

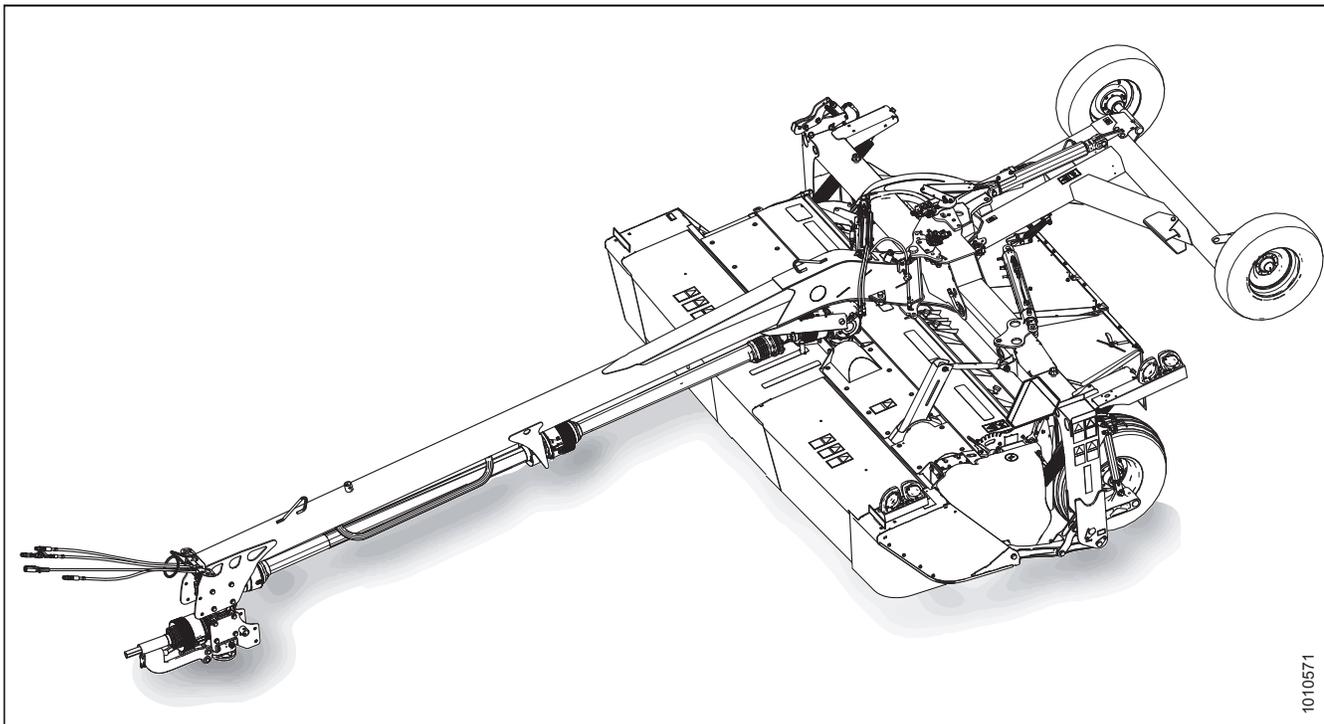
R113/R116 Pull-Type Disc Mower

Unloading and Assembly Instruction: North America

214713 Revision A

Original Instruction

R113/R116 Pull-Type Disc Mower



1010571

Published: June, 2018

Introduction

This instruction manual describes the unloading, setup, and predelivery requirements for the MacDon R113 and R116 Pull-Type Disc Mower.

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

List of Revisions

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

Summary of Change	Location
Updated images with slow moving vehicle signs	Various
Updated images to remove old jack stand and mount	Various
Added new jack stand information	<ul style="list-style-type: none">• 3.3.1 Installing Drawbar Hitch, page 16• 5.3.1 Attaching with Drawbar Hitch, page 93• 4.3.1 Installing Drawbar Hitch, page 65
Added image for transport pin installation	Installing Transport Assembly, page 34
Updated topic with new slow moving vehicle sign	Installing Slow Moving Vehicle (SMV) Sign, page 55

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Chapter 1: Safety

1.1 Signal Words

Three signal words, **DANGER**, **WARNING**, and **CAUTION**, are used to alert you to hazardous situations. Signal words are selected using the following guidelines:

DANGER

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

WARNING

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

CAUTION

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

1.2 General Safety

CAUTION

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

Protect yourself.

- When assembling, operating, and servicing machinery, wear all protective clothing and personal safety devices that could be necessary for job at hand. Do **NOT** take chances. You may need the following:
 - Hard hat
 - Protective footwear with slip-resistant soles
 - Protective glasses or goggles
 - Heavy gloves
 - Wet weather gear
 - Respirator or filter mask
- Be aware that exposure to loud noises can cause hearing impairment or loss. Wear suitable hearing protection devices such as earmuffs or earplugs to help protect against loud noises.



Figure 1.1: Safety Equipment



Figure 1.2: Safety Equipment

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

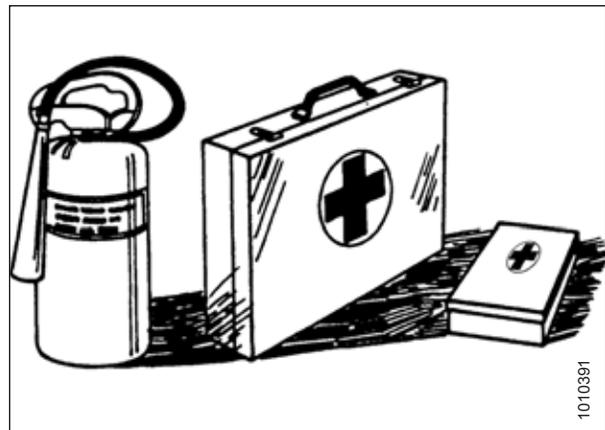


Figure 1.3: Safety Equipment

SAFETY

- Wear close-fitting clothing and cover long hair. Never wear dangling items such as scarves or bracelets.
- Keep all shields in place. **NEVER** alter or remove safety equipment. Make sure driveline guards can rotate independently of shaft and can telescope freely.
- Use only service and repair parts made or approved by equipment manufacturer. Substituted parts may not meet strength, design, or safety requirements.



Figure 1.4: Safety around Equipment

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

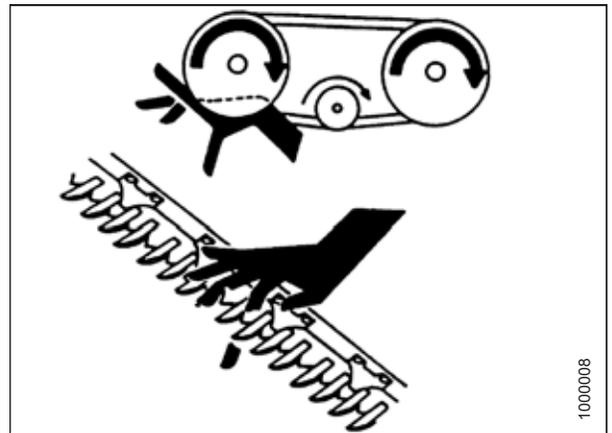


Figure 1.5: Safety around Equipment

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



Figure 1.6: Safety around Equipment

1.3 Tire Safety

WARNING

- Service tires safely.
- A tire can explode during inflation which could cause serious injury or death.
- Follow proper procedures when mounting a tire on a wheel or rim. Failure to do so can produce an explosion that may result in serious injury or death.



Figure 1.7: Overinflated Tire

WARNING

- Do NOT stand over tire. Use a clip-on chuck and extension hose.
- Do NOT exceed maximum inflation pressure indicated on tire label.
- Replace tires that have defects.
- Replace wheel rims that are cracked, worn, or severely rusted.
- Never weld a wheel rim.
- Never use force on an inflated or partially inflated tire.
- Make sure tire is correctly seated before inflating to operating pressure.
- If tire is not correctly positioned on rim or is overinflated, tire bead can loosen on one side causing air to escape at high speed and with great force. An air leak of this nature can thrust tire in any direction endangering anyone in area.
- Make sure all air is removed from tire before removing tire from rim.
- Do NOT remove, install, or repair a tire on a rim unless you have proper equipment and experience to perform job.
- Take tire and rim to a qualified tire repair shop.

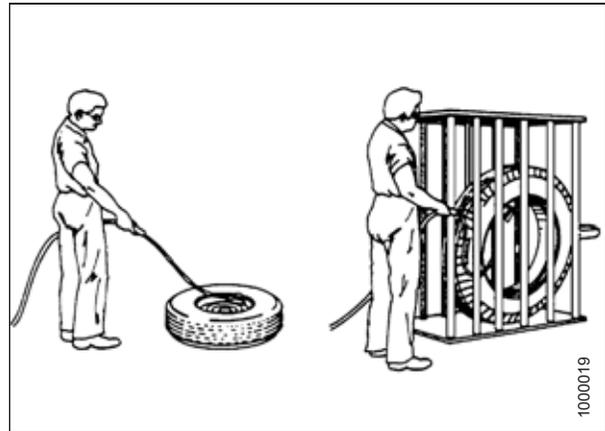


Figure 1.8: Safely Inflating Tire

1.4 Safety Signs

- Keep safety signs clean and legible at all times.
- Replace safety signs that are missing or illegible.
- If original part on which a safety sign was installed is replaced, be sure repair part also bears current safety sign.
- Safety signs are available from your MacDon Dealer.

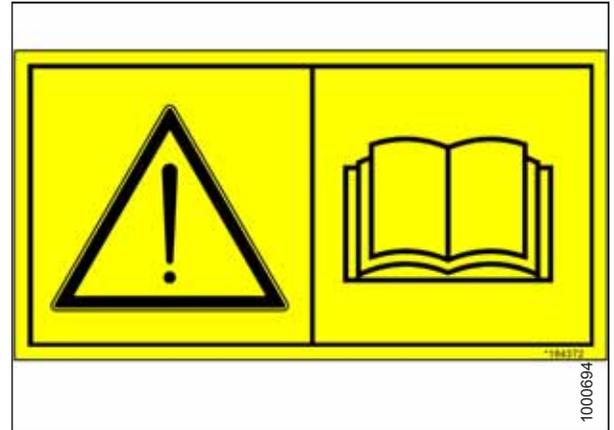


Figure 1.9: Operator's Manual Decal

Chapter 2: Unloading Truck Shipment

CAUTION

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

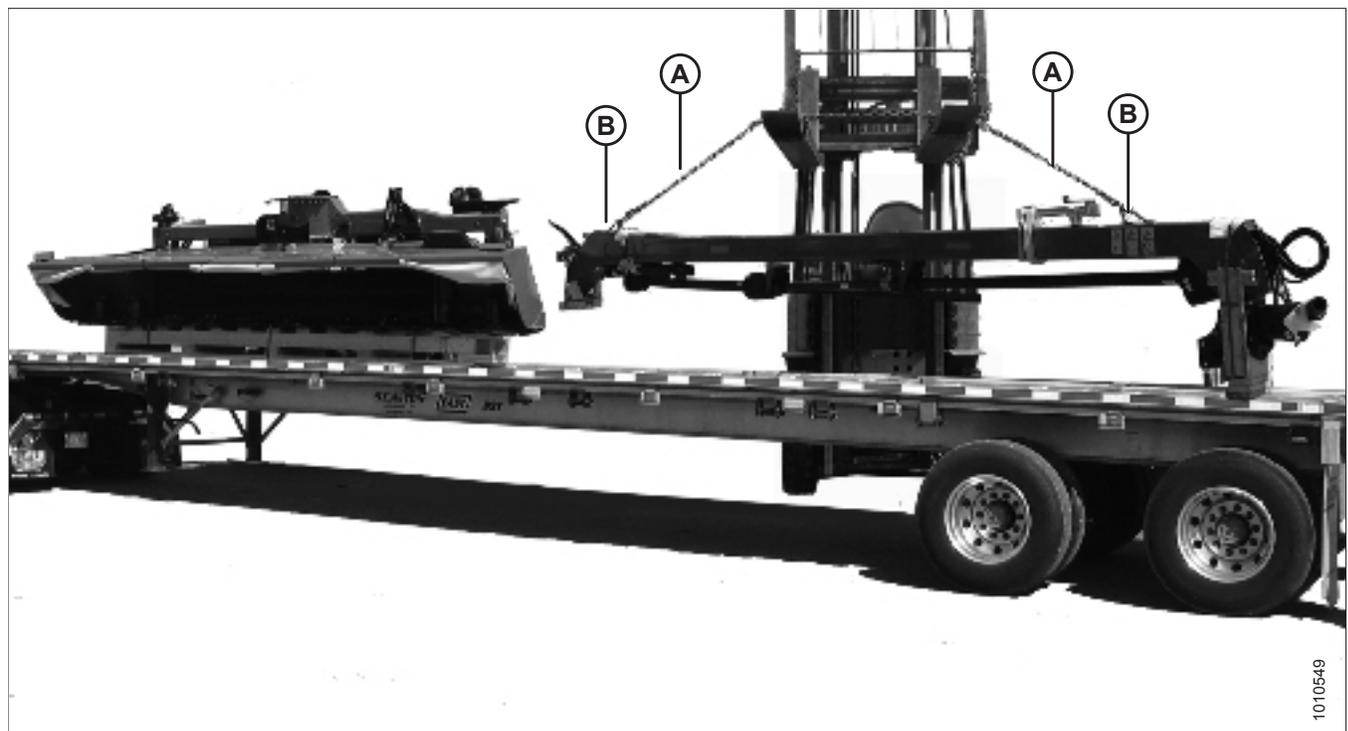
CAUTION

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.

Lifting Vehicle	
Minimum capacity	3630 kg (8000 lb.)
Minimum height	4.5 m (15 ft.)

Chain	
Overhead lifting quality 12.7 mm (1/2 inch)	2270 kg (5000 lb.) minimum working load

Figure 2.1: Unloading Hitch



1. Remove hauler's tie-down straps and chains.
2. Attach chain (A) to two brackets (B) on top of hitch as shown.
3. Adjust chain lengths so hitch is lifted evenly.
4. Raise hitch off deck, back up until unit clears trailer, and slowly lower to 150 mm (6 in.) from ground.

IMPORTANT:

Take care not to contact the other machine if load is two headers wide.

UNLOADING TRUCK SHIPMENT

5. Take to storage or assembly area, and set hitch down securely on level ground.
6. Repeat for second hitch (if required).
7. Check for shipping damage and missing parts.
8. Approach disc mower (A) from back with forklift (B) as shown, and slide forks as far as possible into pallet.

NOTE:

Pallet is designed to be lifted from the backside only.

9. Raise disc mower off deck.

IMPORTANT:

Take care not to contact the other machine if load is two-wide.

10. Back up until unit clears trailer, and slowly lower to 150 mm (6 in.) from ground.
11. Take to storage or set-up area, and set machine down securely on level ground.

NOTE:

When possible, approach from the backside to minimize potential for contacting the unit.

12. Repeat for second disc mower (if required).
13. Check for shipping damage and missing parts.

IMPORTANT:

Do **NOT** remove disc mower from pallet until instructed.

14. Unload remaining pallets and boxes, and take to assembly area.

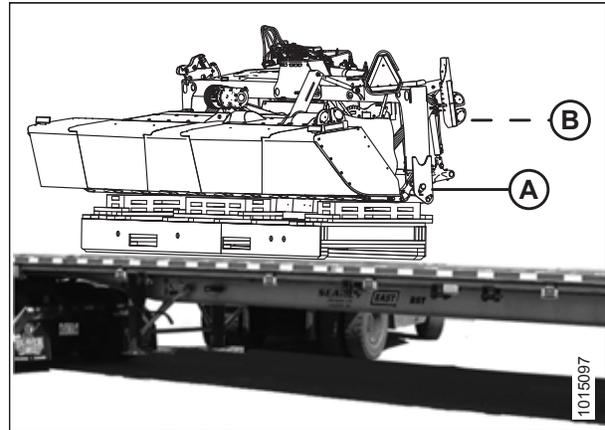


Figure 2.2: Unloading Disc Mower

Chapter 3: Assembling the Disc Mower (With or Without the Dealer-Installed Transport)

Perform the following procedures in the order provided to assemble the disc mower without the transport system, or when the Road Friendly Transport™ will be installed by the Dealer.

To assemble a disc mower with the factory-installed transport, refer to *4 Assembling the Disc Mower (Factory-Installed Transport)*, page 57.

3.1 Repositioning Center-Link Top Anchor

Perform this procedure to reposition the center-link top anchor into working position.

1. Place forklift forks (B) under top beam and lift carrier frame (A) slightly until pin at base of center-link anchor is loose. Use a piece of wood (C) to protect paint on frame.

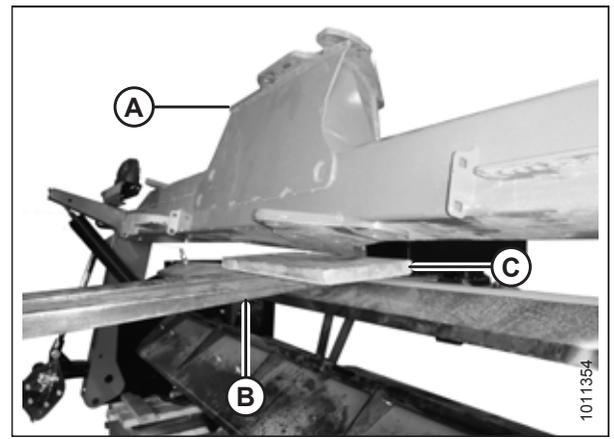


Figure 3.1: Carrier

2. Loosen jam nut (A) and fully loosen float spring bolt (B). Repeat on the opposite side.

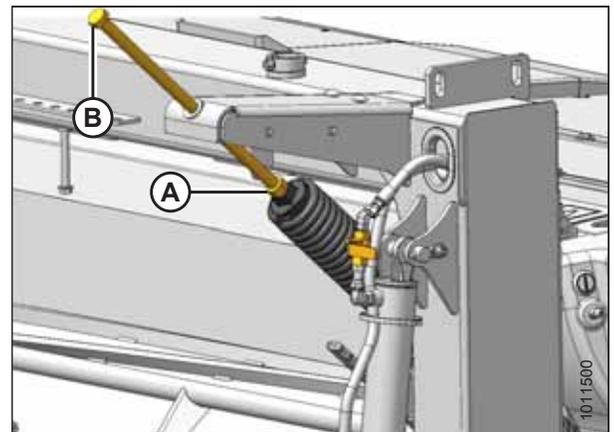


Figure 3.2: Float Spring

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

3. Remove four M10 hex head bolts (A) and flat washers, and remove top shield (B).

CAUTION

To avoid injury, keep fingers clear of opening at base of anchor.

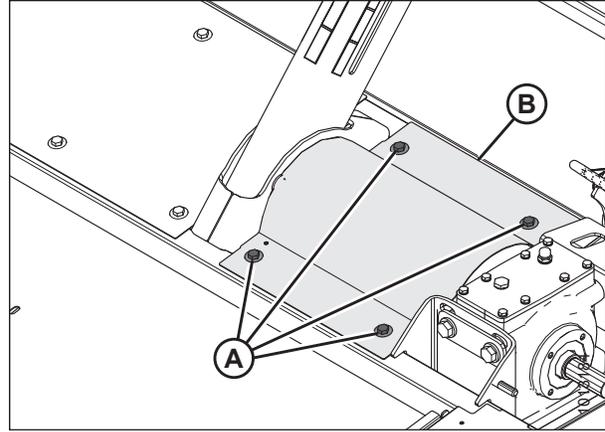


Figure 3.3: Top Shield (Left of Center-Link)

4. Remove cotter pin (B), washer (C), and shipping tag (D).
5. Remove pin (A) from center location and lower forks on forklift.

NOTE:

Pin should slide out freely. Adjust forklift or move carrier until pin is loose. Do **NOT** use hammer to remove pin.

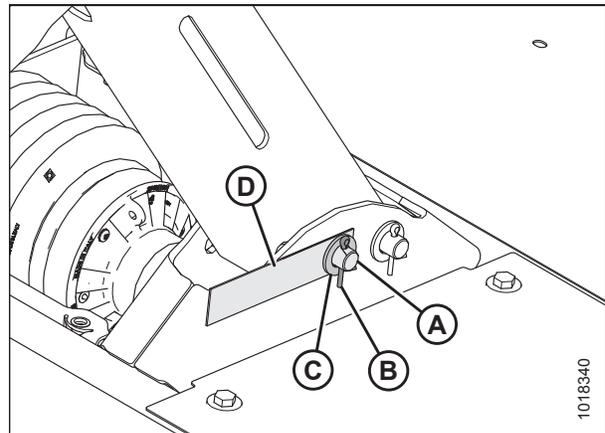


Figure 3.4: Center-Link Anchor (Right of Center-Link)

6. Install pin (A) and secure with washer (B) and cotter pin (C). Move the carrier and anchor so the pin can be installed in working location.

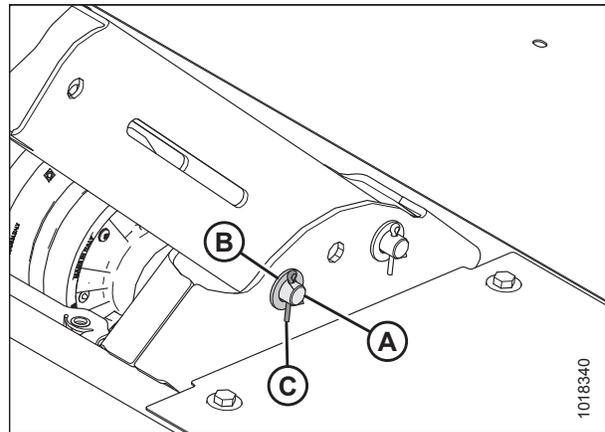


Figure 3.5: Center-Link Anchor (Right of Center-Link)

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

7. Install top shield (B) and secure with four M10 hex head bolts (A) and flat washers. Torque to 27–30 Nm (20–22 lbf-ft).

NOTE:

If transport is also being installed, leave bolts (A) loose. These bolts will be tightened when installing the lighting harness.

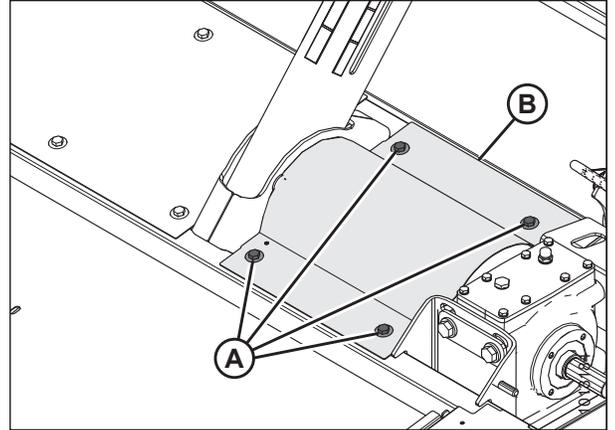


Figure 3.6: Top Shield (Left of Center-Link)

8. Close the disc mower's lift cylinder lock-out valve (A) on each lift cylinder by turning the handle to the horizontal position.
9. Loosen jam nut (B).
10. Turn the adjuster bolt (C) and set dimension (D) to 130 mm (5-1/8 in.).
 - Turn bolt clockwise (towards spring) to increase float
 - Turn bolt counterclockwise (away from spring) to decrease float
11. Tighten jam nut (B) against spring.

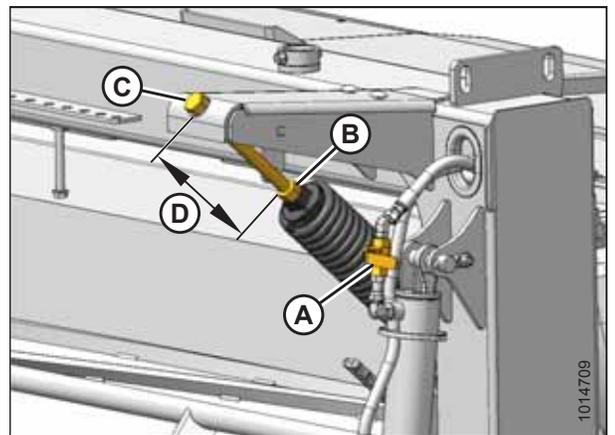


Figure 3.7: Lift Cylinder Lock-Out Valve, Jam Nut, and Adjuster Bolt

3.2 Attaching Hitch to Carrier

1. Remove M20 bolts (A), washers, and nuts from carrier at the hitch attachment location. Retain bolts, washers, and nuts.

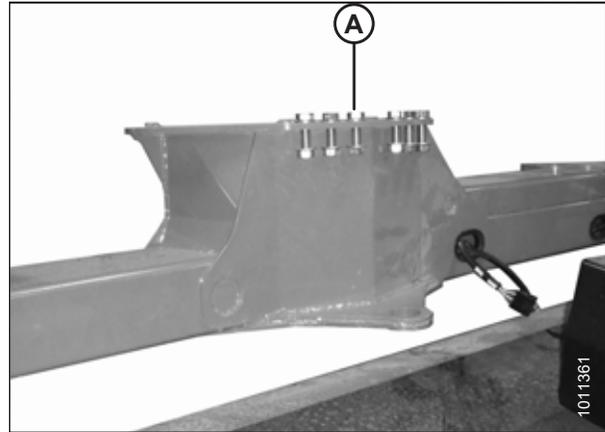


Figure 3.8: Carrier

2. Cut banding (A) securing wood supports, then remove supports (B).
3. Remove the two bolts securing wood support to hitch pin (C). Discard bolts.

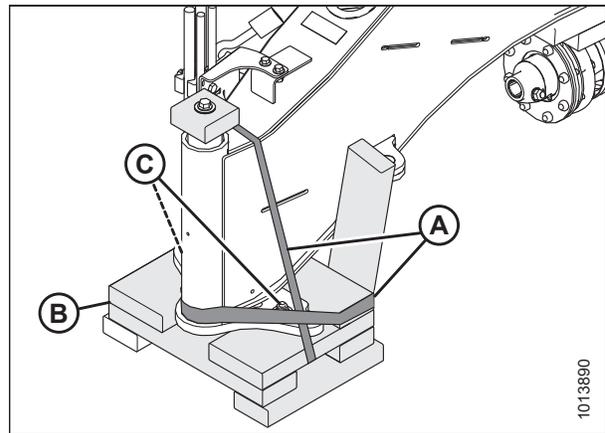


Figure 3.9: Hitch Packing

4. Place sling (A) around the hitch frame. Adjust sling position until hitch is balanced when lifting.
 - **R113:** Approximately 2.7 m (106 in.) from the edge of the tractor end of the hitch (B)
 - **R116:** Approximately 3.5 m (138 in.) from the edge of the tractor end of the hitch (B)
5. Raise the hitch approximately 610 mm (24 in.) off the ground.

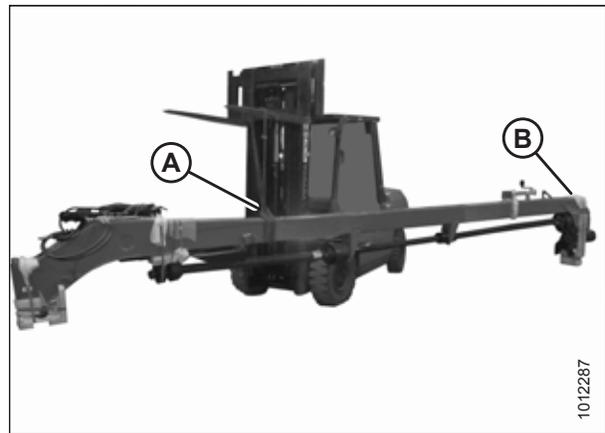


Figure 3.10: Lifting Hitch

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

NOTE:

Hitch pin (C) is heavy. Support it appropriately before removing bolt (A).

- Support hitch pin (C), remove bolt (A) and wood block (B) from top of pin, and remove hitch pin (C).

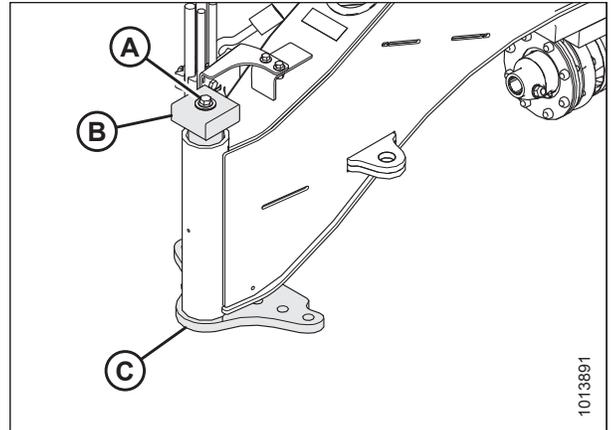


Figure 3.11: Hitch Packing

- Install hitch pin (A) fully into hitch.

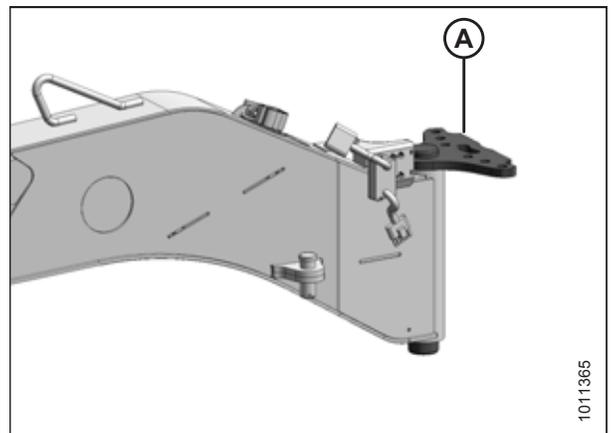


Figure 3.12: Hitch Pin

- Pivot the gearbox (A) towards the right side of the header. This will increase the clearance to the driveline clutch when installing hitch onto carrier frame.

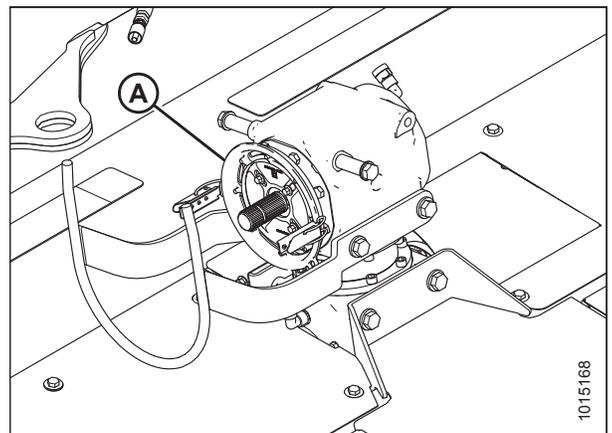


Figure 3.13: Gearbox

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

9. Move hitch pivot (A) into attachment location (B) on carrier, and line up hitch pin with hole in carrier.

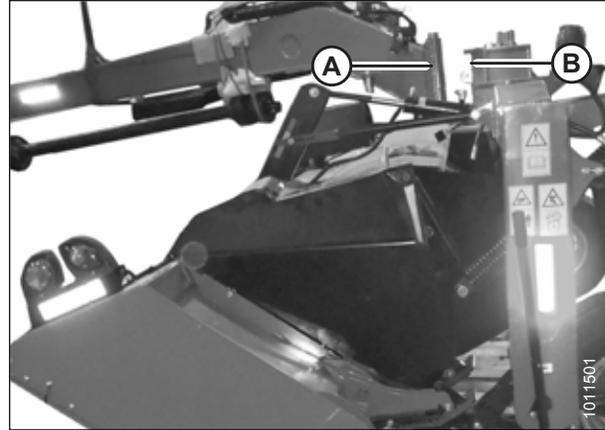


Figure 3.14: Hitch to Carrier

10. Slowly lower hitch (A) while maintaining pin alignment until hitch pin (B) is fully inserted. Use a large soft hammer if necessary to seat hitch pin.

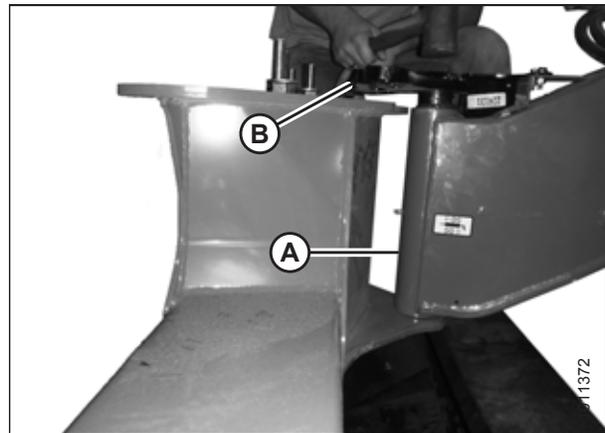


Figure 3.15: Hitch Pin

11. Line up holes in hitch pin (A) with holes in the carrier frame. Install six M20 x 65 bolts (B) with hardened washers under the bolt head and lock nuts (C).

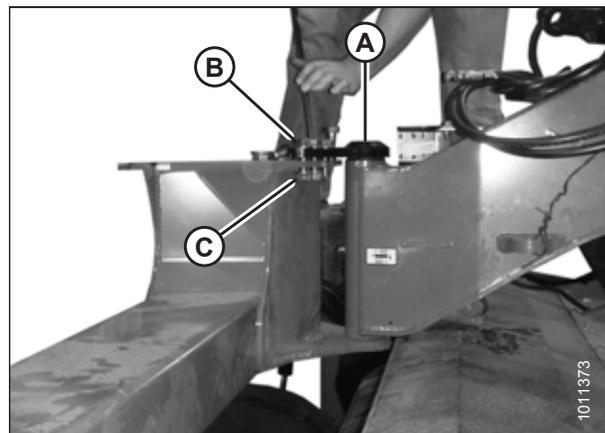


Figure 3.16: Hitch Pin

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

12. Tighten the outer bolts (A) first to draw the plate against the frame. Then tighten the inner bolts.
13. Torque bolts to 461 Nm (340 lbf·ft).

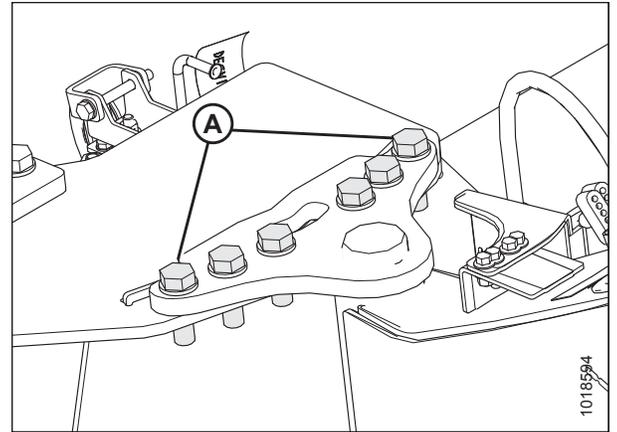


Figure 3.17: Hitch Pin

3.3 Installing Tractor Mating Hitch to Carrier Hitch

Depending on disc mower configuration, refer to the applicable installation procedure:

- [3.3.1 Installing Drawbar Hitch, page 16](#)
- [3.3.2 Installing Two-Point Hitch \(Cat. II\) Adapter, page 20](#)

3.3.1 Installing Drawbar Hitch

If attaching the disc mower to a tractor with a drawbar hitch, proceed as follows. If attaching the disc mower to a tractor with a two-point hitch, refer to [3.3.2 Installing Two-Point Hitch \(Cat. II\) Adapter, page 20](#).

1. Remove shipping wire or banding (A) securing shipping blocks (B) at front of hitch, and remove blocks.
2. Swivel lower gearbox until the input shaft is facing forward.

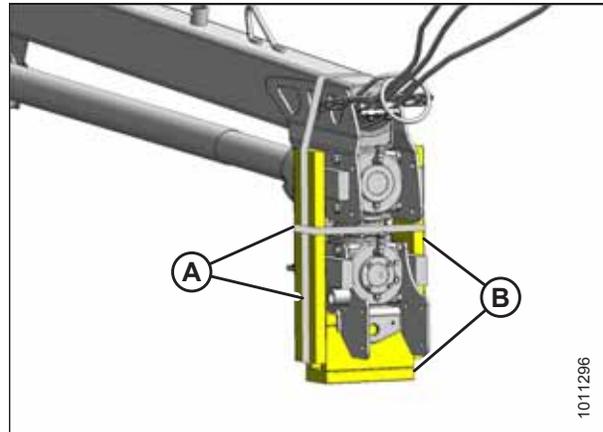


Figure 3.18: Hitch End Packing

3. Remove shipping wire (A) from the jack stand support (D) and jack (B). Remove the jack stand support and jack from the pallet. Leave the drawbar hitch attached to the pallet.
4. Remove the hardware bag from the jack stand support.

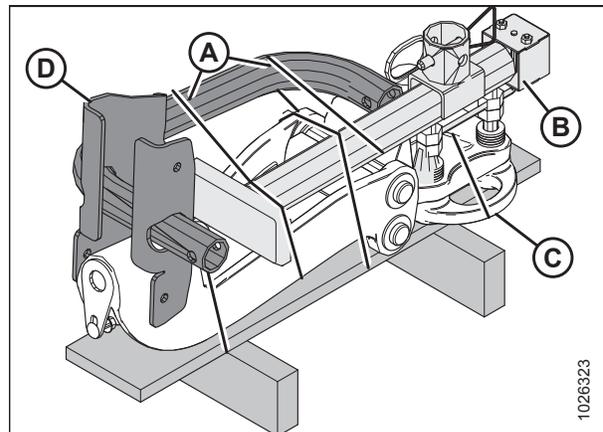


Figure 3.19: Jack and Drawbar Hitch Packing

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

5. Install jack support stand (A) as shown. Secure with two M12 X 1.75 X 40 bolts (B), M12 washers and M12 center lock nuts per side. Torque hardware to 68.5 Nm (51 lbf ft)

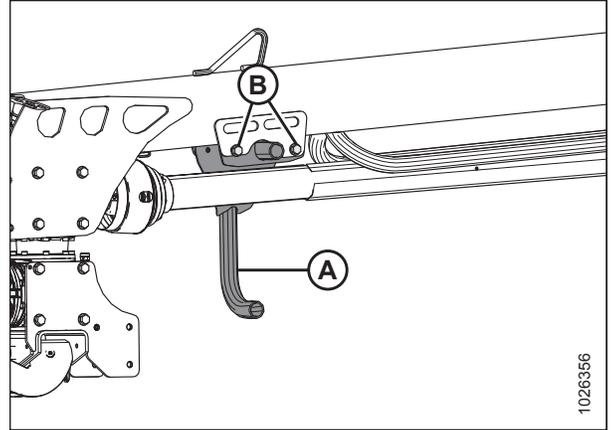


Figure 3.20: Jack Stand Support

6. Install jack (A) at front of hitch, and secure with pin (B).
7. Lower forklift until hitch is resting on hitch jack (A).

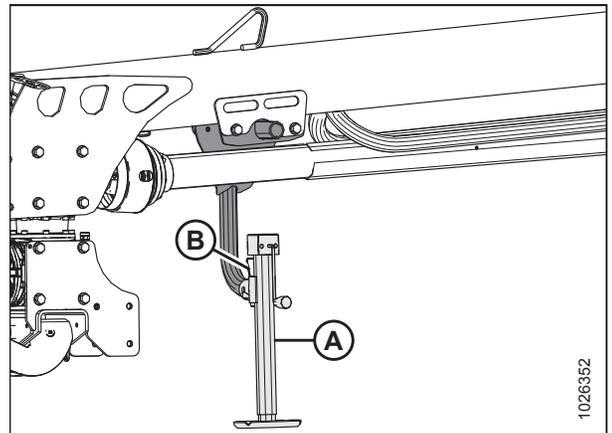


Figure 3.21: Jack Stand

8. Remove shipping wire (A) that secures pin (B) in casting. Do **NOT** remove other strapping.
9. Remove pin (B) from casting and remove bolt (C) and nut from pin.

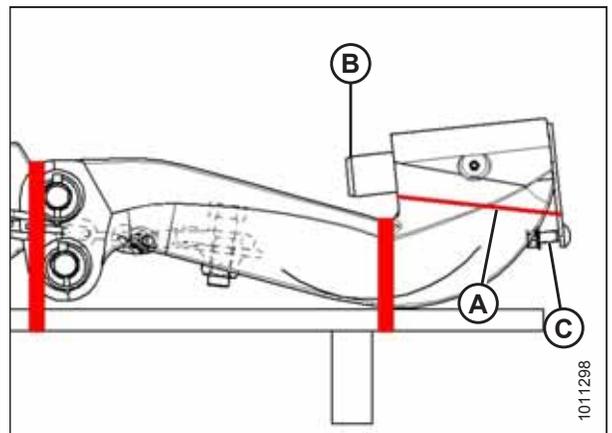


Figure 3.22: Hitch Casting

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

10. Using a floor jack or equivalent under pallet (A), raise drawbar hitch (B) into position under the gearbox.
11. Move drawbar hitch (B) so pin (C) can be installed.
12. Secure pin with bolt (D) and nut.
13. Remove floor jack, and if necessary, remove remaining strapping and pallet (A) from hitch adapter.

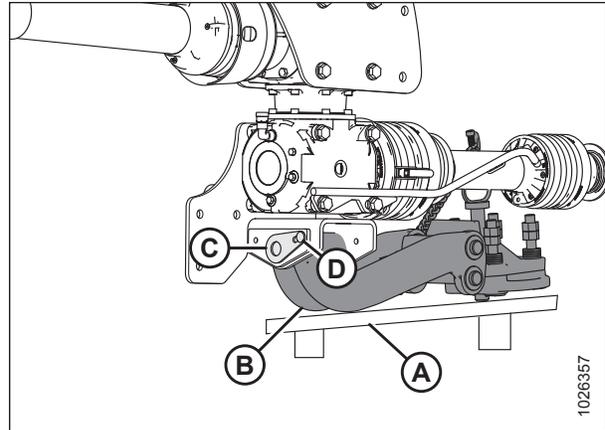


Figure 3.23: Drawbar Hitch

14. Remove cone shield (A).

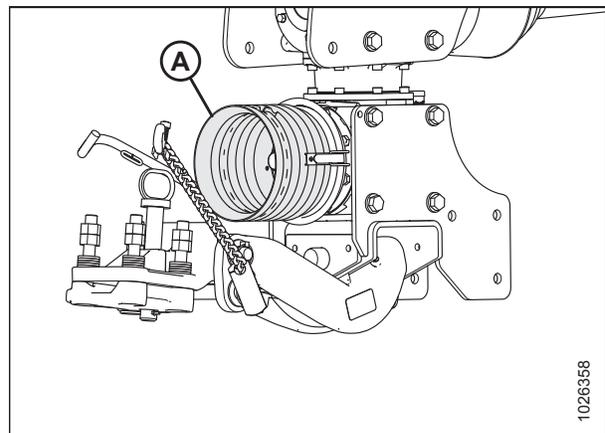


Figure 3.24: Cone Shield

15. Retrieve the primary driveline (D) from the shipping location.
16. Remove nut (C), washer (B) and pin (A) from the disc mower end of the primary driveline (D).

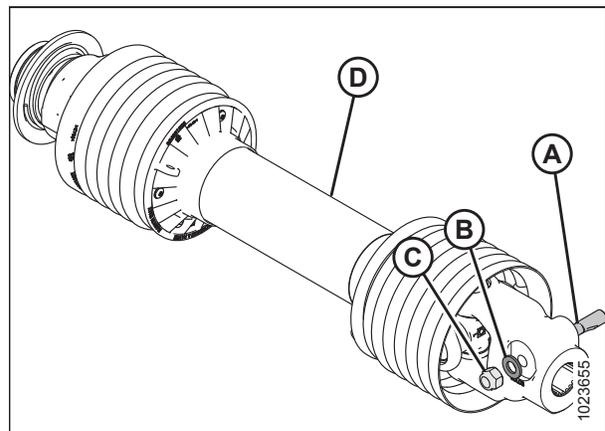


Figure 3.25: Primary Driveline

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

- Slide the primary driveline (A) onto the gearbox input shaft. Align the pinhole (B) in the yoke with the groove on the input shaft.

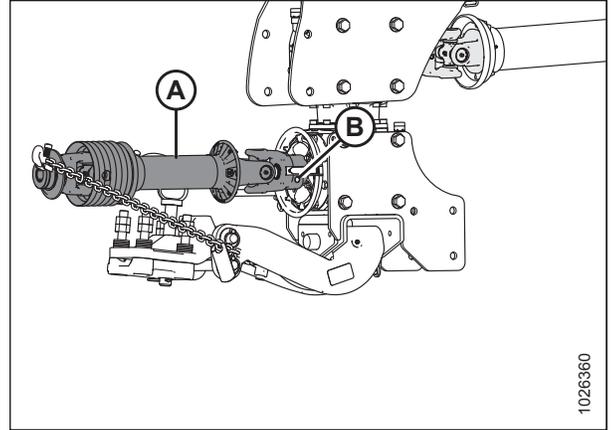


Figure 3.26: Primary Driveline

- Insert tapered pin (A) by hand. Ensure the pin lines up with groove in yoke and is fully inserted. The notch in the pin should be facing toward the shaft.
- Clean the threads on pin (A) after it has been inserted.
- Install washer (B) and nut (C) on tapered pin and torque to 149 Nm (110 lbf-ft). The end of the pin must be recessed approximately 9–11 mm (0.35–0.43 in.) (D).

NOTE:

Do **NOT** use an impact wrench to install or torque the nut.

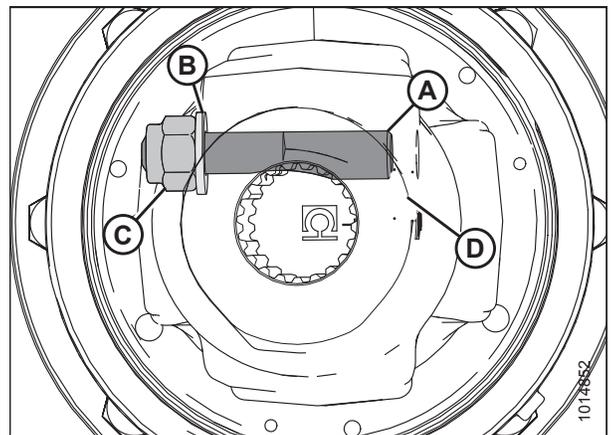


Figure 3.27: Primary Driveline

- Install the cone shield (A) over the primary driveline (B). Use the latches to secure it to the gearbox.
- Place the primary driveline (B) on the driveline support.
- Install hitch swing cylinder. Refer to [3.4 Installing Hitch Swing Cylinder, page 24](#).

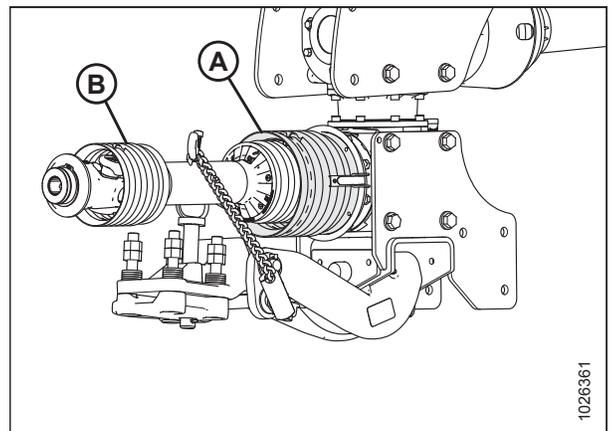


Figure 3.28: Cone Shield

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

3.3.2 Installing Two-Point Hitch (Cat. II) Adapter

1. Remove shipping wire or banding (A) securing shipping blocks (B) at front of hitch, and remove blocks.
2. Swivel lower gearbox until the input shaft is facing forward.

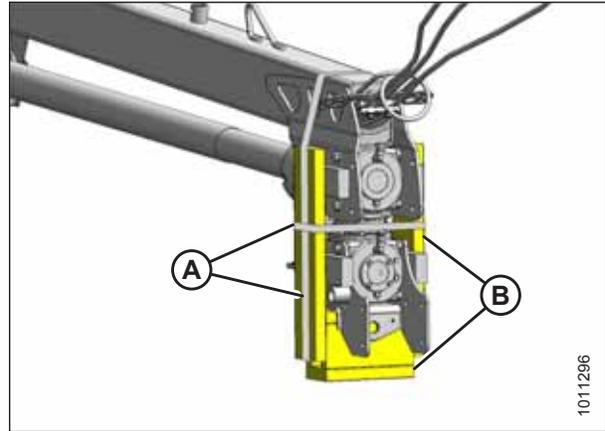


Figure 3.29: Hitch Packing

3. Retrieve two-point hitch adapter shipment.
4. Remove shipping wire (A) and material from stand (B), and remove stand from hitch adapter (C).

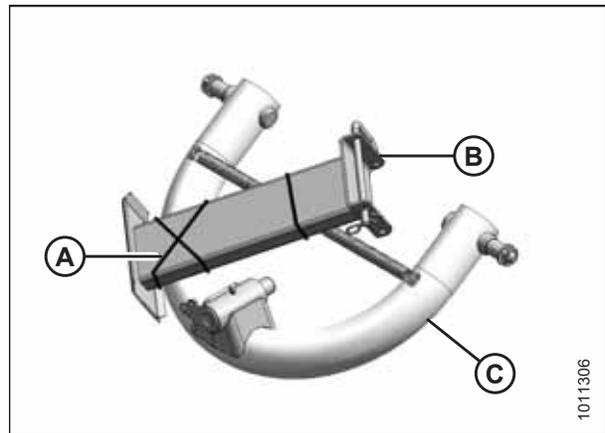


Figure 3.30: Two-Point Hitch Packing

5. Remove strapping that secures pin (A) to adapter (B). Do **NOT** remove other strapping.
6. Remove pin (A) from adapter, and remove bolt (C) and nut from pin (A).

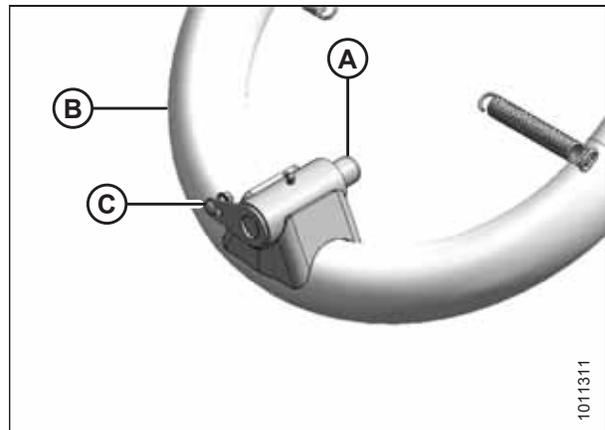


Figure 3.31: Two-Point Hitch Adapter

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

- Using a floor jack or equivalent, raise two-point hitch adapter (A) into position under the gearbox.
- Maneuver adapter (A) so that pin (B) can be installed to secure adapter to hitch.
- Secure pin with bolt (C) and nut (D).
- Remove floor jack, and remove remaining strapping and pallet from hitch adapter.

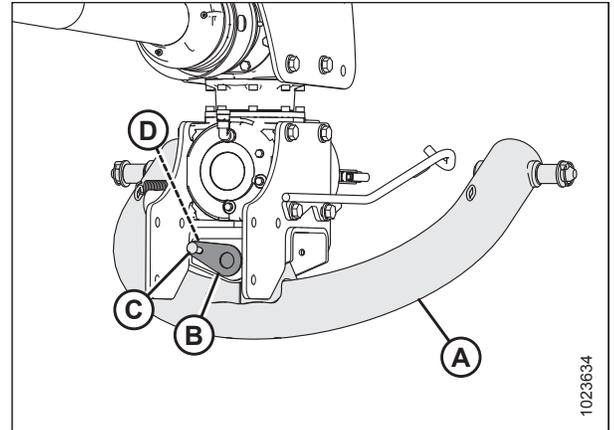


Figure 3.32: Two-Point Hitch Adapter

- Retrieve stand (A).
- Position stand (A) under gearbox as shown, and install hitch pin (B) to secure the stand.
- Install hairpins (C) to secure hitch pin (B).
- Lower hitch and stand to the ground.

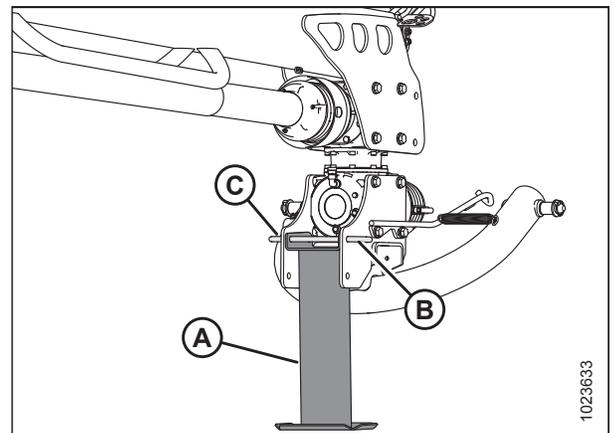


Figure 3.33: Stand

- Install springs (A) into hooks (B). Repeat on opposite side.

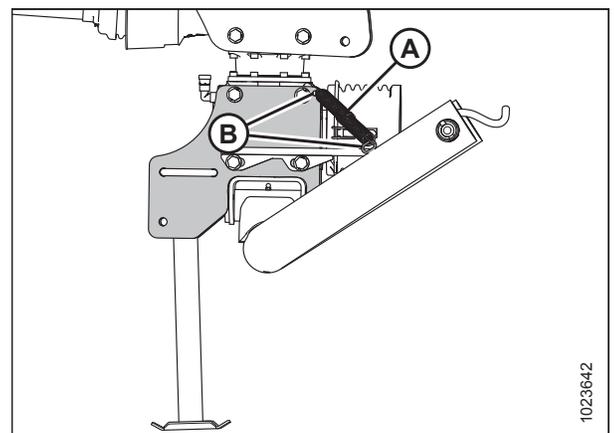


Figure 3.34: Springs

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

16. Remove cone shield (A).

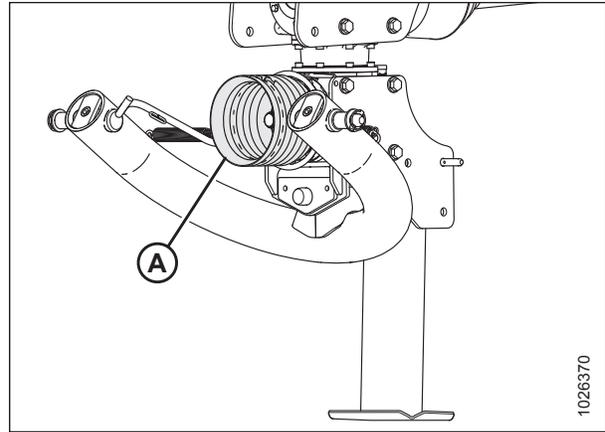


Figure 3.35: Cone Shield

17. Retrieve the primary driveline (D) from the shipping location.
18. Remove nut (C), washer (B), and pin (A) from the disc mower end of primary driveline (D).

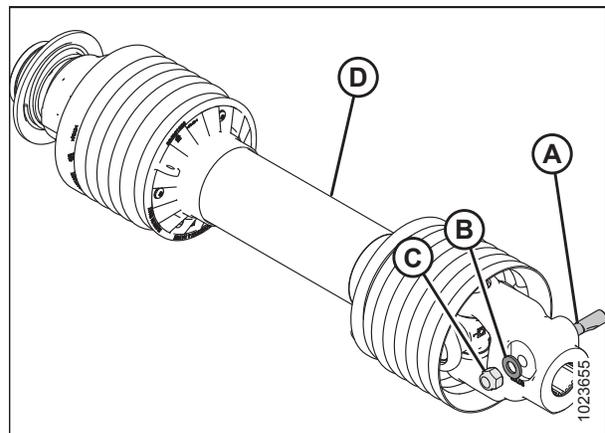


Figure 3.36: Primary Driveline

19. Slide driveline (A) onto gearbox input shaft (B). Align the pinhole in the yoke with the groove on the input shaft.

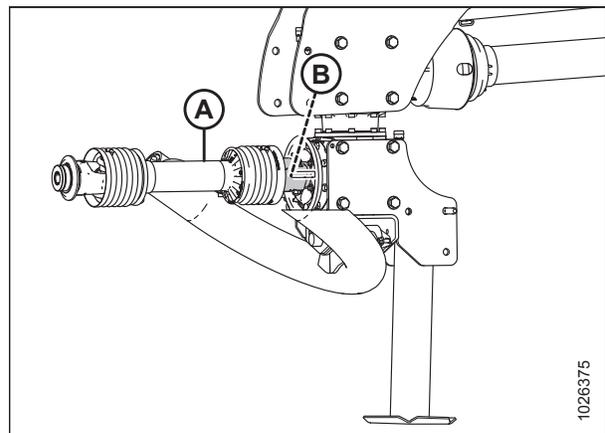


Figure 3.37: Primary Driveline

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

20. Insert tapered pin (A) by hand. Ensure the pin lines up with groove in the yoke and is fully inserted. The notch in the pin should be facing toward the shaft.
21. Clean the threads on pin (A) after it has been inserted.
22. Install washer (B) and nut (C) on the tapered pin and torque to 149 Nm (110 lbf·ft). The end of the pin must be recessed 9–11 mm (0.35–0.43 in.) (D).

NOTE:

Do **NOT** use an impact wrench to install or torque the nut.

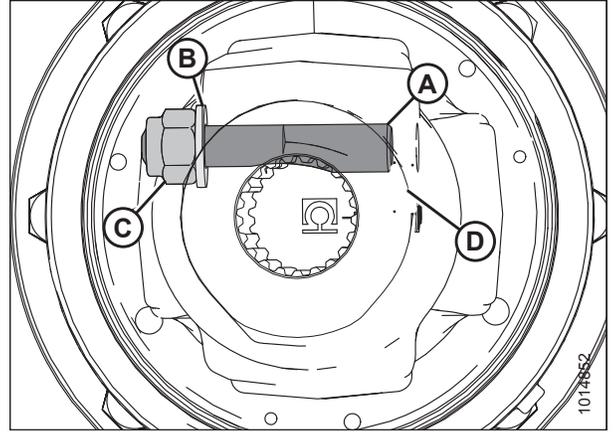


Figure 3.38: Primary Driveline

23. Install cone shield (A) over the primary driveline. Place driveline (B) on the driveline support.

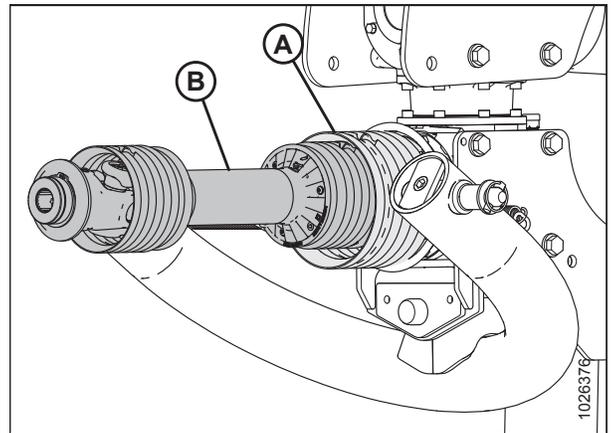


Figure 3.39: Cone Shield

3.4 Installing Hitch Swing Cylinder

The hitch swing cylinder can be installed on either side of the hitch, depending on whether or not the Road Friendly Transport™ system will be installed. Be sure to follow the instructions carefully.

1. Remove the banding (A) securing the hitch swing cylinder (B) to the hitch.
2. Remove pin (C) securing cylinder (B) to hitch.

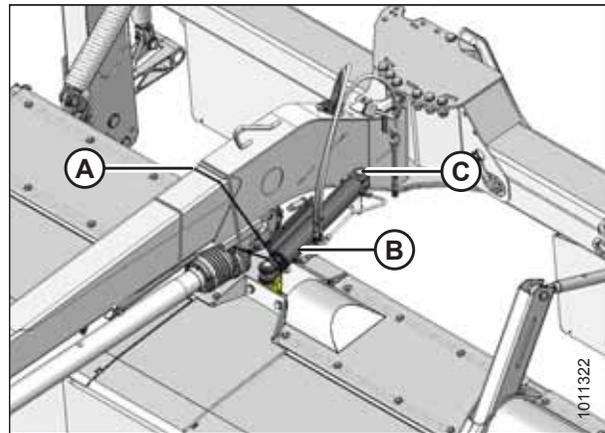


Figure 3.40: Steering Cylinder

To install cylinder on unit WITHOUT the Road Friendly Transport™ system, proceed as follows:

1. Reposition cylinder (A) at left side of hitch and attach rod end to carrier frame lug with pin at location (B). Secure with cotter pin (C).
2. Place a container or rag under the cylinder to catch oil.
3. Remove pin from location (D) at the clevis end of the cylinder.
4. Swing the hitch until clevis lines up with lug on hitch.
5. Install clevis pin at location (D) and secure with cotter pin (E).

NOTE:

Loosen the hydraulic fittings, if assistance is required to align the clevis and lug.

6. If loosened, tighten the fittings on cylinder.

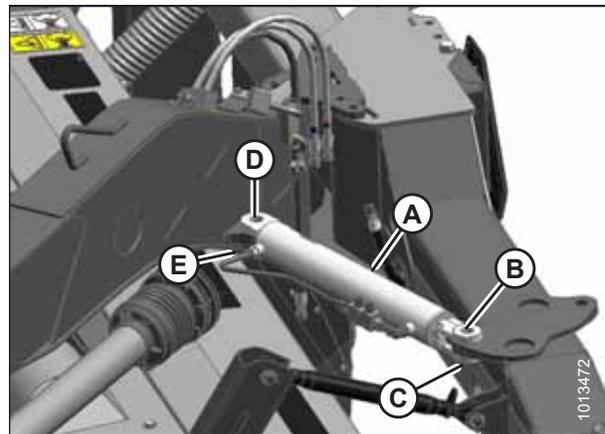


Figure 3.41: Hitch Swing Cylinder

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

To install cylinder on unit WITH the Road Friendly Transport™ system, proceed as follows:

1. Disconnect the hoses from the cylinder and cap off openings on cylinder and hoses.
2. Reposition cylinder (A) at right side of hitch. Use pin (C) to attach barrel end to lug (B). Secure with cotter pin (D).

NOTE:

The clevis end of cylinder will be attached to the Road Friendly Transport™ system casting after the system is primed. Refer to [5.5 Priming the Hitch Swing Cylinder, page 102](#).

3. Turn the valve on the hitch swing cylinder 180 degrees, so that fittings are pointing up.

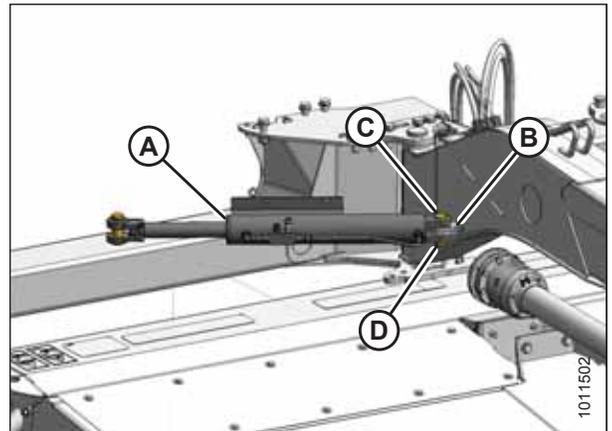


Figure 3.42: Hitch Swing Cylinder

3.5 Attaching Clutch Driveline

This procedure describes how to attach the clutch driveline to the header drive gearbox.

IMPORTANT:

If a conditioner swap is required before delivery to the customer, do **NOT** perform this step at this time. Skip to [5.4 Installing Field Wheels](#), page 100 and then return to this topic to complete the setup.

1. Support driveline (B) and remove strapping (A) securing it to hitch. Remove all packing material.

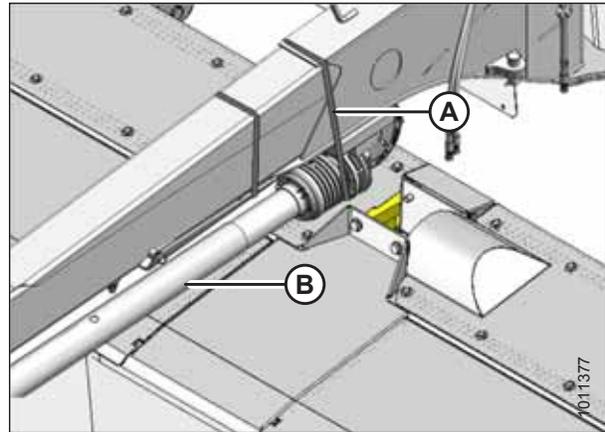


Figure 3.43: Driveline Strapping

2. Remove strapping (A) and packing material securing steering arm (B) to hitch. Pivot steering arm to the side for now.

NOTE:

Strapped contents may be under pressure.

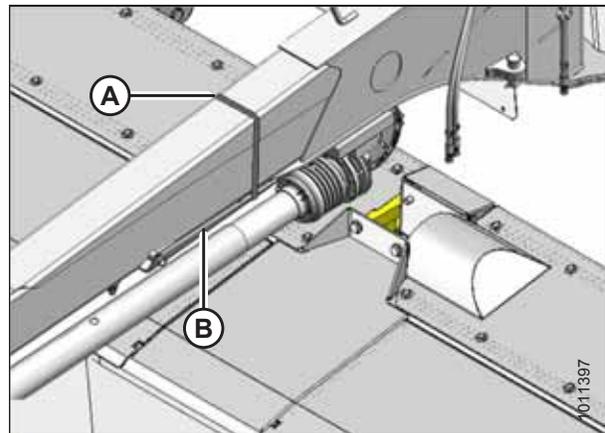


Figure 3.44: Steering Arm Strapping

3. At the top of the upper rear swivel gearbox, remove two bolts (A) with spacers (B). Retain hardware.
4. Undo latches (C) securing driveline shield (D) to the upper rear swivel gearbox and remove the shield. If necessary, use a screwdriver or equivalent to undo latches (C).
5. Rotate the upper rear swivel gearbox until the input shaft is facing towards the driveline.

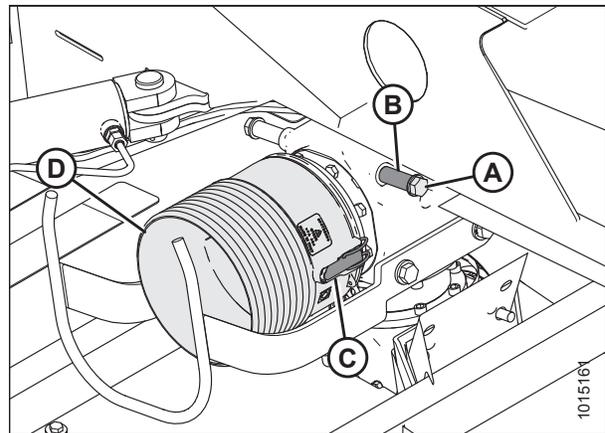


Figure 3.45: Driveline Shield

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

- Slide cone (A) onto driveline with latches (B) towards the gearbox.
- Remove nut (C) and washer (E) from tapered pin (D), and tap out pin from yoke using a hammer.

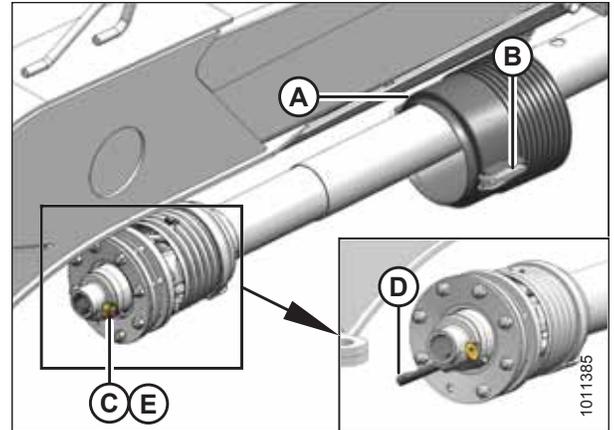


Figure 3.46: Clutch Driveline

- Attach driveline (A) to the upper rear swivel gearbox shaft.

