

R216

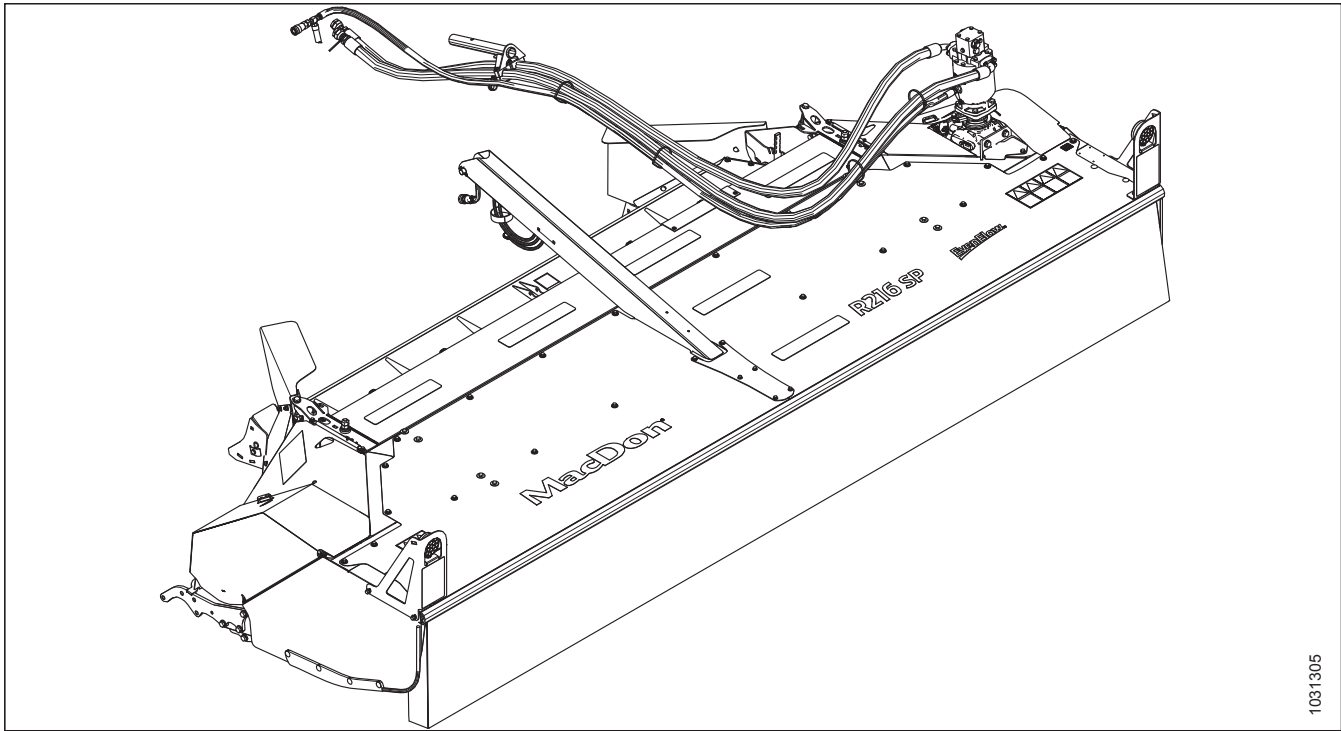
Rotary Disc Header for Windrowers

Unloading and Assembly Instructions

215797 Revision A

Original Instruction

R216 Rotary Disc Header



1081305

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Introduction

This document describes the unloading, setup, and predelivery requirements for the MacDon R216 Rotary Disc Header, including a Grass Seed (GSS) version.

To ensure your customers receive all of the performance and safety benefits from this product, carefully follow the unloading and assembly procedure from the beginning through to completion.

Retain this instruction for future reference.

If the shipment is damaged or is missing parts, contact the following according to your region:

- North America: shortageanddamage@macdon.com
- Australia: service@macdon.com.au
- Brazil: garantia-brasil@macdon.com
- Europe (except Russia): MarketingEurope@macdon.com
- Russia: shortageanddamage@macdon.com

Conventions

The following conventions are used in this document:

- Right and left are determined from the operator's position. The front of the rotary disc header faces the crop.
- Unless otherwise noted, use the standard torque values provided in this manual.

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

NOTE:

Keep your MacDon publications up-to-date. The most current version can be downloaded from our website (www.macdon.com) or from our Dealer-only site (<https://portal.macdon.com>) (login required).

This instruction is currently available in English only.

Summary of Changes

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

Section	Summary of Change	Internal Use Only
<i>Introduction, page i</i>	<ul style="list-style-type: none"> Added MacDon contact information for inquiring about missing parts or damage upon delivery. 	Tech Pubs
<i>2 Unloading the Header from a Trailer – North America, page 9</i>	<ul style="list-style-type: none"> Revised all procedures and illustrations to reflect the new shipping configuration and stand. 	ECN 62074
<i>2 Unloading the Header from a Trailer – North America, page 9</i>	<ul style="list-style-type: none"> Moved the procedures for unloading the GSS version of the header to this section. Deleted the dedicated GSS unloading section, as the GSS R2 header now has the same shipping configuration and stand as the standard R2 header. 	ECN 61995
<i>3 Unloading the Header from a Container – Export, page 11</i>	<ul style="list-style-type: none"> Updated the procedure for pulling the header out of a shipping container to reflect the current shipping stand and configuration (header is now pulled by the shipping stand crossmember and not the leg of the stand). 	ECN 62074
<i>3 Unloading the Header from a Container – Export, page 11</i>	<ul style="list-style-type: none"> Added header weight and dimensions to the export unloading instructions. 	Product Support, ECN 61286
<i>4.1.1 Removing Shipping Items from the Bottom of the Header – Standard Headers Only, page 15</i>	<ul style="list-style-type: none"> Revised the procedures to reflect the new shipping configuration and stand. Added steps for removing the shipping wire that secures the forming shield crate to the conditioning roll. Added steps for removing the hazard/brake light assemblies from their storage locations behind the skid shoe mounts. 	ECN 62074
<i>4.1.2 Lowering the Header, page 16</i>	<ul style="list-style-type: none"> Revised the illustration “Spreader Bar Attached to Disc Header” to make it consistent with the new shipping configuration and stand (the previous image pictured the hazard/brake lights already installed). 	ECN 62074
<i>4.1.3 Removing Forming Shield Crate – Standard Headers Only, page 19</i>	<ul style="list-style-type: none"> Added this section about removing the forming shield crate from inside header cavity. 	ECN 62074
<i>4.1.4 Unpacking Hydraulic Hoses and Electrical Harness, page 20</i>	<ul style="list-style-type: none"> Replaced all illustrations in this section to reflect the new shipping stand and configuration. Added a note stating that some headers may be shipped without hydraulic drive hoses and motor. This is to address how some new R2 headers are shipped without hydraulic drive. 	ECN 62074
<i>4.1.5 Removing Shipping Stand, page 22</i>	<ul style="list-style-type: none"> Revised the procedures and images to reflect the new shipping configuration and stand. 	ECN 62074

Section	Summary of Change	Internal Use Only
<i>4.1.5 Removing Shipping Stand, page 22</i>	<ul style="list-style-type: none"> Added steps for removing the 45° elbow fittings from their shipping location in the header manual case (GSS only). 	ECN 61995
<i>4.2 Installing Hazard/Brake Light Assembly – Standard Headers Only, page 27</i>	<ul style="list-style-type: none"> Revised the section for installing hazard/brake lights, as this section now applies to all standard headers (not only headers for export). 	ECN 62074
<i>4.5 Installing Skid Shoes or Gauge Rollers, page 37</i>	<ul style="list-style-type: none"> Added this section on installing skid shoes or gauge rollers, including the new part numbers for the new R2 skid shoe and gauge roller bundles. 	ECN 62067
<i>4.6 Installing Hydraulic Drive Kit – For Headers Shipped without Hydraulic Drive Only, page 38</i>	<ul style="list-style-type: none"> Added this section about installing hydraulic drive kits, given that some R2 headers are now shipped without hydraulic drive attached. 	ECN 58180 ECN 59449 ECN 61467
<i>4.7.2 Installing Grass Seed Anti-Shatter Shield Kit, page 46</i>	<ul style="list-style-type: none"> Removed all references to installing the GSS completion package and module, as the GSS version of the header is now shipped with the GSS module already installed. Added procedures for installing the Anti-Shatter Shield kit, including part numbers for the bundle and instruction. 	ECN 61995
<i>9.5.1 Checking Feed Roll Drive, page 106</i>	<ul style="list-style-type: none"> Revised the steps for inspecting the feed roll drive belts, pulleys, and spring tensioner. In particular, the illustrations were updated to reflect the new design of the grease fitting the pulley bearing, as well as the extra notch added to the spring tensioner bracket. Added procedures for inspecting the orientation of the grease fitting and the placement of the tensioner spring. 	ECN 62369
<i>Predelivery Checklist, page 153</i>	<ul style="list-style-type: none"> Revised the predelivery checklist to make it consistent with new shipping configurations and procedures. Updated all relevant cross-references. 	ECN 61995 ECN 62074

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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 Signal Words

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

Signal words are selected using the following guidelines:

DANGER

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

WARNING

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

CAUTION

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

IMPORTANT:

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

NOTE:

Provides additional information or advice.

1.2 General Safety

Protect yourself when assembling, operating, and servicing machinery.

CAUTION

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

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

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

In addition, take the following precautions:

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



Figure 1.1: Safety Equipment



Figure 1.2: Safety Equipment

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

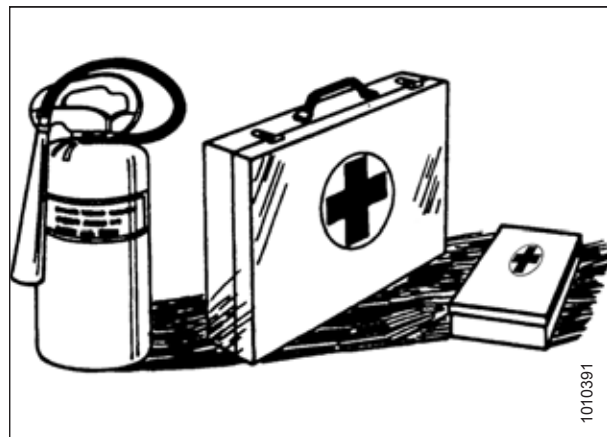


Figure 1.3: Safety Equipment

SAFETY

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



Figure 1.4: Safety around Equipment

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

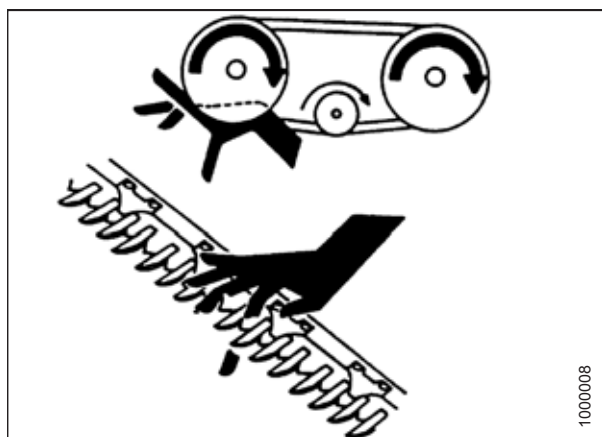


Figure 1.5: Safety around Equipment

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



Figure 1.6: Safety around Equipment

1.3 Welding Precaution

To prevent damage to sensitive electronics, welding should never be attempted on the rotary disc header while it is connected to a windrower.



WARNING

Severe damage to sensitive, expensive electronics can result from welding on the header while it is connected to the windrower. It can be impossible to know what effect high current could have with regard to future malfunctions or shorter lifespan. It is very important that welding on the header is not attempted while the header is connected to the windrower.

If it is unfeasible to disconnect the rotary disc header from the windrower before welding, refer to the windrower's technical manual for welding precautions detailing all electrical components that must be disconnected first for safe welding.

1.4 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.

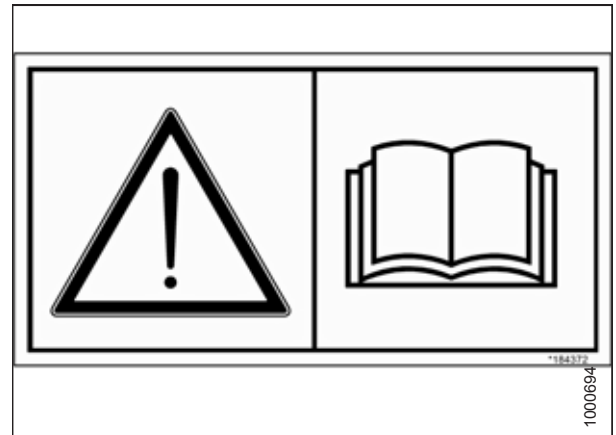


Figure 1.7: Operator's Manual Decal

1.5 Understanding Safety Signs

Consult this section to learn the dangers that each type of safety sign denotes.

MD #190546

Slipping hazard

WARNING

To prevent injury or death:

- Do **NOT** use this area as a step or platform.

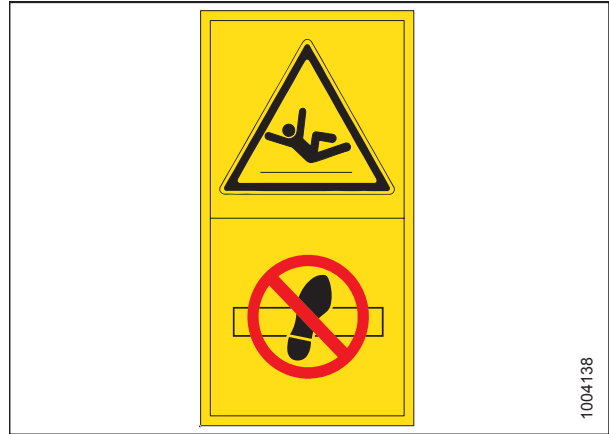


Figure 1.8: MD #190546

MD #246959202309070

Pinch point hazard

CAUTION

To prevent injury:

- Do **NOT** reach into pinch area.



Figure 1.9: MD #246959202309070

MD #307746

Thrown objects hazard

WARNING

To prevent injury or death from thrown objects:

- Stand clear of header while machine is running.
- Crop materials exiting at high speed.
- Stop machine, look, listen, and wait for all movement to stop before approaching.

Blade cutting hazard

WARNING

To prevent injury from sharp cutting blades:

- Do **NOT** operate without shields in place.
- Disengage PTO, stop engine, and remove key before opening shield.



Figure 1.10: MD #307746

SAFETY

- Blades may continue to rotate after power is shut off.
- Listen and look for evidence of rotation before.

MD #325070

Driveline entanglement hazard

DANGER

To prevent injury:

- Stop engine and remove key before opening shield.
- Do **NOT** operate without shields in place.

Hand and arm entanglement hazard

WARNING

To prevent injury:

- Stop engine and remove key before opening shield.
- Do **NOT** operate without shields in place.

Pinch point hazard

CAUTION

To prevent injury:

- Do **NOT** reach into pinch area.

MD #325706

Thrown and sharp object/hydraulic oil pressure hazard

WARNING

- Crop materials exiting at high speed.
- Stop machine, look, listen, and wait for all movement to stop before approaching.
- Failure to comply could result in death or serious injury.
- Disengage power take-off, shut off tractor, and remove key before opening covers.
- Listen and look for evidence of rotation before lifting cover.
- Cutters may continue to rotate after power is shut off due to inertia.
- Read the operator's manual, and follow all safety instructions. If you do not have a manual, obtain one from your Dealer.
- Do **NOT** allow untrained persons to operate the machine.
- Review safety instructions with all Operators annually.
- Ensure that all safety signs are installed and legible.
- Make certain everyone is clear of machine before starting engine, and during operation.
- Keep riders off the machine.
- Keep all shields in place and stay clear of moving parts.

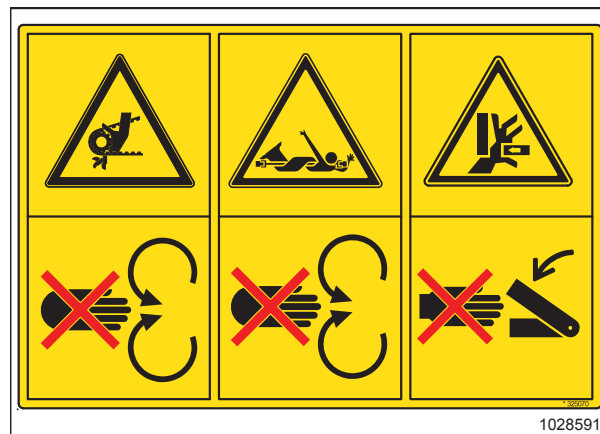


Figure 1.11: MD #325070

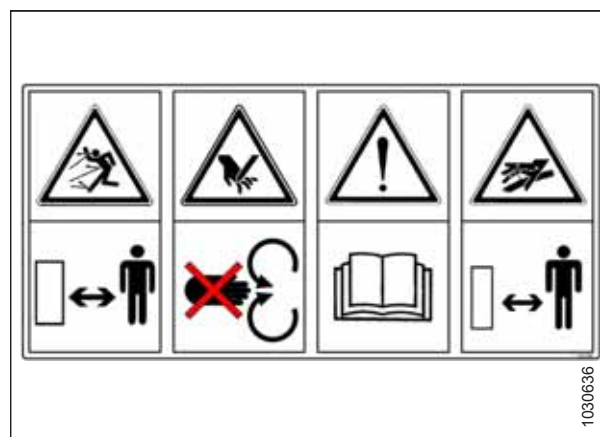


Figure 1.12: MD #325706

SAFETY

- Disengage drive, put transmission in Neutral, and wait for all movement to stop before leaving operator's position.
- Shut off engine and remove key from ignition before servicing, adjusting, lubricating, cleaning, or unplugging machine.
- Engage locks to prevent lowering of self-propelled rotary disc header before servicing in the raised position.
- Use slow moving vehicle emblem and flashing warning lights when operating on roadways unless prohibited by law.
- High pressure oil easily punctures skin causing serious injury, gangrene, or death.
- If injured, seek emergency medical help.
- Do **NOT** use finger or skin to check for leaks.
- Lower load or relieve hydraulic pressure before loosening fittings.

Chapter 2: Unloading the Header from a Trailer – North America

The rotary disc header, when shipped anywhere in North America, is secured on a shipping stand. The header and stand are unloaded from the transport vehicle using a forklift.

WARNING

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

IMPORTANT:

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

NOTE:

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

Table 2.1 Lifting Vehicle

Minimum Capacity	3630 kg (8000 lb.)
Minimum Fork Length	198 cm (78 in.)

1. Remove the hauler's tie-down straps and chains.

WARNING

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

2. Approach the rotary disc header with the forklift from the underside of the header and slide the forks through four fork straps (A), and as far as possible.

IMPORTANT:

If the load is two units wide, take care to avoid contacting the other machine.

3. Raise the rotary disc header off the deck.

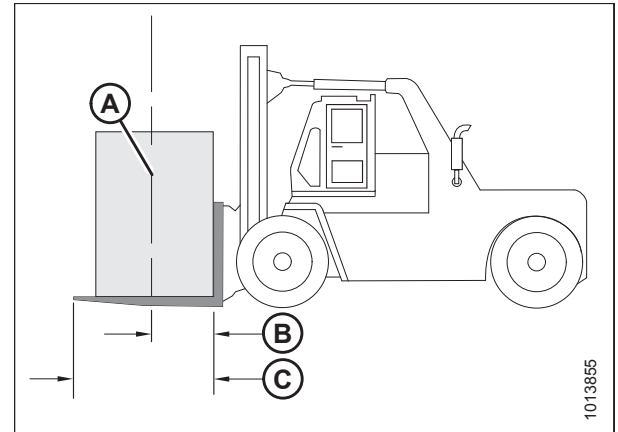


Figure 2.1: Minimum Lifting Capacity

A - Load Center of Gravity

B - Load Center 1220 mm (48 in.) from Back of Forks

C - Minimum Fork Length 1981 mm (78 in.)

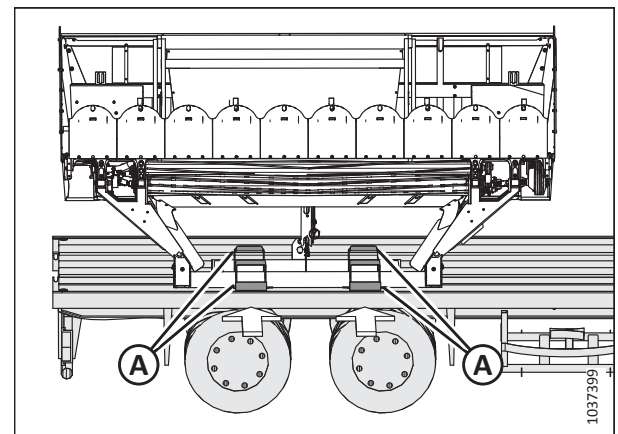


Figure 2.2: Lifting Rotary Disc Header off Trailer

UNLOADING THE HEADER FROM A TRAILER – NORTH AMERICA

4. Back the forklift up until the rotary disc header clears the trailer, and slowly lower the header until distance (A) from the ground is 150 mm (6 in.).
5. Take the rotary disc header to the storage or setup area.
6. Set the rotary disc header down on secure, level ground. Do **NOT** lower the header into working position.
7. Check for shipping damage and missing parts.

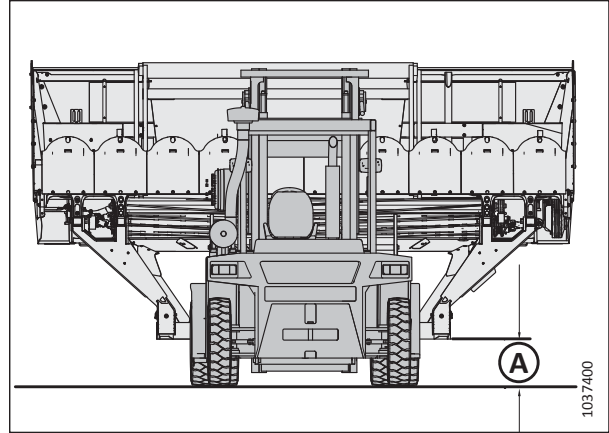


Figure 2.3: Moving Disc Header with Forklift

Chapter 3: Unloading the Header from a Container – Export

The rotary disc headers, when shipped anywhere outside of North America, are shipped in a shipping container. The shipping container contains up to four R216 Rotary Disc Headers (complete with conditioner) placed side by side. Unload the headers one at a time, using a forklift and other unloading equipment.

WARNING

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

NOTE:

The grass seed (GSS) option is not available for export.

NOTE:

In its shipping configuration, the R216 header has the following specifications:

- Width (A): 5.01 m (16 ft. 5 in.)
- Height (B): 2.56 m (8 ft. 5 in.)
- Depth (C): 1.43 m (4 ft. 8 in.)
- Weight: 2427 kg (5351 lbs.)

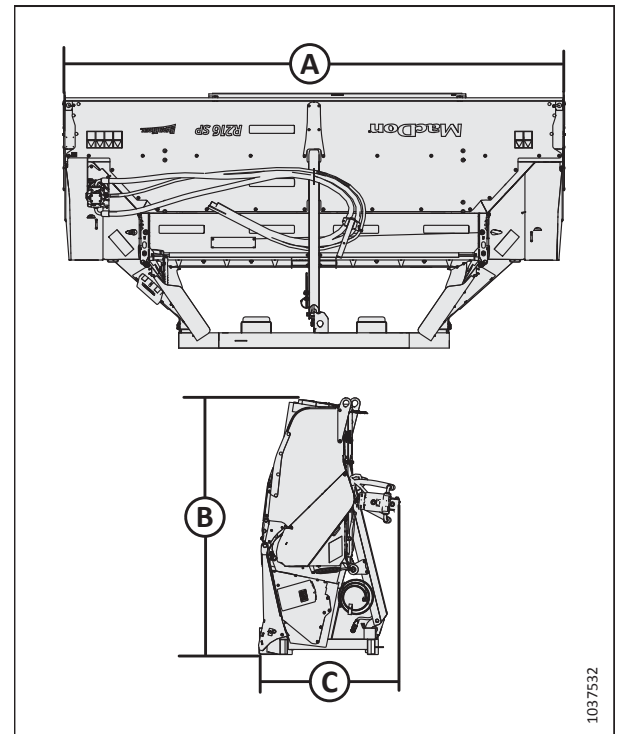


Figure 3.1: R216 Header Shipping Specifications

IMPORTANT:

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

NOTE:

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

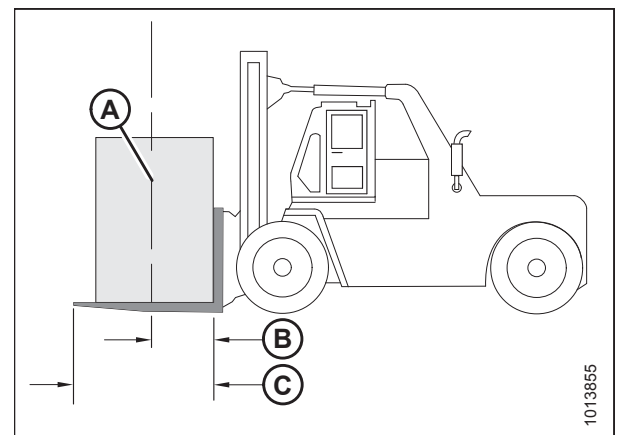


Figure 3.2: Minimum Lifting Capacity

A - Load Center of Gravity
B - Load Center 1220 mm (48 in.) from Back of Forks
C - Minimum Fork Length 1981 mm (78 in.)

UNLOADING THE HEADER FROM A CONTAINER – EXPORT

Table 3.1 Lifting Vehicle

Minimum Capacity	3630 kg (8000 lb.)
Minimum Fork Length	198 cm (78 in.)

The headers are positioned inside the container as shown. Unload headers one at a time. Start with header (A) then unload headers (B), (C), and (D).

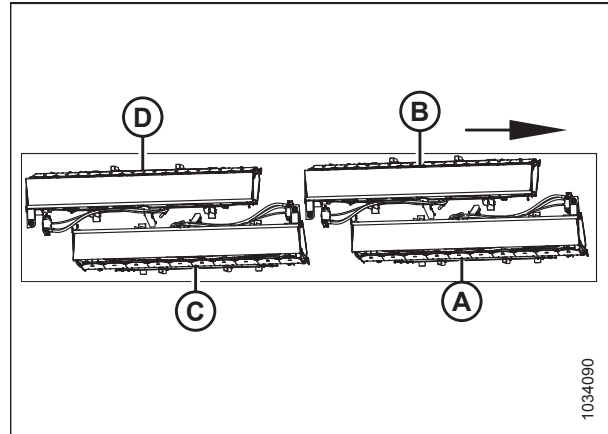


Figure 3.3: Headers in Container — View from Above

1. Move the trailer into position, and block the trailer wheels.
2. Lower the trailer storage stands.
3. Open the container doors, and remove the wood blockings and strapping from one header at a time. This is to prevent the unit from shifting which can cause damage.
4. Check the container floors for nails or other obstructions, and remove these obstructions if necessary.
5. Connect chain or equivalent device (A) to the middle of shipping stand crossmember (B).

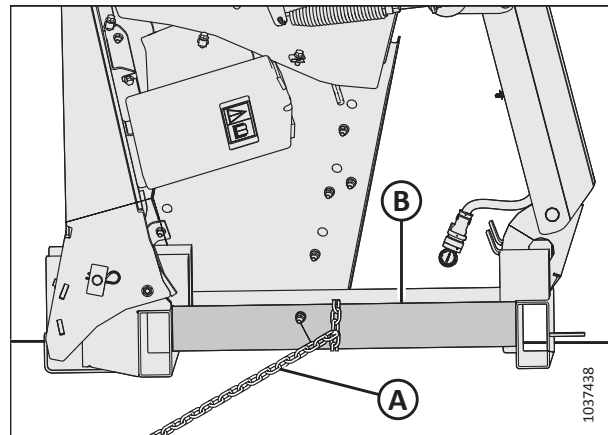


Figure 3.4: Rotary Disc Header in Shipping Container — View from Left

UNLOADING THE HEADER FROM A CONTAINER – EXPORT

- Using a forklift, position shipping platform (A) at the container opening. Ensure the platform is lined up with the container floor.
- Attach chain or equivalent device (B) secured to the outboard shipping stand to a second forklift that will pull header (C) out of the shipping container.

NOTE:

The actual shipping stand may be different than the one pictured.

- Slowly pull the header straight out of the shipping container onto the platform. Ensure the center anchor beam is clear from the other header.
- If the platform is resting on the container floor, lift the platform slightly to take weight off the container.
- Raise the trailer storage stands and remove the blocks from the trailer wheels.
- Slowly and carefully drive the trailer with the container away from the platform, watching all the clearances.
- When the container is clear of the platform, slowly lower the platform and header to the ground.
- Remove the chain from the shipping stand.

NOTE:

The actual shipping stand may be different from the one pictured.

- Back the forklift away from the platform and header.
- Approach the rotary disc header from its underside and slide the forks into fork straps (A) on the bottom crossmember of the shipping stand.
- Lift and take the rotary disc header to the storage or setup area.
- Set the rotary disc header down on secure, level ground. Do **NOT** lower the header into working position.
- Check for shipping damage and missing parts.
- Repeat Step 1, page 12 to Step 19, page 13 for the remaining headers in the container.

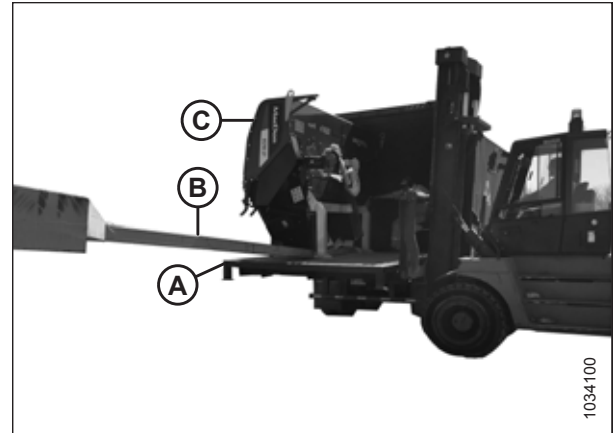


Figure 3.5: Rotary Disc Header in Container



Figure 3.6: Rotary Disc Header in Container

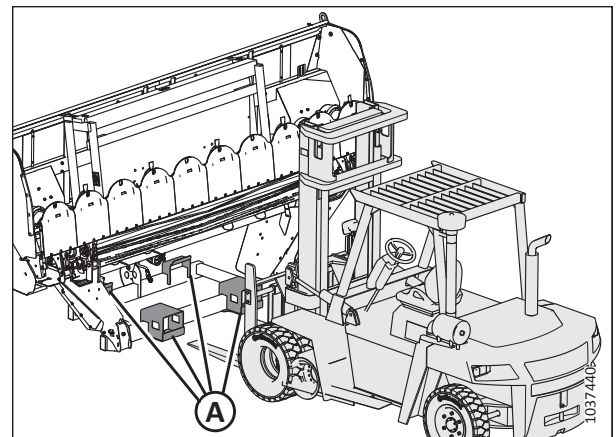


Figure 3.7: Moving Disc Header with Forklift

Chapter 4: Assembling the Header

Follow each procedure in this chapter in order.

4.1 Preparing the Header for Assembly

To prepare the header for assembly, remove all shipping supports and retrieve all items that had been removed for shipping.

- For standard headers, proceed to [4.1.1 Removing Shipping Items from the Bottom of the Header – Standard Headers Only, page 15](#).
- For grass seed (GSS) headers, proceed to [4.1.2 Lowering the Header, page 16](#).

4.1.1 Removing Shipping Items from the Bottom of the Header – Standard Headers Only

Before lowering the standard R216 header into the operating position, remove the shipping wire and packaged items from the bottom of the header.

1. Remove the shipping wire securing forming shield crate (B) to conditioner roll (C) at locations (A).

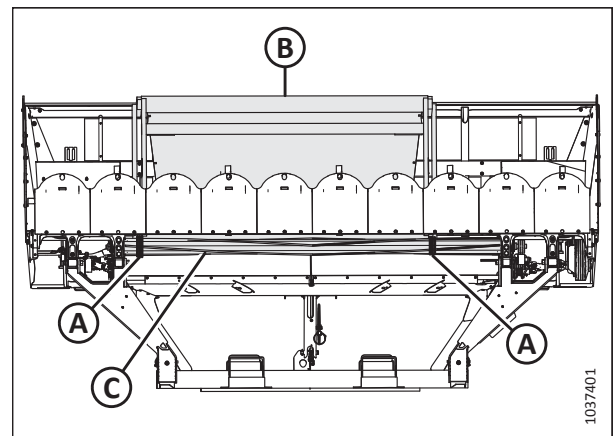


Figure 4.1: R216 Header with Conditioning Rolls – Cutterbar Side

ASSEMBLING THE HEADER

- Remove two hazard/brake light assemblies (B) from their shipping locations behind two skid shoe mounts (A). Remove the light assemblies from the plastic packaging and retain them for installation later.

NOTE:

R216 headers configured for grass seed (GSS) do not include these light assemblies. The hazard/brake lights for GSS-ready headers are provided as part of the GSS Anti-Shatter Shield kit (MD #B7222).

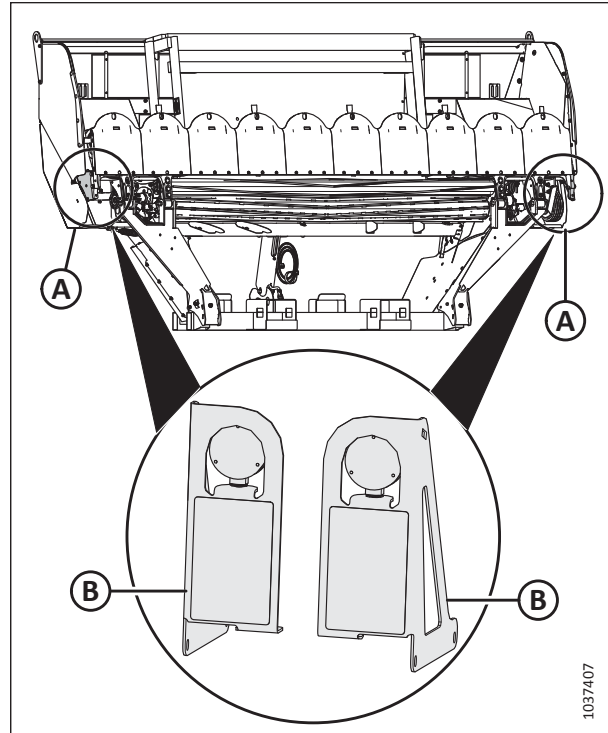


Figure 4.2: Hazard/Brake Light Assembly Shipping Location – Bottom of Header

- Proceed to [4.1.2 Lowering the Header, page 16](#).

4.1.2 Lowering the Header

Complete the following steps to lower the header into working position after it has been lifted off its shipping trailer and set down on the ground.

CAUTION

Ensure spreader bar is secured to the forks so that it cannot slide off the forks or towards the mast as the header is lowered to the ground.

Table 4.1 Lifting Vehicle

Chain Type	Overhead lifting quality (1/2 in.)
Minimum Working Load	2270 kg (5000 lb.)

ASSEMBLING THE HEADER

1. Place wood blocks (A) at a distance of 42 cm (16 1/2 in.) (B) on the outboard side of each shipping stand (C).

NOTE:

Wood blocks should be 2 x 4 in. and 1–1.5 m (3–5 ft.) in length.

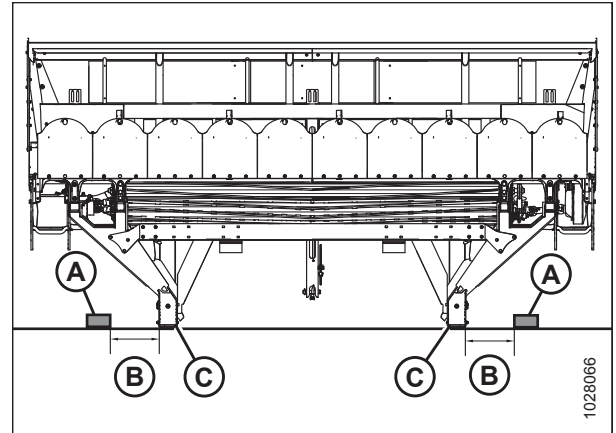


Figure 4.3: Block Placement

2. Attach spreader bar (A) to the forklift forks.

IMPORTANT:

The length of the spreader bar must be approximately 457 cm (15 ft.).

3. Approach the header from its underside with the forklift.
4. Attach chains with hooks to spreader bar (A) and hook into shipping brackets (B) on both sides of the header.



CAUTION

Stand clear when lowering the disc header.

IMPORTANT:

The chain length must be sufficient to provide a minimum clearance of 1219 mm (48 in.) between the rotary disc header and the spreader bar.

5. Raise the forks until the lift chains are fully tensioned.

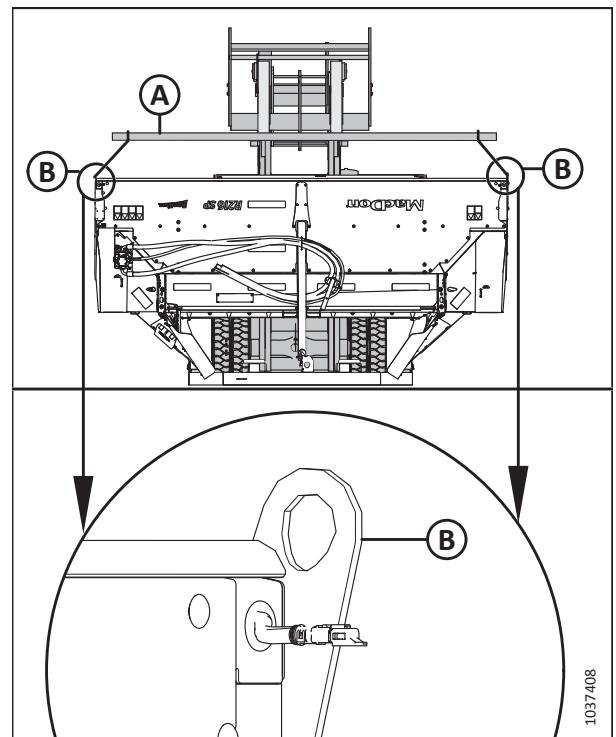


Figure 4.4: Spreader Bar Attached to Disc Header

ASSEMBLING THE HEADER

6. Back up the forklift **SLOWLY**, and lower rotary disc header (A) into the working position on wooden blocks (B) placed in Step 1, [page 17](#).
7. Remove the chains from the header.

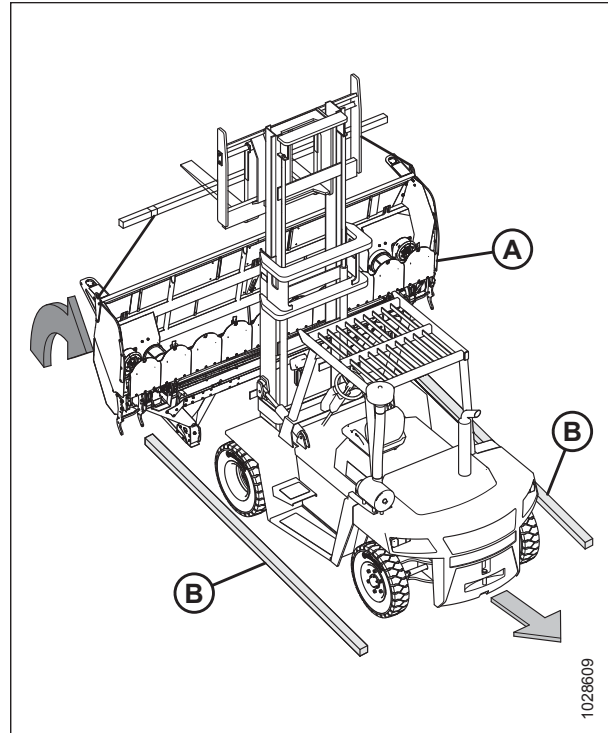


Figure 4.5: Lowering Rotary Disc Header to the Ground

8. Proceed to the appropriate procedures:
 - **Standard Headers:** Proceed to [4.1.3 Removing Forming Shield Crate – Standard Headers Only, page 19](#).
 - **Grass Seed (GSS) Headers:** Proceed to [4.1.4 Unpacking Hydraulic Hoses and Electrical Harness, page 20](#).

4.1.3 Removing Forming Shield Crate – Standard Headers Only

On standard R216 Rotary Disc Headers, the forming shield is packed in a crate and shipped inside the header. This crate must be removed before the header can be assembled.

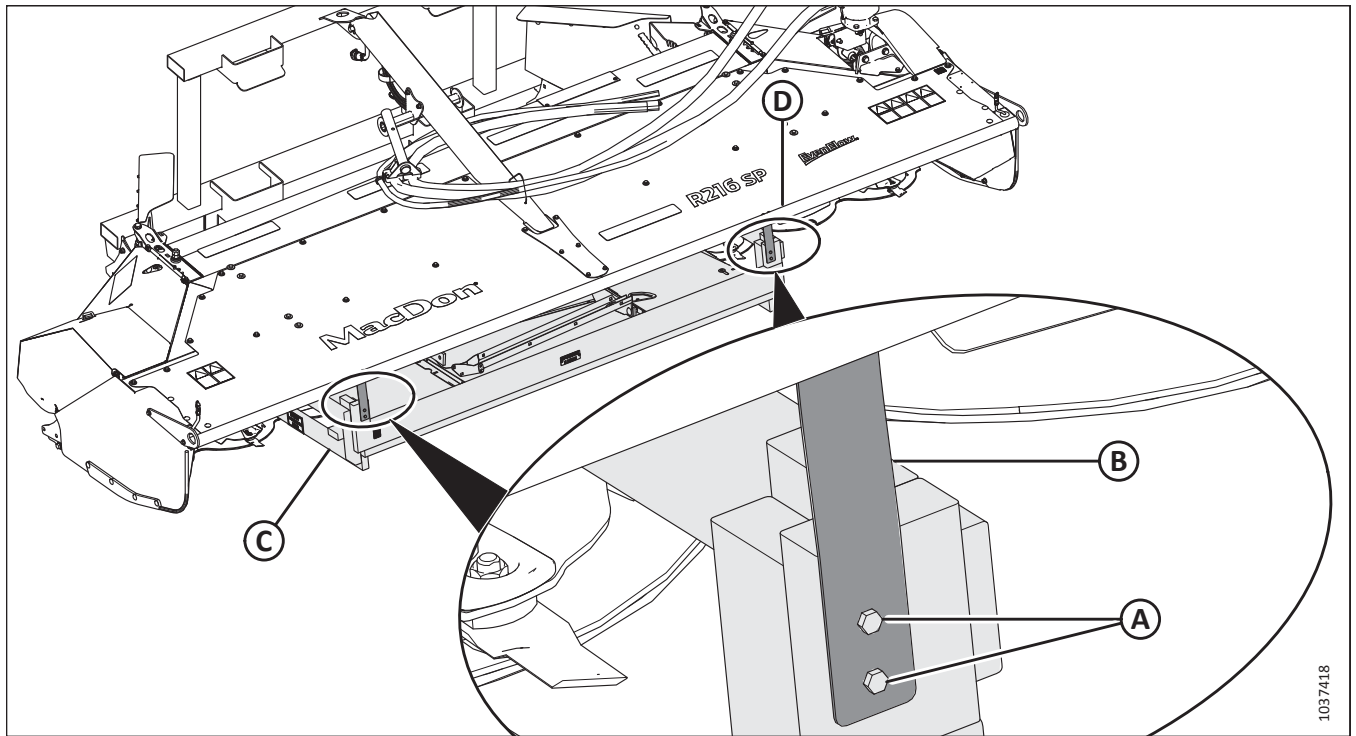
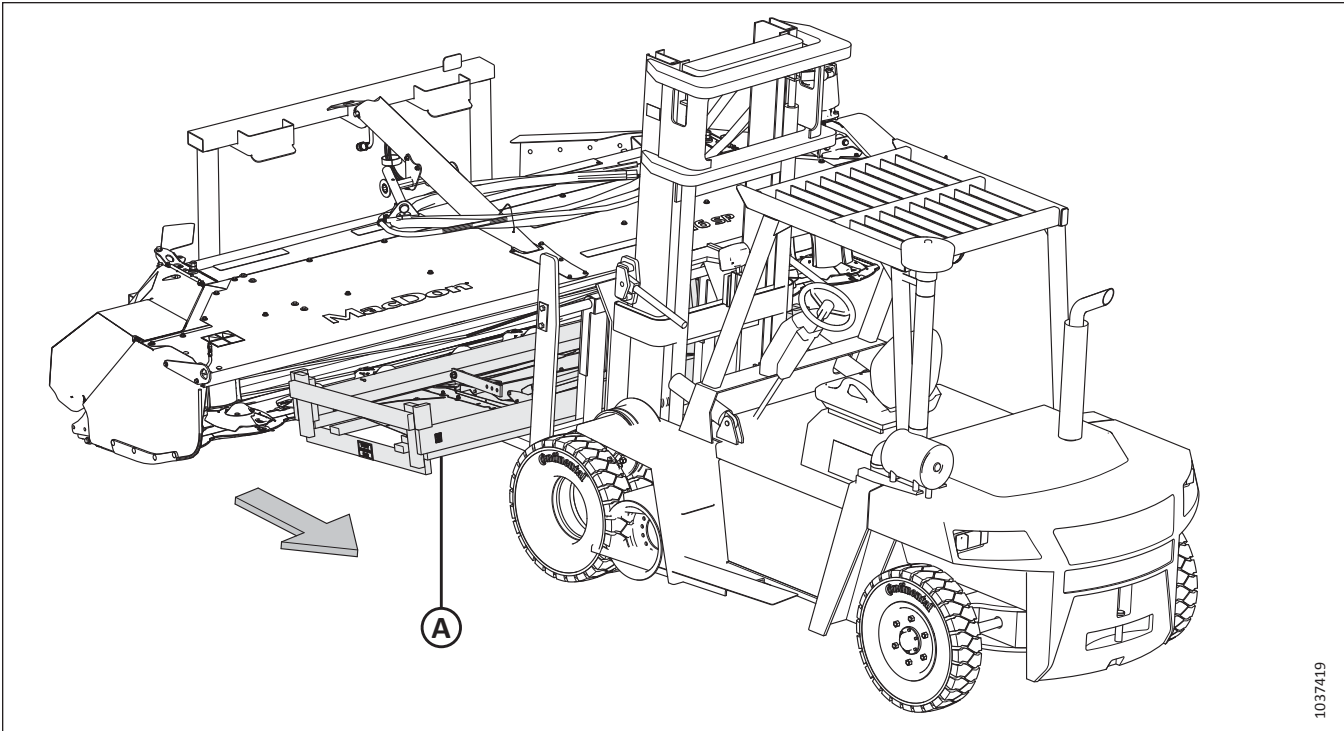


Figure 4.6: Standard Header with Forming Shield Crate – View from Front

1. Working from the front of the header, remove the two plastic shipping straps (not shown) securing forming shield crate (C) to the header.
2. Loosen and remove four screws (A) from two metal shipping straps (B). Remove metal shipping straps (B) by sliding them downward from behind curtain (D).
3. Discard screws (A) and metal shipping straps (B).

