

R113

Rotary Disc 13-Foot Self-Propelled Windrower Header

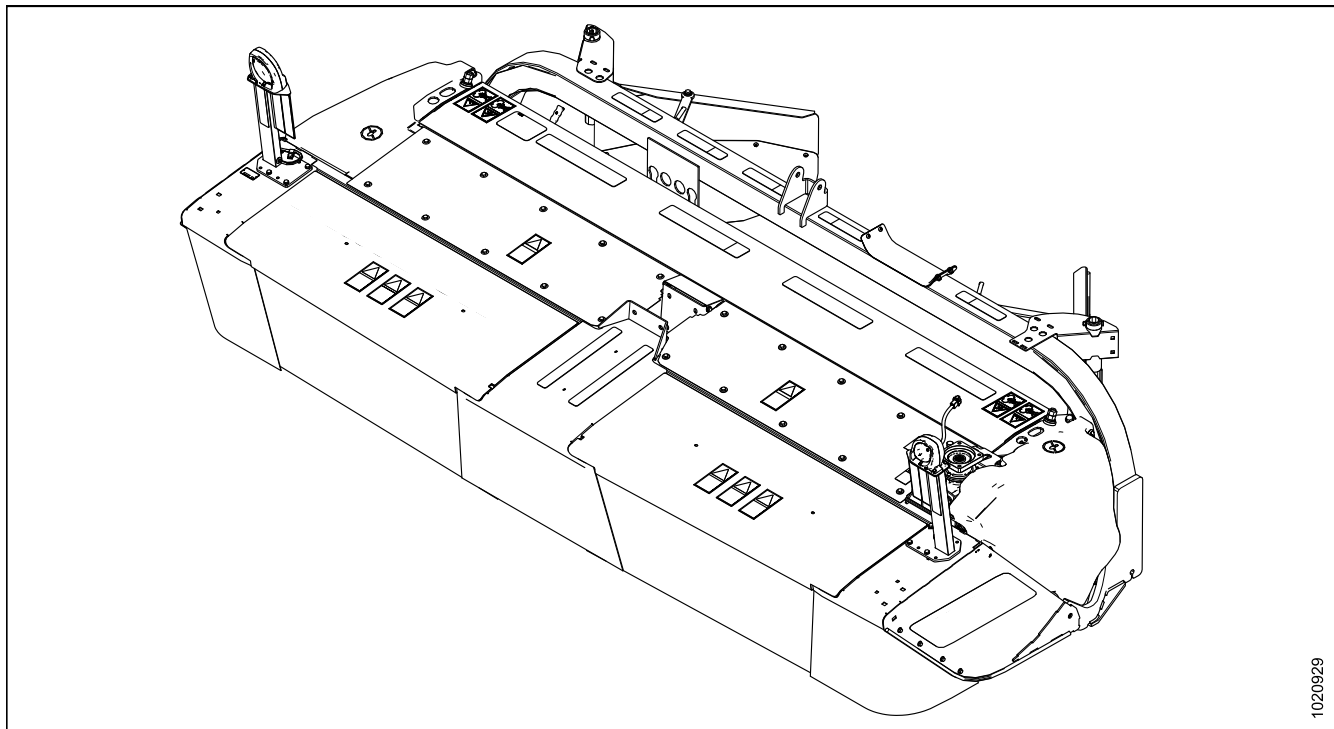
Unloading and Assembly Instruction

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Original Instruction

R113 Self-Propelled Rotary Disc Header



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Introduction

This instruction manual describes the unloading, setup, and predelivery requirements for the MacDon R113 Rotary Disc Header for Self-Propelled Windrower.

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

Retain this instruction for future reference.

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 also available in French and can be ordered from MacDon, downloaded from our Dealer Portal, or from our International website (<http://www.macdon.com/world>).

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1 Unloading the Header

CAUTION

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

CAUTION

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

Table 1.1 Lifting Vehicle

Minimum Capacity ¹	3630 kg (8000 lb.)
Minimum Fork Length	198 cm (78 in.)

IMPORTANT:

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

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

WARNING

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

IMPORTANT:

Do not damage the hydraulic hoses hanging below the header.

2. Approach header from its underside and slide forks in under the lifting framework as far as possible.

IMPORTANT:

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

3. Raise header off the deck.

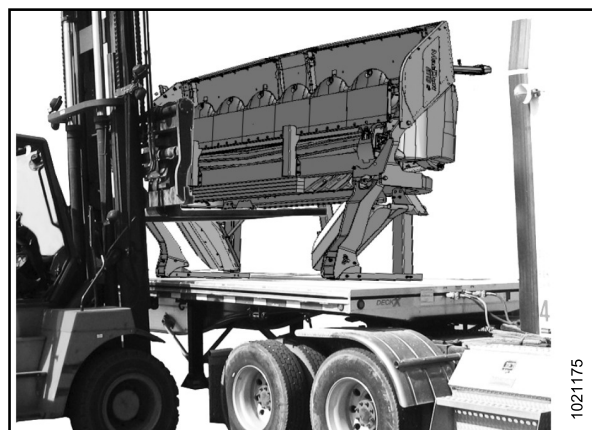


Figure 1.1: Lifting Header off Trailer

1. At 1220 mm (48 in.) from back end of forks.

UNLOADING THE HEADER

4. Back up until the unit clears trailer, and slowly lower to 150 mm (6 in.) from the ground.
5. Take to storage or setup area.
6. Set machine down on secure, level ground.
7. Check for shipping damage and missing parts.

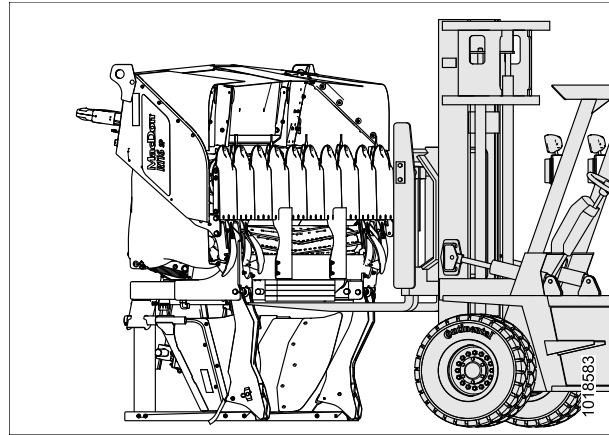


Figure 1.2: Moving Header with Forklift

2 Assembling the Header

Follow each procedure in this chapter in order.

2.1 Removing Lower Shipping Support

1. Support the wood brace (B) before cutting the three shipping straps (A).

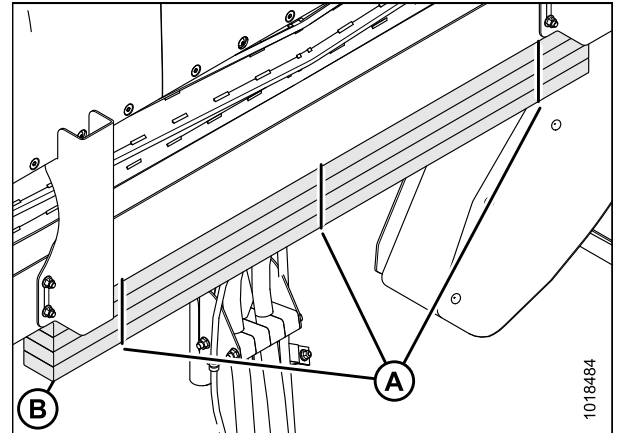


Figure 2.1: Shipping Support

2. Remove four bolts (A) on both vertical supports (B).
3. Remove both vertical supports (B).

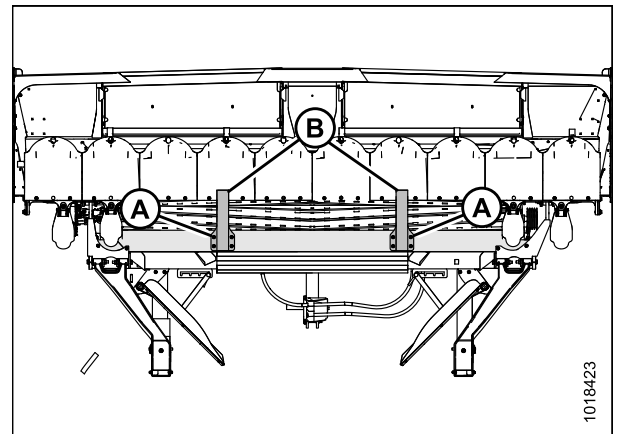


Figure 2.2: Shipping Support

ASSEMBLING THE HEADER

NOTE:

5. Remove bolt (A) at skid shoe (B). Retain bolt for reinstallation.

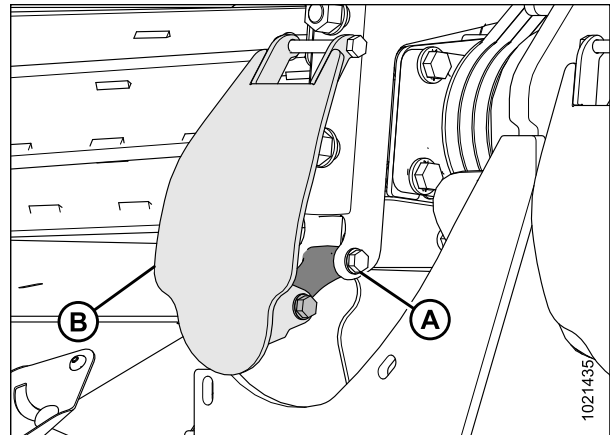


Figure 2.3: Skid Shoe (Left Side Shown)

6. Lift skid shoe (B) and support it with wire (A). Repeat at opposite skid shoe.

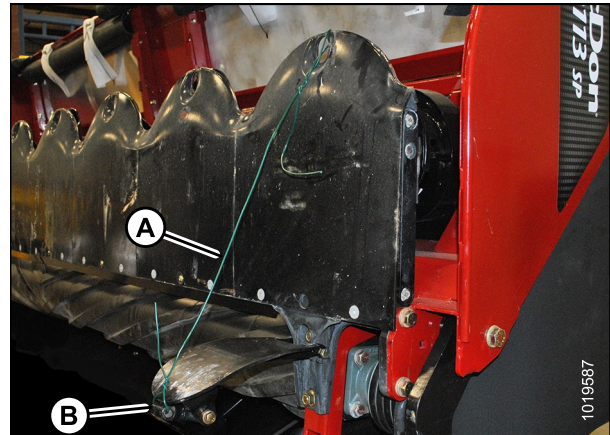
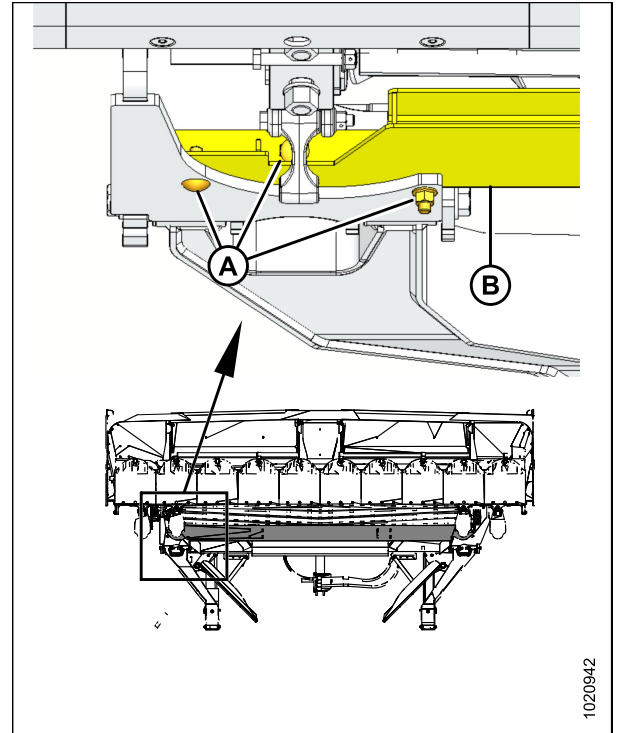


Figure 2.4: Supported Skid Shoe (Left Side Shown)

ASSEMBLING THE HEADER

7. Remove the three bolts (A) per side on the base support (B). Repeat at opposite end of the base support.



**Figure 2.5: Base Shipping Support
(Right Side Shown)**

8. Remove the base support (A).

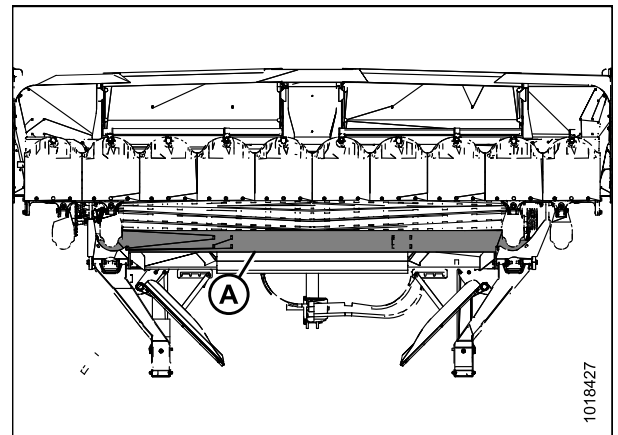


Figure 2.6: Base Shipping Support

ASSEMBLING THE HEADER

9. Remove the wire (A) that is holding skid shoe (B).

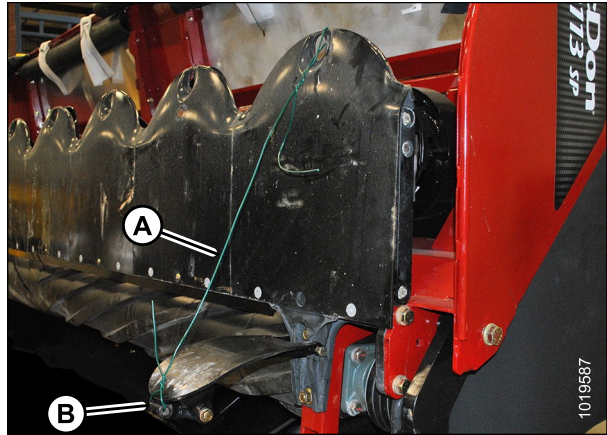


Figure 2.7: Skid Shoe Supported (Left Side Shown)

10. Tilt skid shoe (B) inward, and align link (A) with mounting hole in skid shoe.
11. Install bolt (C), washer, and nut.
12. Push the skid shoe towards the header, and tighten nut.
13. Repeat previous four steps for opposite side.

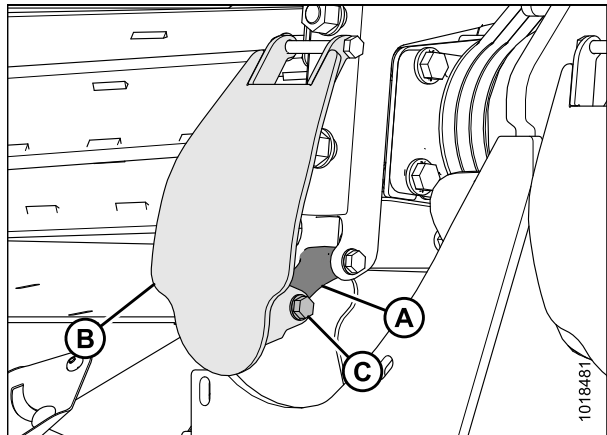


Figure 2.8: Skid Shoe (Left Side Shown)

2.2 Lowering the Header

1. Attach spreader bar (A) to forks.

IMPORTANT:

Length of spreader bar must be approximately 4600 mm (180 in.).

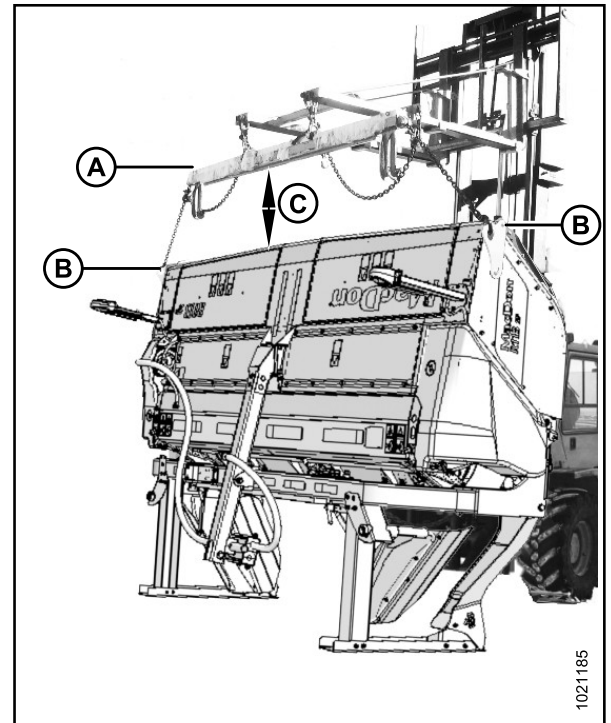


Figure 2.9: Spreader Bar Attached to Header

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 2.1 Lifting Vehicle

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

2. Drive lifting vehicle to approach rotary disc header from its underside.
3. Attach chains to hooks (B) on either side of rotary disc header.

CAUTION

Stand clear when lowering the rotary disc header

IMPORTANT:

Do **NOT** lift at hooks when unloading from trailer. This procedure is only for laying the machine over into working position.

IMPORTANT:

Chain length must be sufficient to provide a minimum 1219 mm (48 in.) (C) between spreader bar and header.

ASSEMBLING THE HEADER

4. Raise forks until lift chains are fully tensioned.
5. Back up **SLOWLY**, while simultaneously lowering rotary disc header until cutterbar rests on ground.
6. Remove chains from rotary disc header.

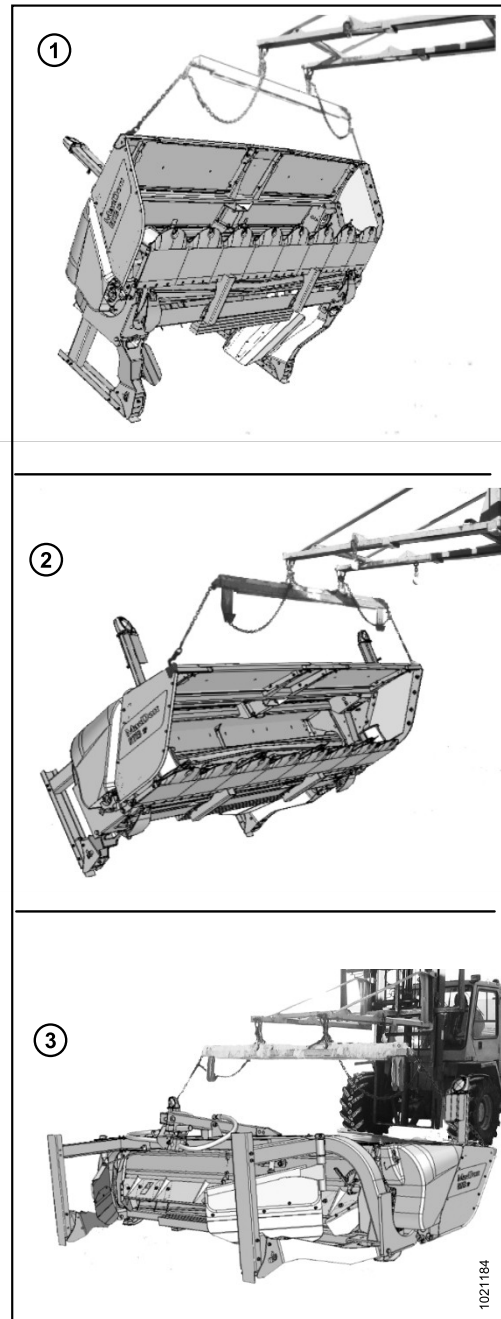


Figure 2.10: Lowering Header to the Ground

2.3 Removing Shipping Stands

NOTE:

This procedure must be completed on both sides of the header.

1. Remove bolts (A).
2. Remove bolt (B).

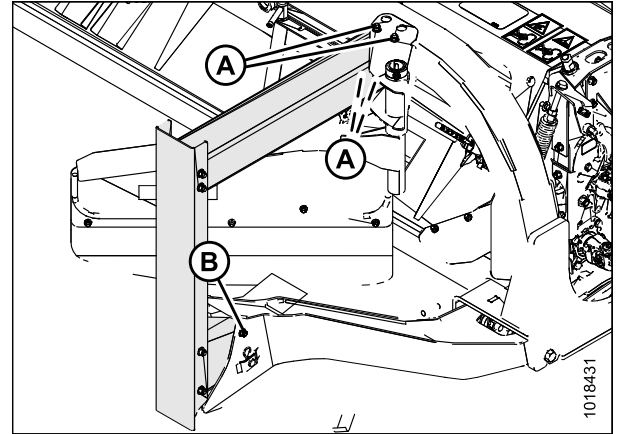


Figure 2.11: Shipping Stands (Right Side Shown – Left Side Opposite)

3. Cut any shipping wire from the legs of the header.
4. Remove hair pin (A) from clevis pin (B).
5. Hold shipping stand (C) and remove clevis pin (B).
6. Remove stand (C) and discard. Reinsert pin (B) in header lifting arm and secure with hair pin (A).

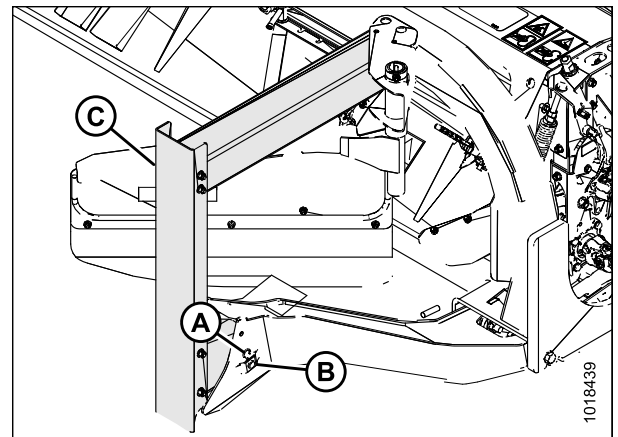


Figure 2.12: Shipping Stands (Right Side Shown – Left Side Opposite)

7. Remove hooks (A) at front corners and reinstall hardware.

NOTE:

If tall crop divider option will be installed, do not reinstall hardware.

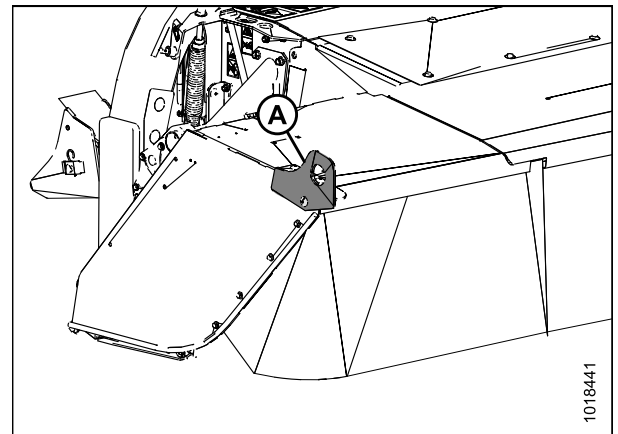


Figure 2.13: Shipping Hook

2.4 Unpacking Hoses for M1170 Windrower

1. Remove shipping wire/banding and packing (A) around hydraulic hoses.
2. Remove bolt (C) from support (B) and discard bolt.
3. Remove hose support (B) from the frame.

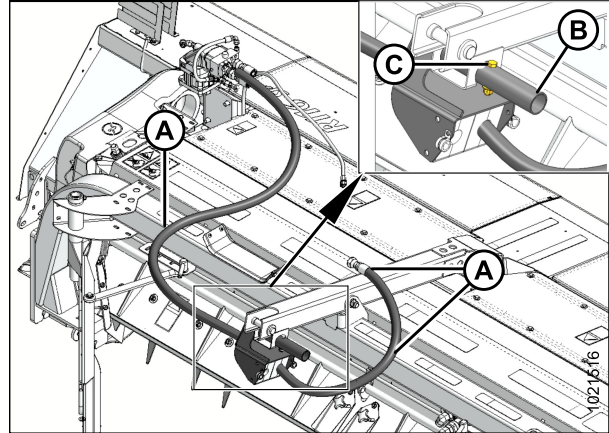


Figure 2.14: Unpacking Hoses (Not All Hoses Shown)

4. Lay the hose and electrical bundle (A) on the ground between the two header supports.
5. Remove shipping wire securing baffle (B) and leave in lowered position.

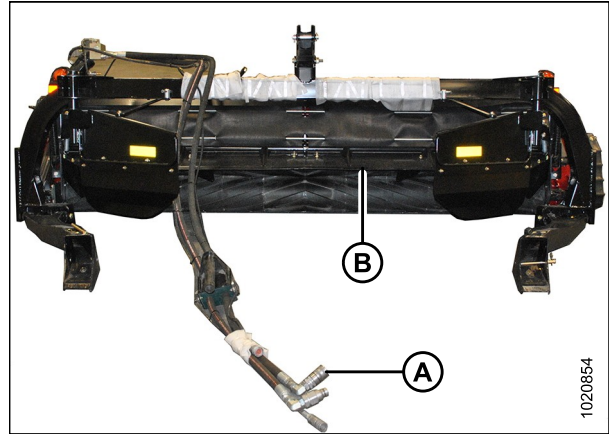


Figure 2.15: Hoses and Baffle

2.5 Installing Hose Support for M155E4

1. Remove bolt (A).
2. Loosen bolt (B) and rotate hose support (C) to upright position.

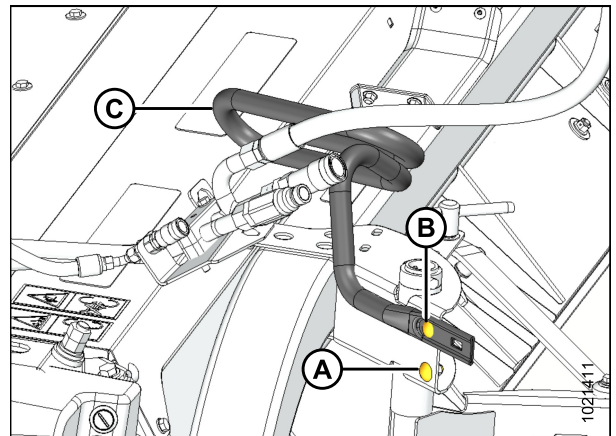


Figure 2.16: Hose Support

3. Install bolt (A). Tighten both bolts.
4. Remove shipping material from hose (B), and route hose through hose support (C). Lay hose on header.

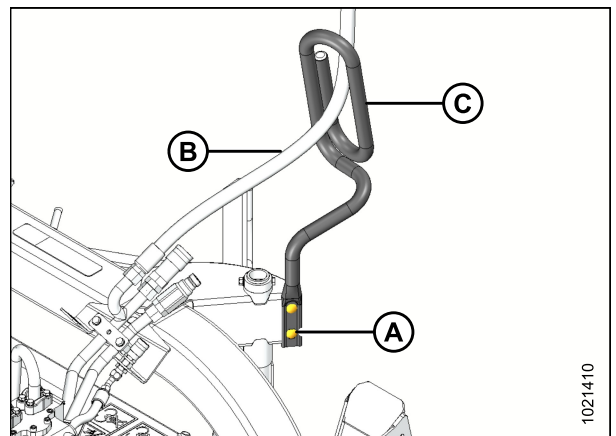


Figure 2.17: Hose Support

3 Attaching Header to Windrower

3.1 Attaching R1 Series Self-Propelled Header to M1 Series Windrower

The windrower hydraulic center-link may be equipped with a self-aligning option that allows the Operator to control the vertical position of the center-link from the cab.

