

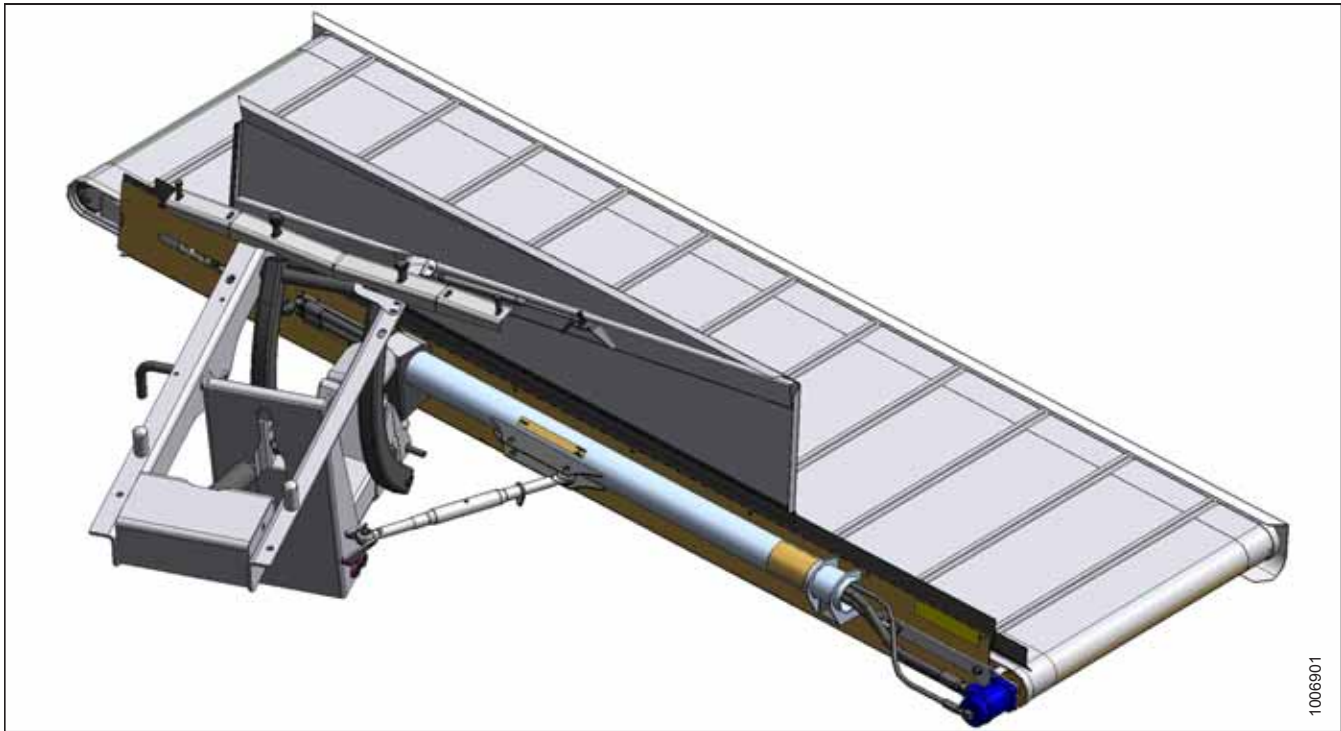
# **Double Windrow Attachment (DWA) for M Series Self-Propelled Windrowers**

Setup, Operation, and Parts Manual

215626 Revision A

Original Instruction

## Double Windrow Attachment (DWA) for M Series Windrowers



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## Introduction

The Double Windrow Attachment (DWA) allows the windrower to place two windrows of conditioned material close together. When the DWA system is engaged, the conditioned crop is deposited onto the side draper and placed to the right side of the windrower. Raising the side delivery disengages the DWA, allowing the crop to be deposited between the windrower's wheels.

The DWA can be mounted on M150, M155, M155E4, M200, and M205 Self-Propelled Windrowers.

The DWA is for use with A Series Auger Headers, D Series Draper Headers with HC10 Hay Conditioners, and R Series Rotary Disc Headers.

### NOTE:

- A DWA should not be used on headers larger than 7.6 m (25 ft.).
- The HC10 is not compatible with M205 Self-Propelled Windrowers.
- M150, M155, M155E4, and M200 Self-Propelled Windrowers can use both a DWA and the HC10 on draper headers of widths 4.6 - 7.6 m (15-25 ft.).

### NOTE:

Depending on the windrower model year, a software update may be required to ensure the functionality of the auxiliary lift valve block provided with your DWA. Refer to MacDon Service Bulletin #SB1210 for details.

**Carefully read all the material provided in this manual before attempting to operate or maintain the DWA.**

Contact your Dealer if you need assistance, information, or additional copies of this manual.

When setting up the machine or making adjustments to it, review and follow the recommended machine settings in all relevant MacDon publications. Failure to do so may compromise the functionality and the service life of the machine and may result in a hazardous situation.

MacDon provides warranty for Customers who operate and maintain their equipment as described in this manual. A copy of the MacDon Industries Limited Warranty Policy, which explains this warranty, should have been provided to you by your Dealer. Damage resulting from any of the following conditions will void the warranty:

- Accident
- Misuse
- Abuse
- Improper maintenance or neglect
- Abnormal or extraordinary use of the machine
- Failure to use the machine, equipment, component, or part in accordance with the manufacturer's instructions

### Conventions

The following conventions are used in this document:

- Right and left are determined from the operator's position, facing forward with the windrower in cab-forward position.
- Unless otherwise noted, use the standard torque values provided in Chapter [6 Reference, page 109](#) of this document.

This manual is also available in Russian. Manuals can be ordered from MacDon, downloaded from the MacDon Dealer Portal (<https://portal.macdon.com>) (login required), or downloaded from the MacDon international website (<http://www.macdon.com/world>).

### NOTE:

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

**NOTE:**

If parts are damaged or missing from the DWA installation kit, contact [shortageanddamage@macdon.com](mailto:shortageanddamage@macdon.com).

## Summary of Changes

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

Section	Summary of Change	Internal Use Only
<i>Introduction, page i</i>	Added a short shipment advisory.	Technical Publications
<i>1.2 Signal Words, page 2</i>	Added "important" and "note" signal words.	Technical Publications
<i>2.8 Installing Electrical System, page 43</i>	Added a new procedure for installing the T74 ring terminal on the DWA wiring harness.	ECN 59886
<i>4.1 Draper Maintenance, page 71</i>	Removed "Checking Draper Tension" topic.	Technical Publications
<i>4.1.1 Adjusting Draper Tension, page 71</i>	Added safety steps.	Technical Publications
<i>4.1.2 Adjusting Draper Tracking, page 71</i>	Added safety steps.	Technical Publications
<i>4.1.3 Replacing Draper, page 74</i>	Added safety steps.	Technical Publications
<i>4.1.4 Adjusting Front Skid, page 74</i>	Added safety steps.	Technical Publications
<i>4.1.5 Adjusting Rear Deflector, page 75</i>	Added safety steps.	Technical Publications
<i>Removing and Reinstalling Drive Roller, page 77</i>	Added safety steps.	Technical Publications
<i>Removing and Reinstalling Idler Roller, page 79</i>	Added safety steps.	Technical Publications
<i>4.2 Lubrication, page 81</i>	Updated the greasing interval from 250 to 50 hours.	Product Support

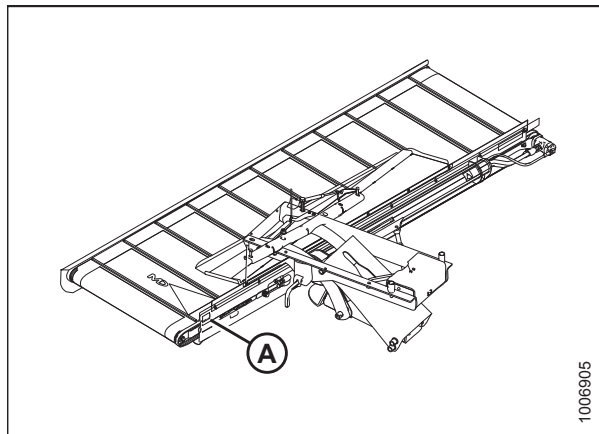
## Serial Number Location

Record the serial number and model year of the Double Windrow Attachment (DWA) in the spaces provided.

**DWA serial number:** \_\_\_\_\_

The serial number plate is located on the deck (A).

**DWA model year:** \_\_\_\_\_



**Figure 1: Serial Number Location**

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# Chapter 1: Safety

Understanding and consistently following these safety procedures will help to ensure the safety of those operating the Double Windrow attachment (DWA) and of bystanders.

## 1.1 Safety Alert Symbols

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

This symbol means:

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

Carefully read and follow the safety message accompanying this symbol.

### Why is safety important to you?

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



Figure 1.1: Safety Symbol

## 1.2 Signal Words

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

Signal words are selected using the following guidelines:



### **DANGER**

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



### **WARNING**

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



### **CAUTION**

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

#### **IMPORTANT:**

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

#### **NOTE:**

Provides additional information or advice.

### 1.3 General Safety

Protect yourself when assembling, operating, and servicing machinery.

#### CAUTION

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

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

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

In addition, take the following precautions:

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



Figure 1.2: Safety Equipment



Figure 1.3: Safety Equipment

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

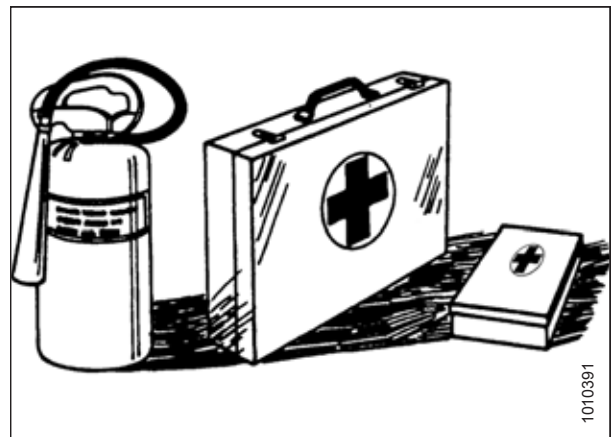


Figure 1.4: Safety Equipment

## SAFETY

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



Figure 1.5: Safety around Equipment

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

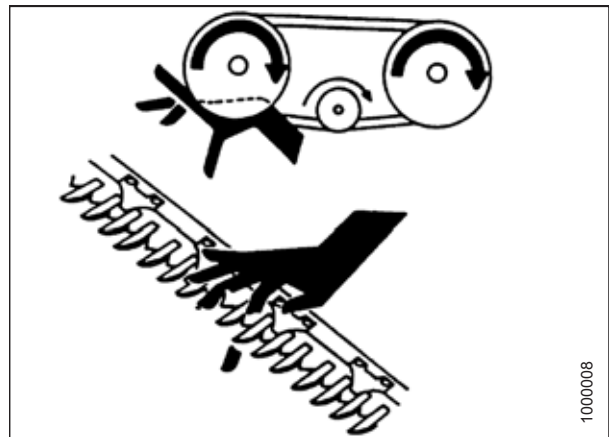


Figure 1.6: Safety around Equipment

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



Figure 1.7: Safety around Equipment

## 1.4 Maintenance Safety

Protect yourself when servicing machinery.

To ensure your safety while maintaining machine:

- Review the operator's manual and all safety items before the operation and/or maintenance of the machine.
- Place all controls in Neutral, stop the engine, set the parking brake, remove the ignition key, and wait for all moving parts to stop before servicing, adjusting, and/or repairing the machine.
- Follow good shop practices:
  - Keep service areas clean and dry
  - Ensure that electrical outlets and tools are properly grounded
  - Keep the work area well lit
- Relieve pressure from hydraulic circuits before servicing and/or disconnecting the machine.
- Ensure that all components are tight and that steel lines, hoses, and couplings are in good condition before applying pressure to hydraulic systems.
- Keep hands, feet, clothing, and hair away from all moving and/or rotating parts.
- Clear the area of bystanders, especially children, when carrying out any maintenance, repairs, or adjustments.
- Install the transport lock or place safety stands under the frame before working under the machine.
- If more than one person is servicing the machine at the same time, be aware that rotating a driveline or other mechanically-driven component by hand (for example, accessing a lubricant fitting) will cause drive components in other areas (belts, pulleys, and knives) to move. Stay clear of driven components at all times.
- Wear protective gear when working on the machine.
- Wear heavy gloves when working on knife components.



Figure 1.8: Safety around Equipment



Figure 1.9: Equipment is NOT Safe for Children



Figure 1.10: Safety Equipment

## 1.5 Hydraulic Safety

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

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

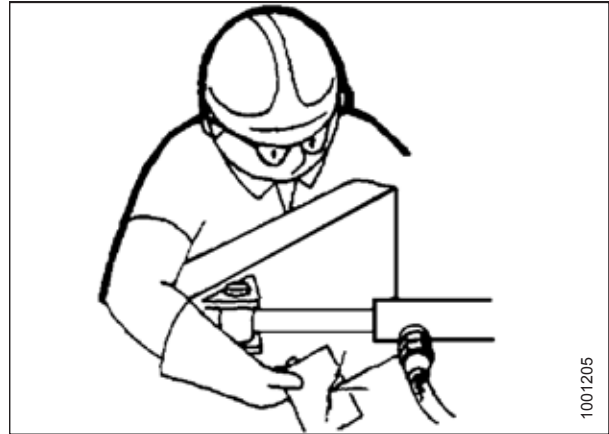


Figure 1.11: Testing for Hydraulic Leaks

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



Figure 1.12: Hydraulic Pressure Hazard

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

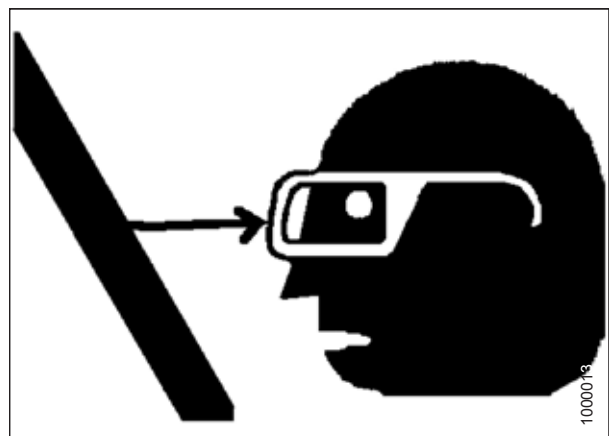


Figure 1.13: Safety around Equipment



## 1.6 Safety Signs

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

- Keep safety signs clean and legible at all times.
- Replace safety signs that are missing or illegible.
- If the original part on which a safety sign was installed is replaced, ensure that the repair part displays the current safety sign.
- Replacement safety signs are available from your MacDon Dealer Parts Department.

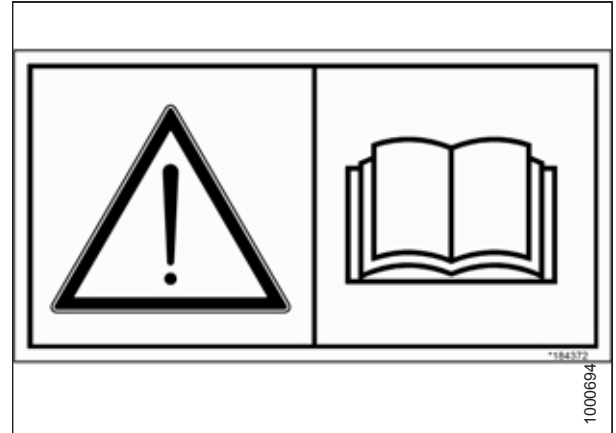


Figure 1.14: Operator's Manual Decal

### 1.6.1 Installing Safety Decals

If a safety decal is damaged it should be replaced.

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

## 1.7 Safety Sign Decals

Understanding these safety signs will allow you to understand the various hazards that your equipment may present.

### MD #166466

High-pressure oil hazard

#### WARNING

To prevent serious injury, gangrene, or death:

- Do **NOT** go near hydraulic fluid leaks.
- Do **NOT** use a finger or skin to check for hydraulic fluid leaks.
- Lower the load or relieve hydraulic pressure before loosening any hydraulic fittings.
- High-pressure oil can easily puncture the skin, which can cause serious injury, gangrene, or death.
- If you are injured, seek emergency medical help.  
**IMMEDIATE** surgery is required to remove hydraulic fluid which has penetrated the skin.



Figure 1.15: MD #166466

### MD #174683

Pinch point hazard

#### CAUTION

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



Figure 1.16: MD #174683

## SAFETY

### MD #176295

Deck crushing hazard

- Fully raise the deck, stop the engine, remove the key, and engage the mechanical safety lock (the red pin) before going under the deck.



Figure 1.17: MD #176295

## 1.8 Safety Decal Locations

Replace missing or damaged decals on the Double Windrow Attachment (DWA).

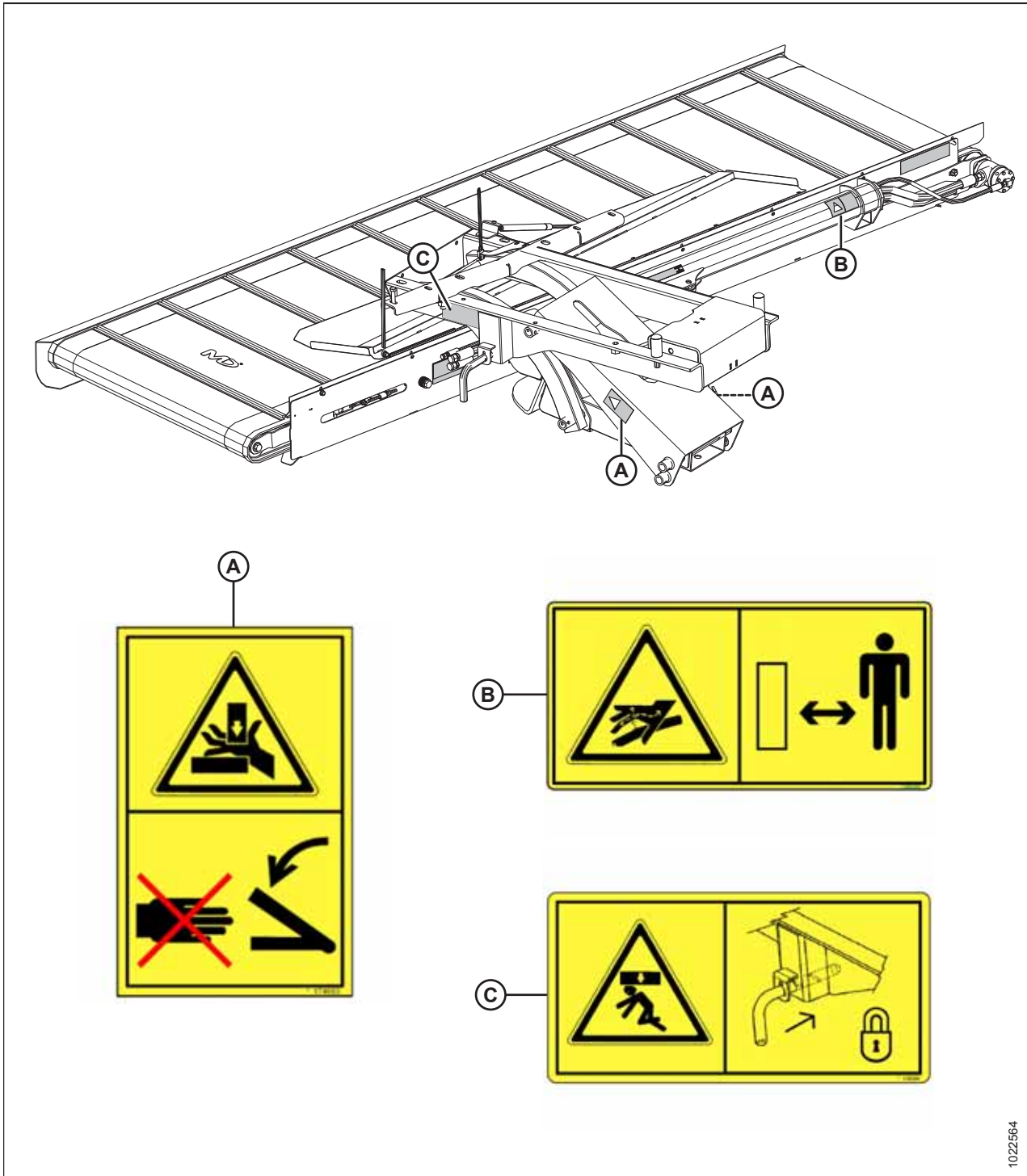


Figure 1.18: Double Windrow Attachment (DWA) Safety Decal Locations

A - MD #174683 – Pinch Point (2 Places)

B - MD #166466 – High Pressure Hydraulics

C - MD #176295 – Deck Lift Lock

## Chapter 2: Setup Instructions

Once the parts for the Double Windrow Attachment (DWA) are unloaded and accounted for, the DWA can be installed on the windrower. Follow these procedures in the order in which they are presented.

**NOTE:**

The DWA will fit only the windrower models listed in the Introduction ( [Introduction, page i](#)). The DWA can not be installed on the M100 or M105 Self-Propelled Windrower models.

### 2.1 Reworking Windrower Frame – Pre-2008 Models

Pre-2008 windrowers will need some modifications made before the Double Windrow Attachment (DWA) can be installed.



**WARNING**

**Check to be sure all bystanders have cleared the area.**

1. Park the windrower on a level surface.
2. Shut down the engine, and remove the key from the ignition.
3. If mounting holes are not present, drill four 20 mm (25/32 in.) diameter holes at the locations shown in Figures [2.1, page 12](#) and [2.2, page 12](#).

**IMPORTANT:**

Move any hydraulic hoses out of the way before drilling into the frame at the rear of the windrower.

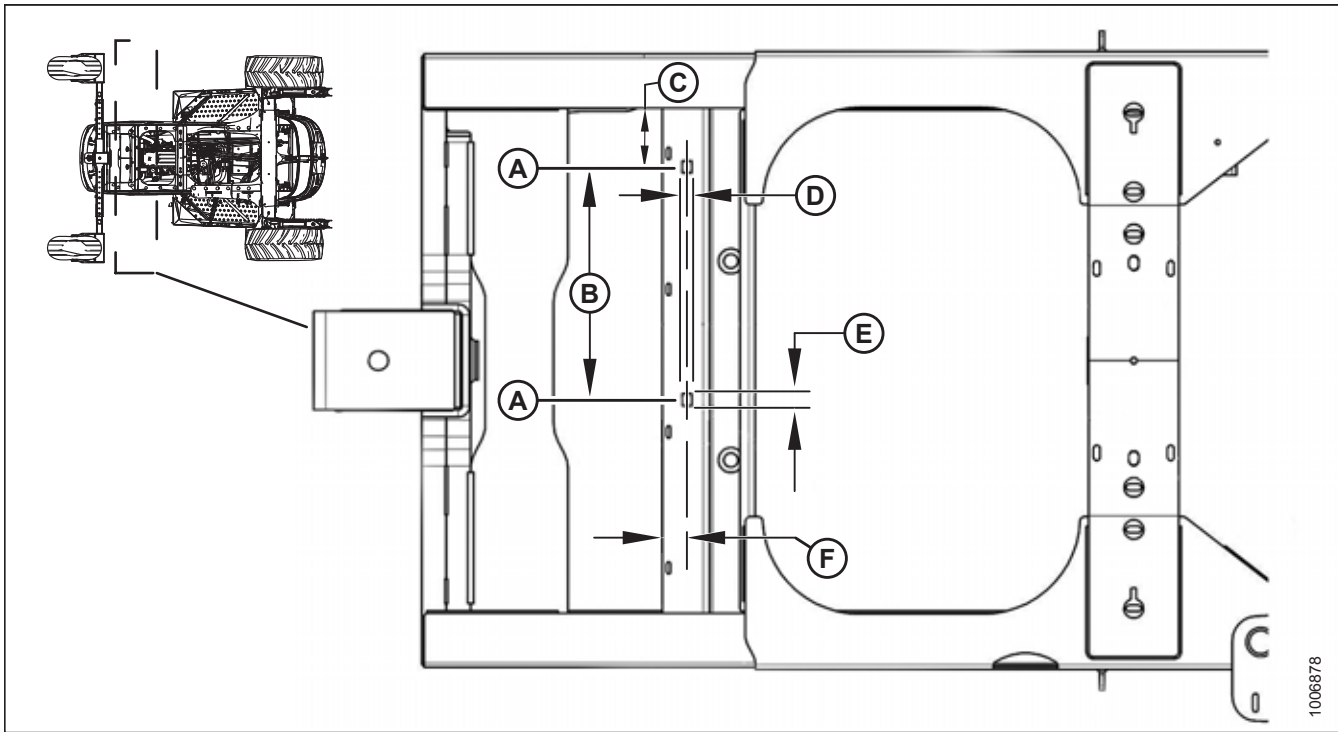
4. Ream and/or grind the rear drill holes to make them square for carriage bolts.

**NOTE:**

The slots are only required if the holes do not line up with the DWA frame.

## SETUP INSTRUCTIONS

Figure 2.1: Rear-Facing Frame

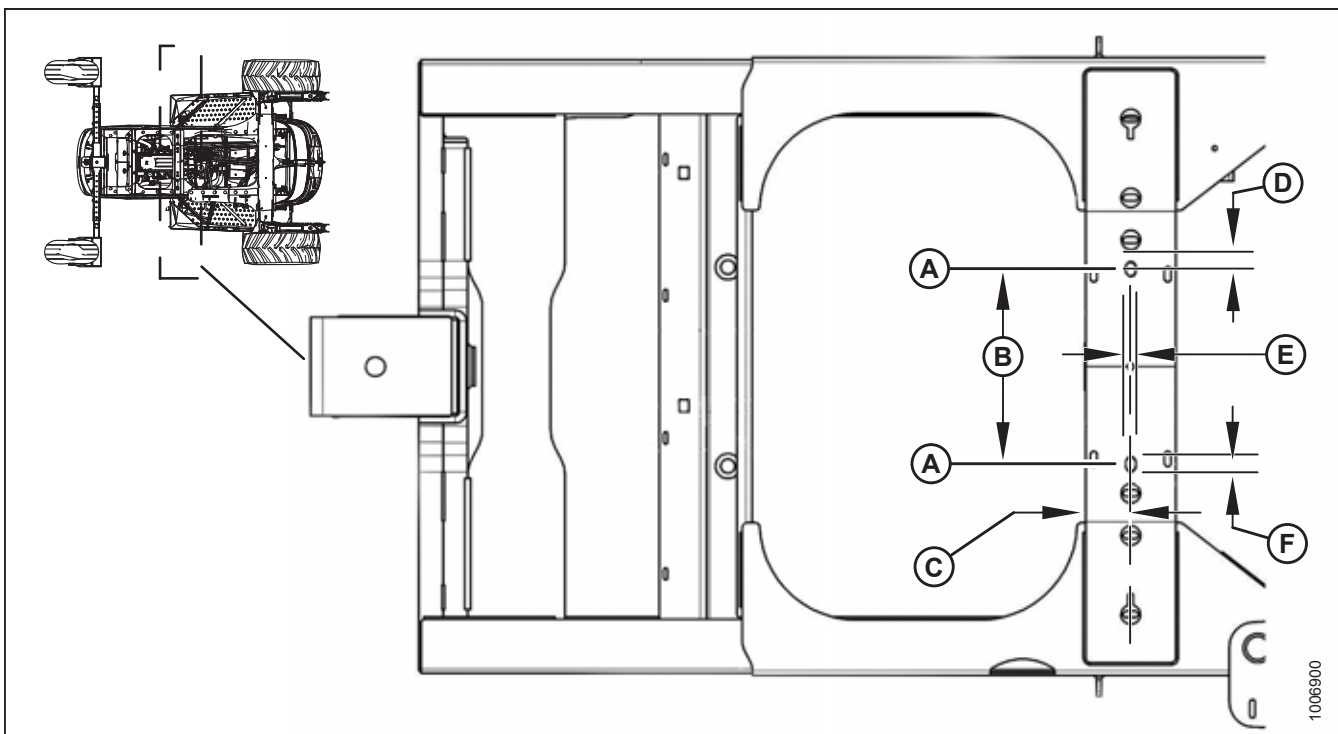


A - Rear Frame Hole Locations  
D - 20 mm (25/32 in.)

B - 480 mm (18 7/8 in.)  
E - 25 mm (1 in.)

C - 121.5 mm (4 25/32 in.)  
F - 50 mm (1 31/32 in.)

Figure 2.2: Forward-Facing Frame



A - Front Frame Hole Locations  
D - 40 mm (1-9/16 in.)

B - 402 mm (15 15/16 in.)  
E - 20 mm (25/32 in.)

C - 92.5 mm (3 5/8 in.)  
F - 28.5 mm (1 1/8 in.)

## 2.2 Installing Draper Drive Manifold

The Double Windrow Attachment's (DWA) draper drive manifold must be tied into the windrower's hydraulic system. This procedure may differ depending on your particular windrower model.

1. Move left platform (A) to the open position to access the hydraulic valve blocks. Ensure that the platform latch is engaged in the open position; refer to the windrower operator's manual for instructions.

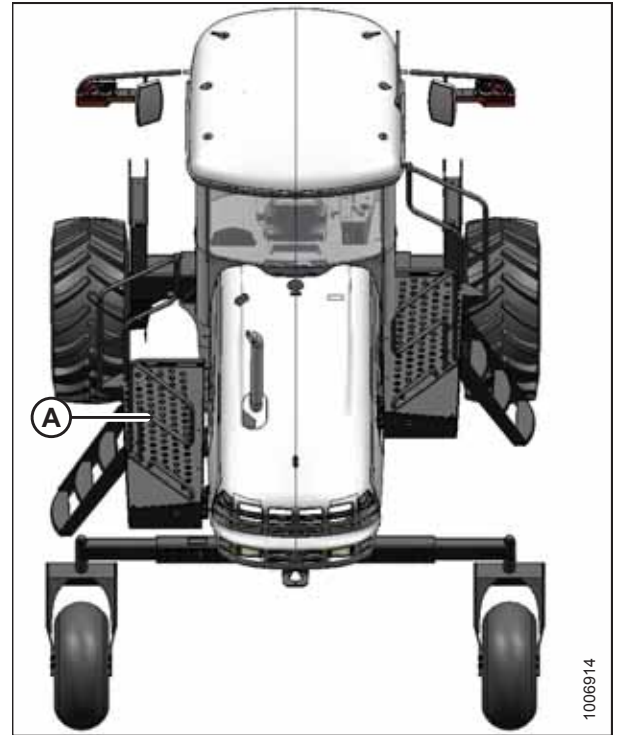


Figure 2.3: Windrower Top View with Left Platform in Open Position

2. To prepare the DWA draper drive manifold, install #12 ORB x #12 JIC fitting (A) in the R2 port on the DWA drive manifold.

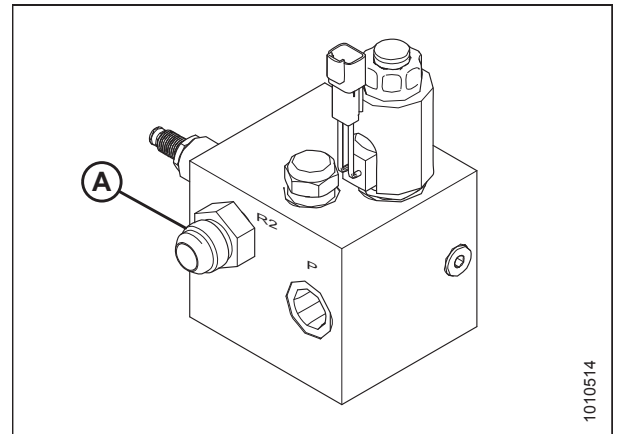


Figure 2.4: DWA Drive Manifold

## SETUP INSTRUCTIONS

3. Select the correct fitting for your windrower model:

- **For M150/M200:** Install #10 ORB x #10 JIC fitting (A) in the P port on the DWA drive manifold.
- **For M155/M155E4/M205:** Install long #10 ORB x #10 JIC fitting (B) in the P port on the DWA drive manifold.

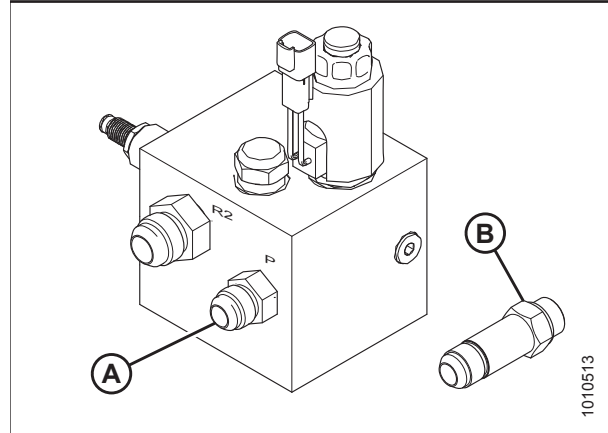


Figure 2.5: DWA Drive Manifold

4. To simplify assembly, attach hose (A) to the fitting in the R2 port of the DWA drive manifold before attaching the manifold to the frame.

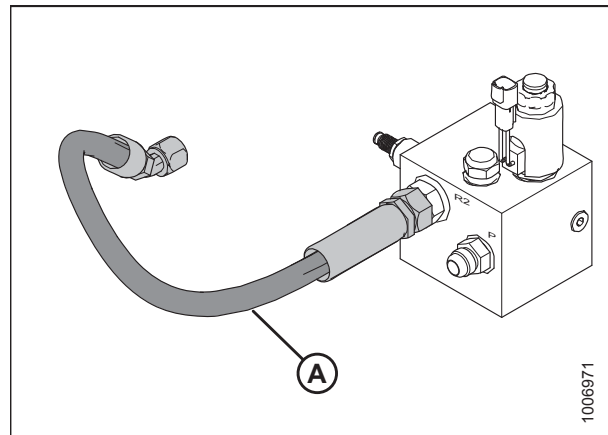


Figure 2.6: DWA Drive Manifold

5. Attach the DWA drive manifold to the windrower left side frame with two 3/8 in. serrated flange bolts (A). Route the hose and fittings through the side frame so that they point toward the windrower engine and relief valve (B) points toward the rear of the windrower.

**NOTE:**

Leave the plugs in ports DWA and R1.

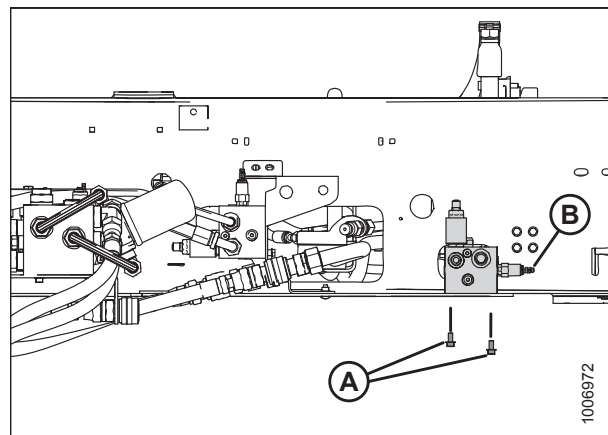


Figure 2.7: Windrower Left Side – M205 Shown

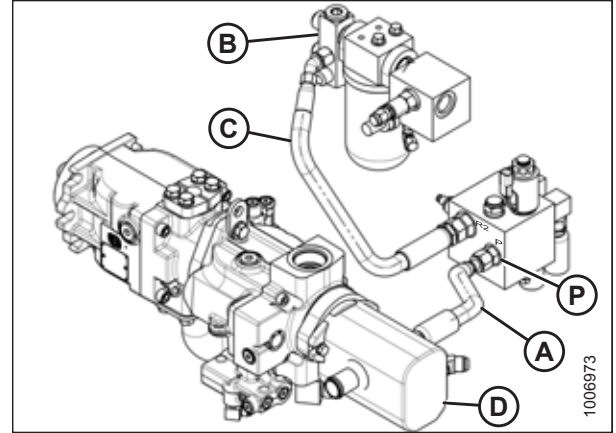


## SETUP INSTRUCTIONS

6. Remove hose (A) from cooler bypass relief valve (B) and connect it to the fitting at the P port on the DWA drive manifold. The other end of hose (A) is connected to supercharge pump (D).
7. Install the other end of hose (C) to cooler bypass relief valve (B) where hose (A) was removed.

### NOTE:

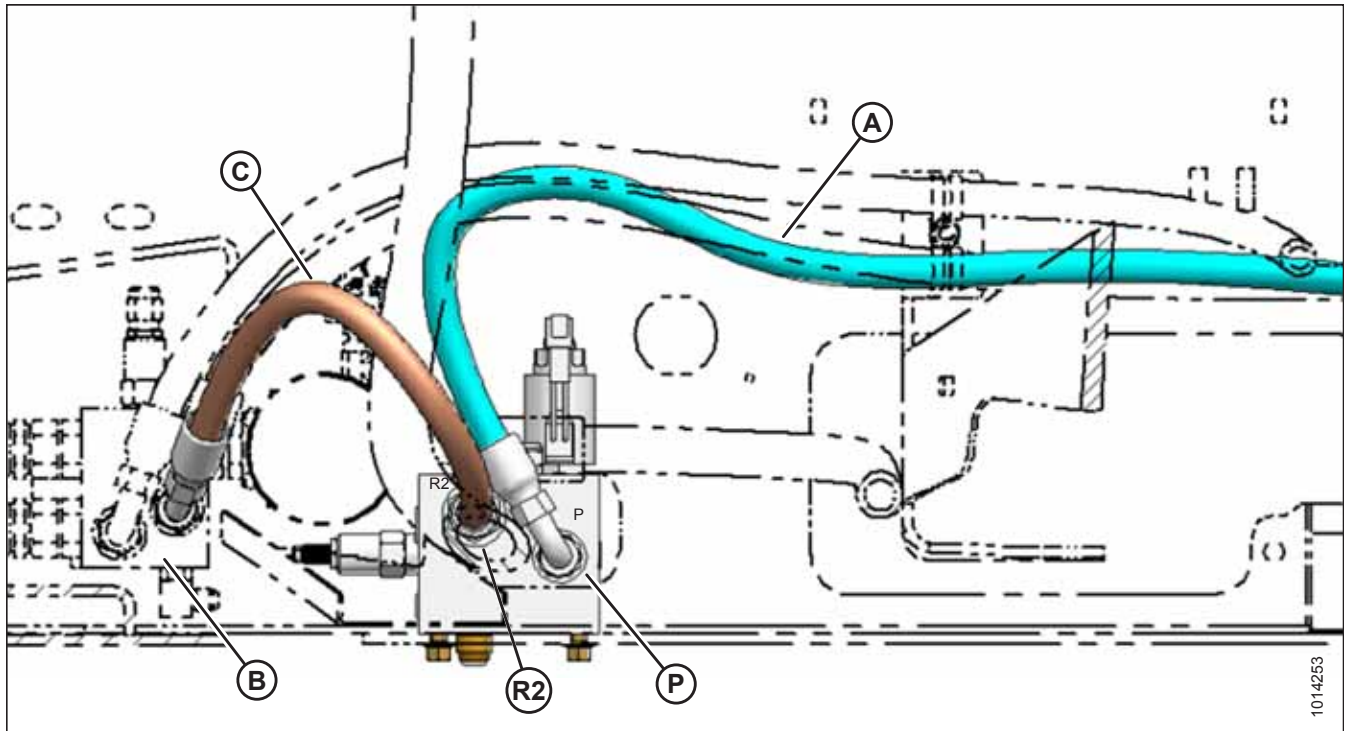
Gain access to hose (A) from under the windrower or by raising the windrower hood and working from the left platform.