ASSEMBLING THE HEADER



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Figure 4.7: Forming Shield Crate Removed from Header

4. Using a forklift, carefully slide the forks underneath forming shield crate (A) and slowly pull the crate out from inside the header.

NOTE:

The shipping weight of the forming shield crate and its contents is 80 kg (175 lb.).

IMPORTANT:

In its shipping position, the forming shield crate rests on top of the header's cutterbar. Remove the crate slowly, pull the crate straight back, and be careful not to damage the header knives with the forklift when removing the crate from the header.

4.1.4 Unpacking Hydraulic Hoses and Electrical Harness

The hydraulic hoses are secured to the header using wire and packing foam that protect the hoses during shipping. Remove this wire and foam before removing the shipping stand.

NOTE:

If the header was shipped without a hydraulic drive motor attached, the steps in this section are not applicable.

ASSEMBLING THE HEADER

1. Remove shipping wire (A) securing hose ends (B) to secured hoses (C), and remove all packing foam from the hose ends.
2. Remove all packing foam from hose support (D).

NOTE:

Packing foam is not shown in the illustration at right.

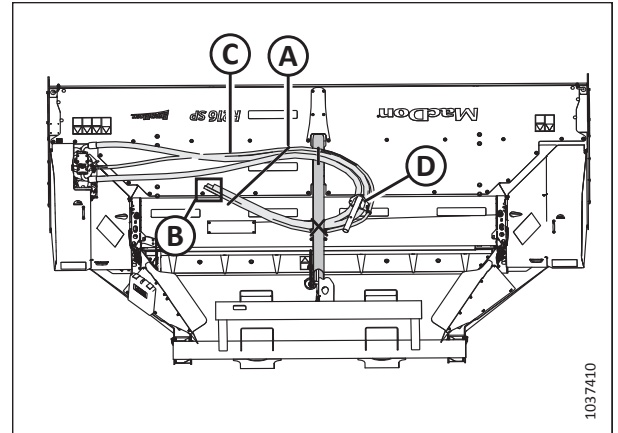


Figure 4.8: Hydraulic Hose Bundle in Shipping Position

3. Remove shipping wire cross ties (A) securing hoses (B) to center-link (C) near shipping stands (D), and pull the hoses out from under the center-link.
4. Remove shipping wire (E) from center-link (C) and move hoses (B) away from the center-link. Rest hoses (B) on top of the header.

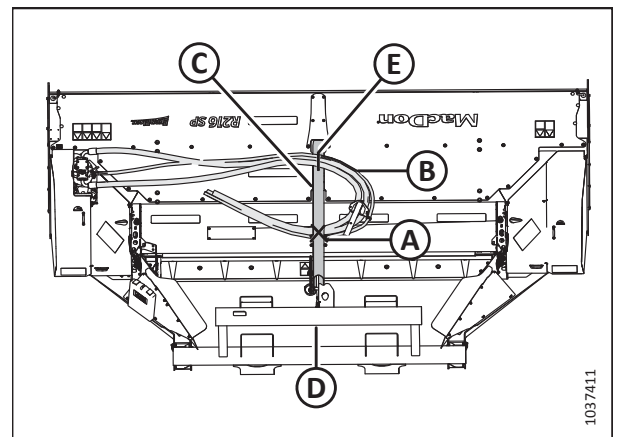


Figure 4.9: Hydraulic Hose Bundle in Shipping Position

5. **M1240 Windrower:** Remove the shipping wire and remove coiled electrical harness (A) from center-link (B). Place the harness in a safe and clean spot until it's time to install it on the windrower.
6. **M205 SP Windrower:** Remove and discard the shipping wire and remove coiled electrical harness (A) from center-link (B).

NOTE:

The harness for the M205 SP Windrower is included in a separate M205 Compatibility Kit (MD #B7220).

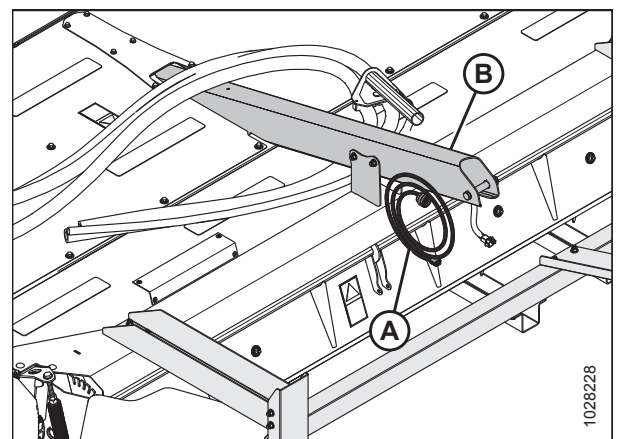


Figure 4.10: Center-Link

ASSEMBLING THE HEADER

4.1.5 Removing Shipping Stand

The shipping stand and other supports must be removed from the header prior to assembly.

1. Remove four nuts and bolts (A) to remove tie-down support (B) from the center-link arm.

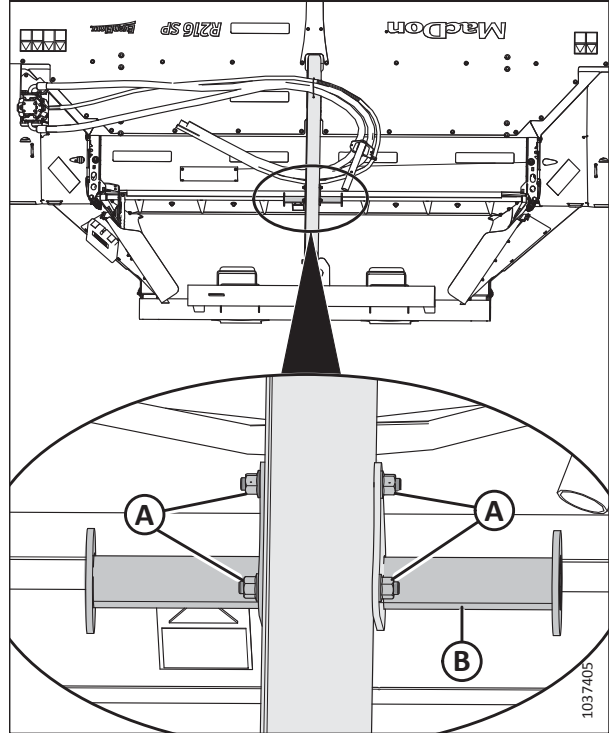


Figure 4.11: Shipping Tie-Down Support on Header

2. Support shipping stand (A) with a forklift. Maintain the forklift in this support position while completing Step 3, page 23 to Step 7, page 23.

NOTE:

The shipping stand weighs 145 kg (320 lbs.).

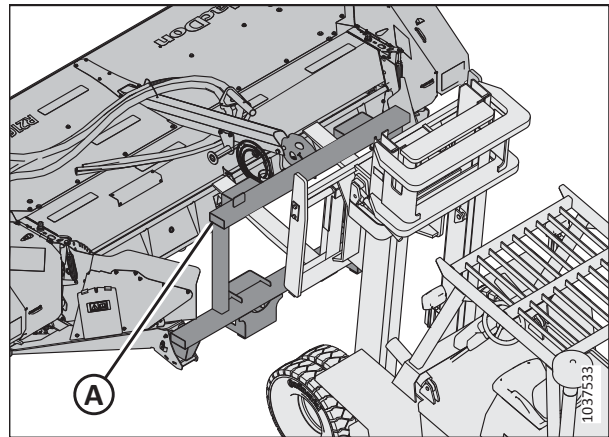


Figure 4.12: Forklift Supporting R216 Shipping Stand

ASSEMBLING THE HEADER

3. Remove cotter and clevis pins (C) to release center-link arm (A) from shipping support (B).
4. Retain cotter and clevis pins (C), and reinstall them in the same place on the center-link arm after the shipping support has been removed.

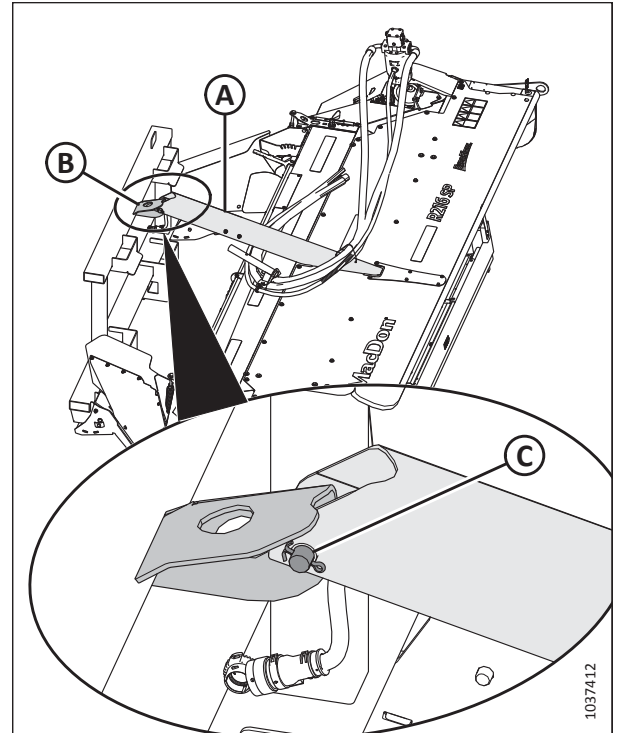


Figure 4.13: Shipping Stand – Center-Link

5. To disconnect right lift boot (A) from shipping stand (B), remove cotter pin (C), clevis pin (D), nut (E), and bolt (F).
6. Retain cotter pin (C) and clevis pin (D), and reinstall them in the same place on lift boot (A) after the shipping stand has been removed.
7. Repeat Step 5, page 23 and Step 6, page 23 to release the left lift boot from the shipping stand.

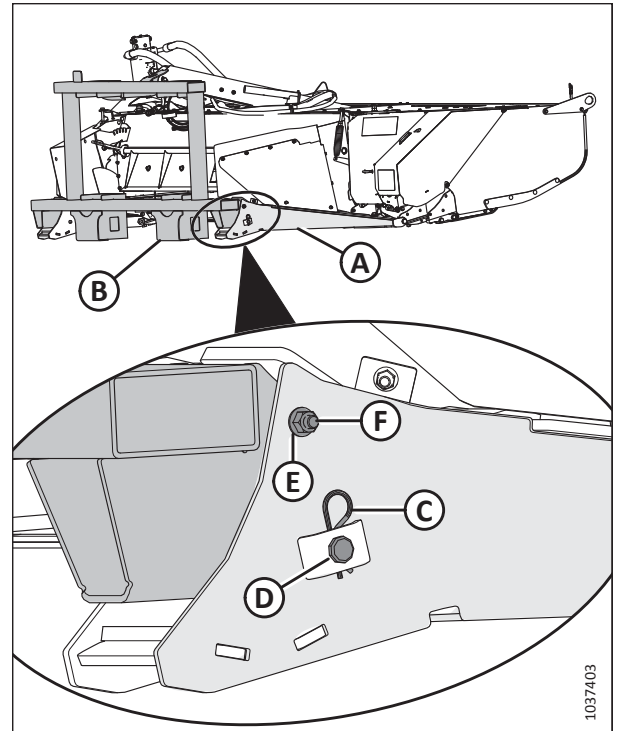


Figure 4.14: Shipping Stand – Right Side Shown, Left Side Opposite

ASSEMBLING THE HEADER

- Remove shipping stand (A) from the header using the forklift.

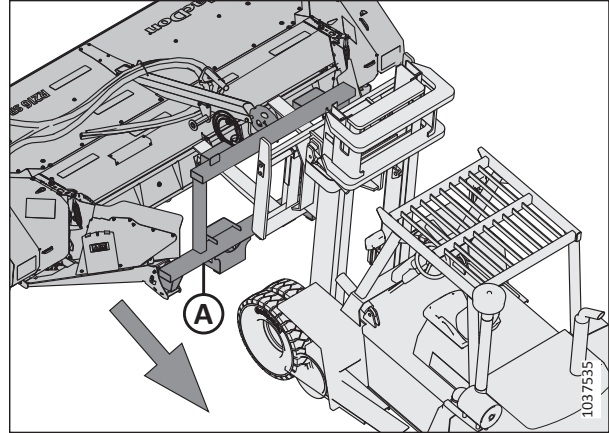


Figure 4.15: Forklift and R216 Shipping Stand

- Remove shipping wire (A) securing left driveshield handle (B) to bolt (C).

NOTE:

The driveshield is made transparent in the illustration.

- Repeat Step 9, page 24 to remove the shipping wire from the right driveshield handle.

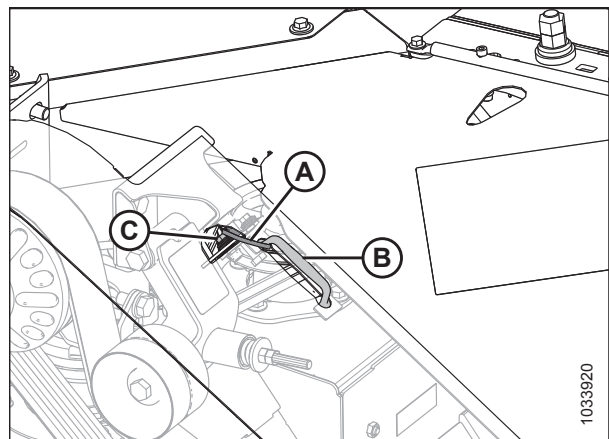


Figure 4.16: Shipping Wire on Driveshield – Left Side Shown

ASSEMBLING THE HEADER

11. Loosen and remove bolts (A), and remove and discard shipping plate (B).
12. Retain bolts (A) for installing the hazard/brake light assemblies on the header at a later time.
13. Repeat Step 11, page 25 and Step 12, page 25 to remove the shipping plate from the left side of the header.
14. Remove the protective film from aluminum bumper (C) at the front of header.

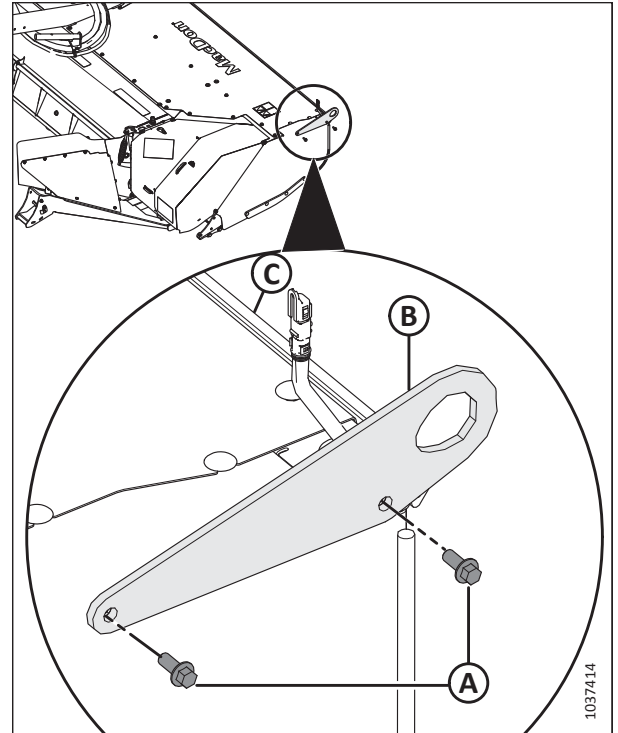


Figure 4.17: Shipping Plate – Right Side Shown, Left Side Opposite

15. **Grass Seed Header:** Retrieve the hydraulic elbow fittings from their shipping location in the manual case by following these instructions:
 1. Push down on release lever (A) on left outboard driveshield panel (B).
 2. Using handle (F), open outboard left driveshield panel (B) by pulling it up and to the outboard side of the header.
 3. Using handle (G), open inboard left driveshield panel (C) by pulling it up and to the inboard side of the header.
 4. Open manual case (D) and retrieve the plastic bag containing two hydraulic elbow fittings (E).
 5. Retain fittings (E) for installation at Step 12, page 58.

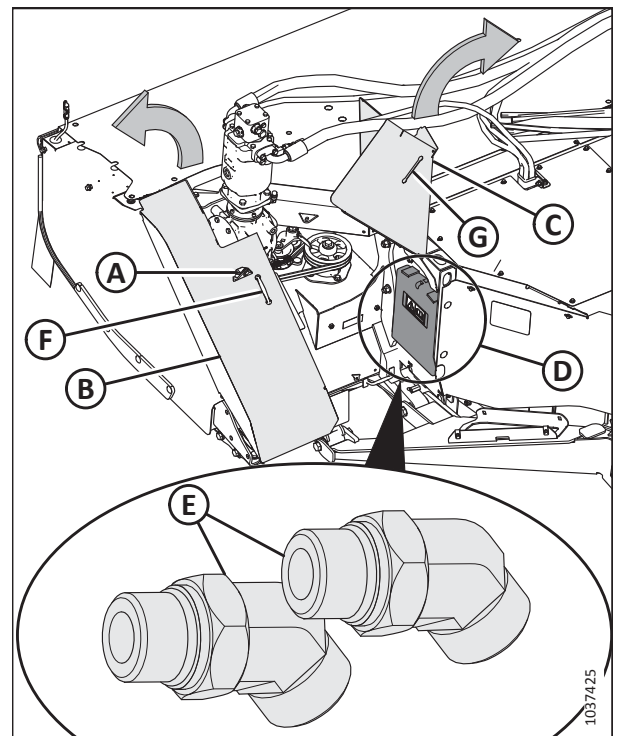


Figure 4.18: Storage Location for Hydraulic Elbow Fittings – Grass Seed Header

ASSEMBLING THE HEADER

16. Proceed to the appropriate section:

- **Standard Headers:** Proceed to *4.2 Installing Hazard/Brake Light Assembly – Standard Headers Only, page 27*.
- **Grass Seed (GSS) Headers:** Skip *4.2 Installing Hazard/Brake Light Assembly – Standard Headers Only, page 27* and *4.3 Installing Manual Rear Deflectors, page 28*, and proceed to the next applicable section.

4.2 Installing Hazard/Brake Light Assembly – Standard Headers Only

For standard R216 headers, the brake light assemblies were removed for shipping and must be reinstalled on the front the header.

1. Retrieve the right hazard/brake light assembly from the shipping bag.
2. At the right corner of the header, position hazard/brake light assembly (A) as shown, and secure it using M12 bolt (B).
3. Remove the cap from main wiring harness (D).
4. Connect hazard/brake light harness (C) to main wiring harness (D).

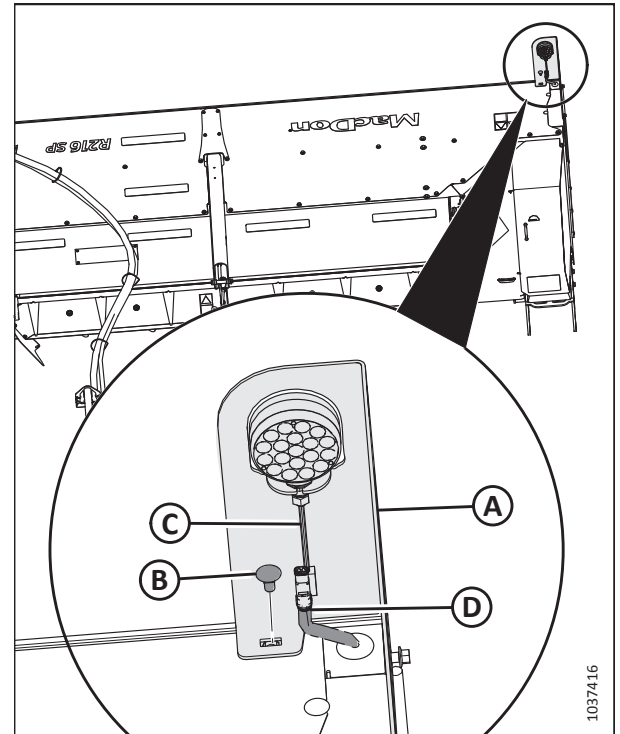


Figure 4.19: Right Hazard/Brake Light Assembly

5. Retrieve the bolts removed from shipping plates in Step 12, page 25.
6. Apply medium-strength threadlocker (Loctite® 243 or equivalent) to bolt threads (A) and use them to secure hazard/brake light assembly (B) to the header.
7. Torque the hardware to 91 Nm (67 lbf-ft).
8. Repeat Step 1, page 27 to Step 7, page 27 to install the second hazard/brake light assembly on the left side of the header.

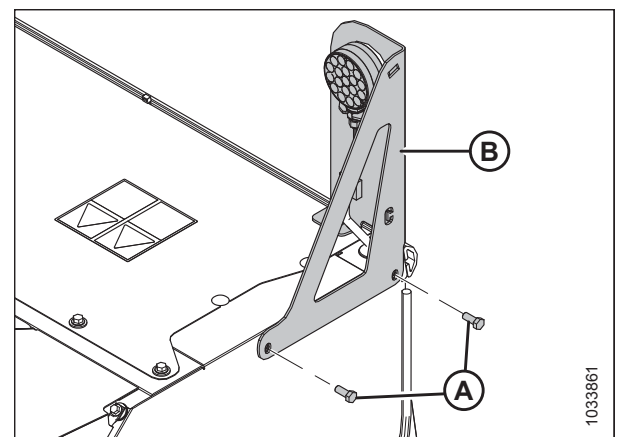


Figure 4.20: Right Hazard/Brake Light Assembly

4.3 Installing Manual Rear Deflectors

There are four fins and two deflectors located under the baffle. The fins and deflectors require no adjustment from shipping configuration to field position.

Install the rear deflectors as follows:

1. Remove and retain hardware (A) securing deflector (B) to rear baffle (C). Remove and retain deflector (B) from the header. Repeat this step on the opposite side of the header.

NOTE:

There are three sets of hardware (A) on the baffle, but only two sets hold deflector (B) in place in shipping position. Ensure all three sets of hardware (A) are removed and retained.

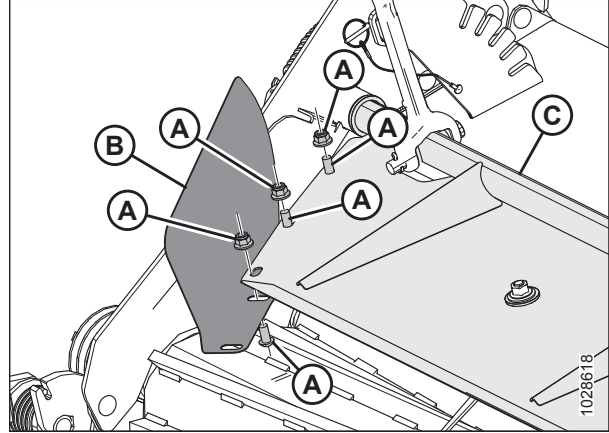


Figure 4.21: Deflector and Rear Baffle – View of baffle edge Deflector Underside, Right Side of the Header

2. Remove pin (A) from baffle handle (B), and adjust the rear baffle by placing handle (B) in the center position on baffle bracket (C).

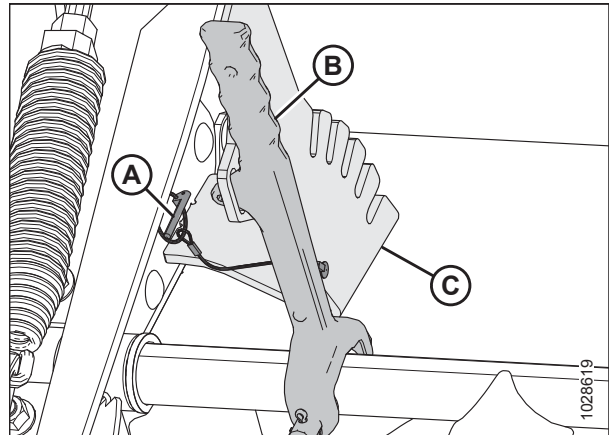


Figure 4.22: Baffle Handle and Baffle Bracket

3. Replace pin (A) in baffle handle (B) to secure the handle in the fully raised position on baffle bracket (C).

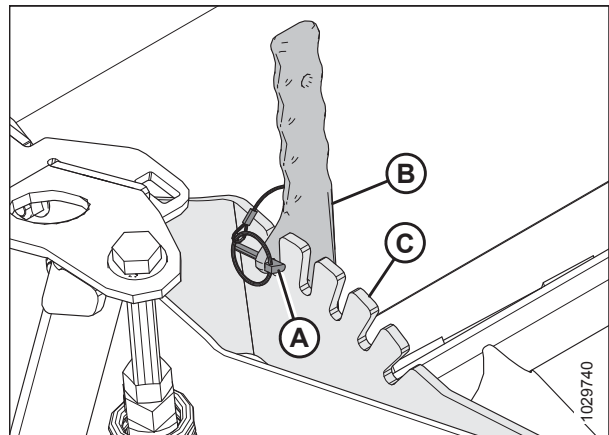


Figure 4.23: Baffle Handle

ASSEMBLING THE HEADER

4. Turn over deflector (A) and place it on rear baffle (B) and between fixed deflector plate (C) and outer plate (D).
5. Loosely secure deflector (A) in place with retained hardware (E) in three locations. Do **NOT** tighten hardware. Repeat this step on the opposite side of the header.
6. Adjust the placement of deflector (A) as far inboard as possible so that it contacts fixed deflector plate (C) welded in place on the header. Tighten hardware (E) once deflector is properly placed. Repeat this step on the opposite side of the header.
7. Check that the baffle is adjustable across all working positions without binding.

NOTE:

Some contact is acceptable.

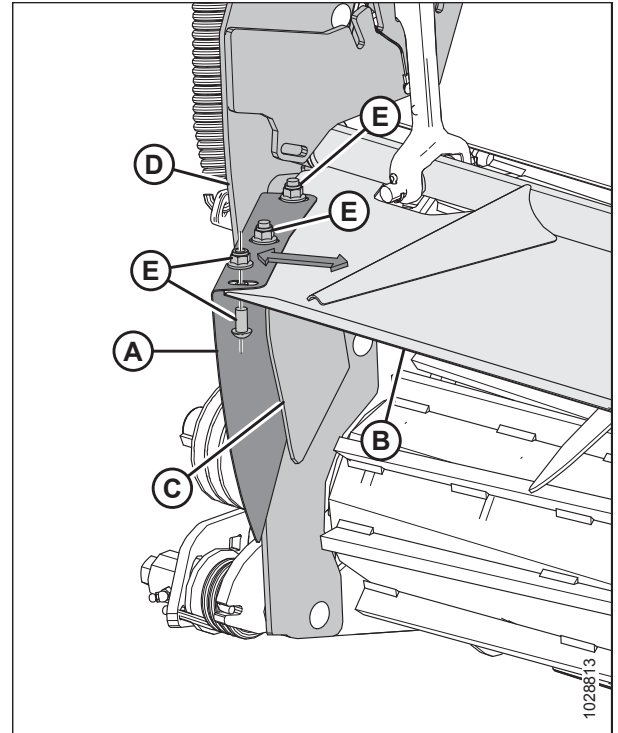


Figure 4.24: Deflector and Rear Baffle

4.4 Assembling and Installing Forming Shield

The forming shield deflectors can be adjusted for different sizes of windrow formation. The forming shield is generally designed for use on a rotary header with conditioning rolls. However, the shield can also be installed on the grass seed (GSS) version of the header and used for specific applications, such as harvesting bushy crops like radishes.

1. Locate and retrieve the hardware included in the bag provided in the forming shield crate.
2. For headers without the Double Windrow Attachment (DWA) installed, follow these steps:
 - a. Install shield mount plates (A) on the inside of the windrower legs.
 - b. Install two hex head M12 X 1.75 X 140-8.8 bolts (B), washers (D), and nuts (C) in the **REAR** holes on the shield mounting plates. This ensures the forming shield is set at its lowest setting. The lowest setting is used when there is no double windrow attachment (DWA).

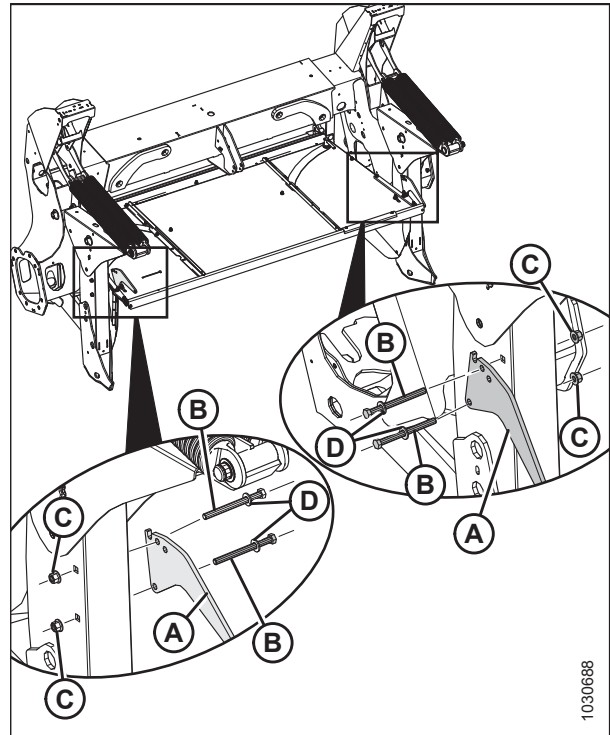


Figure 4.25: Setting Forming Shield for Header without DWA Option

ASSEMBLING THE HEADER

3. For headers with the DWA installed, follow these steps:
 - a. Install shield mount plates (A) on the inside of the windrower legs.
 - b. Install two hex head M12 X 1.75 X 140-8.8 bolts (B), washers (D), and nuts (C) in the **FRONT** holes on the shield mounting plates. This ensures the forming shield is set at its highest setting.

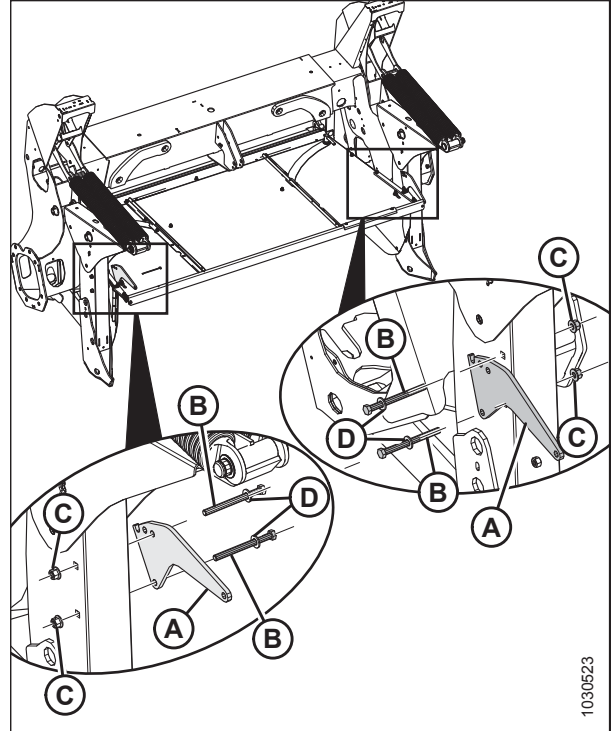


Figure 4.26: Setting Forming Shield for Header with the DWA Option

4. Unpack and remove the packing material from deflectors (A) and (B).
5. Remove right deflector (A) and left deflector (B) from the shipping crate and place them on an even work surface.
6. Remove cover (C) and the parts stacked on top of it from the shipping crate and place the cover on an even work surface.

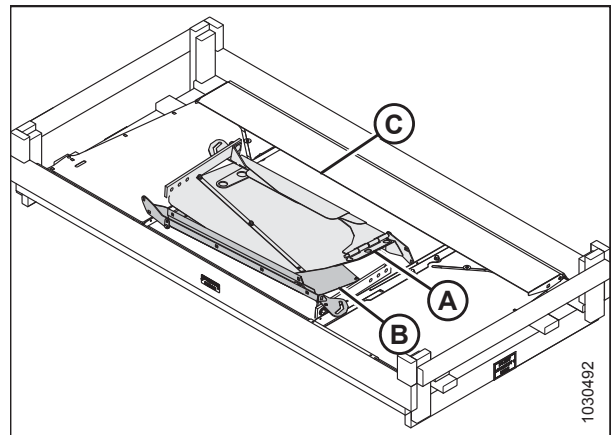


Figure 4.27: Forming Shield in Shipping Crate

ASSEMBLING THE HEADER

7. Remove right deflector (A) and left deflector (B) from the shipping crate. Retain these parts for installation later.
8. Remove hinge rods (C) .
9. Remove right bracket (D) and the left bracket.

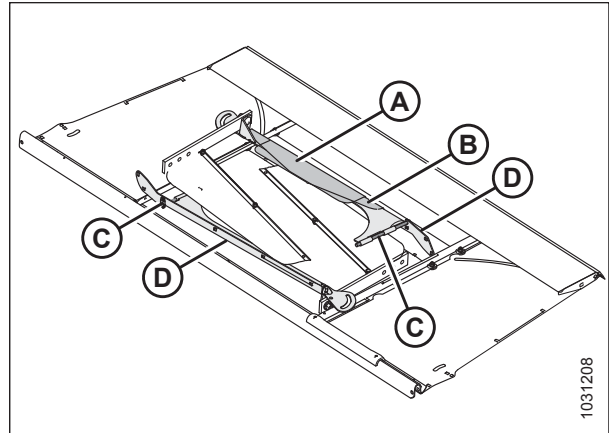


Figure 4.28: Parts Sitting on Cover

10. Remove two existing bolts (B) from the right end of the cover as shown in the illustration at right. Retain the bolts and discard the nuts.
11. Position right bracket (A) on the underside of the cover.
12. Secure right bracket (A) to the cover with three 25 mm-long short neck M10 carriage bolts (B) and three nyloc nuts (C).
13. Position support plate (D) on the top of the cover.
14. Secure support plate (D) with two 35 mm-long short neck M10 carriage bolts (E) and two nyloc nuts (F).

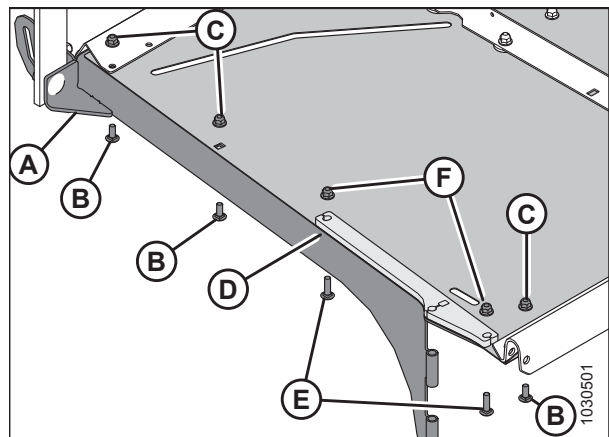


Figure 4.29: Installing Parts on Right End of Cover

15. Use one 25 mm-long short neck M10 carriage bolt (A) and nyloc nut (B) to secure plate (C) on the right bracket to cover angle (D).
16. Repeat Steps 10, page 32 to 15, page 32 on the left side of the cover.
17. Place the forming shield (that is, the cover assembly) in position under the windrower.

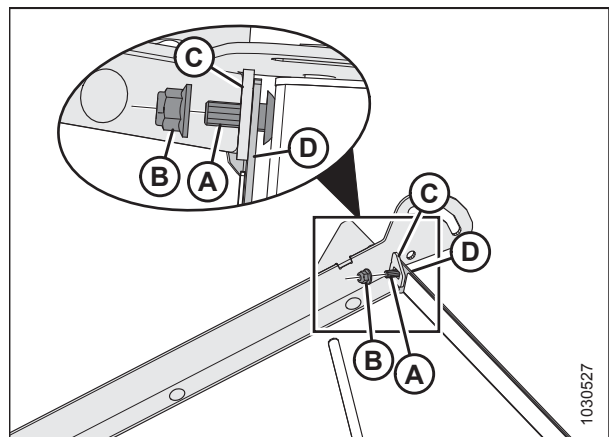


Figure 4.30: Connecting Side Bracket to Cover – Bottom Left Side Shown

ASSEMBLING THE HEADER

- Using spacer (A), hex head M12 X 130 mm bolt (B), and lock nut (C), attach forming shield (D) to shield mount plate (E) installed on the inside of the windrower legs. Repeat this step on the other side of the windrower and forming shield.

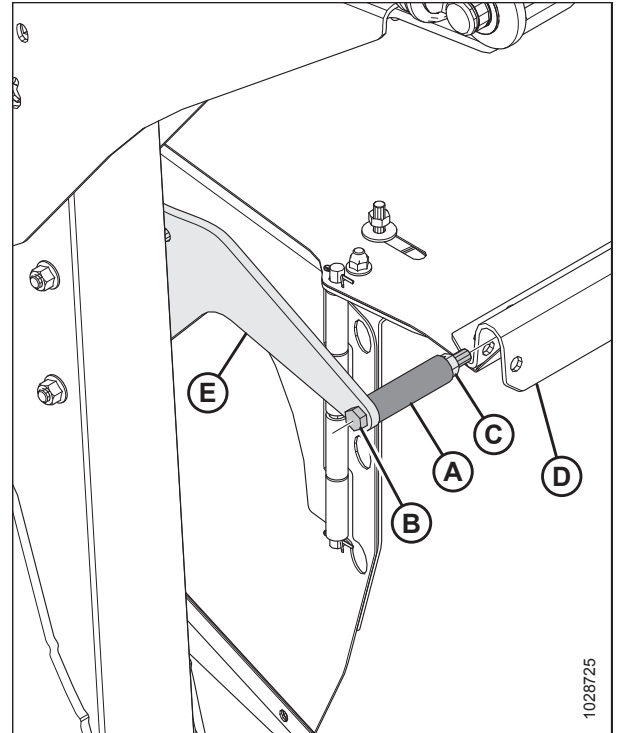


Figure 4.31: Shield Mount Plate and Attaching Hardware – Right Side Shown, Left Side Is Opposite

- Install clevis pin (A) to hold the forming shield in place.

NOTE:

Clevis pin (A) should pass under hex head bolt (B) and the spacer installed in the previous step.

- Secure clevis pin (A) in place with lynch pin (C). Insert the lynch pin from the outside of the forming shield pointing in.
- Repeat Steps 19, page 33 and 20, page 33 on the other side of the forming shield.

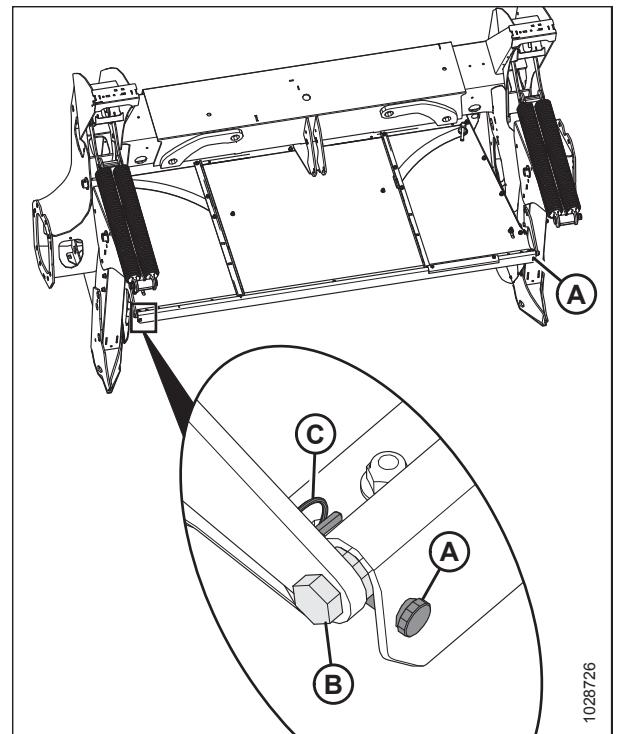


Figure 4.32: Clevis Pin

ASSEMBLING THE HEADER

22. At the rear of the forming shield, pull rubber strap (A) up towards the windrower frame. Align the first hole in rubber strap (A) with straight pin (B).
23. Secure rubber strap (A) in place with washer (C) and hair pin (D).
24. Repeat Step 22, page 34 to Step 23, page 34 on the left side of the forming shield.

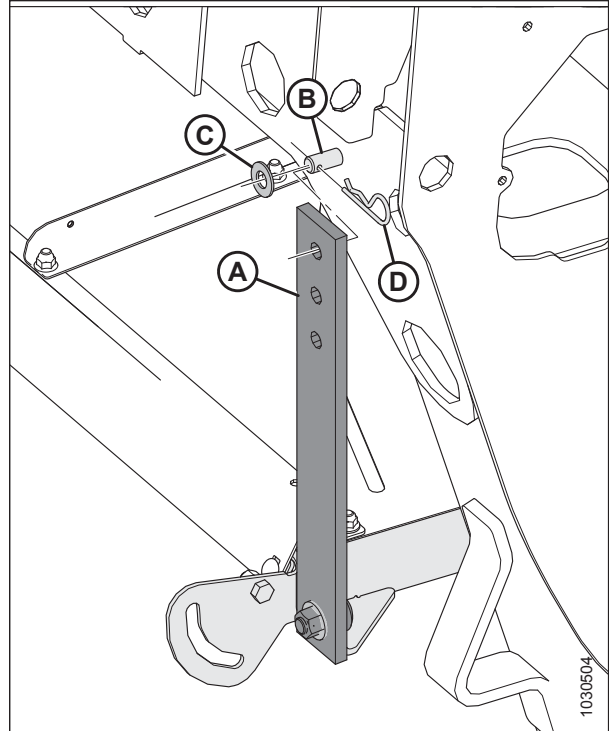


Figure 4.33: Rubber Strap — Right Side of Forming Shield

25. Retrieve baffle (A) from the shipping crate.
26. Secure baffle (A) to right bracket (D) with one 25 mm M12 bolt (B) and nut (C). Snug nut (C) to allow baffle (A) to rotate freely. Repeat this step on the left side of the forming shield.

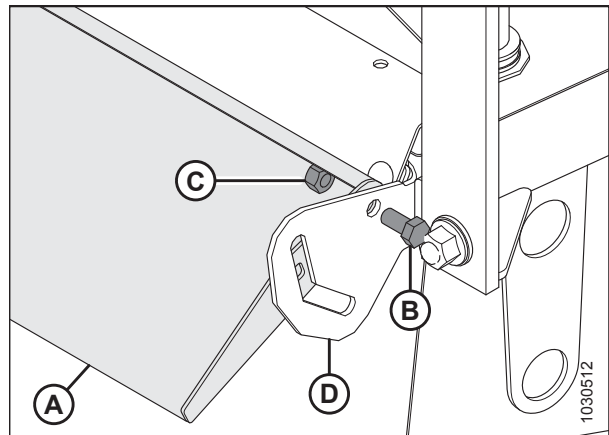


Figure 4.34: Right Bracket and Baffle

ASSEMBLING THE HEADER

27. Install handle (A) with two flat washers (B) and one rubber washer (C), using one 40 mm-long M12 carriage bolt (D) installed through baffle (F) and right bracket (E). Repeat this step on the other side of the forming shield.

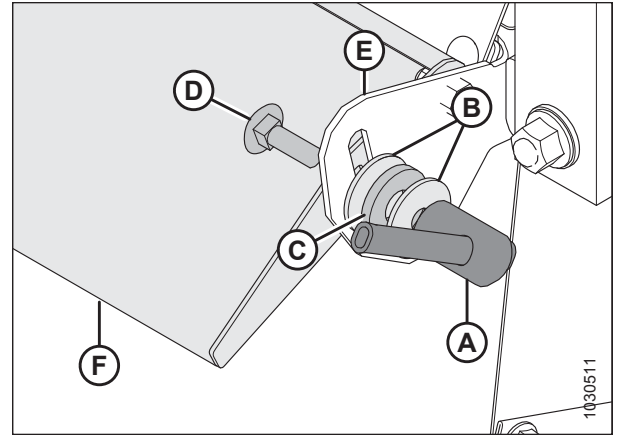


Figure 4.35: Baffle Handle – Right Side Shown, Left Side is Opposite

28. Slide the angled end of deflector adjustment cover (A) under top sheet support angle (B) on the top of the forming shield. Repeat this step on the other side of the forming shield.

NOTE:

Hardware (C) securing top sheet support angle (B) may need to be loosened to fit deflector adjustment cover (A) underneath. Retighten any loosened hardware to hold deflector adjustment covers (A) in place on the forming shield.