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. **Hydraulic center-link without self-alignment:**
Relocate pin (A) in frame linkage as required to raise the center-link (B) 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.

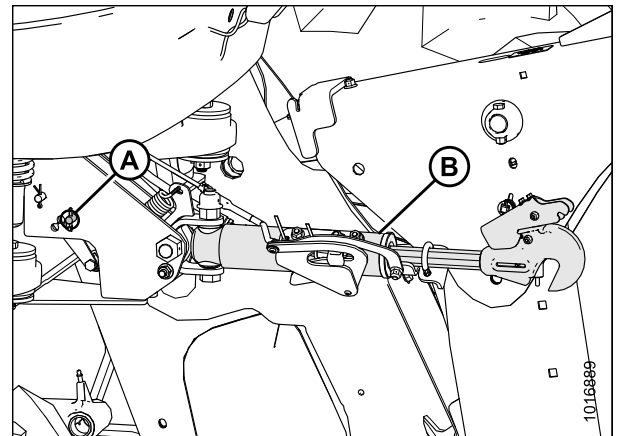


Figure 3.1: Hydraulic Center-Link

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

CAUTION

Check to be sure all bystanders have cleared the area.

3. Start windrower engine.

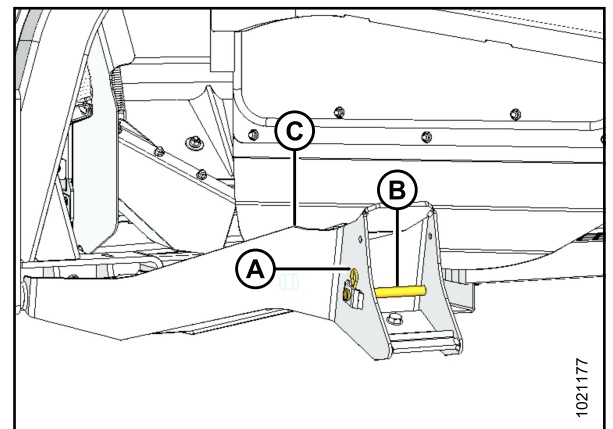


Figure 3.2: Header Support

ATTACHING HEADER TO WINDROWER

CAUTION

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

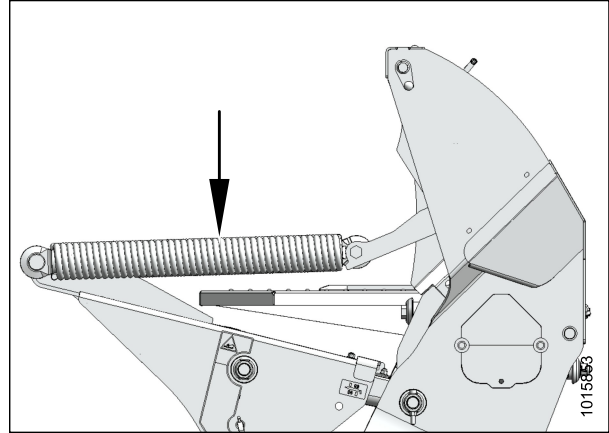


Figure 3.3: Header Float Spring

NOTE:

If not prompted by the Harvest Performance Tracker (HPT) display to remove header float, remove header float manually by doing the following:

4. Press rotary scroll knob (A) on the HPT display to highlight QuickMenu options.
5. Rotate scroll knob (A) to highlight the HEADER FLOAT symbol (B), and press scroll knob to select. Screen changes.



Figure 3.4: HPT Display

6. 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 3.5: HPT Display

ATTACHING HEADER TO WINDROWER

7. Press HEADER DOWN switch (E) on the ground speed lever (GSL) to fully retract header lift cylinders.
8. **Hydraulic center-link with self-alignment:** 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.

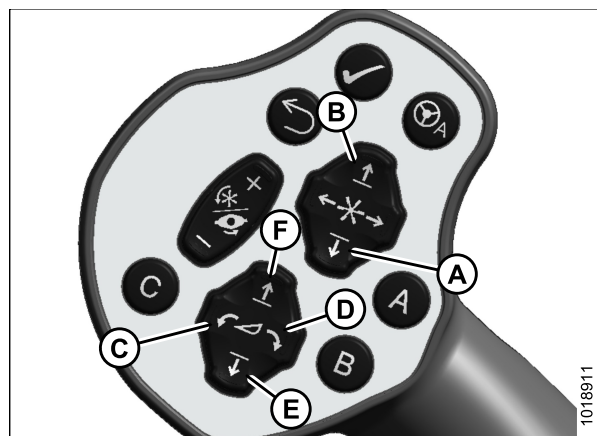


Figure 3.6: Ground Speed Lever

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

9. Drive the windrower slowly forward until the windrower feet (A) enter the header supports (B). Continue to drive slowly forward until feet engage the supports and header nudges forward.
10. Ensure that windrower feet (A) are properly engaged in header supports (B).

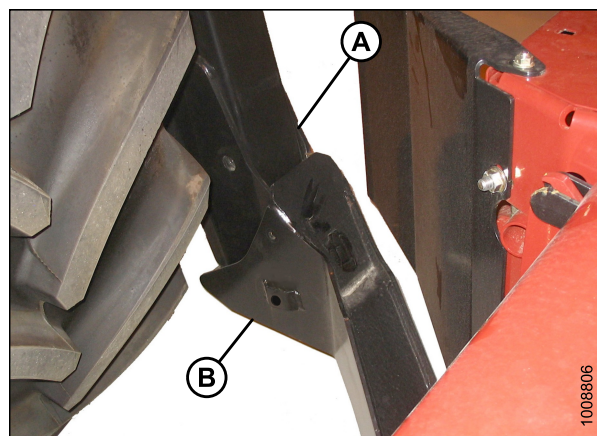


Figure 3.7: Header Support

11. **Hydraulic center-link with optional self-alignment:**
 - a. Adjust position of the center-link cylinder (A) with the switches on the GSL until the hook (B) is above the header attachment pin.

IMPORTANT:

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

- b. If the hook release (C) is open (up), stop the engine and remove ignition key. Manually push the hook release (C) down after hook engages the header pin.
- c. Lower center-link (A) onto the header with REEL DOWN switch on the GSL until it locks into position (hook release [C] is down).
- d. Check that center-link is locked onto header by pressing the REEL UP switch on the GSL.

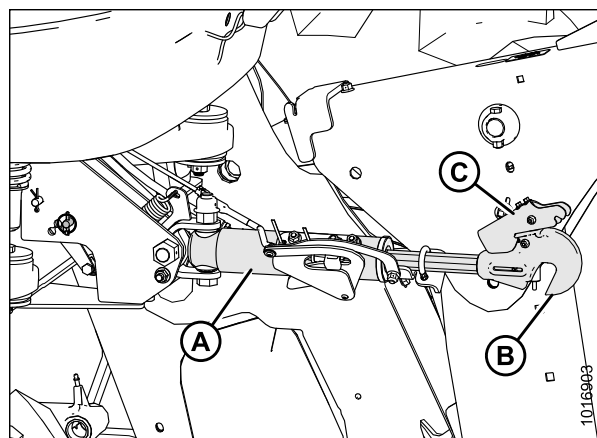


Figure 3.8: Hydraulic Center-Link

ATTACHING HEADER TO WINDROWER

12. Hydraulic center-link without self-alignment:

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

IMPORTANT:

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

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

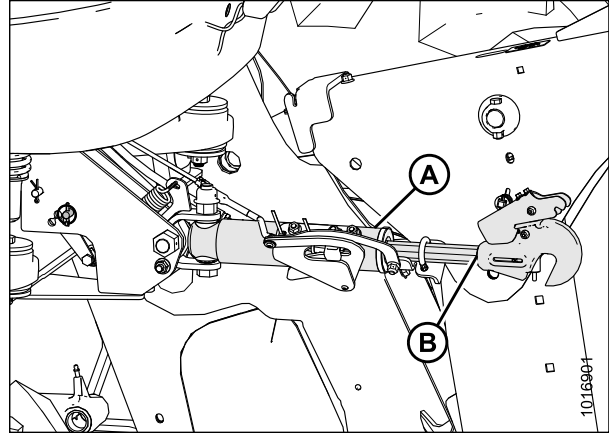


Figure 3.9: Hydraulic Center-Link

CAUTION

Check to be sure all bystanders have cleared the area.

- Start engine.

- Press the HEADER UP switch (A) to raise header to maximum height.

NOTE:

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

- Press and hold the HEADER UP switch (A) until both cylinders stop moving.
- Continue to hold the switch for 3–4 seconds. Cylinders are now phased.

- Stop the engine and remove the key.



Figure 3.10: Ground Speed Lever

- Engage safety prop on lift cylinder as follows:

- Pull lever (A) and rotate toward header to release, and lower safety prop onto cylinder.
- Repeat for opposite lift cylinder.

IMPORTANT:

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

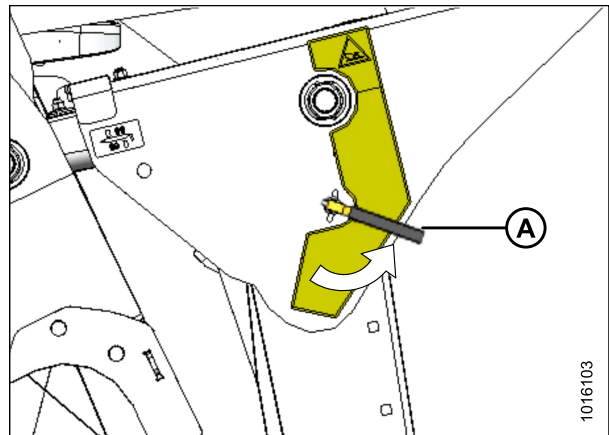


Figure 3.11: Cylinder Safety Prop

ATTACHING HEADER TO WINDROWER

16. Install clevis pin (A) through support and foot and secure with hairpin (B). Repeat for opposite side.

IMPORTANT:

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

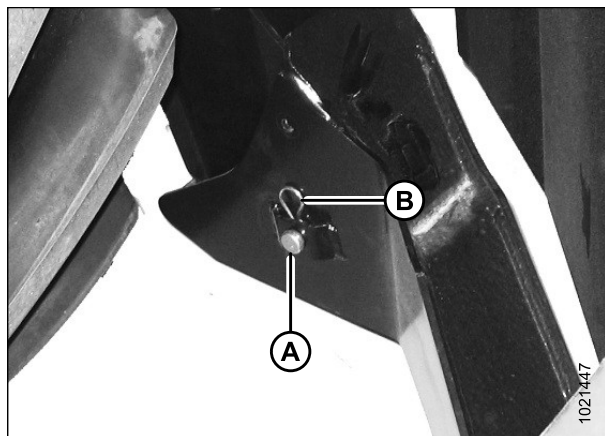


Figure 3.12: Header Support

17. Disengage safety prop by turning lever (A) downward to raise safety prop until lever locks into vertical position.

NOTE:

If safety prop will not disengage, raise header slightly.

18. Repeat for opposite side.



CAUTION

Check to be sure all bystanders have cleared the area.

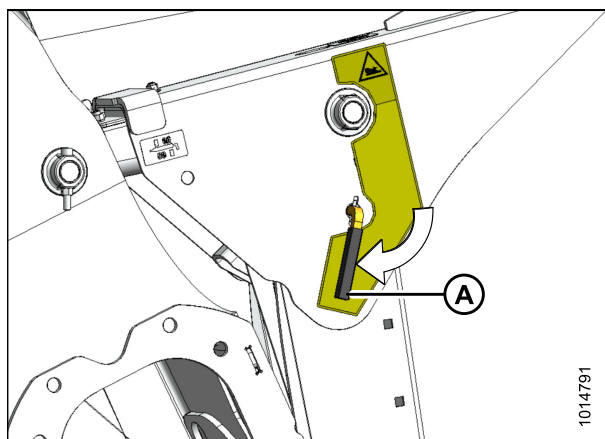


Figure 3.13: Cylinder Safety Prop

19. Start engine and press HEADER DOWN switch (A) on GSL to fully lower header.

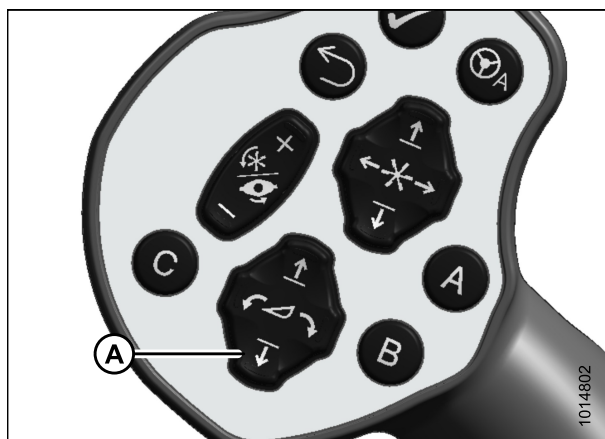


Figure 3.14: Ground Speed Lever

ATTACHING HEADER TO WINDROWER

NOTE:

If not prompted by the HPT display to restore header float, restore header float manually by doing the following:

20. Press rotary scroll knob (A) on Harvest Performance Tracker (HPT) to highlight QuickMenu options.
21. Rotate scroll knob (A) to highlight the HEADER FLOAT symbol (B) and press scroll knob to select. Screen changes.



Figure 3.15: HPT Display

22. 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.

23. Stop the engine and remove the key.
24. Proceed to [3.4.1 M1170 Windrowers, page 29](#).



Figure 3.16: HPT Display

3.2 Attaching R1 Series Self-Propelled Header to M155E4 Windrower: Self-Aligning Hydraulic Center-Link

1. Remove hairpin (B) from clevis pin (A) and remove clevis pin from the header supports (C) on both sides of the header.

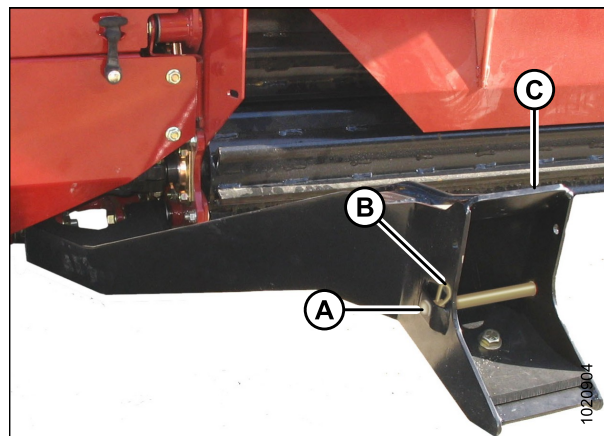


Figure 3.17: Header Support

CAUTION

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

CAUTION

Check to be sure all bystanders have cleared the area.

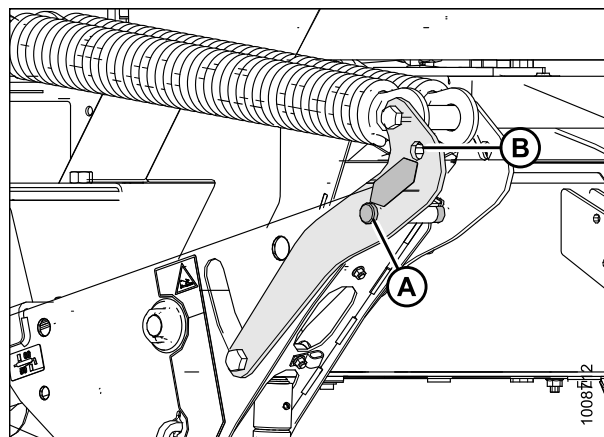


Figure 3.18: Header Float Linkage

IMPORTANT:

Before starting engine, remove protective cover from exhaust stack.

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



Figure 3.19: Ground Speed Lever

ATTACHING HEADER TO WINDROWER

IMPORTANT:

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

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

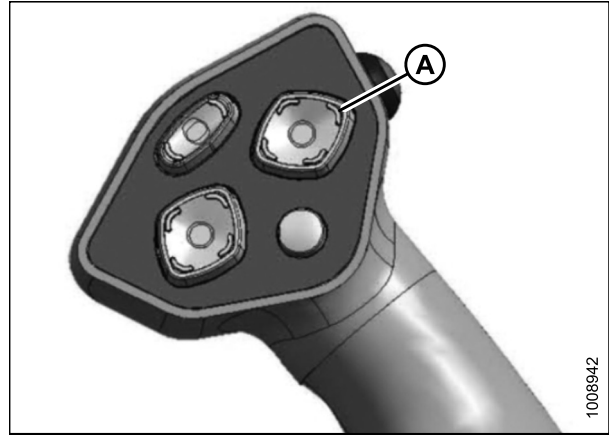


Figure 3.20: Ground Speed Lever

4. Drive the windrower slowly forward until the windrower feet (A) enter the header supports (B). Continue driving slowly forward until the feet engage the supports and the header nudges forward.

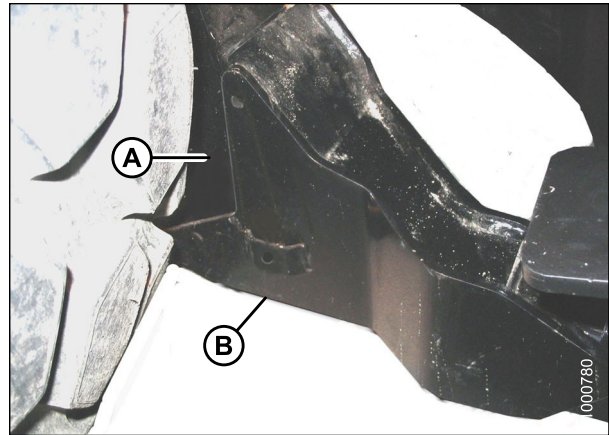


Figure 3.21: Header Support

5. 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

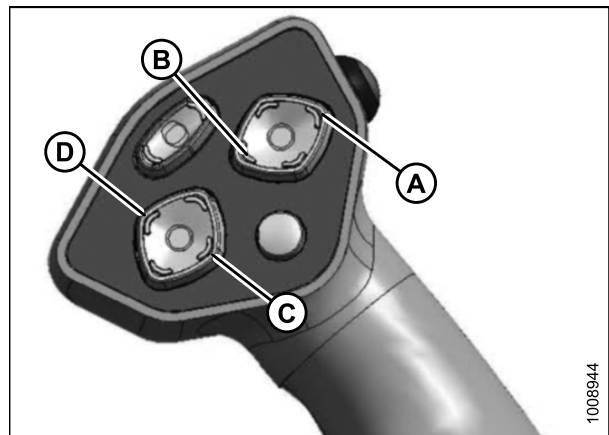


Figure 3.22: Ground Speed Lever

ATTACHING HEADER TO WINDROWER

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

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



CAUTION

Check to be sure all bystanders have cleared the area.

- Press the HEADER UP switch (A) to raise header to maximum height.

NOTE:

If one end of the header does **NOT** fully rise, 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. Cylinders are now phased.

NOTE:

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

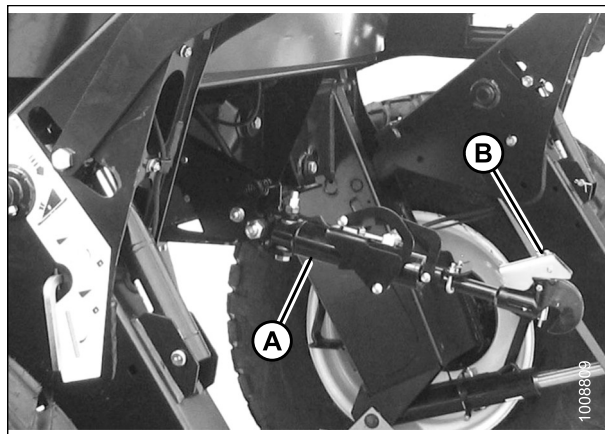


Figure 3.23: Hydraulic Center-Link

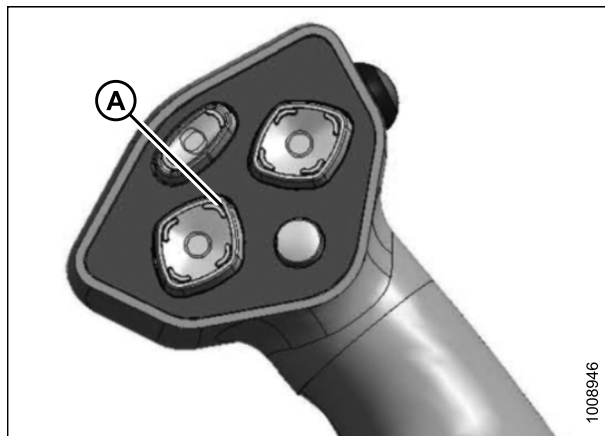


Figure 3.24: Ground Speed Lever

ATTACHING HEADER TO WINDROWER

10. Engage safety props on both lift cylinders as follows:

- a. Stop engine and remove key from ignition.
- b. Pull lever (A) and rotate towards the header to release and lower safety prop (B) onto the lift cylinder.
- c. Repeat for opposite lift cylinder.

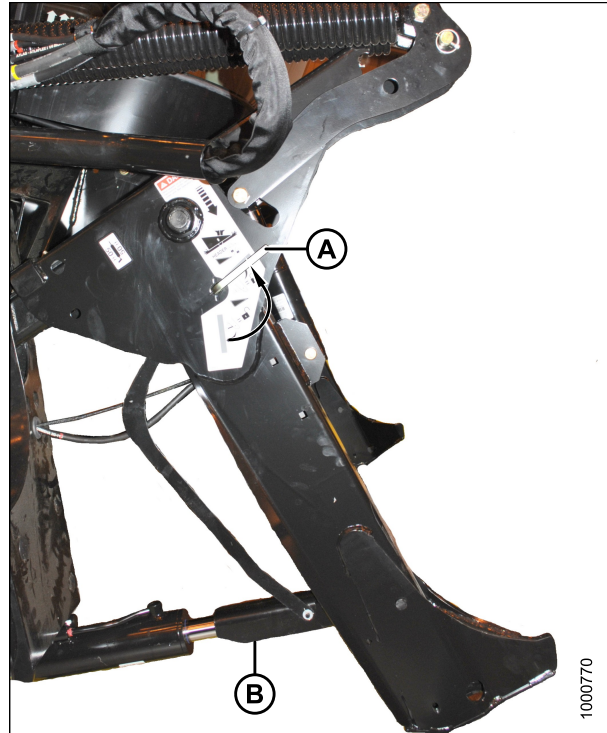


Figure 3.25: Safety Prop

11. Install clevis pin (A) through support and windrower lift member, and secure with hairpin (B). Repeat for opposite side.

IMPORTANT:

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

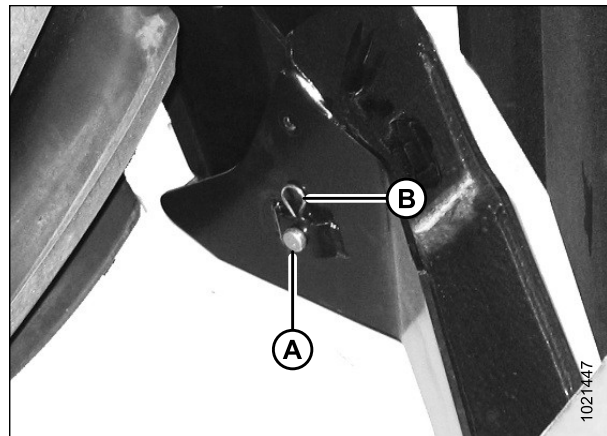


Figure 3.26: Header Support

ATTACHING HEADER TO WINDROWER

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

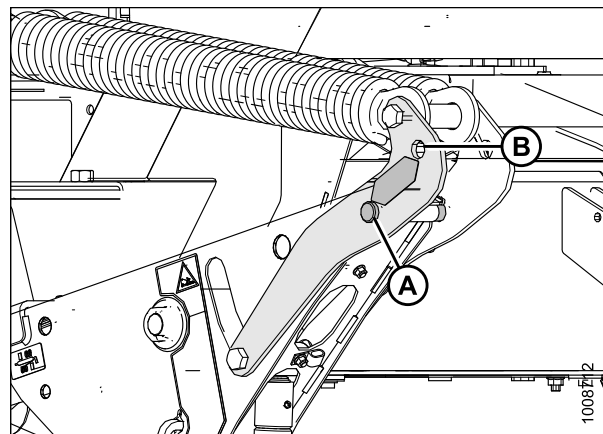


Figure 3.27: Header Float Linkage

13. Disengage safety prop by turning lever (A) downwards to release and lower stop until lever locks into vertical position.
14. Repeat for opposite safety prop.

CAUTION

Check to be sure all bystanders have cleared the area.

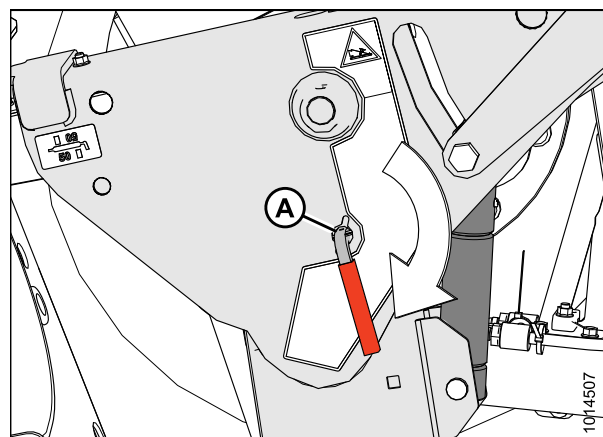


Figure 3.28: Safety Prop

15. Start the engine and activate the HEADER DOWN switch (A) on the GSL to fully lower the header.
16. Stop engine and remove key from ignition.

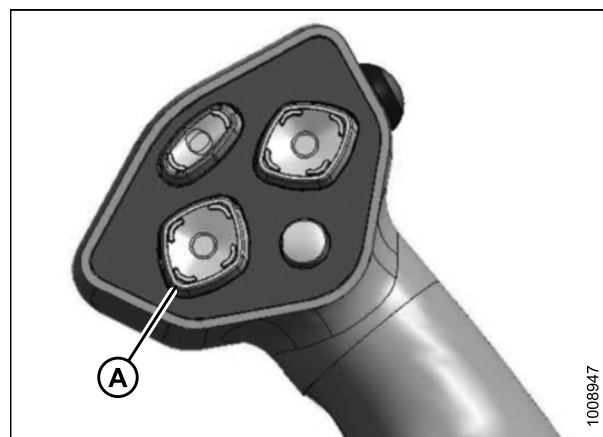


Figure 3.29: Ground Speed Lever

3.3 Attaching R1 Series Self-Propelled Header to M155E4 Windrower: Hydraulic Center-Link without Self-Alignment

1. Remove hairpin (B) from clevis pin (A) and remove clevis pin from the header supports (C) on both sides of the header.

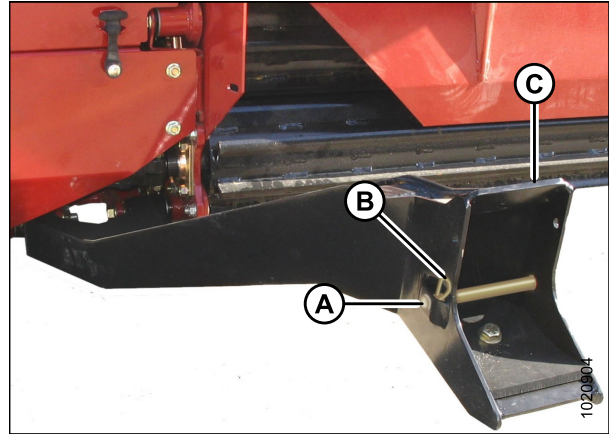


Figure 3.30: Header Support

CAUTION

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

CAUTION

Check to be sure all bystanders have cleared the area.

