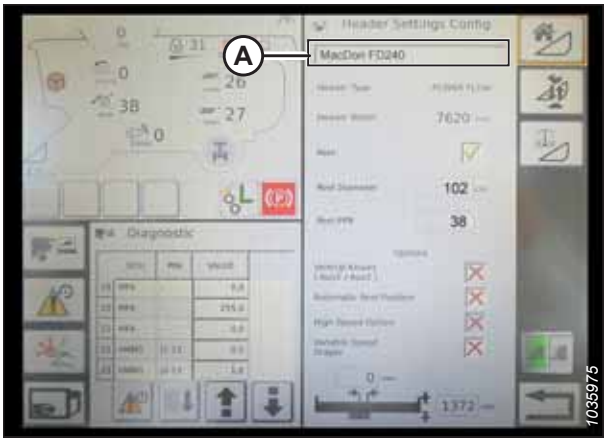


Figure 8.204: Header Settings

5. From the list of predefined header types, touch POWER FLOW (A).
6. Touch green check mark (B) to save the selection and continue.

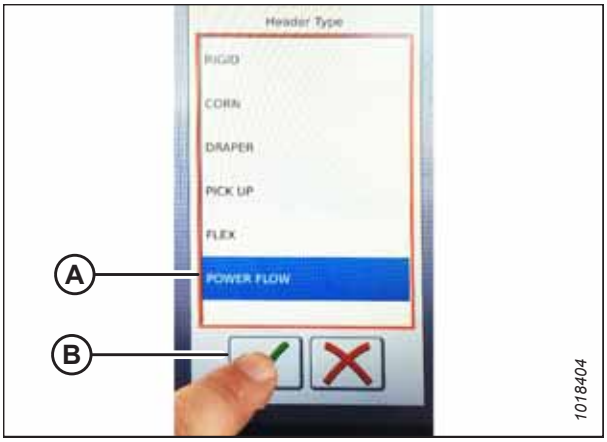


Figure 8.205: Header Type

7. Make sure that REEL check box (A) is checked.

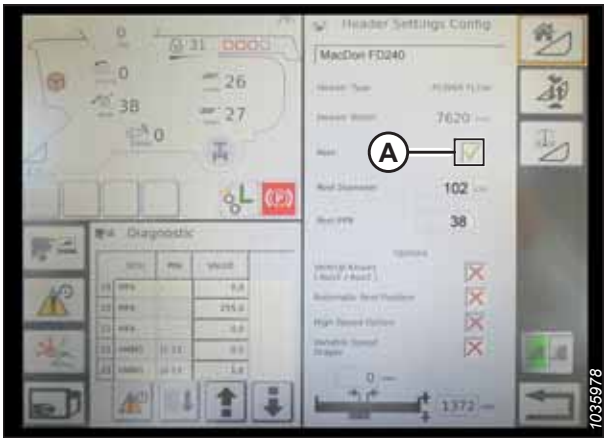


Figure 8.206: Header Settings

8. Touch REEL DIAMETER field (A) and a numeric keypad appears. Enter the following value for a MacDon reel:
   - 102 cm (40 in.)

   NOTE:

   If the reel speed does not index correctly, then the reel diameter can be increased to 112 cm (44 in.).

9. Touch REEL PPR (Pulses Per Revolution) field (B) and enter the following as the value for your MacDon header:
   - **Standard:** 38
   - **Two-speed, high torque:** 68
   - **Two-speed, high speed:** 34

10. Touch green check mark (B) at the bottom of numeric keypad (A) when complete, or the red X to cancel.

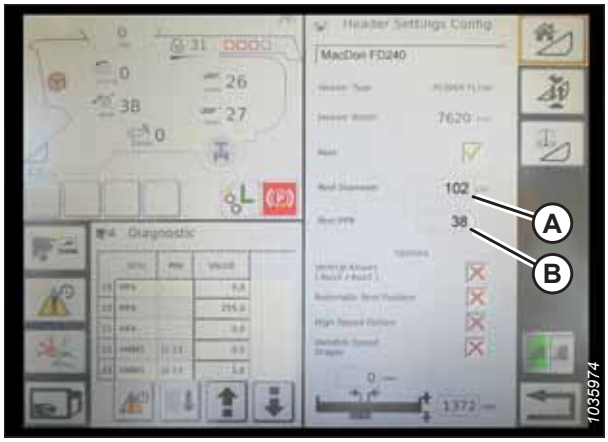


Figure 8.207: Header Settings

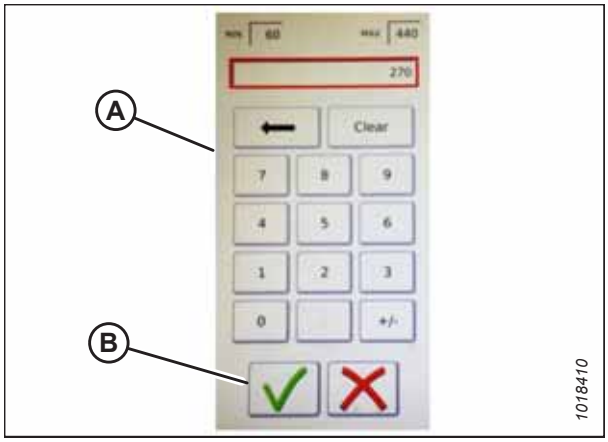


Figure 8.208: Numeric Keypad

11. When complete, touch green check mark (A) at the bottom of the HEADER SETTINGS page.

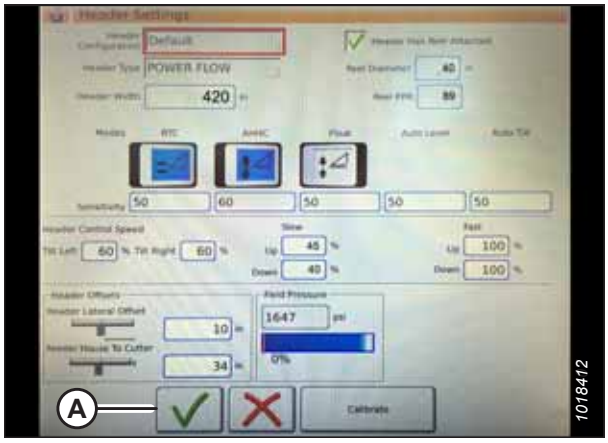


Figure 8.209: Header Settings Page

Setting Minimum Reel Speed and Calibrating Reel – IDEAL™ Series

To configure the reel speed on the header to work with the auto header height control system (AHHC) on an IDEAL™ Series combine, the reel operation parameters must be configured and the combine must run an automatic reel calibration procedure.

DANGER

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

NOTE:

Changes may have been made to the combine controls or the display since this document was published. For instructions, refer to the combine operator's manual for updated information.

1. From the COMBINE MAIN MENU, touch REEL SETTINGS (A) to open the REEL SETTINGS page.

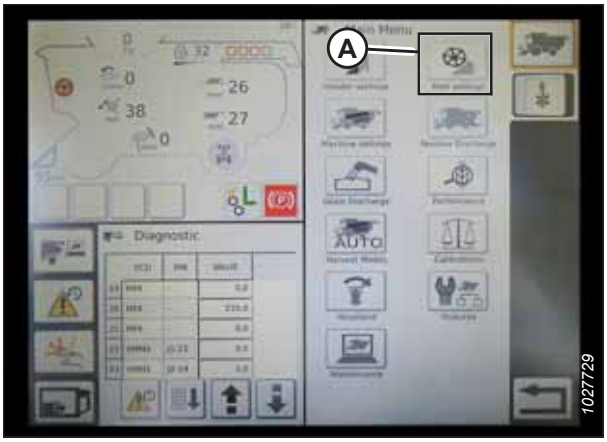


Figure 8.210: Reel Settings on Combine Main Menu

2. To set the minimum reel speed, touch SPEED MINIMUM FIELD (B). The on-screen keyboard appears. 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:

   The reel diameter and reel pulses per revolution (PPR) are displayed at the bottom of the REEL SETTINGS page. 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) at the top right corner of the page.

   NOTE:

   The CALIBRATION WIZARD opens and displays a hazard warning.

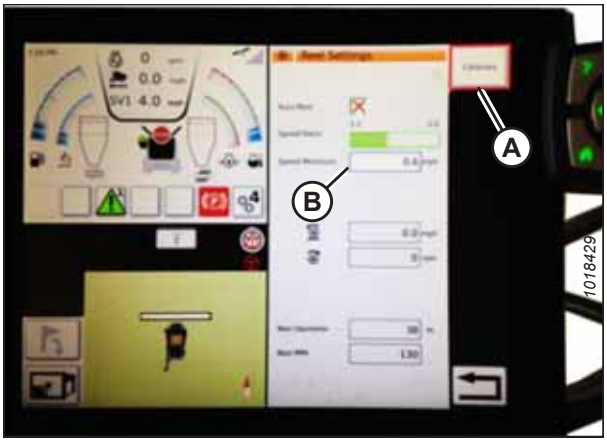


Figure 8.211: Reel Settings Calibration

4. Make sure to meet all the conditions listed in the CALIBRATION WIZARD warning. Press the green check mark to accept and start the reel calibration procedure. Pressing the red X will cancel the calibration procedure.

Figure 8.212: Calibration Wizard

5. A message appears in the CALIBRATION WIZARD stating that the reel calibration procedure has started. The reel will begin turning slowly and its speed will gradually increase. If necessary, touch the red X (not shown) to cancel. Otherwise, wait for the message that the reel calibration procedure has completed successfully. Touch the green check mark to save the calibrated settings.

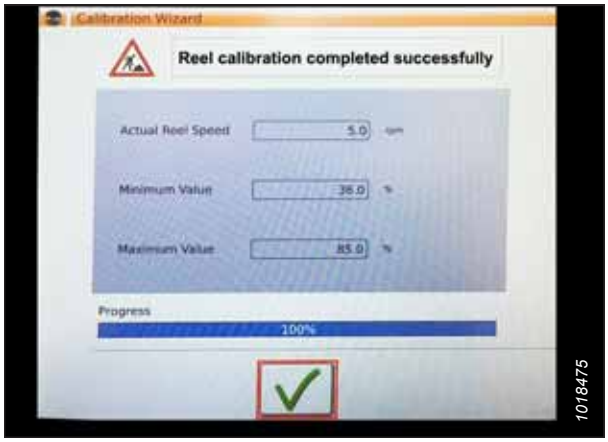


Figure 8.213: Calibration Progress

Setting up Automatic Header Controls – IDEAL™ Series

To configure the automatic header height control (AHHC) functions on an IDEAL™ Series combine to work with your header, navigate to the HEADER SETTINGS page on the combine's computer.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

1. **Automatic Control Functions:** There are toggle (OFF/ON) switches on the HEADER SETTINGS page for the automatic control functions. For MacDon headers, ensure that the following two functions are enabled as shown:

   - RTC (return to cut) (A)
   - AHHC (automatic header height control) (B)

   All other switches should be 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 the sensitivity if the combine does not change the feeder position quickly enough when in Auto Mode.
   - Decrease the sensitivity if the combine continually hunts for a position in Auto Mode.

   NOTE:

   The following sensitivity settings are recommended for MacDon headers:

   - **50** for RTC (A)
   - **60** for AHHC (B)

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:

   The recommended header control speed settings are:

   - Slow: Up 45/Down 40
   - Fast: Up 100/Down 100

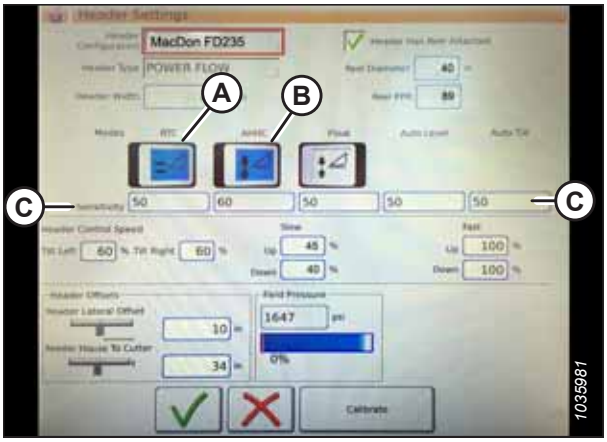


Figure 8.214: Automatic Controls and Sensitivity Settings

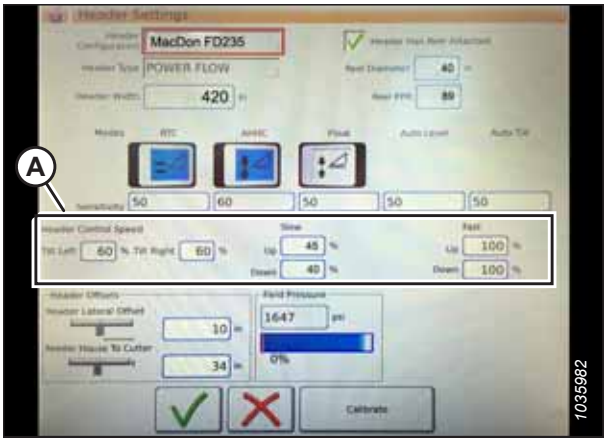


Figure 8.215: Header Speed Control Settings

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.

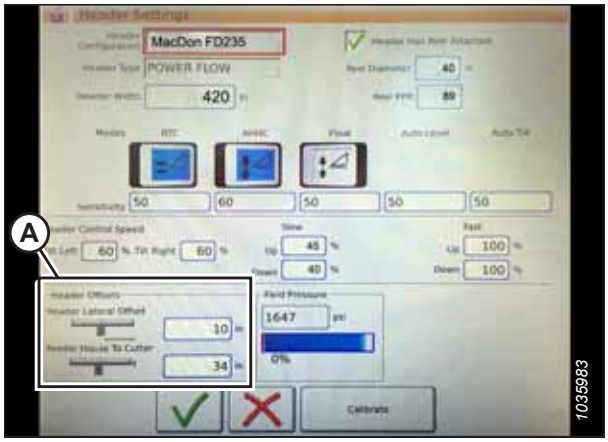


Figure 8.216: Header Offset Settings

Calibrating Header – IDEAL™ Series

The auto header height control (AHHC) sensor output must be calibrated for IDEAL™ Series combines, or the AHHC feature will not work properly.

DANGER

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

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

1. On the COMBINE MAIN MENU, touch HEADER SETTINGS (A).

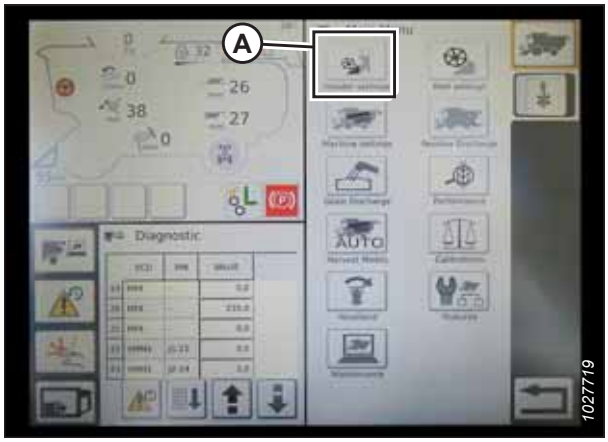


Figure 8.217: Combine Main Menu

2. Touch HEADER CALIBRATE (A) at the right side of the HEADER SETTINGS CONFIG page.

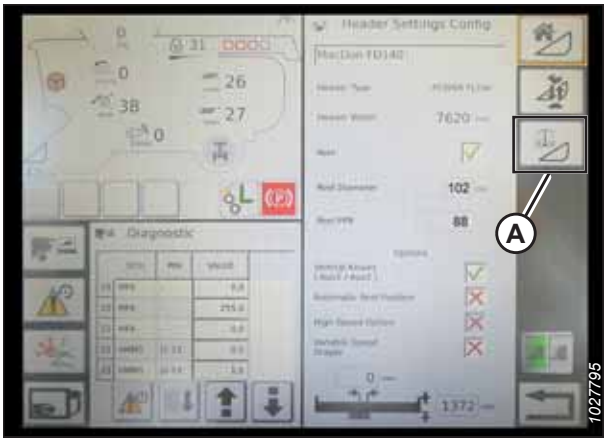


Figure 8.218: Header Settings Page

3. The hazard warning for HEADER CALIBRATION appears. Ensure that all conditions are met.

4. Touch the green check mark at the bottom of the page to start the calibration procedure and follow the on-screen commands.

Figure 8.219: Header Calibration Warning

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.

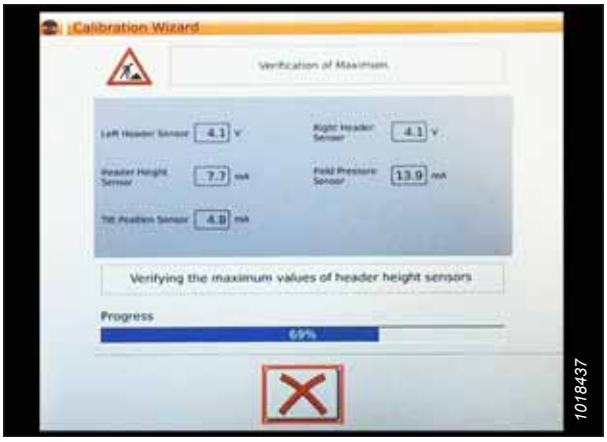


Figure 8.220: Calibration in Progress

5. When the calibration procedure is complete:
   - Review summary information (A)
   - Review green check marks confirming calibrated functions (B)
   - Touch check mark (C) to save

Figure 8.221: 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.

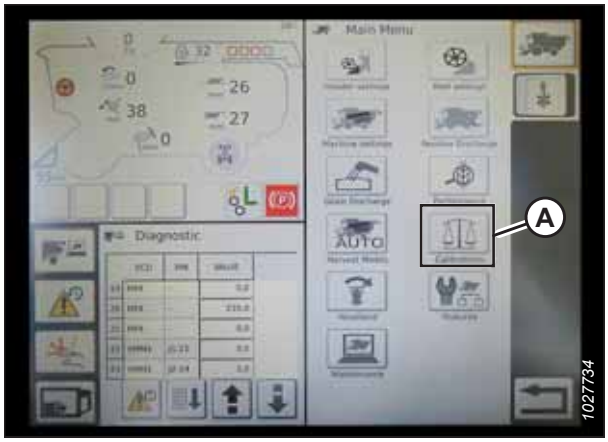


Figure 8.222: Direct Calibration Menu

Operating Header – IDEAL™ Series

Once the auto header height control (AHHC) system has been configured on your IDEAL™ Series combine, the AHHC system can be controlled from the combine cab.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

The following are used to operate the auto header height control (AHHC) functions:

- Tyton terminal (A)
- Control handle (B)
- Throttle (C)
- Header control cluster (D)

Refer to the combine operator's manual to familiarize yourself with the combine's controls.

Figure 8.223: Operator Station

1. With the header running, set the lateral tilt to MANUAL by pressing switch (A). The light above the switch should be off.
2. Engage the AHHC by pressing switch (B). The light above the switch should be on.

Figure 8.224: Header Control Cluster

3. Press AHHC control switch (A) on the control handle to engage the AHHC. The header moves to the configured set point position.

Figure 8.225: AHHC on Control Handle

4. Use HEADER HEIGHT SETPOINT control dial (A) as necessary to fine-tune the header position.

Figure 8.226: Header Control Cluster

Reviewing Header In-Field Settings – IDEAL™ Series

Once the auto header height control (AHHC) system is working correctly with your IDEAL™ Series combine, you can fine-tune these AHHC settings to your liking.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

1. Touch HEADER icon (A) on the right side of the home page to view the following header group settings:
   - CURRENT POSITION of header (B).
   - SETPOINT cut-off position (C) (indicated by the red line)
   - HEADER symbol (D) – touch this to adjust the set point cut-off position using the adjustment wheel on the right side of the Tyton terminal.
   - CUT HEIGHT for AHHC (E) – fine-tune this setting with the header height set point control dial on the header control cluster.
   - HEADER WORKING WIDTH (F)
   - HEADER PITCH (G)

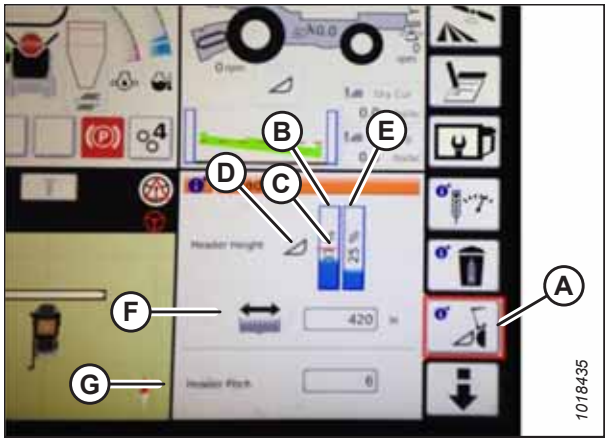


Figure 8.227: Header Groups

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.

   NOTE:

   Adjustment wheel (A) is located on the right of the Tyton terminal.

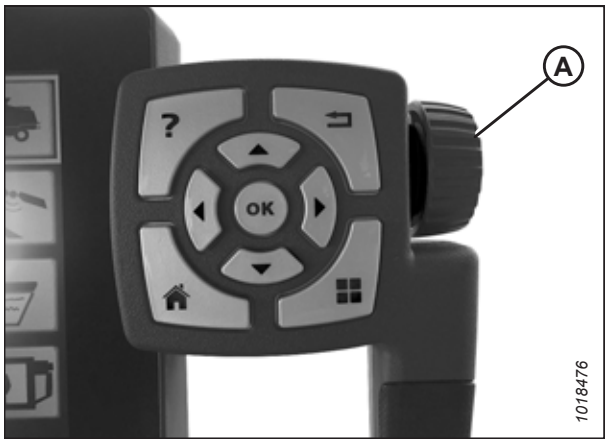


Figure 8.228: Adjustment Wheel on Right of Tyton Terminal

NOTE:

HEADER HEIGHT SETPOINT control dial (A) is on the header control cluster.

Figure 8.229: Header Control Cluster

8.1.15 John Deere 70 Series Combines

To make your header's auto header height control (AHHC) system compatible with John Deere 70 series combines, you must set your combine's header configuration options for the particular model of header, configure the reel speed settings, set up the AHHC controls, and calibrate the AHHC system to ensure that it is working correctly.

Checking Voltage Range from Combine Cab – John Deere 70 Series

The auto header height control (AHHC) sensor needs to operate in a specific voltage range in order to work properly.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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 AHHC system.

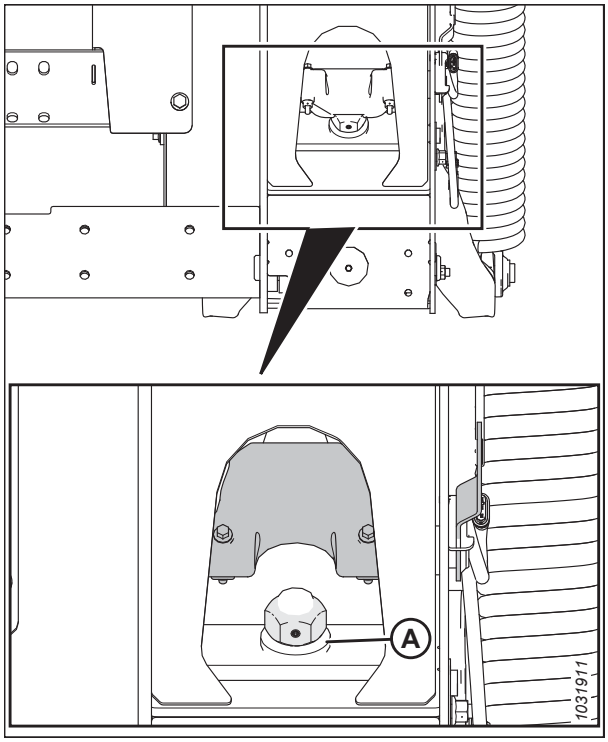


Figure 8.230: Float Lock

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).

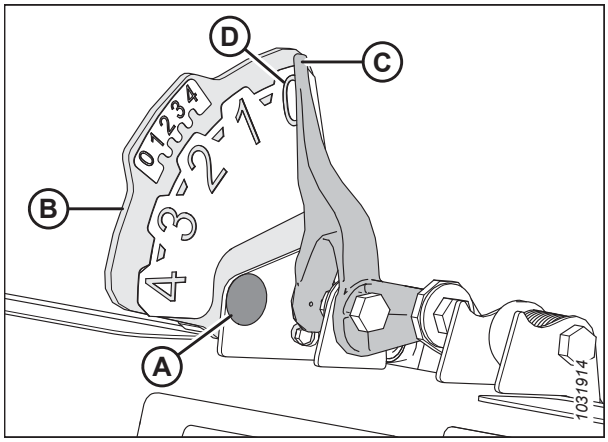


Figure 8.231: Float Indicator

6. Press HOME PAGE button (A) on the main page of the display.

Figure 8.232: John Deere Combine Display

7. Ensure three icons (A) shown in the illustration at right appear on the display.

Figure 8.233: 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. The Message Center appears.

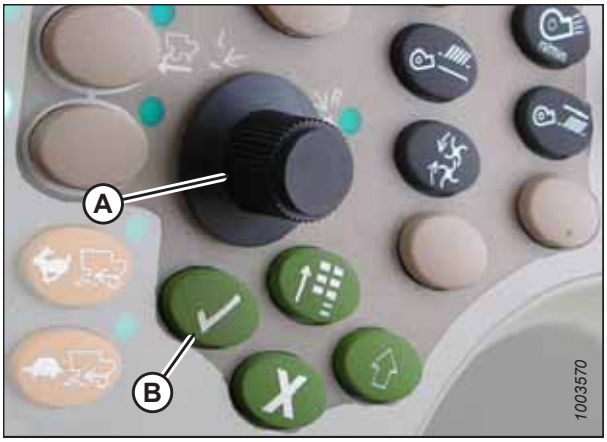


Figure 8.234: John Deere Combine Control Console

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.

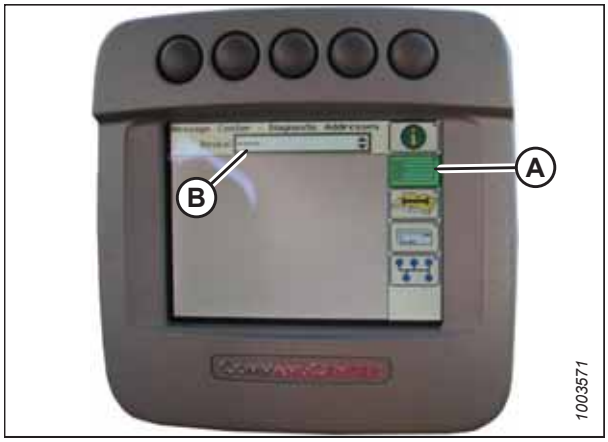


Figure 8.235: John Deere Combine Display

11. Use the scroll knob to highlight LC 1.001 VEHICLE (A) and press the check mark button to select it.

Figure 8.236: 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.