**Figure 2.8: M150/M200 Configuration after Installing the DWA Drive Manifold**

A - Hose  
B - Bypass Relief Valve  
C - Hose  
D - Supercharge Pump  
P - Port P

**Figure 2.9: M205 Hose Configuration**

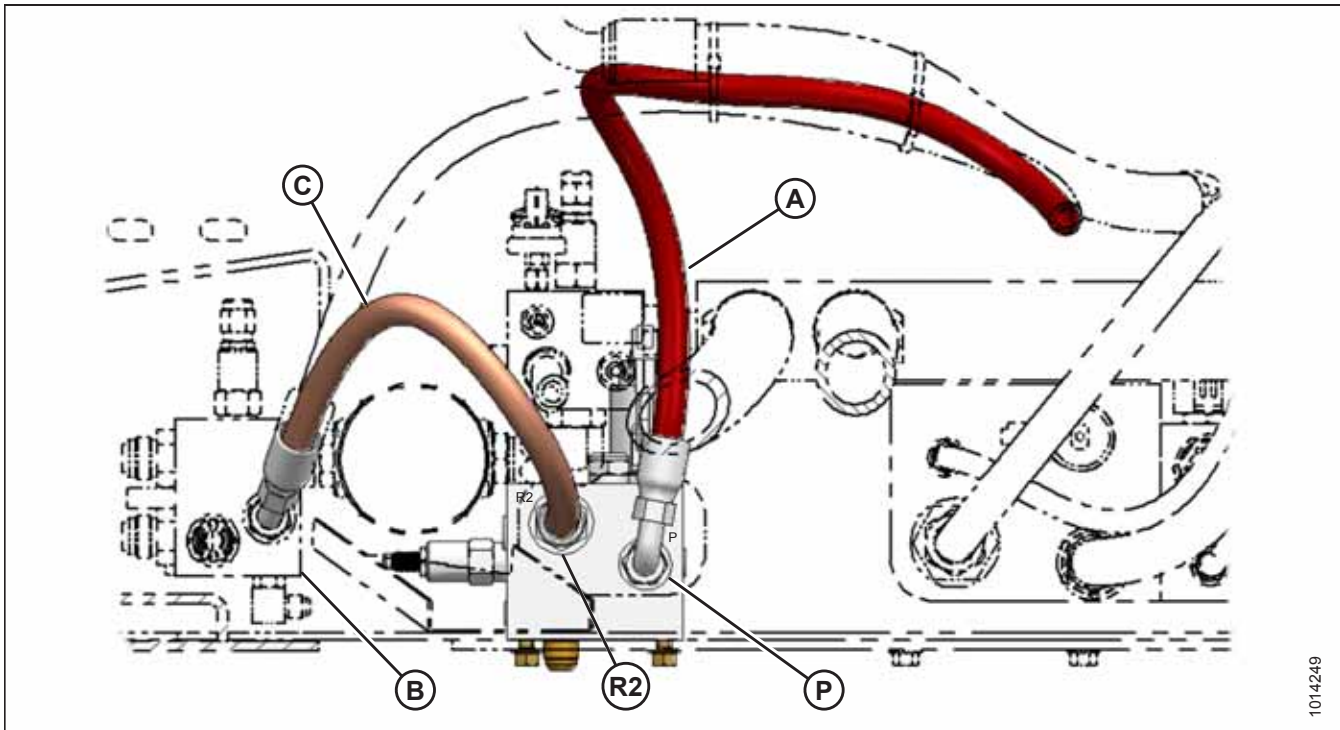


A - Hose from Port P on DWA Drive Manifold to Pump (not visible)  
B - Cooler Bypass Relief Valve  
C - Hose from Port R2 on DWA Drive Manifold to Cooler Bypass Relief Valve

B - Cooler Bypass Relief Valve  
P - Port P

## SETUP INSTRUCTIONS

Figure 2.10: M155/M155E4 Hose Configuration



A - Hose from Port P on DWA Drive Manifold to Pump (not visible)  
C - Hose from Port R2 on DWA Drive Manifold to Cooler Bypass Relief Valve

B - Cooler Bypass Relief Valve  
P - Port P

1014249

## 2.3 Installing Platform Rail

The platform rail replaces the right stairs to ensure the safety of the operator and to make room for the Double Windrow Attachment (DWA).

To install the platform rail, proceed to the section that applies to your windrower:

- [2.3.1 Installing Platform Rail – M155/M155E4/M205, page 17](#)
- [2.3.2 Installing Platform Rail – M150/M200, page 18](#)

### 2.3.1 Installing Platform Rail – M155/M155E4/M205

The right stairs must be removed from M155/M155E4/M205 windrowers in order to install the platform rail for the Double Windrow Attachment (DWA).

1. Remove right stairs (C) from the platform by removing the two top bolts (A) and loosening two bottom bolts (B). Retain the bolts.
2. Lift the steps to detach the bottom keyhole slots from bolts (B).
3. Remove bolts (B) from the bottom of the frame and loosely install the bolts in top location (A).

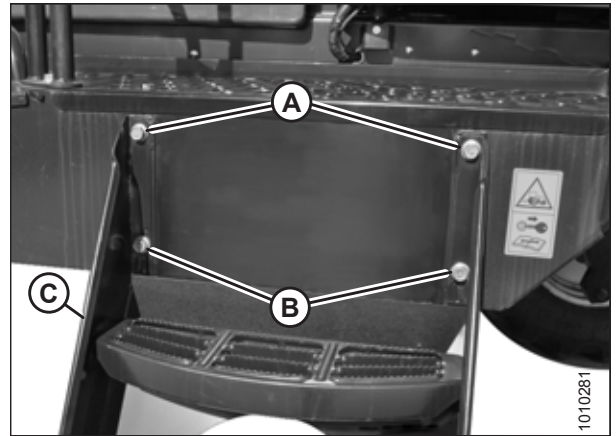


Figure 2.11: Right Stairs

4. Hang platform rail (A) by fitting the keyhole slots in adapter plate (B) onto top bolts (C).
5. Install two bottom bolts (D) and tighten all four bolts.

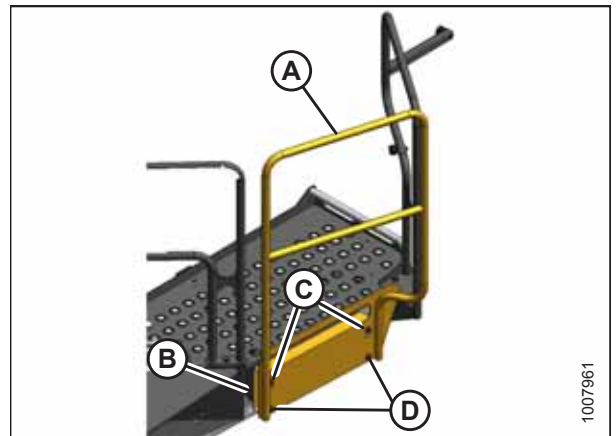


Figure 2.12: Platform Rail

### 2.3.2 Installing Platform Rail – M150/M200

The right stairs must be removed on M150/M200 windrowers in order to install the adapter plate and platform rail for the Double Windrow Attachment (DWA).

1. Remove right stairs (C) from the platform by loosening two top bolts (A) and removing two bottom bolts (B).
2. Lift the steps to detach the top keyhole slots from bolts (A). Retain the bolts.

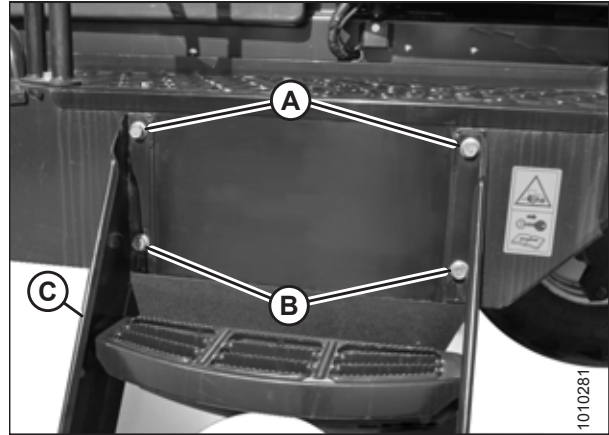


Figure 2.13: Right Stairs

3. Remove adapter plate (A) by removing four 1/2 NC x 1 in. flange bolts and nuts (B).

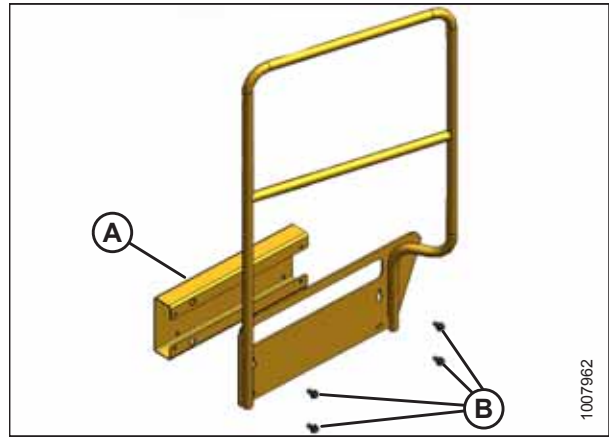


Figure 2.14: Platform Rail

4. Hang rail (A) without the spacer plate by engaging the keyhole slots on top bolts (B).
5. Install two bottom bolts (C) and tighten all four bolts.

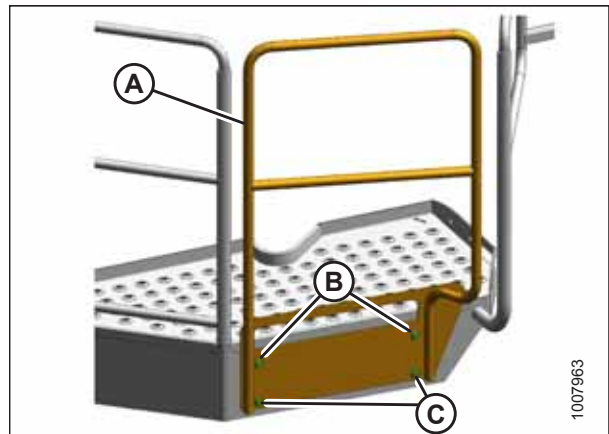


Figure 2.15: Platform Rail

## 2.4 Installing Linkage

The linkage is the main structural component securing the Double Windrow Attachment (DWA) to the windrower.

To install the linkage, proceed to the section that applies to your windrower:

- [2.4.1 Installing Linkage – M150/M155/M155E4, page 19](#)
- [2.4.2 Installing Linkage – M200, page 22](#)
- [2.4.3 Installing Linkage – M205, page 26](#)

### 2.4.1 Installing Linkage – M150/M155/M155E4

Attach the Double Windrow Attachment (DWA) support and linkage to the frame. The procedure will differ slightly depending on the type of header you intend to use with your M150/M155/M155E4 windrower.

1. Remove support (A) from the DWA linkage by removing nut (B).

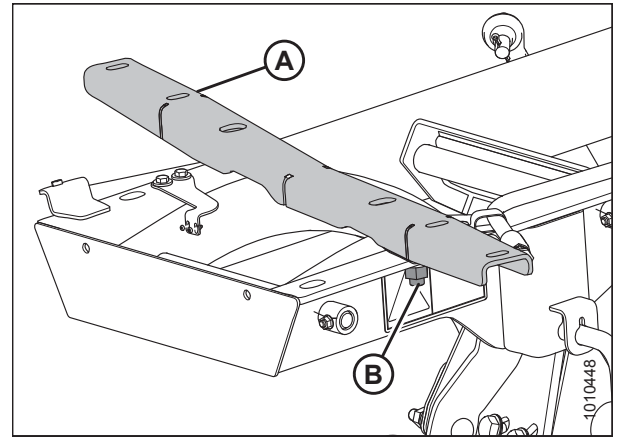


Figure 2.16: Linkage Support

2. Install two 3/4 in. x 4 1/2 in. long carriage head bolts (A) in the windrower frame member located between the engine and the caster wheels.

**NOTE:**

Move the hoses located above the frame member in order to install the bolts.



Figure 2.17: Frame Member under Windrower

## SETUP INSTRUCTIONS

3. Remove outer bolt and nut (A) from front engine mounts (B) on the left and right sides of engine (C). Retain the nuts.

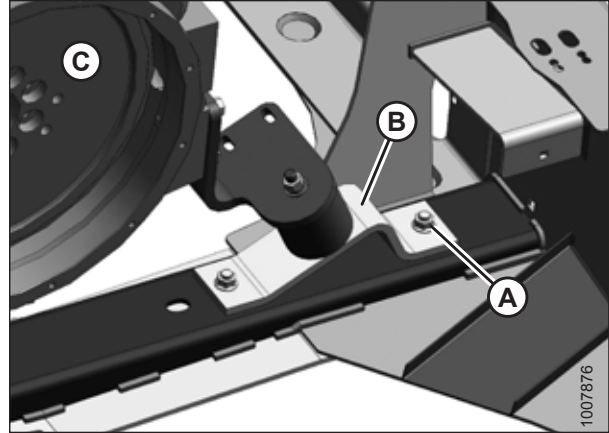


Figure 2.18: Front Engine Mounts

4. Mount linkage support (A) to the windrower frame with two 1/2 in. x 2 3/4 in. long hex head bolts (B) with flat washers under the bolt heads. Secure the bolts with nuts (C).

**NOTE:**

These bolts replace the engine mount bolts removed in Step 3, page 20.

5. From below the support, install 3/4 in. x 3 1/2 in. long hex head bolt (D) with flat washer (E) under the bolt head.
6. Secure the bolt with a flat washer, a lock washer, and a nut on the top side of the frame.
7. From above the support, install 3/4 in. x 5 1/2 in. long hex head bolt (F) with a flat washer under the bolt head.

Do **NOT** install a nut on bolt (F).

8. Support linkage assembly (A) with a forklift.

**IMPORTANT:**

Make sure forks (B) of the forklift do not lift against the cylinder fitting.

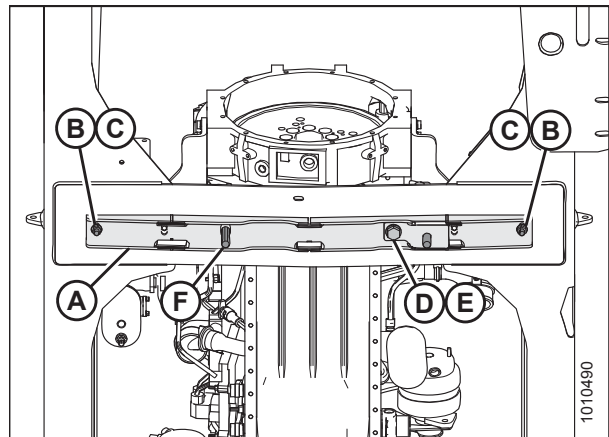


Figure 2.19: Linkage Support Installed



Figure 2.20: DWA Linkage



## SETUP INSTRUCTIONS

9. Align the DWA linkage with the four bolts in the windrower frame according to the type of header you will be using:

- **For an R Series header:** Mount the linkage in the most forward position (indicated by [A]).
- **For an A Series or D Series header:** Mount the linkage in the most rearward position (indicated by [B]).

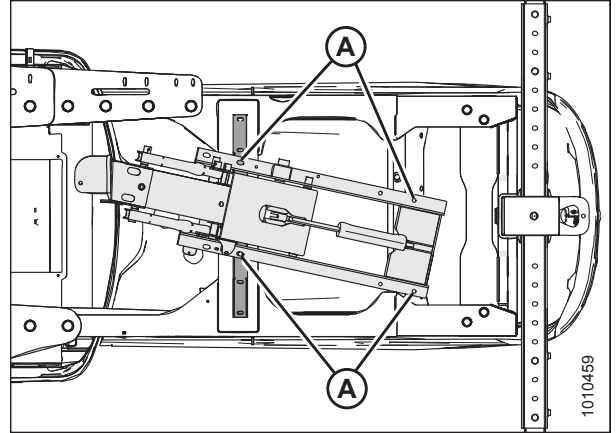


Figure 2.21: Linkage Forward

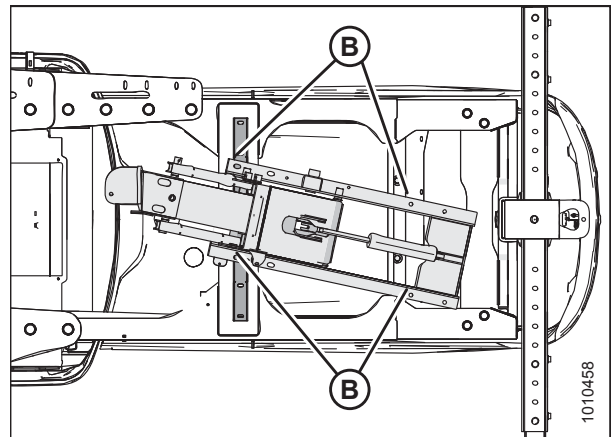


Figure 2.22: Linkage Rearward

10. Position two 1 1/2 in. OD x 1 in. ID x 2 3/4 in. long spacers (A) on the rear bolts.
11. Attach the linkage with four flat washers, lock washers, and nuts (B).

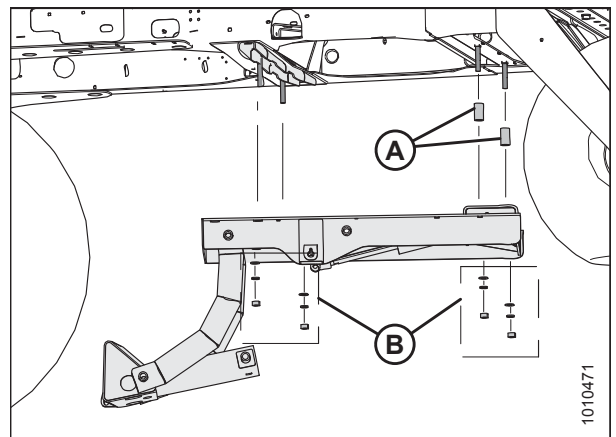


Figure 2.23: Linkage Forward

## SETUP INSTRUCTIONS

12. Lower the linkage by pulling on safety pin (A) on the left side of linkage.
13. If the linkage does not lower, remove the plugs at the end of lift cylinder hoses (B) to remove the air from the hoses.

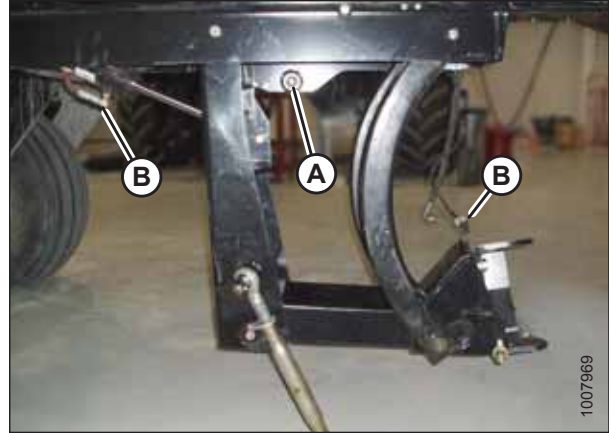


Figure 2.24: DWA Linkage

14. Secure lift cylinder pivot (A) into the correct hole for your header type:
  - **For R Series header:** insert the pivot in upper hole (B).
  - **For A Series or D Series header:** insert the pivot in lower hole (C).

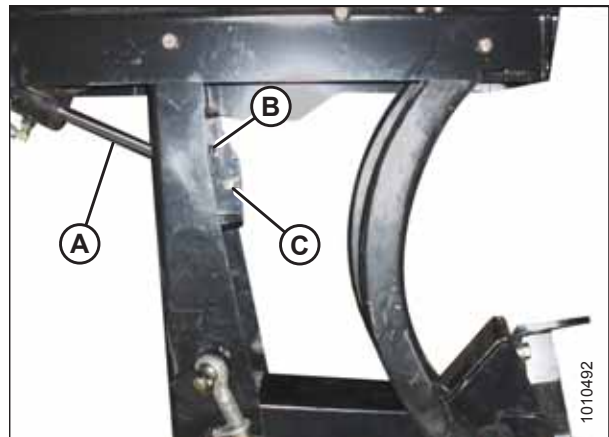


Figure 2.25: Lift Cylinder Pivot

### 2.4.2 Installing Linkage – M200

Attach the Double Windrow Attachment (DWA) support and linkage to the frame. The procedure will differ slightly depending on the type of header you intend to use with your M200 windrower.

1. Remove support (A) from the DWA linkage by removing nut (B).

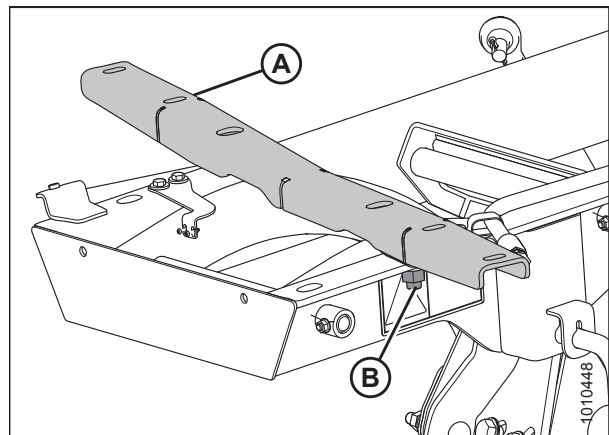


Figure 2.26: DWA Support



## SETUP INSTRUCTIONS

2. Install two 3/4 in. x 4 1/2 in. long carriage head bolts (A) in the windrower frame member located between the engine and the caster wheels.

**NOTE:**

Move the hoses located above the frame member in order to install the bolts.



Figure 2.27: Windrower Frame Member

3. Remove four bolts (A) from the front engine mounts (two on the left side and two on the right side). Retain the nuts.

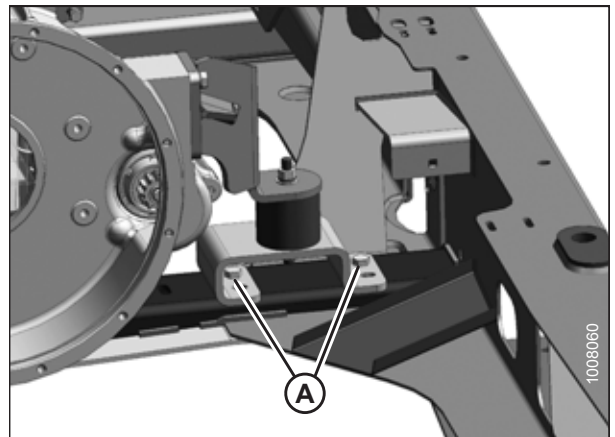


Figure 2.28: Windrower Engine Mount

4. Mount support (A) to the windrower frame with four 1/2 in. x 2 3/4 in. hex head bolts (C) with flat washers under the bolt heads. Secure the bolts with nuts (B).

**NOTE:**

These bolts replace the engine mount bolts removed in Step 3, page 23.

5. From below the support, install 3/4 in. x 3 1/2 in. long hex head bolt (E) with flat washer (F) under the bolt head.
6. Secure the bolt with a flat washer, a lock washer, and a nut on the top side of the frame.
7. From above the support, install 3/4 in. x 5 1/2 in. long hex head bolt (D) with flat washer under the bolt head. Do **NOT** install a nut on bolt (D).

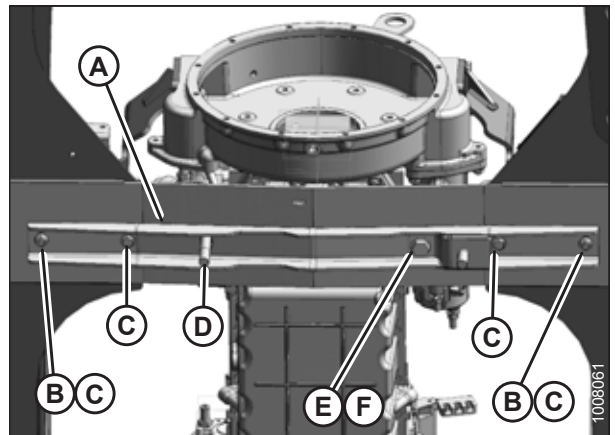


Figure 2.29: Linkage Support

## SETUP INSTRUCTIONS

8. Support linkage assembly (A) with a forklift.

**IMPORTANT:**

Make sure forks (B) of the forklift do not lift against the cylinder fitting.



Figure 2.30: DWA Linkage

9. Align the DWA linkage with the four bolts in the windrower frame.
- **For R Series header:** Mount the linkage in most forward position (A).
  - **For A Series or D Series header:** Mount the linkage in most rearward position (B).

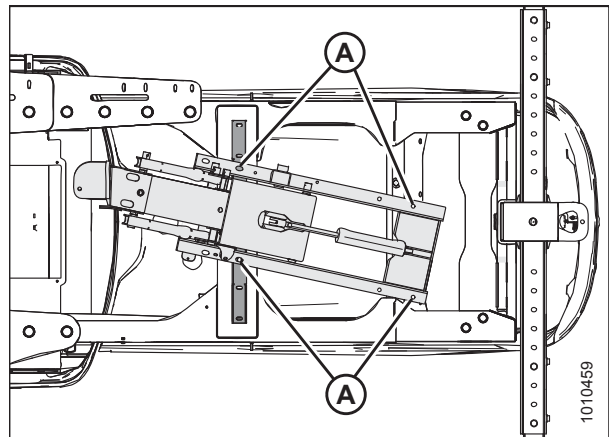


Figure 2.31: Linkage Forward

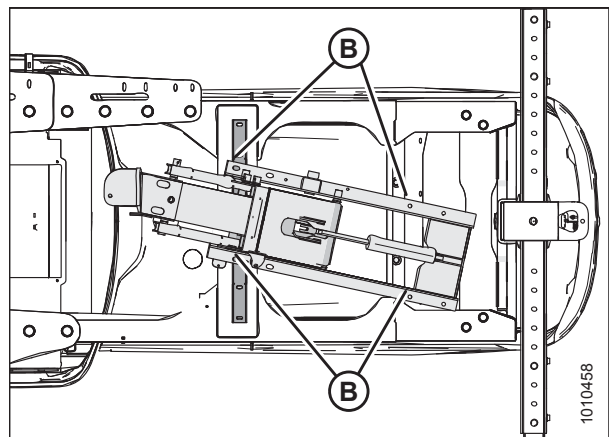


Figure 2.32: Linkage Rearward

## SETUP INSTRUCTIONS

- Position two 1 1/2 in. OD x 1 in. ID x 2 3/4 in. long spacers (A) on the rear bolts.

**NOTE:**

Spacers are not required with the linkage in the rearward position.

- Attach the linkage with four flat washers, lock washers, and nuts (B).

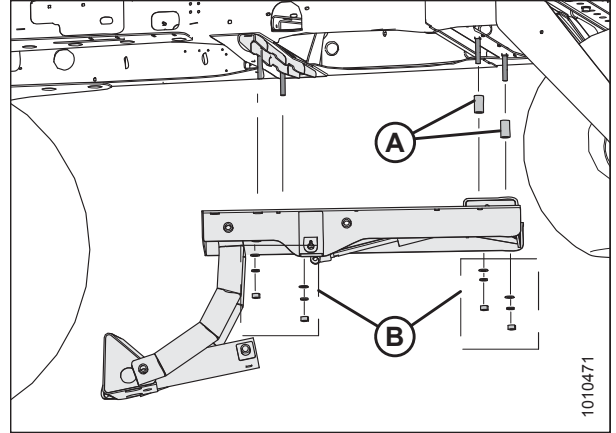


Figure 2.33: Linkage Forward

- Lower the linkage by pulling on safety pin (A) on the left side of the linkage.
- If the linkage does not lower, remove the plugs at the end of lift cylinder hoses (B) to remove the air from the hoses.

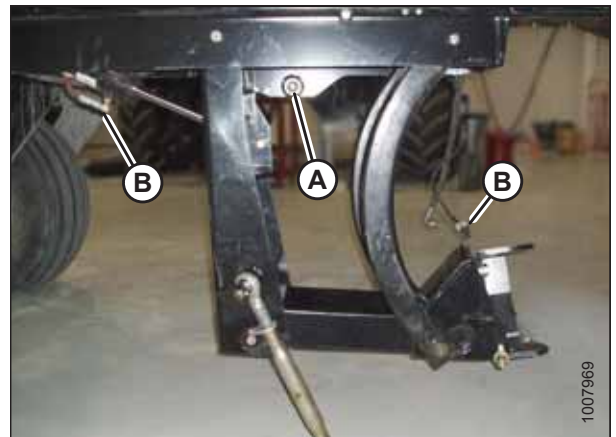


Figure 2.34: DWA Linkage

- Insert lift cylinder pivot (A) into the correct hole depending on header type:
  - For R Series Header:** Insert the pivot in upper hole (B).
  - For D Series or A Series Headers:** Insert the pivot in lower hole (C).

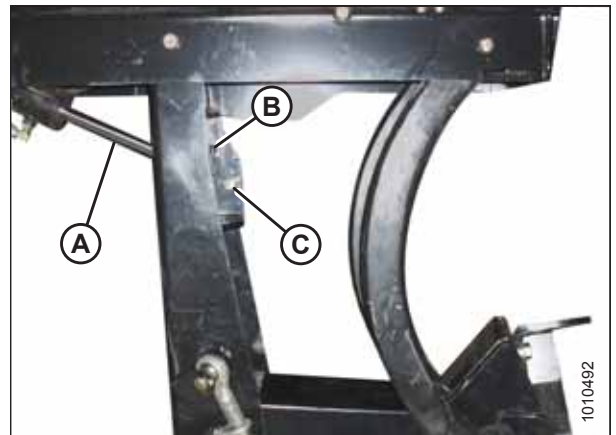


Figure 2.35: Lift Cylinder Pivot

### 2.4.3 Installing Linkage – M205

Attach the Double Windrow Attachment (DWA) support and linkage to the frame. The procedure will differ slightly depending on the type of header you intend to use with your M205 windrower.

1. Remove support (A) from the DWA linkage by removing nut (B).

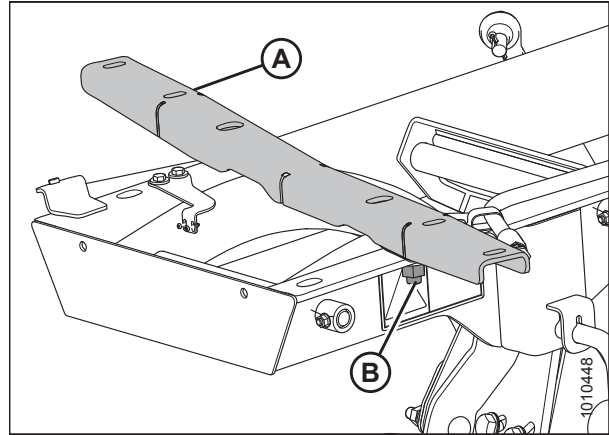


Figure 2.36: Linkage Support

2. Install two 3/4 in. x 4 1/2 in. carriage head bolts (A) in the windrower frame member located between the engine and the caster wheels.

**NOTE:**

Move the hoses located above the frame member to install the bolts.



Figure 2.37: Frame Member under Windrower

## SETUP INSTRUCTIONS

3. **M205 Windrower – 2010 and 2011 model years only:**  
Remove 3/4 in. x 3 1/2 in. bolt (A) from the stabilizer link mount near the right front engine mount. Retain the bolt.

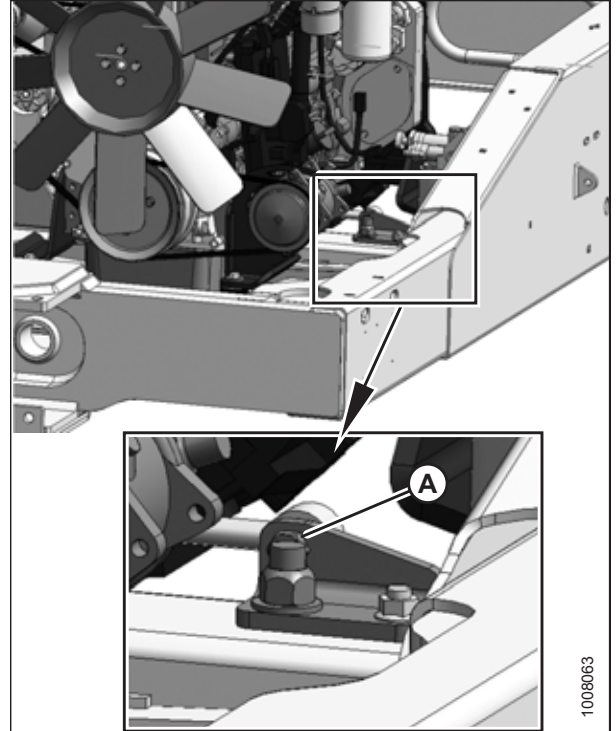


Figure 2.38: Stabilizer Link

4. Mount linkage support (A) to the windrower frame with two 1/2 in. x 2 3/4 in. hex head bolts (B) with flat washers under the bolt heads. Secure the bolts with nuts (C).
5. From below the support, install 3/4 in. x 3 1/2 in. long hex head bolt (D) with flat washer (E) under the bolt head.
6. Secure the bolt with a flat washer, a lock washer, and a nut on the top of the frame.
7. From above the support, install 3/4 in. x 5 1/2 in. long hex head bolt (F) with a flat washer under the bolt head.

**NOTE:**

This bolt replaces the 3 1/2 in. long bolt removed in Step 3, [page 27](#).

Do **NOT** install a nut on bolt (F).

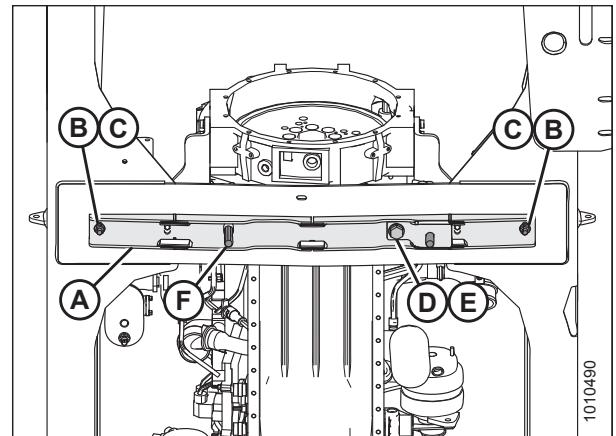


Figure 2.39: Linkage Support

## SETUP INSTRUCTIONS

8. Support linkage assembly (A) with a forklift.

**NOTE:**

Make sure forks (B) of the forklift do not lift against the cylinder fitting.



Figure 2.40: DWA Linkage

9. Align the DWA linkage with the four bolts in the windrower frame.
  - **For an R Series header:** Mount the linkage in most forward position (A).
  - **For an A Series or D Series header:** Mount the linkage in most rearward position (B).

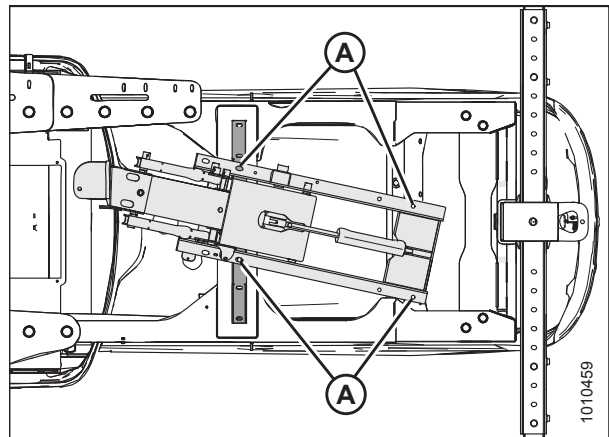


Figure 2.41: Linkage Forward

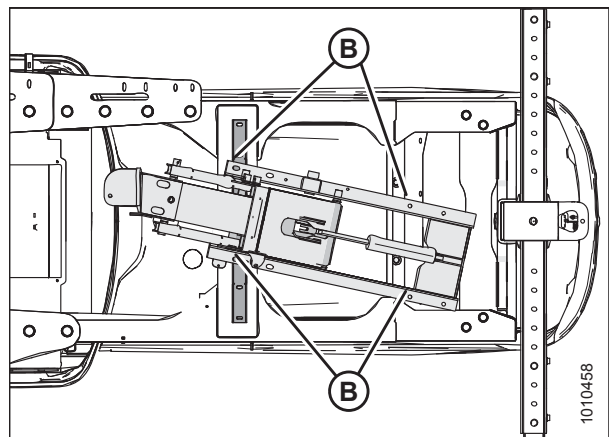


Figure 2.42: Linkage Rearward

## SETUP INSTRUCTIONS

10. Attach the linkage with four flat washers, lock washers, and nuts (A).

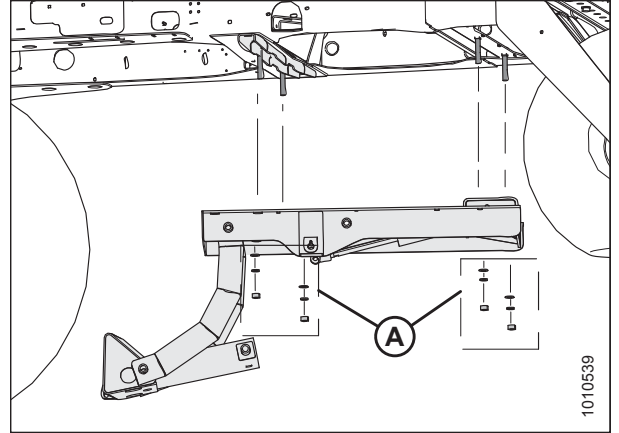


Figure 2.43: Linkage Forward

11. Lower the linkage by pulling on safety pin (A) on the left side of the linkage.
12. If the linkage does not lower, remove the plugs at the end of lift cylinder hoses (B) to remove the air from the hoses.