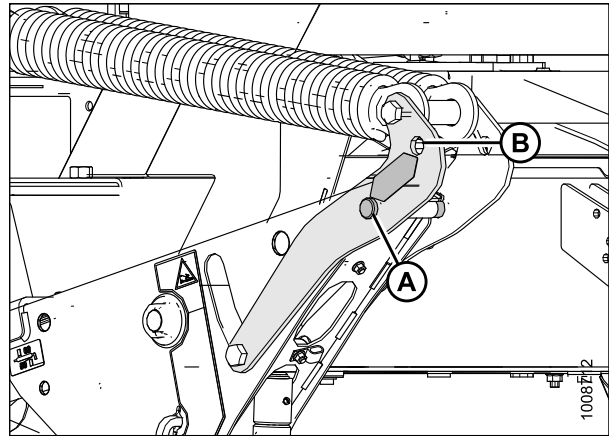


Figure 3.31: Header Float Linkage

IMPORTANT:

Before starting engine, remove protective cover from exhaust stack.

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

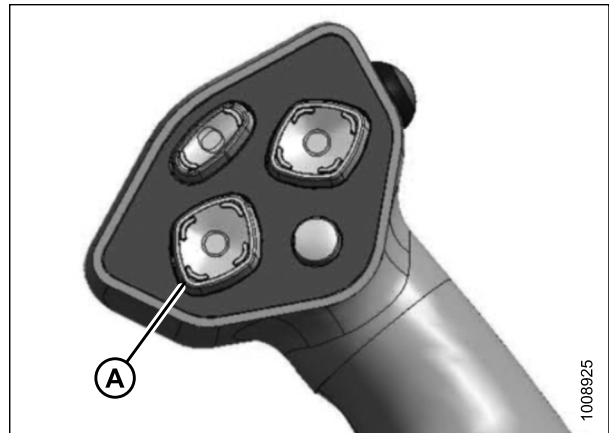


Figure 3.32: Ground Speed Lever

ATTACHING HEADER TO WINDROWER

3. Relocate pin (A) in frame linkage as required to raise the center-link (B) 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.

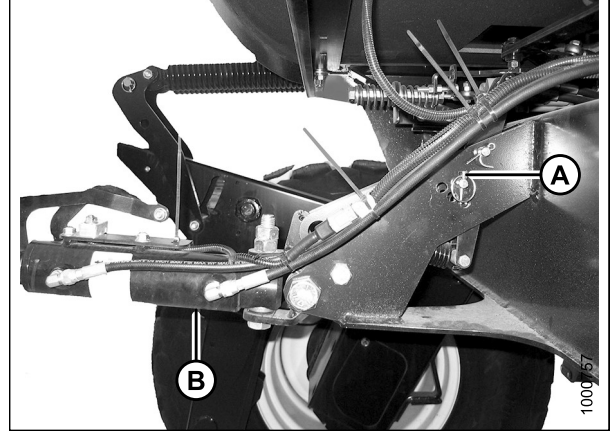


Figure 3.33: Hydraulic Center-Link

4. Drive the windrower slowly forward until the windrower feet (A) enter the header supports (B). Continue driving slowly forward until the feet engage the supports and the header nudges forward.

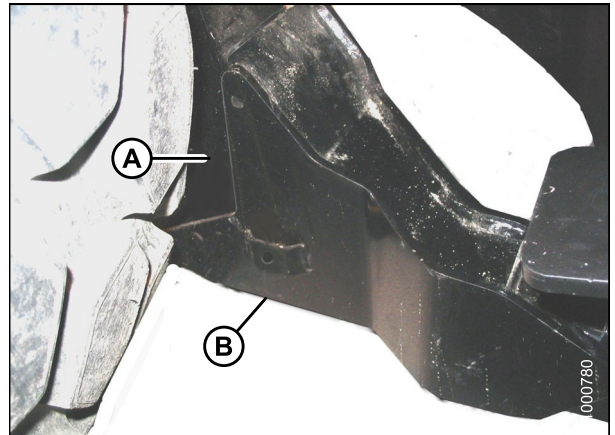


Figure 3.34: Header Support

5. 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
6. Stop engine and remove key from ignition.

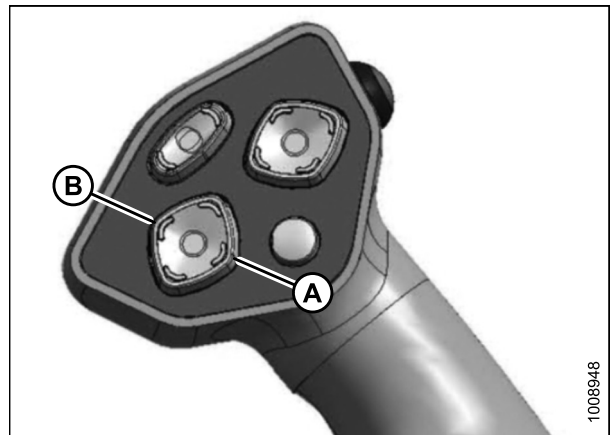


Figure 3.35: Ground Speed Lever

ATTACHING HEADER TO WINDROWER

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

IMPORTANT:

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

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



CAUTION

Check to be sure all bystanders have cleared the area.

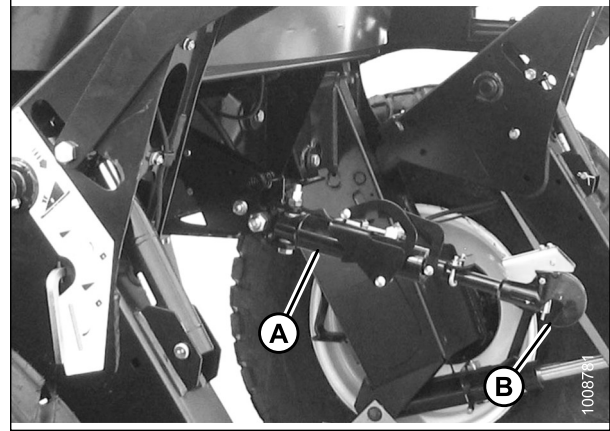


Figure 3.36: Hydraulic Center-Link

9. Start the engine.
10. Press the HEADER UP switch (A) to raise header to maximum height.

NOTE:

If one end of the header does **NOT** fully rise, 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. Cylinders are now phased.

NOTE:

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

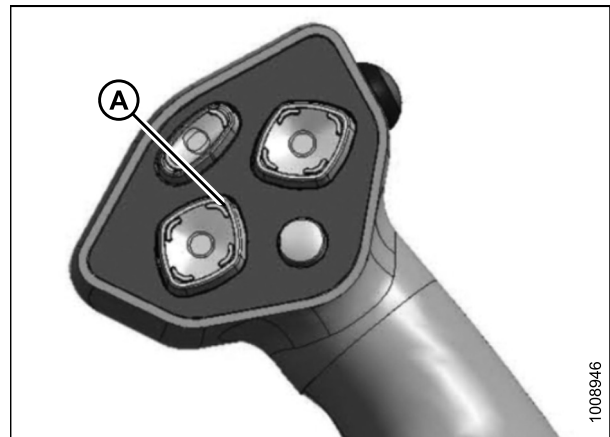


Figure 3.37: Ground Speed Lever

ATTACHING HEADER TO WINDROWER

11. Engage safety props on both lift cylinders as follows:

- a. Stop engine and remove key from ignition.
- b. Pull lever (A) and rotate towards the header to release and lower safety prop (B) onto the lift cylinder.
- c. Repeat for opposite lift cylinder.

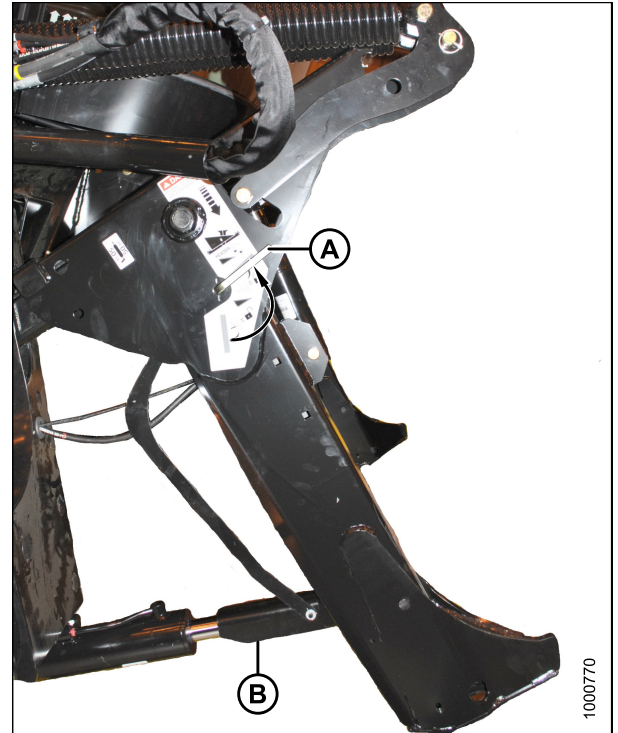


Figure 3.38: Safety Prop

12. Install clevis pin (A) through support and windrower lift member, and secure with hairpin (B). Repeat for opposite side.

IMPORTANT:

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

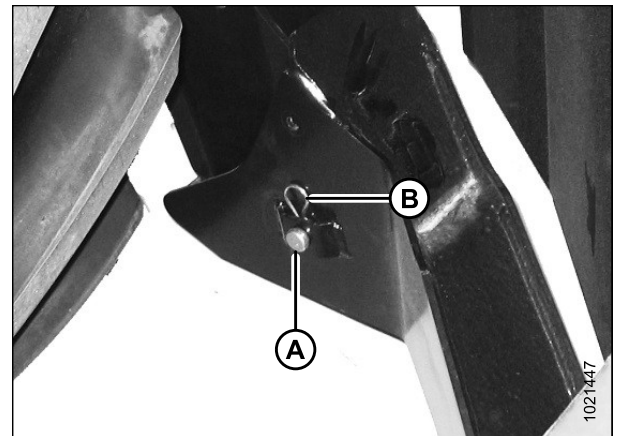


Figure 3.39: Header Support

ATTACHING HEADER TO WINDROWER

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

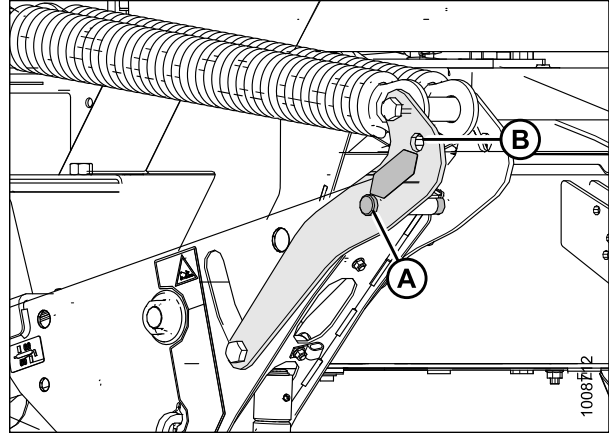


Figure 3.40: Header Float Linkage

14. Disengage safety prop by turning lever (A) downwards to release and lower stop until lever locks into vertical position.

15. Repeat for opposite safety prop.

CAUTION

Check to be sure all bystanders have cleared the area.

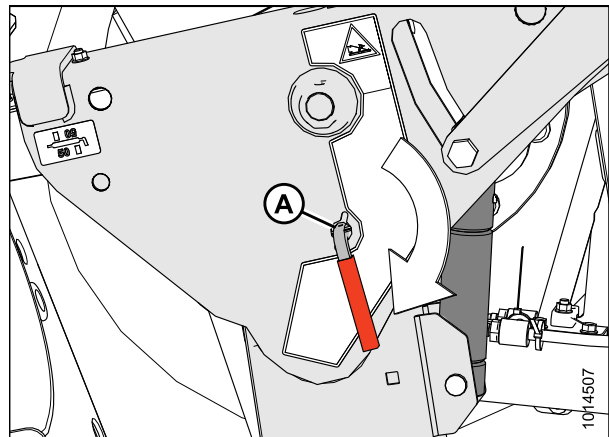


Figure 3.41: Safety Prop

16. Start the engine and activate the HEADER DOWN switch (A) on the GSL to fully lower the header.
17. Stop engine and remove key from ignition.

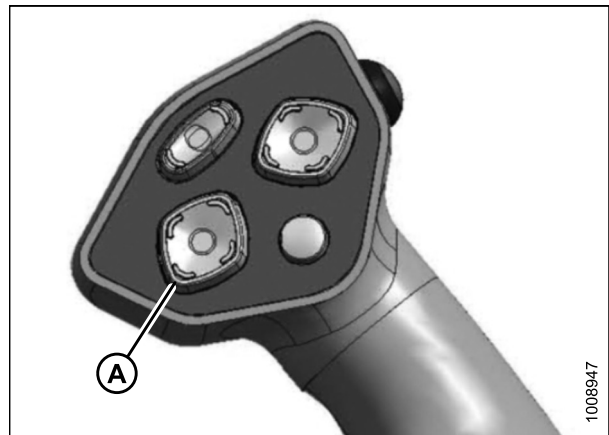


Figure 3.42: Ground Speed Lever

3.4 Attaching Hydraulics and Electrical Connections

The procedure for attaching the header hydraulic and electrical connections depends on the windrower model. Refer to the appropriate procedure:

- [3.4.1 M1170 Windrowers, page 29](#)
- [3.4.2 M155E4 Windrowers, page 33](#)

3.4.1 M1170 Windrowers

1. Open the windrower's left side platform. Refer to windrower operator's manual for procedure.
2. Retrieve hydraulic hoses from header.
3. Attach hose support (A) to frame near windrower left cab-forward leg, and route hoses under frame.

NOTE:

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

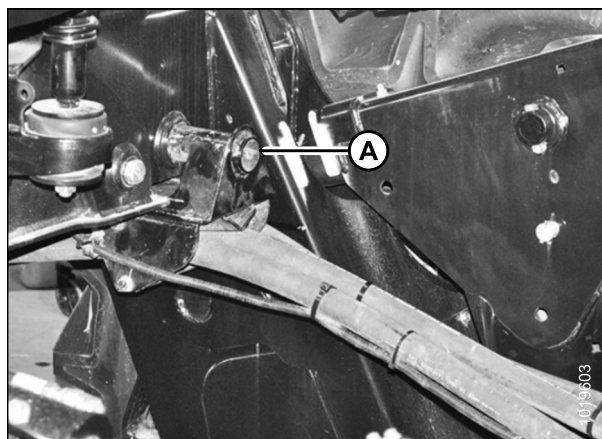


Figure 3.43: Hose Support Attachment

4. Disconnect male coupler (A) from pressure hose, and female coupler and fitting (B) from return hose.

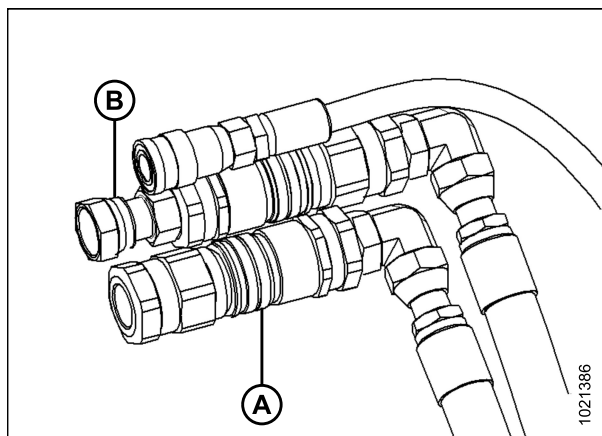


Figure 3.44: Hoses from Header

ATTACHING HEADER TO WINDROWER

5. Remove coupling and cap (A) and plug (B) from fittings on windrower.

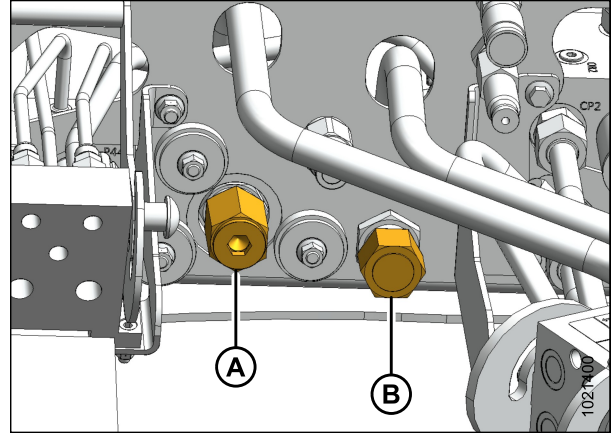


Figure 3.45: Windrower Hydraulics

6. Install male coupler onto pressure fitting (A), and female coupler onto return fitting (B) on windrower.
7. Tighten couplers onto fittings.

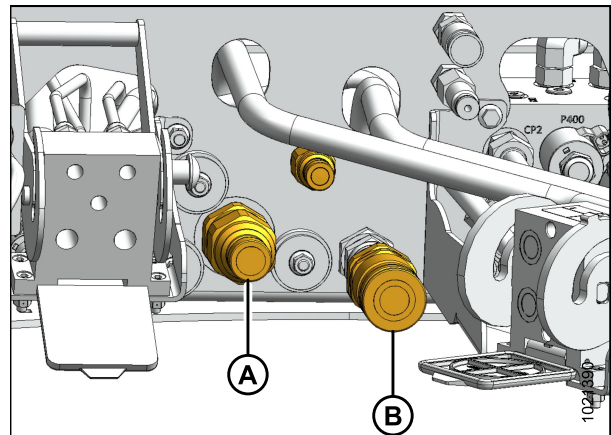
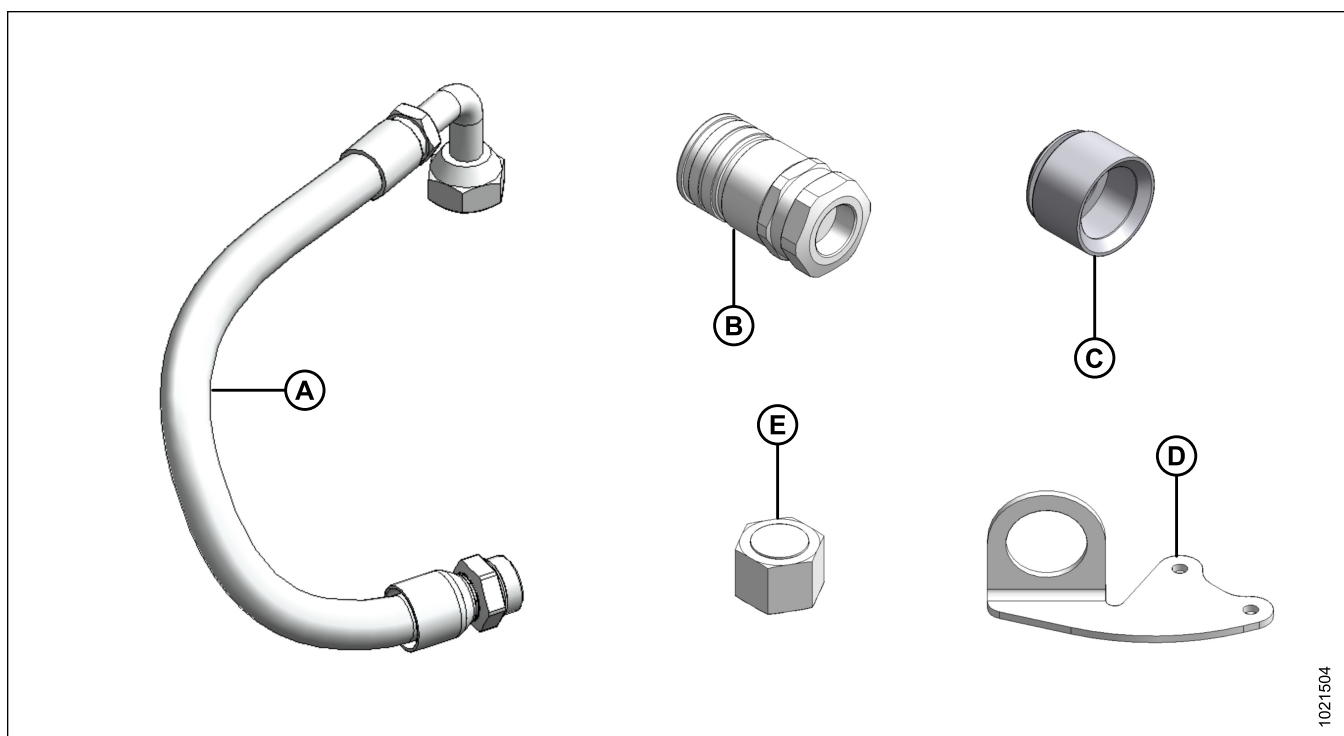


Figure 3.46: Couplers

8. Retrieve following parts from bag located inside left header support:

ATTACHING HEADER TO WINDROWER

Figure 3.47: Hydraulic Drive Parts



A - 253785, Hose, Hyd, Knife Pressure (1)
D - 253783, Bracket, Coupler Holder (1)

B - 136413, Fitting, Coupling, Female (1)
E - 135718, Cap, Hyd, SAE-16 ORFS (1)

C - 243604, Cap, Harness (1)

9. Connect female coupler (A) to hose (B). Refer to appropriate section for assembling hydraulic fittings in [9.4 Torque Specifications, page 88](#).

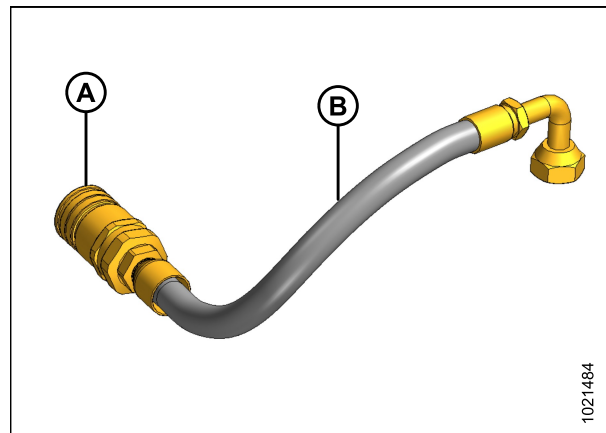


Figure 3.48: Pressure Hose Assembly

ATTACHING HEADER TO WINDROWER

10. Disconnect steel line (A) from elbow (B) and tee (C) (inside frame) and remove line. Discard line.

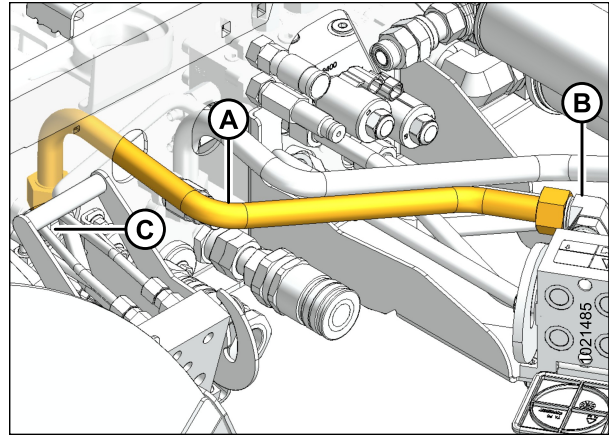


Figure 3.49: Tractor Couplers

11. Install cap (A) on tee.
12. Reposition elbow (B) as shown.

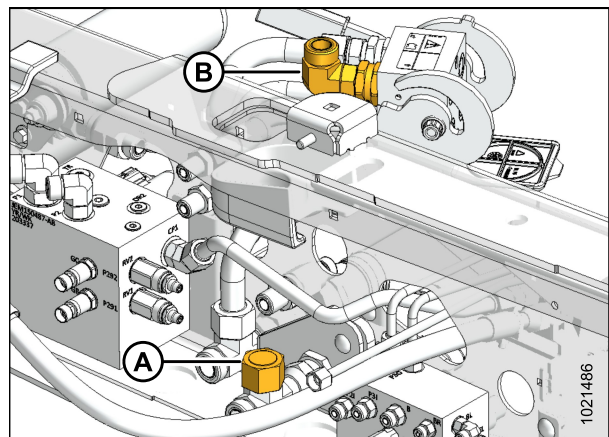


Figure 3.50: Tractor Header Drive

13. Remove two existing nuts (A) securing multicoupler to bracket (B).
14. Position new bracket (C) onto existing bolts and secure with existing nuts (A).
15. Install rubber coupler holder (D) into bracket (C).

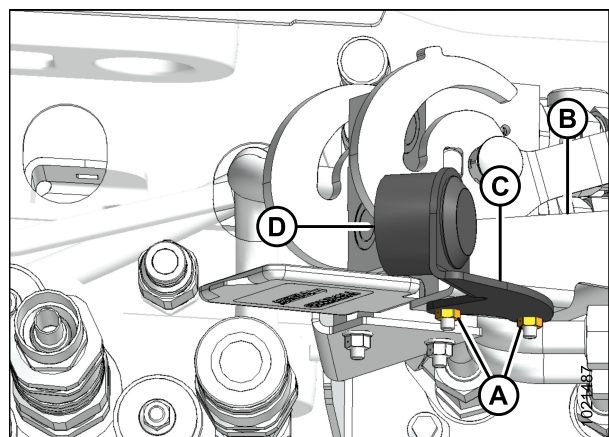


Figure 3.51: Tractor Couplers

ATTACHING HEADER TO WINDROWER

16. Connect hose fitting (A) to elbow (B).
17. Place female coupler (C) in coupler holder (D).

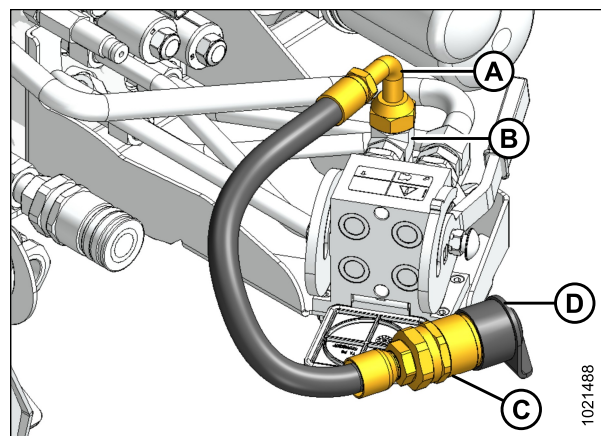


Figure 3.52: Tractor Coupler

18. If necessary, use a clean rag to remove dirt and moisture from the couplers.
19. Attach couplers to receptacles on windrower as follows:
 - a. Connect pressure hose female coupler to receptacle (A)
 - b. Connect return hose male coupler to receptacle (B)
 - c. Connect case drain hose coupler to receptacle (C)
 - d. Connect the electrical harness to receptacle (D)

NOTE:

The hydraulic hoses should have enough slack to pass by the multicoupler (E) without coming into contact with it. This will protect the hoses from rubbing against the multicoupler and becoming damaged. You can increase slack in the hoses by loosening and adjusting the hose holder on the front windrower leg, and pulling the hoses backward toward the windrower.