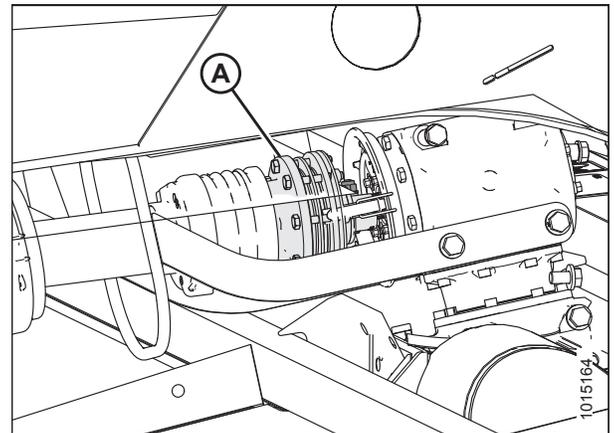


Figure 3.47: Clutch Driveline

- Insert tapered pin (A) by hand. Ensure the pin lines up with groove in the yoke and is fully inserted. The notch in the pin should be facing toward the shaft.
- Clean the threads on pin (A) after it has been inserted.
- Install washer (B) and nut (C) on the tapered pin, and then torque to 149 Nm (110 lbf·ft). The end of the pin must be recessed 0–2 mm (0–0.08 in.) (D).

NOTE:

Do **NOT** use an impact wrench to install or torque the nut.

- Install the shield onto the upper rear swivel gearbox. Use the latches to secure it.

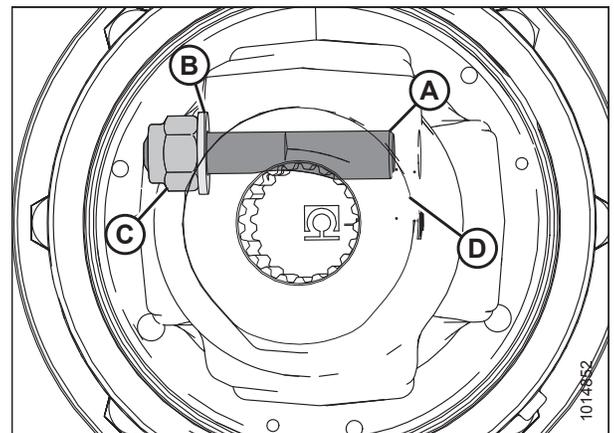


Figure 3.48: Clutch Driveline

3.6 Attaching Steering Arm

This procedure describes how to attach the steering arm to the header drive gearbox.

IMPORTANT:

If a conditioner swap is required before delivery to the customer, do **NOT** perform this step at this time. Skip to [5.4 Installing Field Wheels, page 100](#) and then return to this topic to complete the setup.

1. Lower arm (A) from under the hitch and slide the steering arm (B) off the support tube.
2. Apply grease to arm (A).
3. Slide steering arm (C) onto the support tube (A) in the opposite direction.
4. Position steering arm (C) onto gearbox (D).

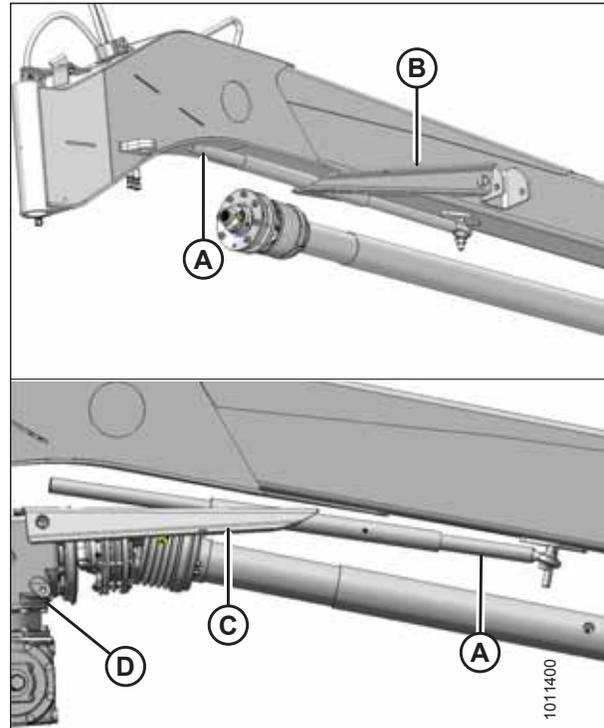


Figure 3.49: Steering Arm

5. Line up the two mounting holes in arm weldment with the forward threaded holes in the upper rear swivel gearbox.
6. Install spacers (A) into steering arm (B).
7. Install washer (D), onto the M16 x 80 hex head bolts (C). Install high-strength threadlocker (Loctite® 262 or equivalent) onto the bolt threads.
8. Torque bolts to 203 Nm (150 lbf·ft).

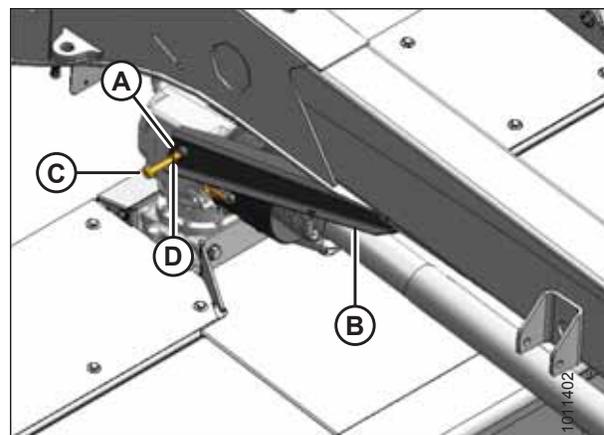


Figure 3.50: Steering Arm

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

9. Attach safety chain (A) from driveline shield to slotted hole in the steering arm.

NOTE:

Ensure chain is shortened to prevent any driveline wrapping.



Figure 3.51: Driveline Shield

3.7 Connecting Transport Lighting Module

1. Locate plugs P102 on trailer harness (A) at the header end of the hitch. Route plug P102 towards the transport lighting module.
2. Connect plug P102 (B) to the upper input receptacle on the transport lighting module (C).

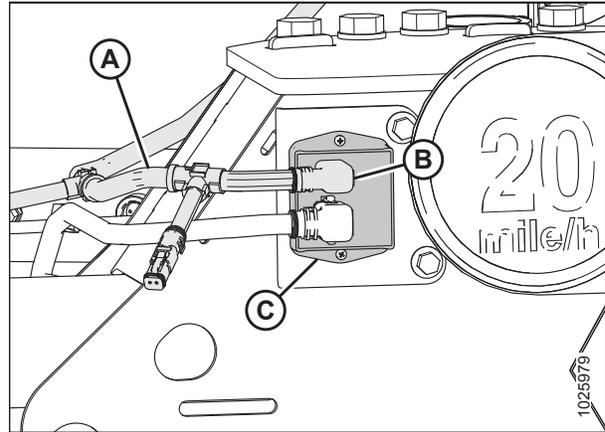


Figure 3.52: Trailer Harness

3.8 Installing Options

Install the following optional kits if they were supplied with your disc mower.

3.8.1 Installing Road Friendly Transport™ System

This section explains how to install the Road Friendly Transport™ system (C2002). The basic components are installed first, then the hydraulic systems, and then lighting and signage.

Installing Components

This section explains how to install the basic parts of the Road Friendly Transport™ System.

Installing Latch Assembly

1. Disconnect right light electrical connection (A).
2. Remove the two bolts (B) that secure right light assembly (C) to the carrier frame.
3. Remove light assembly (C). Retain the light assembly and hardware for installation later.

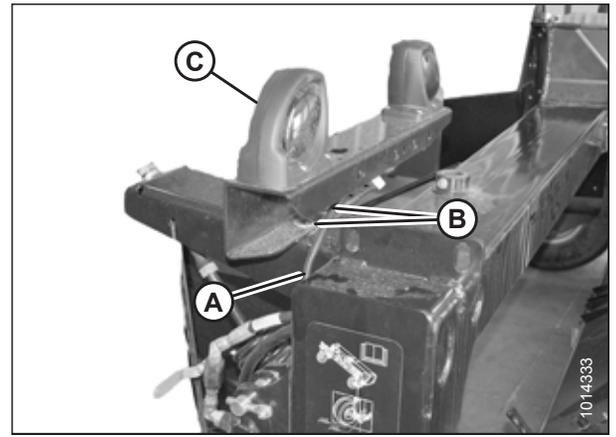


Figure 3.53: Light Bracket

4. On the transport pallet, remove the shipping banding and packing material from latch assembly (A). Remove the latch assembly.
5. Remove the two M20 mounting bolts, washers, and nuts (B) from the latch assembly, and retain for use later.

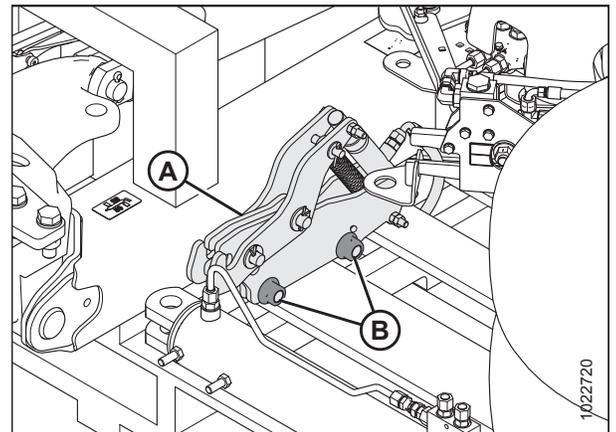


Figure 3.54: Latch Packing

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

6. Install latch assembly (A) onto the carrier frame as shown, and secure with the M20 bolts, washers, and nuts (B) retained in Step 5, page 31. Do **NOT** fully tighten bolts; adjustment of the latch assembly may be necessary.

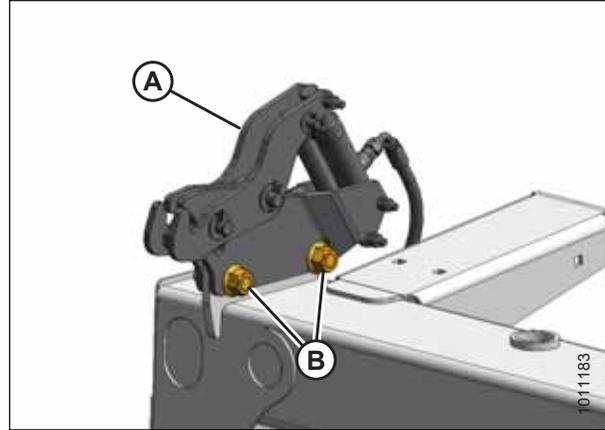


Figure 3.55: Latch Assembly

7. Loosen fitting (A) on the cylinder lockout valve.
8. Remove elbow fitting (B) from the cylinder.

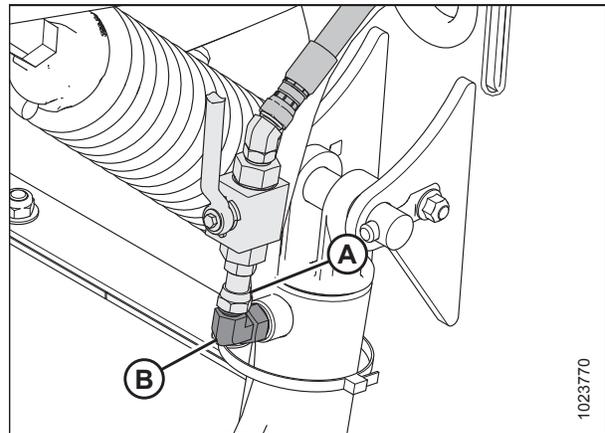


Figure 3.56: Latch Plumbing

9. Install tee fitting (A) in place of the elbow fitting.
10. Install cylinder lockout valve (B) on tee fitting (A) as shown.
11. Attach hydraulic hose (C) from the latch assembly to tee fitting (A) as shown.

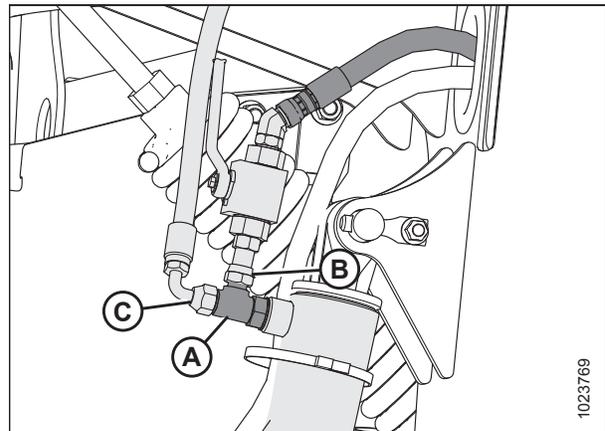


Figure 3.57: Latch Plumbing

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

12. Retrieve clevis pin (A) and cotter pin (B) from the shipping bag and install onto the hitch bracket at the side of the hitch.

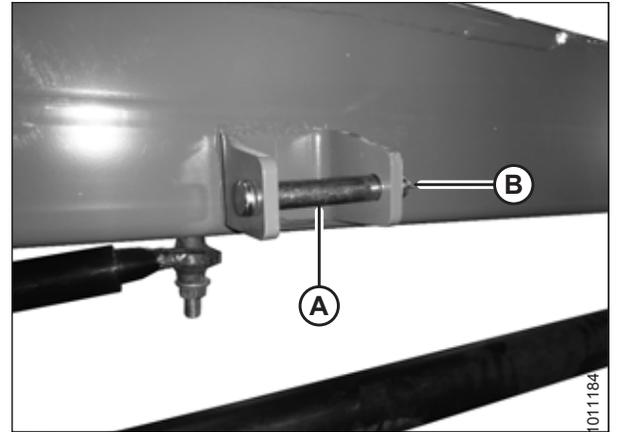


Figure 3.58: Latch Pin

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

Installing Transport Assembly

1. Remove two bolts (A), hardened washer, and nut securing slow moving vehicle (SMV) sign (B) to the carrier frame, and remove sign. Retain sign and hardware for reinstallation.
2. Remove transport wheels (A) from the pallet.
3. Remove the five M20 hex head bolts (B), washers, and nuts in transport assembly pin (C). Do **NOT** remove pin.
4. Using a forklift, pick up the pallet holding the transport assembly (A) and align it with the rear of the disc mower.
5. Position the assembly close behind the frame and align pin (B) in transport assembly with hole (C) in the carrier. Use a soft hammer or equivalent to fully insert pin (B).

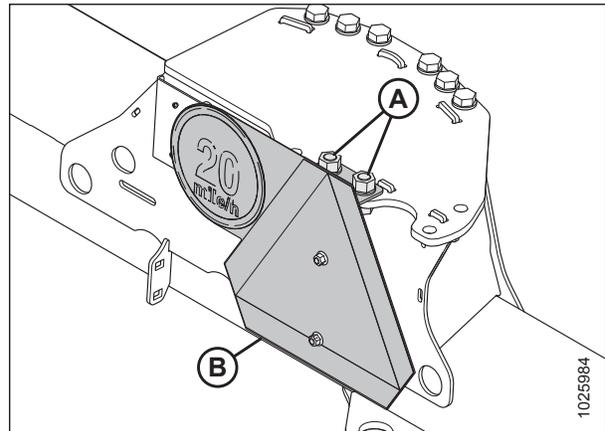


Figure 3.59: SMV Sign Attached to Carrier Frame

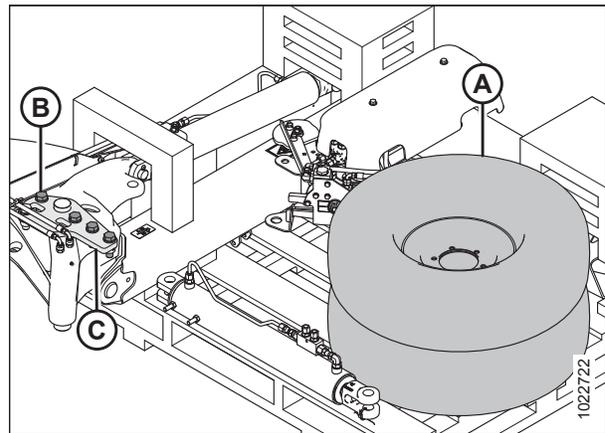


Figure 3.60: Transport Packing

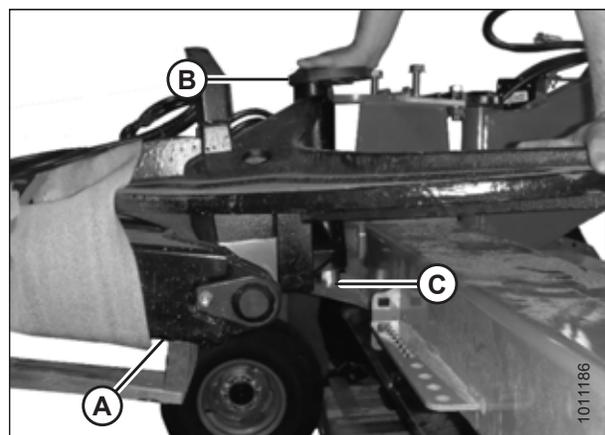


Figure 3.61: Road Friendly Transport™

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

6. Install two M20 x 65 bolts (A), hardened washers, and nuts.
7. Temporarily install bolts (B) to help align the assembly.

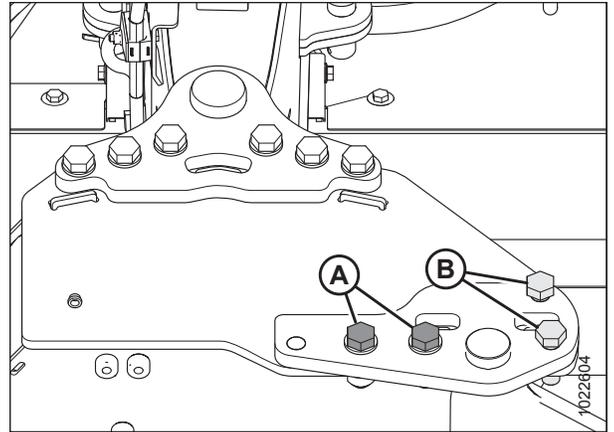


Figure 3.62: Pin Support

8. Rotate pin (A), until hole in pin aligns with holes in welded collar (B). Insert pin (C) (MD #19958) through the collar and pin.
9. Insert cotter pin (D) (MD #18608) and bend over the legs to secure it.

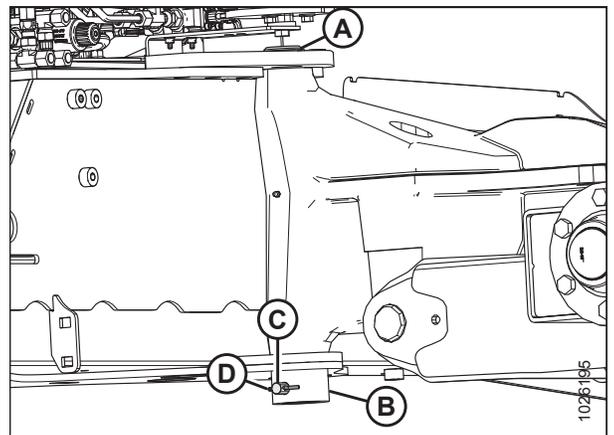


Figure 3.63: Pin Installation

10. Retrieve cover assembly (B) from the shipping location.
11. Remove two bolts (A) from the cover assembly (B). Retain bolts and cover for installation later.

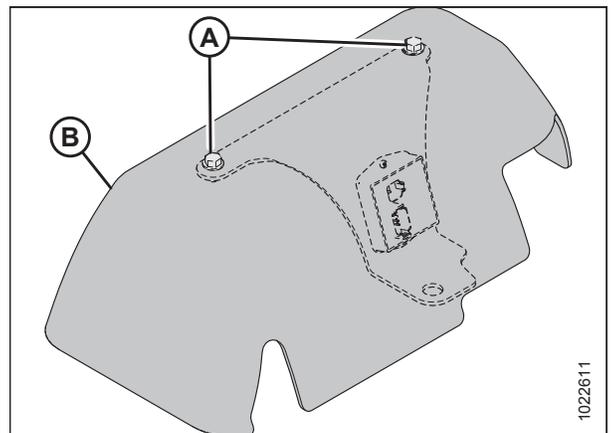


Figure 3.64: Cover Assembly

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

12. Install cover support (B).
13. Secure cover support (B) in place with one M20 x 65 bolt (A), hardened washer, and nut.

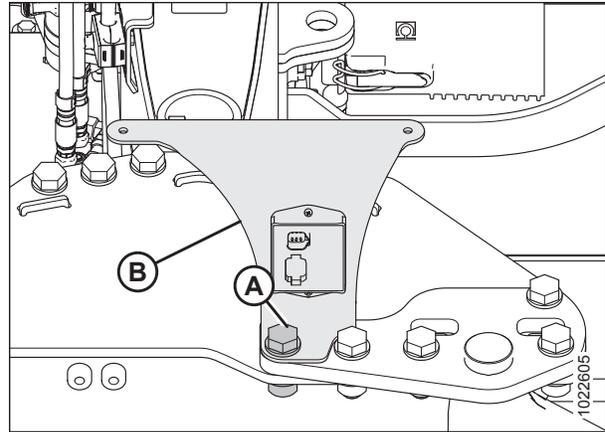


Figure 3.65: Cover Support

14. Torque bolts (A) to 461 Nm (340 lbf·ft).
15. Remove and retain bolts (B).

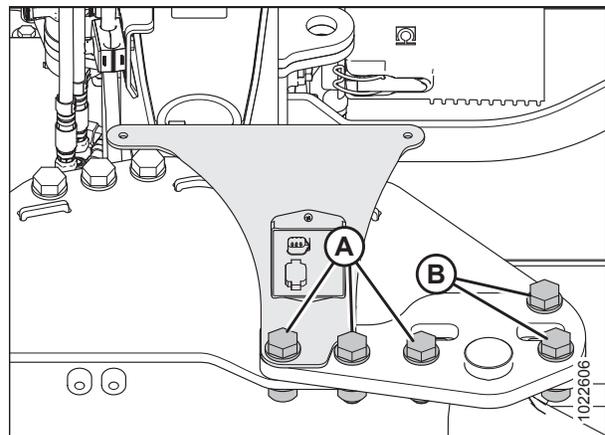


Figure 3.66: Cover Support

Installing Transport Valve

NOTE:

Cover support bracket removed from illustrations for clarity.

1. Retrieve valve assembly (A) from the pallet.
2. Position valve assembly (A) on the carrier hitch pin plate as shown.
3. Install two M20 x 65 bolts (B), hardened washers, and nuts.
4. Retrieve two M10 x 20 bolts from the shipping bag and install bolts at location (C) with threads facing up. Install nuts, but do not tighten.
5. Torque bolts (B) to 461 Nm (340 lbf·ft).

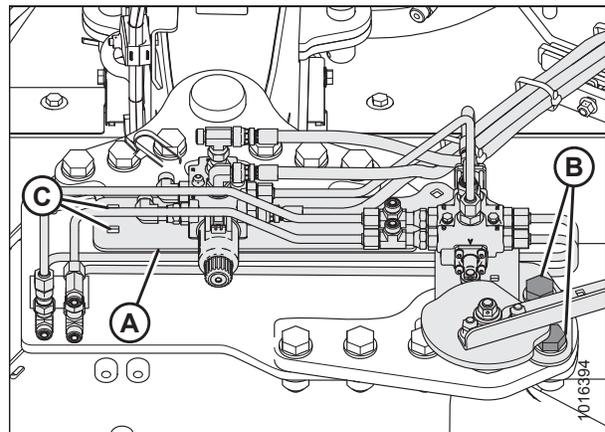


Figure 3.67: Selector Valve

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

6. Disconnect plugs P102 (A) and P301 (B) from the transport lighting module.
7. Remove bolts (C) and remove the transport lighting module, complete with support bracket (D).

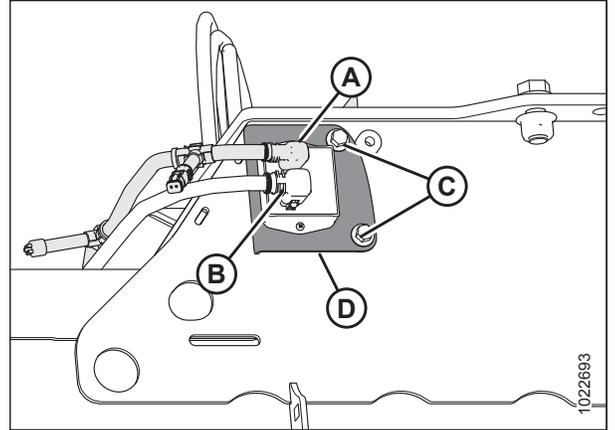


Figure 3.68: Lightening Module Harness

8. Install support plate (A) and secure it with bolts (B).
9. Install bolts (C), but do **NOT** tighten.

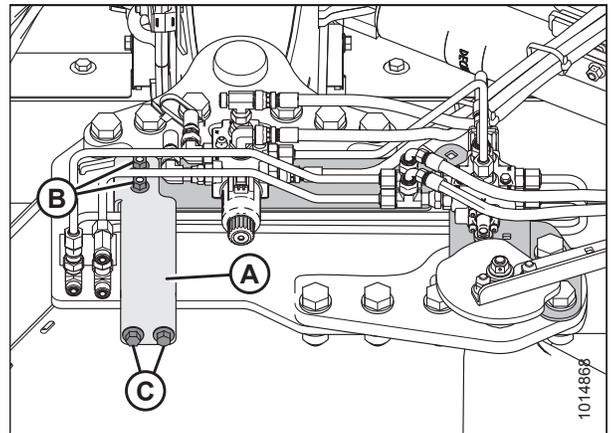


Figure 3.69: Support Plate

10. Remove nut (A) from support (D).
11. Install bolt (B) through support (D) and support (C), and then reinstall nut (A).

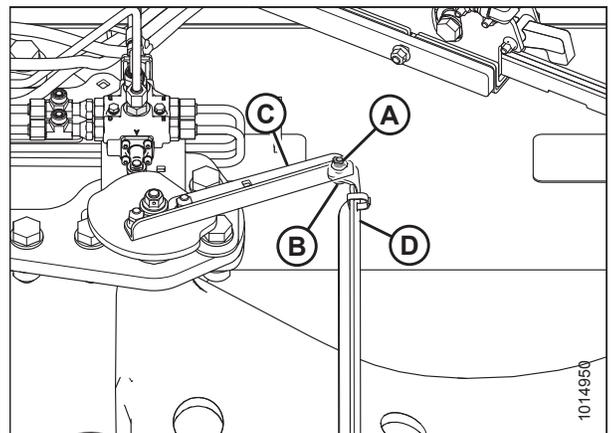


Figure 3.70: Support Plate

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

Installing Transport Swing Cylinder

1. Remove the shipping bag from the pallet.
2. Retrieve the clevis pin from the shipping bag.
3. Support transport swing cylinder (A). Cut straps securing the cylinder to the pallet.

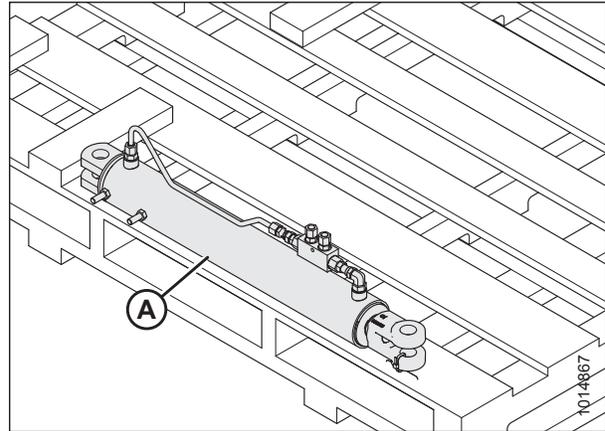


Figure 3.71: Transport Swing Cylinder

IMPORTANT:

Transport swing cylinder (A) must be primed before installing it on the carrier frame.

4. To prime the cylinder, use a hydraulic power pack or tractor hydraulics. Extend and retract transport swing cylinder (A) until all the air has been removed. Extend transport cylinder (A) to 142 cm (56 in.) between center of pins.

NOTE:

If you need to adjust the cylinder length, remove bolt (C) that secures the clevis end. Rotate the clevis to lengthen or shorten the distance between pins (B). When the cylinder length is correct, reinstall bolt (C) to secure the clevis end.

5. Install barrel end of the transport swing cylinder (A) onto the carrier frame with clevis pin (B). Secure clevis pin with cotter pin (C).

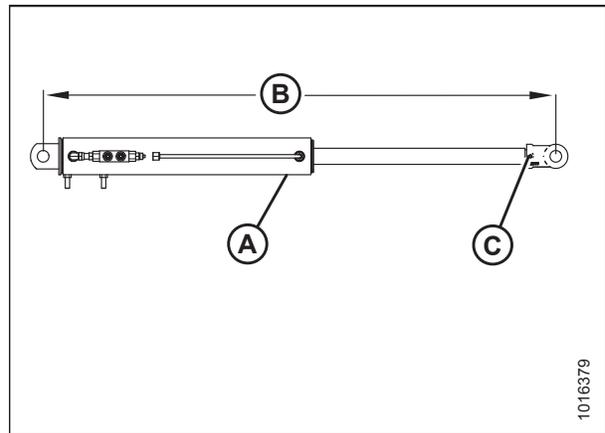


Figure 3.72: Transport Swing Cylinder

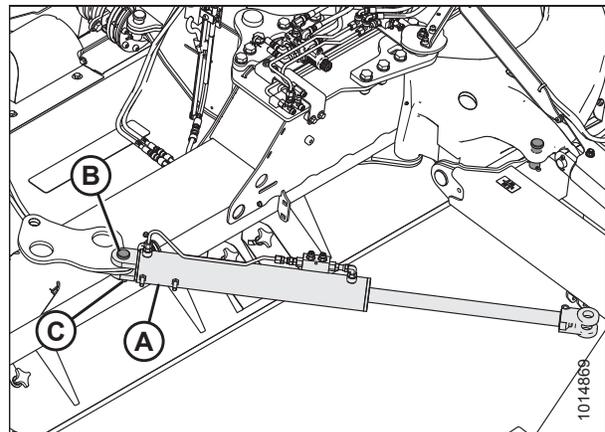


Figure 3.73: Transport Swing Cylinder

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

6. Connect clevis end (B) of the transport swing cylinder (A) to transport casting. Align holes and install clevis pin (C). Secure with cotter pin (D).

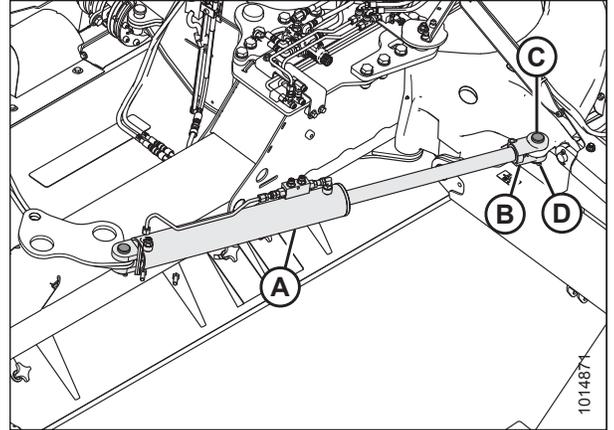


Figure 3.74: Swing Cylinder (Rear Left View)

Installing Transport Wheels

1. Cut the straps securing the transport assembly to the pallet.
2. Slowly lower forklift until transport assembly wheel spindles (A) are approximately 305 mm (12 in.) off the ground.
3. Remove wheel bolts (B) from spindle hub (A) on the left side.

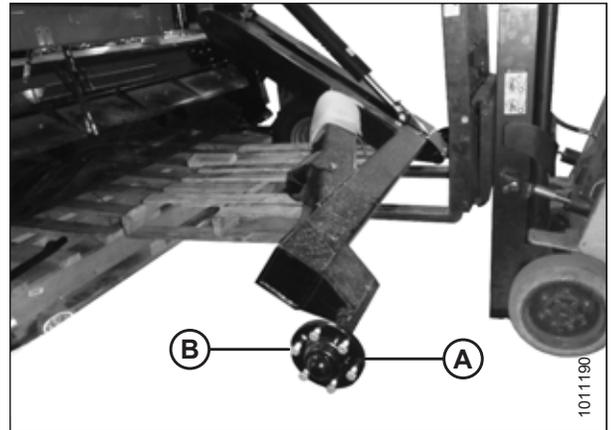


Figure 3.75: Transport Wheel

4. Remove bolt (B) holding axle assembly (A) in place.
5. Slide axle assembly (A) out of the support.

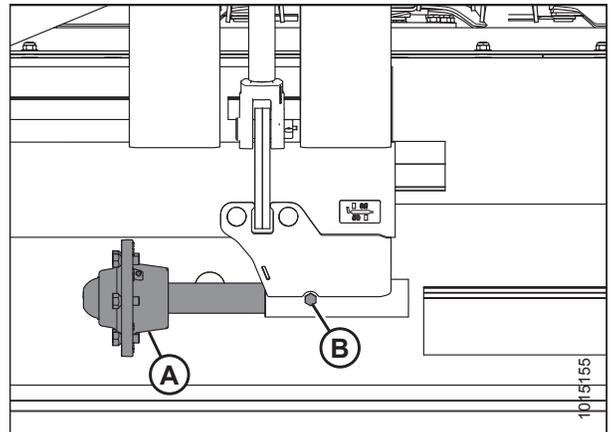


Figure 3.76: Axle Assembly Relocation

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

6. Install axle assembly (A) into the support.
7. Install bolt (B) with nut, and torque to 68 Nm (50 lbf·ft).
8. Remove the wheel bolts from hub (A).

CAUTION

When installing wheel, be sure to match countersunk holes with bolt head profiles. Holes that are not countersunk do NOT correctly seat the bolts.

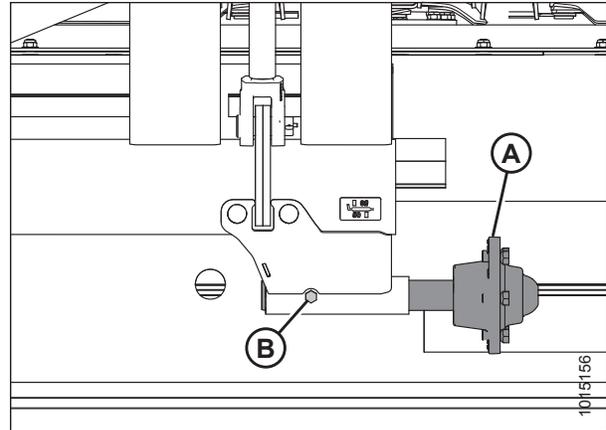


Figure 3.77: Axle Assembly Relocation

9. Retrieve the transport wheels and install with the wheel bolts. Ensure the valve stem faces outboard. Do NOT fully tighten bolts.
10. Lower wheels to the ground and back forklift away.
11. Torque wheel bolts to 160 Nm (120 lbf·ft) following the tightening sequence shown.

NOTE:

Whenever a wheel is installed, check torque after one hour of operation.

12. Check tire pressure and adjust as required. Refer to [7.2 Checking Tire Pressure, page 128](#).

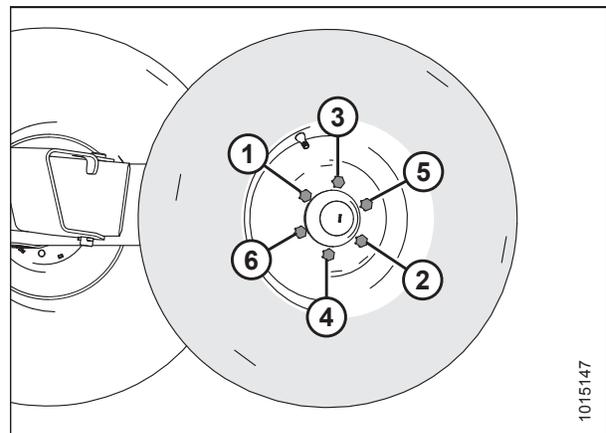


Figure 3.78: Tightening Sequence

Installing Transport Alignment Control

1. Remove cam assembly (A) from shipping support (B).
2. Remove nuts (C) from the cam assembly.

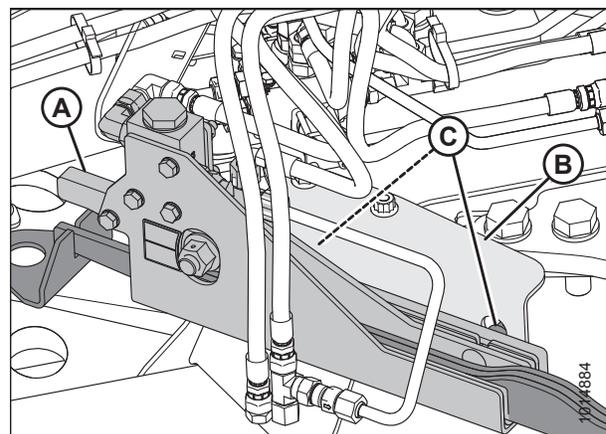


Figure 3.79: Alignment Controls (Front Right View)

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

- Secure cam assembly (A) onto hitch swing cylinder plate (B) with bolts and nuts (C). Torque nuts (C) to 55–60 Nm (40–45 lbf-ft).

NOTE:

When installing cam assembly (A), check for hose twisting. If required, loosen hose fitting to allow hose to untwist. Torque fitting when complete.

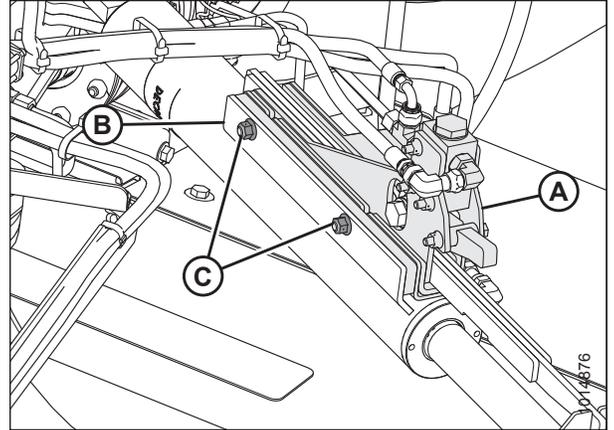


Figure 3.80: Alignment Control (Rear Right View)

- Remove two bolts (B), then remove shipping support (A) and discard.

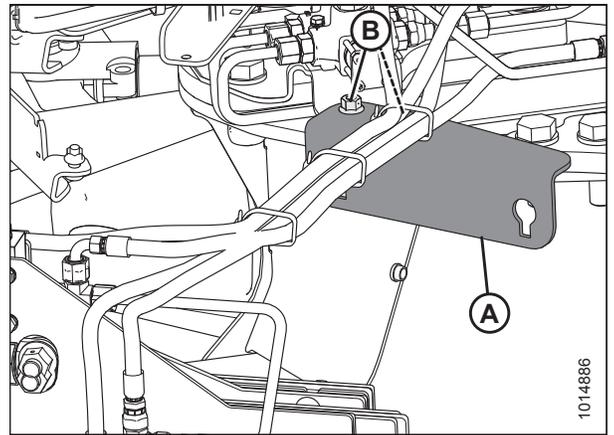


Figure 3.81: Shipping Support (Front Right View)

- Check the travel of cam arm (A) by sliding it in and out of cam assembly (B).

NOTE:

If the cam arm does not slide easily, loosen valve mounting bolts (C) and position valve (B) at the top of the mounting holes. Retighten valve mounting bolts (C).

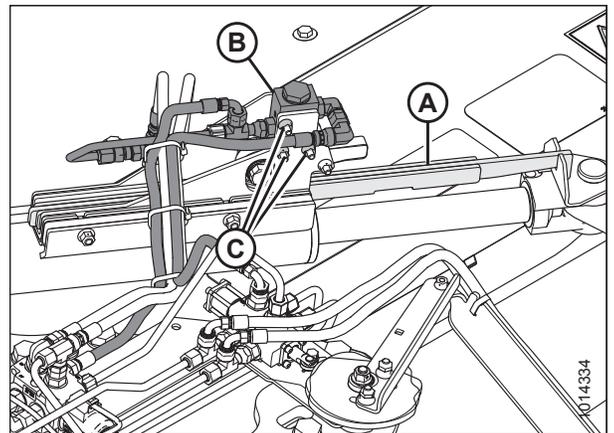


Figure 3.82: Alignment Control (Rear Right View)

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

- Align the hole in cam arm (A) with the hole in cylinder clevis (B).

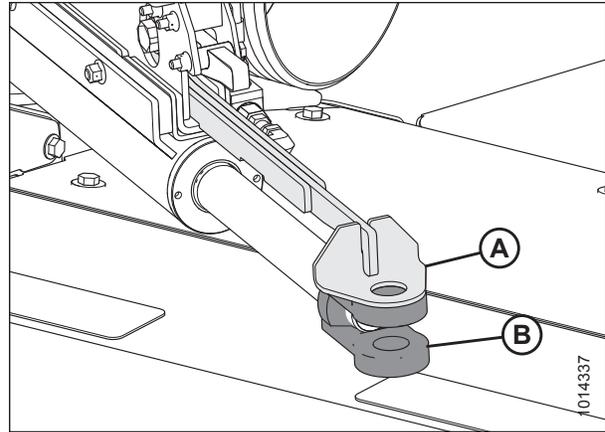


Figure 3.83: Alignment Control (Rear Right View)

- Ensure the end of cam arm (A) is parallel with the clevis end (B) of the cylinder. If adjustment is required, use a bar to turn the clevis until the clevis is parallel with cam arm (A).

NOTE:

The clevis end of the cylinder will be attached to the Road Friendly Transport™ casting when the system is primed. Refer to [5.5 Priming the Hitch Swing Cylinder](#), page 102.

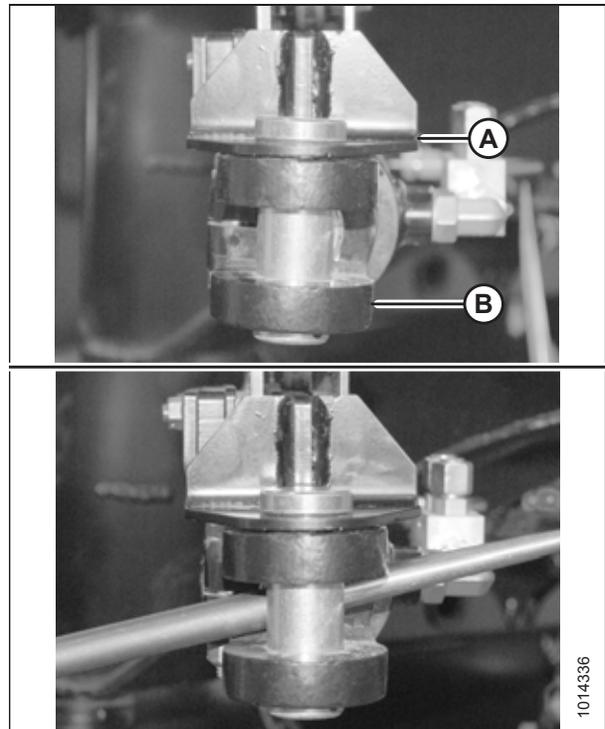


Figure 3.84: Cam Arm Alignment

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

8. Retrieve completion valve assembly (A) and one M12 x 25 flanged hex head bolt from the shipping bag.
9. Remove bolts (B) from the standoffs on rear of carrier. Install valve assembly (A) behind support plate (C). Secure it to the standoffs using the three M12 x 25 flanged hex head bolts (B).

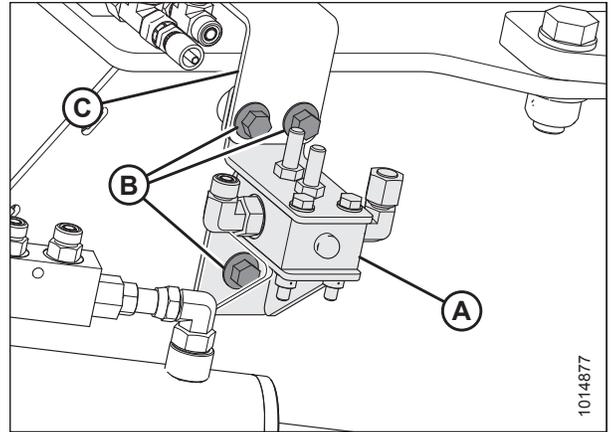


Figure 3.85: Control Valve

10. Retrieve paddle assembly (B) from the shipping bag.
11. Install washers (A) onto the bolts welded to the completion valve assembly.
12. Install paddle assembly (B) onto the welded bolts and secure with nuts (C).

NOTE:

Make sure that paddle (B) is centered on the valve and moves freely.

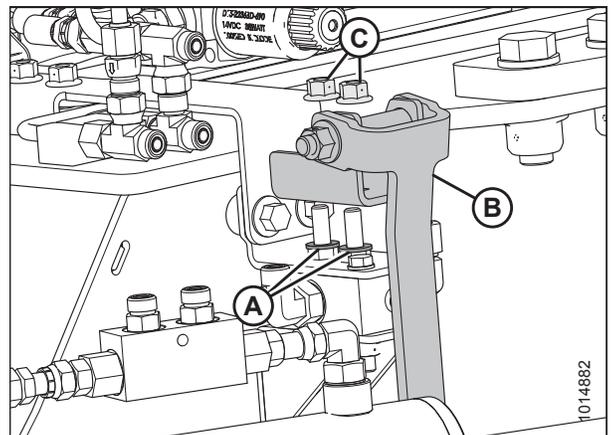


Figure 3.86: Control Valve

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

Installing Hydraulics

This section explains how to install the transport hydraulic control system.

Installing Hydraulic Lines and Hoses

NOTE:

Cover support bracket removed from illustrations for clarity.

NOTE:

Refer to [11.6 Torque Specifications, page 208](#) for hydraulic fitting installation details.

1. Retrieve steel lines and hoses from shipping bag.
2. Place a container or rag under the fitting on the hitch swing cylinder.
3. Remove existing fitting (A) from the block.
4. Remove the cap from tee fitting (C).
5. Retrieve ORFS-6 x ORB-6 connector (B) from shipping bag and install at location (A).

NOTE:

Ensure that the direction arrow on check valve (D) points away from tee fitting (C).

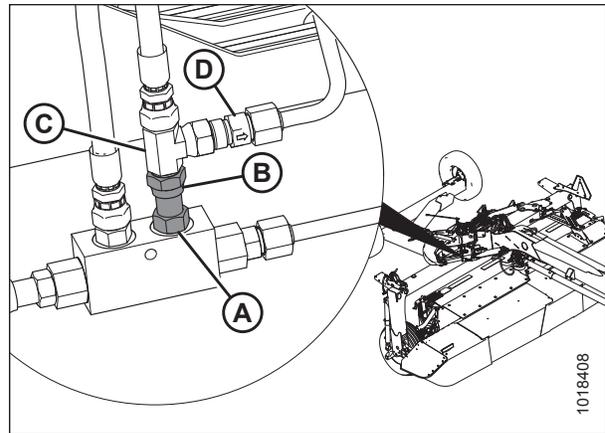


Figure 3.87: Alignment Valve Fitting

6. Remove the cap from fitting (A).
7. Remove the plug from hose (B). Install hose to fitting (A) as shown.

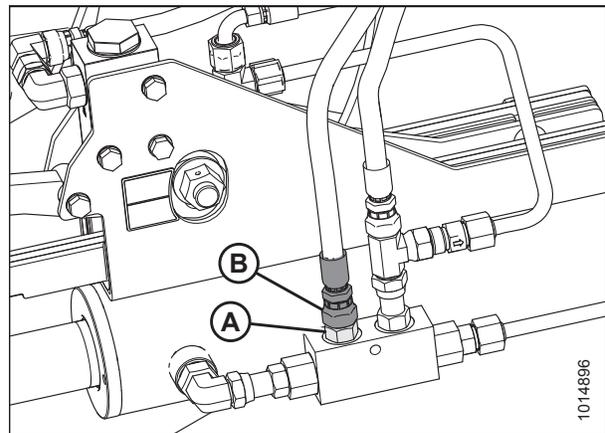


Figure 3.88: Alignment Valve Fitting

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

8. Install steel line (A) from port A on the completion assembly to tee fitting (D).
9. Install steel line (B) from port B on the completion assembly to tee fitting (C).

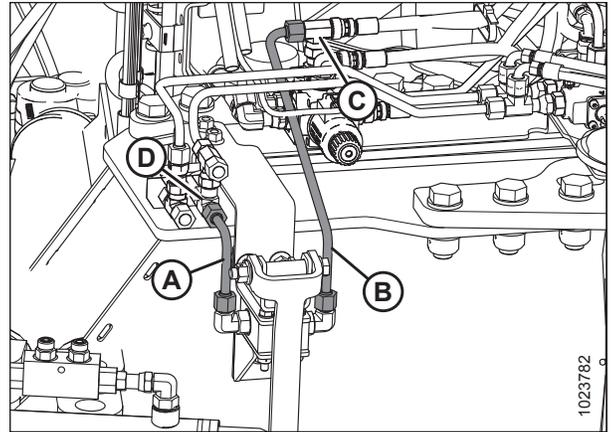


Figure 3.89: Completion Assembly Plumbing

10. Attach hose (A) to steel line connecting to port C of transport swing control.
11. Attach hose (B) to steel line connecting to port D of transport swing control.
12. Secure hoses (A) and (B) together with cable tie.

NOTE:

Ensure that direction arrow on check valve (C) points toward tee fitting.

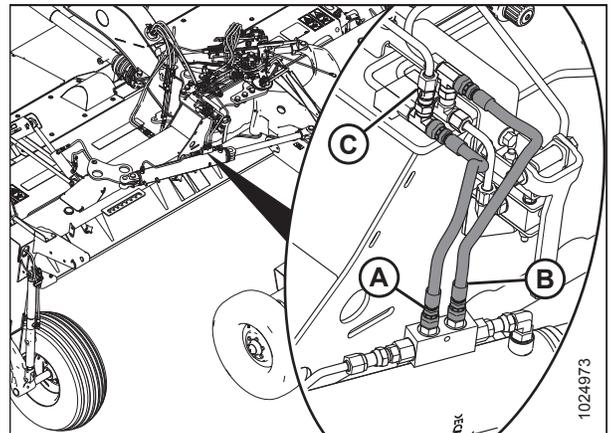


Figure 3.90: Transport Swing Cylinder

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

13. Install hose (A) from outer port (rod end) on transport cylinder block to tee fitting (D) in port D of transport swing control.
14. Install hose (B) from inner port (base end) on transport cylinder block to tee fitting (C) in port C of transport swing control.

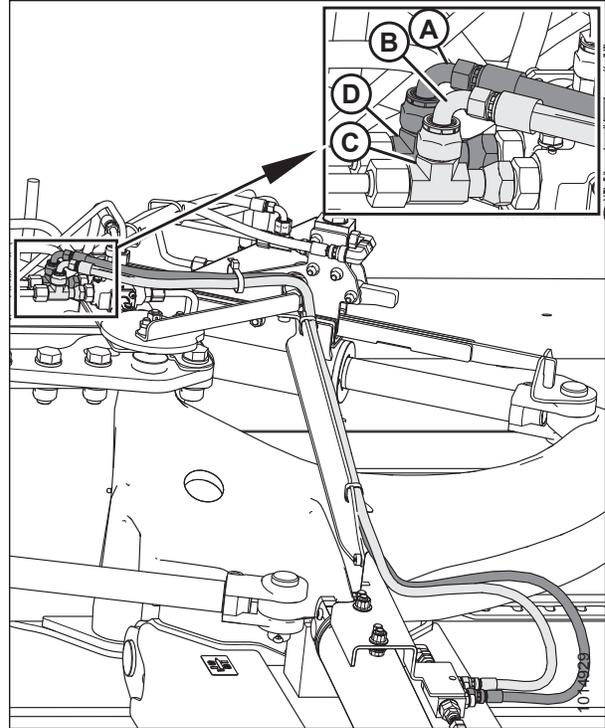


Figure 3.91: Transport Swing Control

15. Connect hose (B) with red collar #2, from the rear of the hitch, to fitting in port A1 on selector valve (C).
16. Connect hose (A) with blue collar #2, from the rear of the hitch, to fitting in port A2 of the selector valve (C).
17. Secure hoses (A) and (B) together with cable tie.

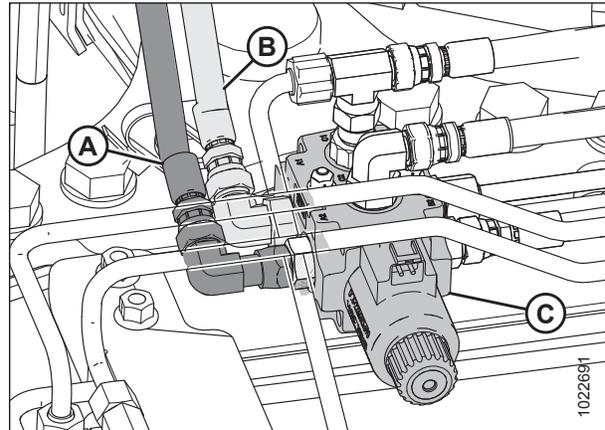


Figure 3.92: Selector Valve Supply

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

Installing secondary lift hose for field wheels

NOTE:

The secondary lift hose is required to lift the field wheels fully into storage position when the disc mower is in transport mode.

Retrieve the following secondary lift hose from the shipping bag according to your disc mower size:

- **4.0 m (13 ft.) headers:** Use hose MD #224160.
- **4.9 m (16 ft.) headers:** Use hose MD #224162.

18. Retrieve the blue collars with the number one (blue collar #1) on them from the shipping bag. Place one collar on each end of the secondary lift hose (B).

19. Undo adjustable strap (A) around hoses at aft end of hitch.

20. Locate the green wire preinstalled in the hitch for pulling hoses through the hitch.

NOTE:

If you are installing a hydraulic center-link, pull the hydraulic hoses through the hitch at the same time as the lift hose.

21. At rear of hitch, feed male ORB end of hose (B) into access hole (C). Route hose through the hitch to the opening at front.

22. Position long hose (A) so that the exposed length at the front of hitch matches existing hose (B). Route hose through guide (C).

23. At front of hitch, loosen nut (D) on hose clamp (E) until hose (A) can be positioned in clamp.

24. Tighten nut (D).

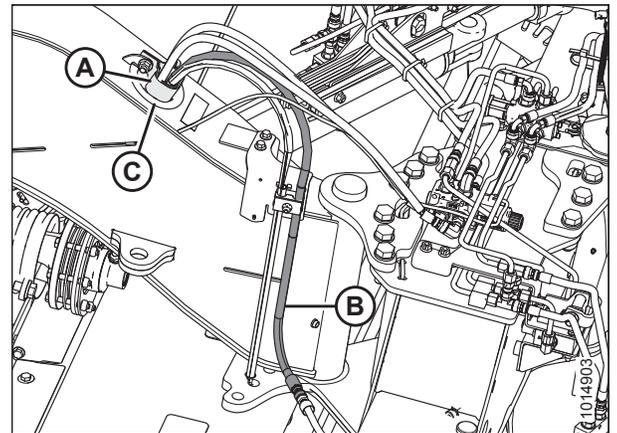


Figure 3.93: Lift Hoses

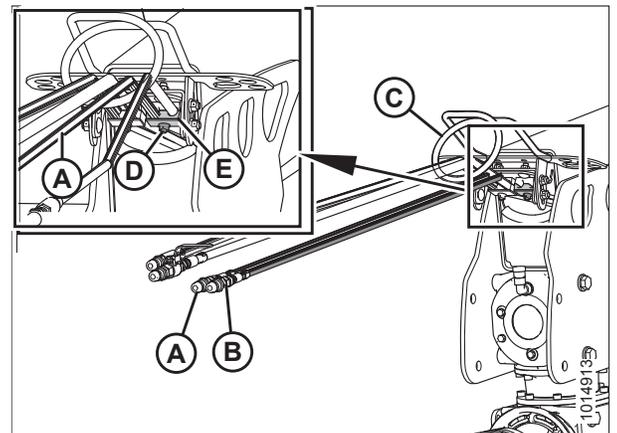


Figure 3.94: Lift Hoses

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

25. Retrieve ORB-8 coupler (A) and plastic cap (B) from the hardware bag.
26. At forward end of hitch, install coupling (A) and plastic cap (B) onto secondary lift hose (C). Do **NOT** attach hoses to tractor at this time.

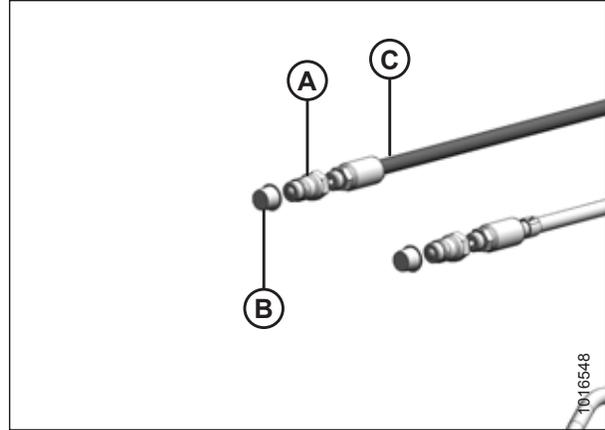


Figure 3.95: Lift Hose Fittings

27. At rear of hitch, secure the hoses with adjustable strap (A).

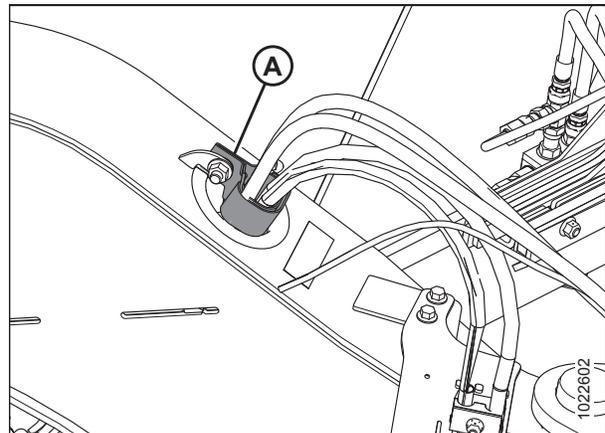


Figure 3.96: Lift Hoses

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

28. Route hose (A) through opening (E) at the rear of the frame.
29. Feed shortest hose (A) through opening (B) in carrier frame as shown with male end (C) at the hitch pivot.
30. Connect hose (A) (MD #247106) and hose (D) (MD #224160 or MD #224162) at the hitch pivot.

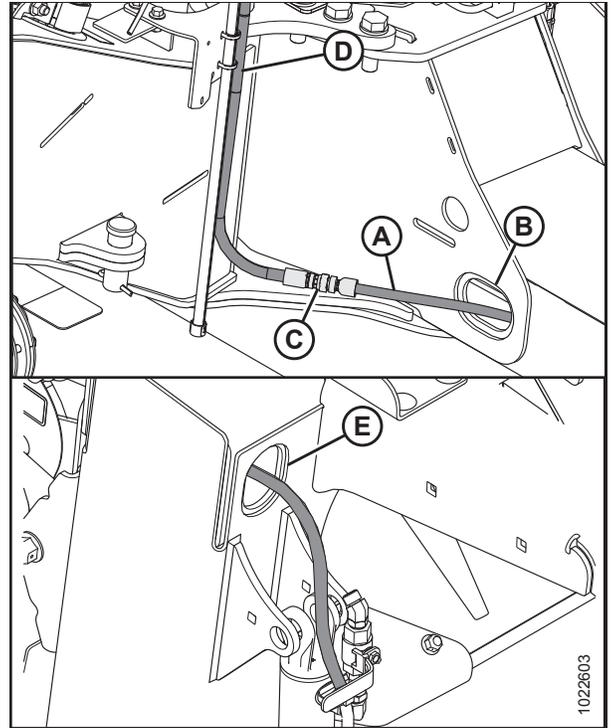


Figure 3.97: Lift Hose

31. Retrieve ORFS-6 x ORB-8 elbow from the hardware bag.
32. Remove plug at base of lift cylinder and install elbow (A) as shown.
33. Connect hose (B) to elbow and tighten.
34. Tighten remaining connections.
35. Secure hose to cylinder with cable tie (C).

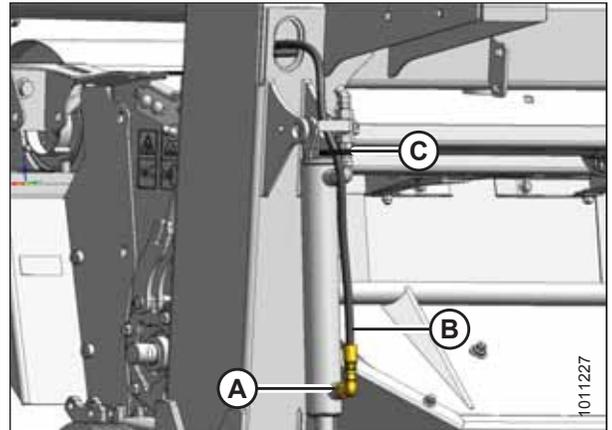


Figure 3.98: Lift Cylinder

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

Installing Electrical Components

Installing Light Assemblies

1. Disconnect the wiring harnesses at the left light assembly; there are two connectors per assembly.
2. Remove the left light assembly (A).

NOTE:

Right side was removed earlier.

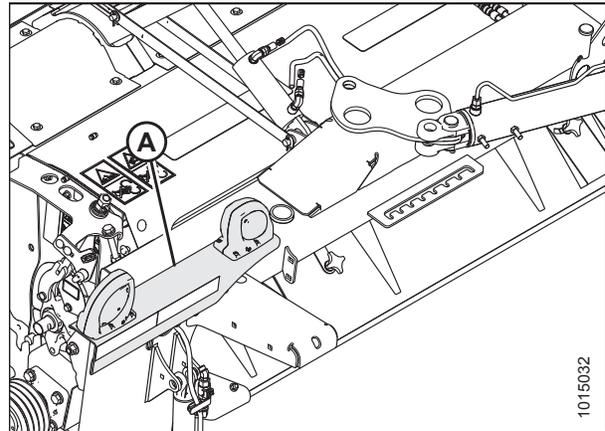


Figure 3.99: Transport Lighting

3. Remove red lamp (C) from the right light assembly (removed in an earlier procedure). Align red lamp (C) with the predrilled holes, in the left lamp bracket, next to amber lamp. Secure the red lamp with existing hardware, as shown.
4. Install right light assembly (A) on the left float spring mount using bolts (B) removed in Step 2, page 50. Red lamp (C) should be towards rear of machine when in transport mode.

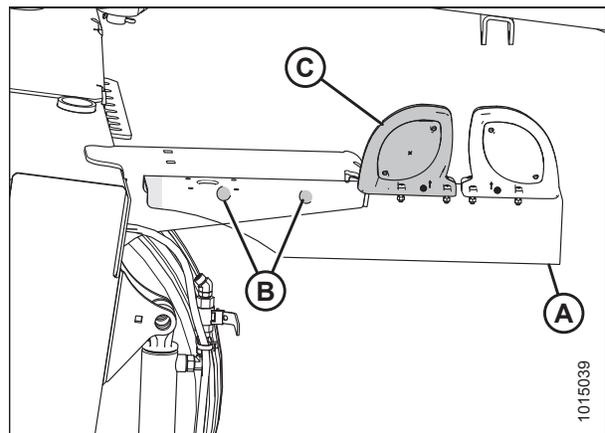


Figure 3.100: Left Side of Carrier

5. Retrieve new light bracket (C) from shipment.
6. Install amber lamp (A) and red lamp (B) onto new bracket (C), previously removed from the right lamp bracket, with hardware provided.

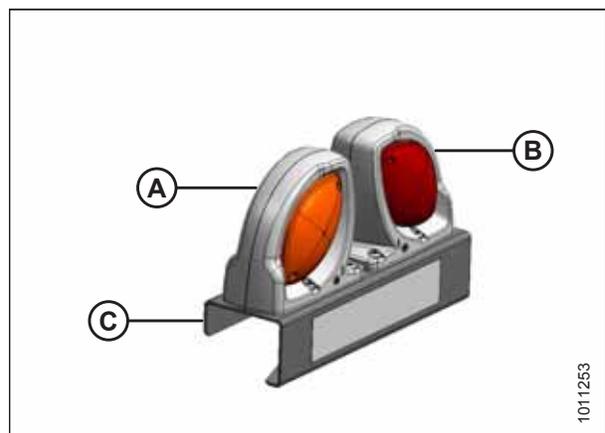


Figure 3.101: Light Assembly

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

7. Install light assembly (A) onto header left end with two M10 x 20 carriage bolts (B) and lock nuts from the shipping bag. Ensure the amber lamp faces the front of header and reflector faces outboard.

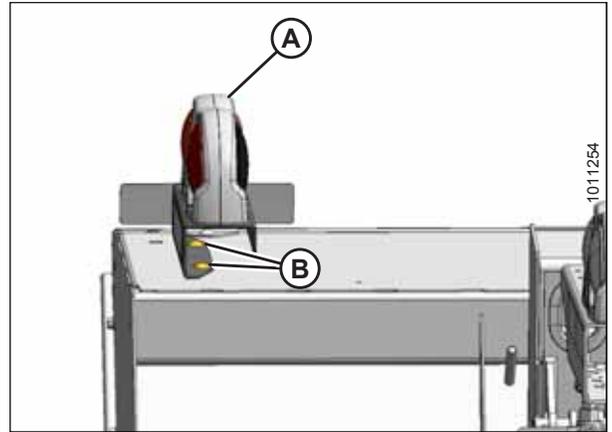


Figure 3.102: Header Left Side Lighting

Installing Left Side Transport Harness

1. Retrieve transport harness (A) (MD #281614) from the shipping bag.
2. Route connectors P201 and P202 on the end of harness (A) to cover support (D).
3. Using a draw tape or equivalent, route connectors P401 and P404 on the other end of the harness (A) through opening (B) at front of carrier to opening (C) adjacent to center-link.
4. Route the harness until the plugs reach the left light assembly on the header.

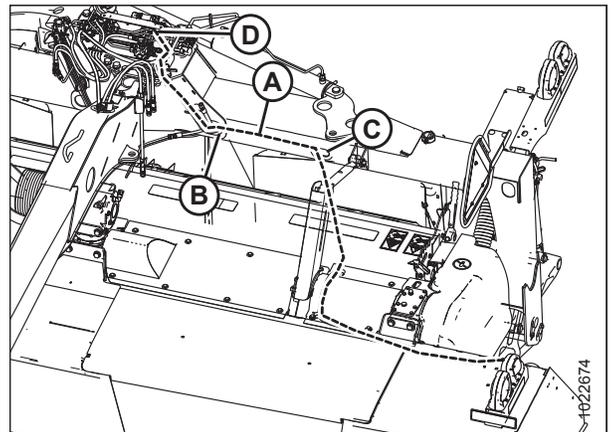


Figure 3.103: Harness Routing

5. Locate plug P301 (D) on harness (E) (MD #281613). It was disconnected from the old lighting module.
6. Connect plug P201 (B) on harness (A) (MD #281614) into the lower output receptacle on the lighting module.
7. Connect plug P301 (D) to receptacle P202 (C).

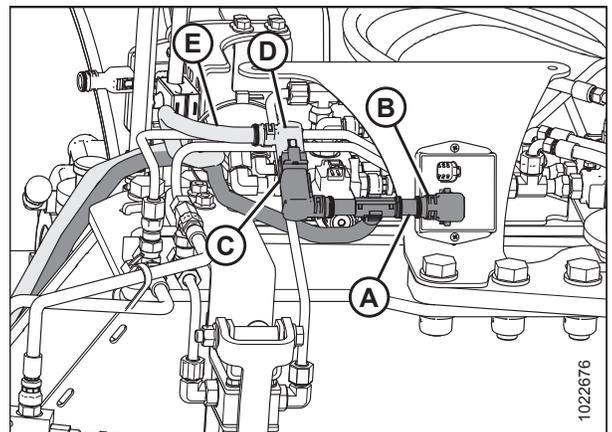


Figure 3.104: Harness Connection

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

- Route harness (A) to light (B) on header as shown.
- Retrieve p-clips, plastic clamps, and cable ties from shipping bag.
- Remove bolts (C) on header at locations shown.
- Secure harness (A) with p-clips, existing bolts (C), and plastic clamp (D) into existing holes.