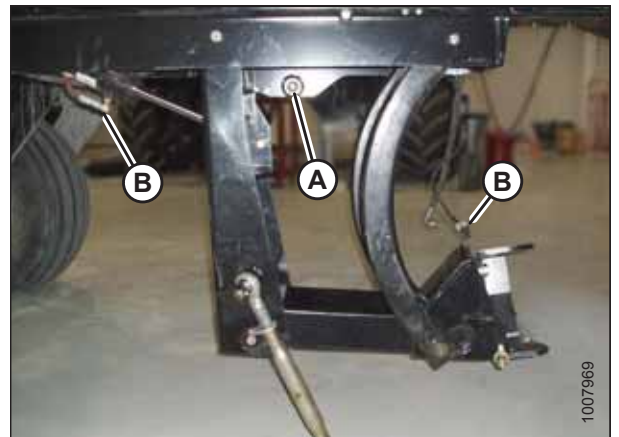


Figure 2.44: DWA Linkage

13. Secure the lift cylinder pivot (A) into the correct hole for your header type:
  - **For an R Series header:** Insert the pivot in upper hole (B).
  - **For a D Series or A Series header:** Insert the pivot in lower hole (C).

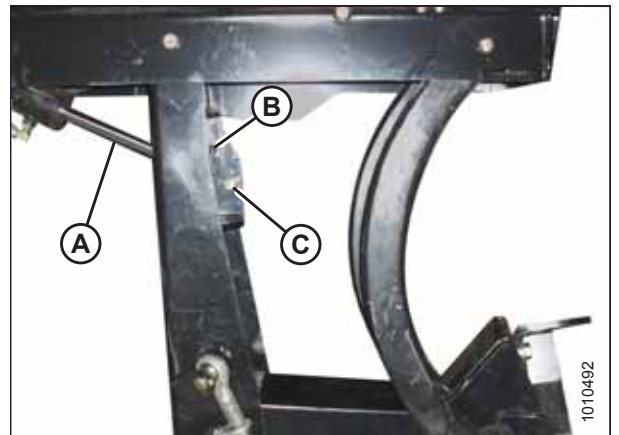


Figure 2.45: Lift Cylinder Pivot



## 2.5 Installing Deck

The conveyor deck must be removed from its shipping supports before it can be installed. It will be need to be handled with a lifting aid such as a forklift.

1. Remove shipping boards (A) by removing transport banding (B). Discard the shipping materials.

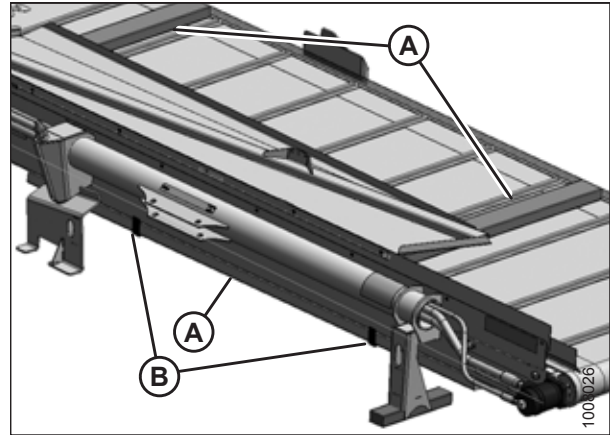


Figure 2.46: DWA Deck

2. Support the deck with a forklift. Forks (C) should be inboard of shipping stand (A).
3. Remove two shipping stands (A) from the front of the deck by removing nut (B).
4. Reinstall nut (B) with a washer.

**NOTE:**

Washers are supplied in the hydraulic kit.

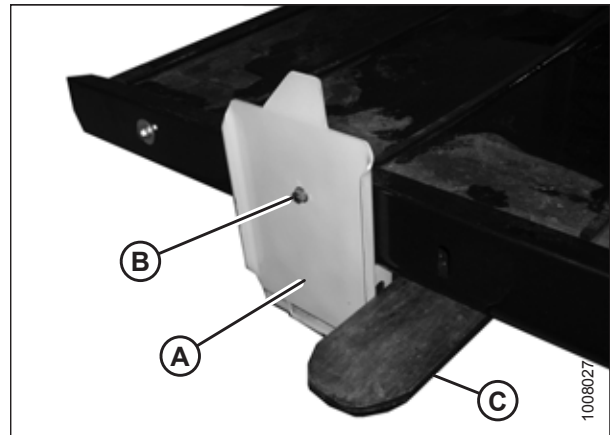


Figure 2.47: Deck Shipping Stand

5. Remove shipping stand (A) from the rear of the deck by removing two nuts (B) and washers (C).

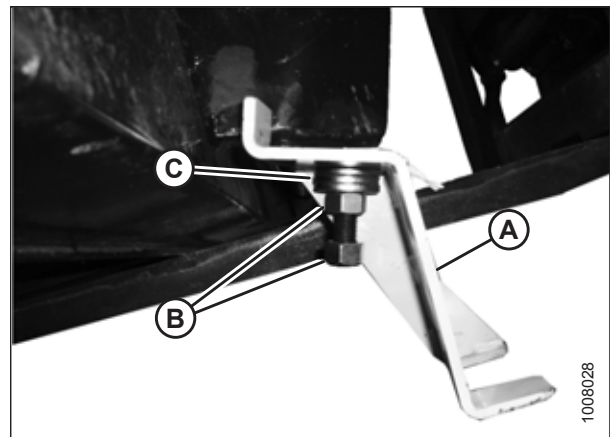


Figure 2.48: Deck Shipping Stand



## SETUP INSTRUCTIONS

6. Remove shipping stand (A) by removing transport wire (B).  
The DWA deck is now ready to be assembled to the linkage underneath the windrower.

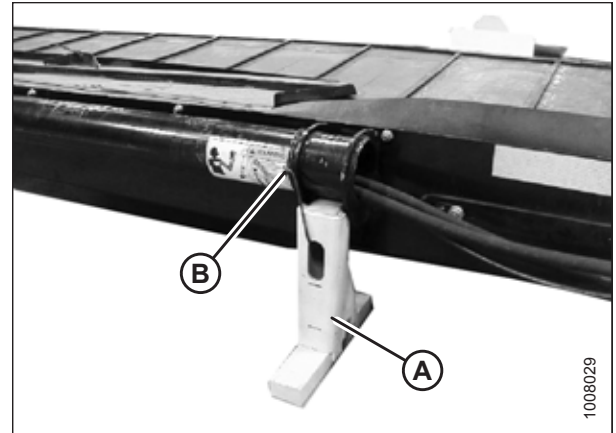


Figure 2.49: Deck Shipping Stand

7. Position the DWA deck on the right side of the windrower.
8. Support the deck with floor jack (A) or forklift (B) at each end.

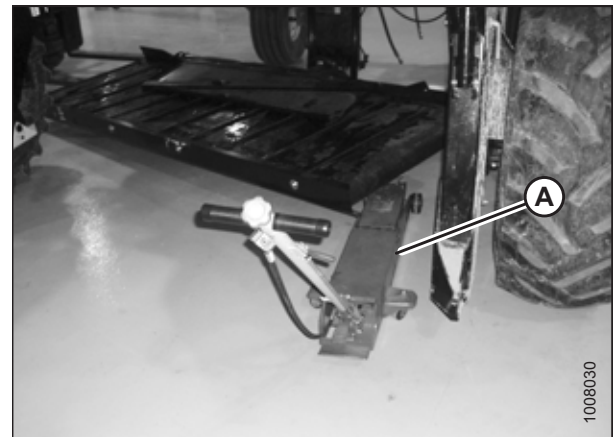


Figure 2.50: DWA Deck Supported with Floor Jack

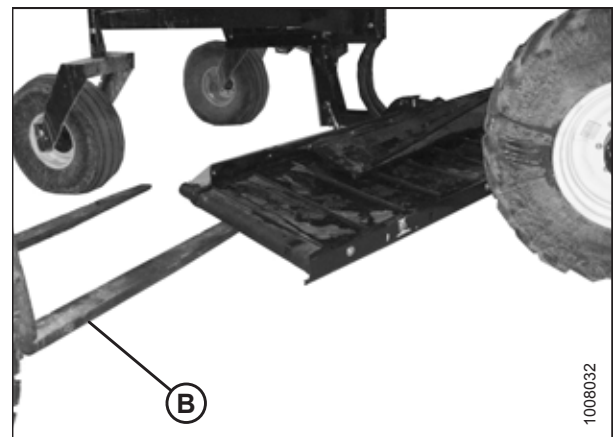


Figure 2.51: DWA Deck Supported with Fork Lift

## SETUP INSTRUCTIONS

9. Position deck pivot (A) into linkage clevis (B).

**NOTE:**

Make sure there is a loose bushing inside deck pivot (A).

10. Align deck pivot (A) with the holes in clevis (B) by raising or lowering the floor jack. Insert shaft (C) when the holes are aligned.
11. Install nut (D) on the bottom of the deck pivot shaft and torque the nut to 339 Nm (250 lbf-ft).
12. Install lock nut (E) and tighten against nut (D).
13. Add grease to grease fitting (F).

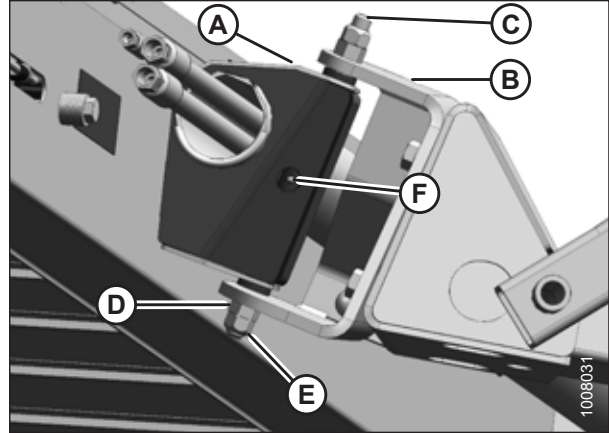


Figure 2.52: Deck Pivot

14. Attach turnbuckle (A) from the linkage to the deck.

- **If used with an R Series Rotary Disc Header:** use inner pivot (B).
- **If used with an A Series Auger or D Series Draper Header:** use the outer pivot (C).

**NOTE:**

The turnbuckle length should be approximately:

- **If used with an R Series Rotary Disc Header:** 530 mm (21 in.) long.
- **If used with an A Series Auger or D Series Draper Header:** 630 mm (25 in.) long.

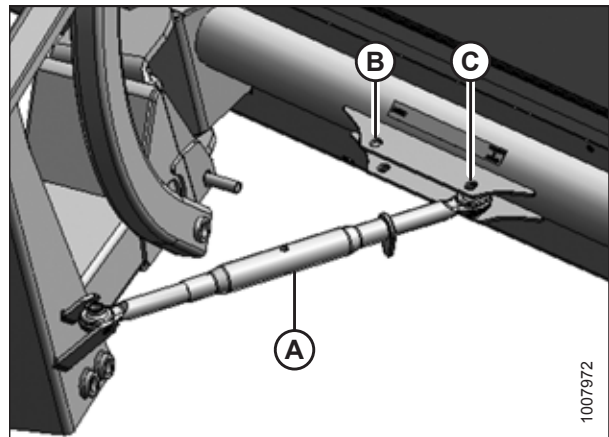


Figure 2.53: Adjustable Turnbuckle

15. Adjust the turnbuckle length so that space (A) between the deck and the right drive tire is approximately 100 mm (4 in.).

**NOTE:**

The single-acting lift cylinder is pressurized by the draper drive circuit. Therefore, when the deck is set up for a rotary disc header, the windrower needs to be running for the deck to be in its most forward position. This adjustment can be fine-tuned when the hydraulics setup is complete.

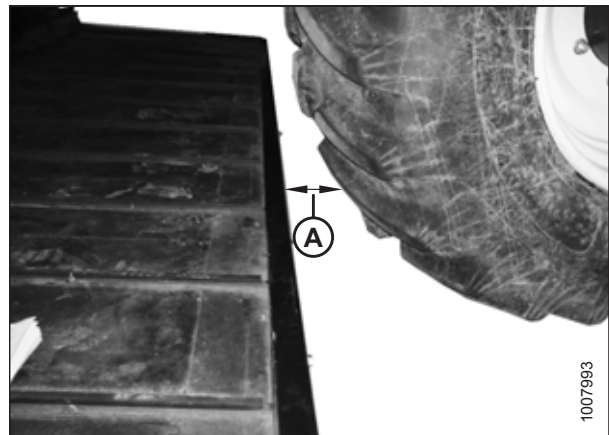


Figure 2.54: Deck and Right Drive Wheel

## SETUP INSTRUCTIONS

16. Raise backsheet (A) on the deck and remove the top nuts (B) and (C).
17. Install gas shock absorber (D) in the center hole and secure it with nuts (B) and (C).

**IMPORTANT:**

Make sure the taper of nut (C) is facing the gas shock rod end as shown.

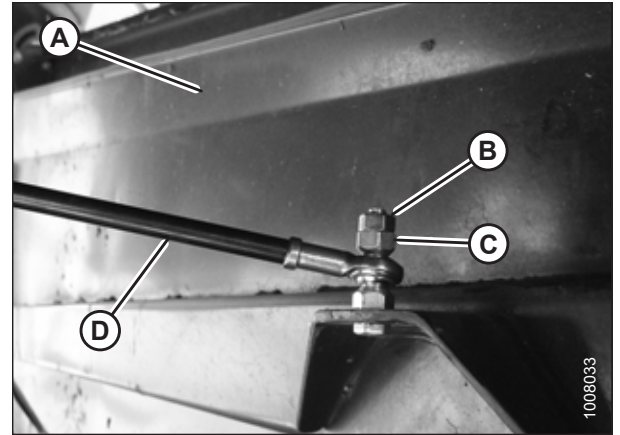


Figure 2.55: Backsheet Gas Shock

## 2.6 Installing Hydraulics

Once the Double Windrow Attachment (DWA) is secured to the frame, the hydraulic connections can be made. Setting up the case drain hose will depend on the particular model of windrower that the DWA is being installed on.

### IMPORTANT:

Ensure that all hydraulic fittings and hose ends are free of dust, dirt, and other contaminants before installing them.

1. Install #10 ORB x #10 JIC elbow (A) into the DWA port on the draper drive block.
2. Install #12 ORB x #10 JIC elbow (B) into the R1 port.

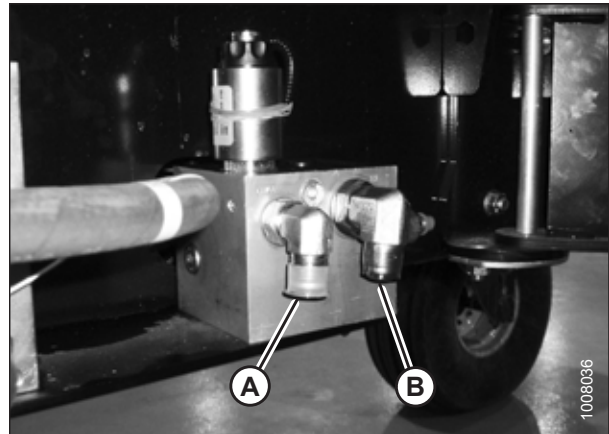


Figure 2.56: Draper Drive Block

3. Connect #10 tee (A) to elbow (B) in the draper drive block.
4. Connect pressure hose (C) (marked with a blue cable tie) from the top port of the draper drive motor to elbow (D) in the draper drive block.
5. Connect return hose (E) to tee (A).
6. Connect 1/2 in. lift cylinder hose (F) to tee (A).

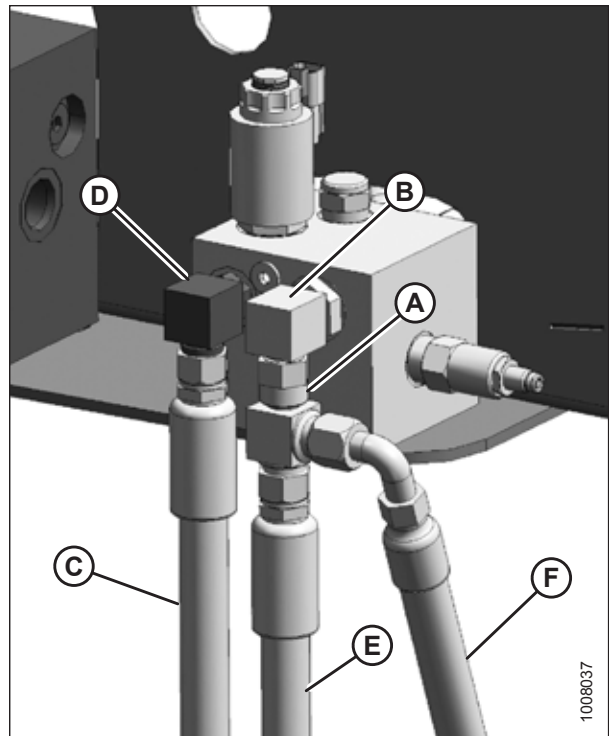


Figure 2.57: Draper Drive Block

A - #10 Tee	B - Elbow	C - Pressure Hose
D - Elbow	E - Return Hose	F - Lift Cylinder Hose

## SETUP INSTRUCTIONS

To install case drain hose (A), proceed to the section that applies to your windrower/header configuration:

- M150/M200 and A Series without reverser. Refer to [2.6.1 Installing Case Drain Hose – M150/M200 and A Series Headers without Reverser](#), page 35.
- M150/M200 and A Series with reverser. Refer to [2.6.2 Installing Case Drain Hose – M150/M200 and A Series Headers with Reverser](#), page 36.
- M150/M200 and D Series without reverser. Refer to [2.6.3 Installing Case Drain Hose – M150/M200 and D Series Headers without Reverser](#), page 37.
- M150/M200 and D Series with reverser. Refer to [2.6.4 Installing Case Drain Hose – M150/M200 and D Series Headers with Reverser](#), page 38.
- M150/M200 and R Series. Refer to [2.6.5 Installing Case Drain Hose – M150/M200 and R Series Headers](#), page 38.
- M155/M155E4/M205, all header types. Refer to [2.6.6 Installing Case Drain Hose – M155/M155E4/M205 with All Headers](#), page 39.

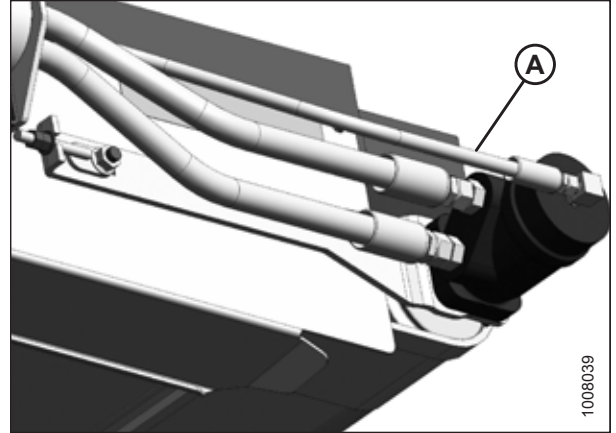


Figure 2.58: Case Drain Hose

### 2.6.1 Installing Case Drain Hose – M150/M200 and A Series Headers without Reverser

The case drain hose must be connected to the header drive block on M150/M200 windrowers using A Series headers without reversers.

1. Connect #12 ORB x #10 JIC elbow (B) to port T on the header drive block.
2. Connect #10 JIC x #6 JIC reducer (C) to elbow (B).
3. Attach case drain hose (A) to reducer (C).

**NOTE:**

Make sure that hose (A) is not rubbing against any fittings.

Refer to [5.5 Hydraulics and In-Cab Electrical](#), page 98 for additional information on the hydraulic connections.

4. Proceed to [2.7 Installing Auxiliary Valve Block](#), page 40.

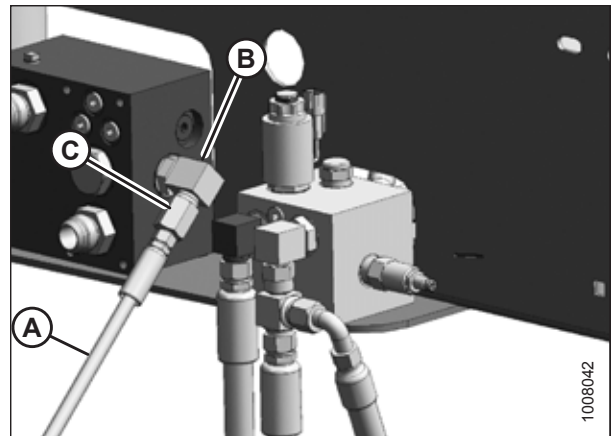


Figure 2.59: Header Drive Block

## 2.6.2 Installing Case Drain Hose – M150/M200 and A Series Headers with Reverser

The case drain hose must be connected to the header drive block on M150/M200 windrowers using A Series headers with reversers.

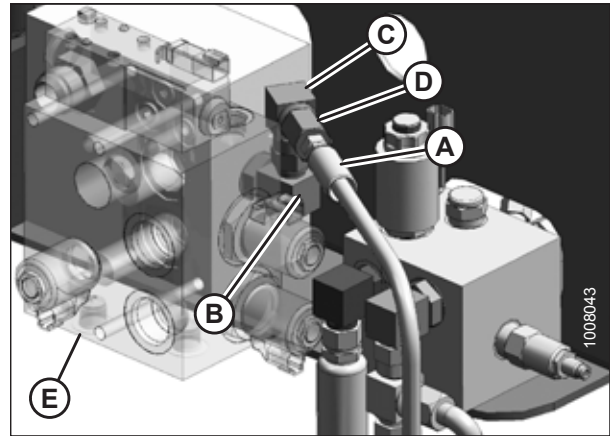
1. Connect #12 ORB x #10 JIC elbow (B) to port T on the header drive block.
2. Connect #10 JIC x #10 JIC elbow (C) to elbow (B).
3. Connect #10 JIC x #6 JIC reducer (D) to elbow (C).
4. Attach case drain hose (A) to reducer (D).

**NOTE:**

Make sure that hose (A) is not rubbing against any fittings.

Refer to [5.5 Hydraulics and In-Cab Electrical, page 98](#) for additional information on the hydraulic connections.

5. Proceed to [2.7 Installing Auxiliary Valve Block, page 40](#).



**Figure 2.60: Header Drive Block**

A - Case Drain Hose	B - #12 ORB x #10 JIC Elbow
C - #10 JIC x #10 JIC Elbow	D - #10 JIC x #6 JIC Reducer
E - Reverser (Hidden)	

### 2.6.3 Installing Case Drain Hose – M150/M200 and D Series Headers without Reverser

The case drain hose must be connected to the header drive block on M150/M200 windrowers using D Series headers without reversers.

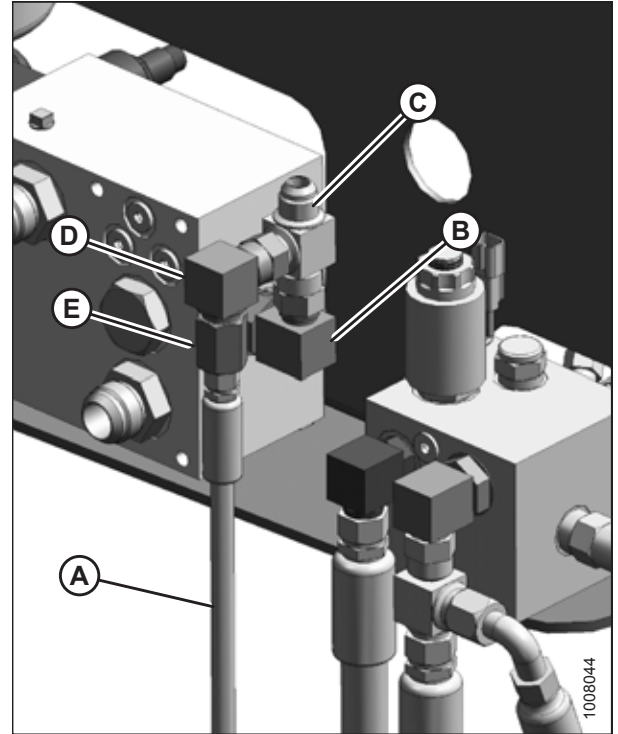
1. Disconnect the reel return hose (and all the fittings in between) connected to port T on the header drive block.
2. Connect #12 ORB x #10 JIC elbow (B) to port T on the header drive block.
3. Connect #10 JIC tee (C) to elbow (B).
4. Connect #10 JIC x #10 JIC elbow (D) to tee (C).
5. Connect #10 JIC x #6 JIC reducer (E) to elbow (D).
6. Install case drain hose (A) to reducer (E).

**NOTE:**

Make sure that hose (A) is not rubbing against any fittings.

Refer to [5.5 Hydraulics and In-Cab Electrical, page 98](#) for additional information on the hydraulic connections.

7. Reconnect the reel return hose by installing the elbow removed in Step 1, [page 37](#) to tee (C), followed by the reel return hose.
8. Proceed to [2.7 Installing Auxiliary Valve Block, page 40](#).



**Figure 2.61: Header Drive Block**

A - Case Drain Hose

B - #12 ORB x #10 JIC Elbow

C - #10 JIC Tee

D - #10 JIC x #10 JIC Elbow

E - #10 JIC x #6 JIC Reducer



## 2.6.4 Installing Case Drain Hose – M150/M200 and D Series Headers with Reverser

The case drain hose must be connected to the header drive block on M150/M200 windrowers using D Series headers with reversers.

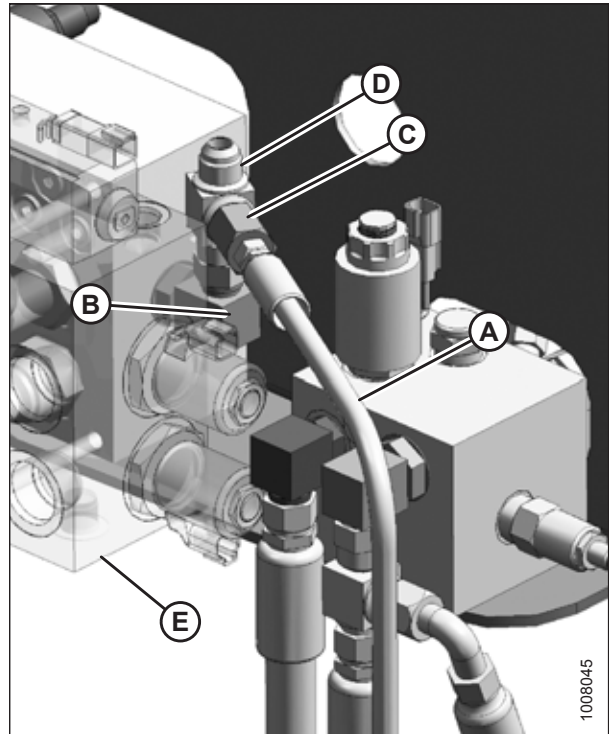
1. Disconnect the reel return hose connected to port T and all the fittings in between.
2. Connect #12 ORB x #10 JIC elbow (B) to port T on the header drive block.
3. Connect #10 JIC tee (D) to elbow (B).
4. Connect #10 JIC x #6 JIC reducer (C) to tee (D).
5. Connect case drain hose (A) to reducer (C).

**NOTE:**

Make sure that hose (A) is not rubbing against any fittings.

Refer to [5.5 Hydraulics and In-Cab Electrical, page 98](#) for additional information on the hydraulic connections.

6. Reconnect the reel return hose by first installing the elbow removed in Step 1, [page 38](#) to tee (D), followed by the reel return hose.
7. Proceed to [2.7 Installing Auxiliary Valve Block, page 40](#).



**Figure 2.62: Header Drive Block**

A - Case Drain Hose  
B - #12 ORB x #10 JIC Elbow  
C - #10 JIC x #6 JIC Reducer  
D - #10 JIC Tee  
E - Reverser (Hidden)

## 2.6.5 Installing Case Drain Hose – M150/M200 and R Series Headers

The case drain hose must be connected to the header drive block on M150/M200 windrowers using R Series headers.

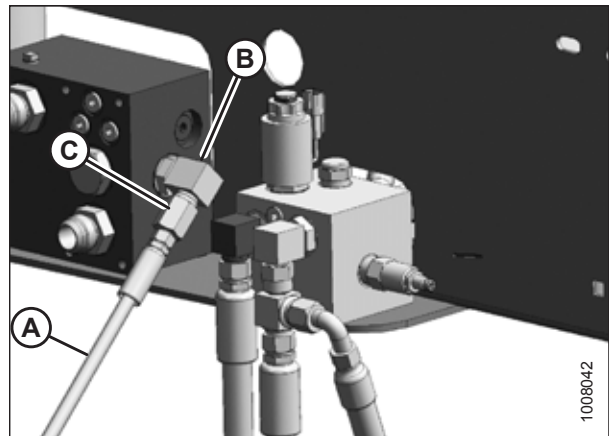
1. Connect #12 ORB x #10 JIC elbow (B) to port T on the header drive block.
2. Install #10 JIC x #6 JIC reducer (C) to elbow (B).
3. Attach case drain hose (A) to reducer (C).

**NOTE:**

Make sure that hose (A) is not rubbing against any fittings.

Refer to [5.5 Hydraulics and In-Cab Electrical, page 98](#) for additional information on the hydraulic connections.

4. Proceed to [2.7 Installing Auxiliary Valve Block, page 40](#).



**Figure 2.63: Header Drive Block**



## 2.6.6 Installing Case Drain Hose – M155/M155E4/M205 with All Headers

The case drain hose must be connected to the hydraulic reservoir on M155/M155E4/M205 windrowers.

1. Remove the plug from the top left corner of the hydraulic reservoir and connect #10 ORB x #6 JIC elbow (B) to the reservoir port.
2. Connect case drain hose (A) to elbow (B).
3. Proceed to [2.7 Installing Auxiliary Valve Block, page 40](#).

Refer to [5.5 Hydraulics and In-Cab Electrical, page 98](#) for additional information on the hydraulic connections.

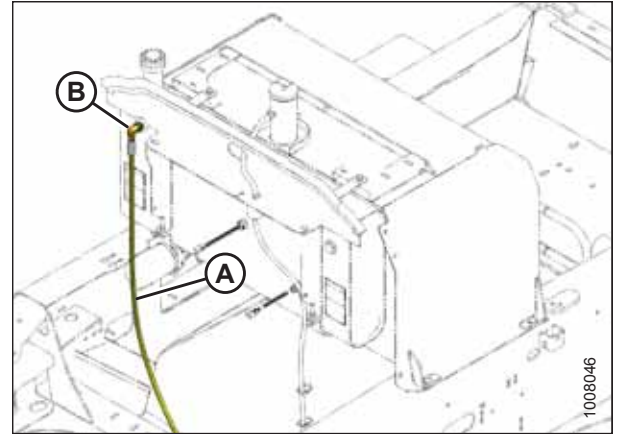


Figure 2.64: Hydraulic Reservoir

## 2.7 Installing Auxiliary Valve Block

The auxiliary valve block supplies the additional hydraulic connections needed for the Double Windrow Attachment (DWA). Your windrower may already have an auxiliary valve block if it is paired with a D60 header with reel fore-aft functionality.

1. Remove and retain fitting (A) and plug (B) from the lift manifold block.

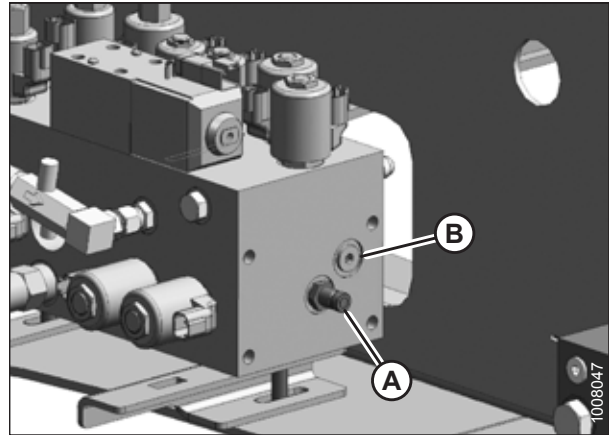


Figure 2.65: Lift Manifold Block

2. Attach auxiliary valve block (C) to the lift manifold block.

**NOTE:**

If you are installing the auxiliary valve block onto a windrower paired with a D60 header with reel fore-aft functionality, the windrower will already have an auxiliary valve block installed.

3. Apply grease to the O-rings (supplied with the valve block) and install them in the countersunk port holes from which the plugs were removed.
4. Attach the smooth side of valve (C) to the lift valve with four 3/8 in. bolts (D). Use the longer bolts if there are two auxiliary valve blocks.
5. Torque the bolts to 34 Nm (25 lbf-ft).
6. Replace fitting (A) and plug (B) (removed in Step 1, page 40) into the auxiliary valve block.

**NOTE:**

If plug (B) is damaged when it is removed, an extra plug is provided in the kit.

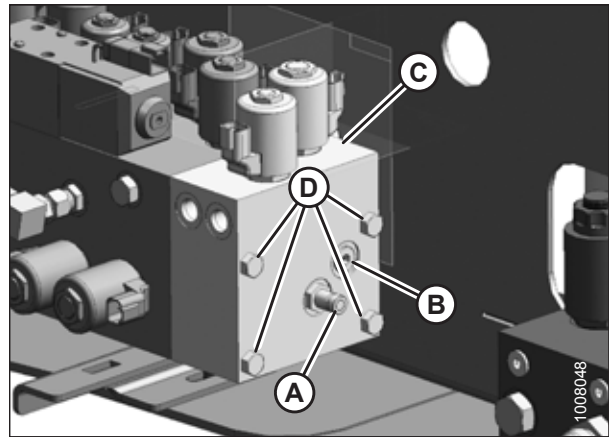


Figure 2.66: Auxiliary Valve Block

## SETUP INSTRUCTIONS

7. Install 90° elbow fitting (A) into port K on auxiliary valve block (B).

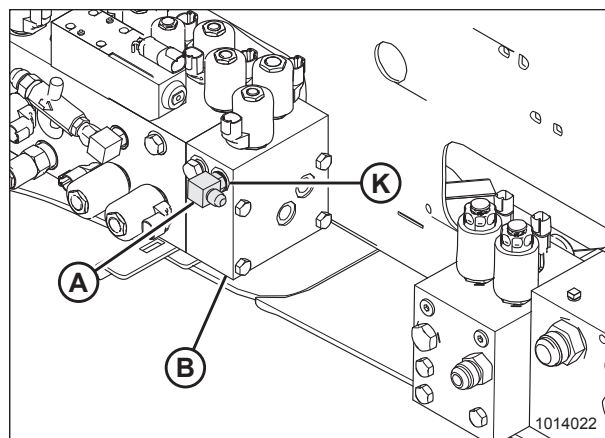


Figure 2.67: Auxiliary Valve Block

8. Install 9/16–18 ORB fitting (A) into flow valve (B).
9. Install 3/8 in. tube 37° flare fitting (C) onto flow valve (B).

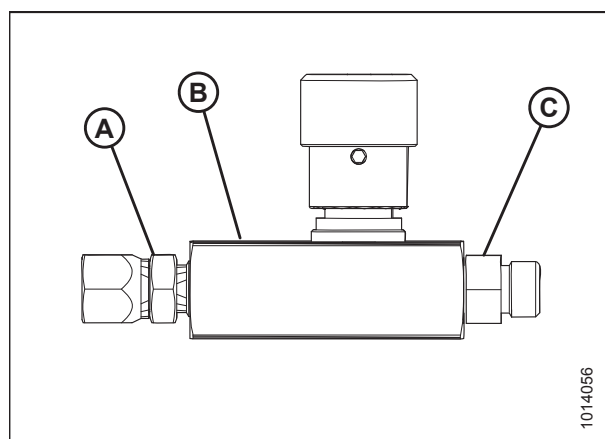


Figure 2.68: Flow Valve

### IMPORTANT:

Orient the flow valve as shown. The long end of flow valve (A) should face auxiliary valve block (B).

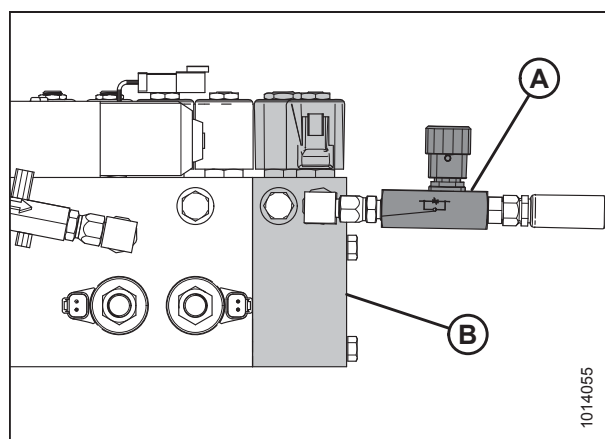


Figure 2.69: Flow Valve and Auxiliary Valve Block

## SETUP INSTRUCTIONS

10. Connect 9/16–18 ORB fitting (C) to 90° elbow fitting (A).
11. Route 1/4 in. lift cylinder hose (E) through the side of the windrower frame and connect it to fitting (D).
12. Route the hoses neatly by using the cable ties included in the kit. Ensure that the hoses are not rubbing against any moving parts.
13. Install plug (F) into port J on auxiliary valve block (B).