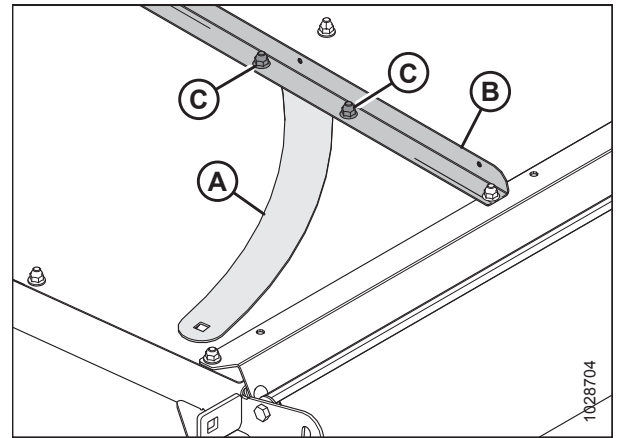


Figure 4.36: Deflector Cover – Left Side Shown, Right Side is Opposite

29. Position right deflector (A) under the right edge of the forming shield, just inboard of the right bracket.

NOTE:

The windrower leg and the shield mount plate have been removed from the illustration at right so that you can clearly see the deflector and hardware.

30. Position 40 mm-long M10 bolt (C) as shown, install hinge plate (B), and then secure these parts with nyloc nut (D).
31. Install one 35 mm-long short neck M10 carriage bolt (E) through the slot near the front of the forming shield and the hole in the deflector. Secure the bolt in place with washer (F) and two jam nuts (G). Snug the lower nut against the forming shield, but keep it loose enough to rotate freely, and then jam the upper nut against the lower nut.

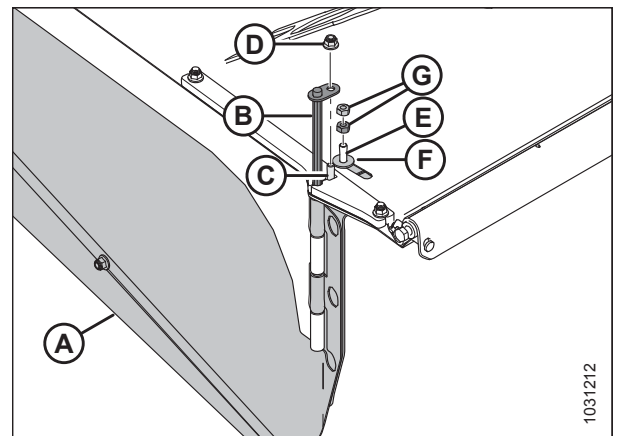


Figure 4.37: Installing Right Deflector

ASSEMBLING THE HEADER

32. Use one 40 mm-long M12 carriage bolt (A) to secure forming shield cover (F), deflector adjustment cover (B), two flat washers (C), one rubber washer (D), and handle (E) together. Repeat this step on the other side of the forming shield.
33. Repeat Step 29, page 35 to Step 32, page 36 on the other side of the forming shield.

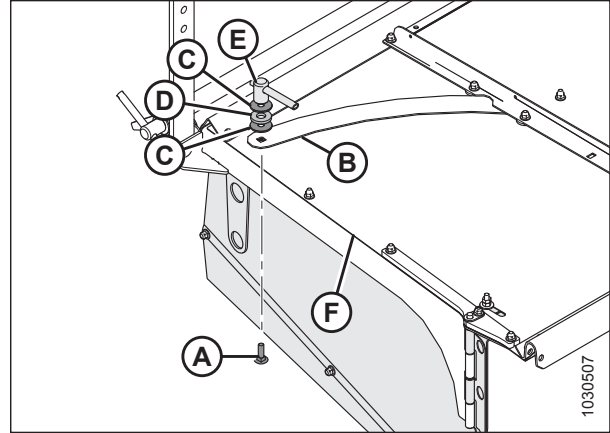


Figure 4.38: Handle on Right Side of Cover

34. Remove existing bolts and nuts (E) from the front of the forming shield. Retain the bolts and discard the nuts.
35. On the bottom of the forming shield, right side, install right deflector (A) using retained bolts (E), two 25 mm-short neck M10 carriage bolts (C), and nyloc nuts (D). Repeat this step on the left side of the forming shield with left deflector (B).

NOTE:

The narrower deflector end faces the front of the forming shield, while the wider end faces the rear.

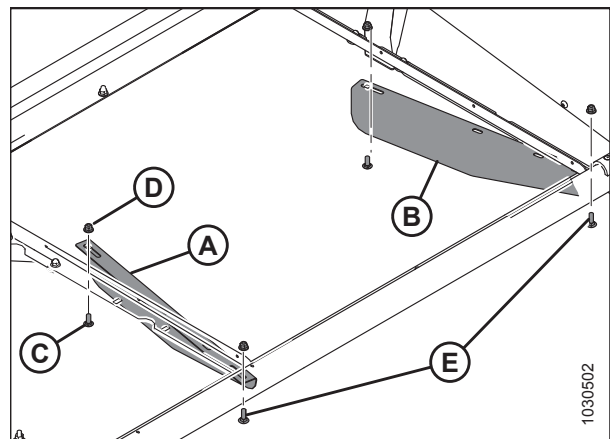


Figure 4.39: Forming Shield

4.5 Installing Skid Shoes or Gauge Rollers

Skid shoes and gauge rollers are mounted behind the cutterbar and allow the Operator to adjust the cutting height.

To install skid shoes or gauge rollers on the R216 Rotary Disc Header, select the appropriate kit and follow the procedures in the corresponding set of instructions:

Kit Name	Bundle Number	Instruction Number
R2 Adjustable Skid Shoes	MD #B7333	MD #215704
Adjustable Gauge Rollers	MD #B7334	MD #215703

4.6 Installing Hydraulic Drive Kit – For Headers Shipped without Hydraulic Drive Only

If the R216 header was shipped without hydraulic drive components, a hydraulic drive kit must be installed before the header can be attached to a windrower.

There are a number of hydraulic drive kits: each one configures the header for a different model of windrower. Install the appropriate kit by following the procedures in the corresponding set of instructions:

Windrower Model	Hydraulic Drive Kit	Instruction Number
M155–E4	MD #B7310	MD #215390
M205	MD #B6769	MD #215187
M1170	MD #B6845	MD #215157
M1240	MD #B6769	MD #215187

4.7 Assembling the Grass Seed Ready Header

4.7.1 Changing R216 Rotary Disc Header Cutterbar Crop Stream Configuration for Grass Seed Option

Discs are factory-installed to produce four crop streams. To use the header with a Grass Seed (GSS) option, change the disc rotation to produce one crop stream.

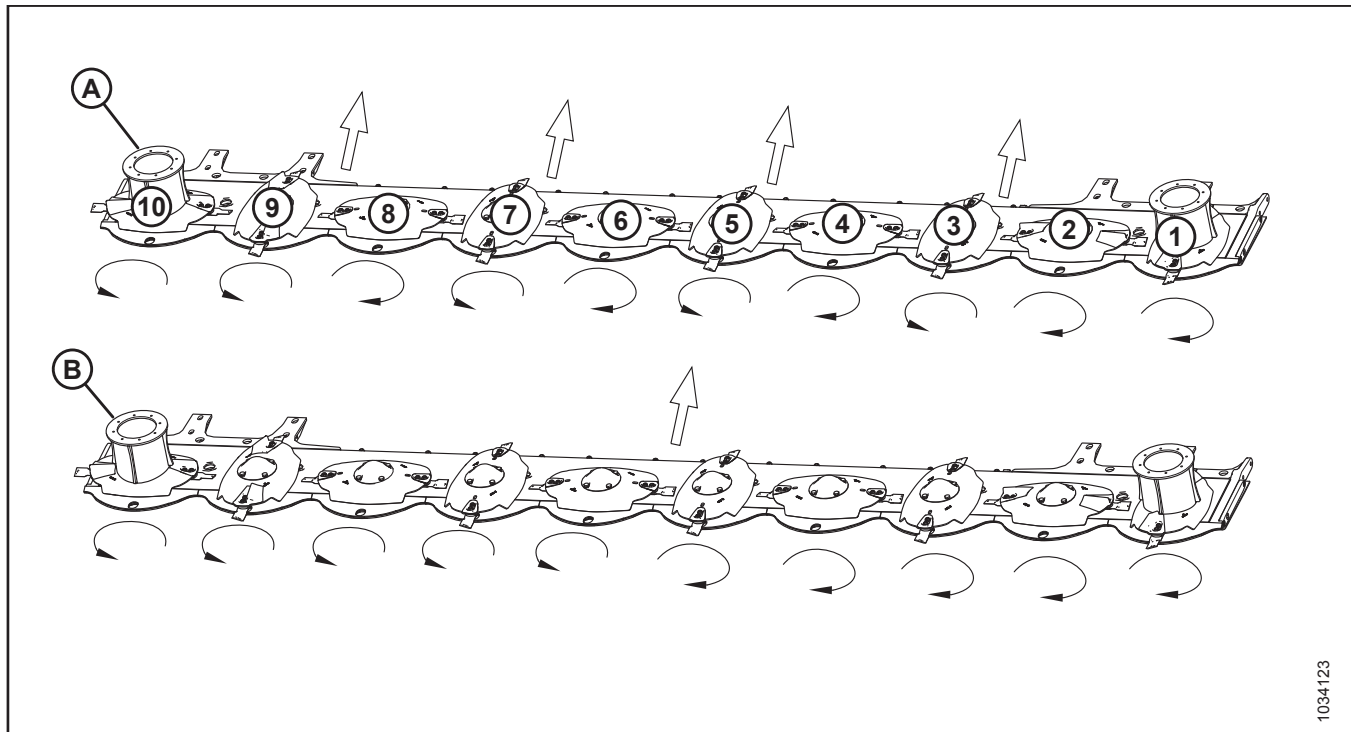


Figure 4.40: R216 Rotary Disc Header (10 Disc) Spindle Rotation Pattern and Crop Streams

A - Four Crop Stream

B - One Crop Stream

To change R216 Rotary Disc Header (10 disc) spindle rotation from four crop streams (A) to one crop stream (B):

1. Swap disc/spindle (3) with disc/spindle (8). For instructions, refer to [Removing Cutterbar Spindles, page 39](#) and [Installing Cutterbar Spindles, page 42](#).
2. Swap disc/spindle (5) with disc/spindle (6). For instructions, refer to [Removing Cutterbar Spindles, page 39](#) and [Installing Cutterbar Spindles, page 42](#).

NOTE:

Switching from four streams to one stream is a recommended setting to improve the performance of the header while operating with the grass seed package.

Removing Cutterbar Spindles

The spindle is a serviceable part that consists of the spindle shaft and hub.

DANGER

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

ASSEMBLING THE HEADER

WARNING

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

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

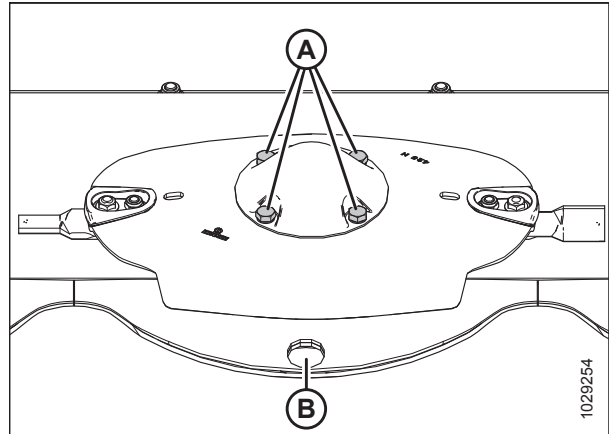


Figure 4.41: Cutterbar Disc Bolts

3. Remove cutterbar disc cap (A).
4. Remove cutterbar disc (B).

IMPORTANT:

Blades are rotation specific. Switch the entire disc when swapping spindles.

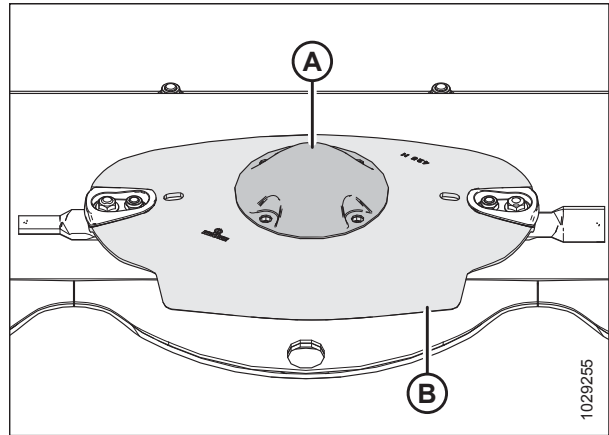


Figure 4.42: Cutterbar Disc and Cap

5. Remove spacer plate (A).

NOTE:

The area around the spindle must be cleaned thoroughly to prevent debris from entering into the cutterbar gearbox.

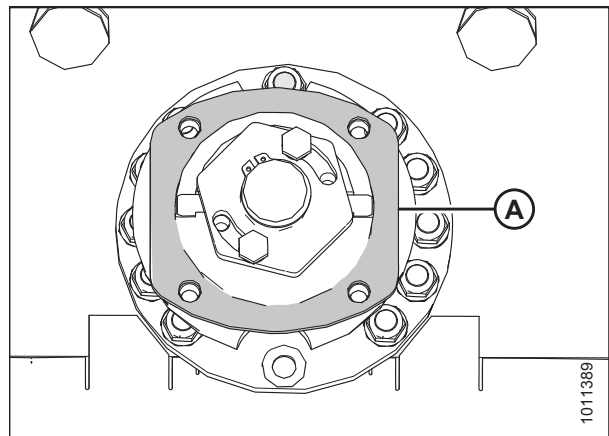


Figure 4.43: Spacer Plate

ASSEMBLING THE HEADER

6. Rotate spindle hub (A) to access nuts (B), and remove eleven M12 lock nuts (B) and washers.

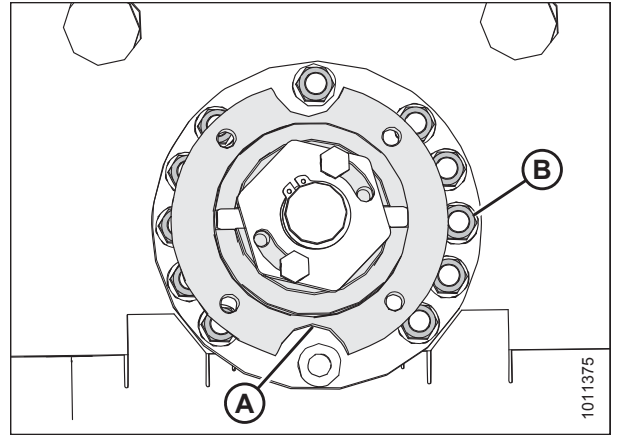


Figure 4.44: Left Spindle Hub and Hardware

7. Remove spindle (A) from the cutterbar.

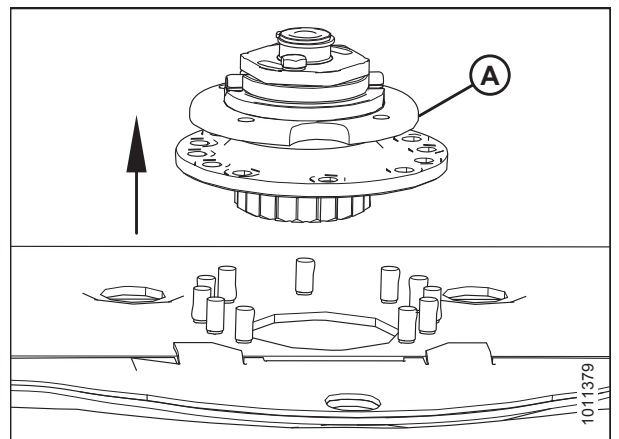


Figure 4.45: Left Spindle

ASSEMBLING THE HEADER

Installing Cutterbar Spindles

Some spindle rotate clockwise. Other spindles rotate counterclockwise. Make sure to install the spindles in the correct location.

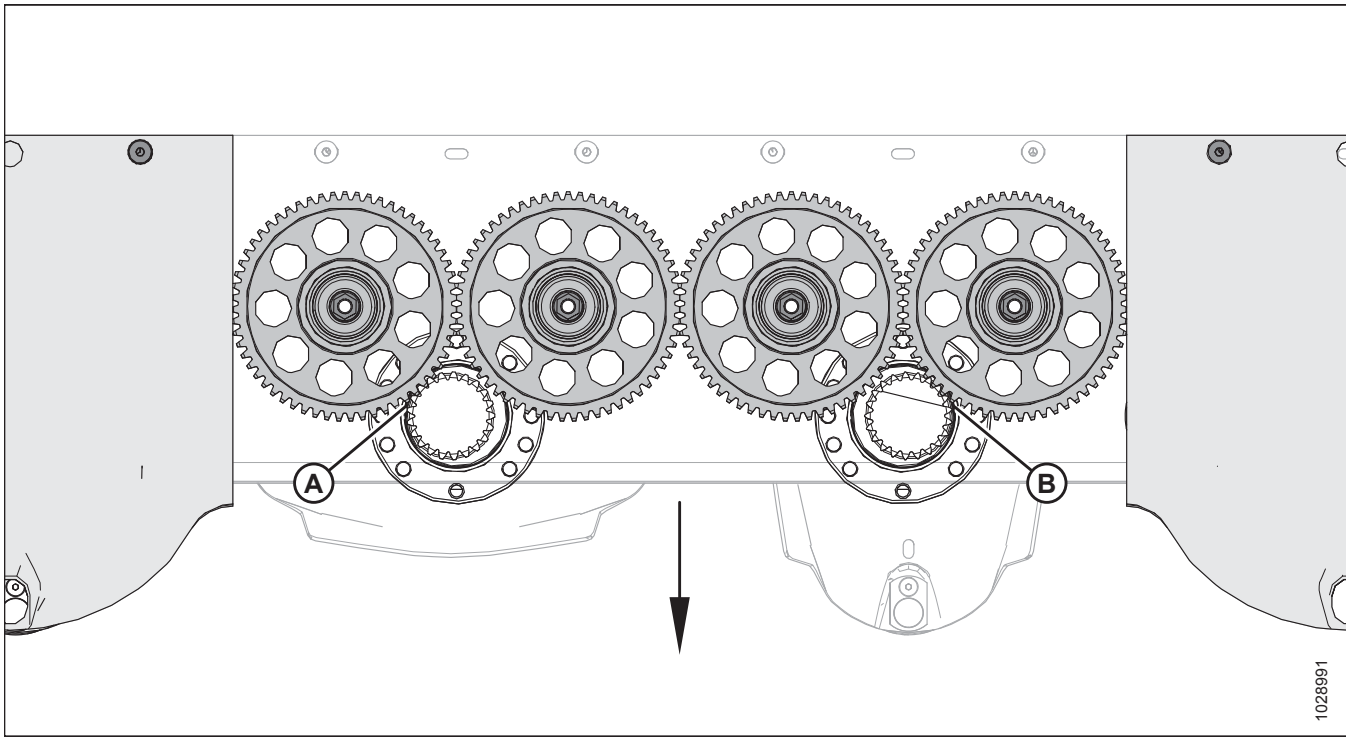


Figure 4.46: Underside of Cutterbar Spindles

NOTE:

Right discs (A) and left discs (B) are slightly offset as shown, depending on which idler gear the spindle is turning.

- Spindles that rotate clockwise have left-leading threading
- Spindles that rotate counterclockwise have right-leading threading

IMPORTANT:

Right discs (A) and left discs (B) are timed and must be at a 90° angle from adjacent discs when reinstalled. Misaligned discs could result in the following:

- Disc blades of co-rotating discs hitting each other
- Disc blades of diverging discs hitting adjacent discs

Check the clearance (timing) using disc timing tool (MD #307954) (provided with the header) as shown in Figure 4.47, page 43 before tightening the spindle to the cutterbar. The disc is correctly timed if the spindle hub is aligned with the disc timing tool as shown. Turn the disc by hand to ensure the disc blades do **NOT** contact each other or adjacent discs. If contact occurs or the alignment is incorrect, lift the spindle clear of the mounting bolts, rotate the spindle 180° (ensuring that the base does not turn), and reinstall. Recheck the timing before bolting the hub down and tightening all of the nuts.

ASSEMBLING THE HEADER

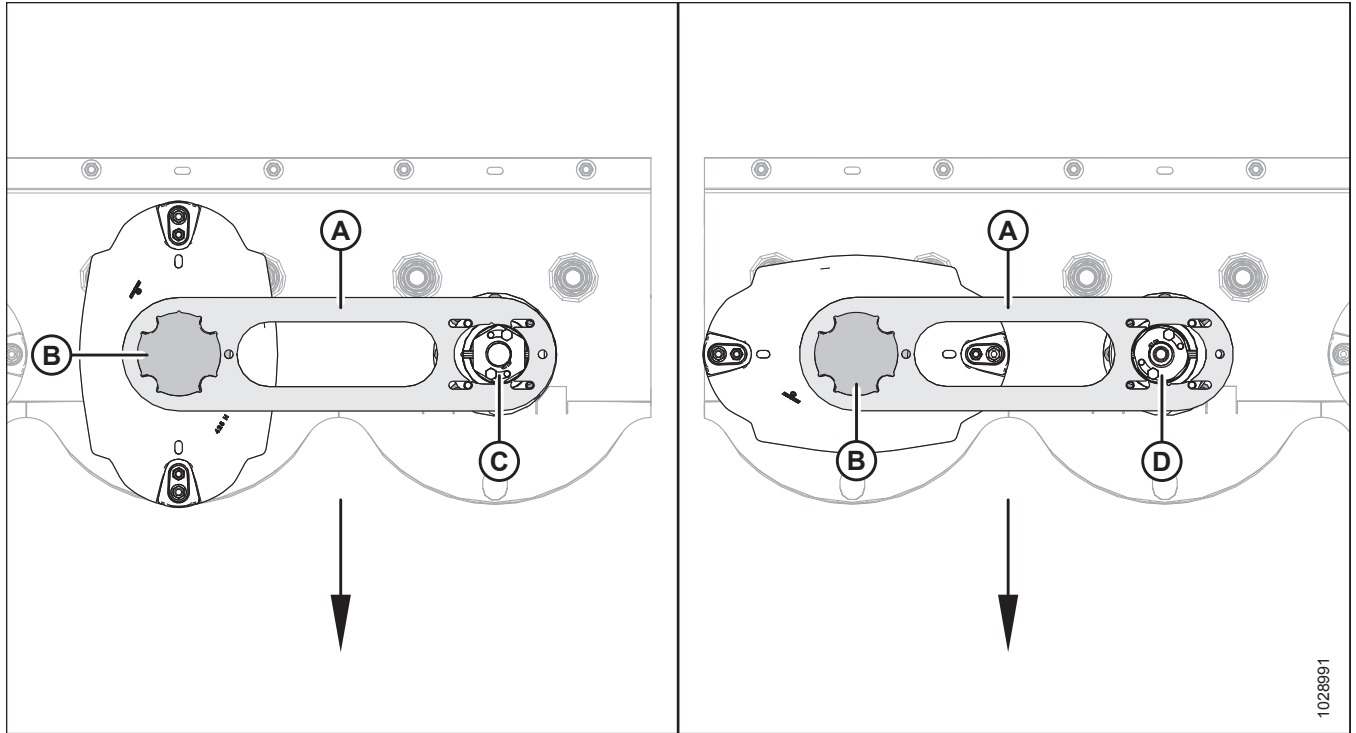


Figure 4.47: Checking Timing with Disc Timing Tool – View from Above

A - Disc Timing Tool (MD #307954)
C - Right Disc, Correct Timing

B - Cutter Disc Cap
D - Left Disc, Correct Timing

NOTE:

Spindles do **NOT** need to be bolted to the disc timing tool; visual confirmation of alignment will suffice. A disc timing tool (MD #307954) is provided with the header and is located on the panel on the right side of the header.

DANGER

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

WARNING

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

ASSEMBLING THE HEADER

1. Ensure that spindle O-ring (A) is properly seated, cleaned, and undamaged.

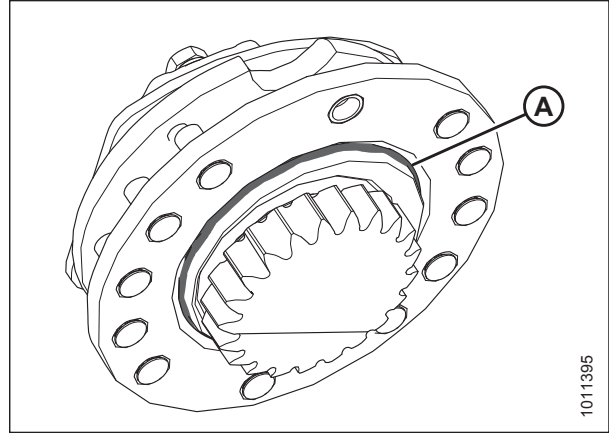


Figure 4.48: Left Spindle O-ring

2. Insert spindle (A) into the cutterbar.

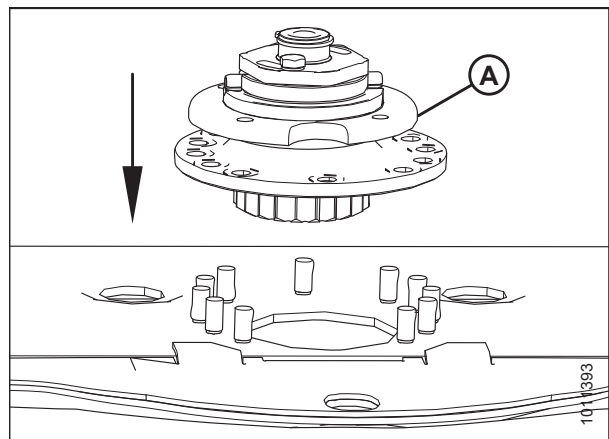


Figure 4.49: Left Spindle

3. Insert studs (A) into the spindle as shown.

NOTE:

Plugs are factory-installed as shown in position (B), but may come loose over time. Ensure the studs are inserted into the proper locations.

IMPORTANT:

Ensure clockwise spindles rotate clockwise and counterclockwise spindles (with machined grooves) rotate counterclockwise.

IMPORTANT:

The offset gear design makes it possible to install spindles that rotate in the wrong direction. If the spindles rotate in the wrong direction, the discs will not spin up after impact, potentially damaging cutterbar components.

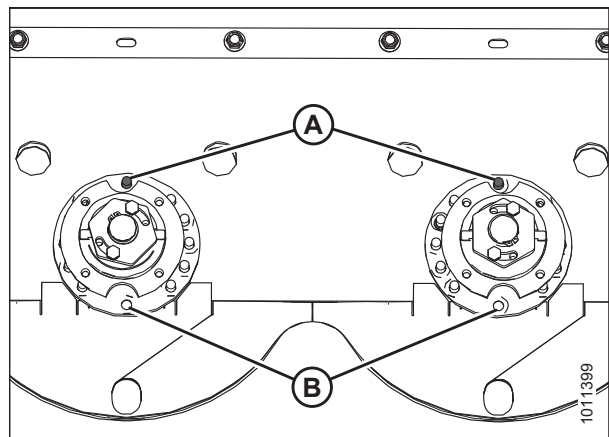


Figure 4.50: Spindle Orientation

ASSEMBLING THE HEADER

4. Check and adjust disc timing as follows:

NOTE:

There are an odd number of teeth on the cutterbar gears which can make spindle hub alignment difficult.

- a. Place one end of disc timing tool (A) on adjacent disc (B) and the other end on left spindle as shown.
- b. Check bolt hole alignment (C) as shown.
- c. If alignment is slightly off, lift spindle and rotate it one tooth in either direction to try and line up bolt holes.
- d. Recheck with disc timing tool. If still not lining up, lift spindle and rotate hub 1/4 turn at a time, and recheck again with disc timing tool.
- e. Repeat until bolts are aligned.

NOTE:

Arrow points to the front of disc header.

5. Ensure that hub (A) is fully seated into the cutterbar before tightening nuts (B).
6. Rotate spindle hub (A) to access the studs, and install eleven M12 lock nuts (B) and washers.

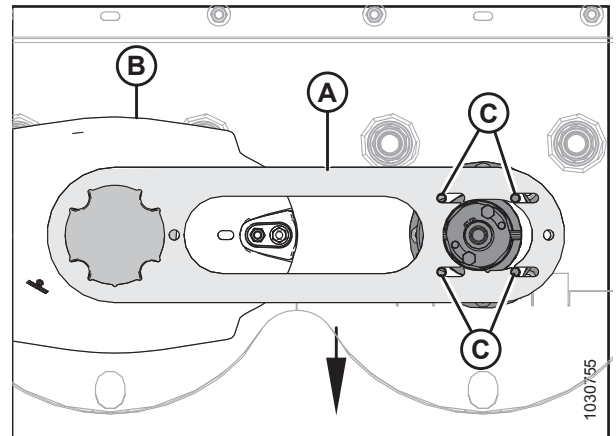


Figure 4.51: Alignment Tool

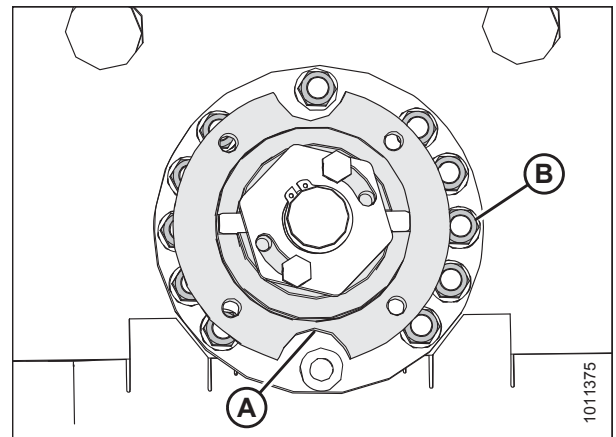


Figure 4.52: Left Spindle Hub

7. Torque the bolts to 50 Nm (37 lbf-ft) following the tightening pattern shown at right.

NOTE:

Hub is removed from the illustration for clarity.

IMPORTANT:

Do **NOT** use an impact wrench when tightening as it will damage the weld studs.

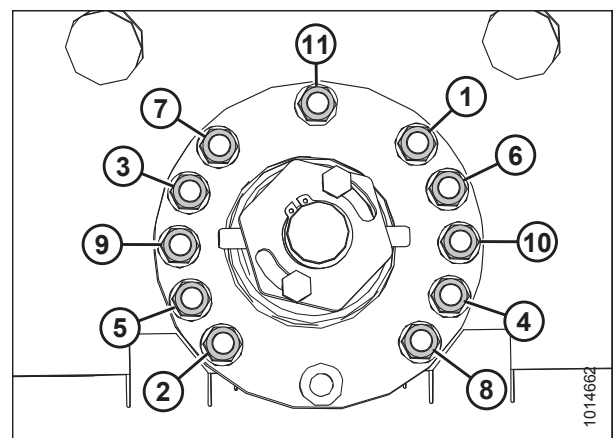


Figure 4.53: Tightening Pattern

ASSEMBLING THE HEADER

8. Install spacer plate (A).

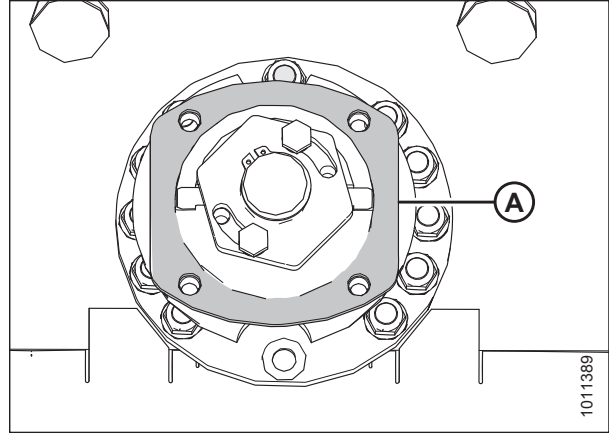


Figure 4.54: Spacer Plate

9. Place a pin (or equivalent) in front hole (D) of rock guard to prevent disc rotation while tightening bolts.

IMPORTANT:

Blades are rotation specific. Switch the entire disc when swapping spindles.

10. Position disc (A) on the spindle ensuring that it is positioned at a 90° angle in relation to the adjacent discs.

NOTE:

Turn disc (A) by hand to ensure its disc blades do not contact each other or adjacent discs.

11. Install cutterbar disc cap (B) and secure the assembly with four M12 bolts and washers (C). Torque the bolts to 85 Nm (63 lbf-ft).

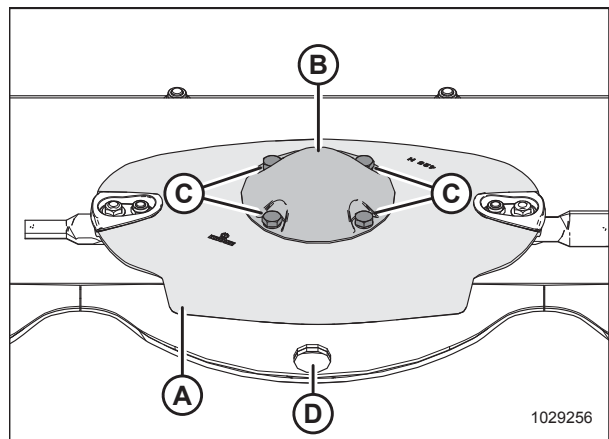


Figure 4.55: Cutterbar Disc and Cap

WARNING

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

12. Remove the pin (or equivalent) from the front hole of the rock guard.

4.7.2 Installing Grass Seed Anti-Shatter Shield Kit

Before the R216 Rotary Disc Header can be used to cut grass seed, the GSS Anti-Shatter Shield kit must be installed on the header. The kit prevents the shattering of the grass seed as the crop is cut.

To install the GSS Anti-Shatter Shield kit on an R216 Rotary Disc Header configured for grass seed, use the following bundle and instruction:

R216 Header Configuration	GSS Anti-Shatter Shield Kit	Instruction Number
MD #B9006	MD #B7222	MD #215742

Chapter 5: Attaching Rotary Disc Header to Windrower

The procedure for attaching a rotary disc header to a windrower varies depending on the windrower model and how that windrower is equipped.

Proceed to the header attaching procedure that is suitable for your windrower:

- [5.1 Attaching Rotary Disc Header to M1240 Windrower, page 47](#)
- [5.2 Attaching Rotary Disc Header to M205 SP Windrower, page 65](#)

5.1 Attaching Rotary Disc Header to M1240 Windrower

The R216 Rotary Disc Header with conditioner or grass seed (GSS) option can be attached to an M1240 Windrower. However, the GSS option is not factory-installed on the header and needs to be installed prior to attaching the header to the windrower. The GSS option is not available for Export headers.

5.1.1 Routing Electrical Harness

A total of seven cable ties (A) will secure the routed header electrical harness (B) in place alongside the windrower chassis harness and avoid rub/wear points that could damage the harnesses. Keep cable ties (A) loose on the harness until the entire harness has been routed on the header.

NOTE:

Cable ties are located in the manual storage case.

NOTE:

Windrower chassis harness is not shown in the illustration at right.

To route the R216 Rotary Disc Header electrical harness on the M1240 Windrower, follow these steps:

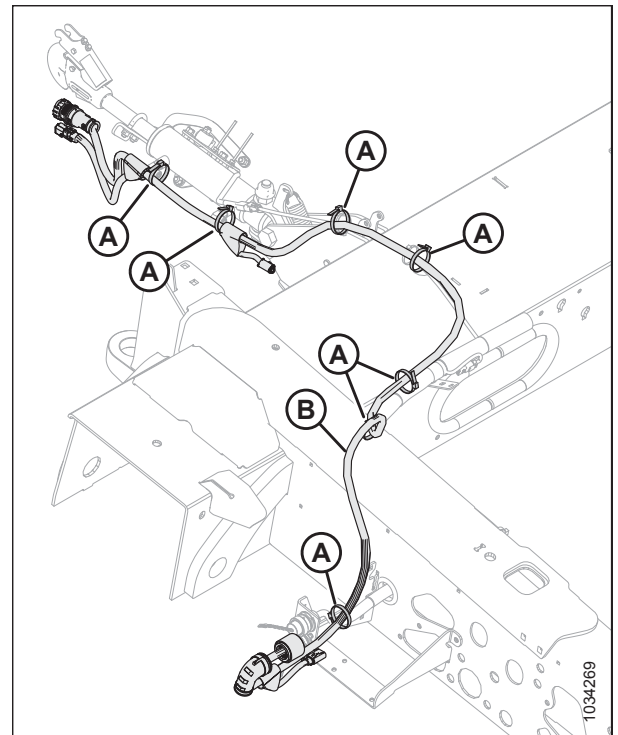


Figure 5.1: Cable Ties Securing Header Electrical Harness – R216 Model Year 2020 and Later

ATTACHING ROTARY DISC HEADER TO WINDROWER

1. Approach platform (A) on the left cab-forward side of the windrower and ensure the cab door is closed.
2. Push latch (B), and pull platform (A) toward the walking beam until it stops and the latch engages.

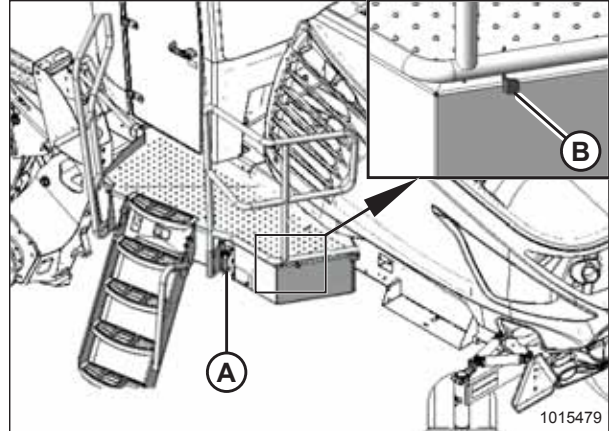


Figure 5.2: Left Cab-Forward Platform

3. Retrieve header adapter harness (A) and adjustable strap (D). Loosely attach the harness to center-link (B) with two cable ties (C).

NOTE:

Cable ties (C) should bundle header adapter harness (A) with other hydraulic hoses from the windrower. The other hydraulic hoses are not shown in the illustration at right.

NOTE:

Do **NOT** tighten cable ties (C) on the harness at this point.

4. Install velcro strap (D) around the center-link cylinder.

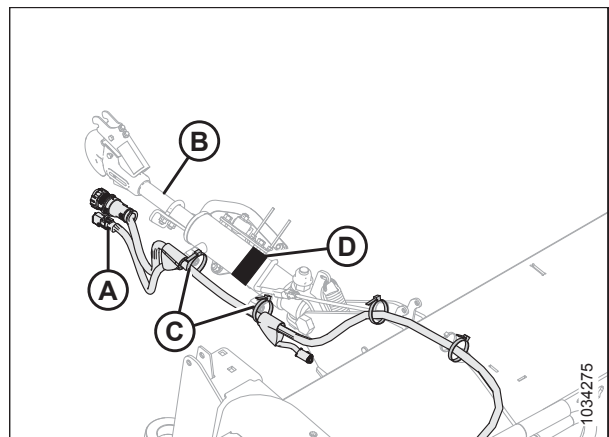


Figure 5.3: Electrical Harness Routed Along Center-Link with Cable Ties – R216 Model Year 2020 and Later

5. Route header adapter harness (A) over the windrower forward cross member and loosely secure it to windrower chassis harness (B) with three cable ties (C).

NOTE:

Do **NOT** tighten cable ties (C) on harness at this point.

NOTE:

The windrower chassis harness is only partially illustrated.

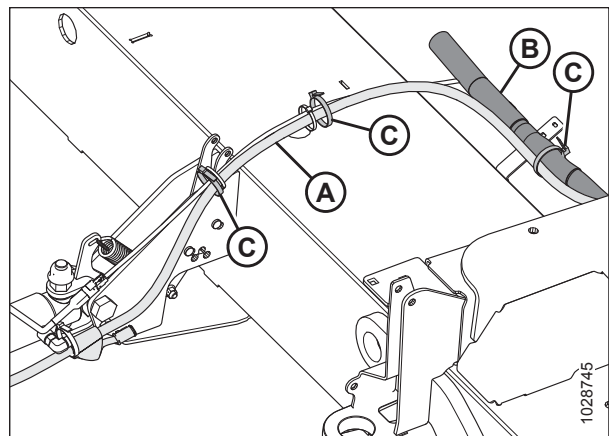


Figure 5.4: Forward Cross Member and Cable Ties

ATTACHING ROTARY DISC HEADER TO WINDROWER

- Route header adapter harness (A) over windrower frame (B) towards the multicoupler base.
- Loosely secure header adapter harness (A) to windrower chassis harness (C) with one cable tie (D) near the windrower frame.

NOTE:

Do **NOT** tighten cable tie (D) on the harness at this point.

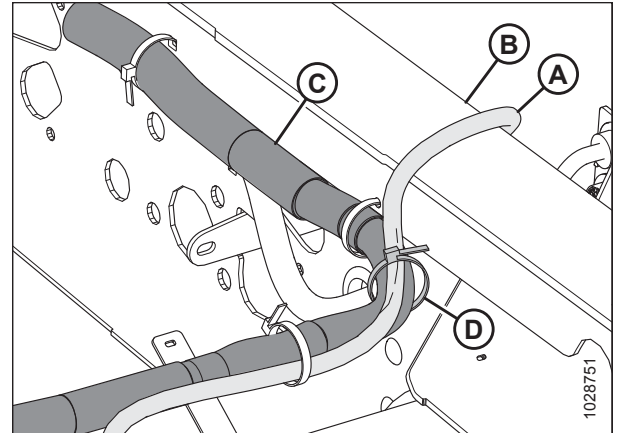


Figure 5.5: Electrical Harness Routing

- Connect header adapter harness (A) to plug (B) set in multicoupler base (C).
- Secure header adapter harness (A) to windrower harness (D) with cable tie (E) to avoid rub/wear points that could damage the harnesses.

NOTE:

Ensure there is enough slack in harness (A) before securing with cable tie (E) to maintain a minimum bend radius of 50 mm (2 in.) and avoid contact with multicoupler base (C).

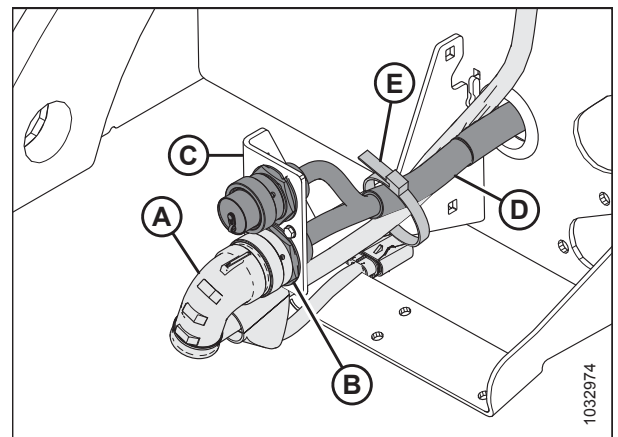


Figure 5.6: Electrical Connection

5.1.2 Attaching Rotary Disc Header

The M1240 Windrower may have an optional self-aligning hydraulic center-link that allows vertical position control of the center-link from the cab.

 **DANGER**

To prevent bodily 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.

ATTACHING ROTARY DISC HEADER TO WINDROWER

1. **Hydraulic Center-Link without Self-Alignment:** Remove pin (A) and raise center-link (B) until the hook is above the attachment pin on the rotary disc header. Replace pin (A) to hold the center-link in place.

IMPORTANT:

If the center-link is too low, it may contact the rotary disc header as the windrower approaches the rotary disc header for hookup.

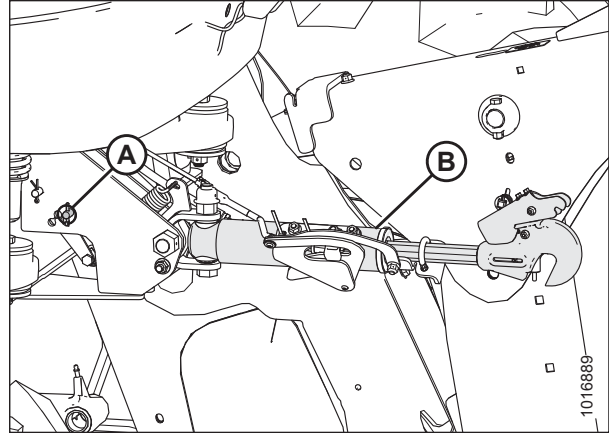


Figure 5.7: Hydraulic Center-Link

2. Remove hairpin (A) from clevis pin (B), and remove the pin from rotary disc header support (C) on both sides of the rotary disc header.

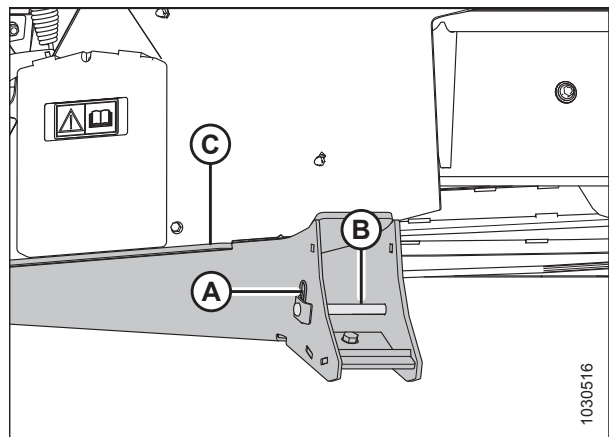


Figure 5.8: Rotary Disc Header Support – Header with Conditioner Shown

3. Lift header support (A) and place 2 x 4 in. blocks (B) under the header support. A total of four 2 x 4 in. blocks (B) will be necessary to raise the boot up and into field position. Ensure the boot's bottom edge (C) is parallel with the ground.

NOTE:

Do **NOT** stack blocks (B) crosswise as doing so can make the header unstable when attempting to connect the header and windrower. Stack blocks (B) parallel with each other.

NOTE:

To better show the placement of blocks (B) under header supports (A), the illustration at right does not show the two 2 x 4 blocks placed in Step 1, page 17.