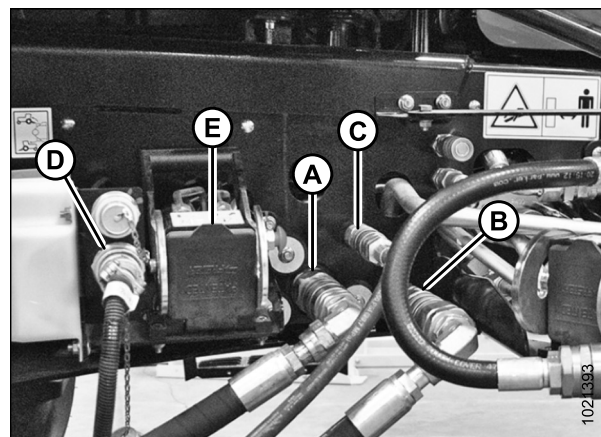


Figure 3.53: Hydraulic and Electrical Connections

3.4.2 M155E4 Windrowers

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.

NOTE:

The Self-Propelled Windrowers require the disc drive manifold kit (MD #B4657) to hydraulically connect the R113 rotary disc header.

ATTACHING HEADER TO WINDROWER

1. Disengage and rotate lever (A) counterclockwise to FULLY-UP position.
2. Remove the cap (B) securing the electrical connector to the frame.

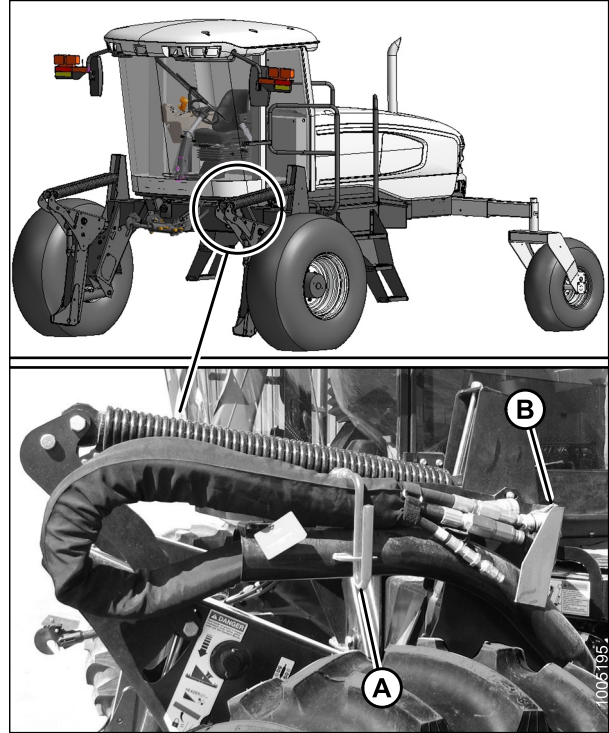


Figure 3.54: Hose Bundle

3. Move hose bundle (A) from the windrower and rest the bundle on the header.

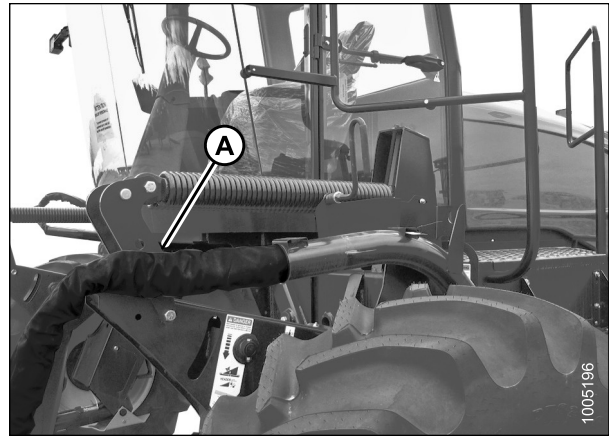


Figure 3.55: Hose Bundle

ATTACHING HEADER TO WINDROWER

4. Position the hose support with lower bolt (A) in the forward hole, as shown. Loosen both bolts, and adjust as required.

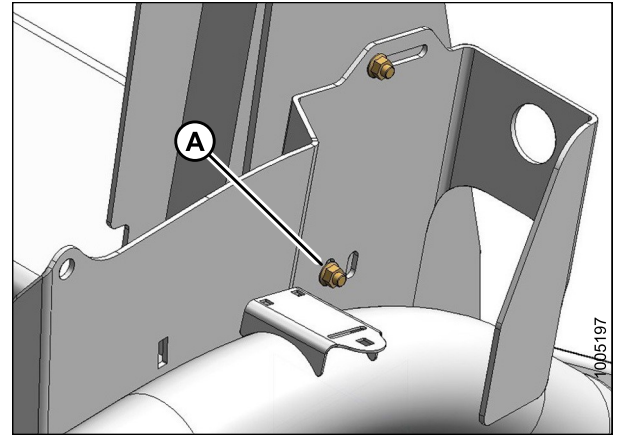


Figure 3.56: Hose Support

5. Move the windrower's left-side (cab-forward) platform (A) to the OPEN position.

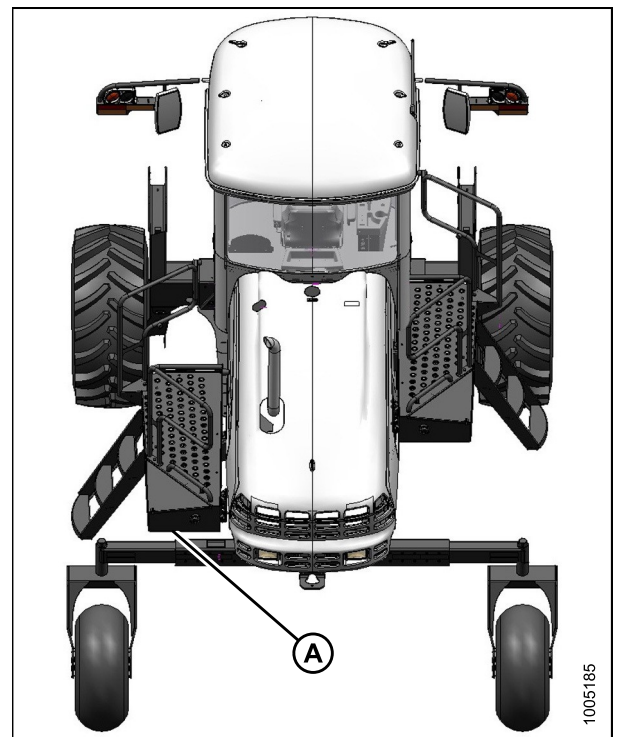


Figure 3.57: Windrower Left Platform in Open Position

ATTACHING HEADER TO WINDROWER

6. Route the windrower hose bundle (A) through hose support (B) on the header.
7. Route the hose (C) from the header through support (B) to the windrower.

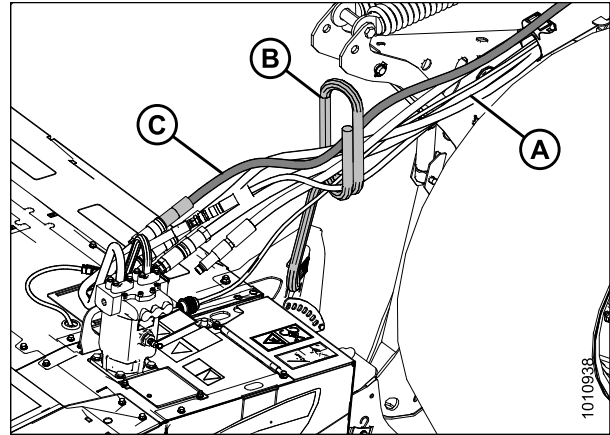


Figure 3.58: Hose Bundle

IMPORTANT:

Keep open lines and ports clean.

8. Connect the single pressure hose (A) routed from the header to port M2 on the disc drive valve (middle block).

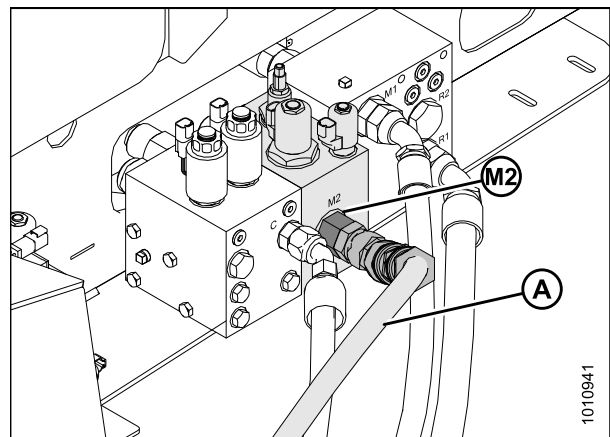


Figure 3.59: Hydraulic Connections

ATTACHING HEADER TO WINDROWER

9. Remove caps and plugs on hoses from windrower and lines on header.
10. Connect the pressure hose (B) from the drive manifold port M1 to the steel line attached to motor port (A).

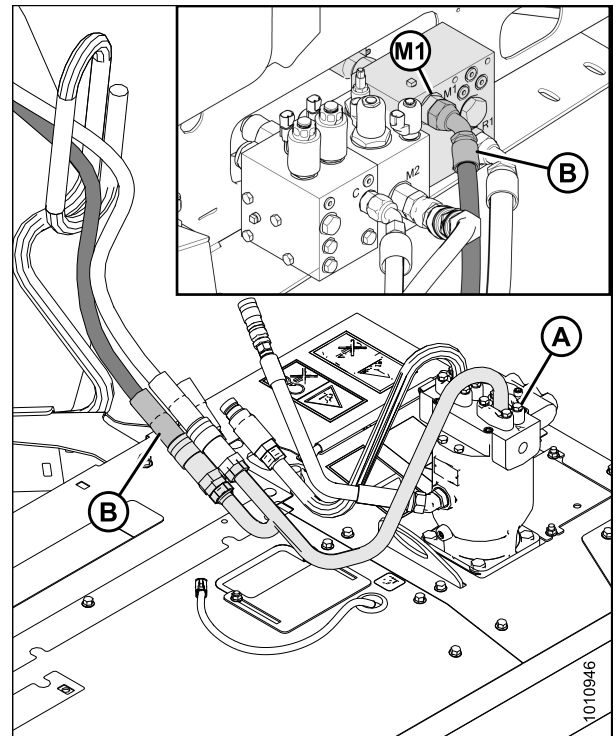


Figure 3.60: Hydraulic Connections

11. Connect the return hose (A) from the drive manifold port R1 to the steel line attached to motor port (B).

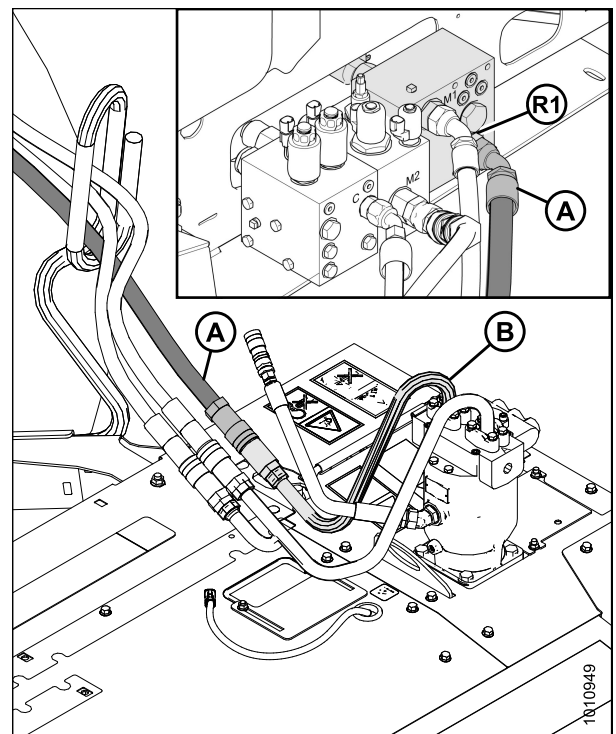


Figure 3.61: Hydraulic Connections

ATTACHING HEADER TO WINDROWER

NOTE:

If the windrower is equipped with a reverser valve (A) for an auger header, route the return hose (B) from port R1 on the reverser valve to the steel line attached to motor port (C).

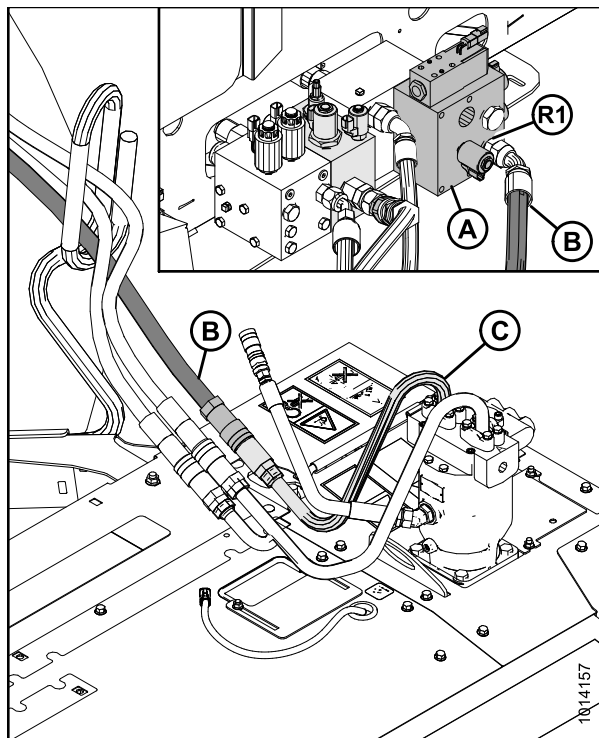


Figure 3.62: Windrower Hose Connections with Reverser

13. Connect the case drain hose (A) from the lift manifold port T3 to the fitting attached to motor port (D).

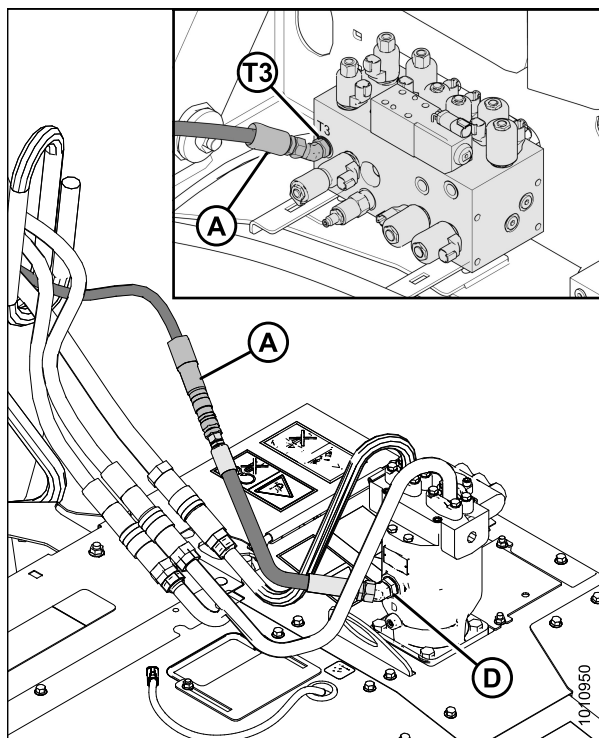


Figure 3.63: Hydraulic Connections

ATTACHING HEADER TO WINDROWER

14. Connect the electrical harness (A) from windrower to the electrical connector on the header.

NOTE:

Hydraulic hoses removed from the illustration to improve clarity.

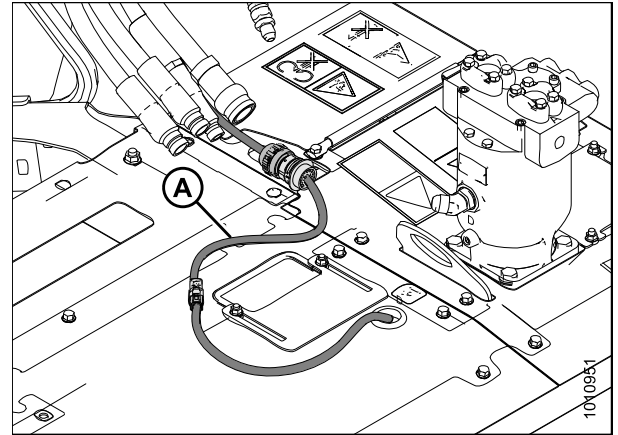


Figure 3.64: Electrical Connection

15. Lower and lock lever (A). Secure hose (B) with three cinch straps (C).

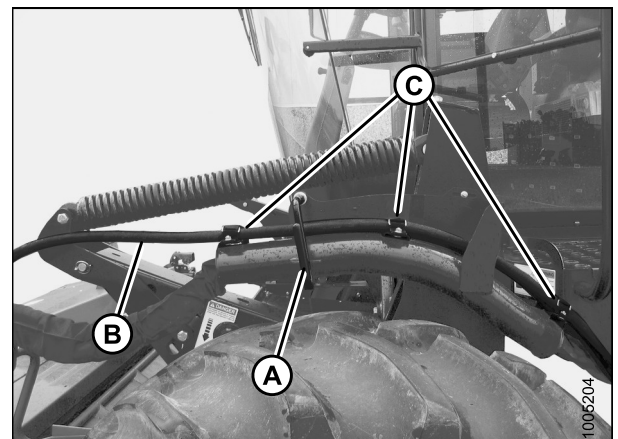


Figure 3.65: Hose Bundle

ATTACHING HEADER TO WINDROWER

16. Move platform (A) to the CLOSED position.

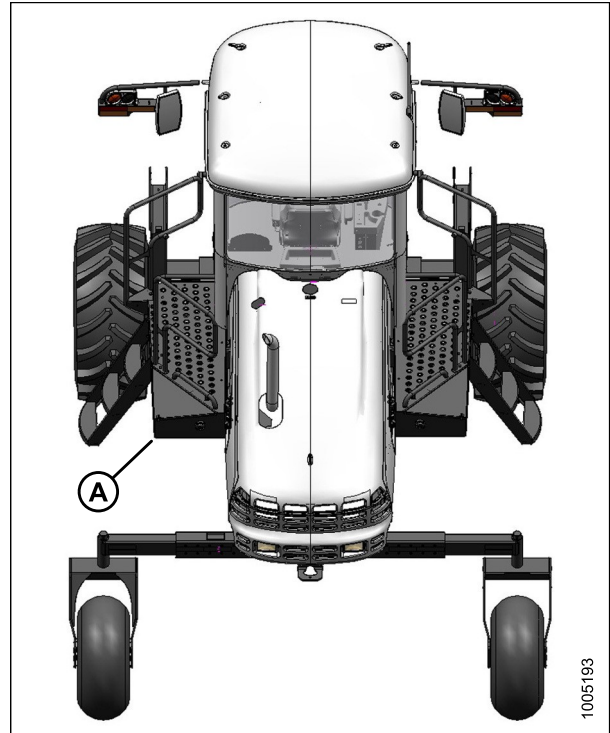


Figure 3.66: Top View of Windrower

4 Unpacking Curtains

1. Remove two bolts (A) securing cutterbar doors to frame.

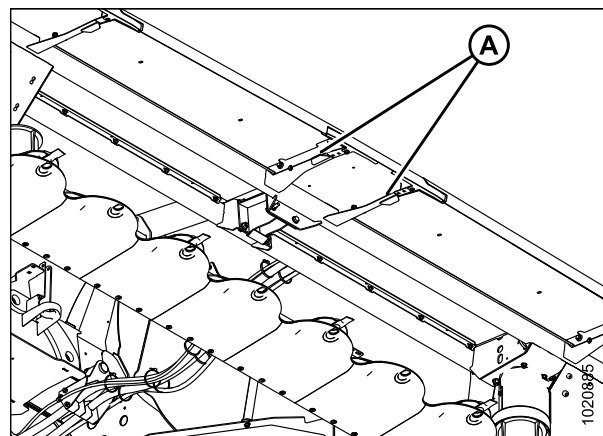


Figure 4.1: Cutterbar Doors (View Looking Up)

2. Remove shipping wire (A) around curtains.



WARNING

Ensure 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.

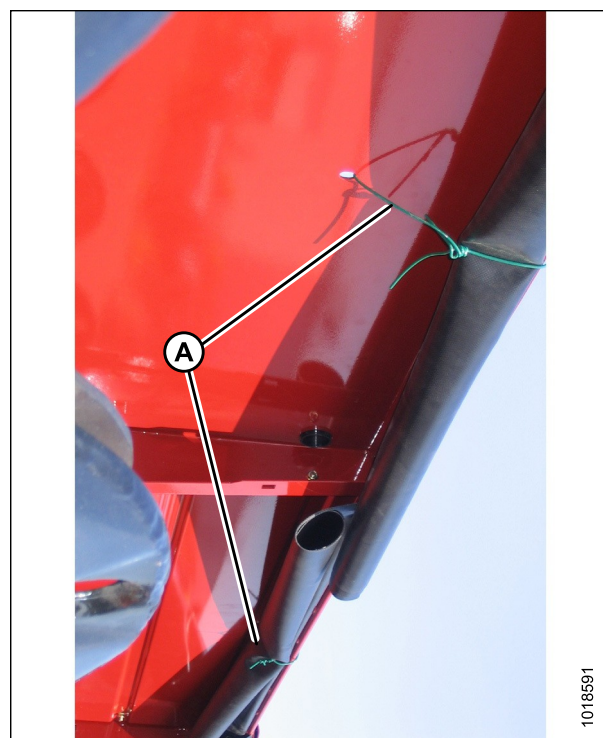


Figure 4.2: Curtain Secured for Shipping

UNPACKING CURTAINS

3. Open cutterbar doors. Refer to [9.3.1 Opening Cutterbar Doors, page 87](#).
4. Check cutterbar area for debris and foreign objects. Ensure all material is removed.

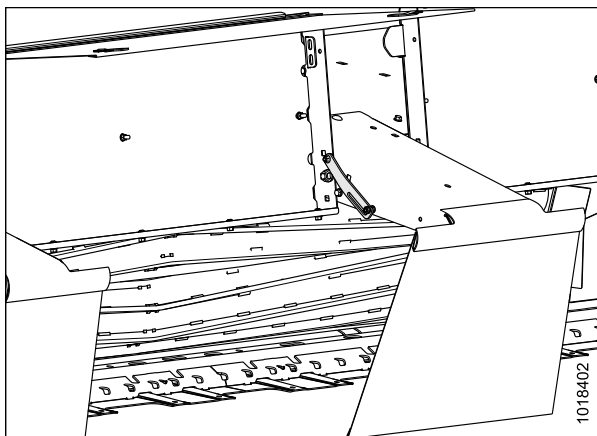


Figure 4.3: Cutterbar Doors Open

5. Close cutterbar doors. Refer to [9.3.2 Closing Cutterbar Doors, page 87](#).
6. Ensure that curtains hang properly and completely enclose cutterbar area. Minor creases in curtains will eventually straighten out.



Figure 4.4: Curtain – Unacceptable



Figure 4.5: Curtain – Acceptable

5 Installing Options

Install options (if supplied with shipment) in accordance with the instructions supplied with each kit.

5.1 Installing Tall Crop Divider

To install the tall crop divider kit (MD #B5800), follow these steps:

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 header/mower conditioner fully.
2. Stop the engine, and remove the key.
3. Unpack kit.
4. Open cutterbar doors.
5. Remove the four bolts (A) from the divider (B).

NOTE:

Mounting holes in rotary disc header should be vacant. If necessary, remove fasteners.

6. Position left divider (B) on rotary disc header left front corner, and install with four bolts (A) and nuts in existing holes. Tighten hardware.
7. Repeat for right side.
8. Close the cutterbar doors.

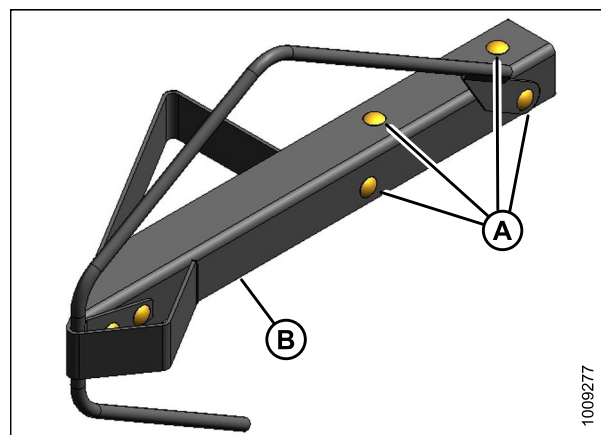


Figure 5.1: Tall Crop Divider Kit (Left Shown – Right Opposite)

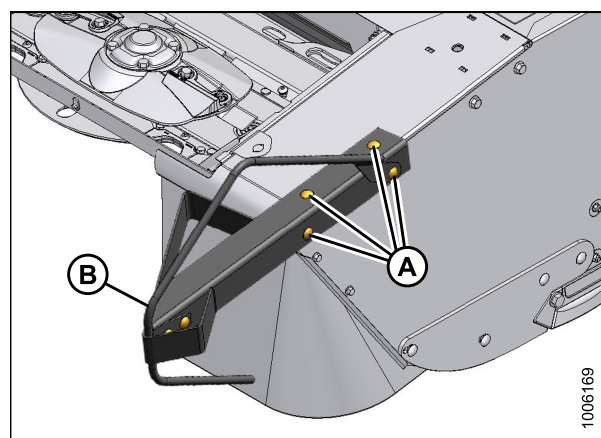


Figure 5.2: Tall Crop Divider (Left Shown – Right Opposite)

5.2 Installing Optional Steel Roll Conditioner

If installing a steel roll conditioner, refer to [8 Changing the Conditioner, page 69](#).

5.3 Installing Optional Polyurethane Roll Conditioner

If installing a polyurethane roll conditioner, refer to [8 Changing the Conditioner, page 69](#).