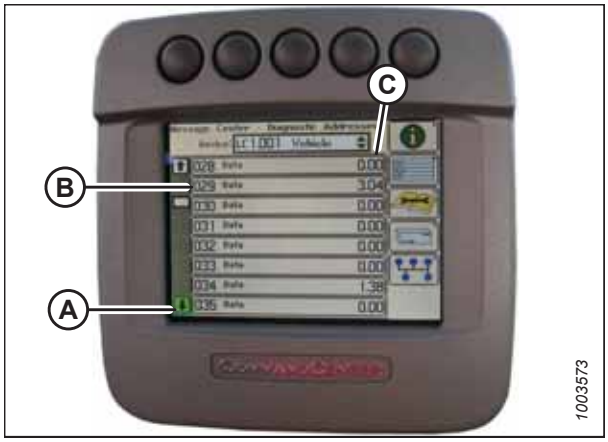


Figure 8.237: John Deere Combine Display

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.

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 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 the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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.

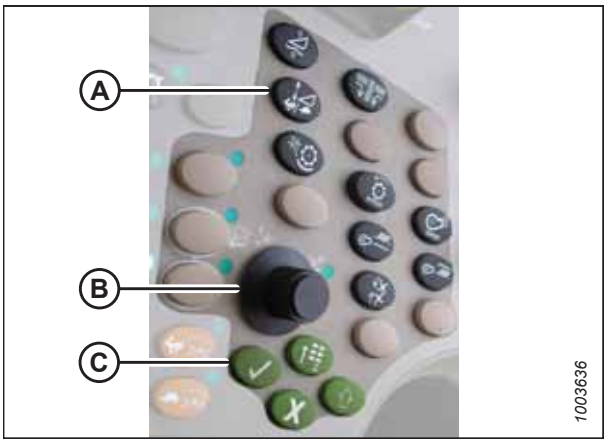


Figure 8.238: John Deere Combine Control Console

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 8.239: John Deere Combine Display

Calibrating 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.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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 the best performance of the auto header height control (AHHC) system, perform the ground calibration with the center-link set to **D**. When calibration is complete, adjust the center-link back to the 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 the 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.

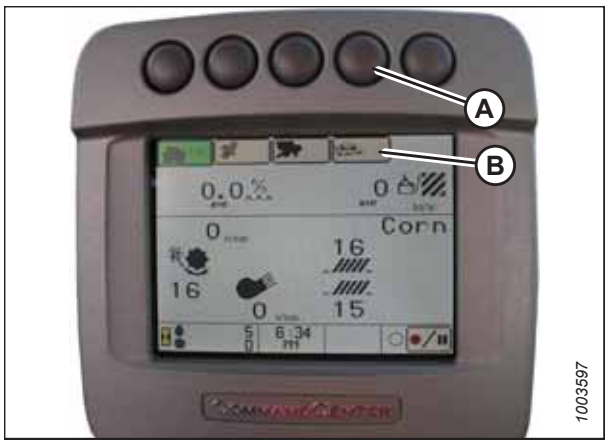


Figure 8.240: John Deere Combine Display

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 *8.242, page 355*).
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.
10. Follow the steps listed on the page to perform the calibration.

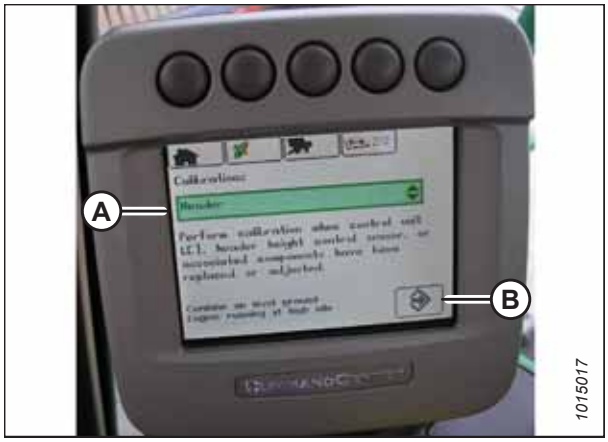


Figure 8.241: John Deere Combine Display

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 Combine Cab – John Deere S and T Series, page 356*.

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.

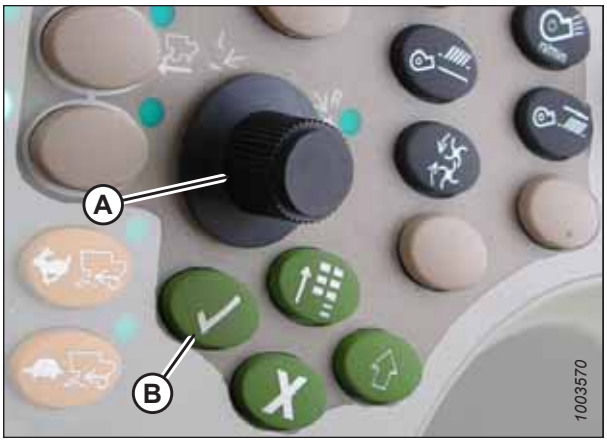


Figure 8.242: John Deere Combine Control Console

A - Scroll Knob **B - Check Mark Button**

Setting Auto Header Height Control Sensitivity – 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 the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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.

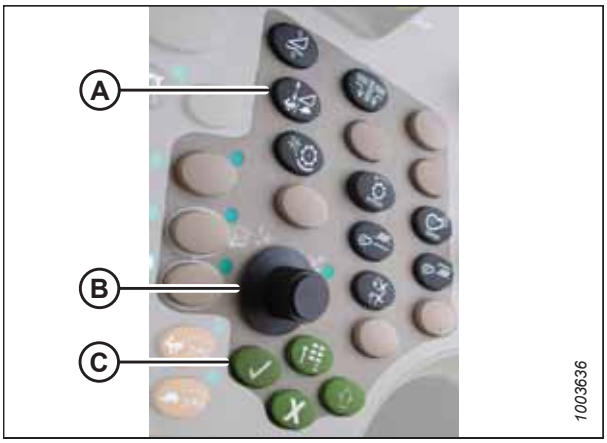


Figure 8.243: John Deere Combine Control Console

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 8.244: John Deere Combine Display

8.1.16 John Deere S and T Series Combines

To make your header's auto header height control (AHHC) system compatible with John Deere S and T series combines, you must set your combine's header configuration options for the particular model of header, configure the reel speed settings, set up the AHHC controls, and calibrate the AHHC system to ensure that it is working correctly.

Checking Voltage Range from Combine Cab – John Deere S and T Series

The auto header height control (AHHC) sensor needs to operate in a specific voltage range in order to work properly.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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 AHHC system.

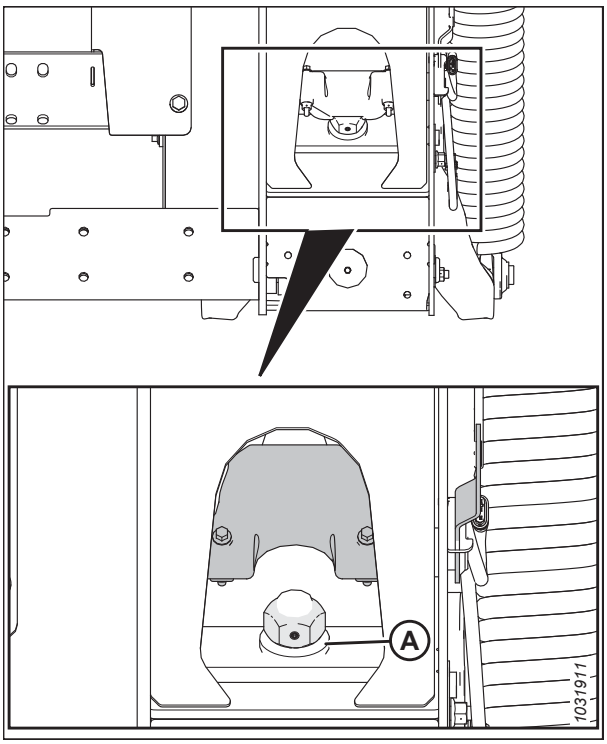


Figure 8.245: Float Lock

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).

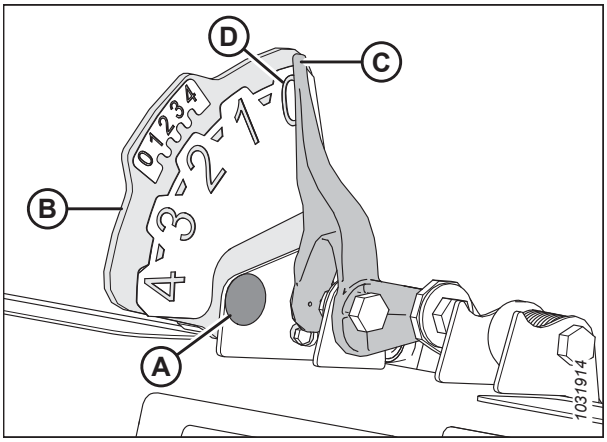


Figure 8.246: Float Indicator

6. Press CALIBRATION icon (A) on the main page of the display. The CALIBRATION page appears.

Figure 8.247: 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.

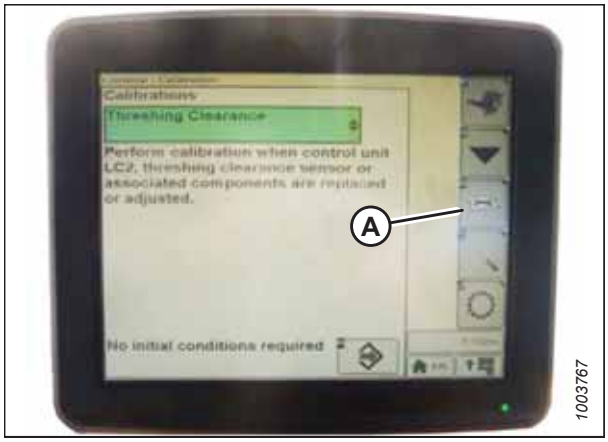


Figure 8.248: John Deere Combine Display

8. Select AHHC RESUME (A) and a list of calibration options appears.

Figure 8.249: John Deere Combine Display

9. Select the AHHC SENSING option.

10. Press icon (A). The AHHC SENSING menu appears and five pages of information appear.

Figure 8.250: 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 8.251: 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 Manual Header Raise/Lower Rate – John Deere S and T Series

The rate at which the header can be raised or lowered using the combine controls can be changed from the height sensitivity screen in the combine command center.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

1. Put the wings in the locked position.

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.

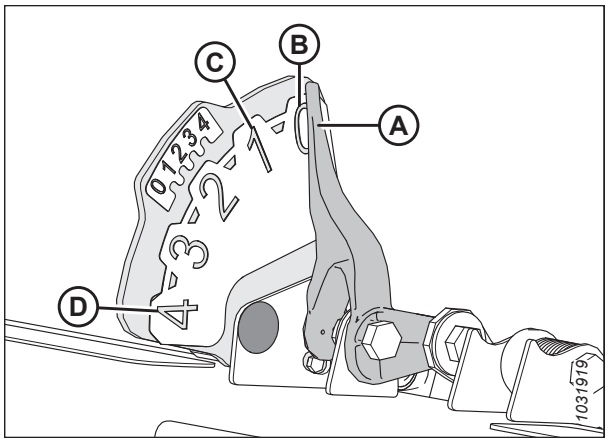


Figure 8.252: Float Indicator

2. Press button (A) and the current sensitivity setting will appear on the display.

Figure 8.253: John Deere Combine Command Center

3. Press **–** or **+** icons (A) to adjust the 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 8.254: John Deere Combine Display

Calibrating 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 the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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 the best performance of the auto header height control (AHHC) system, perform the ground calibration with the center-link set to **D**. When calibration is complete, adjust the center-link back to the 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 the locked position.
5. Press DIAGNOSTIC icon (A) on the main page of the display. The CALIBRATION page appears.

Figure 8.255: John Deere Combine Display

6. Select THRESHING CLEARANCE (A) and a list of calibration options appears.

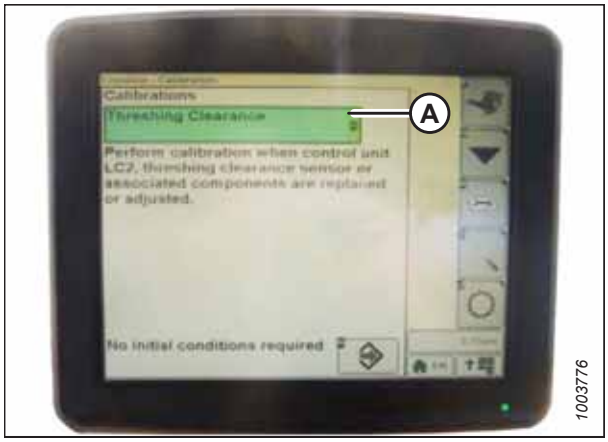


Figure 8.256: John Deere Combine Display

7. Select FEEDER HOUSE SPEED (A) from the list of calibration options.

   NOTE:

   Feeder house speed calibration must be done before header calibration.

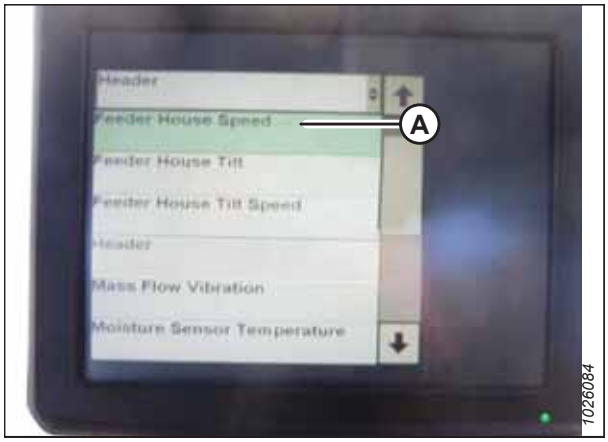


Figure 8.257: John Deere Combine Display

8. With FEEDER HOUSE SPEED selected, press icon (A). The icon turns green.

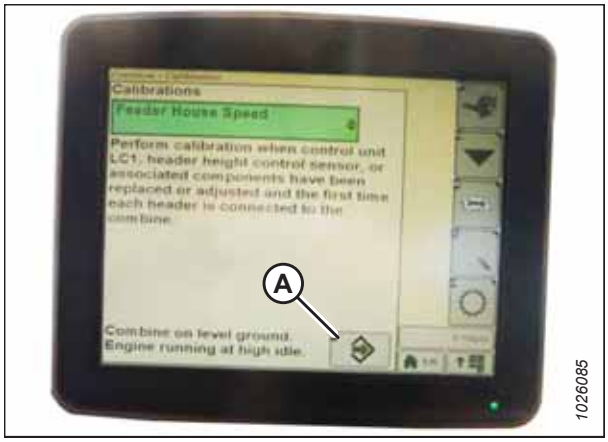


Figure 8.258: John Deere Combine Display

9. Press icon (A) and instructions will appear on screen to guide you through the remaining calibration steps.

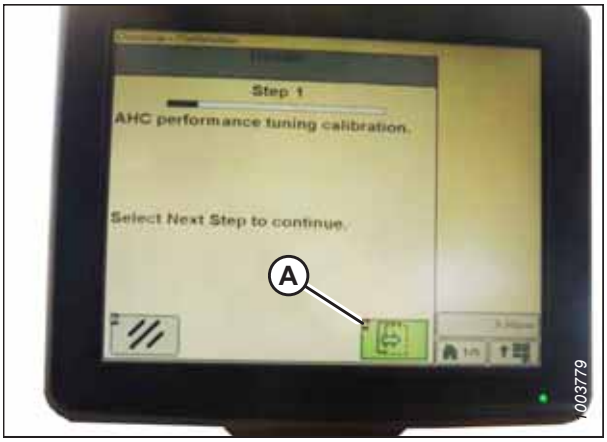


Figure 8.259: John Deere Combine Display

10. Select HEADER (A) from the list of calibration options.

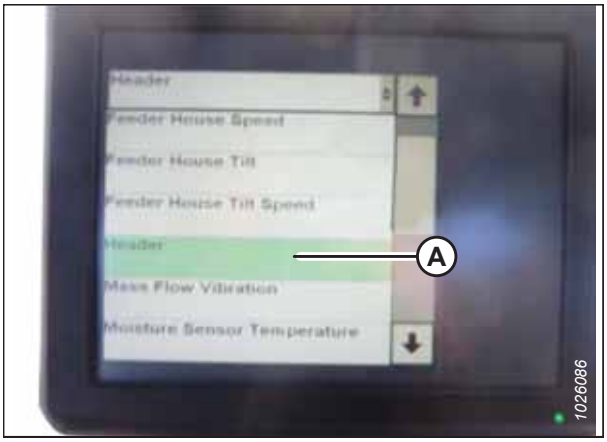


Figure 8.260: John Deere Combine Display

11. With HEADER selected, press icon (A). The icon turns green.

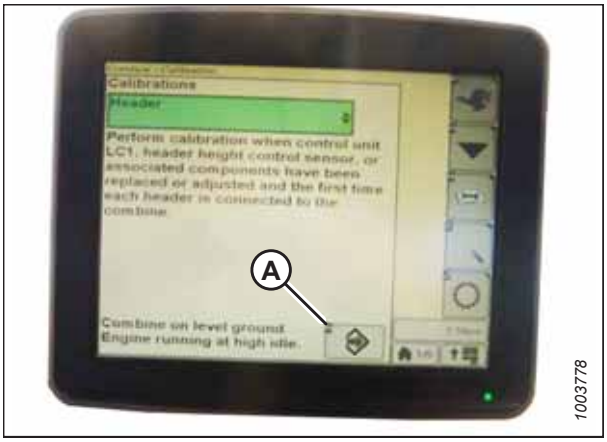


Figure 8.261: John Deere Combine Display

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 Combine Cab – John Deere S and T Series, page 356*.

    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.

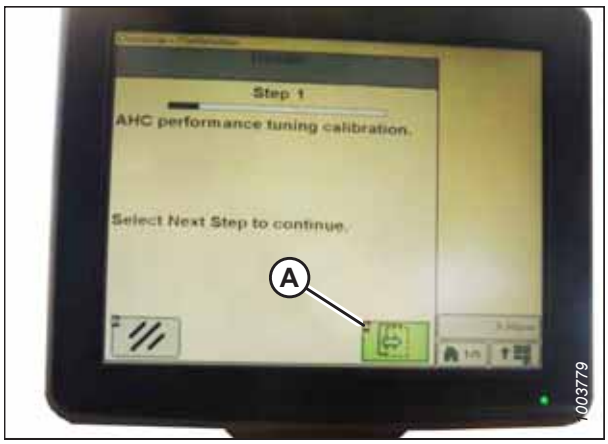


Figure 8.262: John Deere Combine Display

Setting Auto Header Height Control Sensitivity – 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 the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

1. Press button (A) twice and the current sensitivity setting will appear on the display.

Figure 8.263: John Deere Combine Command Center

2. Press **–** or **+** icons (A) to adjust the 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 8.264: 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 the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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.

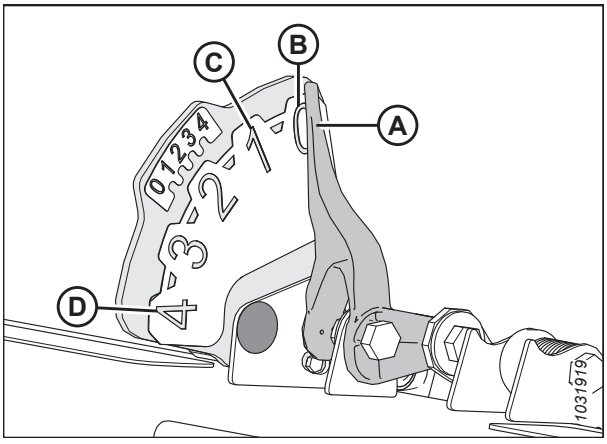


Figure 8.265: Float Indicator

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 8.266: Combine Display

3. Select COMBINE – HEADER SETUP AHC icon (A). The COMBINE – HEADER SETUP AHC page appears.

Figure 8.267: 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 373*.

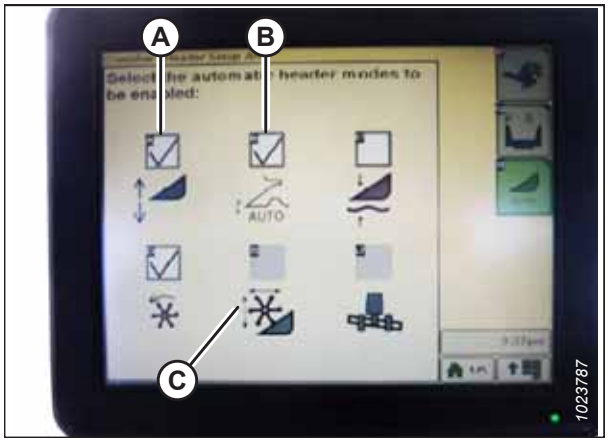


Figure 8.268: Combine Display

5. Engage the header.
6. Move the header to the desired position and use knob (A) to fine tune the position.
7. Move the reel to the desired position.

Figure 8.269: Combine Control Console

8. Press and hold preset switch 2 (B) until the reel height icon flashes on display.
9. Repeat the previous three steps for preset switch 3 (C).
10. 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 8.270: 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.

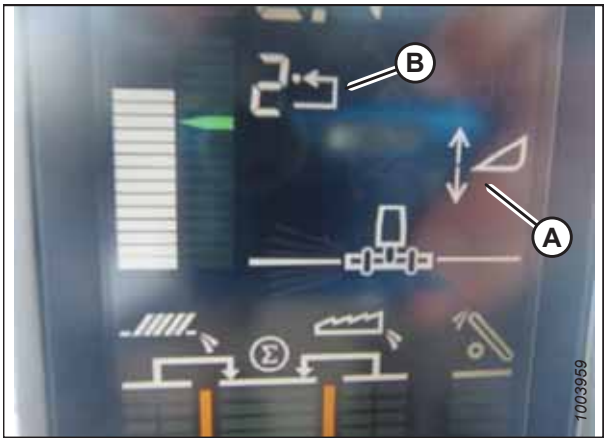


Figure 8.271: Combine Display

Calibrating Feeder House Fore-Aft Tilt Range – John Deere S and T Series

Follow this procedure to properly calibrate the combine feeder house fore-aft tilt range. This procedure applies only to model year 2015 and later John Deere S and T Series combines.

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.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

The feeder house fore/aft tilt is controlled by buttons (C) and (D) at the back of the control handle.

Figure 8.272: 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).

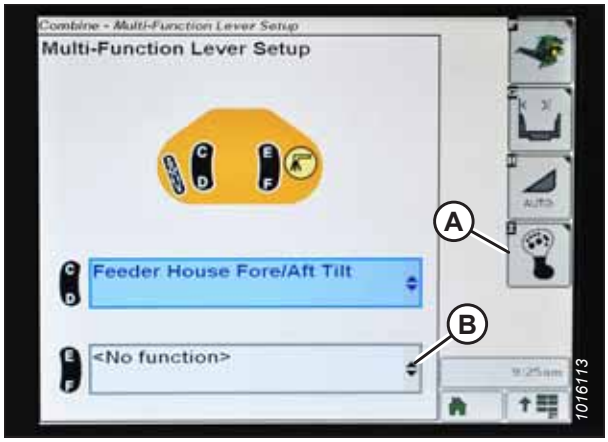


Figure 8.273: John Deere Combine Display

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.

3. Press DIAGNOSTIC icon (A) on the main page of the display. The CALIBRATION page displays.

Figure 8.274: John Deere Combine Display

4. Select CALIBRATIONS drop-down menu (A) to view the list of calibration options.

Figure 8.275: John Deere Combine Display

5. Press arrow (A) to cycle up through the calibration options and select FEEDER HOUSE FORE/AFT TILT RANGE.

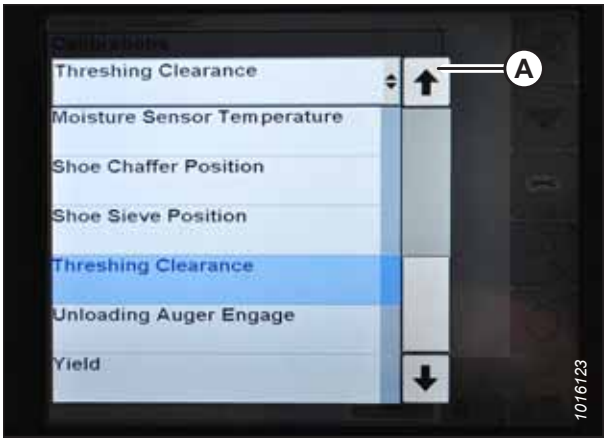


Figure 8.276: John Deere Combine Display

6. Press ENTER icon (A).

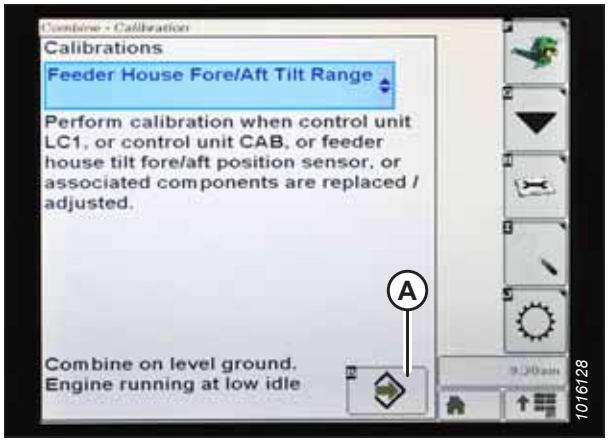


Figure 8.277: John Deere Combine Display

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 Combine Cab – John Deere S and T Series, page 356*.

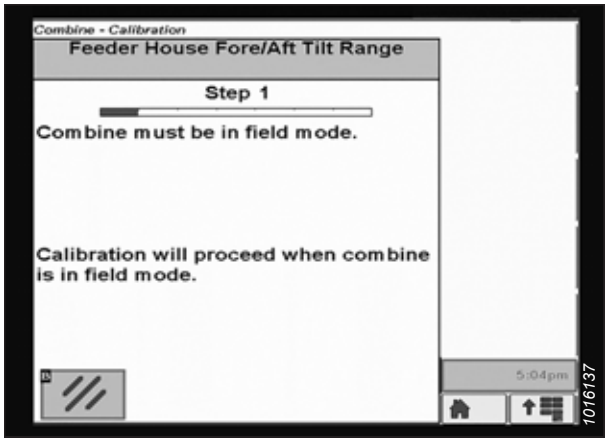


Figure 8.278: John Deere Combine Display

Checking Reel Height Sensor Voltages – John Deere S and T Series

Check the reel height sensor voltages to ensure they are within the prescribed range.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

1. Press CALIBRATION icon (A) on the main page of the display. The CALIBRATION page appears.

Figure 8.279: John Deere Combine Display

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 8.280: John Deere Combine Display

3. Select drop-down menu (A) to view the list of calibration options.

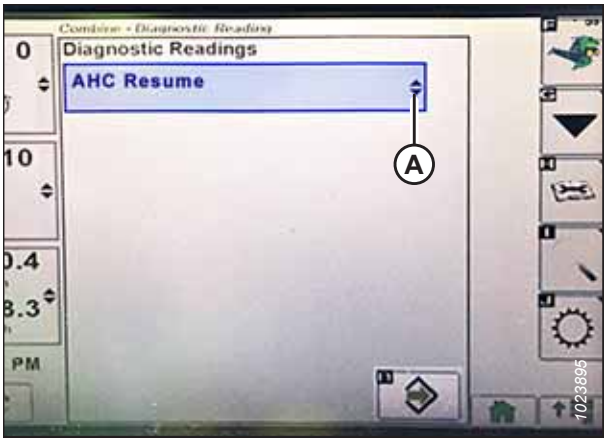


Figure 8.281: John Deere Combine Display

4. Scroll down and select REEL RESUME (A).

Figure 8.282: John Deere Combine Display

5. Press ENTER icon (A). The REEL RESUME page appears.

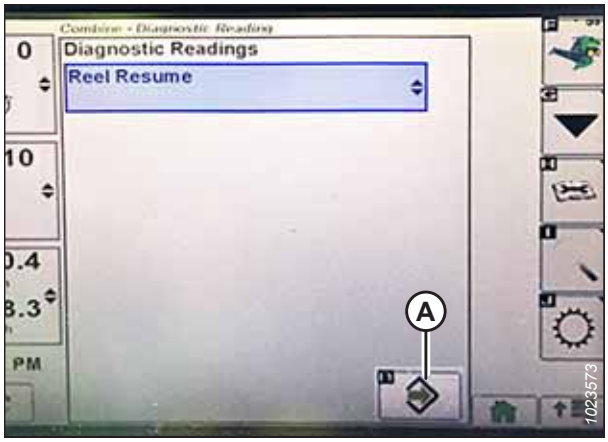


Figure 8.283: John Deere Combine Display

6. Press NEXT PAGE icon (A) to cycle to page 3.
7. Lower the reel to view lower voltage limit (B). The voltage should be 0.5–0.9 V.