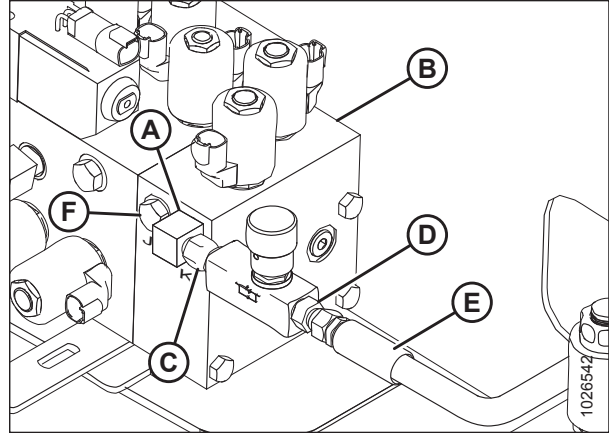


Figure 2.70: Auxiliary Valve Block

14. Install DWA Lift Rate decal (A) at the location shown. To install the decal:
  - a. Clean and dry the installation area.
  - b. Decide where the decal will be placed before you remove the decal backing paper.
  - c. Remove the smaller portion of the split backing paper.
  - d. Attach the decal to the installation area, and slowly peel back the remaining paper, smoothing the decal as it is applied.
  - e. Prick any small air pockets with a pin and smooth them out.

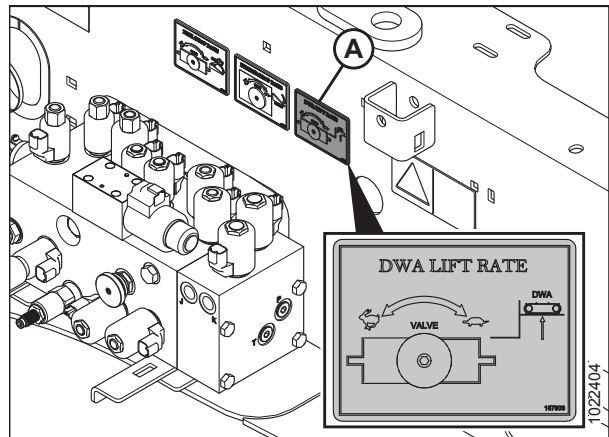


Figure 2.71: DWA Lift Rate Decal (MD #167903)

## 2.8 Installing Electrical System

To install the Double Windrower Attachment's (DWA) electrical system, the plugs on the wiring harness must be connected to the draper drive block, the ring terminal on the harness fuse connected to the windrower's F-M1 fuse, and the switches in the cab must be installed and connected.

Refer to this diagram when installing the wiring harness. The connectors on the DWA wiring harness connectors are as follows:

- P74A (A)
- P74B (B)
- P74C (C) (already connected)
- Relay connector (D) (already connected)
- Fuse holder P74D (2 amp fuse) (E)
- Ring terminal T74 (F)

**NOTE:**

The wiring harness illustration is not to scale.

1. Locate battery disconnect switch (A) beside the batteries. Turn battery disconnect switch (A) to the off position (O).

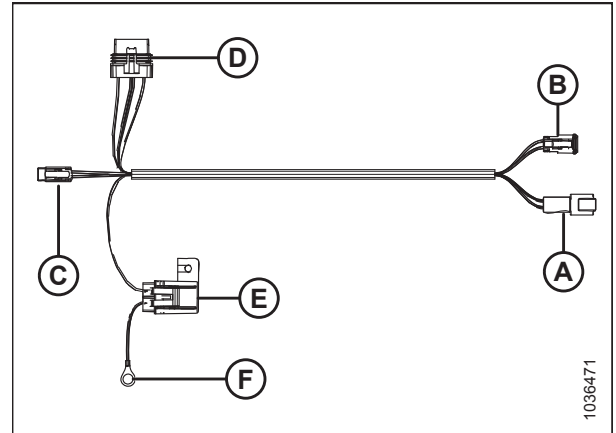


Figure 2.72: DWA Wiring Harness Connectors



Figure 2.73: Battery Disconnect Switch

2. Connect plug P74B from the DWA harness to plug (A) on the draper drive block.
3. Connect plug P74A from the DWA harness to plug P74 on the windrower harness, located near the valve block.

**NOTE:**

On some 2012 and earlier M205 windrowers, the P74 branch of the windrower harness will not be long enough to connect to the DWA harness. A harness extension is provided in the DWA hydraulic kit.

4. Connect plug P73 on the windrower harness to plug (B) on the lift block valve 4C.
5. Connect plug P72 on the windrower harness to plug (C) on the lift block valve 2C.

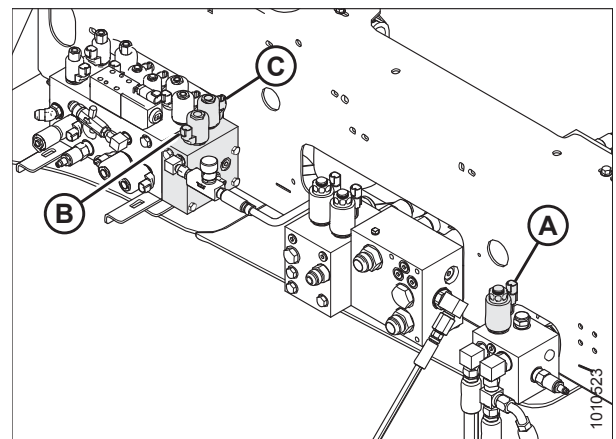


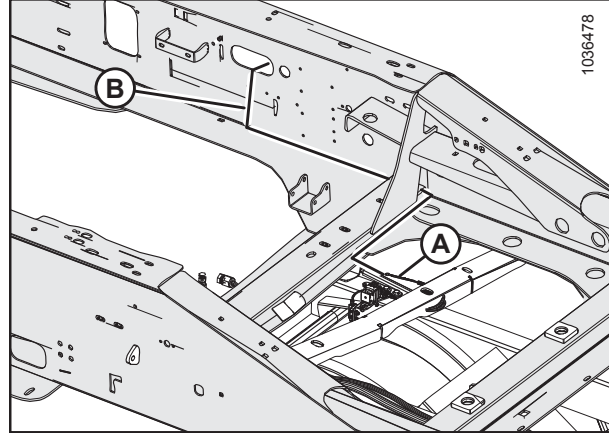
Figure 2.74: Electrical Connections – M205 Similar

## SETUP INSTRUCTIONS

6. Route T74 ring terminal and T74 fuse (A) on the DWA wiring harness along the path indicated by line (B). Use cable ties as needed to secure the harness.

**NOTE:**

Parts have been removed from the illustration for the sake of clarity.

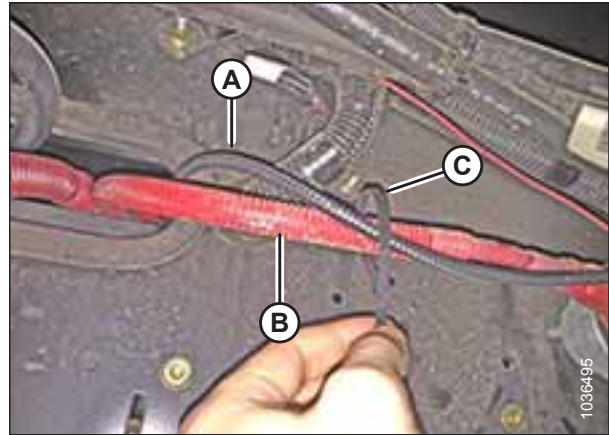


**Figure 2.75: T74 Wire Routed Along Right Inside of Frame**

7. Feed DWA harness (A) through the grommet hole in the frame through which battery cable (B) passes. Secure DWA harness (A) to battery cable (B) with cable tie (C).

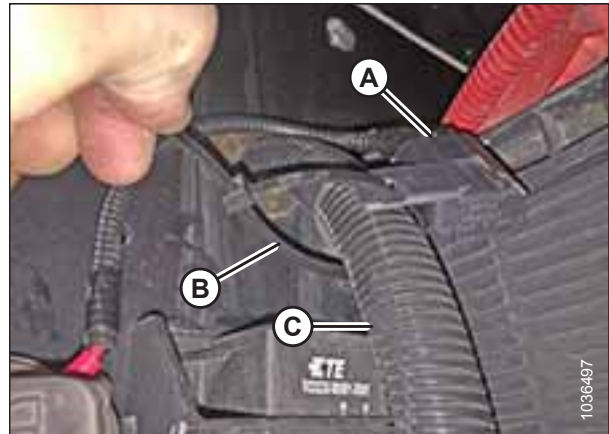
**NOTE:**

The T74 branch of the DWA harness will follow the general path of the battery cables.



**Figure 2.76: DWA Harness Secured to Battery Cable**

8. Working from the other side of the frame, secure T74 fuse holder (A) on the DWA wiring harness to wiring harness (C) using cable tie (B).



**Figure 2.77: T74 Fuse Holder Secured to Wiring Harness**

## SETUP INSTRUCTIONS

9. Locate F-M1 fuse holder (A), next to the batteries on the right side of the windrower.

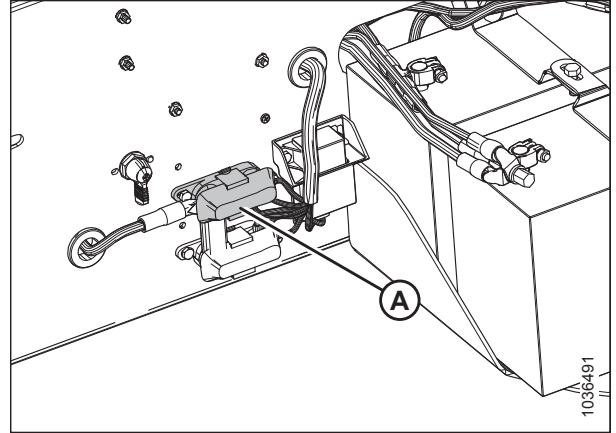


Figure 2.78: F1 Fuse Holder

10. Lift cover (A) on the F-M1 fuse.



Figure 2.79: F-M1 Fuse Holder Cover Opened

11. Remove the nut on stud (B) on the F-M1 fuse. Attach T74 ring terminal (A) to the stud, oriented as shown in the photo. Reinstall the nut and tighten it.
12. Replace the cover on the F-M1 fuse.
13. Turn the battery disconnect switch to the ON (I) position.

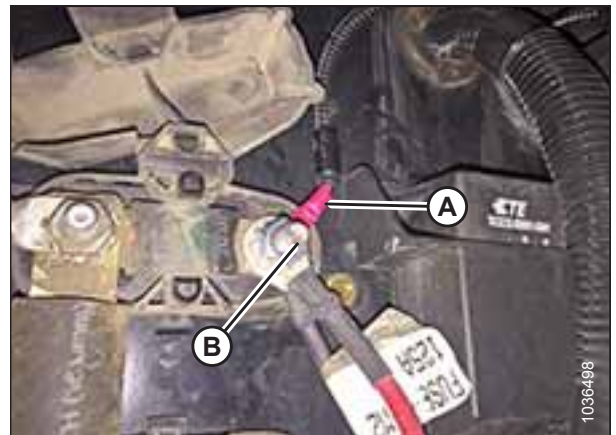


Figure 2.80: T74 Ring Terminal Secure to F-M1 Fuse



## SETUP INSTRUCTIONS

14. Inside the windrower cab, remove cover (A) from the console by removing five screws (B).

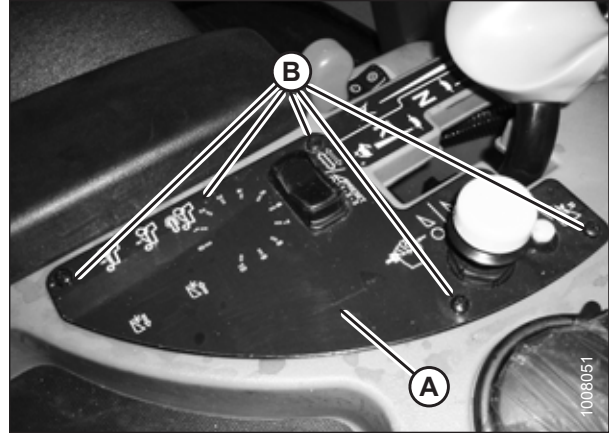


Figure 2.81: Console Control Plate

15. Cut a hole in the decal and install rotary switch (A) as shown. There is a premade hole in the mounting plate.

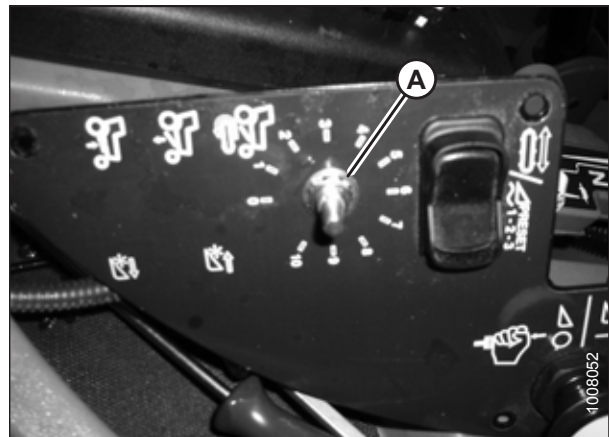


Figure 2.82: Console Control Plate

16. Remove the knockout in cover (A) for the rocker switch. File down the burrs on the knockout.

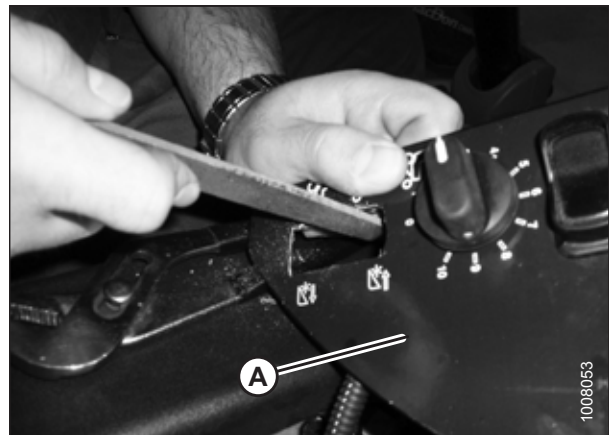


Figure 2.83: Console Control Plate



## SETUP INSTRUCTIONS

17. Install knob (A) on the rotary switch and tighten the set screw in the knob with hex key (B).

**NOTE:**

The knob may not be exactly as shown.

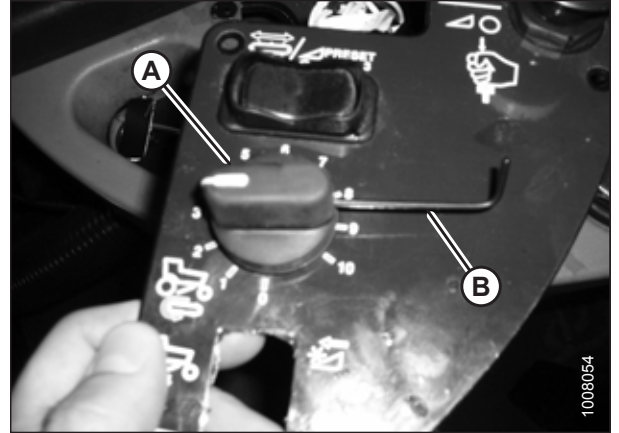


Figure 2.84: Console Control Plate

18. Install rocker switch (A) in the cover. The side with the prongs should be next to the operator's seat.

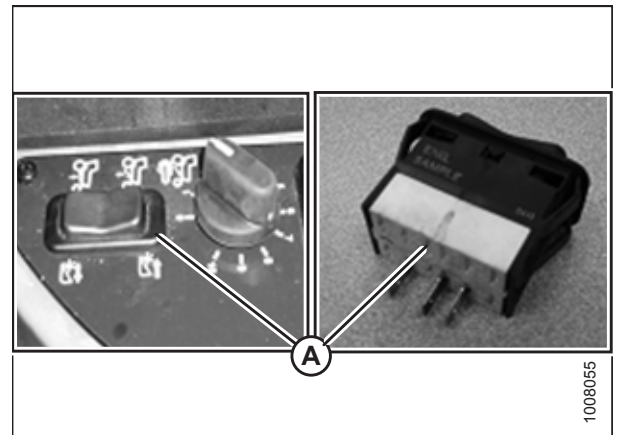


Figure 2.85: DWA Switch

19. Install the rocker switch into plug (A) and install the rotary switch into plug (B). These plugs come prewired into the windrower console.

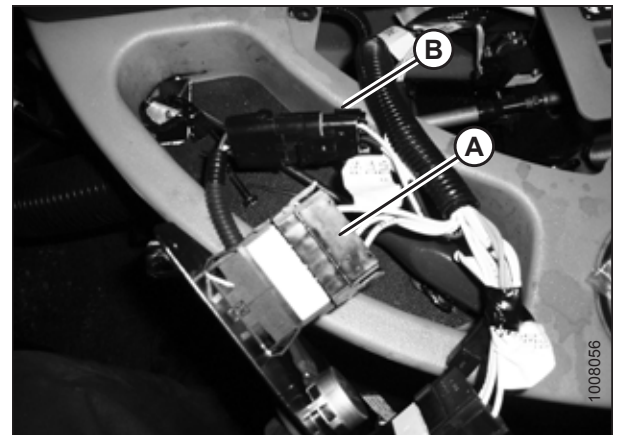


Figure 2.86: DWA Switch

## SETUP INSTRUCTIONS

20. Reinstall cover (A) with five screws (B).

### NOTE:

Refer to [2.8.1 Configuring Double Windrow Attachment Controls](#), [page 48](#) for instructions on how to program the cab display module to control DWA functions.

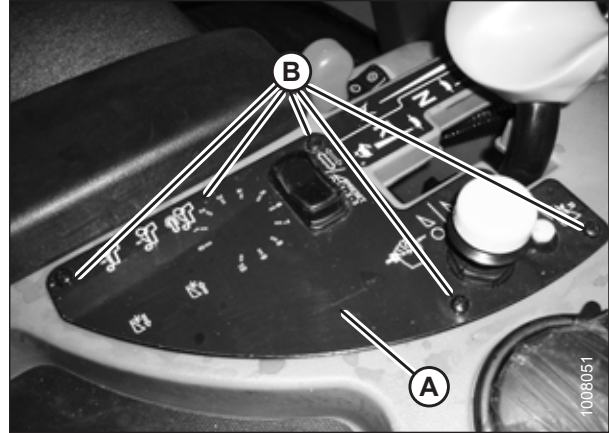


Figure 2.87: Console Control Plate

### 2.8.1 Configuring Double Windrow Attachment Controls

Once the Double Windrow Attachment (DWA) is installed on the windrower, it must be configured to work with the windrower's controls.



### CAUTION

Check to be sure all bystanders have cleared the area.

### NOTE:

The cab display module images in this procedure apply only to a M155 Self Propelled Windrower; the M205's display module is similar.

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



Figure 2.88: CDM Programming Buttons

## SETUP INSTRUCTIONS

4. Press SELECT (B) until DWA INSTALLED? appears on the upper line.
  - NO/YES appears on the lower line.
5. Press right arrow (A) to select YES. Press SELECT (B).



Figure 2.89: DWA Controls

6. SWAP DWA CONTROLS? appears on the upper line.
  - NO/YES appears on the lower line.

**NOTE:**

This step swaps the DWA controls from the console switch to the ground speed lever (GSL) reel fore-aft buttons.



Figure 2.90: DWA Controls

7. Press right arrow (C) to select YES. Press SELECT (D).
  - DWA AUTO UP/DOWN? appears on the upper line.
  - NO/YES appears on the lower line.

**NOTE:**

If you select YES, the DWA Auto-Up function will be activated by the GSL reel fore-aft button.

8. Press right arrow (C) to select YES. Press SELECT (D).
9. Press PROGRAM (A) to exit programming mode or press SELECT (D) to proceed to the next windrower setup action.

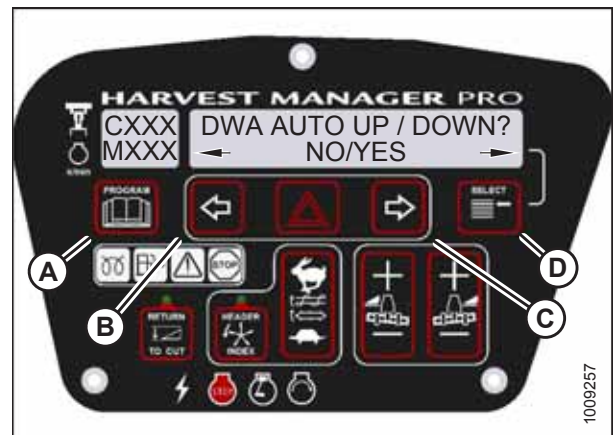


Figure 2.91: DWA Auto Up/Down

## 2.9 Installing Tank Overflow Hose Extension

The extension hose prevents overflow fluid from dropping onto the Double Windrow Attachment (DWA) draper deck.

Follow the relevant procedure:

- To install the overflow extension hose onto M150 models with Cummins engines, refer to [2.9.1 Installing Tank Overflow Hose Extension: M150, page 50](#)
- To install the overflow extension hose on M155/M155E4 models with Cummins engines, refer to [2.9.2 Installing Tank Overflow Hose Extension: M155/M155E4, page 51](#)
- To install the overflow extension hose on M200 models with Cat engines, refer to [2.9.3 Installing Tank Overflow Hose Extension: M200 with Cat Engine, page 53](#)
- To install the overflow extension hose on M205 models with Cummins engines, refer to [2.9.4 Installing Tank Overflow Hose Extension: M205, page 54](#)

### 2.9.1 Installing Tank Overflow Hose Extension: M150

The hydraulic tank overflow extension is integrated into the fuel overflow system on M150 windrowers.

1. Locate hydraulic hose (A) and fuel tank overflow hose (B).
2. Pull fuel tank hose (B) out from clamp (C).
3. Using supplied plastic tee fitting (D), join the hydraulic and fuel overflow lines:
  - Hose (B) connects to the 3/8 in. tee branch with smaller gear clamp (E).
  - Hose (A) connects to the 5/8 in. tee branch with larger gear clamp (F).

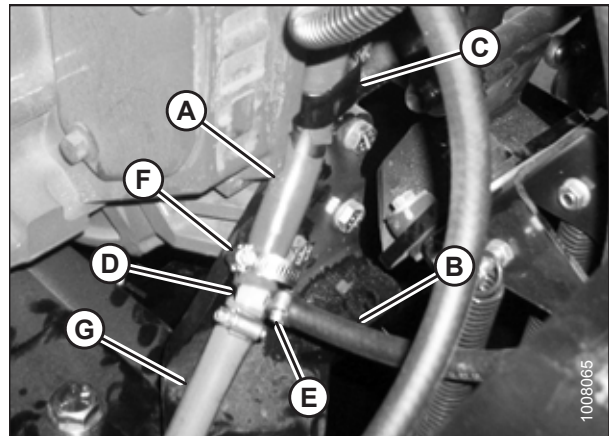


Figure 2.92: Fuel and Hydraulic Overflow Hoses

## SETUP INSTRUCTIONS

4. Attach the extension hose to the plastic tee fitting using another larger gear clamp.
5. Route hose (A) through the slot in the frame member and secure it with cable tie (B) as shown.
6. Trim hose (A) to length as follows:
  - **R Series Rotary Disc Header:** Leave approximately 180 mm (7 in.) of free hose below the windrower frame.
  - **A Series Auger and D Series Draper Header:** Leave approximately 360 mm (14 in.) of free hose below the windrower frame.

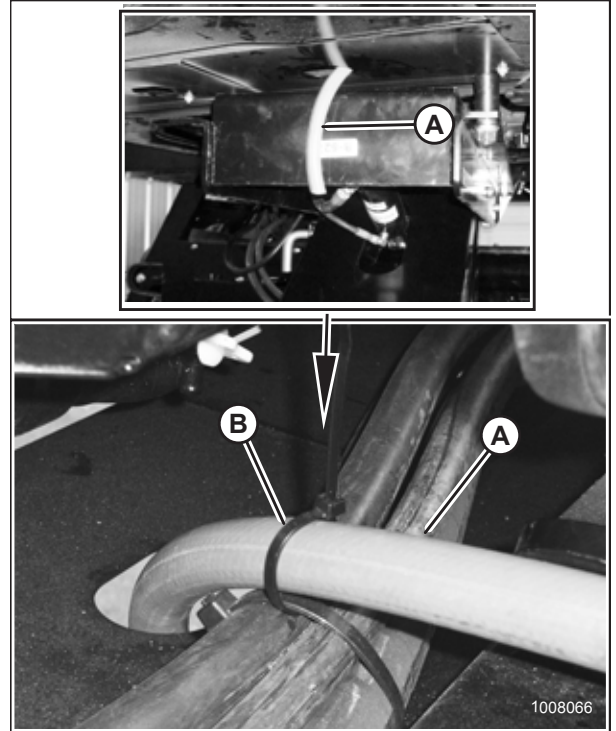


Figure 2.93: Overflow Hose Routing

### 2.9.2 Installing Tank Overflow Hose Extension: M155/M155E4

The hydraulic tank overflow extension is integrated into the fuel overflow system on M155/M155E4 windrowers.

**NOTE:**

Refer to the relevant image for Steps [1, page 52](#) to [3, page 52](#).

## SETUP INSTRUCTIONS

1. Locate the end of fuel tank overflow hose (A) on the windrower.
2. On an M155 windrower, pull fuel tank hose (A) out from clamp (B).
3. Attach the union fitting to the fuel overflow line using the smaller gear clamp.

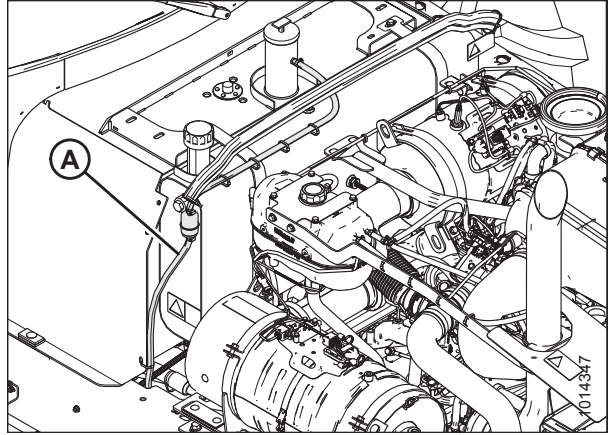


Figure 2.94: M155E4 Fuel Overflow Hose

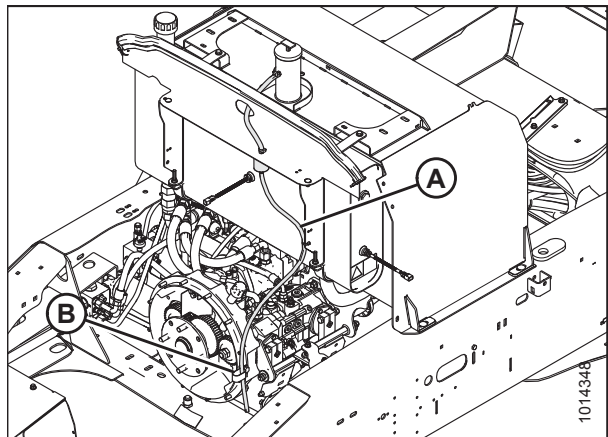


Figure 2.95: M155 Fuel Overflow Hose



## SETUP INSTRUCTIONS

4. Attach the extension hose to the union fitting using the larger gear clamp.
5. Route hose (A) through the slot in the frame member and secure it with cable tie (B) as shown.
6. Trim hose (A) to length as follows:
  - **R Series Rotary Disc Header:** Leave approximately 180 mm (7 in.) of free hose below the windrower frame.
  - **A Series Auger and D Series Draper Header:** Leave approximately 360 mm (14 in.) of free hose below the windrower frame.

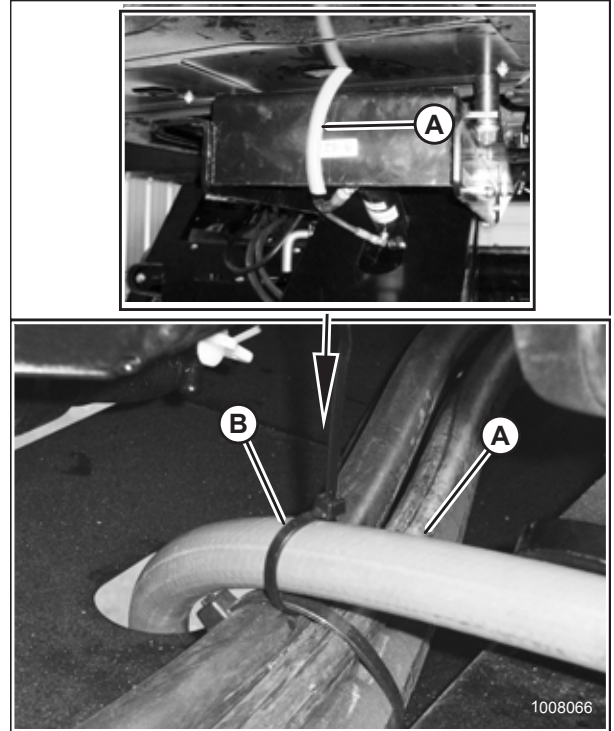


Figure 2.96: Overflow Hoses

### 2.9.3 Installing Tank Overflow Hose Extension: M200 with Cat Engine

The hydraulic tank overflow extension is integrated into the fuel/hydraulic breather system on M200 windrowers with Cat engines.

1. Locate hydraulic and fuel tank breather hose (A).
2. Connect supplied extension hose (B) to existing hose (A) using a straight plastic joiner and two hose clamps at location (C) as shown.
3. Trim hose (B) to length as follows:
  - **R Series Rotary Disc Header:** leave approximately 180 mm (7 in.) of free hose below the windrower frame.
  - **A Series Auger and D Series Draper Header:** leave approximately 360 mm (14 in.) of free hose below the windrower frame.

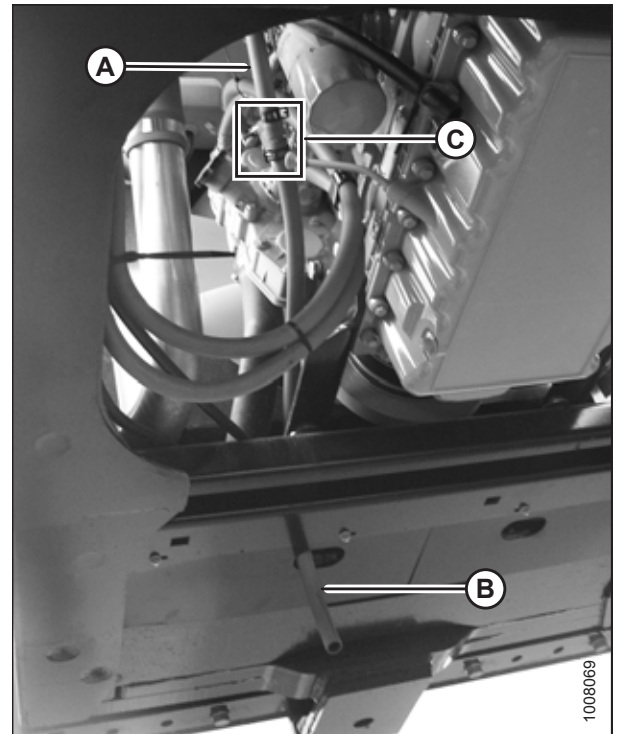


Figure 2.97: Overflow Hose

## 2.9.4 Installing Tank Overflow Hose Extension: M205

The hydraulic tank overflow extension is integrated into the fuel overflow system on M205 windrowers.

1. Locate hydraulic hose (A) and fuel tank overflow hose (B).
2. Pull fuel tank hose (B) out from clamp (C).
3. Using supplied plastic tee fitting (D), join the hydraulic overflow and fuel overflow lines:
  - Hose (B) connects to the 3/8 in. tee branch with smaller gear clamp (E).
  - Hose (A) connects to the 5/8 in. tee branch with larger gear clamp (F).

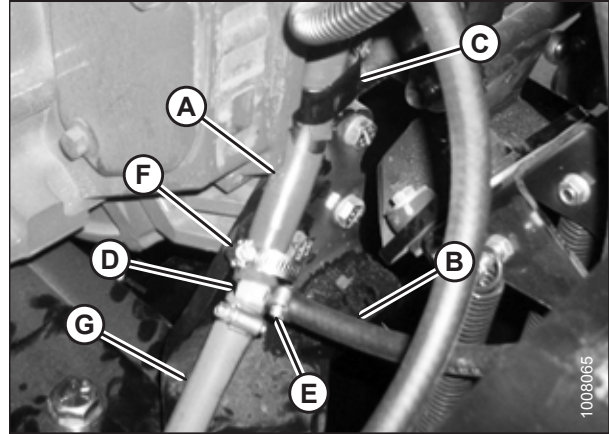


Figure 2.98: Overflow Hoses

4. Attach the extension hose to the plastic tee fitting using another, larger gear clamp.
5. Route extension hose (A) alongside of the windrower frame, and secure it to the existing hoses with cable tie (B) as shown.

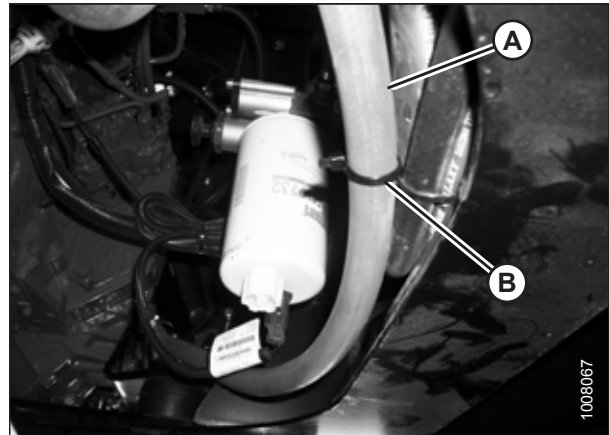


Figure 2.99: Overflow Hoses



## SETUP INSTRUCTIONS

6. Trim hose (A) to length as follows:

- **R Series Rotary Disc Header:** Leave approximately 180 mm (7 in.) of free hose below the windrower frame.
- **A Series Auger and D Series Draper Header:** Leave approximately 360 mm (14 in.) of free hose below the windrower frame.

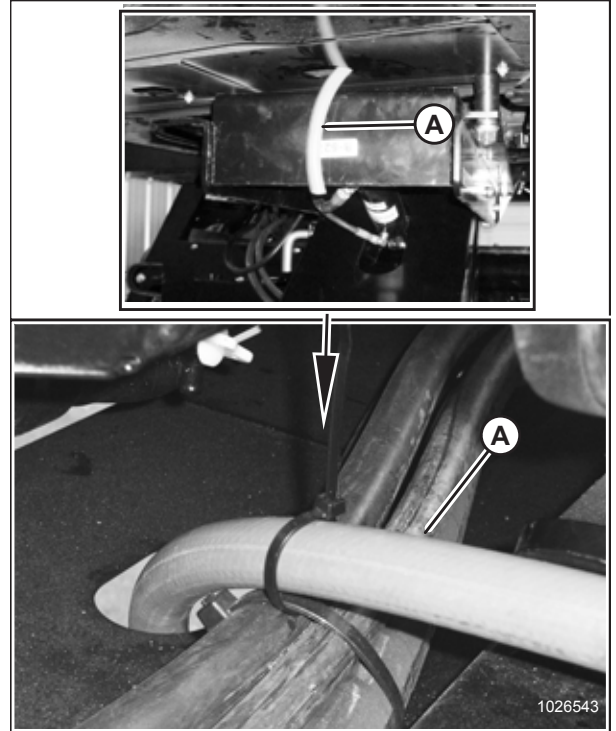


Figure 2.100: Overflow Hoses



## Chapter 3: Operation

Consult this section to learn how to use the Double Windrow Attachment (DWA) with your windrower and header.

### 3.1 Operational Safety

Observe these safety precautions when using the Double Windrow Attachment (DWA), and, as always, follow all the safety precautions in the windrower and header operator's manuals.



#### **CAUTION**

To avoid bodily injury:

- Review the safety sections of your windrower and header operator's manuals.
- Keep all shields in place.
- Engage the deck safety pin when deck is raised fully for transport, service, and storage—or before going under deck for any reason.
- Keep away from moving draper and rollers.
- Keep clear of the deck while it is being raised or lowered.

## 3.2 Engaging Deck Safety Pin

The deck safety pin on the Double Windrow Attachment (DWA) keeps the deck locked when it is raised.

1. Raise the DWA deck.
2. Rotate pin (A) and push inward until both roll pins (B) are inside the channel.

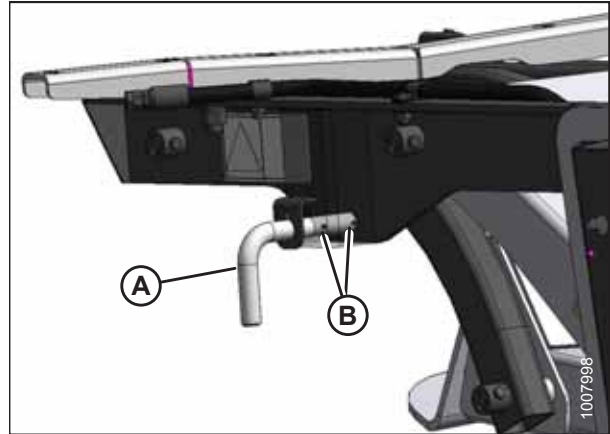


Figure 3.1: DWA Deck Safety Pin

### 3.3 Raising and Lowering Deck

Raising and lowering the Double Windrower Attachment (DWA) deck can be done from the windrower cab. There are two control schemes available.

**IMPORTANT:**

Use extra caution when raising the deck for the first time after installation. The deck rotates as it is raised or lowered, and the backsheet folds onto the deck. Make sure the deck and the backsheet are not interfering with any windrower parts or with the forming shield (if installed).

If you chose to swap the DWA controls in the setup instructions (refer to [2.8.1 Configuring Double Windrow Attachment Controls, page 48](#) for details), use the REEL FORE-AFT switch on the ground speed lever (GSL) to RAISE and LOWER the deck:

- The deck moves forward when it is lowered, so the controls will be the same as when moving the reel forward: REEL FORWARD position (A) moves the DWA down.
- The deck moves rearward when it is raised, so the controls will be the same as when moving the reel rearward: REEL AFT position (B) moves the DWA up.