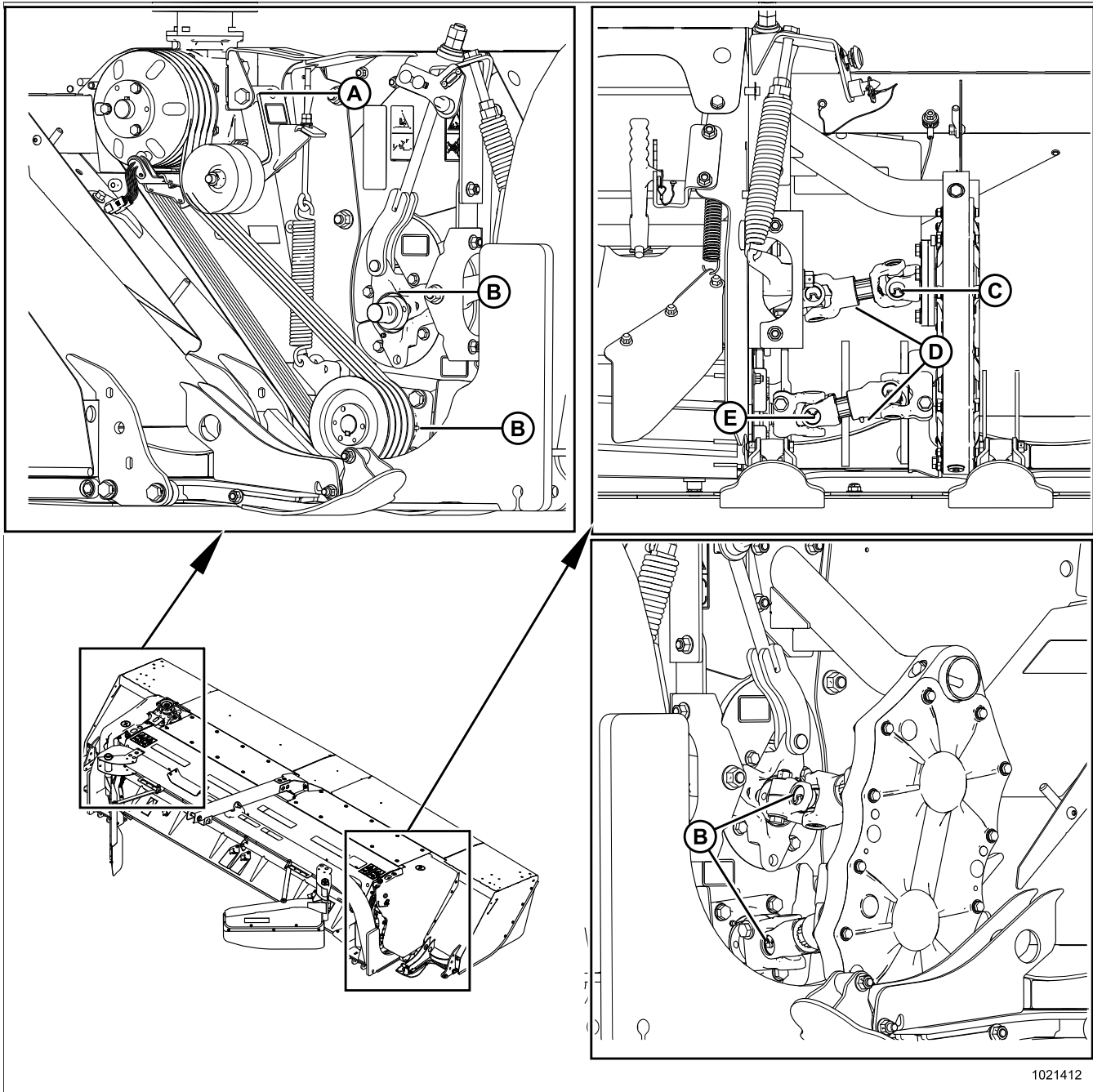
6 Lubricating the Rotary Disc Header

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.

The rotary disc header has been lubricated at the factory. However, lubricate the rotary disc header prior to delivery to offset the effects of weather during outside storage and transport, and to familiarize yourself with the machine. Unless otherwise specified, use high temperature extreme pressure (EP2) performance with 1% max molybdenum disulphide (NLGI grade 2) lithium base grease.

6.1 Lubrication Procedure



1021412

A - Idler Pivot
D - Slip Joints, Conditioner Drivelines²

B - Bearing, Roller Conditioner (4 Places)
E - U-Joint, Lower Driveline (2 Places)

C - U-Joint, Upper Driveline (2 Places)

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

7 Performing Predelivery Checks

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. Perform final checks and adjustments as listed on the yellow sheet attached to back of this instruction, to ensure the machine is field-ready. Refer to the referenced pages as indicated on the checklist for detailed instructions.
2. The completed checklist should be retained either by the Operator or the Dealer.

7.1 Checking Conditioner Drive Belt

1. Open the left driveshield. For instructions, refer to [9.1 Opening Driveshields, page 83](#).
2. Check that the belt (A) is properly located on the pulleys and tensioned. Overall spring length (B) should be 365 mm (14-3/8 in.). If adjustment is required, refer to [7.1.1 Adjusting Conditioner Drive Belt, page 49](#).
3. Check that the adjuster nuts (C) are tight.
4. Close driveshield. For instructions, refer to [9.2 Closing Driveshields, page 85](#).

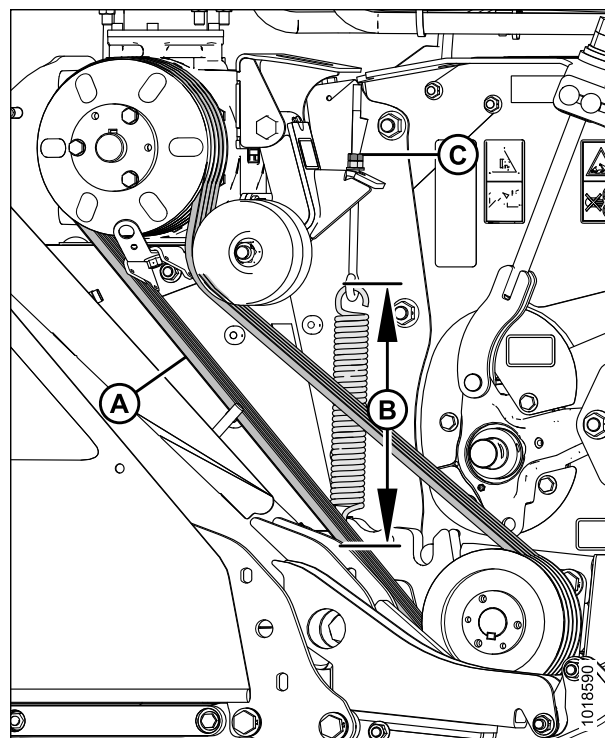


Figure 7.1: Conditioner Belt

7.1.1 Adjusting Conditioner Drive Belt

DANGER

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

1. Shut down the engine and remove the key from ignition.
2. Open the left driveshield. Refer to [9.1 Opening Driveshields, page 83](#).

PERFORMING PREDELIVERY CHECKS

3. Turn jam nut (A) counterclockwise to unlock tension adjustment.
4. Turn adjuster nut (C) clockwise to increase spring length (tension) or counterclockwise to decrease spring length (relax).
5. Set overall spring length (B) to 365 mm (14-3/8 in.).
6. Close driveshield. Refer to [9.2 Closing Driveshields](#), [page 85](#).

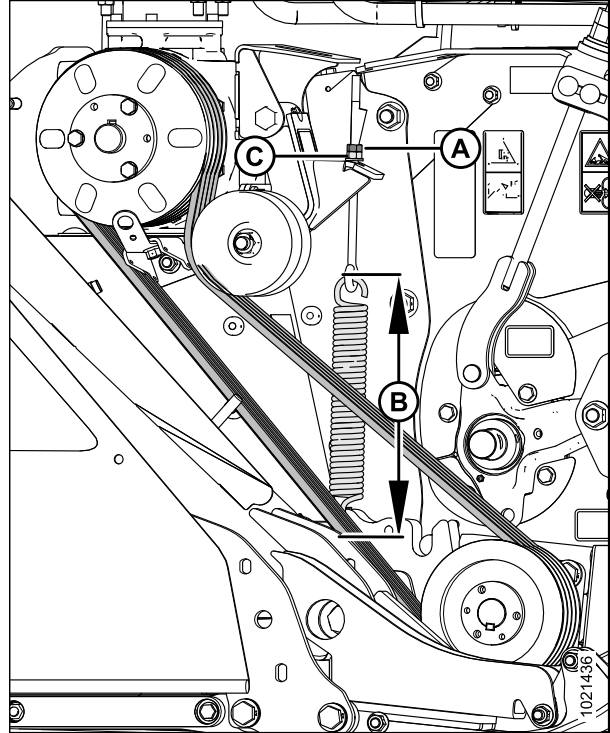


Figure 7.2: Conditioner Drive Belt

7.2 Checking Skid Shoes

All skid shoes (A) should be at the same position, either up (shown) or down.

NOTE:

The 13-foot mower conditioner is equipped with one skid shoe at each end.

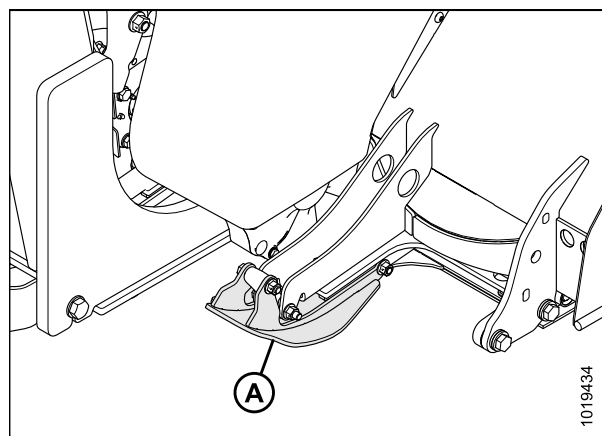


Figure 7.3: Skid Shoe (13 ft.)

7.3 Checking Roll Timing

Check roll timing if excessive noise is coming from the conditioner rolls.

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.

Roll timing is factory-set and should not require adjustment. However, if there is excessive noise coming from the conditioner rolls, the timing will need to be adjusted. Refer to [7.3.1 Adjusting Roll Timing, page 52](#).

7.3.1 Adjusting Roll Timing

1. Loosen four bolts (A) in slots of yoke plate (B) on upper roll universal shaft.

NOTE:

Only three of the four bolts are shown in the illustration.

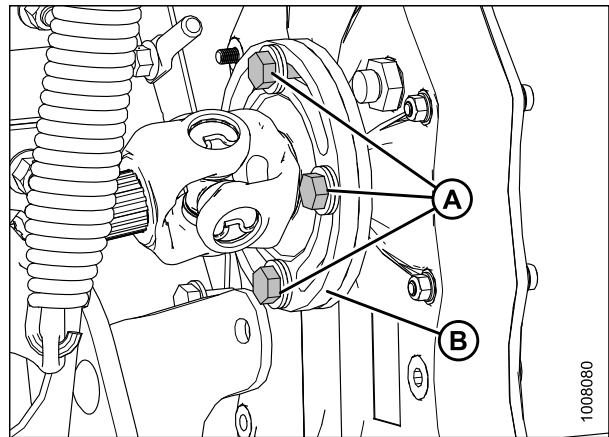


Figure 7.4: Conditioner Drive

PERFORMING PREDELIVERY CHECKS

NOTE:

When setting roll timing, ensure the grease fittings (F) on both drivelines face towards the rear simultaneously.

2. Secure bottom roll (A).
3. Manually rotate the upper roll (B) in a counterclockwise direction until it stops.
4. Make a mark (C) across the yoke (D) and gearbox flange (E).

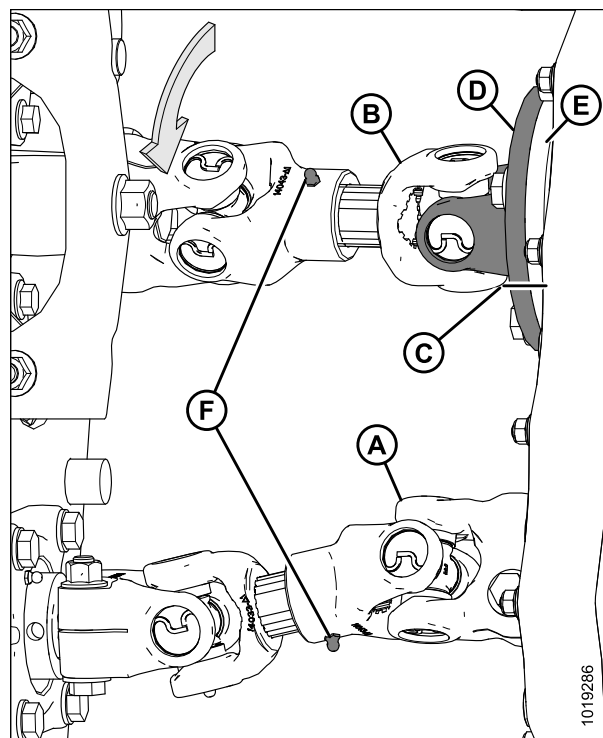


Figure 7.5: Conditioner Drive

5. Manually rotate upper roll (A) in a clockwise direction until it stops. Make a second mark (B) on the yoke flange, and align it with the mark on the gearbox flange.

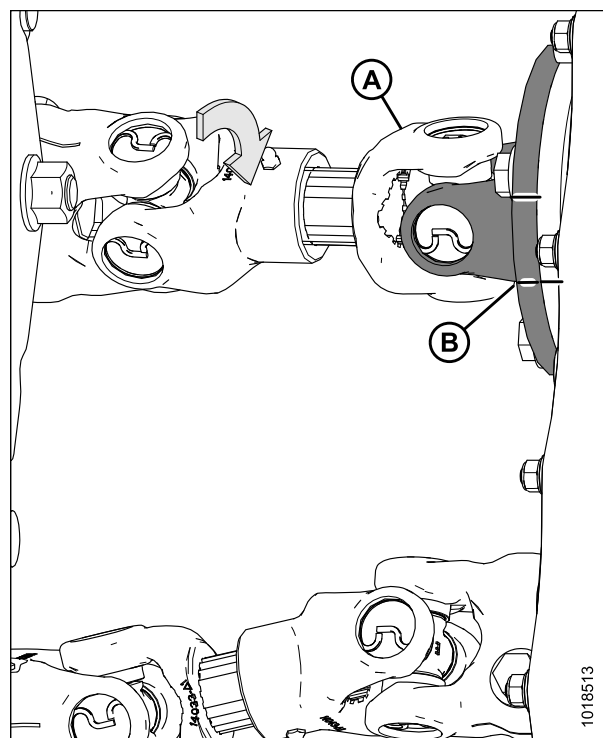


Figure 7.6: Conditioner Drive

PERFORMING PREDELIVERY CHECKS

6. Determine the center point (A) between the two marks on the yoke plate, and place a third mark.
7. Rotate the upper roll (B) in the counterclockwise direction until the bolt lines up with the third (center) mark.

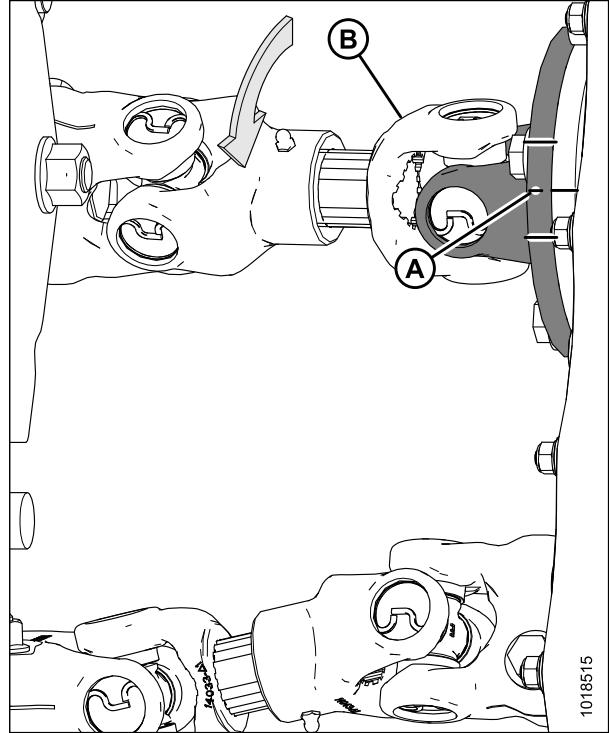


Figure 7.7: Conditioner Drive

8. Ensure threads on bolts (A) are clean and free of lubricant.
9. Apply Loctite® 242 (Blue), and tighten bolts (A) to secure the position. Torque to 95 Nm (70 lbf·ft).

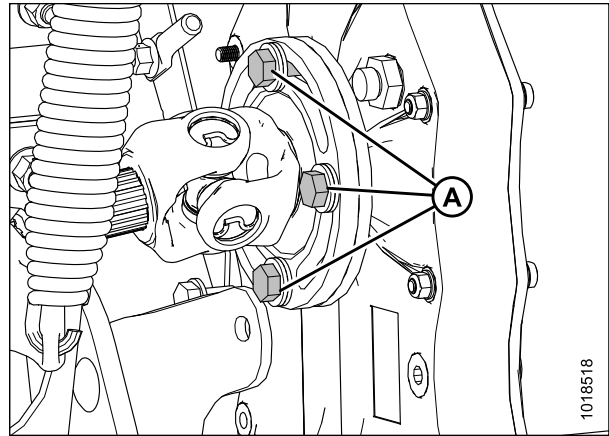


Figure 7.8: Conditioner Drive

7.4 Checking and Adding Conditioner Roll Timing Gearbox Lubricant

The conditioner roll timing gearbox is located inside the drive compartment at the right side of the mower conditioner.

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 conditioner roll timing gearbox lubricant level when the lubricant is warm. If the lubricant is cold, idle the machine for approximately 10 minutes prior to checking.

1. Lower mower conditioner to the ground, and adjust header angle with center-link so that cutterbar is level. Turn engine off, and remove key.
2. Open a cutterbar door. With a spirit (bubble) level, check that cutterbar is level in fore-aft direction. Adjust header angle as required.
3. Open the right driveshield. For instructions refer to [9.1 Opening Driveshields, page 83](#).
4. Clean around lubricant sight glass (A) and breather plug (B) on inboard side of the conditioner roll timing gearbox.
5. Ensure that the lubricant level is at the top of the sight glass. If necessary, add lubricant through plug (B). Refer to the inside back cover of this manual for lubricant information.
6. Replace plug (B) and tighten.
7. Close right driveshield. For instructions refer to [9.2 Closing Driveshields, page 85](#).

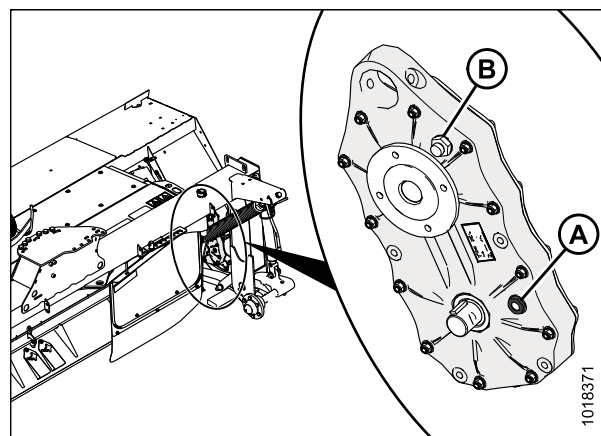


Figure 7.9: Roll Timing Gearbox

7.5 Checking and Adding 90-Degree Gearbox Lubricant

The rotary disc header 90-degree gearbox is located on the left side of the header.

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 header until the top of the header is parallel with the ground. Turn engine off, and remove key.
2. Open left cutterbar door. For instructions refer to [9.3.1 Opening Cutterbar Doors, page 87](#).
3. The gearbox is located inside the cutterbar area at the top right corner (looking into cutterbar area from front). Clean area around check plug (A).
4. Remove plug (A) with a 13 mm socket.
5. Ensure lubricant slightly runs out of hole (A).
6. If necessary, remove plug (B) and add lubricant to gearbox through hole (B) until lubricant runs out of hole (A). Refer to the inside back cover of this manual for lubricant information.
7. Reinstall plugs and tighten.
8. Close left cutterbar door. For instructions refer to [9.3.2 Closing Cutterbar Doors, page 87](#).

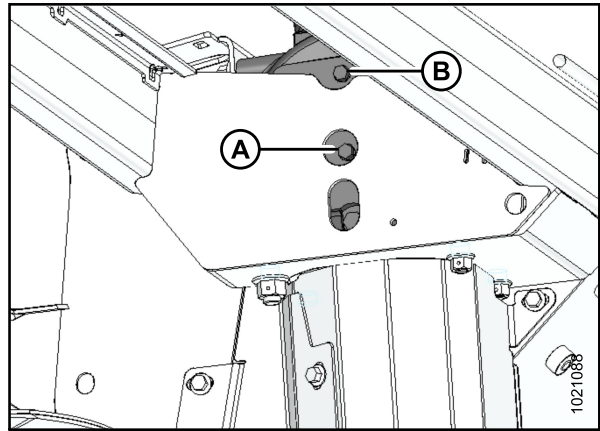


Figure 7.10: 90-Degree Drive Gearbox

7.6 Checking and Adding Cutterbar Lubricant

DANGER

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

CAUTION

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

1. Park the rotary disc header on level ground.
2. Position rotary disc header so that the cutterbar is approximately level.
3. Shut down the rotary disc header, and remove key.
4. Open cutterbar doors (A). Refer to [9.3.1 Opening Cutterbar Doors](#), page 87.

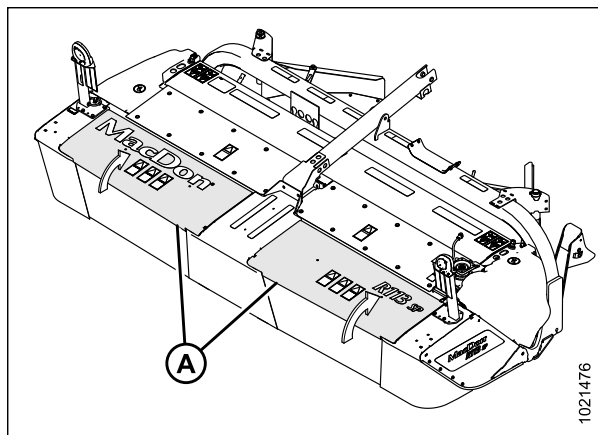


Figure 7.11: Cutterbar Doors

5. Use a spirit (bubble) level to ensure the cutterbar is level in both directions. Raise or lower rotary disc header accordingly.

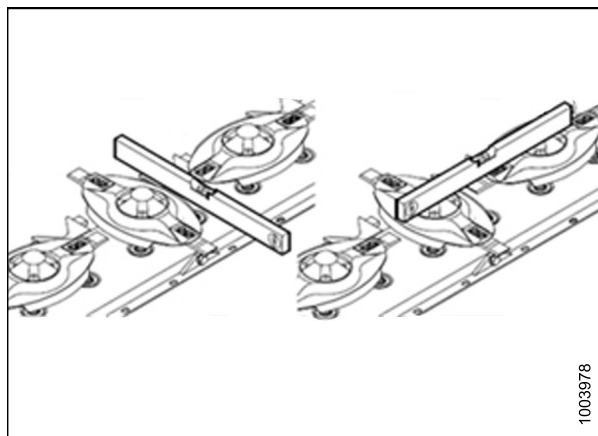


Figure 7.12: Spirit Level on Cutterbar

PERFORMING PREDELIVERY CHECKS

6. Remove oil level inspection plug (A) and O-ring (B) from cutterbar.

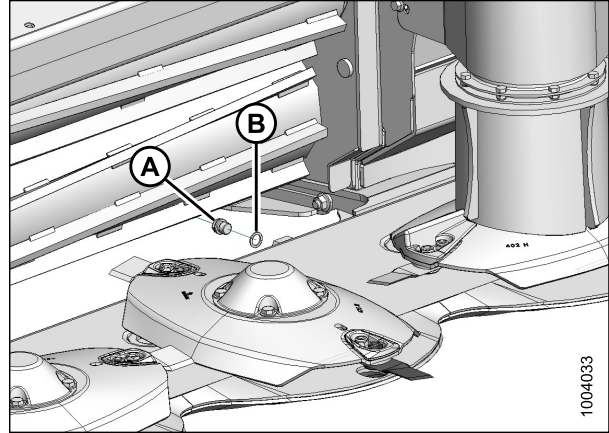


Figure 7.13: Cutterbar

7. Oil level must be up to the bore. If required, add lubricant as follows:
 - a. Replace inspection plug.
 - b. Start windrower engine, and raise header slightly.
 - c. Lower header onto blocks so that left end is slightly higher than right end.

NOTE:

Refer to the inside back cover of this manual for lubricant specifications.

IMPORTANT:

Do **NOT** overfill the cutterbar. Overfilling can cause overheating and damage to, or failure of, cutterbar components.

- d. Remove breather (A) at left end, and add sufficient lubricant to required level.
- e. Replace breather and recheck oil level.

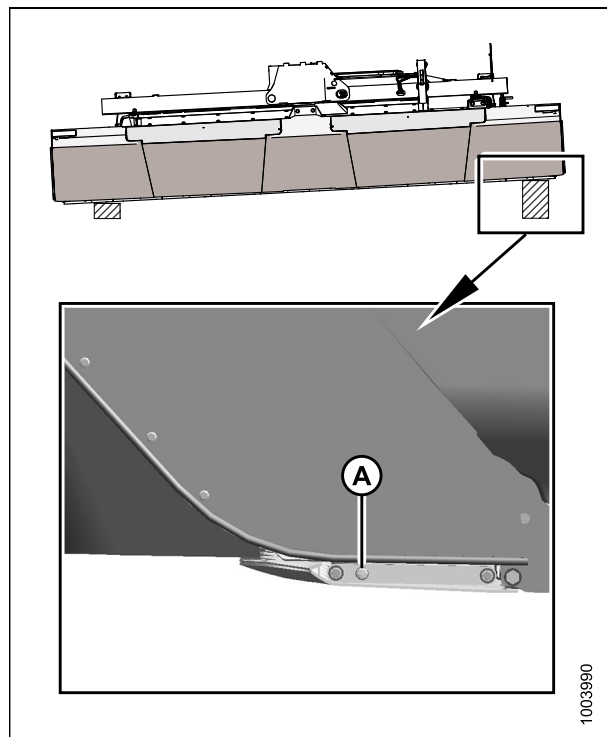


Figure 7.14: Adding Lubricant

PERFORMING PREDELIVERY CHECKS

8. Check O-ring (B) for breaks or cracks and replace if necessary.
9. Install plug (A) and O-ring (B). Tighten securely.

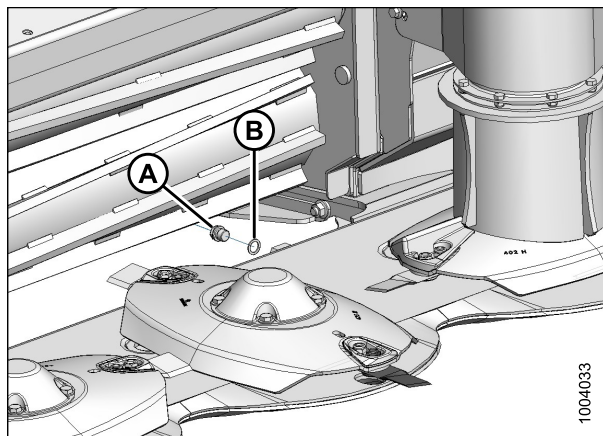


Figure 7.15: Cutterbar

7.7 Checking Roll Gap

Check factory-set roll gap as follows.

DANGER

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

1. Lower header to ground, turn off engine, and remove key from ignition.
2. **Steel Rolls:** The length of thread (A) extending above the jam nut on the adjustment rods can be used as an approximation of roll gap but does **NOT** provide consistent roll gap measurements. To ensure roll gap is at the factory setting, refer to [7.7.1 Adjusting Roll Gap: Steel Rolls, page 60](#).
3. **Polyurethane Rolls:** Insert a feeler gauge between rolls from either front or rear of header. Factory setting is 3 mm (1/8 in.). If adjustments are required, refer to [7.7.2 Adjusting Roll Gap: Polyurethane Rolls, page 61](#).

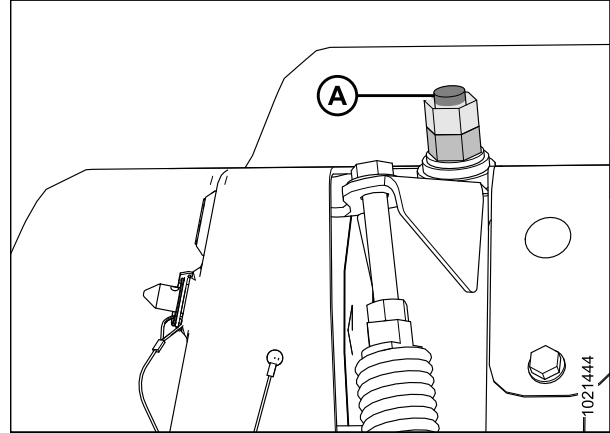


Figure 7.16: Roll Gap Adjustment

7.7.1 Adjusting Roll Gap: Steel Rolls

The length of thread extending above the jam nut on the adjustment rods can be used as an approximation of roll gap but does not provide consistent roll gap measurements. To ensure roll gap is at the factory setting, follow the procedure below.