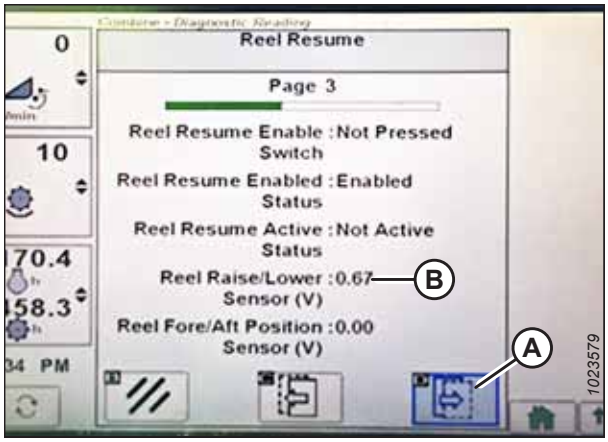


Figure 8.284: John Deere Combine Display

8. Raise the reel to view upper voltage limit (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 417*.

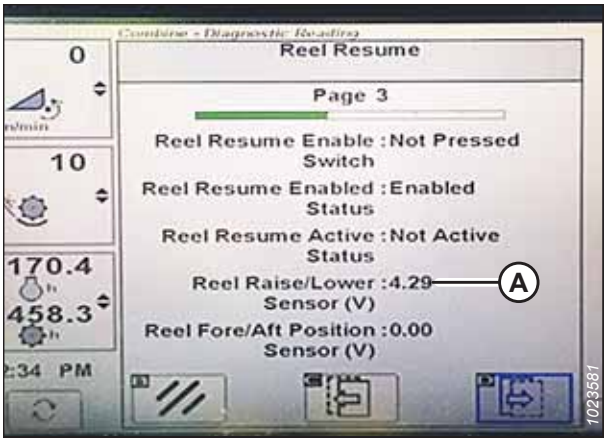


Figure 8.285: John Deere Combine Display

Calibrating Reel Height Sensor and Reel Fore-Aft Sensor – 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. The following 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 the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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 8.286: 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).

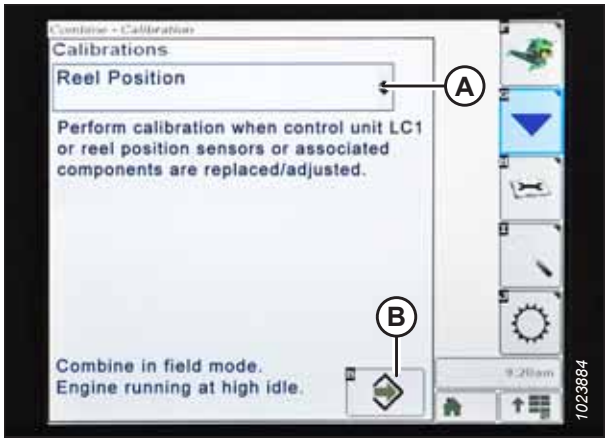


Figure 8.287: John Deere Combine Display

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 8.288: John Deere Control Handle

7. Press and hold REEL LOWER switch until the reel is fully lowered. Continue holding REEL LOWER switch until prompted by the display.

Figure 8.289: John Deere Combine Display

8. Press and hold the REEL RAISE switch until the reel is fully raised. Continue holding the REEL RAISE switch until prompted by the display.

Figure 8.290: 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 370*.

Figure 8.291: John Deere Combine Display

8.1.17 John Deere S7 Series Combines

To make your header's auto header height control (AHHC) system compatible with John Deere S7 series combines, you must set your combine's header configuration options for the particular model of header, configure the reel speed settings, set up the AHHC controls, and calibrate the AHHC system to ensure that it is working correctly.

Setting up Header – John Deere S7 Series

Set these initial configuration options on your combine when setting up the auto header height control (AHHC) system.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

1. Press header button (A) on the panel below the display. The HEADER page opens.

Figure 8.292: John Deere S7 Display

2. Select HEADER TYPE field (A). The HEADER DETAILS dialog box opens.

Figure 8.293: 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 8.294: John Deere S7 Display – Header Details Window

5. Use the on-screen keypad to enter the correct header width, and then press OK.

Figure 8.295: John Deere S7 Display – Setting Header Width

6. Press close button (A) in the top right corner to return to the HEADER page.

Figure 8.296: John Deere S7 Display – Header Details Dialog Box

7. 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 8.297: John Deere S7 Display – Header Page

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.

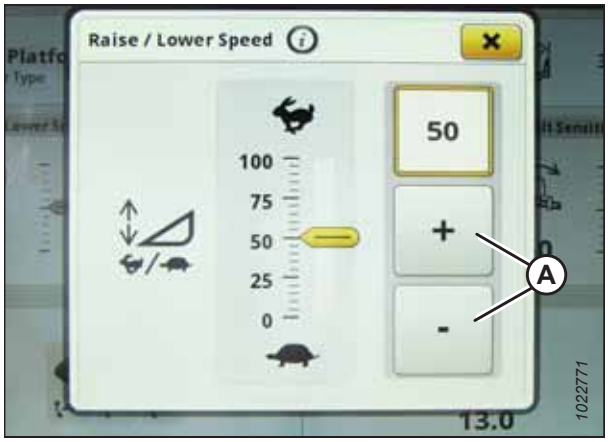


Figure 8.298: John Deere S7 Display – Raise/Lower Speed Adjustment

10. Select AUTO CONTROL icons (A). The AUTO HEADER CONTROLS page opens.

Figure 8.299: 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.

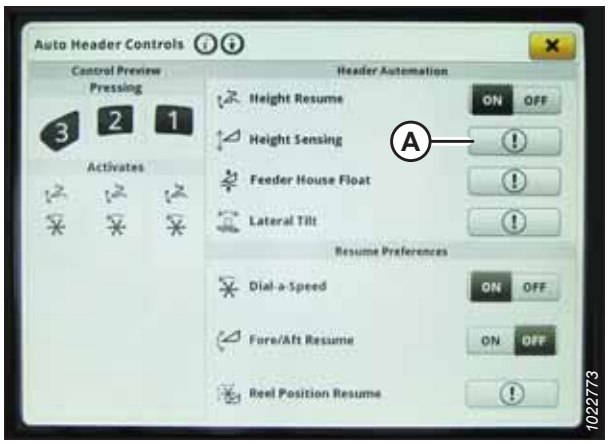


Figure 8.300: John Deere S7 Display – Auto Header Controls

12. Read the error message and then press OK.
13. Proceed to *Checking Voltage Range from Combine Cab – John Deere S7 Series, page 379*.

Figure 8.301: John Deere S7 Display – Height Sensing Error Message

Checking Voltage Range from 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.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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.

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 auto header height control (AHHC) system.

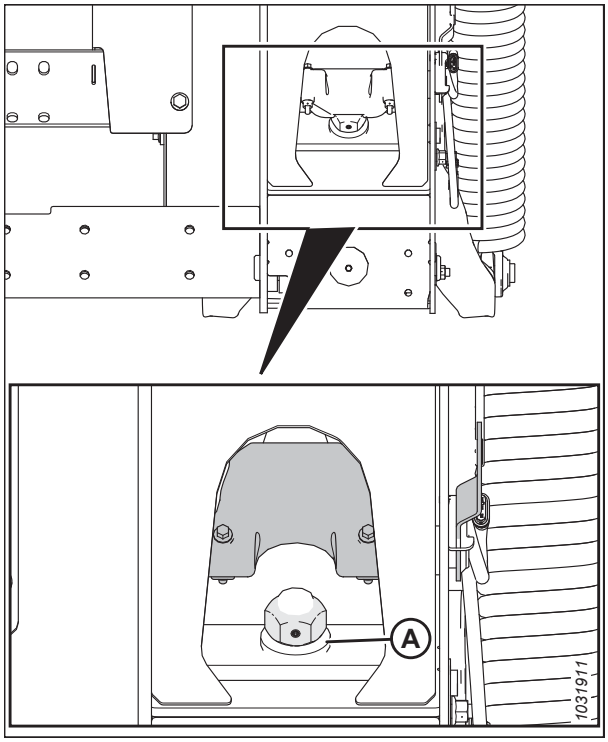


Figure 8.302: Float Lock

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).

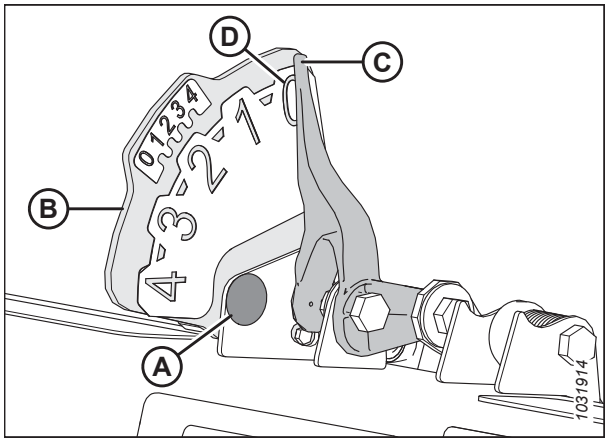


Figure 8.303: Float Indicator

6. On the HARVESTING page, select MENU icon (A) in the bottom right corner of the page.

Figure 8.304: John Deere S7 Display – Harvesting Page

7. On the MENU page, select SYSTEM tab (A). The MENU opens.

8. Select DIAGNOSTICS CENTER icon (B). The DIAGNOSTICS CENTER page opens.

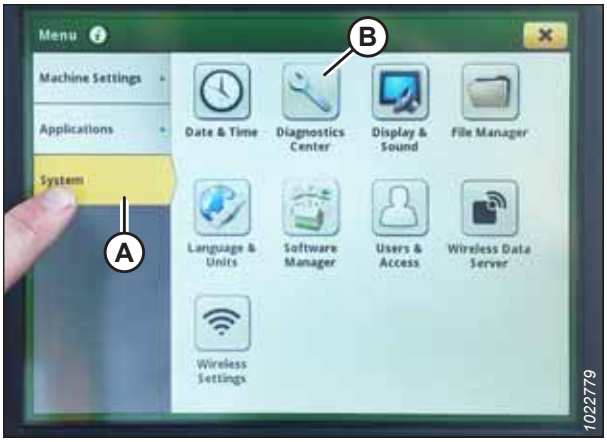


Figure 8.305: John Deere S7 Display – Menu

9. Select AHC - SENSING (A). The AHC - SENSING\DIAGNOSTICS page appears.

Figure 8.306: John Deere S7 Display – Diagnostics Center

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.

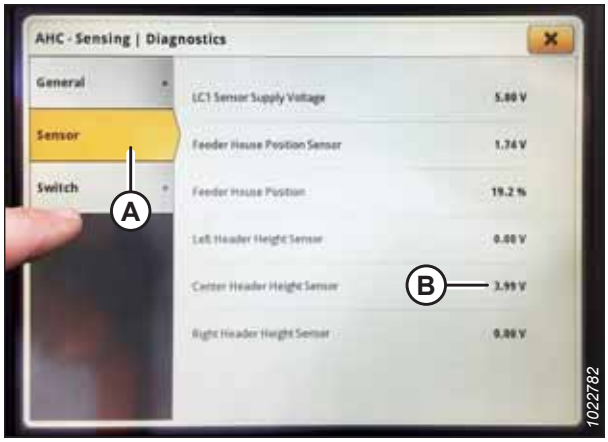


Figure 8.307: John Deere S7 Display – Checking Sensor Voltage

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 the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

NOTE:

For the best performance of the auto header height control (AHHC) system, perform the ground calibration with the center-link set to **D**. When calibration is complete, adjust the center-link back to the 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 8.308: John Deere S7 Display – Harvesting Page

4. Select MACHINE SETTINGS tab (A).

5. Select CALIBRATIONS & PROCEDURES icon (B). The CALIBRATIONS & PROCEDURES page appears.

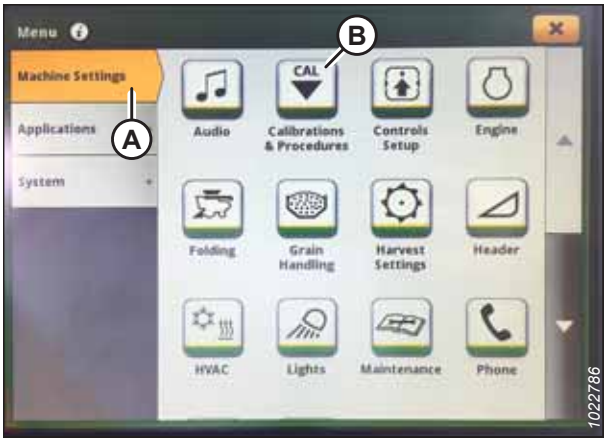


Figure 8.309: John Deere S7 Display – Machine Settings

6. Select HEADER tab (A).

7. Select FEEDER HOUSE RAISE SPEED CALIBRATION (B). The FH RAISE SPEED CALIBRATION page appears.

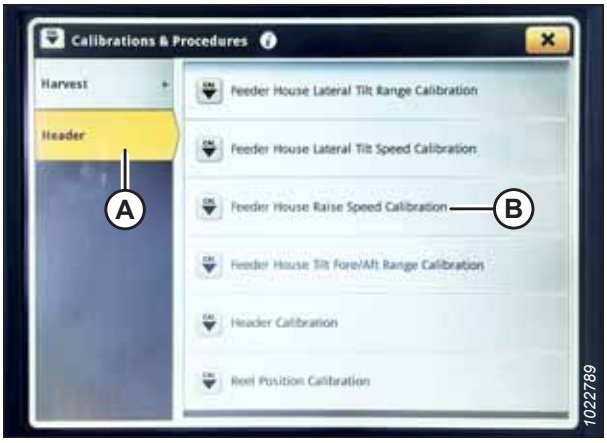


Figure 8.310: John Deere S7 Display – Calibrations and Procedures

8. Select CALIBRATE (A) at the bottom of the page. A calibration overview appears.

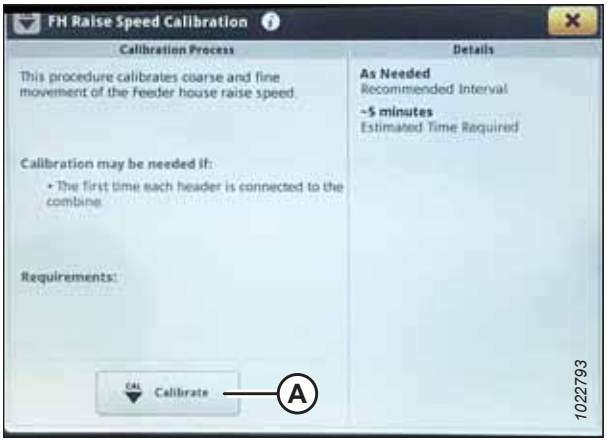


Figure 8.311: John Deere S7 Display – Feeder House Calibration

9. Read the calibration overview, and then press START.

Figure 8.312: 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 the next step.

Figure 8.313: John Deere S7 Display – Feeder House Calibration

11. When calibration is complete, select SAVE to confirm the calibration.

Figure 8.314: John Deere S7 Display – Feeder House Calibration

Calibrating Header – John Deere S7 Series

Before the auto header height control (AHHC) system can be used, it must be calibrated.

DANGER

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

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 382*.

NOTE:

For the best performance of the auto header height control (AHHC) system, perform the ground calibration with the center-link set to **D**. When calibration is complete, adjust the center-link back to the desired header angle. For instructions, refer to the header operator's manual.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

1. Ensure the center-link is set to **D**.
2. Rest the header on the down stops and unlock the float module float.
3. On the HARVESTING page, select MENU icon (A) in the bottom right corner of screen. The MENU opens.

Figure 8.315: John Deere S7 Display – Harvesting Page

4. Select MACHINE SETTINGS tab (A).
5. Select CALIBRATIONS & PROCEDURES icon (B). The CALIBRATIONS & PROCEDURES page appears.

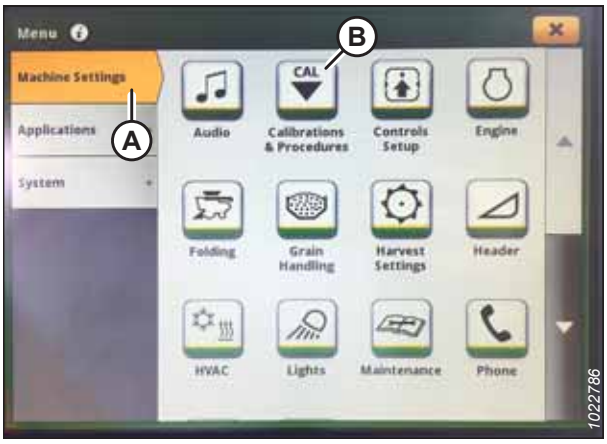


Figure 8.316: John Deere S7 Display – Machine Settings

6. Select HEADER tab (A).

7. Select HEADER CALIBRATION (B). The HEADER CALIBRATION page appears.

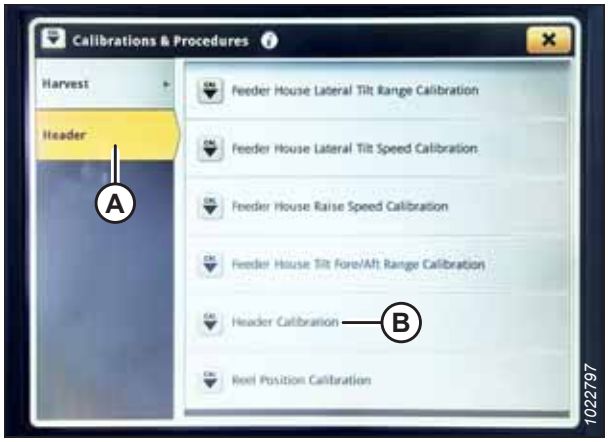


Figure 8.317: John Deere S7 Display – Calibrations and Procedures

8. Select CALIBRATE (A) at the bottom of the page. The calibration overview window opens.

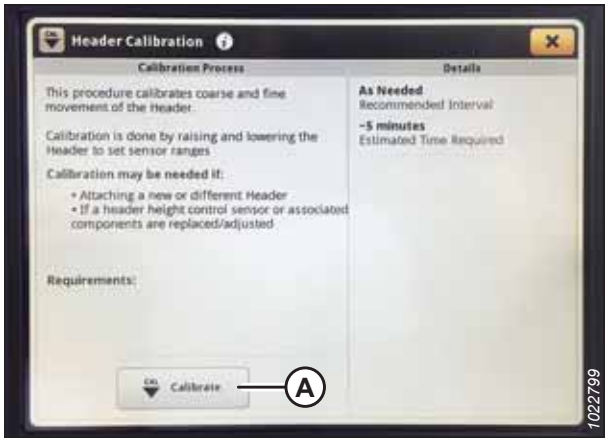


Figure 8.318: John Deere S7 Display – Header Calibration

9. Press button (A) on the console to set the engine to high idle.

Figure 8.319: John Deere S7 Console

10. Select START on the CALIBRATION OVERVIEW page.

11. Follow the instructions that appear on the combine display. As you proceed through the calibration process, the display will automatically update to show the next step.

Figure 8.320: John Deere S7 Display – Header Calibration

12. When the calibration is complete, select SAVE to confirm the calibration.

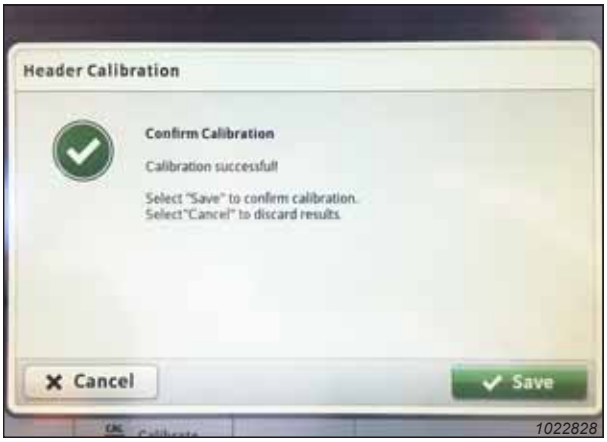


Figure 8.321: John Deere S7 Display – Header Calibration

8.1.18 New Holland Combines – CR/CX Series – 2014 and Prior

To make your header's auto header height control (AHHC) system compatible with New Holland CR/CX Series combines, you must set your combine's header configuration options for the particular model of header, configure the reel speed settings, set up the AHHC controls, and calibrate the AHHC system to ensure that it is working correctly.

This section applies only to pre-2015 CR/CX models.

Header Settings Quick Reference – New Holland CR Series

Use the information in the following table to quickly reference the recommended settings for a 2 Series draper header.

For detailed instructions, proceed to the New Holland CR series combine header setup and calibration procedures.

Table 8.8 Header Settings – New Holland CR Series

Setup Parameter	Suggested Setting
Cutting Type	Platform
Header Sub Type	80/90
Autofloat	Installed
Auto Header Lift	Installed
Manual HHC Raise/Lower Rate	Set for best performance

Table 8.8 Header Settings – New Holland CR Series (continued)

Setup Parameter	Suggested Setting
HHC Height Sensitivity	Set for best performance
HHC Tilt Sensitivity	Set for best performance
Reel Height Sensor	Yes

Setting up Auto Header Height Control – New Holland CR/CX Series

Auto header height control (AHHC) is set up using the combine display.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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 397*.

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.

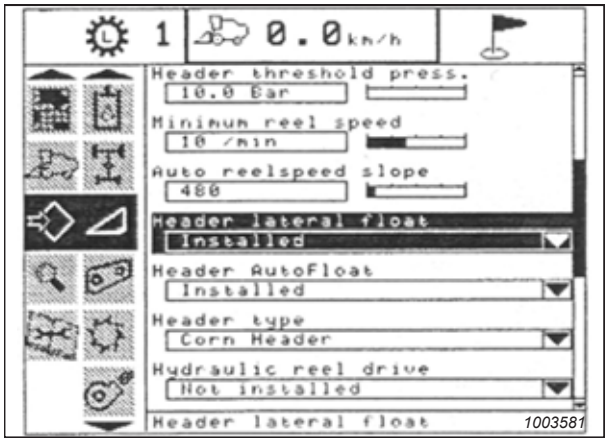


Figure 8.322: New Holland Combine Display

3. Select HEADER AUTOFLOAT, and press ENTER.
4. Use the up and down navigation keys to move between options, and select INSTALLED.

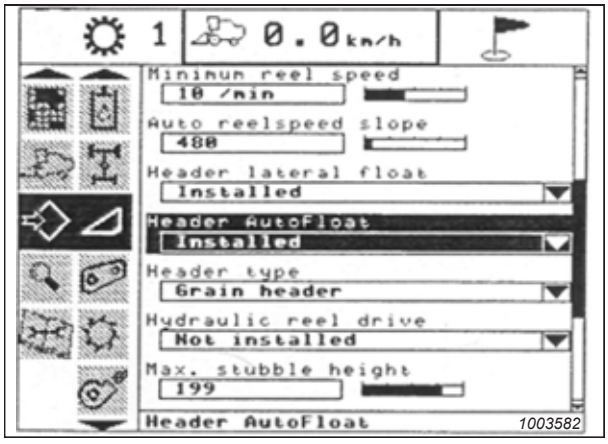


Figure 8.323: New Holland Combine Display

Calibrating 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 the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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 397*.

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 the best performance of the auto header height control (AHHC) system, perform the ground calibration with the center-link set to **D**. When calibration is complete, adjust the center-link back to the 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 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 8.324: 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 8.325: New Holland Combine Display

4. When all steps have been completed, a CALIBRATION SUCCESSFUL message will appear 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. For instructions, refer to *Calibrating Maximum Stubble Height – New Holland CR/CX Series, page 393*.

Checking Voltage Range from Combine Cab – New Holland CR/CX Series

The auto header height control (AHHC) sensor needs to operate in a specific voltage range in order to work properly.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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 397*.

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 AHHC system.

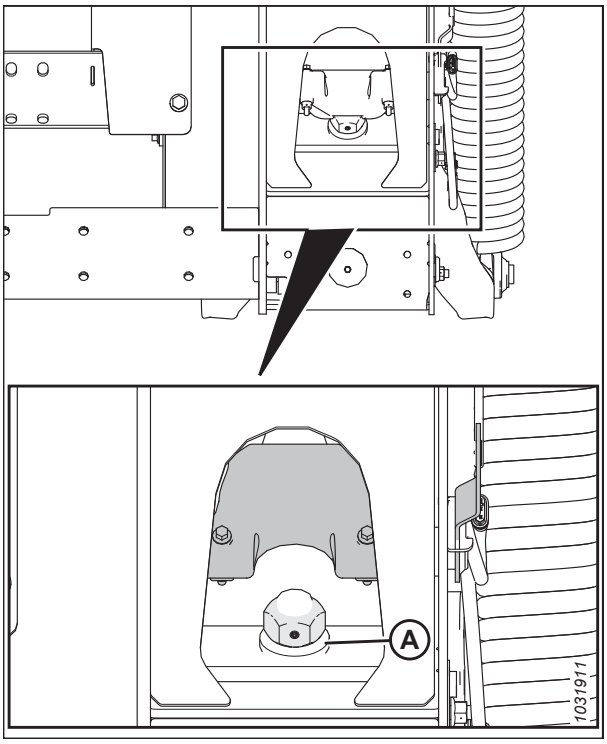


Figure 8.326: Float Lock

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).

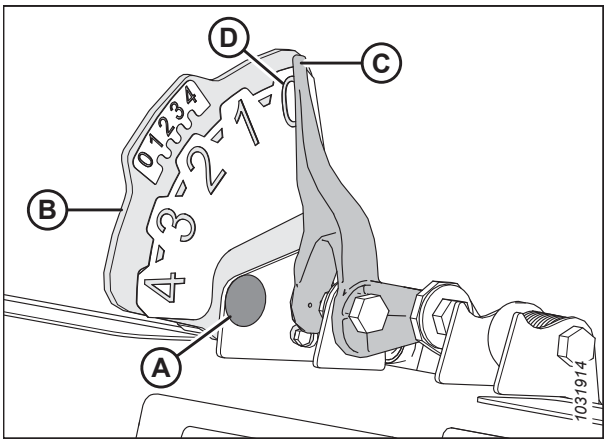


Figure 8.327: Float Indicator

6. Ensure the header float is unlocked.
7. Select DIAGNOSTICS (A) on the main page. The DIAGNOSTICS page appears.
8. Select SETTINGS. The SETTINGS page appears.