NOTE:

4.0 m (13 ft.) header: Harness for disc mower is secured with one plastic clamp (D).

NOTE:

4.9 m (16 ft.) header: Harness for disc mower is secured with two plastic clamps (D).

- Secure harness (A) to light bracket with two cable ties (E).
- Push excess harness into carrier frame.
- Connect plug P401 and P404 into the light (B).

Connecting Right Side Transport Harness

- Route transport harness (A) from opening into light bracket (B) and plug into light connectors.
- Secure harness (A) to light bracket with two cable ties (C).
- Push excess harness into carrier frame.

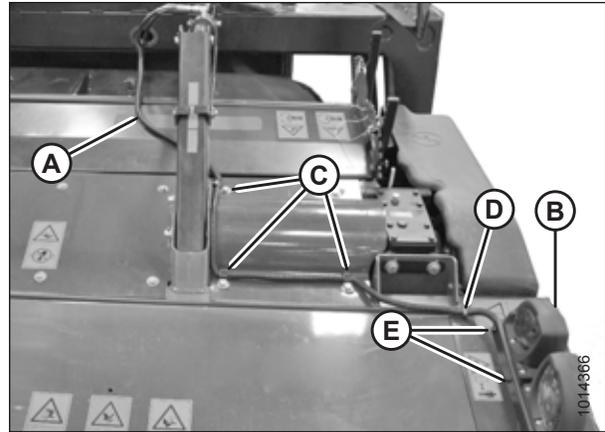


Figure 3.105: Harness Routing – R113 Shown (R116 Similar)



Figure 3.106: Transport Light

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

Connecting Selector Valve and Transport Lighting Module

1. Locate plugs P102 (A) and P502 (B) on the transport harness at the header end of the hitch. Route plugs P102 (A) and P502 (B) towards selector valve (C).
2. Connect plug P502 (B) to the receptacle on selector valve (C).
3. Connect plug P102 (A) to the upper input receptacle on transport lighting module (D).

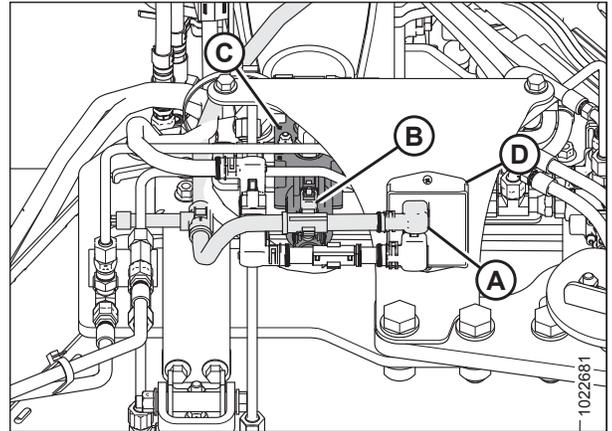


Figure 3.107: Selector Valve Supply

Installing Remote Control

1. Retrieve remote control (A) with wiring harness.
2. Place remote control (A) on hitch temporarily.

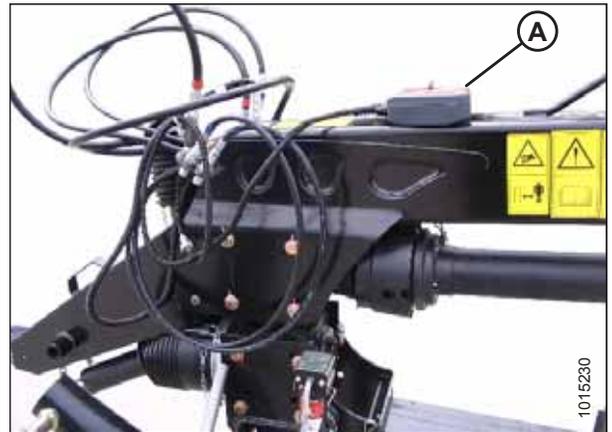


Figure 3.108: Remote Control on Top of Hitch

3. Locate connector (C) that branches off the seven-pole transport plug (A) and attach it to the remote wiring harness (B).

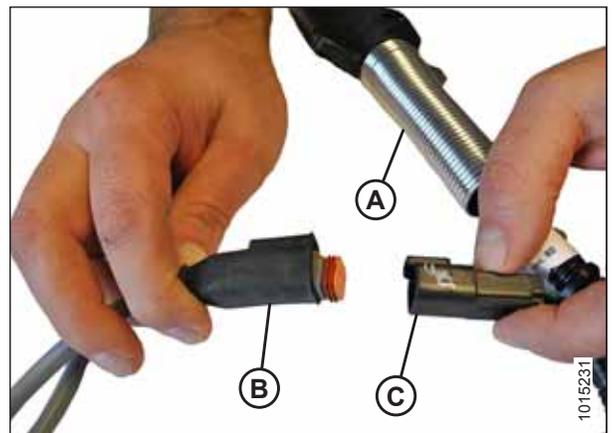


Figure 3.109: Transport Harness

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

4. *If your tractor has a three-pin auxiliary power connection:*

NOTE:

The remote control has internal protection which prevents damage caused by incorrect wiring, short circuits, or overload conditions.

Connect two wires (B) from the three-pin auxiliary connector (A) to the remote control wires (C) on the remote control, wrap connections with electrical tape, and proceed to Step 6, page 54.

- The wire with no tag connects to the tractor ground.
- The wire with the red tag connects to the tractor power.

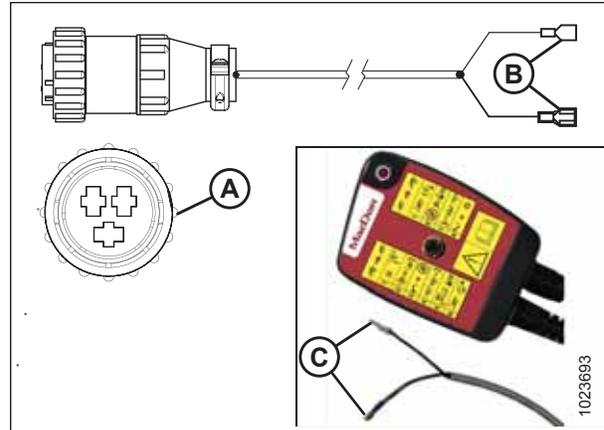


Figure 3.110: Three-Pin Auxiliary Connector

NOTE:

If connections are reversed, the lamp will not illuminate when the toggle switch is in field mode. Try the following to correct the issue:

- Check internal fuse may have blown.
- Check for short in wires to solenoid valve on header.
- Check for incorrect wire connections (reversed) at the power supply or solenoid valve.

If your tractor does NOT have a three-pin auxiliary power connection:

NOTE:

The remote control has internal protection which prevents damage caused by incorrect wiring, short circuits, or overload conditions.

5. Connect remote control wires (A) to the tractor's power supply:

- Connect wire (B) with no tag to tractor ground.
- Connect wire (C) with the red tag to tractor power.

NOTE:

If the red tag is missing, identify the power by locating the wire with the number 1 printed on it. The ground wire has a number 2 printed on it.

NOTE:

If connections are reversed, the lamp will not illuminate when the toggle switch is in field mode. Try the following to correct the issue:

- Check internal fuse may have blown.
- Check for short in wires to solenoid valve on header.
- Check for incorrect wire connections (reversed) at the power supply or solenoid valve.

6. Place the remote control inside the tractor cab.



Figure 3.111: Remote Control

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

Installing Slow Moving Vehicle (SMV) Sign

1. Retrieve SMV sign that was previously removed.
2. Remove bolts (A), and discard existing bracket (B). Retain the bolts and nuts.

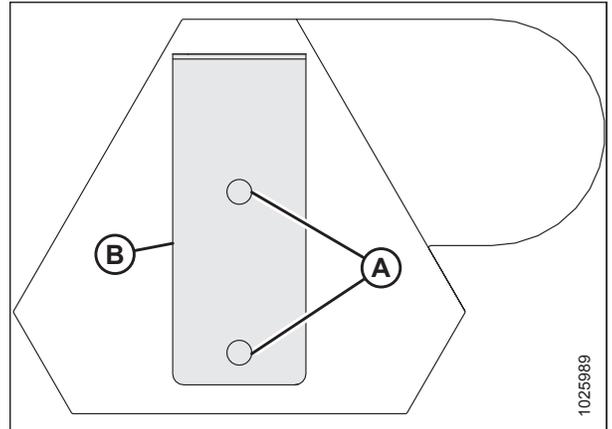


Figure 3.112: SMV Sign

3. Retrieve bracket (A).
4. Attach bracket (A) to left end float spring member with M12 bolts (B) and nuts retained from earlier step.
5. Attach sign (C) to bracket (A) and secure with two nuts (D) and bolts.

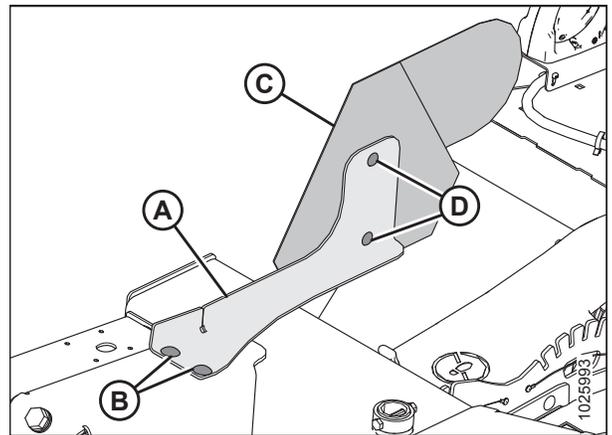


Figure 3.113: SMV Sign

6. Remove decal bag (B) taped to the SMV bracket (A).
7. Choose the appropriate speed decal (C) or (D) depending on region. Orient decal as shown when installing it on the SMV bracket.

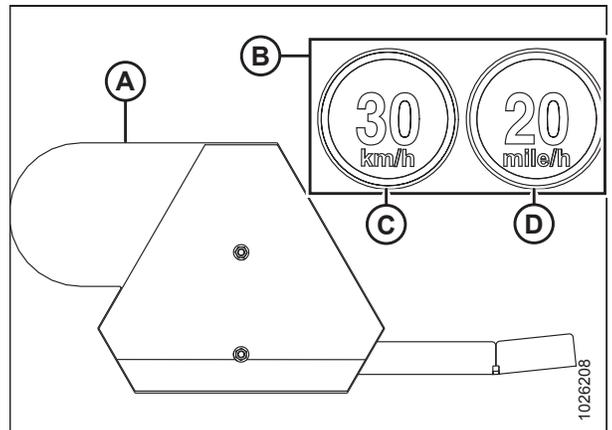


Figure 3.114: SMV Decals

ASSEMBLING THE DISC MOWER (WITH OR WITHOUT THE DEALER-INSTALLED TRANSPORT)

Installing Cover

1. Install cover (A) onto the cover support.
2. Install bolts (B). Torque to 55–65 Nm (41–48 lbf·ft).

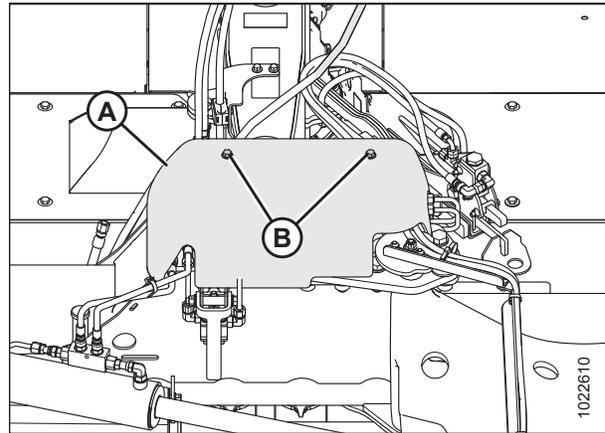


Figure 3.115: Cover

3.8.2 Installing Hydraulic Center-Link (Optional)

The hydraulic center-link option is supplied in a separate shipment. Refer to the installation instructions supplied with the kit.

3.8.3 Installing Tall Crop Divider (Optional)

The tall crop divider is supplied in a separate shipment. Refer to the installation instructions supplied with the kit.

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.

IMPORTANT:

If disc mower will be transported on public roads in the Road Friendly Transport™ mode, do not install the tall crop dividers. Install the dividers after the machine is delivered to the customer.

Chapter 4: Assembling the Disc Mower (Factory-Installed Transport)

Perform the following procedures in order when assembling a disc mower with a factory-installed Road Friendly Transport™.

4.1 Repositioning Center-Link Top Anchor

Perform this procedure to reposition the center-link top anchor into working position.

1. Cut straps (C) securing transport assembly (A) to pallet (B).

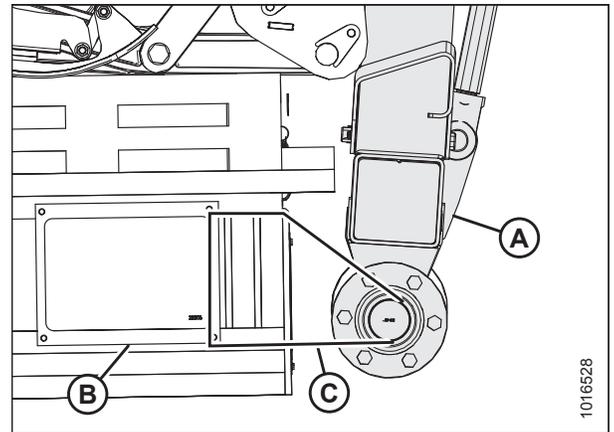


Figure 4.1: Transport Assembly

2. **For disc mowers with finger conditioners only:** Remove bolt (A) securing center shield (B) to the frame. Lower the shield.

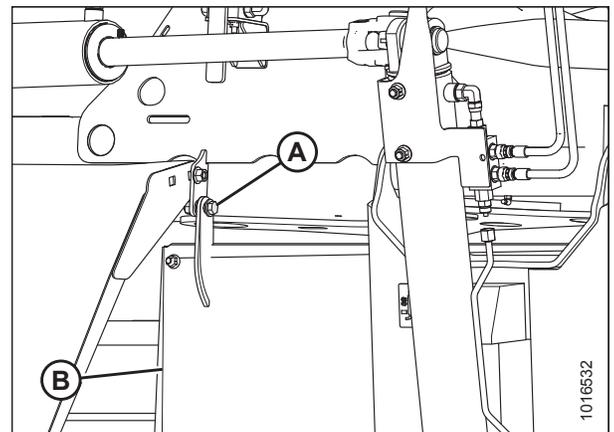


Figure 4.2: Center Shield (Finger Conditioners Only)

ASSEMBLING THE DISC MOWER (FACTORY-INSTALLED TRANSPORT)

- Loosen jam nut (A) and fully loosen float spring bolt (B).

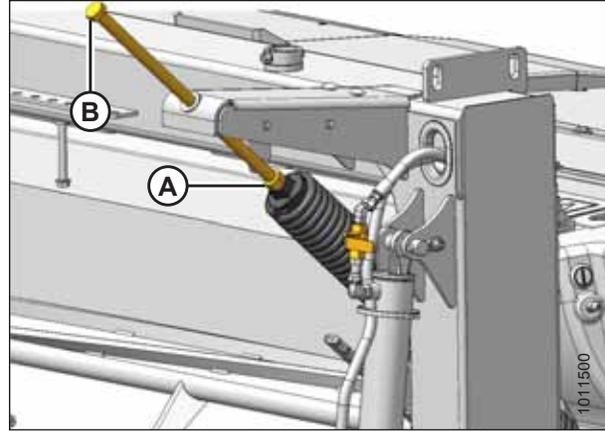


Figure 4.3: Float Spring

- Place forklift forks under top beam (A) at opening (B). Lift carrier frame slightly until pin at base of center-link anchor is loose. Use a piece of wood to protect paint on frame.

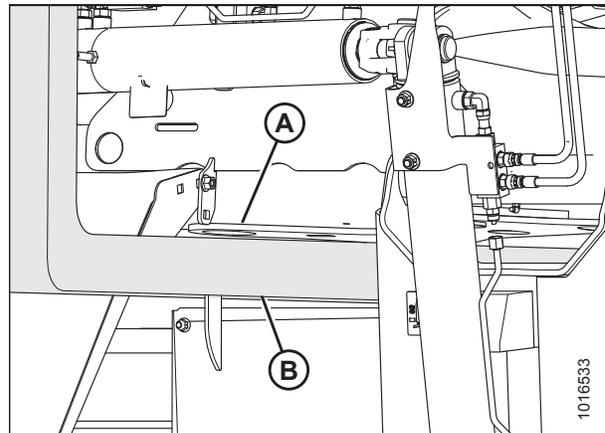


Figure 4.4: Carrier Frame

- Remove four M10 hex head bolts (A) and flat washers, and remove top shield (B).

CAUTION

To avoid injury, keep fingers clear of opening at base of anchor.

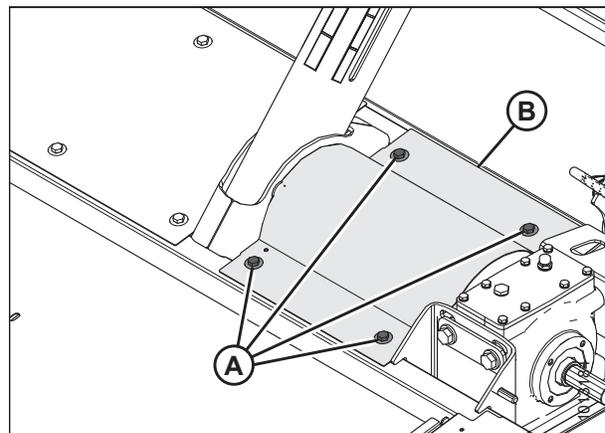


Figure 4.5: Top Shield (Left of Center-Link)

ASSEMBLING THE DISC MOWER (FACTORY-INSTALLED TRANSPORT)

6. Remove cotter pin (B), washer (C), and shipping tag (D) from pin (A).
7. Pin (A) should slide out freely. Do **NOT** use a hammer to remove pin (A).
8. Adjust the center-link and/or forklift until pin (A) is loose.

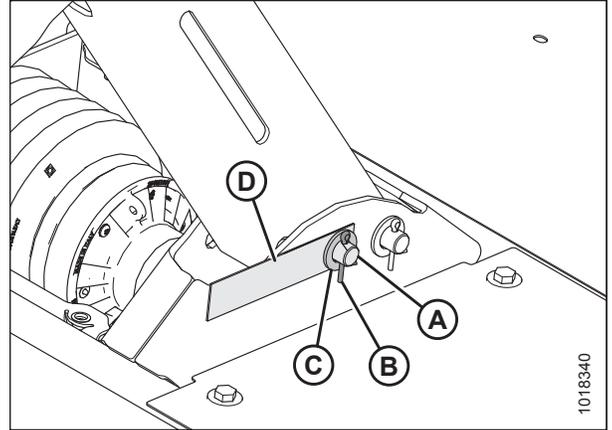


Figure 4.6: Center-Link Anchor (Right of Center-Link)

9. Adjust the carrier frame so the pin can be installed in working location. Install pin (A) and secure with washer (B) and cotter pin (C).

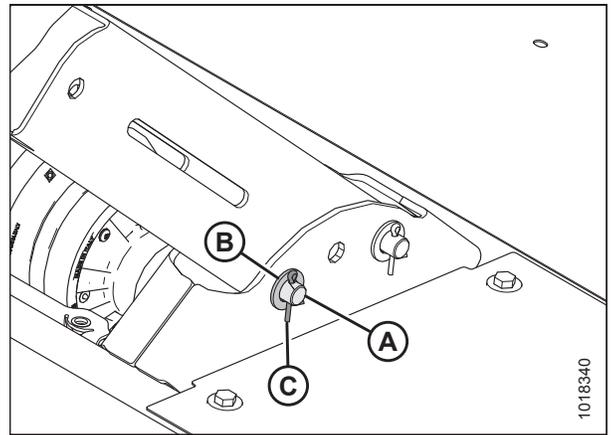


Figure 4.7: Center-Link Anchor (Right of Center-Link)

10. Install top shield (B) and secure with four M10 hex head bolts (A) and flat washers. Torque to 27–30 Nm (20–22 lbf-ft).

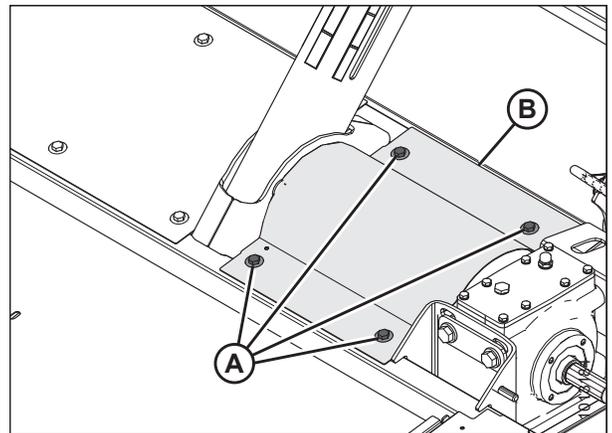


Figure 4.8: Top Shield (Left of Center-Link)

ASSEMBLING THE DISC MOWER (FACTORY-INSTALLED TRANSPORT)

11. Close the disc mower's lift cylinder lock-out valve (A) on each lift cylinder by turning the handle to its horizontal position.
12. Loosen jam nut (B) away from the spring.
13. Turn adjuster bolt (C) and set dimension (D) to 130 mm (5-1/8 in).
 - Turn bolt clockwise (towards spring) to increase float
 - Turn bolt counterclockwise (away from spring) to decrease float
14. Tighten jam nut (B) against spring.

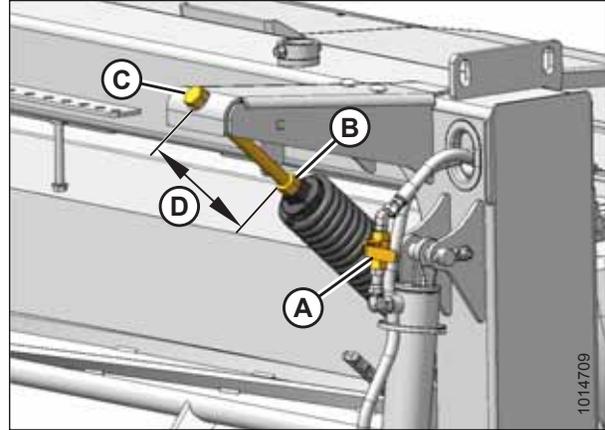


Figure 4.9: Lift Cylinder Lock-Out Valve, Jam Nut, and Adjuster Bolt

4.2 Attaching Hitch to Carrier

1. Remove cam assembly (A) from shipping support (B) by loosening nuts (C) and sliding the cam assembly off of the shipping support.
2. Rest the cam assembly on the carrier hydraulics.

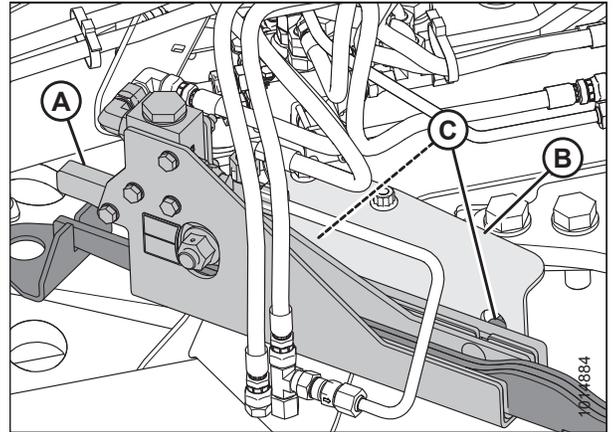


Figure 4.10: Alignment Controls (Front Right View)

3. Remove and discard bolts (B) and shipping support (A).

NOTE:

You may need to pry up the shipping support to remove the hardware.

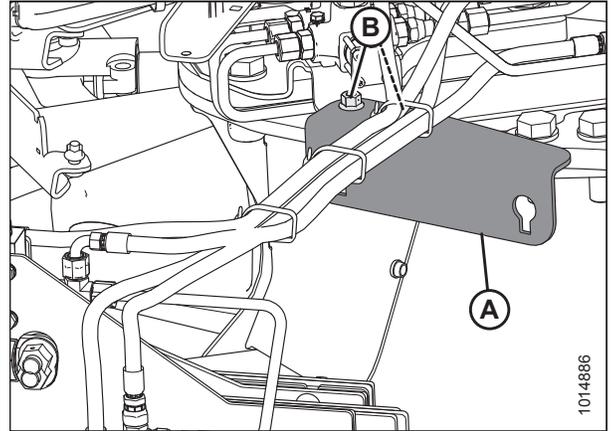


Figure 4.11: Shipping Support (Front Right View)

4. Remove six M20 bolts (A), washers, and nuts from carrier at the hitch attachment location. Retain bolts, washers, and nuts.

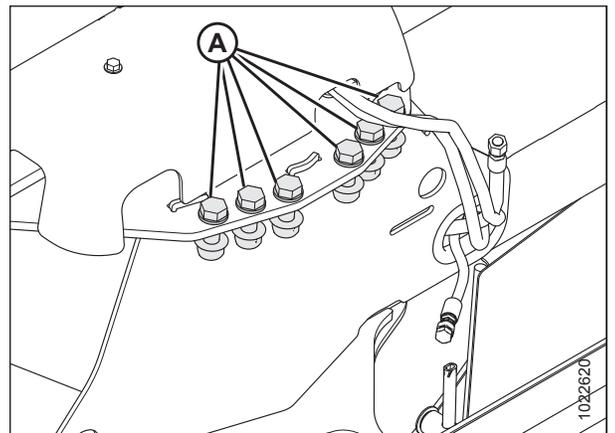


Figure 4.12: Carrier Frame

ASSEMBLING THE DISC MOWER (FACTORY-INSTALLED TRANSPORT)

5. Cut banding (A) securing wood supports, then remove supports (B).
6. Remove the two bolts (C) securing wood support to hitch pin. Discard bolts.

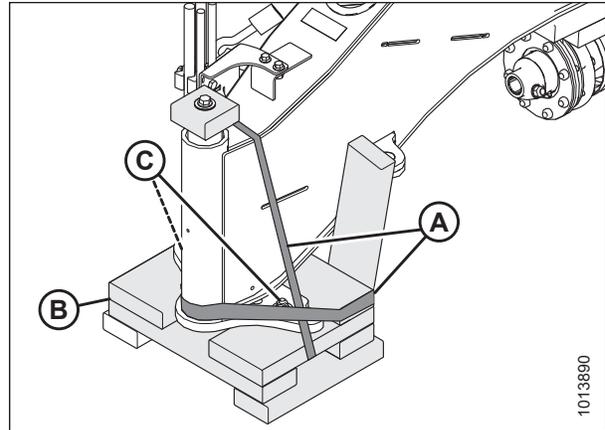


Figure 4.13: Hitch Packing

7. Place sling (A) around the hitch frame. Adjust sling position until hitch is balanced when lifting.
 - **R113:** Approximately 270 cm (106 in.) from the edge of the tractor end of the hitch (B)
 - **R116:** Approximately 350 cm (138 in.) from the edge of the tractor end of the hitch (B)
8. Raise the hitch approximately 610 mm (24 in.) off the ground.

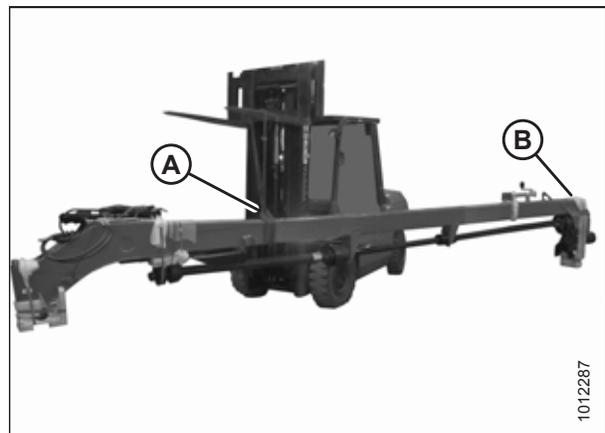


Figure 4.14: Lifting Hitch

NOTE:

Pin (C) is heavy; support it appropriately before removing bolt (A).

9. Support pin (C), remove bolt (A) and wood block (B) from top of pin, and then remove pin (C).

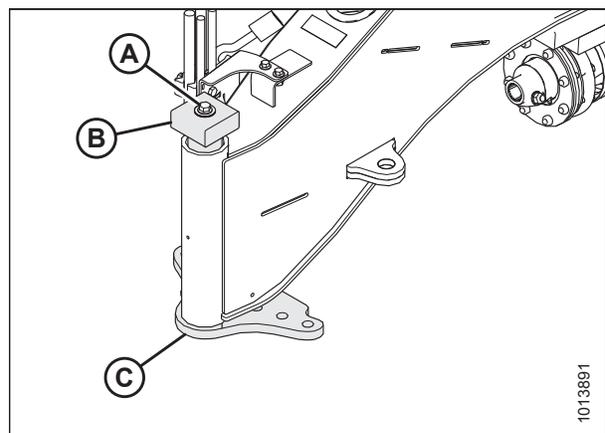


Figure 4.15: Hitch Packing

ASSEMBLING THE DISC MOWER (FACTORY-INSTALLED TRANSPORT)

10. Install hitch pin (A) fully into hitch.

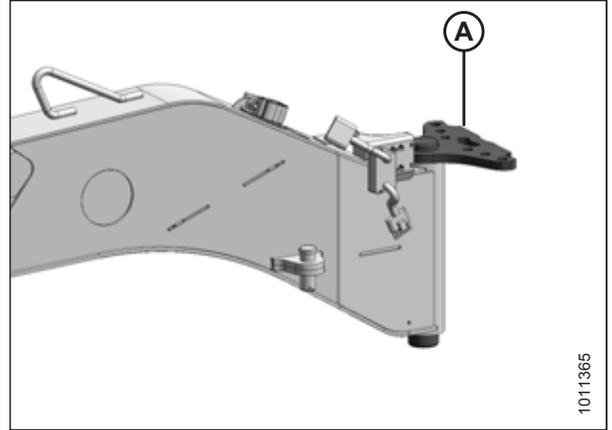


Figure 4.16: Pivot Pin

11. Pivot the gearbox (A) towards the right side of the disc mower. This will increase the clearance to the driveline clutch when installing hitch onto carrier frame.

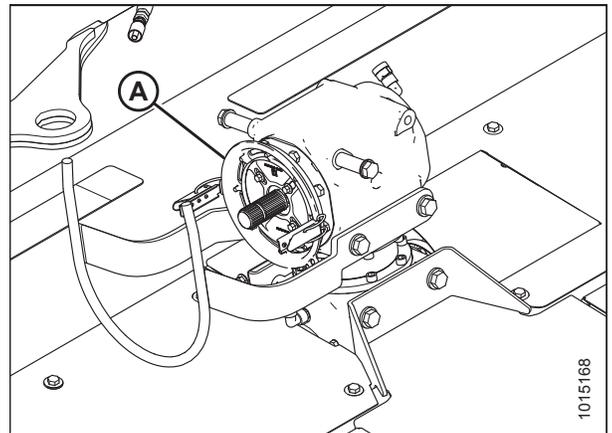


Figure 4.17: Driveline Shield

12. Maneuver hitch pivot (A) into attachment location (B) on carrier and line up pin with hole in carrier.

NOTE:

Align hitch pivot at a slight angle when installing to prevent the driveline from contacting the header drive gearbox.

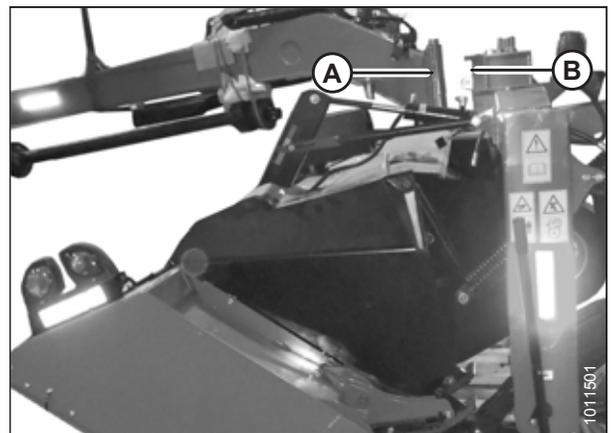


Figure 4.18: Hitch to Carrier

ASSEMBLING THE DISC MOWER (FACTORY-INSTALLED TRANSPORT)

13. Slowly lower hitch (A) while maintaining pin alignment until pin (B) is fully inserted. If necessary, use a large soft hammer to seat pin.

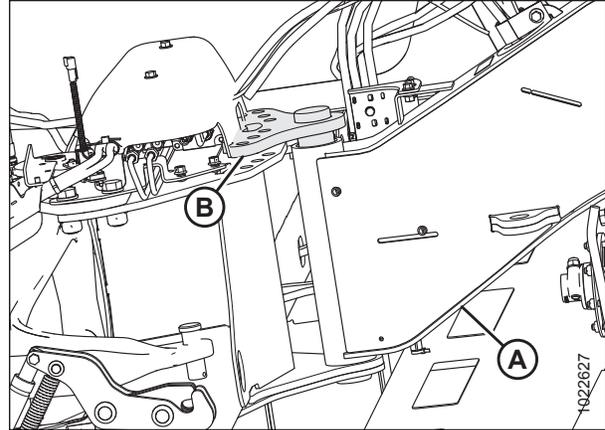


Figure 4.19: Pivot Pin

14. Line up holes in pin (A) with holes in the carrier frame. Install six M20 x 65 bolts (B) with hardened washers under the bolt head, and secure with lock nuts (C).
15. Tighten outer bolts (B) first to draw the plate against the frame, then tighten the inner bolts. Torque bolts to 461 Nm (340 lbf-ft).

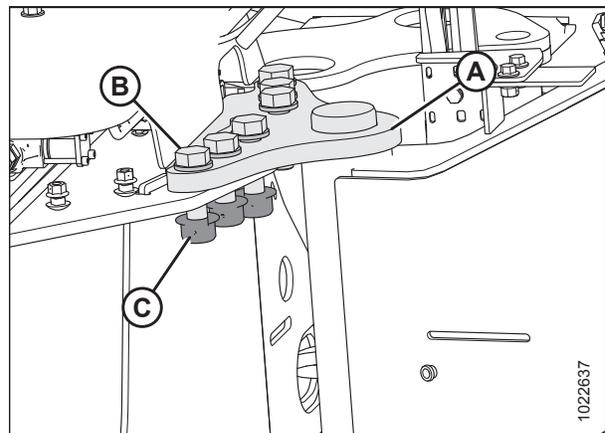


Figure 4.20: Pivot Pin

4.3 Installing Tractor Mating Hitch to Carrier Hitch

Depending on disc mower configuration, refer to the applicable installation procedure:

- 4.3.1 *Installing Drawbar Hitch, page 65*
- 4.3.2 *Installing Two-Point Hitch (Cat. II) Adapter, page 69*

4.3.1 Installing Drawbar Hitch

If attaching the disc mower to a tractor with a drawbar hitch, proceed as follows. If attaching the disc mower to a tractor with a two-point hitch, refer to 4.3.2 *Installing Two-Point Hitch (Cat. II) Adapter, page 69*.

1. Remove shipping wire or banding (A) securing shipping blocks (B) at front of hitch, and remove blocks.
2. Swivel lower gearbox until the input shaft is facing forward.

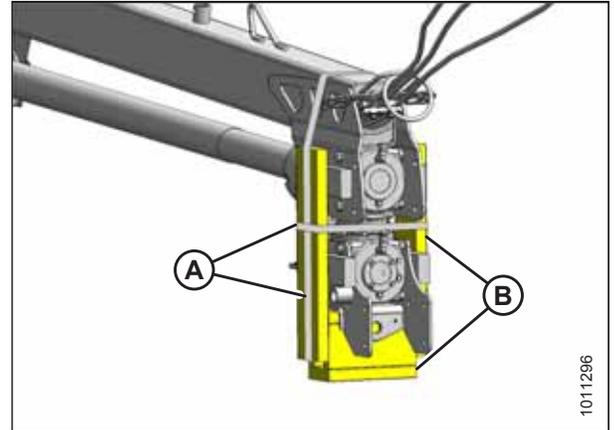


Figure 4.21: Hitch End Packing

3. Remove shipping wire (A) from the jack stand support (D) and jack (B). Remove the jack stand support and jack from the pallet. Leave the drawbar hitch attached to the pallet.
4. Remove the hardware bag from the jack stand support.

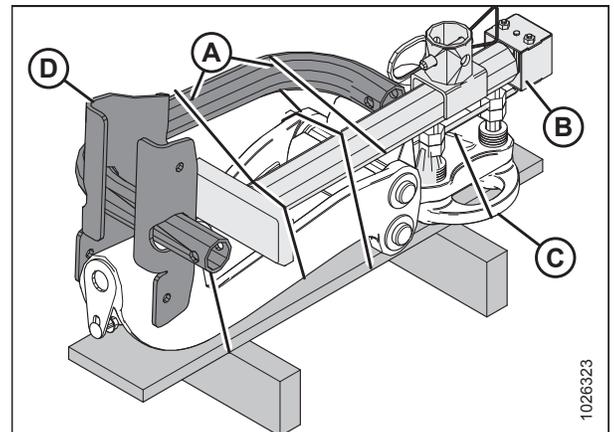


Figure 4.22: Jack and Drawbar Hitch Packing

ASSEMBLING THE DISC MOWER (FACTORY-INSTALLED TRANSPORT)

5. Install jack support stand (A) as shown. Secure with two M12 X 1.75 X 40 bolts (B), M12 washers and M12 center lock nuts per side. Torque hardware to 68.5 Nm (51 lbf ft)

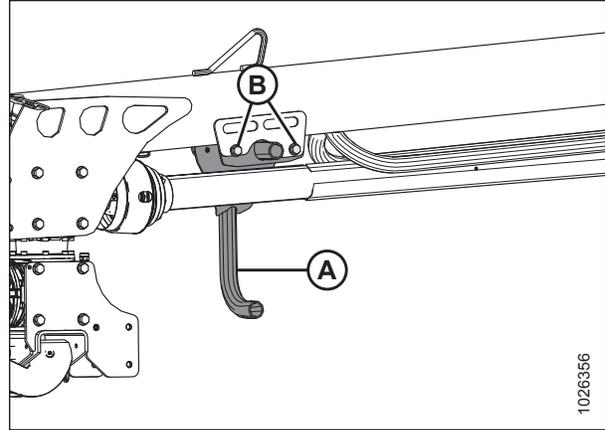


Figure 4.23: Jack Stand Support

6. Install jack (A) at front of hitch, and secure with pin (B).
7. Lower forklift until hitch is resting on hitch jack (A).

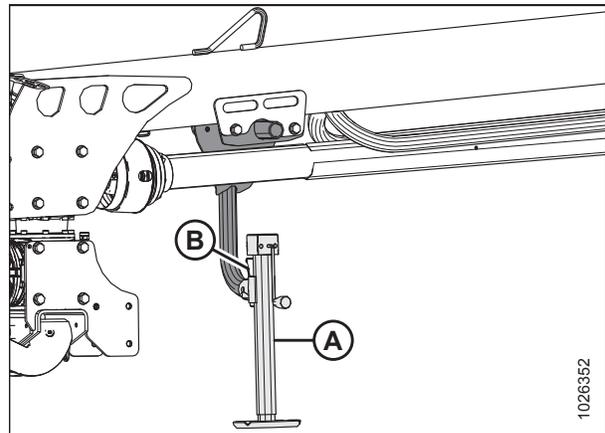


Figure 4.24: Jack Stand

8. Remove shipping wire (A) that secures pin (B) in casting. Do **NOT** remove other strapping.
9. Remove pin (B) from casting and remove bolt (C) and nut from pin.

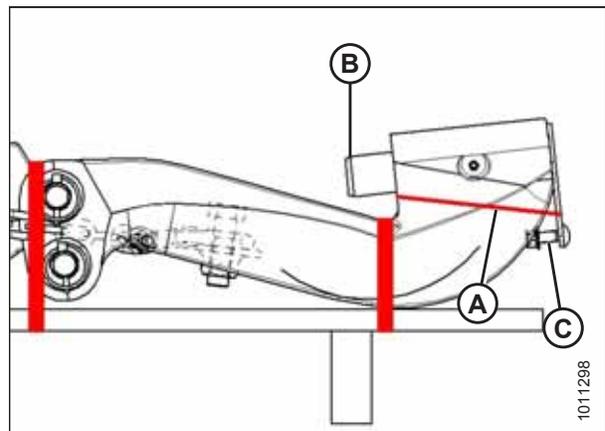


Figure 4.25: Hitch Casting

ASSEMBLING THE DISC MOWER (FACTORY-INSTALLED TRANSPORT)

- Using a floor jack or equivalent under pallet (A), raise drawbar hitch (B) into position under the gearbox.
- Move drawbar hitch (B) so pin (C) can be installed.
- Secure pin with bolt (D) and nut.
- Remove floor jack, and if necessary, remove remaining strapping and pallet (A) from hitch adapter.

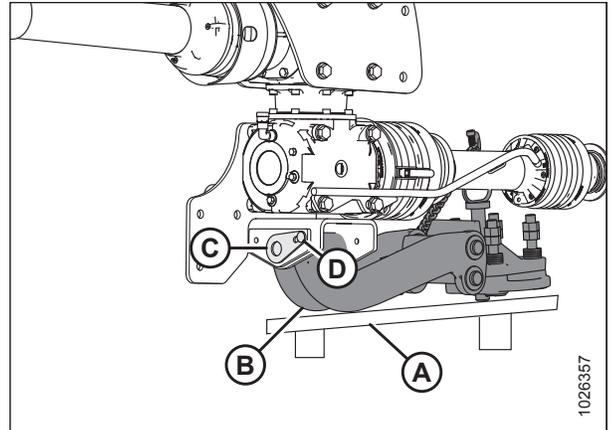


Figure 4.26: Drawbar Hitch

- Remove cone shield (A).

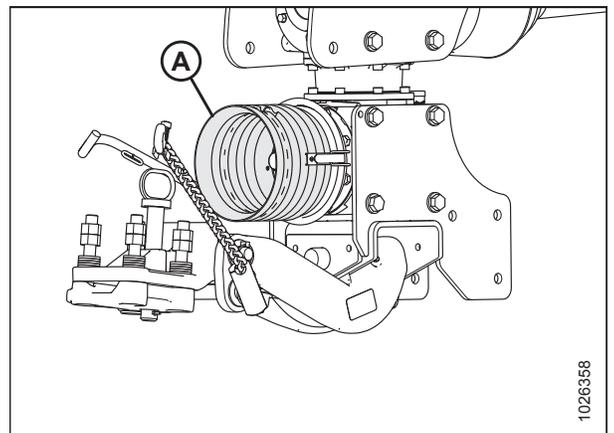


Figure 4.27: Cone Shield

- Retrieve the primary driveline (D) from the shipping location.
- Remove nut (C), washer (B) and pin (A) from the disc mower end of the primary driveline (D).

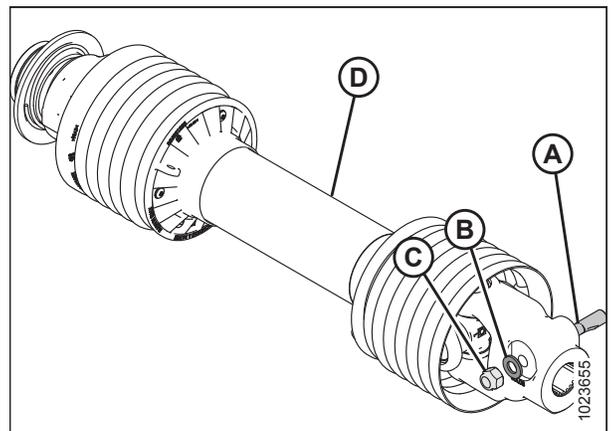


Figure 4.28: Primary Driveline

ASSEMBLING THE DISC MOWER (FACTORY-INSTALLED TRANSPORT)

- Slide the primary driveline (A) onto the gearbox input shaft. Align the pinhole (B) in the yoke with the groove on the input shaft.

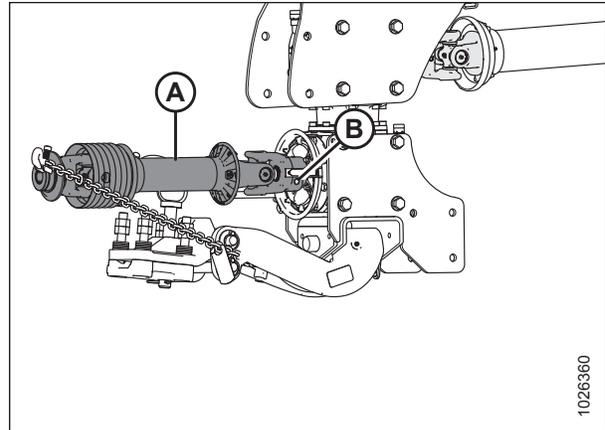


Figure 4.29: Primary Driveline

- Insert tapered pin (A) by hand. Ensure the pin lines up with groove in yoke and is fully inserted. The notch in the pin should be facing toward the shaft.
- Clean the threads on pin (A) after it has been inserted.
- Install washer (B) and nut (C) on tapered pin and torque to 149 Nm (110 lbf-ft). The end of the pin must be recessed approximately 9–11 mm (0.35–0.43 in.) (D).

NOTE:

Do **NOT** use an impact wrench to install or torque the nut.

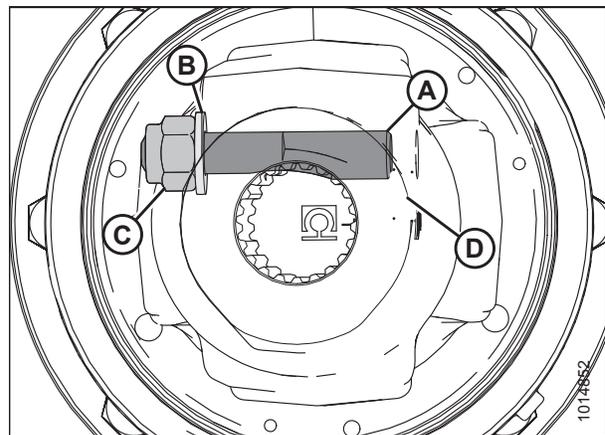


Figure 4.30: Primary Driveline

- Install the cone shield (A) over the primary driveline (B). Use the latches to secure it to the gearbox.
- Place the primary driveline (B) on the driveline support.
- Install hitch swing cylinder. Refer to [3.4 Installing Hitch Swing Cylinder, page 24](#).

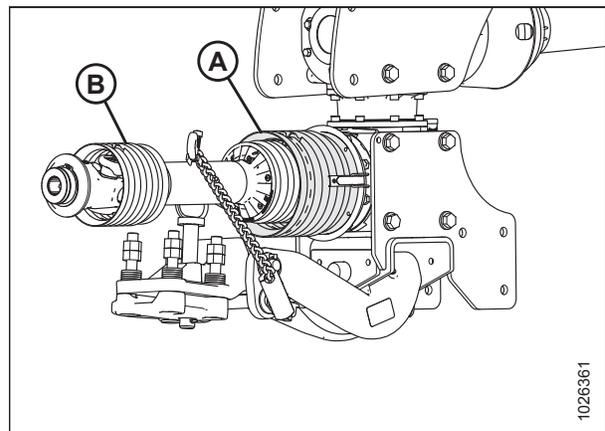


Figure 4.31: Cone Shield

ASSEMBLING THE DISC MOWER (FACTORY-INSTALLED TRANSPORT)

4.3.2 Installing Two-Point Hitch (Cat. II) Adapter

1. Remove shipping wire or banding (A) securing shipping blocks (B) at front of hitch, and remove blocks.
2. Swivel lower gearbox until the input shaft is facing forward.

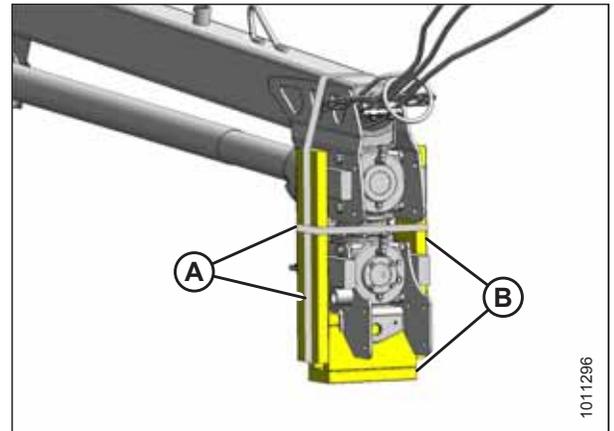


Figure 4.32: Hitch Packing

3. Retrieve two-point hitch adapter shipment.
4. Remove shipping wire (A) and material from stand (B), and remove stand from hitch adapter (C).

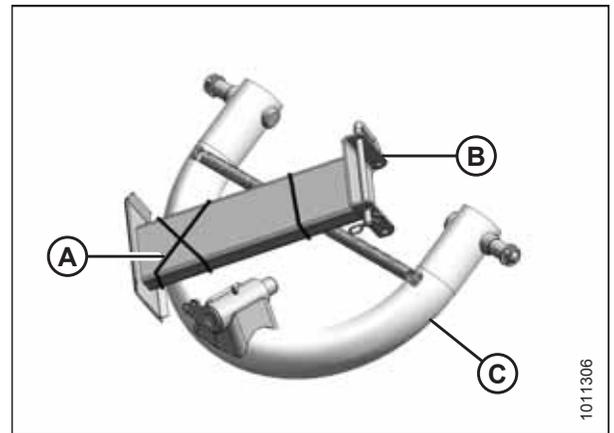


Figure 4.33: Two-Point Hitch Packing

5. Remove strapping that secures pin (A) to adapter (B). Do **NOT** remove other strapping.
6. Remove pin (A) from adapter, and remove bolt (C) and nut from pin (A).

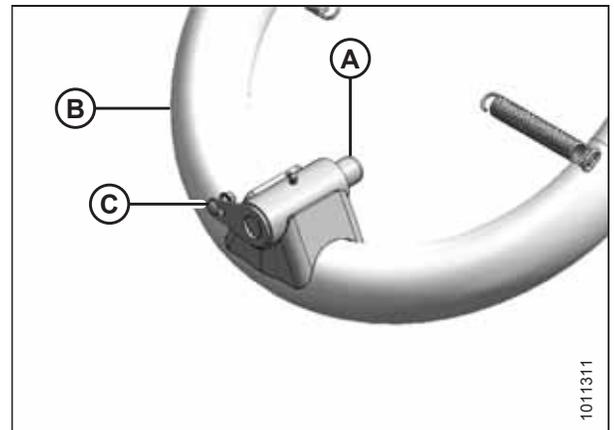


Figure 4.34: Two-Point Hitch Adapter

ASSEMBLING THE DISC MOWER (FACTORY-INSTALLED TRANSPORT)

- Using a floor jack or equivalent, raise two-point hitch adapter (A) into position under the gearbox.
- Maneuver adapter (A) so that pin (B) can be installed to secure adapter to hitch.
- Secure pin with bolt (C) and nut (D).
- Remove floor jack, and remove remaining strapping and pallet from hitch adapter.

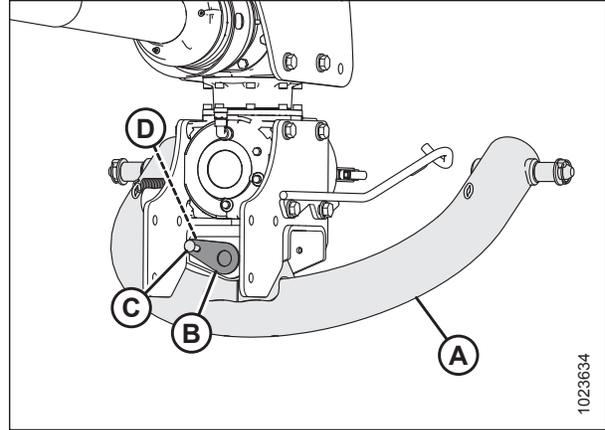


Figure 4.35: Two-Point Hitch Adapter

- Retrieve stand (A).
- Position stand (A) under gearbox as shown, and install hitch pin (B) to secure the stand.
- Install hairpins (C) to secure hitch pin (B).
- Lower hitch and stand to the ground.

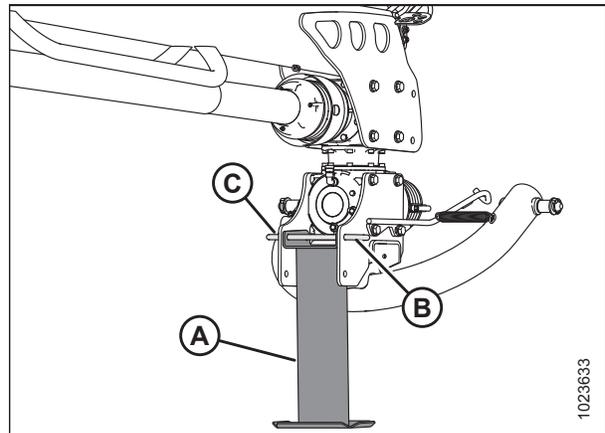


Figure 4.36: Stand

- Install springs (A) into hooks (B). Repeat on opposite side.

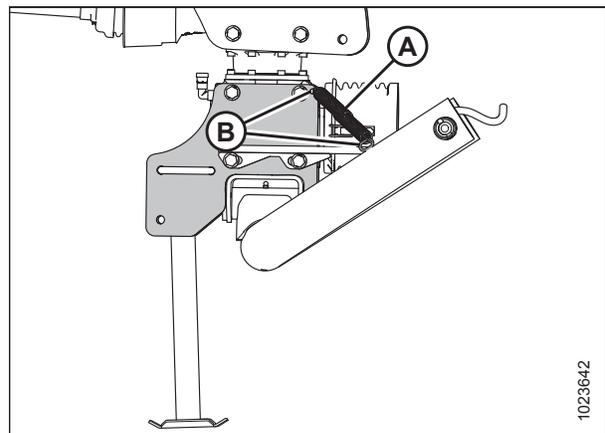


Figure 4.37: Springs

ASSEMBLING THE DISC MOWER (FACTORY-INSTALLED TRANSPORT)

16. Remove cone shield (A).

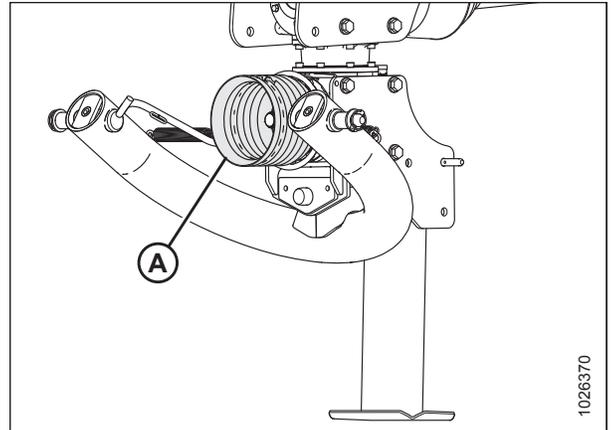


Figure 4.38: Cone Shield

17. Retrieve the primary driveline (D) from the shipping location.
18. Remove nut (C), washer (B), and pin (A) from the disc mower end of primary driveline (D).

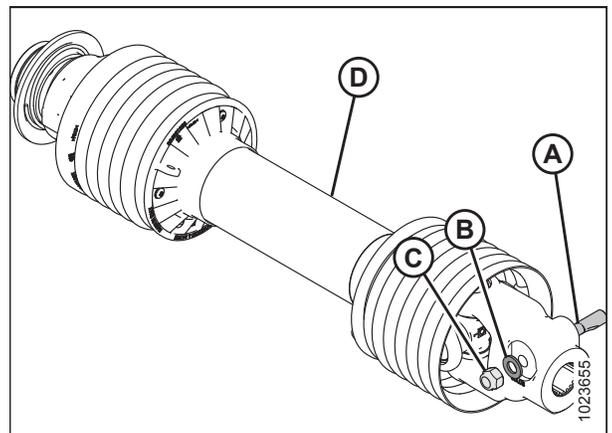


Figure 4.39: Primary Driveline

19. Slide driveline (A) onto gearbox input shaft (B). Align the pinhole in the yoke with the groove on the input shaft.

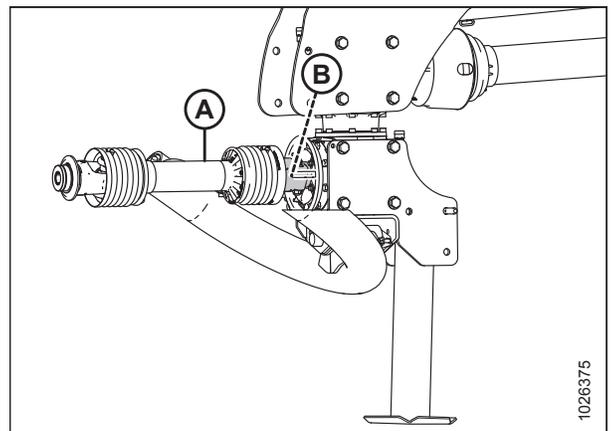


Figure 4.40: Primary Driveline

ASSEMBLING THE DISC MOWER (FACTORY-INSTALLED TRANSPORT)

20. Insert tapered pin (A) by hand. Ensure the pin lines up with groove in the yoke and is fully inserted. The notch in the pin should be facing toward the shaft.
21. Clean the threads on pin (A) after it has been inserted.
22. Install washer (B) and nut (C) on the tapered pin and torque to 149 Nm (110 lbf·ft). The end of the pin must be recessed 9–11 mm (0.35–0.43 in.) (D).

NOTE:

Do **NOT** use an impact wrench to install or torque the nut.

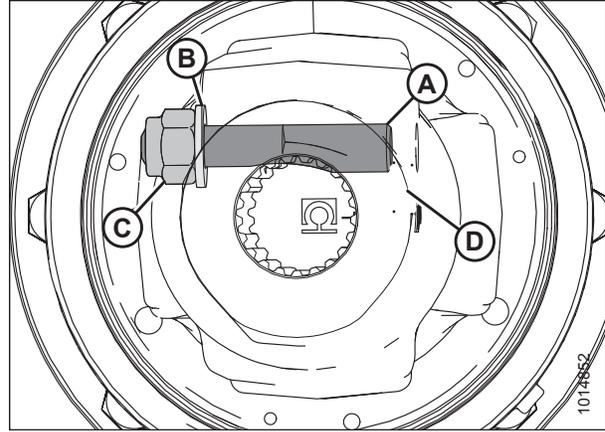


Figure 4.41: Primary Driveline

23. Install cone shield (A) over the primary driveline. Place driveline (B) on the driveline support.

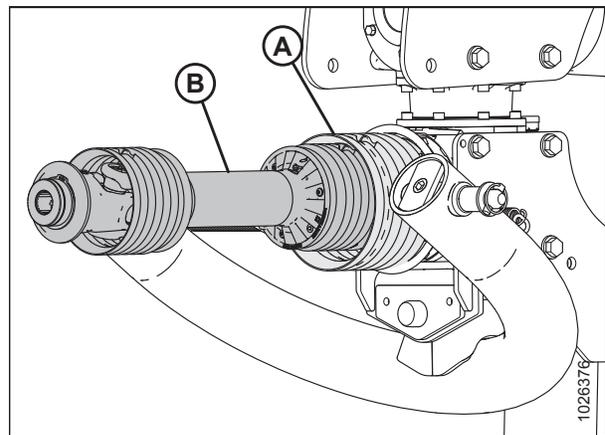


Figure 4.42: Cone Shield

4.4 Installing Hitch Swing Cylinder

1. Remove the banding (A) securing the hitch swing cylinder (B) to the hitch.
2. Remove pin (C) securing cylinder (B) to hitch.

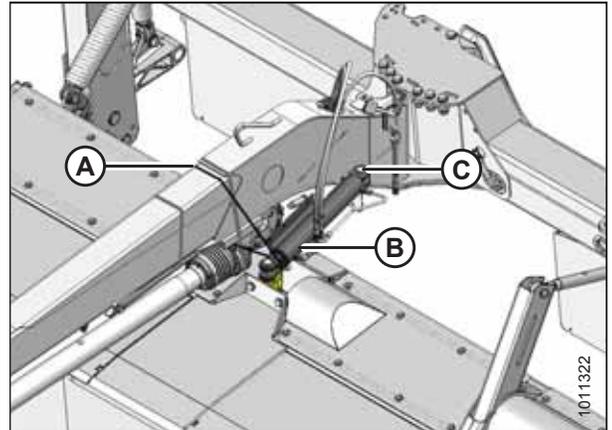


Figure 4.43: Steering Cylinder

3. Disconnect the hoses from the cylinder and cap off openings on cylinder and hoses.
4. Reposition cylinder (A) at right side of hitch. Use pin (C) to attach barrel end to lug (B). Secure with cotter pin (D).

NOTE:

The clevis end of cylinder will be attached to the Road Friendly Transport™ system casting after the system is primed. Refer to [5.5 Priming the Hitch Swing Cylinder, page 102](#).

5. Turn the valve on the hitch swing cylinder 180 degrees, so that fittings are pointing up.

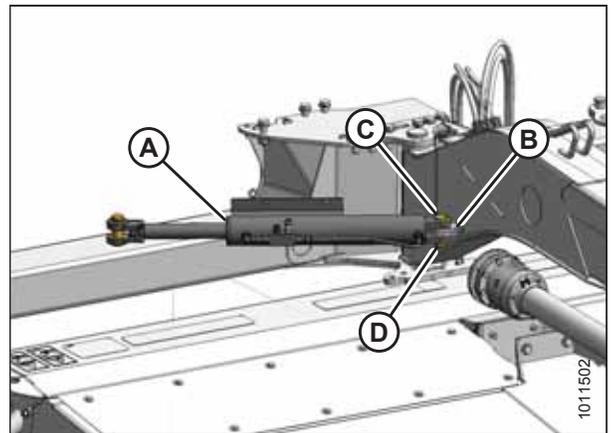


Figure 4.44: Hitch Swing Cylinder

4.5 Attaching Clutch Driveline

This procedure describes how to attach the clutch driveline to the header drive gearbox.

IMPORTANT:

If a conditioner swap is required before delivery to the customer, do **NOT** perform this step at this time. Skip to and then return to this topic to complete the setup.

1. Support driveline (B) and remove strapping (A) securing it to hitch. Remove all packing material.

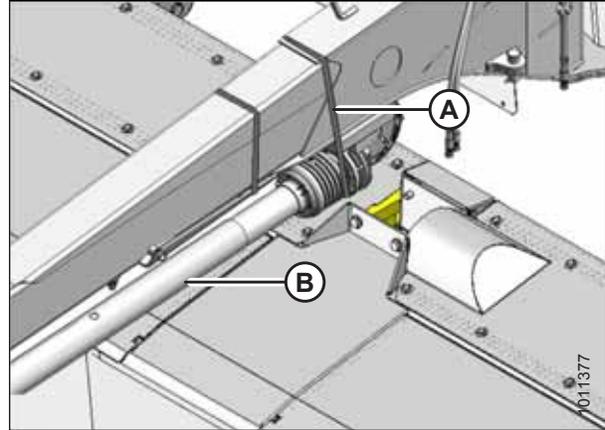


Figure 4.45: Driveline Strapping

2. Remove strapping (A) and packing material securing steering arm (B) to hitch. Pivot steering arm to the side for now.

NOTE:

Strapped contents may be under pressure.

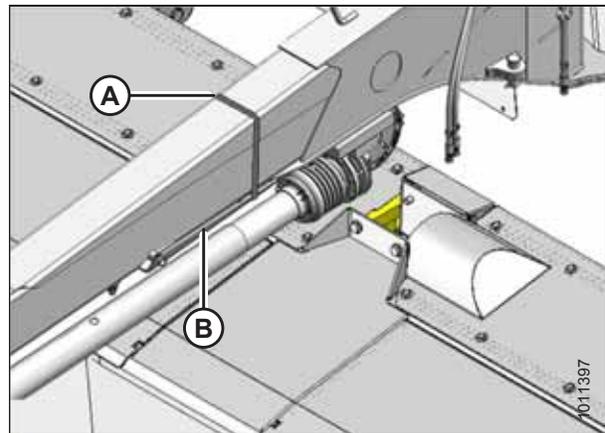


Figure 4.46: Steering Arm Strapping

3. At the top of the upper rear swivel gearbox, remove two bolts (A) with spacers (B). Retain hardware.
4. Undo latches (C) securing driveline shield (D) to the upper rear swivel gearbox and remove the shield. If necessary, use a screwdriver or equivalent to undo latches (C).
5. Rotate the upper rear swivel gearbox until the input shaft is facing towards the driveline.

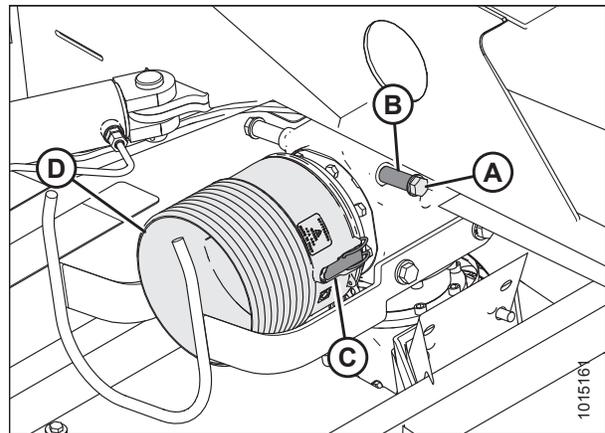


Figure 4.47: Driveline Shield

ASSEMBLING THE DISC MOWER (FACTORY-INSTALLED TRANSPORT)

- Slide cone (A) onto driveline with latches (B) towards the gearbox.
- Remove nut (C) and washer (E) from tapered pin (D), and tap out pin from yoke using a hammer.

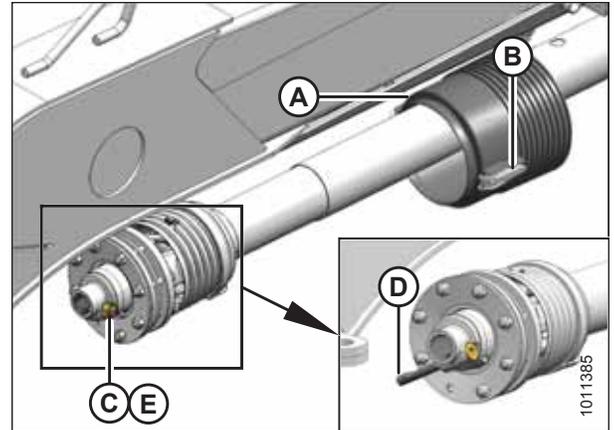


Figure 4.48: Clutch Driveline

- Attach driveline (A) to the upper rear swivel gearbox shaft.

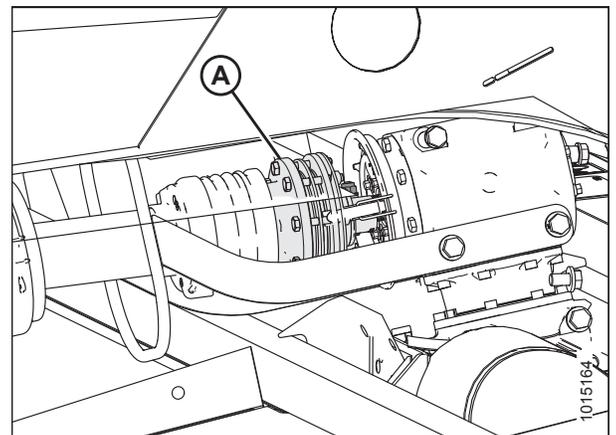


Figure 4.49: Clutch Driveline

- Insert tapered pin (A) by hand. Ensure the pin lines up with groove in the yoke and is fully inserted. The notch in the pin should be facing toward the shaft.
- Clean the threads on pin (A) after it has been inserted.
- Install washer (B) and nut (C) on the tapered pin, and then torque to 149 Nm (110 lbf-ft). The end of the pin must be recessed 0–2 mm (0–0.08 in.) (D).