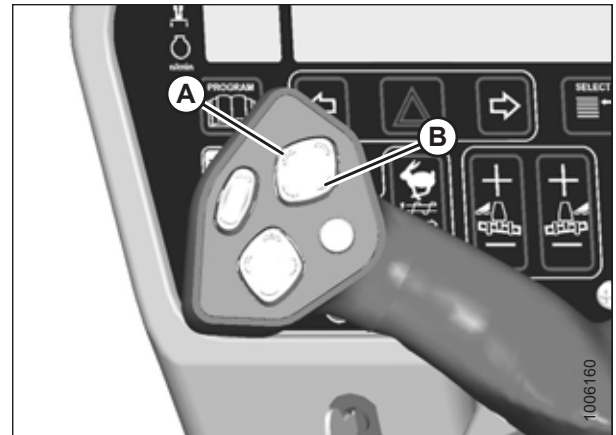


Figure 3.2: Reel Fore-Aft Switch

If you chose not to swap the DWA controls in the setup instructions (refer to [2.8.1 Configuring Double Windrow Attachment Controls, page 48](#) for details), use the console DECK LIFT CONTROLS rocker switch to move the DWA UP and DOWN.

- Press rocker switch forward portion (A) to lower the DWA (DWA DOWN).
- Press rocker switch rearward portion (B) to raise the DWA (DWA UP).

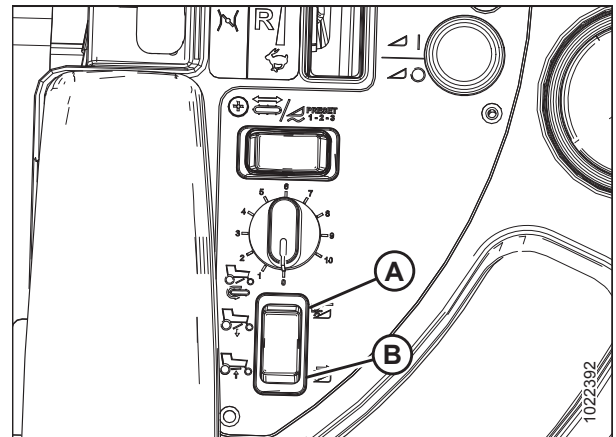


Figure 3.3: Console Rocker Switch

### 3.3.1 Adjusting Deck Lift Speed

Finding the proper Double Windrow Attachment (DWA) deck lift speed is essential to its proper operation. The deck must rise fast enough to clear a windrow, and slow enough not to stop abruptly against the bottom of the windrower.

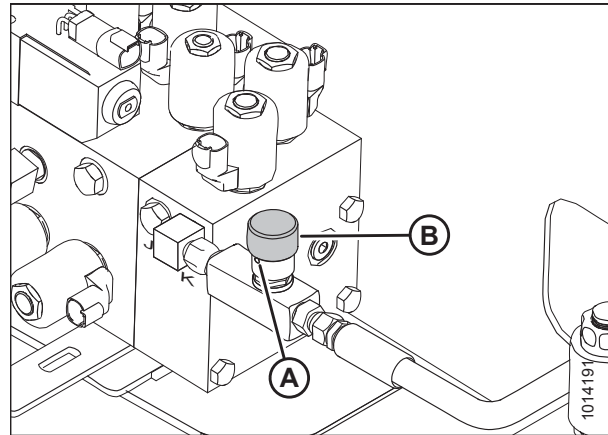
The deck lift valve uses hex socket screw (A) to lock the adjusting knob into position. Loosen the locking screw enough to allow the adjustment valve to turn. Do **NOT** remove the screw. Tighten the screw after your adjustments are complete.

To adjust the deck lift speed:

- If the deck lift speed is too fast, turn adjuster knob (B) to the right.
- If the deck lift speed is too slow, turn adjuster knob (B) to the left.

**NOTE:**

The lift valve only restricts the lift speed of the DWA. The DWA deck drop speed remains constant.



**Figure 3.4: Auxiliary Valve Block and Deck Lift Speed Valve**

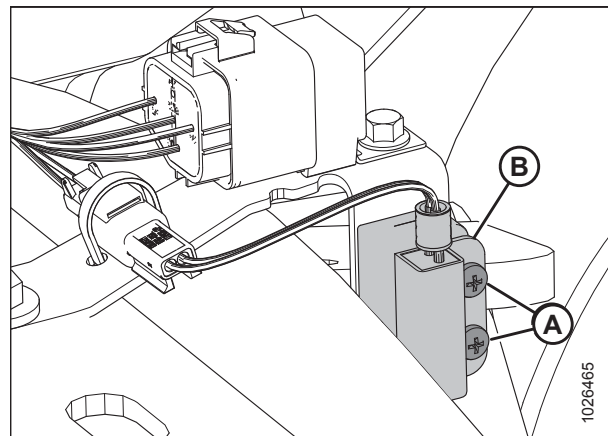
### 3.3.2 Adjusting Draper Shut-Off Switch

The draper shuts off automatically when the deck is raised about 2/3 of the way. If the deck does not shut off soon enough (resulting in the backsheet touching the draper before it shuts off), the switch at the linkage needs to be lowered.

1. Loosen screws (A) to lower switch (B).
2. Torque screws (A) to 1.2–1.5 Nm (10.8–13.2 lbf-in) when the adjustment is complete.

**IMPORTANT:**

Do not overtighten the screws or the switch will not work.

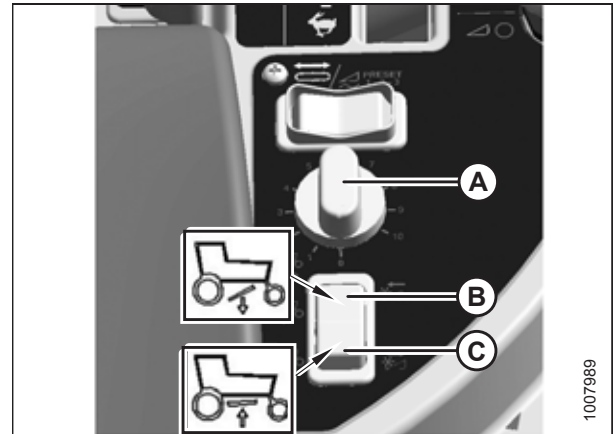


**Figure 3.5: Draper Shut-Off Switch**

### 3.4 Setting Draper Speed

The draper speed is controlled by the draper speed control knob on the combine console.

To set the draper speed, turn draper speed control knob (A) on the console; the knob may not be exactly as shown.



**Figure 3.6: DWA Controls**

A - Draper Speed Knob

B - DWA Down Rocker Switch

C - DWA Up Rocker Switch

## 3.5 Adjusting the Deck Angle

The Double Windrow Attachment (DWA) deck angle can be adjusted to maximize performance and prevent the deck from contacting the windrower frame.

To adjust the deck angle relative to the right drive wheel, refer to [3.5.1 Adjusting Deck Angle Relative to Drive Wheel, page 62](#).

To adjust the deck angle relative to the ground, refer to [3.5.2 Adjusting Deck Angle Relative to Ground, page 63](#).

### NOTE:

**If the windrower is set up to work with an R Series Rotary Disc Header, the DWA deck will only be in its most forward position when the windrower is running.** The lift cylinder is single acting and not pressurized when the windrower engine is off. When the windrower is running, a supply of low pressure oil moves the deck forward.

### 3.5.1 Adjusting Deck Angle Relative to Drive Wheel

The turnbuckle on the Double Windrow Attachment (DWA) can be adjusted to change the deck angle relative to the drive wheel.

The deck angle, relative to the right drive wheel, can be adjusted by changing the length of turnbuckle (A).

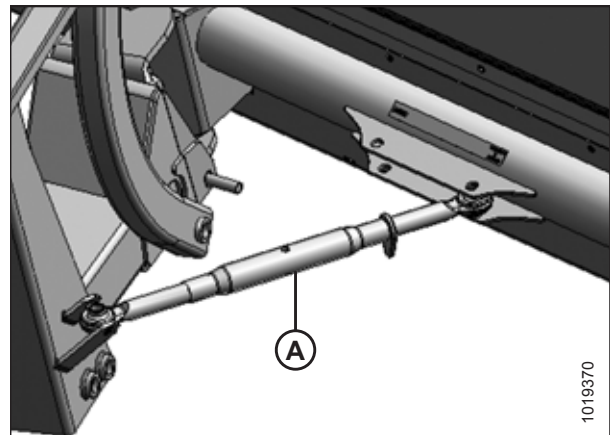


Figure 3.7: Deck Angle Turnbuckle

1. Adjust the turnbuckle length so that space (A) between the deck and the right drive wheel is approximately 100 mm (4 in.).

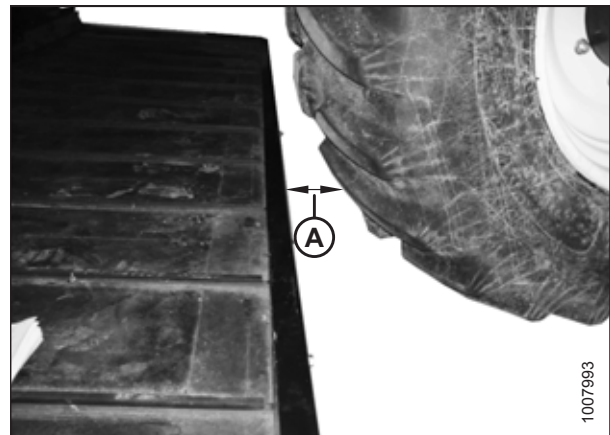


Figure 3.8: Distance from Deck to Tire



## OPERATION

To adjust the deck angle relative to the right drive wheel, follow these steps:

2. Loosen locking tab (B) on the adjustable turnbuckle.
3. Rotate center tube (A) to the desired length.

**NOTE:**

The turnbuckle length should be approximately:

- **R Series Rotary Disc Header:** 530 mm (21 in.) long.
- **A Series Auger Header or D Series Draper Header:** 630 mm (25 in.) long.

4. Tighten locking tab (B) against turnbuckle center tube (A).
5. Attach the turnbuckle to connection point (C) for an R Series header, and at connection point (D) for an A Series or D Series header.

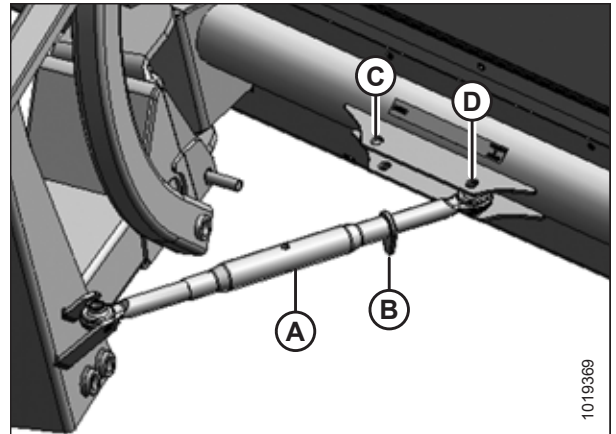


Figure 3.9: Adjusting Turnbuckle

### 3.5.2 Adjusting Deck Angle Relative to Ground

Generally, the deck should be parallel or at a slight angle to the ground.

The deck angle should be horizontal or at a slight incline relative to the ground. Distance (A) should be equal to or slightly greater than distance (B).

- If the DWA is being used with an R Series Rotary Disc Header in lighter crop, distance (A) should be equal to (B).
- If the crop needs to be thrown farther, increase distance (A).

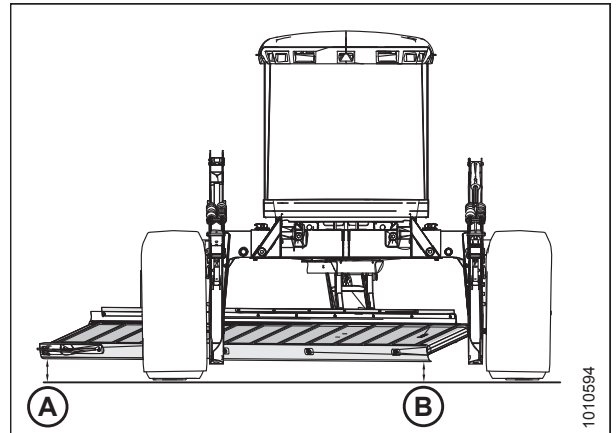


Figure 3.10: DWA Deck

To adjust the deck angle:

1. Loosen four 3/4 in. bolts (A).

**NOTE:**

The fourth bolt is hidden behind bracket (B) and is not visible in this illustration.

2. Loosen locking nut (D).
3. To increase the distance between the ground and the deck, tighten nut (C).
4. To decrease the distance between the ground and the deck, loosen nut (C).
5. After your adjustments are complete, tighten nut (D).
6. Torque four 3/4 in. bolts (A) to 332 Nm (245 lbf-ft).

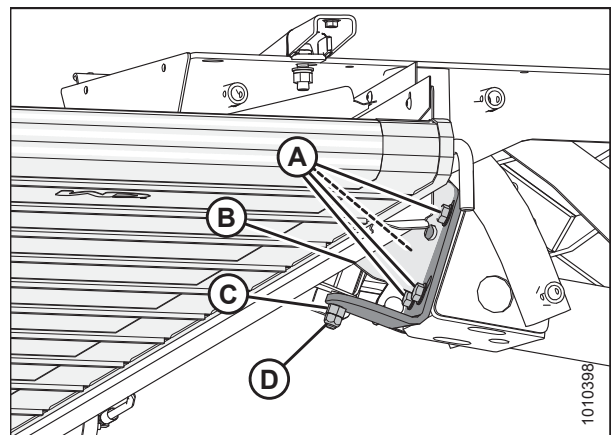


Figure 3.11: Deck Pivot

### 3.6 Adjusting Deck Height

The deck should never touch the ground as this causes excessive strain on the Double Windrow Attachment (DWA).

If the deck is too low to the ground, raise it as follows:

1. Lower the linkage by fully extending its cylinder.
2. Move the bottom pivot pin to lower position (A). This will raise the front of the deck approximately 100 mm (4 in.).

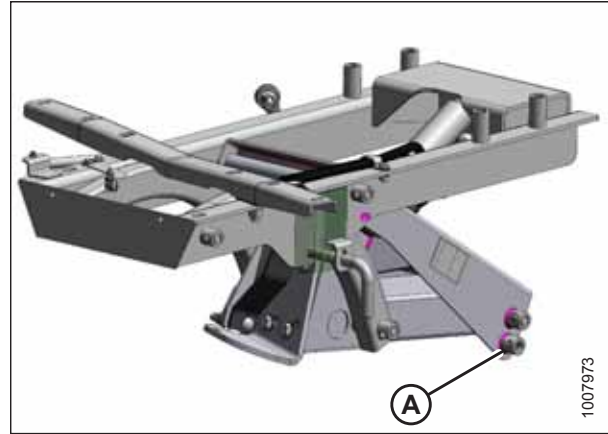


Figure 3.12: DWA Linkage

### 3.7 Positioning Conditioner Forming Shield

Forming shields help direct the crop flow onto the Double Windrow Attachment (DWA) draper. Their position can be adjusted depending on the type of windrow desired.

1. Make sure forming shield (B) is high enough to clear the deck when it is lowered.

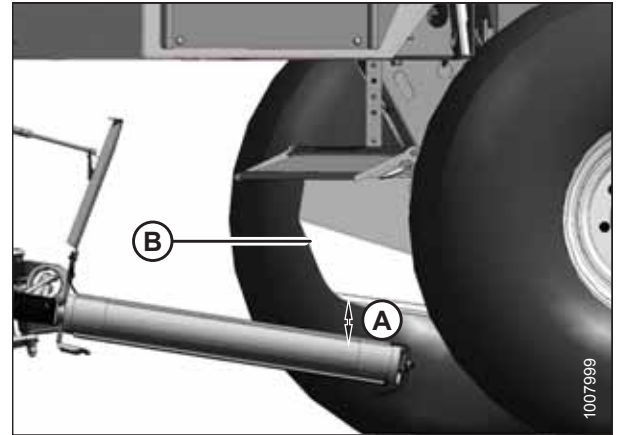


Figure 3.13: Deck Lowered

A - Clearance between Forming Shield (B) and the Deck

2. Remove hairpin (A).
3. Adjust strap (B) to the desired position.

**NOTE:**

The forming shield should be as low as possible without interfering with the deck.

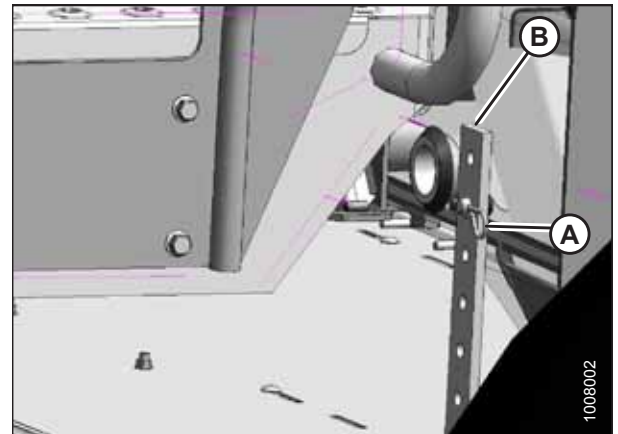


Figure 3.14: Forming Shield

4. Adjust left deflector (A) to direct the crop towards the inboard side of DWA backsheet (B).
5. Adjust the right deflector to the widest position possible without affecting crop flow. This is where the deck is farthest from the conditioner rolls.

**NOTE:**

When using a header to produce single windrows (for baling), position the side forming shields for the desired windrow width.

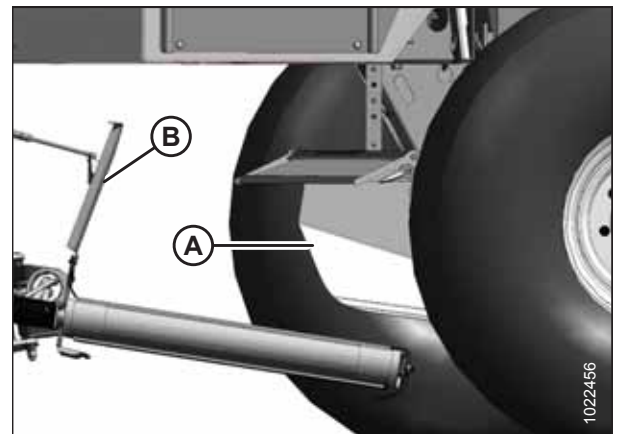


Figure 3.15: Deck Lowered

## OPERATION

6. Adjust rear deflector baffle (A) so that crop flow (B) does not interfere with the deck when fully raised:

- Set the left end of the rear deflector lower to direct the crop down toward the DWA draper.
- Set the right end of the rear deflector higher to allow space for the crop to flow to the DWA deck.

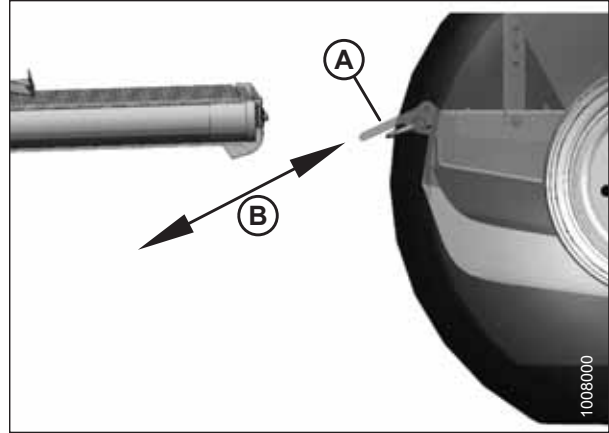


Figure 3.16: Deck Raised

7. After installing the forming shield, raise the header fully. Ensure that there is adequate clearance between the top of the forming shield and header drive hose support (A) attached to the windrower frame.

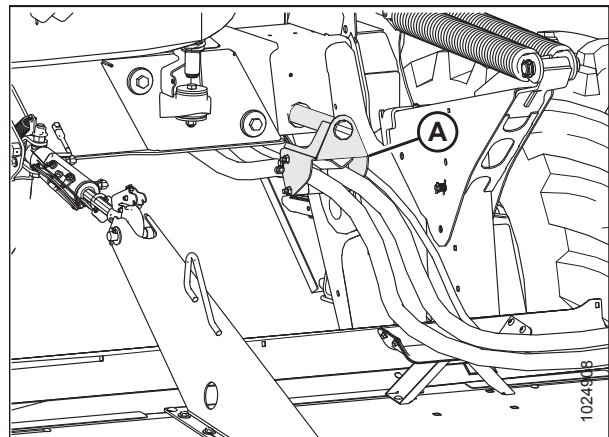


Figure 3.17: Header Hose Support

### NOTE:

When using the DWA with disc headers, remove fins (B) under the forming shield.

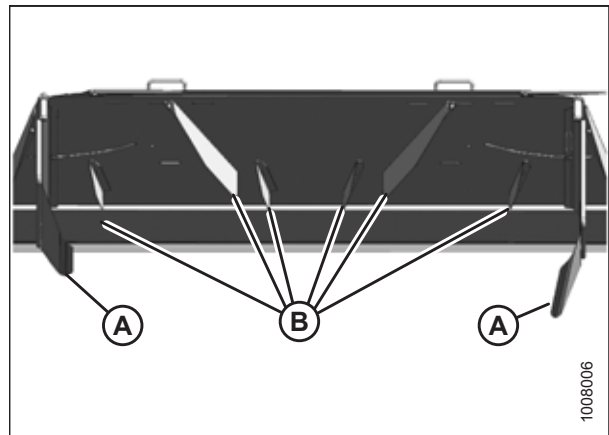


Figure 3.18: Fins under Forming Shield

A - Side Deflectors

B - Fins under Forming Shield

### 3.8 Positioning Conditioner Rolls

The conditioner roll gap must be adjusted to throw crop onto the Double Windrow Attachment (DWA).

The gap between the conditioner rolls must be small enough to throw the crop onto the DWA.

The gap size depends on the crop type and volume:

- A gap that is too small for a heavy crop will require excessive engine power and will cause excessive wear to the DWA.
- A gap that is too large will not throw the crop with enough velocity to reach the side delivery deck.

Refer to the conditioner roll adjustment procedure in your header operator's manual.

## 3.9 Operating Recommendations

Use the following settings when first setting up the Double Windrow Attachment (DWA).

### 3.9.1 Operating with 4.6–7.6 m (15–25 ft.) Headers

Refer to the following operating recommendations when using the Double Windrow Attachment (DWA) with 4.6–7.6 m (15–25 ft.) headers:

- On the first pass, raise the side delivery system and deposit the crop between the wheels of the windrower.
- On the return pass, lower the side delivery system and deposit the crop beside the previously laid windrow.
- With a center-delivered crop, the position of the crop can be adjusted by using the side deflectors on the forming shields.
- With a side-delivered crop, the position of the crop can be adjusted by adjusting the draper speed (faster draper speeds will throw the crop farther).

### 3.9.2 Operating with an R Series Rotary Disc Header

Because the conditioner rolls on an R Series header are farther ahead than all other headers, delivering light crop from the conditioner rolls to the side delivery deck on the Double Windrow Attachment (DWA) may require special attention.

The following three areas can affect crop flow to the deck:

#### ***Crop flow from the cutterbar to the rolls***

- The cut width of the header must be kept as full as possible on the right side. Any setting less than 75% may have adverse effects on feeding.
- Tall crop feed plates should only be installed when cutting tall, heavier crops; they can degrade the performance of the cutterbar if they are used in medium to light alfalfa.
- Higher ground speeds will usually result in better crop flow from the conditioner rolls to the deck. Ground speed should be a minimum of 10 km/h (6 mph) for light crops.
- Disc speed must be within the recommended range for the specific crop/yield. Refer to the header operator's manual for further instructions.

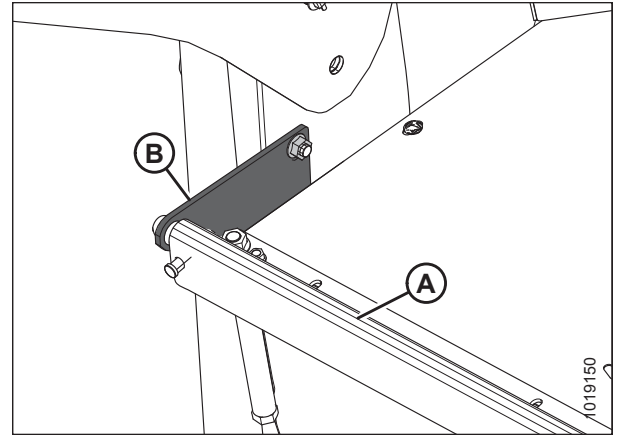
#### ***Crop flow from the conditioner rolls to the forming shield***

- The rear baffle on the R Series Header should be in the uppermost position. However, it may need to be lowered for center windrowing.
- Remove the fins on the rear baffle of the header to prevent interference with the flow of the crop.
- The crop trajectory arc is higher with a steeper header angle. The angle of the header should be set such that the crop is projected at a maximum arc height without excessive contact with the top forming shield.
- It may be possible to shoot crop above the forming shield using extreme header angle and rear baffle positions.
- In rocky conditions where a DWA is necessary, a high skid shoe kit or adjustment to the gauge rollers may be required to achieve the correct stubble height while maintaining the proper crop trajectory.
- Header height affects the header angle. Ideally, the lift linkage should be fully down at all times.
- The roll gap should be small enough so that the DWA can properly grab the crop and throw it.
- The roll speed is mechanically tied to the disc speed and can affect how fast the crop is thrown. The roll speed should be in the recommended range.

## OPERATION

### **Forming shield settings**

- Make sure that forming shield (A) is installed correctly with bracket (B).
- Remove the windrow forming fins from the underside of the forming shield to improve the flow of crop to the DWA.
- Periodically remove any buildup of sticky crop residue on deflector sliding surfaces.
- Refer to [3.7 Positioning Conditioner Forming Shield, page 65](#) for more instructions on positioning the conditioner forming shield.



**Figure 3.19: Forming Shield**





## Chapter 4: Maintenance and Servicing

Follow these maintenance procedures to ensure the service life of the Double Windrow Attachment (DWA).

### 4.1 Draper Maintenance

The draper on the Double Windrow Attachment (DWA) can have its tension and tracking adjusted. The draper and the draper rollers can also be replaced if they are worn out.

#### 4.1.1 Adjusting Draper Tension

Adjust the draper tension on the Double Windrow Attachment (DWA) so that the belt does not sag or slip.



#### **DANGER**

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

1. Shut down the engine, and remove the key from the ignition.
2. Ensure that the deck safety pin is engaged.
3. Check that the draper guide (the rubber track on the underside of the draper) is properly engaged in the groove of the drive roller, and that the idler roller is between the guides.
4. Turn bolt (A) clockwise to tighten the draper.

#### **NOTE:**

White indicator bar (B) will move to the right as the draper is tightened. Tighten the draper until the white indicator sits in the center of the window.

#### **IMPORTANT:**

To avoid premature failure of the draper, the draper rollers, and/or the tightener components, do **NOT** operate the DWA when the white tension indicator bar is not visible.

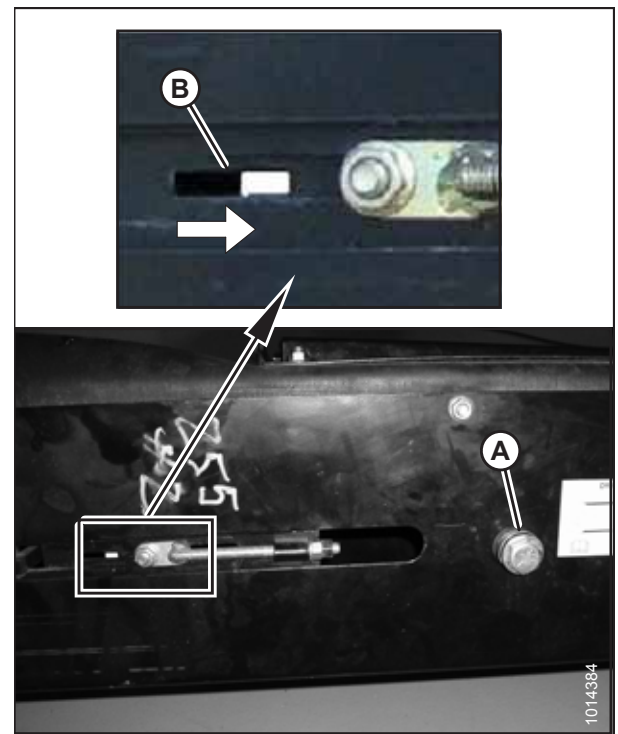


Figure 4.1: Draper Tension Adjuster

#### 4.1.2 Adjusting Draper Tracking

The draper deck has one fixed drive roller and one spring-loaded idler roller. The spring-loaded idler roller is located at the same end of the deck as the draper tensioner. Both rollers can be aligned with adjuster rods to adjust the draper tracking.

#### **IMPORTANT:**

The tracking of the draper on the Double Windrow Attachment (DWA) needs to be checked when the draper is first run up; otherwise, damage to the draper may result.

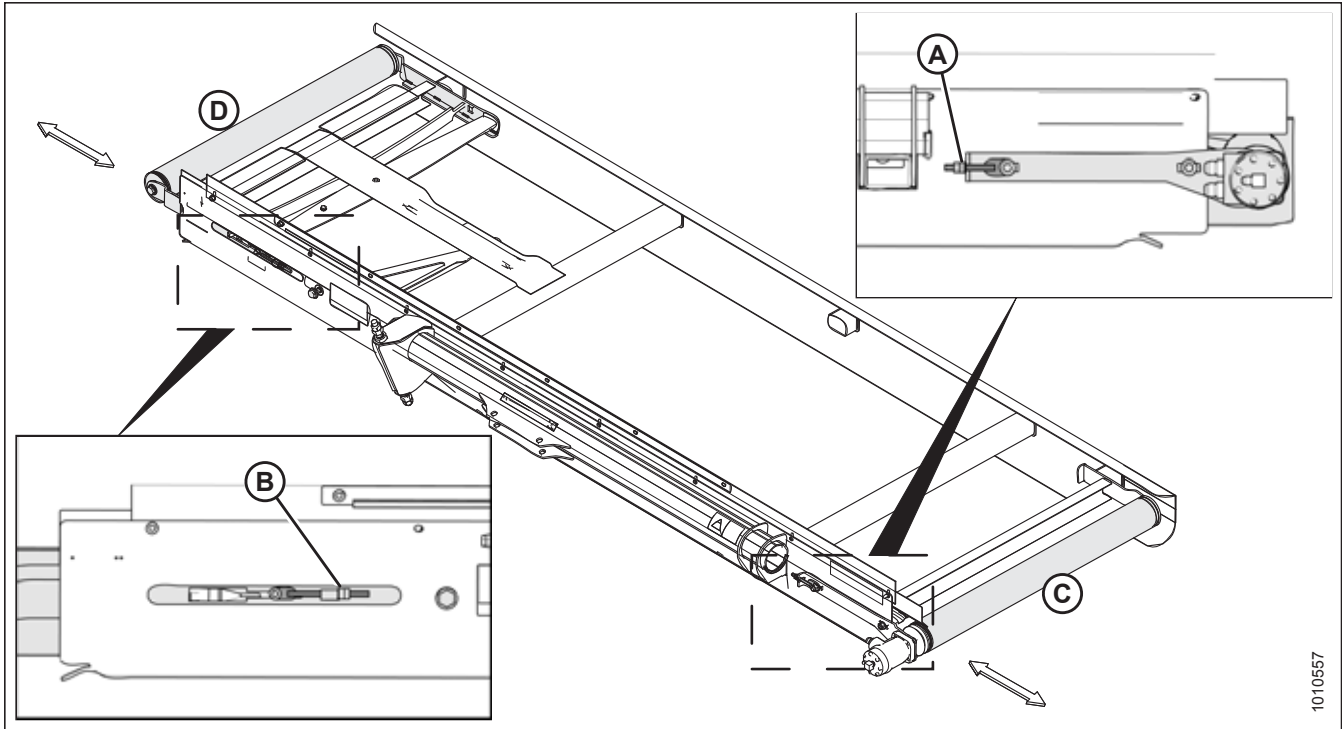
MAINTENANCE AND SERVICING

If the draper is tracking incorrectly, use the following table to adjust the rollers:

Table 4.1 Draper Tracking Adjustments

Tracking	At Location	Adjustment	Method
Rearward	Drive roller	Move roller (C) outward	Tighten nut (A)
Forward		Move roller (C) inward	Loosen nut (A)
Rearward	Idler roller	Move roller (D) outward	Tighten nut (B)
Forward		Move roller (D) inward	Loosen nut (B)

Figure 4.2: Draper Tracking



To adjust the tracking on the idler roller side:

## **! DANGER**

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

1. Shut down the engine, and remove the key from the ignition.
2. Ensure that the deck safety pin is engaged.
3. Loosen two nuts (A).
4. Adjust nut (B) according to Table 4.1, page 72.
5. Secure the idler roller by tightening two nuts (A).
6. After adjusting draper tracking, readjust the draper tension. Refer to 4.1.1 *Adjusting Draper Tension*, page 71 for instructions.

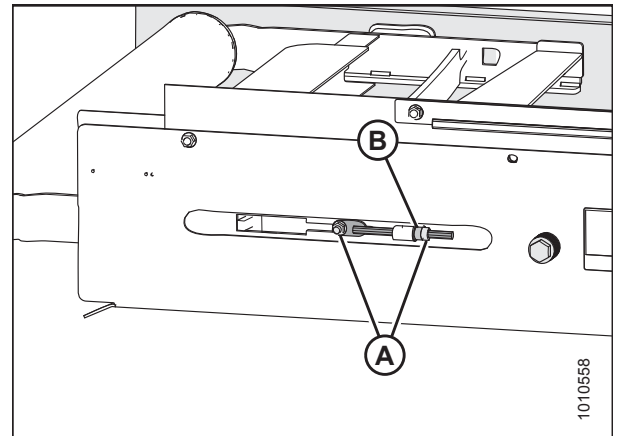


Figure 4.3: Tracking Adjustment: Idler Roller

To adjust the tracking on the drive roller side:

7. Loosen three locking nuts (B).
8. Adjust nut (A) according to Table 4.1, page 72 above.
9. Tighten three nuts (B) to secure the drive roller.
10. After adjusting the draper tracking, adjust the draper tension. Refer to 4.1.1 *Adjusting Draper Tension*, page 71 for instructions.

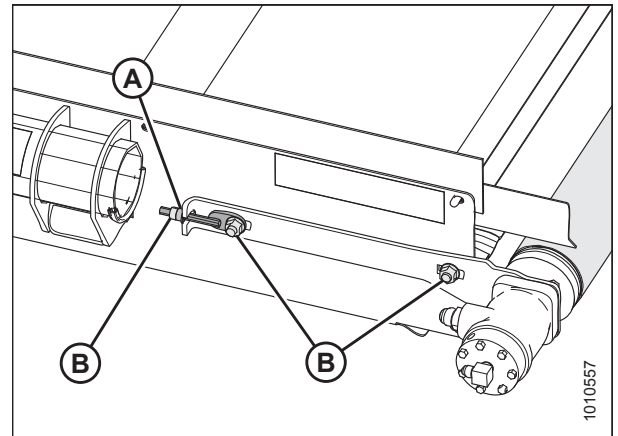


Figure 4.4: Tracking Adjustment: Drive Roller

### 4.1.3 Replacing Draper

The front skid and turnbuckle must be removed to get access to the draper on a Double Windrow Attachment (DWA).

#### DANGER

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

1. Shut down the engine, and remove the key from the ignition.
2. Ensure that the deck safety pin is engaged.
3. Raise the deck up so that there is sufficient space between the deck and the right drive wheel to remove the draper.
4. Remove front skid (A) by removing four nuts (B).
5. Loosen the draper tension, and push the idler roller inward as far as possible.

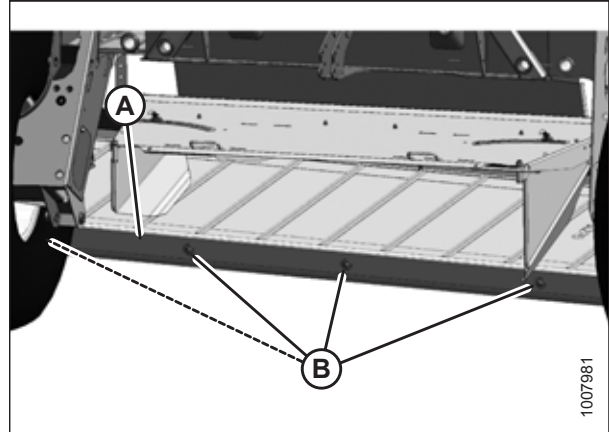


Figure 4.5: Front Skid

6. Disconnect turnbuckle (A) and allow the deck to rotate rearward to increase the space between the deck and the wheel.
  7. Pull off the old draper and install the new one.
- NOTE:**  
The draper is bidirectional; its orientation does not matter.
8. Tension the draper. Refer to [4.1.1 Adjusting Draper Tension, page 71](#) for instructions.
  9. Reinstall turnbuckle (A) and the front skid.
  10. Adjust the front skid to achieve a 1.5–3.0 mm (1/16–1/8 in.) gap relative to the draper.
  11. Run the new draper and check its alignment. Adjust the alignment if necessary.
  12. Recheck the draper tension after the DWA has been operating for a few hours.

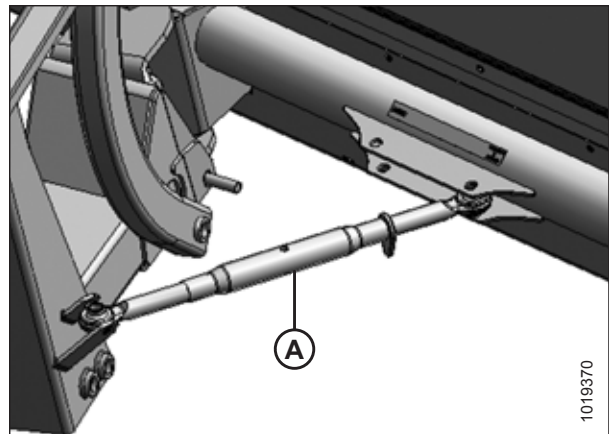


Figure 4.6: Deck Angle Turnbuckle

### 4.1.4 Adjusting Front Skid

The front skid must be positioned correctly relative to the draper to ensure proper crop flow and to protect the draper.