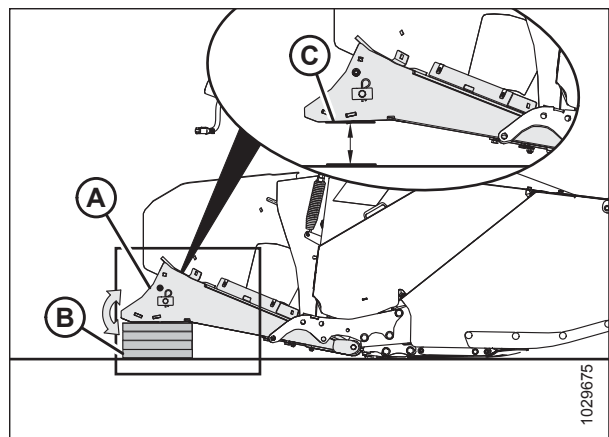


Figure 5.9: Header Boot – Right Side, Left Opposite

4. Repeat Step 3, page 50 on the opposite side.

DANGER

Ensure that all bystanders have cleared the area.

5. Start the windrower engine.

ATTACHING ROTARY DISC HEADER TO WINDROWER

CAUTION

When lowering header lift legs without a header or weight box attached to the windrower, ensure the float springs tension is fully released to prevent damage to the header lift linkages.

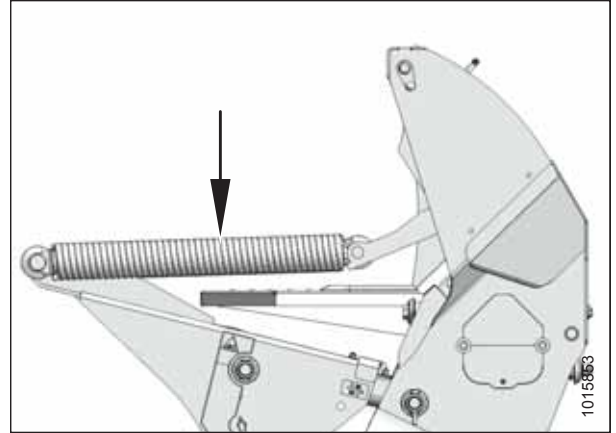


Figure 5.10: Header Float Spring

6. Press rotary scroll knob (A) on the Harvest Performance Tracker (HPT) display to highlight QuickMenu options.
7. Rotate scroll knob (A) to highlight the HEADER FLOAT symbol (B), and press scroll knob to select. The header float adjust screen displays.



Figure 5.11: HPT Display

8. Press soft key 3 (A) to remove the header float.

NOTE:

If the header float is active, the icon at soft key 3 will display REMOVE FLOAT; if header float has been removed, the icon will display RESUME FLOAT.



Figure 5.12: HPT Display

ATTACHING ROTARY DISC HEADER TO WINDROWER

9. Press HEADER DOWN switch (E) on the ground speed lever (GSL) to fully retract header lift cylinders.
10. **Self-Aligning Hydraulic Center-Link:** Press the REEL UP switch (B) on the GSL to raise the center-link until the hook is above the attachment pin on the header.

IMPORTANT:

If the center-link is too low, it may contact the header as the windrower approaches the header for hookup.

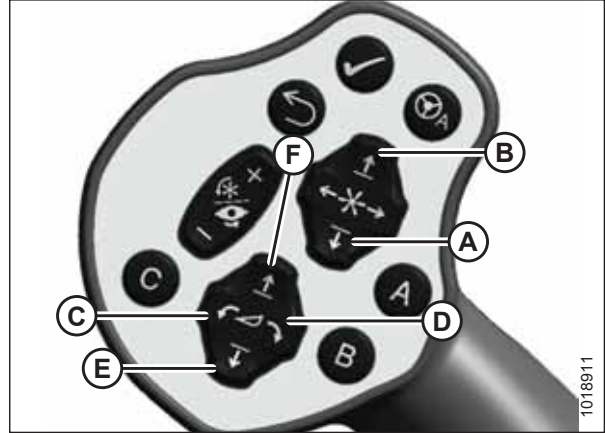


Figure 5.13: GSL

- | | |
|----------------------|--------------------|
| A - Reel Down | B - Reel Up |
| C - Header Tilt Down | D - Header Tilt Up |
| E - Header Down | F - Header Up |

11. Lift lift linkage (A) to align with header supports (B).
12. Drive the windrower slowly forward until lift linkage feet (A) enter supports (B). Continue to drive slowly forward until feet engage the supports and the header nudges forward.
13. Ensure that feet (A) are properly engaged in supports (B).

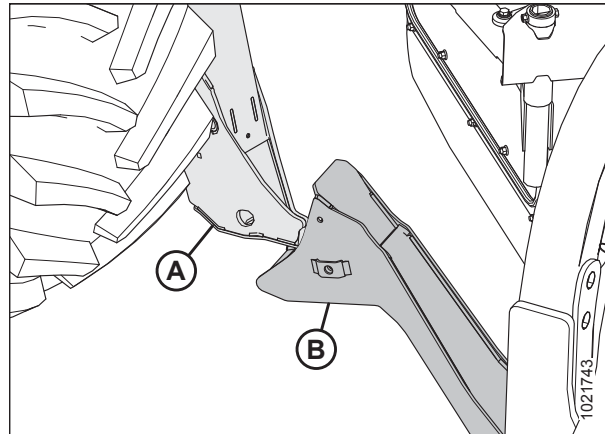


Figure 5.14: Header Support

14. Self-Aligning Hydraulic Center-Link:

- a. Adjust position of the center-link cylinder (A) with the switches on the GSL until hook (B) is above the header attachment pin.

IMPORTANT:

Hook release (C) must be down to enable self-locking mechanism.

- b. If hook release (C) is open (up), stop the engine and remove the ignition key. Manually push hook release (C) down after the hook engages the header pin.

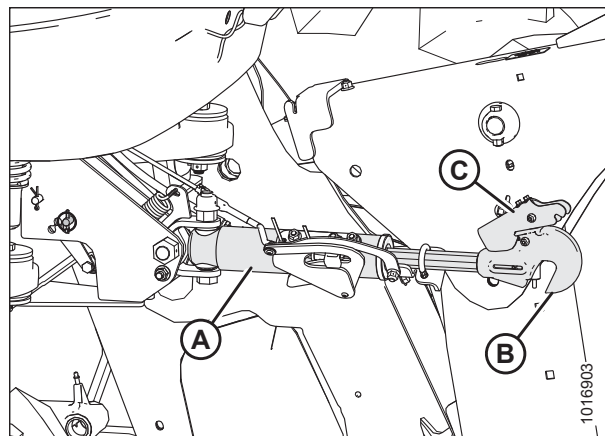


Figure 5.15: Hydraulic Center-Link

ATTACHING ROTARY DISC HEADER TO WINDROWER

15. Self-Aligning Hydraulic Center-Link:

- Lower center-link (A) onto the header with the REEL DOWN switch on the GSL until the center-link locks into position and hook release (B) is down.
- Check that the center-link is locked onto the header by pressing the REEL UP switch on the GSL.
- Turn off the windrower engine and remove the key from the ignition.

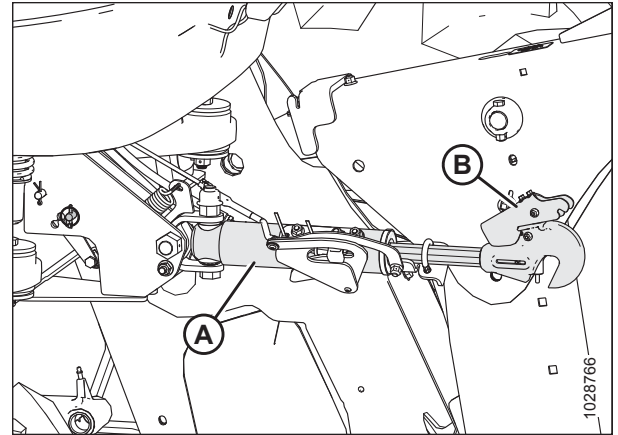


Figure 5.16: Hydraulic Center-Link

16. Hydraulic Center-Link without Self-Alignment:

- Press the HEADER TILT UP or HEADER TILT DOWN cylinder switches on the GSL to extend or retract the center-link cylinder until the hook is aligned with the header attachment pin.
- Turn off the windrower engine and remove the key.
- Push down on the rod end of link cylinder (B) until the hook engages and locks onto the header pin.

IMPORTANT:

The hook release must be down to enable the self-locking mechanism. If the hook release is open (up), manually push it down after the hook engages the pin.

- Check that center-link (A) is locked onto the header by pulling upward on rod end (B) of the cylinder.

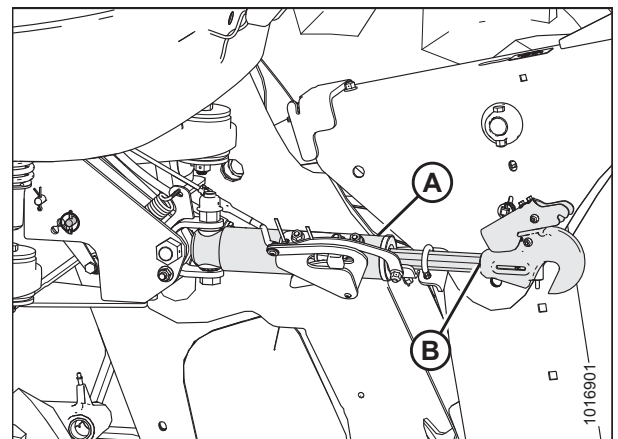


Figure 5.17: Hydraulic Center-Link

- Install clevis pin (A) through the support and the windrower lift arm and secure it with hairpin (B). Repeat for the opposite side.

IMPORTANT:

Ensure clevis pin (A) is fully inserted, and the hairpin is installed behind the bracket.

DANGER

Ensure that all bystanders have cleared the area.

- Start the engine.
- Raise the header slightly.
- Shut down the engine, and remove the key from the ignition.

DANGER

To prevent bodily injury from the fall of a raised header, always engage the safety props when working on or around a raised header, and before going under the header for any reason.

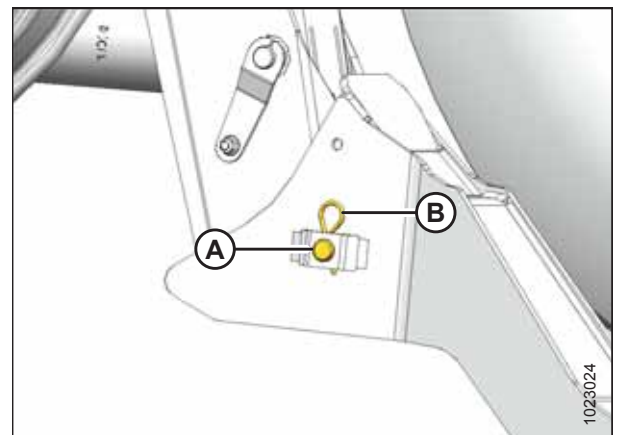


Figure 5.18: Header Support

ATTACHING ROTARY DISC HEADER TO WINDROWER

21. Remove all wooden blocks from beneath the header.

DANGER

Ensure that all bystanders have cleared the area.

22. Start the engine.
23. Lower the header fully.
24. Shut down the engine, and remove the key from the ignition.

5.1.3 Connecting R216 Rotary Disc Header Hydraulics and Electrical to an M1240 Windrower

Connect header hydraulic and electrical components to the windrower in order to operate the header.

The R216 hydraulics connection procedure varies depending on the windrower configuration:

- Draper header ready windrowers include one set of hydraulic quick couplers which are compatible with the header drive hoses on the R216. One additional set of quick couplers (MD #B6277) is required.
- Rotary disc header ready windrowers include hard plumbed hydraulics connections.

IMPORTANT:

To prevent contamination of the hydraulic system, use a clean rag to remove dirt and moisture from all (fixed and movable) hydraulic couplers.

NOTE:

Quick couplers can be installed, if desired, on disc-only configured windrowers—two sets of quick coupler bundle MD #B6277 are required to do so.

1. Open the windrower's left platform. For instructions, refer to the windrower operator's manual.
2. Using a clean rag, remove dirt and moisture from the couplers on the left side of the windrower frame.
3. Retrieve hydraulic hoses (A) from the header and route the hose bundle under the windrower frame.
4. Insert pin (B) into hole (C) in the windrower frame.

IMPORTANT:

Route hydraulic hoses as straight as possible, and avoid rub/wear points that could damage the hoses. To prevent damage, the hoses should have enough slack to pass by the multicoupler bracket without contact. To adjust hose slack, loosen the clamps below pin (B), adjust the hoses, then retighten the hose holder.

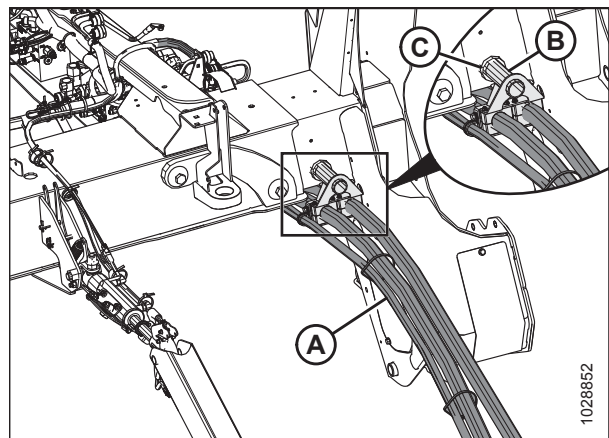


Figure 5.19: Hose Support Attachment

ATTACHING ROTARY DISC HEADER TO WINDROWER

5. Remove protective plugs (A) from the ends of the hydraulic hoses.

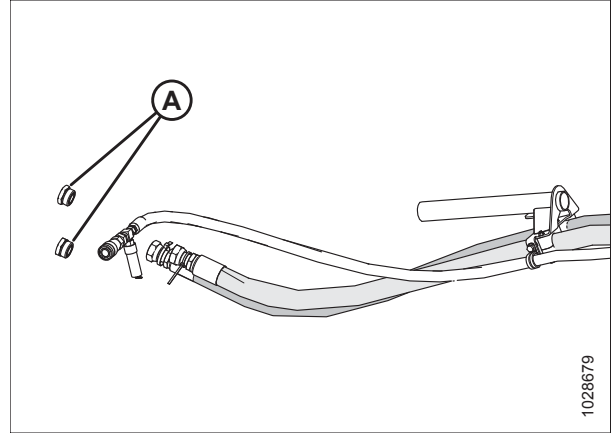


Figure 5.20: Hydraulic Hoses Protective Plugs

Proceed with the steps that are relevant to the following windrower configurations:

Windrower Configuration	Steps for Connecting Hydraulics and Electrical
Rotary disc/draper ready configuration (A)	Step 6, page 56 to Step 10, page 57
Rotary disc only hard plumbed configuration (B)	Step 11, page 58 to Step 13, page 58
Rotary disc ready configuration (B) with quick couplers installed	Step 14, page 59 to Step 20, page 60

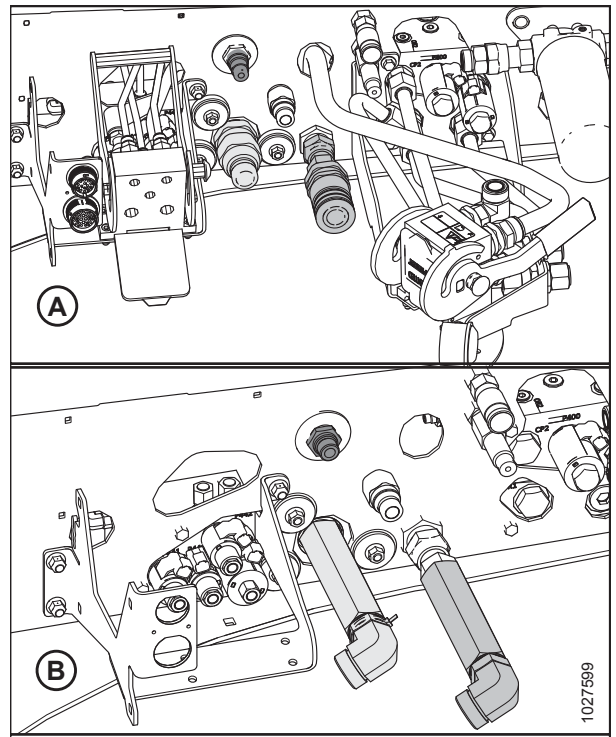


Figure 5.21: Header Hydraulics Configurations

ATTACHING ROTARY DISC HEADER TO WINDROWER

Rotary disc/draper ready configuration with quick couplers:

6. Ensure hose (A) is disconnected from windrower receptacle (B) and placed in storage cup (C) on multicoupler.

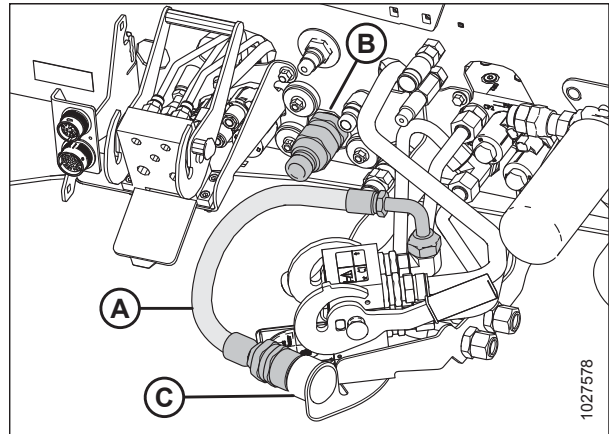


Figure 5.22: Couplers – Draper Ready

7. Connect hydraulic fittings to the hydraulic hoses as follows:
 - a. Attach 90° elbow fitting (A) and 1 in. female coupler fitting (B) to disc pressure hose (C).
 - b. Attach 90° elbow fitting (A) and 1 in. male coupler fitting (D) to disc return hose (E).

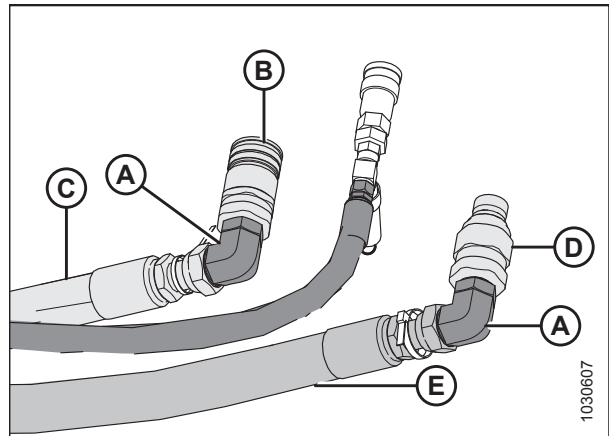


Figure 5.23: Hydraulic Fittings

ATTACHING ROTARY DISC HEADER TO WINDROWER

8. Connect the hydraulic hoses to the windrower with quick coupler fittings as follows:
 - a. Connect disc pressure hose (A) with coupler (B) and torque them to 205–226 Nm (151–167 lbf-ft).
 - b. Connect disc return hose (C) with coupler (D) and torque them to 205–226 Nm (151–167 lbf-ft).
 - c. Connect case drain hose (E) to fitting (F), with relief valve pointing towards the ground.

NOTE:

If required, loosen fitting (F) and retighten as needed to ensure relief valve is pointing straight down as shown.

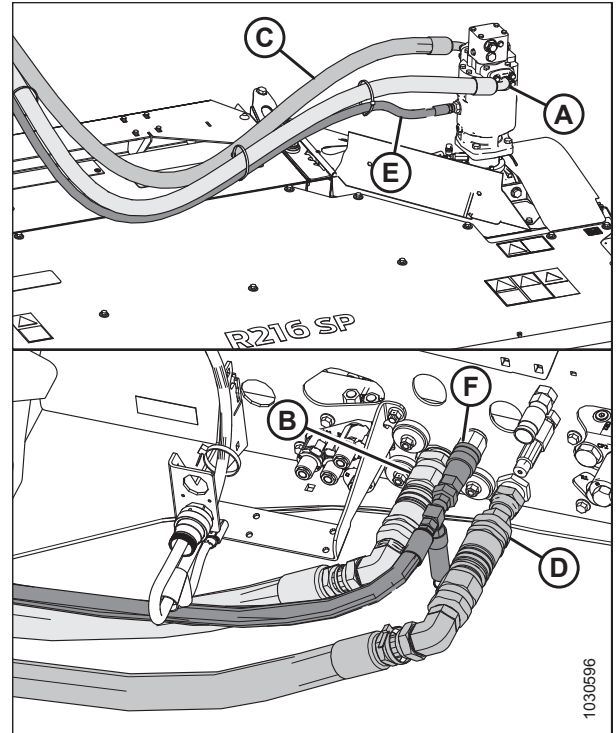


Figure 5.24: Hydraulics and Electrical – Draper Ready

9. **Grass seed and draper/disc configuration:** Connect the additional four hoses supplied with the grass seed version of the header as follows:
 - a. Connect the hose (green cable tie) with female quick coupler (A) to coupler (B) on the windrower frame.
 - b. Connect the hose (yellow cable tie) with male quick coupler (C) to coupler (D) on the windrower frame.
 - c. Remove the cap (not shown) from inboard bulkhead fitting (E). Connect hose (F) (red cable tie) to inboard bulkhead fitting (E).

NOTE:

The other end of hose (F) connects to the grass seed module drum on the left of the header.

- d. Remove the cap (not shown) from outboard bulkhead fitting (G). Connect hose (H) (blue cable tie) to inboard bulkhead fitting (G).

NOTE:

The other end of hose (H) connects to the grass seed module drum on the right of the header.

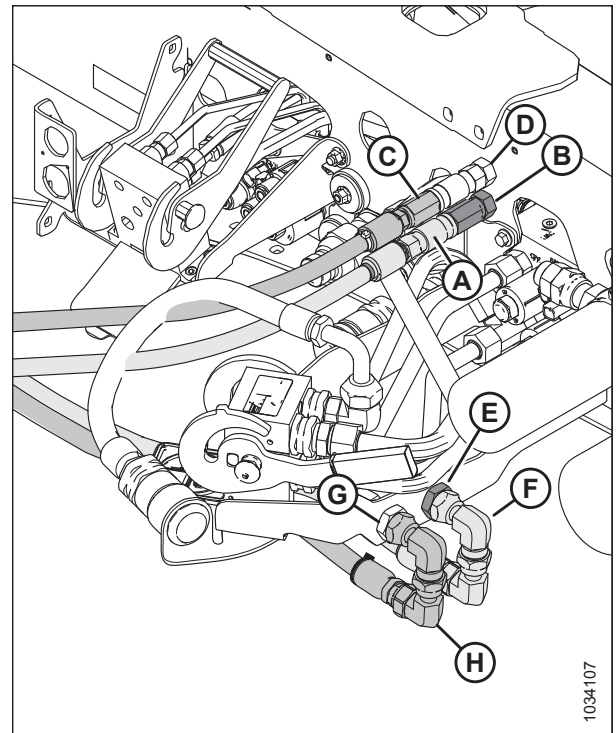


Figure 5.25: Grass Seed Hydraulic Connections – Draper/Disc Configuration

10. To connect electrical harness, proceed to Step 21, page 61.

ATTACHING ROTARY DISC HEADER TO WINDROWER

Hard plumbed fittings – rotary disc ready windrower:

11. Connect the hydraulic hoses to the windrower with hard plumbed fittings as follows:
 - a. Connect disc pressure hose (A) marked with a red cable tie (B) to hard plumb fitting marked with a red cable tie (C) and torque them to 205–226 Nm (151–167 lbf-ft).
 - b. Connect disc return hose (D) to hard plumb fitting (E) and torque them to 205–226 Nm (151–167 lbf-ft).
 - c. Connect case drain hose (F) to fitting (G).

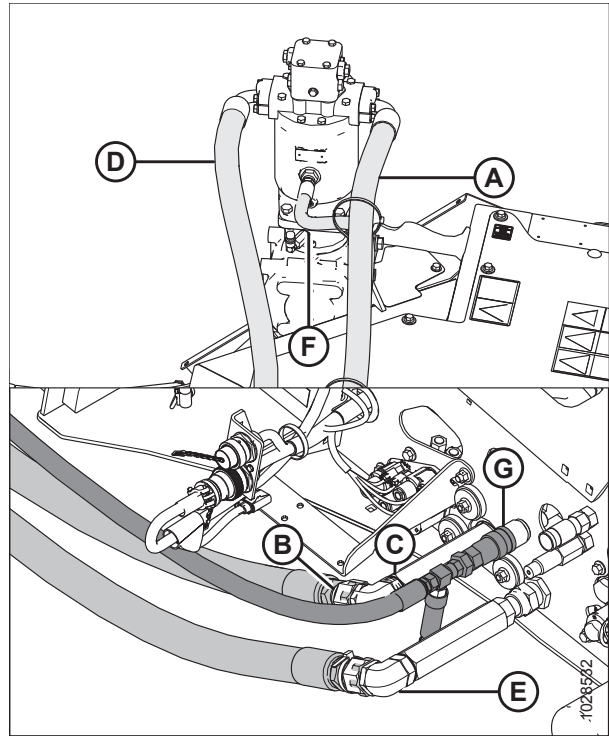


Figure 5.26: Hard Plumbed Connections on R216 Rotary Disc Header Ready Windrower

12. **Grass seed and rotary disc configuration:** Connect the additional four hoses supplied with the grass seed version of the header as follows:
 - a. Remove the plug (not shown) from drive manifold port R1. Install 45° fitting (A) in port R1. Connect hose (C) (blue cable tie) to fitting (A).
NOTE:
The other end of hose (C) connects to the grass seed module drum on the right of the header.
 - b. Remove the plug (not shown) from drive manifold port CP2. Install 45° fitting (B) in port CP2. Connect hose (D) (red cable tie) to fitting (B).
NOTE:
The other end of hose (D) connects to the grass seed module drum on the left of the header.
 - c. Connect the hose (green cable tie) with female quick coupler (E) to coupler (F) on the windrower frame.
 - d. Connect the hose (yellow cable tie) with male quick coupler (G) to coupler (H) on the windrower frame.

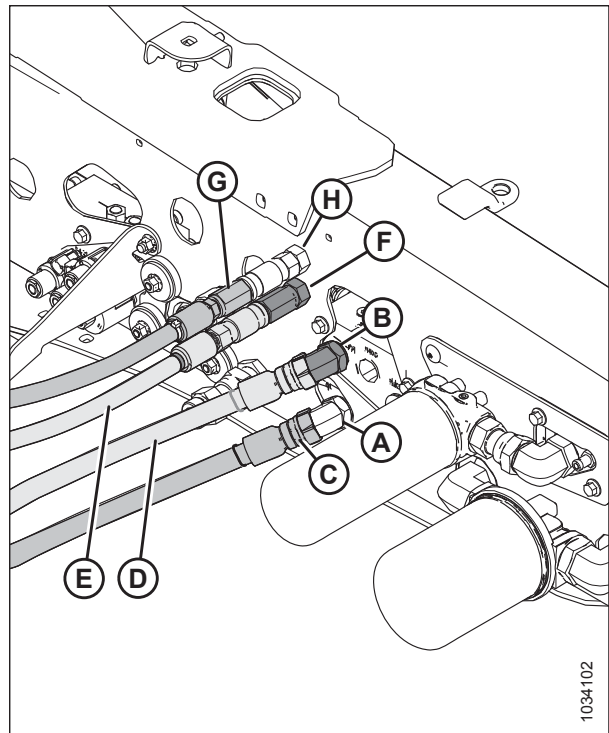


Figure 5.27: Grass Seed Hydraulic Connections – Rotary Disc Configuration

13. To connect electrical harness, proceed to Step 21, page 61.

ATTACHING ROTARY DISC HEADER TO WINDROWER

Quick coupler fittings – rotary disc ready windrower:

14. Connect hydraulic fittings to the hydraulic hoses as follows:

- a. Attach 90° elbow fitting (A) and 1 in. female coupler fitting (B) to disc pressure hose (C).
- b. Attach 90° elbow fitting (A) and 1 in. male coupler fitting (D) to disc return hose (E).

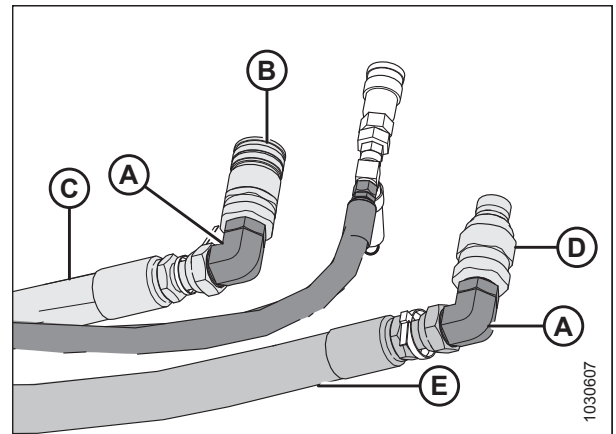


Figure 5.28: Hydraulic Fittings

15. Remove the extension fittings and elbows (A) from the rotary disc header hydraulic pressure and return connections.

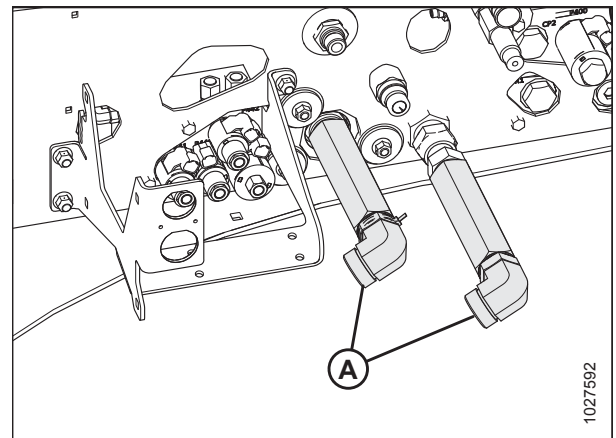


Figure 5.29: Hard Plumbed Connections – Rotary Disc Ready Windrower

16. Install the male quick coupler at windrower pressure receptacle (A).

17. Install the female quick coupler with adapter at windrower return receptacle (B).

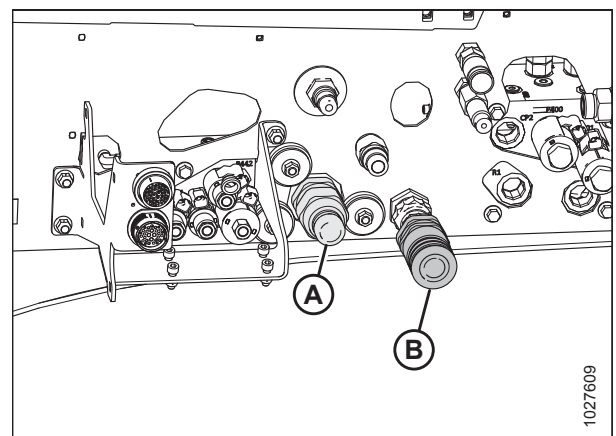


Figure 5.30: Quick Couplers on Rotary Disc Ready Windrower

ATTACHING ROTARY DISC HEADER TO WINDROWER

18. Connect the hydraulic hoses to the windrower with quick coupler fittings as follows:
- Connect disc pressure hose (A) with coupler (B) and torque them to 205–226 Nm (151–167 lbf-ft).
 - Connect disc return hose (C) with coupler (D) and torque them to 205–226 Nm (151–167 lbf-ft).
 - Connect case drain hose (E) to fitting (F), with relief valve pointing towards the ground.

NOTE:

If required, loosen fitting (F) and retighten as needed to ensure the relief valve is pointing straight down as shown.

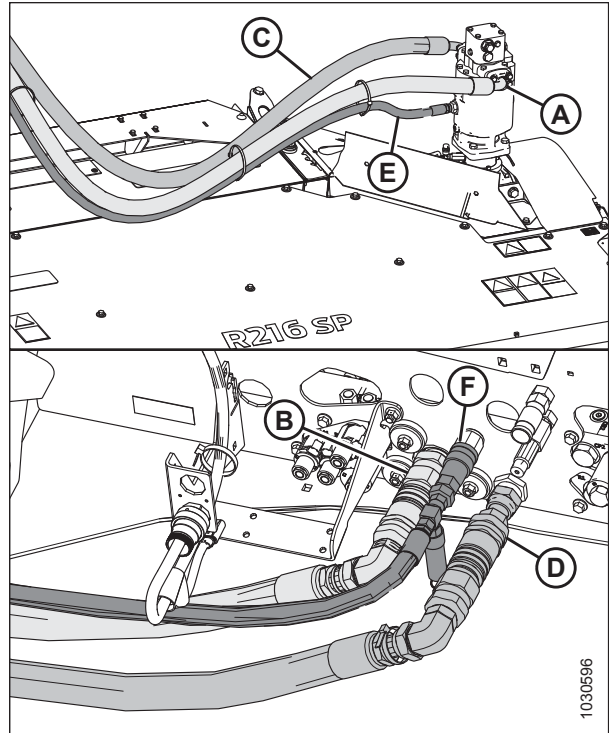


Figure 5.31: Hydraulic Connections

19. **Grass seed and rotary disc configuration:** Connect the additional four hoses supplied with the grass seed version of the header as follows:

- Remove the plug (not shown) from drive manifold port R1. Install 45° fitting (A) in port R1. Connect hose (C) (blue cable tie) to fitting (A).

NOTE:

The other end of hose (C) connects to the grass seed module drum on the right of the header.

- Remove the plug (not shown) from drive manifold port CP2. Install 45° fitting (B) in port CP2. Connect hose (D) (red cable tie) to fitting (B).

NOTE:

The other end of hose (D) connects to the grass seed module drum on the left of the header.

- Connect the hose (green cable tie) with female quick coupler (E) to coupler (F) on the windrower frame.
- Connect the hose (yellow cable tie) with male quick coupler (G) to coupler (H) on the windrower frame.

20. To connect electrical harness, proceed to Step 21, page 61.

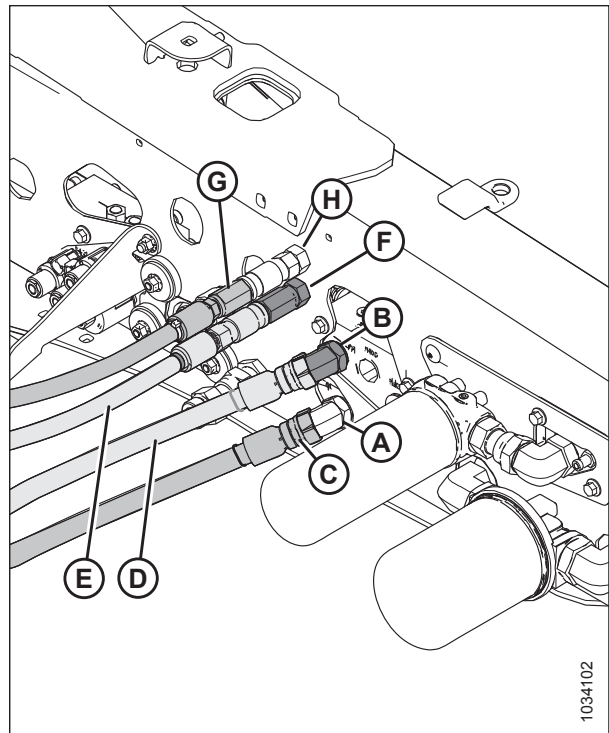


Figure 5.32: Grass Seed Hydraulic Connections – Rotary Disc Configuration

ATTACHING ROTARY DISC HEADER TO WINDROWER

To connect electrical harness, follow these steps:

21. Connect main header harness (A) to adapter harness (B).
22. **Grass seed version of header:** Connect actuator harness (C) to adapter harness (D).

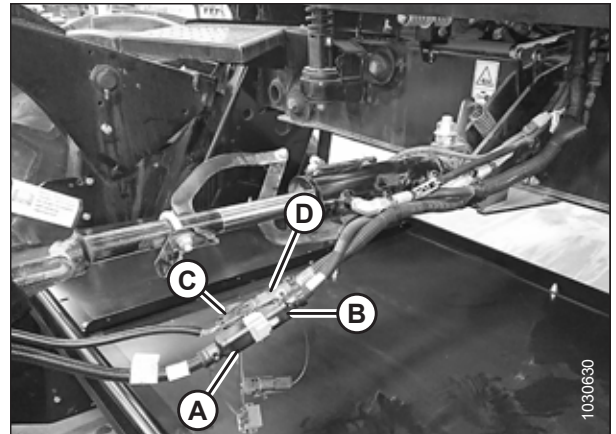


Figure 5.33: Electrical Harness Connection at Center-Link

DANGER

Ensure that all bystanders have cleared the area.

23. Start the windrower engine.
24. Extend center-link (A) fully. Check that there is some slack in the harness (B).
25. Retract center-link (A) fully. Check that there is not an excessive amount of harness (B) hanging down.
26. Turn off the windrower engine, and remove the key.
27. Adjust harness (B) positioning as required.
28. Tighten all the cable ties along the harness.

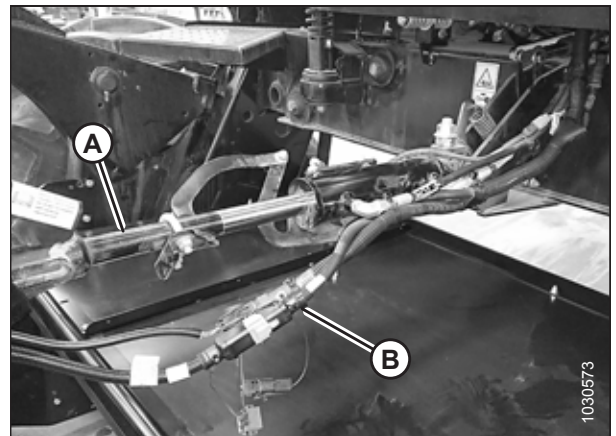


Figure 5.34: Electrical Connection

29. Close the windrower's left platform. For instructions, refer to the windrower operator's manual.

5.1.4 Restoring Float for Rotary Disc Header

Follow these steps to restore the float for an R216 Rotary Disc Header used with an M1240 Windrower:

DANGER

To prevent bodily 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.

ATTACHING ROTARY DISC HEADER TO WINDROWER

1. Disengage the safety props on both lift cylinders as follows:
 - a. Turn lever (A) away from the header to raise the safety prop until the lever locks into the vertical position.
 - b. Repeat the previous step for the opposite cylinder.

NOTE:

If the safety prop will **NOT** disengage, raise the header to release the prop.

CAUTION

Before starting the machine, check to be sure all bystanders have cleared the area.

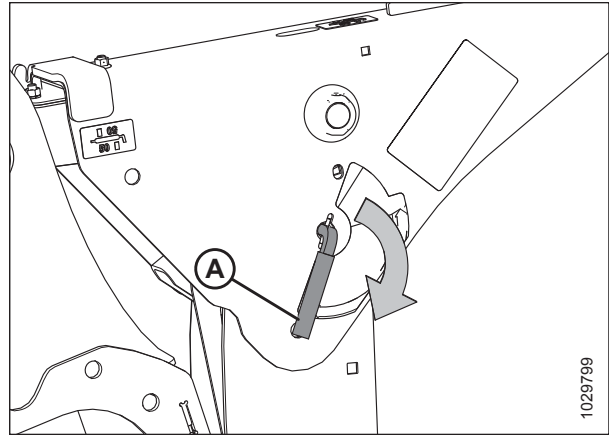


Figure 5.35: Safety Prop Lever

2. Start the engine and press HEADER DOWN switch (A) on the ground speed lever (GSL) to fully lower the rotary disc header.

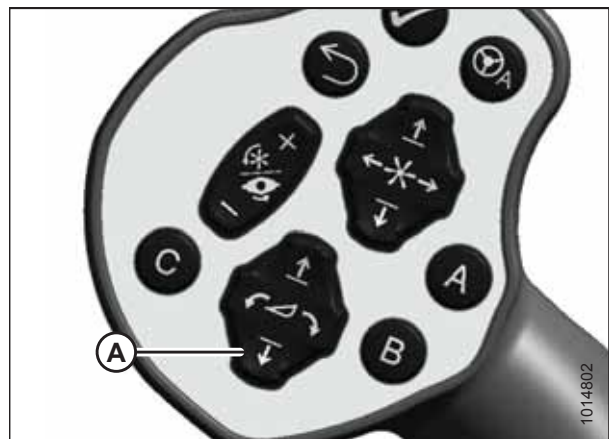


Figure 5.36: GSL

3. If not prompted by the Harvest Performance Tracker (HPT) display to restore the header float, restore the header float manually by doing the following:
 - a. Press rotary scroll knob (A) on HPT to highlight the QuickMenu options.
 - b. Rotate scroll knob (A) to highlight HEADER FLOAT symbol (B), and press the scroll knob to select. The screen changes.



Figure 5.37: HPT Display

ATTACHING ROTARY DISC HEADER TO WINDROWER

4. Press soft key 3 (A) to restore the header float.

NOTE:

If the header float is active, the icon at soft key 3 will display REMOVE FLOAT; if header float has been removed, the icon will display RESUME FLOAT.

5. Stop the engine and remove the key.



Figure 5.38: HPT Display

5.1.5 Calibrating Windrower Knife Drive on the Harvest Performance Tracker Display

When the R216 Rotary Disc Header is attached to an M1240 Windrower, the Harvest Performance Tracker (HPT) will recognize the header ID and configure the windrower accordingly. The rotary disc header must be calibrated to ensure that the knife drive pump output is accurate.



CAUTION

Before starting the machine, check to be sure all bystanders have cleared the area.

1. Start the engine.
2. Engage the header.
3. Press soft key 5 (A) to open the Harvest Performance Tracker (HPT) main menu.
4. Use HPT scroll knob (B) or the ground speed lever (GSL) scroll wheel to scroll to settings icon (C).
5. Press HPT scroll knob (B) or the GSL SELECT button (not shown) to activate the settings menu options.



Figure 5.39: Opening the Main Menu

ATTACHING ROTARY DISC HEADER TO WINDROWER

6. Scroll to WINDROWER SETTINGS icon (A) and press SELECT.
7. Scroll to CALIBRATION icon (B), and press SELECT to open the adjustment page.

NOTE:

The F3 shortcut button on the operator's console will also open the WINDROWER SETTINGS menu.

8. Select KNIFE DRIVE.

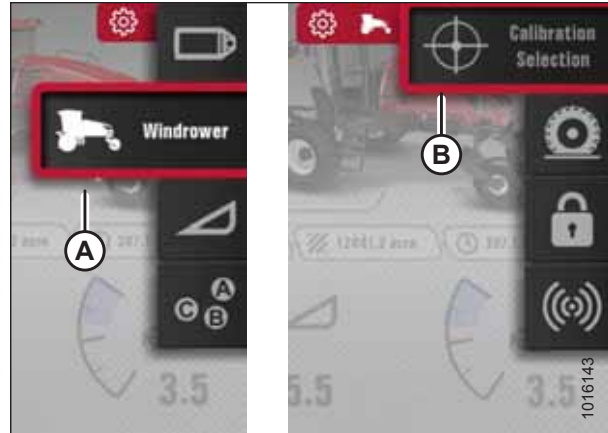


Figure 5.40: Windrower Settings Icon and Calibration Submenu Icon

9. Press the PLAY button to begin the calibration process.

NOTE:

During the calibration sequence, the engine rpm and header speed will increase and decrease multiple times.

NOTE:

Press the X button (A) on the screen or use the HEADER DISENGAGE switch at any time during the calibration process to exit calibration without saving. The engine speed will return to the original rpm prior to starting the calibration process.

NOTE:

If an error message appears when calibrating the knife drive system, check the following items:

- Confirm engine and hydraulics are at operating temperature
- Confirm hydraulic system is free of any restrictions & is in working order
- Confirm Throttle is working:
 - Check engine codes to confirm engine is not derated or throttle inhibited
 - Throttle is controlled over the powertrain CAN network. Check the powertrain CAN network wiring and connectors for open or intermittent connection
- Confirm sensor mounting is fastened properly and sensor gap meets specification
- Check sensor wiring and connectors for intermittent connection
- Replace sensor



Figure 5.41: Calibration Page

5.2 Attaching Rotary Disc Header to M205 SP Windrower

Attaching the header to the windrower will allow you to cut, condition, and lay a wide variety of grasses and hay crops in windrows. The M205 Completion Kit (MD #B7220) must be installed to the header prior to attaching to the Windrower.

5.2.1 Attaching R216 Rotary Disc Header to M205 SP Windrower – Hydraulic Center-Link with Optional Self-Alignment

The optional self-aligning hydraulic center-link on an M205 SP Windrower allows vertical position control of the center-link from the cab.

DANGER

To prevent bodily 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.

NOTE:

The R216 Rotary Disc Header requires conversion kit (MD #B7220) if being used with an M205 SP Windrower. Once configured for an M205 SP Windrower, the R216 Rotary Disc Header is incompatible with the optional Remote Baffle Control kit (MD #B6664).

1. Shut down the engine, and remove the key from the ignition.
2. Remove hairpin (A) from clevis pin (B), and remove the pin from header support (C) on both sides of the header.

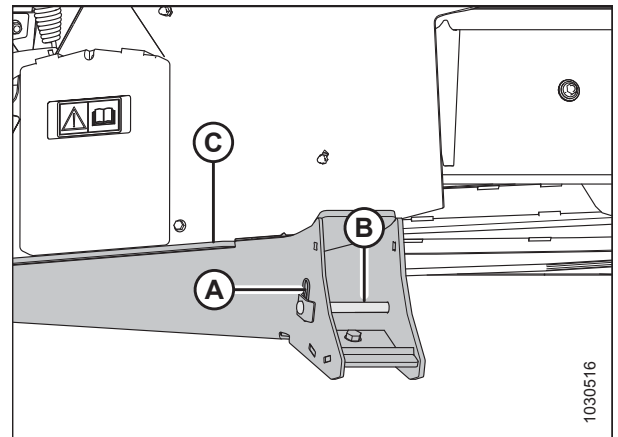


Figure 5.42: Header Support

3. Lift header support (A) and place 2 x 4 in. blocks (B) under the header support. A total of four 2 x 4 in. blocks (B) will be necessary to raise the boot up into field position. Ensure the boot's bottom edge (C) is parallel with the ground. Repeat this step for the opposite side.