NOTE:

Do **NOT** use an impact wrench to install or torque the nut.

- Install the shield onto the upper rear swivel gearbox. Use the latches to secure it.

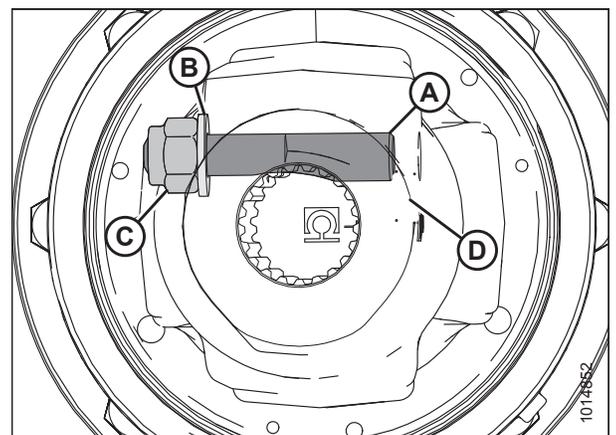


Figure 4.50: Clutch Driveline

4.6 Attaching Steering Arm

This procedure describes the attachment of the steering arm to the header drive gearbox.

IMPORTANT:

If a conditioner swap is required before delivery to the customer, do **NOT** perform this step at this time. Proceed to and then return to this topic to complete the setup.

1. Lower arm (A) from under the hitch and slide the steering arm (B) off the support tube.
2. Apply grease to arm (A).
3. Slide steering arm (C) onto the support tube (A) in the opposite direction.
4. Position steering arm (C) onto gearbox (D).

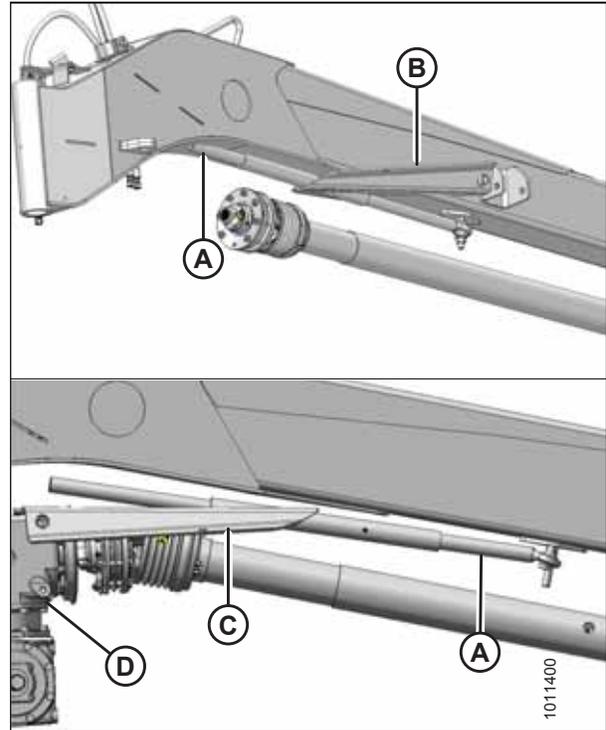


Figure 4.51: Steering Arm

5. Line up the two mounting holes in arm weldment with the forward threaded holes in the upper rear swivel gearbox.
6. Install spacers (A) into steering arm (B).
7. Install washer (D), onto the M16 x 80 hex head bolts (C). Install high-strength threadlocker (Loctite® 262 or equivalent) onto the bolt threads.
8. Torque bolts to 203 Nm (150 lbf·ft).

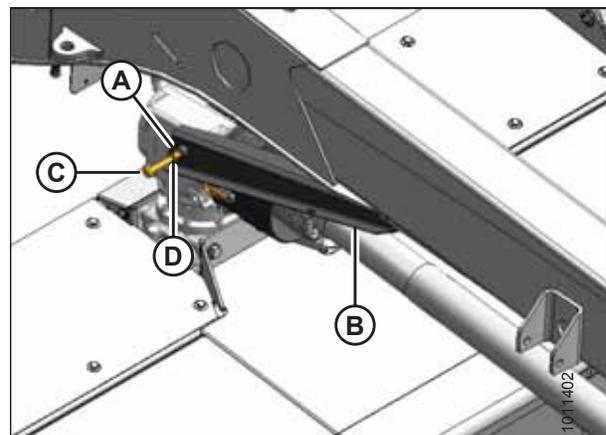


Figure 4.52: Steering Arm

ASSEMBLING THE DISC MOWER (FACTORY-INSTALLED TRANSPORT)

9. Attach safety chain (A) from driveline shield to slotted hole in the steering arm.

NOTE:

Ensure chain is shortened to prevent any driveline wrapping.

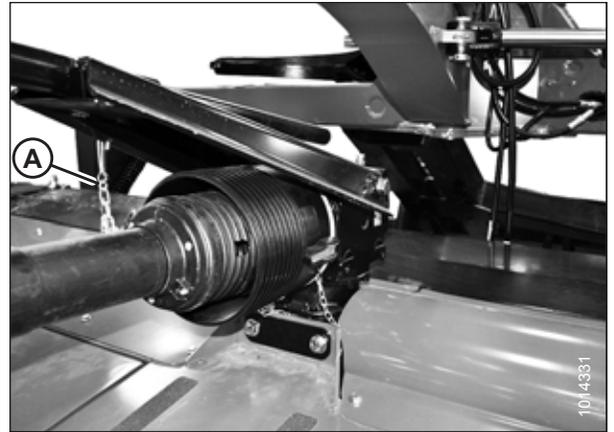


Figure 4.53: Driveline Shield

4.7 Removing Slow Moving Vehicle Sign (SMV) Covering

1. Remove the covering from the SMV sign (A).

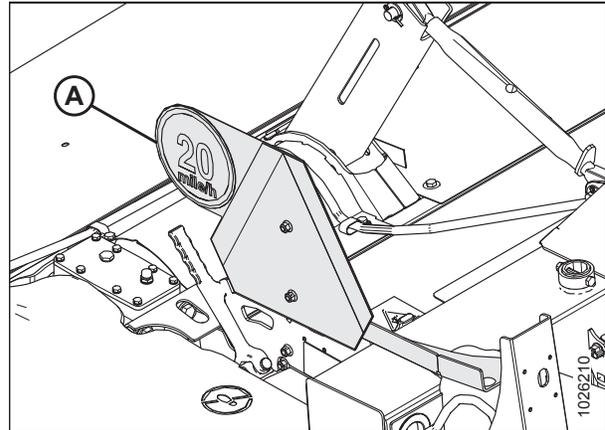


Figure 4.54: SMV Sign

2. Remove decal bag (B) taped to the SMV bracket (A).
3. Choose the appropriate speed decal (C) or (D) depending on region. Orient decal as shown when installing it on the SMV bracket.

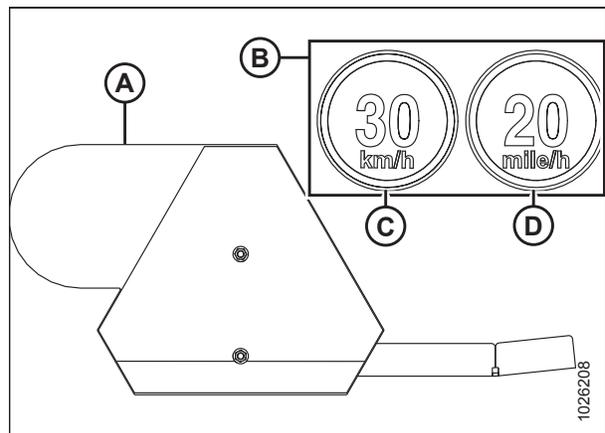


Figure 4.55: SMV Decals

4.8 Completing Road Friendly Transport™ System Installation

This section describes the installation of the base components, the hydraulic lines and hoses, and the electrical connections for the Road Friendly Transport™ system.

4.8.1 Removing Cover

1. Remove bolts (B) from cover (A).
2. Remove cover (A).

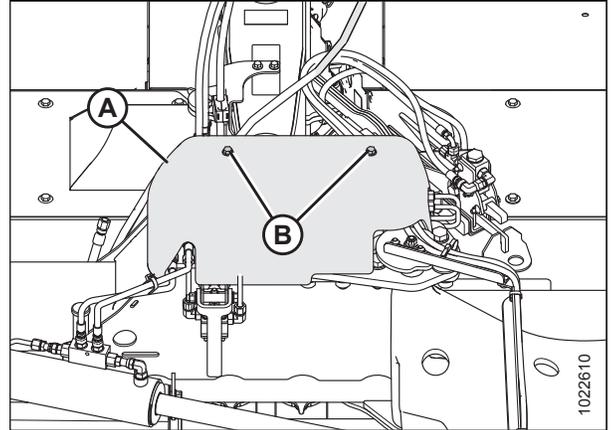


Figure 4.56: Cover (Top View)

4.8.2 Installing Transport Alignment Control

This section describes the installation of the base components of the Road Friendly Transport™ system.

1. Secure the cam assembly (A) onto the hitch swing cylinder plate (B) with bolts and nuts (C). Torque nuts (C) to 55–60 Nm (40–45 lbf-ft).

NOTE:

When installing the cam assembly (A), check for hose twisting. If required, loosen hose fitting to allow hose to untwist. Torque fitting once complete.

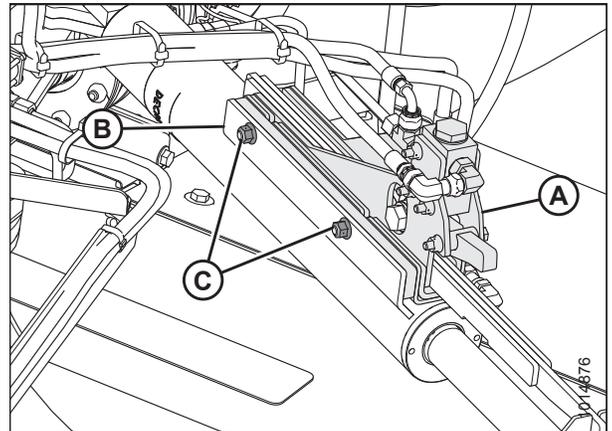


Figure 4.57: Alignment Control (Rear Right View)

ASSEMBLING THE DISC MOWER (FACTORY-INSTALLED TRANSPORT)

2. Check the travel of the cam arm (A) by sliding it in and out of the cam assembly (B).

NOTE:

If the cam arm does not slide easily, loosen valve mounting bolts (C), and slide the valve (B) up to the top of the mounting holes. Retighten valve mounting bolts (C).

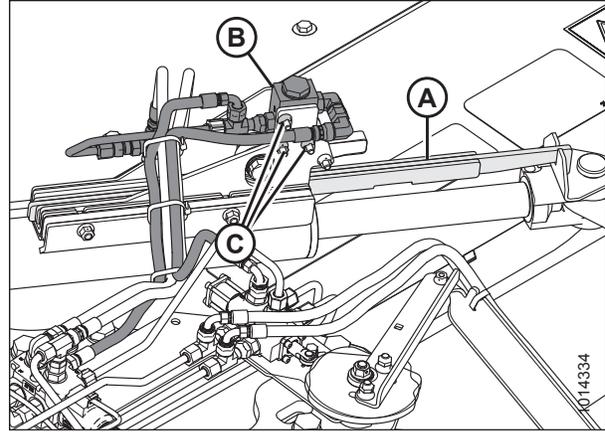


Figure 4.58: Alignment Control (Rear Right View)

3. Align the hole in the cam arm (A) with the hole in the cylinder clevis (B).

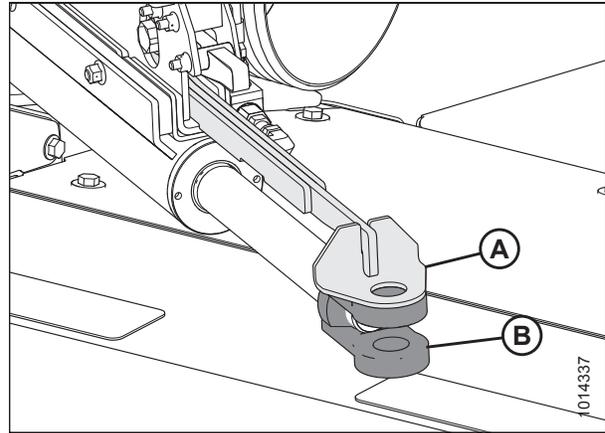


Figure 4.59: Alignment Control (Rear Right View)

ASSEMBLING THE DISC MOWER (FACTORY-INSTALLED TRANSPORT)

4. Ensure the end of cam arm (A) is parallel with the clevis end (B) of the cylinder. If adjustment is required, use a bar and turn the clevis until the clevis is parallel with cam arm (A).

NOTE:

The clevis end of cylinder will be attached to Road Friendly Transport™ system casting when the system is primed. Refer to [5.5 Priming the Hitch Swing Cylinder](#), page 102.

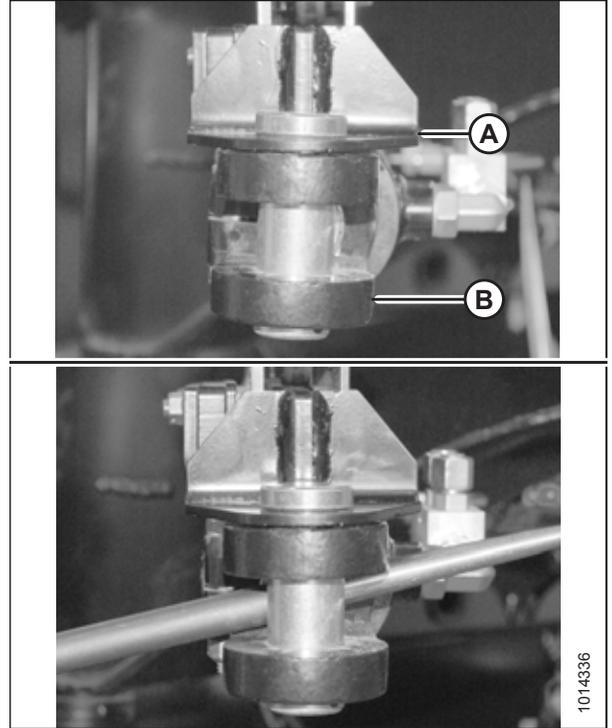


Figure 4.60: Cam Arm Alignment

4.8.3 Installing Hydraulic Lines and Hoses

This procedure explains how to install the transport hydraulic control system.

NOTE:

For hydraulic fitting installation details, refer to [11.6 Torque Specifications](#), page 208.

1. Place a container or rag under the fitting on the hitch swing cylinder.
2. Remove the existing fitting at location (A) from the block.
3. Remove cap from fitting (C).

IMPORTANT:

Ensure O-ring is in place.

4. Retrieve ORFS-6 x ORB-6 connector (B) from shipping bag A and install into location (A).

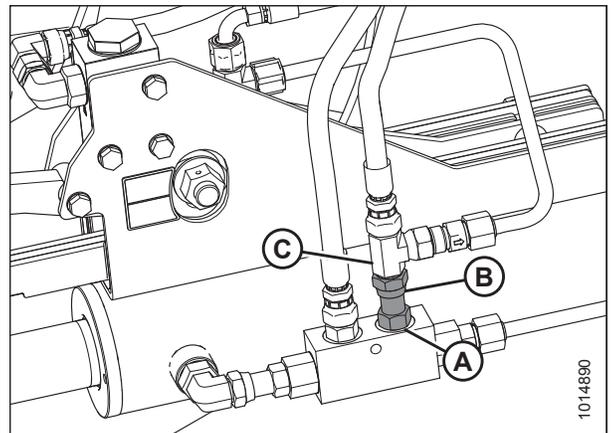


Figure 4.61: Alignment Valve Fitting

ASSEMBLING THE DISC MOWER (FACTORY-INSTALLED TRANSPORT)

5. Remove the cap from fitting (A).
6. Remove the plug from hose (B). Install hose to fitting (A) as shown.

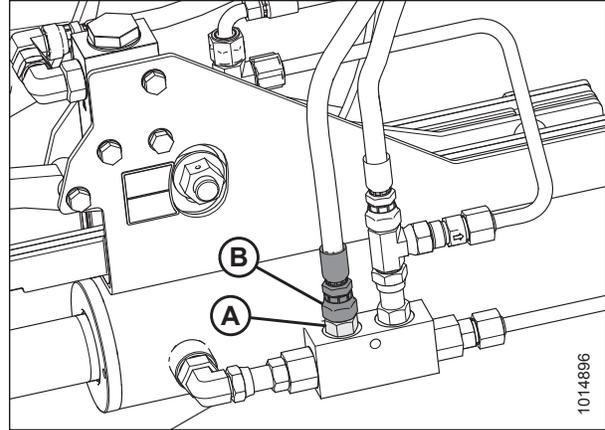


Figure 4.62: Alignment Valve Fitting

7. Connect hose (B) with red collar #2, from the rear of the hitch, to fitting in port A1 on selector valve (C).
8. Connect hose (A) with blue collar #2, from the rear of the hitch, to fitting in port A2 of the selector valve (C).
9. Secure hoses (A) and (B) together with cable tie.

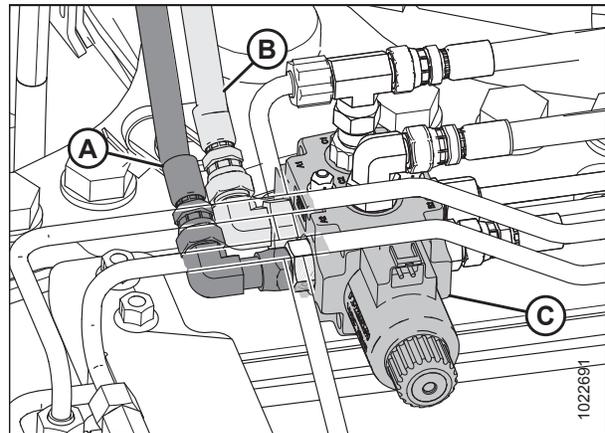


Figure 4.63: Selector Valve Supply

Installing secondary lift hose for field wheels

NOTE:

The secondary lift hose is required to lift the field wheels fully into storage position when the disc mower is in transport mode.

Retrieve the following secondary lift hose from the shipping bag according to your disc mower size:

- **4.0 m (13 ft.) headers:** Use hose MD #224160.
- **4.9 m (16 ft.) headers:** Use hose MD #224162.

ASSEMBLING THE DISC MOWER (FACTORY-INSTALLED TRANSPORT)

10. Retrieve the blue collars with the number one (blue collar #1) on them from the shipping bag. Place one collar on each end of the secondary lift hose (B).
11. Undo adjustable strap (A) around hoses at aft end of hitch.
12. Locate the green wire preinstalled in the hitch for pulling hoses through the hitch.

NOTE:

If you are installing a hydraulic center-link, pull the hydraulic hoses through the hitch at the same time as the lift hose.

13. At rear of hitch, feed male ORB end of hose (B) into access hole (C). Route hose through the hitch to the opening at front.
14. Position long hose (A) so that the exposed length at the front of hitch matches existing hose (B). Route hose through guide (C).
15. At front of hitch, loosen nut (D) on hose clamp (E) until hose (A) can be positioned in clamp.
16. Tighten nut (D).

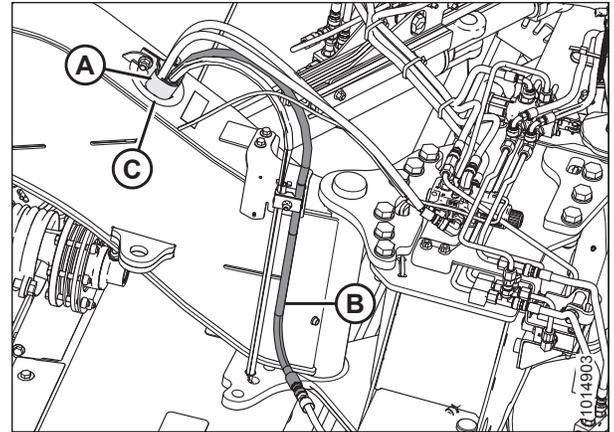


Figure 4.64: Lift Hoses

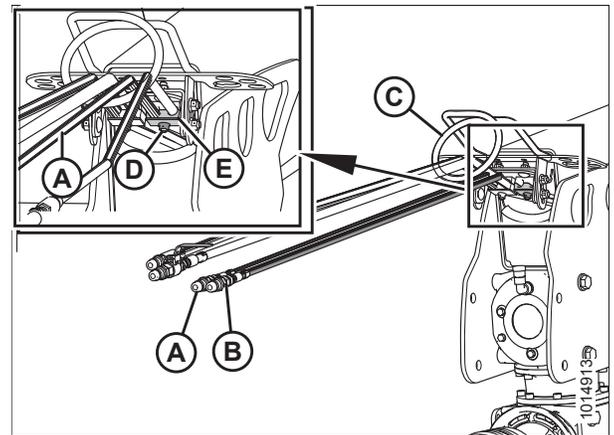


Figure 4.65: Lift Hoses

17. Retrieve ORB-8 coupler (A) and plastic cap (B) from the hardware bag.
18. At forward end of hitch, install coupling (A) and plastic cap (B) onto secondary lift hose (C). Do **NOT** attach hoses to tractor at this time.

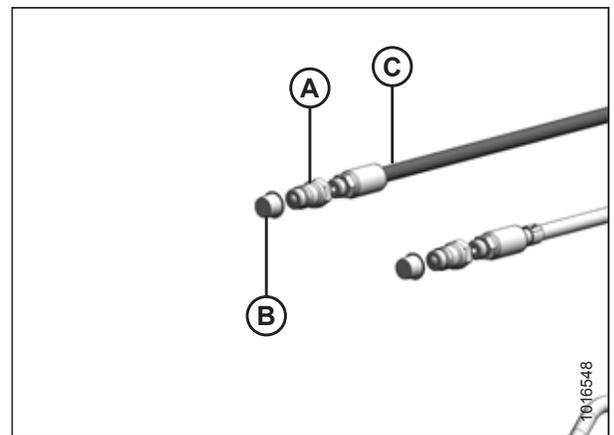


Figure 4.66: Lift Hose Fittings

ASSEMBLING THE DISC MOWER (FACTORY-INSTALLED TRANSPORT)

19. At rear of hitch, secure the hoses with adjustable strap (A).

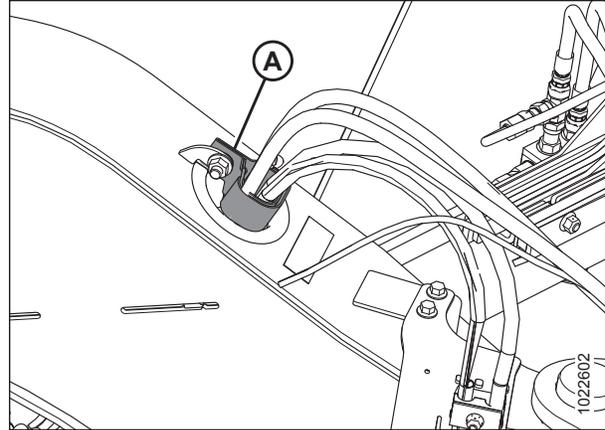


Figure 4.67: Lift Hoses

20. Connect hose (A) from left lift cylinder and hose (B) (MD #224160 or MD #224162) at the hitch pivot.

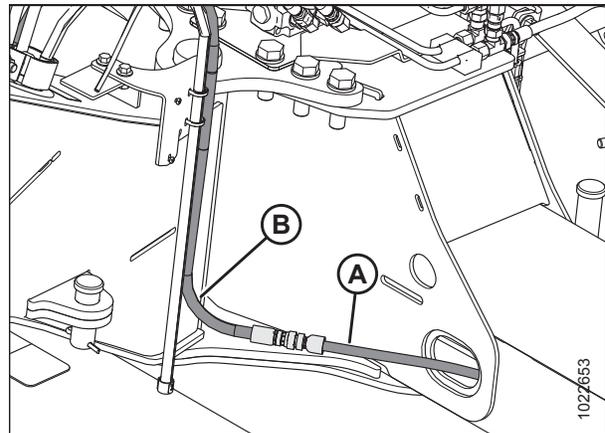


Figure 4.68: Lift Hoses

4.8.4 Installing Electrical Components

Connecting Selector Valve and Transport Lighting Module

1. Locate plugs P102 (A) and P502 (B) on the transport harness at the header end of the hitch. Route plugs P102 (A) and P502 (B) towards selector valve (C).
2. Connect plug P502 (B) to the receptacle on selector valve (C).
3. Connect plug P102 (A) to the upper input receptacle on transport lighting module (D).

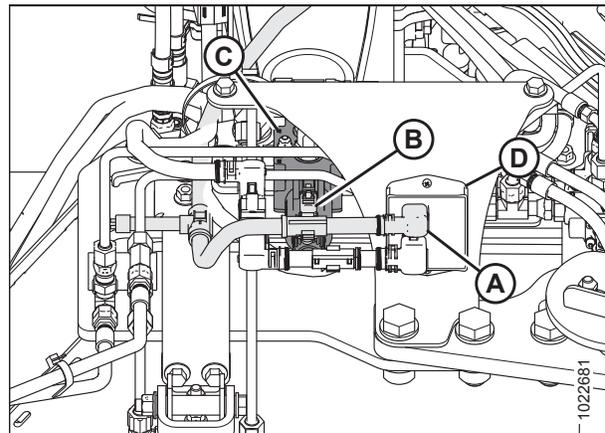


Figure 4.69: Selector Valve Supply

ASSEMBLING THE DISC MOWER (FACTORY-INSTALLED TRANSPORT)

Installing Light Assembly

1. Locate right side light assembly (A).

NOTE:

When the mower is in field position, the right light assembly is located on the left, rear side of the mower. When the machine is being towed, it will be on the right side.

2. Loosen bolt (C). Rotate the light assembly (A) up to position shown at right.
3. Install bolt (B).

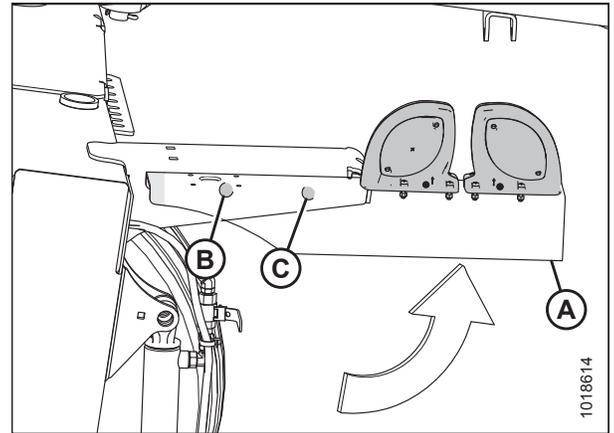


Figure 4.70: Left, Rear End of Mower

Connecting Transport Lighting Module

1. Connect harness (A) to transport lighting module (B).

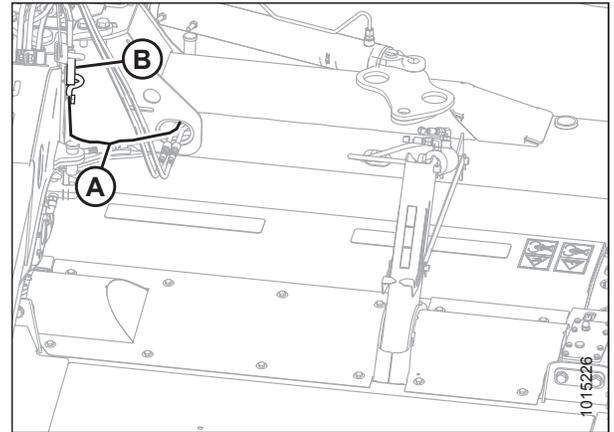


Figure 4.71: Transport Lighting Module

Installing Remote Control

1. Retrieve remote control (A) with wiring harness.
2. Place remote control (A) on hitch temporarily.

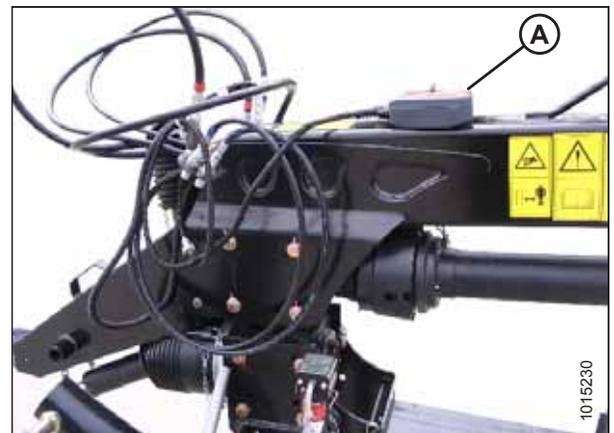


Figure 4.72: Remote Control on Top of Hitch

ASSEMBLING THE DISC MOWER (FACTORY-INSTALLED TRANSPORT)

3. Locate connector (C) that branches off the seven-pole transport plug (A) and attach it to the remote wiring harness (B).

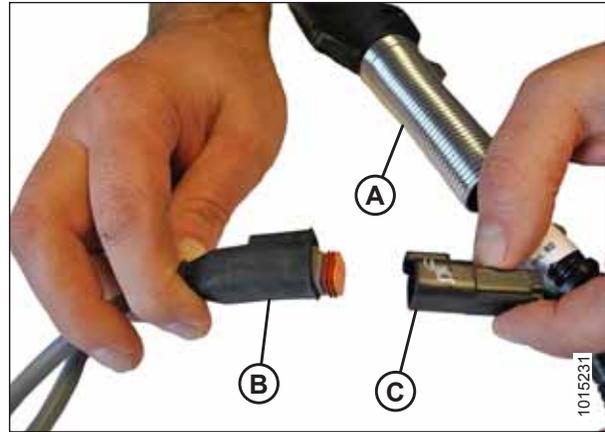


Figure 4.73: Transport Harness

4. **If your tractor has a three-pin auxiliary power connection:**

NOTE:

The remote control has internal protection which prevents damage caused by incorrect wiring, short circuits, or overload conditions.

Connect two wires (B) from the three-pin auxiliary connector (A) to the remote control wires (C) on the remote control, wrap connections with electrical tape, and proceed to Step 6, page 87.

- The wire with no tag connects to the tractor ground.
- The wire with the red tag connects to the tractor power.

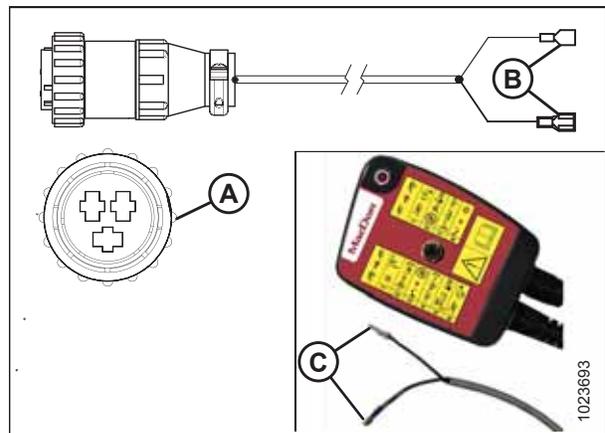


Figure 4.74: Three-Pin Auxiliary Connector

NOTE:

If connections are reversed, the lamp will not illuminate when the toggle switch is in field mode. Try the following to correct the issue:

- Check internal fuse may have blown.
- Check for short in wires to solenoid valve on header.
- Check for incorrect wire connections (reversed) at the power supply or solenoid valve.

ASSEMBLING THE DISC MOWER (FACTORY-INSTALLED TRANSPORT)

If your tractor does NOT have a three-pin auxiliary power connection:

NOTE:

The remote control has internal protection which prevents damage caused by incorrect wiring, short circuits, or overload conditions.

5. Connect remote control wires (A) to the tractor's power supply:
 - Connect wire (B) with no tag to tractor ground.
 - Connect wire (C) with the red tag to tractor power.

NOTE:

If the red tag is missing, identify the power by locating the wire with the number 1 printed on it. The ground wire has a number 2 printed on it.

NOTE:

If connections are reversed, the lamp will not illuminate when the toggle switch is in field mode. Try the following to correct the issue:

- Check internal fuse may have blown.
- Check for short in wires to solenoid valve on header.
- Check for incorrect wire connections (reversed) at the power supply or solenoid valve.

6. Place the remote control inside the tractor cab.

4.8.5 Installing Cover

1. Install cover (A) onto the cover support.
2. Install bolts (B). Torque to 55–65 Nm (41–48 lbf·ft).

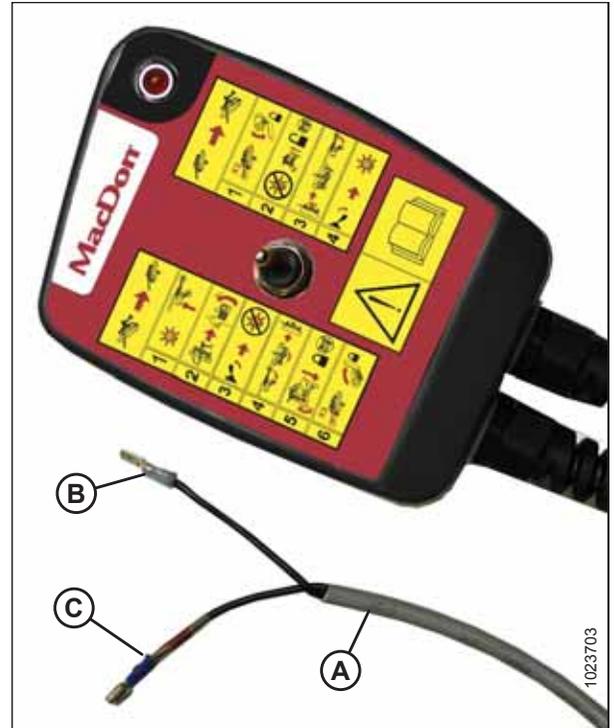


Figure 4.75: Remote Control

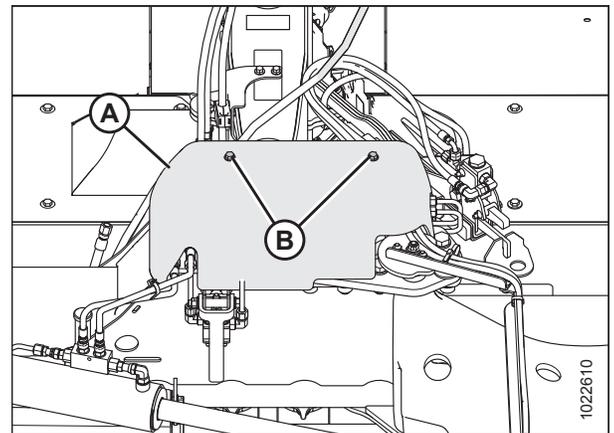


Figure 4.76: Cover

4.9 Installing Options

Install the following optional kits if they were supplied with your disc mower.

4.9.1 Installing Hydraulic Center-Link (Optional)

The hydraulic center-link option is supplied in a separate shipment. Refer to the installation instructions supplied with the kit.

4.9.2 Installing Tall Crop Divider (Optional)

The tall crop divider is supplied in a separate shipment. Refer to the installation instructions supplied with the kit.

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.

IMPORTANT:

If disc mower will be transported on public roads in the Road Friendly Transport™ mode, do not install the tall crop dividers. Install the dividers after the machine is delivered to the customer.

4.10 Installing Road Friendly Transport™ Wheels

1. Retrieve clevis pin (A) and cotter pin (B) from shipping bag and install onto hitch bracket at side of hitch.

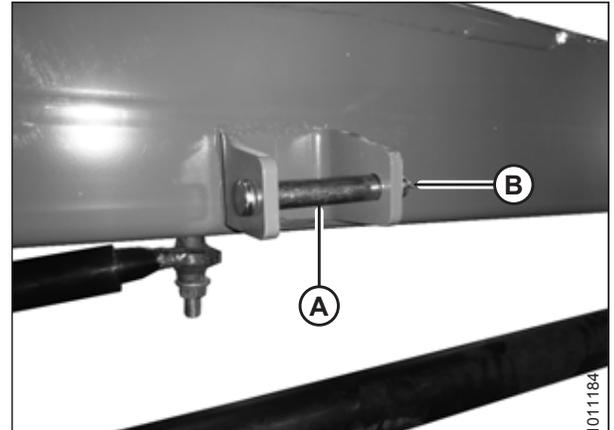


Figure 4.77: Latch Pin

2. Remove bolt (B) holding axle assembly (A) in place.
3. Slide axle assembly (A) out of the support.

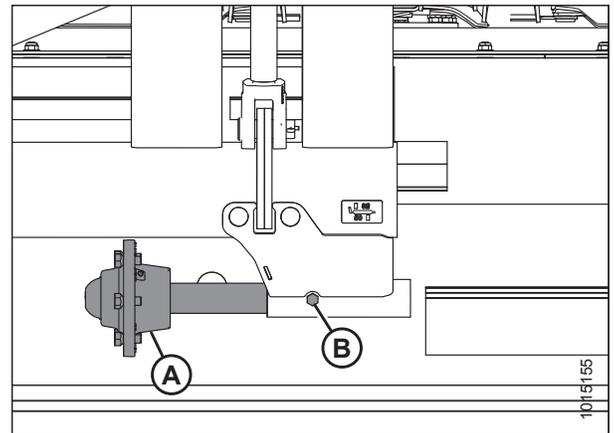


Figure 4.78: Axle Assembly Relocation

4. Install the axle assembly (A) into the opposite side of the support as shown.
5. Install bolt (B) and nut to secure it. Torque to 68 Nm (50 lbf-ft).
6. Remove wheel bolts from the hub (A).

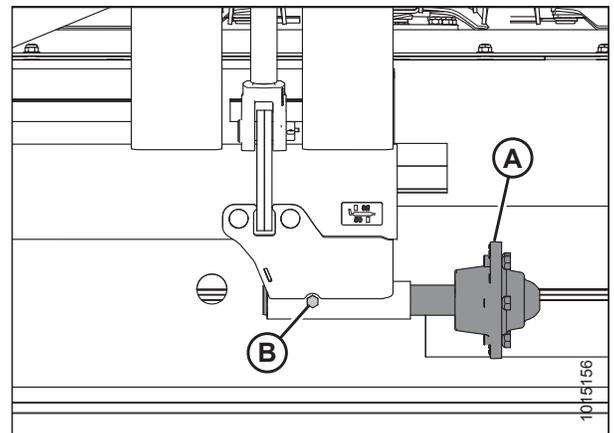


Figure 4.79: Axle Assembly Relocation

ASSEMBLING THE DISC MOWER (FACTORY-INSTALLED TRANSPORT)

7. In the cab, move transport switch to the upper position (B) and ensure that light (A) is **NOT** illuminated. The hitch swing circuit is now deactivated and the transport circuit is active.
8. Using tractor's hydraulics, raise the transport assembly high enough to install the wheels.

CAUTION

When installing wheel, be sure to match countersunk holes with bolt head profiles. Holes that are not countersunk do **NOT** correctly seat the bolts.



Figure 4.80: Transport Remote Control

9. Retrieve transport wheels and install wheels with wheel bolts. Ensure valve stem faces outboard. Do not fully tighten bolts.
10. Lower wheels to the ground.
11. Torque wheel bolts to 160 Nm (120 lbf-ft) following the tightening sequence shown.

NOTE:

Whenever a wheel is installed, check torque after one hour of operation.

12. Check tire pressure and adjust as required. Refer to [7.2 Checking Tire Pressure, page 128](#).

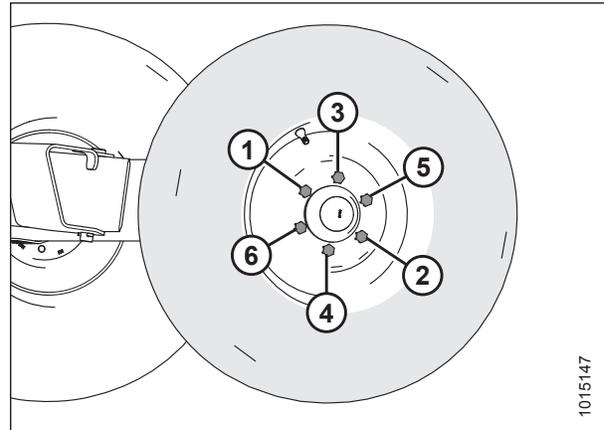


Figure 4.81: Tightening Sequence

Chapter 5: Setting up the Tractor

This section describes the tractor and drawbar adjustment requirements.

5.1 Adjusting the Drawbar

CAUTION

Shut off tractor, engage parking brake, and remove key before working around hitch.

1. Adjust tractor drawbar to meet the specifications listed in Table 5.1, page 91.
2. Secure the tractor drawbar so the hitch pinhole is directly below the driveline.

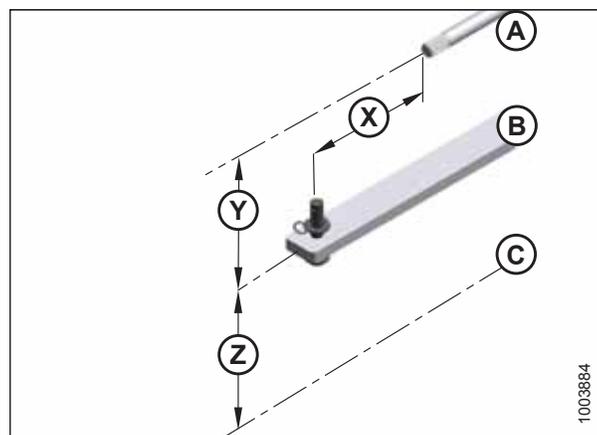


Figure 5.1: Tractor Drawbar Adjustments

A - PTO
 B - Tractor Drawbar
 C - Ground
 X - Dimension X
 Y - Dimension Y
 Z - Dimension Z

Table 5.1 SAE Standard A482 Specifications

Dimension	1000 rpm Power Take-Off	
	1-3/8 in. Diameter	1-3/4 in. Diameter
X	406 mm (16 in.)	508 mm (20 in.)
Y	200–350 mm (7-7/8–13-3/4 in.) 203 mm (8 in.) recommended	
Z	330–432 mm (13–17 in.) 406 mm (16 in.) recommended	

5.2 Installing Drawbar Hitch Adapter

IMPORTANT:

The hitch adapter is compatible with Class 2 and Class 3 hitches only. Class 4 hitches are too big. Do **NOT** attempt to modify a Class 4 hitch or hitch adapter to make them fit together.

CAUTION

Shut off tractor, engage parking brake, and remove key before working around hitch.

1. Remove hairpin (A) and pin (B).
2. If necessary, loosen four top jam nuts (C), and then loosen four lower nuts (D) so that hitch adapter (E) will slide onto tractor drawbar (F).
3. Align hole in adapter (E) with hole in drawbar (F) and install pin (B). Secure with hairpin (A).
4. Gradually tighten the four nuts (D) to 540 Nm (400 lbf-ft).

NOTE:

Ensure hardened washers and Class 10 nuts (supplied with adapter) are used.

5. Tighten four jam nuts (C).

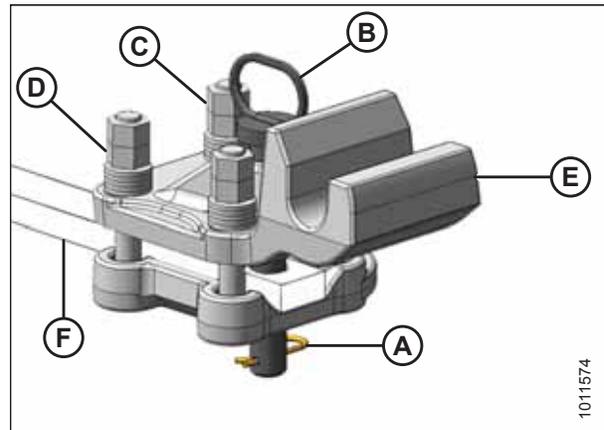


Figure 5.2: Drawbar Hitch Adapter

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5.3 Attaching Disc Mower to the Tractor

Refer to the attachment procedure that applies to your tractor:

- [5.3.1 Attaching with Drawbar Hitch, page 93](#)
- [5.3.2 Attaching with Two-Point Hitch, page 95](#)

5.3.1 Attaching with Drawbar Hitch

CAUTION

Shut off tractor, engage parking brake, and remove key before working around hitch.

1. Remove lynch pin (A) from clevis pin (B), and remove clevis pin from disc mower hitch.

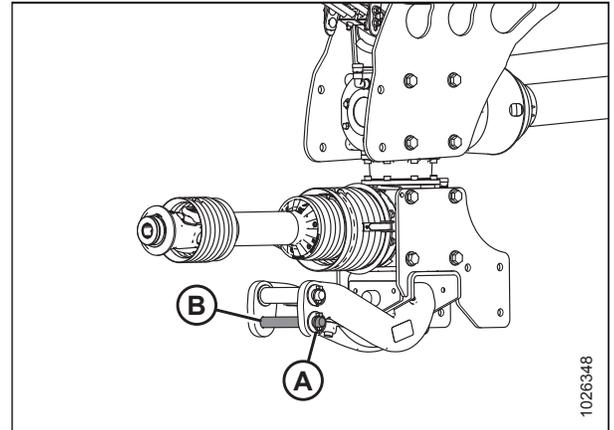


Figure 5.3: Disc Mower Hitch

2. Move tractor to position drawbar hitch adapter (A) under pin (B) in disc mower hitch. Adjust height as necessary with jack.
3. Shut down tractor and remove key from ignition.

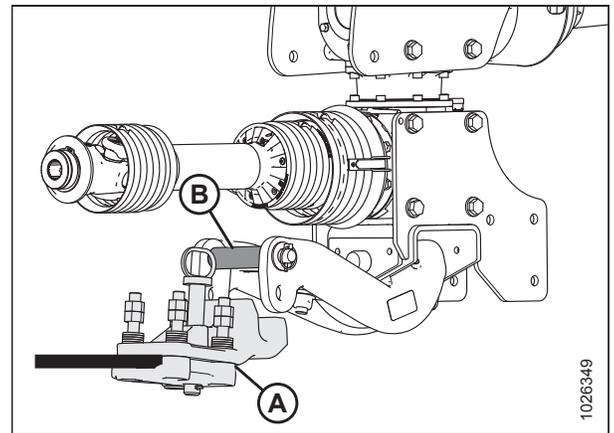


Figure 5.4: Disc Mower Hitch

SETTING UP THE TRACTOR

4. Lower hitch with the jack so that pin (A) engages drawbar hitch adapter (B).
5. Install clevis pin (C) and secure with lynch pin (D).

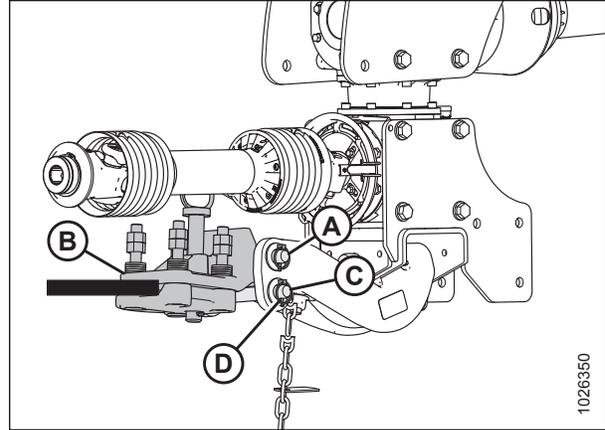


Figure 5.5: Disc Mower Hitch

6. Position primary driveline (A) onto tractor power take-off (PTO).
7. Pull back collar (B) on driveline (A), and push driveline until it locks. Release collar.
8. Route safety chain (C) from disc mower through chain support (D) on drawbar hitch adapter and around tractor drawbar support. Lock hook on chain.

IMPORTANT:

If the tractor has a three-point hitch, lift the links as far as possible to prevent damage to the hitch.

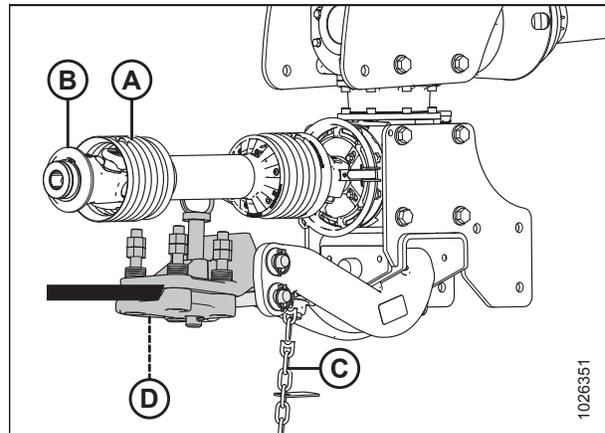


Figure 5.6: Primary Driveline

9. Raise jack (A), and remove pin (B).

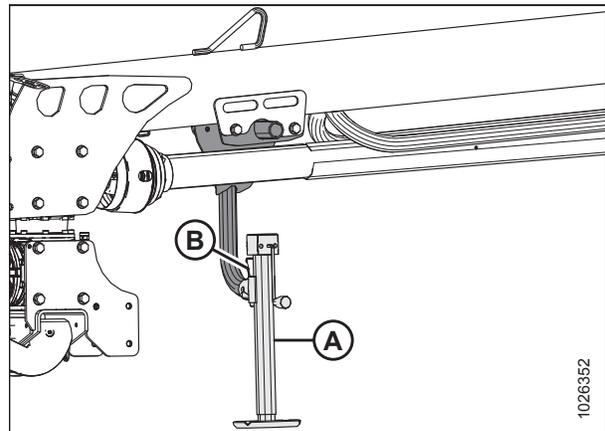


Figure 5.7: Hitch Jack

SETTING UP THE TRACTOR

10. Move jack (A) to storage position on top of hitch, and secure with pin (B).
11. Proceed to [5.3.3 Connecting Hydraulics, page 98](#).

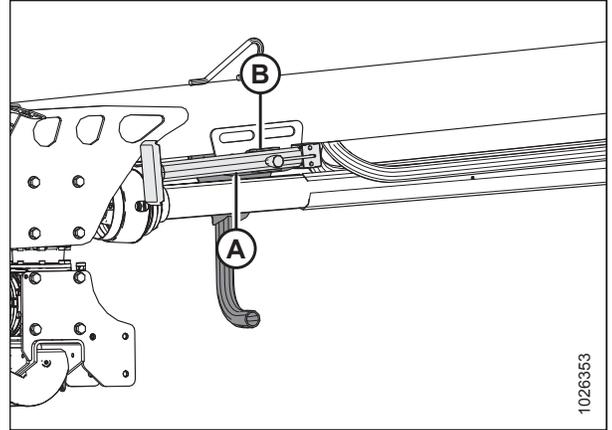


Figure 5.8: Jack Storage

5.3.2 Attaching with Two-Point Hitch

Follow these steps to attach category II, IIIN, and III two-point hitches:

CAUTION

Shut off tractor, engage parking brake, and remove key before working around hitch.

1. Position tractor and align tractor hitch arms (A) with hitch adapter (B).
2. Shut off tractor and remove key.
3. Remove lynch pins (C) and washers from hitch adapter.
4. Secure arms (A) onto adapter pins (D) with lynch pins (C).

NOTE:

If tractor is equipped with a category III hitch, use a bushing (MD #224322) on each hitch pin (D).

NOTE:

If using a category III hitch, a longer driveshaft may be required.

5. Install anti-sway bars (not shown) on tractor hitch to stabilize lateral movement of hitch arms (A). Refer to your tractor operator's manual.

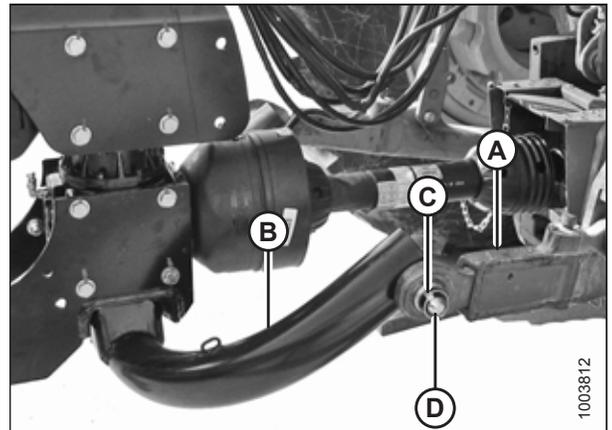


Figure 5.9: Two-Point Hitch Configuration

SETTING UP THE TRACTOR

6. Check distance (C) between tractor primary power take-off (PTO) shaft (A) and disc mower hitch gearbox shaft (B) (without the front half of the driveline attached).
7. Ensure that distance measurement (C) does **NOT** exceed the dimensions listed in Table 5.2, page 96.

Table 5.2 Distance between Hitch Gearbox and Tractor PTO

Driveline Shaft Size	Distance (C) ¹
34 mm (1-3/8 in.)	650 mm (25-9/16 in.)
43 mm (1-3/4 in.)	750 mm (29-1/2 in.)

8. Position primary driveline (A) onto tractor PTO shaft, making sure that driveline is approximately level.
9. Pull back collar on driveline (A) and push driveline until it locks. Release collar.

10. Clear bystanders from the area and start tractor. Do **NOT** operate the disc mower.
11. Start tractor and raise hitch so that stand (A) is off the ground. Shut down tractor and remove key from ignition.
12. Remove inner hairpin (B) and pull lock (C) to release stand.

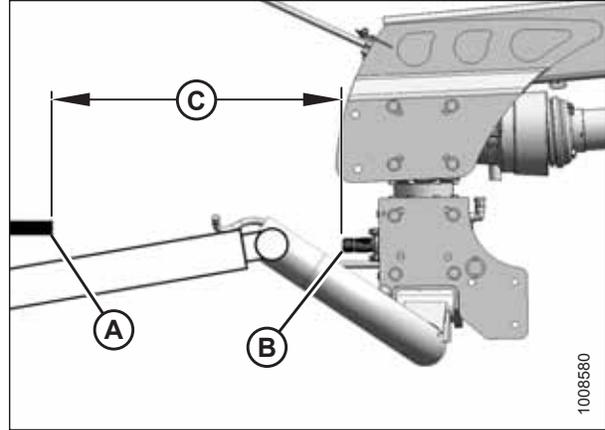


Figure 5.10: Allowable Driveline Length

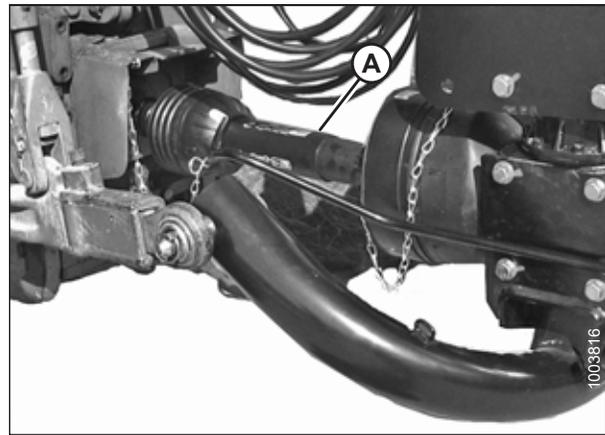


Figure 5.11: Disc Mower Driveline Attached to Tractor PTO

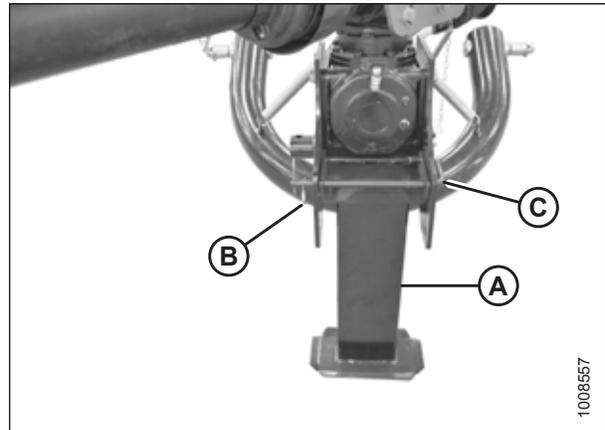


Figure 5.12: Hitch Stand

1. If distance (C) is greater than the values shown, a longer driveline is required. Refer to the disc mower operator's manual, options and attachments section for ordering information.

SETTING UP THE TRACTOR

13. Raise stand (A), rotate lock (B) clockwise to vertical position, and re-engage lock (B) to hold the stand in the storage location.

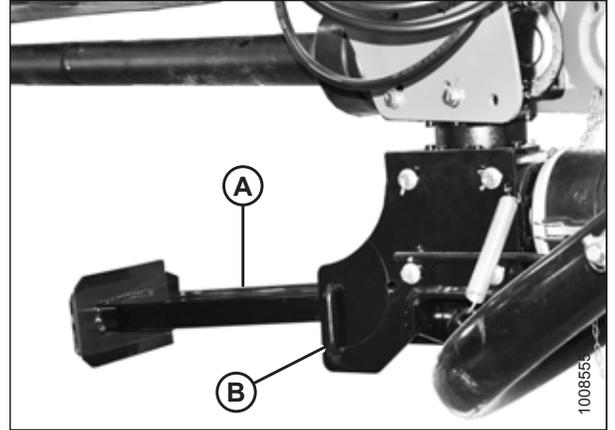


Figure 5.13: Hitch Stand

14. Secure lock with lynch pin (A).

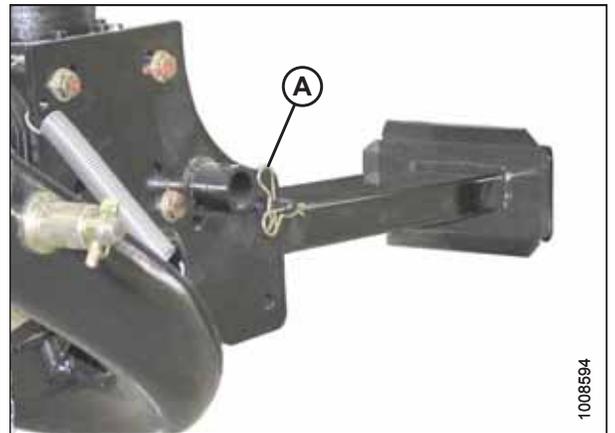


Figure 5.14: Hitch Stand

SETTING UP THE TRACTOR

5.3.3 Connecting Hydraulics

⚠ WARNING

Do NOT use remote hydraulic system pressures over 20,684 kPa (3000 psi). Check your tractor operator's manual for remote system pressure.

NOTE:

Refer to numbered/colored bands on hoses to identify lift, swing/transport, and tilt hose sets.

Table 5.3 Hydraulic System Hoses

System	Hose Identification	Tractor Hydraulics
Lift (A)	Red #1 - pressure Blue #1 - return (only with Road Friendly Transport™ installed)	Control 1
Swing/ Transport (B)	Red #2 - pressure Blue #2 - return	Control 2
Tilt (C) ²	Red #3 - pressure Blue #3 - return	Control 3

1. Connect the lift cylinder hose (red collar with #1) to the tractor's hydraulic receptacle. The second hose (blue collar with #1) is required only when the Road Friendly Transport™ is installed. Refer to Table 5.4, page 98 to confirm system is functioning correctly.
2. Connect the two hitch swing cylinder hoses (collars with #2) to the tractor hydraulic receptacles. Refer to Table 5.5, page 98 to confirm system is functioning correctly.
3. For machines with hydraulic center-link only, connect the two disc mower tilt cylinder hoses (collars with #3) to the tractor hydraulic receptacles. Refer to Table 5.6, page 98 to confirm system is functioning correctly.

2. Available with hydraulic tilt option installed.

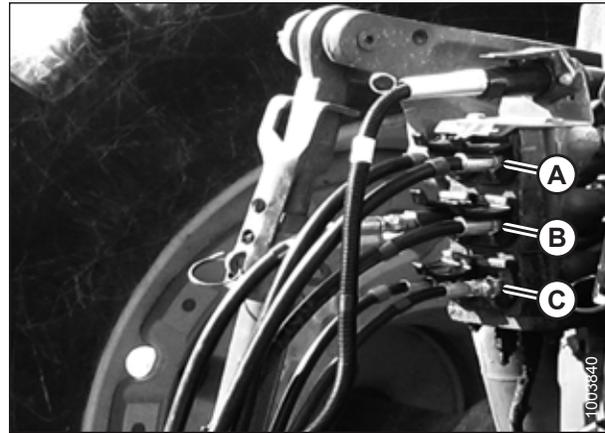


Figure 5.15: Hydraulic Connections

Table 5.4 Lift System

Control Lever Position	Cylinder Movement	Disc Mower Movement
Forward	Retract	Lower
Backward	Extend	Raise

Table 5.5 Hitch Swing and Transport System

Control Lever Position	Cylinder Movement	Disc Mower Direction
Forward	Extend	Right
Backward	Retract	Left

Table 5.6 Disc Mower Tilt System

Control Lever Position	Cylinder Movement	Disc Mower Movement
Forward	Retract	Lower
Backward	Extend	Raise

5.3.4 Connecting Electrical Wiring Harness

1. Ensure that pin #4 (A) in the tractor receptacle is **NOT** continuously energized (refer to your tractor operator's manual). If necessary, remove the appropriate fuse.

IMPORTANT:

Older model tractors may have pin #4 (A) energized as an accessory circuit; however, pin position (B) is used to supply power to the disc mower brake lights.

2. Connect the disc mower wiring harness connector (C) to the tractor receptacle.

NOTE:

The connector is designed to fit tractors equipped with a round seven-pin receptacle (SAE J560).

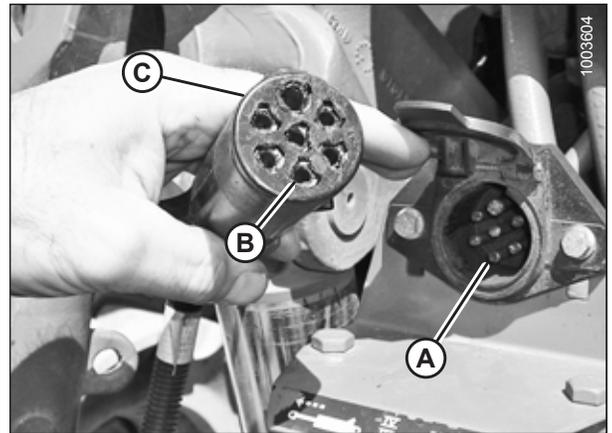


Figure 5.16: Electrical Wiring Harness and Receptacle

5.4 Installing Field Wheels

1. Remove shipping strap (B) from wheel spindle (A).
Repeat on opposite side.

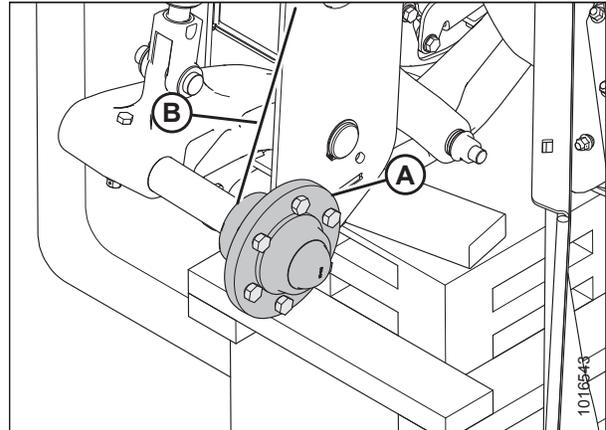


Figure 5.17: Wheel Spindle

2. Remove wheel bolts (A) from spindle (B).

CAUTION

When installing wheel, be sure to match countersunk holes with bolt head profiles. Holes that are not countersunk do NOT correctly seat the bolts.

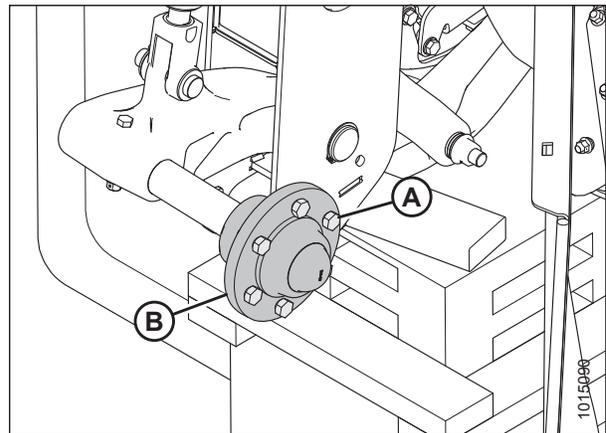


Figure 5.18: Wheel Spindle

3. Position wheel (A) on the spindle, install bolts (B), and partially tighten.

IMPORTANT:

Be sure valve stem (C) points away from the wheel support.

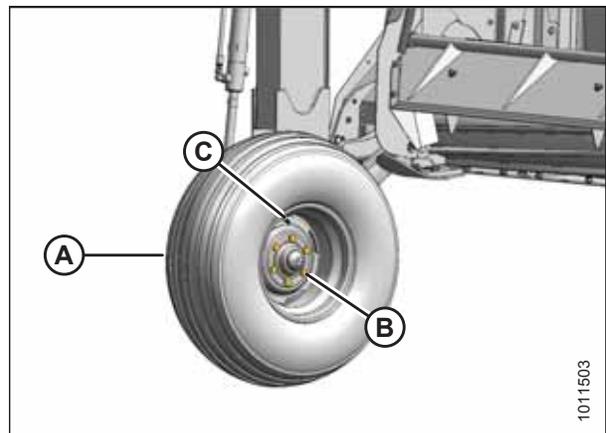


Figure 5.19: Installing Wheel Bolts

SETTING UP THE TRACTOR

4. Lower wheels to the ground and torque wheel bolts to 160 Nm (120 lbf·ft) using the tightening sequence shown at right.

IMPORTANT:

Whenever a wheel is installed, check torque after one hour of operation.

5. Check tire pressure and adjust as required. Refer to [7.2 Checking Tire Pressure, page 128](#).

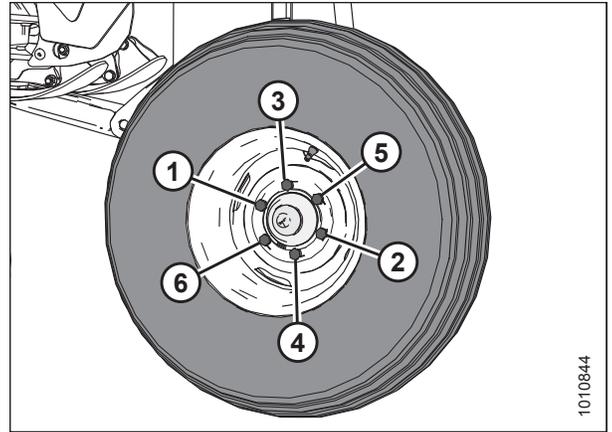


Figure 5.20: Tightening Sequence

5.5 Priming the Hitch Swing Cylinder

NOTE:

The hitch swing cylinder must be primed before it is connected to the rear arm link.