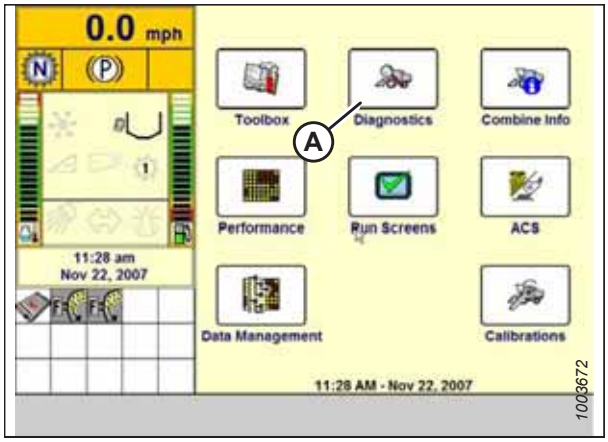


Figure 8.328: New Holland Combine Display

9. Select GROUP drop-down menu (A). The GROUP dialog box appears.

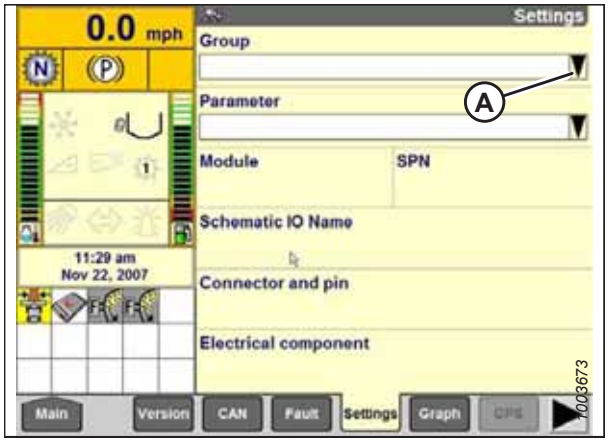


Figure 8.329: New Holland Combine Display

10. Select HEADER HEIGHT/TILT (A). The PARAMETER page appears.

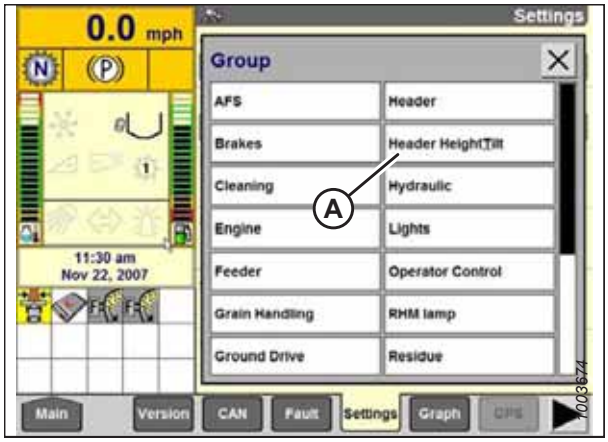


Figure 8.330: New Holland Combine Display

11. Select LEFT HEADER HEIGHT SEN (A), and then select GRAPH button (B). The exact voltage appears at the top of the page.

12. Raise and lower the header to see the full range of voltage readings.

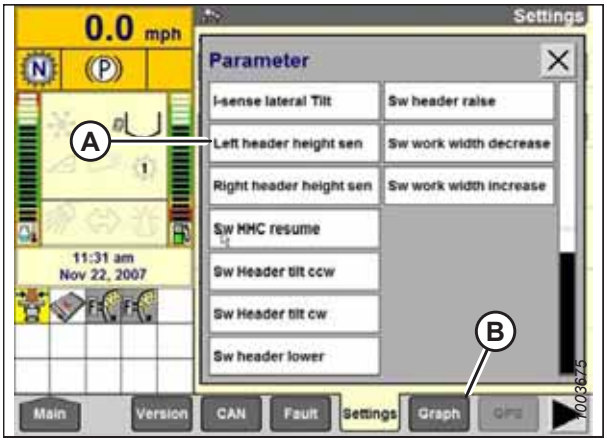


Figure 8.331: New Holland Combine Display

Calibrating Maximum Stubble Height – New Holland CR/CX Series

This procedure details how to set the height at which the harvest area counter will start and stop counting harvested area.

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.

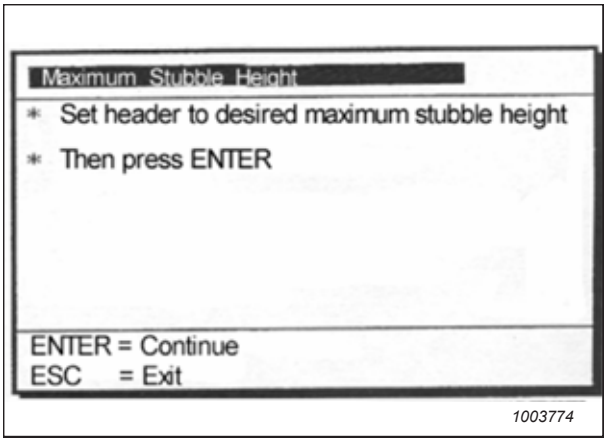


Figure 8.332: New Holland Calibration Dialog Box

2. Move the header to the desired maximum stubble height using the header up or down control switch on the multifunction handle.

   NOTE:

   Set the header to a height which will never be attained while harvesting. This will ensure that the harvest area counter never stops recording harvesting data while the auto header height control (AHHC) system is active.

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.

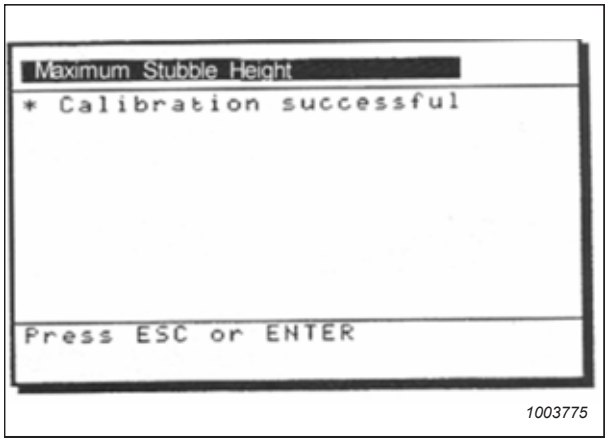


Figure 8.333: New Holland Calibration Dialog Box

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 the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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 397*.

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.

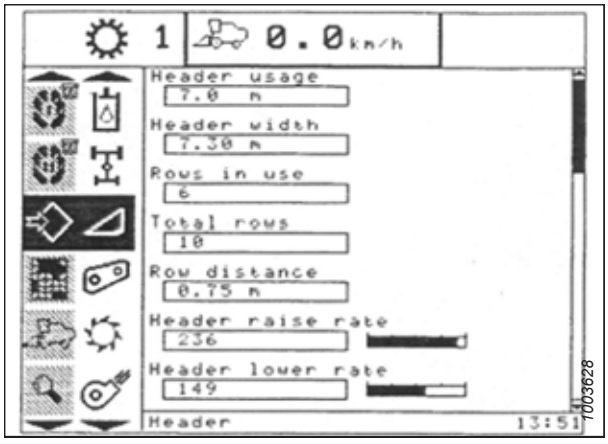


Figure 8.334: New Holland Combine Display

Setting 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 the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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 397*.

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.

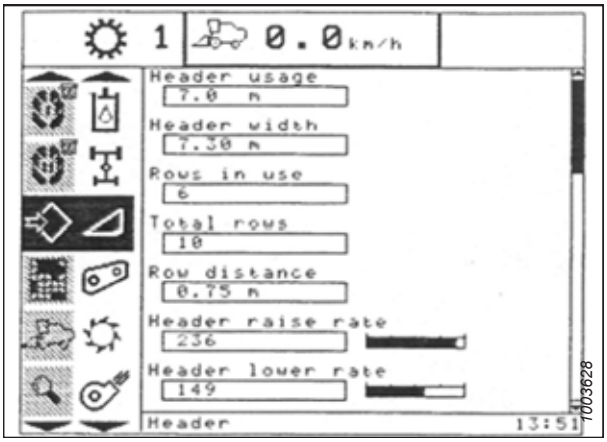


Figure 8.335: New Holland Combine Display

Setting Auto Header Height Control Sensitivity – 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.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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 397*.

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.
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 8.336: 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 the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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 397*.

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.

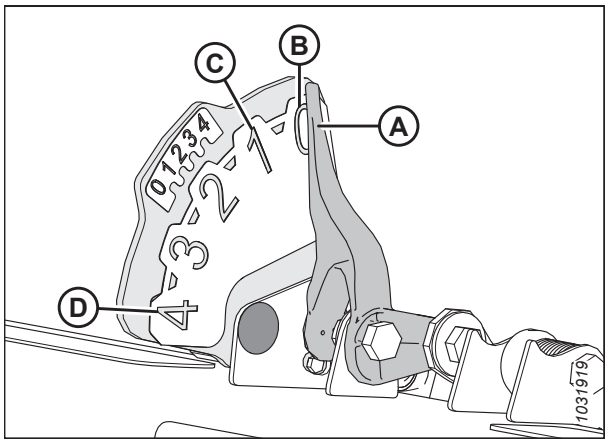


Figure 8.337: Float Indicator

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 confirms 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 confirms 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 confirms 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.

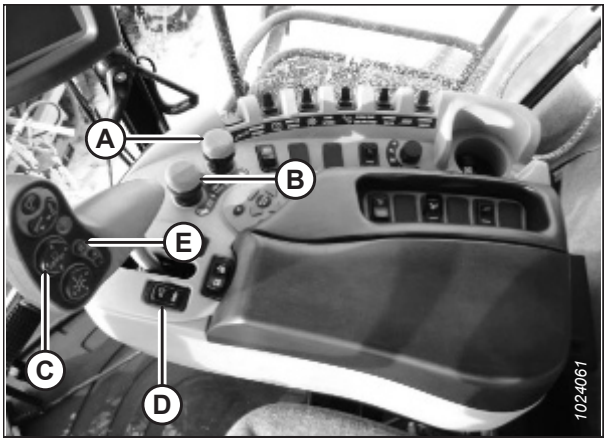


Figure 8.338: New Holland Combine Controls

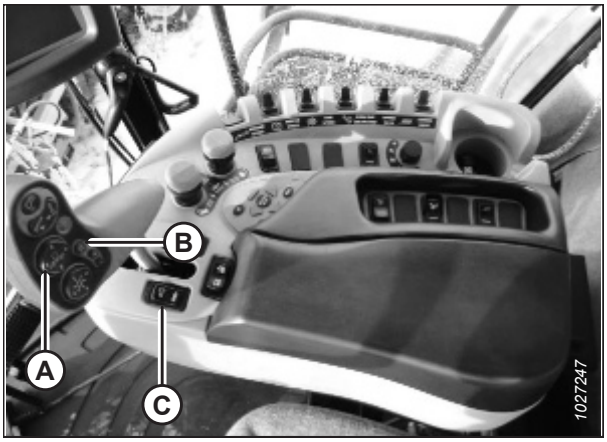


Figure 8.339: New Holland Combine Controls

8.1.19 New Holland Combines – CR Series – 2015 and Later

To make your header's auto header height control (AHHC) system compatible with model year 2015 and newer New Holland CR Series combines, you must set your combine's header configuration options for the particular model of header, configure the reel speed settings, set up the AHHC controls, and calibrate the AHHC system to ensure that it is working correctly.

This section applies only to 2015 and later CR models (6.80, 6.90, 7.90, 8.90, 9.90, and 10.90).

Setting up Auto Header Height Control – New Holland CR Series

Auto header height control (AHHC) is set up using the combine display and control handle.

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 the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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 387*.

1. Ensure the center-link is set to **D**.
2. Shut down the engine.
3. Turn the key to the run position.
4. Select TOOLBOX (A) on the main page. The TOOLBOX page appears.

Figure 8.340: New Holland Combine Display

5. 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 8.341: New Holland Combine Controls

6. Select HEAD 1 (A). The HEADER SETUP 1 page displays.

7. Select CUTTING TYPE drop-down arrow (B) and change the CUTTING TYPE to PLATFORM (C).

Figure 8.342: New Holland Combine Display

8. Select HEADER SUB TYPE drop-down arrow, and set HEADER SUB TYPE to 80/90 (A).

Figure 8.343: New Holland Combine Display

9. Select HEAD 2 (A). The HEADER SETUP 2 page displays.

Figure 8.344: New Holland Combine Display

10. Select the AUTOFLOAT drop-down menu and set AUTOFLOAT to INSTALLED (A).

11. Select the AUTO HEADER LIFT drop-down menu 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.

12. 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

13. 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

14. From REEL HEIGHT SENSOR menu (A), select YES.

Figure 8.347: New Holland Combine Display

Setting up Reel Speed – New Holland CR Series

You must record the reel diameter and reel displacement into the combine software before operating the reel speed.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

NOTE:

This section applies only to 2015 and later CR models (6.80, 6.90, 7.90, 8.90, 9.90, and 10.90).

1. Shut down the engine.
2. Turn the key to the run position.
3. Make sure the combine display software is updated to these versions or later:
   - Model year 2015–2018: UCM v38.10.0.0
   - Model year 2019: UCM v1.4.0.0
4. Ensure the center-link is set to **D**.
5. Select TOOLBOX (A) on the main page. The TOOLBOX page appears.

Figure 8.348: New Holland Combine Display

6. Access dealer mode by simultaneously pressing UNLOAD (A) and RESUME (B) buttons on the control handle for approximately 10 seconds. The DEALER SETTING page should appear and is required to change the REEL DIAMETER and REEL DISPLACEMENT PER REVOLUTION settings.

Figure 8.349: New Holland Combine Controls

7. Select HEAD 2 (A). The HEADER SETUP 2 page appears.
8. Select REEL DIAMETER (B) and enter 102 cm (40.16 in).
9. Select REEL DISPLACEMENT PER REVOLUTION (C) and enter the appropriate value according to the reel drive configuration according to Table *8.9, page 402*.

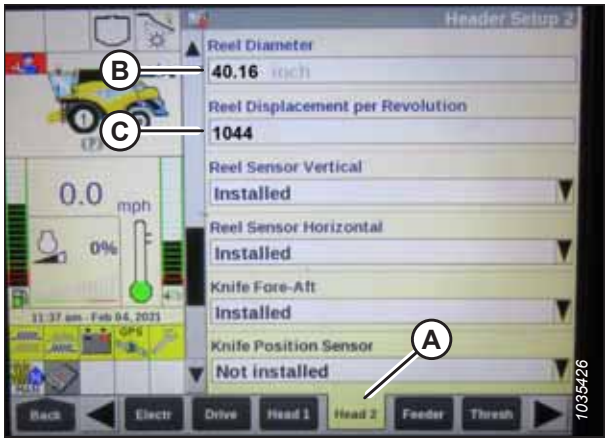


Figure 8.350: New Holland Combine Display

Table 8.9 Reel Displacement per Revolution Chart

Drive sprocket Size (Number of Teeth)	Driven Sprocket Size (Number of Teeth)	Reel Displacement per Revolution
19 (Factory Standard)	56	769
14 (High-torque option)	56	1044
21[21]	56	696
13[21]	56	1124
12	56	1218
10	56	1461
21	48	597
19	48[22]	659
14[21]	48[22]	895
13[21]	48[22]	964
12[21]	48[22]	1044
10[21]	48[22]	1253

Calibrating 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 the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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 387*.

21. High-torque only. Required on combines that have low reel drive pressures. Refer to your header's parts catalog to ensure proper gearset ratios are used for your combine to prevent reel damage.
22. Non-European configured double-reel, high-torque, high-speed reels only.

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 the best performance of the auto header height control (AHHC) system, perform the ground calibration with the center-link set to **D**. When calibration is complete, adjust the center-link back to the 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 appears.

Figure 8.351: New Holland Combine Display

2. Select CALIBRATION drop-down menu (A).

Figure 8.352: New Holland Combine Display

3. Select HEADER (A) from the list of calibration options.

Figure 8.353: 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 updates 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 stops the calibration procedure.

   NOTE:

   Refer to your combine operator's manual for an explanation of any error codes.

Figure 8.354: New Holland Combine Display

5. When all steps have been completed, the CALIBRATION COMPLETED message appears 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 8.355: New Holland Combine Display

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 the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

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 8.356: New Holland Combine Display

3. Select CALIBRATION drop-down menu (A).

Figure 8.357: New Holland Combine Display

4. Select REEL POSITION (A) from the list of calibration options.

Figure 8.358: New Holland Combine Display

5. A CAUTION statement (A) will appear. Press ENTER.

Figure 8.359: 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.

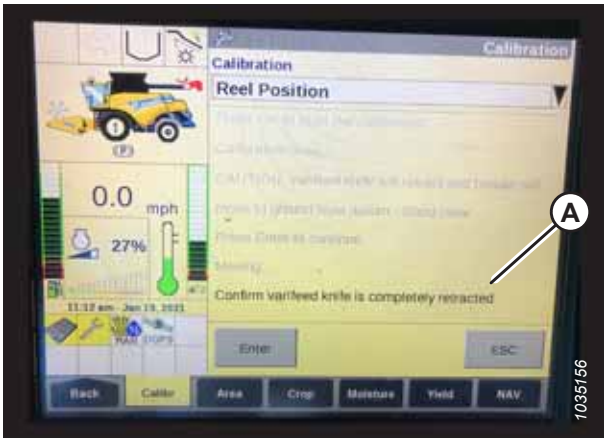


Figure 8.360: New Holland Combine Display

7. 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.

8. When all steps have been completed, CALIBRATION COMPLETED message is displayed on the page.

Figure 8.361: New Holland Combine Display

Checking Voltage Range from Combine Cab – New Holland CR Series

The auto header height control (AHHC) sensor needs to operate in a specific voltage range in order to work properly.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator’s manual for the most up-to-date information.

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 387*.

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.

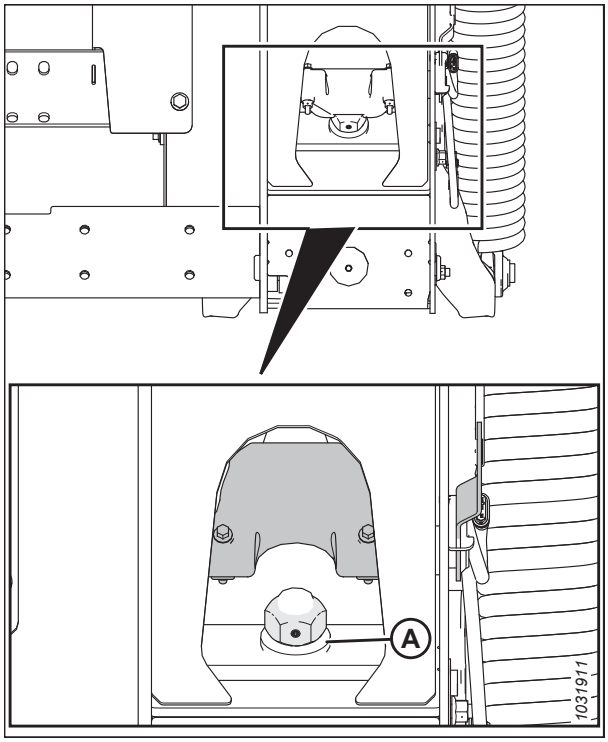


Figure 8.362: Float Lock

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.

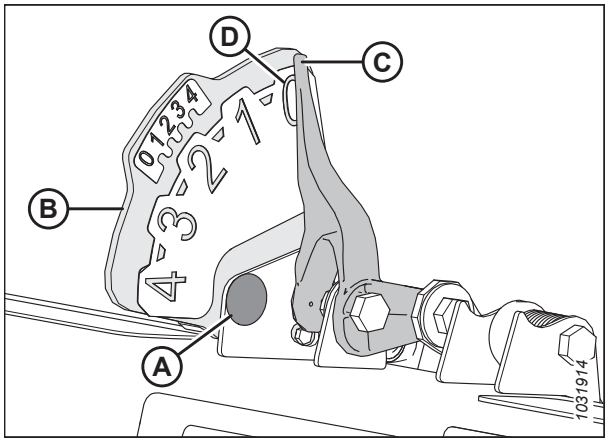


Figure 8.363: Float Indicator

7. Select DIAGNOSTICS (A) on the main page. The DIAGNOSTICS page appears.

Figure 8.364: New Holland Combine Display

8. Select SETTINGS (A). The SETTINGS page appears.

Figure 8.365: 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 8.366: New Holland Combine Display

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 8.367: New Holland Combine Display

Checking Reel Height Sensor Voltages – New Holland CR Series

Check the reel height sensor voltages to ensure they are within the prescribed range.

NOTE:

Changes may have been made to the combine controls or the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

1. On the main page of the combine display, select DIAGNOSTICS (A). The DIAGNOSTICS page opens.

Figure 8.368: New Holland Combine Display

2. Select SETTINGS tab (A). The SETTINGS page opens.
3. From GROUP menu (B), select HEADER.
4. From PARAMETER menu (C), select REEL VERTICAL POSITION.

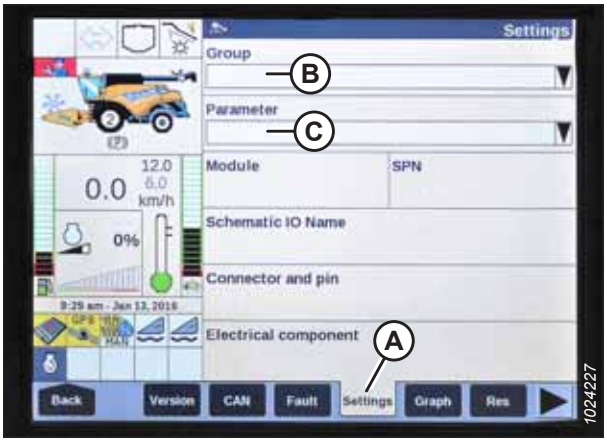


Figure 8.369: New Holland Combine Display

5. Select GRAPH tab (A). The REEL VERTICAL POSITION graph displays.
6. Raise the reel to view high voltage (B). The voltage should be 4.1–4.5 V.
7. Lower the reel to view low voltage (C). The voltage should be 0.5–0.9 V.

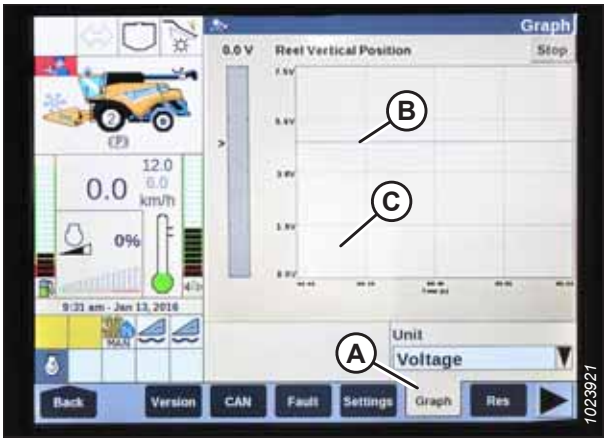


Figure 8.370: New Holland Combine Display

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 387*.

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.

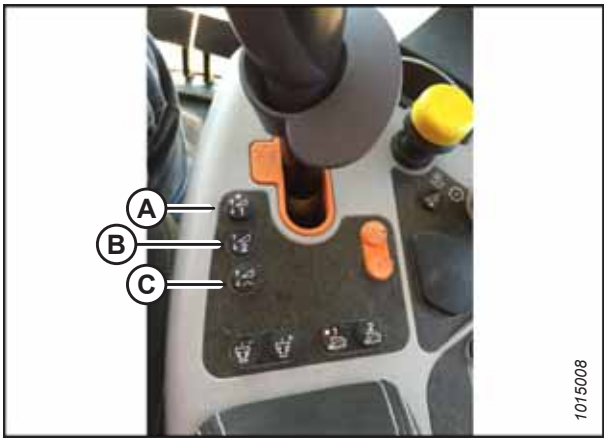


Figure 8.371: New Holland Combine Controls

DANGER

Check to be sure all bystanders have cleared the area.

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 lights up.
3. Raise or lower the header to the desired cutting height.

Figure 8.372: New Holland Combine Controls

4. Hold RESUME button (C) on the multifunction handle to set the preset, until the monitor beeps.

   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 412* to Step *6, page 412*, using preset button 2.

Figure 8.373: New Holland Combine Multifunction Handle

8. Lower the header to the ground.
9. Select RUN SCREENS (A) on the main page.

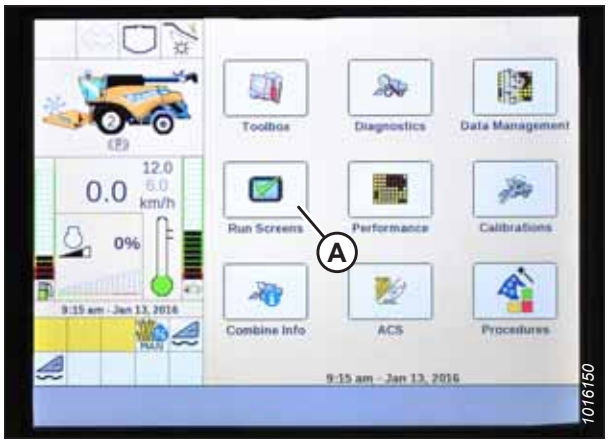


Figure 8.374: New Holland Combine Display

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 changes to AUTO HEIGHT (A).

11. Press one of the auto height preset buttons to select a preset cutting height.

Figure 8.375: New Holland Combine Display

Setting Maximum Work Height – New Holland CR Series

The maximum work height can be set using the combine display.

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 387*.

1. Select TOOLBOX (A) on the main page. The TOOLBOX page appears.

Figure 8.376: New Holland Combine Display

2. Select FEEDER (A). The FEEDER SETUP page appears.
3. Select MAXIMUM WORK HEIGHT field (B).

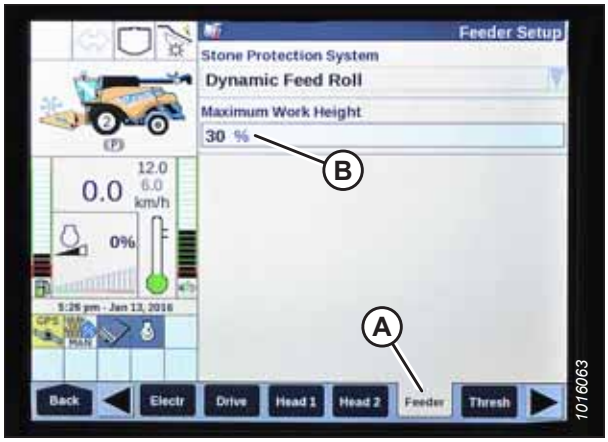


Figure 8.377: New Holland Combine Display

4. Set MAXIMUM WORK HEIGHT to the desired value.
5. Press SET and then press ENTER.

Figure 8.378: New Holland Combine Display

Configuring Reel Fore-Aft, Header Tilt, and Header Type – New Holland CR Series

The reel fore-aft, header tilt, and header type settings for the auto header height control (AHHC) system can be changed by accessing the HEAD menus.