NOTE:

Do **NOT** stack blocks (B) crosswise as doing so can make the header unstable when attempting to connect the header and windrower. Stack blocks (B) parallel with each other.

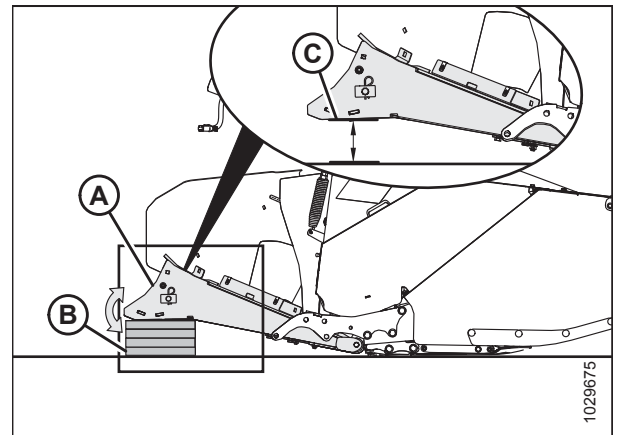


Figure 5.43: Header Support

ATTACHING ROTARY DISC HEADER TO WINDROWER

4. Remove the float engagement pin from hole (A) to disengage the float springs, and insert the float engagement pin into storage hole (B). Secure the float engagement pin with a lynch pin. Repeat this step for the opposite linkage.

IMPORTANT:

To prevent damage to the lift system when lowering the header lift linkages without a header or weight box attached to the windrower, ensure the float engagement pin is installed in storage hole (B) and **NOT** in engaged position (A).

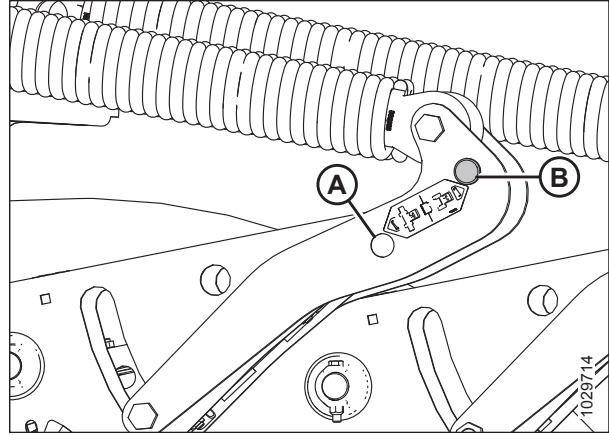


Figure 5.44: Float Linkage

DANGER

Ensure that all bystanders have cleared the area.

5. Start the engine and activate HEADER DOWN button (A) on the ground speed lever (GSL) to fully retract the header lift cylinders.

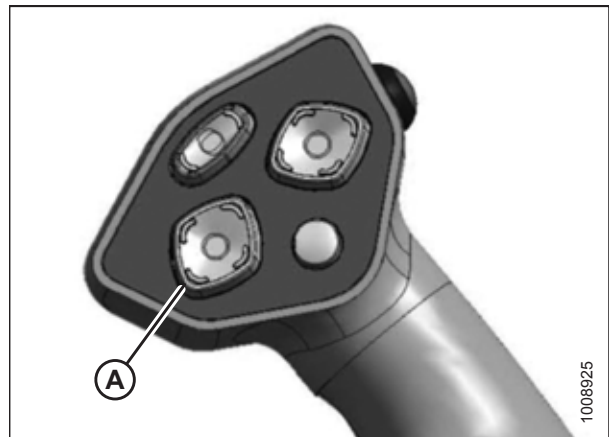


Figure 5.45: Ground Speed Lever

6. Press REEL UP switch (A) on the GSL to raise the center-link until the hook is above the attachment pin on the header.

IMPORTANT:

If the center-link is too low, it may contact the header as the windrower approaches the header for hookup.



Figure 5.46: Ground Speed Lever

ATTACHING ROTARY DISC HEADER TO WINDROWER

7. Slowly drive the windrower forward until windrower feet (A) enter header supports (B). Continue driving slowly forward until the feet engage the supports and the header nudges forward.

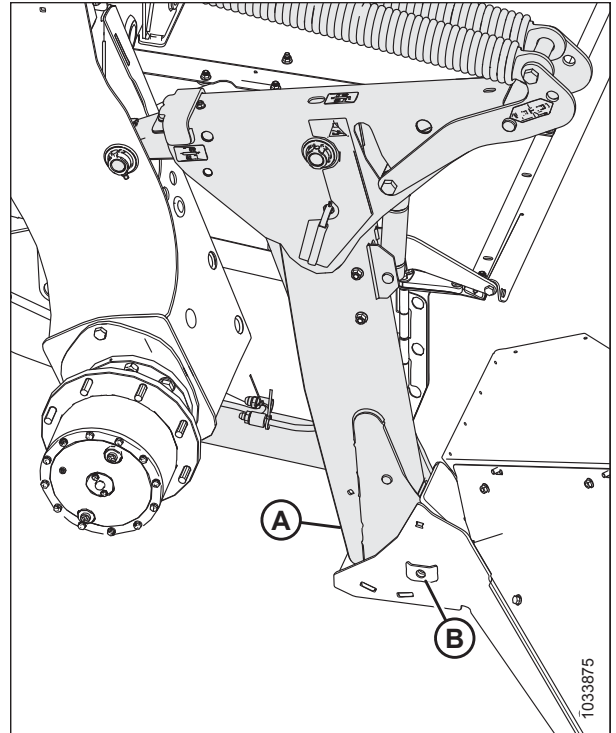


Figure 5.47: Header Support

8. Use the following GSL functions to position the center-link hook above the header attachment pin:
 - REEL UP (A) to raise the center-link
 - REEL DOWN (B) to lower the center-link
 - HEADER TILT UP (C) to retract the center-link
 - HEADER TILT DOWN (D) to extend the center-link

IMPORTANT:

The hook release must be down to enable the self-locking mechanism. If the release is open (up), manually push it down after hook engages header pin.

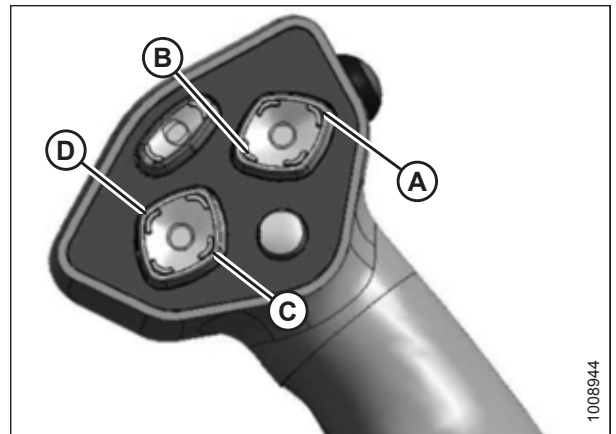


Figure 5.48: Ground Speed Lever

ATTACHING ROTARY DISC HEADER TO WINDROWER

- Adjust the position of center-link cylinder (A) with the REEL UP and REEL DOWN switches on the GSL until the hook is positioned above the header attachment pin.

IMPORTANT:

Hook release (B) must be down to enable the self-locking mechanism. If the release is open (up), manually push it down after the hook engages the header pin.

- Lower center-link (A) onto the header using the REEL DOWN switch on the GSL until the center-link locks into position and hook release (B) is down.
- Check that the center-link is locked onto the header by pressing the REEL UP switch on the GSL.

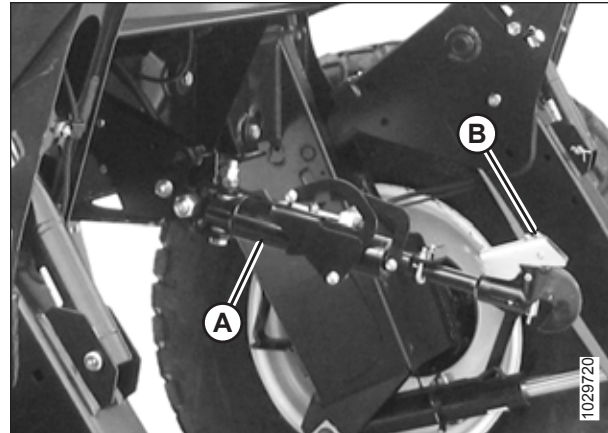


Figure 5.49: Hydraulic Center-Link

- Press HEADER UP switch (A) to raise the header to its maximum height.
- If one end of the header does **NOT** fully raise, rephase the lift cylinders as follows:
 - Press and hold the HEADER UP switch until both cylinders stop moving.
 - Continue to hold the switch for 3–4 seconds. The cylinders are now phased.

NOTE:

It may be necessary to repeat this procedure if there is air in the system.



Figure 5.50: Ground Speed Lever

ATTACHING ROTARY DISC HEADER TO WINDROWER

14. Pull lever (A) outward and rotate it toward the header to lower safety prop (B) onto the cylinder. Repeat this step for the opposite cylinder.
 - a. Shut down the engine, and remove the key from the ignition.
 - b. Pull lever (A) outward and rotate it towards the header to release and lower safety prop (B) onto the lift cylinder.
 - c. Repeat for the opposite lift cylinder.

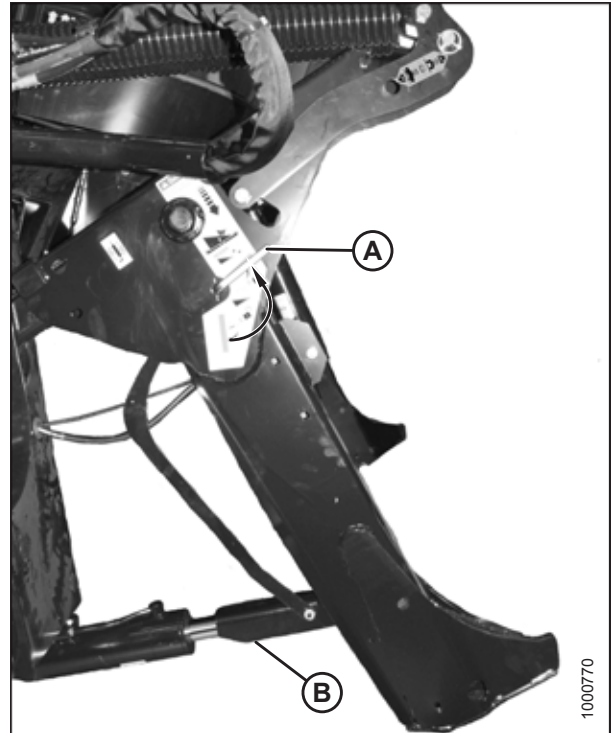


Figure 5.51: Safety Prop

15. Install clevis pin (A) through the support and the windrower lift member, and secure it with hairpin (B). Repeat this step for the opposite side of the machine.

IMPORTANT:

Ensure clevis pin (A) is fully inserted and the hairpin is installed behind the bracket.

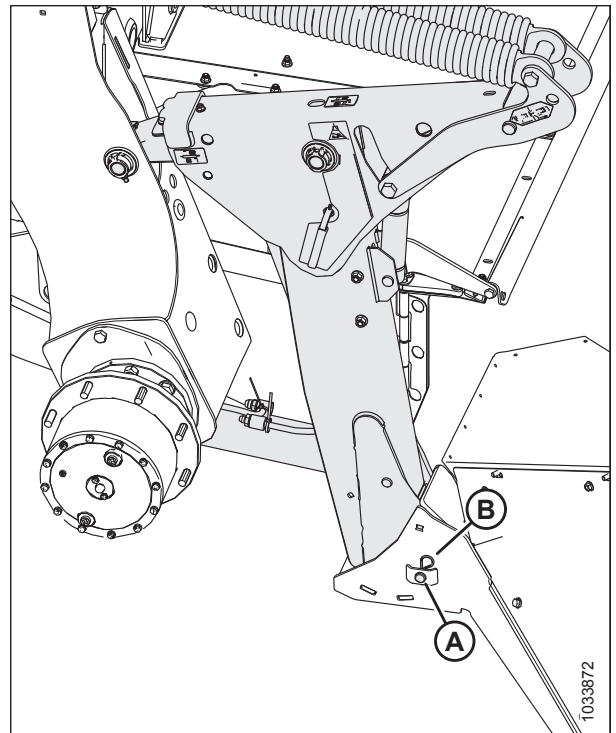


Figure 5.52: Header Support

ATTACHING ROTARY DISC HEADER TO WINDROWER

16. Remove the clevis pin from storage position (B) in the linkage and insert it into hole (A) to engage the float springs. Secure it with the hairpin.

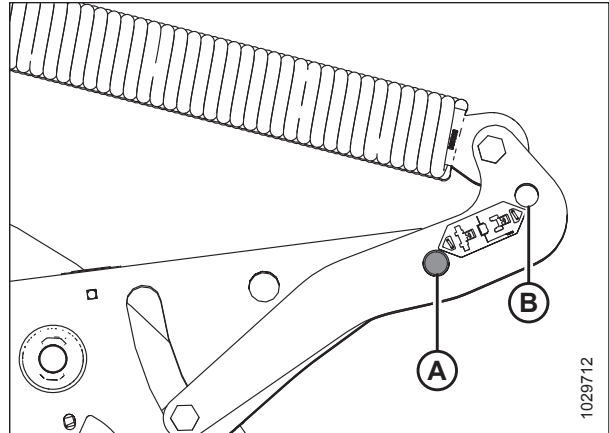


Figure 5.53: Header Float Linkage

17. Disengage the safety prop by turning lever (A) downwards until the lever locks into vertical position.
18. Repeat the previous step for the opposite safety prop.

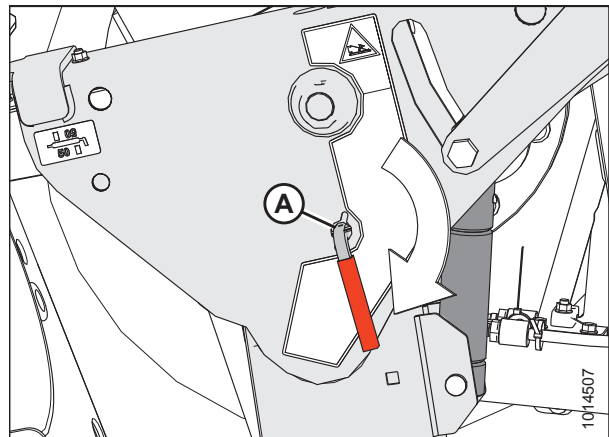


Figure 5.54: Safety Prop

DANGER

Ensure that all bystanders have cleared the area.

19. Start the engine, and press HEADER DOWN switch (A) on the GSL to fully lower the header.
20. Shut down the engine, and remove the key from the ignition.
21. Proceed to [5.2.3 Connecting R216 Rotary Disc Header Hydraulics and Electrical to an M205 SP Windrower](#), page 77.

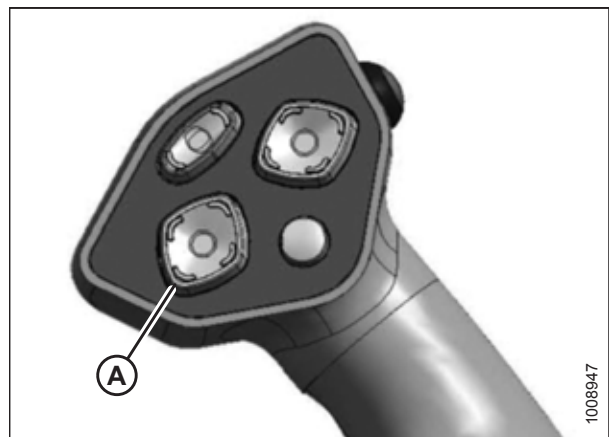


Figure 5.55: Ground Speed Lever

5.2.2 Attaching R216 Rotary Disc Header to M205 SP Windrower – Hydraulic Center-Link without Optional Self-Alignment

Attach the header to an M205 SP Windrower that is equipped without an optional self-aligning hydraulic center-link (allows the operator to control the vertical position of the center-link from the cab).

DANGER

To prevent bodily 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.

1. Shut down the engine, and remove the key from the ignition.
2. Remove hairpin (A) from clevis pin (B), and remove the pin from header support (C) on both sides of the header.

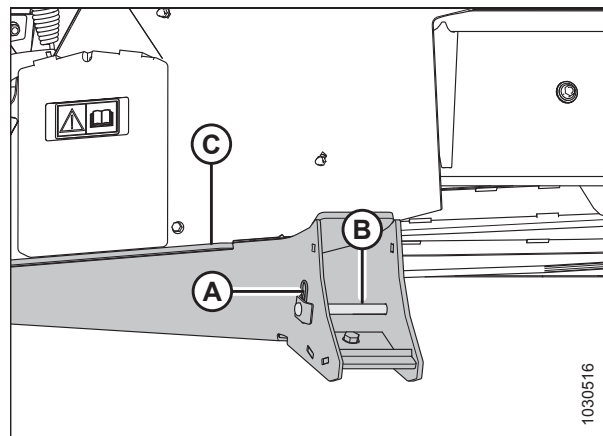


Figure 5.56: Header Support

3. Lift header support (A) and place 2 x 4 in. blocks (B) under the header support. A total of four 2 x 4 in. blocks (B) will be necessary to raise the boot up into field position. Ensure the boot's bottom edge (C) is parallel with the ground. Repeat this step for the opposite side.

NOTE:

Do **NOT** stack blocks (B) crosswise as doing so can make the header unstable when attempting to connect the header and windrower. Stack blocks (B) parallel with each other.

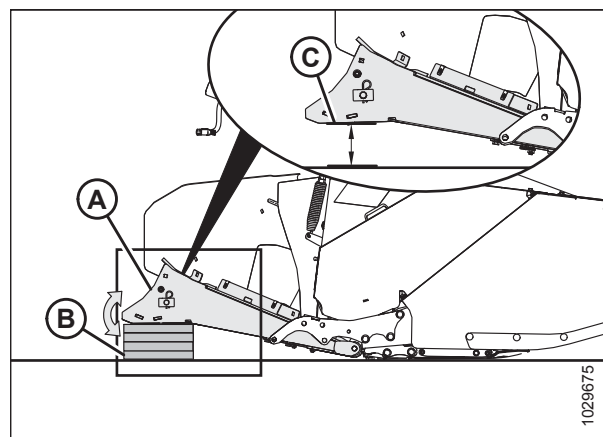


Figure 5.57: Header Support

ATTACHING ROTARY DISC HEADER TO WINDROWER

4. To disengage the float springs, move the float engagement pin from engaged position (A) and insert the pin into storage hole (B). Secure the float engagement pin with a lynch pin. Repeat this step for the opposite linkage.

IMPORTANT:

To avoid damaging the lift system when lowering the header lift linkages without a header or weight box attached, ensure the float engagement pin is installed in storage position (B) and **NOT** in engaged position (A).

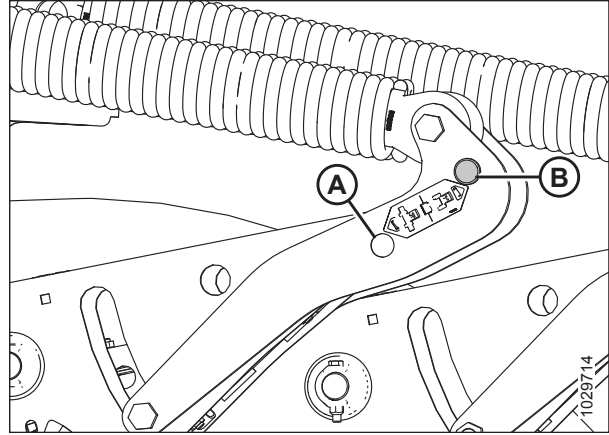


Figure 5.58: Header Float Linkage

DANGER

Ensure that all bystanders have cleared the area.

5. Start the engine and activate HEADER DOWN button (A) on the ground speed lever (GSL) to fully retract the header lift cylinders.

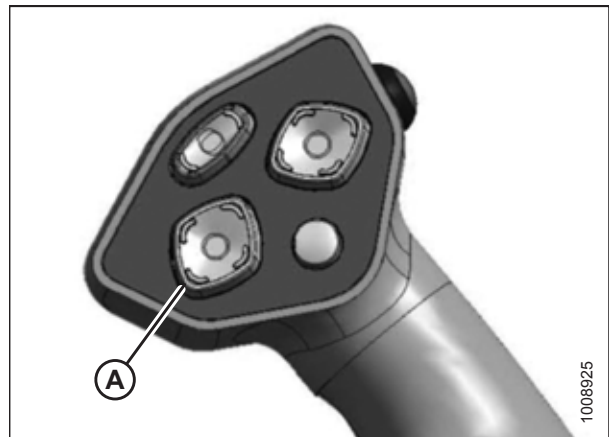


Figure 5.59: Ground Speed Lever

6. Remove pin (A) from the frame linkage and raise center-link (B) until the hook is above the attachment pin on the header. Replace pin (A) to hold the center-link in place.

IMPORTANT:

If the center-link is too low, it may contact the header as the windrower approaches the header for hookup.

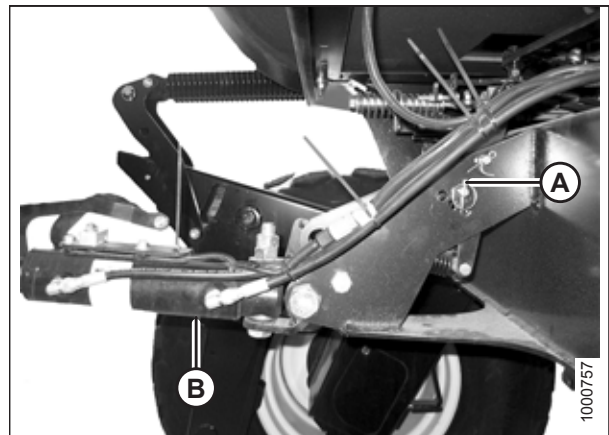


Figure 5.60: Hydraulic Center-Link

ATTACHING ROTARY DISC HEADER TO WINDROWER

7. Slowly drive the windrower forward until windrower feet (A) enter header supports (B). Continue driving slowly forward until the feet engage the supports and the header nudges forward.

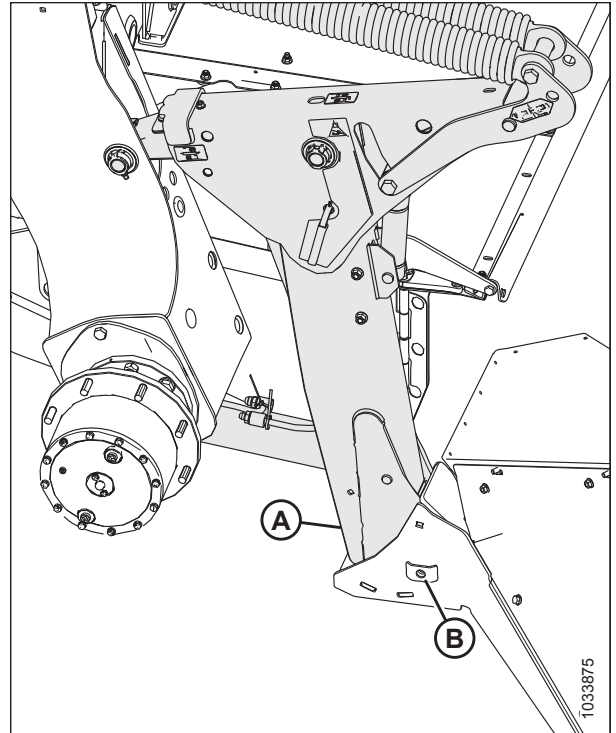


Figure 5.61: Header Support

8. Use the following GSL functions to position the center-link hook above the header attachment pin:
 - HEADER TILT UP (A) to retract the center-link
 - HEADER TILT DOWN (B) to extend the center-link
9. Stop the engine, and remove the key from the ignition.

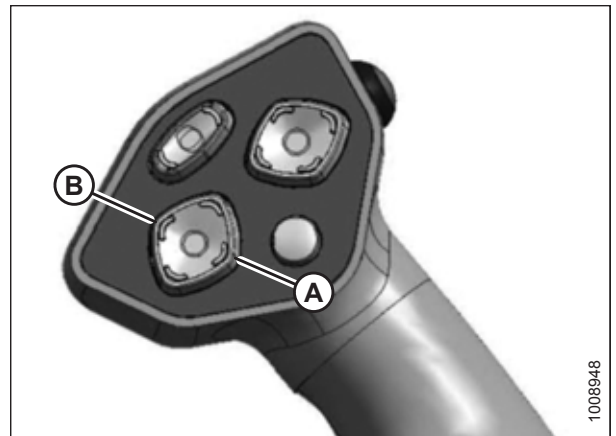


Figure 5.62: Ground Speed Lever

ATTACHING ROTARY DISC HEADER TO WINDROWER

10. Push down on the rod end of link cylinder (A) until hook (B) engages and locks onto the header pin.

IMPORTANT:

The hook release must be down to enable the self-locking mechanism. If the release is open (up), manually push it down after the hook engages the header pin.

11. Check that center-link (A) is locked onto the header by pulling upward on the rod end of the cylinder.

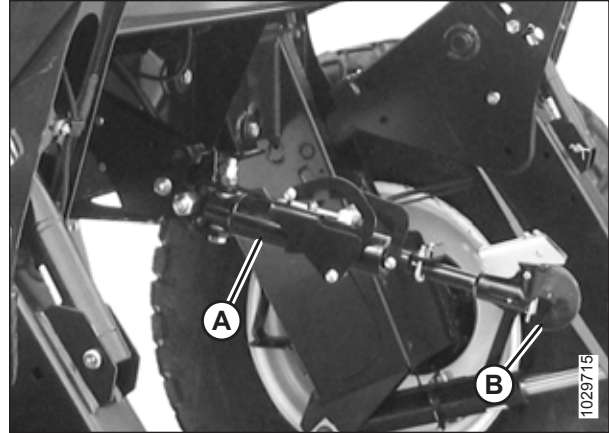


Figure 5.63: Hydraulic Center-Link

DANGER

Ensure that all bystanders have cleared the area.

12. Start the engine.
13. Press HEADER UP switch (A) to raise the header to maximum height.
14. If one end of the header does **NOT** fully raise, rephase the lift cylinders as follows:
 - a. Press and hold the HEADER UP switch until both cylinders stop moving.
 - b. Continue to hold the switch for 3–4 seconds. Cylinders are now phased.

NOTE:

It may be necessary to repeat this procedure if there is air in the system.



Figure 5.64: Ground Speed Lever

ATTACHING ROTARY DISC HEADER TO WINDROWER

15. Pull lever (A) outward and rotate it toward the header to lower safety prop (B) onto the cylinder. Repeat this step for the opposite cylinder.
 - a. Shut down the engine, and remove the key from the ignition.
 - b. Pull lever (A) outward and rotate it towards the header to release and lower safety prop (B) onto the lift cylinder.
 - c. Repeat for the opposite lift cylinder.

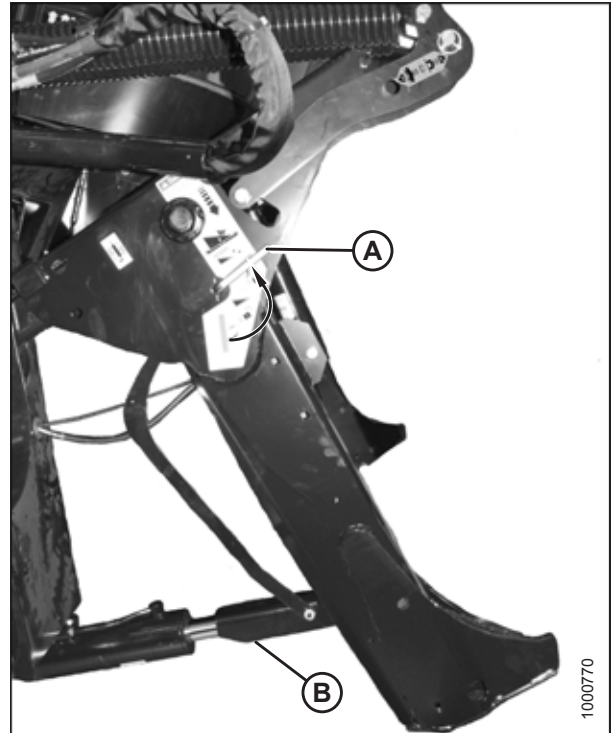


Figure 5.65: Safety Prop

16. Install clevis pin (A) through the support and the windrower lift member, and secure it with hairpin (B). Repeat this step for the opposite side of the machine.

IMPORTANT:

Ensure clevis pin (A) is fully inserted and the hairpin is installed behind the bracket.

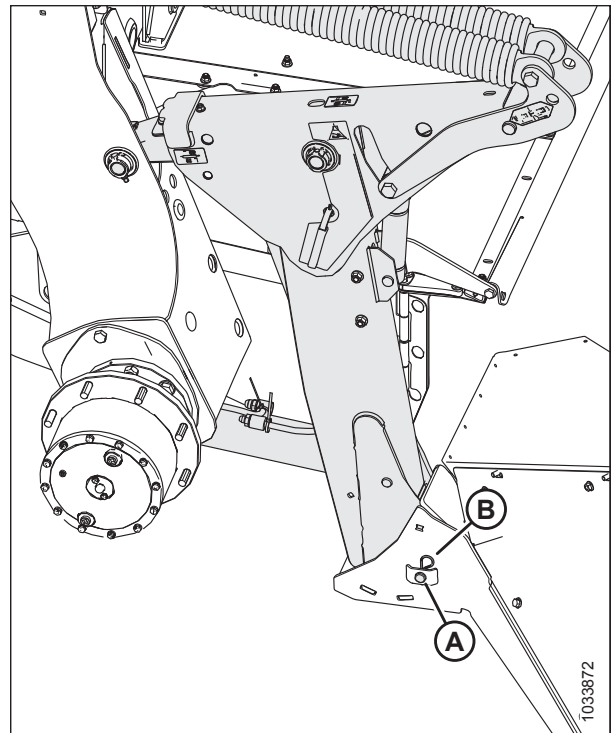


Figure 5.66: Header Support

ATTACHING ROTARY DISC HEADER TO WINDROWER

17. Remove the clevis pin from storage position (B) in the linkage and insert it into hole (A) to engage the float springs. Secure it with the hairpin.

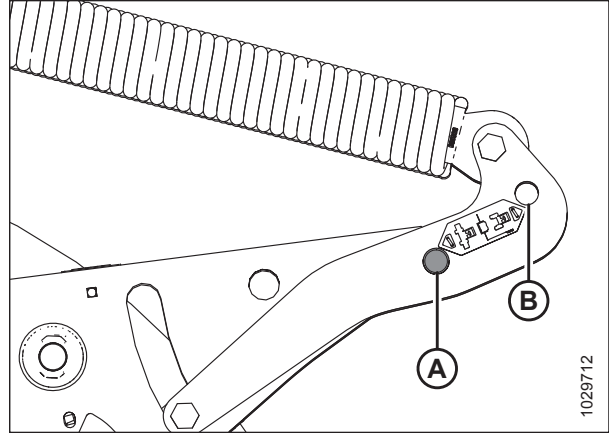


Figure 5.67: Header Float Linkage

18. Disengage the safety prop by turning lever (A) downwards until the lever locks into vertical position.
19. Repeat the previous step for the opposite safety prop.

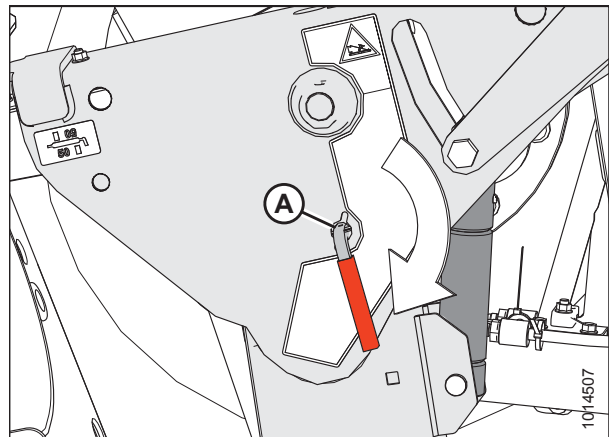


Figure 5.68: Safety Prop

DANGER

Ensure that all bystanders have cleared the area.

20. Start the engine, and press HEADER DOWN switch (A) on the GSL to fully lower the header.
21. Shut down the engine, and remove the key from the ignition.
22. Proceed to [5.2.3 Connecting R216 Rotary Disc Header Hydraulics and Electrical to an M205 SP Windrower, page 77](#).

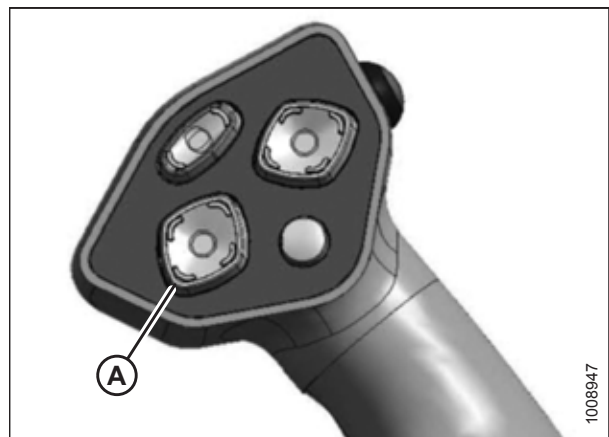


Figure 5.69: Ground Speed Lever

5.2.3 Connecting R216 Rotary Disc Header Hydraulics and Electrical to an M205 SP Windrower

Connect header hydraulic and electrical components to the windrower in order to operate the header.

DANGER

To prevent bodily 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.

NOTE:

M205 compatibility kit MD #B7220 is required to connect a R216 Rotary Disc Header to an M205 SP Windrower. This kit supplies the hydraulic fittings used for hard-plumbed connections. If the M205 SP Windrower uses quick coupler connections, install quick coupler kit (MD #B5497) onto the R216 Rotary Disc Header pressure and return hoses.

1. Shut down the engine, and remove the key from the ignition.
2. Open the left platform. For instructions, refer to the windrower operator's manual.
3. Insert the pin on header hose support (A) into hole (B) in windrower frame near left cab-forward leg.

IMPORTANT:

Route the hoses as straight as possible and avoid rub/wear points that could damage the hydraulic hoses.

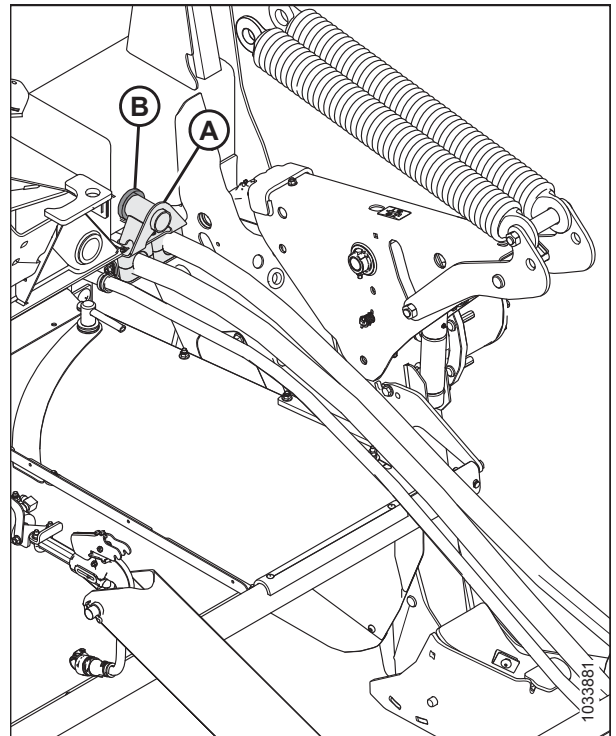


Figure 5.70: Hose Support Installed

ATTACHING ROTARY DISC HEADER TO WINDROWER

NOTE:

When connecting the header hoses to the windrower in the following steps, you can adjust the length of the hoses as follows:

- Loosen nut (A) and clamp (B) to adjust the length of the case drain hose.
- Loosen nuts (C) and clamps (D) to adjust the length of the pressure and return hoses.
- Tighten hardware after making adjustments.

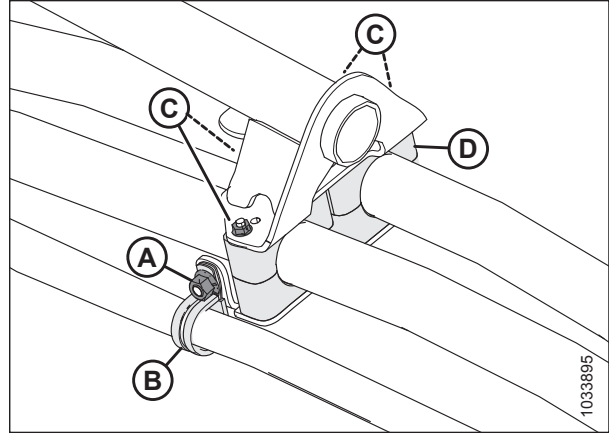


Figure 5.71: Hose Support Clamps

4. Proceed according to the type of hydraulic couplers or fittings used on the M205 SP Windrower:

- If the M205 SP Windrower is equipped with quick couplers (A) to connect to the header, proceed to Step 5, [page 79](#).

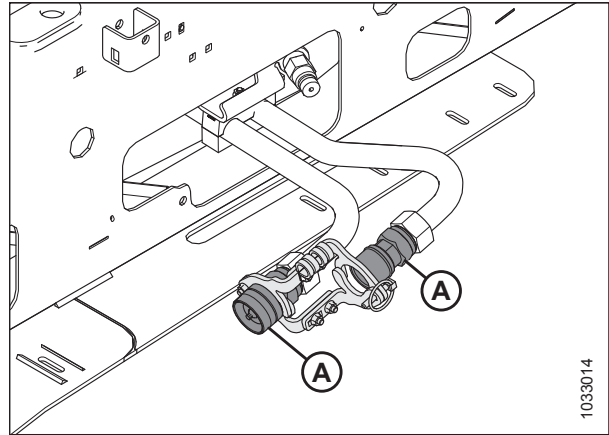


Figure 5.72: Pressure and Return Steel Lines with Quick Couplers

- If the M205 SP Windrower uses union fittings (A) instead of quick couplers to connect to the header, remove union fittings (A) from the steel lines and install the hard-plumbed connections provided in the M205 compatibility kit. For instructions, proceed to Step 13, [page 81](#).

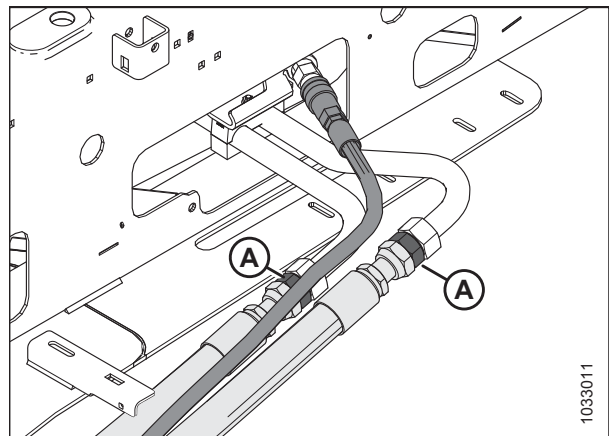


Figure 5.73: Pressure and Return Steel Lines with Union Fittings

ATTACHING ROTARY DISC HEADER TO WINDROWER

- If the M205 SP Windrower has plugs (A) installed in the steel lines, remove the plugs from the steel lines and install the hard-plumbed connections provided in the M205 compatibility kit. For instructions, proceed to Step 13, page 81.

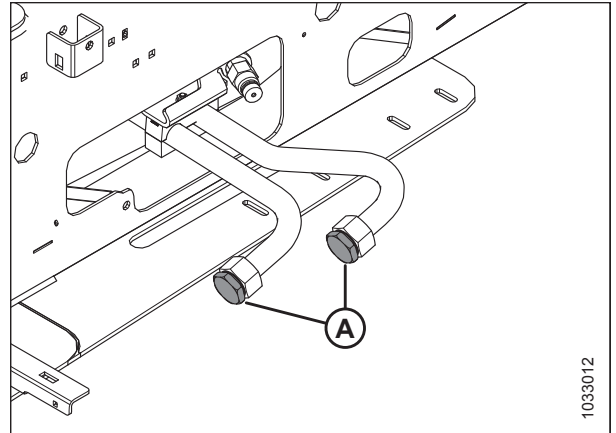


Figure 5.74: Pressure and Return Steel Lines with Plugs

5. **Quick coupler connections:** Connect male quick coupler (A) to pressure coupler (B). Connect female quick coupler (C) to return coupler (D).

NOTE:

For reference, the other end (E) of the pressure hose is connected to the front of the hydraulic motor. The other end (F) of the return hose is connected to the rear of the hydraulic motor.

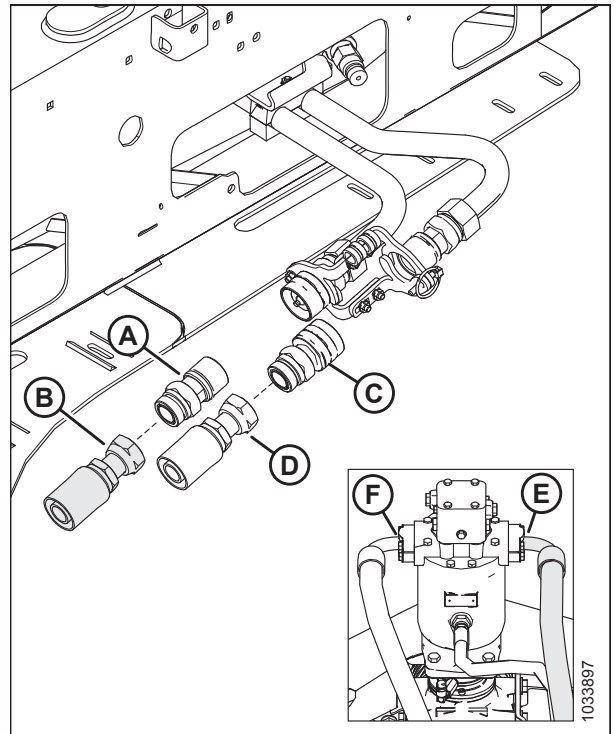


Figure 5.75: Header Pressure and Return Connections

ATTACHING ROTARY DISC HEADER TO WINDROWER

6. **Quick coupler connections:** Connect pressure coupler (A) to inboard steel line coupler (B).

NOTE:

For reference, the other end (C) of the pressure hose is connected to the front of the hydraulic motor.

7. **Quick coupler connections:** Connect return coupler (D) to outboard steel line coupler (E).

NOTE:

For reference, the other end (F) of the return hose is connected to the rear of the hydraulic motor.

8. **Quick coupler connections:** Close coupler lock assembly (G) over couplers and secure it with pin (H).

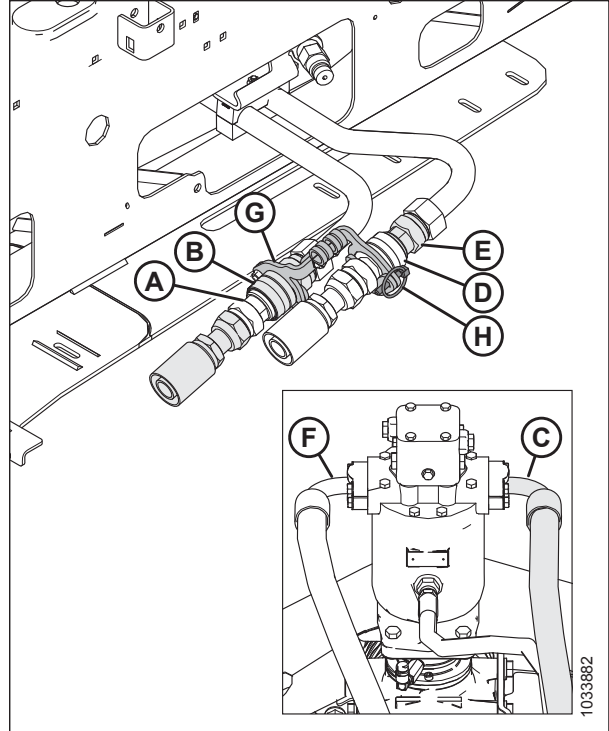


Figure 5.76: Header Pressure and Return Connections

9. **Quick coupler connections:** Confirm quick couplers are connected properly. Couplers will restrict oil flow if they are not fully mated (O-ring [A] will be visible). This will generate excessive heat, damaging the drive components and the couplers themselves. Couplers (B) at right are fully mated, and couplers (C) at right are not fully mated.

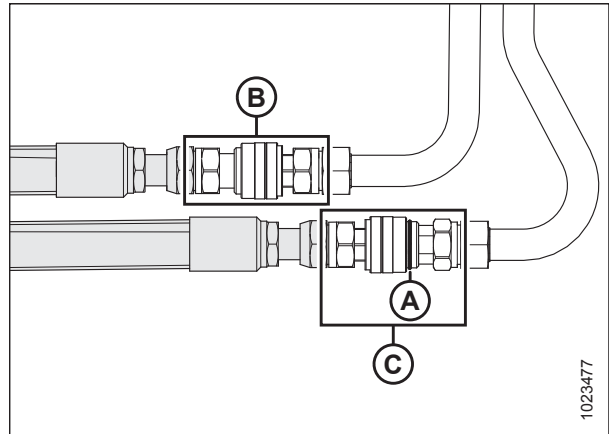


Figure 5.77: Quick Couplers – View from Above

ATTACHING ROTARY DISC HEADER TO WINDROWER

10. **Quick coupler connections:** Connect case drain hose (A) to 1/2 in. male flat face fitting (B).