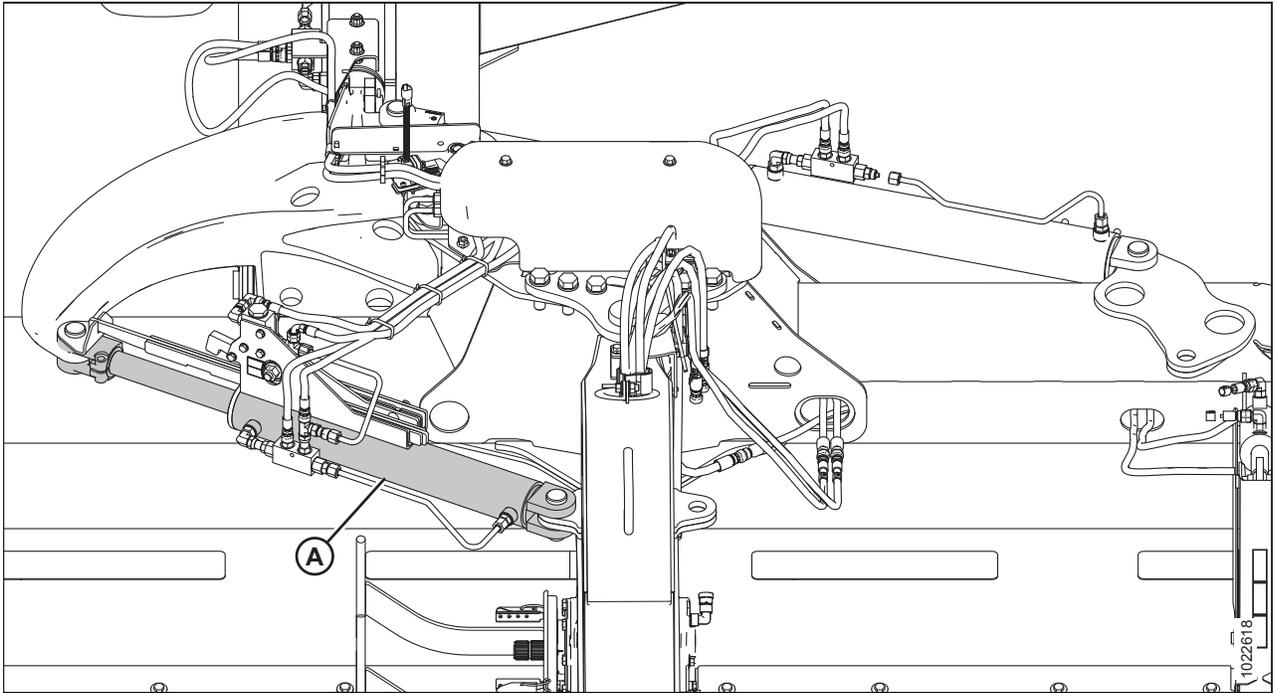
1. Move the transport switch on the remote control to the lower position (B) and ensure that light (A) is illuminated. The hitch swing circuit will now be active.



Figure 5.21: Remote Control

SETTING UP THE TRACTOR

Figure 5.22: Hydraulic System



NOTE:

Ensure there is no contact with the rear link arm when the hitch swing cylinder extends.

2. With the cylinder disconnected from the rear arm link, using the tractor's hydraulics, extend and retract swing cylinder (A) several times to purge any air in the cylinder.
3. Align the clevis pinholes in the cylinder clevis (B), cam arm (C), and rear link arm (A). Install clevis pin (D) and secure with cotter pin (E).

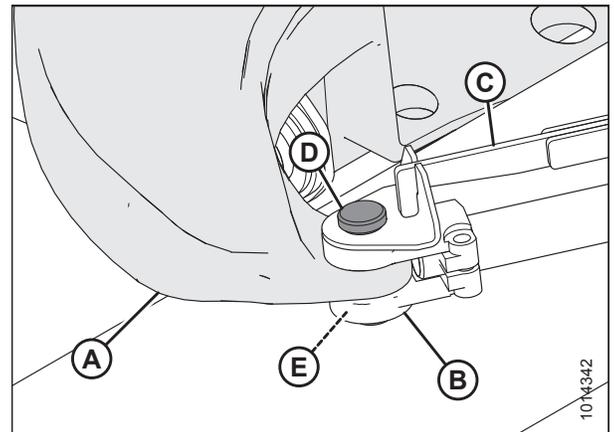


Figure 5.23: Rear Arm Link

SETTING UP THE TRACTOR

5.6 Setting up Forming Shields

Each type of conditioner uses a different configuration for the swath forming shield. Refer to the applicable instruction for the conditioner supplied with the machine.

If a finger conditioner is installed, continue to [5.6.1 Setting up Forming Shields for Finger Conditioner, page 104](#).

If a roll conditioner is installed, continue to [5.6.2 Setting up Forming Shields for Roll Conditioner, page 109](#).

If no conditioner is installed, continue to [5.8 Discharge Shield \(No Conditioner\), page 112](#).

5.6.1 Setting up Forming Shields for Finger Conditioner

NOTE:

Transport not shown in illustrations for clarity.

1. Before setting up the forming shields, convert the header to field mode. Refer to [8.6.2 Converting from Transport to Field Mode \(With Road Friendly Transport™\)](#), page 166.
2. Remove shipping wires (A) securing forming shield covers (B) to pallet.
3. Support shield (C), remove two bolts at locations (A) and (B), and remove the shield.

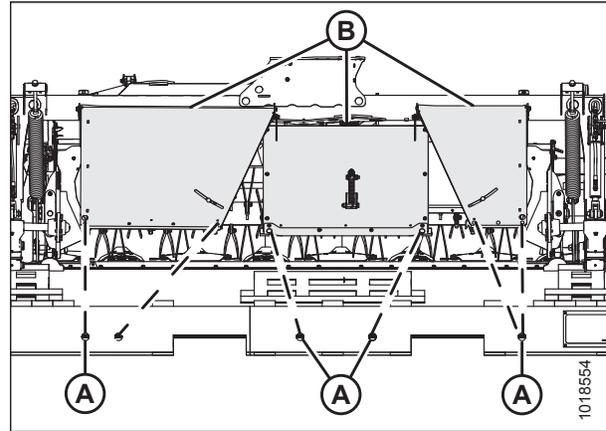


Figure 5.24: Forming Shields Strapped to Pallet

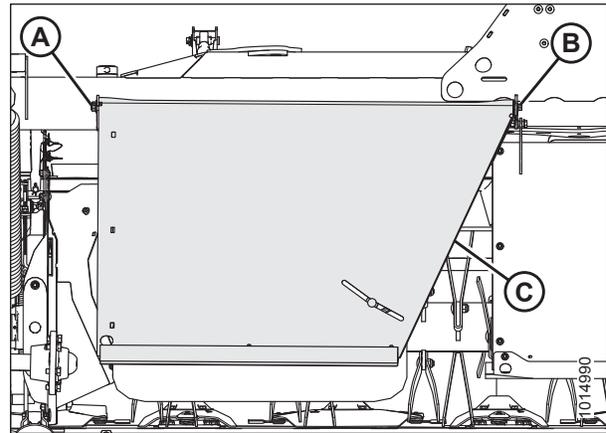


Figure 5.25: Outboard Top Cover

SETTING UP THE TRACTOR

- Support shield (C), remove the two bolts at locations (A) and (B), and remove the shield.

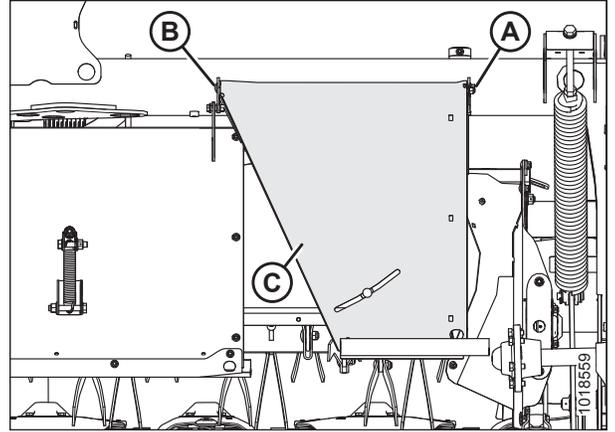


Figure 5.26: Outboard Top Cover

- Remove nuts (A) from center shield (B). Do not remove the bolts.

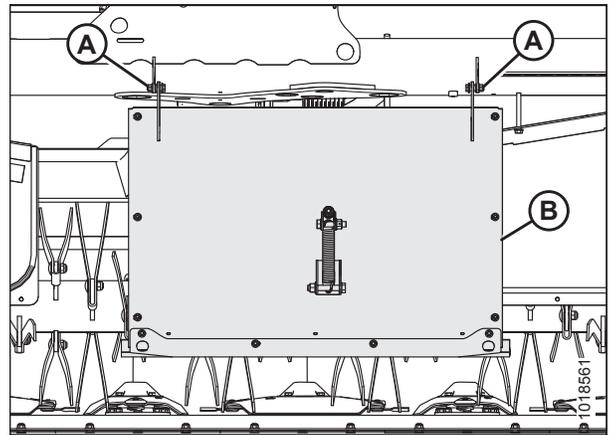


Figure 5.27: Center Shield

- Flip right forming shield over so the adjustment handle is facing up and install it as follows:

NOTE:

If installing the Road Friendly Transport™ system, install shield (A) after transport assembly is in place.

- Position shield (A) onto hex head bolt (B). Loosely install nut to hold shield in place.
- Install carriage bolts (C) with heads facing towards center of shield. Install nuts and tighten.
- Repeat for the left side forming shield.

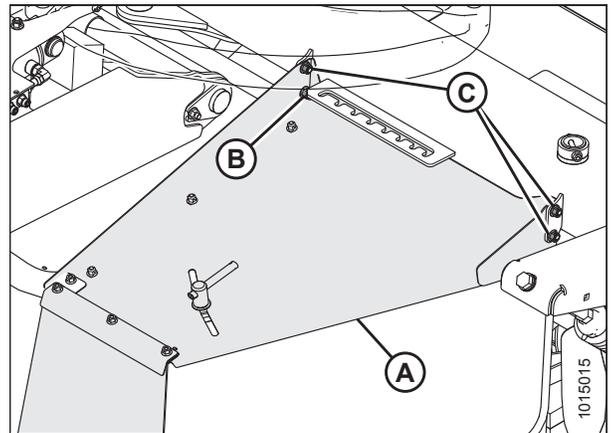


Figure 5.28: Forming Shield (Right Side)

SETTING UP THE TRACTOR

IMPORTANT:

For disc mowers without the Road Friendly Transport™ system, proceed to Step 9, page 106.

7. Remove nut, bolt, and washer (A) securing the spring assembly (B) onto the center shield. Retain nut, bolt, and washer for attaching to transport.

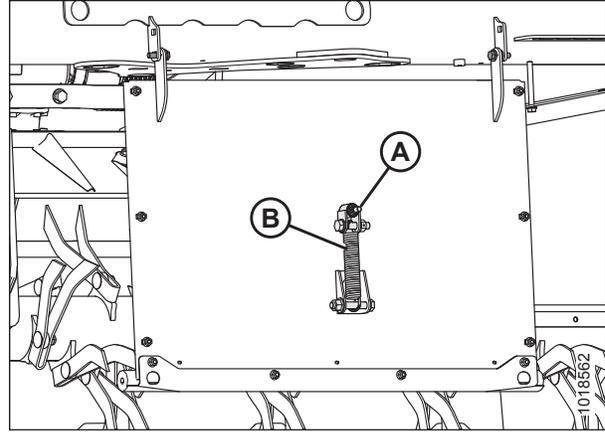


Figure 5.29: Spring on Center Shield

8. Lift center shield and attach spring assembly (A) to link bracket (B) on transport with existing bolt, nut, and washer (C) removed in Step 7, page 106.

IMPORTANT:

Do **NOT** bolt center shield to the left and right shields. If the hardware to attach the center shield to side shields is installed, remove it and discard.

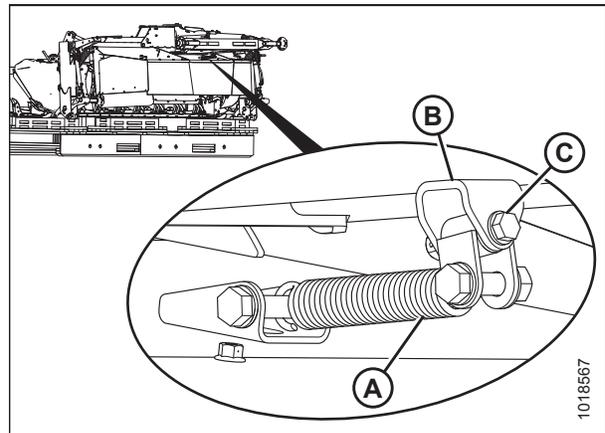


Figure 5.30: Spring Attached to Transport

IMPORTANT:

Only perform this step if **NOT** installing the Road Friendly Transport™ system.

9. Lift center shield (A) and install six M10 x 20 carriage bolts and lock nuts (B) (three per side) to secure center shield (A) to the outboard shields (C). Tighten bolts.

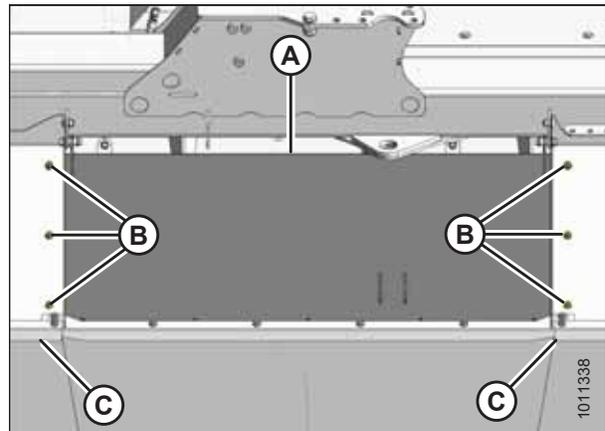


Figure 5.31: Center Cover Assembly

SETTING UP THE TRACTOR

10. Remove and discard bolt (A) securing deflector (B) to frame.

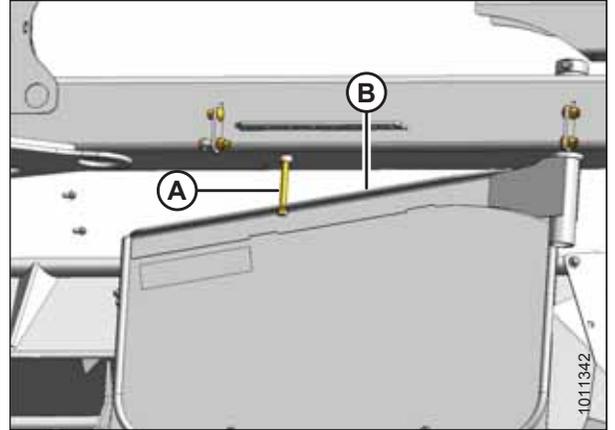


Figure 5.32: Side Deflector Assembly

11. Remove handle (A), washers, and bolt from shield (B).
12. Swing deflector (C) under outboard shield (B) so that handle can be installed into deflector and shield.

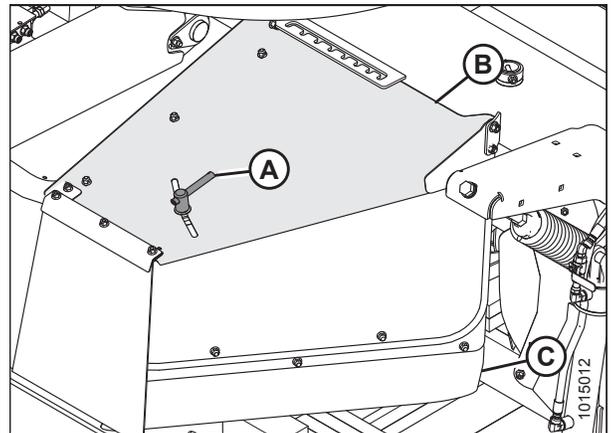


Figure 5.33: Side Deflector Assembly

13. Install carriage bolt (A), washer (B), spring washer (C), and handle (D) as shown.
14. Position deflector so handle (D) is approximately centered in slot, and tighten handle.

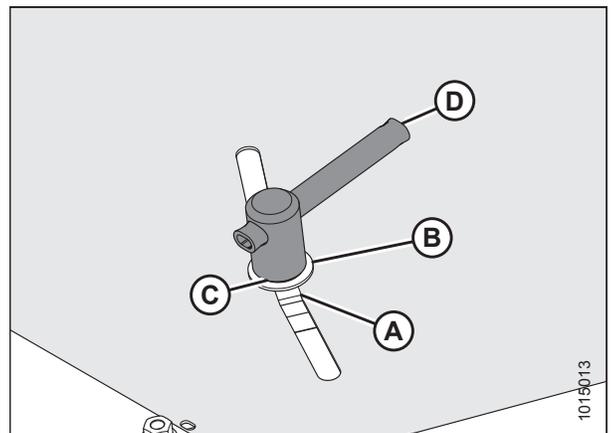


Figure 5.34: Deflector Adjustment

SETTING UP THE TRACTOR

15. Remove two M10 carriage bolts (B) securing left deflector (A) in shipping position. Repeat for opposite deflector.

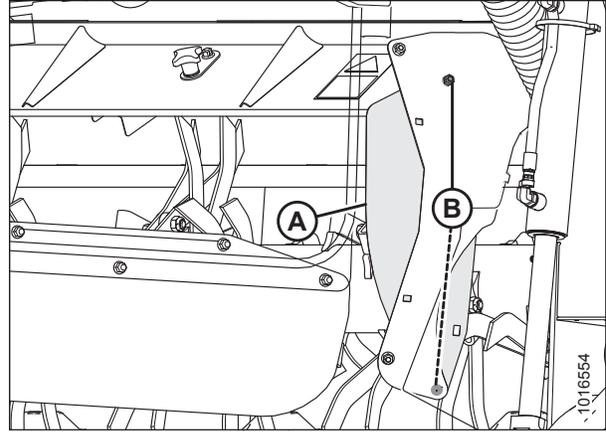


Figure 5.35: Right Side Deflector Shield Shown – Left Side Deflector Shield Opposite

16. Reposition deflector (A) so that holes align with the fixed shield, and secure with four M10 carriage bolts (B) and hex head flange nuts.

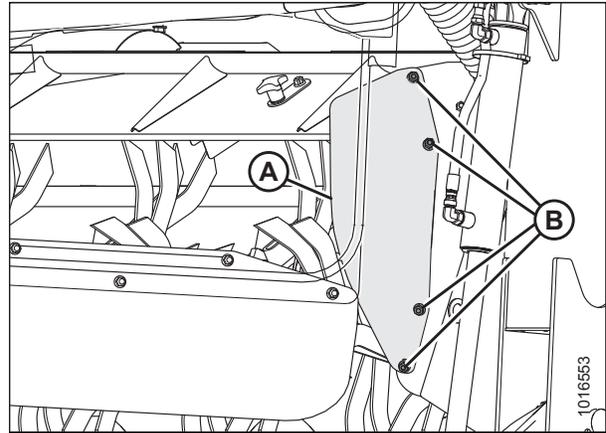


Figure 5.36: Right Side Deflector Shield Shown – Left Side Deflector Shield Opposite

17. Remove shipping wires (A) securing curtains (B) to covers (C) and allow curtains to unfold before operating machine.

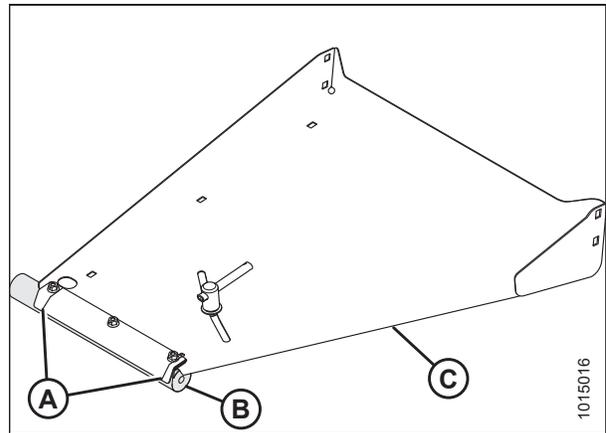


Figure 5.37: Forming Shield Curtain

SETTING UP THE TRACTOR

5.6.2 Setting up Forming Shields for Roll Conditioner

Use these instructions to set up the forming shields on a machine with a roll conditioner.

1. Remove and discard bolt (A) securing forming shield (B) to frame.
2. Swivel shield (B) to the open position.

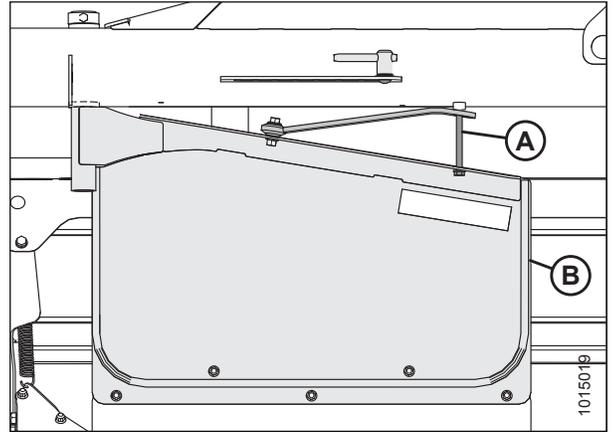


Figure 5.38: Left Side Forming Shield

3. Rotate clamp (B) until you can remove bolt (C).
4. Swing adjuster bar (A) and align with a hole on carrier plate (D).
5. Install bolt through adjuster bar (A) and carrier plate (D). Install clamp (B) onto bolt. Tighten clamp until shield does not move.
6. Repeat above steps for opposite shield.

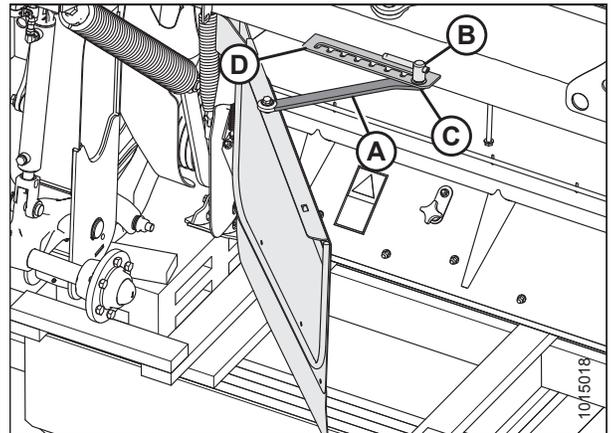


Figure 5.39: Adjuster Bar

SETTING UP THE TRACTOR

5.7 Unpacking Curtains

1. Remove two M10 hex head bolts (A) and center lock flange nuts securing cutterbar door supports to center channel frame.

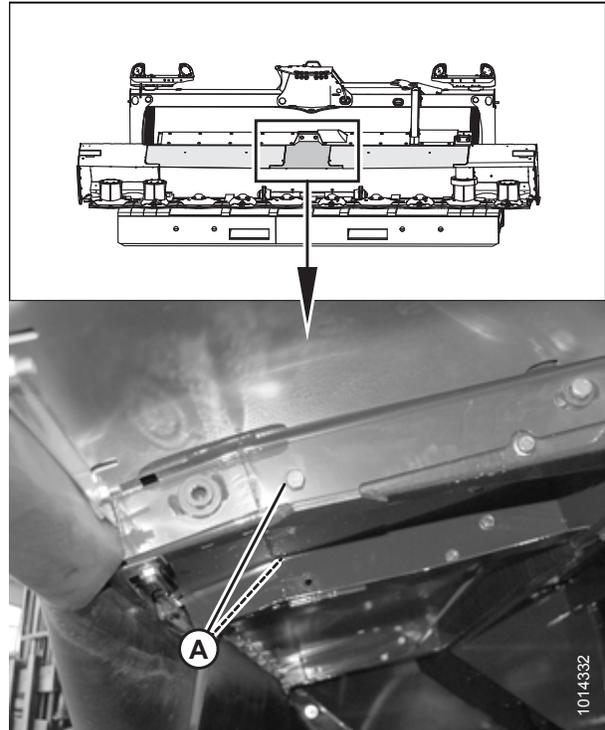


Figure 5.40: Underside of Cutterbar Doors

2. Remove shipping wire (A) from cutterbar door curtains and forming shield covers, and pull down.

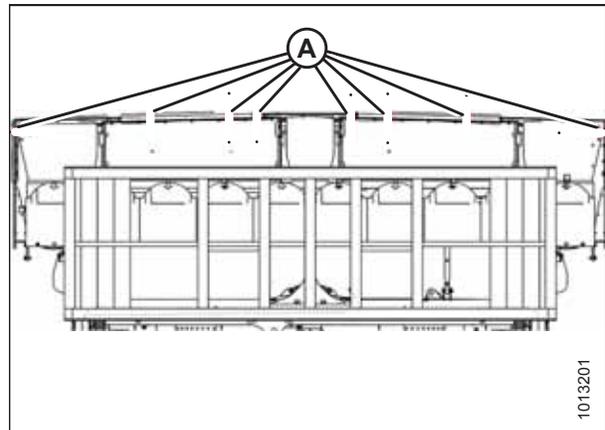


Figure 5.41: Underside of Disc Mower

SETTING UP THE TRACTOR

3. Straighten cutterbar door curtains (A) and remove folds or creases (minor creases will eventually straighten out).

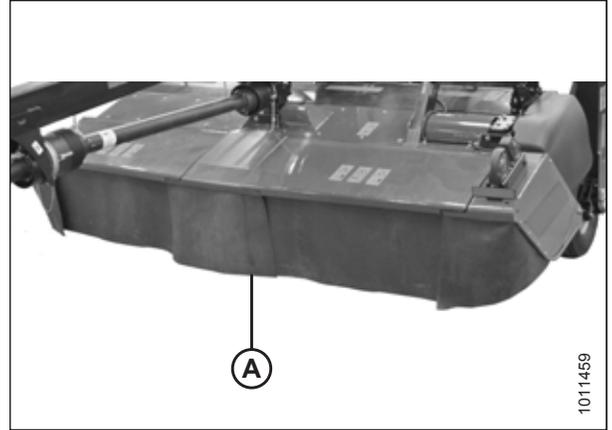


Figure 5.42: Cutterbar Door Curtains

4. If forming shields are installed, straighten forming shield curtains (B) and remove folds or creases (minor creases will eventually straighten out).

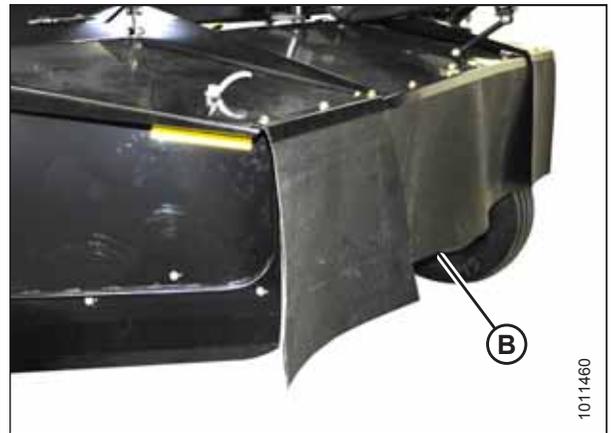


Figure 5.43: Forming Shield Curtains

5. Ensure cutterbar door curtains and forming shield covers hang properly and completely enclose cutterbar area.

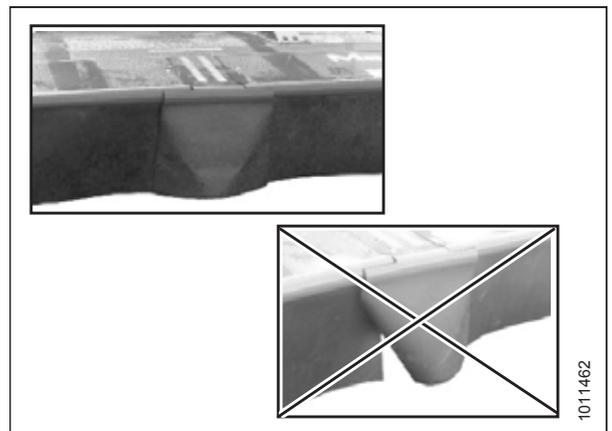


Figure 5.44: Cutterbar Door Curtains

5.8 Discharge Shield (No Conditioner)

- If a conditioner is being installed, the discharge shield needs to be removed. Refer to [5.8.1 Removing Discharge Shield \(No Conditioner\)](#), page 112.
- If a conditioner is being removed, the discharge shield needs to be installed. Refer to [5.8.2 Installing Discharge Shield \(No Conditioner\)](#), page 114.

5.8.1 Removing Discharge Shield (No Conditioner)

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

1. Raise the mower fully and extend the center-link to maximize the space between shield (A) and carrier frame (B).
2. Close lift cylinder lock-out valves (A) on both sides of the mower. Valve handles should be in the closed position (90 degree angle to the hose).

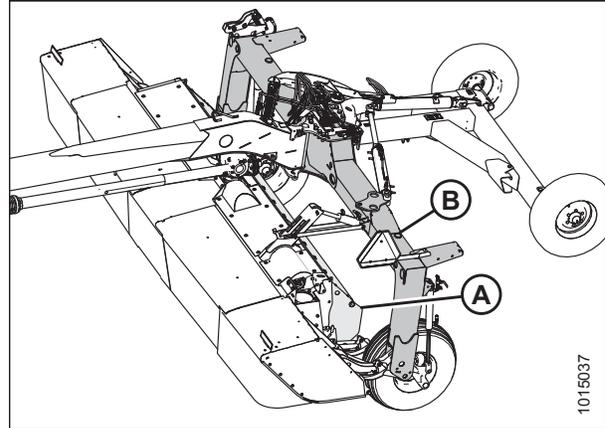


Figure 5.45: Mower with Transport

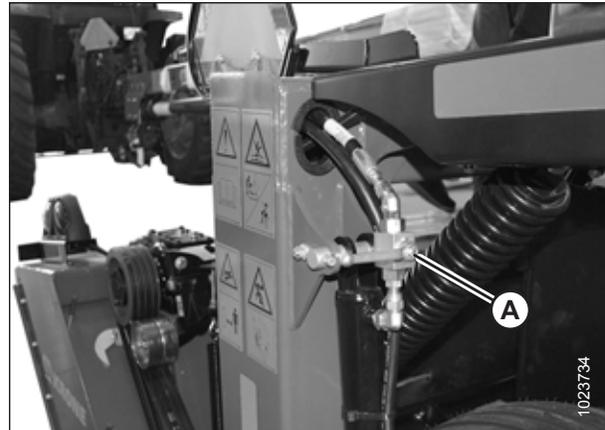


Figure 5.46: Lift Cylinder Lock-Out Valves

SETTING UP THE TRACTOR

3. Remove four M16 hex head bolts (A), nuts, and flat washers securing shield (B) to panel on mower (C).

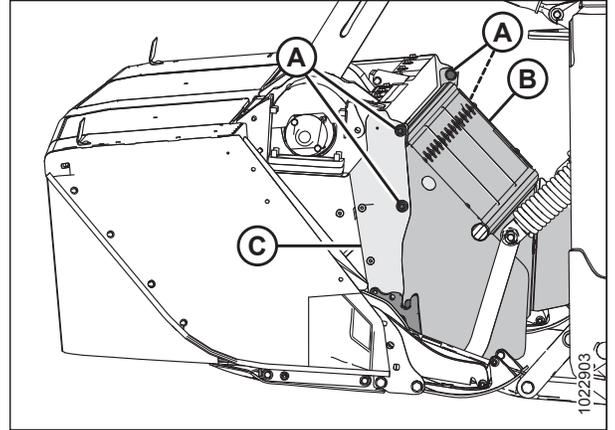


Figure 5.47: Header Side View

4. Lift the shield (A) until pins (B) disengage from slots in support (C) and shield on panel (D).

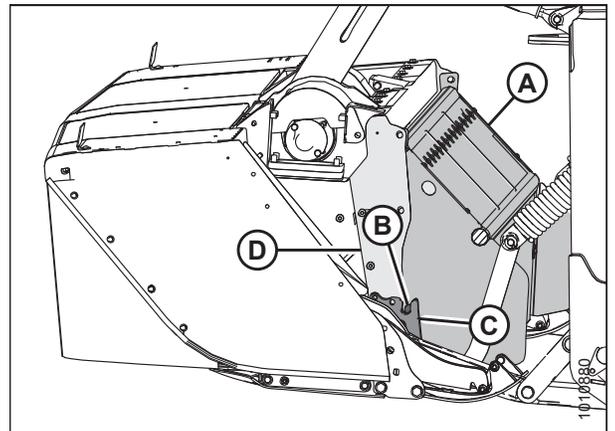


Figure 5.48: Header Side View

5. Rotate shield (A) 90 degrees and move it away from the carrier frame.

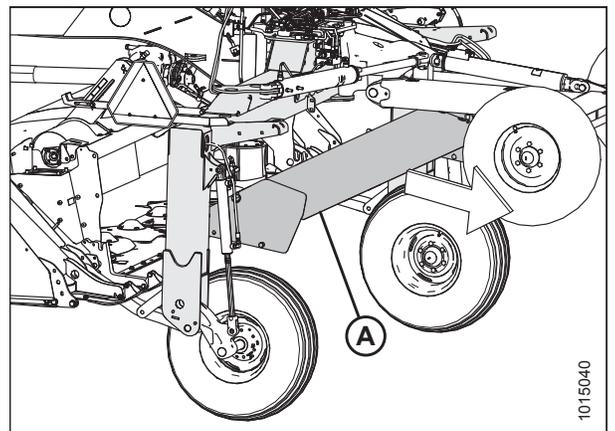


Figure 5.49: Shield Rotated

SETTING UP THE TRACTOR

5.8.2 Installing Discharge Shield (No Conditioner)

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

1. Raise the mower fully and extend the center-link to maximize the space between field wheels (A) and carrier frame (B).

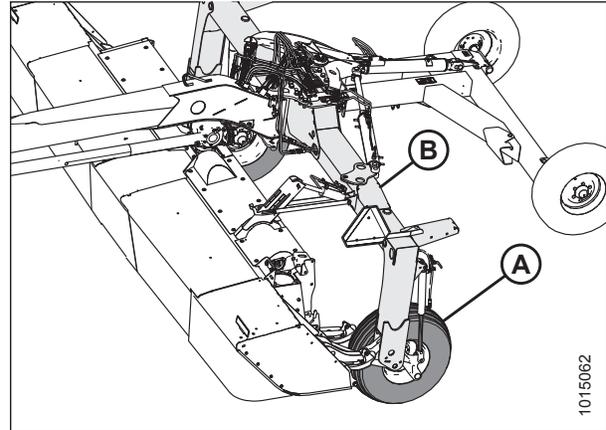


Figure 5.50: Disc Mower with Transport

2. Close lift cylinder lock-out valves (A) on both sides of the mower. Valve handles should be in the closed position (90 degree angle to the hose).

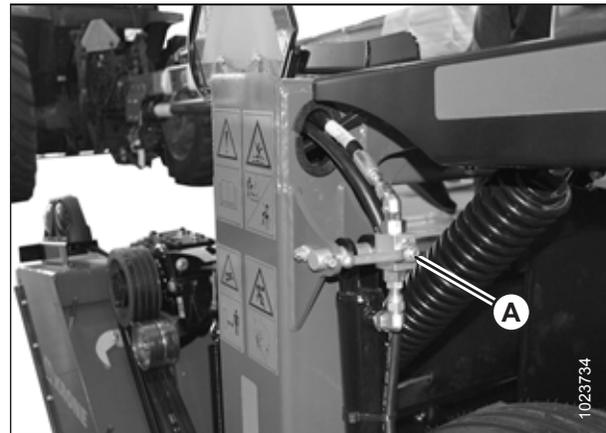


Figure 5.51: Lift Cylinder Lock-Out Valves

3. Rotate shield (A) and pass it between the field wheels and the carrier frame toward the mower.

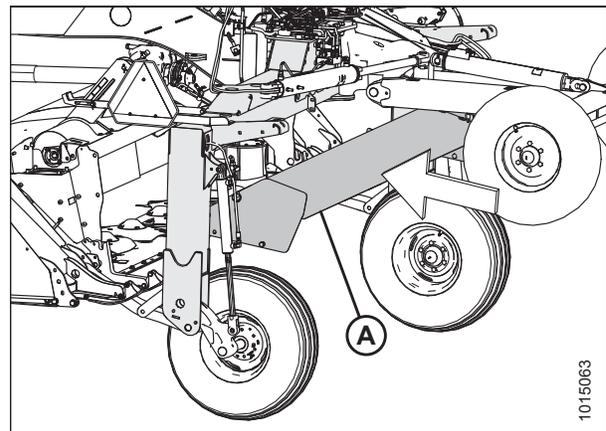


Figure 5.52: Shield Rotated

SETTING UP THE TRACTOR

4. Position shield (A) so that pins (B) engage the slots in cutterbar support (C) and the bolt holes align with panel (D).

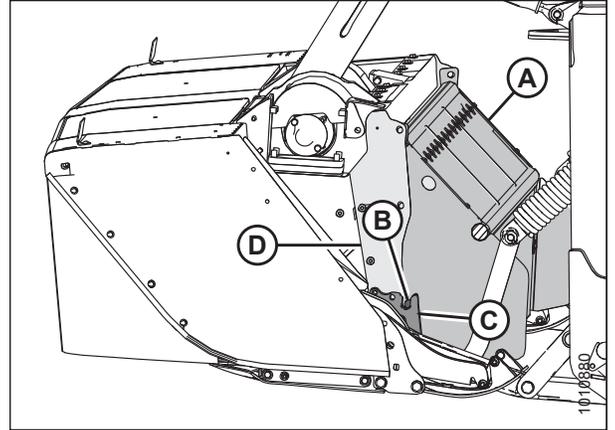


Figure 5.53: Left Side of Header (Right Opposite)

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

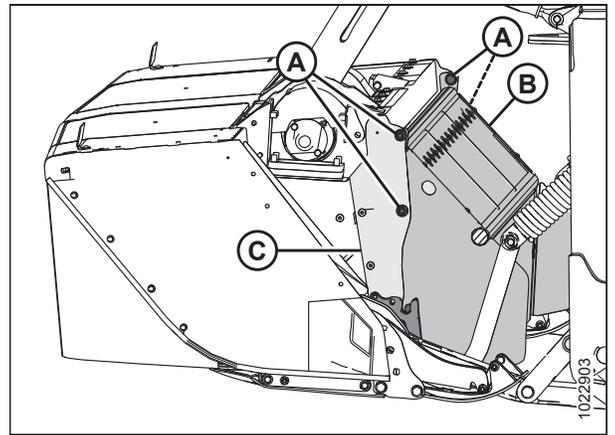


Figure 5.54: Left Side of Header (Right Opposite)

6. Open lift cylinder lock-out valves (A) on both sides of the mower. Valve handles should be in the open position (inline with the hose).

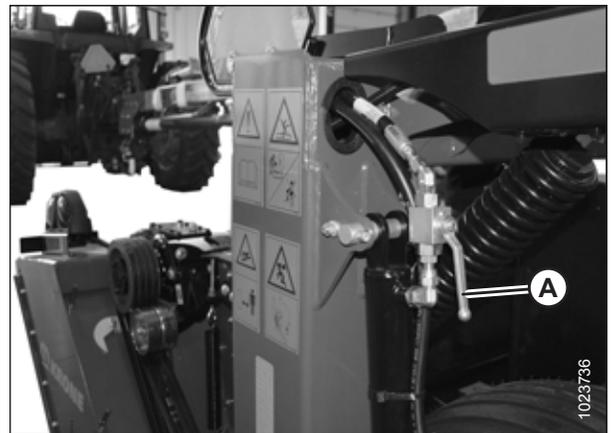


Figure 5.55: Lift Cylinder Lock-Out Valves

5.9 Removing Disc Mower from Shipping Pallet (No Transport Installed)

NOTE:

If you have the Road Friendly Transport™ system, refer to [5.10 Removing Disc Mower from Shipping Pallet \(Transport Installed\)](#), page 117.

1. Cut strapping (B) securing cutterbar to pallet (C).
2. Place forks from lifting device at openings (A). Spread them as far apart as possible to spread the load out.
3. Lift disc mower high enough that the pallet can be removed.

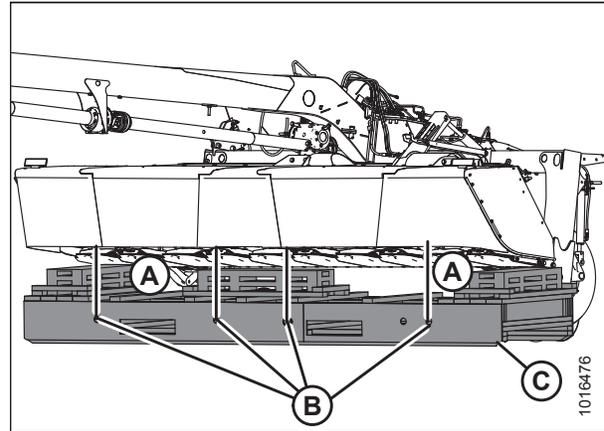


Figure 5.56: Strapping

4. Use a chain or forklift to remove shipping pallet (A) from underneath the disc mower.
5. Lower the disc mower to the ground.

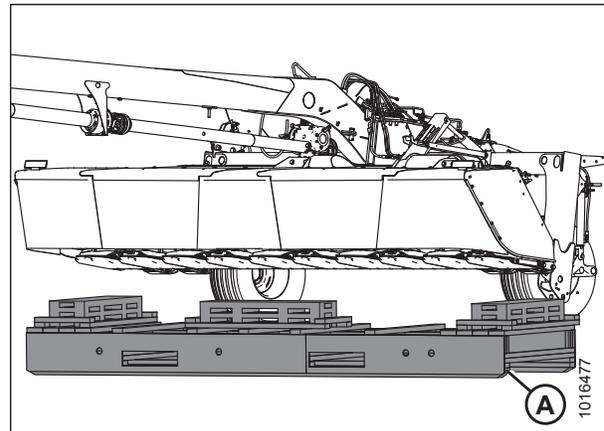


Figure 5.57: Removing Shipping Pallet

5.10 Removing Disc Mower from Shipping Pallet (Transport Installed)

1. Cut strapping (B) securing cutterbar to pallet (A).

IMPORTANT:

To prevent the mower from dropping, ensure float springs were retensioned after repositioning the center-link top anchor. Refer to [4.1 Repositioning Center-Link Top Anchor, page 57](#).

2. Use the transport wheels to lift the disc mower high enough that the pallet can be removed.

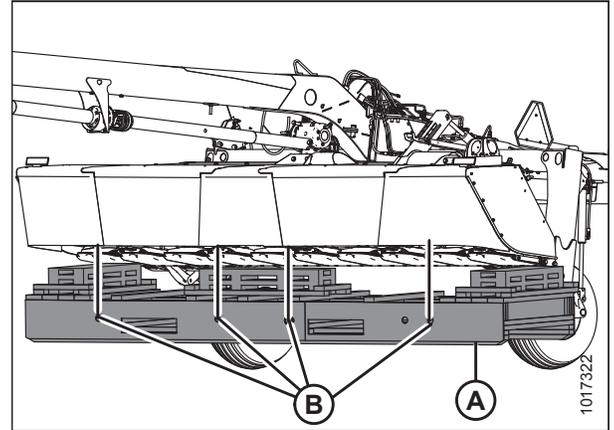


Figure 5.58: Strapping

3. Use a chain or forklift to remove shipping pallet (A) from underneath the disc mower.
4. Lower mower to the ground.

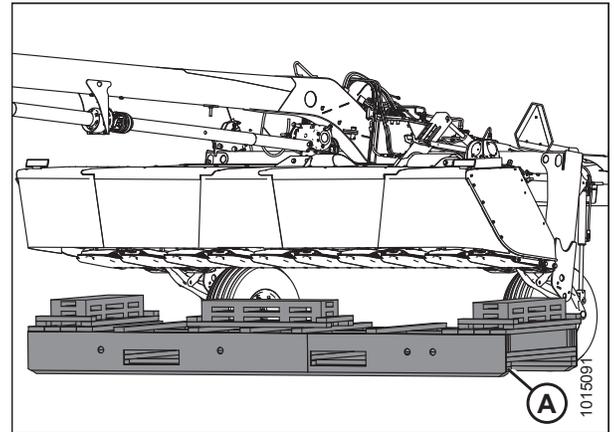


Figure 5.59: Removing Shipping Pallet

Chapter 6: Lubricating the Disc Mower

WARNING

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 disc mower has been lubricated at the factory. However, you should lubricate the disc mower 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 grease with 1% max molybdenum disulphide (NLGI grade 2) lithium base.

6.1 Opening Driveshields

CAUTION

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

NOTE:

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

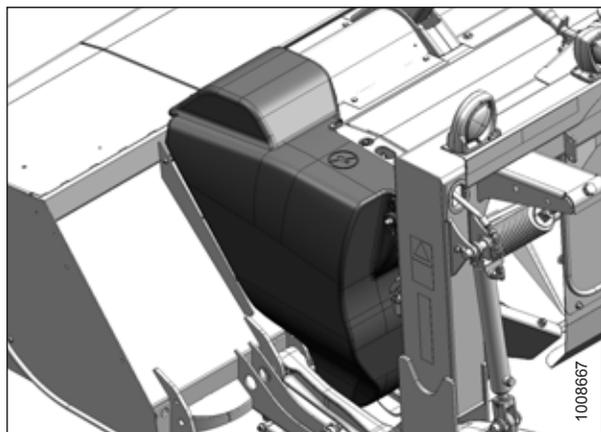


Figure 6.1: Left Driveshield

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

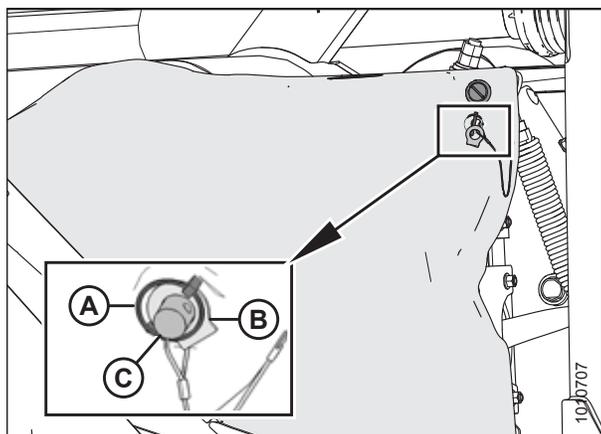


Figure 6.2: Left Driveshield

LUBRICATING THE DISC MOWER

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

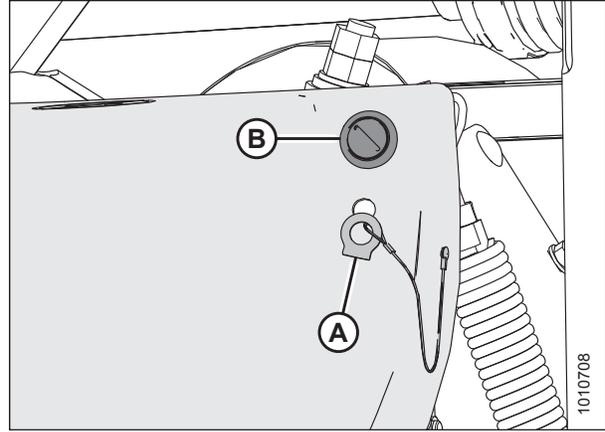


Figure 6.3: Driveshield Latch

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.

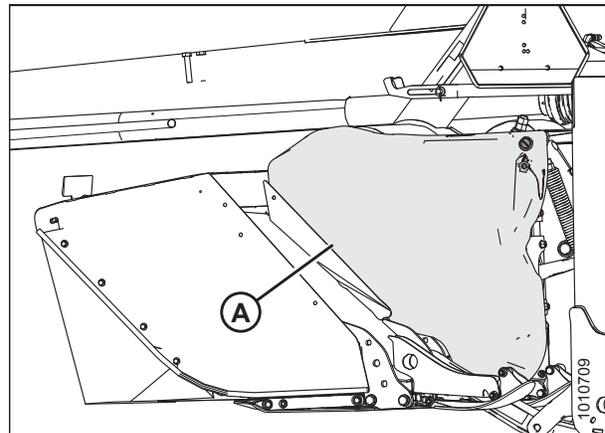
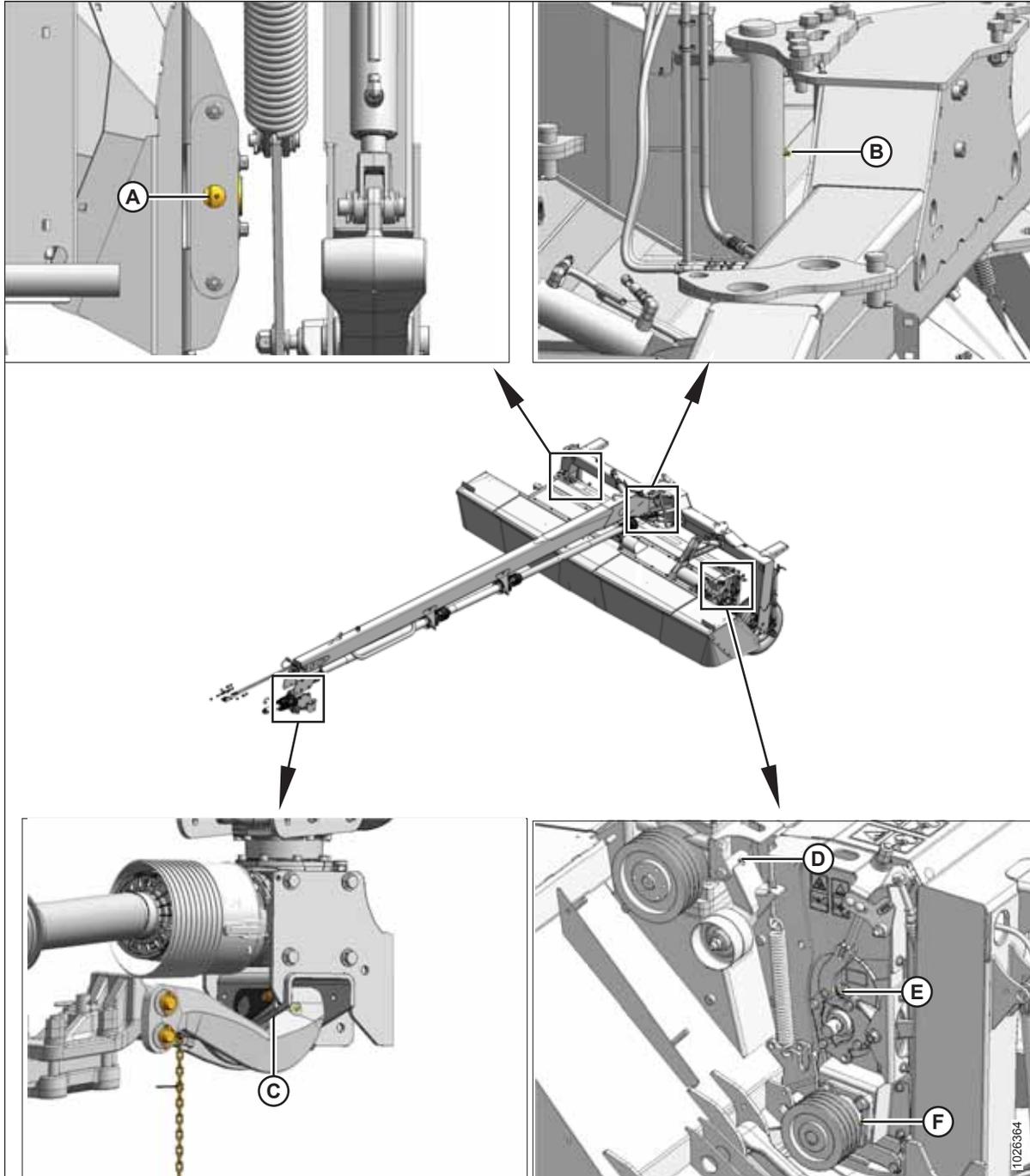


Figure 6.4: Driveshield

6.2 Lubrication Points

Unless otherwise specified, use high-temperature, extreme-pressure (EP2) performance grease with 1% max molybdenum disulphide (NLGI grade 2) lithium base.

Figure 6.5: Lubrication Points



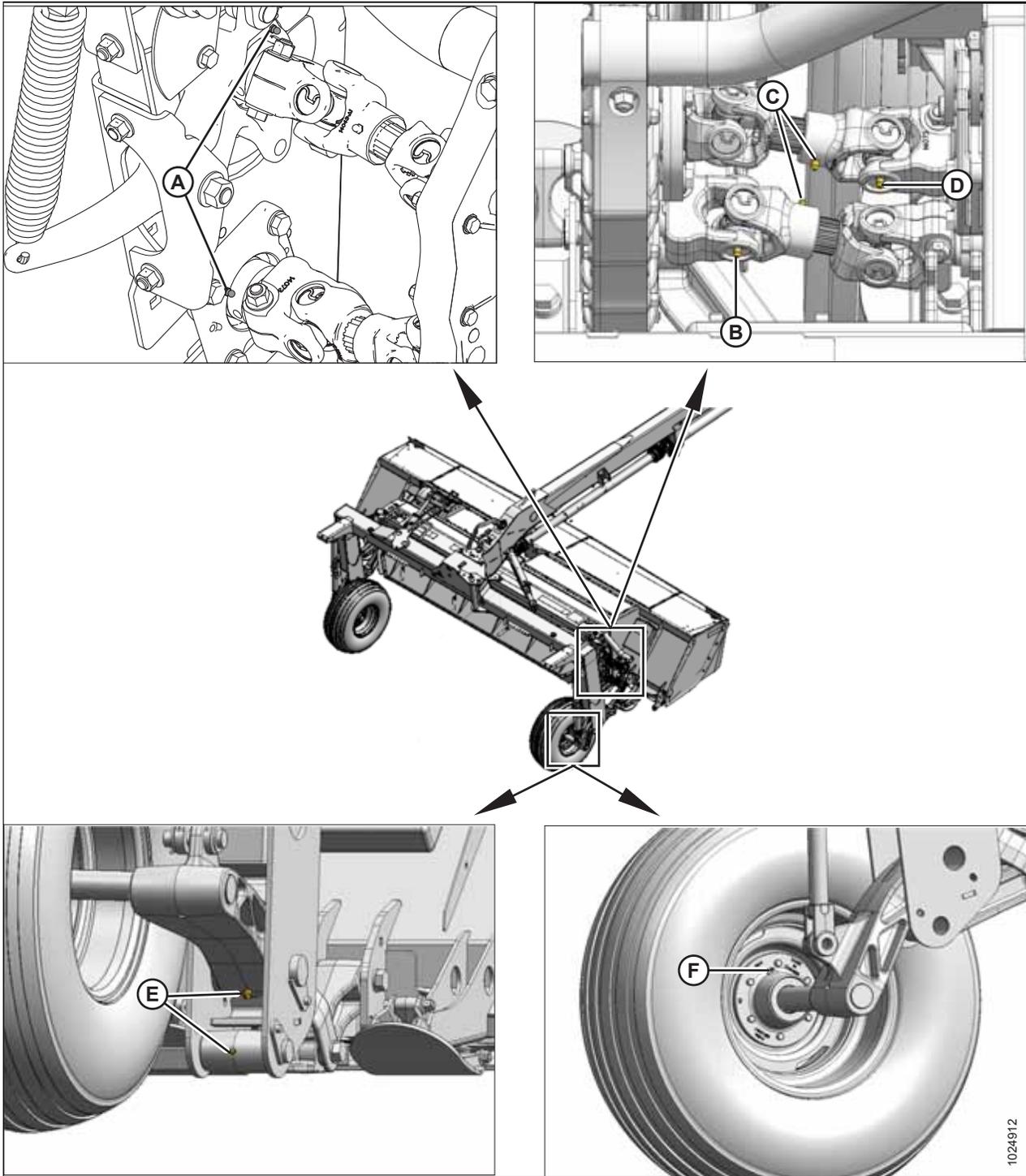
A - Bearing, Finger Conditioner
D - Idler Pivot

B - Hitch Pivot
E - Bearing, Roller Conditioner

C - Hitch Swivel
F - Bearing, Roller Conditioner

LUBRICATING THE DISC MOWER

Figure 6.6 Lubrication Points



A - Bearings, Roller Conditioner
D - U-Joint, Upper Driveline (2 Places)

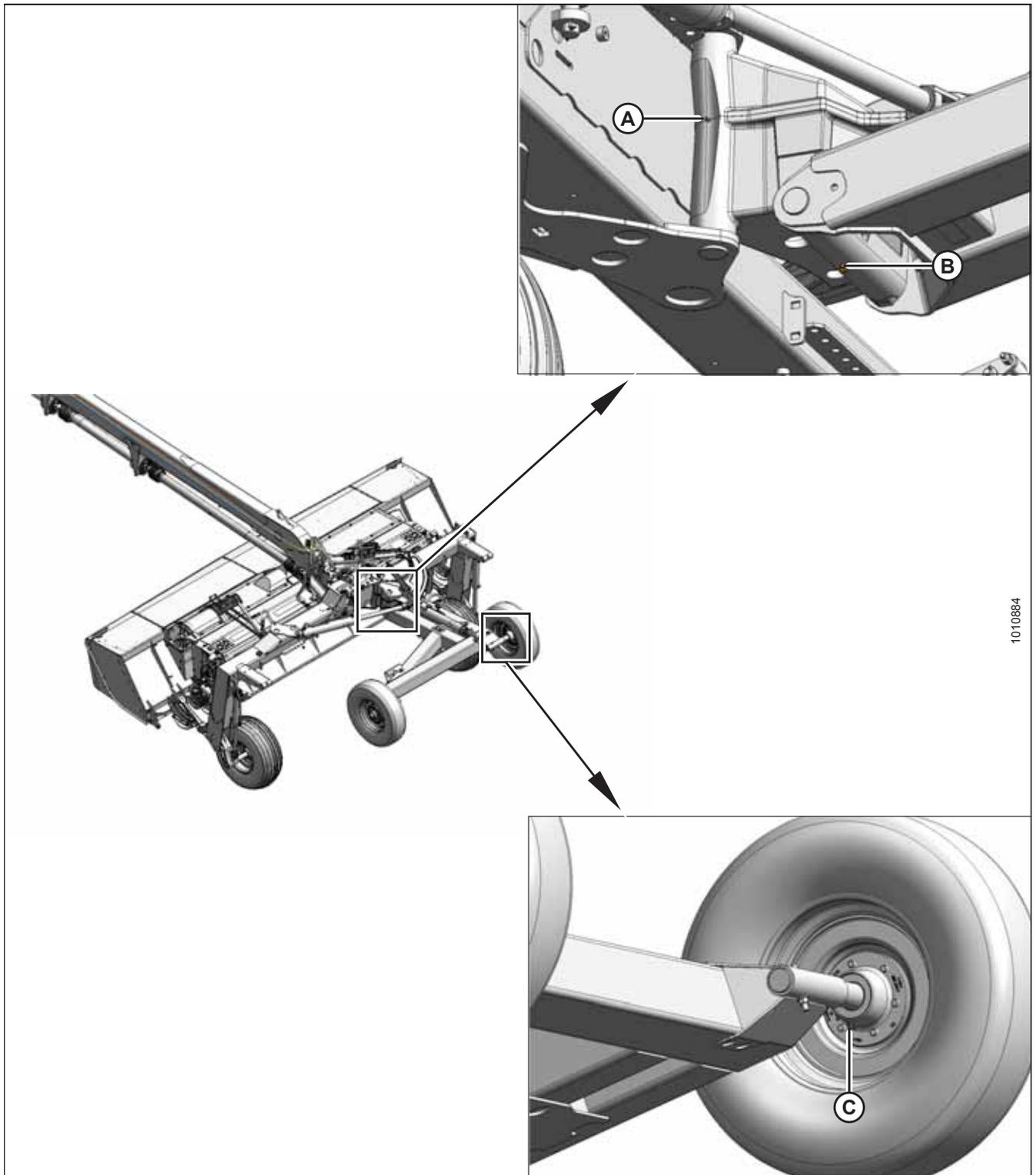
B - U-Joint, Lower Driveline (2 Places)
E - Lift Linkage (Both Sides)

C - Slip Joints, Conditioner Drivelines³
F - Bearing, Field Wheel (2 Places)

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

LUBRICATING THE DISC MOWER

Figure 6.7 Lubrication Points



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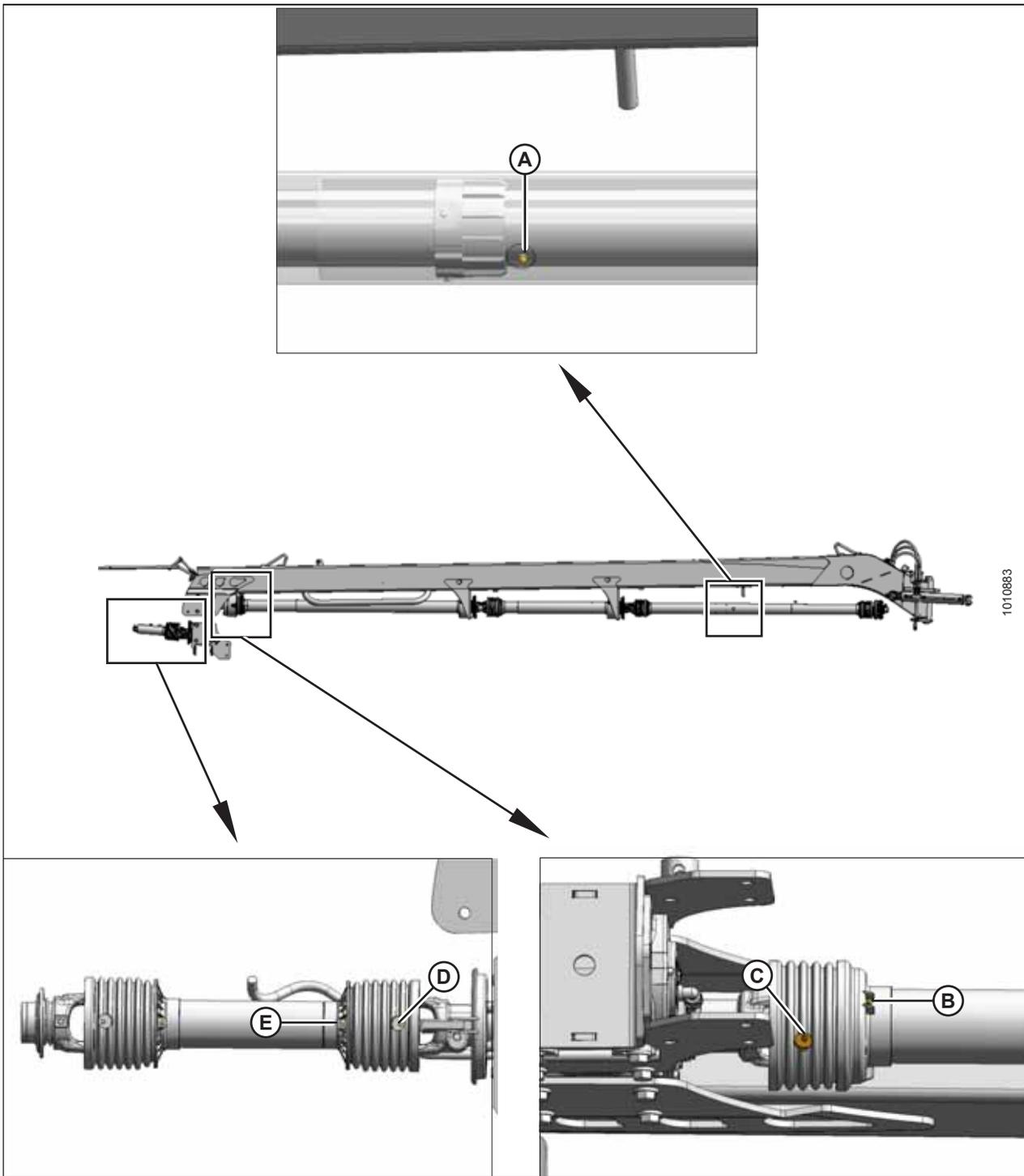
A - Vertical Pivot, Road Friendly Transport™

B - Horizontal Pivot, Road Friendly Transport™

C - Bearing, Transport Wheel (2 Places)

LUBRICATING THE DISC MOWER

Figure 6.8 Lubrication Points



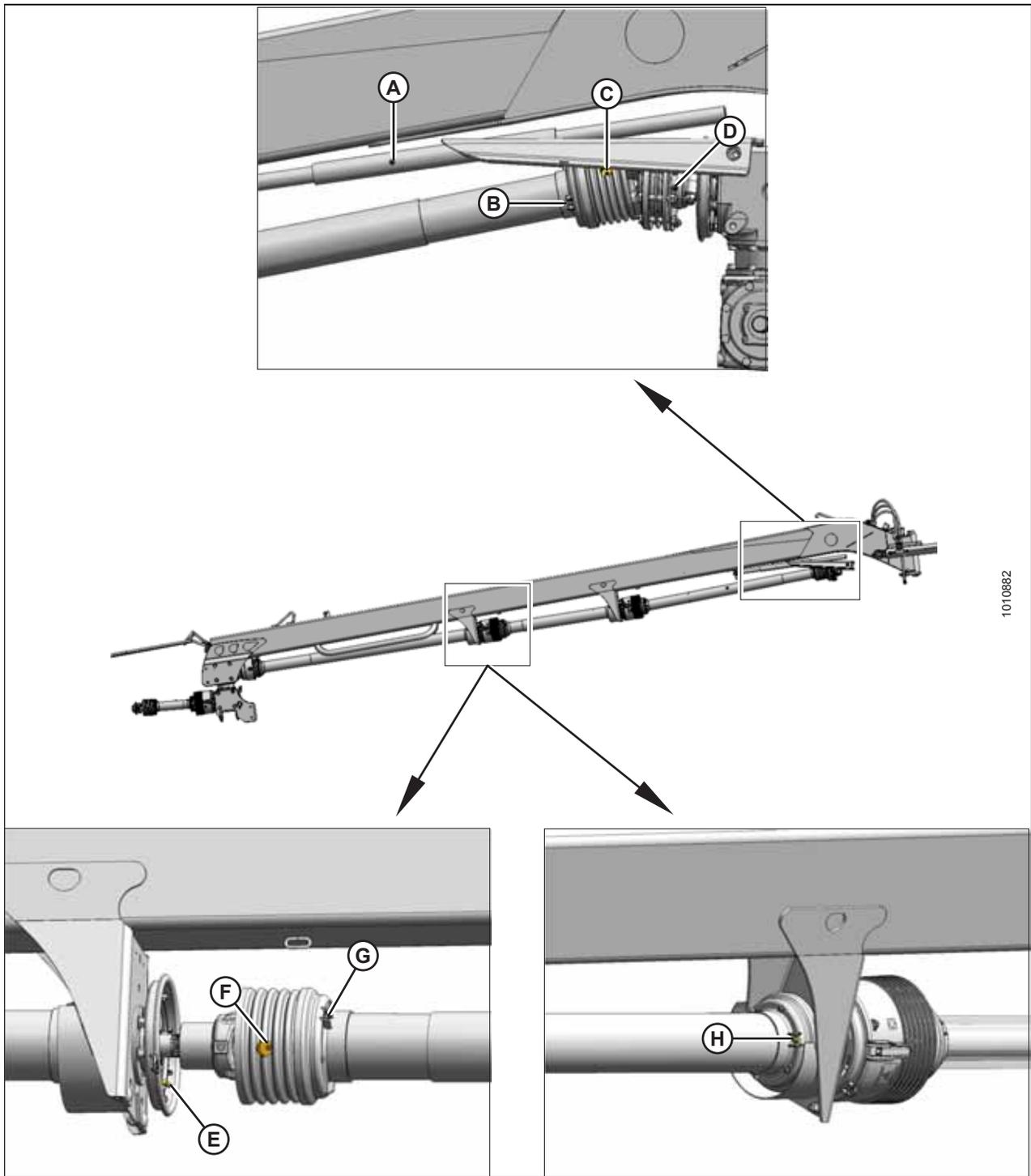
A - Slip Joint, Drivelines (4.0 M [13 Ft.] 2 Places) (4.9 M [16 Ft.] 3 Places)⁴
 C - U-Joint, Main Driveline
 E - Guard, Primary Driveline (2 Places)

B - Guard, Driveline
 D - U-Joint, Primary Driveline (2 Places)

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

LUBRICATING THE DISC MOWER

Figure 6.9 Lubrication Points



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- A - Slip Joint, Steering Link
- C - U-Joint, Clutch Driveline
- E - Bearing, Driveline (4.0 M [13-Ft.] 1 Place) (4.9 M [16-Ft.] 2 Places)
- G - Guard (4.0 M [13-Ft.] 1 Place) (4.9 M [16-Ft.] 2 Places)

- B - Guard, Clutch Driveline
- D - Clutch
- F - U-Joint, Driveline (4.0 M [13-Ft.] 1 Place) (4.9 M [16-Ft.] 2 Places)
- H - Guard (4.0 M [13-Ft.] 1 Place) (4.9 M [16-Ft.] 2 Places)

6.3 Closing Driveshields

CAUTION

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

NOTE:

Images shown in this procedure 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.