NOTE:

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 the display since this document was published. Refer to the combine operator's manual for the most up-to-date information.

1. Shut down the engine.
2. Turn the key to the run position.

3. Simultaneously press UNLOAD (A) and RESUME (B) buttons on the control handle.

Figure 8.379: New Holland Combine Controls

4. On the HEAD 1 page, change the CUTTING TYPE from FLEX to PLATFORM as shown at location (A).

Figure 8.380: New Holland Combine Display

5. On the HEAD 2 page, change HEADER SUB TYPE from DEFAULT to 80/90 as shown at location (A).

Figure 8.381: New Holland Combine Display

There are now two different buttons for the 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.

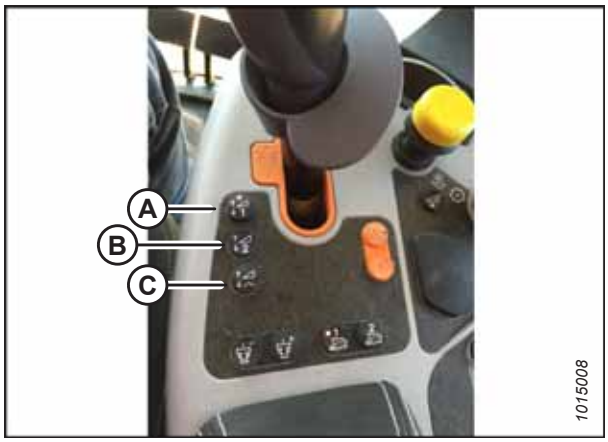


Figure 8.382: New Holland Combine Controls

Chapter 9: Setting up Reel Position Sensors

The header has multiple sensors to inform the operator where the reel is positioned.

9.1 Checking and Adjusting Reel Height Sensor

The orientation of the reel height sensor arm must be checked manually at the sensor, and the output voltage range of the sensor can be checked either manually at the sensor or from inside the cab.

IMPORTANT:

Ensure the minimum reel height is properly set before adjusting the reel height sensor. For instructions, refer to *7.10 Reel Clearance to Cutterbar, page 191*.

NOTE:

For in-cab instructions, refer to the combine operator's manual.

DANGER

To prevent injury or death from the 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.

Checking and adjusting sensor arm orientation

1. Park the combine on a level surface.
2. Shut down the engine, and remove the key from the ignition.
3. On the right endsheet, locate reel height sensor (A). It connects to the right reel arm.

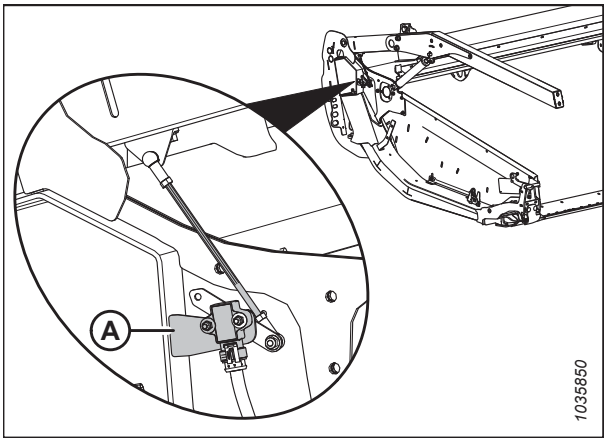


Figure 9.1: Reel Height Sensor Location

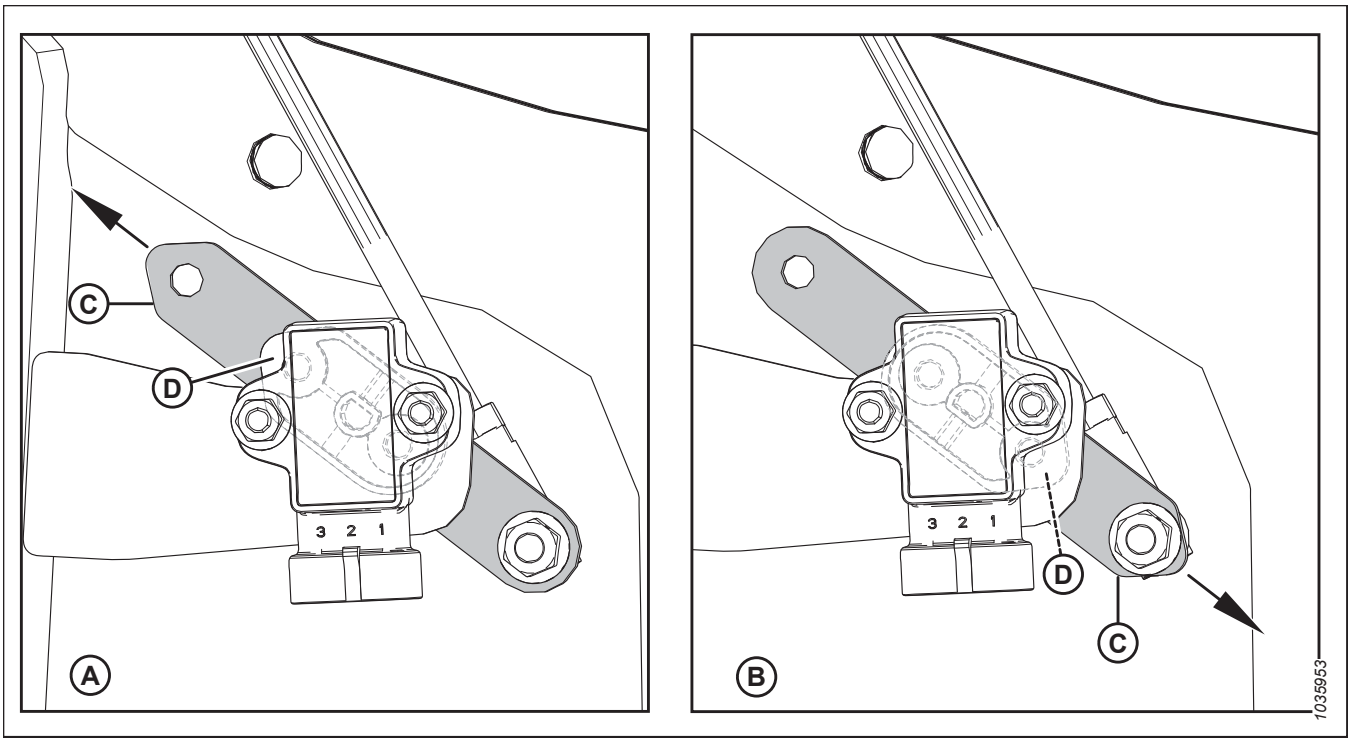


Figure 9.2: Sensor Arm/Pointer Configurations

A - John Deere, CLAAS, IDEAL™ Configuration

B - Case/New Holland Configuration

C - Sensor Arm

D - Sensor Pointer (Located Between Sensor and Sensor Arm)

4. Check that sensor arm (C) and pointer (D) are configured properly for your machine, refer to Figure *9.2, page 418*.

   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.

5. If the sensor arm orientation is incorrect, remove sensor arm (C) and reposition it in the correct orientation. Torque the nut to 8.2 Nm (6 lbf·ft).

Checking and adjusting sensor output voltage when the reel is lowered

6. Engage the parking brake.

7. Start the engine. For instructions, refer to the combine operator's manual.

8. Lower the reel fully.

9. Use the combine display or a voltmeter (if measuring the sensor manually) to measure the voltage range when the reel is lowered. Refer to Table *9.1, page 418* for range requirements.

Table 9.1 Reel Height Sensor Voltage Limits

Combine Type	Recommended Voltage Range	
	Voltage with Reel Raised	Voltage with 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

Table 9.1 Reel Height Sensor Voltage Limits (continued)

Combine Type	Recommended Voltage Range	
	Voltage with Reel Raised	Voltage with Reel Lowered
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.

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

11. Using a voltmeter, measure the voltage between the ground (pin 2 wire) and the signal (pin 3 wire) at reel height sensor (B).

12. Check if the voltage is within the recommended voltage range. If the voltage is not within range, loosen jam nuts (D) and (E), and adjust the rod length. Hand-tighten the jam nuts, and then use a wrench to tighten them another quarter-turn.

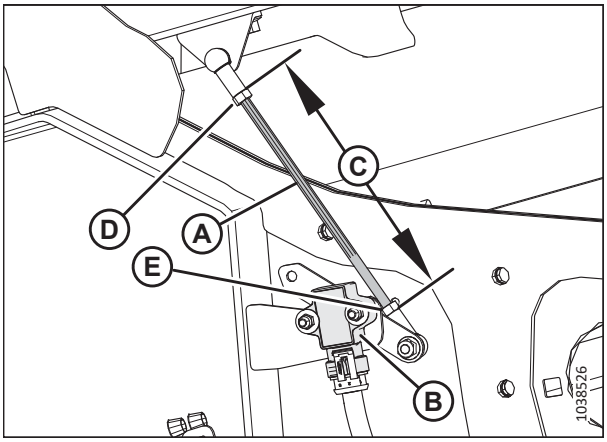


Figure 9.3: Reel Height Sensor – Right Reel Arm with Reel Down

Checking and adjusting sensor output voltage when the reel is raised

13. Start the engine, and fully raise the reel.

14. Use the combine display or a voltmeter (if measuring the sensor manually) to measure the voltage range when the reel is raised. Refer to Table *9.1, page 418* for range requirements.

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

16. Using a voltmeter, measure the voltage between the ground (pin 2 wire) and the signal (pin 3 wire) at the reel height sensor (A).
17. If the voltage is not within the recommended range, loosen two M5 hex nuts (B) and rotate sensor (A) to achieve the recommended voltage range. Tighten nuts (B) to 2.5 Nm (2 lbf·ft).
18. Repeat checking and adjusting until the voltage range is within the range specified.
19. Start the engine.
20. Lower the reel fully.
21. Recheck the voltage range and ensure it is still within the range specified. Adjust if required.

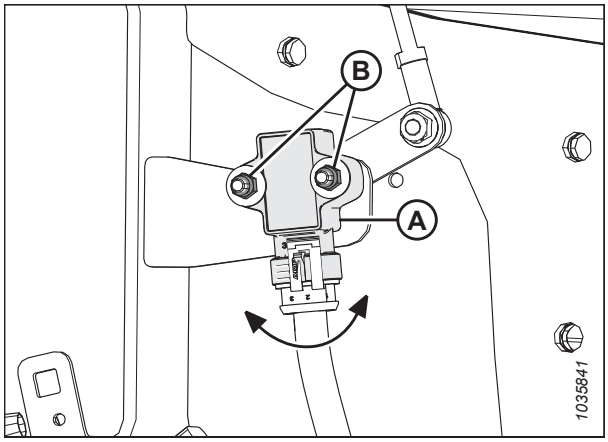


Figure 9.4: Reel Height Sensor – Right Reel Arm with Reel Up

9.2 Checking and Adjusting Fore-Aft Position Sensor

There is a sensor that informs the combine where the reel is positioned when adjusted in the fore and aft directions, and displays that information for the operator. The sensor arm's orientation and the sensor's output voltage range must be set correctly for your machine.

Checking and adjusting the orientation of the sensor arm

DANGER

To prevent injury or death from the 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. Park the combine on a level surface.
2. Shut down the engine, and remove the key from the ignition.
3. Check 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 421*.

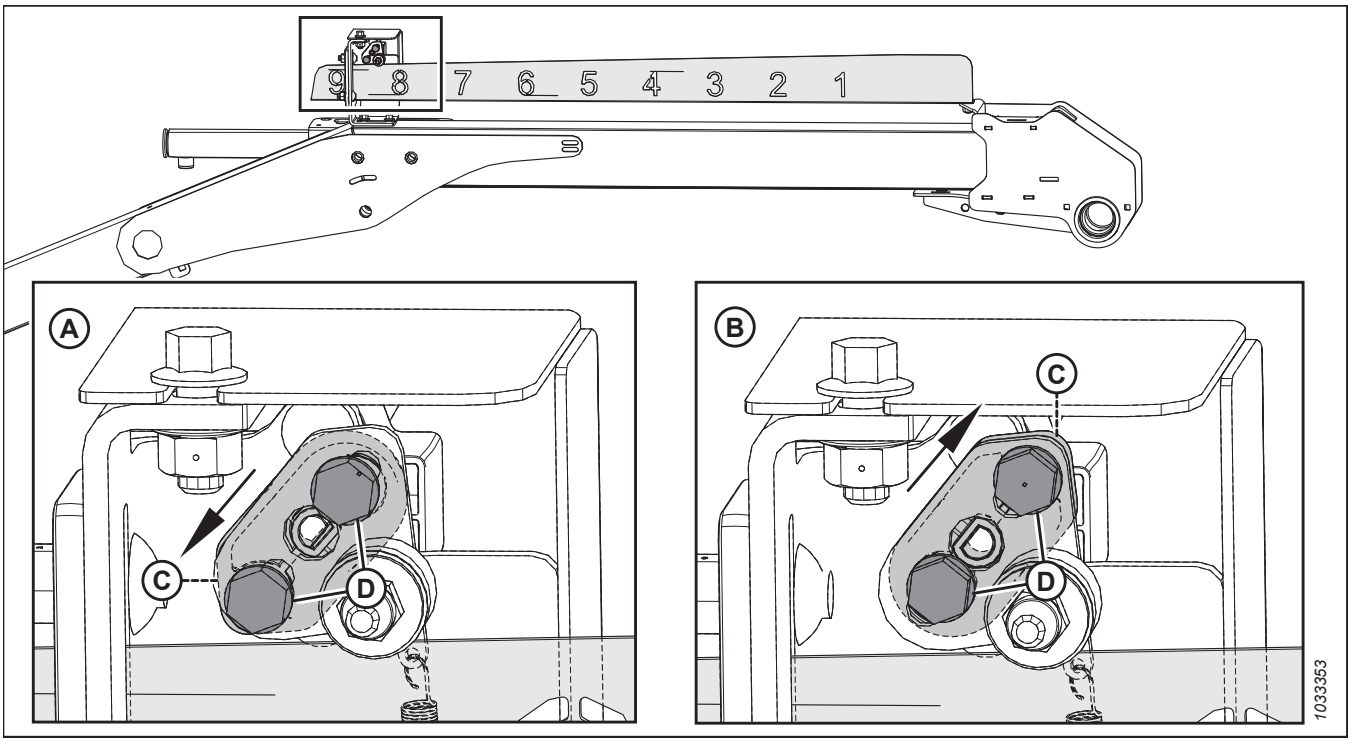


Figure 9.5: Sensor Arm Configurations

A - John Deere, CLAAS, IDEAL™ Configuration

B - Case/New Holland Configuration

C - Sensor Arm

D - Mounting Hardware

4. If sensor arm (C) is not oriented correctly, remove it and then reinstall it in the correct orientation.

Checking and adjusting the sensor's output voltage

WARNING

Check to be sure all bystanders have cleared the area.

5. Engage the parking brake.

   IMPORTANT:

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

6. Start the engine.

7. Adjust the reel to the fully forward position. Dimension (B) (from the sensor bracket to the end of the indicator) should be 62–72 mm (2.4–2.8 in.).

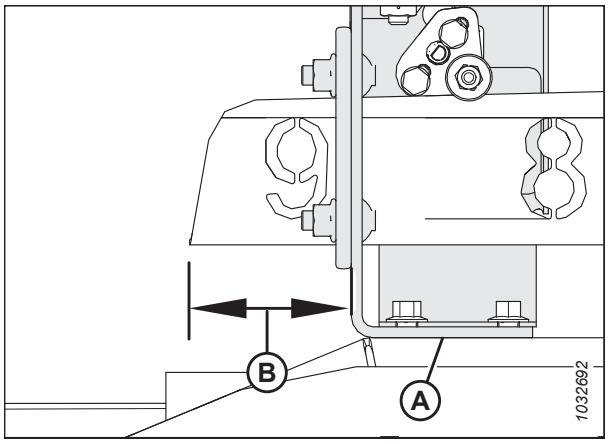


Figure 9.6: Fore-Aft Bracket

8. Use the combine display or a voltmeter (if measuring the sensor manually) to measure the voltage range. If using a voltmeter, check sensor (A) voltage between pin 2 (ground) and pin 3 (signal). The range should be
   - For Case and New Holland combines: 0.7–1.1 V
   - For AGCO, CLAAS, and John Deere combines: 3.9–4.3 V

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

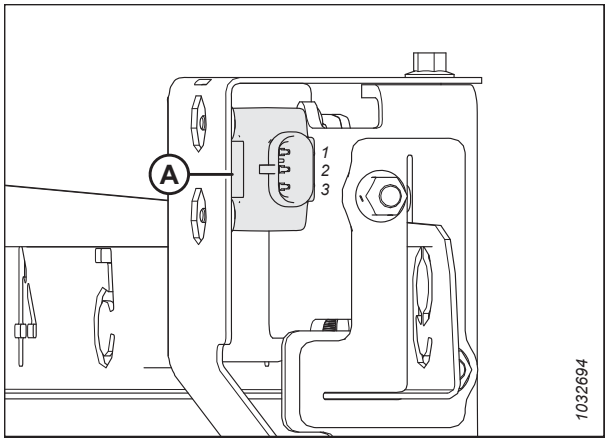


Figure 9.7: Fore-Aft Sensor

10. If adjustment is required, loosen hardware (A) and rotate sensor (B) until the voltage is in the correct range.

11. Once sensor adjustment is complete, torque the hardware to 2.1 Nm (22 lbf·in).

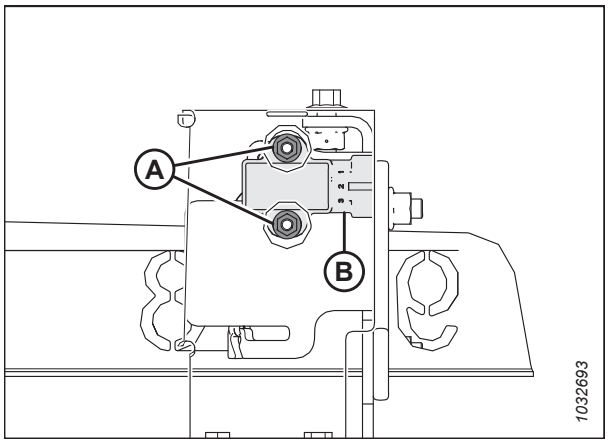


Figure 9.8: Fore-Aft Sensor

Chapter 10: Running up Header

The header must be run up before it is delivered to the customer, to ensure that all its features are functional.

DANGER

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

DANGER

Never start or move the machine until you are sure that 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's safety props. For instructions, refer to the combine operator's manual.
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.

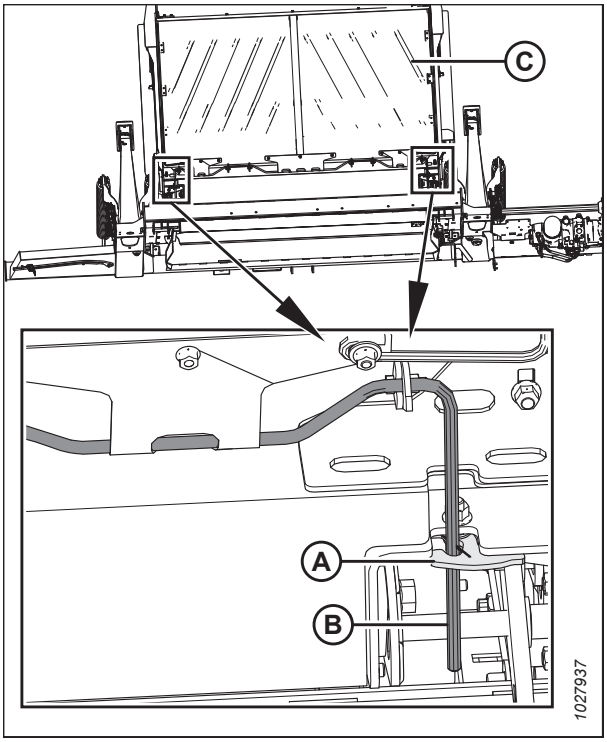


Figure 10.1: Float Module Plastic Pan

8. Check and remove debris from pan (A) and draper.

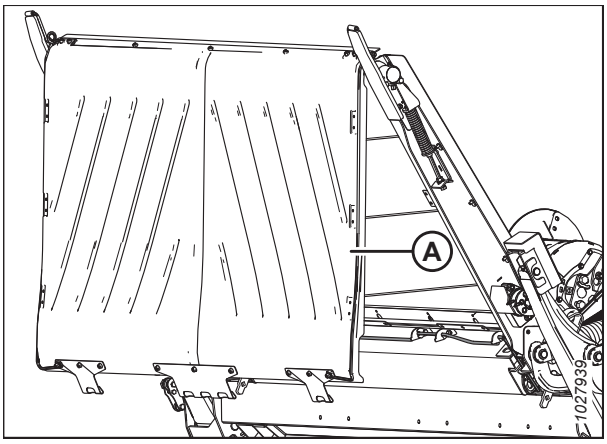


Figure 10.2: Float Module Plastic Pan

9. Raise the pan and rotate handle (A) so that the rod engages clips (B) on the pan.

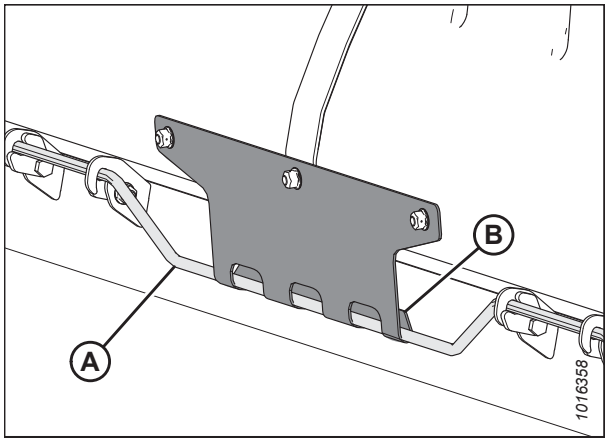


Figure 10.3: Clips Engaged

10. Push handle (A) into the slot and secure it with latches (B).
11. Open the left endshield.

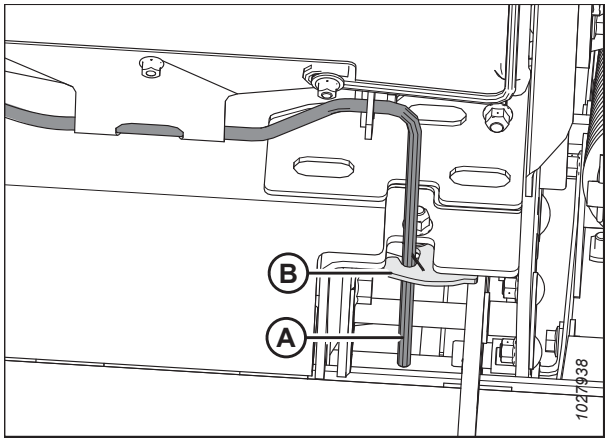


Figure 10.4: Latches Secured

12. Set the side draper flow to maximum (10) using the in-cab control (A).

13. Ensure the feeder house variable speed is set to **MAXIMUM**.

DANGER

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

14. Start the engine. For instructions, refer to the combine operator's manual.

15. 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.

16. Run the machine at operating speed for 15 minutes. Listen for any unusual sounds or abnormal vibration.

17. Perform run-up check as listed on *Predelivery Checklist, page 467* (yellow sheet attached to this instruction) to ensure the machine is field-ready.

Figure 10.5: In-Cab Side Draper Speed Control – IDEAL™, Challenger®, CLAAS, Gleaner®, John Deere, and Massey Ferguson® Combines

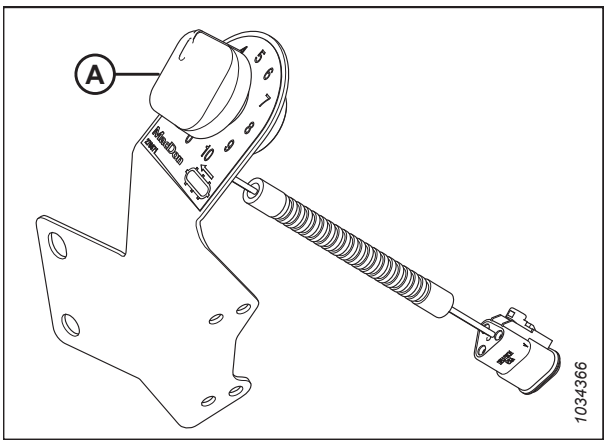


Figure 10.6: In-Cab Side Draper Speed Control – Case IH and New Holland Combines

18. Check the speed of the flywheel (A) using a hand-held photo tachometer.

19. Compare the actual flywheel speed with values in Table .

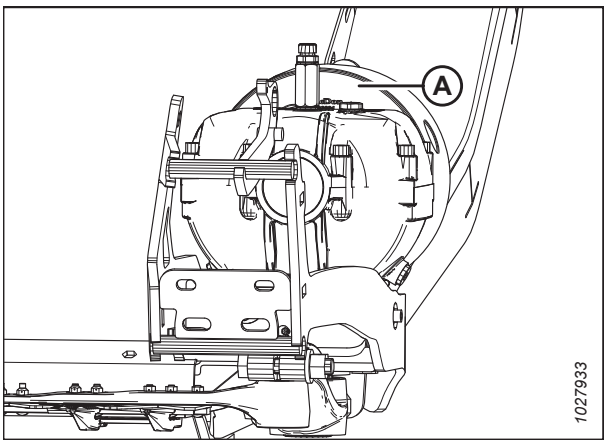


Figure 10.7: Knife Drive Box

10.1 Checking Knife Speed

Knife speed is important to proper operation of the header.

DANGER

To prevent injury or death from the 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 452*.

DANGER

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 windrower at operating rpm.
5. Engage the header drive, and run the feeder house at the maximum speed. For maximum speed information, refer to Table *10.1, page 426*.

   IMPORTANT:

   Before checking and adjusting knife speed, make sure the feeder house is set to maximum speed. This will prevent the knife from overspeeding when making further adjustments.
6. Run the float module and the header until the oil temperature is 38°C to 52°C (100°F to 125°F).
7. 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).
8. Shut down the engine, and remove the key from the ignition.

Table 10.1 Feeder House Speed

Combine	Feeder House Speed (rpm)
Case IH	580
Challenger®	625
CLAAS[23,24]	420
Gleaner®	625
IDEAL™	620
John Deere	490
Massey Ferguson®	625
New Holland	580

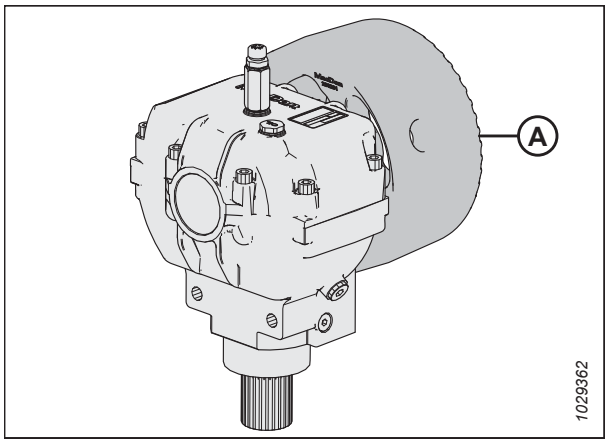


Figure 10.8: Flywheel

23. For CLAAS 600/700 combines, the value on the display reflects the top shaft speed, not the output shaft speed. When the display value is 420 rpm, the actual output shaft speed is 750 rpm.
24. For CLAAS 8000/7000 combines, the value on the display reflects the bottom shaft speed. The actual output shaft speed is 750 rpm.