NOTE:

For reference, the other end of the case drain hose is connected to hydraulic motor port (D).

11. **Quick coupler connections:** Secure case drain hose to coupler lock assembly with two clamps (C).
12. **Quick coupler connections:** Proceed to Step 16, page 82.

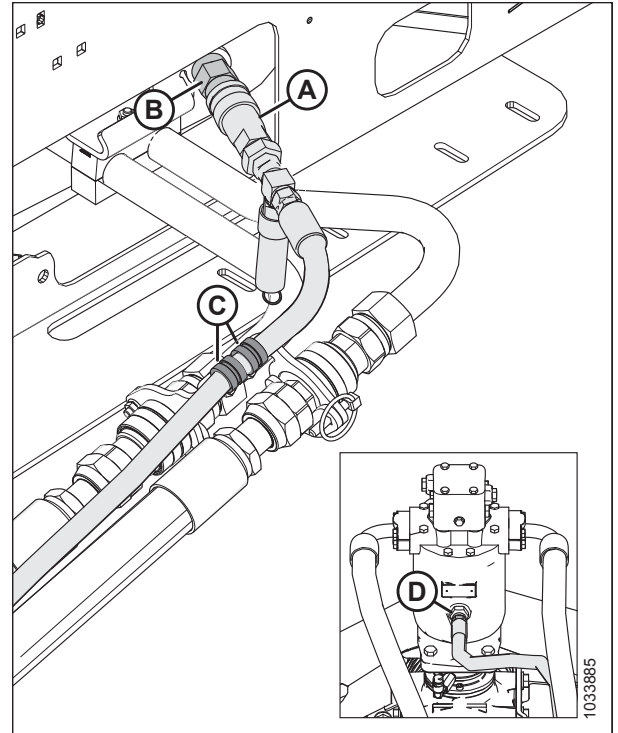


Figure 5.78: Case Drain Connection

13. **Hard-plumbed connections:** Connect pressure coupler (A) to inboard steel line (B) using adapter fittings (C) and (D).

NOTE:

For reference, other end (E) of the pressure hose is connected to the front of the hydraulic motor.

14. **Hard-plumbed connections:** Connect return coupler (G) to outboard steel line (H) using adapter fittings (J) and (K).

NOTE:

For reference, the other end (L) of the return hose is connected to the rear of the hydraulic motor.

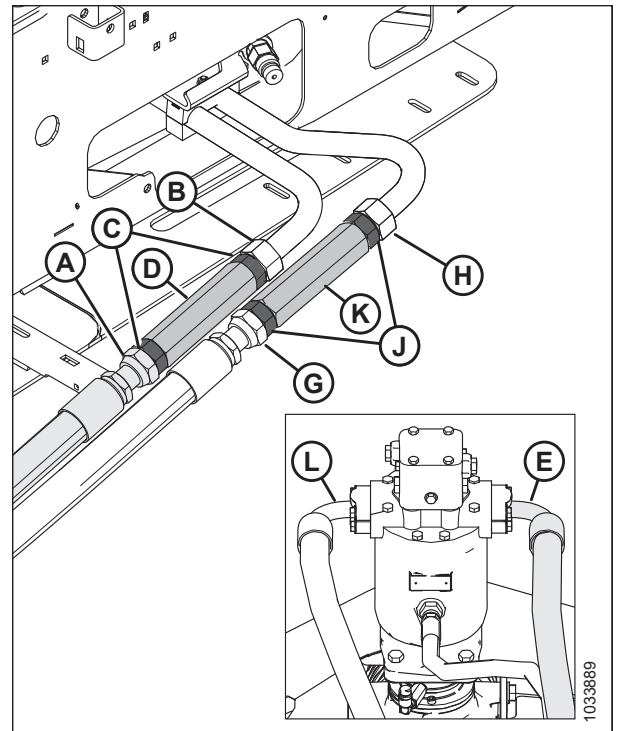


Figure 5.79: Header Pressure and Return Connections

ATTACHING ROTARY DISC HEADER TO WINDROWER

15. **Hard-plumbed connections:** Connect case drain hose (A) to 1/2 in. male flat face fitting (B).

NOTE:

For reference, the other end of the case drain hose is connected to hydraulic motor port (C).

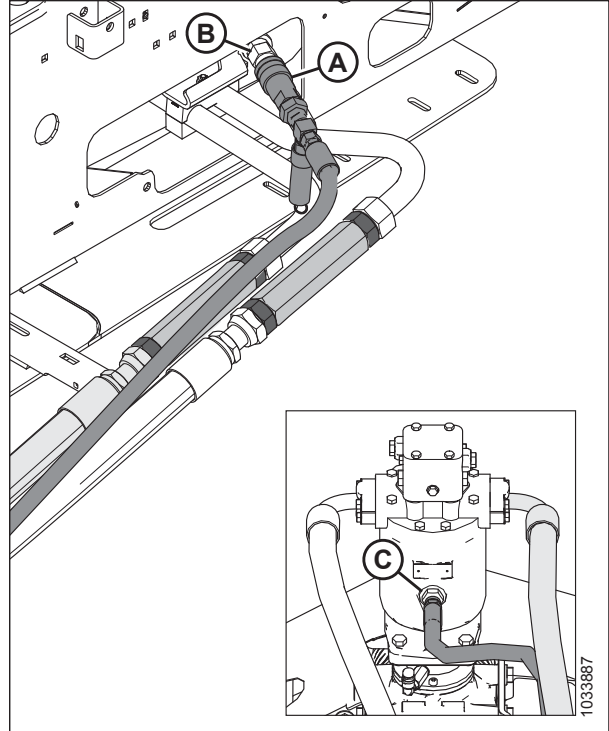


Figure 5.80: Case Drain Connection

16. Remove M205 adapter harness (A) from the storage location on center-link (B).
17. Connect harness (A) to header harness (C).

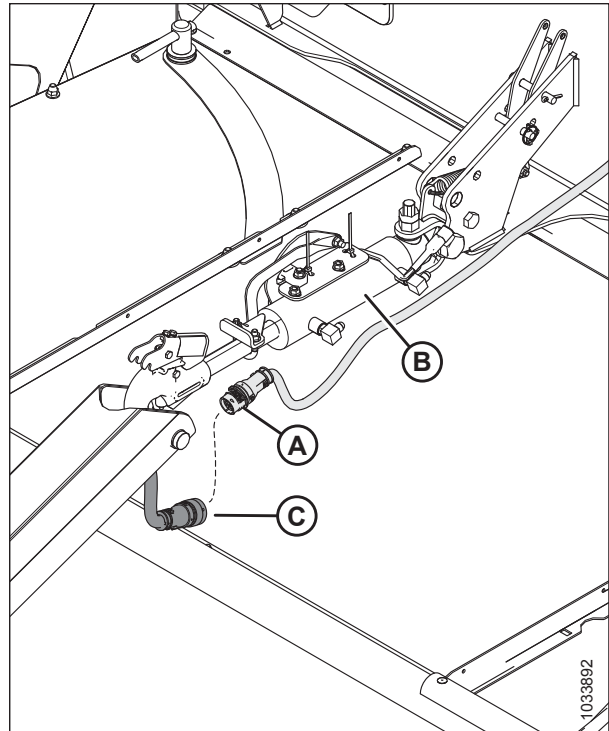


Figure 5.81: M205 Adapter Harness

5.2.4 Setting the Header Cut Width

The header sends an electrical signal to the windrower to produce a header ID. However, the cut width will always default to the smallest header size available for each header type. Once you connect the R216 Rotary Disc Header to the M205 SP

ATTACHING ROTARY DISC HEADER TO WINDROWER

Windrower, the cab display module (CDM) will automatically detect the correct header ID ("DISC" and "0001") but you need to change the default size of "13.0 FT" to a cut width that will optimize your acre count.

NOTE:

- The header **MUST** be attached to the windrower to perform this procedure. The cab display module (CDM) automatically adjusts its programming for each header.
- Set the header cut width to less than the effective cutting width (16 ft. 2 in.) of the header in order to accurately measure the number of acres cut.

1. Turn the ignition key to RUN, or start the engine.
2. Press PROGRAM (A) and SELECT (C) on the CDM to enter programming mode.
 - WINDROWER SETUP? is displayed on the upper line.
 - NO/YES is displayed on the lower line.
3. Press right arrow (B) to select YES. Press SELECT (C).
 - SET KNIFE SPEED? is displayed.

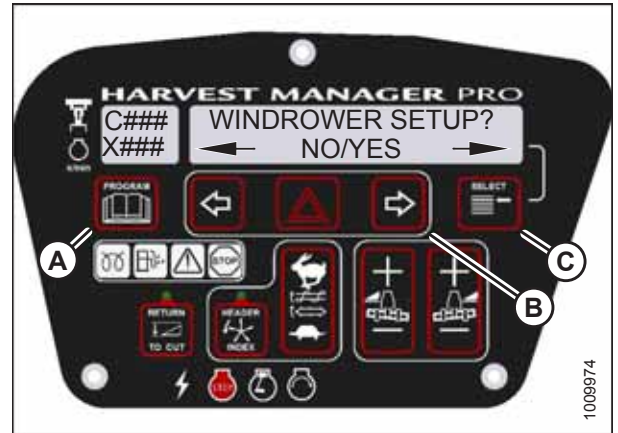


Figure 5.82: M205 SP Windrower CDM Programming Buttons

4. Press SELECT (D) until HDR CUT WIDTH? 0001 is displayed on the upper line.
 - The previous cutting width is displayed on the lower line.
5. Press left (B) or right (C) arrows to change the header cut width. Press SELECT (D).
6. Press PROGRAM (A) to exit programming mode or press SELECT (D) to proceed to next WINDROWER SETUP action.



Figure 5.83: M205 SP Windrower Header Cut Width

Chapter 6: Unpacking the Curtain

The curtain is installed at the front of the header. It minimizes the risk of thrown objects ejected at high speed from the cutterbar area.

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 safety props before going under the header for any reason.

1. Raise the header fully.
2. Shut down the engine, and remove the key from the ignition.
3. Engage the header safety props. For instructions, refer to:
 - For M1240 Windrower – [10.3 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 124](#)
 - For M205 SP Windrower – [10.4 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 126](#)
4. Cut five straps (C) securing the cutterbar curtain to the header.
5. Loosen 12 nuts (A) under the rotary disc header top shield 2–3 turns to loosen bumper (B).

IMPORTANT:

Do **NOT** remove nuts (A) from the disc header; the hardware should be loosened only enough so that straps (C) can be removed.

6. Remove the five straps and discard.

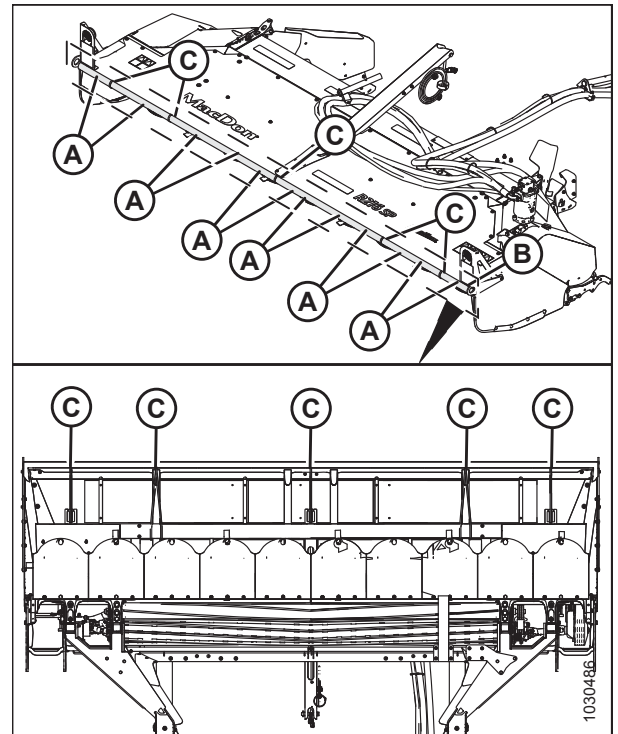


Figure 6.1: Cutterbar Curtain – Standard Header Shown

UNPACKING THE CURTAIN

7. Ensure bumper (A) aligns with the rotary disc header top shield and tighten all loosened hardware (B) to 39 Nm (28.7 lbf-ft) so bumper (A) and cutterbar curtain (C) are held snugly in place.

WARNING

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

8. Check the cutterbar area for debris and foreign objects. Ensure all shipping material is removed.
9. Ensure that the curtain hangs properly and completely encloses the cutterbar area. Minor creases in the curtain will eventually straighten out.

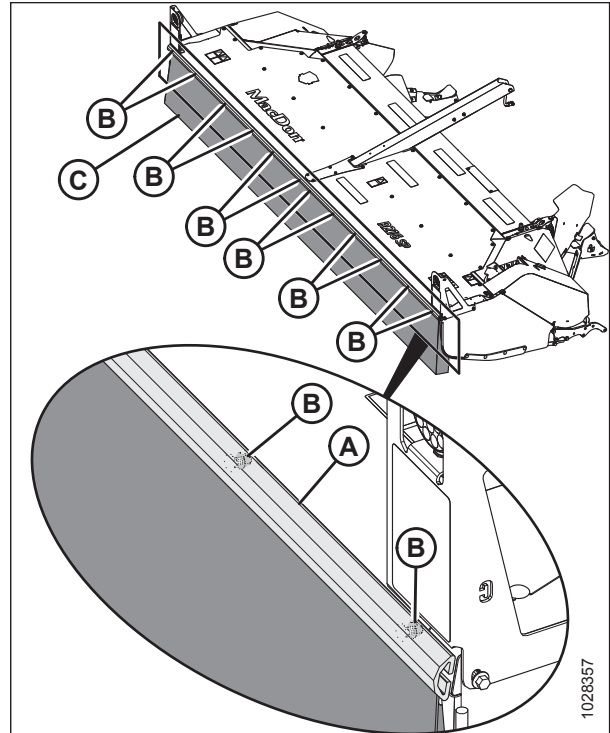


Figure 6.2: Cutterbar Curtain – Standard Header Shown

Chapter 7: Installing Other Options

Install other options (if supplied with the shipment) according to the instructions supplied with each kit.

Chapter 8: Lubricating the Rotary Disc Header

The rotary disc header has been lubricated at the factory. However, you should lubricate the rotary disc header prior to delivery to offset the effects of weather during outside storage and transport.



DANGER

To prevent bodily 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.

8.1 Lubrication Locations – Standard Headers

Standard headers are equipped with conditioners. Refer to the following illustration for conditioner lubrication locations.

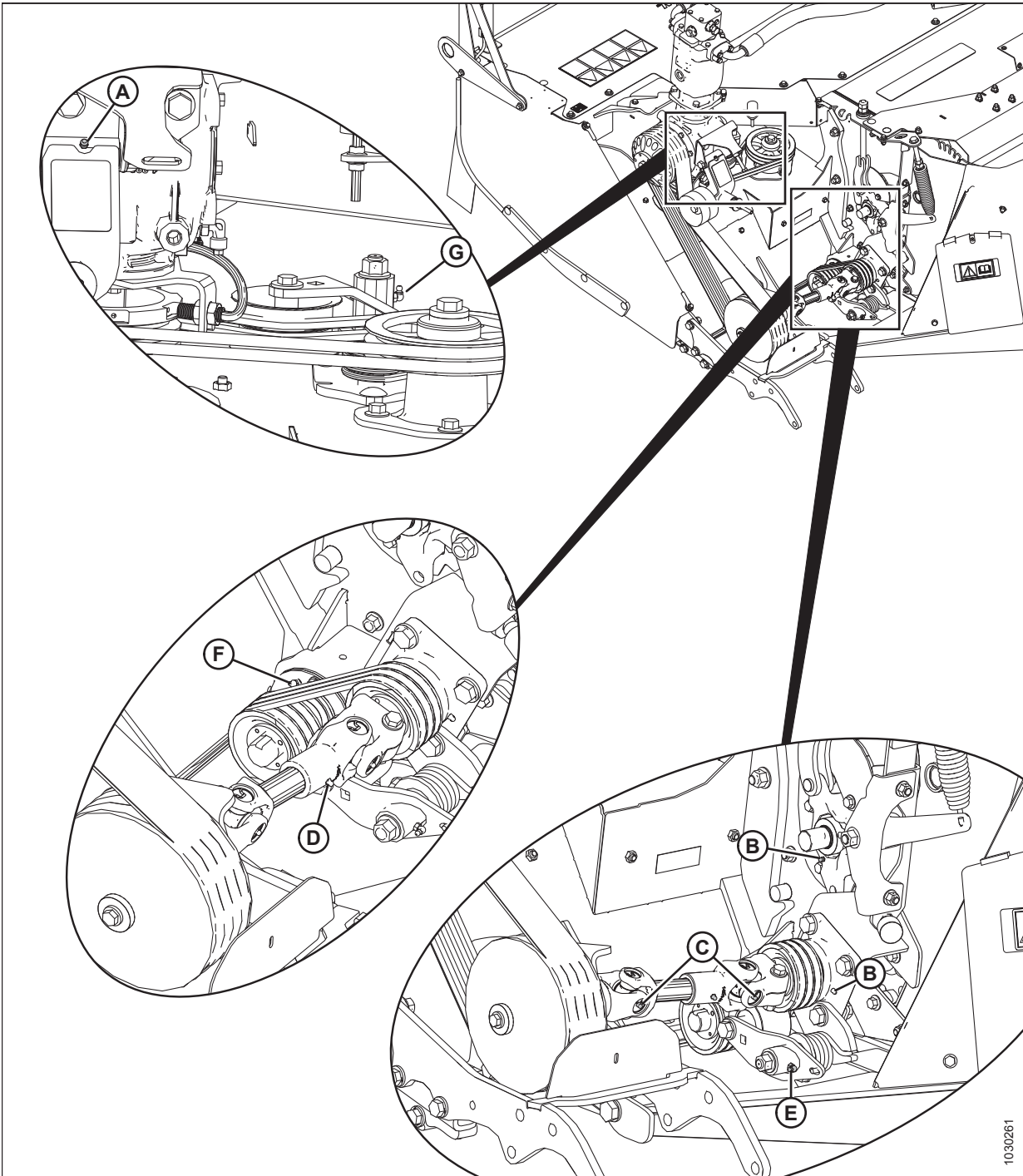


Figure 8.1: Left Lubrication Locations

A - Idler/Tensioner Pivot

D - Slip Joint, Conditioner Driveline¹

G - Tensioner Arm

B - Bearing, Roller Conditioner (Two Places)

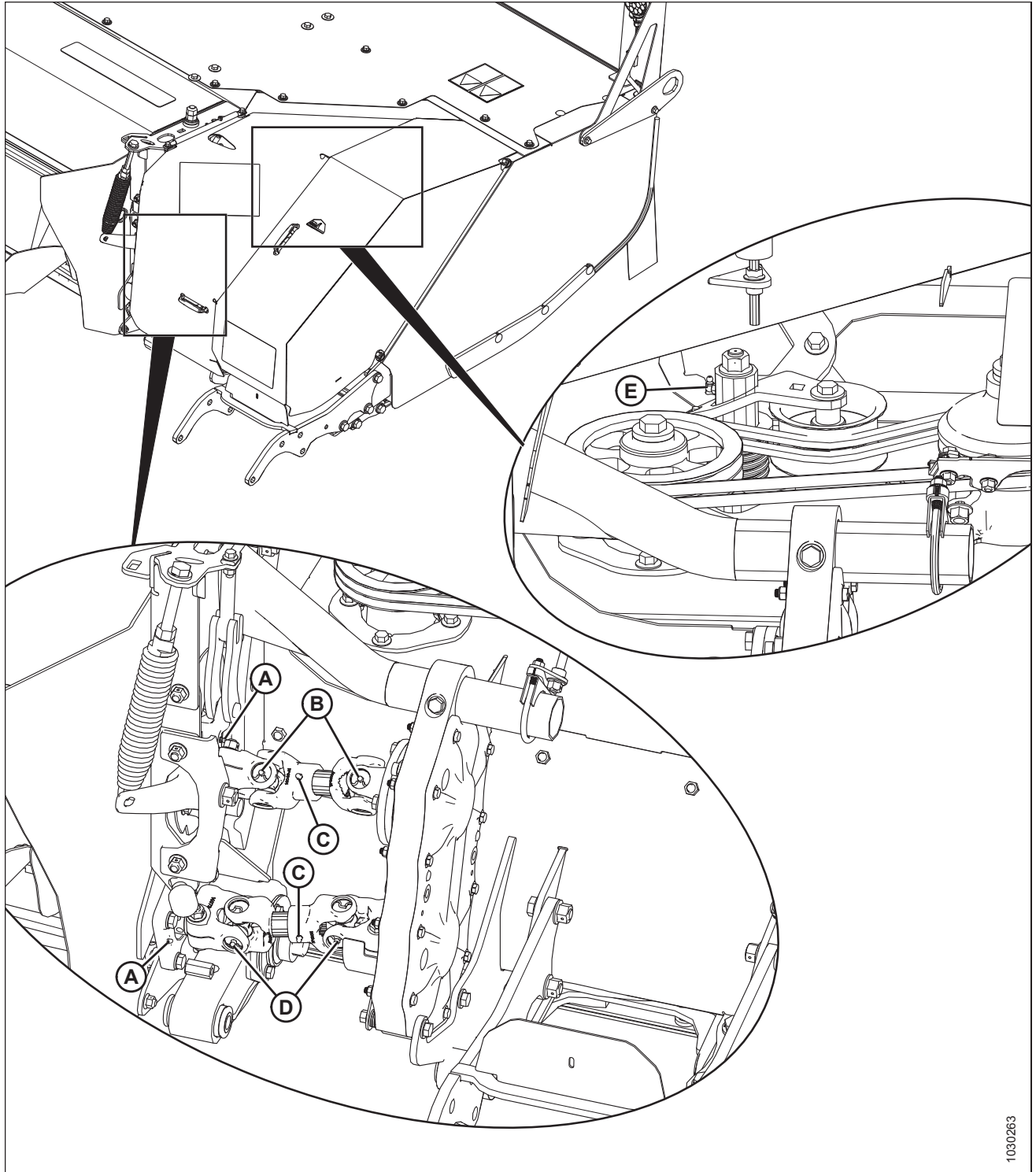
E - Idler/Tensioner Pivot

C - U-Joint, Conditioner Driveline (Two Places)

F - Bearing, Feed Roll

1. Use high-temperature, extreme-pressure (EP2) performance grease with 10% max molybdenum disulphide (NLGI grade 2) lithium base.

LUBRICATING THE ROTARY DISC HEADER



1030263

Figure 8.2: Right Lubrication Locations

A - Bearing, Roller Conditioner (Two Places)
D - U-Joint, Lower Driveline (Two Places)

B - U-Joint, Upper Driveline (Two Places)
E - Idler Pivot

C - Slip Joints, Conditioner Drivelines²

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

8.2 Lubrication Locations – Grass Seed (Option)

The grass seed (GSS) configuration is an option (MD #C2081).

Lubricate idler/tensioner locations (A) and (D) every 25 hours. Lubricate grass seed drum locations (B), (C), (E), and (F) every 50 hours. Use high-temperature, extreme-pressure performance grease with 1% max molybdenum disulphide (NLGI grade 2) lithium base for all locations.

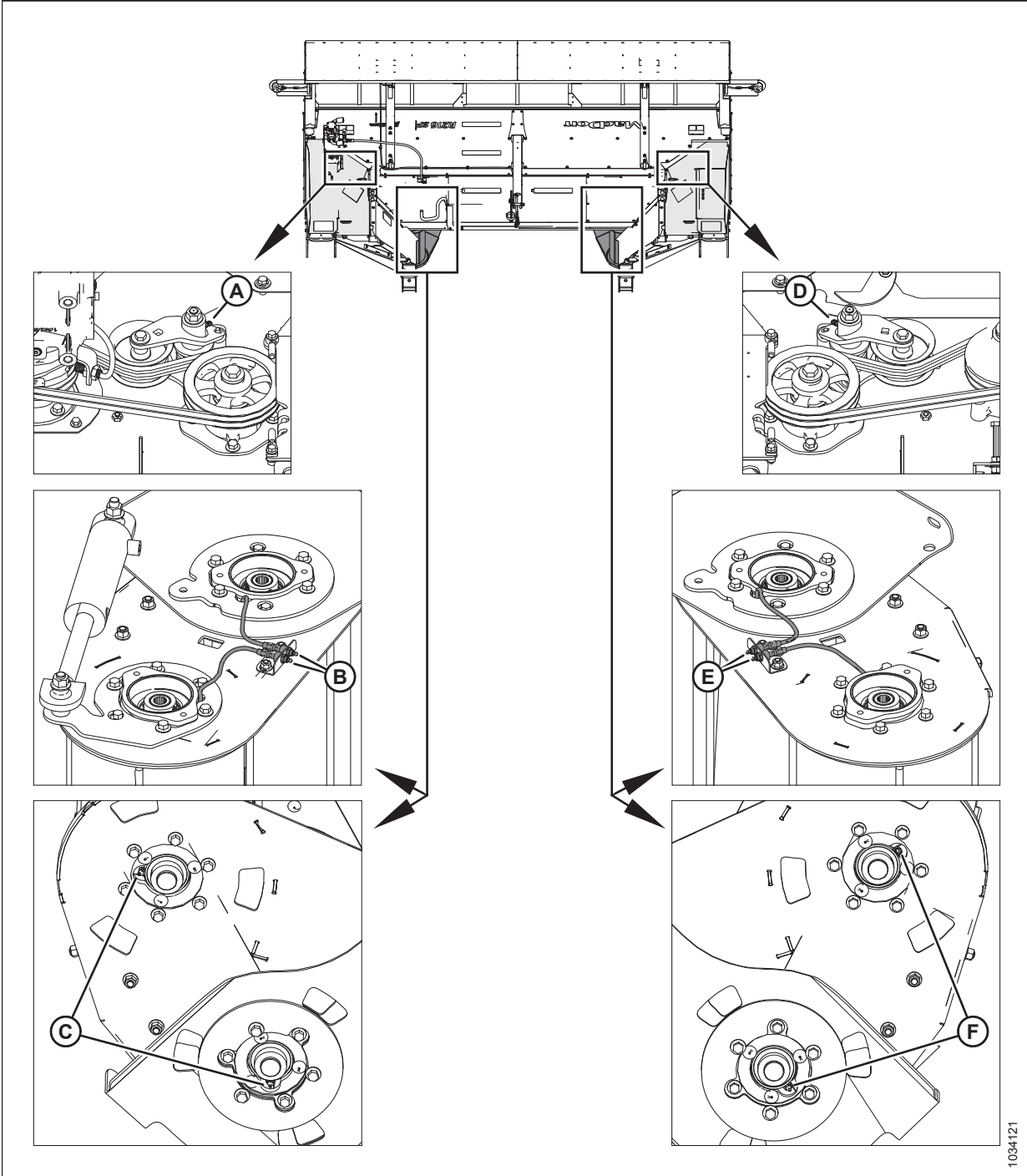


Figure 8.3: Lubrication Locations – Grass Seed

A - Left Idler/Tensioner Pivot
D - Right Idler/Tensioner Pivot

B - Top of Left Grass Seed Drum (Two Places)
E - Top of Right Grass Seed Drum (Two Places)

C - Bottom of Left Grass Seed Drum (Two Places)
F - Bottom of Right Grass Seed Drum (Two Places)

Chapter 9: Performing Predelivery Checks

Perform final checks and adjustments as listed on the Predelivery Checklist (yellow sheet at the back of this instruction) to ensure the machine is field-ready. Refer to the referenced pages as indicated on the Predelivery Checklist for detailed instructions.

The Operator or the Dealer should retain the completed Predelivery Checklist.

9.1 Conditioner Drive Belt – Standard Header

The conditioner drive belt is located inside the left driveshield and is tensioned with a spring tensioner.

9.1.1 Inspecting Conditioner Drive Belt

The conditioner drive belt tension is set at factory and should not require adjustment; however, it should be inspected for damage.

DANGER

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

1. Lower the header fully.
2. Shut down the engine, and remove the key from the ignition.
3. Open left driveshield (A).

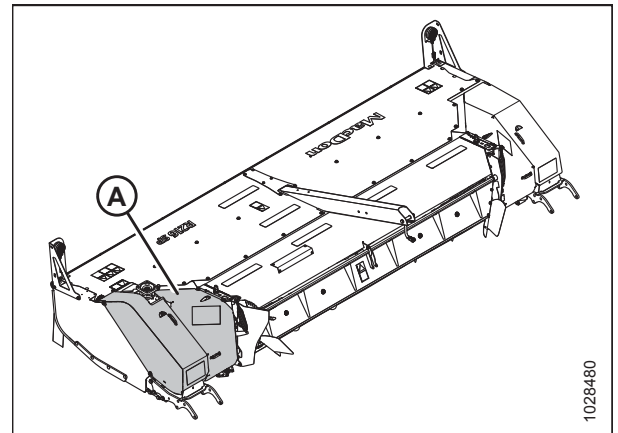


Figure 9.1: Left Driveshield

4. Inspect drive belt (A) and replace it if it is damaged or cracked.
5. Check that jam nut (B) and adjuster nut (C) are tight.

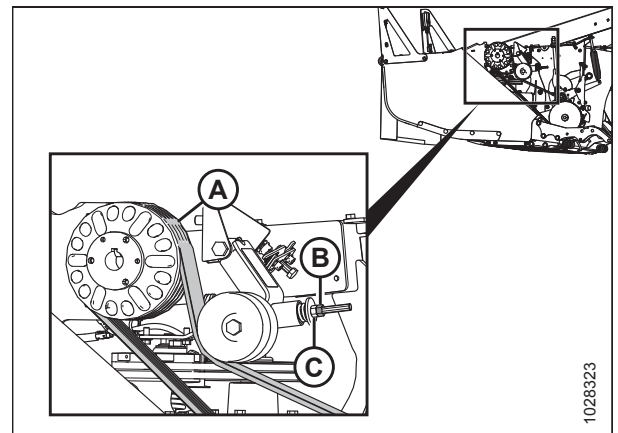


Figure 9.2: Conditioner Drive

PERFORMING PREDELIVERY CHECKS

6. Measure the length of belt tensioner spring (A) and ensure spring length (B) is 17.5 mm (11/16 in.) in accordance with spring tension decal (C). If the spring length requires adjustment, refer to [9.1.2 Adjusting Conditioner Drive Belt](#), [page 94](#), otherwise close the drive shield and proceed to [9.2 Header Float](#), [page 96](#).

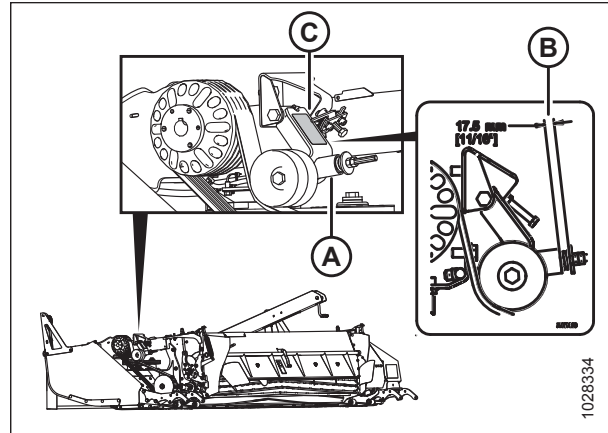


Figure 9.3: Belt Tension Spring

9.1.2 Adjusting Conditioner Drive Belt

Tension the drive belt so that the conditioner and feed rolls will turn.

DANGER

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

1. Lower the header fully.
2. Shut down the engine, and remove the key from the ignition.
3. Open left driveshield (A).

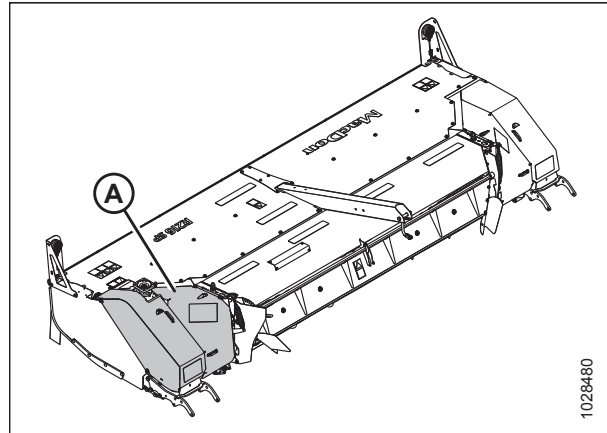


Figure 9.4: Left Driveshield

PERFORMING PREDELIVERY CHECKS

4. Ensure drive belt (A) is in the grooves on drive pulley (B) and driven pulley (C).

NOTE:

If necessary, loosen the jam nut and adjuster nut to relieve belt tension while checking.

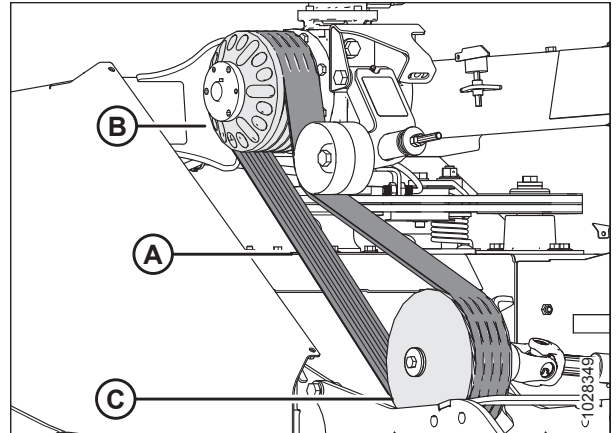


Figure 9.5: Conditioner Drive

5. Check position of bracket (B). The center-to-center distance (C) between drive pulley (D) and driven pulley (E) should be 723 mm (28 7/16 in.). If not, loosen the M16 hex head bolt and lock nuts (A) on pulley mount bracket (B), and adjust the position of bracket (B).
6. Torque the hardware to 170 Nm (126 lbf-ft).

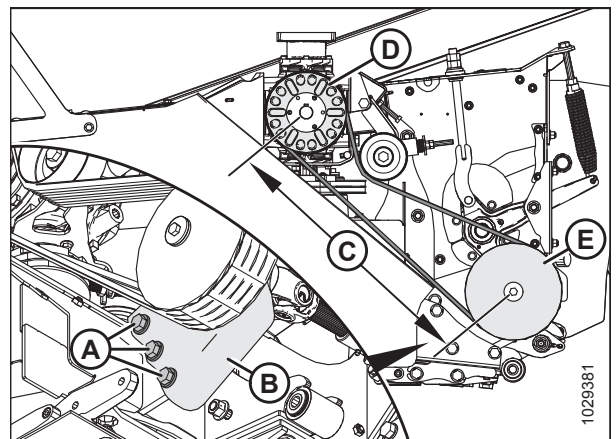


Figure 9.6: Conditioner Drive

7. With the hardware fully loosened, slide threaded rod (E) up and backward into the disc speed sensor bracket, then snug the hardware to engage the rod pivot point with the bracket.
8. Measure the length of tensioner spring (C). For proper belt tension, dimension (D) should be set to 17.5 mm (11/16 in.).
9. To adjust spring tension, loosen jam nut (A) by turning it counterclockwise.
10. Turn adjuster nut (B) clockwise to increase tensioner spring/belt tension or turn adjuster nut (B) counterclockwise to decrease tensioner spring/belt tension.
11. Once the correct spring measurement has been achieved, hold adjuster nut (B) in place and tighten jam nut (A) against it by turning the jam nut clockwise.
12. Close the driveshield.

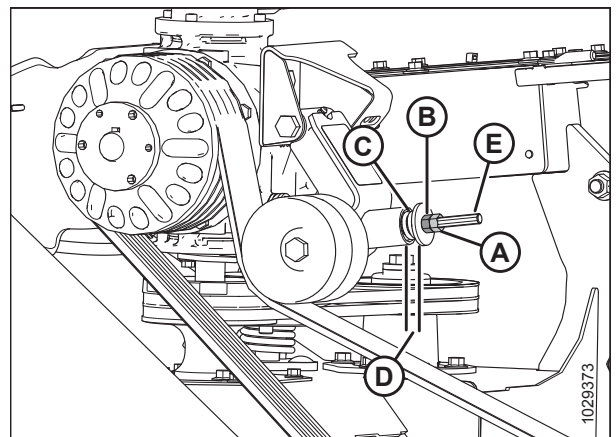


Figure 9.7: Conditioner Drive

9.2 Header Float

The header float feature allows the header to closely follow ground contours and respond quickly to sudden changes or obstacles.

9.2.1 Checking Float – M1240 Windrower

Check the header float setting by measuring the force required to lift the header.

DANGER

To prevent bodily 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.

DANGER

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

1. Start the engine.
2. Use HEADER TILT switches (A) on the ground speed lever (GSL) to set the center-link to the mid-range position (5.0 on the Harvest Performance Tracker [HPT]).
3. Using HEADER DOWN switch (B), lower the rotary disc header fully. The header lift cylinders will fully retract.
4. Ensure the header is level with the ground with zero tilt.

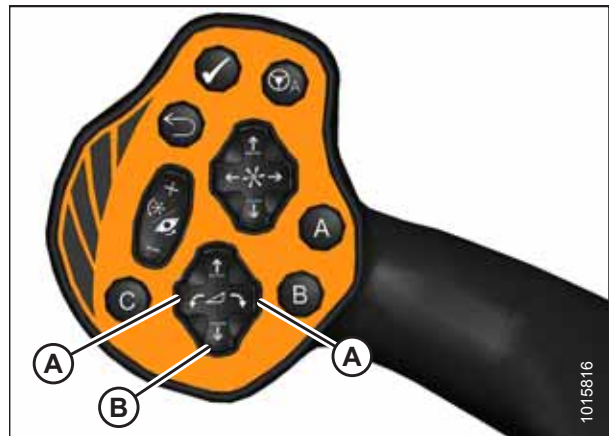


Figure 9.8: GSL

5. Shut down the engine, and remove the key from the ignition.
6. Grasp one end of the header and lift. Lifting force should be 426–471 N (95–105 lbf) and should be the same at both ends.
7. Restart the engine, and adjust float as required. For instructions, refer to [9.2.2 Setting Float – M1240 Windrower, page 97](#).

NOTE:

Increasing the float value on the HPT makes the header feel lighter.

9.2.2 Setting Float – M1240 Windrower

The float can be set for windrowing with the cutterbar on the ground.

The optimum float setting lets the rotary disc header follow the contour of the terrain.

1. Press rotary scroll knob (A) on the Harvest Performance Tracker (HPT) to display the QuickMenu system.
2. Rotate scroll knob (A) to highlight header float icon (B) and press scroll knob to select.



Figure 9.9: HPT Run Screen

3. Turn scroll knob (A) to highlight left (B) or right float (C) and press knob (A) to activate the selection.
4. Rotate scroll knob (A) to adjust the float setting and press the knob when finished.

NOTE:

Float adjustments of 1.0 (out of 10) change the header weight at the cutterbar by approximately 91 kg (200 lb.). Adjust the float in increments of 0.05 to optimize field performance.

5. Use soft key 3 (D) to remove or resume the float and deck position to previous setting for the attached header.



Figure 9.10: HPT Float Settings

9.2.3 Checking Float – M205 SP Windrower

The windrower is equipped with primary (coarse) and secondary (fine) float adjustment systems. The primary adjustment allows the Operator to move the system's drawbolts to change the tension on the springs in the lift linkages. The secondary adjustment allows the Operator to use hydraulic cylinders to change the spring tension.



Figure 9.11: Cab Display Module (CDM) Float Adjustment

A - CDM Display
D - Header Tilt Down

B - Left Float Adjustment
E - Header Lower

C - Right Float Adjustment
F - Header Tilt Up

⚠ DANGER

To prevent bodily 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.

1. Set the left and right float fine adjustments on the CDM to approximately 5.0:
 - a. Using FLOAT SELECTOR switch (B), push + to increase the float or – to decrease the float on the left side of the header. CDM display (A) will show the selected float setting for the left side (for example: 5.0 L FLOAT R XX.X).
 - b. Repeat the previous step for the right side float using switch (C). The display will show the float setting for both sides, (for example, 5.0 L FLOAT R 5.0).
2. Shut down the engine, and remove the key from the ignition.
3. Grasp the end of the header and lift. The force to lift the end of the header should be 426–471 N (95–105 lbf) and should be approximately the same at both ends.

9.2.4 Setting Float – M205 SP Windrower

The float disc can be preprogrammed for three types of windrowing conditions.

The Operator may wish to have three different float settings available to them for different harvest conditions. For example:

- Position 1: Border conditions

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- Position 2: Normal conditions
- Position 3: Rocky conditions

To configure the float presets:

1. Engage the header.
2. Move FLOAT PRESET SWITCH (A) to position 1 (B).

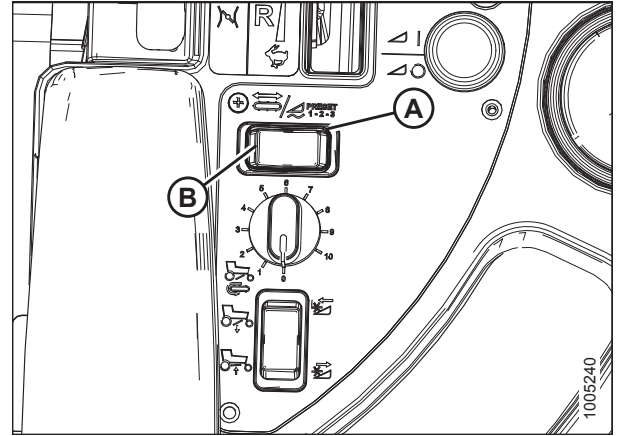


Figure 9.12: Float Preset Switch

PERFORMING PREDELIVERY CHECKS



Figure 9.13: Cab Display Module (CDM) Float Adjustment

A - CDM Display
D - Header Tilt Down

B - Left Float Adjustment
E - Header Lower

C - Right Float Adjustment
F - Header Tilt Up

3. Using HEADER TILT switches (D) and (F), set the center-link to the mid-range position (5.0 on cab display module [CDM] [A]).
4. Using HEADER DOWN switch (E), lower the header fully, so that the lift cylinders are fully retracted.
5. Set the left and right float fine adjustments on the CDM to approximately 5.0:
 - a. Using FLOAT SELECTOR switch (B), push + to increase the float or – to decrease the float on the left side of the header. CDM display (A) will show the selected float setting for the left side (for example: 5.0 L FLOAT R XX.X).
 - b. Repeat the previous step for the right side float using switch (C). The display will show the float setting for both sides, (for example, 5.0 L FLOAT R 5.0).
6. Select a second preset with FLOAT PRESET 2 SWITCH (C).
7. Repeat Steps 1, page 99 and 2, page 99 to configure the float preset.
8. Select a third preset with FLOAT PRESET 3 SWITCH (D).
9. Repeat Steps 1, page 99 and 2, page 99 to configure the float preset.

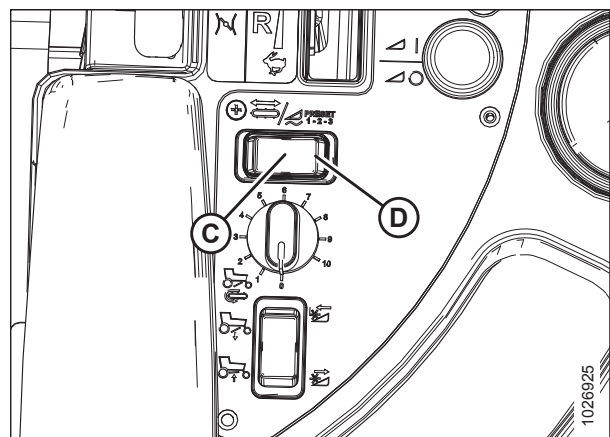


Figure 9.14: Float Preset Switch

Adjusting Float Using Drawbolts

⚠ DANGER

To prevent bodily 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.

⚠ DANGER

Ensure that all bystanders have cleared the area.

1. Start the engine.
2. Using HEADER UP switch (A) on the ground speed lever (GSL), raise the header fully.
3. Shut down the engine, and remove the key from the ignition.



Figure 9.15: GSL

4. Turn drawbolt (A) clockwise to increase the float, or counterclockwise to decrease the float.
5. Check the header float again. Refer to [9.2.3 Checking Float – M205 SP Windrower, page 98](#) for instructions.

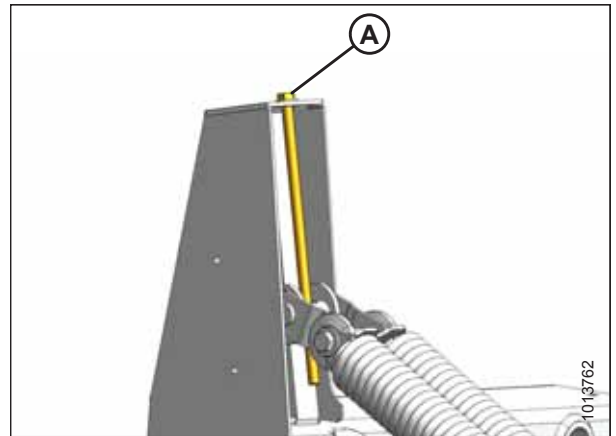


Figure 9.16: Header Float Adjustment

9.3 Activating the Grass Seed (Option)

The grass seed (GSS) option must be activated in the windrower’s control system the first time it is attached to an M1 Windrower.

NOTE:

The windrower requires the software versions (or newer) listed in Table 9.1, page 102 to operate the grass seed header.

Table 9.1 Windrower Software Requirement

Windrower (North America, Export)	Software Version
M1170 (North America, Export) M1240 (North America, Export)	Master Controller: MCAL203587Q or newer
	Harvest Performance Tracker: HPAL203586T or newer

NOTE:

The M205 SP Windrower is not compatible with the GSS option.

NOTE:

If necessary, refer to the windrower operator’s manual to review navigating the HPT display. A header must be attached to the windrower to be able to activate the grass seed option.