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 rotary disc header fully.
2. Stop engine and remove key.

PERFORMING PREDELIVERY CHECKS

3. Loosen jam nut (A) on both sides of conditioner.
4. Turn lower nut (B) counterclockwise until upper roll rests on lower roll. Ensure rolls intermesh.
5. Turn lower nut (B) two and a half full turns clockwise to raise upper roll and achieve a 6 mm (1/4 in.) roll gap.
6. Hold nut (B) and tighten jam nut (A) on both sides of header.

IMPORTANT:

Make sure roll gap adjustment nuts are adjusted equally on both sides of the header to achieve a consistent gap across the rolls.

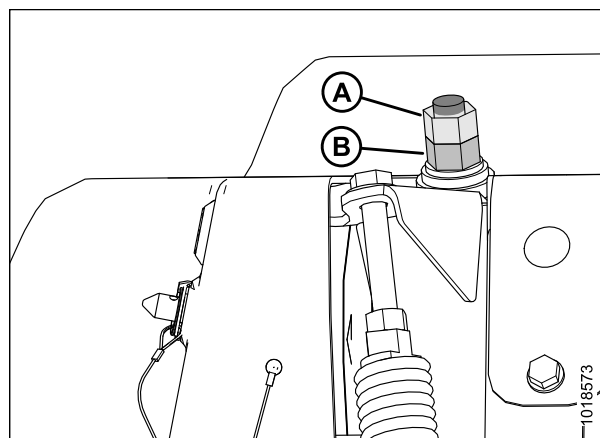


Figure 7.17: Roll Gap Adjustment

7.7.2 Adjusting Roll Gap: Polyurethane Rolls



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 rotary disc header fully.
2. Stop engine and remove key.
3. Loosen upper jam nut (A) on both sides of conditioner.
4. Turn lower nut (B) counterclockwise until upper roll rests on lower roll.
5. Turn lower nut (B) one full turn clockwise to raise the upper roll and achieve a 3 mm (1/8 in.) roll gap.
6. Hold nut (B) and tighten jam nut (A) on both sides of header.
7. Rotate the rolls manually and use a feeler gauge at the ends of the rolls to check that the actual gap is no less than 2 mm (5/64 in.) and no more than 4 mm (5/32 in.).

IMPORTANT:

Make sure roll gap adjustment nuts are adjusted equally on both sides of the header to achieve a consistent gap across the rolls.

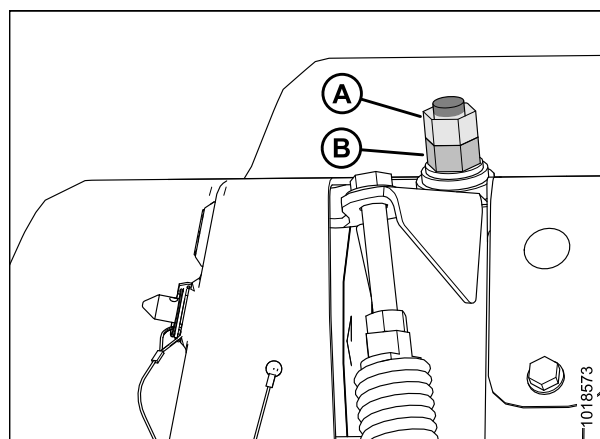


Figure 7.18: Roll Gap Adjustment

7.8 Checking Roll Tension

Roll tension is indicated by the exposed thread on the roll tension adjuster bolt.

1. Measure the amount of exposed thread on the roll tension adjuster bolt (A) at each end of the conditioner. Measurement (B) should be 12–15 mm (1/2–9/16 in.) for both polyurethane and steel roll conditioners.
2. If the tension requires adjusting, refer to [7.8.1 Adjusting Roll Tension](#), page 62.

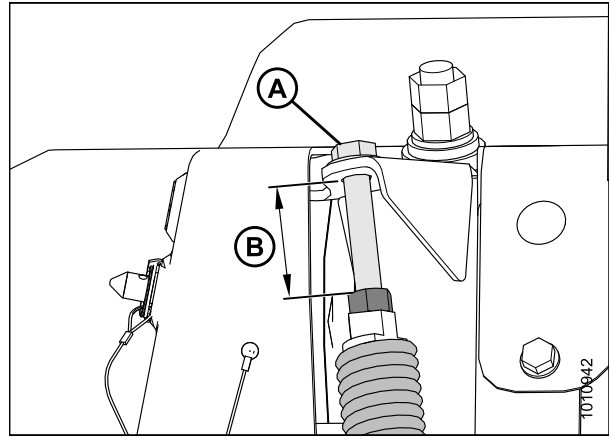


Figure 7.19: Roll Tension Adjuster

7.8.1 Adjusting Roll Tension

Roll tension is factory-set to maximum position, and can be adjusted 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. Lower rotary disc header fully.
2. Stop engine, and remove key.
3. Loosen jam nut (A) on both sides of conditioner.
4. Turn the spring drawbolt (B) clockwise to tighten spring (C) and **INCREASE** roll tension.
5. Turn the spring drawbolt (B) counterclockwise to loosen spring (C) and **DECREASE** roll tension.
6. Measure the amount of exposed thread on the spring drawbolt (B) at each end of the conditioner. Measurement (D) should be 12–15 mm (1/2–9/16 in.) for both polyurethane and steel roll conditioners.

IMPORTANT:

Turn each bolt equally. Each turn of the bolt changes the roll tension by approximately 32 N (7.2 lbf).

7. Tighten jam nuts (A) on both sides.

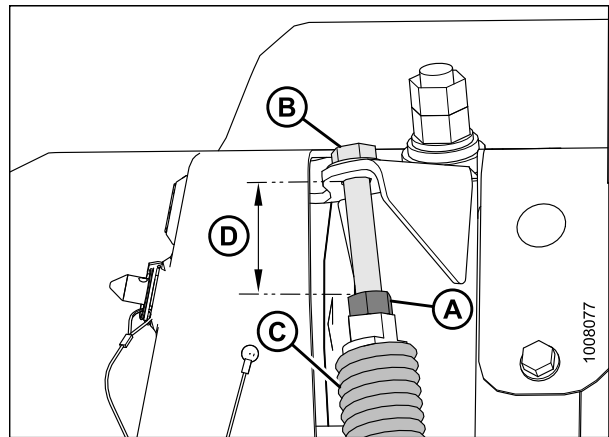


Figure 7.20: Left Side Shown – Right Side Opposite

7.9 Checking Conditioner Baffle Position

1. Remove clip (A).
2. Move baffle adjustment handle (A) to the middle position (C) on the adjustment plate.
3. Install clip (A).

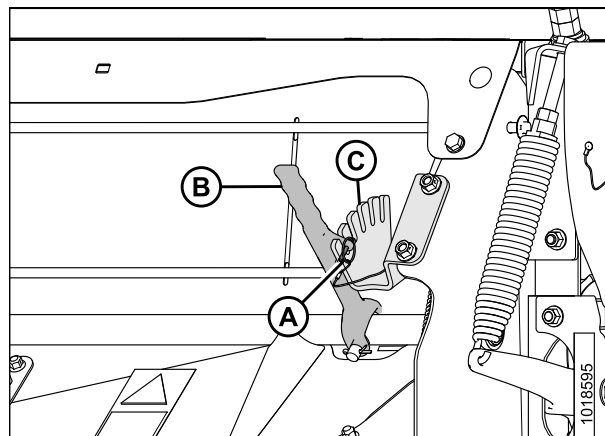


Figure 7.21: Conditioner Baffle Adjuster

7.10 Checking Forming Shield Deflector Position

The position of the side deflectors controls the width and placement of the windrow. To ensure windrow placement is centered with respect to the self-propelled windrower, set both side deflectors to the same position.

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. Loosen the locking handle (A).
2. Slide the adjuster bar (B) along adjuster plate (C) to the desired deflector position, and engage the bar (B) into a notch in the adjuster plate.
3. Tighten locking handle (A).
4. Repeat for other side.

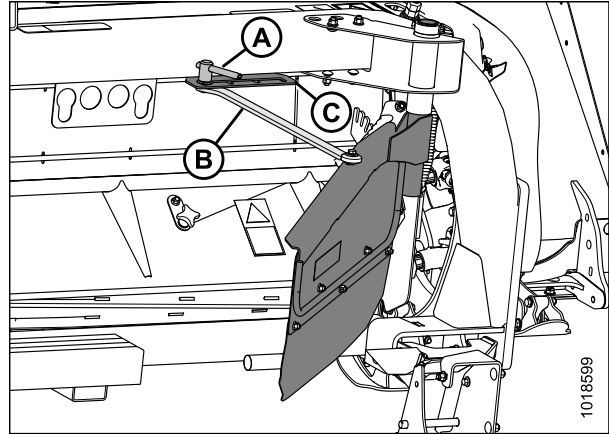


Figure 7.22: Forming Shield Side Deflector

7.11 Checking Lights

1. Check light mountings (A) for security and damage.
2. Check operation of hazard lights (B) during machine run-up.

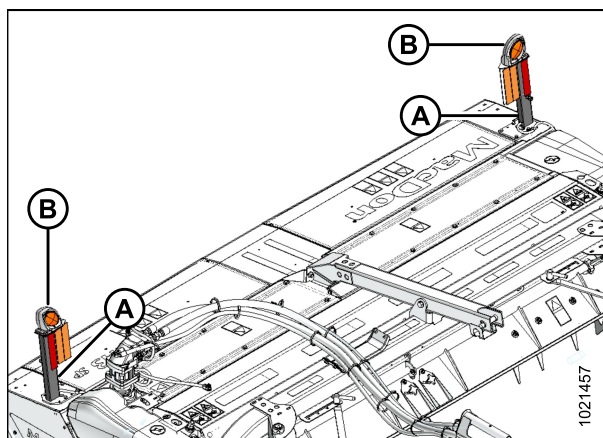


Figure 7.23: Lights

7.12 Checking Manuals

The following manuals should be stored in the manual storage case (A) at the right end of the mower conditioner:

- R113 Rotary Disc Header for Self-Propelled Windrower Operator's Manual
- R113 Rotary Disc Header for Self-Propelled Windrower Parts Catalog

Open the right driveshield to access the case. Refer to [9.1 Opening Driveshields, page 83](#).

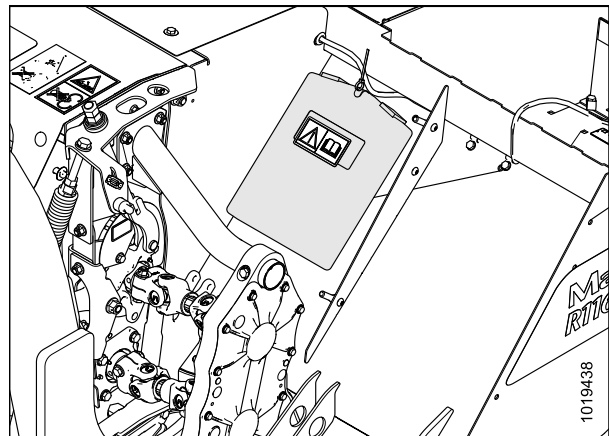


Figure 7.24: Manual Case (13 ft.)

7.13 Running up the Header

DANGER

- Keep everyone several hundred feet away from your operation. Ensure bystanders are never in line with the front or rear of the machine. Stones or 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 rotary disc header when other people are in the vicinity. Stones and other objects can be thrown great distances by the rotating cutting blades.
- 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 curtains are very important to reduce the potential for thrown objects. Always keep these curtains down when operating the rotary disc header. Replace the curtains if they should become worn or damaged.

DANGER

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

CAUTION

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

NOTE:

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

1. Start the self-propelled windrower.
2. Set header 152–305 mm (6–12 in.) above the ground and adjust center-link to mid-position.
3. Run the machine slowly for 5 minutes, watching, and listening from **THE OPERATOR'S SEAT** for binding or interfering parts.
4. Run the machine at operating speed for 15 minutes. Listen for any unusual sounds or abnormal vibration.
5. Perform the run-up check as listed on the Predelivery Checklist (yellow sheet attached to this instruction) to ensure the machine is field-ready.
6. Retain the Checklist and if desired, retain this instruction for future reference.

8 Changing the Conditioner

This section applies only to machines that require a conditioner change prior to delivery to the customer. If the change is **NOT** required, proceed to [6 Lubricating the Rotary Disc Header, page 47](#).

The R113 rotary disc header can be operated either with no conditioner or with a polyurethane or steel roll conditioner. If the header is not conditioner equipped, a shield must be installed.

Follow these instructions to change conditioners.

These instructions apply to all conditioners. Exceptions are identified where applicable.

8.1 Removing the Conditioner

This procedure is applicable when the header is not attached to the windrower. If necessary, detach the header from the windrower before proceeding.

1. Open the driveshields. Refer to [9.1 Opening Driveshields, page 83](#).
2. Remove the conditioner drive belt. Refer to [8.3.1 Removing Conditioner Drive Belt, page 77](#).
3. **M1170:** Move hose bundle (A) clear of frame and lay on header.

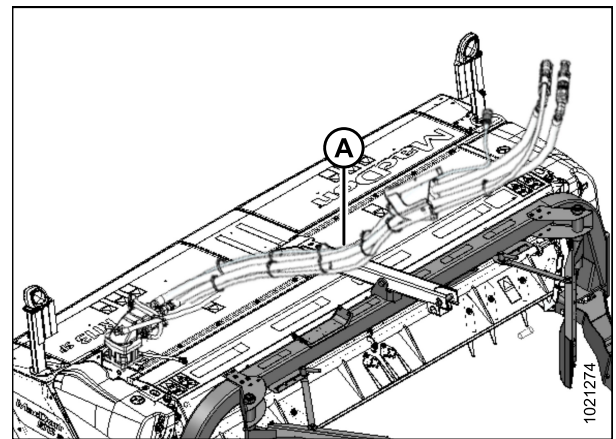


Figure 8.1: M1170 Hose Bundle

4. **M155E4:** Remove two bolts (A) attaching hose bracket (B) to header frame. Place hose bundle and bracket onto header. Do **NOT** disconnect hoses from motor.

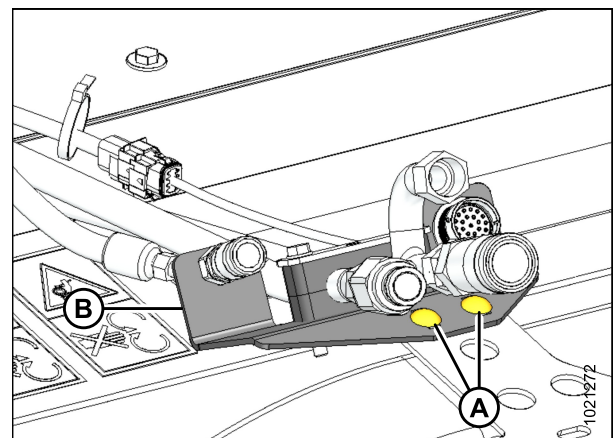


Figure 8.2: M155E4 Hoses

CHANGING THE CONDITIONER

5. To protect finish on the frame, wrap packing foam (A) (or equivalent) around frame at approximate shown locations.
6. Position forks (B) under frame as shown, and raise forks to lift frame slightly. Ensure forks do not contact frame.
7. To secure frame to forks, wrap chain (C) around end of forks and attach to forklift.

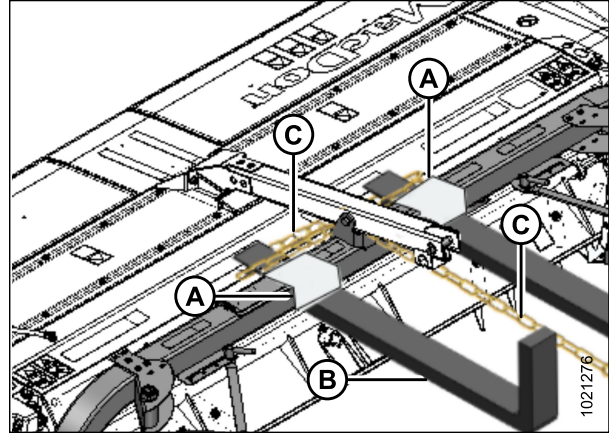


Figure 8.3: Supporting Frame

8. Remove nut (B).
9. Remove bolt (A) from frame (C). If necessary to loosen bolt, adjust height of forklift. Repeat at opposite side.

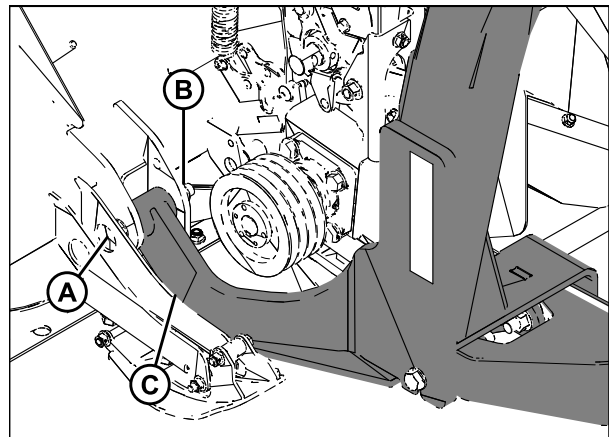


Figure 8.4: Frame (Left Side Shown)

10. Remove nut (B) and bolt (A) attaching header to frame (C). If necessary, adjust height of forklift.
11. Slowly back up to remove frame (C) from header.
12. Move frame away from work area, set on ground, and remove chain securing frame to forks.

CAUTION

Ensure spreader bar is secured to the forks so that it cannot slide off the forks or towards the mast while detaching the conditioner from the mower.

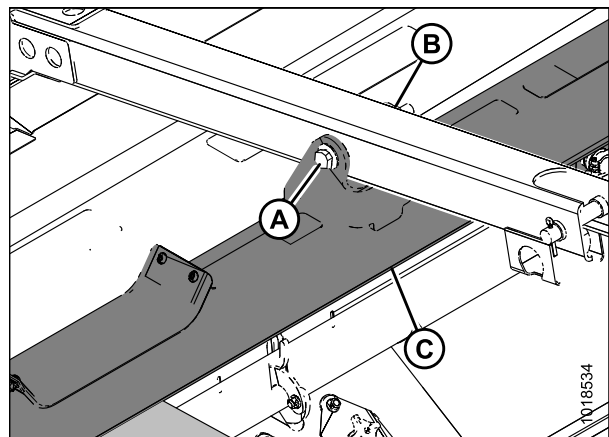


Figure 8.5: Frame (Center Support)

CHANGING THE CONDITIONER

13. Attach a spreader bar (A) to a forklift or equivalent, and attach chains to lugs (B) on conditioner (C). Use a chain rated for overhead lifting with a minimum working load of 1135 kg (2500 lb.).

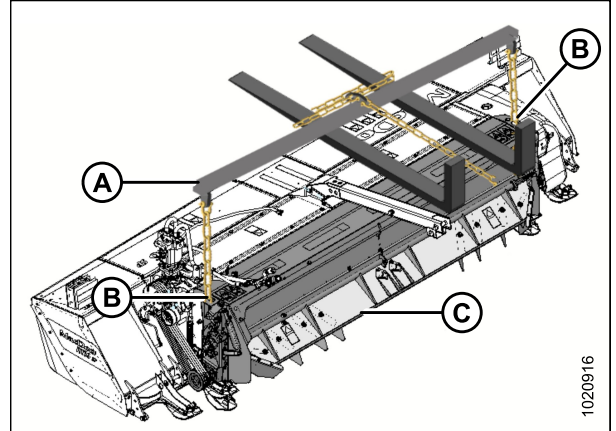


Figure 8.6: Spreader Bar

14. Loosen two M16 hex head bolts (A) at each side of conditioner that secure it to header.

DANGER

To prevent the conditioner from falling backward, ensure lifting chains are secure and tight. Failure to do so may result in death or serious injury.

15. Lift the conditioner slightly until bolts are loose, then remove the bolts. Retain the hardware for reinstallation.

CAUTION

Stand clear when detaching the conditioner.

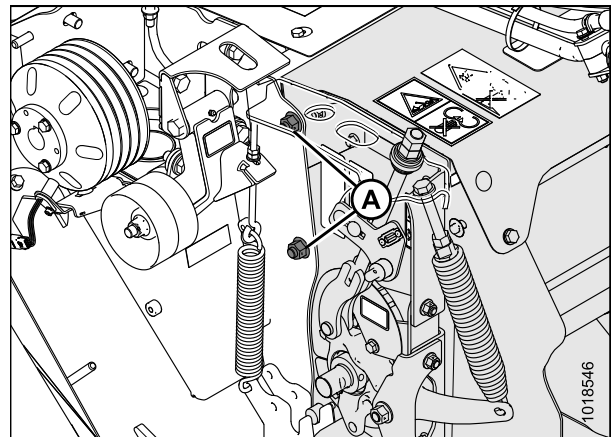


Figure 8.7: Left Side of Conditioner – Right Side Similar

16. Lift conditioner (A) off header (B), and move it away from work area.

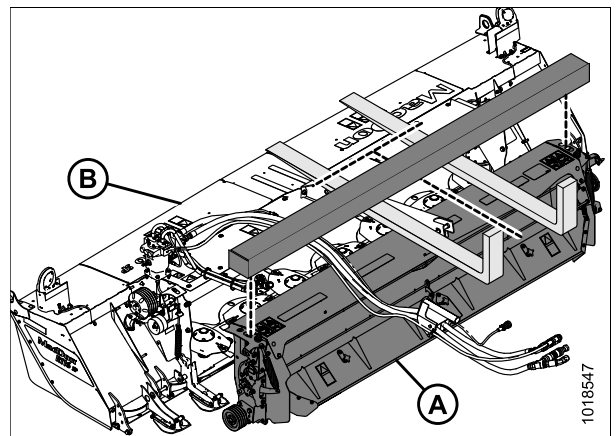


Figure 8.8: Conditioner Lift

8.2 Installing the Conditioner

CAUTION

Ensure spreader bar is secured to the forks so that it cannot slide off the forks or towards the mast while attaching the conditioner to the mower.

1. Attach a spreader bar (A) to a forklift (or equivalent) and attach chains to lugs (B) on conditioner. Use a chain rated for overhead lifting with a minimum working load of 1135 kg. (2500 lb.).
2. Lift conditioner (C) and align it with the header opening.

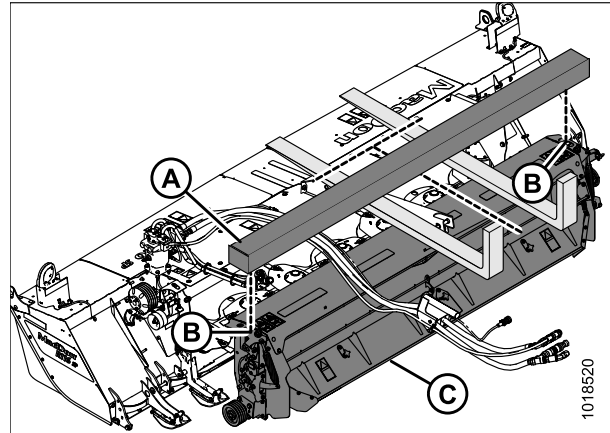


Figure 8.9: Conditioner Lift

3. Carefully align pin (B) at each end of conditioner (A) with lug (C) on mower. Lower the conditioner (A), so that pins (B) engage lugs (C) on header.

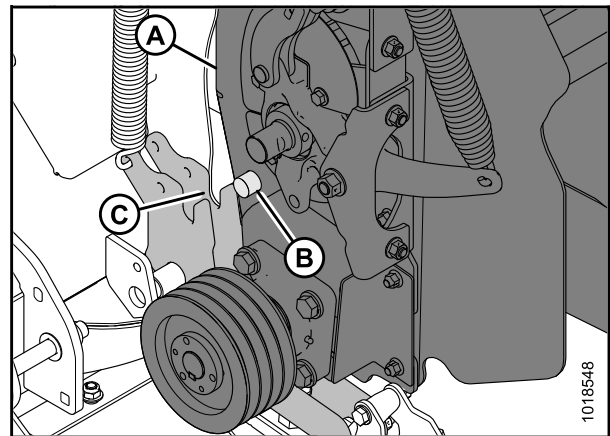


Figure 8.10: Installing Conditioner

4. Align mounting holes and install four M16 x 40 hex head bolts (A) with heads facing inboard (two per side). Secure with M16 center lock flanged nuts and torque to 170 Nm (126 lbf-ft).
5. Remove lifting chains from conditioner and move lifting device clear of work area.
6. If necessary, install conditioner drive components. Refer to [8.2.1 Installing Conditioner Drive, page 75](#).

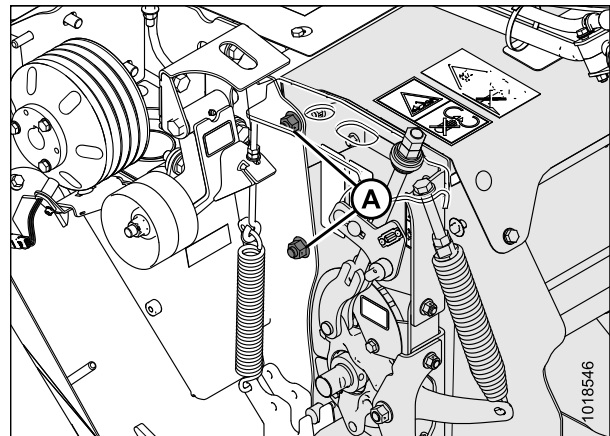


Figure 8.11: Left Side of Conditioner – Right Side Similar

CHANGING THE CONDITIONER

7. Position forks (B) under frame as shown ensuring packing foam (or equivalent) is between forks and frame. Raise forks to lift frame slightly. Ensure forks do not contact frame.
8. To secure frame to forks, wrap chain (C) around end of forks and attach to forklift.
9. Pick up frame and position it against header as shown.

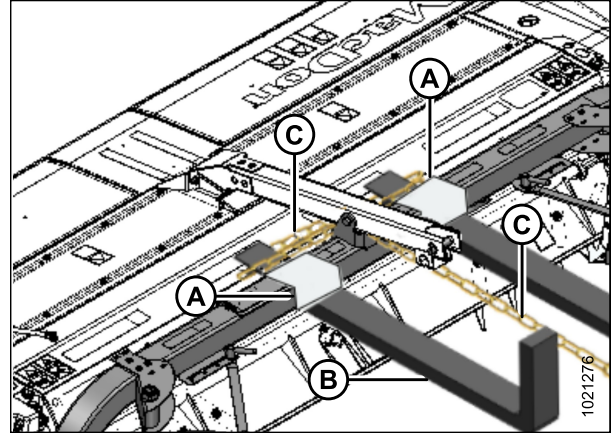


Figure 8.12: Installing Frame

10. Slowly move forward until the lift arm (C) is lined up with the mounting holes in the frame (A) and (B).

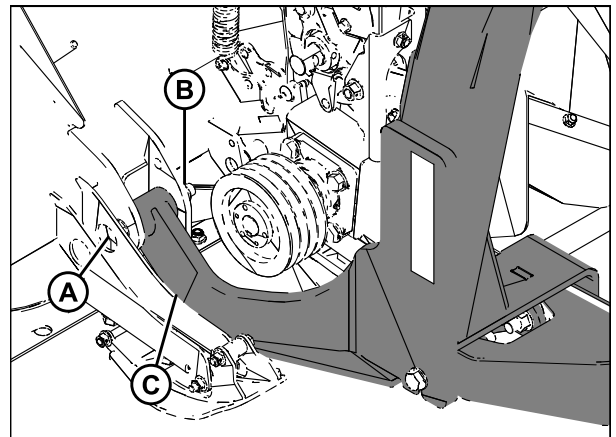


Figure 8.13: Frame (Left Side Shown)

11. Install only bolt (A) through the frame (B) and bushing (D) in the lift arm. Repeat for opposite side.
12. Check the gap (C) between the inner steel sleeve (D) of the bushing and the frame (B). If there is a gap, washers (1.2 mm thick) (MD #5113) will need to be installed to minimize the gap on both sides of the bushing.
13. Remove bolt (A).