9. Compare flywheel rpm measurement with the rpm values in Table *10.1, page 426*.

   NOTE:

   All sizes of headers are factory-set to 650 rpm. This knife speed will work fine in normal cutting conditions.

10. If knife speed is not within range, adjust the pump. For instructions, refer to *10.3 Adjusting Knife Speed – Fine Adjustment, page 431*.

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

10.2 Adjusting Knife Speed – Coarse Adjustment

The knife speed adjuster on the integrated pump, sets the maximum pump flow (knife drive [rpm]).

DANGER

To prevent injury or death from the 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. Remove bolt (A).
3. Remove fine adjustment plate (B).

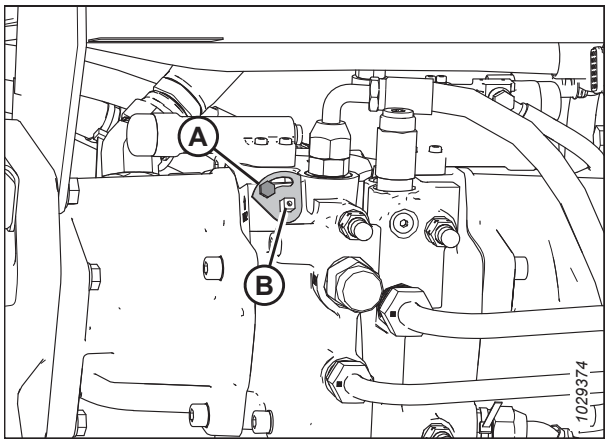


Figure 10.9: Integrated Pump

4. Turn knife drive adjuster clockwise to increase or counterclockwise to decrease the knife speed.
5. Open the endshield. For instructions, refer to *11.2.1 Opening Header Endshields, page 452*.

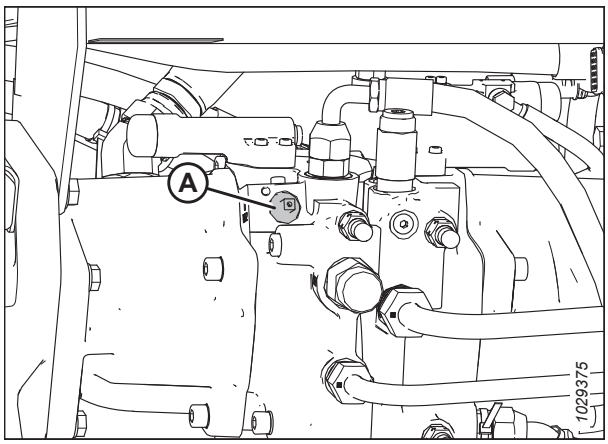


Figure 10.10: Integrated Pump

6. Engage the header drive, and run the feeder house at the maximum speed as shown in Table *10.3, page 429*.

   IMPORTANT:

   Before checking and adjusting knife speed, make sure the feeder house is set to maximum speed. This will prevent the knife from overspeeding when making further adjustments.

Table 10.3 Feeder House Speed

Combine	Feeder House Speed (rpm)
Case IH	580
Challenger®	625
CLAAS[25,26]	420
Gleaner®	625
IDEAL™	620
John Deere	490
Massey Ferguson®	625
New Holland	580

7. 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).

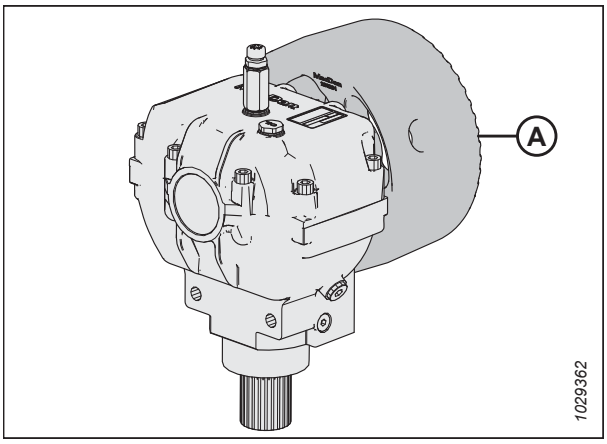


Figure 10.11: Flywheel

8. Compare flywheel rpm measurement with the rpm values in Table *10.4, page 429*. Adjust the pump until the desired flywheel rpm is achieved.

   NOTE:

   All sizes of headers are factory-set to 650 rpm. This knife speed will work fine in normal cutting conditions.

   NOTE:

   If the desired rpm cannot be achieved using the fine adjustment, use the fine pump adjustment. Refer to *10.3 Adjusting Knife Speed – Fine Adjustment, page 431*. 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.

Table 10.4 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

9. Close the endshield. For instructions, refer to *11.2.2 Closing Header Endshields, page 453*.

25. For CLAAS 600/700 combines, the value on the display reflects the top shaft speed, not the output shaft speed. When the display value is 420 rpm, the actual output shaft speed is 750 rpm.
26. For CLAAS 8000/7000 combines, the value on the display reflects the bottom shaft speed. The actual output shaft speed is 750 rpm.

10. Install fine adjustment plate (B).
11. Install bolt (A).

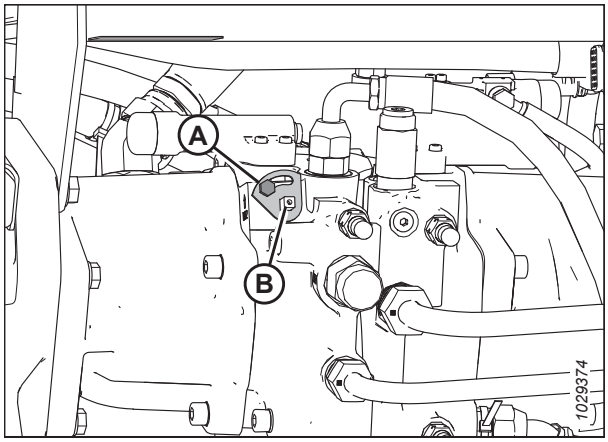


Figure 10.12: Integrated Pump

10.3 Adjusting Knife Speed – Fine Adjustment

The knife speed adjuster on the integrated pump, sets the maximum pump flow (knife drive [rpm]).

DANGER

To prevent injury or death from the 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 counterclockwise 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 452*.

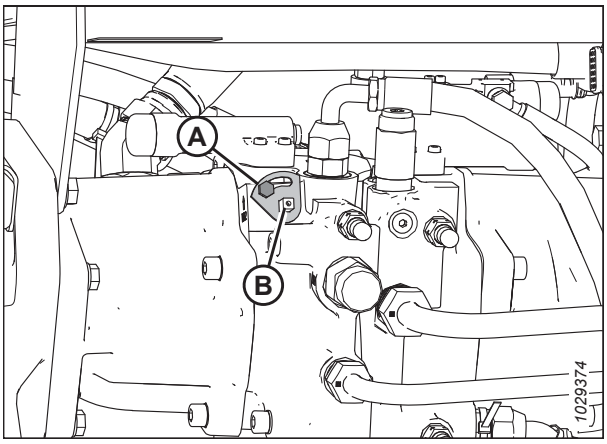


Figure 10.13: Integrated Pump

5. Engage the header drive, and run the feeder house at the maximum speed as shown in Table *10.5, page 431*.

   IMPORTANT:

   Before checking and adjusting knife speed, make sure the feeder house is set to maximum speed. This will prevent the knife from overspeeding when making further adjustments.

Table 10.5 Feeder House Speed

Combine	Feeder House Speed (rpm)
Case IH	580
Challenger®	625
CLAAS[27,28]	420
Gleaner®	625
IDEAL™	620
John Deere	490
Massey Ferguson®	625
New Holland	580

27. For CLAAS 600/700 combines, the value on the display reflects the top shaft speed, not the output shaft speed. When the display value is 420 rpm, the actual output shaft speed is 750 rpm.
28. For CLAAS 8000/7000 combines, the value on the display reflects the bottom shaft speed. The actual output shaft speed is 750 rpm.

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).

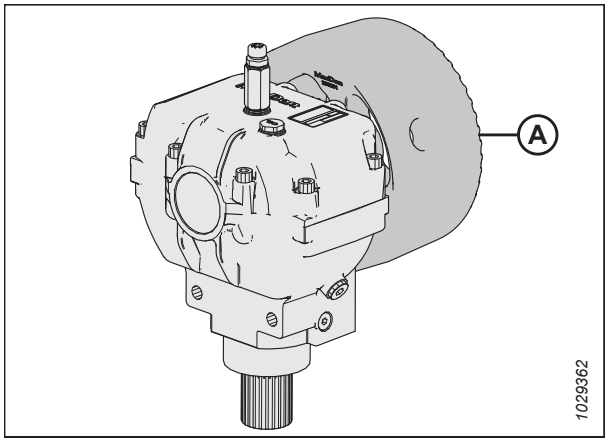


Figure 10.14: Flywheel

7. Compare flywheel rpm measurement with the rpm values in Table *10.6, page 432*. Adjust the pump until the desired flywheel rpm is achieved.

   NOTE:

   All sizes of headers are factory-set to 650 rpm. This knife speed will work fine in normal cutting conditions.

   NOTE:

   If the desired rpm cannot be achieved using the fine adjustment, use the coarse pump adjustment. Refer to *10.2 Adjusting Knife Speed – Coarse Adjustment, page 428*. 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.

8. Close the endshield. For instructions, refer to *11.2.2 Closing Header Endshields, page 453*.

Table 10.6 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

10.4 Adjusting Side Draper Tracking

The side draper tracking is adjusted by aligning the drive and idler draper rollers.

Draper tracking is set at the factory and will only need to be adjusted if the draper tracking is incorrect.

NOTE:

The left draper deck is shown in the illustration. The right deck is opposite.

NOTE:

Some parts were removed from the illustration for clarity.

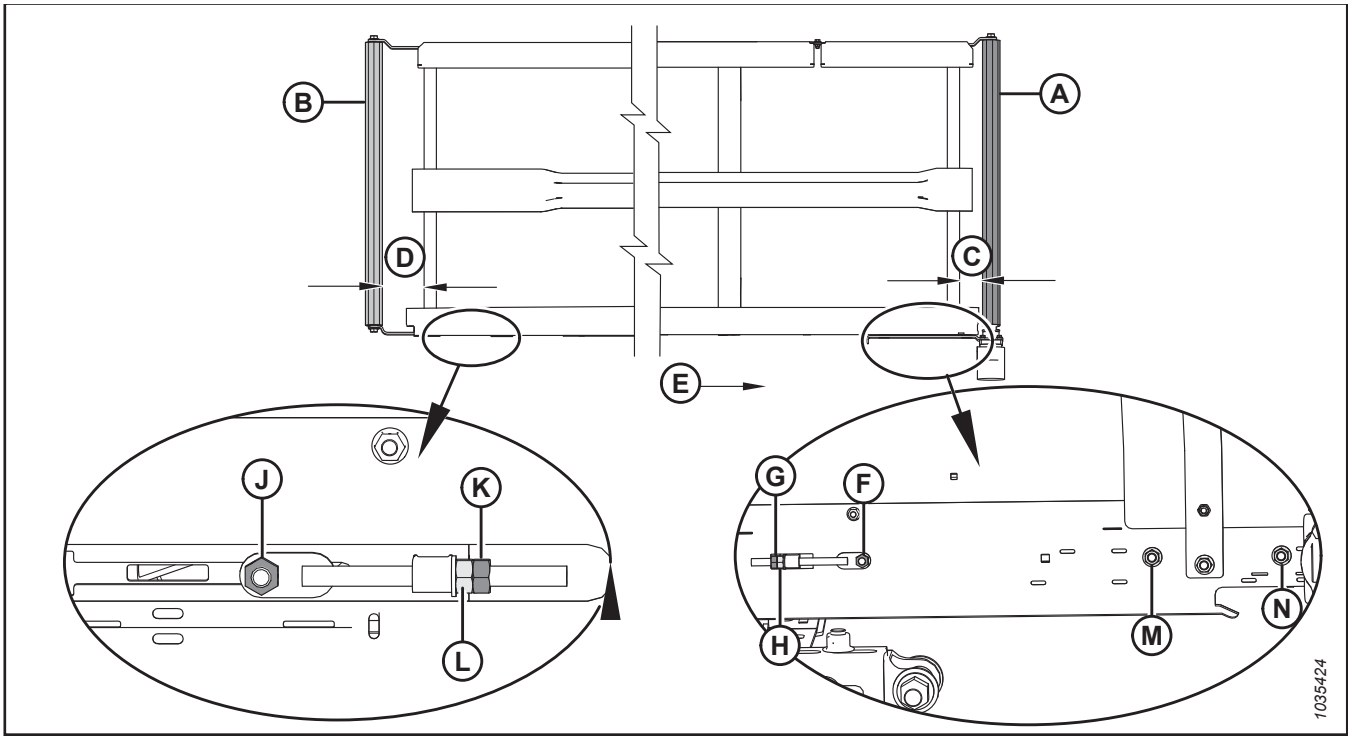


Figure 10.15: Draper Tracking Adjustments

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 10.7 Draper Tracking

Tracking	Location	Adjustment	Method
Toward backsheet	Drive roller	Increase **C**	Tighten adjuster nut (H)
Toward Cutterbar	Drive roller	Decrease **C**	Loosen adjuster nut (H)
Toward backsheet	Idler roller	Increase **D**	Tighten adjuster nut (L)
Toward Cutterbar	Idler roller	Decrease **D**	Loosen adjuster nut (L)

2. Adjust drive roller (A) to change **C** (refer to Table *10.7, page 433*) as follows:

   a. Loosen nuts (F), (M), and (N), and jam nut (G).

   b. Turn adjuster nut (H).

   c. Tighten nuts (F), (M), and (N), and jam nut (G).

3. Adjust idler roller (B) to change **D** (refer to Table *10.7, page 433*) 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).

10.5 Performing Post Run-Up Adjustments

Performing the post run-up adjustments ensures that your header is setup properly and will operate at peak performance.

Stop engine and perform post run-up check as listed on the Predelivery Checklist (yellow sheet attached to this instruction *Predelivery Checklist, page 467*) to ensure machine is field-ready.

DANGER

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

10.5.1 Checking Knife Position

Proper knife positioning will increase life expectancy of the knife and guards.

DANGER

Never start or move the machine until you are sure that 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 clearance (C) between knifehead (A) and drive arm (B). There should be 0.2–1.2 mm (0.007–0.047 in.) of clearance.

   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 or remove the grease fitting.
4. If the drive arm needs adjustment, refer to the header technical manual.

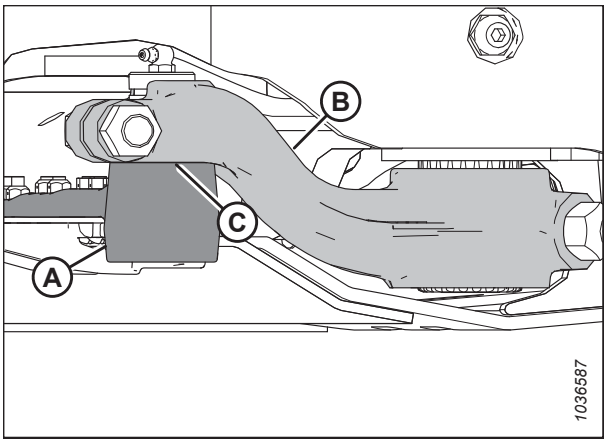


Figure 10.16: Knifehead and Drive Arm

10.5.2 Checking and Adjusting Feed Draper Tension

Proper tension is required for the feed draper not to slip or have tracking issues.

DANGER

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

NOTE:

Illustrations show the left side of the float module. The right side is opposite.

1. Raise the header fully.
2. Shut down the engine, and remove the key from the ignition.
3. Engage the header safety props. Refer to the combine Operator's Manual.

Checking feed draper tension:

4. 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.

5. 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.

   NOTE:

   The starting position of spring retainer disc (A) is centered within the U shape on indicator (B); however, the position of the disc (A) will vary after draper tracking adjustment.

6. If adjustment is necessary, proceed to Step *7, page 436*.

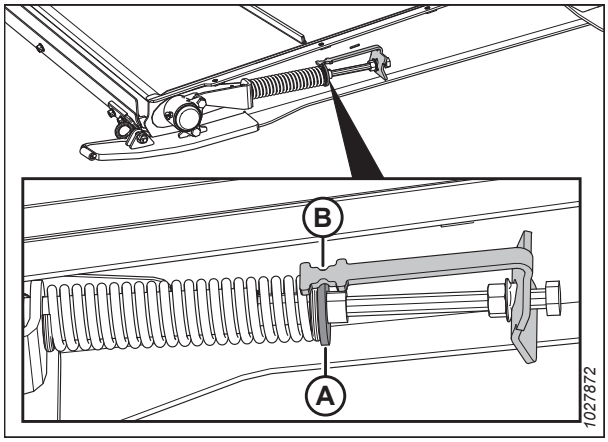


Figure 10.17: Feed Draper Tensioner

Adjusting feed draper tension:

7. 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.

8. 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).

9. Tighten jam nut (A). Ensure flange nut (E) is tight against the indicator bracket.

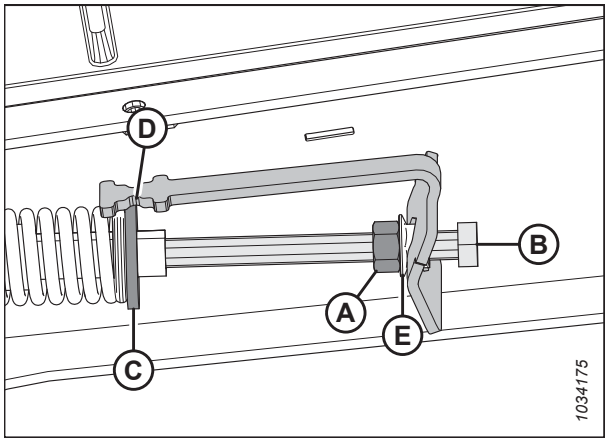


Figure 10.18: Feed Draper Tensioner – Left Side

10.6 Installing Flex Linkage Covers – FD230, FD235, and FD240

The flex linkage covers have been removed for shipping that cover the flex linkage.

1. Retrieve flex cover hardware bag (MD #347795).

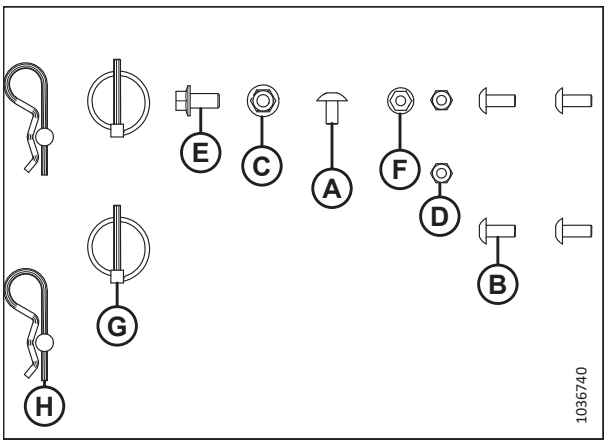


Figure 10.19: Flex Cover Hardware Bag MD #347795

Table 10.8 Flex Cover Hardware Bag (MD #347795)

Ref	Part Number	Description	Qty
A	320336	SCR – TORX TRUSS HD M8X1.25X16-SPCL-8.8-ZINC	1
B	320190	SCR – TORX TRUSS HD M8X1.25X20-SPCL-8.8-ZINC	4
C	252807	NUT – HEX FLANGE NYLOC M10X1.5-8-AA1J	1
D	184688	NUT – HEX NYLOC M8X1.25-8-AA1J	2
E	152655	BOLT – HEX FLG HD M10X1.5X20-8.8-AA1J	1
F	135337	NUT – HEX FLG CTR LK M8X1.25-8-AA1J	2
G	102264	PIN – LYNCH 3/16X1 9/16 IN	2
H	13125	PIN – HAIR	2

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

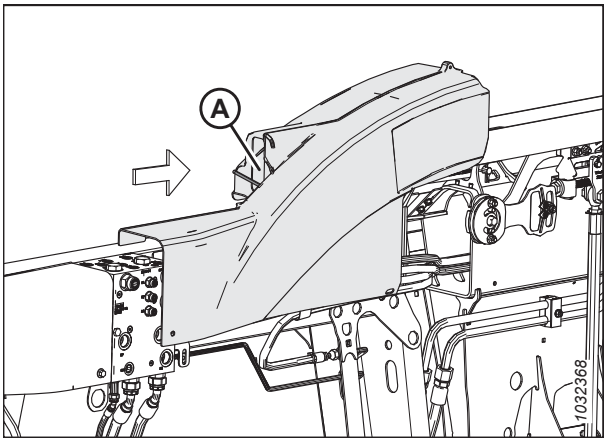


Figure 10.20: Left Linkage Cover – Rear of Header

3. 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).

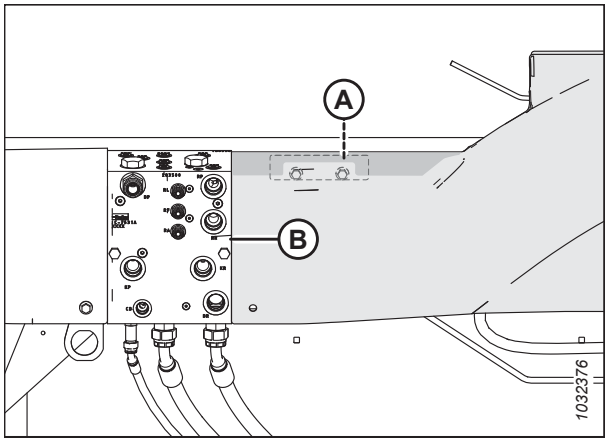


Figure 10.21: Left Linkage Cover – Rear of Header

4. 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 until it is snug, and then tighten the nut another 1/8 of a turn.

5. Attach cover to hose clamp (C) using M8 x 16 mm socket screw (D). Turn screw until it bottoms out.

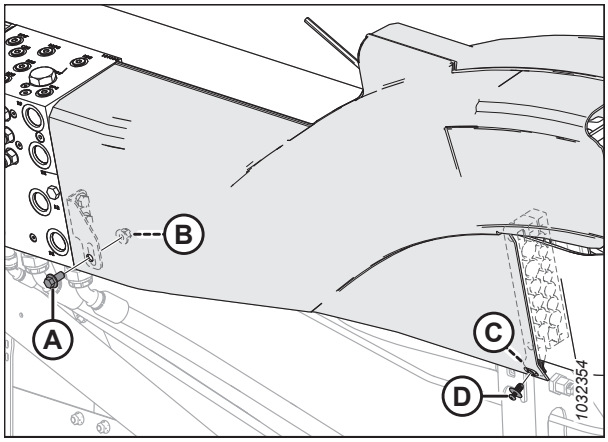


Figure 10.22: Left Linkage Cover – Rear of Header

6. Attach the front of the cover to bracket (A) using M8 x 20 mm socket screw (B), flat washer (C), and M8 center lock hex nut (D). Tighten to 8 Nm (6 lbf·ft).

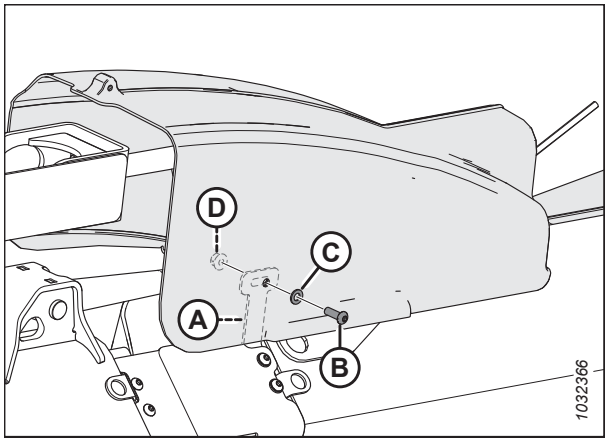


Figure 10.23: Left Linkage Cover – Front of Header

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

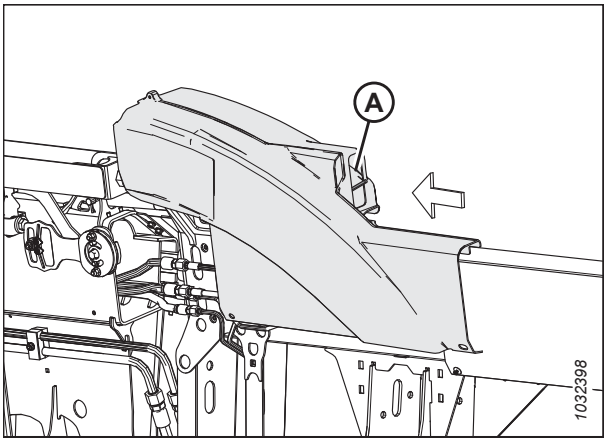


Figure 10.24: Right Linkage Cover – Rear of Header

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

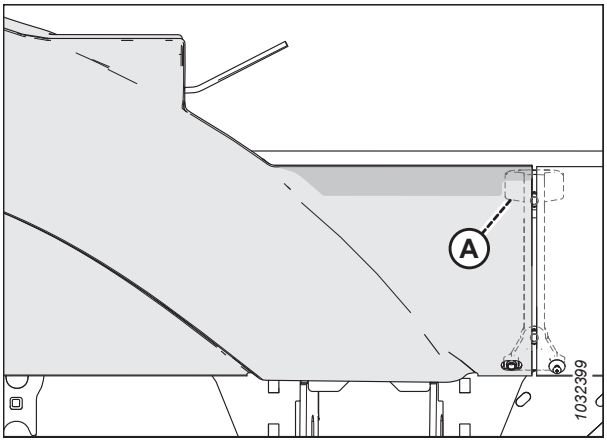


Figure 10.25: Right Linkage Cover – Rear of Header

9. Attach the cover to the hose clamps using Torx screw (A).

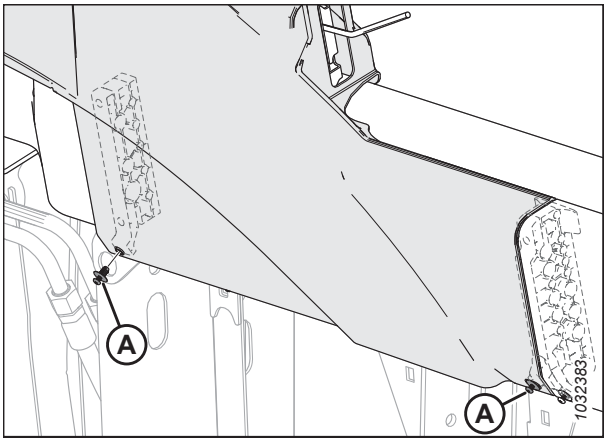


Figure 10.26: Right Linkage Cover – Rear of Header

10. Attach the front of the cover to bracket (A) using M8 x 20 mm socket screw (B), flat washer (C), and M8 center lock hex nut (D). Tighten to 8 Nm (6 lbf·ft).