To activate the grass seed option with the Harvest Performance Tracker (HPT), follow these steps:

1. Turn ignition key to ON to activate the HPT.
2. Press soft key 5 (A) to open the main menu or press SHIFT and SELECT on the ground speed lever.
3. Use Harvest Performance Tracker (HPT) scroll knob (B) or the ground speed lever (GSL) scroll wheel (not shown) to place red cursor (C) over the icon you want to select.

NOTE:

Using the scroll knob will activate titles that explain each selection.

4. Press HPT scroll knob (B) or the GSL SELECT button (not shown) to select the highlighted icon.

NOTE:

Pressing the corresponding soft key will also work.

5. Scroll down and select HEADER SETUP menu (A).

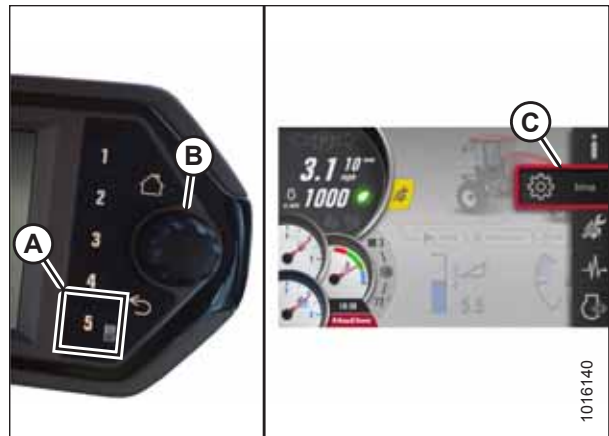


Figure 9.17: Opening the Main Menu



Figure 9.18: Header Setup Screen

PERFORMING PREDELIVERY CHECKS

6. Select R2 DISC (A).



Figure 9.19: Header Setup

7. Select ATTACHMENTS (A).

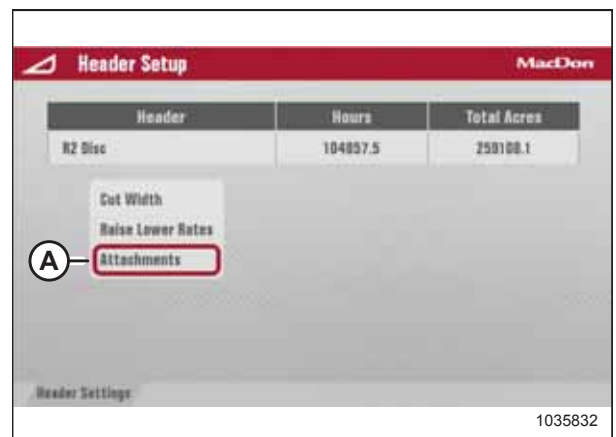


Figure 9.20: Header Setup

8. Select GRASS SEED (A). The sensor is now active, and the HPT, ground speed lever (GSL), and operator console will control the grass seed attachment.



Figure 9.21: Header Setup

PERFORMING PREDELIVERY CHECKS

9. Once the grass seed is activated, Run Screen 2 on the HPT will display speed (A) and pressure (B) of the grass seed drums.

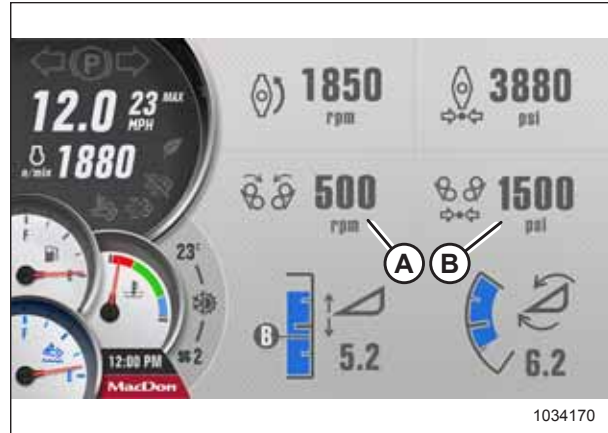


Figure 9.22: Run Screen 2 – Grass Seed Active

9.4 Suspended Drum Drive

Suspended drums aid in feeding crop from the ends of the header into the conditioner.

9.4.1 Checking Suspended Drum Drive

The suspended drum drive is set up and tensioned at factory. Ensure the drive belt is properly set and tensioned.

DANGER

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

1. Open the header driveshields on the left side of the header. For instructions, refer to [10.7 Opening Driveshields, page 133](#).
2. Inspect tensioner spring (A) and ensure it is seated properly in notches (B) on bracket (C) and applies tension to both belts (D).

NOTE:

Belts (D) are transparent in the illustration at right to better show spring (A) in bracket (C).

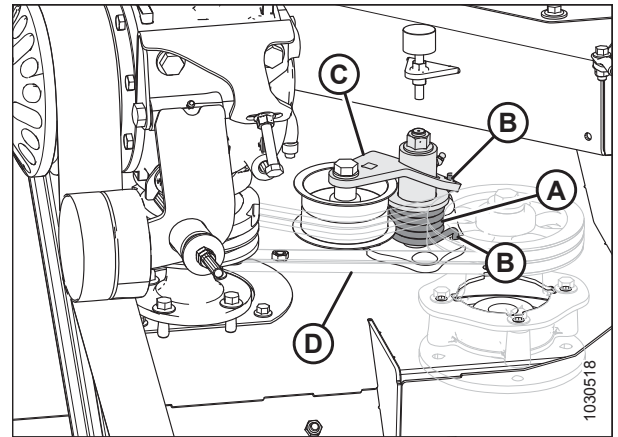


Figure 9.23: Tensioner Spring

3. Inspect the suspended drum belt drive and ensure belts (B) are properly seated on pulleys (A).
4. If necessary, adjust the belts as follows:
 - a. Release belt tension using a 1/2 in. drive ratchet at location (C) to turn the tensioner arm clockwise.
 - b. Install belt (B). Release the tensioner arm to the tension belt.

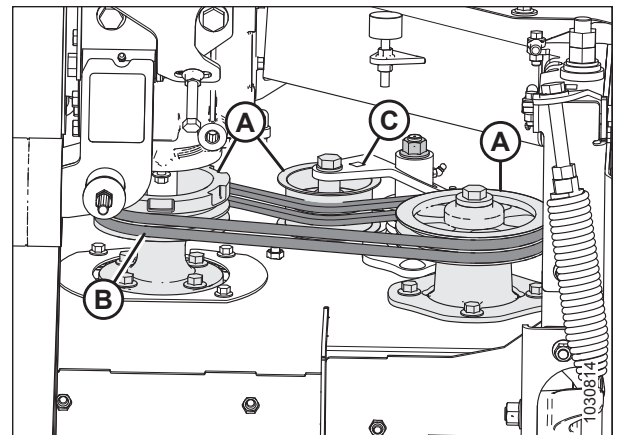


Figure 9.24: Suspended Drum Belt Drive

9.5 Feed Roll Drive – Standard Header

The feed roll aids in feeding crop from the bottom of the header into the conditioner.

9.5.1 Checking Feed Roll Drive

The feed roll drive is set up and tensioned at factory. Ensure the drive belt is properly set and tensioned.

DANGER

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

1. Open the header driveshields on the left side of the header.
2. Inspect feed roll belt drive and ensure belts (A) are properly seated on pulleys (B) and idler pulley (C).

NOTE:

The shield above belts (A) has been removed from the illustration for clarity.

3. If necessary, adjust the belt alignment as follows:
 - a. Insert 1/2 in. ratchet or breaker bar into hole (D) on bracket (E) and rotate bracket (E) and pulley (C) out of the way.
 - b. Adjust the belt placement on pulleys (B) and idler pulley (C).
 - c. Rotate bracket (E) back into its original position, holding belts (A) in place on pulleys (B) and pulley (C).

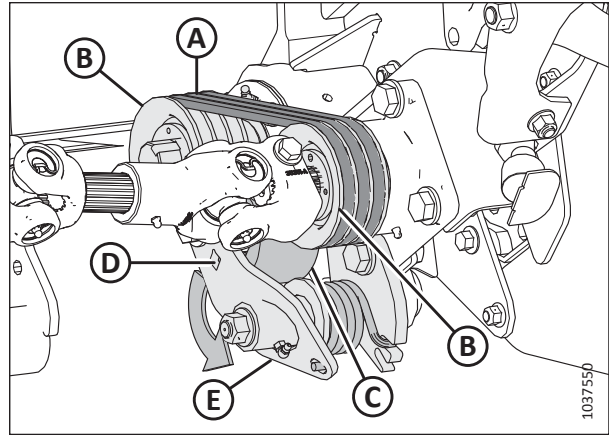


Figure 9.25: Feed Roll Belt Drive

4. Inspect tensioner spring (A). Ensure it is seated properly in notch (B) on bracket (C) and in upper notch (D) on bracket (E), and ensure it applies tension to belts (F).

NOTE:

The tensioner spring can also be seated in lower notch (G), as opposed to notch (D), but **ONLY** in the event of poor belt performance in heavy crop conditions.

NOTE:

The shield above belts (A) has been removed from the illustration for clarity.

5. Inspect grease fitting (H), and ensure it is oriented as shown and can be easily accessed for routine lubrication.

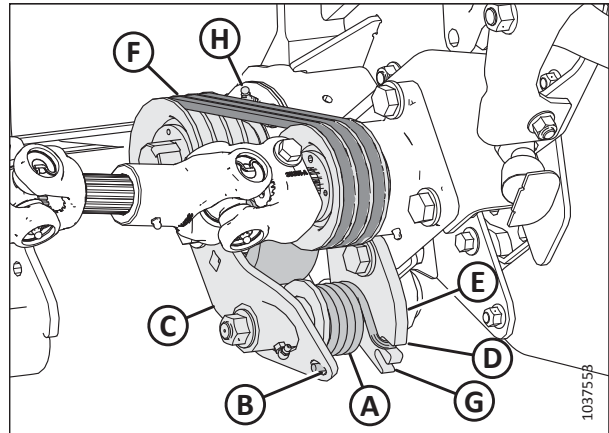


Figure 9.26: Tensioner Spring

9.6 Checking and Adding Conditioner Roll Timing Gearbox Oil – Standard Header

Check the conditioner roll timing gearbox oil to ensure it was filled to the proper level at the factory.

DANGER

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

IMPORTANT:

Check the gearbox oil level when the oil is warm. If the oil is cold, idle the machine for approximately 10 minutes prior to checking.

1. Lower the rotary disc header to the ground and adjust the header angle (tilt) so that the cutterbar is level (parallel) with the ground.
2. Shut down the engine, and remove the key from the ignition.
3. On the right side of the header, engage lift release latch (A) and pull handle (B) to open outboard driveshield (C).
4. Lift at handle (D) and open inboard driveshield (E).

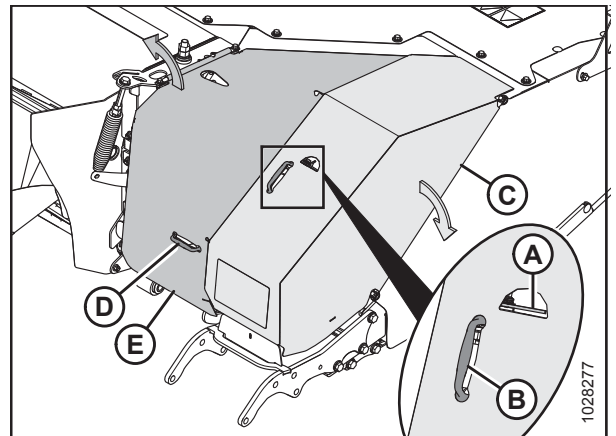


Figure 9.27: Right Driveshields

5. Clean around oil level sight glass (A) and breather (B) on the inboard side of the gearbox.
6. Ensure that the lubricant is level with the top of the sight glass. If necessary, add lubricant through breather (B). Refer to [10.11 Recommended Lubricants, page 140](#) for a list of recommended fluids, lubricants, and capacities.

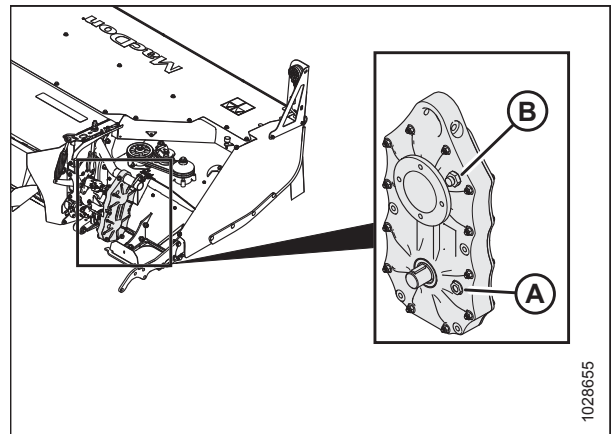


Figure 9.28: Roll Timing Gearbox

9.7 Checking and Adding Oil in Header Drive Gearbox

Check the oil in the header drive gearbox to ensure the oil was filled to the proper level at the factory.

IMPORTANT:

Check the gearbox oil level when the oil is warm. If the oil is cold, idle the machine for approximately 10 minutes prior to checking.

⚠ DANGER

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

1. Park the windrower on a level surface.
2. Start the engine.
3. Adjust the header height until the cutterbar is parallel with the ground.
4. Shut down the engine, and remove the key from the ignition.
5. Locate gearbox (A) on the left side of the header.

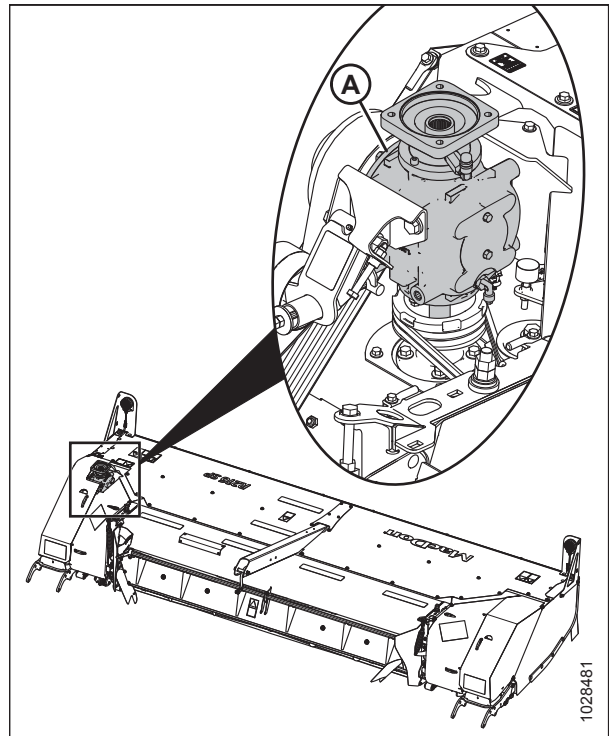


Figure 9.29: Header Drive Gearbox Location – Header with Conditioner Shown

PERFORMING PREDELIVERY CHECKS

6. Clean the area around check plug (A).
7. Remove check plug (A) with a 13 mm (1/2 in.) socket.
8. Ensure the lubricant is even with the bottom of the check hole (with check plug [A] removed) or slightly runs out of the check hole.
9. If necessary, remove fill plug (B) and add lubricant to the gearbox through the fill hole until lubricant runs out of the check hole (with check plug [A] removed). Refer to [10.11 Recommended Lubricants, page 140](#) for a list of recommended fluids, lubricants, and capacities for the machine.
10. Reinstall the plug(s) and torque them to 23 Nm (17 lbf-ft).
11. Close the left driveshield.
12. Lower the header fully.
13. Shut down the engine, and remove the key from the ignition.

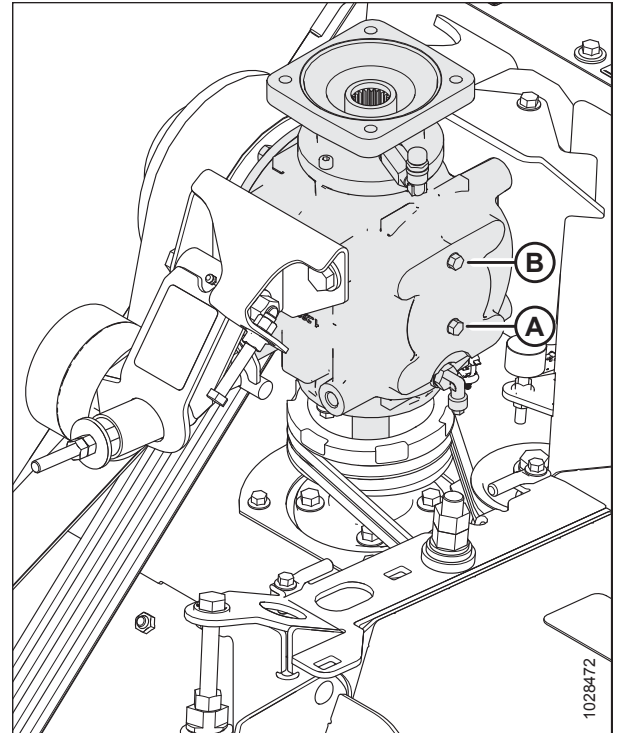


Figure 9.30: Header Drive Gearbox

9.8 Checking and Adding Lubricant in Cutterbar

Make sure the oil level is correct to maximize the service life of the cutterbar. Too much or too little oil can cause excessive heat in the cutterbar.

DANGER

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

WARNING

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

1. Park the machine on level ground.
2. Lower the header onto 25 cm (10 in.) blocks under both ends of the cutterbar.
3. Shut down the engine, and remove the key from the ignition.
4. Open cutterbar curtain (A).

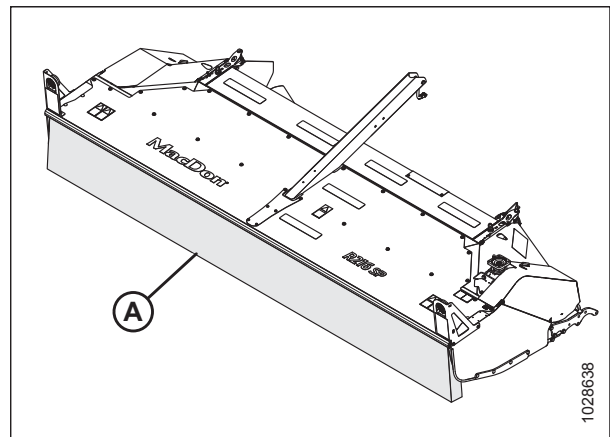


Figure 9.31: Cutterbar Curtain – Header with Conditioner Shown

5. Use a spirit (bubble) level (A) to ensure the cutterbar is level in both directions. Adjust the header accordingly.

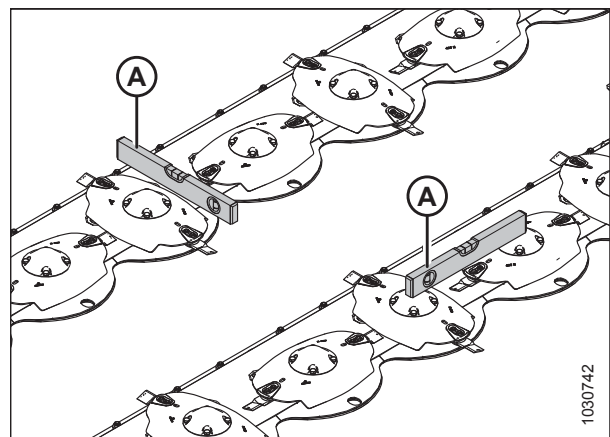


Figure 9.32: Spirit Level on Cutterbar

PERFORMING PREDELIVERY CHECKS

6. Clean the area around plug (A). Place a 5 liter (5.2 US qts) capacity container under plug (A).
7. Use a 17 mm socket to remove plug (A) and gasket (B) from the cutterbar. Oil level must be up to the inspection plug hole. If additional lubricant is required, continue following this procedure and refer to the next step. If additional lubricant is **NOT** required, proceed to Step 22, [page 112](#).
8. Reinstall the inspection plug.

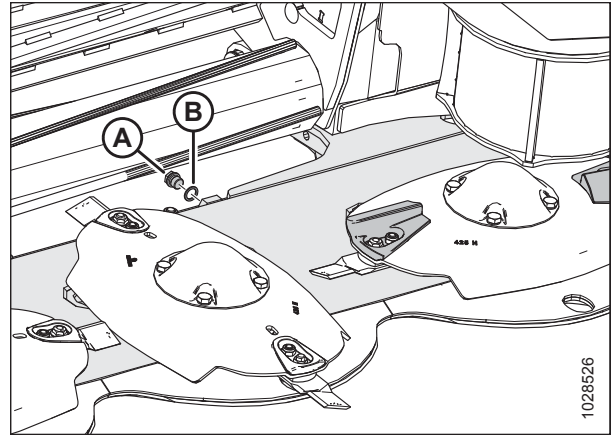


Figure 9.33: Cutterbar Oil Inspection Plug

DANGER

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

9. Start the engine, and raise the header slightly.
10. Lower the header onto blocks, so the right end is slightly higher than left end.
11. Shut down the engine, and remove the key from the ignition.
12. Remove plug (A) at the right end of the header.

IMPORTANT:

Do **NOT** remove bolts (B).

13. Add lubricant to the required level.

IMPORTANT:

Do **NOT** overfill the cutterbar. Overfilling can cause overheating, damage, or cutterbar component failure.

NOTE:

For lubrication specifications, refer to [10.11 Recommended Lubricants, page 140](#).

14. Replace plug (A) and torque it to 30 Nm (22 lbf-ft).

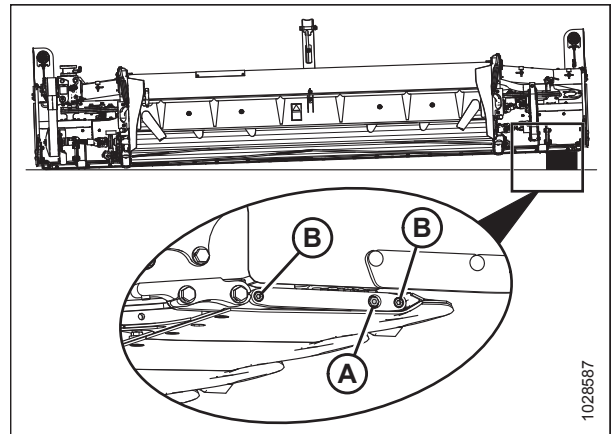


Figure 9.34: Cutterbar Oil Plug

DANGER

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

15. Start the engine and raise the header fully.
16. Shut down the engine, and remove the key from the ignition. Engage the windrower lift cylinder safety props.
17. Remove the block from under the header.
18. Disengage the windrower lift cylinder safety props.

DANGER

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

PERFORMING PREDELIVERY CHECKS

19. Start the engine and lower the header to a level position on the ground.
20. Shut down the engine, and remove the key from the ignition.
21. Recheck the oil level.
22. Check gasket (B) for breaks or cracks, and replace it if necessary.
23. Install plug (A) and gasket (B). Tighten the plug securely.

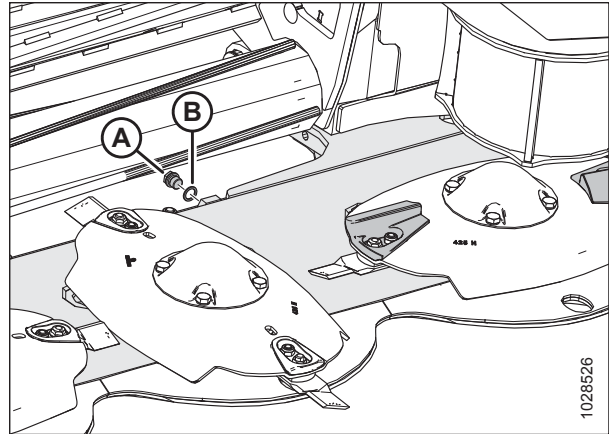


Figure 9.35: Cutterbar Oil Inspection Plug

24. Close cutterbar curtain (A).

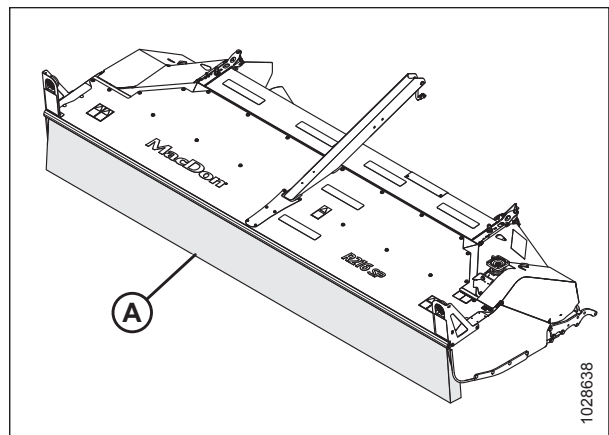


Figure 9.36: Cutterbar Curtain – Header with Conditioner Shown

9.9 Checking Lights

Check the hazard/brake light to ensure they are attached securely and functioning properly.

1. Check light brackets (A) and make sure they're securely installed and undamaged.
2. Check operation of hazard lights (B) during machine run-up.

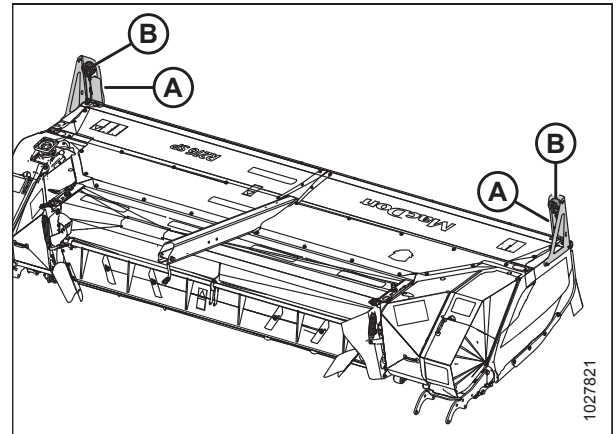


Figure 9.37: Lights on Standard Header

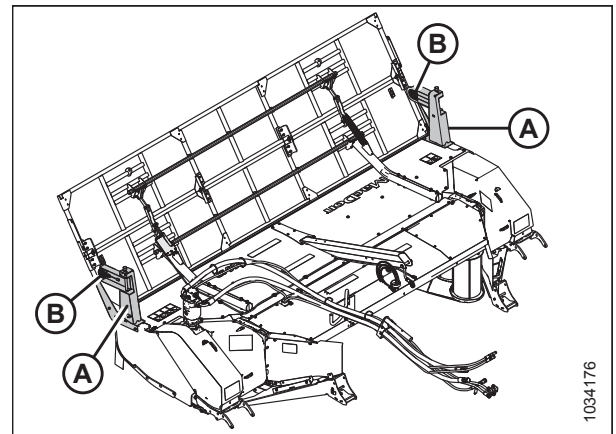


Figure 9.38: Lights on Header with Grass Seed Option

9.10 Checking Manuals

The following manuals should be stored in the manual storage case (A):

- R216 Rotary Disc Header Operator's Manual
- R216 Rotary Disc Header Parts Catalog
- R216 Rotary Disc Header Quick Card

NOTE:

Standard header – the manual case (A) is located on the left fixed deflector.

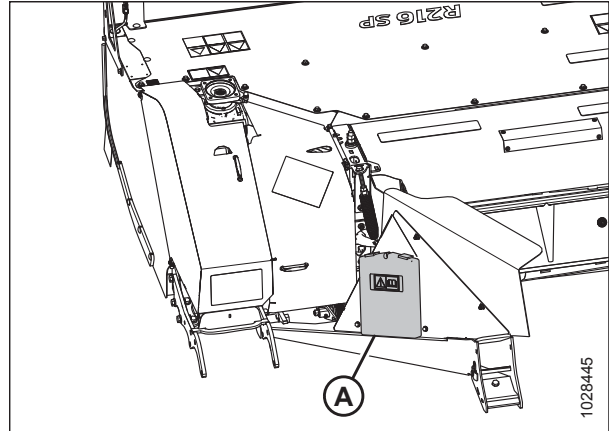


Figure 9.39: Manual Case on Standard Header

NOTE:

Header with grass seed option – the manual case (A) is located inside driveshields (B). To open driveshields (B), refer to [10.7 Opening Driveshields, page 133](#).

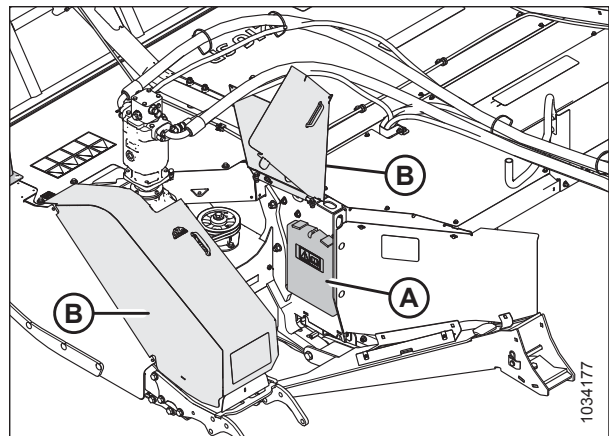


Figure 9.40: Manual Case on Header with Grass Seed Option

9.11 Running up the Header

Running up the header to ensure that everything is working as expected, and the machine is ready for delivery to the customer.

WARNING

- Keep everyone 100 m (330 ft.) away from your operation. Ensure bystanders are never in line with the front or rear of the machine. Stones and other foreign objects can be ejected from either end with force.
- Take extreme care to avoid injury from thrown objects. Do **NOT**, under any circumstances, operate the header when other people are nearby.
- Check cutterbar area carefully for loose parts and hardware on the cutterbar. These objects can be ejected with considerable force when the machine is started, and may result in serious injury or machine damage.
- The cutterbar curtain reduces the potential for thrown objects. Always keep the curtain down when operating the header. Replace the curtains if it becomes worn or damaged.

DANGER

Before investigating an unusual sound or attempting to correct a problem, shut off the engine, engage the parking brake, and remove the key.

WARNING

Check to be sure all bystanders have cleared the area.

NOTE:

Higher engine rpm may be required to engage the rotary disc header. Do **NOT** exceed 1800 rpm.

1. Clear all bystanders from the area.
2. Start the windrower.
3. Set the rotary disc header 152–305 mm (6–12 in.) above the ground and adjust the center-link to mid-position.
4. Run the machine slowly for 5 minutes, and watch and listen **FROM THE OPERATOR'S SEAT** for binding or interfering parts.
5. Run the machine at operating speed for 15 minutes. Listen for any unusual sounds or abnormal vibration.
6. Perform the run-up check as listed on the Predelivery Checklist (the yellow sheet inside the back cover of this instruction) to ensure the machine is field-ready.
7. Shut down the engine, and remove the key from the ignition.
8. Retain the Predelivery Checklist and this instruction for future reference.

Chapter 10: Reference

Additional information and commonly repeated procedures are included in the reference chapter.

10.1 Starting Engine – M1240 Windrower

Do not start the engine until all other equipment checks have been completed. You can start the engine with the operator's seat in the cab-forward or the engine-forward position.

DANGER

- Only start the engine in a well-ventilated space.
- Ensure that there are no bystanders present when starting the machine.
- This machine has safety devices which allow the engine to start only when the ground speed lever (GSL) is in PARK, the steering wheel is locked in the PARK position, and the HEADER ENGAGE switch is in the OFF position. Under NO circumstances are these devices to be deliberately rewired or adjusted so that the engine can be started when the GSL is out of the NEUTRAL position.
- Do NOT start the engine by shorting across the starter or starter relay terminals. If the normal starting circuitry is bypassed, the machine can start with the drive engaged and potentially start moving.
- Start the engine only from the operator's seat with the controls in PARK. NEVER start the engine while standing on the ground. NEVER try to start the engine with someone under or near the machine.

IMPORTANT:

Do NOT tow the machine to start the engine. Damage to the hydrostatic drives will result.

NOTE:

When the windrower console receives a wake-up signal, the console awakens from sleep mode and closes the battery disconnect relay. The Harvest Performance Tracker (HPT) goes into a boot-up sequence that takes approximately 40 seconds. The following items trigger a wake-up signal for the console:

- Key switch ignition or accessory positions
- Cab door switch
- Horn button
- Hazards button
- Field lights button
- Clearance lights button
- Road lights button
- High beam button

REFERENCE

1. Before starting the engine, ensure that engine exhaust pipe (A) is not covered or obstructed.

NOTE:

Before taking the GSL out of PARK, let the hydraulic oil warm up to 32°C (90°F). You can view the hydraulic oil temperature on Run Screen 4 on the Harvest Performance Tracker (HPT) display.



Figure 10.1: Engine Exhaust

2. Ensure that cab-forward or engine-forward directional lock (A) is engaged at the base of the steering column.

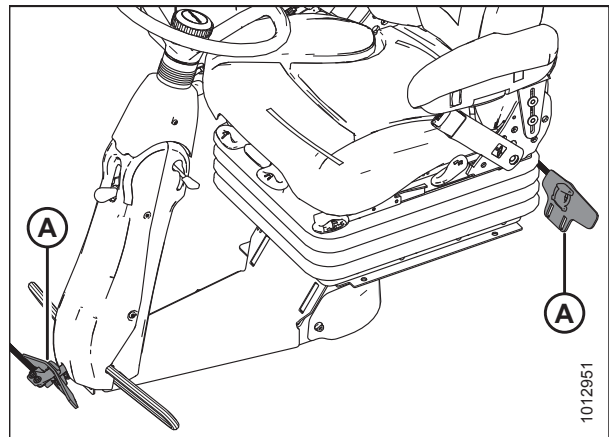


Figure 10.2: Direction Locks

3. Move GSL (A) into PARK (C).
4. Turn the steering wheel until it locks. It may be possible to move the steering wheel slightly in the locked position.

IMPORTANT:

Do **NOT** attempt to force the wheel out of the locked position or damage to the steering system may occur.

5. Fasten the seat belt.
6. Push HEADER ENGAGE switch (B) to ensure it is in the OFF position.

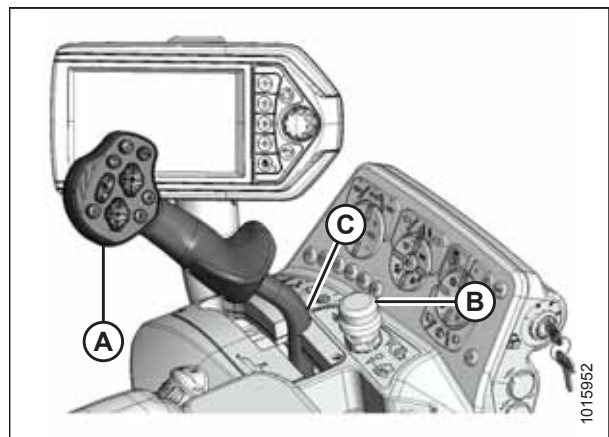


Figure 10.3: Operator Controls

REFERENCE

7. Turn IGNITION switch (A) to the ON position; HPT display (B) will light up. If the HPT is still booting up, wait for WAIT TO START (WTS) symbol (C) to disappear before trying to start the engine.
8. Ensure that red PARK symbol light (D) is ON and that there are no error messages on the screen.
9. Press HORN button (E) three times prior to starting the engine.

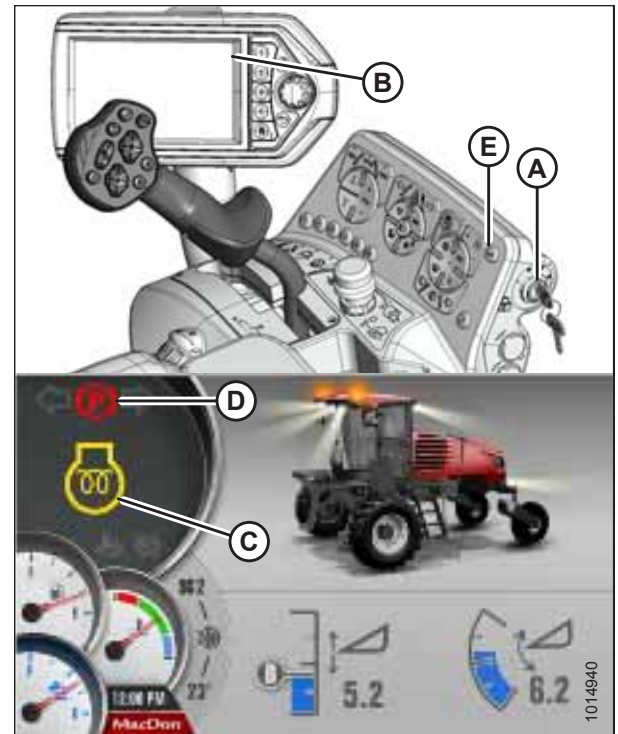


Figure 10.4: Console and HPT Run Screen

10. Turn the IGNITION switch to crank position (A).

NOTE:

When the engine starts and the header is not engaged, the HPT displays header disengaged page (B).

IMPORTANT:

- Do **NOT** operate the starter for longer than 15 seconds at a time.
- If the engine does not start, wait at least 2 minutes before trying again.
- If you crank the engine for more than 30 seconds within a 2-minute period, the engine will lock the starter circuit to prevent overheating, and a flashing WTS symbol will appear on the display. Wait for the WTS symbol to stop flashing before attempting to crank the engine again.
- If the engine still does not start, refer to the windrower operator's manual.



Figure 10.5: HPT Header Disengaged Screen

REFERENCE

NOTE:

If you attempt to start the engine when the ambient temperature is below 5°C (40°F), the engine will cycle through a period during which it will sound as though it is struggling to stay running. This is the engine's warm-up mode. The throttle will be unresponsive while the engine is in warm-up mode. Warm-up mode lasts between 30 seconds and 3 minutes depending on the temperature. The throttle will become active after the engine has stabilized and is idling normally. Do **NOT** operate the engine above 1500 rpm until the HPT engine temperature gauge is above blue range (A).



Figure 10.6: HPT No Header Screen

10.2 Starting Engine – M205 SP Windrower

Carefully review this procedure before attempting to start the engine—it contains important information pertinent to the safety of the Operator and the integrity of the engine ignition system.

DANGER

- This machine has safety devices which allow the engine to start only when the ground speed lever is in the N-DETENT position, the steering wheel is locked in the NEUTRAL position, and the header drive switch is in the OFF position. Under no circumstances are these devices to be deliberately rewired or misadjusted so that the engine can be started with the controls out of the NEUTRAL position.
- Do NOT start the engine by shorting across the starter or starter relay terminals. The machine will start and might be able to move if the drive is engaged.
- Start the engine only from the operator's seat with the controls in the NEUTRAL position. NEVER start the engine while standing on the ground. Never try to start the engine with someone under or near machine.
- Before starting the engine, ensure that there is plenty of ventilation; the exhaust from the engine is dangerous to bystanders when emitted in an unventilated environment.

WARNING

If the starter is able to engage when the steering wheel is unlocked, or when the ground speed lever is out of the NEUTRAL position, or when the header clutch is engaged, DO NOT ATTEMPT TO OPERATE THE WINDROWER. Contact your Dealer immediately for more information.

IMPORTANT:

Do NOT tow the machine to start the engine; damage to the hydrostatic drives will result.

1. Main battery disconnect switch (A) is located on the right frame rail, behind the maintenance platform, and can be accessed by moving the platform. Ensure that the switch is in the POWER ON position.

WARNING

Before starting the engine, fasten your seat belt and ensure that the trainer's seat belt is used if the seat is occupied.

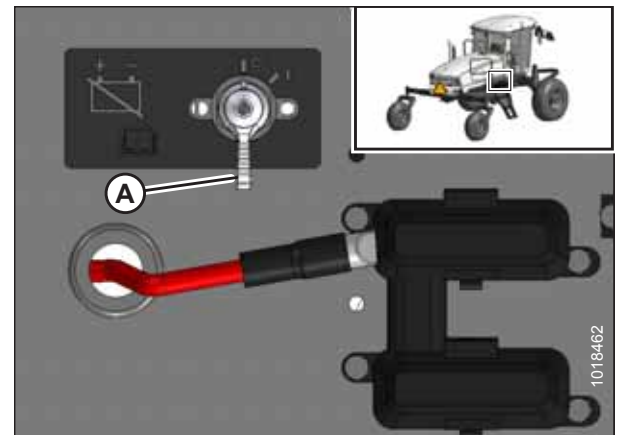


Figure 10.7: Battery Disconnect Switch

REFERENCE

2. Ensure that lock (A) at the base of the steering column is engaged in either the cab-forward or the engine-forward position.
3. Move ground speed lever (GSL) (B) into the N-DETENT position.
4. Turn the steering wheel until it locks.

NOTE:

It may be possible to move the steering wheel slightly in the locked position.

IMPORTANT:

Do **NOT** attempt to force the wheel out of the locked position; damage to the traction system may occur.

5. Fasten the seat belt.
6. Push HEADER DRIVE switch (C) to ensure it is OFF.

DANGER

Ensure that all bystanders have cleared the area.

7. Set throttle (A) to the START position (fully back).
8. Sound the horn three times.
9. Turn ignition key (B) to the RUN position. A single loud tone will sound, the engine warning lights will light up as the ignition self-test is performed, and the cab display module (CDM) will display the messages HEADER DISENGAGED and IN PARK.
10. Turn ignition key (B) to the START position until the engine starts, then release the key. The CDM will display programmed header data for five seconds (if a header is attached to the windrower), and then will resume displaying whatever was previously displayed.



Figure 10.8: Operator Controls



Figure 10.9: Operator Console

IMPORTANT:

The windrower's gauges and instruments provide important information about the windrower's operating status. Familiarize yourself with the gauges; monitor them carefully during when starting the windrower. Refer to the windrower operator's manual for more information.

IMPORTANT:

- Do **NOT** operate the starter for longer than 15 seconds at a time.
- If the engine does not start, wait at least two minutes before trying to start the engine again.
- After the third unsuccessful attempt to start the engine, allow the solenoid to cool for 10 minutes before trying again. If the engine still does not start, refer to the windrower operator's manual.
- Do **NOT** operate the engine above 1500 rpm until the engine temperature gauge indicates that the engine coolant temperature is above 40°C (100°F).

REFERENCE

NOTE:

When the engine's coolant temperature is below 5°C (40°F), follow the normal starting procedure. The engine will cycle through a period where it appears to labor until the engine warms up. The throttle will be unresponsive during this time, because the engine is now in WARM UP mode. This mode will last from 30 seconds to three minutes depending on the ambient temperature. After the engine has stabilized and is idling normally, the throttle will become active again.

NOTE:

Before taking the GSL out of the PARK position, let the hydraulic oil warm up to 32°C (90°F).

10.3 Engaging and Disengaging Header Safety Props – M1240 Windrower

Safety props are located on both header lift cylinders on the windrower. Engage the props any time you are going to work on or around a raised header. When engaged, safety props prevent a header from dropping suddenly if the lift system hydraulics lose pressure.

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.

1. Start the engine.
2. Press HEADER UP switch (A) on the ground speed lever (GSL) to raise the header to its maximum height.

NOTE:

If one end of the header does **NOT** fully rise, rephase the lift cylinders as follows:

- a. Press and hold HEADER UP switch (A) until both cylinders stop moving.
 - b. Continue to hold the switch for 3–4 seconds. The cylinders are now phased.
3. Shut down the engine, and remove the key from the ignition.



Figure 10.10: Ground Speed Lever

4. Engage the safety props on both lift cylinders as follows:
 - a. Pull lever (A) toward you to release it, and then rotate it toward the header to lower the safety prop onto the cylinder.
 - b. Repeat the previous step for the opposite lift cylinder.

IMPORTANT:

Ensure that the safety props engage over the cylinder piston rods. If the safety prop does **NOT** engage properly, raise the header until the safety prop fits over the rod.

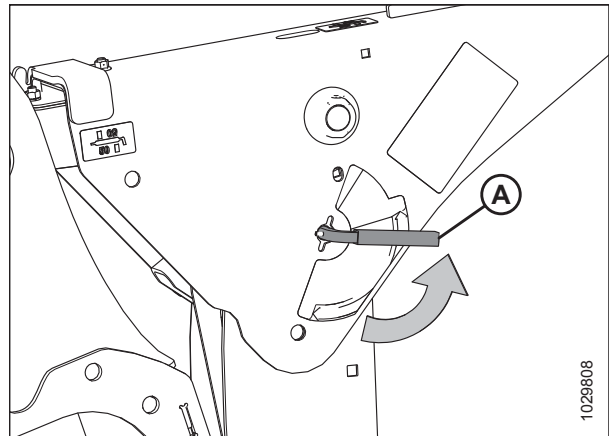


Figure 10.11: Safety Prop Lever

REFERENCE

5. Disengage the safety props on both lift cylinders as follows:
 - a. Turn lever (A) away from the header to raise the safety prop until the lever locks into the vertical position.
 - b. Repeat the previous step for the opposite cylinder.

NOTE:

If the safety prop will **NOT** disengage, raise the header to release the prop.

6. Start the engine.
7. Lower the header fully.
8. Shut down the engine, and remove the key from the ignition.

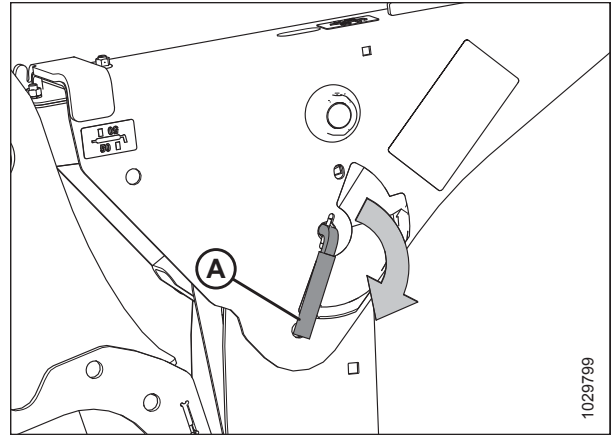


Figure 10.12: Safety Prop Lever

10.4 Engaging and Disengaging Header Safety Props – M205 SP Windrower

Safety props are located on both header lift cylinders on the windrower. Engage the props anytime you are going to work on or around raised header. When engaged, safety props prevent a header from dropping suddenly if the lift system hydraulics lose pressure.