#### DANGER

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

1. Shut down the engine, and remove the key from the ignition.
2. Ensure that the deck safety pin is engaged.
3. Loosen four nuts (B) on the front of the skid.

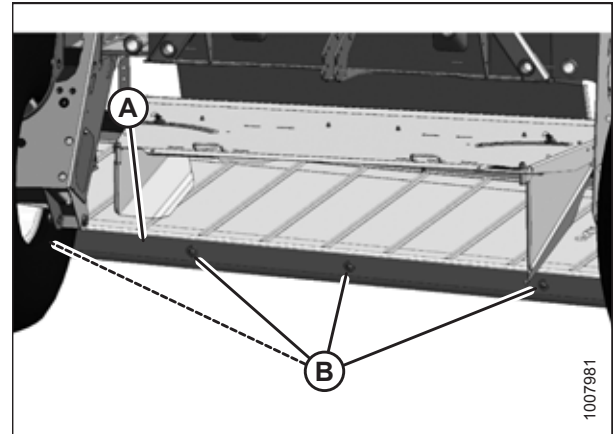


Figure 4.7: Draper Deck Front Skid

4. Adjust front skid (A) so that skid height (C) is 1.5–3 mm (1/16 1/8 in.) above the draper.

**IMPORTANT:**

Improper skid height can result in wear on the draper or excessive crop build up.

- Constant contact between the skid and draper will cause excessive heat buildup, resulting in the draper melting.
- If the gap between the front skid and the draper is too large, crop can enter the draper.

5. Tighten nuts (B).

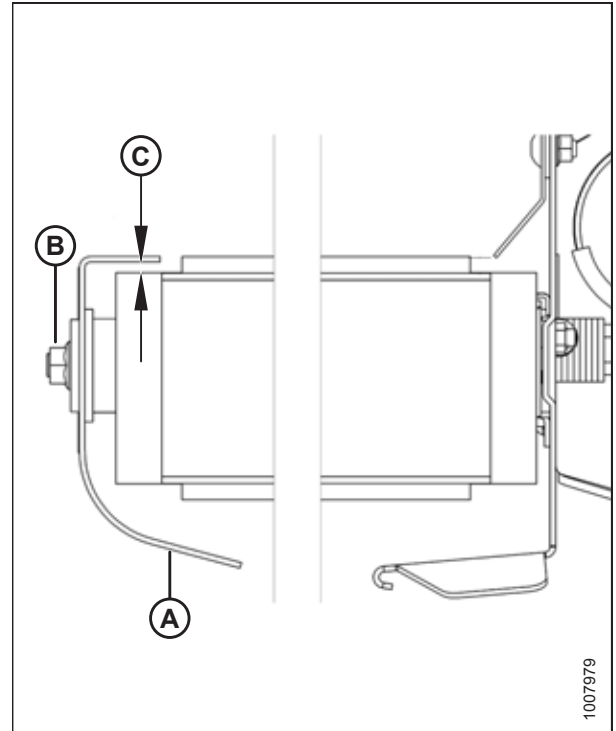


Figure 4.8: Draper Deck Cross Section

### 4.1.5 Adjusting Rear Deflector

The rear deflector prevents crop from getting inside the draper.



**DANGER**

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

## MAINTENANCE AND SERVICING

1. Shut down the engine, and remove the key from the ignition.
2. Ensure that the deck safety pin is engaged.
3. Loosen eight nuts (B) securing rear deflector (A) along the length of the deck.

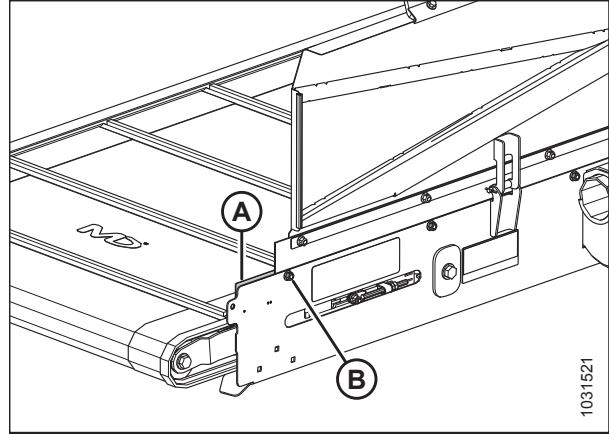


Figure 4.9: Draper Deck Rear Deflector

4. Set height (C) so that deflector (A) is 1.5–8 mm (1/16–5/16 in.) above the draper.
5. Tighten nuts (B).

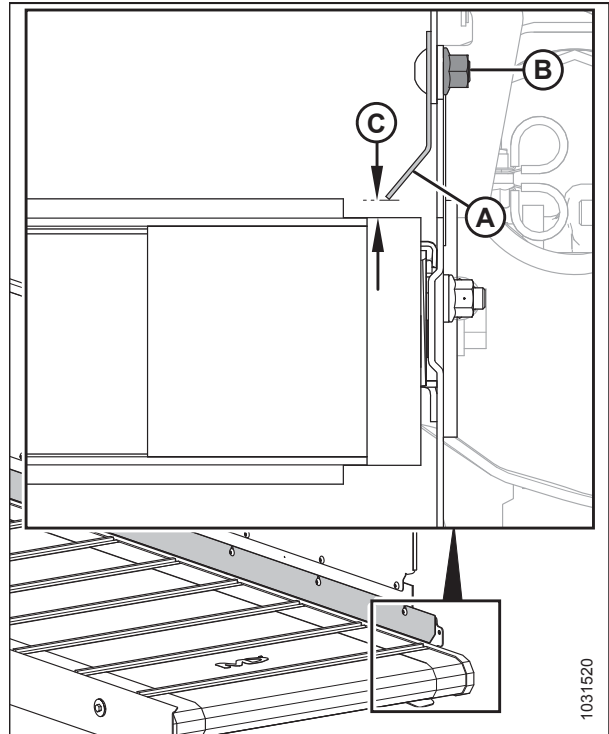


Figure 4.10: Draper Deck Rear Deflector

### 4.1.6 Maintaining Draper Rollers

The draper rollers have sealed bearings. The seals on the bearing should be checked every 200 hours (more frequently in dusty operating conditions) to ensure the service life of the bearings. Remove the front skid to inspect the seals on the bearings.

#### *Removing and Reinstalling Drive Roller*

The front skid and draper must be removed to access the drive roller.



#### **DANGER**

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

1. Shut down the engine, and remove the key from the ignition.
2. Ensure that the deck safety pin is engaged.
3. Remove the front skid. Refer to [4.1.4 Adjusting Front Skid, page 74](#) for instructions.
4. Remove the draper. Refer to [4.1.3 Replacing Draper, page 74](#) for instructions.
5. Loosen two jam nuts (A) and set screws (B).

#### **NOTE:**

The second jam nut and set screw are not visible in this illustration.

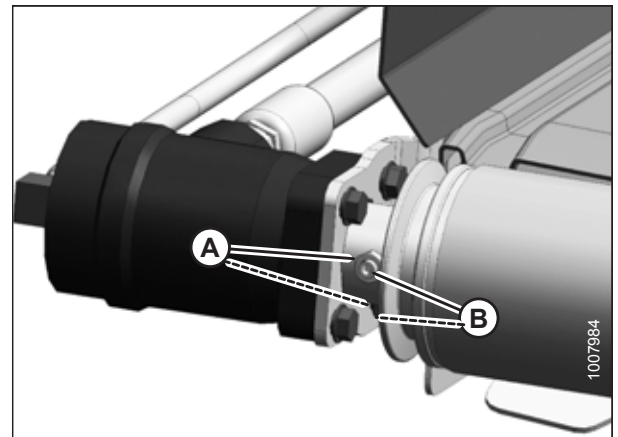


Figure 4.11: Draper Drive Roller

6. Remove bolt and washer (B) at the front of drive roller (A). The arm can be pulled out of the deck.
7. Slide the drive roller off of the DWA motor shaft.
8. If you need to repair the bearing or seal, refer to [4.1.7 Replacing Draper Roller Bearing and Seal, page 79](#).

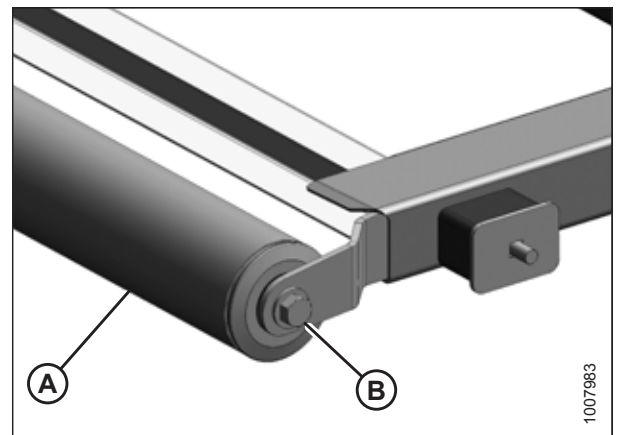


Figure 4.12: Draper Drive Roller

To reinstall the drive roller on the deck:

## MAINTENANCE AND SERVICING

9. Slide the drive roller onto the DWA motor shaft. Make sure it is fully engaged.

**NOTE:**

The drive roller should be 33 mm (1 1/3 in.) from the face of the motor (distance [A]).

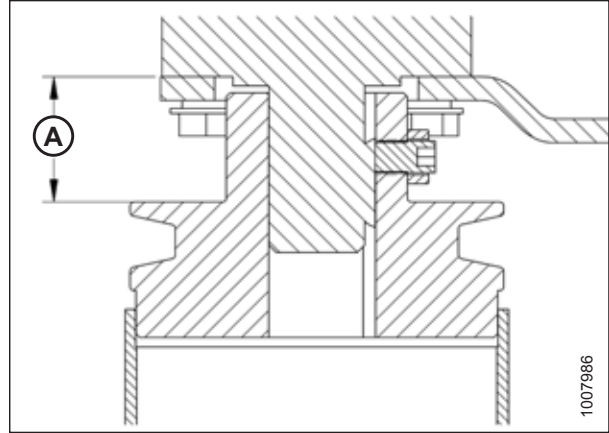


Figure 4.13: Drive Roller Cross Section

10. Install two setscrews (B). Torque the screws to 27 Nm (20 lbf·ft).
11. Install two jam nuts (A).

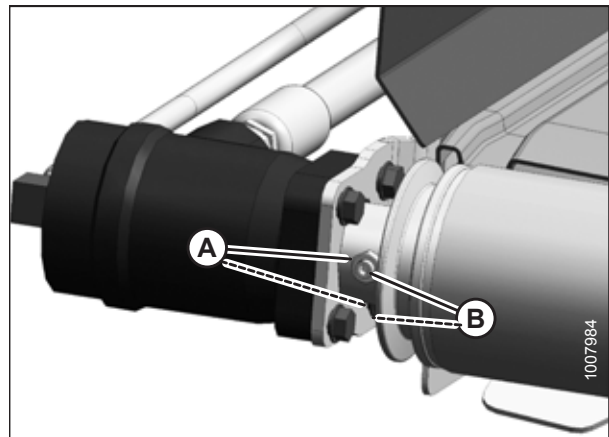


Figure 4.14: Draper Drive Roller

12. Torque bolt (A) to 95 Nm (70 lbf·ft).

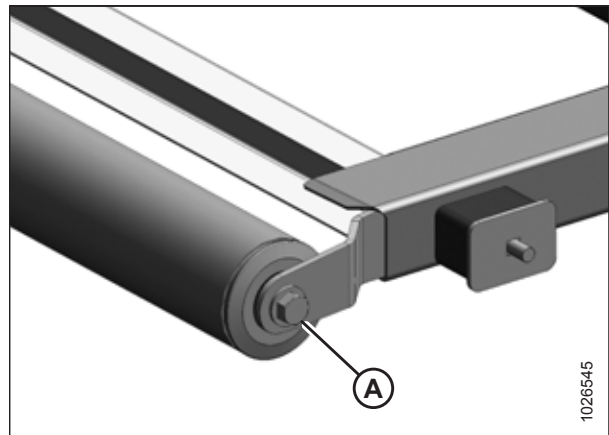


Figure 4.15: Draper Drive Roller



### Removing and Reinstalling Idler Roller

The front skid must be removed and the draper loosened in order to access the idler roller.

#### DANGER

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

1. Shut down the engine, and remove the key from the ignition.
2. Ensure that the deck safety pin is engaged.
3. Remove the front skid. Refer to [4.1.4 Adjusting Front Skid, page 74](#) for instructions.
4. Loosen the draper. Refer to [4.1.1 Adjusting Draper Tension, page 71](#) for instructions.

#### NOTE:

The draper does not need to be removed to complete this procedure; however, removing the draper will make this procedure easier.

5. Remove idler roller (A) by removing bolt and washer (B) at each end of the roller.

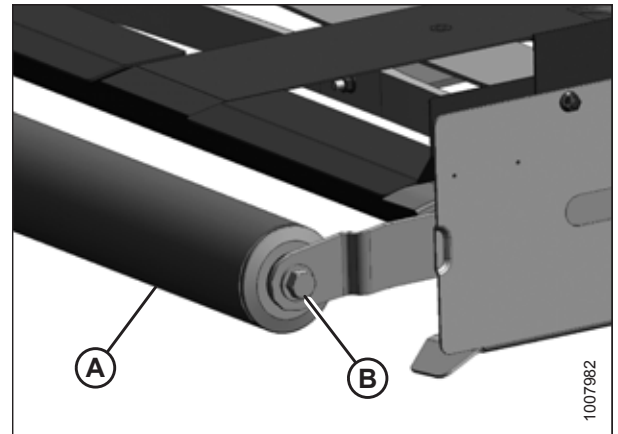


Figure 4.16: Idler Roller

To reinstall idler roller (A):

6. Reattach bolt and washer (B) at each end of the roller.
7. Tighten the draper. Refer to [4.1.1 Adjusting Draper Tension, page 71](#) for instructions.
8. Reattach the front skid. Refer to [4.1.4 Adjusting Front Skid, page 74](#) for instructions.
9. Torque bolts (B) to 95 Nm (70 lbf·ft).

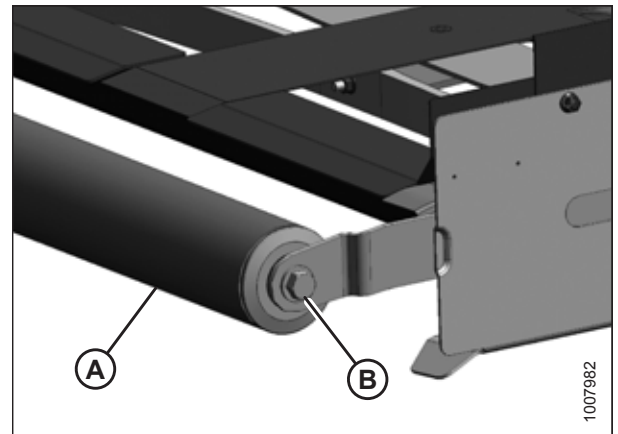


Figure 4.17: Idler Roller

### 4.1.7 Replacing Draper Roller Bearing and Seal

You will need a slide hammer to remove the bearing from the draper roller.

1. Remove the roller assembly. For instructions, refer to [4.1.6 Maintaining Draper Rollers, page 77](#).

## MAINTENANCE AND SERVICING

2. Remove bearing assembly (B) and seal (A) from roller tube (C) as follows:
  - a. Attach slide hammer (D) to the threaded shaft.
  - b. Tap out the bearing assembly.
3. Clean the inside of roller tube (C) and check it for wear or damage. Replace it if necessary.

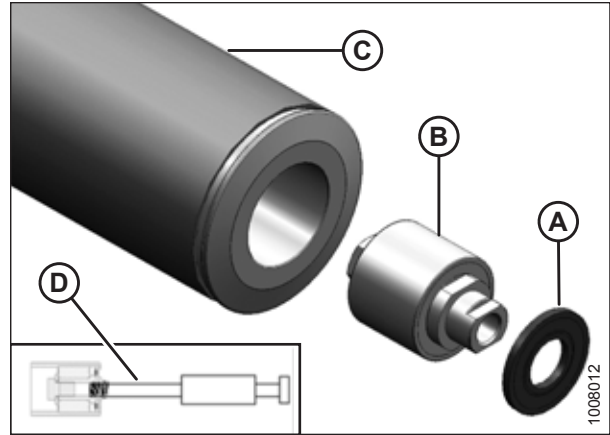


Figure 4.18: Roller Bearing

4. Install bearing assembly (B) into the roller by pushing on the **OUTER** race of bearing.

**IMPORTANT:**

Do **NOT** push on the inner race of the bearing, or the bearing may be damaged and rendered unusable. Do not install a damaged bearing.

**NOTE:**

The bearing is fully positioned when 14 mm (0.55 in.) dimension (D) is achieved.

5. Apply grease in front of the bearing.

**IMPORTANT:**

Use SAE multi-purpose high temperature extreme pressure (EP2) performance with 0–1% max molybdenum disulphide (NLGI grade 2) lithium base.

6. Install seal (A) into the roller by pushing on the outer and inner race of the seal.

**NOTE:**

The seal is fully positioned when dimension (C) is 3 mm (0.12 in.). A flat washer (1.0 in. ID x 2.0 in. OD) can act as a suitable seal driver.

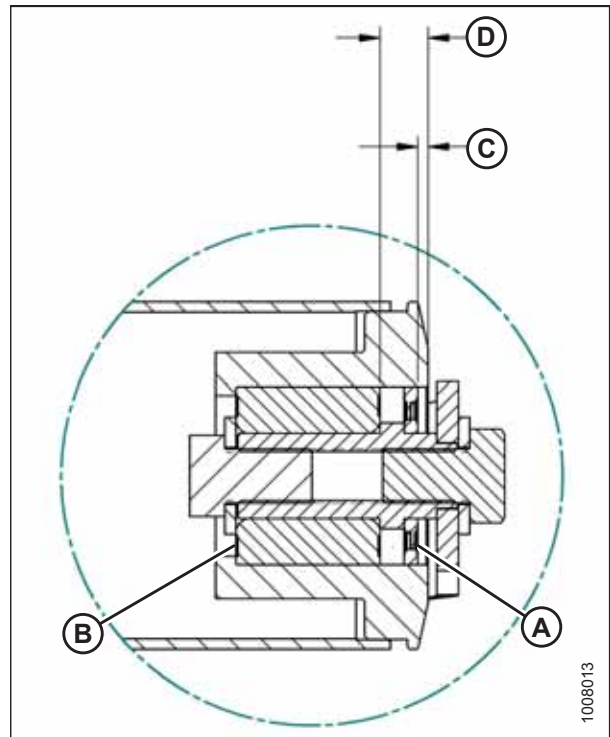


Figure 4.19: Roller Bearing Cross Section

7. Ensure that the bearing and its seal turn freely.
8. Reinstall the roller assembly into the deck.

## 4.2 Lubrication

The DWA has five grease points which need regular lubrication.

Apply high temperature extreme pressure (EP2) performance with 1% max molybdenum disulphide (NLGI Grade 2) lithium base grease to all grease points (A) shown in the following illustrations after every **50 hours** of operation.

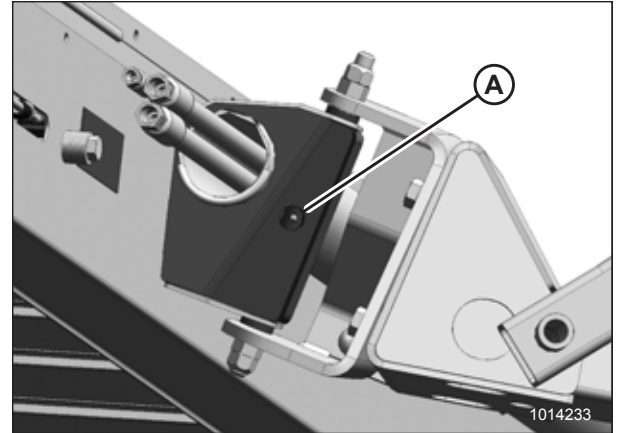


Figure 4.20: Deck Pivot



Figure 4.21: Linkage Pivot

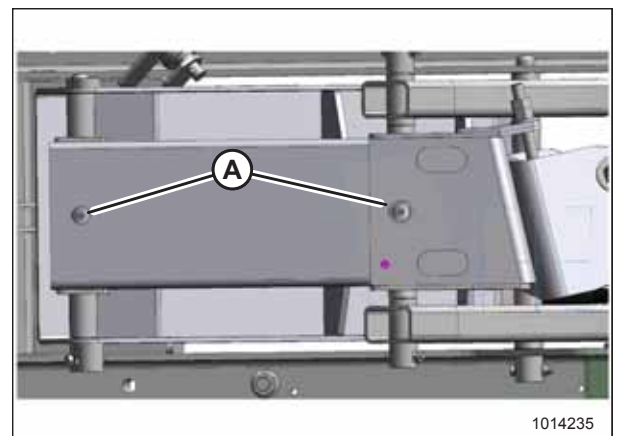


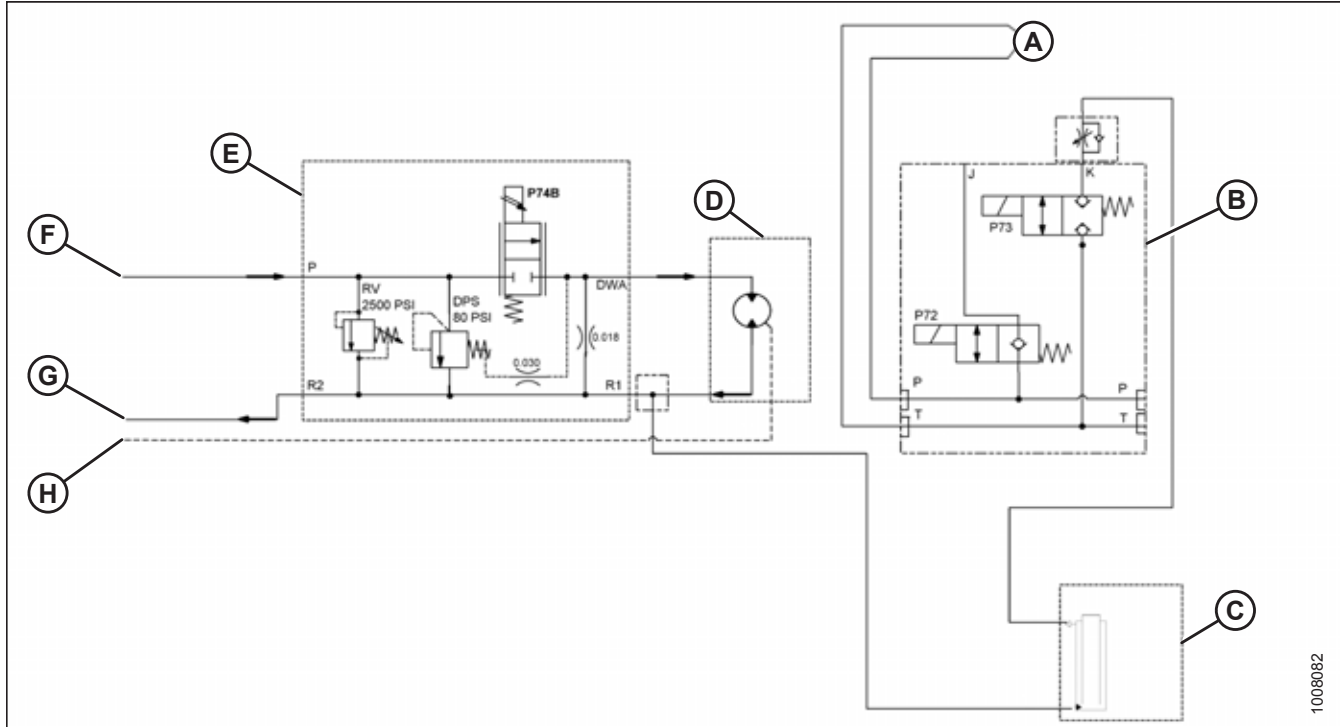
Figure 4.22: Linkage Pivot: Bottom View of DWA

## 4.3 Hydraulics Schematics

Hydraulic schematics are provided for the older Double Windrow Attachment (DWA) drive block, which has a 2500 psi relief valve and uses the old DWA lift block (MD #110575) with one double check valve; and for the newer DWA drive block, which has a 2900 psi relief valve and uses the new DWA lift block (MD #139974) with two double check valves.

For more information on the DWA hydraulic system, contact your MacDon Dealer.

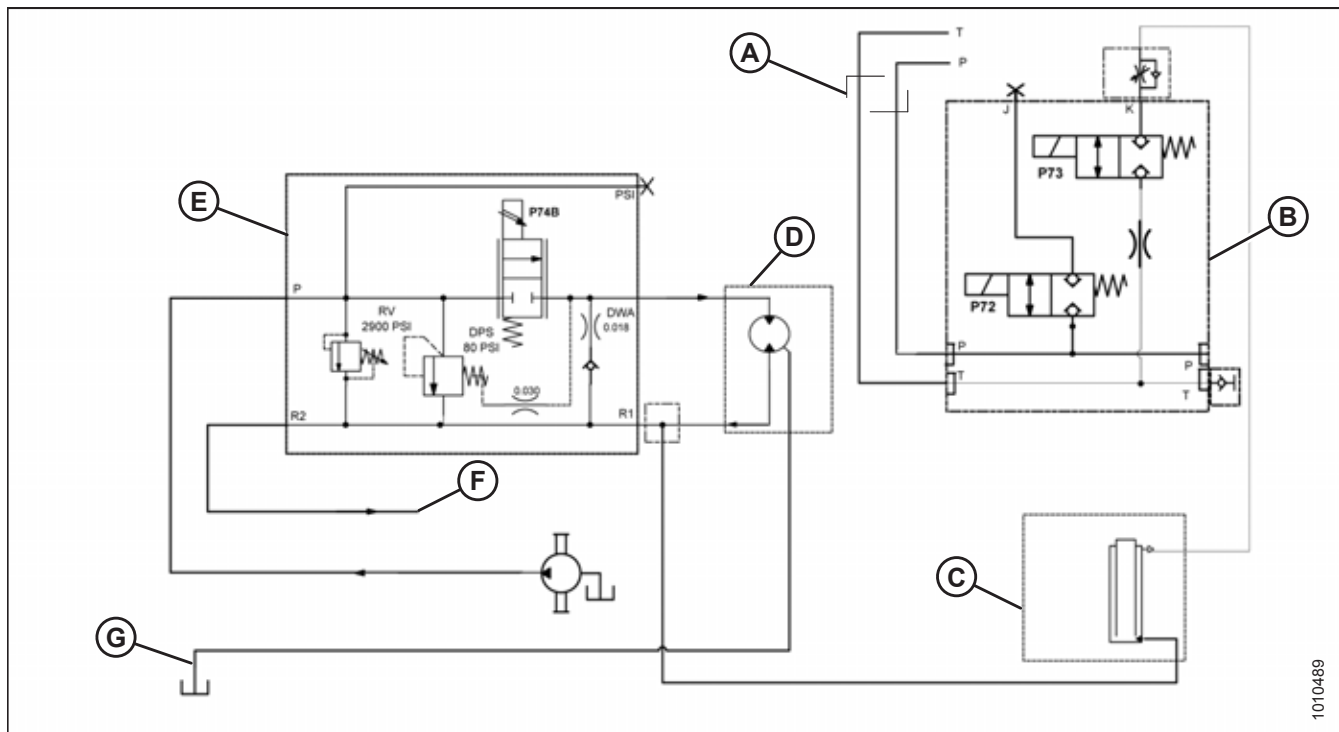
**Figure 4.23: Older DWA Drive Block and Lift Block (MD #110575) Schematic**



A - To Header Lift Block  
C - DWA Lift Cylinder  
E - DWA Draper Drive  
G - To Cooler Bypass Relief Valve

B - DWA Lift Block  
D - DWA Drive Motor  
F - From Supercharge Pump  
H - To Header Drive Block Port T

Figure 4.24: Newer DWA Drive Block and Lift Block (MD #139974) Schematic



A - To Header Lift Block <sup>1</sup>  
 C - DWA Lift Cylinder  
 E - DWA Drive Block  
 G - Tank Line <sup>2 3</sup>

B - DWA Lift Block  
 D - DWA Draper Motor  
 F - To Manifold Cooler Bypass

1. The auxiliary block (MD #139974) is bolted directly to the main lift block, depending on windrower options. Ports T and P are direct links.
2. M150/M200 to port T on knife drive block.
3. M155/M155E4/M205 direct to reservoir.



## Chapter 5: Repair Parts

These parts can be ordered from your MacDon Dealer.

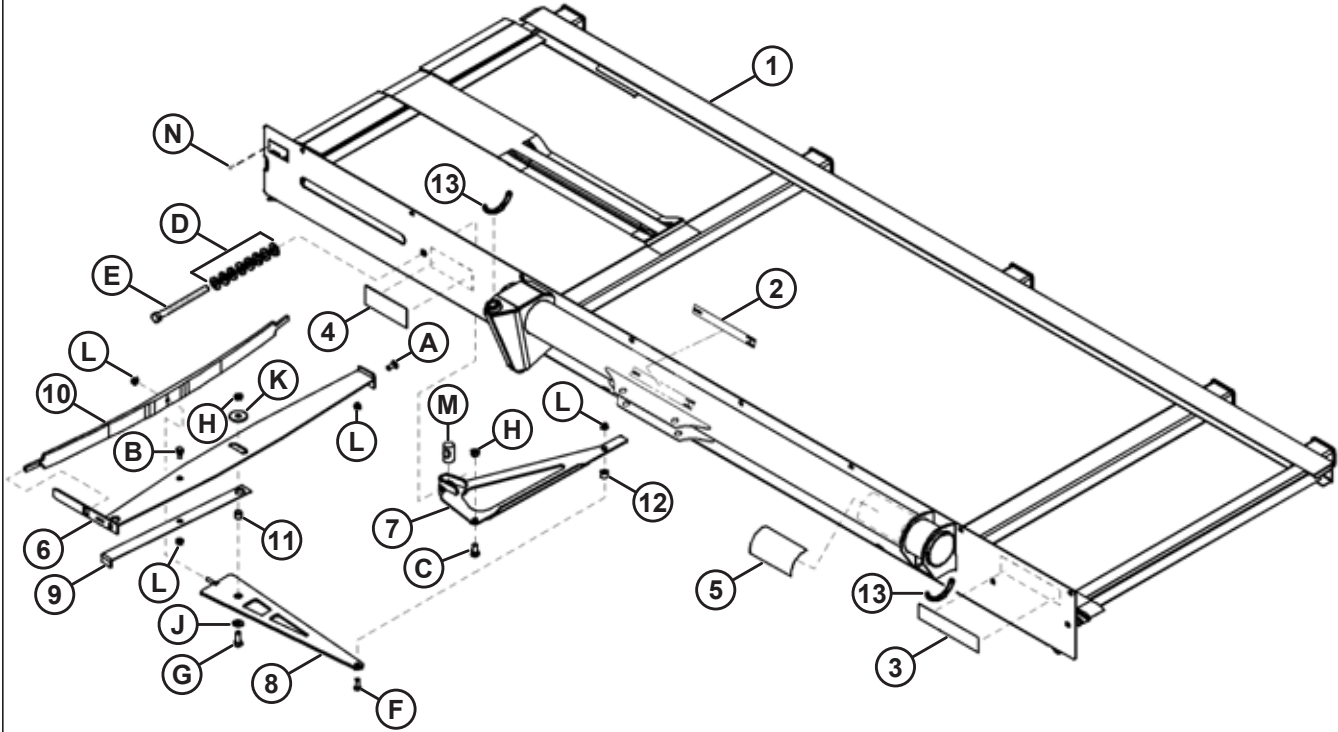
**NOTE:**

Parts which are **bolded** have changed since the previous revision of this manual.

## 5.1 Deck, Draper, and Rollers – Illustration 1

This section details some of the miscellaneous draper deck parts and hardware needed to install the Double Windrow Attachment (DWA) on an M series windrower.

Figure 5.1: Deck, Draper, and Rollers – Illustration 1



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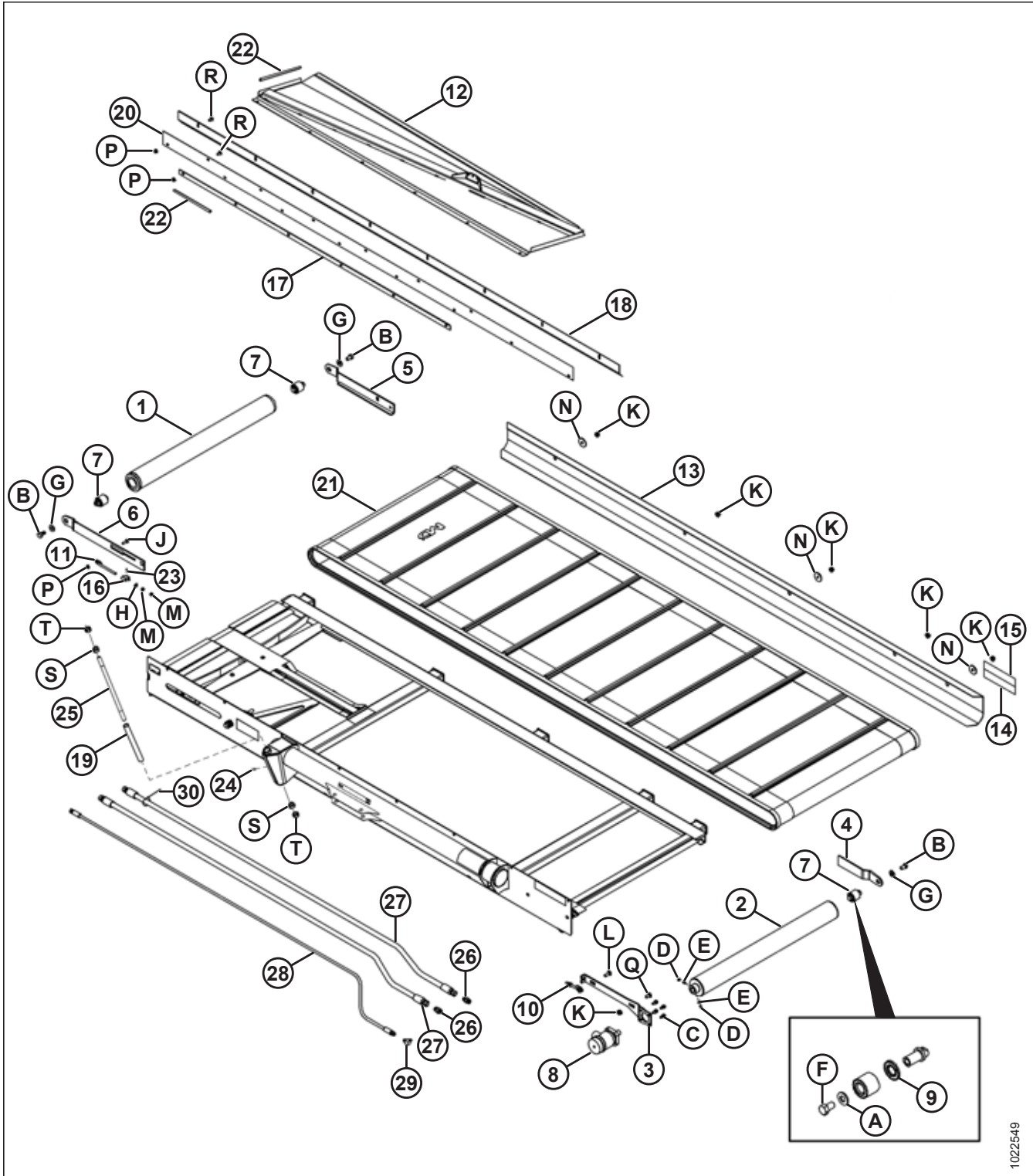
# REPAIR PARTS

Ref	Part Number	Description	Qty	Serial Number
1	172730	DECK – COMPLETE WITH DECALS	1	
2	<b>176767</b>	DECAL – HEADER POSITION, HORIZONTAL FORMAT	1	
3	115146	REFLECTOR – AMBER	1	
4	220084	DECAL – DRAPER TENSION	1	
5	166466	DECAL – WARNING, HYDRAULIC, 2 PANEL	1	
6	120449	MEMBER – LH STABILIZER WELDMENT	1	
7	120451	BELL CRANK WELDMENT – LH	1	
8	120462	MEMBER – COMPRESSION WELDMENT	1	
9	145428	INDICATOR	1	
10	145548	SPRING – LEAF (TENSIONER)	1	
11	132531	SPACER	1	
12	132532	SPACER	1	
13	109791	MOULDING	2	
A	19965	BOLT – RHSN, 3/8 NC x 1.0 GR 5 ZP	1	
B	172259	BOLT – SHOULDER, 3/8-16 UNC	1	
C	21575	BOLT – HEX HEAD, 1/2 NC x 1.0 GR 5 ZP	1	
D	30441	WASHER – HARDENED	8	
E	135906	BOLT – HEX HEAD, 5/8 NC x 7.5 LG TFL GR 5 ZP	1	
F	20077	BOLT – HEX HEAD, 3/8 NC x 1.0 LG GR 5 ZP	1	
G	21491	BOLT – HEX HEAD, 1/2 NC x 1.25 LG GR 5 ZP	1	
H	137727	NUT – HEX JAM, DT, 1/2-13 UNC GR 5 ZP	2	
J	18599	WASHER – SAE FLAT, 17/32 ID x 1 1/16 INCH OD ZP	1	
K	42592	WASHER – FLAT	1	
L	30228	NUT – FLANGE, DT, SMOOTH FACE, 3/8-16 UNC	4	
M	145361	NUT – SPECIAL	1	
N	14338	RIVET – BLIND 1/8 x 1/8	2	

## 5.2 Deck, Draper, and Rollers – Illustration 2

This section details the main draper deck parts and hardware needed to install the Double Windrow Attachment (DWA) on an M series windrower.