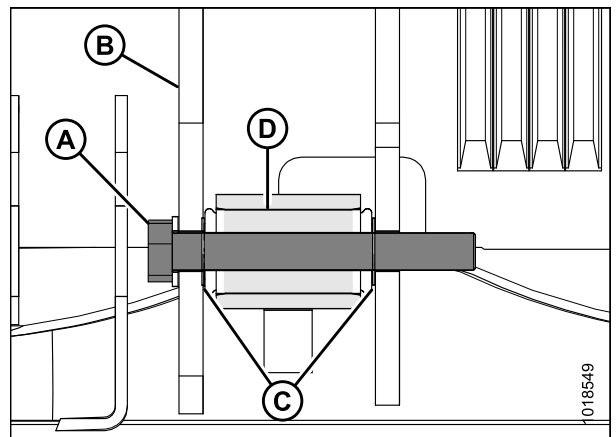


Figure 8.14: Frame Attachment (Left Side Shown)

CHANGING THE CONDITIONER

14. Install washer (A) onto bolt (B) and apply anti-seize compound to bolt shank only. Do **NOT** apply to threads.
15. Install bolt (B) with washers (C) as determined previously.
16. Install three washers (D) and nut (E) onto bolt. Torque to 332–346 Nm (245–255 lbf·ft).
17. Repeat steps 12, page 73 to 16, page 74 for opposite side.

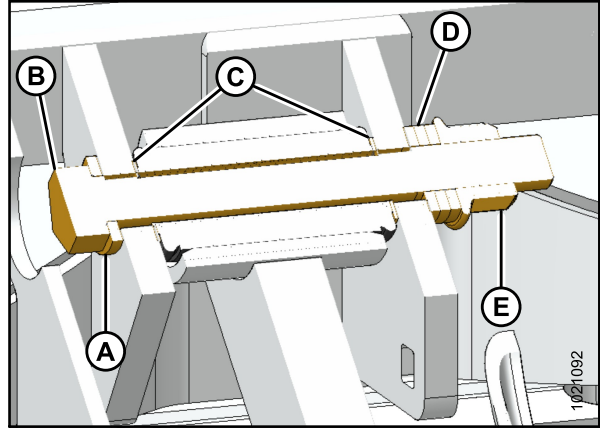


Figure 8.15: Frame Attachment (Left Side Shown)

18. Install bolt (A) through the center link support (C).
19. Install nut (B) and torque to 332–346 Nm (245–255 lbf·ft).
20. Remove chain securing frame to forks, and back forklift away from work area.

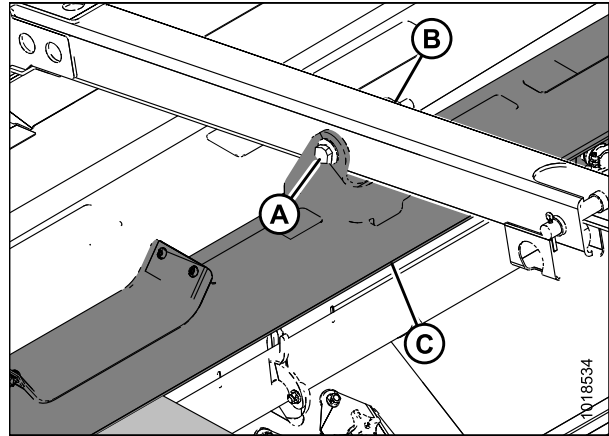


Figure 8.16: Frame (Center Support)

21. Position hose bundle and hose support (B) onto adapter and secure with bolts (A) and nuts.
22. Install the conditioner drive belt. Refer to [8.3.2 Installing Conditioner Drive Belt, page 78](#).
23. Close the driveshields. Refer to [9.2 Closing Driveshields, page 85](#).

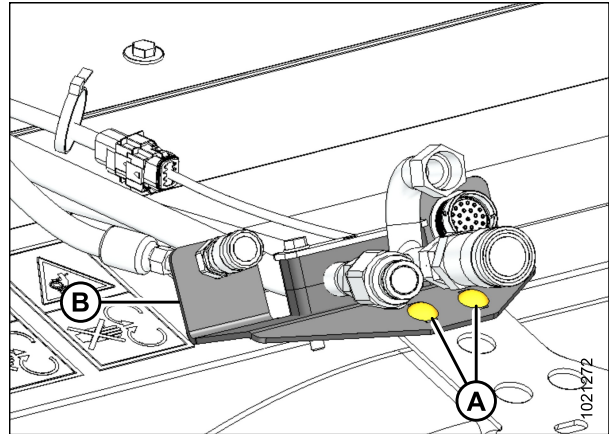


Figure 8.17: Hose Support

8.2.1 Installing Conditioner Drive

This procedure describes the installation of conditioner drive components on a machine that was originally supplied with no conditioner.

Retrieve bag from conditioner shipment containing the following parts:

- Shaft key
 - Pulley
 - Bushing with three M10 bolts
 - Tensioner assembly
 - M16 hex head bolt
 - M16 nut
 - Two M10 nuts
 - Eye bolt
 - Hardened washer
 - Spring
1. Remove two screws (A) from cover (B), and remove cover from gearbox shaft. Retain parts for future use.

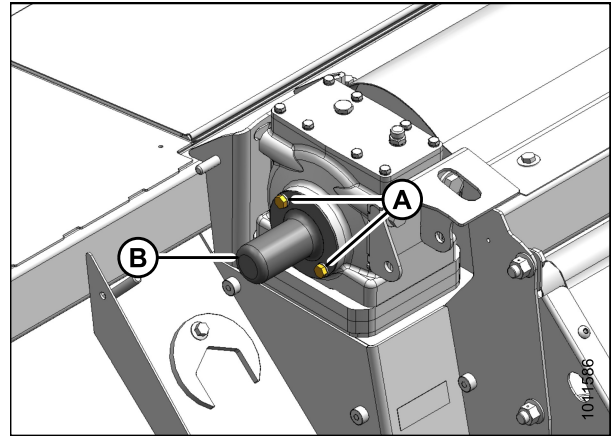


Figure 8.18: Shaft Cover

2. Assemble pulley (A) and bushing (B) onto gearbox shaft with key (C).
3. Install three M10 hex head bolts (D) through bushing (B) into pulley (A).

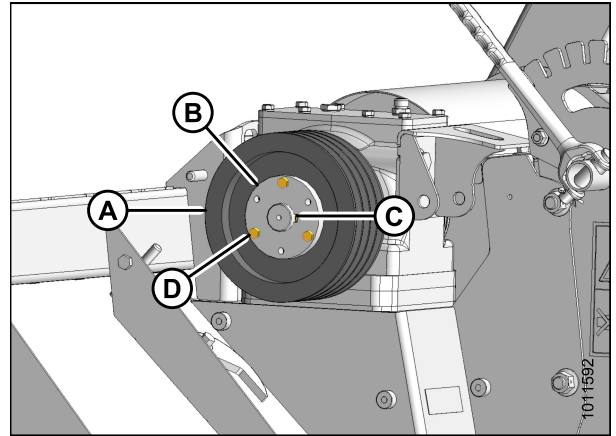


Figure 8.19: Drive Pulley

CHANGING THE CONDITIONER

4. Tighten the three M10 bolts while maintaining 11 mm (7/16 in.) dimension (E) between pulley (A) and gearbox (F). Torque bolts to 34–39 Nm (25–29 ft·lbf).

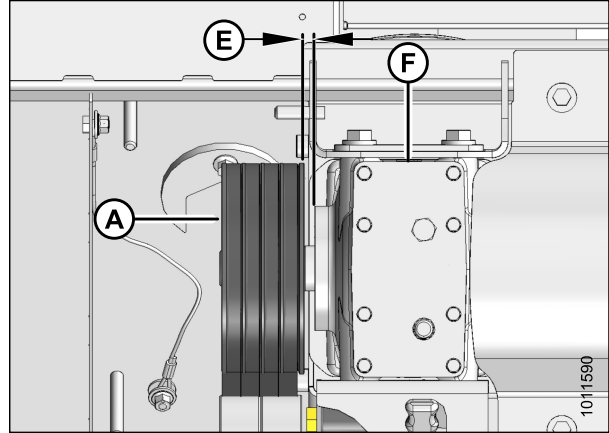


Figure 8.20: Drive Pulley

5. Position tensioner assembly (A) as shown, and secure with M16 x 120 bolt (B) and nut (C). Torque nut (C) to 47–54 Nm (35–40 ft·lbf).

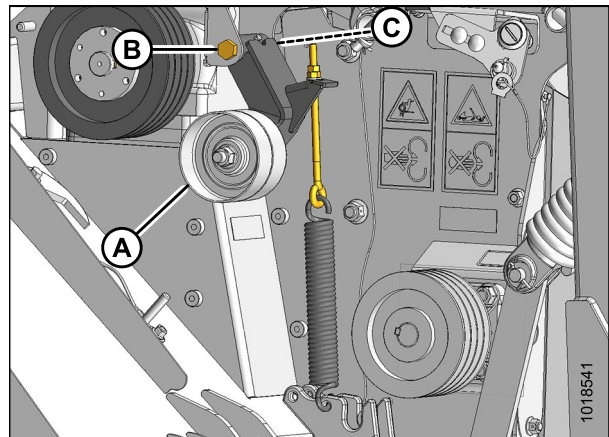


Figure 8.21: Tensioner

6. Install spring (A) into forward hole (B) in frame.
7. Install eyebolt (C) onto tensioner (D) and spring (A). Secure eyebolt with hardened washer (E) and two M10 nuts (F).

NOTE:

Install conditioner drive belt after reattaching header to adapter.

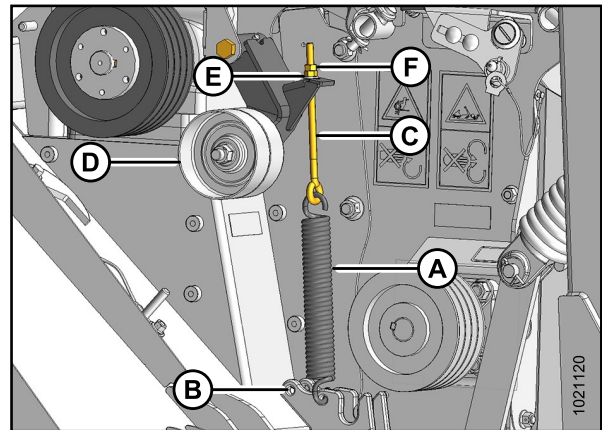


Figure 8.22: Tensioner

8.3 Conditioner Drive Belt

The conditioner drive belt is located inside the left driveshield and is tensioned with a spring tensioner. The tension is factory-set and should not require adjustment.

8.3.1 Removing Conditioner Drive Belt

DANGER

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

1. Lower header fully, turn off engine, and remove key.
2. Remove the left driveshield. Refer to [9.1 Opening Driveshields, page 83](#).
3. Disconnect wire harness (A) from speed sensor (B).

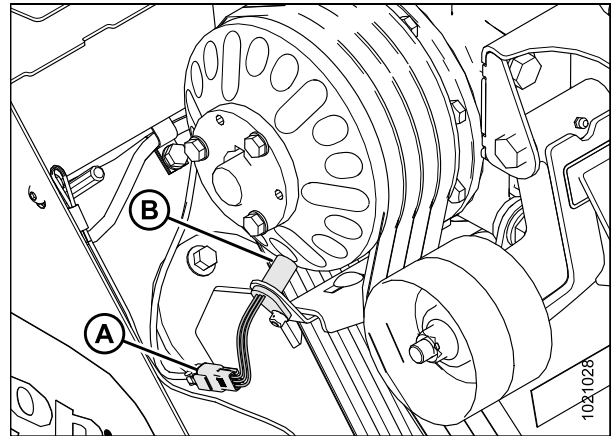


Figure 8.23: Speed Sensor

4. Turn jam nut (A) counterclockwise to unlock tension adjustment.
5. Turn jam nut (A) and adjuster nut (B) counterclockwise to fully collapse tensioner spring (C), and release the tension from conditioner drive belt (D).
6. Remove drive belt (D).

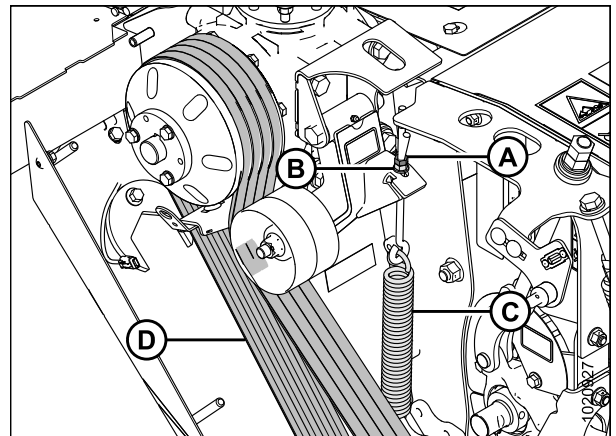


Figure 8.24: Conditioner Drive

8.3.2 Installing Conditioner Drive Belt

DANGER

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

1. Lower rotary disc header fully, turn off engine, and remove key.
2. Install drive belt (A) onto driven pulley (C) first, and then onto drive pulley (B) ensuring that the belt is in the pulley grooves.

NOTE:

If necessary, loosen jam nut and adjuster nut to relieve spring tension.

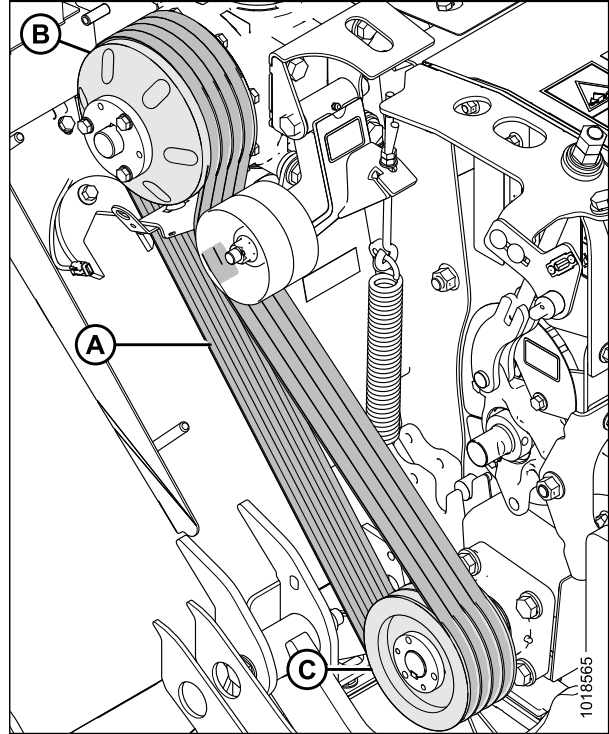


Figure 8.25: Conditioner Drive

CHANGING THE CONDITIONER

3. Measure the length of tensioner spring (C); dimension (D) should be set to 366 mm (14-3/8 in.).
4. Loosen nut (A).
5. To adjust the spring tension, turn adjuster nut (B) clockwise to increase spring length (tension) or turn adjuster nut (B) counterclockwise to decrease spring length (relax).
6. Once correct spring measurement has been achieved, hold adjuster nut (B) and tighten jam nut (A) against it.

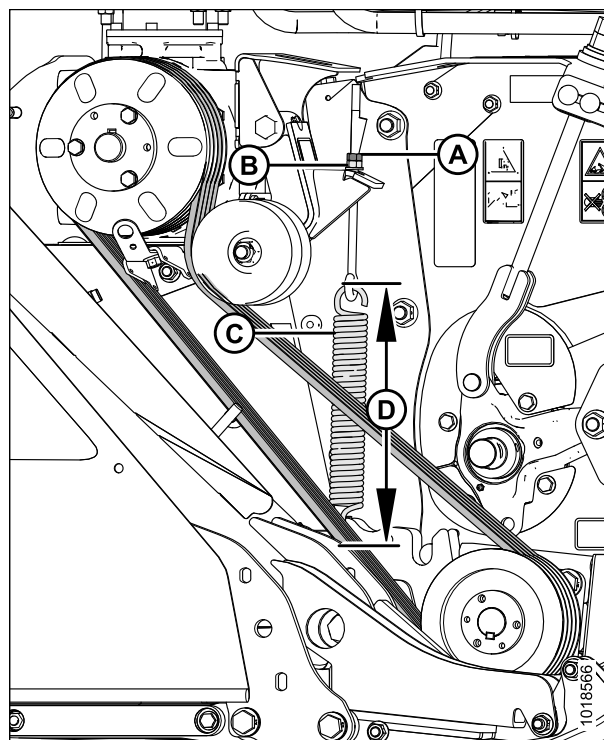


Figure 8.26: Conditioner Drive

7. Reconnect the speed sensor (B) to wiring harness (A).
8. Close left driveshield. Refer to [9.2 Closing Driveshields](#), [page 85](#).

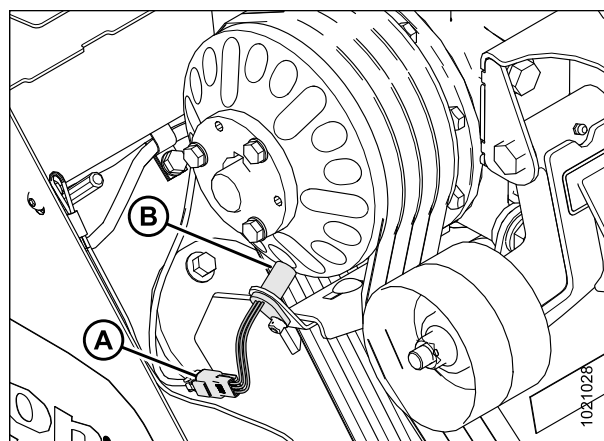


Figure 8.27: Speed Sensor

8.4 Discharge Shield (No Conditioner)

8.4.1 Removing Shield (No Conditioner)

Follow these steps to remove the shielding installed on a rotary header configured without a conditioner:

1. Raise the mower fully and extend the center-link to maximize the space between the shield (A) and the carrier frame (B).
2. Remove four M16 hex head bolts (A), nuts, and flat washers securing the shield (B) to the panel on mower (C).
3. Lift the shield (A) until pins (B) disengage from slots in support (C) and shield on panel (D).

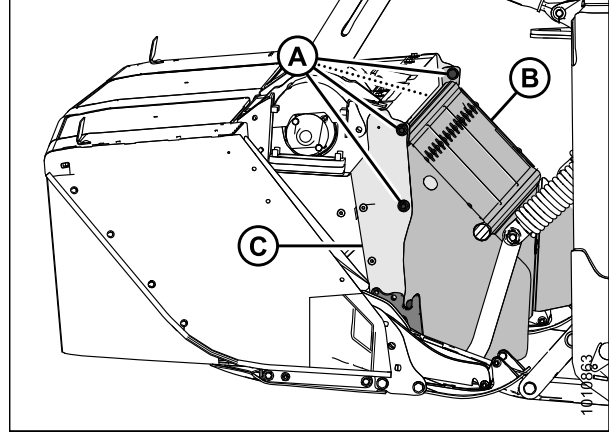


Figure 8.28: Header Side View

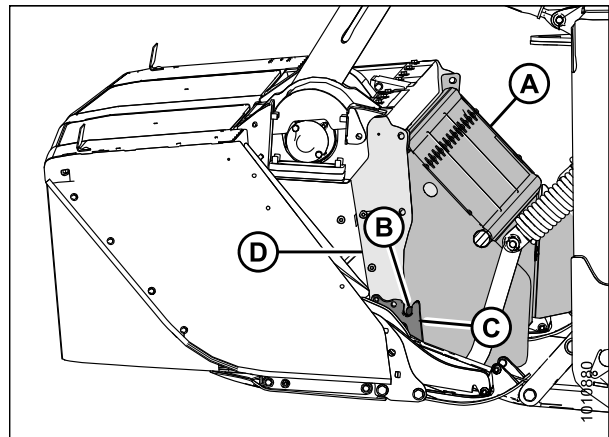


Figure 8.29: Header Side View

8.4.2 Installing Shield (No Conditioner)

Follow these steps to install the shielding on a mower configured without a conditioner:

1. Position shielding (A) until pins (B) engage the slots in cutterbar support (C) and the bolt holes align with panel (D).

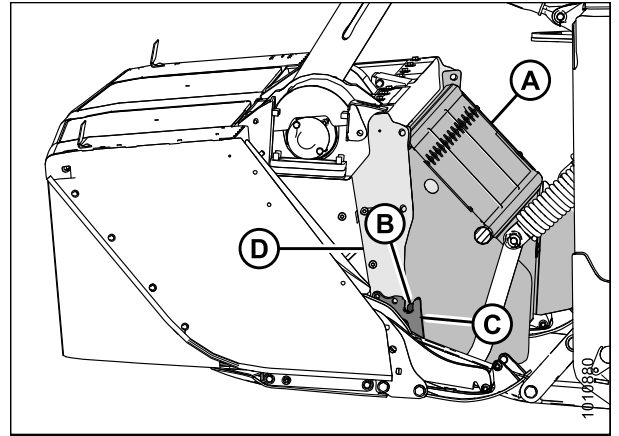


Figure 8.30: Header Left Side

2. Install four M16 hex head bolts (A), nuts, and flat washers to secure shield (B) to the panel (C). Ensure bolt heads face inboard.

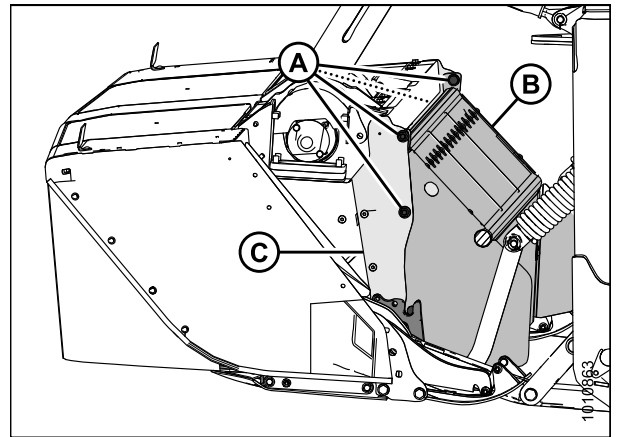


Figure 8.31: Header Left Side

9 Reference

9.1 Opening Driveshields

CAUTION

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

NOTE:

Images shown are for left driveshield—right driveshield is similar.

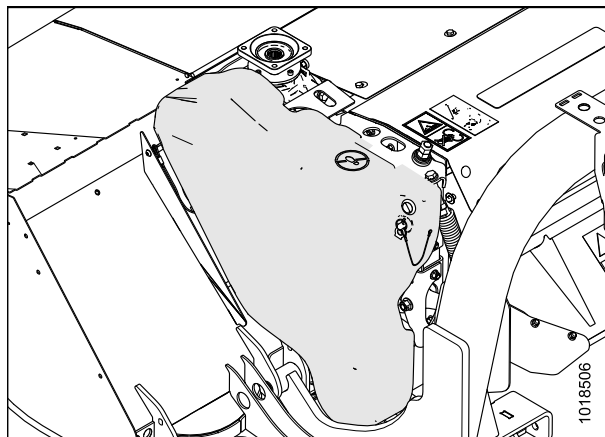


Figure 9.1: Left Driveshield

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

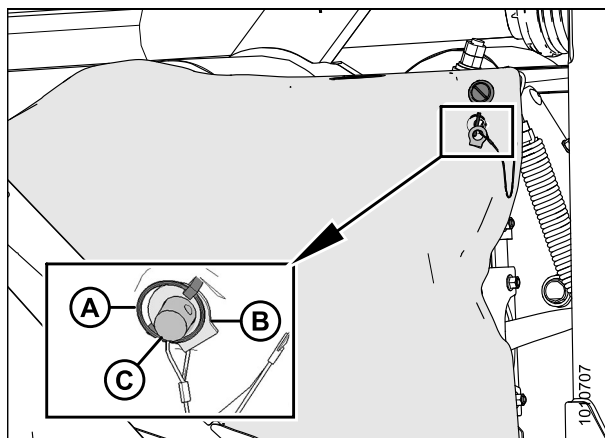


Figure 9.2: Left Driveshield

REFERENCE

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

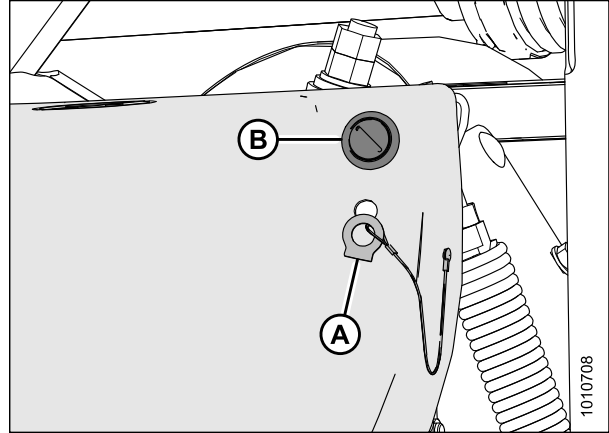


Figure 9.3: Driveshield Latch

3. Pull top of driveshield (A) away from header to open.

NOTE:

For improved access, lift driveshield off the pins at the base of the shield, and lay the shield on the header.

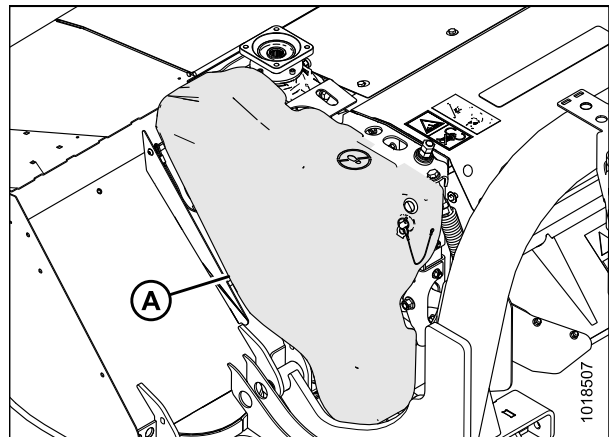


Figure 9.4: Left Driveshield

9.2 Closing Driveshields

CAUTION

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

NOTE:

Images shown are for left driveshield—right driveshield is similar.