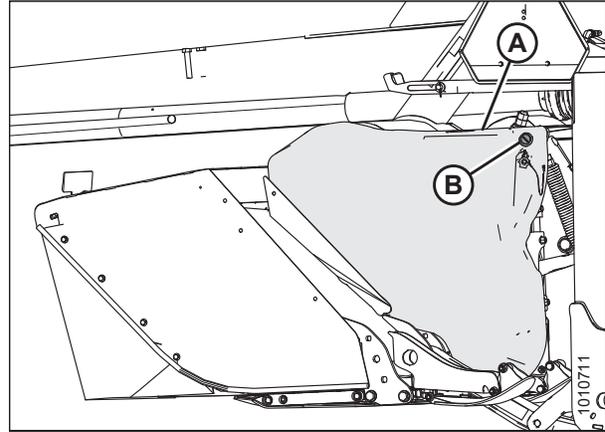


Figure 6.10: Driveshield and Latch

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

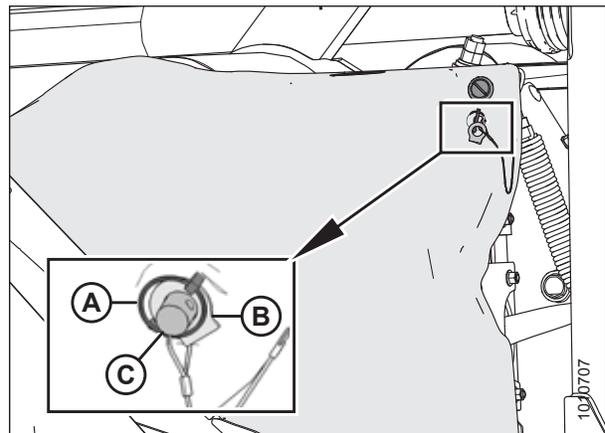


Figure 6.11: Left Driveshield

Chapter 7: Performing Predelivery Checks

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.

IMPORTANT:

To avoid machine damage, check that no shipping dunnage has fallen into cutterbar.

1. Perform the final checks and adjustments as listed on the Predelivery Checklist (yellow sheet inside the back cover of this instruction) to ensure the machine is field-ready. Refer to the following pages for detailed instructions as indicated on the *Predelivery Checklist, page 223*.
2. The completed Checklist should be retained either by the Operator or the Dealer.

NOTE:

The majority of checks and adjustments are performed during the setup procedures. The following additional inspections should be performed after the setup is complete.

7.1 Checking Wheel Bolts

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 and tighten field wheel bolts and transport system wheel bolts (if installed) after the first hour of operation and every 100 hours thereafter.

Torque wheel bolts to 160 Nm (120 lbf-ft) using the tightening sequence shown at right.

IMPORTANT:

Whenever a wheel is installed, check torque after one hour of operation.

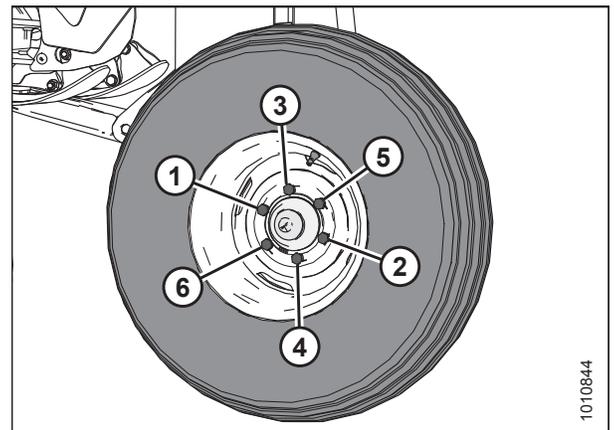


Figure 7.1: Tightening Sequence

7.2 Checking Tire Pressure

WARNING

- Service tires safely.
- A tire can explode during inflation which could cause serious injury or death.



Figure 7.2: Overinflated Tire

Check tire pressure daily:

- Maximum pressure is 310 kPa (45 psi) for field wheels (A)
- Maximum pressure is 552 kPa (80 psi) for optional Road Friendly Transport™ wheels (B)

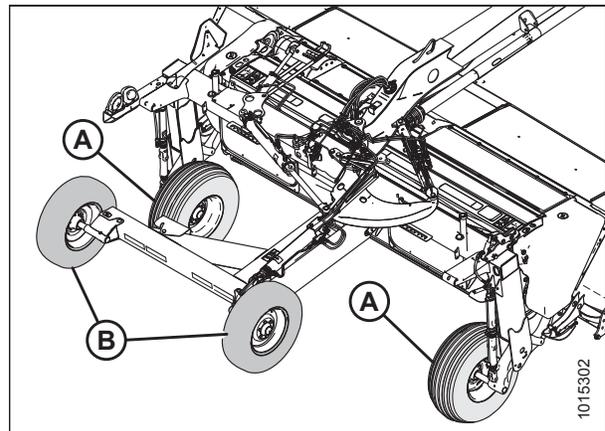


Figure 7.3: Field and Transport Wheels

7.3 Checking 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.

NOTE:

If no conditioner is installed, proceed to [7.4 Checking Cutting Angle, page 130](#).

1. Open left driveshield. For instructions, refer to [6.1 Opening Driveshields, page 119](#).
2. Check that belt (A) is properly positioned on the pulleys and tensioned. Overall spring length (B) should be 365 mm (14-3/8 in.). If adjustment is required, refer to [7.3.1 Adjusting Conditioner Drive Belt, page 129](#).
3. Check that adjuster nuts (C) are tight.
4. Check that the spring is hooked at the correct location:
 - Hole (D) for roll conditioner
 - Hole (E) for finger conditioner
5. Close driveshield. For instructions, refer to [6.3 Closing Driveshields, page 126](#).

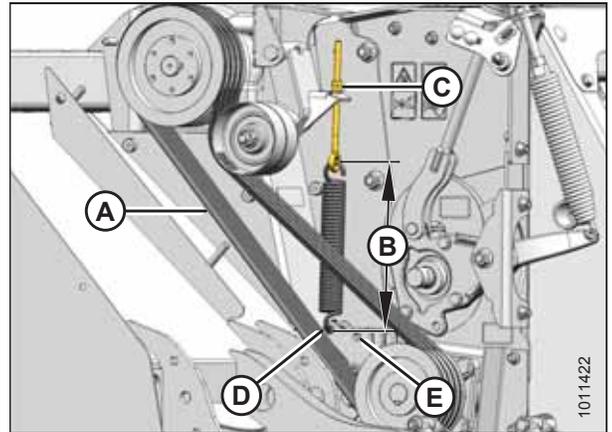


Figure 7.4: Conditioner Drive Belt

7.3.1 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 the ignition.
2. Open the left driveshield. For instructions, refer to [6.1 Opening Driveshields, page 119](#).
3. Check that the spring is hooked at the correct location:
 - Hole (C) for roll conditioner
 - Hole (D) for finger conditioner
4. Turn jam nut (F) counterclockwise to unlock tension adjustment.
5. Turn adjuster nut (E) clockwise to increase spring length (tension). To decrease spring length (relax), turn adjuster nut (E) counterclockwise.
6. Set overall spring length (B) to 365 mm (14-3/8 in.).
7. Close driveshield. Refer to [6.3 Closing Driveshields, page 126](#).

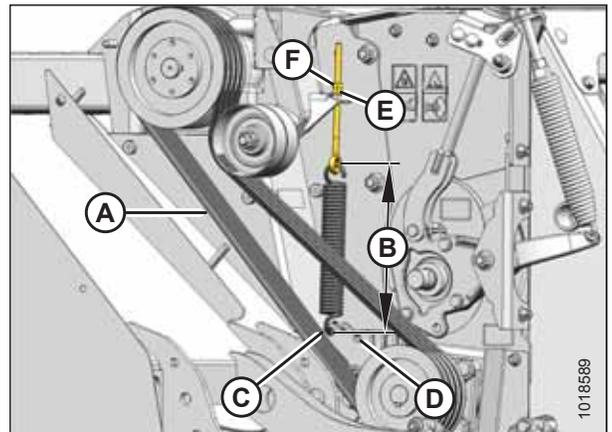


Figure 7.5: Conditioner Drive Belt

7.4 Checking Cutting Angle

For a disc mower equipped with a hydraulic center-link (A), the mid-point for header angle is indicated with the indicator bars (B) in the center (orange) of the indicator decal.

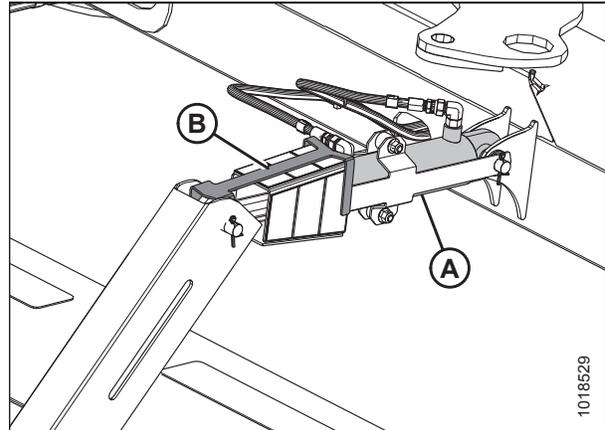


Figure 7.6: Hydraulic Center-Link

For a disc mower equipped with a mechanical center-link (A), the mid-point for header angle is the middle of the adjustment range on the link.

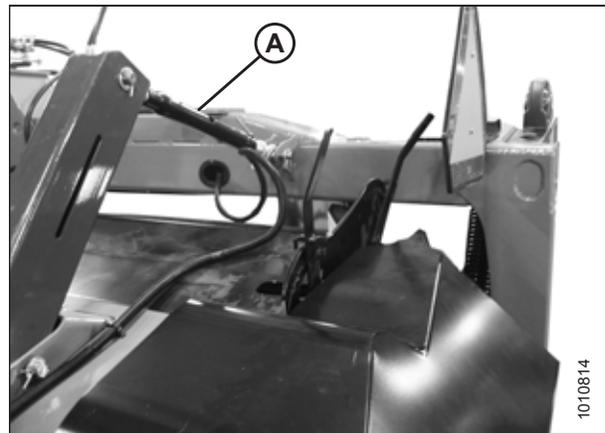


Figure 7.7: Mechanical Center-Link

7.5 Checking Skid Shoes

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

NOTE:

The 4.0 m (13 ft.) disc mower is equipped with one skid shoe at each end. The 4.9 m (16 ft.) disc mower is equipped with two skid shoes at each end.

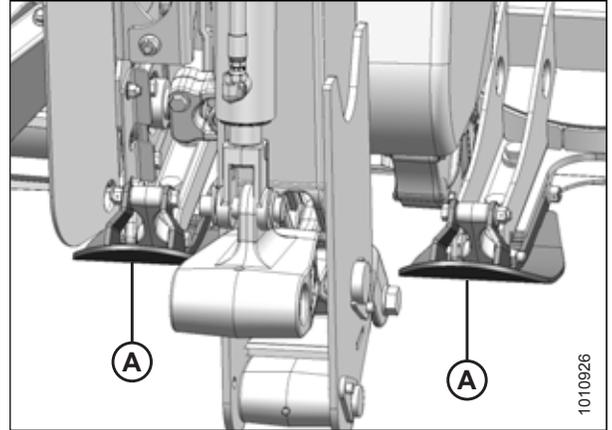


Figure 7.8: Skid Shoes 4.9 M (16 Ft.)

7.6 Checking Disc Mower Float

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. Center the disc mower directly behind the tractor.
2. Lower the disc mower to the ground.
3. Shut down the tractor, and remove key from ignition.
4. Grasp the front corner of the disc mower and lift; the weight should feel approximately like 45 kg (100 lb.) at both ends. If adjustment is required, refer to [7.6.1 Adjusting Disc Mower Float, page 132](#).

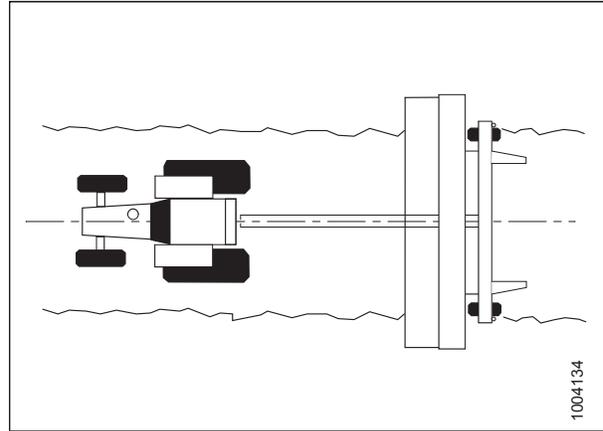


Figure 7.9: Disc Mower Centered behind the Tractor

7.6.1 Adjusting Disc Mower Float

The float setting (or lifting force) changes depending on the conditioner type and options. The setting must be equal at both ends of the disc mower.

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.

NOTE:

Changes to the disc mower operating position can affect the float settings. After adjusting the cutting height or the cutting angle, check float and adjust as necessary.

1. Center the disc mower directly behind the tractor and set the cutterbar to an orientation and tilt appropriate for the crop type and cutting conditions. Refer to the disc mowers operator's manual for the cutterbar angle adjustment.

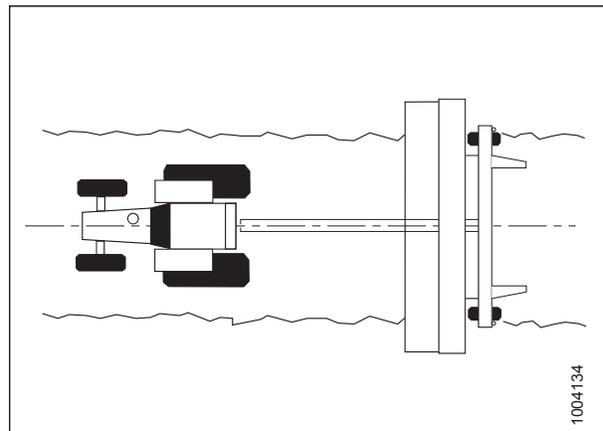


Figure 7.10: Disc Mower Centered behind Tractor

PERFORMING PREDELIVERY CHECKS

2. Raise the disc mower fully. Shut off the engine, and remove the key.
3. Close lift cylinder lock-out valve (A) on each lift cylinder by turning the handle to the closed position (90 degree angle to the hose).
4. Loosen jam nut (B) away from the spring.
5. Turn adjuster bolt (C) to achieve the recommended measurement (D) for the conditioner type. Refer to Table 7.1, page 133.
 - Turn bolt clockwise (towards spring) to increase float.
 - Turn bolt counterclockwise (away from spring) to decrease float.
6. Tighten jam nut (B) against spring.
7. Measure the length of exposed thread (D) on the float spring tension bolts.

NOTE:

Float settings indicated in the table at right are starting point settings only. Float force should still be checked with disc mower float and cutting angle set as planned for use in the field.

8. Repeat Steps 4, page 133 to 7, page 133 on the opposite side of the disc mower.
9. Open lift cylinder lock-out valve (A) on each lift cylinder by turning the handle to the open position (in line with the hose).
10. To check float, lower the disc mower to cutting position, grasp the front corner of mower, and lift; the weight should feel like approximately 45 kg (100 lb.) at both ends.
11. Repeat adjustment procedures until the desired weight is achieved at both ends of the disc mower.

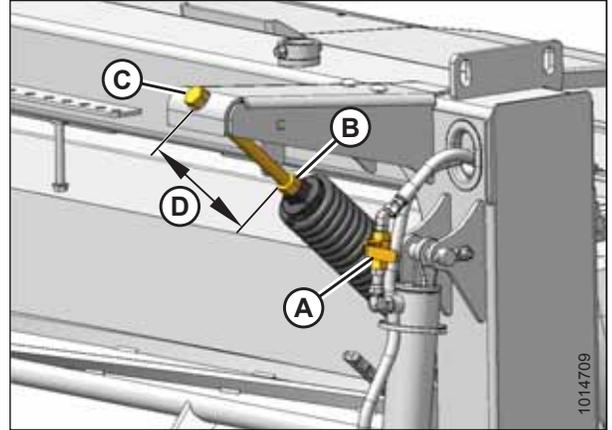


Figure 7.11: Lift Cylinder Lock-Out Valve, Jam Nut, and Adjuster Bolt

Table 7.1 Float Setting Starting Point

Header Size	Conditioner Type	Length of Exposed Thread
4.0 m (13 ft.)	None	280–290 mm (11 – 11-5/32 in.)
	Roll	120–130 mm (4-3/4 – 5-1/8 in.)
	Finger	Right side: 145–155 mm (5-3/4 – 6-1/8 in.)
	Finger	Left side: 15–125 mm (4-1/2 – 4-15/16 in.)
4.9 m (16 ft.)	None	230–240 mm (9 – 9-1/2 in.)
	Roll	70–80 mm (2-3/4 – 3-1/8 in.)
	Finger	Right side: 95–105 mm (3-3/4 – 4-1/8 in.)
	Finger	Left side: 65–75 mm (2-1/2 – 3 in.)

7.7 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 disc mower.

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 disc mower to the ground, and adjust header angle with center-link so that cutterbar is level. Turn off the engine, and remove key.
2. Open a cutterbar door. Refer to [11.1 Opening Cutterbar Doors, page 203](#).
3. Use a spirit (bubble) level and check that cutterbar is level in fore-aft direction. Adjust header angle as required.
4. Open the right driveshield. Refer to [6.1 Opening Driveshields, page 119](#).
5. Clean around lubricant sight glass (A) and breather plug (B) on inboard side of the conditioner roll timing gearbox.
6. Ensure that the lubricant level is at the top of the sight glass. If necessary, add lubricant through plug (B). Refer to [11.5 Recommended Lubricants, page 207](#) for lubricant information.
7. Replace plug (B) and tighten.
8. Close right driveshield. For instructions refer to [6.3 Closing Driveshields, page 126](#).
9. Close the cutterbar door. Refer to [11.4 Closing Cutterbar Doors, page 206](#).

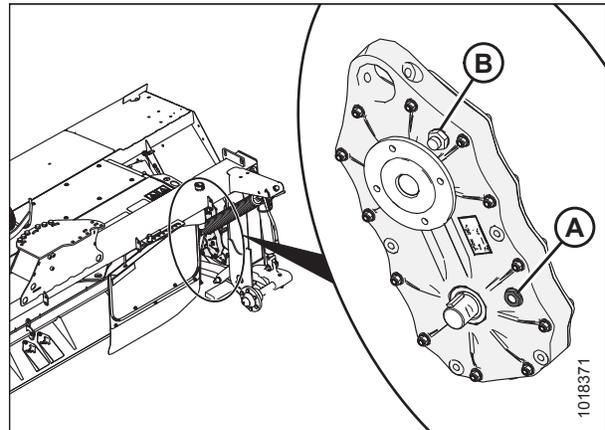


Figure 7.12: Roll Timing Gearbox

7.8 Checking and Adding Disc Mower Drive Gearbox Lubricant

The disc mower drive gearbox is located inside the drive compartment at the left side of the disc mower.

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. Retract the center-link completely.
2. Lower the disc mower until it is level with the ground.

NOTE:

To help ensure an accurate oil level reading for the cutterbar-conditioner drive gearbox, set the disc mower's skid shoes in the fully raised position. Refer to the disc mower operator's manual for instructions.

3. Turn off the engine, and remove the key from the ignition.
4. Detach the tractor from the hitch. Refer to the disc mower operator's manual.
5. Open the left driveshield. Refer to [6.1 Opening Driveshields, page 119](#).
6. Adjust the hitch jack (A) until the drive gearbox is parallel to the ground.

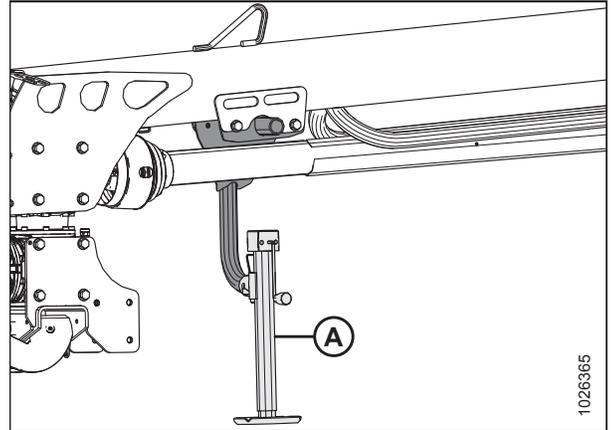


Figure 7.13: Hitch Jack

7. Clean area around dipstick (A).
8. Remove dipstick (A) using a 22 mm socket.
9. Ensure lubricant level is to the line on dipstick.
10. If necessary, add gear lubricant to gearbox through dipstick hole (A). Refer to [11.5 Recommended Lubricants, page 207](#).
11. Reinstall dipstick and tighten.
12. Close left driveshield. For instructions refer to [6.3 Closing Driveshields, page 126](#).

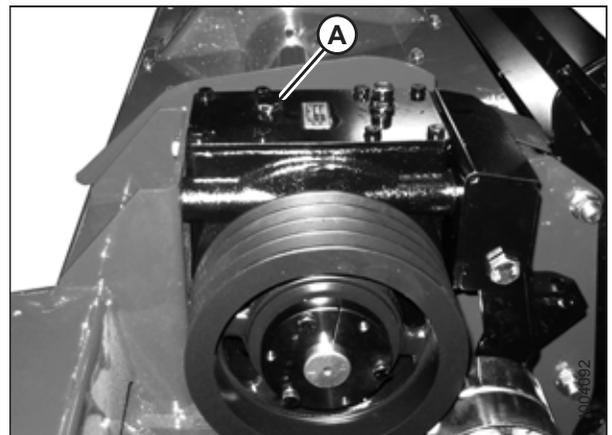


Figure 7.14: Left Side of Disc Mower

7.9 Checking and Lubricating Forward and Rear Swivel Gearboxes

There are two swivel gearboxes on the disc mower. Each swivel gearbox consists of an upper and a lower gearbox. Oil check plugs are located at the same position on each gearbox and need to be removed in order to check the lubricant level.

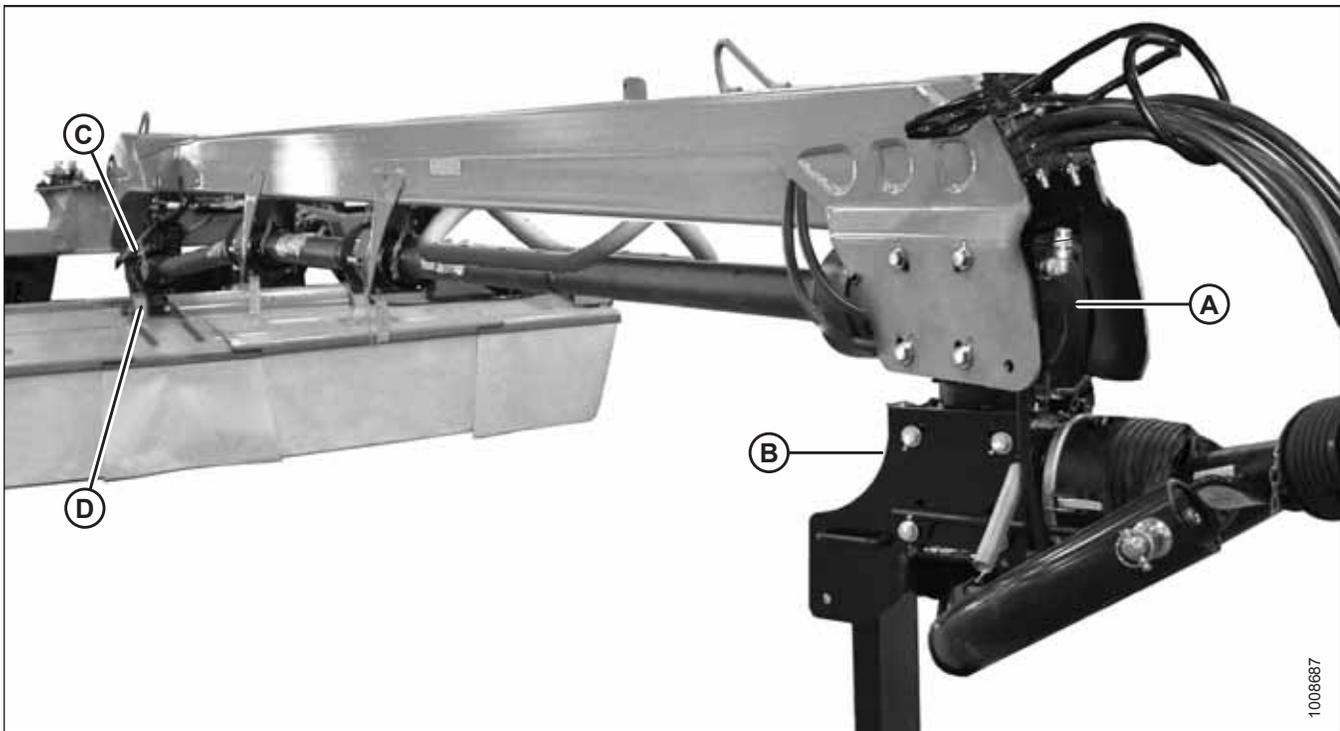
⚠ DANGER

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

Figure 7.15: Forward and Rear Swivel Gearboxes



A - Upper Forward Gearbox

B - Lower Forward Gearbox

C - Upper Rear Gearbox

D - Lower Rear Gearbox

PERFORMING PREDELIVERY CHECKS

Perform this procedure on both upper and lower gearboxes:

1. Adjust the height and angle of the hitch until the upper and lower gearboxes are parallel to the ground.

NOTE:

The oil should be checked when the gearboxes are parallel to the ground.

2. Turn off engine and remove key.
3. Clean area around check plug (A).
4. Remove check plug using a 13 mm socket.
5. Check lubricant level and ensure lubricant is visible or slightly draining from the port.
6. If necessary, add gear oil to gearboxes through breather/filler plug (B). Refer to [11.5 Recommended Lubricants, page 207](#).
7. Reinstall check plug (A) and breather/filler plug (B) and tighten.

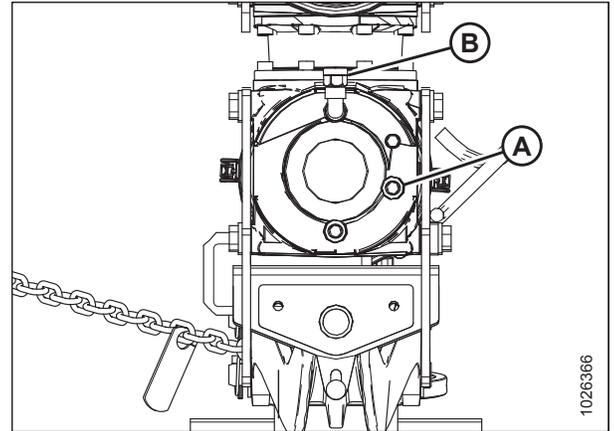


Figure 7.16: Swivel Gearbox

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7.10 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 machine on level ground.
2. Lower the header onto 25 cm (10 in.) blocks under both ends of the cutterbar.
3. Shut down the engine, and remove the key.
4. Open cutterbar doors. Refer to [11.1 Opening Cutterbar Doors, page 203](#).
5. Use a spirit (bubble) level (A) to ensure the cutterbar is level in both directions. Adjust the disc mower accordingly.

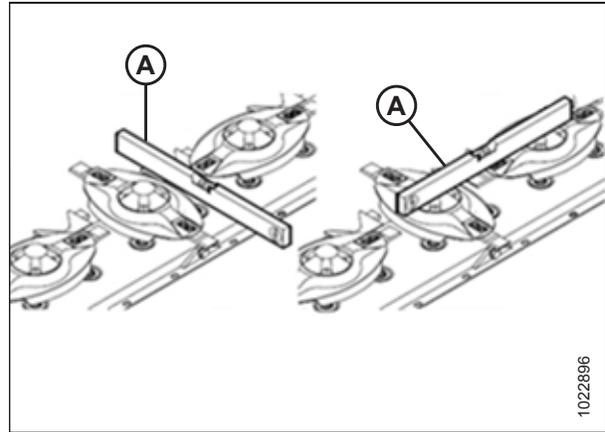


Figure 7.17: Spirit Level on Cutterbar

6. Clean area around plug (A). Place a 5 liter (5.2 US qts) capacity container under plug (A).
7. Use a 17 mm socket to remove plug (A) and O-ring (B) from cutterbar. Oil level must be up to the inspection plug hole.

NOTE:

If additional lubricant is required, refer to Step 8. If additional lubricant is **NOT** required, proceed to Step [16, page 139](#).

IMPORTANT:

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

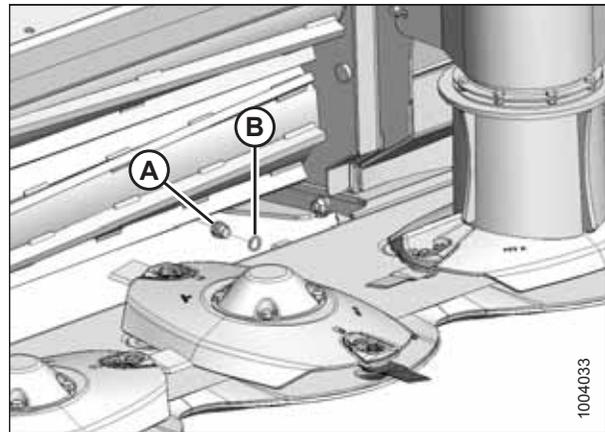


Figure 7.18: Cutterbar Oil Inspection Plug

Add lubricant as follows:

NOTE:

Refer to [11.5 Recommended Lubricants, page 207](#) for lubricant type.

PERFORMING PREDELIVERY CHECKS

8. Install the inspection plug that was removed in Step 6, [page 138](#).

CAUTION

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

9. Start the engine, and raise the header fully.
10. Shut down the engine, and remove the key.
11. Close the lift cylinder lock-out valves on both sides of the mower. Valve handles should be in the closed position (90 degree angle to the hose). Refer to [11.2 Engaging Locks, page 204](#).
12. Remove the inspection plug, and add some oil. Loosely install the inspection plug.
13. Open the lift cylinder lock-out valves on both sides of the mower. Valve handles should be in the open position (parallel to the hose). Refer to [11.3 Disengaging Locks, page 205](#).
14. Lower the header on to the blocks. Repeat Step 5, [page 138](#).
15. Repeat Step 6, [page 138](#).
16. Check O-ring (B) for breaks or cracks, and replace if necessary.
17. Install plug (A) and O-ring (B). Tighten securely.

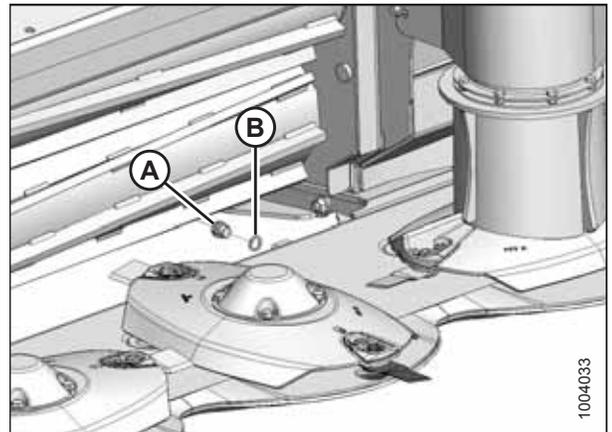


Figure 7.19: Cutterbar Oil Inspection Plug

18. Close cutterbar doors. Refer to [11.4 Closing Cutterbar Doors, page 206](#).

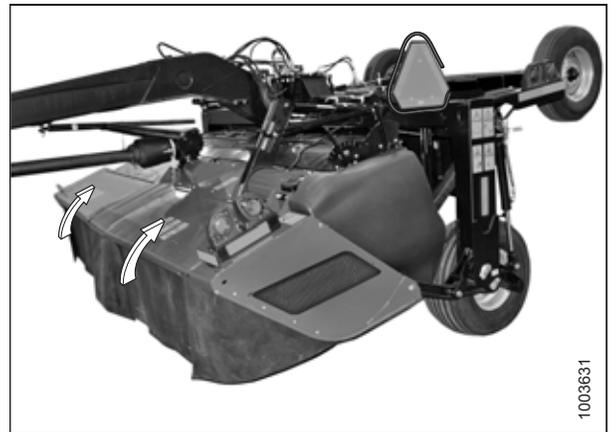


Figure 7.20: R113 Pull-Type Disc Mower

7.11 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 the disc mower to the ground.
2. Stop the engine, and remove the key from the ignition.
3. **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 [7.11.1 Adjusting Roll Gap \(Steel Rolls\)](#), page 140.
4. **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 [7.11.2 Adjusting Roll Gap \(Polyurethane Rolls\)](#), page 141.

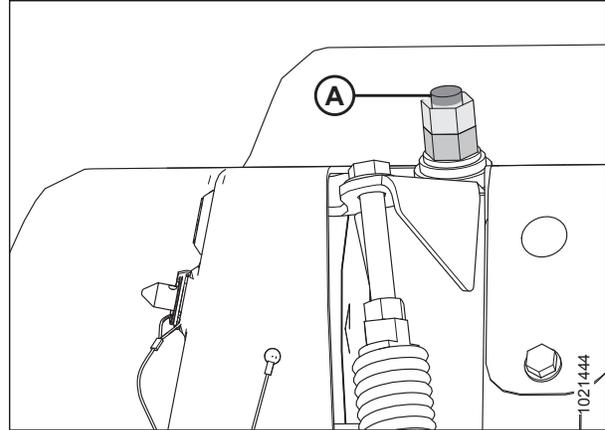


Figure 7.21: Roll Gap Adjustment

7.11.1 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 the disc mower to the ground.
2. Stop the engine, and remove the key from the ignition.

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 the 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.

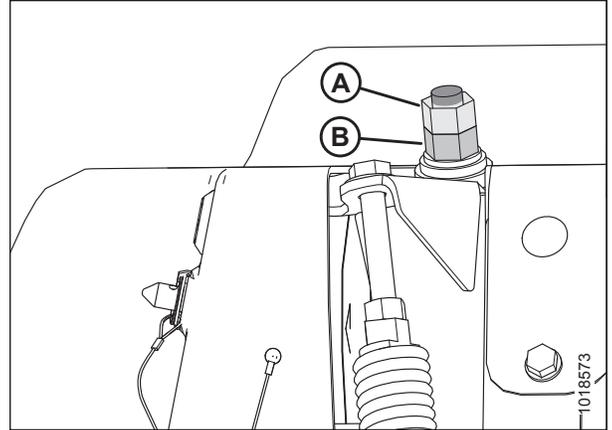


Figure 7.22: Roll Gap Adjustment

7.11.2 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 the disc mower to the ground.
2. Stop the engine, and remove the key from the ignition.
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 the 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.

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.).

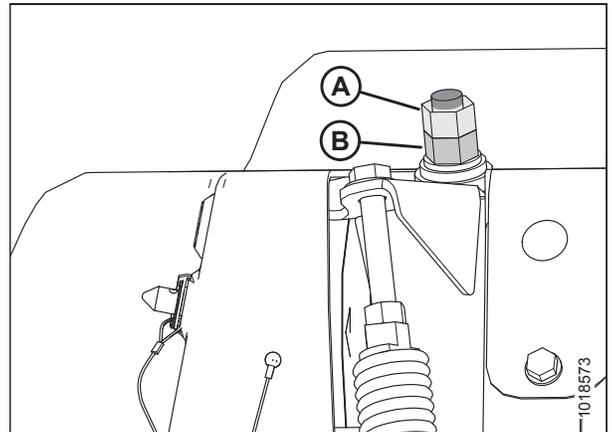


Figure 7.23: Roll Gap Adjustment

7.12 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 the disc mower operator's manual.

7.13 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 [7.13.1 Adjusting Roll Tension, page 143](#).

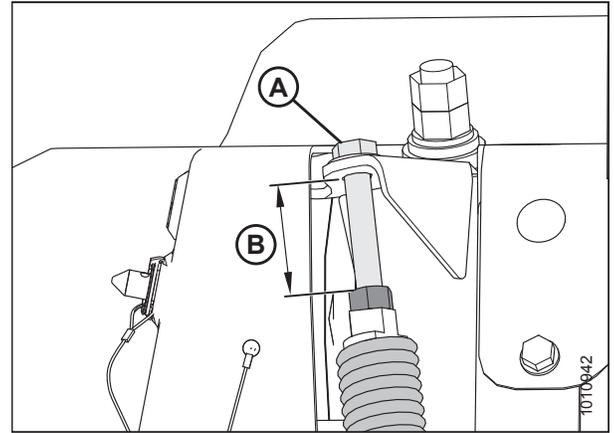


Figure 7.24: Roll Tension Adjuster

7.13.1 Adjusting Roll Tension

To adjust roll tension, 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 the disc mower to the ground.
2. Stop the engine, and remove the key from the ignition.
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 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 each end of the conditioner.

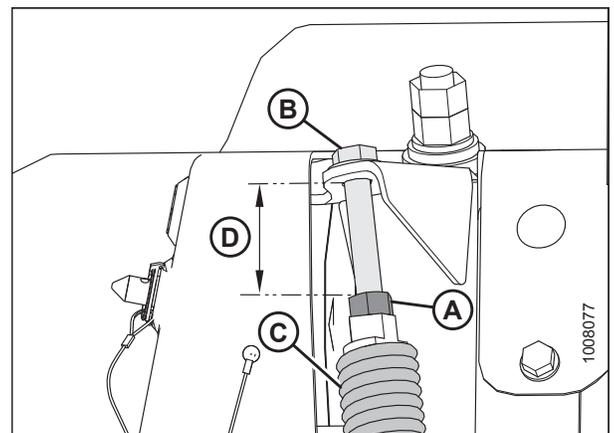


Figure 7.25: Left Side Shown – Right Side Opposite

7.14 Adjusting Conditioner Baffle Position

1. On finger conditioners, move the baffle adjustment handles (A) and (B) to the middle positions (C) and (D) on adjustment plates.

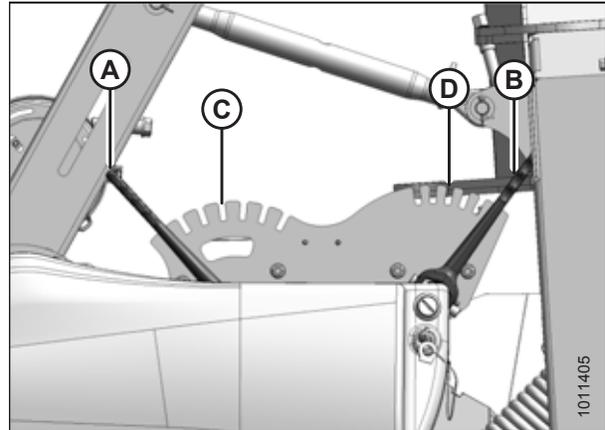


Figure 7.26: Baffle Adjusters (Finger Conditioners)

2. On roll conditioners, move baffle adjustment handle (A) to the middle position (B) on adjustment plate.

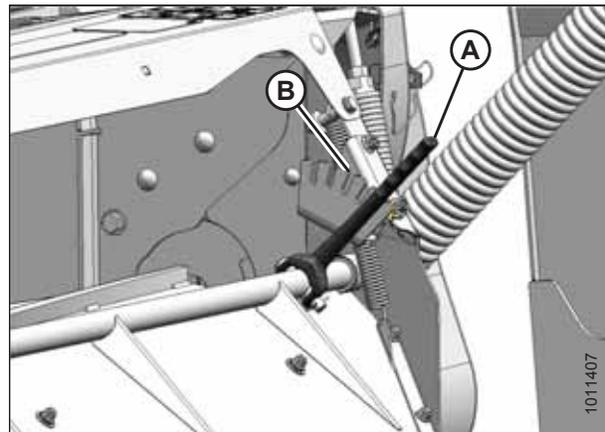


Figure 7.27: Baffle Adjuster (Roll Conditioners)

7.15 Checking Lights

1. Check that lights (A) and (B) are properly located on the disc mower to suit the setup configuration.
2. Check light mountings for security and damage.
3. Check operation of hazard lights (A) and brake lights (B) during machine run-up.

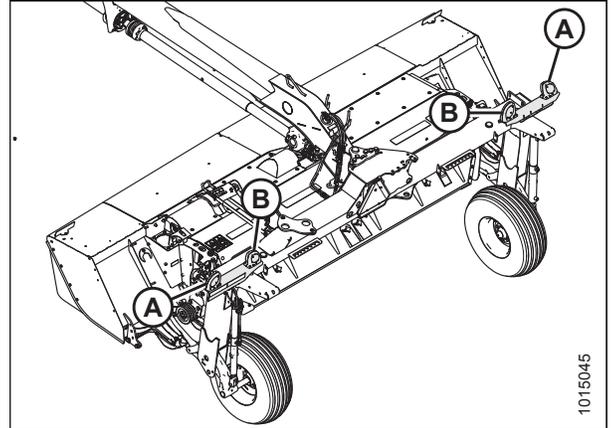


Figure 7.28: Standard Configuration

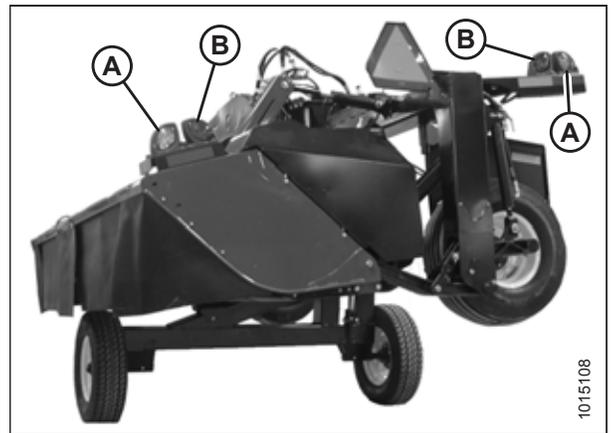


Figure 7.29: Road Friendly Transport™ Configuration

7.16 Checking Manuals

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

- R113/R116 Pull-Type Disc Mower Operator's Manual
- R113/R116 Pull-Type Disc Mower Parts Catalog
- R113/R116 Pull-Type Disc Mower Quick Card

Open the right driveshield to access the case. Refer to [6.1 Opening Driveshields, page 119](#).

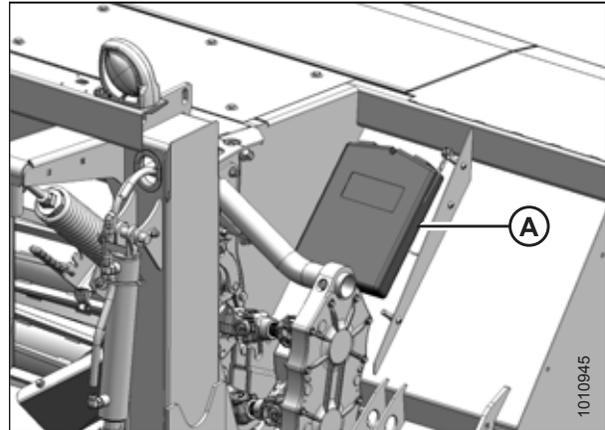


Figure 7.30: Manual Case

7.17 Checking Clutch Operation

The driveline clutch requires an initial break-in procedure; otherwise, the clutch may slip prematurely. As part of the predelivery inspection (PDI) procedure, the clutch spring pressure should be released and the header engaged. This intentional slippage of the clutch will wear in and seat the friction linings against the metal drive plates and remove any oxidization. Perform the following run-in procedure during PDI, whenever the clutch friction linings have been replaced, or if the unit has not been operated for 6 months or more.

1. Release two lever clamps (A) on the shield cone installed at the header swivel gearbox.
2. Slide shield away from gearbox.

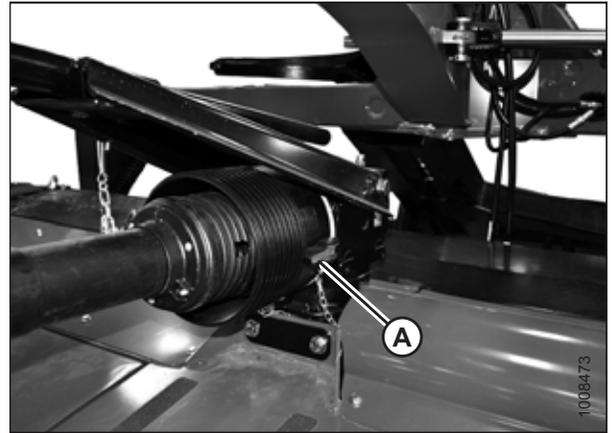


Figure 7.31: Driveline Shield Cone

3. Mark a horizontal line (A) across friction discs and drive plates with a paint marker.
4. Back off all pressure plate tensioning nuts (B) one and a half revolutions.
5. Reattach the shield cone onto the header swivel gearbox.
6. Start tractor and adjust engine speed to 1000 rpm.
7. Engage the tractor's power take-off (PTO) for 3–5 seconds. Repeat three times.

NOTE:

The clutch will slip with a force of 1350 Nm (995 lbf·ft) at 1000 rpm.

8. Shut down the engine and remove the key.
9. Inspect the clutch. The horizontal mark (A) across the friction discs should no longer line up with the metal drive plates. This indicates the clutch was slipping.

NOTE:

It is not necessary for the indicating mark on the friction discs to be misaligned from the metal drive plates on both sides of the disc. The friction discs are not splined to any component and will likely only slip on one surface.

10. Remove the shield cone from the header swivel gearbox.

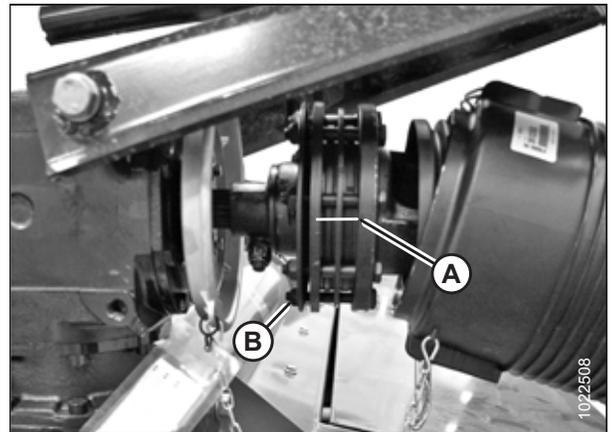


Figure 7.32: Driveline and Gearbox

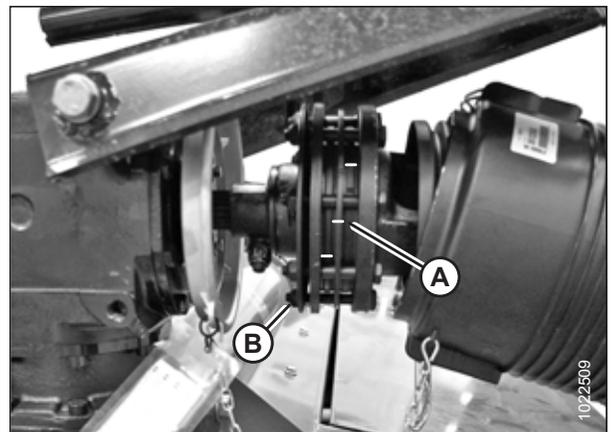


Figure 7.33: Driveline and Gearbox

PERFORMING PREDELIVERY CHECKS

11. If acceptable slippage is detected, retighten clutch spring adjustment nuts (B). Refer to [7.17.1 Adjusting Clutch, page 148](#).
12. If acceptable slippage is not detected, the clutch should be removed and disassembled for inspection/repair. Contact your MacDon Dealer.
13. Slide the shield cone to the gearbox and secure with the two lever clamps (A).

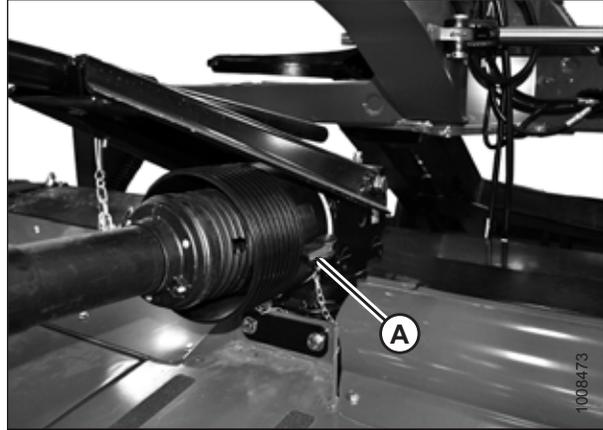


Figure 7.34: Driveline Shield Cone

7.17.1 Adjusting Clutch

1. Release two lever clamps (A) on the shield cone installed at the header swivel gearbox.

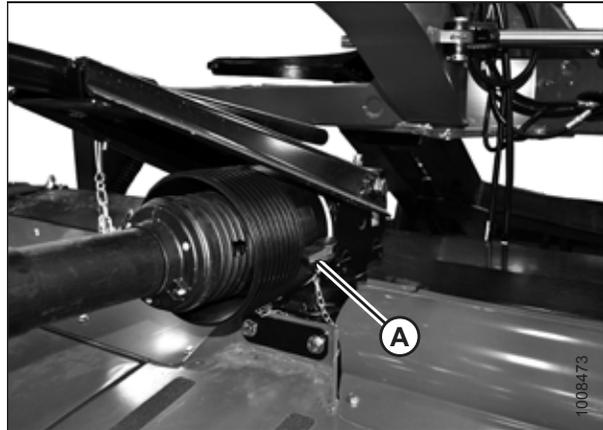


Figure 7.35: Driveline Shield Cone

PERFORMING PREDELIVERY CHECKS

2. Back off all pressure plate tensioning nuts (A) one and a half revolutions.

NOTE:

If this has already been done, you are not required to do it again.

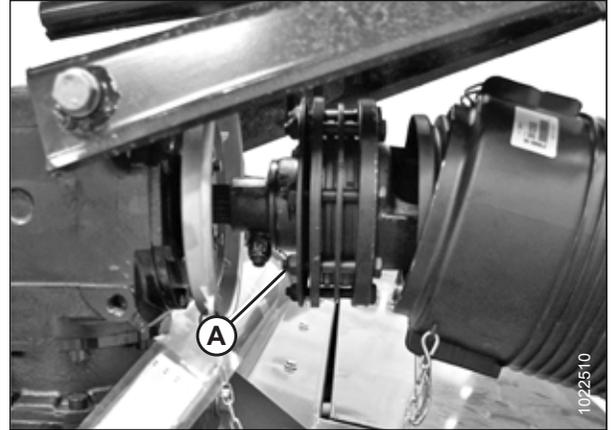


Figure 7.36: Clutch Bolts

3. Measure the distance (A) between Belleville washer (B) and plate (C) using a caliper. The distance must be 17.75 mm (0.70 in.) and must be consistent all around.

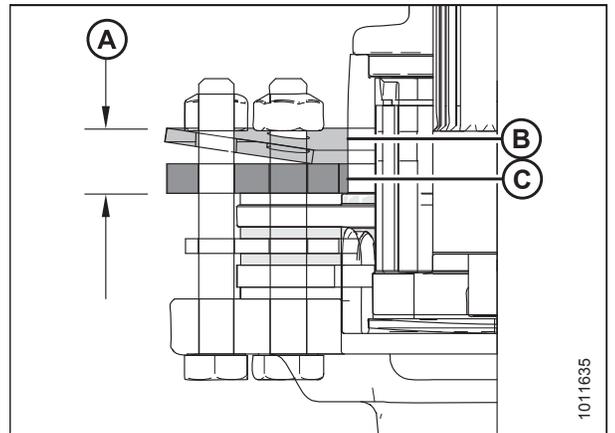


Figure 7.37: Initial Setup Measurement

4. Tighten nuts using the sequence shown at right. Once the discs are nearing the 17.75 mm (0.70 in.) dimension, check discs for looseness. Do **NOT** tighten the discs excessively. Try to achieve a balance between the clutch **slipping** during excessive loading and/or shock loading and **not slipping** during normal operation.
5. Test the clutch operation, and adjust evenly as required. Refer to [7.17 Checking Clutch Operation, page 147](#).

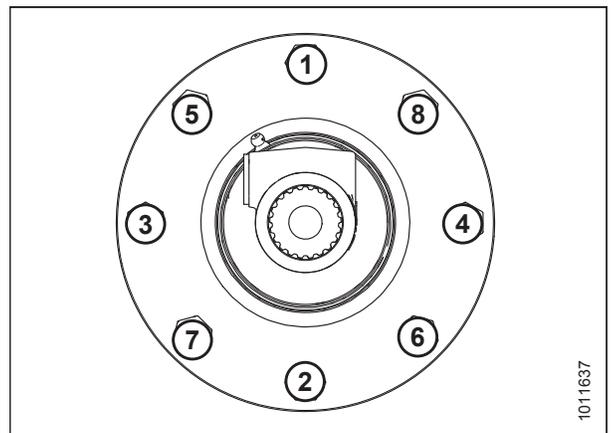


Figure 7.38: Tightening Sequence

PERFORMING PREDELIVERY CHECKS

- Slide the shield cone to the gearbox and secure with two lever clamps (A).

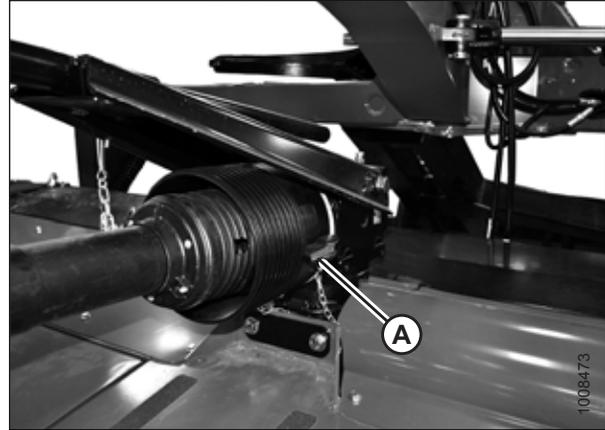


Figure 7.39: Driveline Shield Cone

7.18 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 and other foreign objects can be ejected from either end with force.
- Take extreme care to avoid injury from thrown objects. Do NOT, under any circumstances, operate the disc mower when other people are nearby.
- Check cutterbar area carefully for loose parts and hardware on the cutterbar. These objects can be ejected with considerable force when the machine is started, and may result in serious injury or machine damage.
- Cutterbar curtains reduce the potential for thrown objects. Always keep these curtains down when operating the disc mower. Replace the curtains if they 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 tractor.
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 inside the back cover of this instruction) to ensure the machine is field-ready.
6. Retain the Checklist and (if desired), retain this instruction for future reference.

7.19 Checking and Adjusting the Cam on the Transport Deploy/Swing Mechanism

The cam angle (A) on the transport deploy/swing mechanism assembly is factory-set to 112 degrees. It may be necessary to adjust the cam angle if the Road Friendly Transport™ does not properly deploy. When the system is functioning properly, the header should start to rotate as the transport wheels reach the end of their travel (beneath the header).

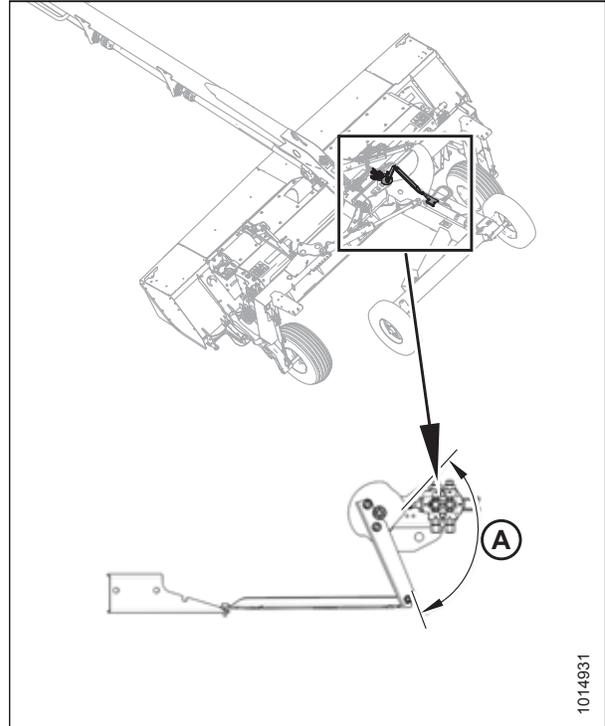


Figure 7.40: Transport Deploy/Swing Mechanism Assembly

1. Loosen two M10 jam nuts (A), two M10 hex flange nuts (B), and rotate cam plate (C) to achieve the proper angle. Reposition cam as follows:
 - Rotate **COUNTERCLOCKWISE** if the transport tires deploy too close to the header tires, before the transport wheels are fully under the header.
 - Rotate **CLOCKWISE** if the tires go underneath the header, but the header does not begin to rotate.
2. Tighten two M10 hex flange nuts (B) and two M10 jam nuts (A).
3. To test the transport deploy/swing mechanism. Refer to
 - [8.6.2 Converting from Transport to Field Mode \(With Road Friendly Transport™\)](#), page 166
 - [8.6.1 Converting from Field to Transport Mode \(With Road Friendly Transport™\)](#), page 160

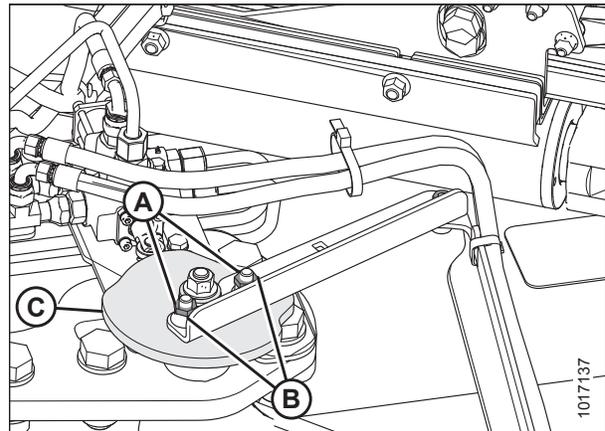


Figure 7.41: Transport Deploy/Swing Mechanism Assembly

Chapter 8: Transporting the Disc Mower

You can transport the disc mower using a tractor in either field mode or Road Friendly Transport™ mode.

- To prepare a disc mower for towing with a tractor in field mode without using the Road Friendly Transport™ option, refer to *8.1 Preparing Disc Mower for Transport, page 153*.
- To prepare a disc mower for towing with a tractor using the Road Friendly Transport™ option, refer to *8.6.1 Converting from Field to Transport Mode (With Road Friendly Transport™), page 160*.

CAUTION

- Obey all highway traffic regulations in your area when transporting on public roads. Use flashing amber lights unless prohibited by law.
- Be aware of roadside obstructions, oncoming traffic, and bridges.
- Travel at safe speeds to ensure complete machine control and stability at all times. Do NOT exceed 32 km/h (20 mph). Reduce speed for corners and slippery conditions.
- Use tractor lights and disc mower flashing amber and red taillights when transporting on roads in order to provide adequate warning to operators of other vehicles.
- Do NOT transport the disc mower on a road or highway at night or in reduced visibility conditions such as rain or fog.
- Ensure that hitch on transporting vehicle is capable of handling a 907 kg (2000 lb.) static vertical load.
- Do NOT tow with any highway-capable vehicle. Use only an agricultural tractor with a sufficient weight such that the fully loaded implement weighs no more than 1.5 times the weight of the tractor.

8.1 Preparing Disc Mower for Transport

Follow these instructions to prepare the disc mower for transport without deploying the optional Road Friendly Transport™ system.

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.

WARNING

Do NOT tow unless the hitch swing cylinder is fully charged. If hitch swing cylinder is not fully charged, loss of control, injury, or death could result.

TRANSPORTING THE DISC MOWER

1. Connect the disc mower hitch to the tractor. Refer to the disc mower operator's manual.
2. Turn the handle on jack stand (A) to raise the stand.
3. Remove pin (B) and stand (A).

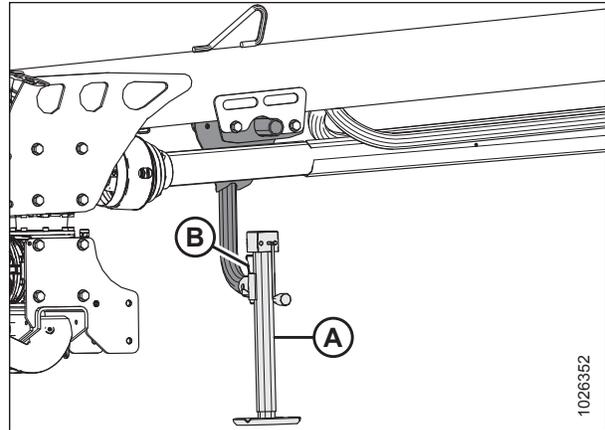


Figure 8.1: Jack in Storage Position

4. Move jack (A) to storage position on side of hitch, align the mounting holes and secure with pin (B).

NOTE:

If unit is equipped with a two-point hitch, rotate the hitch stand to the storage position.

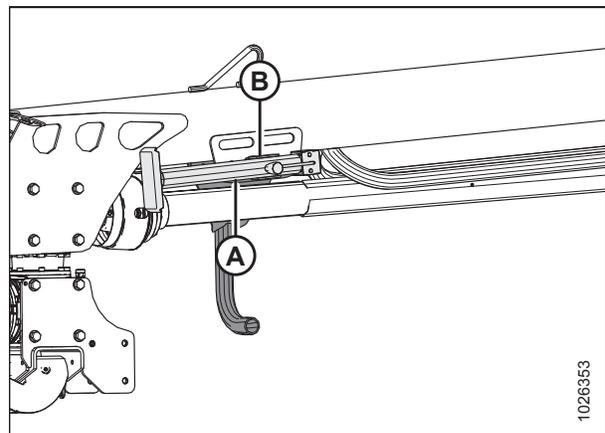


Figure 8.2: Jack in Storage Position

5. Raise the disc mower fully and close the lift cylinder lock-out valve by turning handle (A) to the closed position (90 degree angle to the hose). Repeat on opposite side.

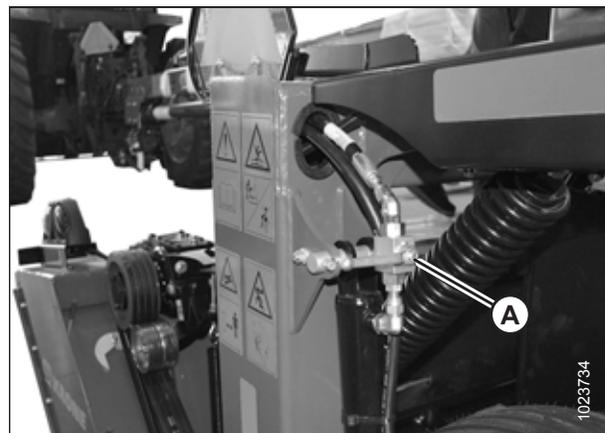


Figure 8.3: Cylinder Lock-Out Valve

TRANSPORTING THE DISC MOWER

6. Connect the hitch swing cylinder hoses (collars with #2) to the tractor's hydraulic circuit (A). Refer to [5.3.3 Connecting Hydraulics, page 98](#).
7. Swing the disc mower completely to the left, then completely to the right. Repeat three or four times to charge the hitch swing circuit.
8. Swing the disc mower so that it is centered behind the tractor.

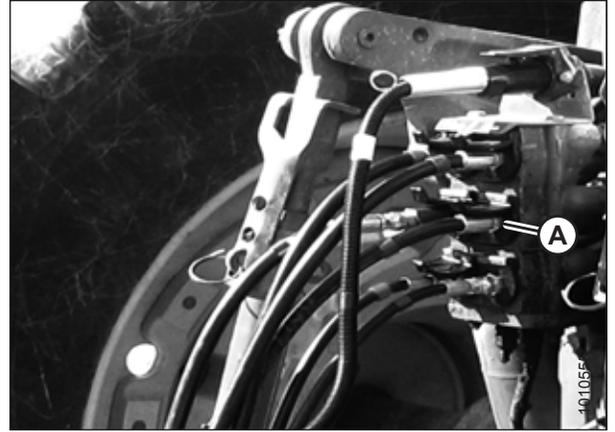


Figure 8.4: Hydraulic Connection

9. Close the hitch swing lock-out valve by turning handle (A) to the closed position (90 degree angle to the hose).
10. Ensure tires are properly inflated.
11. Ensure the slow moving vehicle (SMV) sign, reflectors, and lights are clean and visible at rear of disc mower.
12. Refer to [8.2 Transporting with a Tractor, page 156](#) for transport instructions.

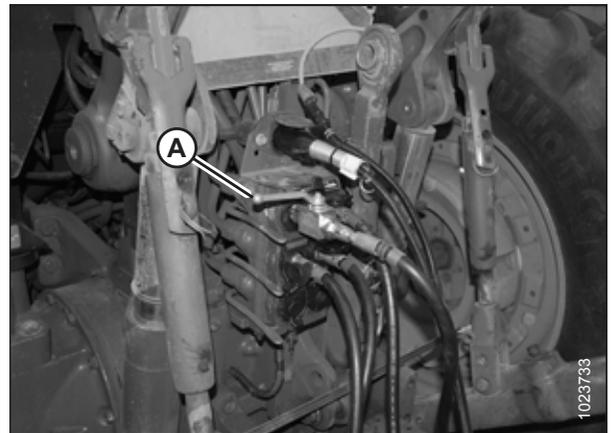


Figure 8.5: Hitch Swing Lock-Out Valve Shown in Closed Position

8.2 Transporting with a Tractor

If towing endwise with the optional Road Friendly Transport™ system, refer to [8.6.1 Converting from Field to Transport Mode \(With Road Friendly Transport™\)](#), page 160.

1. Before transporting the disc mower with a tractor, ensure the machine is prepared for transport. Refer to [8.1 Preparing Disc Mower for Transport](#), page 153.
2. Ensure hitch safety chain is properly connected to the tractor. Provide only enough slack in chain to permit turning.
3. Move jack (A) to storage position on side of hitch, and secure with pin (B).

NOTE:

If unit is equipped with a two-point hitch, rotate the stand to the storage position.

4. Ensure the hydraulic hoses are securely stored on the hitch.

NOTE:

The primary driveline and hydraulic hoses do not need to be attached to the tractor for towing.

5. Ensure the hitch swing lock-out and the two lift-cylinder lock-out valves are closed (handle 90 degree to the hose).

NOTE:

Keep the slow moving vehicle (SMV) sign, reflectors, and lights clean and visible at rear of disc mower.

6. Ensure tires are properly inflated.

IMPORTANT:

Do **NOT** exceed 32 km/h (20 mph).

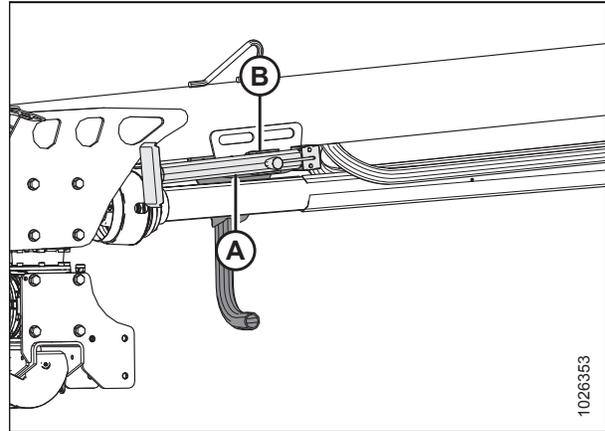


Figure 8.6: Jack in Storage Position

8.3 Transport Lighting

8.3.1 Lighting (With Road Friendly Transport™ Option)

The disc mower is equipped with two bidirectional amber lights (A) located on the outboard edges of the carrier frame that function as flashing hazard lights and turn signals.