DANGER

To prevent bodily injury from the fall of a raised header, always engage the safety props when working on or around a raised header, and before going under the header for any reason.

Follow these steps to engage or disengage the header safety props:

Engage safety props as follows:

1. Start the engine and press HEADER UP switch (A) to raise the header to its maximum height.
2. Rephase the cylinders if one end of the header does not rise fully:
 - a. Press and hold HEADER UP switch (A) until both cylinders stop moving.
 - b. Continue to hold the switch for 3–4 seconds. The cylinders are now phased.
3. Pull lever (A) and rotate it toward the header to lower safety prop (B) onto the cylinder. Repeat for the opposite cylinder.



Figure 10.13: Ground Speed Lever (GSL)

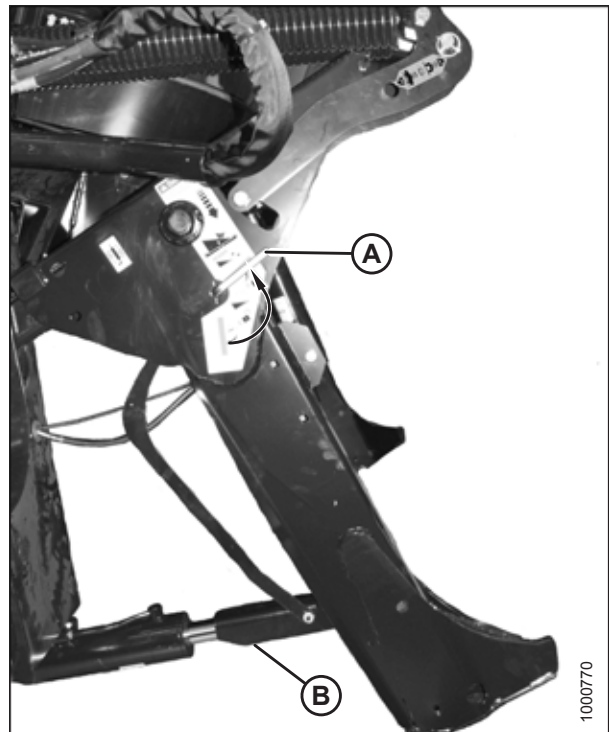


Figure 10.14: Safety Prop

Disengage safety props as follows:

 DANGER

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

1. Turn lever (A) away from the header to raise the safety prop until the lever locks into vertical position. Repeat for the opposite cylinder.
2. Start the engine, choose a level area, and lower the header to the ground.
3. Shut down the engine, and remove the key from the ignition.

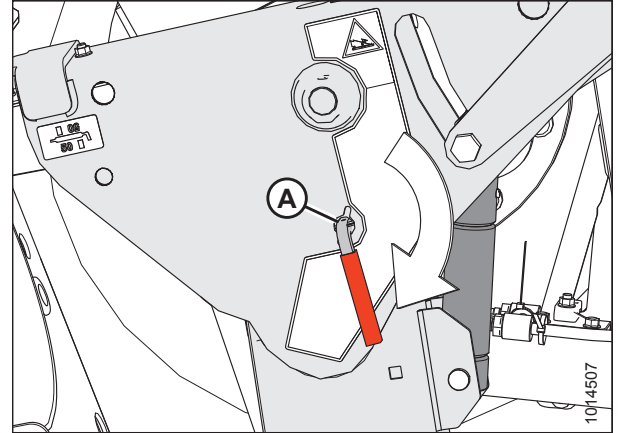


Figure 10.15: Safety Prop

10.5 Leveling the Header – M1240 Windrower

The windrower lift linkages are factory-set to provide the proper header level, and should not normally require adjustment.

DANGER

To prevent bodily 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.

1. Press rotary scroll knob (A) on Harvest Performance Tracker (HPT) to display the QuickMenu system.
2. Rotate scroll knob (A) to highlight HEADER FLOAT symbol (B) and press scroll knob to select. The SET-UP FLOAT page displays.



Figure 10.16: HPT Display

3. Press soft key 3 (A) to remove float.



Figure 10.17: HPT Display

4. Park the windrower on level ground.
5. Press HEADER RAISE button (A) on the ground speed lever (GSL). When the header reaches maximum height, continue to hold the header raise button momentarily to allow the lift cylinders to rephase.



Figure 10.18: GSL

REFERENCE

6. Lower the header to approximately 150 mm (6 in.) off the ground.
7. Ensure that channel (A) is against link (B).
8. Shut down the engine, and remove the key from the ignition.
9. Measure the distance to the ground at both ends of the header to determine if the header is level.

DANGER

Ensure that all bystanders have cleared the area.

10. If adjustment is necessary, start engine and resume float. Lower the header onto the ground until channel (A) lifts away from the link (B) on both sides.
11. Shut down the engine, and remove the key from the ignition.
12. On the side that is higher, remove nut, washer, and bolt (A) that attaches shims (B) to the linkage.
13. Remove one or both of shims (B) and reinstall hardware (A).

DANGER

Ensure that all bystanders have cleared the area.

14. Repeat Step 5, page 128 to Step 9, page 129 to rephase the cylinders and check the header level.
15. If additional adjustment is required, repeat Step 10, page 129 to Step 13, page 129, and install one of the removed shims on the opposite linkage.
16. Reset the header float. For instructions, refer to 9.2.2 Setting Float – M1240 Windrower, page 97.

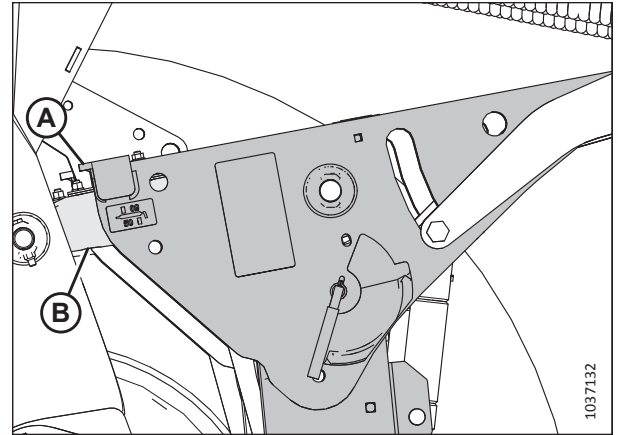


Figure 10.19: Lift Linkage

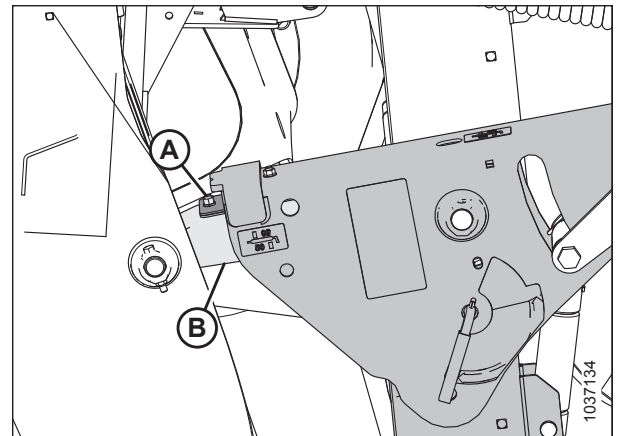


Figure 10.20: Lift Linkage Shims

10.6 Leveling the Header – M205 SP Windrower

The windrower linkages are factory-set to provide the proper level for the header and should not normally require adjustment.

DANGER

To prevent bodily 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.

If the header is not level, check the pressure of the windrower's tires before adjusting the leveling linkages.

NOTE:

The float springs are **NOT** used to level the header.

To level the header:

1. Place the float pins in locked-out location (A).

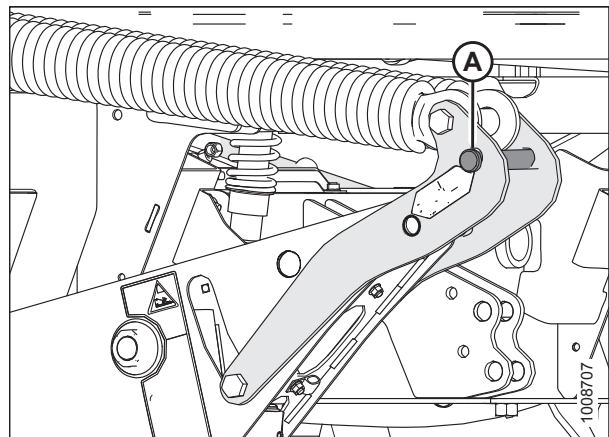


Figure 10.21: Float Pins – Disengaged

2. Park the windrower on level ground.
3. Raise the header fully using HEADER UP button (A). Hold the button momentarily to allow the lift cylinders to rephase.



Figure 10.22: Ground Speed Lever (GSL)

REFERENCE

4. Adjust the height of the header until it sits approximately 150 mm (6 in.) off of the ground. Ensure that member (A) rests against link (B).
5. Shut down the engine, and remove the key from the ignition.
6. Measure the distance to the ground at both ends of the header. If the values are the same, then no float adjustment is necessary. If they are different, then the side with the greater distance between the ground and the bottom of the header will need to be adjusted.
7. If adjustment is necessary, start the engine and raise the header fully. Turn off the engine, and remove the key from the ignition.
8. Move the float pins to engaged position (A).



Figure 10.23: Lift Linkage

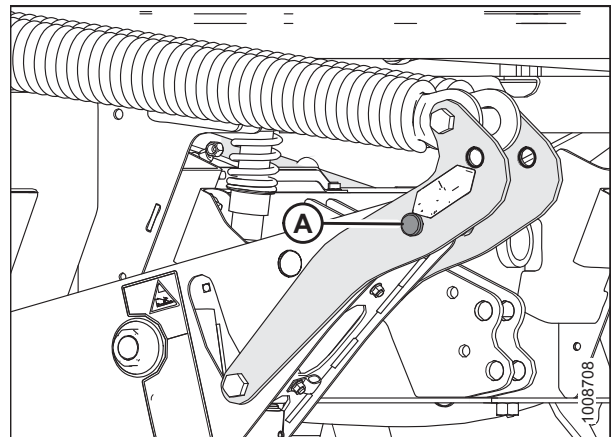


Figure 10.24: Float Pins – Engaged

9. Start the engine and lower the header onto the ground until member (A) lifts off of link (B) on both sides of the header.
10. Shut down the engine, and remove the key from the ignition.

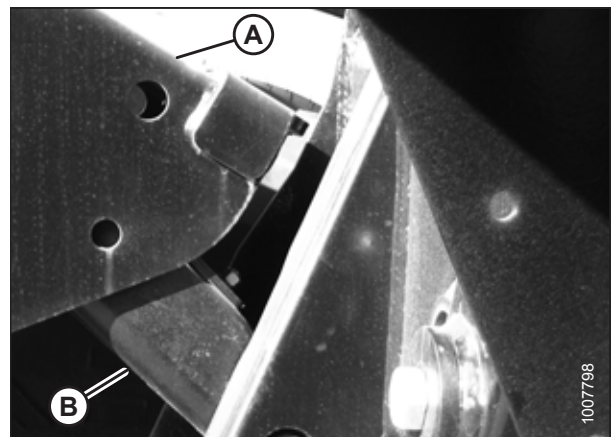


Figure 10.25: Lift Linkage

REFERENCE

11. On the high side of the linkage, remove nut, washer, and bolt (A) which attach shims (B) to the link.
12. Remove one or both shims (B), and reinstall hardware (A).

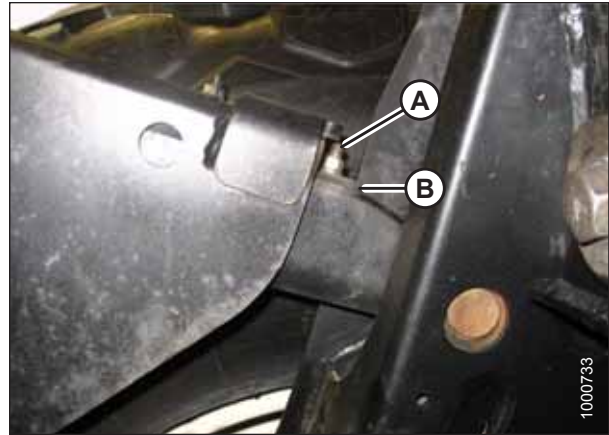


Figure 10.26: Lift Linkage

13. Start the engine and raise the header fully.
14. Stop the engine and remove the key from the ignition.
15. Move the float pins to the disengaged position.
16. Start the engine, and adjust the height of the header so that it sits approximately 150 mm (6 in.) off of the ground.
17. Check that member (A) is resting against link (B).
18. Shut down the engine, and remove the key from the ignition.
19. Measure the distance to the ground at both ends of the header. If the values are the same, then no float adjustment is necessary. If they are different, then the side with the greater distance between the ground and the bottom of the header will need to be adjusted.
20. If additional leveling is needed, repeat Steps 7, page 131 to 10, page 131 and install the removed shim on the opposite linkage.



Figure 10.27: Lift Linkage

NOTE:

Additional shims are available from your Dealer.

21. Once the header is level, return the float pins to engaged position (A).

NOTE:

The float does **NOT** require adjustment after leveling the header.

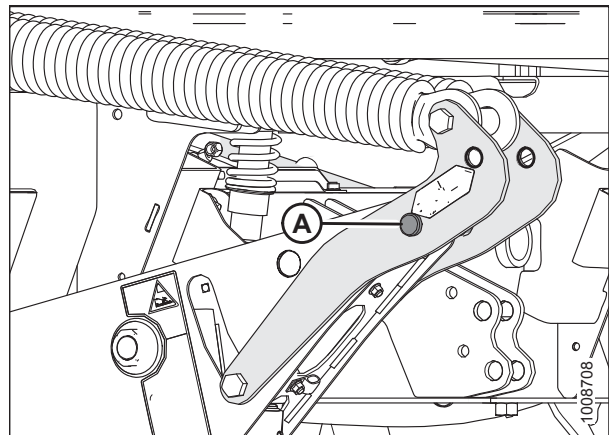


Figure 10.28: Float Pins – Engaged

10.7 Opening Driveshields

The driveshields provide access to drive components for maintenance and servicing.

WARNING

To reduce the risk of personal injury, do NOT operate the machine without the driveshields in place and secured.

NOTE:

Images shown in this procedure are for the left driveshield—the right driveshield is similar.

1. Push down on release lever (A) to disengage the release latch and pull handle (B).

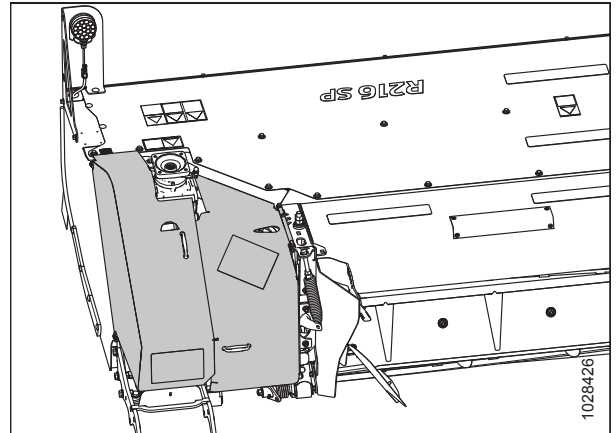


Figure 10.29: Left Driveshield

2. Lift outboard driveshield panel (A) in an outboard direction toward the end of the header.

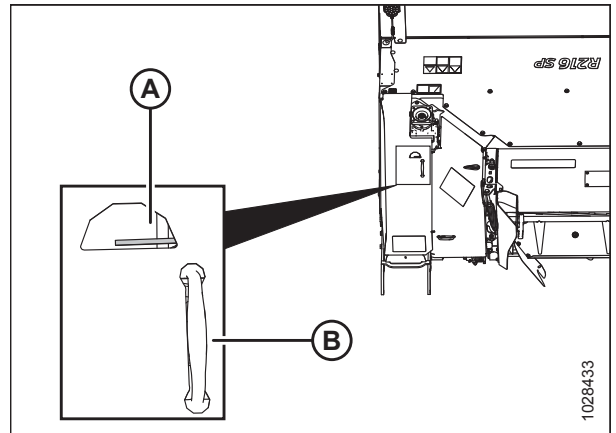


Figure 10.30: Driveshield Latch and Handle

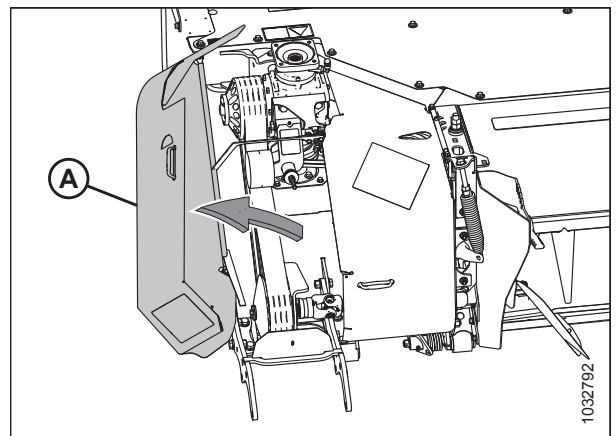


Figure 10.31: Opening Driveshield – Outboard Panel

REFERENCE

3. Pull handle (A) and lift inboard driveshield panel (B) toward the middle of the header.
4. Repeat the previous steps on the opposite side of the header to open the opposite side.

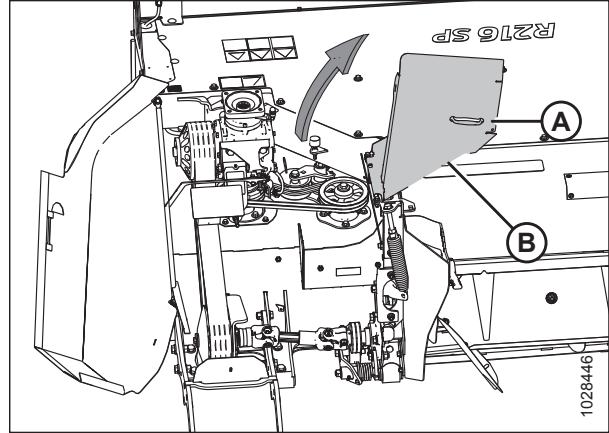


Figure 10.32: Driveshield – Inboard Panel

10.8 Closing Driveshields

Closing the driveshields before operating the machine will protect drive components from damage.

WARNING

To reduce the risk of personal injury, do **NOT** operate the machine without the driveshields in place and secured.

NOTE:

Images shown in this procedure are for the left driveshield—the right driveshield is similar.

1. While lifting driveshield, lift lock latch (A) to disengage driveshield lock.

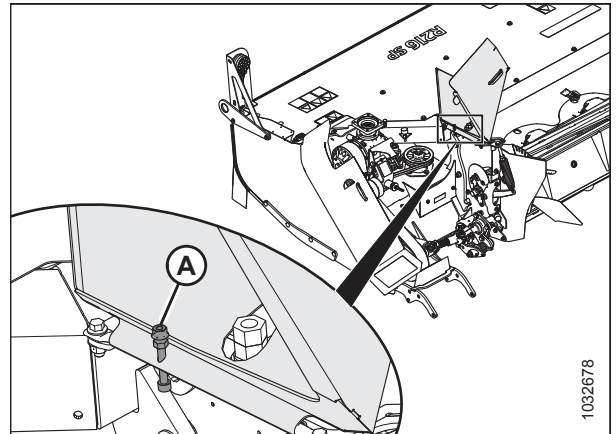


Figure 10.33: Driveshield Lock Latch

2. Move inboard-half of driveshield (A) back to the closed position.

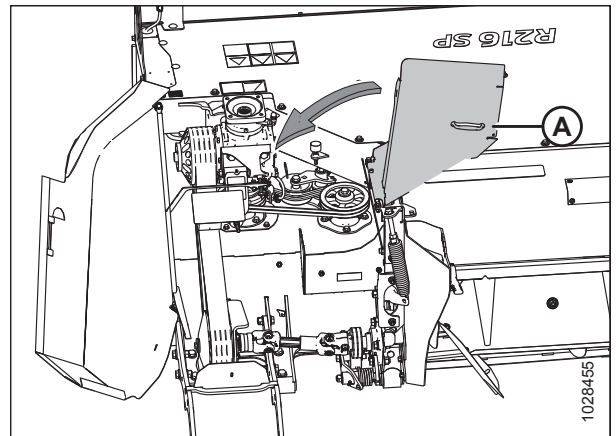


Figure 10.34: Left Driveshield

REFERENCE

3. Move outboard-half of driveshield (A) back to the closed position.

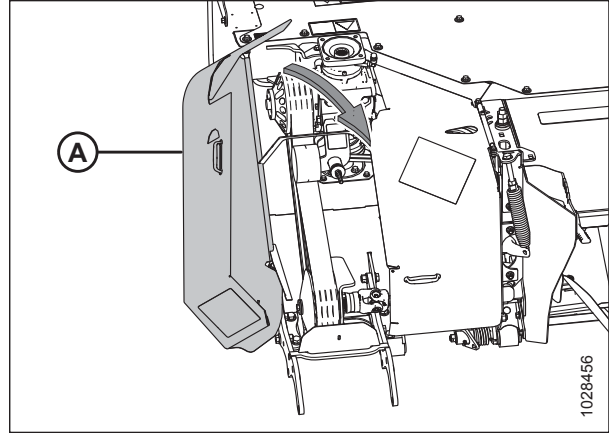


Figure 10.35: Left Driveshield

10.9 Opening Cutterbar Curtain

The curtain is installed at the front of the header. It minimizes the risk of thrown objects being ejected at high speed from the cutterbar area.

DANGER

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

1. Push curtain (A) inward and up.

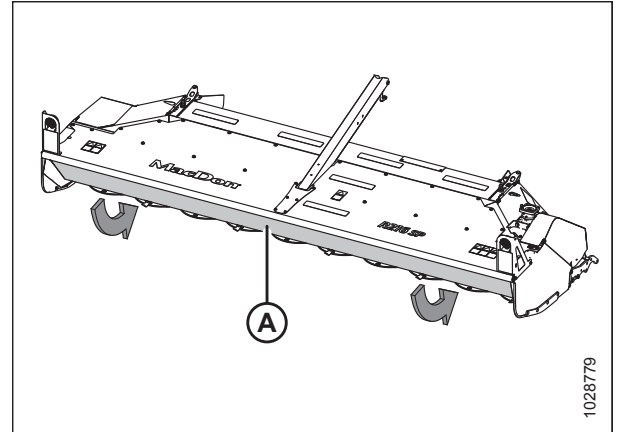


Figure 10.36: Cutterbar Curtain – Standard Header Shown

2. Secure curtain in place at locations (A) using three clips provided.

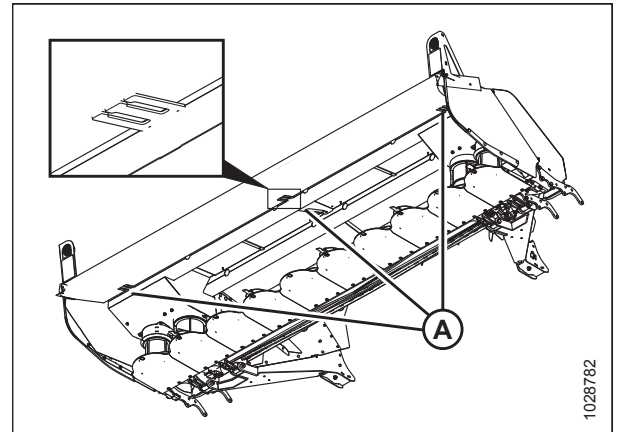


Figure 10.37: Cutterbar Curtain — Standard Header Shown, View from Below

REFERENCE

NOTE:

Cutterbar curtain (A) is held in place between the tines of retaining clips (B).

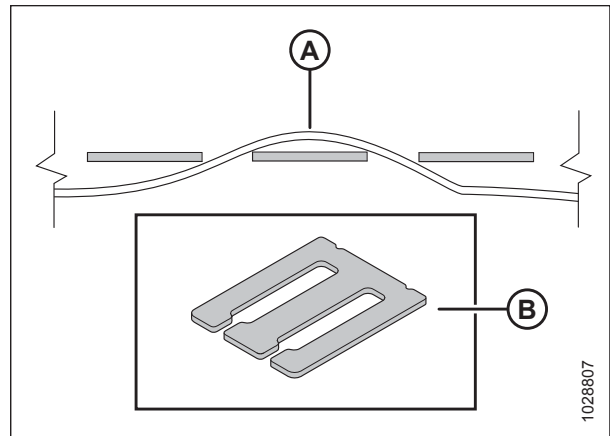


Figure 10.38: Cutterbar Curtain and Retaining Clips

10.10 Closing Cutterbar Curtain

The curtain is installed at the front of the header. It minimizes the risk of thrown objects being ejected at high speed from the cutterbar area.

CAUTION

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

1. Pull curtain outward from retaining clips and lower curtain.

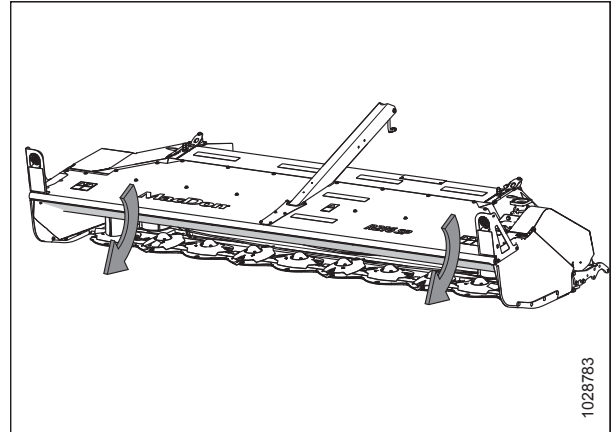


Figure 10.39: Cutterbar Curtain – Standard Header Shown

10.11 Recommended Lubricants

Keep your machine operating at top efficiency by using only clean lubricants and by ensuring the following:

- Use clean containers to handle all lubricants.
- Store lubricants in an area protected from dust, moisture, and other contaminants.

IMPORTANT:

Do **NOT** overfill the cutterbar when adding lubricant. Overfilling could result in overheating and failure of cutterbar components.

Table 10.1 Recommended Lubricants

Specification	Description	Use	Capacities
Lubricant: Grease			
SAE Multipurpose	High temperature extreme pressure (EP) 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	—
Lubricant: Gear Lubricant			
SAE 80W-90	High thermal and oxidation stability API service class GL-5	4.9 m (16 ft.) cutterbar	10 liters (10.5 qts [US])
SAE 80W-140	Gear lubricant API service class GL-5	Conditioner roll timing gearbox	0.7 liters (0.75 qts [US])
SAE 80W-140	Fully Synthetic Oil API GL-5 Minimum, SAE J2360 Preferred	Header drive 90 degree gearbox	1.8 liters (1.9 qts [US])

10.12 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.

10.12.1 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 10.2 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

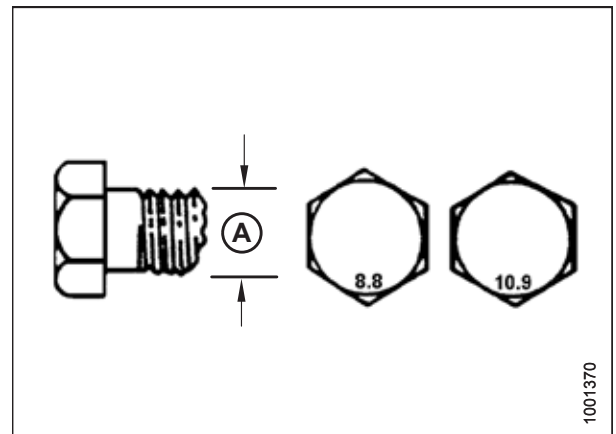


Figure 10.40: Bolt Grades

REFERENCE

Table 10.3 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

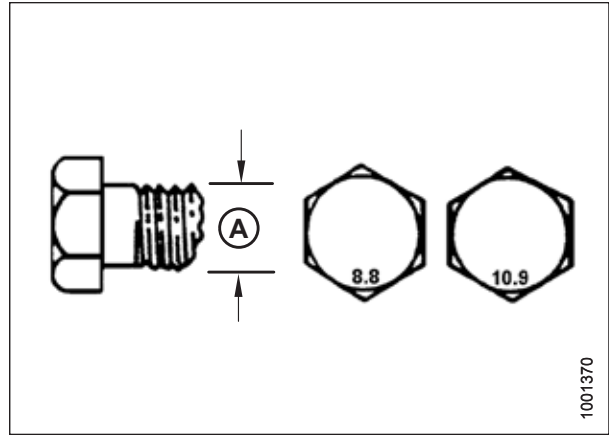


Figure 10.41: Bolt Grades

Table 10.4 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

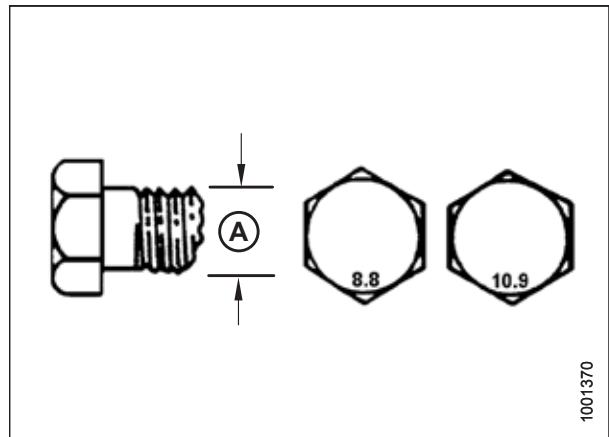


Figure 10.42: Bolt Grades

REFERENCE

Table 10.5 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

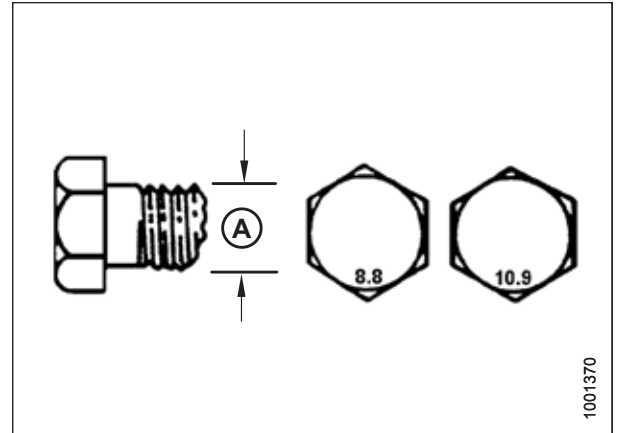


Figure 10.43: Bolt Grades

10.12.2 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 10.6 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	–	–	–	–

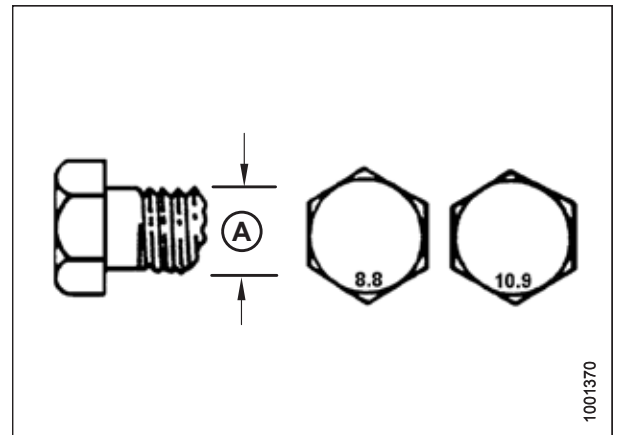


Figure 10.44: Bolt Grades

10.12.3 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).

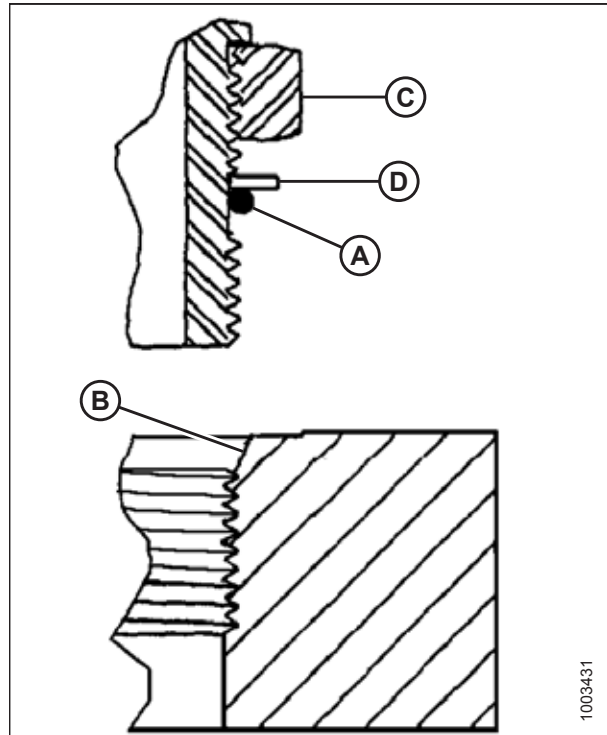


Figure 10.45: Hydraulic Fitting

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.

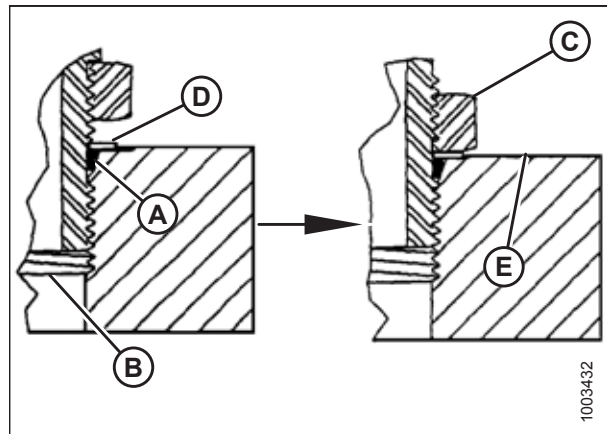


Figure 10.46: Hydraulic Fitting

REFERENCE

Table 10.7 O-Ring Boss (ORB) Hydraulic Fittings – Adjustable

SAE Dash Size	Thread Size (in.)	Torque Value ³	
		Nm	lbf-ft (*lbf-in)
-2	5/16-24	6-7	*53-62
-3	3/8-24	12-13	*106-115
-4	7/16-20	19-21	14-15
-5	1/2-20	21-33	15-24
-6	9/16-18	26-29	19-21
-8	3/4-16	46-50	34-37
-10	7/8-14	75-82	55-60
-12	1 1/16-12	120-132	88-97
-14	1 3/8-12	153-168	113-124
-16	1 5/16-12	176-193	130-142
-20	1 5/8-12	221-243	163-179
-24	1 7/8-12	270-298	199-220
-32	2 1/2-12	332-365	245-269

10.12.4 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 following table below.

1. Inspect O-ring (A) and seat (B) for dirt or obvious defects.
2. Check that O-ring (A) is **NOT** on the threads. 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 10.8, page 146.
6. Check the final condition of the fitting.

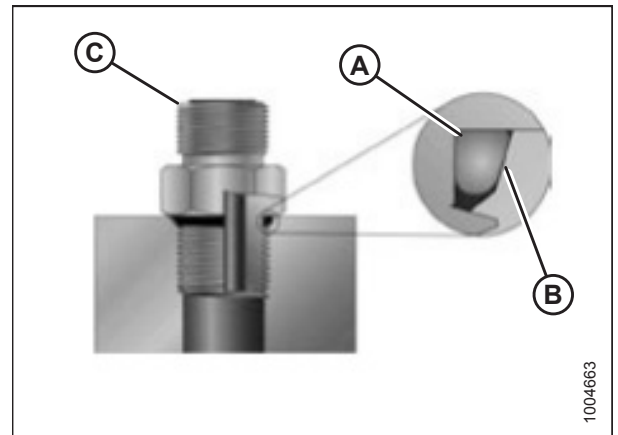


Figure 10.47: Hydraulic Fitting

3. Torque values shown are based on lubricated connections as in reassembly.

REFERENCE

Table 10.8 O-Ring Boss (ORB) Hydraulic Fittings – Non-Adjustable

SAE Dash Size	Thread Size (in.)	Torque Value ⁴	
		Nm	lbf-ft (*lbf-in)
-2	5/16-24	6-7	*53-62
-3	3/8-24	12-13	*106-115
-4	7/16-20	19-21	14-15
-5	1/2-20	21-33	15-24
-6	9/16-18	26-29	19-21
-8	3/4-16	46-50	34-37
-10	7/8-14	75-82	55-60
-12	1 1/16-12	120-132	88-97
-14	1 3/8-12	153-168	113-124
-16	1 5/16-12	176-193	130-142
-20	1 5/8-12	221-243	163-179
-24	1 7/8-12	270-298	199-220
-32	2 1/2-12	332-365	245-269

10.12.5 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 following 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 10.48: Hydraulic Fitting

4. Torque values shown are based on lubricated connections as in reassembly.

REFERENCE

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 10.9, page 147.

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).

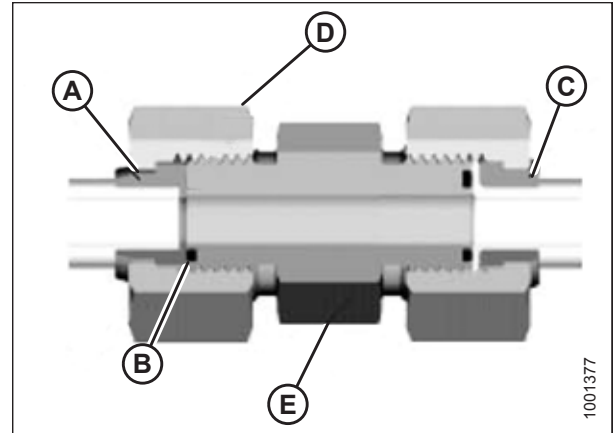


Figure 10.49: Hydraulic Fitting

6. Use three wrenches when assembling unions or joining two hoses together.
7. Check the final condition of the fitting.

Table 10.9 O-Ring Face Seal (ORFS) Hydraulic Fittings

SAE Dash Size	Thread Size (in.)	Tube O.D. (in.)	Torque Value ⁵	
			Nm	lbf-ft
-3	Note ⁶	3/16	–	–
-4	9/16	1/4	25–28	18–21
-5	Note ⁶	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 ⁶	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

10.12.6 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.

5. Torque values and angles shown are based on lubricated connection as in reassembly.

6. O-ring face seal type end not defined for this tube size.

REFERENCE

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 10.10, page 148. 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 overtightening may not be evident until the fittings are disassembled and inspected.

Table 10.10 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

10.13 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 10.11 Conversion Chart

Quantity	SI Units (Metric)		Factor	US Customary Units (Standard)	
	Unit Name	Abbreviation		Unit Name	Abbreviation
Area	hectare	ha	$\times 2.4710 =$	acre	acres
Flow	liters per minute	L/min	$\times 0.2642 =$	US gallons per minute	gpm
Force	Newton	N	$\times 0.2248 =$	pound force	lbf
Length	millimeter	mm	$\times 0.0394 =$	inch	in.
Length	meter	m	$\times 3.2808 =$	foot	ft.
Power	kilowatt	kW	$\times 1.341 =$	horsepower	hp
Pressure	kilopascal	kPa	$\times 0.145 =$	pounds per square inch	psi
Pressure	megapascal	MPa	$\times 145.038 =$	pounds per square inch	psi
Pressure	bar (Non-SI)	bar	$\times 14.5038 =$	pounds per square inch	psi
Torque	Newton meter	Nm	$\times 0.7376 =$	pound feet or foot pounds	lbf-ft
Torque	Newton meter	Nm	$\times 8.8507 =$	pound inches or inch pounds	lbf-in
Temperature	degrees Celsius	°C	$(^{\circ}\text{C} \times 1.8) + 32 =$	degrees Fahrenheit	°F
Velocity	meters per minute	m/min	$\times 3.2808 =$	feet per minute	ft/min
Velocity	meters per second	m/s	$\times 3.2808 =$	feet per second	ft/s
Velocity	kilometers per hour	km/h	$\times 0.6214 =$	miles per hour	mph
Volume	liter	L	$\times 0.2642 =$	US gallon	US gal
Volume	milliliter	mL	$\times 0.0338 =$	ounce	oz.
Volume	cubic centimeter	cm ³ or cc	$\times 0.061 =$	cubic inch	in. ³
Weight	kilogram	kg	$\times 2.2046 =$	pound	lb.

REFERENCE

10.14 Definitions

The following terms, abbreviations, and acronyms may be used in this instruction.

Term	Definition
API	American Petroleum Institute
ASTM	American Society of Testing and Materials
Bolt	A headed and externally threaded fastener designed to be paired with a nut
Cab-forward	Windrower operation mode, in which the Operator's seat faces the header
CDM	Cab display module on an M Series Windrower
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
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
GSS	Grass Seed
GVW	Gross vehicle weight
Hard joint	A joint made with use of a fastener where joining materials are highly incompressible
Header	A machine that cuts and lays crop into a windrow when attached to a windrower
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
HPT display	Harvest Performance Tracker display module on an M1 Series Windrower
JIC	Joint Industrial Council: A standards body that developed standard sizing and shape for original 37° flared fitting
M1 Series Windrowers	MacDon M1170 and M1240 Windrowers
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
PARK	The slot opposite the NEUTRAL position on operator's console of M1 Series windrowers
R2 SP Series	MacDon R216 Rotary Disc Headers for windrowers
rpm	Revolutions per minute
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

REFERENCE

Term	Definition
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)
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
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
Windrower	The power unit for a header

Predelivery Checklist

Perform these checks and adjustments before delivering the machine to your Customer. 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.

WARNING

Do NOT operate the machine with the driveshields open. High speed rotating components may throw debris and could result in death or serious injury.


CAUTION

Carefully follow the instructions given. Be alert for safety-related messages that bring your attention to hazards and unsafe practices.

Header Serial Number:

✓	Item	Reference
	Check that the header is level.	<p>For M1240 Windrower – 10.5 Leveling the Header – M1240 Windrower, page 128</p> <p>For M205 SP Windrower – 10.6 Leveling the Header – M205 SP Windrower, page 130</p>
	Check that skid shoes or gauge rollers are evenly set on both sides of the header.	—
	<p>For standard header – Ensure all shipping accessories, supports, and stands are removed from the header.</p>	<ul style="list-style-type: none"> 4.1.1 Removing Shipping Items from the Bottom of the Header – Standard Headers Only, page 15 4.1.3 Removing Forming Shield Crate – Standard Headers Only, page 19 4.1.5 Removing Shipping Stand, page 22 4.1.4 Unpacking Hydraulic Hoses and Electrical Harness, page 20
	<p>For header with grass seed (GSS) option – Ensure all shipping accessories, supports, and stands are removed from the header.</p>	<ul style="list-style-type: none"> 4.1.5 Removing Shipping Stand, page 22 4.1.4 Unpacking Hydraulic Hoses and Electrical Harness, page 20
	Ensure that the cable ties are removed from the cutterbar curtain, and that the cutterbar curtain hangs properly.	<ul style="list-style-type: none"> 6 Unpacking the Curtain, page 85
	Check that side forming shields are evenly set.	4.4 Assembling and Installing Forming Shield, page 10
	Check that baffle deflectors are set in field position and the rear baffle is in the correct position: fully up for headers with the Double Windrow Attachment (DWA) option, and down for headers without the DWA option.	4.3 Installing Manual Rear Deflectors, page 28
	<p>For standard header – Grease all bearings and drivelines.</p>	8.1 Lubrication Locations – Standard Headers, page 90
	<p>For header with grass seed (GSS) option – Grease all bearings and drivelines.</p>	8.2 Lubrication Locations – Grass Seed (Option), page 92
	<p>For standard header – Check main drive belt tension.</p>	9.1.1 Inspecting Conditioner Drive Belt, page 93
	Check suspended drum drive belts are tensioned.	9.4.1 Checking Suspended Drum Drive, page 105

REFERENCE

✓	Item	Reference
	For standard header – Check feed roll drive belts are tensioned.	<i>9.5.1 Checking Feed Roll Drive, page 106</i>
	For standard header – Check conditioner roll timing gearbox lubricant.	<i>9.6 Checking and Adding Conditioner Roll Timing Gearbox Oil – Standard Header, page 107</i>
	Check drive gearbox lubricant.	<i>9.7 Checking and Adding Oil in Header Drive Gearbox, page 108</i>
	Check for shipping damage or missing parts. Be sure all shipping dunnage is removed.	—
	Check cutterbar lubricant.	<i>9.8 Checking and Adding Lubricant in Cutterbar, page 110</i>
	Check for loose hardware. Tighten to required torque if applicable.	<i>10.12 Torque Specifications, page 141</i>
	For header with grass seed (GSS) option – Check drums move and spin properly with no binding.	—
	For header with grass seed (GSS) option – Check crop stream configuration is set to one-crop stream.	<i>4.7.1 Changing R216 Rotary Disc Header Cutterbar Crop Stream Configuration for Grass Seed Option, page 39</i>
	Check cutterbar area carefully for loose parts and hardware on the cutterbar.  WARNING These objects can be ejected with considerable force when the machine is started, and may result in serious injury or machine damage.	—
Run-Up Procedure		<i>9.11 Running up the Header, page 115</i>
	Check hydraulic hose and wiring harness routing to ensure adequate clearance when raising or lowering header.	—
	Ensure the hazard lights are functional.	<i>9.9 Checking Lights, page 113</i>
	Check that grass seed sensor is functional.	<i>9.3 Activating the Grass Seed (Option), page 102</i>
Post Run-Up Check – Stop Engine		
	Check for hydraulic leaks.	—
	For standard header – Check belt drive for proper idler alignment and overheated bearings.	<i>9.1 Conditioner Drive Belt – Standard Header, page 93</i>
	Ensure the header manuals are in storage compartment.	<i>9.10 Checking Manuals, page 114</i>

Date Checked:

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