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

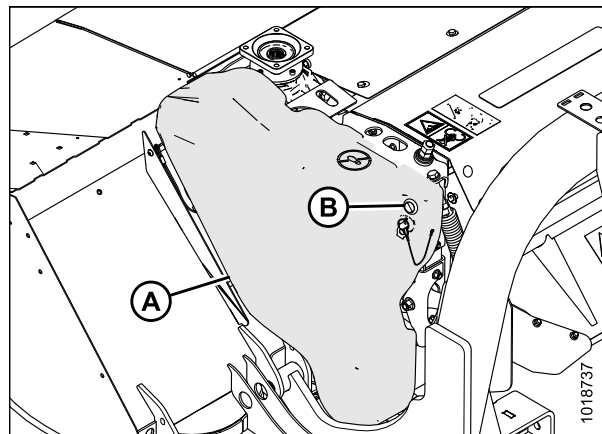


Figure 9.5: Left Driveshield

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

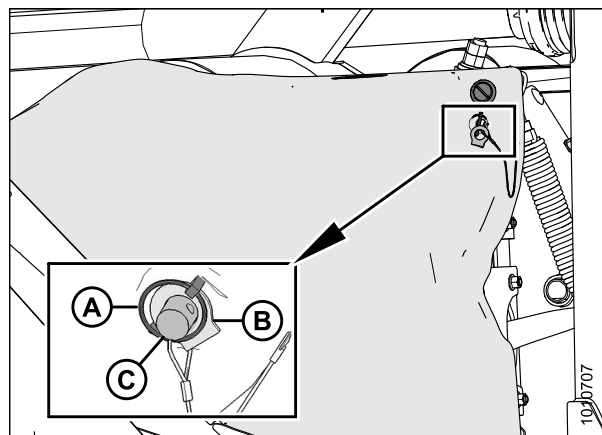


Figure 9.6: Left Driveshield

9.3 Cutterbar Doors

WARNING

Do NOT operate the machine without all the cutterbar doors down or without curtains installed and in good condition.

Two doors (A) with rubber curtains provide access to the cutterbar area.

Curtains (B) and (C) are attached to each front corner and at the center respectively. Always keep curtains lowered when operating the rotary disc header.

IMPORTANT:

Replace curtains if they become worn or damaged.

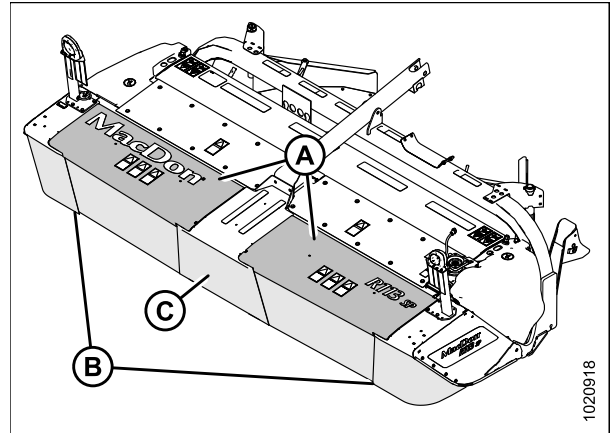


Figure 9.7: Cutterbar Doors and Curtains

9.3.1 Opening Cutterbar Doors

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

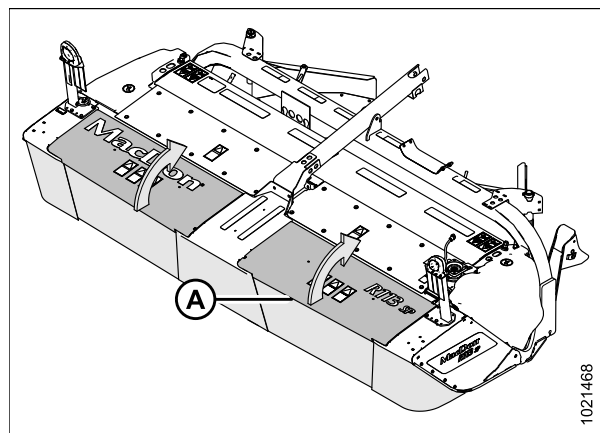


Figure 9.8: Cutterbar Doors

9.3.2 Closing Cutterbar Doors



CAUTION

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

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

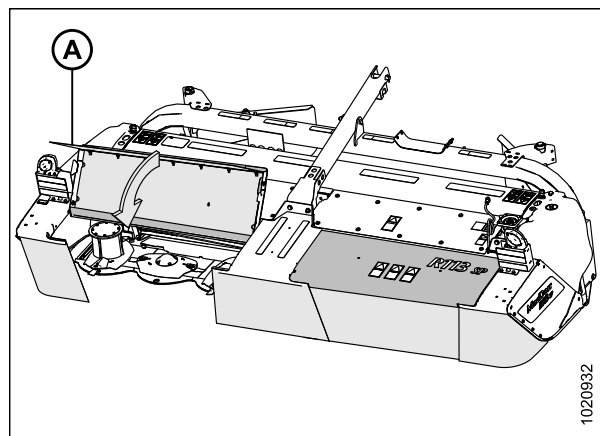


Figure 9.9: Cutterbar Doors

9.4 Torque Specifications

The following tables provide correct torque values for various bolts, cap screws, and hydraulic fittings.

- Tighten all bolts to torque values specified in charts (unless otherwise noted throughout this manual).
- Replace hardware with same strength and grade of bolt.
- Use torque value tables as a guide and periodically check tightness of bolts.
- Understand torque categories for bolts and cap screws by using their identifying head markings.

Jam Nuts

When applying torque to finished jam nuts, multiply the torque applied to regular nuts by $f=0.65$.

Self-Tapping Screws

Standard torque is to be used (not to be used on critical or structurally important joints).

9.4.1 Metric Bolt Specifications

Table 9.1 Metric Class 8.8 Bolts and Class 9 Free Spinning Nut

Nominal Size (A)	Torque (Nm)		Torque (lbf·ft) (*lbf·in)	
	Min.	Max.	Min.	Max.
3-0.5	1.4	1.6	*13	*14
3.5-0.6	2.2	2.5	*20	*22
4-0.7	3.3	3.7	*29	*32
5-0.8	6.7	7.4	*59	*66
6-1.0	11.4	12.6	*101	*112
8-1.25	28	30	20	23
10-1.5	55	60	40	45
12-1.75	95	105	70	78
14-2.0	152	168	113	124
16-2.0	236	261	175	193
20-2.5	460	509	341	377
24-3.0	796	879	589	651

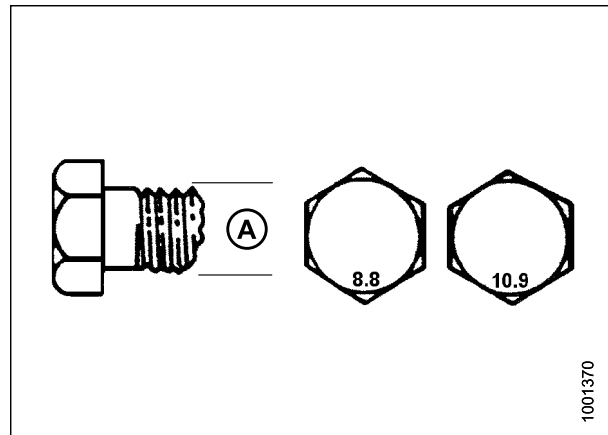


Figure 9.10: Bolt Grades

REFERENCE

Table 9.2 Metric Class 8.8 Bolts and Class 9 Distorted Thread Nut

Nominal Size (A)	Torque (Nm)		Torque (lbf·ft) (*lbf·in)	
	Min.	Max.	Min.	Max.
3-0.5	1	1.1	*9	*10
3.5-0.6	1.5	1.7	*14	*15
4-0.7	2.3	2.5	*20	*22
5-0.8	4.5	5	*40	*45
6-1.0	7.7	8.6	*69	*76
8-1.25	18.8	20.8	*167	*185
10-1.5	37	41	28	30
12-1.75	65	72	48	53
14-2.0	104	115	77	85
16-2.0	161	178	119	132
20-2.5	314	347	233	257
24-3.0	543	600	402	444

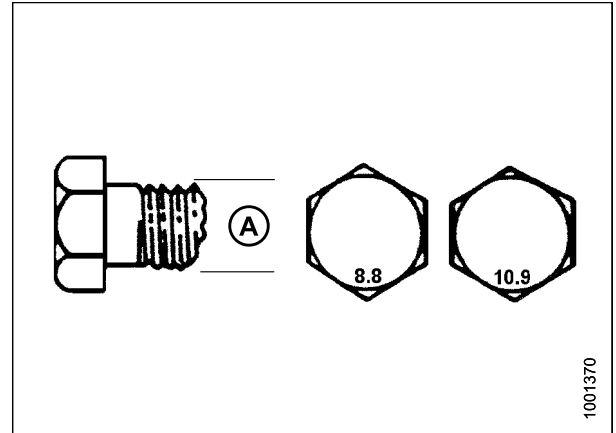


Figure 9.11: Bolt Grades

Table 9.3 Metric Class 10.9 Bolts and Class 10 Free Spinning Nut

Nominal Size (A)	Torque (Nm)		Torque (lbf·ft) (*lbf·in)	
	Min.	Max.	Min.	Max.
3-0.5	1.8	2	*18	*19
3.5-0.6	2.8	3.1	*27	*30
4-0.7	4.2	4.6	*41	*45
5-0.8	8.4	9.3	*82	*91
6-1.0	14.3	15.8	*140	*154
8-1.25	38	42	28	31
10-1.5	75	83	56	62
12-1.75	132	145	97	108
14-2.0	210	232	156	172
16-2.0	326	360	242	267
20-2.5	637	704	472	521
24-3.0	1101	1217	815	901

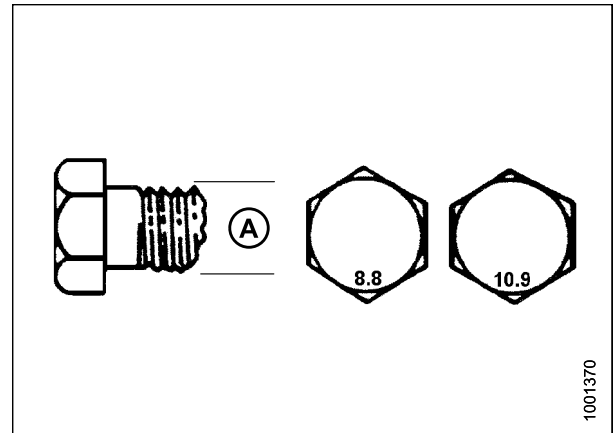


Figure 9.12: Bolt Grades

REFERENCE

Table 9.4 Metric Class 10.9 Bolts and Class 10 Distorted Thread Nut

Nominal Size (A)	Torque (Nm)		Torque (lbf·ft) (*lbf·in)	
	Min.	Max.	Min.	Max.
3-0.5	1.3	1.5	*12	*13
3.5-0.6	2.1	2.3	*19	*21
4-0.7	3.1	3.4	*28	*31
5-0.8	6.3	7	*56	*62
6-1.0	10.7	11.8	*95	*105
8-1.25	26	29	19	21
10-1.5	51	57	38	42
12-1.75	90	99	66	73
14-2.0	143	158	106	117
16-2.0	222	246	165	182
20-2.5	434	480	322	356
24-3.0	750	829	556	614

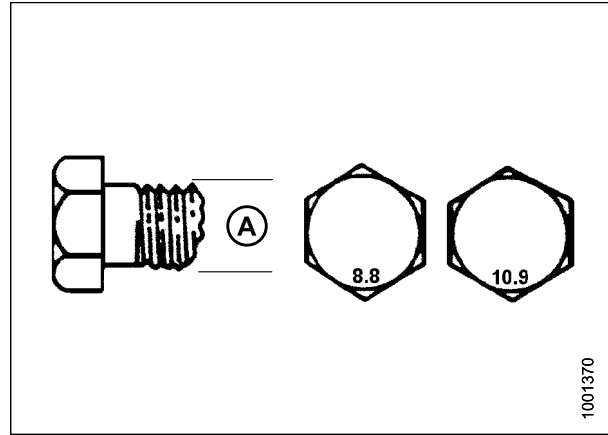


Figure 9.13: Bolt Grades

9.4.2 Metric Bolt Specifications Bolting into Cast Aluminum

Table 9.5 Metric Bolt Bolting into Cast Aluminum

Nominal Size (A)	Bolt Torque			
	8.8 (Cast Aluminum)		10.9 (Cast Aluminum)	
	Nm	lbf·ft	Nm	lbf·ft
M3	—	—	—	1
M4	—	—	4	2.6
M5	—	—	8	5.5
M6	9	6	12	9
M8	20	14	28	20
M10	40	28	55	40
M12	70	52	100	73
M14	—	—	—	—
M16	—	—	—	—

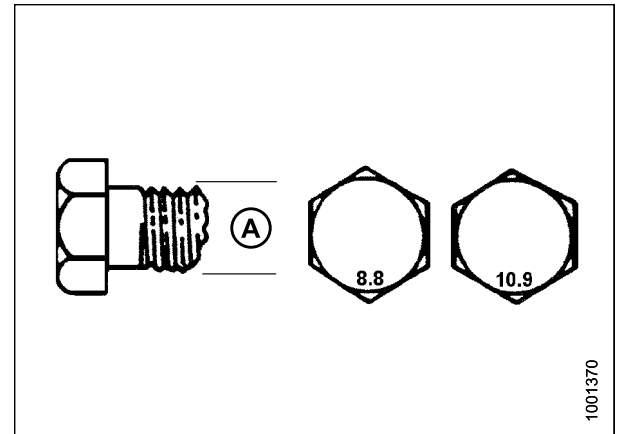


Figure 9.14: Bolt Grades

9.4.3 O-Ring Boss (ORB) Hydraulic Fittings (Adjustable)

1. Inspect O-ring (A) and seat (B) for dirt or obvious defects.
2. Back off lock nut (C) as far as possible. Ensure that washer (D) is loose and is pushed toward lock nut (C) as far as possible.
3. Check that O-ring (A) is **NOT** on threads and adjust if necessary.
4. Apply hydraulic system oil to O-ring (A).

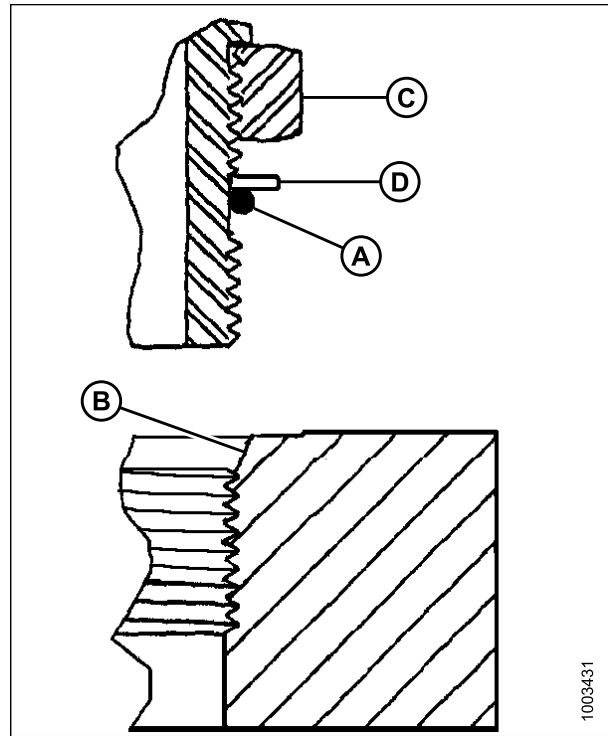


Figure 9.15: Hydraulic Fitting

5. Install fitting (B) into port until back up washer (D) and O-ring (A) contact part face (E).
6. Position angle fittings by unscrewing no more than one turn.
7. Turn lock nut (C) down to washer (D) and tighten to torque shown. Use two wrenches, one on fitting (B) and other on lock nut (C).
8. Check final condition of fitting.

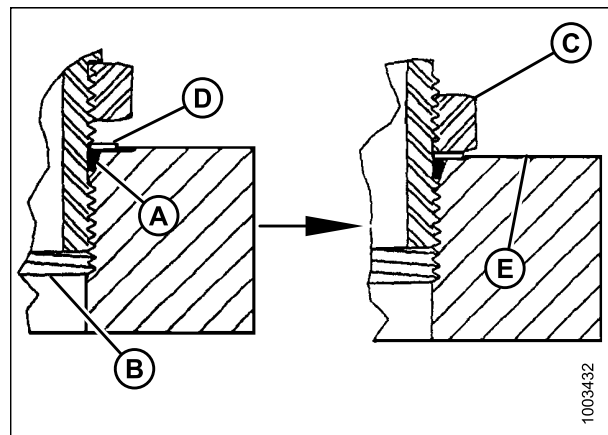


Figure 9.16: Hydraulic Fitting

REFERENCE

Table 9.6 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

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

REFERENCE

9.4.4 O-Ring Boss (ORB) Hydraulic Fittings (Non-Adjustable)

1. Inspect O-ring (A) and seat (B) for dirt or obvious defects.
2. Check that O-ring (A) is **NOT** on threads and adjust if necessary.
3. Apply hydraulic system oil to O-ring.
4. Install fitting (C) into port until fitting is hand tight.
5. Torque fitting (C) according to values in Table 9.7, [page 94](#).
6. Check final condition of fitting.

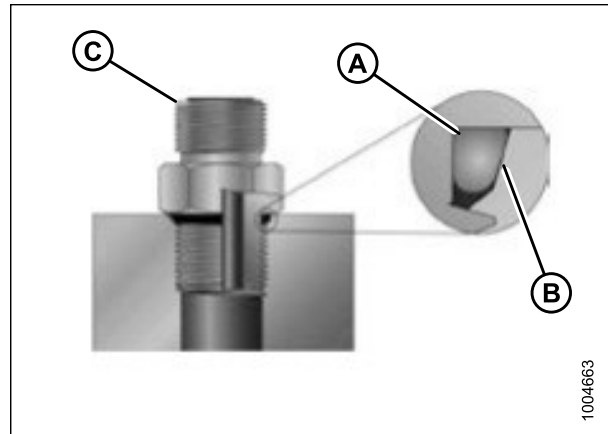


Figure 9.17: Hydraulic Fitting

Table 9.7 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

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

9.4.5 O-Ring Face Seal (ORFS) Hydraulic Fittings

1. Check components to ensure that sealing surfaces and fitting threads are free of burrs, nicks, scratches, or any foreign material.



Figure 9.18: Hydraulic Fitting

2. Apply hydraulic system oil to O-ring (B).
3. Align tube or hose assembly so that flat face of sleeve (A) or (C) comes in full contact with O-ring (B).
4. Thread tube or hose nut (D) until hand-tight. The nut should turn freely until it is bottomed out.
5. Torque fittings according to values in Table 9.8, page 95.

NOTE:

If applicable, hold hex on fitting body (E) to prevent rotation of fitting body and hose when tightening fitting nut (D).

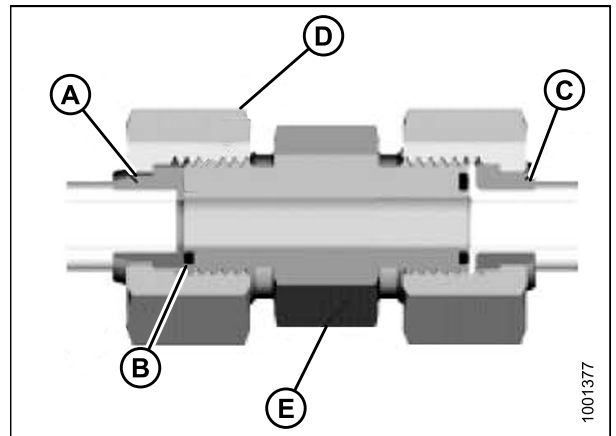


Figure 9.19: Hydraulic Fitting

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

Table 9.8 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

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

Table 9.8 O-Ring Face Seal (ORFS) Hydraulic Fittings (continued)

SAE Dash Size	Thread Size (in.)	Tube O.D. (in.)	Torque Value ⁷	
			Nm	lbf·ft
-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

9.4.6 Tapered Pipe Thread Fittings

Assemble pipe fittings as follows:

1. Check components to ensure that fitting and port threads are free of burrs, nicks and scratches, or any form of contamination.
2. Apply pipe thread sealant (paste type) to external pipe threads.
3. Thread fitting into port until hand-tight.
4. Torque connector to appropriate torque angle. The Turns From Finger Tight (T.F.F.T.) values are shown in Table 9.9, page 96. Make sure that tube end of a shaped connector (typically 45° or 90°) is aligned to receive incoming tube or hose assembly. Always finish alignment of fitting in tightening direction. Never back off (loosen) pipe threaded connectors to achieve alignment.
5. Clean all residue and any excess thread conditioner with appropriate cleaner.
6. Assess final condition of fitting. Pay special attention to possibility of cracks to port opening.
7. Mark final position of fitting. If a fitting leaks, disassemble fitting and check for damage.

NOTE:

Overtorque failure of fittings may not be evident until fittings are disassembled.

Table 9.9 Hydraulic Fitting Pipe Thread

Tapered Pipe Thread Size	Recommended T.F.F.T.	Recommended F.F.F.T.
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

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

9.5 Conversion Chart

Table 9.10 Conversion Chart

Quantity	Imperial/Standard Units		Factor	SI Units (Metric)	
	Unit Name	Abbreviation		Unit Name	Abbreviation
Area	acres	acres	$\times 0.4047 =$	hectares	ha
Flow	US gallons per minute	gpm	$\times 3.7854 =$	liters per minute	L/min
Force	pounds force	lbf	$\times 4.4482 =$	Newtons	N
Length	inch	in.	$\times 25.4 =$	millimeters	mm
	foot	ft.	$\times 0.305 =$	meters	m
Power	horsepower	hp	$\times 0.7457 =$	kilowatts	kW
Pressure	pounds per square inch	psi	$\times 6.8948 =$	kilopascals	kPa
			$\times .00689 =$	megapascals	MPa
			$\div 14.5038 =$	bar (Non-SI)	bar
Torque	pound feet or foot pounds	lbf·ft	$\times 1.3558 =$	Newton meters	Nm
	pound inches or inch pounds	lbf·in	$\times 0.1129 =$	Newton meters	Nm
Temperature	degrees Fahrenheit	°F	$(^{\circ}\text{F}-32) \times 0.56 =$	Celsius	°C
Velocity	feet per minute	ft/min	$\times 0.3048 =$	meters per minute	m/min
	feet per second	ft/s	$\times 0.3048 =$	meters per second	m/s
	miles per hour	mph	$\times 1.6063 =$	kilometers per hour	km/h
Volume	US gallons	US gal	$\times 3.7854 =$	liters	L
	ounces	oz.	$\times 29.5735 =$	milliliters	ml
	cubic inches	in ³	$\times 16.3871 =$	cubic centimeters	cm ³ or cc
Weight	pounds	lb.	$\times 0.4536 =$	kilograms	kg

REFERENCE

9.6 Definitions

The following terms and acronyms may be used in this manual.

Term	Definition
API	American Petroleum Institute
ASTM	American Society of Testing and Materials
Bolt	A headed and externally threaded fastener that is designed to be paired with a nut
Center-link	A hydraulic cylinder link between header and machine used to change header angle
CGVW	Combined vehicle gross weight
Finger tight	Finger tight is a reference position where sealing surfaces or components are making contact with each other, and fitting has been tightened to a point where fitting is no longer loose
FFFT	Flats from finger tight
GVW	Gross vehicle weight
Hard joint	A joint made with use of a fastener where joining materials are highly incompressible
Hex key	A tool of hexagonal cross-section used to drive bolts and screws that have a hexagonal socket in head (internal-wrenching hexagon drive); also known as an Allen key and various other synonyms
hp	Horsepower
JIC	Joint Industrial Council: A standards body that developed standard sizing and shape for original 37° flared fitting
n/a	Not applicable
Nut	An internally threaded fastener that is designed to be paired with a bolt
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
ORB	O-ring boss: A style of fitting commonly used in port opening 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
RoHS (Reduction of Hazardous Substances)	A directive by the European Union to restrict use of certain hazardous substances (such as hexavalent chromium used in some yellow zinc platings)
SAE	Society of Automotive Engineers
Screw	A headed and externally threaded fastener that threads into preformed threads or forms its own thread into a mating part
Soft joint	A joint made with use of a fastener where joining materials are compressible or experience relaxation over a period of time
Tension	Axial load placed on a bolt or screw, usually measured in Newtons (N) or pounds (lb.)

REFERENCE

Term	Definition
TFFT	Turns from finger tight
Torque	The product of a force X lever arm length, usually measured in Newton-meters (Nm) or foot-pounds (lbf-ft)
Torque angle	A tightening procedure where fitting is assembled to a precondition (finger tight) and then nut is turned farther a number of degrees to achieve its final position
Torque-tension	The relationship between assembly torque applied to a piece of hardware and axial load it induces in bolt or screw
Washer	A thin cylinder with a hole or slot located in the center that is to be used as a spacer, load distribution element, or a locking mechanism

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.


Serial Number:

Table .11 Rotary Disc Header for Self-Propelled Windrower Predelivery Checklist

✓	Item	Reference
	Check for shipping damage or missing parts. Be sure all shipping dunnage is removed.	—
	Check for loose hardware. Tighten to required torque if applicable.	9.4 Torque Specifications, page 88
	Check main drive belt tension.	7.1 Checking Conditioner Drive Belt, page 49
	Check skid shoes are evenly set.	7.2 Checking Skid Shoes, page 51
	Check side forming shields evenly set to desired position.	7.10 Checking Forming Shield Deflector Position, page 64
	Check rear baffle is about mid-position.	7.9 Checking Conditioner Baffle Position, page 63
	Check conditioner roll gap (roll conditioner).	7.7 Checking Roll Gap, page 60
	Check conditioner roll tension (roll conditioner).	
	Check conditioner roll timing hardware is securely tightened (roll conditioner).	7.3 Checking Roll Timing, page 52
	Check that cutterbar doors are unbolted from centre channel frame, shipping wire is removed from cutterbar curtains, and cutterbar curtains are hanging properly.	4 Unpacking Curtains, page 41
	Grease all bearings and drivelines.	6.1 Lubrication Procedure, page 48
	Check conditioner roll timing gearbox lubricant.	7.4 Checking and Adding Conditioner Roll Timing Gearbox Lubricant, page 55
	Check cutterbar lubricant.	7.6 Checking and Adding Cutterbar Lubricant, page 57

REFERENCE

Table .11 Rotary Disc Header for Self-Propelled Windrower Predelivery Checklist (continued)

✓	Item	Reference
	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>7.13 Running up the Header, page 67</i>
	Check hydraulic hose and wiring harness routing to ensure adequate clearance when raising or lowering header.	—
	Check hazard lights are functional.	<i>7.11 Checking Lights, page 65</i>
Post Run-Up Check – Stop Engine		
	Check belt drive for proper idler alignment and overheating bearings.	<i>7.1 Checking Conditioner Drive Belt, page 49</i>
	Check for hydraulic leaks.	—
	Check that header manuals are in storage compartment.	<i>7.12 Checking Manuals, page 66</i>

Date Checked:

Checked by:

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.

Lubricant	Specification	Description	Use	Capacities
Grease	SAE Multipurpose	High temperature extreme pressure (EP) performance with 1% maximum molybdenum disulphide (NLGI Grade 2) lithium base	As required unless otherwise specified	—
		High temperature extreme pressure (EP) performance with 10% maximum molybdenum disulphide (NLGI Grade 2) lithium base	Driveline slip-joints	—
Gear Lubricant	SAE 80W-90	High thermal and oxidation stability API service class GL-5	Cutterbar	8 liters (8.5 qts [US])
	SAE 85W-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	1.85 liters (1.95 qts [US])

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