Figure 5.2: Deck, Draper, and Rollers – Illustration 2



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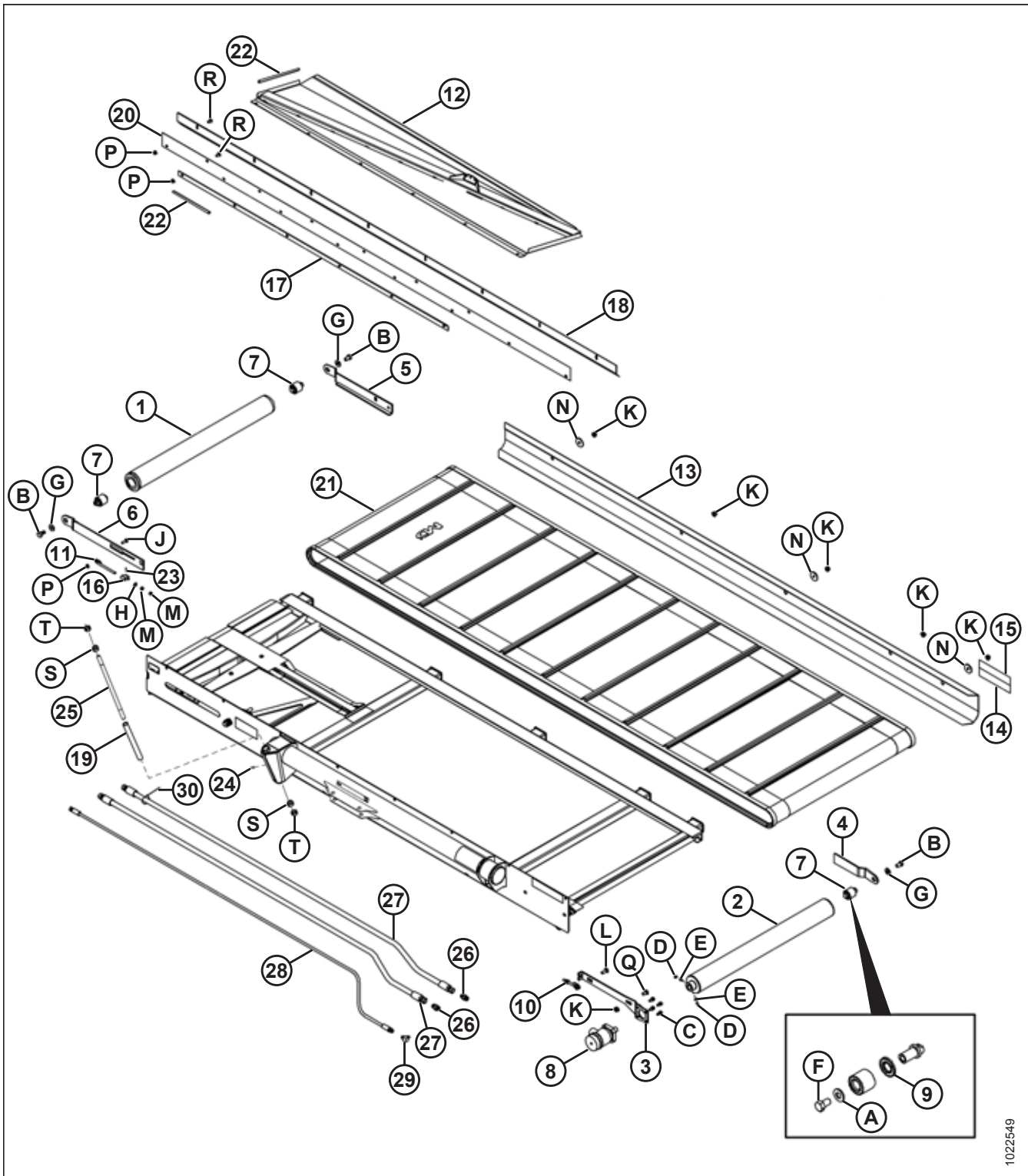
## REPAIR PARTS

Ref	Part Number	Description	Qty	Serial Number
1	144833	ROLLER – IDLER WELDMENT	1	
2	<b>176678</b>	ROLLER – DRIVE WELDMENT	<b>1</b>	
3	144501	ARM – SUPPORT	1	
4	144499	ARM – ROLLER SUPPORT	1	
5	176000	ARM – SUPPORT WELDMENT	1	
6	144837	ARM – SUPPORT REAR	1	
7	165735	PIN ASSEMBLY – DRAPER ROLLER	3	
8	144832	MOTOR – HYDRAULIC M & S 1.52 CI	1	
	132759	SEAL KIT – M & S MOTOR		
	123306	KEY – WOODRUFF(1/4 X 1 NOM.)		
9	120845	SEAL – NILOS LSTO STEEL DISK	3	
10	145593	ROD – ADJUSTER WELDMENT	1	
11	145345	ROD – ADJUSTER WELDMENT	1	
12	144602	PANEL – REAR WELDMENT	1	
13	172747	SKID – COMPLETE WITH REFLECTORS	1	
14	115145	REFLECTOR – FLUORESCENT RED-ORANGE	1	
15	115147	REFLECTOR – RED	1	
16	145357	BRACKET – IDLER ARM	1	
17	144652	BAR – STIFFENER	1	
18	144851	DEFLECTOR – SEAL	1	
19	144558	BUSHING – STEEL	1	
20	144597	SEAL – BACKSHEET	1	
21	165304	DRAPER – ENDLESS, DWA	1	
22	37687	MOULDING	2	
23	18604	PIN – COTTER 3/32 DIA. x 3/4 ZP	1	
24	18671	FITTING – LUBE 1/4-28 UNF	1	
25	176063	SHAFT – THREADED <sup>4</sup>	1	
26	30695	FITTING – HYDRAULIC CONNECTOR	2	
27	132867	HOSE – HYDRAULIC	2	
28	176077	HOSE – HYDRAULIC	1	

- 
4. Older units used a hex head bolt in this location. When replacing bolt with the new threaded shaft, also order one each of nuts, items 69 and 70 for head end.

# REPAIR PARTS

Figure 5.3: Deck, Draper, and Rollers – Illustration 2



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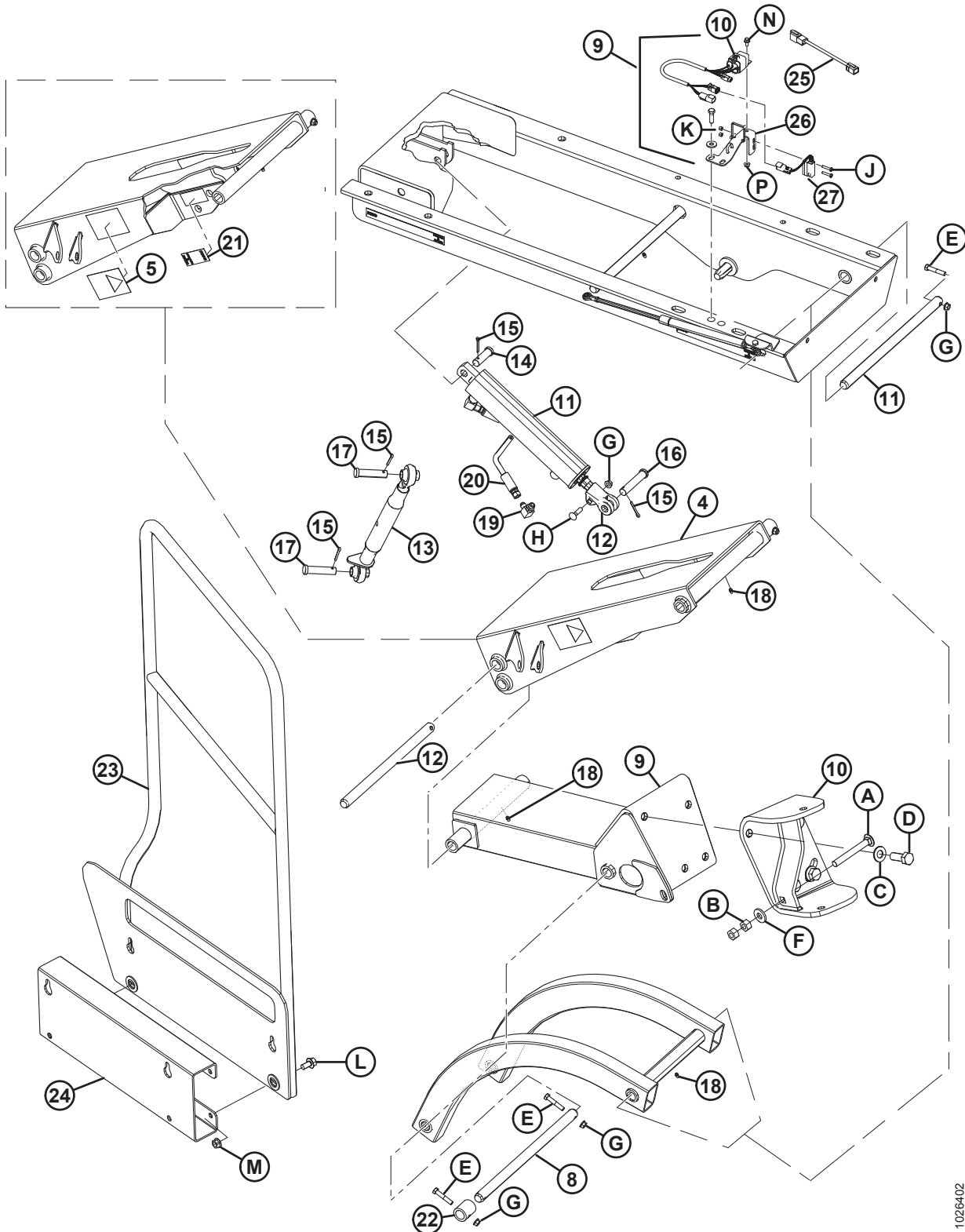
## REPAIR PARTS

Ref	Part Number	Description	Qty	Serial Number
29	50104	FITTING – ELBOW 90° HYDRAULIC	1	
30	135266	FASTENER – CABLE TIE, LIGHT BLUE	1	
A	30441	WASHER – HARDENED	3	
B	145249	BOLT – HEX HEAD, 5/8 NF x 1.0 LG GR 5 ZP	3	
C	172259	BOLT – SHOULDER, 3/8-16 UNC	4	
D	18709	SETSCREW – HEXHD, SKT CUP PT 3/8 NC x 5/8 LG	2	
E	18664	NUT – HEX JAM, 3/8-16 UNC GR 5 ZP	2	
F	145249	BOLT – HEX HEAD, 5/8 NF x 1.0 LG GR 5 ZP	3	
G	30441	WASHER – HARDENED	3	
H	18598	WASHER – SAE FLAT, 13/32 ID x 13/16 INCH OD ZP	2	
J	19966	BOLT – RDH, SQ NECK, 3/8 NC x 1.25 LG GR 5 ZP	1	
K	50186	NUT – FLG, LOCK, SMTH FACE, DT, 1/2-13 UNC – GR 5	7	
L	21471	BOLT – RHSN, 1/2 NC x 1.25 GR 5 ZP	1	
M	18590	NUT – HEX, 3/8-16 UNC GR 5 ZP	4	
N	11695	WASHER – FLAT	3	
P	30228	NUT – FLG, DT, SMOOTH FACE, 3/8-16 UNC	15	
Q	21066	BOLT – RHSN, 1/2 NC x 1 GR 5 ZP	1	
R	135157	SCREW – MACHINE	14	
S	18593	NUT – HEX, 3/4-10 UNC GR 5 ZP	2	
T	18689	NUT – HEX, LOCK, DISTORTED THREAD, 3/4-10 UNC	2	

### 5.3 Deck Supports and Linkage – Illustration 1

This section details some of the deck support and linkage parts and hardware needed to install the Double Windrow Attachment (DWA) on an M series windrower.

Figure 5.4: Deck Supports and Linkage – Illustration 1



## REPAIR PARTS

Ref	Part Number	Description	Qty	Serial Number
1	172746	ARM – DECAL ASSEMBLY	1	
2	174683	DECAL – WARNING DWA LINKAGE PINCH POINT, 2 PANEL	2	
3	144592	ARM – FRONT WELDMENT	1	
4	144593	ARM – BOTTOM WELDMENT	1	
5	144594	CLEVIS – WELDMENT	1	
6	172910	SHAFT	1	
7	176018	SHAFT	1	
8	176023	SHAFT	1	
9	176748	KIT – M-SERIES DWA SWITCH <sup>5</sup>	1	
10	<b>183856</b>	<b>HARNESS – DWA</b>	1	
11	208966	CYLINDER – HYDRAULIC	1	
	176031	SEAL KIT – FOR CYLINDER		
12	172664	CLEVIS	1	
13	144996	JOINT ASSEMBLY	1	
14	18626	PIN – CLEVIS	1	
15	18648	PIN – COTTER, 3/16 DIA. x 1.25 ZP	4	
16	20312	PIN – CLEVIS	1	
17	18627	PIN – CLEVIS	2	
18	18671	FITTING – LUBE, 1/4-28 UNF	4	
19	30282	FITTING – ELBOW 90° HYDRAULIC	1	
20	144805	HOSE – HYDRAULIC	1	
21	<b>176768</b>	DECAL – HEADER POSITION, VERTICAL FORMAT	1	
22	172903	TUBE	1	
23	144870	RAIL WELDMENT	1	
24	139491	PLATE – HANDRAIL ADAPTER (M155/M205 ONLY)	1	
	176533	KIT – DWA RAIL ADAPTER <sup>6</sup>		
25	138744	HARNESS – M205, DWA EXTENSION (USE IF REQUIRED)	1	

5. The kit includes the support (MD #176655), the switch (MD #200974), the wiring harness (MD #183856), installation hardware, and installation instructions.
6. The kit contains the handrail support (MD #139491), cable ties (MD #209608), a nut (MD #50186), a bolt (MD #21449), and installation instructions.

## REPAIR PARTS

**Figure 5.5: Deck Supports and Linkage – Illustration 1**





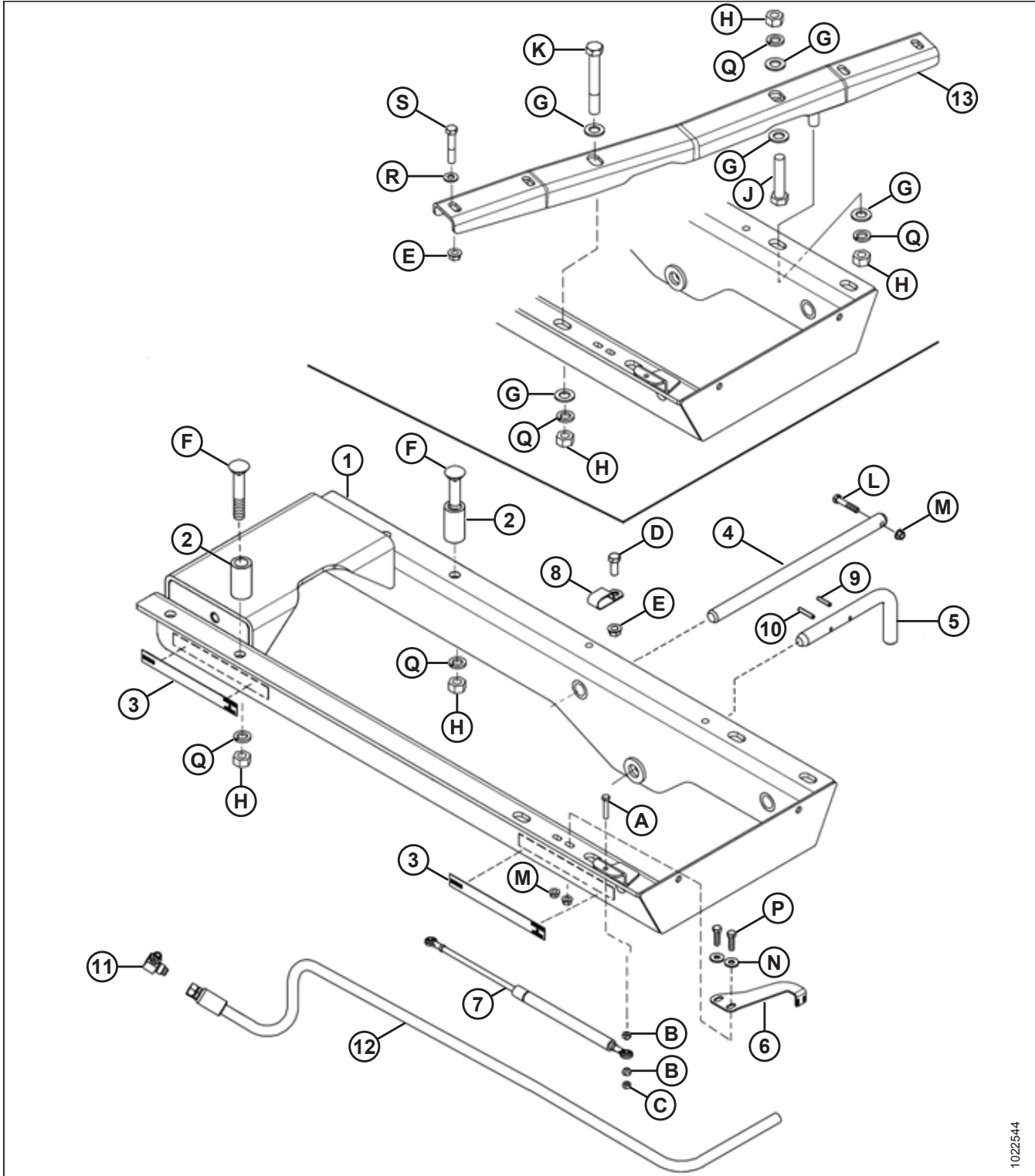
# REPAIR PARTS

Ref	Part Number	Description	Qty	Serial Number
26	176655	SUPPORT – PROXIMITY SENSOR	1	
27	200974	SWITCH – PROXIMITY	1	
A	30816	BOLT – RHSN, 5/8 NC x 5 TFL GR 5 ZP		
B	18592	NUT – HEX, 5/8-11 UNC GR 5 ZP		
C	176009	WASHER – NORDLOCK, 3/4" SP		
D	30512	BOLT – HEX HEAD, 3/4 NC x 2.0 LG GR 5 ZP		
E	21354	BOLT – HEX HEAD, 3/8 NC x 2.0 LG GR 5 ZP		
F	22072	WASHER – FLAT		
G	30228	NUT – FLANGE, DT, SMOOTH FACE, 3/8-16 UNC		
H	21484	BOLT – RHSN, 3/8 NC x 1.25 LG GR 5 ZP		
J	252183	SCREW – PAN HD M5X0.8X25-4.8-AA2L		
K	197230	NUT – NYLOC		
L	21449	BOLT – HEXHD FLG (SERR. FACE) ½ NC x 1.0 GR 5 ZP		
M	50186	NUT – FLANGE LOCK, SMTH FACE, 0.500-13 UNC GR5		
N	21968	BOLT – HEX FLG SER HD 1/4-20X0.5 GR 5 - AA1J		
P	135248	NUT – HEX FLG CTR LOC		

## 5.4 Deck Supports and Linkage (Illustration 2)

This section details some of the deck support and linkage parts and hardware needed to install the Double Windrow Attachment (DWA) on an M series windrower.

Figure 5.6: Deck Supports and Linkage – Illustration 2



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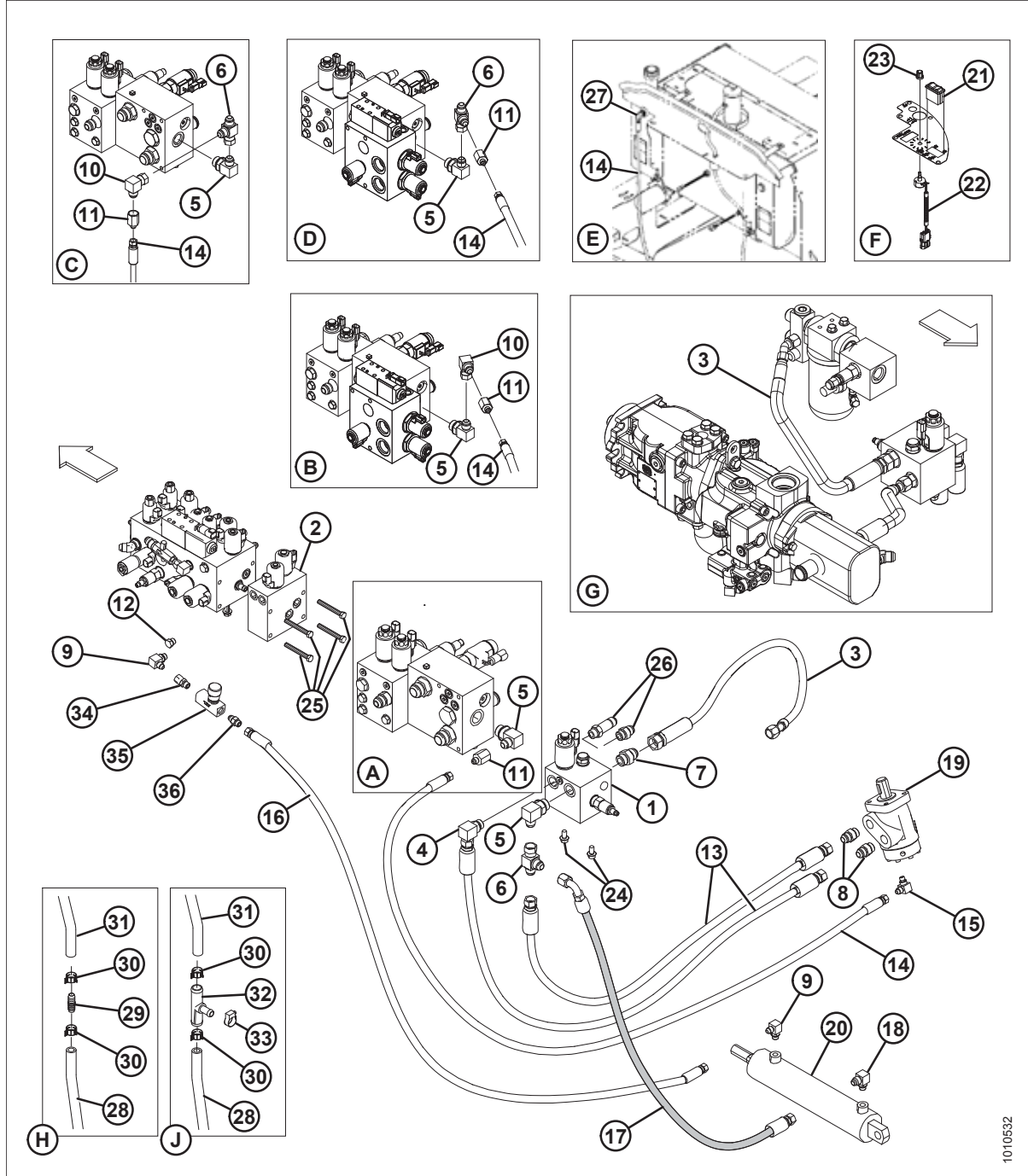
# REPAIR PARTS

Ref	Part Number	Description	Qty	Serial Number
1	144590	SUPPORT WELDMENT KIT, CONSISTS OF 176062, ITEMS 2, 6, 13 & HARDWARE.	1	
	176062	SUPPORT WELDMENT	1	
2	144587	SPACER – 1-1/2" OD x 1" ID x 2-3/4" LONG	2	
3	176767	DECAL – HEADER POSITION, HORIZONTAL FORMAT	2	
4	172910	SHAFT	1	
5	176016	PIN – L	1	
6	144853	SUPPORT	1	
7	176066	CYLINDER – GAS SPRING	1	
8	103738	CLAMP – PVC INSULATED 13/16" TUBE SIZE	2	
9	16266	PIN – SPRING, 1/4 DIA. x 1.25 LG	1	
10	2147	PIN – SPRING, 1/4 DIA. x 1.5 LG	1	
11	21805	FITTING – ELBOW HYDRAULIC	1	
12	144806	HOSE – HYDRAULIC	1	
13	176060	CHANNEL WELDMENT	1	
A	176067	BOLT – HEXHD, 5/16 NC x 1-3/4 INCH TFL GR 5 ZP	2	
B	35689	NUT – SPECIAL (TAPER FACING ROD END)	4	
C	18589	NUT – HEX, 5/16 NC	2	
D	21491	BOLT – HEX HEAD, 1/2 NC x 1.25 LG GR 5 ZP	2	
E	50186	NUT – FLG LOCK, SMTH FACE, DT, 1/2-13 UNC GR 5	6	
F	102266	BOLT – RHSSN, 3/4 NC x 4.5 LG GR 5 ZP	2	
G	18601	WASHER – SAE FLAT, 13/16 ID x 1.5 INCH OD ZP	5	
H	18593	NUT – HEX, 3/4-10 UNC GR 5 ZP	5	
J	30896	BOLT – HEX HEAD, 3/4-10 UNC x 3.50 LG	1	
K	30549	BOLT – HEX HEAD, 3/4 NC x 5.5 LG GR 5 ZP	1	
L	21354	BOLT – HEX HEAD, 3/8 NC x 2.0 LG GR 5 ZP	1	
M	30228	NUT – FLG, DT, SMOOTH FACE, 3/8-16 UNC	3	
N	20535	WASHER – FLAT	2	
P	21264	BOLT – HEX HEAD, 3/8 NC x 1.25 LG GR 5 ZP	2	
Q	18640	WASHER – LOCK, 3/4	5	
R	18599	WASHER – FLAT, 17/32 INCH I.D	4	
S	21880	BOLT – HEXHD, 1/2 NC x 2.75 LONG, GR 5, ZP	4	

## 5.5 Hydraulics and In-Cab Electrical

This section details the hydraulic and in-cab electrical parts and hardware needed to install the Double Windrow Attachment (DWA) on an M series windrower.

Figure 5.7: Hydraulics and In-Cab Electrical



A - M150/M200 A Series Or R Series: Case Drain

C - M150/M200 D Series: Case Drain

E - M155/M155E4/M205: Case Drain

G - M150/M200 Shown (5 Series Similar)

J - Optional M155/M155E4/M205

B - M150/M200 A Series With Reverser: Case Drain

D - M150/M200 D Series With Reverser: Case Drain

F - In-Cab Electrical

H - Optional M200 Only

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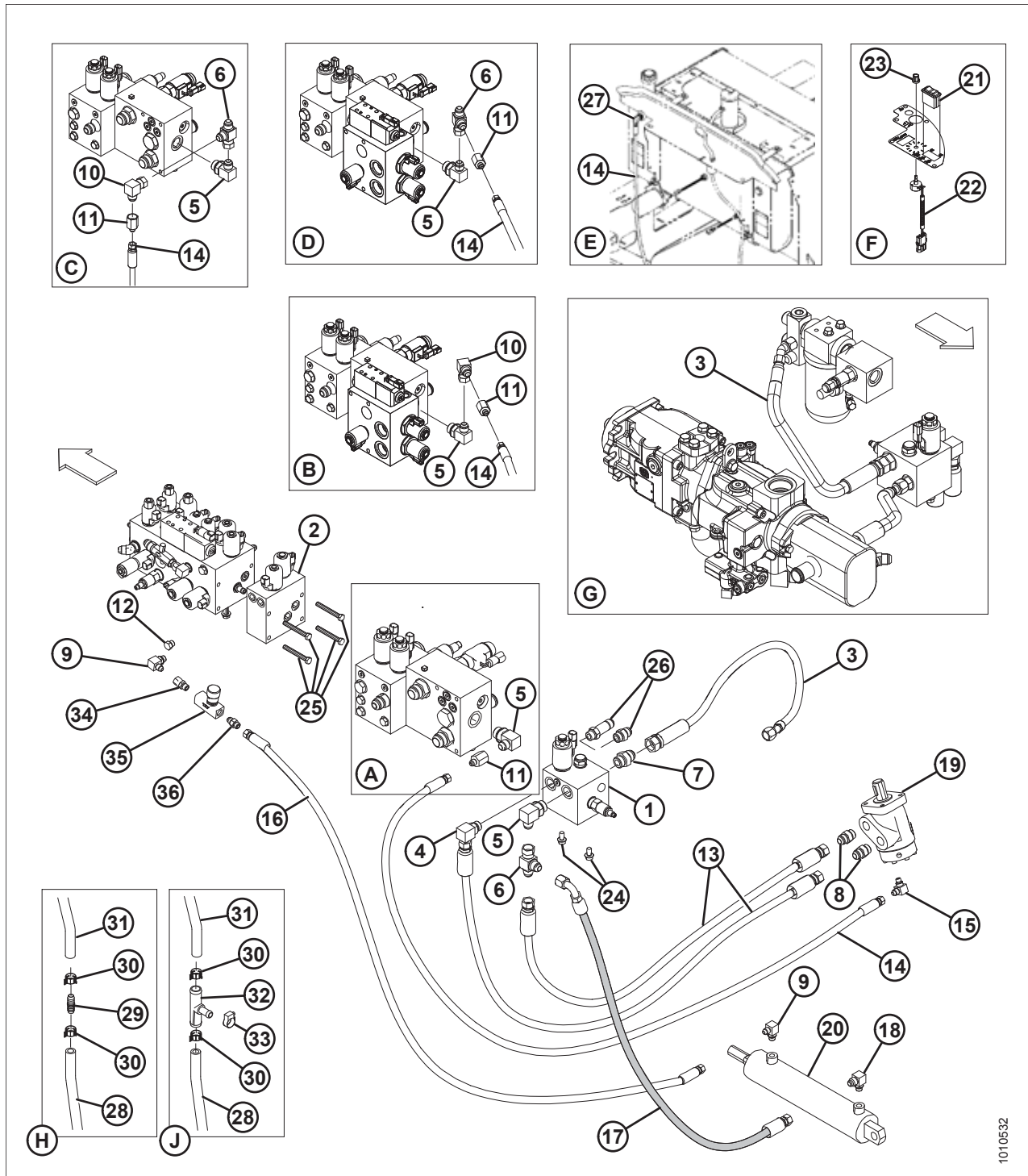
## REPAIR PARTS

Ref	Part Number	Description	Qty	Serial Number
1	139508	MANIFOLD – DWA DRIVE, SEE NEXT PAGE FOR SERVICE PARTS	1	
2	139974	VALVE BLOCK AUX LIFT, SEE NEXT PAGE FOR SERVICE PARTS <sup>7</sup>	1	
3	144807	HOSE – HYDRAULIC	1	
4	21843	FITTING – ELBOW 90° HYDRAULIC	1	
5	50221	FITTING – ELBOW 90° HYDRAULIC	2	
6	50102	FITTING – HYDRAULIC TEE	2	
7	21830	FITTING – HYDRAULIC CONNECTOR	1	
8	30695	FITTING – HYDRAULIC CONNECTOR	2	
9	30282	FITTING – ELBOW 90° HYDRAULIC	2	
10	30556	FITTING – ELBOW 90° HYDRAULIC	1	
11	118084	FTG – HYDRAULIC REDUCER	1	
12	30994	PLUG – HEX CW O-RING	2	
13	132867	HOSE – HYDRAULIC	2	
14	176077	HOSE – HYDRAULIC	1	
15	50104	FITTING – ELBOW 90° HYDRAULIC	1	
16	144805	HOSE – HYDRAULIC	1	
17	144806	HOSE – HYDRAULIC	1	
18	21805	FITTING – ELBOW HYDRAULIC	1	
19	REF	MOTOR – SEE DRAPER AND DECK		
20	REF	CYLINDER – SEE DECK SUPPORTS AND LINKAGE		
21	109575	SWITCH – ROCKER, MOM-OFF-MOM	1	
22	109718	GAUGE – POTENTIOMETER	1	
23	138691	KNOB – SPEED CONTROL	1	
24	21821	BOLT – HH FLG (SERR FACE) 3/8 NC x 0.75 GR 5 ZP	2	

7. Refer to service bulletin SB #1210 regarding software update required.

## REPAIR PARTS

Figure 5.8: Hydraulics and In-Cab Electrical



1010532

- A - M150/M200 A Series Or R Series: Case Drain
- C - M150/M200 D Series: Case Drain
- E - M155/M155E4/M205: Case Drain
- G - M150/M200 Shown (5 Series Similar)
- J - Optional M155/M155E4/M205

- B - M150/M200 A Series With Reverser: Case Drain
- D - M150/M200 D Series With Reverser: Case Drain
- F - In-Cab Electrical
- H - Optional M200 Only

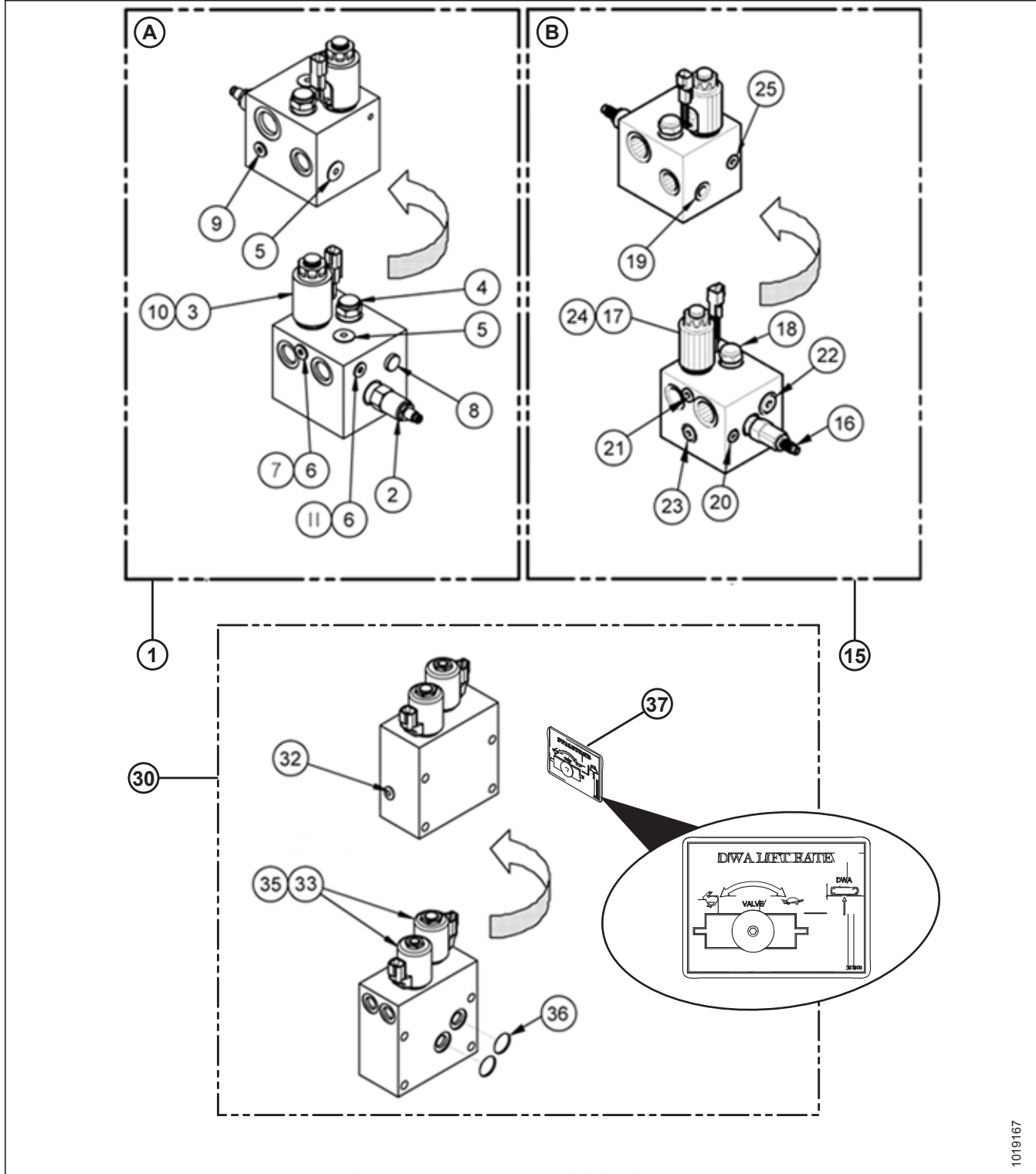
## REPAIR PARTS

Ref	Part Number	Description	Qty	Serial Number
25	21568	BOLT – HH 3/8 NC x 3.0 LG – UNITS WITH 1 AUX. DRIVE BLOCK	4	
	10948	BOLT – HH 3/8 NC x 5.5 LG – UNITS WITH 2 AUX. DRIVE BLOCKS	4	
26	30695	FITTING – CONNECTOR HYDRAULIC – M150 / M200 WINDROWERS	1	
	135848	FITTING – ADAPTER, LONG – M155 / M205 WINDROWERS	1	
27	135352	FITTING – ELBOW 90° HYDRAULIC – M155 / M205 WINDROWERS	1	
28	110764	HOSE – 5/8 I.D. – EXTENSION FOR TANK BREATHER/OVERFLOW HOSE. PREVENTS OVERFLOW FLUID DROPPING ONTO DWA DRAPER DECK	1	
29	176069	FITTING – JOINTER, PLASTIC – 5/8 HEATER HOSE – M200 ONLY	1	
31	REF	HOSE – HYDRAULIC OIL TANK BREATHER/OVERFLOW		
32	134055	FITTING – PLASTIC TEE – M155/M205	1	
33	30500	CLAMP – HOSE GEAR TYPE, 6/16 RANGE	1	
34	135015	FITTING – ADAPTER – HYDRAULIC	1	
35	183211	VALVE	1	
36	15903	FITTING – CONNECTOR – HYDRAULIC	1	

## 5.6 Hydraulic Service Components

This section details the parts which can be used to repair the hydraulic system on a Double Windrow Attachment (DWA) on an M series windrower.