The red lights (B) located on the inboard side of the amber lights function as both tail and brake lights. Refer to the disc mower operator's manual for information about connecting the electrical harness to the tractor.

Amber reflective tape is applied to various locations on the front and sides of the disc mower, hitch, and carrier frame. Red reflective tape is applied to the rear of the disc mower.

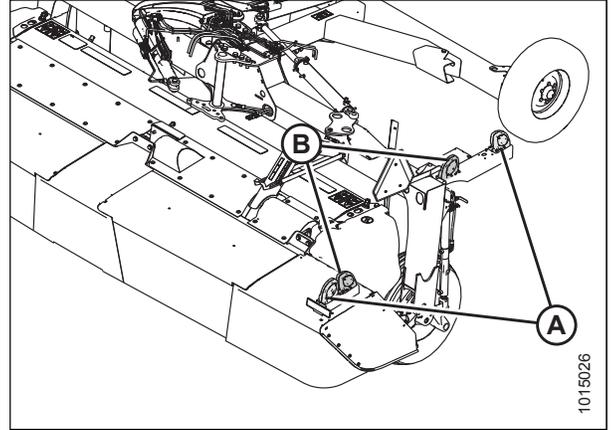


Figure 8.7: Lighting Locations (with Road Friendly Transport™)

8.3.2 Lighting (Without Road Friendly Transport™ Option)

The disc mower is equipped with two bidirectional amber lights (A) located on the outboard edges of the carrier frame that function as flashing hazard lights and turn signals.

The red lights (B) located on the inboard side of the amber lights function as both tail and brake lights. Refer to the disc mower operator's manual for information about connecting the electrical harness to the tractor.

Amber reflective tape is applied to various locations on the front and sides of the disc mower, hitch, and carrier frame. Red reflective tape is applied to various locations on the disc mower.

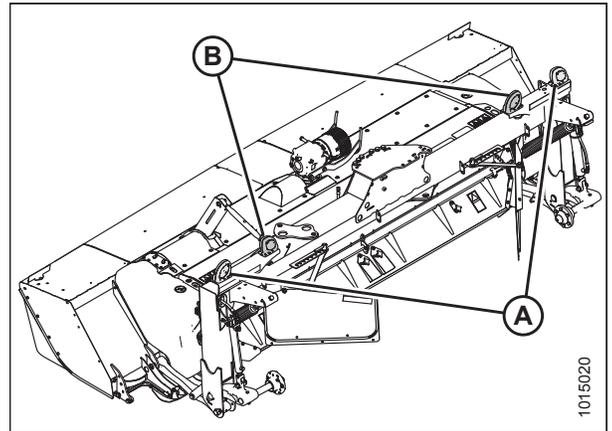


Figure 8.8: Lighting Locations

8.4 Converting from Transport to Field Mode (Without Road Friendly Transport™)

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. Stop engine and remove key from ignition.
2. Connect all hydraulic hoses (refer to [5.3.3 Connecting Hydraulics, page 98](#)), and connect electrical wiring harness.
3. Open the steering lock-out valve by turning the handle (A) to the open position (in line with hose).

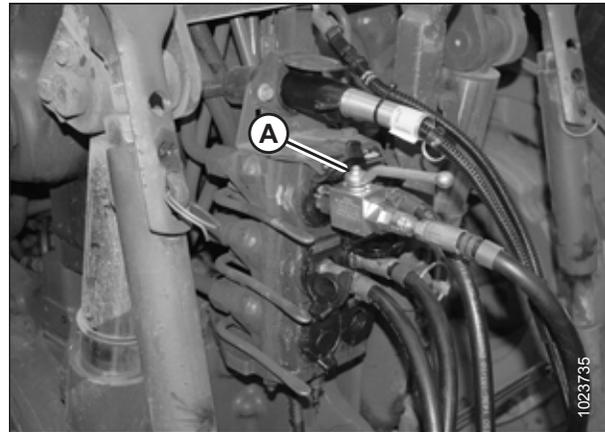


Figure 8.9: Steering Lock-Out Valve in Open Position

4. Open the lock-out valve (A) on each lift cylinder by turning the handle to the open position (in line with hose).

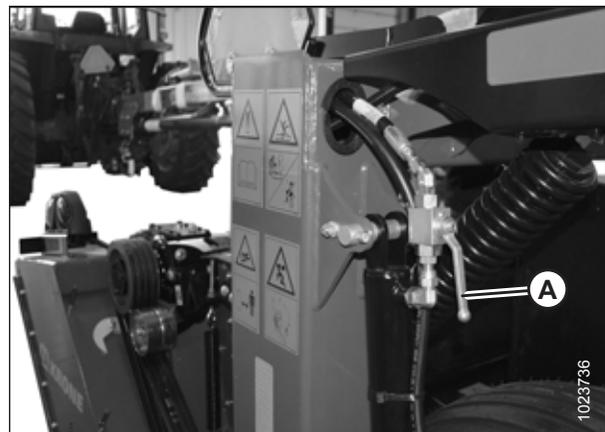


Figure 8.10: Lift Cylinder Lock-Out Valve

8.5 Converting from Field Mode to Transport (Without Road Friendly Transport™)

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. Raise header.
2. Move header fully to the left side, then fully to the right side. Repeat this a couple of times.
3. Center the header.
4. Stop engine and remove key from ignition.
5. Close the steering lock-out valve by turning handle (A) to the closed position (90 degree angle to the hose).

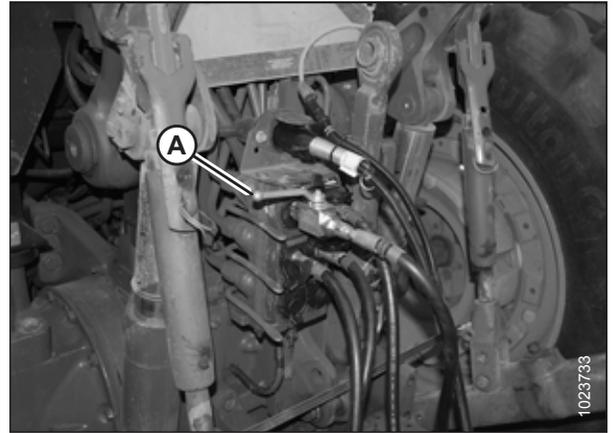


Figure 8.11: Steering Lock-Out Valve

6. Close the lift cylinder lock-out valve by turning handle (A) to the closed position (90 degree angle to the hose). Repeat on opposite side.
7. Disconnect all hydraulic hoses (refer to [5.3.3 Connecting Hydraulics, page 98](#)), and disconnect electrical wiring harness.

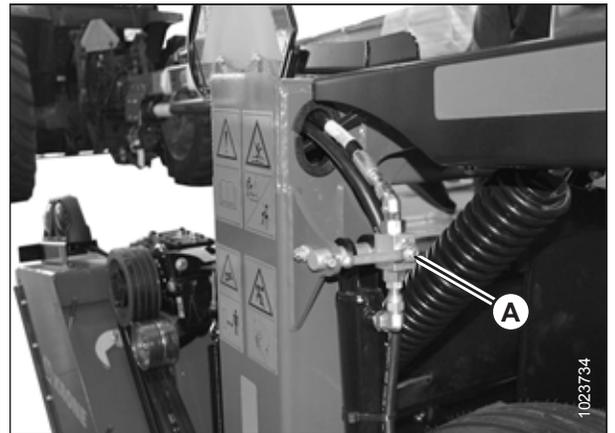


Figure 8.12: Lift Cylinder Lock-Out Valve

8.6 Road Friendly Transport™ Option

The optional Road Friendly Transport™ system allows the disc mower to be towed while remaining within the legal width restrictions on most roads and highways.



Figure 8.13: Road Friendly Transport™ System

8.6.1 Converting from Field to Transport Mode (With Road Friendly Transport™)

⚠ DANGER

To prevent serious injury or death, do NOT convert the machine into, or from transport mode until all people, animals, and objects are clear of the unit's rotational range.

⚠ WARNING

To prevent equipment damage, ensure cutterbar doors are properly closed before converting the machine from field to transport mode.

IMPORTANT:

In some jurisdictions, having tall crop dividers installed can make the disc mower too wide for public roads when in Road Friendly Transport™ mode. If necessary, remove the dividers, and reinstall them after the machine is transported. Refer to the disc mower operator's manual.

1. If tightened, loosen bolts (B) on transport latch (A).

NOTE:

This step only needs to be completed the first time the machine is converted from field to transport.

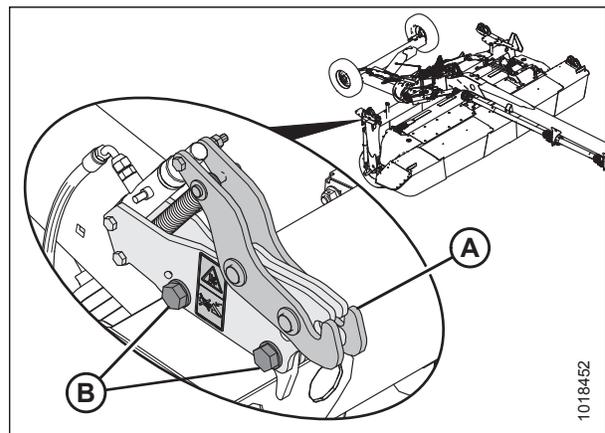


Figure 8.14: Transport Latch

TRANSPORTING THE DISC MOWER

2. Clear bystanders from the area and start tractor. Do **NOT** operate the disc mower.
3. Following the steps on the field-to-transport decal (A), move transport switch to the lower position (C) and ensure that light (B) is illuminated.



Figure 8.15: Remote Control

4. While light is illuminated, raise the disc mower fully by extending the field wheel cylinders.

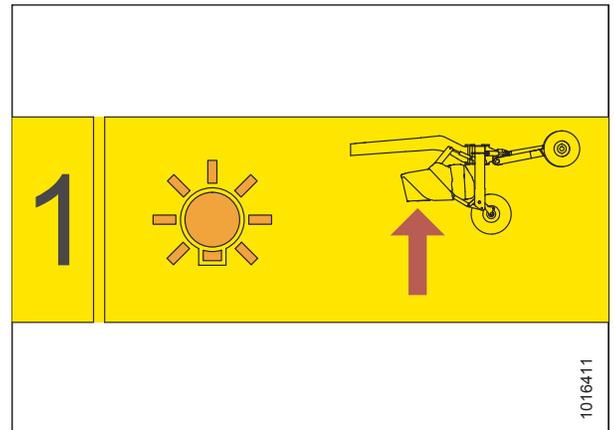


Figure 8.16: Raising Disc Mower

TRANSPORTING THE DISC MOWER

5. Operate the hitch swing control lever to rotate the disc mower to the right until cam bearing nut is aligned with the green section of the transport alignment gauge decal.

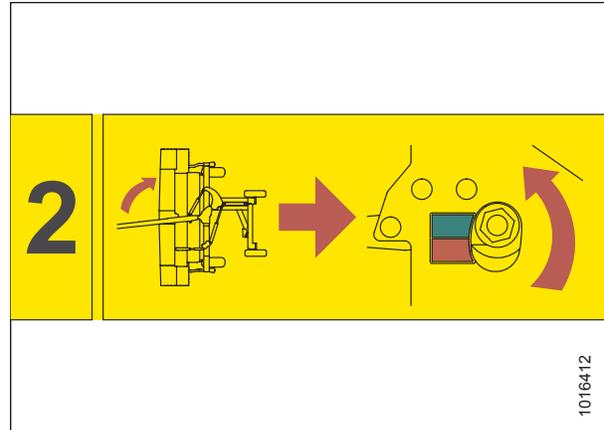


Figure 8.17: Disc Mower Rotation

6. Move transport switch to the upper position and ensure that the light is **NOT** illuminated. The hitch swing circuit is now deactivated and the transport circuit is active.

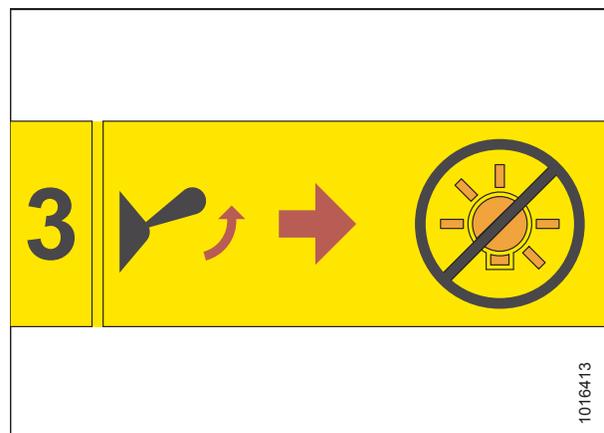


Figure 8.18: Transport Switch

7. Operate hitch swing control lever to lower transport wheels (A) and hold lever until disc mower is lifted off the ground.
8. Continue to hold the hitch swing control lever so that the disc mower (B) rotates to the left and under the hitch.
9. Release hitch swing control lever when disc mower (C) stops rotating.

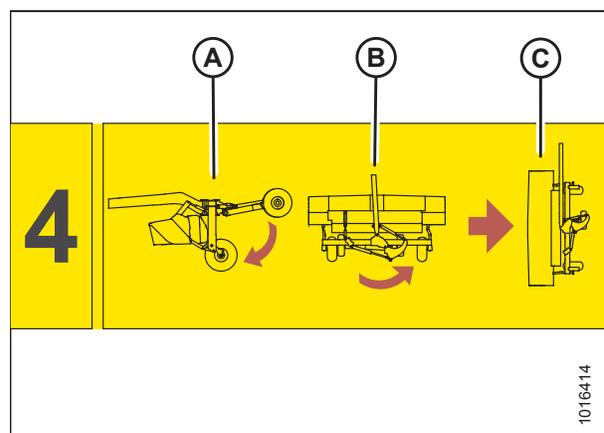


Figure 8.19: Transport Assembly Rotation

TRANSPORTING THE DISC MOWER

10. Operate the lift control lever to lower the disc mower onto the transport assembly, raise the field wheels, and engage transport latch onto hitch.

IMPORTANT:

Once latch has engaged, do **NOT** operate any hydraulic circuits.

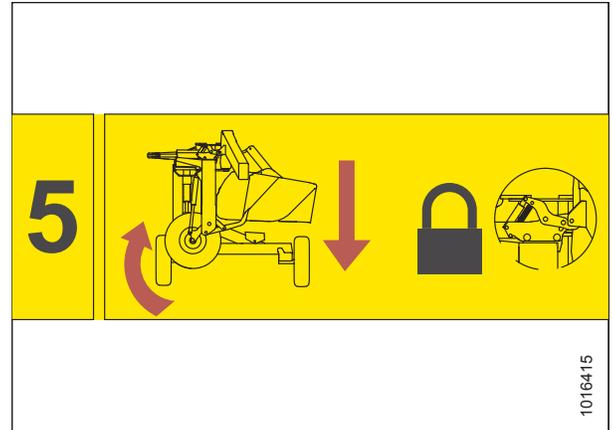


Figure 8.20: Transport Assembly Lowering

11. Close the steering lock-out valve and the two lift cylinder lock-out valves by turning the handles to the closed position. Refer to Figure 8.22, page 163 and Figure 8.23, page 164.

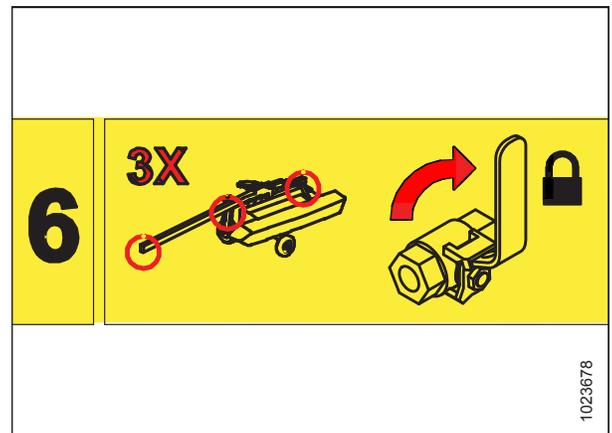


Figure 8.21: Hydraulic Lockout

Steering lock-out: Close the valve by turning handle (A) to the closed position (90 degree angle to the hose).

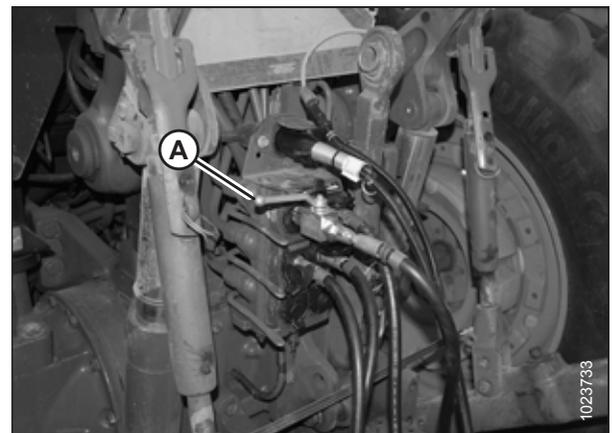


Figure 8.22: Steering Lock-Out Valve

TRANSPORTING THE DISC MOWER

Lift cylinder lock-out: Close the valve by turning handle (A) to the closed position (90 degree angle to the hose). Repeat on opposite side.

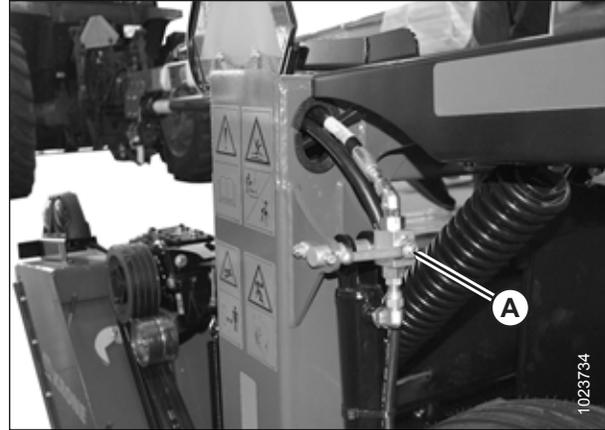


Figure 8.23: Lift Cylinder Lock-Out Valve

12. Torque bolts (B) on transport latch (A) to 460 Nm (340 lbf·ft).

NOTE:

This step only needs to be completed the first time the machine is converted from field to transport.

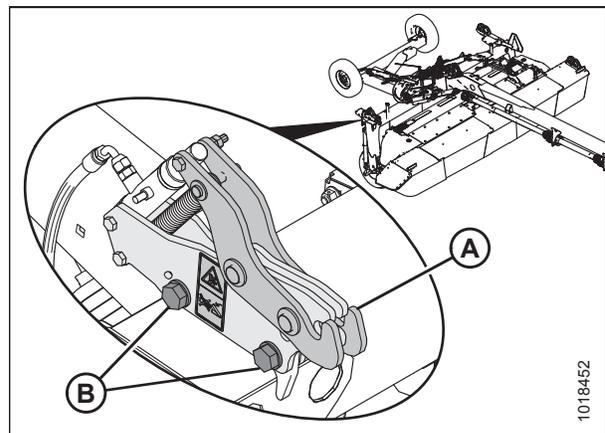


Figure 8.24: Transport Latch

13. Activate the hazard lights (A) on the disc mower. Ensure all lights are working.
14. Ensure that the slow moving vehicle sign (B) is visible from behind the disc mower.

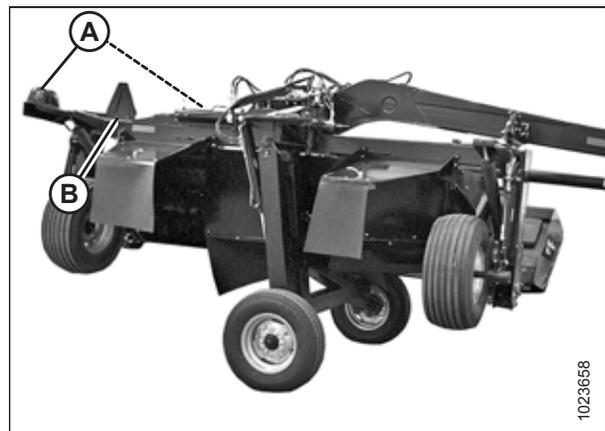


Figure 8.25: Transport Mode

TRANSPORTING THE DISC MOWER

15. Once the field to transport conversion (A) is complete, leave the switch in the upper position (C). Ensure that light (B) is **NOT** illuminated.



Figure 8.26: Remote Control

8.6.2 Converting from Transport to Field Mode (With Road Friendly Transport™)

⚠ DANGER

To prevent serious injury or death, do NOT convert the machine into, or from transport mode until all people, animals, and objects are clear of the unit's rotational range.

⚠ WARNING

To prevent equipment damage, ensure cutterbar doors are properly closed before converting the machine from field to transport mode.

1. Following the steps on the transport-to-field decal (A), move transport switch to the upper position (C) and ensure that light (B) is NOT illuminated.



Figure 8.27: Remote Control

2. Open the steering lock-out valve and the two lift cylinder lock-out valves by turning the handles to the open position.

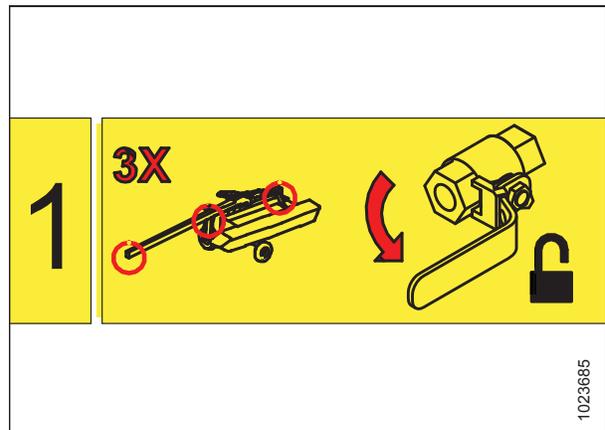


Figure 8.28: Hydraulic Lockout

TRANSPORTING THE DISC MOWER

Steering lock-out: Open the valve by turning handle (A) to the open position (in line with the hose).

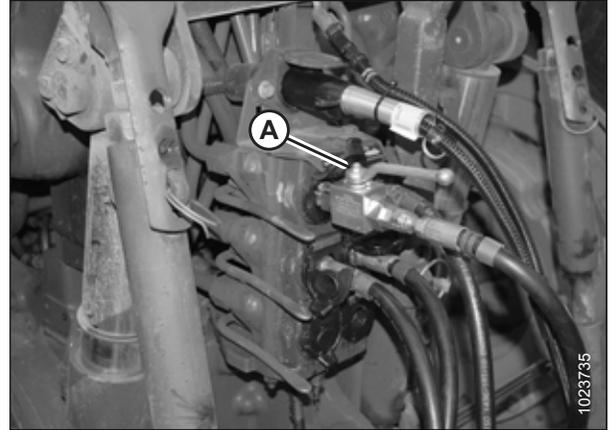


Figure 8.29: Steering Lock-Out Valve

Lift cylinder lock-out: Open the valve by turning handle (A) to the open position (in line with the hose). Repeat on opposite side.

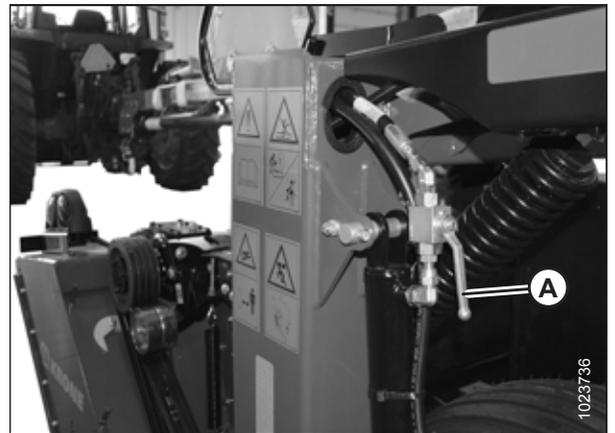


Figure 8.30: Lift Cylinder Lock-Out Valve

3. While the light is **NOT** illuminated, operate the lift control lever (as if raising the disc mower) to fully extend the lift cylinders and raise the cutterbar off the transport assembly support. The carrier frame latch will automatically open.

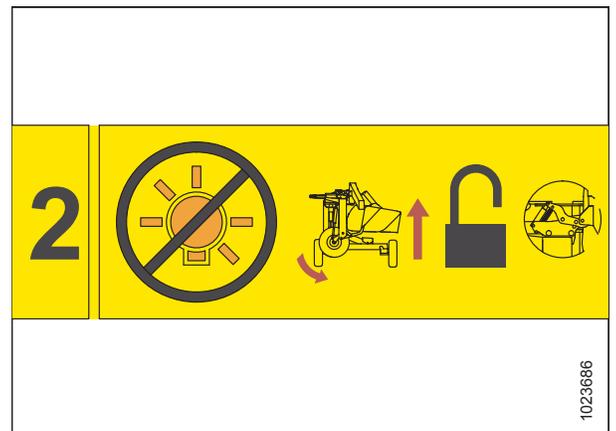


Figure 8.31: Raising Disc Mower

TRANSPORTING THE DISC MOWER

4. Operate the hitch swing control lever to rotate the disc mower to the right. The disc mower will stop when it reaches operating position.

NOTE:

A sequenced movement transitions the disc mower from transport to field mode. This is accomplished by the rear transport swing cylinder, and the transport deploy cylinder. During the transition, continue to hold the hitch swing lever in the active position to allow oil to be supplied to the two cylinders sequentially.

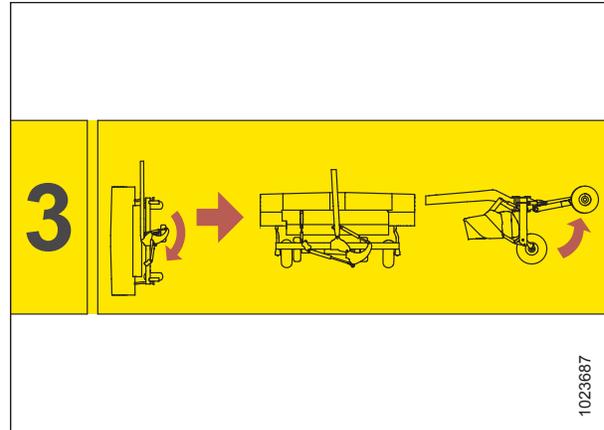


Figure 8.32: Disc Mower Rotation

5. Continue operating the hitch swing control lever to fully raise the transport assembly and lower the disc mower onto the field wheels.
6. Move transport switch to the lower position and ensure that the light on the remote control is illuminated. Transport conversion is now complete and the hitch swing circuit is active.

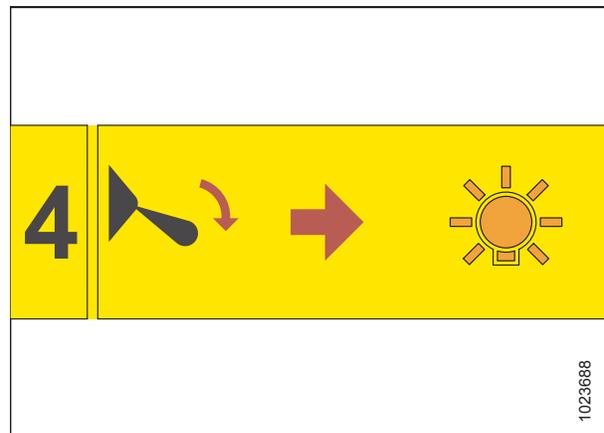


Figure 8.33: Transport Switch

TRANSPORTING THE DISC MOWER

7. Once the transport-to-field conversion (A) is complete, leave the switch in lower position (C). Ensure that light (B) is illuminated.



Figure 8.34: Remote Control

Chapter 9: 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 [9.4 Assembling Header and Carrier, page 183](#).

R113/R116 Pull-Type Disc Mowers can be equipped with either a finger conditioner, a polyurethane roll conditioner, a steel roll conditioner, or no conditioner at all. Follow these instructions to change conditioners (disregard this if the disc mower will be delivered to the customer as is).

NOTE:

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

9.1 Separating Header from Carrier

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.

The disc mower includes a header and conditioner attached to a carrier frame. Before removing or installing the conditioner, the header and carrier must be separated.

1. Connect the disc mower to the tractor. Refer to [5.3 Attaching Disc Mower to the Tractor, page 93](#).
2. Start tractor and center disc mower behind tractor.
3. Raise disc mower fully, set center-link to mid-position, and shut off the engine. Remove key from ignition.

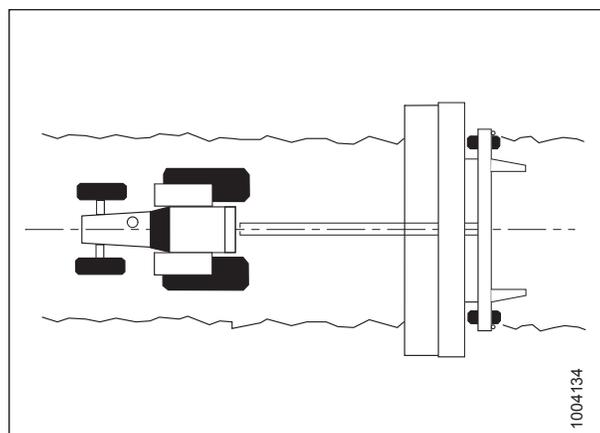


Figure 9.1: Disc Mower Centered behind Tractor

NOTE:

The float adjuster bolt is easier to turn when the disc mower is in the raised position.

4. Close the disc mower lift cylinder lock-out valves (A).
5. Loosen jam nut (B) on adjuster bolt.
6. Turn out adjuster bolt (C) on each float spring until 400 mm (17-3/4 in.) of thread (D) is exposed.

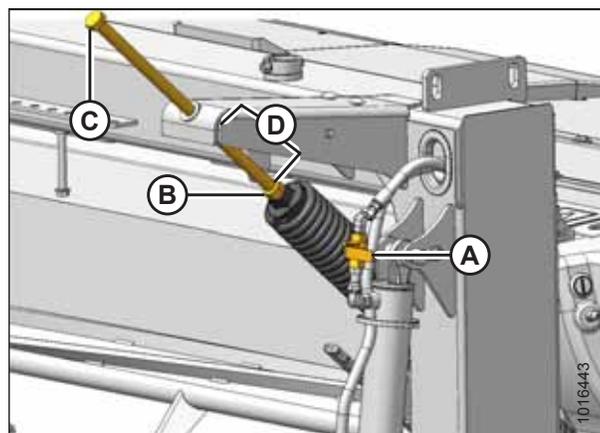


Figure 9.2: Right Side Float Adjuster – Left Side Similar

CHANGING THE CONDITIONER

- Open lift cylinder lock-out valves (A) (handle in line with the hose).
- Start the engine and fully lower the disc mower.
- Stop the engine and remove the key from the ignition.
- Check that float adjuster bolts (B) are loose. Back off adjuster bolts as required.
- Remove float adjuster bolt (B) from spring on **LEFT** side only. Do **NOT** allow spring to drop when bolt is removed.

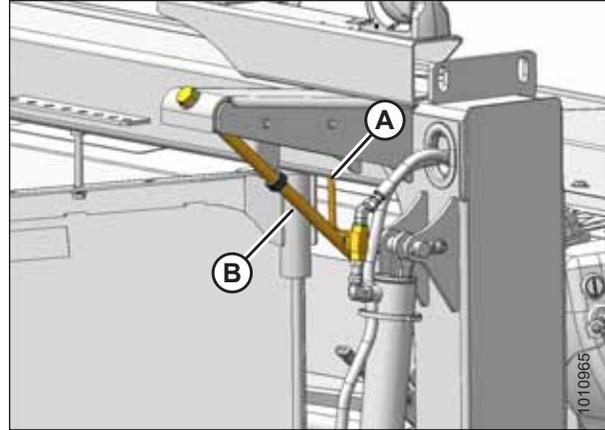


Figure 9.3: Right Side Float Adjuster – Left Side Similar

- Open left and right driveshields (A). For instructions, refer to [6.1 Opening Driveshields, page 119](#).

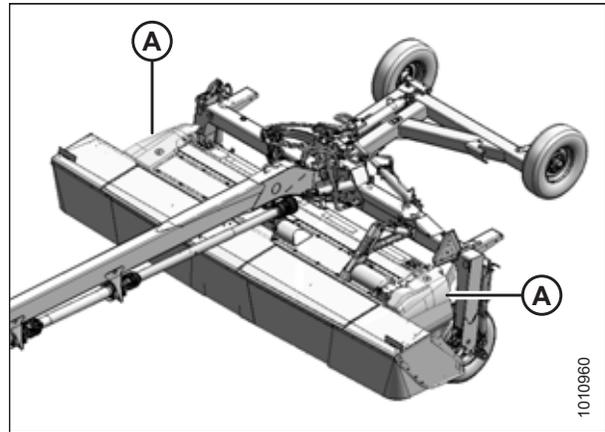


Figure 9.4: Driveshields

- On the right side of the disc mower, remove the M20 nut (A), washers, and hex head bolt (B) securing the carrier leg (C) and float spring arm (D) to the header.
- Move float spring arm (D) clear of conditioner.

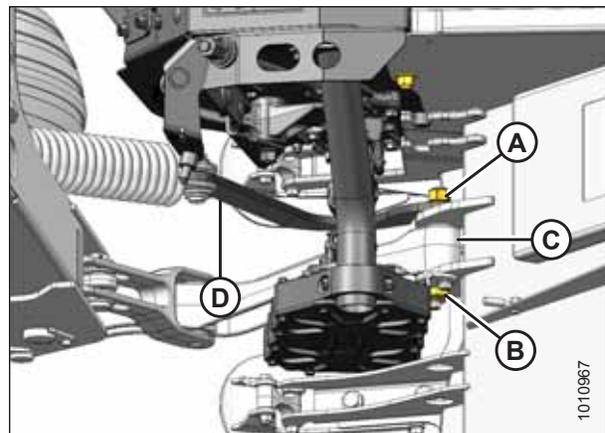


Figure 9.5: Right Side of Carrier (Top View)

CHANGING THE CONDITIONER

15. Remove the M20 nut (A), washers, and hex head bolt (B) securing carrier leg (C) to the left end of the header.

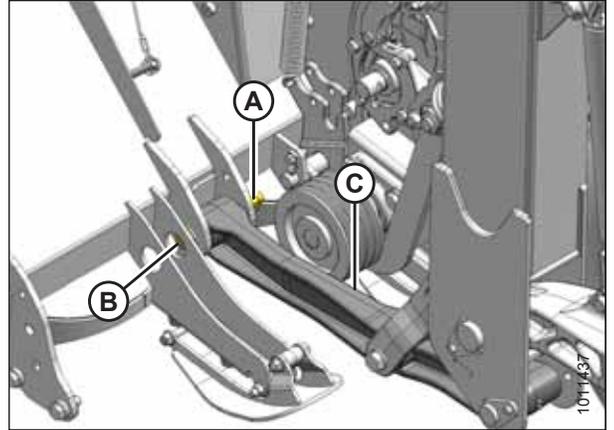


Figure 9.6: Left Side of Conditioner

16. Remove clevis pin (A) connecting center-link (B) to anchor (C), and separate center-link from anchor. Reinstall pin in anchor to store.
17. Secure center-link (B) and indicator (D) to carrier frame with a strap or wire to prevent them from contacting the disc mower during separation.

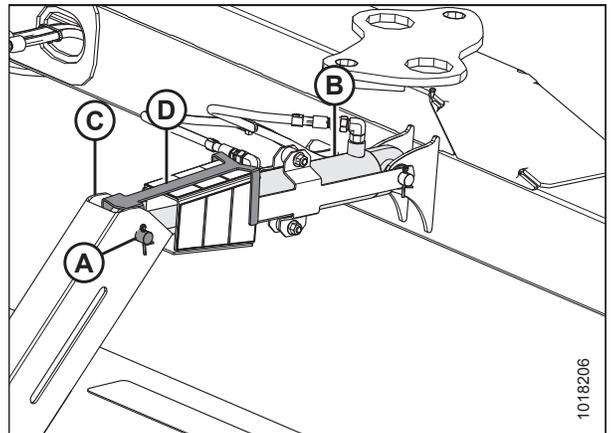


Figure 9.7: Center-Link and Indicator

18. Start tractor, slowly back carrier (A) off header (B), and maneuver carrier away from header.

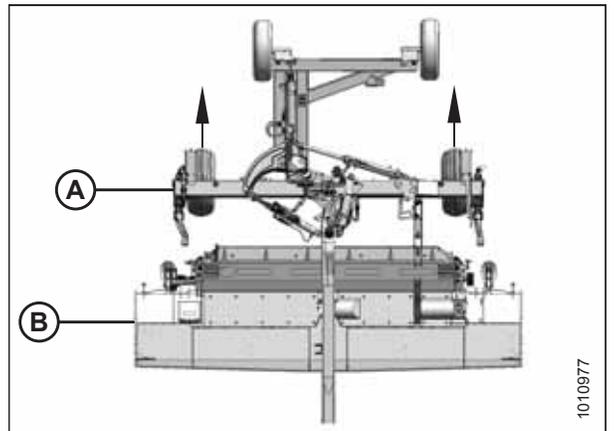


Figure 9.8: Carrier Removed from Header

9.2 Removing the Conditioner

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.

1. Attach a spreader bar (A) to a forklift or equivalent lifting device, 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.).

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.

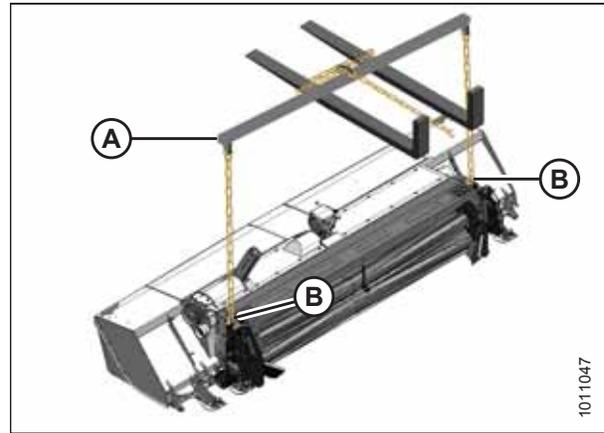


Figure 9.9: Spreader Bar

2. On the left side of the disc mower, remove the conditioner drive belt as follows:
 - a. Back off jam nut and tensioner nut (B) on belt idler until belts (A) are loose and can be removed.
 - b. Remove the four belts.

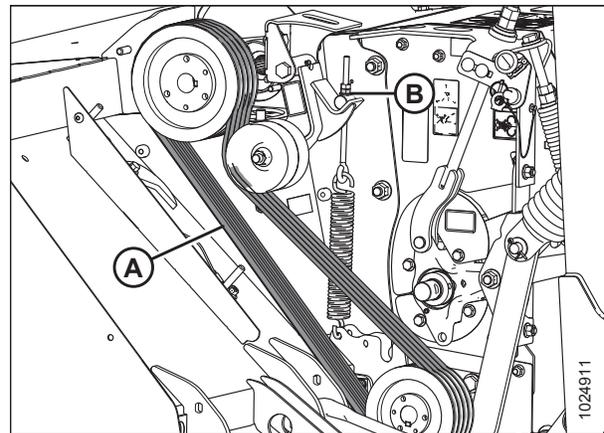


Figure 9.10: Conditioner Drive

3. For finger conditioner, move forward baffle adjustment handle (A) to fully lowered position, as shown.
4. Move rear baffle adjustment handle (B) to fully raised position as shown.

NOTE:

Access to upper bolts (C) is easiest from the rear of the conditioner.

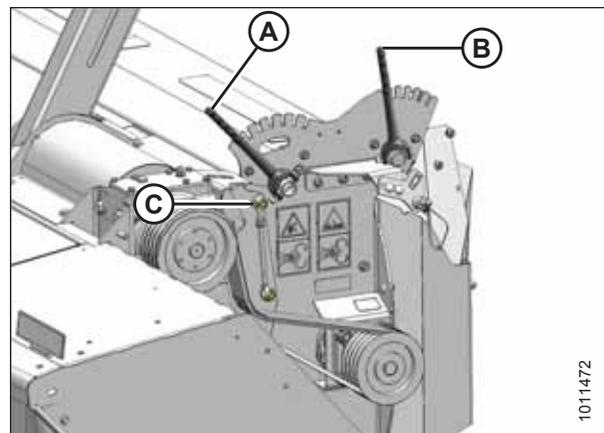


Figure 9.11: Left Side of Finger Conditioner

CHANGING THE CONDITIONER

5. Lift conditioner slightly forward to take load off bolts (A) and to hold the conditioner after the bolts are removed. Retain hardware for reinstallation.

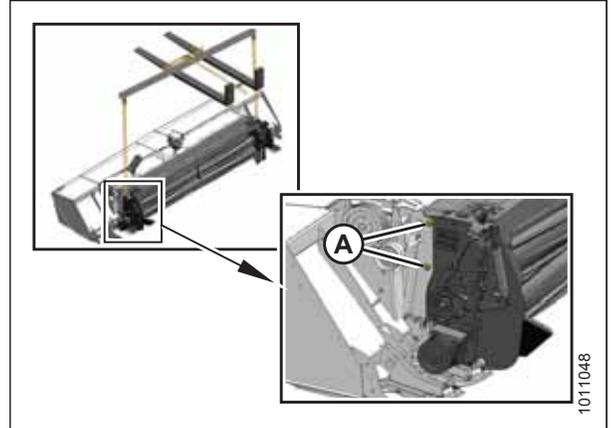


Figure 9.12: Left Side of Conditioner – Right Side Similar

CAUTION

Stand clear when detaching the conditioner.

6. Remove two M16 hex head bolts (A) from each side of conditioner that secure it to mower.

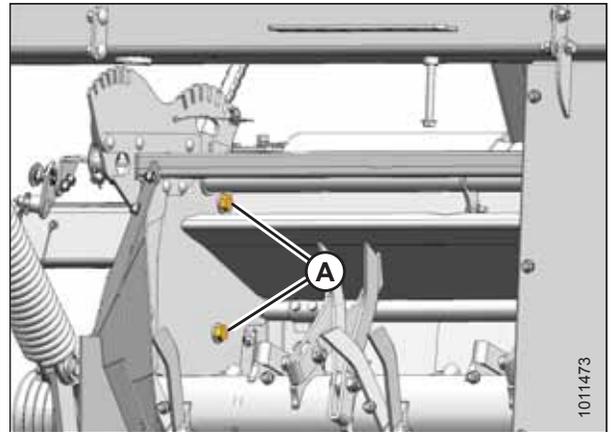


Figure 9.13: Left Side of Finger Conditioner – Right Side Similar

CAUTION

Stand clear when detaching the conditioner.

7. Lift conditioner (A) off disc mower (B), and move it away from work area.

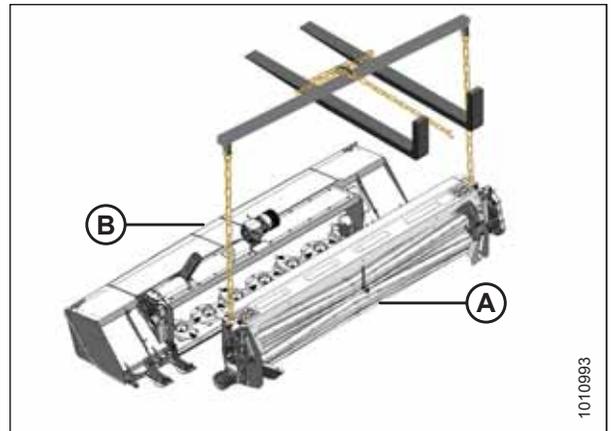


Figure 9.14: Conditioner Lift

CHANGING THE CONDITIONER

NOTE:

If installing a finger conditioner, remove deflector plates (A). Refer to [9.2.1 Removing Cutterbar Deflectors, page 177](#).

NOTE:

If you are replacing a roll conditioner, the deflector plates (A) need to remain installed on the header. Proceed to [9.3 Installing the Conditioner, page 178](#).

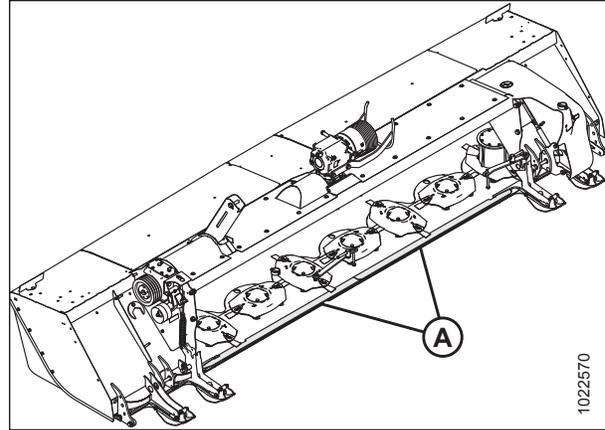


Figure 9.15: Deflector Location

9.2.1 Removing Cutterbar Deflectors

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, stop engine, remove key, and engage header lift cylinder lock-out valves before going under machine for any reason.

IMPORTANT:

To avoid damage, cutterbar deflectors must **NOT** be used with the finger conditioner option.

1. Raise mower fully, shut down tractor, and remove key from ignition.
2. Close lift cylinder lock-out valves. Refer to [11.2 Engaging Locks, page 204](#).
3. Clean debris from deflectors and deflector area.

IMPORTANT:

Do **NOT** remove cutterbar level plug (B).

4. Remove three bolts and nuts (C) securing deflector to cutterbar using a 6 mm hex key and a 15 mm socket.
5. Remove bolt (D) from outboard end of deflector with 8 mm hex key. Retain bolt.
6. Remove deflector (A). Replace retained bolt (D) through skid shoe and secure with M12 washer and lock nut (E).
7. Repeat for deflector on opposite side of disc mower.
8. Store deflectors and hardware in a safe place.

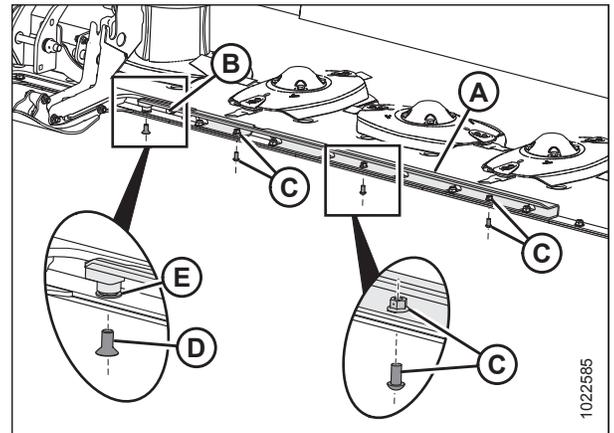


Figure 9.16: Left Cutterbar Deflector

9.3 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 detaching the conditioner from the mower.

NOTE:

If installing a finger conditioner, deflector plates must be removed. Refer to [9.2.1 Removing Cutterbar Deflectors](#), page 177.

NOTE:

Install deflector plates (A) when installing a roll conditioner and when replacing faulty or damaged deflector plates. Refer to [9.3.1 Installing Cutterbar Deflectors](#), page 180.

NOTE:

If you are replacing a roll conditioner and the deflector plates (A) are already installed on the machine, proceed to Step 1, page 178.

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

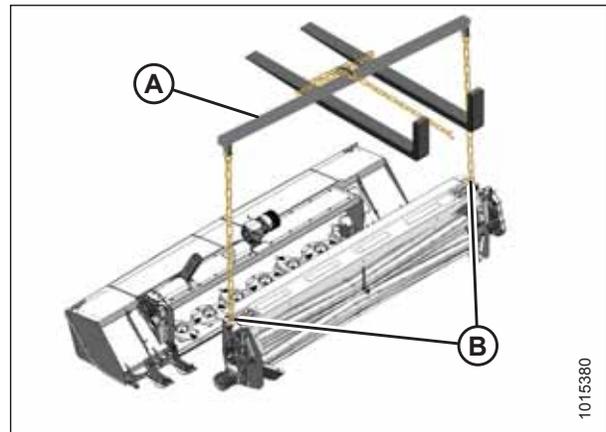


Figure 9.17: Conditioner Lift

3. Carefully align pin (A) at each end of conditioner with lug (B) on disc mower, and lower conditioner so that pins (A) engage lugs (B) on disc mower.

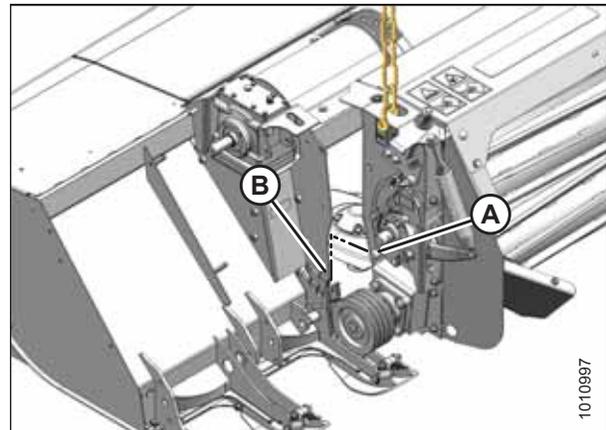


Figure 9.18: Conditioner Pins

CHANGING THE 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.

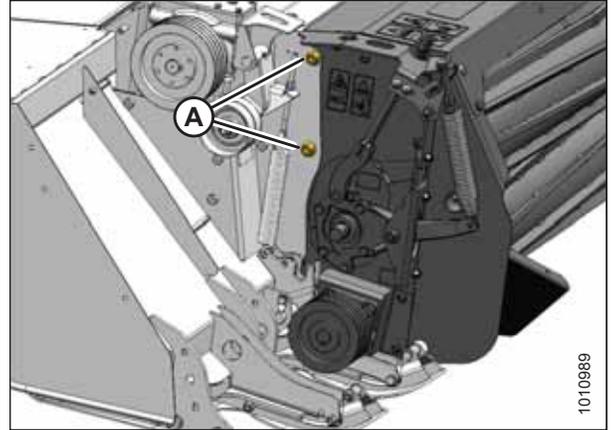


Figure 9.19: Left Side of Conditioner – Right Side Similar

9.3.1 Installing Cutterbar Deflectors

⚠ DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, stop engine, remove key, and engage header lift cylinder lock-out valves before going under machine for any reason.

IMPORTANT:

To avoid damage, cutterbar deflectors must **NOT** be used with the finger conditioner option.

1. Raise disc mower fully, shut down tractor, and remove key from ignition.
2. Close lift cylinder lock-out valves.
3. Clean debris from ledge and the six mounting holes along aft edge of cutterbar.
4. Position left deflector (A) (with cut-out for cutterbar drain plug [B]) on top of ledge along the outboard end of the cutterbar, and align existing fasteners and cutterbar plug with slots in deflector (A).
5. Install three button hex head socket M10 bolts (C) with lock nuts in the holes with the heads facing down.

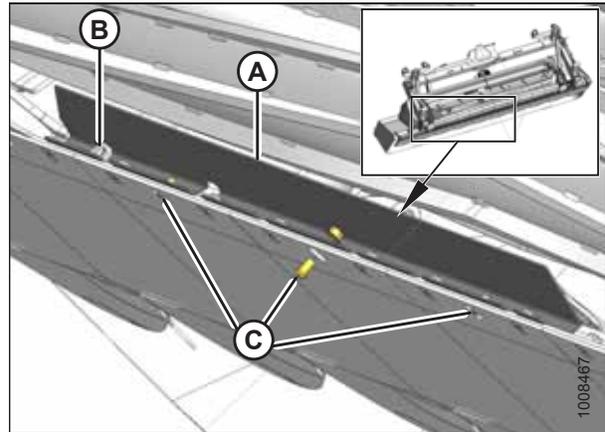


Figure 9.20: Left Cutterbar Deflector Viewed from Underside of Cutterbar

6. Repeat Steps 3, page 180 through Step 5, page 180 to install right deflector (A).
7. Align deflectors at position (B) and tighten bolts (C) to 54 Nm (40 lbf·ft) with a 16 mm socket and an 8 mm hex key.

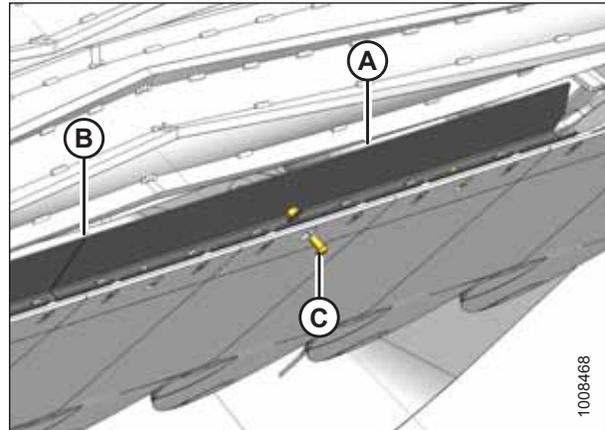


Figure 9.21: Right Cutterbar Deflector Viewed from Underside of Cutterbar

CHANGING THE CONDITIONER

9.3.2 Installing Conditioner Drive

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

If installing a conditioner on the R1 Series Pull-Type Disc Mower, refer to [9.3 Installing the Conditioner, page 178](#).

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.

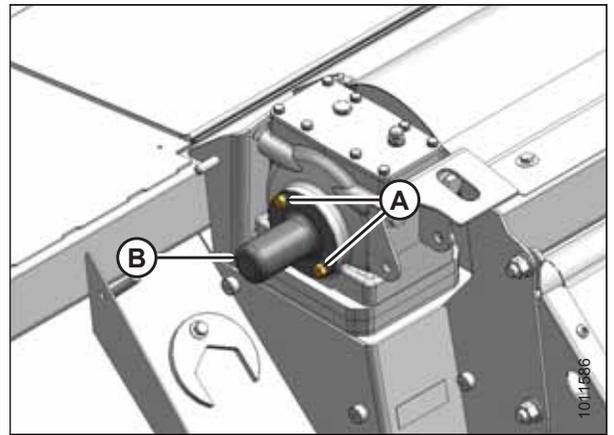


Figure 9.22: Shaft Cover

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).

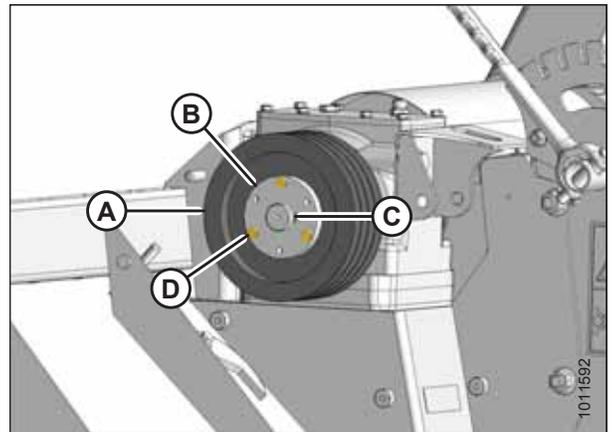


Figure 9.23: Drive Pulley

CHANGING THE CONDITIONER

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

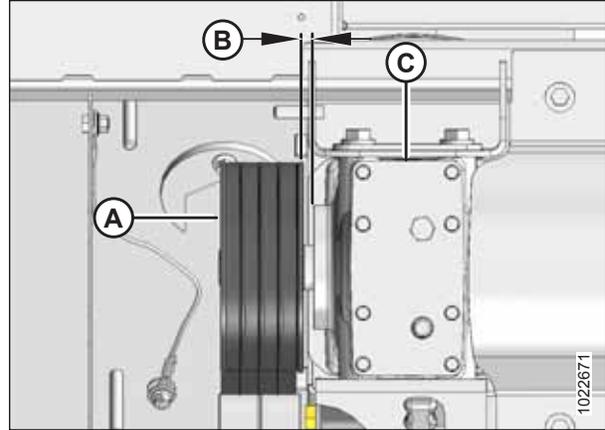


Figure 9.24: Drive Pulley

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 lbf·ft).

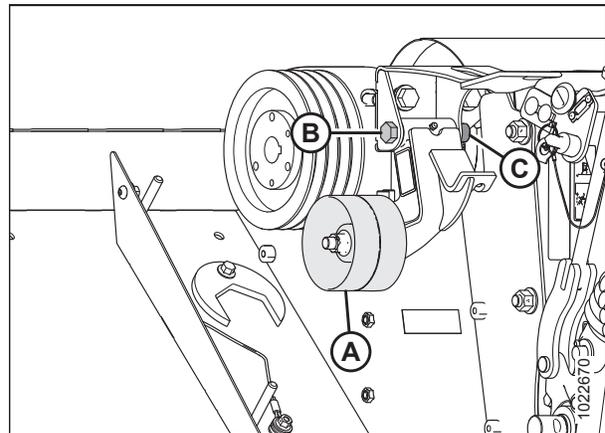


Figure 9.25: Tensioner

6. Install spring (A) into rear hole (B) for finger conditioner, and forward hole (C) for roll conditioner.
7. Install eyebolt (D) onto tensioner (E) and spring (A). Secure eyebolt with hardened washer (F) and two M10 nuts (G).

NOTE:

Install conditioner drive belt after reattaching header to carrier.

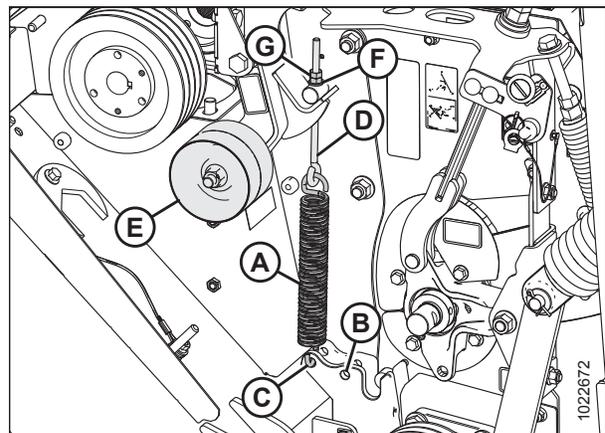


Figure 9.26: Tensioner

9.4 Assembling Header and Carrier

The carrier must be attached to a tractor for the header and carrier to be assembled.

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. Start the tractor and maneuver carrier (A) directly behind the header (B) so carrier legs line up with the header attachment points.
2. Drive slowly forward to engage the carrier legs (C) into the header attachment brackets.

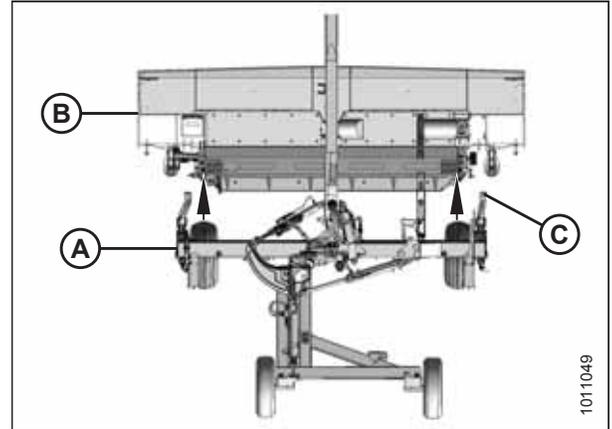


Figure 9.27: Carrier Aligned with Header

3. Inspect carrier leg (A) for excess gap between inner steel sleeve of the bushing and the header brackets. If there is a gap, install washer (1.2 mm [0.047 in.] thick) on both sides of the carrier leg to minimize the gap.
4. Align left side carrier leg (A) with header brackets, and install M20 x 40 bolt (B) with hardened washer (C).
5. Install three hardened washers (D) and flanged lock nut (E) on bolt (B).
6. Torque bolt (B) to 339 Nm (250 lbf-ft).

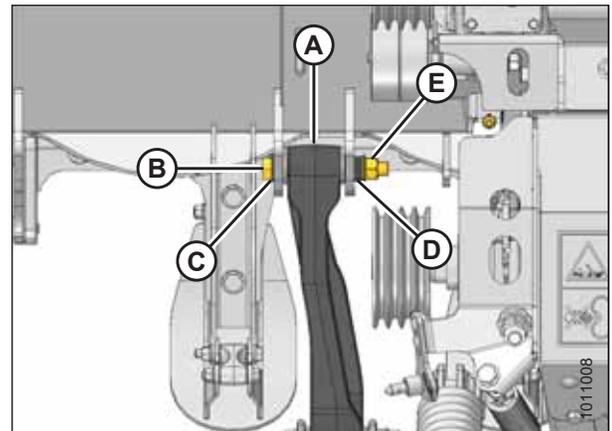


Figure 9.28: Left Leg

7. Inspect carrier leg (A) for excess gap between inner steel sleeve of the bushing and the header brackets. If there is a gap, install washer (1.2 mm [0.047 in.] thick) to both sides of the carrier leg to minimize the gap.
8. Align right side carrier leg (A) with header brackets, and install M20 x 40 bolt (B) with hardened washer (C).
9. Install hardened washer (D), spacer (E), float tension arm (F), and flanged lock nut (G) on bolt (B).
10. Torque bolt (B) to 339 Nm (250 lbf-ft).

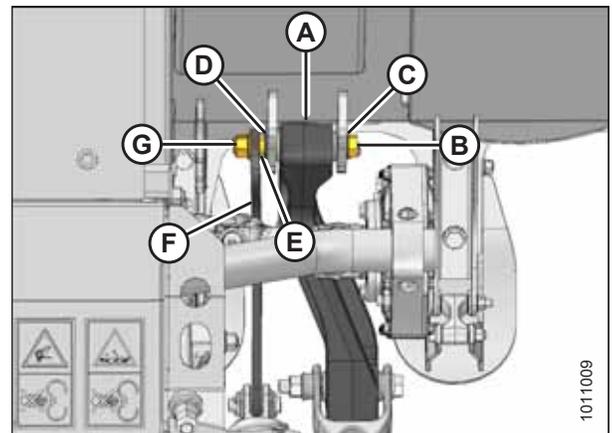


Figure 9.29: Right Leg

CHANGING THE CONDITIONER

11. Undo strapping or wire supporting driveline to hitch (D), and connect driveline (E) to header swivel gearbox. Refer to [3.5 Attaching Clutch Driveline, page 26](#).
12. Remove hex head bolts (A) and spacers (B) from gearbox.
13. Undo strapping or wire supporting steering arm to hitch, and position steering arm weldment (C) on gearbox.
14. Secure steering arm to gearbox with spacers (B) and hex head bolts (A). Apply high-strength threadlocker (Loctite® 262 or equivalent) to front holes and torque bolts to 203 Nm (150 lbf-ft).

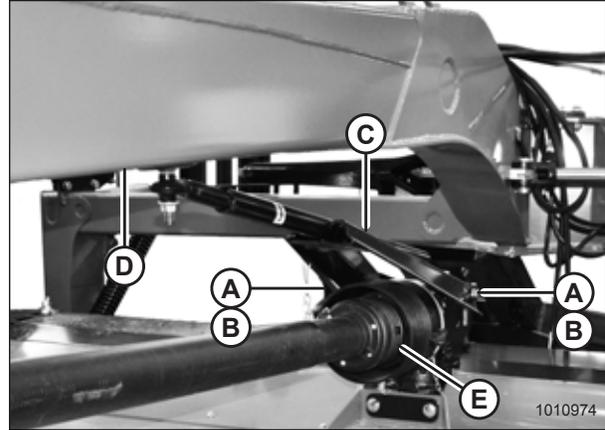


Figure 9.30: Aft Driveline and Steering Arm

15. Undo strapping or wire securing center-link (B) and indicator (D) to carrier frame.
16. Remove pins and hardware from anchor (C).
17. Attach center-link (B) and indicator (D) to anchor (C) with clevis pin (A) and secure with cotter pin.

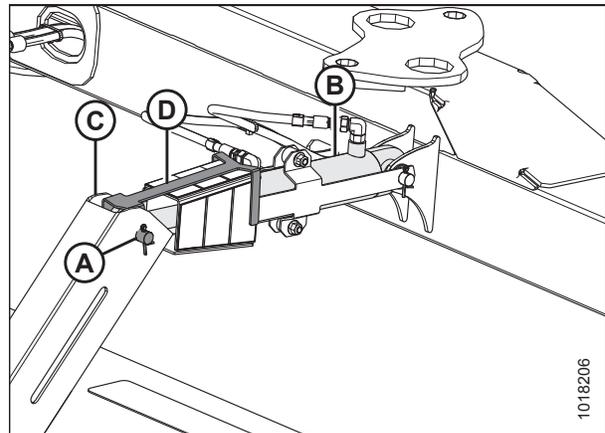


Figure 9.31: Center-Link and Indicator Links

NOTE:

Ensure proper pulley configuration installation—large pulley installed onto gearbox for both roll and finger conditioners.

18. Install conditioner drive belts (A) onto pulleys.
19. Check that tensioner spring is installed at correct location:
 - Hole (D) for roll conditioner
 - Hole (E) for finger conditioner
20. Tighten idler tensioner nut (C) until spring length (B) measures 366 mm (14-3/8 in.).
21. Tighten jam nut.
22. Replace the driveshields. Refer to [6.3 Closing Driveshields, page 126](#).

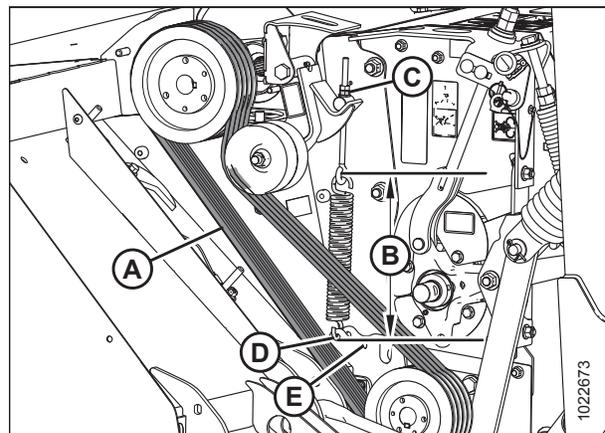


Figure 9.32: Conditioner Drive

CHANGING THE CONDITIONER

23. If Road Friendly Transport™ system is installed, reconnect electrical harness (A) to lights (B) and secure harness to shielding using existing clips (C) and (D).
24. Secure harness to light bracket with cable ties (E).

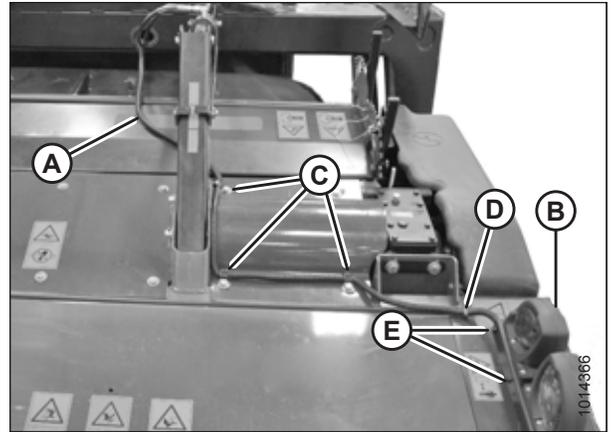


Figure 9.33: Electrical Harness

25. Tighten the four M10 hex head bolts (A) and flat washers. Torque to 27–30 Nm (20–22 lbf·ft).
26. Check float settings. Refer to [7.6.1 Adjusting Disc Mower Float, page 132](#) for float adjustment instructions.