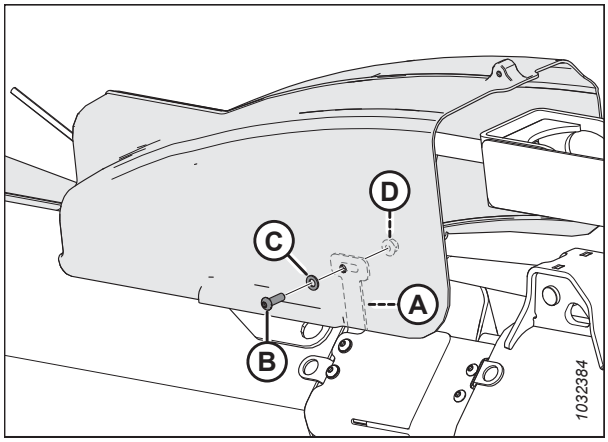


Figure 10.27: Right Linkage Cover – Front of Header

11. Position left inboard linkage cover (A) over linkage. Ensure slots (B) line up with tabs (C) and (D).

12. Slide the cover outboard so tab (D) will extend beyond slot.

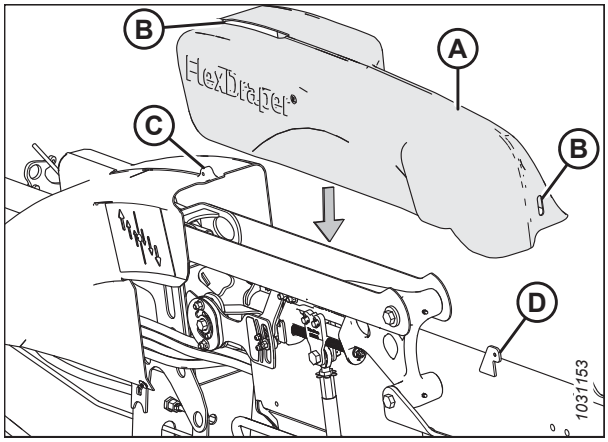


Figure 10.28: Left Linkage Cover

13. Secure cover (C) in place with hair pin (A) and lynch pin (B).

14. Repeat Step *11, page 440* to Step *13, page 440* to install the right inboard linkage cover.

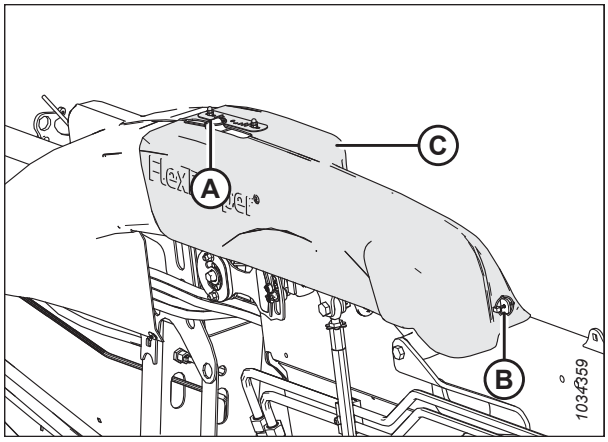


Figure 10.29: Left Linkage Cover

10.7 Installing Flex Linkage Covers – FD245 and FD250

The flex linkage covers have been removed for shipping that cover the flex linkage.

1. Retrieve flex cover hardware bag (MD #347794).

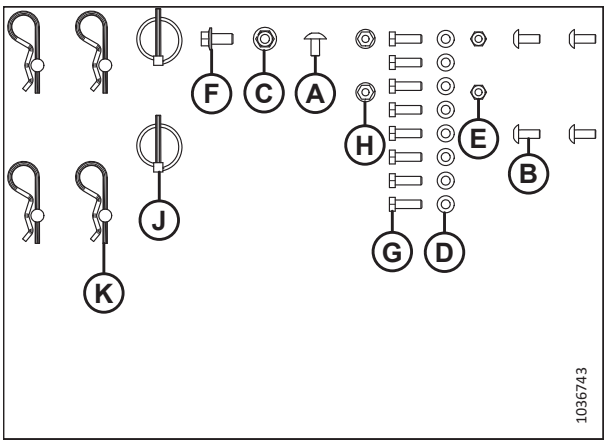


Figure 10.30: Flex Cover Hardware Bag (MD #347794).

Table 10.9 Flex Cover Hardware Bag (MD #347794)

Ref	Part Number	Description	Qty
A	320336	SCR – TORX TRUSS HD M8X1.25X16-SPCL-8.8-ZINC	1
B	320190	SCR – TORX TRUSS HD M8X1.25X20-SPCL-8.8-ZINC	4
C	252807	NUT – HEX FLANGE NYLOC M10X1.5-8-AA1J	1
D	184708	WASHER – FLAT M8–200HV-AA1J	8
E	184688	NUT – HEX NYLOC M8X1.25-8-AA1J	2
F	152655	BOLT – HEX FLG HD M10X1.5X20-8.8-AA1J	1
G	136057	BOLT – HEX HD TFL M8X1.25X25-10.9 AA1J	8
H	135337	NUT – HEX FLG CTR LK M8X1.25-8-AA1J	2
J	102264	PIN – LYNCH 3/16X1 9/16 IN	2
K	13125	PIN – HAIR	4

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

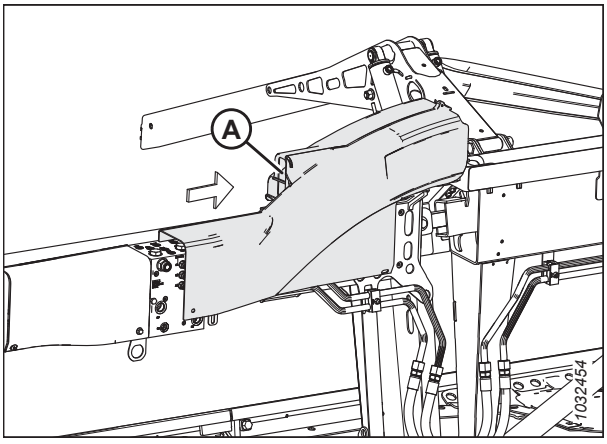


Figure 10.31: Left Linkage Cover – Rear of Header

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

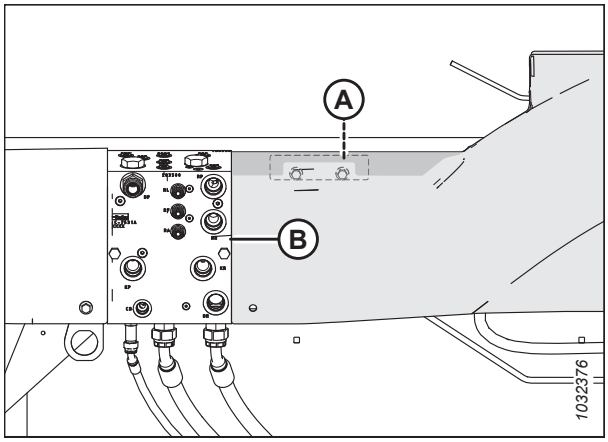


Figure 10.32: Left Linkage Cover – Rear of Header

4. 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.

5. Attach cover to hose clamp (C) using M8 x 16 mm socket screw (D). Turn screw until it bottoms out.

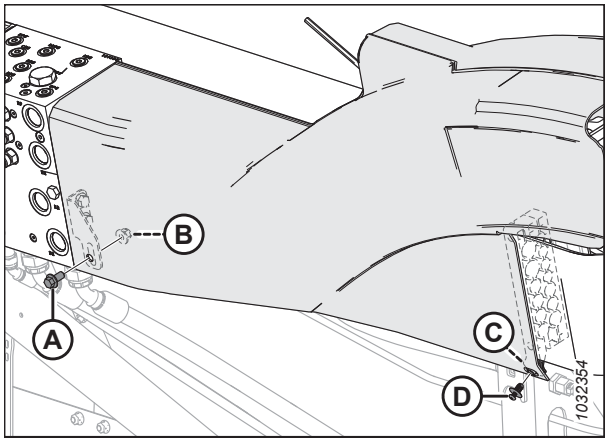


Figure 10.33: Left Linkage Cover – Rear of Header

6. 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).

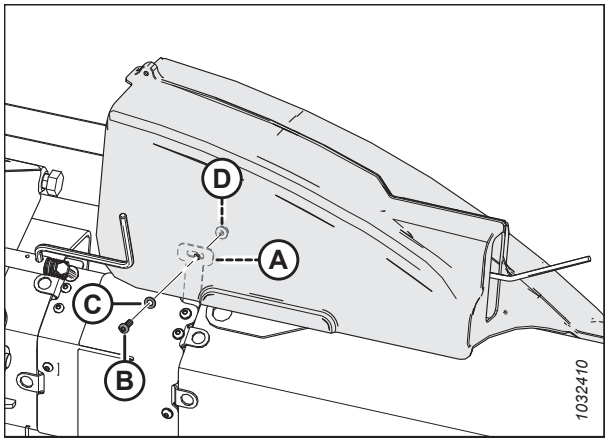


Figure 10.34: Left Linkage Cover – Front of Header

7. Position left middle cover (B) over the top-link. Align slot (C) with tab (D), and align slots (E) with mounting brackets (F).

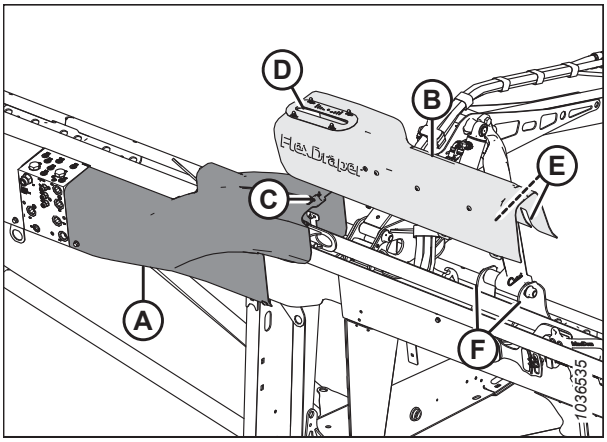


Figure 10.35: Left Linkage Cover – Rear of Header

8. Install four bolts M8 X 1.25 X 25 (B) (MD #136057).
9. Install hairpin (C) to secure linkage cover (A).

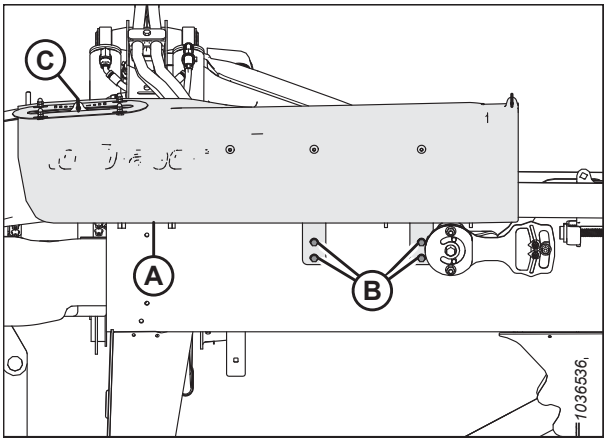


Figure 10.36: Left Linkage Cover – Rear of Header

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

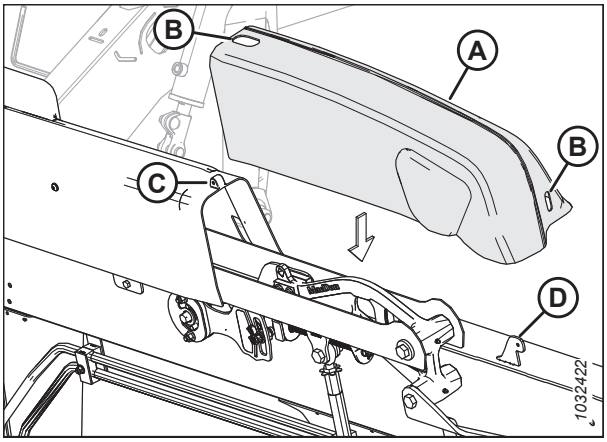


Figure 10.37: Left Linkage Cover

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

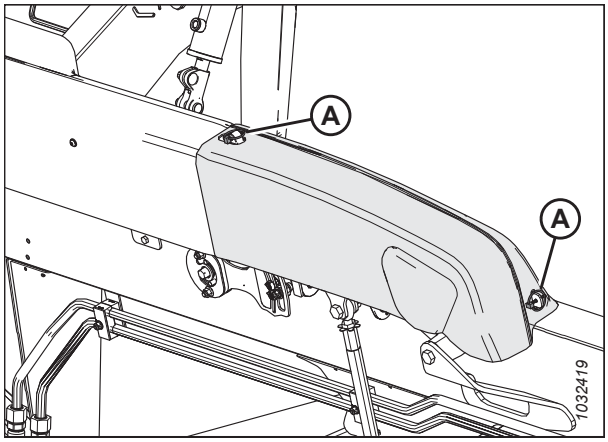


Figure 10.38: Left Linkage Cover

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

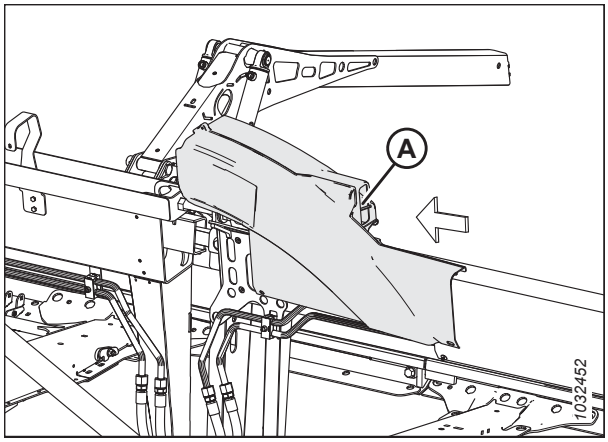


Figure 10.39: Right Linkage Cover – Rear of Header

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

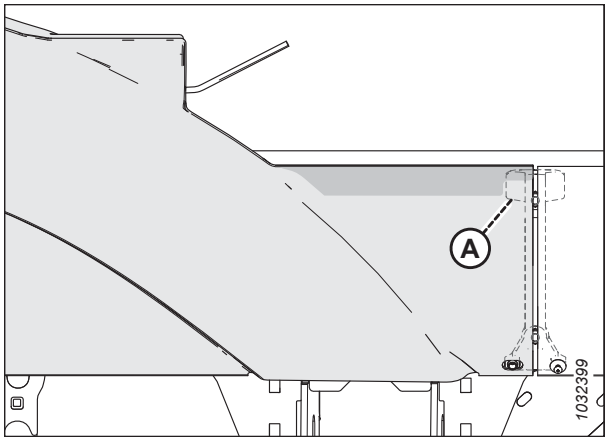


Figure 10.40: Right Linkage Cover – Rear of Header

15. Attach the cover to the hose clamps using Torx screws (A).

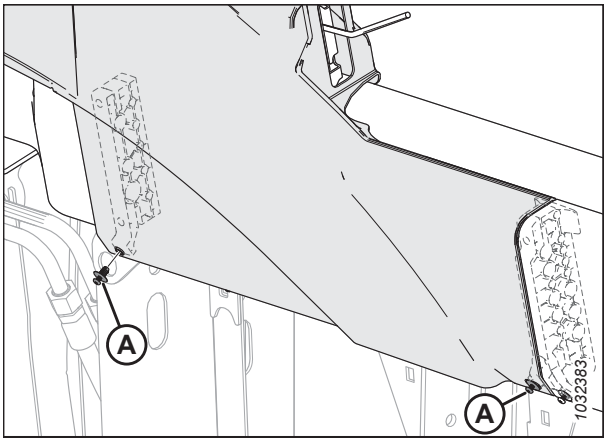


Figure 10.41: Right Linkage Cover – Rear of Header

16. 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).

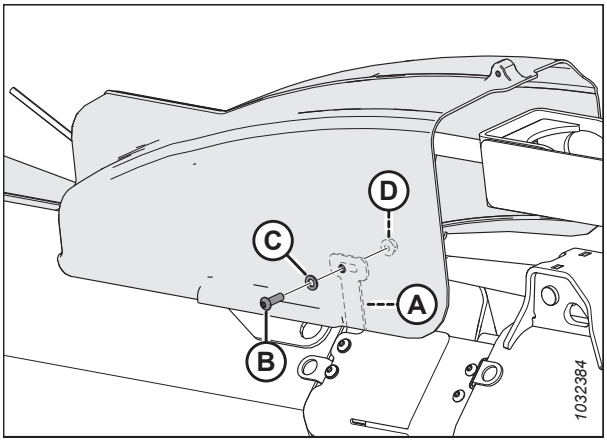


Figure 10.42: Right Linkage Cover – Front of Header

17. Repeat Step *7, page 443* to Step *12, page 444* for the two remaining covers (A) and (B) on the right linkage.

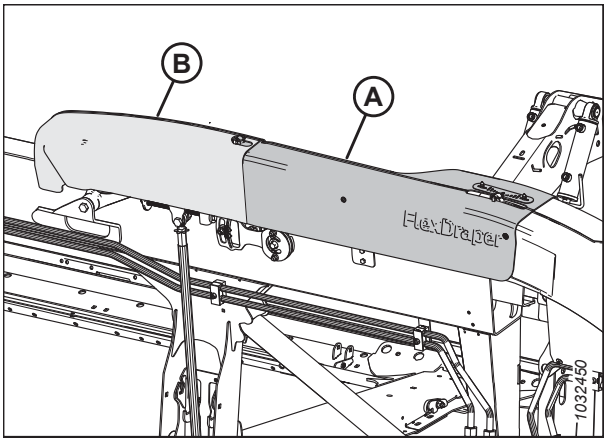


Figure 10.43: Right Linkage Covers – Rear of Header

10.8 Installing Hydraulic Line Covers

Once hydraulic changes are complete, the hydraulic line covers should be reinstalled to keep out dirt and debris.

NOTE:

To install snap rivets (if the header is equipped with them), install cover (A) over clamp protrusion (B), push rivet housing (C) into clamp protrusion (B), and screw rivet head (D) in until the rivet head screw bottoms out.

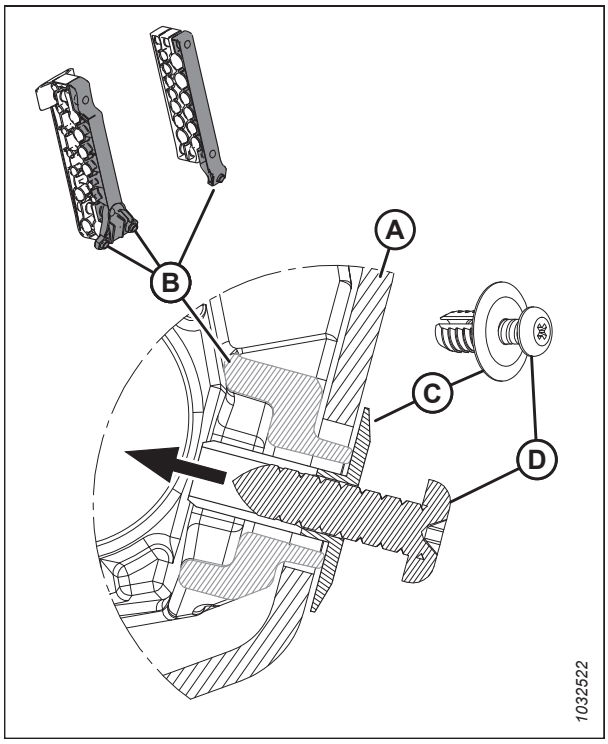


Figure 10.44: Rivets Used to Attach Covers

1. Lower manifold transition cover (C) between the line clamps and header frame, and gently pull the bottom of the cover away from the header to fit the cover over the line clamps.
2. **Model year 2020 and 2021 headers:** Push rivet (B) into manifold cover (C) and the hydraulic line clamp. Tighten the rivet to secure it.
3. **Some model year 2022 and later headers:** Secure manifold cover (C) to the hydraulic line clamp with M8 Torx® truss-head screw (B).
4. Reinstall nut and screw (A). Tighten screw (A) to 14 Nm (10 lbf·ft).

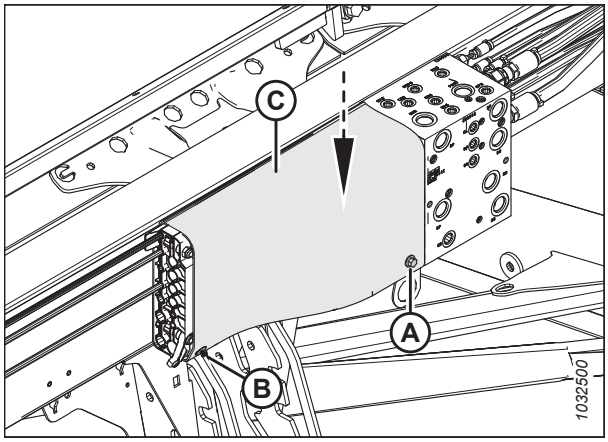


Figure 10.45: Manifold Transition Cover

5. Lower plastic cover (B) between the line clamps and header frame, and gently pull the bottom of the cover away from the header to fit the cover over the line clamps.
6. **Model year 2020 and 2021 headers:** Push rivets (A) into plastic cover (B) and the hydraulic line clamps. Tighten the rivets to secure them.
7. **Some model year 2022 and later headers:** Secure plastic cover (B) to the hydraulic line clamps with M8 Torx® truss-head screws (A).
8. **Some model year 2022 and later headers:** Tighten screws (A) to 5 Nm (44 lbf·in.).

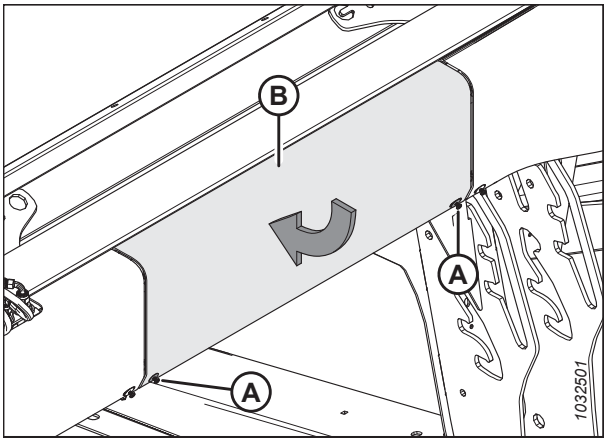


Figure 10.46: Hydraulic Line Plastic Cover

9. Repeat the previous two steps for all the remaining hydraulic line covers on both sides of the header.

   NOTE:

   Ensure that tab (A) on the plastic cover engages with the slot on the header frame.

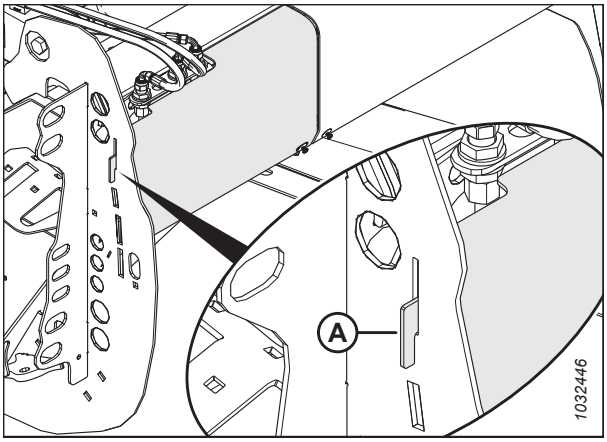


Figure 10.47: Hydraulic Line Plastic Cover with Protrusion at Left End of Header

Chapter 11: Reference

The reference section provides support information on topics such as torque specifications, the requirements for lifting equipment, unit measurement conversions, and terminology definitions. Refer to this section as needed.

11.1 Reel Safety Props

The reel safety props are located on the reel support arms and prevent the reel from falling unexpectedly.

DANGER

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

IMPORTANT:

To prevent damage to the reel support arms, do **NOT** transport the header whilen the reel safety props are engaged.

11.1.1 Engaging Reel Safety Props

Engage reel safety props anytime you need to work around a raised reel. When engaged, reel safety props prevent the reel from unexpectedly lowering.

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).

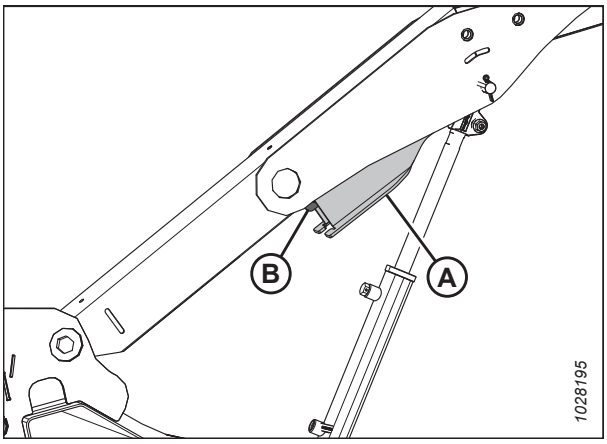


Figure 11.1: Outer Right Arm

3. Lower safety prop (A) and engage on the cylinder shaft as shown. Repeat on the opposite arm.

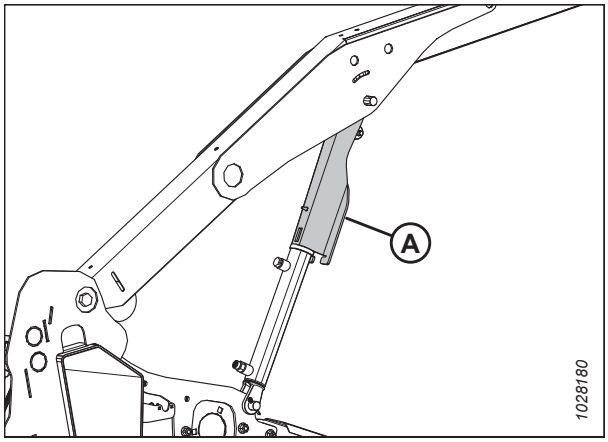


Figure 11.2: Engaged Reel Safety Prop – Outer Right Arm

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.

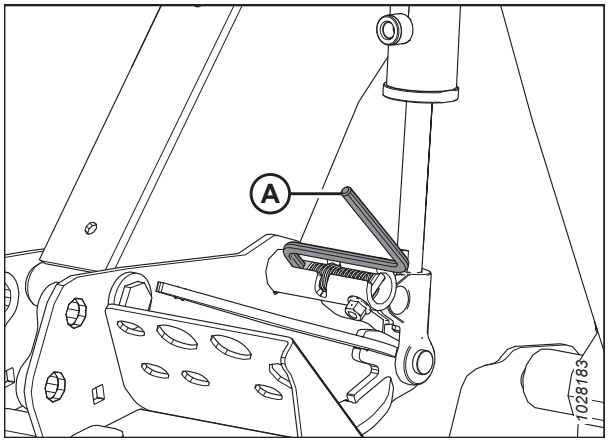


Figure 11.3: Engaged Reel Safety Prop – Center Arm

11.1.2 Disengaging Reel Safety Props

Disengage the reel safety props once you have completed working on or around a raised reel to ensure the proper operation of the reel and header.

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.