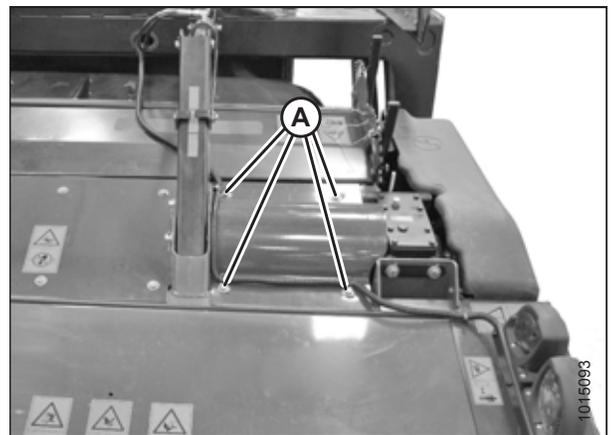
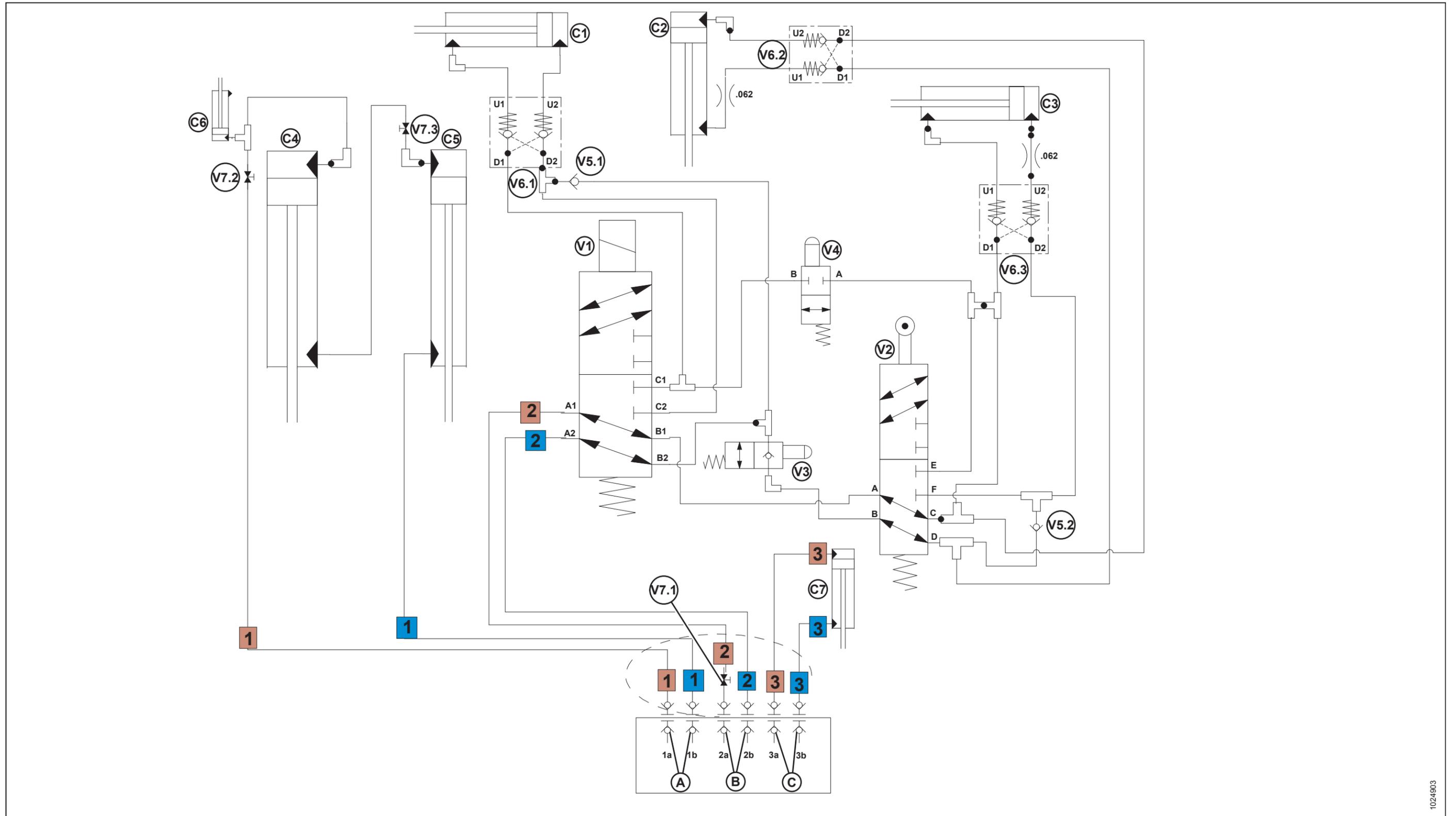


Figure 9.34: Electrical Harness

Chapter 10: Hydraulic Schematics

HYDRAULIC SCHEMATICS

Figure 10.1: Hydraulic Schematic – with Transport



1024903

HYDRAULIC SCHEMATICS

Table 10.1 Cylinder Legend

C1 - Hitch Swing Cylinder (Located Between Hitch and Transport Casting)
C3 - Transport Swing Cylinder (Located Between Carrier Frame and Transport Casting)
C5 - Slave Lift Cylinder (Located on Left Side of Carrier Frame)
C7 - Tilt Cylinder (Option) (Located Between Carrier Frame and Header)

Table 10.2 Valve Legend

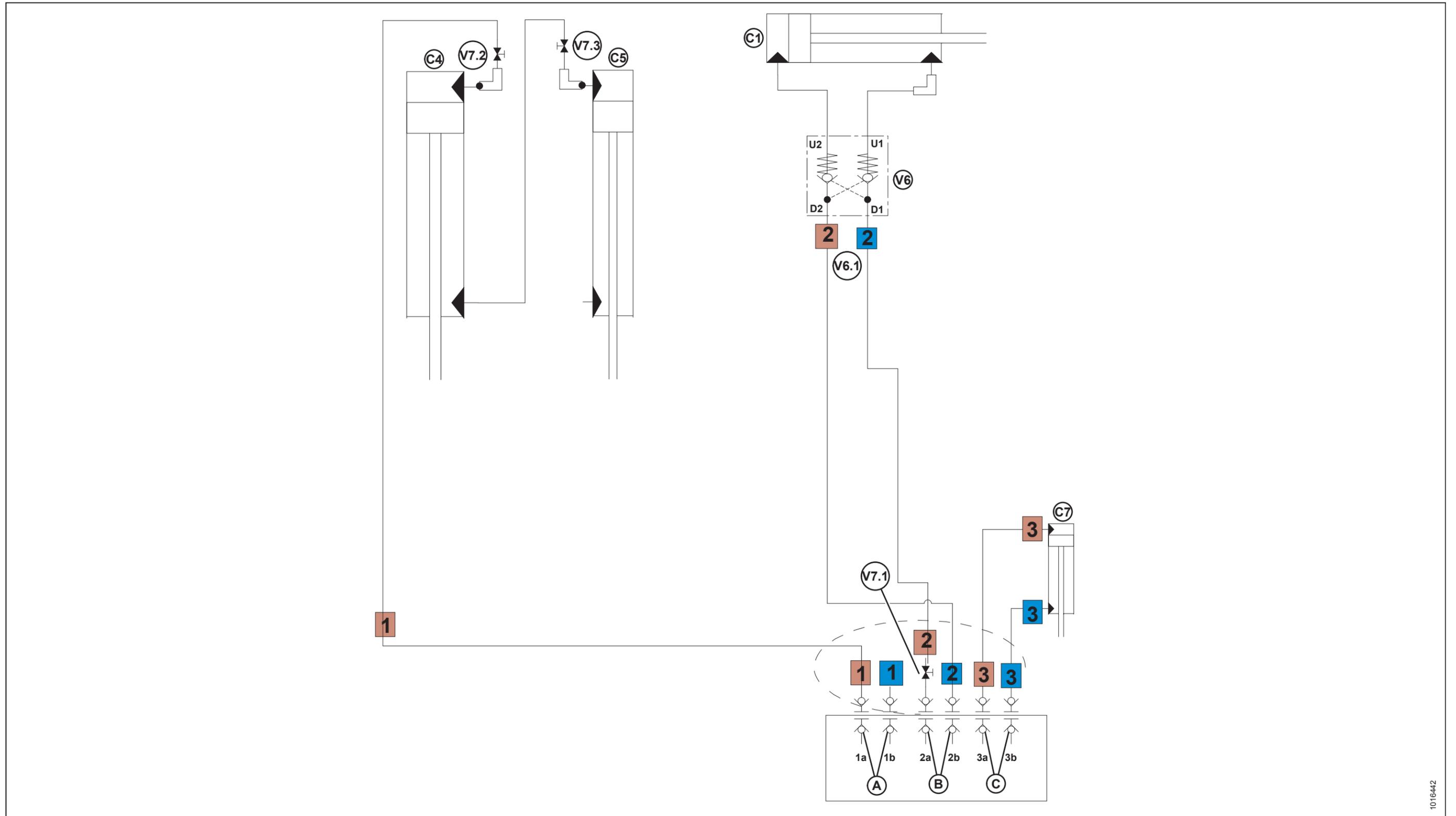
V1 - Six-Way Solenoid Valve (Located Top of Hitch Mount) (Non-Energized for Transport)
V3 - Two-Way NC Directional Valve with Check (Red/Green Indicator) (Located on Hitch Alignment Mechanism)
V5.1, 5.2 - In-Line Check Valve
V7.1, 7.2, 7.3 - Shut-Off Valves for Lift and Swing Cylinder Circuit

C2 - Transport Deploy Cylinder (Located on Transport Frame)
C4 - Master Lift Cylinder (Located on Right Side of Carrier Frame)
C6 - Transport Lock Cylinder (Located on Transport Lock Mechanism)

V2 - Six-Way Mechanical Valve cam actuated (Located on Top of Transport Casting Mount)
V4 - Two-Way NC Directional Valve with Mechanical Paddle Actuator (Located on Back of Carrier Frame)
V6.1, 6.2, 6.3 - Pressure Balance Valves C1, C2, C3

HYDRAULIC SCHEMATICS

Figure 10.2: Hydraulic Schematic – without Transport



1016442

HYDRAULIC SCHEMATICS

Table 10.3 Cylinder Legend

C1 - Hitch Swing Cylinder (Located Between Hitch and Transport Casting)
C5 - Slave Lift Cylinder (Located on Left Side of Carrier Frame)

Table 10.4 Valve Legend

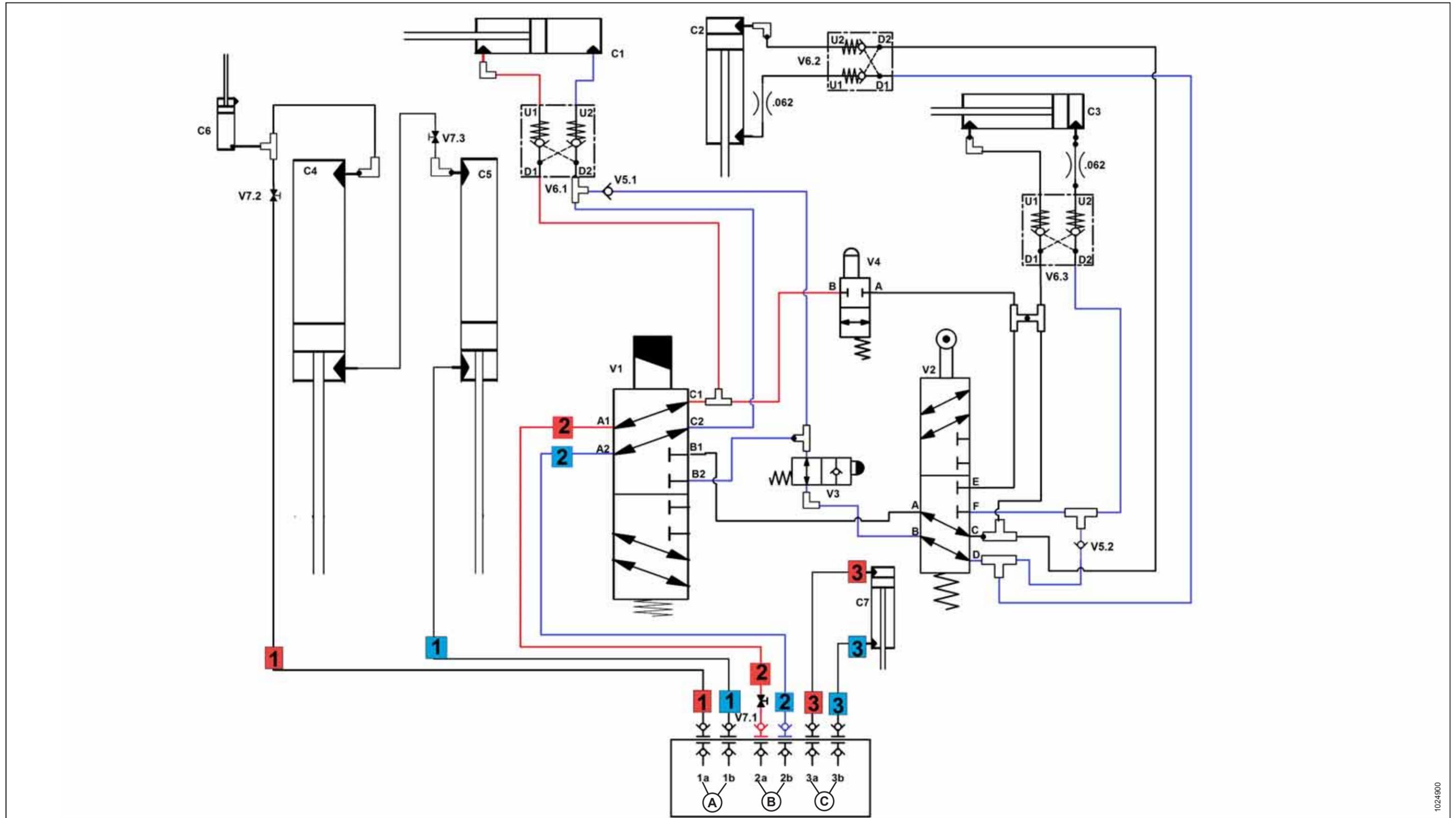
V6 - Pressure Balance Valves (3) at C1, C2, C3

C4 - Master Lift Cylinder (Located on Right Side of Carrier Frame)
C7 - Tilt Cylinder (Optional) (Located Between Carrier Frame and Header)

V7 - Shut-Off Valves (3) (Lift and Swing Cylinder Circuit)

HYDRAULIC SCHEMATICS

Figure 10.3: Hydraulic Schematic – Header Swing



1024900

HYDRAULIC SCHEMATICS

Table 10.5 Cylinder Legend

C1 - Hitch Swing Cylinder (Located Between Hitch and Transport Casting)
C3 - Transport Swing Cylinder (Located Between Carrier Frame and Transport Casting)
C5 - Slave Lift Cylinder (Located on Left Side of Carrier Frame)
C7 - Tilt Cylinder (Option) (Located Between Carrier Frame and Header)

Table 10.6 Valve Legend

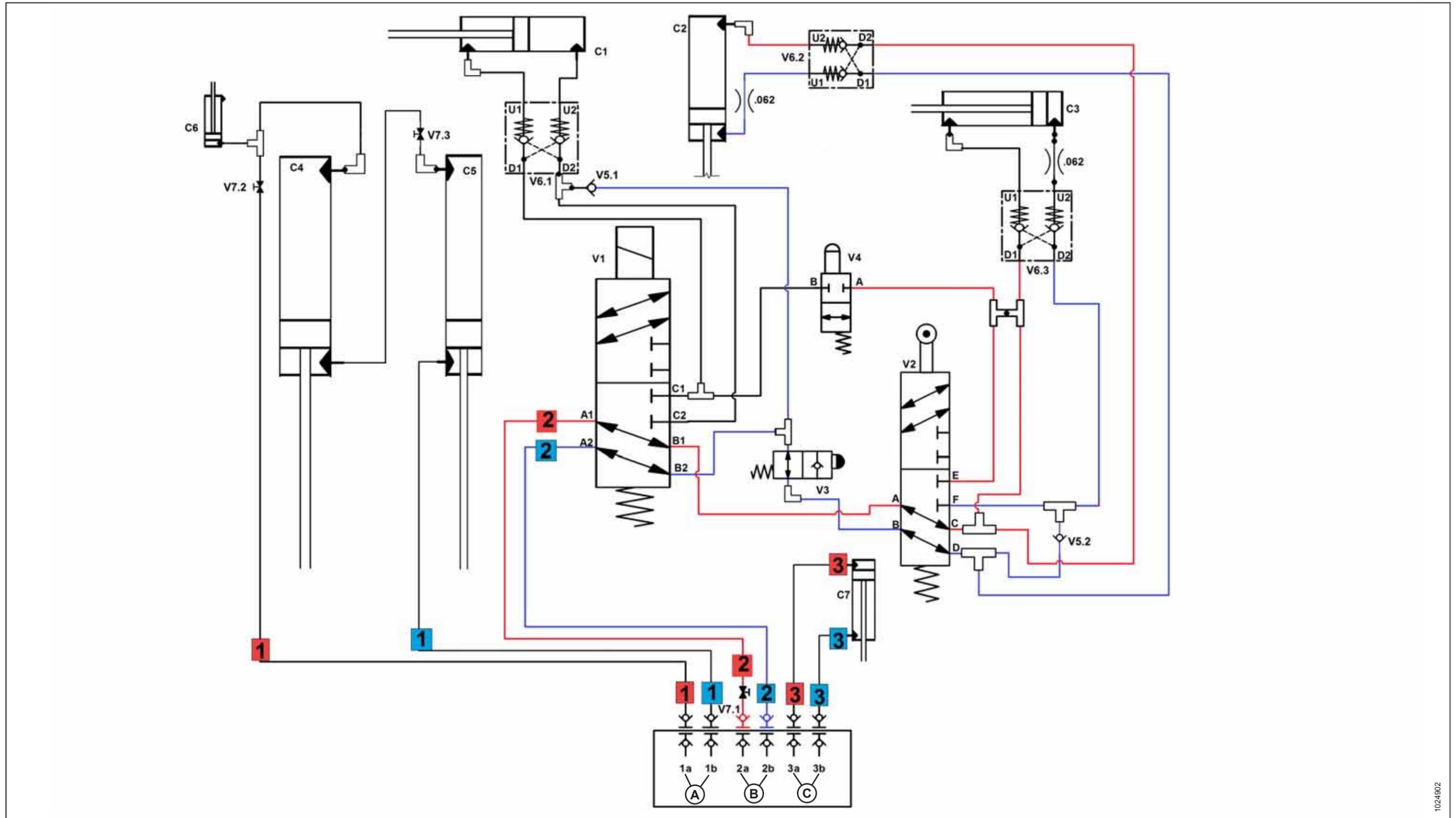
V1 - Six-Way Solenoid Valve (Located Top of Hitch Mount) (Non-Energized for Transport)
V3 - Two-Way NC Directional Valve with Check (Red/Green Indicator) (Located on Hitch Alignment Mechanism)
V5.1, 5.2 - In-Line Check Valve
V7.1, 7.2, 7.3 - Shut-Off Valves for Lift and Swing Cylinder Circuit

C2 - Transport Deploy Cylinder (Located on Transport Frame)
C4 - Master Lift Cylinder (Located on Right Side of Carrier Frame)
C6 - Transport Lock Cylinder (Located on Transport Lock Mechanism)

V2 - Six-Way Mechanical Valve cam actuated (Located on Top of Transport Casting Mount)
V4 - Two-Way NC Directional Valve with Mechanical Paddle Actuator (Located on Back of Carrier Frame)
V6.1, 6.2, 6.3 - Pressure Balance Valves C1, C2, C3

HYDRAULIC SCHEMATICS

Figure 10.4: Hydraulic Schematic – Header Transport Deploy



1024902

HYDRAULIC SCHEMATICS

Table 10.7 Cylinder Legend

C1 - Hitch Swing Cylinder (Located Between Hitch and Transport Casting)
C3 - Transport Swing Cylinder (Located Between Carrier Frame and Transport Casting)
C5 - Slave Lift Cylinder (Located on Left Side of Carrier Frame)
C7 - Tilt Cylinder (Option) (Located Between Carrier Frame and Header)

Table 10.8 Valve Legend

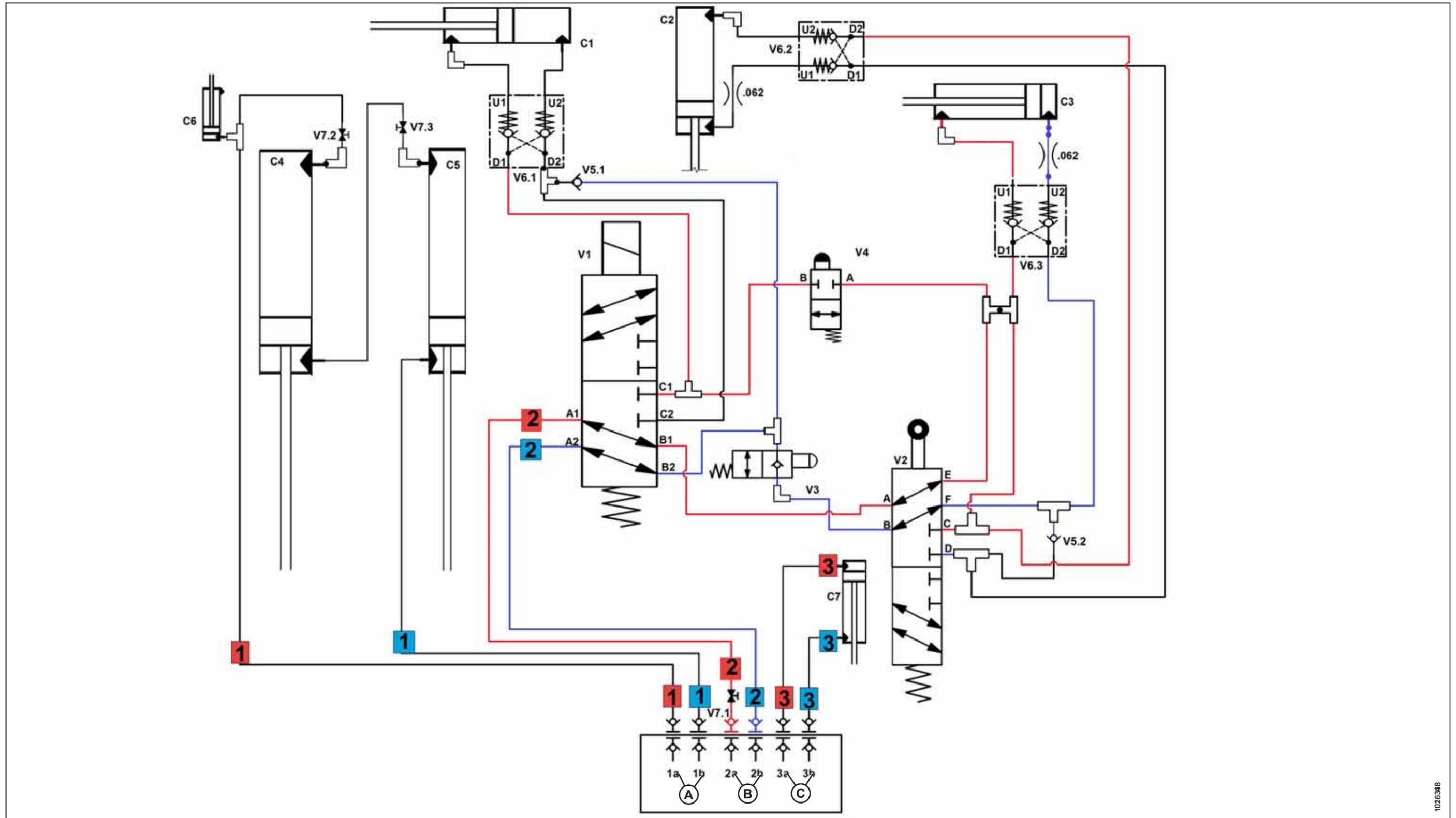
V1 - Six-Way Solenoid Valve (Located Top of Hitch Mount) (Non-Energized for Transport)
V3 - Two-Way NC Directional Valve with Check (Red/Green Indicator) (Located on Hitch Alignment Mechanism)
V5.1, 5.2 - In-Line Check Valve
V7.1, 7.2, 7.3 - Shut-Off Valves for Lift and Swing Cylinder Circuit

C2 - Transport Deploy Cylinder (Located on Transport Frame)
C4 - Master Lift Cylinder (Located on Right Side of Carrier Frame)
C6 - Transport Lock Cylinder (Located on Transport Lock Mechanism)

V2 - Six-Way Mechanical Valve cam actuated (Located on Top of Transport Casting Mount)
V4 - Two-Way NC Directional Valve with Mechanical Paddle Actuator (Located on Back of Carrier Frame)
V6.1, 6.2, 6.3 - Pressure Balance Valves C1, C2, C3

HYDRAULIC SCHEMATICS

Figure 10.5: Hydraulic Schematic – Header Transport Swing



HYDRAULIC SCHEMATICS

Table 10.9 Cylinder Legend

C1 - Hitch Swing Cylinder (Located Between Hitch and Transport Casting)
C3 - Transport Swing Cylinder (Located Between Carrier Frame and Transport Casting)
C5 - Slave Lift Cylinder (Located on Left Side of Carrier Frame)
C7 - Tilt Cylinder (Option) (Located Between Carrier Frame and Header)

Table 10.10 Valve Legend

V1 - Six-Way Solenoid Valve (Located Top of Hitch Mount) (Non-Energized for Transport)
V3 - Two-Way NC Directional Valve with Check (Red/Green Indicator) (Located on Hitch Alignment Mechanism)
V5.1, 5.2 - In-Line Check Valve
V7.1, 7.2, 7.3 - Shut-Off Valves for Lift and Swing Cylinder Circuit

C2 - Transport Deploy Cylinder (Located on Transport Frame)
C4 - Master Lift Cylinder (Located on Right Side of Carrier Frame)
C6 - Transport Lock Cylinder (Located on Transport Lock Mechanism)

V2 - Six-Way Mechanical Valve cam actuated (Located on Top of Transport Casting Mount)
V4 - Two-Way NC Directional Valve with Mechanical Paddle Actuator (Located on Back of Carrier Frame)
V6.1, 6.2, 6.3 - Pressure Balance Valves C1, C2, C3

HYDRAULIC SCHEMATICS

Table 10.11 Cylinder Legend

C1 - Hitch Swing Cylinder (Located Between Hitch and Transport Casting)
C3 - Transport Swing Cylinder (Located Between Carrier Frame and Transport Casting)
C5 - Slave Lift Cylinder (Located on Left Side of Carrier Frame)
C7 - Tilt Cylinder (Option) (Located Between Carrier Frame and Header)

Table 10.12 Valve Legend

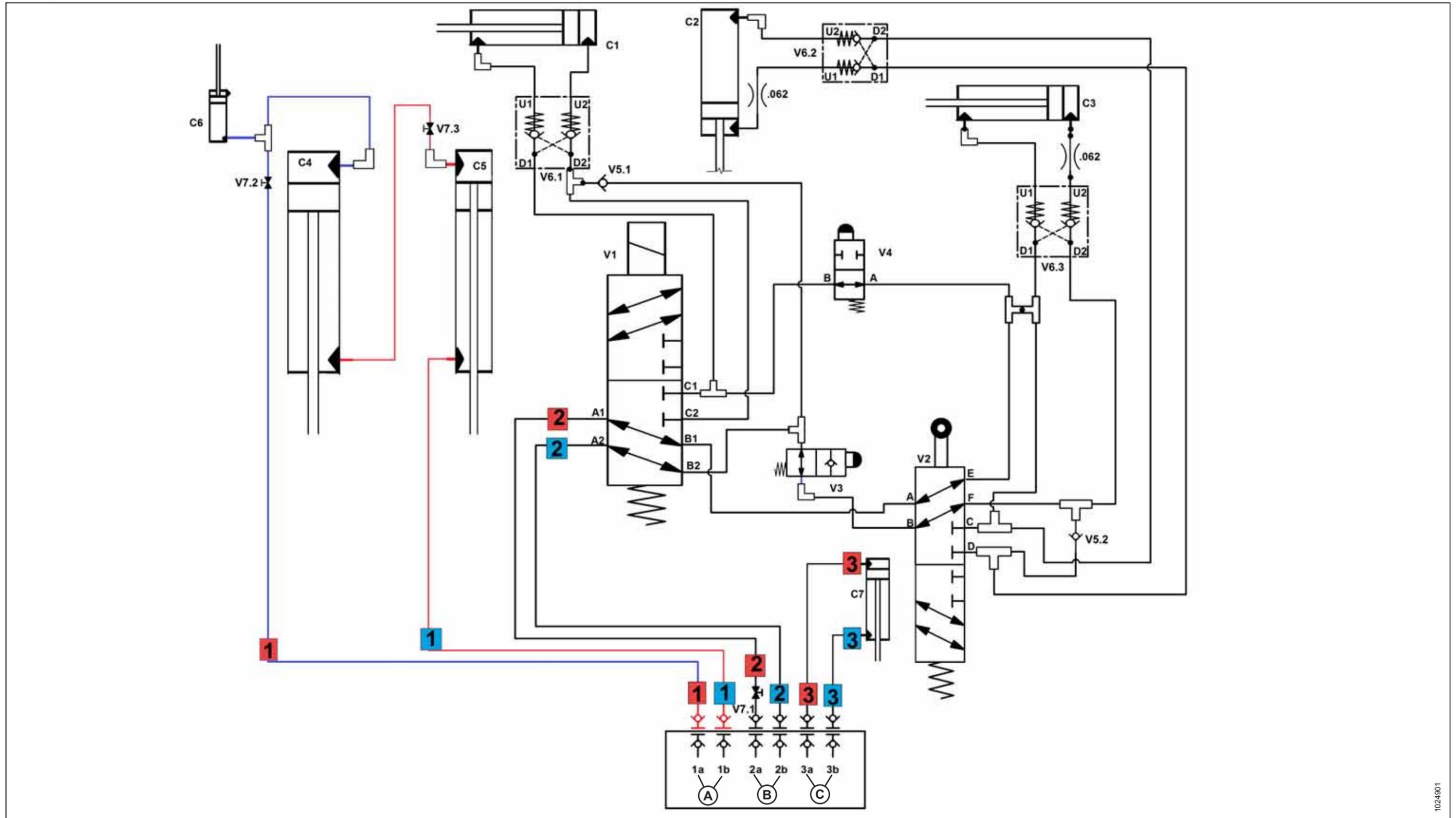
V1 - Six-Way Solenoid Valve (Located Top of Hitch Mount) (Non-Energized for Transport)
V3 - Two-Way NC Directional Valve with Check (Red/Green Indicator) (Located on Hitch Alignment Mechanism)
V5.1, 5.2 - In-Line Check Valve
V7.1, 7.2, 7.3 - Shut-Off Valves for Lift and Swing Cylinder Circuit

C2 - Transport Deploy Cylinder (Located on Transport Frame)
C4 - Master Lift Cylinder (Located on Right Side of Carrier Frame)
C6 - Transport Lock Cylinder (Located on Transport Lock Mechanism)

V2 - Six-Way Mechanical Valve cam actuated (Located on Top of Transport Casting Mount)
V4 - Two-Way NC Directional Valve with Mechanical Paddle Actuator (Located on Back of Carrier Frame)
V6.1, 6.2, 6.3 - Pressure Balance Valves C1, C2, C3

HYDRAULIC SCHEMATICS

Figure 10.7: Hydraulic Schematic – Header Transport Lock



1024901

HYDRAULIC SCHEMATICS

Table 10.13 Cylinder Legend

C1 - Hitch Swing Cylinder (Located Between Hitch and Transport Casting)
C3 - Transport Swing Cylinder (Located Between Carrier Frame and Transport Casting)
C5 - Slave Lift Cylinder (Located on Left Side of Carrier Frame)
C7 - Tilt Cylinder (Option) (Located Between Carrier Frame and Header)

Table 10.14 Valve Legend

V1 - Six-Way Solenoid Valve (Located Top of Hitch Mount) (Non-Energized for Transport)
V3 - Two-Way NC Directional Valve with Check (Red/Green Indicator) (Located on Hitch Alignment Mechanism)
V5.1, 5.2 - In-Line Check Valve
V7.1, 7.2, 7.3 - Shut-Off Valves for Lift and Swing Cylinder Circuit

C2 - Transport Deploy Cylinder (Located on Transport Frame)
C4 - Master Lift Cylinder (Located on Right Side of Carrier Frame)
C6 - Transport Lock Cylinder (Located on Transport Lock Mechanism)

V2 - Six-Way Mechanical Valve cam actuated (Located on Top of Transport Casting Mount)
V4 - Two-Way NC Directional Valve with Mechanical Paddle Actuator (Located on Back of Carrier Frame)
V6.1, 6.2, 6.3 - Pressure Balance Valves C1, C2, C3

Chapter 11: Reference

11.1 Opening Cutterbar Doors

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. Center mower beneath hitch to open both doors.
2. Lift door at front to open.



Figure 11.1: R113 Pull-Type Disc Mower

11.2 Engaging Locks

WARNING

To avoid bodily injury or death from fall of raised machine, always lock out lift cylinders before going under disc mower for any reason.

IMPORTANT:

Connect hoses so that moving the cylinder control lever backward raises the disc mower, and moving the cylinder control lever forward lowers the disc mower. Refer to [5.3.3 Connecting Hydraulics, page 98](#) for more information.

1. Move cylinder control lever (A) backward to position (B) to fully raise machine.

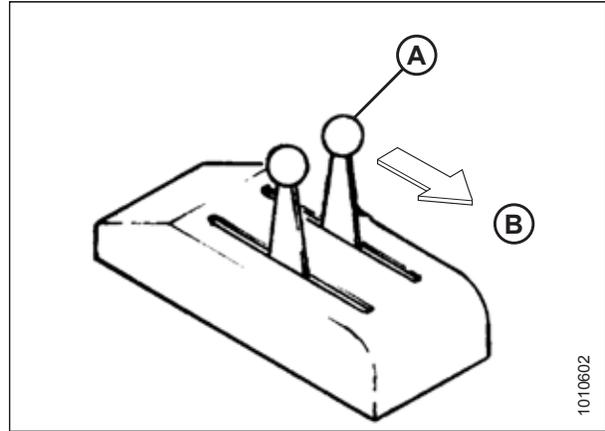


Figure 11.2: Tractor Cylinder Control Lever

2. Close the lock-out valve (A) on each lift cylinder by turning the handle to the closed position (90 degree angle to the hose).

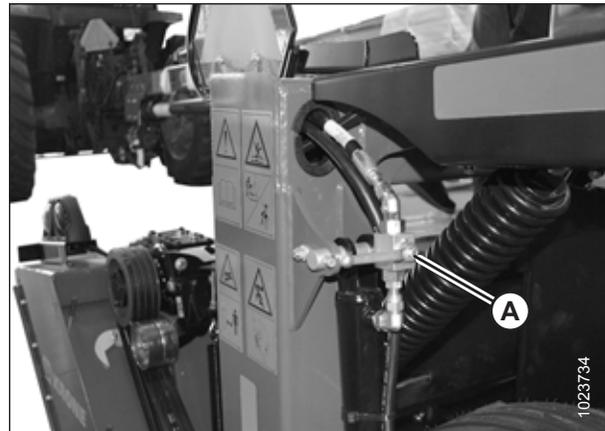


Figure 11.3: Lift Cylinder Lock-Out Valve

11.3 Disengaging Locks

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, stop engine, remove key, and engage header lift cylinder lock-out valves before going under machine for any reason.

1. Open the lock-out valve (A) on each lift cylinder by turning the handle to the open position (in line with the hose).

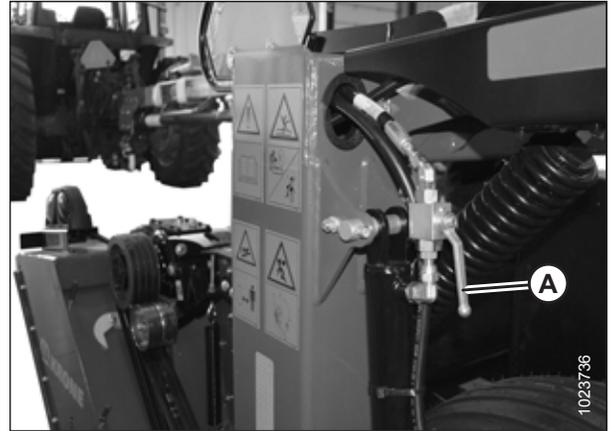


Figure 11.4: Lift Cylinder Lock-Out Valve

2. Move cylinder control lever (A) forward to position (B) to lower machine.

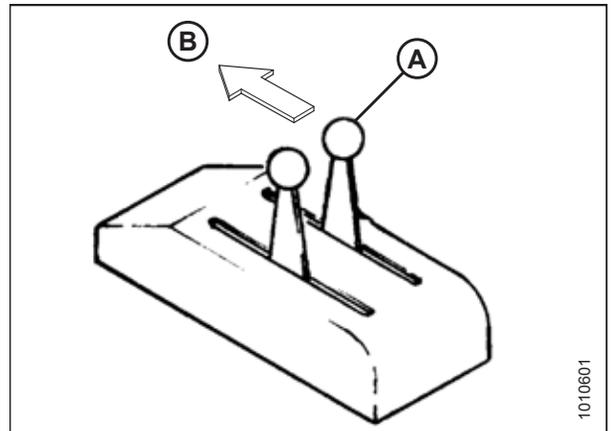


Figure 11.5: Tractor Cylinder Control Lever

11.4 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.

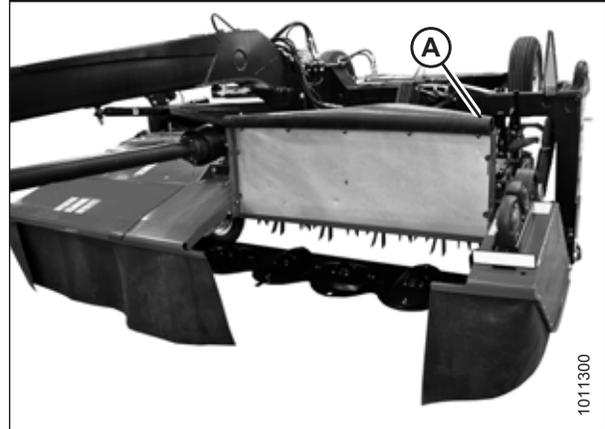


Figure 11.6: Left Side Cutterbar Door in Open Position

2. Ensure that curtains hang properly and completely enclose cutterbar area.

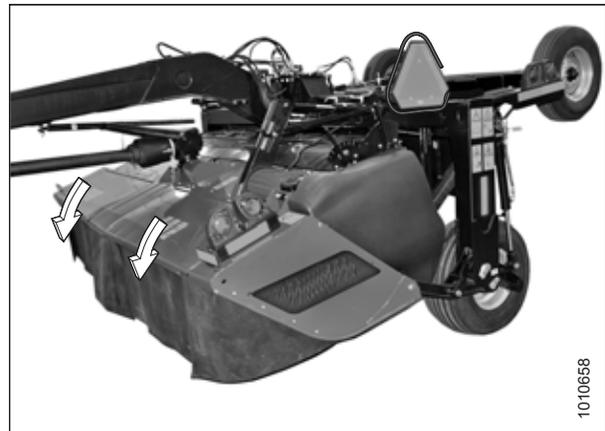


Figure 11.7: R113 Pull-Type Disc Mower

REFERENCE

11.5 Recommended Lubricants

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

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

IMPORTANT:

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

Table 11.1 Recommended Lubricants

Lubricant	Specification	Description	Use	Capacities
Grease	SAE Multipurpose	High temperature extreme pressure (EP) performance with 1% max. Molybdenum Disulphide (NLGI Grade 2) lithium base	As required unless otherwise specified	—
Grease	SAE Multipurpose	High temperature extreme pressure (EP) performance with 10% max. 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	4.0 m (13 ft.) Cutterbar	8 liters (8.5 qts [US])
Gear Lubricant	SAE 80W-90	High thermal and oxidation stability API service class GL-5	4.9 m (16 ft.) Cutterbar	10 liters (10.5 qts [US])
Gear Lubricant	SAE 85W-140	Gear lubricant API service class GL-5	Conditioner roll timing gearbox	0.7 liters (0.75 qts [US])
Gear Lubricant	SAE 85W-140	Gear lubricant API service class GL-5	Cutterbar-conditioner drive gearbox	1.8 liters (1.9 qts [US])
Gear Lubricant	SAE 85W-140	Gear lubricant API service class GL-5	Hitch (front) swivel gearbox	Upper: 1.2 liters (1.3 qts [US]) Lower: 1.7 liters (1.8 qts [US])
Gear Lubricant	SAE 85W-140	Gear lubricant API service class GL-5	Header (rear) swivel gearbox	Upper: 1.2 liters (1.3 qts [US]) Lower: 1.7 liters (1.8 qts [US])

REFERENCE

Table 11.3 SAE Grade 5 Bolt and Grade F Distorted Thread Nut

Nominal Size (A)	Torque (Nm)		Torque (lbf-ft) (*lbf-in)	
	Min.	Max.	Min.	Max.
1/4-20	8.1	9	*72	*80
5/16-18	16.7	18.5	*149	*164
3/8-16	30	33	22	24
7/16-14	48	53	35	39
1/2-13	73	80	54	59
9/16-12	105	116	77	86
5/8-11	144	160	107	118
3/4-10	259	286	192	212
7/8-9	413	456	306	338
1-8	619	684	459	507

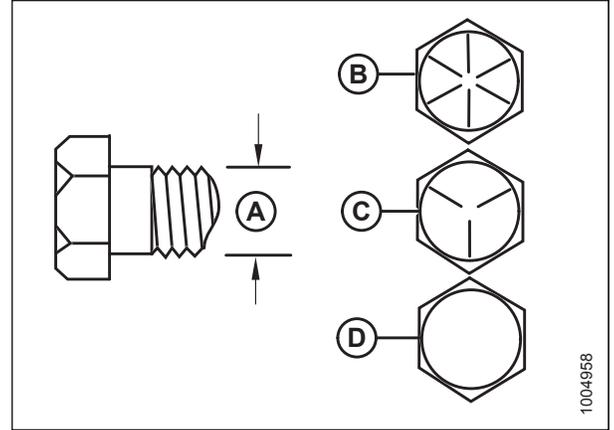


Figure 11.9: Bolt Grades

A - Nominal Size
 B - SAE-8
 C - SAE-5
 D - SAE-2

Table 11.4 SAE Grade 8 Bolt and Grade G Distorted Thread Nut

Nominal Size (A)	Torque (Nm)		Torque (lbf-ft) (*lbf-in)	
	Min.	Max.	Min.	Max.
1/4-20	16.8	18.6	*150	*165
5/16-18	24	26	18	19
3/8-16	42	46	31	34
7/16-14	67	74	50	55
1/2-13	102	113	76	84
9/16-12	148	163	109	121
5/8-11	204	225	151	167
3/4-10	362	400	268	296
7/8-9	583	644	432	477
1-8	874	966	647	716

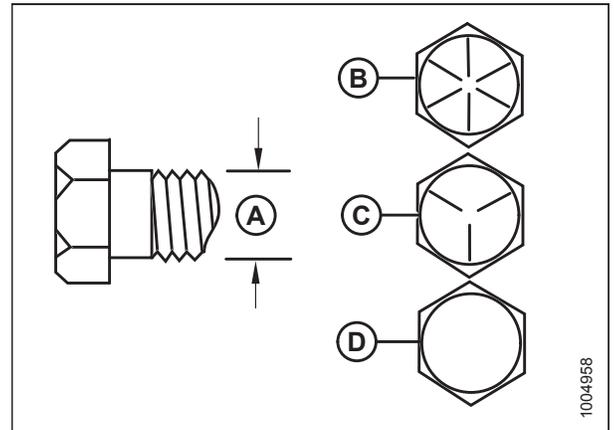


Figure 11.10: Bolt Grades

A - Nominal Size
 B - SAE-8
 C - SAE-5
 D - SAE-2

REFERENCE

Table 11.5 SAE Grade 8 Bolt and Grade 8 Free Spinning Nut

Nominal Size (A)	Torque (Nm)		Torque (lbf-ft) (*lbf-in)	
	Min.	Max.	Min.	Max.
1/4-20	16.8	18.6	*150	*165
5/16-18	35	38	26	28
3/8-16	61	68	46	50
7/16-14	98	109	73	81
1/2-13	150	166	111	123
9/16-12	217	239	160	177
5/8-11	299	330	221	345
3/4-10	531	587	393	435
7/8-9	855	945	633	700
1-8	1165	1288	863	954

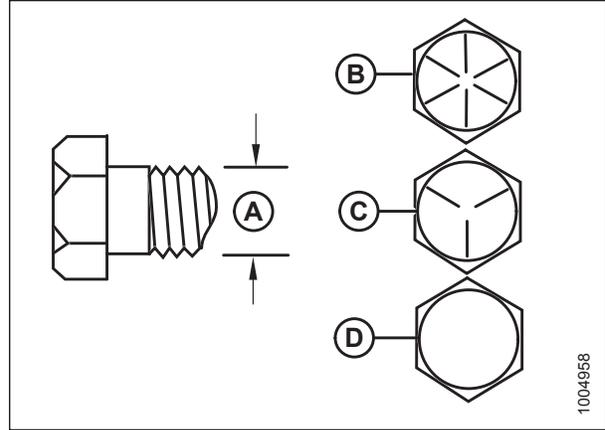


Figure 11.11: Bolt Grades

A - Nominal Size
 B - SAE-8
 C - SAE-5
 D - SAE-2

11.6.2 Metric Bolt Specifications

Table 11.6 Metric Class 8.8 Bolts and Class 9 Free Spinning Nut

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

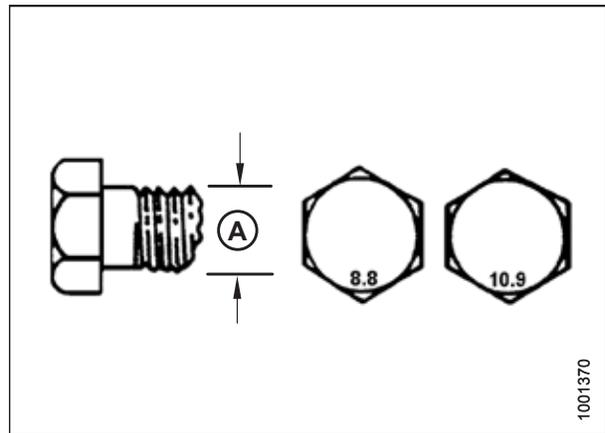


Figure 11.12: Bolt Grades

REFERENCE

Table 11.7 Metric Class 8.8 Bolts and Class 9 Distorted Thread Nut

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

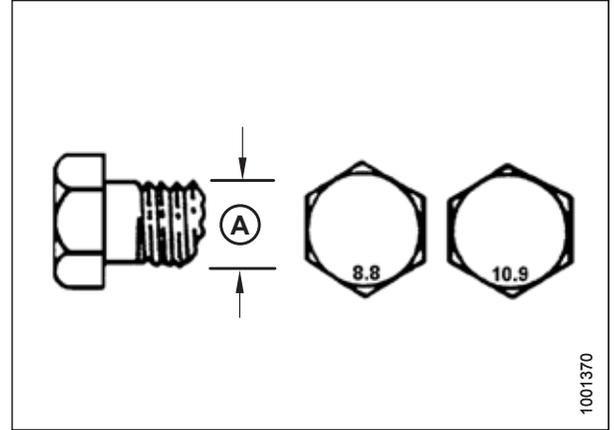


Figure 11.13: Bolt Grades

Table 11.8 Metric Class 10.9 Bolts and Class 10 Free Spinning Nut

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

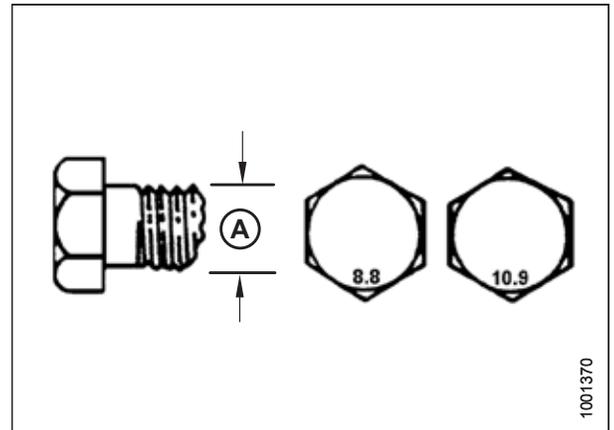


Figure 11.14: Bolt Grades

REFERENCE

Table 11.9 Metric Class 10.9 Bolts and Class 10 Distorted Thread Nut

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

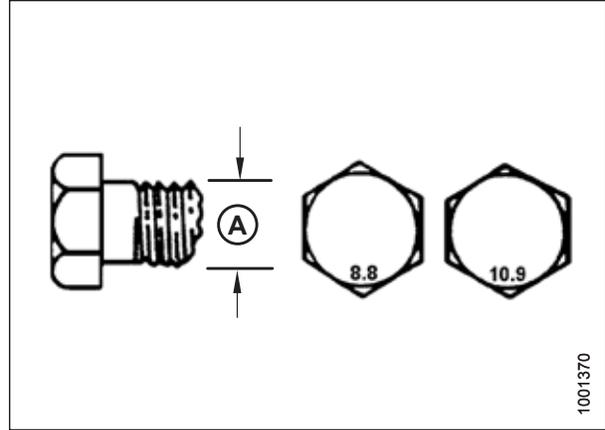


Figure 11.15: Bolt Grades

11.6.3 Metric Bolt Specifications Bolting into Cast Aluminum

Table 11.10 Metric Bolt Bolting into Cast Aluminum

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

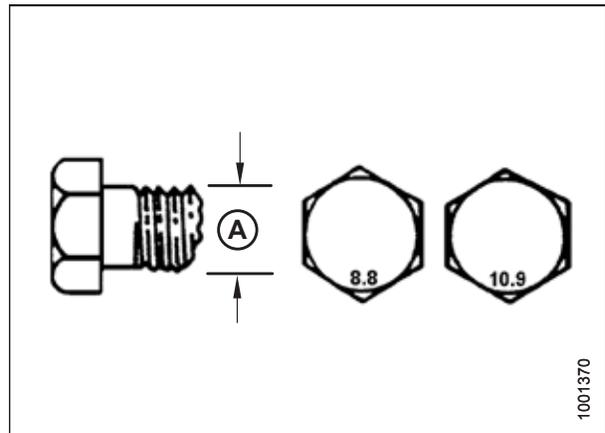


Figure 11.16: Bolt Grades

REFERENCE

11.6.4 Flare-Type Hydraulic Fittings

1. Check flare (A) and flare seat (B) for defects that might cause leakage.
2. Align tube (C) with fitting (D) and thread nut (E) onto fitting without lubrication until contact has been made between flared surfaces.
3. Torque fitting nut (E) to specified number of flats from finger tight (FFFT) or to a given torque value in Table 11.11, page 213.
4. Use two wrenches to prevent fitting (D) from rotating. Place one wrench on fitting body (D), and tighten nut (E) with other wrench to torque shown.
5. Assess final condition of connection.

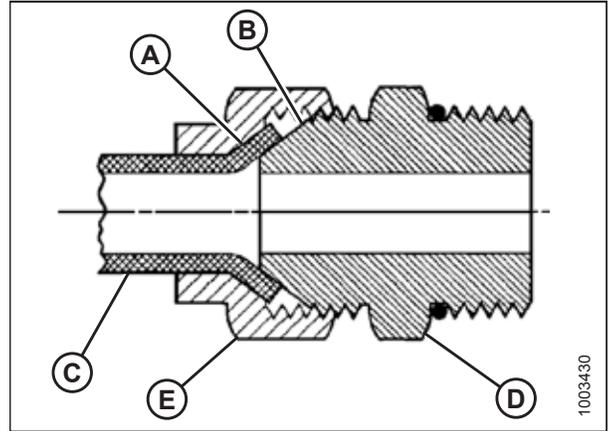


Figure 11.17: Hydraulic Fitting

Table 11.11 Flare-Type Hydraulic Tube Fittings

SAE Dash Size	Thread Size (in.)	Torque Value ⁵		Flats from Finger Tight (FFFT)	
		Nm	lbf-ft	Tube	Swivel Nut or Hose
-2	5/16-24	4-5	3-4	—	—
-3	3/8-24	7-8	5-6	—	—
-4	7/16-20	18-19	13-14	2-1/2	2
-5	1/2-20	19-21	14-15	2	2
-6	9/16-18	30-33	22-24	2	1-1/2
-8	3/4-16	57-63	42-46	2	1-1/2
-10	7/8-14	81-89	60-66	1-1/2	1-1/2
-12	1-1/16-12	113-124	83-91	1-1/2	1-1/4
-14	1-3/16-12	136-149	100-110	1-1/2	1-1/4
-16	1-5/16-12	160-176	118-130	1-1/2	1
-20	1-5/8-12	228-250	168-184	1	1
-24	1-7/8-12	264-291	195-215	1	1
-32	2-1/2-12	359-395	265-291	1	1
-40	3-12	—	—	1	1

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

REFERENCE

11.6.5 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).

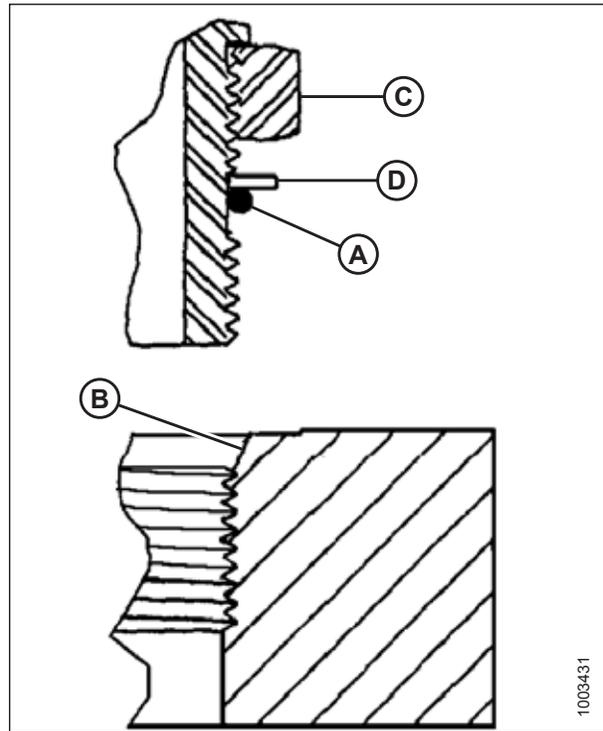


Figure 11.18: Hydraulic Fitting

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.

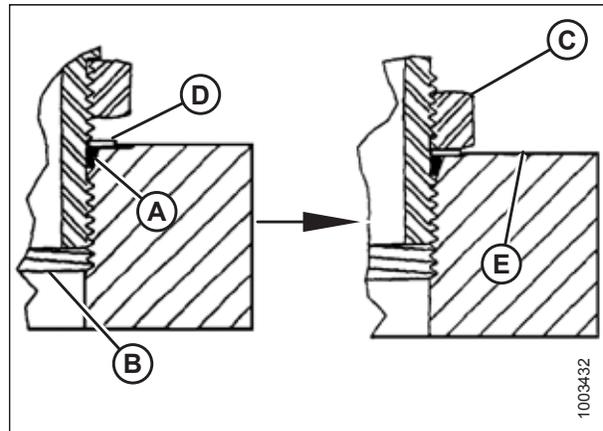


Figure 11.19: Hydraulic Fitting

REFERENCE

Table 11.12 O-Ring Boss (ORB) Hydraulic Fittings (Adjustable)

SAE Dash Size	Thread Size (in.)	Torque Value ⁶	
		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

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

REFERENCE

11.6.6 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 11.13, page 216.
6. Check final condition of fitting.

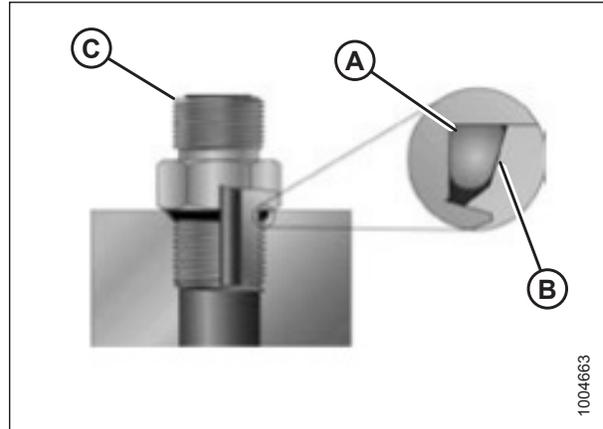


Figure 11.20: Hydraulic Fitting

Table 11.13 O-Ring Boss (ORB) Hydraulic Fittings (Non-Adjustable)

SAE Dash Size	Thread Size (in.)	Torque Value ⁷	
		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

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

REFERENCE

11.6.7 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 11.21: 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 11.14, page 217.

NOTE:

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

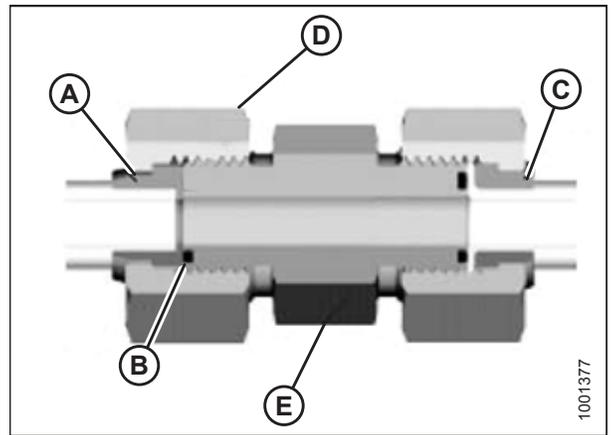


Figure 11.22: Hydraulic Fitting

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

Table 11.14 O-Ring Face Seal (ORFS) Hydraulic Fittings

SAE Dash Size	Thread Size (in.)	Tube O.D. (in.)	Torque Value ⁸	
			Nm	lbf-ft
-3	Note ⁹	3/16	–	–
-4	9/16	1/4	25–28	18–21
-5	Note ⁹	5/16	–	–
-6	11/16	3/8	40–44	29–32
-8	13/16	1/2	55–61	41–45
-10	1	5/8	80–88	59–65
-12	1-3/16	3/4	115–127	85–94
-14	Note ⁹	7/8	–	–

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

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

REFERENCE

Table 11.14 O-Ring Face Seal (ORFS) Hydraulic Fittings (continued)

SAE Dash Size	Thread Size (in.)	Tube O.D. (in.)	Torque Value ¹⁰	
			Nm	lbf·ft
-16	1-7/16	1	150–165	111–122
-20	1-11/16	1-1/4	205–226	151–167
-24	1–2	1-1/2	315–347	232–256
-32	2-1/2	2	510–561	376–414

11.6.8 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 (TFFT) values are shown in Table 11.15, page 218. Make sure that tube end of a shaped connector (typically 45 degree or 90 degree) 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 11.15 Hydraulic Fitting Pipe Thread

Tapered Pipe Thread Size	Recommended TFFT	Recommended FFFT
1/8–27	2–3	12–18
1/4–18	2–3	12–18
3/8–18	2–3	12–18
1/2–14	2–3	12–18
3/4–14	1.5–2.5	12–18
1–11 1/2	1.5–2.5	9–15
1 1/4–11 1/2	1.5–2.5	9–15
1 1/2–11 1/2	1.5–2.5	9–15
2–11 1/2	1.5–2.5	9–15

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

REFERENCE

11.7 Conversion Chart

Table 11.16 Conversion Chart

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

REFERENCE

11.8 Definitions

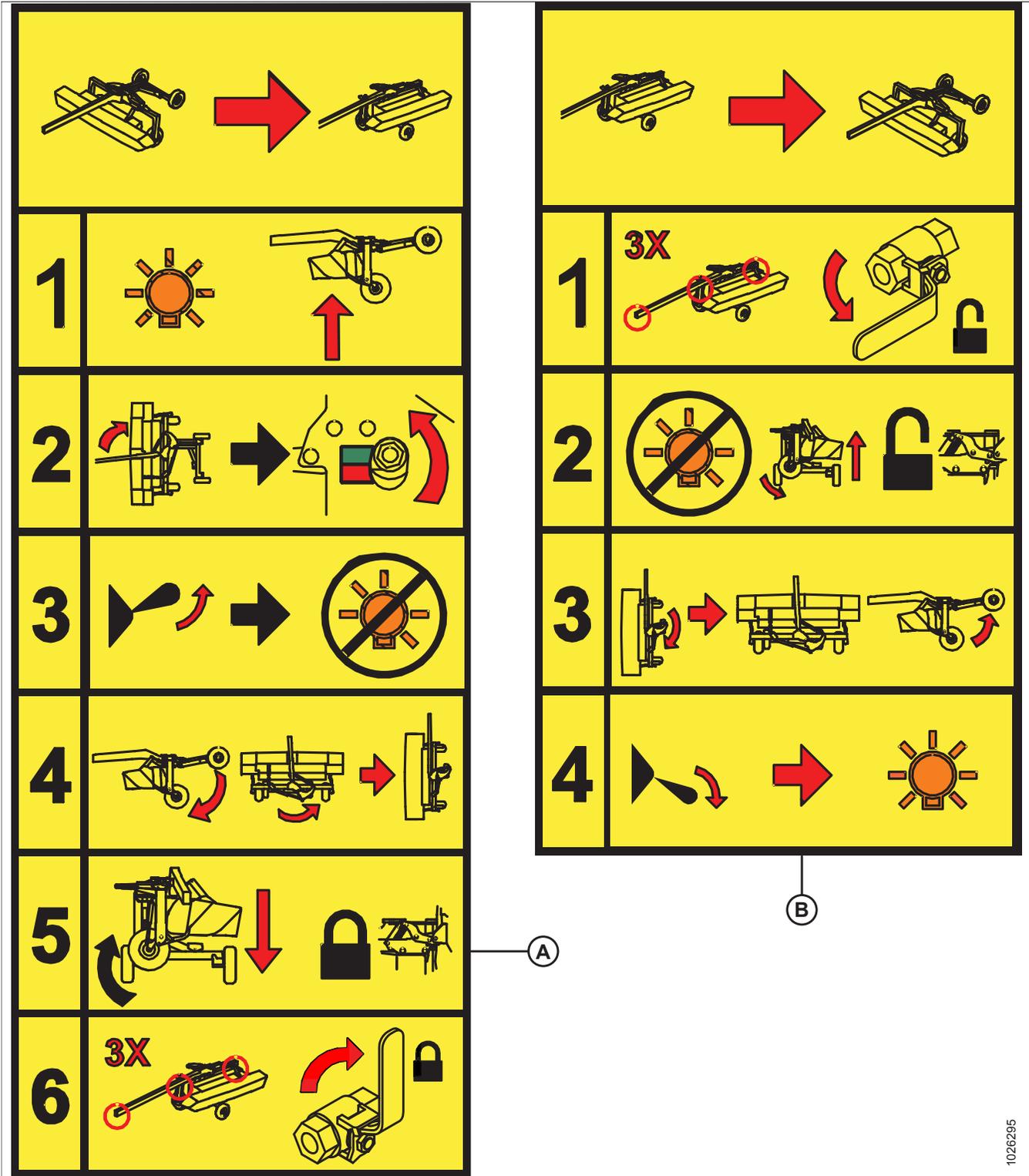
The following terms and acronyms may be used in this instruction:

Term	Definition
API	American Petroleum Institute
APT	Articulated Power Turn
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
CGVV	Combined gross vehicle weight
Disc mower	A machine that cuts and conditions hay and is pulled by an agricultural tractor
Export disc mower	Machine configuration typical outside North America
FFFT	Flats from finger tight
Finger tight	Finger tight is a reference position where sealing surfaces or components are making contact with each other, and fitting has been tightened to a point where fitting is no longer loose
GVW	Gross vehicle weight
Hard joint	A joint made with use of a fastener where joining materials are highly incompressible
Header or Rotary Header	The part of the disc mower that cuts and conditions the crop
Hex key	A tool of hexagonal cross-section used to drive bolts and screws that have a hexagonal socket in head (internal-wrenching hexagon drive); also known as an Allen key and various other synonyms
hp	Horsepower
JIC	Joint Industrial Council: A standards body that developed standard sizing and shape for original 37° flared fitting
n/a	Not applicable
North American disc mower	Disc mower configuration typical in North America
NPT	National Pipe Thread: A style of fitting used for low-pressure port openings. Threads on NPT fittings are uniquely tapered for an interference fit
Nut	An internally threaded fastener that is designed to be paired with a bolt
ORB	O-ring boss: A style of fitting commonly used in port openings on manifolds, pumps, and motors
ORFS	O-ring face seal: A style of fitting commonly used for connecting hoses and tubes. This style of fitting is also commonly called ORS, which stands for O-ring seal
PTO	Power take-off
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)
rpm	Revolutions per minute

REFERENCE

Term	Definition
R1 Series header	MacDon R113 SP disc headers for windrowers
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.)
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
Tractor	Agricultural-type tractor
Washer	A thin cylinder with a hole or slot located in the center that is to be used as a spacer, load distribution element, or locking mechanism

11.9 Converting Road Friendly Transport™ Decal



A - Converting From Field to Transport

B - Converting From Transport to Field

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.

Disc Mower Serial Number:

Hitch Serial Number:

✓	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.	<i>11.6 Torque Specifications, page 208</i>
	Check that hydraulic hoses have adequate slack before rotating header.	—
	Check main drive belt tension.	<i>7.3 Checking Conditioner Drive Belt, page 129</i>
	Check header angle. Set center-link to middle of adjustment range.	<i>7.4 Checking Cutting Angle, page 130</i>
	Check header float.	<i>7.6 Checking Disc Mower Float, page 132</i>
	Check tire pressure.	<i>7.2 Checking Tire Pressure, page 128</i>
	Ensure wheel bolts are torqued to 160 Nm (120 lbf·ft).	<i>7.1 Checking Wheel Bolts, page 127</i>
	Check side forming shields evenly set to desired position.	<i>5.6 Setting up Forming Shields, page 104</i>
	Check rear baffle is about mid-position (roll conditioner).	<i>7.14 Adjusting Conditioner Baffle Position, page 144</i>
	Check forward baffle lever is set to approximate mid-position (finger conditioner).	<i>7.14 Adjusting Conditioner Baffle Position, page 144</i>
	Check rear baffle lever is set to approximate mid-position (finger conditioner).	<i>7.14 Adjusting Conditioner Baffle Position, page 144</i>
	Check conditioner roll gap (roll conditioner).	<i>7.11 Checking Roll Gap, page 140</i>
	Check conditioner roll tension (roll conditioner).	<i>7.13.1 Adjusting Roll Tension, page 143</i>
	Check conditioner roll timing hardware is securely tightened (roll conditioner).	<i>7.12 Checking Roll Timing, page 142</i>
	Check that tall crop dividers are not installed for road transport.	<i>4.9.2 Installing Tall Crop Divider (Optional), page 88</i>

REFERENCE

✓	Item	Reference
	Check that cutterbar doors are unbolted from center channel frame, shipping wire is removed from cutterbar curtains, and cutterbar curtains are hanging properly.	<i>5.7 Unpacking Curtains, page 110</i>
	Grease all bearings and drivelines.	<i>6.2 Lubrication Points, page 121</i>
	Check conditioner roll timing gearbox lubricant.	<i>7.7 Checking and Adding Conditioner Roll Timing Gearbox Lubricant, page 134</i>
	Check disc mower roll timing gearbox lubricant.	<i>7.8 Checking and Adding Disc Mower Drive Gearbox Lubricant, page 135</i>
	Check forward and rear swivel gearbox lubricant.	<i>7.9 Checking and Lubricating Forward and Rear Swivel Gearboxes, page 136</i>
	Check cutterbar lubricant.	
	Check clutch operation.	<i>7.17 Checking Clutch Operation, page 147</i>
	<p>Check cutterbar area carefully for loose parts and hardware on the cutterbar.</p> <p> WARNING</p> <p>These objects can be ejected with considerable force when the machine is started, and may result in serious injury or machine damage.</p>	—
Run-Up Procedure		<i>7.18 Running up the Header, page 151</i>
	Check hydraulic hose and wiring harness routing to ensure adequate clearance when raising, lowering or swinging the header.	—
	Check that tail lights and hazard lights are functional.	<i>7.15 Checking Lights, page 145</i>
Post Run-Up Check – Stop Engine		
	Check belt drive for proper idler alignment and overheating bearings.	<i>7.3 Checking Conditioner Drive Belt, page 129</i>
	Check for hydraulic leaks.	—
	Check that header manuals are in storage compartment.	<i>7.16 Checking Manuals, page 146</i>

Date Checked:

Checked by:

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