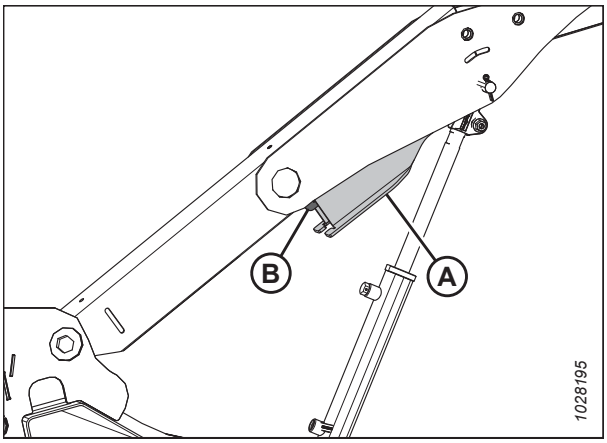


Figure 11.4: Reel Safety Prop – Right Outer Arm

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.

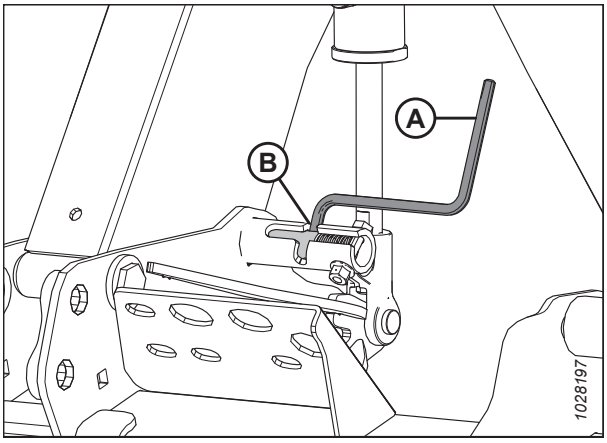


Figure 11.5: Reel Safety Prop – Center Arm

11.2 Header Endshields

A hinged, polyethylene endshield is fitted on each end of the header to protect critical drive components.

11.2.1 Opening Header Endshields

The header endshields cover components. To access the components you will need to open the endshield.

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

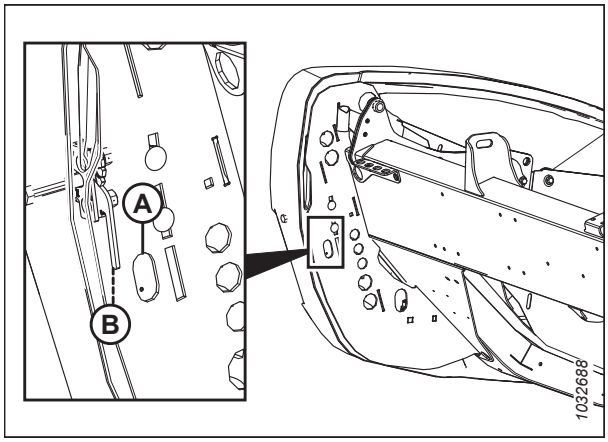


Figure 11.6: Left Header Endshield

2. Pull header endshield (A) open.

   NOTE:

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

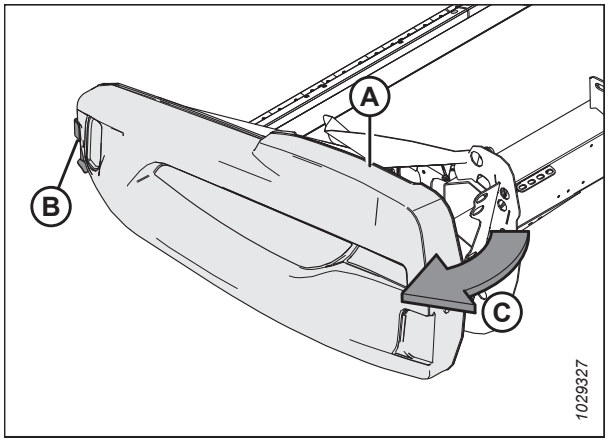


Figure 11.7: Left Header Endshield

3. If additional clearance is required, pull the header endshield free of tab (A) and then swing the 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.

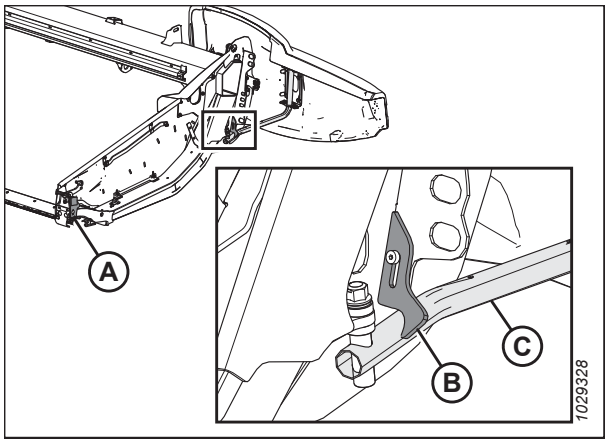


Figure 11.8: Left Header Endshield

11.2.2 Closing Header Endshields

The header endshields cover components. After accessing the components you will need to close the endshield.

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

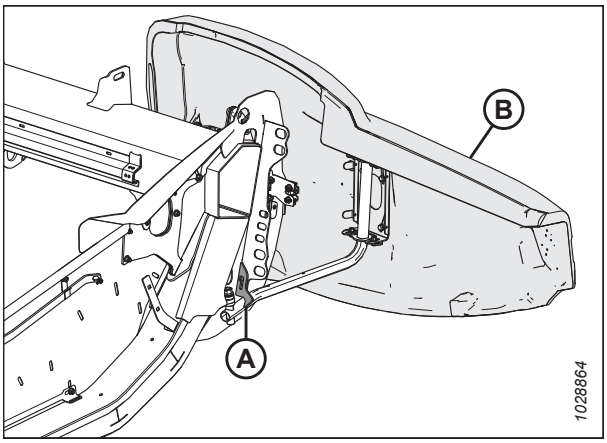


Figure 11.9: Left Header Endshield

3. While closing the endsield, 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.

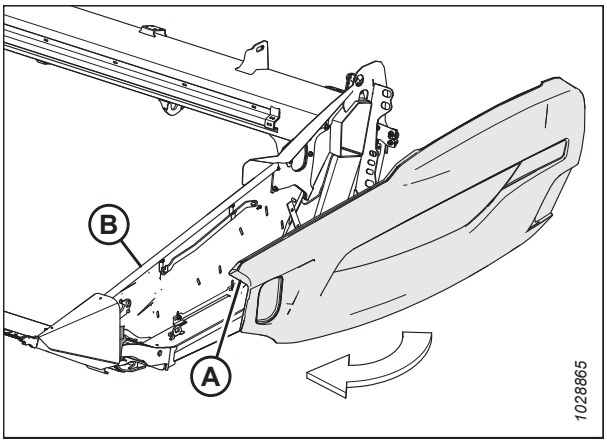


Figure 11.10: Left Header Endshield

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 the closed position. Engage two-stage latch (C) with a firm push.

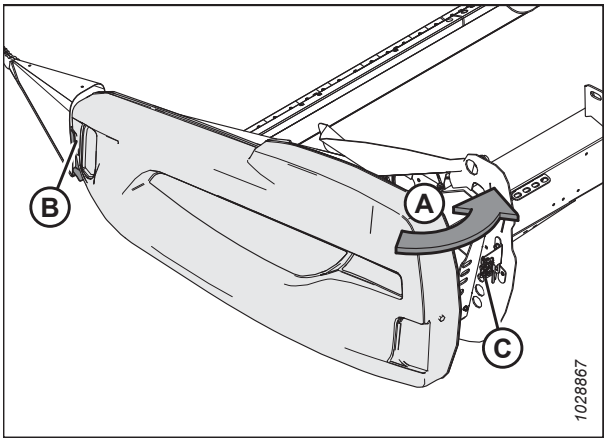


Figure 11.11: Left Header Endshield

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.

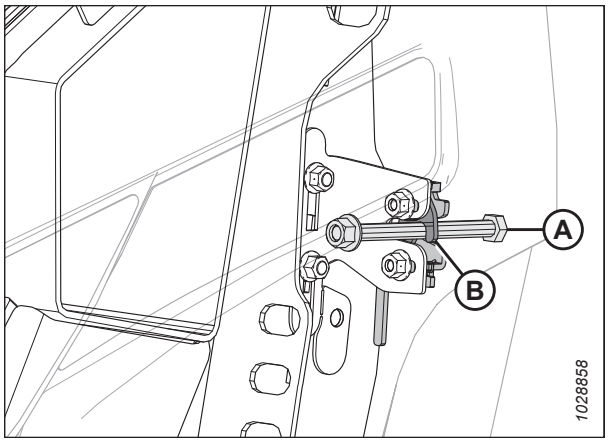


Figure 11.12: Two-Stage Latch

11.3 Torque Specifications

The following tables provide torque values for various bolts, cap screws, and hydraulic fittings. Use these values only when no other torque value has been specified in a given procedure.

- Tighten all bolts to the torque values specified in the charts below, unless you are directed otherwise in this manual.
- Replace removed hardware with hardware of the same strength and grade.
- Use the torque value tables as a guide when periodically checking the tightness of bolts.
- Understand the torque categories for bolts and cap screws by reading the markings on their heads.

Jam nuts

Jam nuts require less torque than nuts used for other purposes. When applying torque to finished jam nuts, multiply the torque applied to regular nuts by 0.65 to obtain the modified torque value.

Self-tapping screws

Use the standard torque values when installing self-tapping screws. Do **NOT** install self-tapping screws on structural or otherwise critical joints.

11.3.1 Metric Bolt Specifications

The torque values provided in the following metric bolt torque tables apply to hardware installed dry; that is, hardware with no grease, oil, or threadlocker on the threads or heads. Do **NOT** grease or oil bolts or cap screws unless directed to do so 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

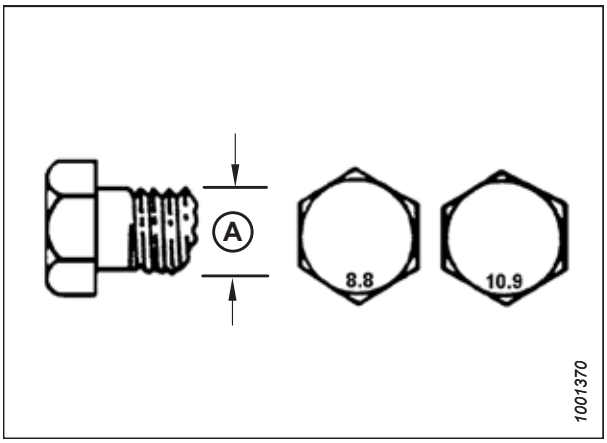


Figure 11.13: Bolt Grades

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

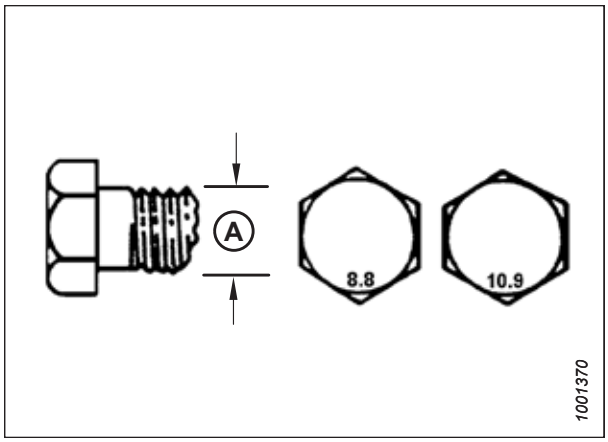


Figure 11.14: Bolt Grades

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

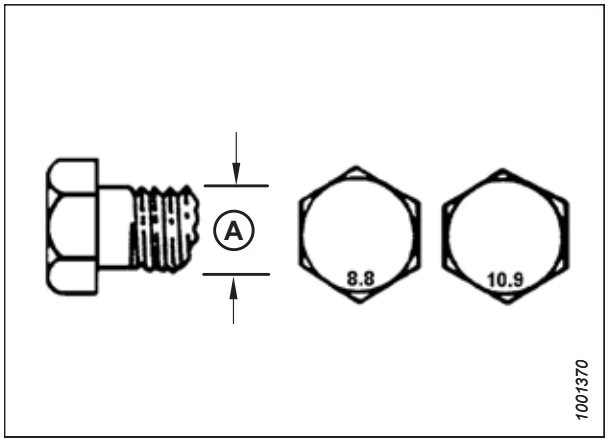


Figure 11.15: Bolt Grades

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

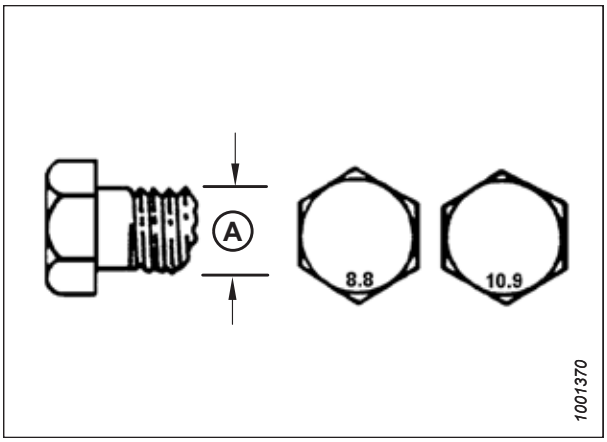


Figure 11.16: Bolt Grades

11.3.2 Metric Bolt Specifications Bolting into Cast Aluminum

The torque values provided in the following metric bolt torque tables apply to hardware installed dry; that is, hardware with no grease, oil, or threadlocker on the threads or heads. Do **NOT** grease or oil bolts or cap screws unless directed to do so 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	–	–	–	–

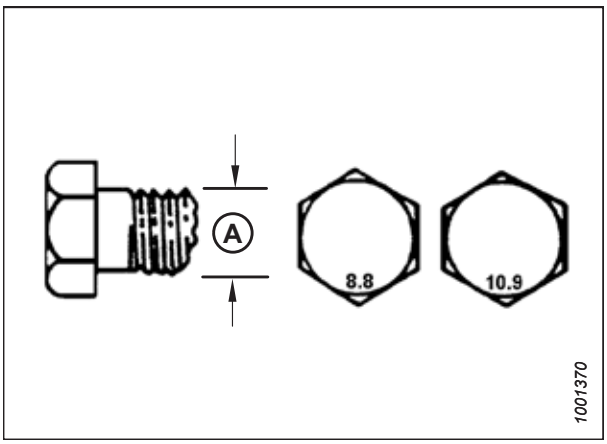


Figure 11.17: Bolt Grades

11.3.3 O-Ring Boss Hydraulic Fittings – Adjustable

The standard torque values are provided for adjustable hydraulic fittings. If a procedure specifies a different torque value for the same type and size of fitting found in this topic, use the value specified in the procedure instead.

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 the threads. Adjust O-ring (A) if necessary.
4. Apply hydraulic system oil to O-ring (A).

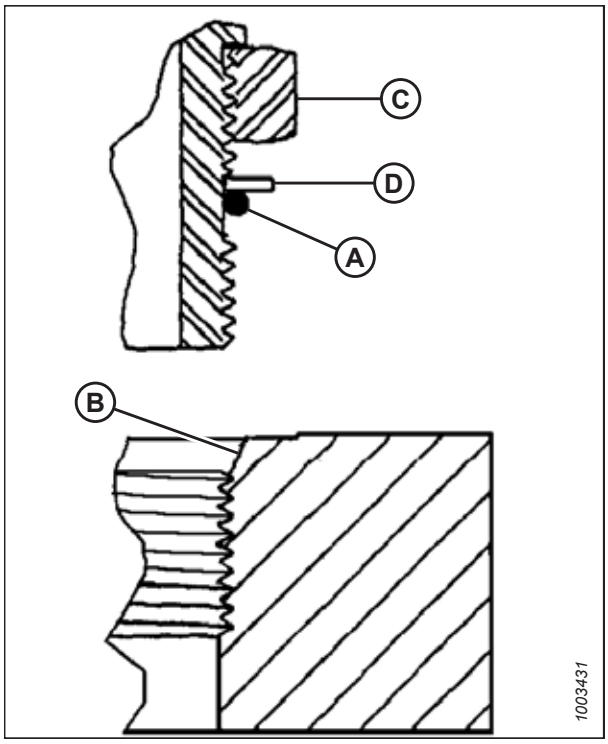


Figure 11.18: Hydraulic Fitting

5. Install fitting (B) into the 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 it to the torque value indicated in the table. Use two wrenches, one on fitting (B) and the other on lock nut (C).
8. Check the final condition of the fitting.

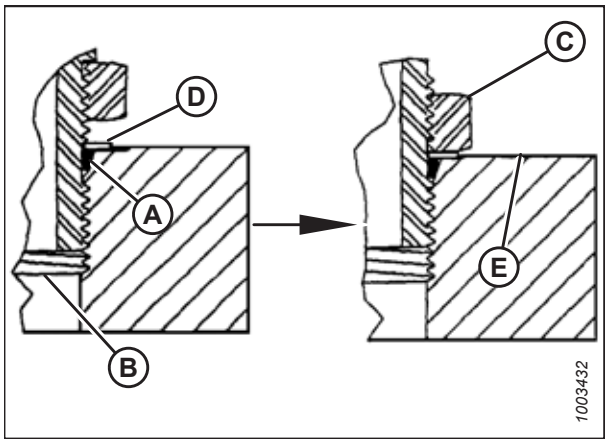


Figure 11.19: Hydraulic Fitting

Table 11.6 O-Ring Boss (ORB) Hydraulic Fittings – Adjustable

SAE Dash Size	Thread Size (in.)	Torque Value[29]	
		Nm	lbf·ft (*lbf·in)
-2	5/16–24	6–7	*53–62
-3	3/8–24	12–13	*106–115

29. Torque values shown are based on lubricated connections as in reassembly.

Table 11.6 O-Ring Boss (ORB) Hydraulic Fittings – Adjustable (continued)

SAE Dash Size	Thread Size (in.)	Torque Value[30]	
		Nm	lbf·ft (*lbf·in)
-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

11.3.4 O-Ring Boss Hydraulic Fittings – Non-Adjustable

The standard torque values are provided for non-adjustable hydraulic fittings. If a procedure specifies a different torque value for the same type and size of fitting found in this topic, use the value specified in the procedure instead.

Torque values are shown in the 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. Adjust O-ring (A) if necessary.
3. Apply hydraulic system oil to the O-ring.
4. Install fitting (C) into the port until the fitting is hand-tight.
5. Torque fitting (C) according to values in Table *11.7, page 459*.
6. Check the final condition of the fitting.

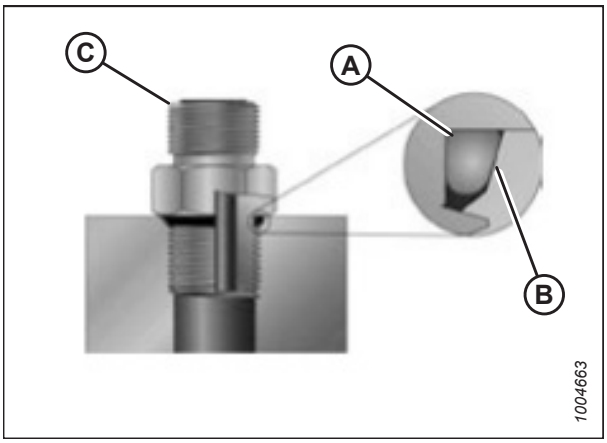


Figure 11.20: Hydraulic Fitting

Table 11.7 O-Ring Boss (ORB) Hydraulic Fittings – Non-Adjustable

SAE Dash Size	Thread Size (in.)	Torque Value[30]	
		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

30. Torque values shown are based on lubricated connections as in reassembly.

Table 11.7 O-Ring Boss (ORB) Hydraulic Fittings – Non-Adjustable (continued)

SAE Dash Size	Thread Size (in.)	Torque Value[31]	
		Nm	lbf·ft (*lbf·in)
-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

11.3.5 O-Ring Face Seal Hydraulic Fittings

The standard torque values are provided for O-ring face seal hydraulic fittings. If a procedure specifies a different torque value for the same type and size of fitting found in this topic, use the value specified in the procedure instead.

Torque values are shown in the table below.

1. Check the components to ensure that the sealing surfaces and the 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 into 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 bottoms out.
5. Torque the fittings according to values in Table *11.8, page 461*.

   NOTE:

   If applicable, hold the hex flange on fitting body (E) to prevent the rotation of the fitting body and the hose when tightening fitting nut (D).

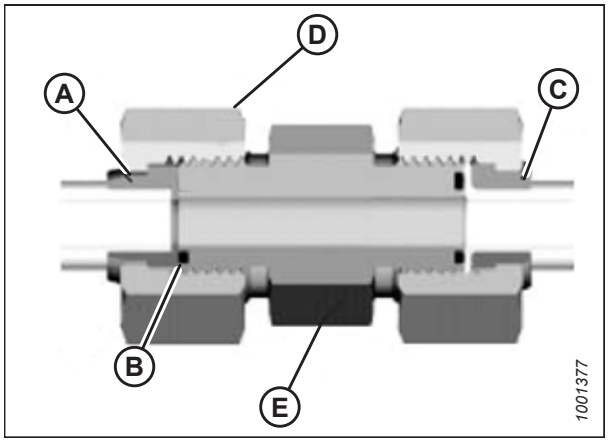


Figure 11.22: Hydraulic Fitting

31. Torque values shown are based on lubricated connections as in reassembly.

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[32]	
			Nm	lbf·ft
-3	Note[33]	3/16	–	–
-4	9/16	1/4	25–28	18–21
-5	Note[33]	5/16	–	–
-6	11/16	3/8	40–44	29–32
-8	13/16	1/2	55–61	41–45
-10	1	5/8	80–88	59–65
-12	1 3/16	3/4	115–127	85–94
-14	Note[33]	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

The standard torque values are provided for tapered pipe thread fittings. If a procedure specifies a different torque value for the same type and size of fitting found in this topic, use the value specified in the procedure instead.

Assemble pipe fittings as follows:

1. Check the components to ensure that the fitting and the port threads are free of burrs, nicks, scratches, and any other form of contamination.

2. Apply paste-type pipe thread sealant 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 462*. Make sure that the tube end of a shaped connector (typically a 45° or 90° elbow) is aligned to receive the incoming tube or hose assembly. Always finish the alignment of the fitting in the direction of tightening. Never back off (i.e., loosen) the threaded connectors to achieve alignment.

5. Clean all 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 in the port opening.

7. Mark the final position of the fitting. If a fitting leaks, disassemble the fitting and check it for damage.

   NOTE:

   The failure of fittings due to overtorquing may not be evident until the fittings are disassembled and inspected.

32. Torque values and angles shown are based on lubricated connection as in reassembly.
33. O-ring face seal type end not defined for this tube size.

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
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 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 11.10 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^3 or cc	x 0.061 =	cubic inch	$in.^3$
Weight	kilogram	kg	x 2.2046 =	pound	lb.

11.5 Definitions

The following terms, abbreviations, and acronyms are used in this instruction.

Term	Definition
API	American Petroleum Institute
ASTM	American Society of Testing and Materials
Bolt	A headed and externally threaded fastener designed to be paired with a nut
Center-link	A hydraulic cylinder connection between the header and the vehicle, which is used to change the angle of the header relative to the vehicle
CGVW	Combined gross vehicle weight
Export header	The 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 in which the given sealing surfaces or components are making contact with each other and the fitting has been tightened by hand to a point where the fitting is no longer loose and cannot be tightened further by hand
FM200	The float module used with an 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 the head (internal-wrenching hexagon drive); also known as an Allen key
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	The 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 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 when inserted into a mating part
Soft joint	A flexible joint made by use of a fastener in which the joining materials compress or relax over a period of time
Tension	An axial load placed on a bolt or screw, usually measured in Newtons (N) or pounds (lb.). This term can also be used to describe the force a belt exerts on a pulley or sprocket
TFFT	Turns from finger tight
Torque	The product of a force * the length of a lever arm, usually measured in Newton-meters (Nm) or foot-pounds (lbf·ft)

Term	Definition
Torque angle	A tightening procedure in which a fitting is assembled to a specified tightness (usually finger tight) and then the nut is turned farther by a specified number of degrees until it achieves its final position
Torque-tension	The relationship between the assembly torque applied to a piece of hardware and the axial load it induces in a bolt or screw
UCA	Upper cross auger
Washer	A thin cylinder with a hole or a slot located in the center, used as a spacer, a load distribution element, or a 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 .11 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.	*11.3 Torque Specifications, page 455*
	Check tire pressure (transport/stabilizer option).	*7.1 Checking Tire Pressure – Stabilizer Wheels, or Transport with Stabilizer Wheels (Option), page 171*
	Check wheel bolt torque (transport/stabilizer option).	*7.2 Checking Wheel Bolt Torque, page 172*
	Check the lubricant level in the knife drive box.	*7.3 Checking Oil Level in Knife Drive Box , page 173*
	Check the float module gearbox lube level.	*7.4 Checking Oil Level in Header Drive Main Gearbox, page 175*
	Check the hydraulic reservoir lube level before and after run-up.	*7.6 Checking Oil Level in Hydraulic Reservoir, page 177*
	Check if the reel is centered between header endsheets (header in full smile).	*7.9 Checking Reel Clearance and Centering Reel, page 189*
	Grease all bearings and drivelines.	*7.18 Lubricating the Header, page 227*
	Check side draper tension.	*7.16 Checking and Adjusting Side Draper Tension, page 222*
	Check draper seal.	*7.17 Checking Draper Seal, page 224*
	Check header float.	*7.13 Checking and Adjusting Header Float, page 209*
	Check wing balance.	*7.14 Checking and Adjusting Wing Balance, page 214*
	Check wing float lock adjustment / check that top-link is parallel.	*7.12 Checking and Adjusting Top-Link, page 207*
	Check reel tine to cutterbar clearance.	*7.10 Reel Clearance to Cutterbar, page 191*
	Check auger flighting to feed pan clearance.	*7.15 Adjusting Feed Auger to Pan Clearance, page 219*
	Check the knife hold-downs.	*7.7 Guard Identification, page 178*
	Ensure skid shoes are evenly adjusted and at a setting appropriate for crop.	—
	Ensure feeder house variable speed is set to minimum.	—
	Ensure auto header height is calibrated and functioning correctly.	*8.1 Auto Header Height Control, page 241*
Run-up procedure		*10 Running up Header, page 423*

Table .11 FD2 Series FlexDraper® / FM200 Float Module Predelivery Checklist – North America (continued)

✓	Item	Reference
	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.	*10.1 Checking Knife Speed, page 426*
	Check/adjust side draper tracking	*10.4 Adjusting Side Draper Tracking, page 433*
Post run-up check. Stop engine.		*10.5 Performing Post Run-Up Adjustments, page 435*
	Check knife and reel drives for heated bearings.	*7.18 Lubricating the Header, page 227*
	Check knife sections for discoloration caused by misalignment of components. Adjust hold-downs as required.	*10.5.1 Checking Knife Position, page 435*
	Check/adjust feed draper tension	*10.5.2 Checking and Adjusting Feed Draper Tension, page 435*
	Check for hydraulic leaks.	—
	Check fitment of endshields.	*7.19 Checking and Adjusting Header Endshields, page 236*
	Check that manual storage case contains operator's manual.	*7.20 Checking Manuals, page 239*

Date Checked: **Checked by:**

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