Figure 5.9: Hydraulic Service Components



A - Eaton MCD-8286, Serial No. 207009 and Below

B - Eaton 630AA00821A, Serial No. 207010 and Above

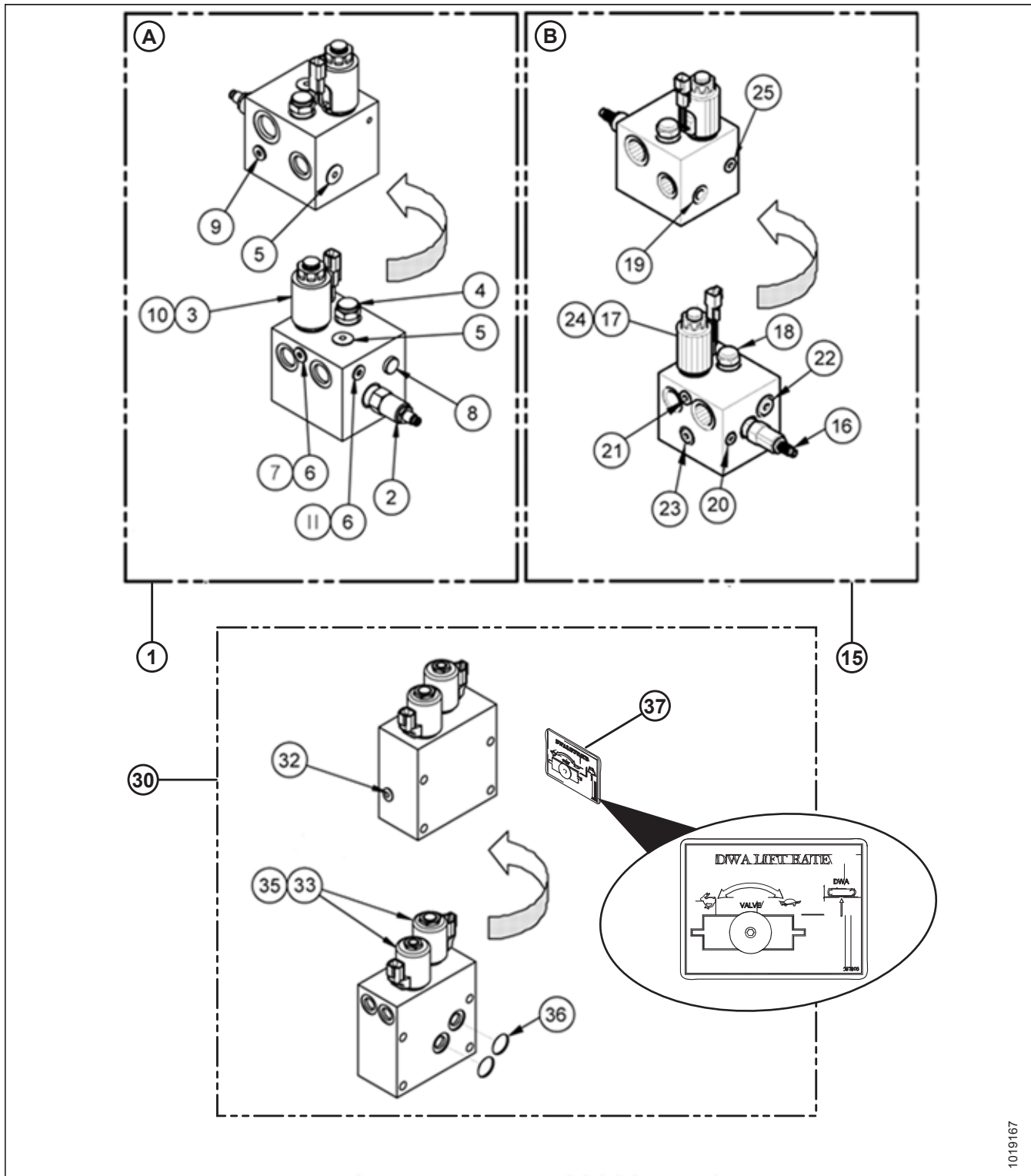


# REPAIR PARTS

Ref	Part Number	Description	Qty	Serial Number
1	Not Avail.	MANIFOLD – DWA DRIVE, TO REPLACE COMPLETE UNIT ORDER 139508	1	207009 AND EARLIER
	49846	SEAL KIT		
2	162285	VALVE – RELIEF	1	
3	163166	CONTROL – PROPORTIONAL FLOW	1	
4	162283	VALVE – DIFF. PRESS SENSING	1	
	162284	SEAL KIT #10 3 WAY – SHORT	1	
5	163159	FITTING – ZERO LEAK GOLD, 3/4-16	2	
6	163156	FITTING – ZERO LEAK GOLD, 9/16-18	2	
7	163168	PLUG – ORIFICE	1	
8	158174	PLUG – HEX SOCKET C/W O-RING	1	
9	163149	FITTING – ZERO LEAK GOLD, 1/2-20	1	
10	163173	COIL – ASSEMBLY	1	
	163178	SEAL KIT	1	
11	162287	PLUG – ORIFICE	1	

## REPAIR PARTS

Figure 5.10: Hydraulic Service Components



A - Eaton MCD-8286, Serial No. 207009 and Below

B - Eaton 630AA00821A, Serial No. 207010 and Above

# REPAIR PARTS

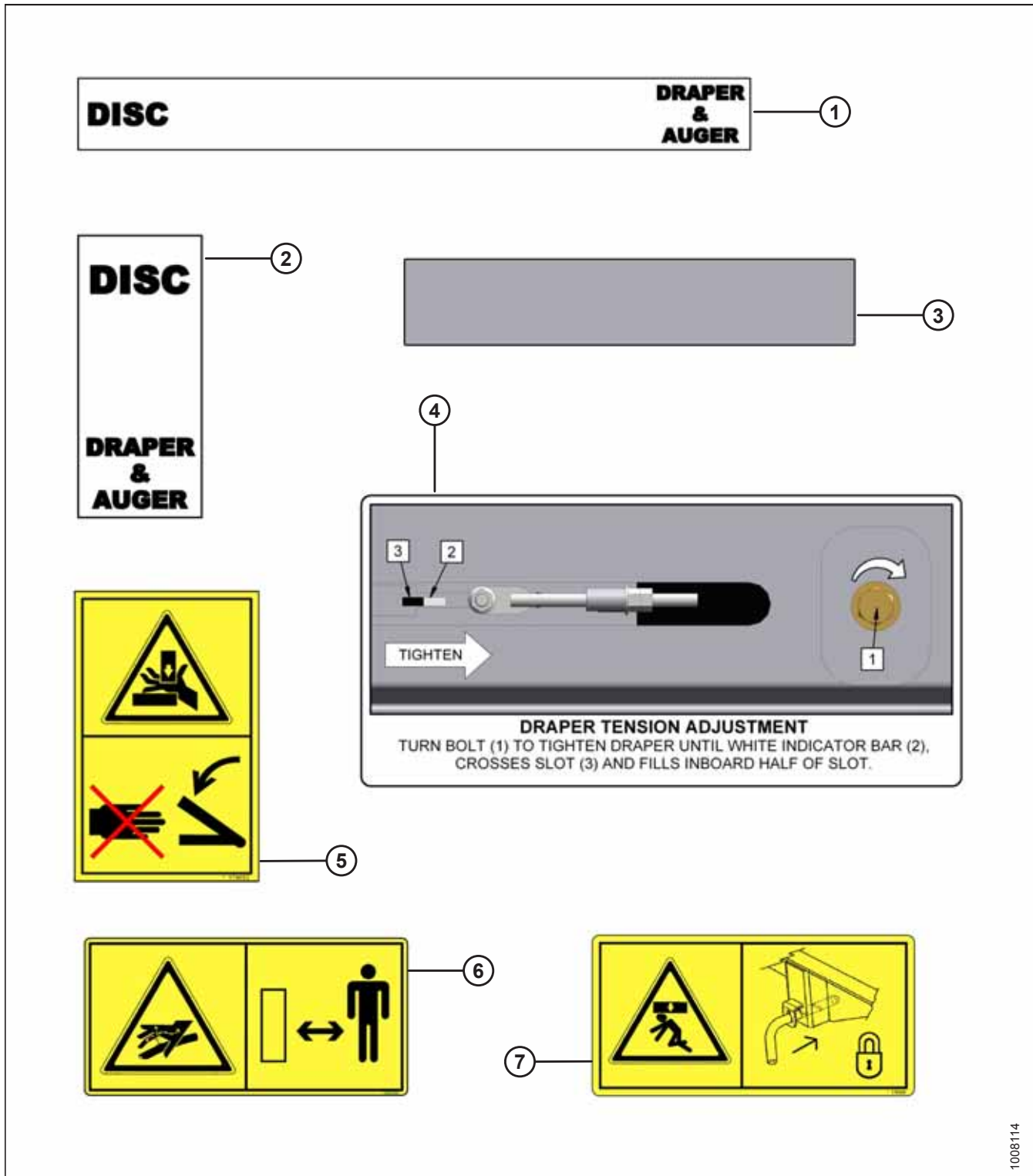
Ref	Part Number	Description	Qty	Serial Number
15	139508	MANIFOLD – DWA DRIVE	1	207010 and later
	49846	SEAL KIT		
	100577	PLUG – HEX SOCKET C/W O-RING, 9/16-18		
16	139542	VALVE – RELIEF	1	
17	163166	CONTROL – PROPORTIONAL FLOW	1	
18	162283	VALVE – DIFF. PRESS. SENSING	1	
	162284	SEAL KIT #10 3 WAY - SHORT		
19	163159	FITTING – ZERO LEAK GOLD, 3/4-16	2	
20	163167	SENSE CHECK KIT	1	
21	163168	PLUG – ORIFICE	1	
22	158174	PLUG – HEX SOCKET C/W O-RING	1	
23	163149	FITTING – ZERO LEAK GOLD, 1/2-20	1	
24	163173	COIL – ASSEMBLY	1	
	163178	SEAL KIT		
25	162287	PLUG – ORIFICE	1	
30	139974	VALVE BLOCK AUX LIFT <sup>8</sup>	1	
32	163156	FITTING – ZERO LEAK GOLD	1	
33	163143	VALVE – SOLENOID (INCLUDES NUT 163191)	2	
	163191	NUT – SPECIAL		
	163160	SEAL KIT	2	
35	163154	COIL – TOUGH	2	
36	163184	O-RING	2	
37	167903	DECAL – LIFT RATE	1	

8. Refer to service bulletin SB#1210 regarding a necessary windrower software update.

## 5.7 Decals

This section lists the safety decals on a Double Windrow Attachment (DWA) on an M series windrower.

Figure 5.11: Decals

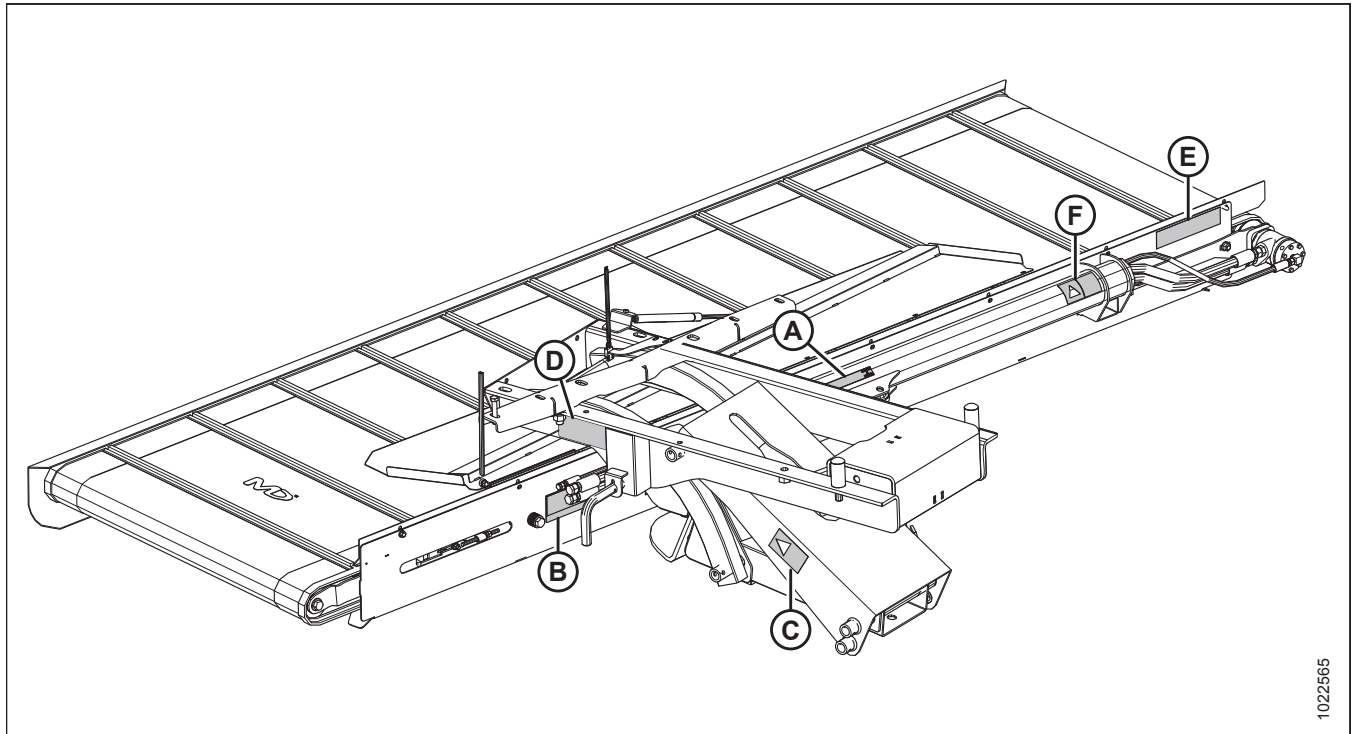


## REPAIR PARTS

Ref	Part Number	DESCRIPTION	Qty	Serial Number
1	176767	DECAL – HEADER POSITION, HORIZONTAL FORMAT	3	
2	176768	DECAL – HEADER POSITION, VERTICAL FORMAT	1	
3	115146	REFLECTOR – AMBER	1	
	115145	REFLECTOR – FLUORESCENT RED-ORANGE	1	
	115147	REFLECTOR – RED	1	
4	220084	DECAL – DRAPER TENSION	1	
5	174683	DECAL – WARNING DWA LINKAGE PINCH POINT, 2 PANEL	2	
6	166466	DECAL – WARNING, HIGH PRESSURE HYDRAULICS, 2 PANEL	1	
7	176295	DECAL – DECK LIFT LOCK	1	

### 5.7.1 Decal and Reflector Locations

Ensure that replacement decals are installed in the proper location on a Double Windrow Attachment (DWA) on an M series windrower.



**Figure 5.12: Decal and Reflector Locations**

A - MD #176071 – Header Position, Horizontal

B - MD #220084 – Draper Tension

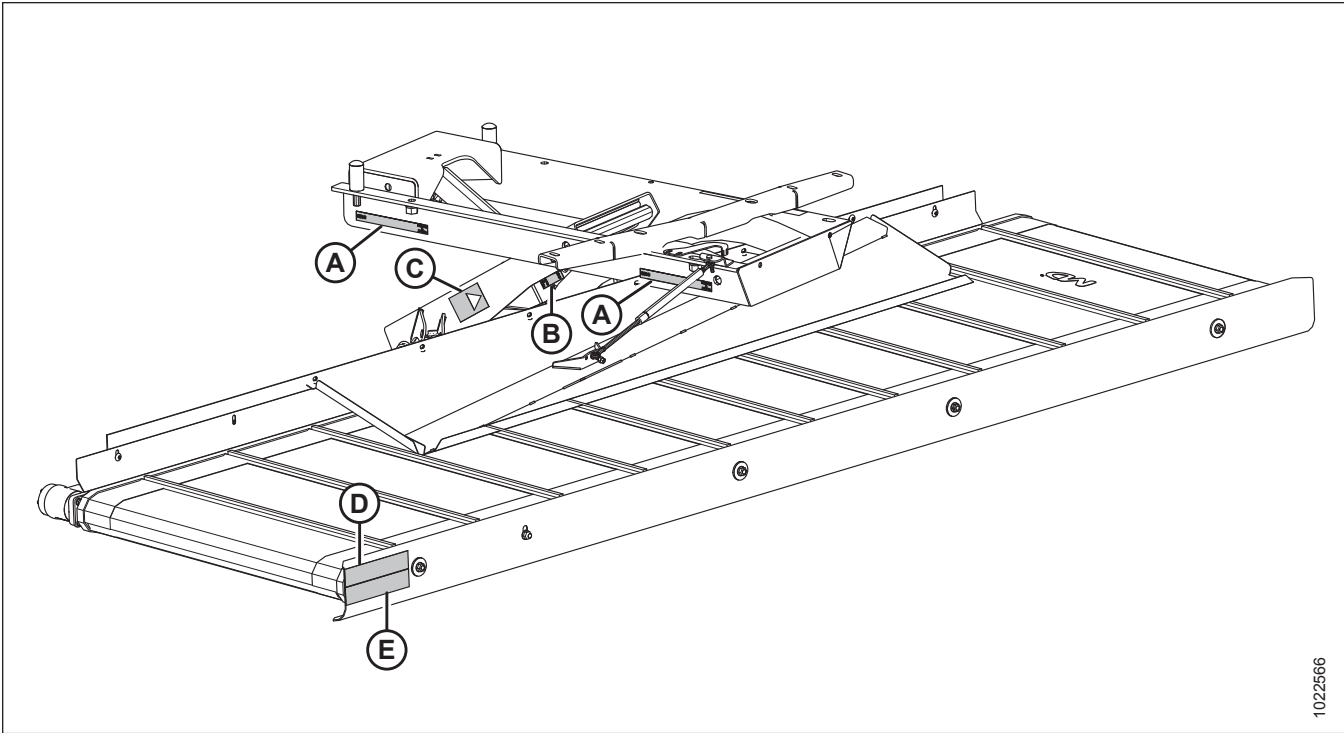
C - MD #174683 – DWA Linkage Pinch Point

D - MD #176295 – Deck Lift Lock

E - MD #115146 – Reflector, Amber

F - MD #166466 – High Pressure Hydraulics

## REPAIR PARTS



**Figure 5.13: Decal and Reflector Locations**

A - MD #176071 – Header Position, Horizontal

B - MD #176072 – Header Position, Vertical

C - MD #174683 – DWA Linkage Pinch Point

D- MD #115147 – Reflector, Red

E - MD #115145 – Reflector, Fluorescent Red-Orange

## Chapter 6: Reference

The reference chapter provides additional information such as lubricants, fluids, and system capacities, fuel and torque specifications, a unit conversion chart, and a list of acronyms, abbreviations, and terms used in this publication.

### 6.1 Torque Specifications

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

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

#### *Jam nuts*

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

#### *Self-tapping screws*

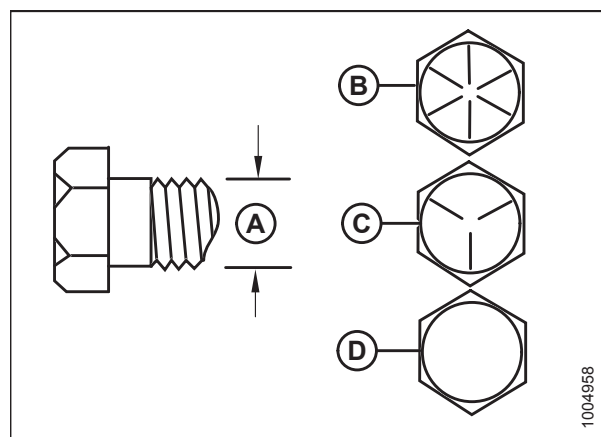
Standard torque is to be used (**NOT** to be used on critical or structurally important joints).

#### 6.1.1 SAE Bolt Torque Specifications

Torque values shown in following tables are valid for non-greased, or non-oiled threads and heads; therefore, do **NOT** grease or oil bolts or cap screws unless otherwise specified in this manual.

**Table 6.1 SAE Grade 5 Bolt and Grade 5 Free Spinning Nut**

Nominal Size (A)	Torque (Nm)		Torque (lbf-ft) (*lbf-in)	
	Min.	Max.	Min.	Max.
1/4-20	11.9	13.2	*106	*117
5/16-18	24.6	27.1	*218	*241
3/8-16	44	48	32	36
7/16-14	70	77	52	57
1/2-13	106	118	79	87
9/16-12	153	170	114	126
5/8-11	212	234	157	173
3/4-10	380	420	281	311
7/8-9	606	669	449	496
1-8	825	912	611	676



**Figure 6.1: Bolt Grades**

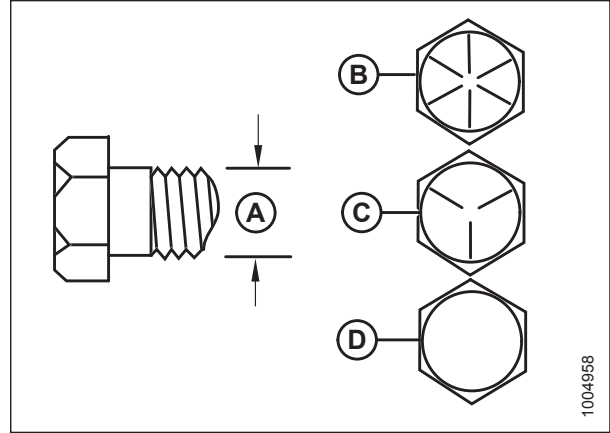
A - Nominal Size  
C - SAE-5

B - SAE-8  
D - SAE-2

## REFERENCE

**Table 6.2 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



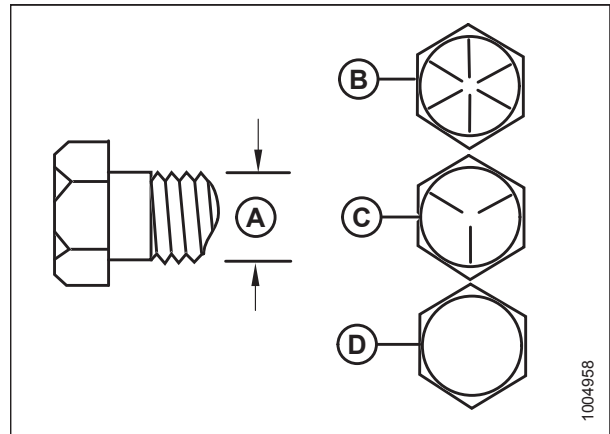
**Figure 6.2: Bolt Grades**

A - Nominal Size  
C - SAE-5

B - SAE-8  
D - SAE-2

**Table 6.3 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 6.3: Bolt Grades**

A - Nominal Size  
C - SAE-5

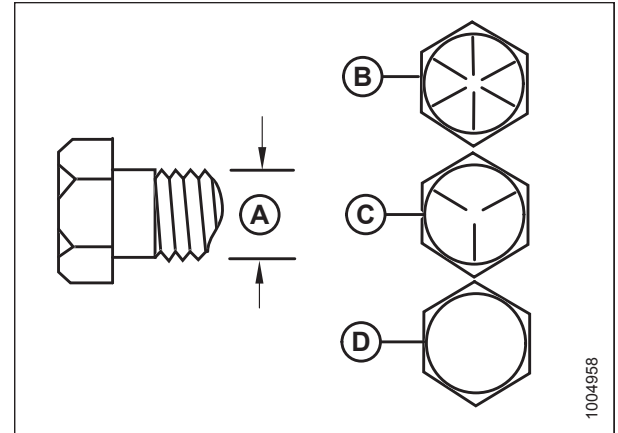
B - SAE-8  
D - SAE-2



## REFERENCE

**Table 6.4 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 6.4: Bolt Grades**

A - Nominal Size  
C - SAE-5

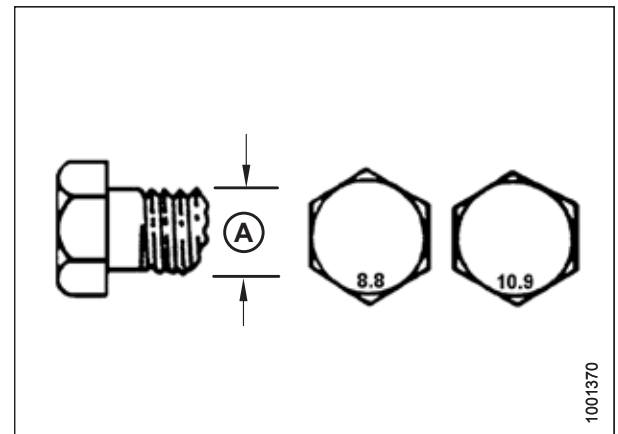
B - SAE-8  
D - SAE-2

### 6.1.2 Metric Bolt Specifications

Torque values shown in following tables are valid for non-greased, or non-oiled threads and heads; therefore, do **NOT** grease or oil bolts or cap screws unless otherwise specified in this manual.

**Table 6.5 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

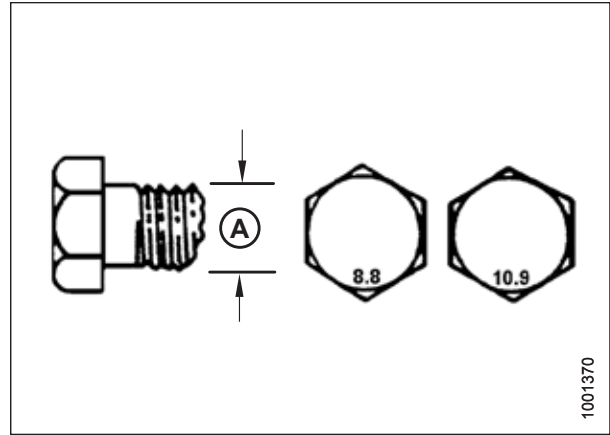


**Figure 6.5: Bolt Grades**

## REFERENCE

**Table 6.6 Metric Class 8.8 Bolts and Class 9 Distorted Thread Nut**

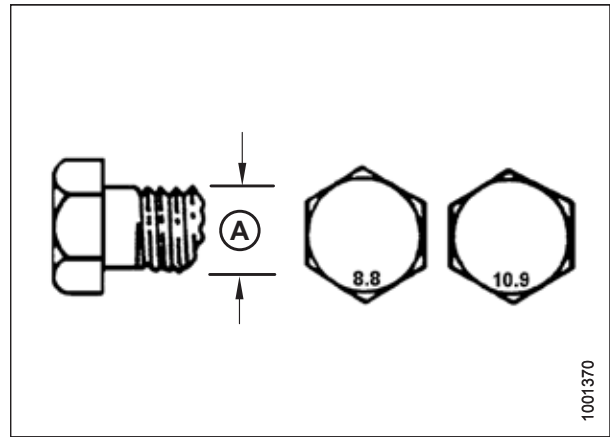
Nominal Size (A)	Torque (Nm)		Torque (lbf·ft) (*lbf·in)	
	Min.	Max.	Min.	Max.
3-0.5	1	1.1	*9	*10
3.5-0.6	1.5	1.7	*14	*15
4-0.7	2.3	2.5	*20	*22
5-0.8	4.5	5	*40	*45
6-1.0	7.7	8.6	*69	*76
8-1.25	18.8	20.8	*167	*185
10-1.5	37	41	28	30
12-1.75	65	72	48	53
14-2.0	104	115	77	85
16-2.0	161	178	119	132
20-2.5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



**Figure 6.6: Bolt Grades**

**Table 6.7 Metric Class 10.9 Bolts and Class 10 Free Spinning Nut**

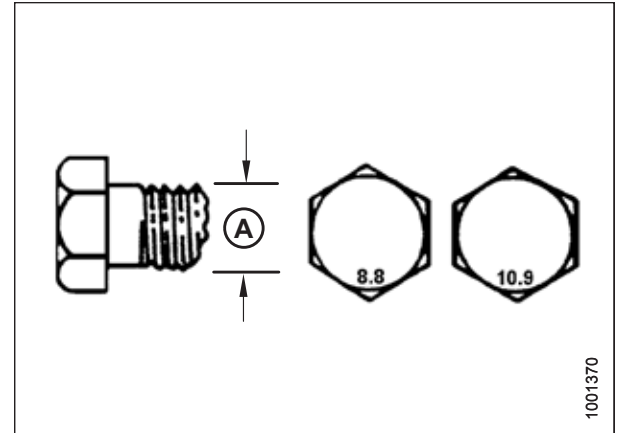
Nominal Size (A)	Torque (Nm)		Torque (lbf·ft) (*lbf·in)	
	Min.	Max.	Min.	Max.
3-0.5	1.8	2	*18	*19
3.5-0.6	2.8	3.1	*27	*30
4-0.7	4.2	4.6	*41	*45
5-0.8	8.4	9.3	*82	*91
6-1.0	14.3	15.8	*140	*154
8-1.25	38	42	28	31
10-1.5	75	83	56	62
12-1.75	132	145	97	108
14-2.0	210	232	156	172
16-2.0	326	360	242	267
20-2.5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



**Figure 6.7: Bolt Grades**

**Table 6.8 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



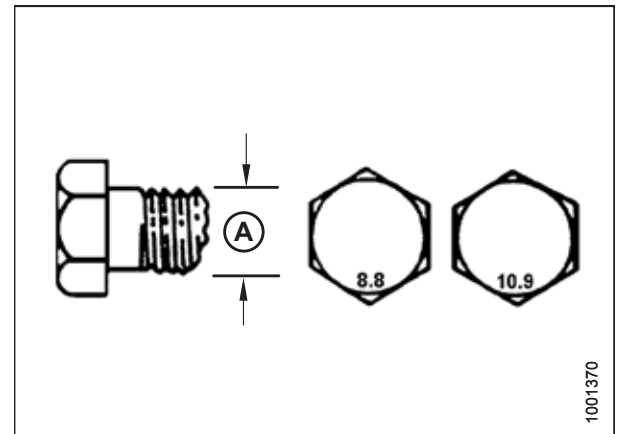
**Figure 6.8: Bolt Grades**

### 6.1.3 Metric Bolt Specifications Bolting into Cast Aluminum

Torque values shown in following tables are valid for non-greased, or non-oiled threads and heads; therefore, do **NOT** grease or oil bolts or cap screws unless otherwise specified in this manual.

**Table 6.9 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 6.9: Bolt Grades**

### 6.1.4 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 6.10, page 114.
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.

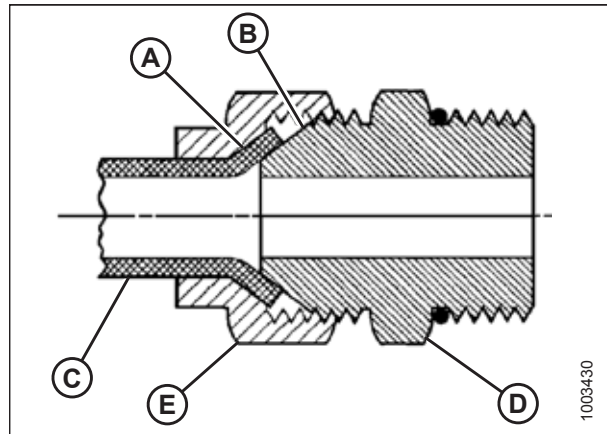


Figure 6.10: Hydraulic Fitting

Table 6.10 Flare-Type Hydraulic Tube Fittings

SAE Dash Size	Thread Size (in.)	Torque Value <sup>9</sup>		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

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

### 6.1.5 O-Ring Boss Hydraulic Fittings – Adjustable

Torque values are shown in following table below.

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

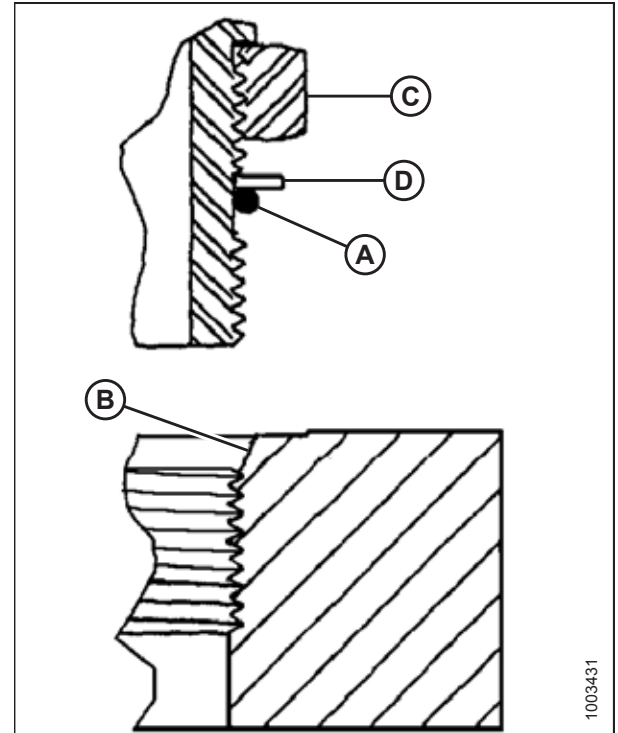


Figure 6.11: Hydraulic Fitting

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

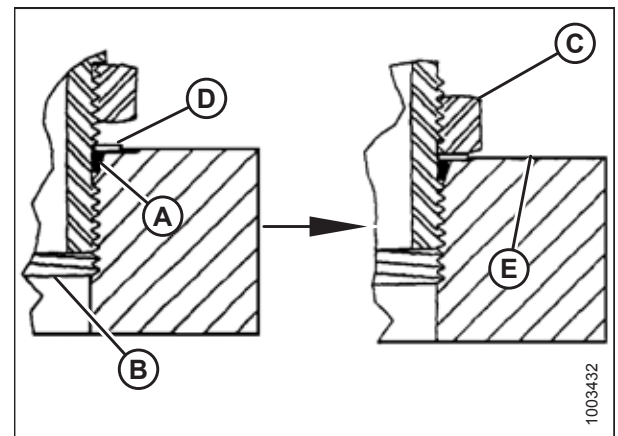


Figure 6.12: Hydraulic Fitting

## REFERENCE

**Table 6.11 O-Ring Boss (ORB) Hydraulic Fittings – Adjustable**

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

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

### 6.1.6 O-Ring Boss Hydraulic Fittings – Non-Adjustable

Torque values are shown in following table below.

1. Inspect O-ring (A) and seat (B) for dirt or obvious defects.
2. Check that O-ring (A) is **NOT** on the threads and adjust if necessary.
3. Apply hydraulic system oil to the O-ring.
4. Install fitting (C) into port until the fitting is hand-tight.
5. Torque fitting (C) according to values in Table 6.12, page 117.
6. Check the final condition of the fitting.

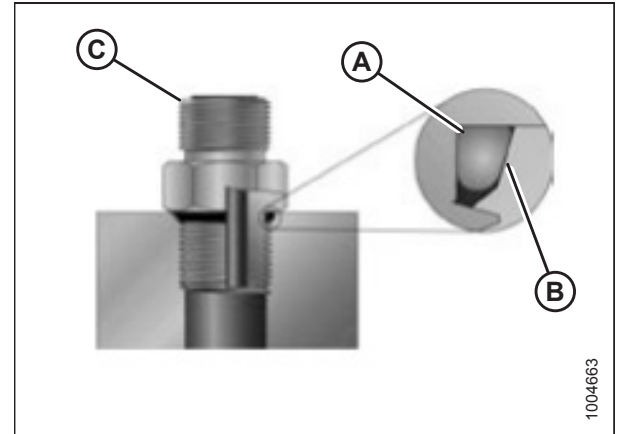


Figure 6.13: Hydraulic Fitting

Table 6.12 O-Ring Boss (ORB) Hydraulic Fittings – Non-Adjustable

SAE Dash Size	Thread Size (in.)	Torque Value <sup>11</sup>	
		Nm	lbf·ft (*lbf·in)
-2	5/16-24	6-7	*53-62
-3	3/8-24	12-13	*106-115
-4	7/16-20	19-21	14-15
-5	1/2-20	21-33	15-24
-6	9/16-18	26-29	19-21
-8	3/4-16	46-50	34-37
-10	7/8-14	75-82	55-60
-12	1 1/16-12	120-132	88-97
-14	1 3/8-12	153-168	113-124
-16	1 5/16-12	176-193	130-142
-20	1 5/8-12	221-243	163-179
-24	1 7/8-12	270-298	199-220
-32	2 1/2-12	332-365	245-269

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

## 6.1.7 O-Ring Face Seal Hydraulic Fittings

Torque values are shown in following table below.

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



Figure 6.14: Hydraulic Fitting

2. Apply hydraulic system oil to O-ring (B).
3. Align the tube or hose assembly so that the flat face of sleeve (A) or (C) comes in full contact with O-ring (B).
4. Thread tube or hose nut (D) until it is hand-tight. The nut should turn freely until it is bottomed out.
5. Torque the fittings according to values in Table 6.13, page 118.

**NOTE:**

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

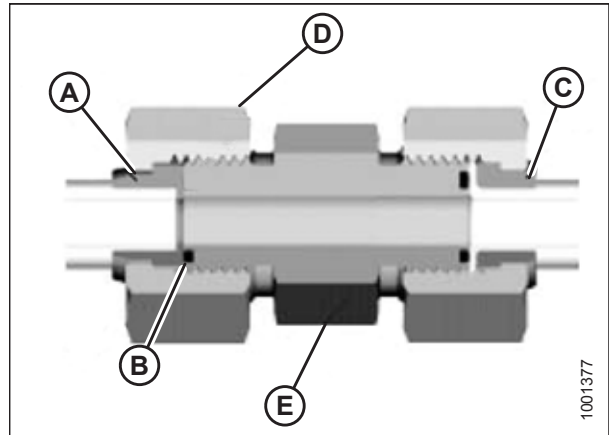


Figure 6.15: Hydraulic Fitting

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

**Table 6.13 O-Ring Face Seal (ORFS) Hydraulic Fittings**

SAE Dash Size	Thread Size (in.)	Tube O.D. (in.)	Torque Value <sup>12</sup>	
			Nm	lbf·ft
-3	Note <sup>13</sup>	3/16	–	–
-4	9/16	1/4	25–28	18–21
-5	Note <sup>13</sup>	5/16	–	–
-6	11/16	3/8	40–44	29–32
-8	13/16	1/2	55–61	41–45

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

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



## REFERENCE

**Table 6.13 O-Ring Face Seal (ORFS) Hydraulic Fittings (continued)**

SAE Dash Size	Thread Size (in.)	Tube O.D. (in.)	Torque Value <sup>14</sup>	
			Nm	lbf·ft
-10	1	5/8	80–88	59–65
-12	1 3/16	3/4	115–127	85–94
-14	Note <sup>13</sup>	7/8	–	–
-16	1 7/16	1	150–165	111–122
-20	1 11/16	1 1/4	205–226	151–167
-24	1–2	1 1/2	315–347	232–256
-32	2 1/2	2	510–561	376–414

### 6.1.8 Tapered Pipe Thread Fittings

Torque values are shown in following table below.

Assemble pipe fittings as follows:

1. Check components to ensure that the fitting and port threads are free of burrs, nicks, scratches, and any form of contamination.
2. Apply pipe thread sealant (paste type) to the external pipe threads.
3. Thread the fitting into the port until it is hand-tight.
4. Torque the connector to the appropriate torque angle. The turns from finger tight (TFFT) and flats from finger tight (FFFT) values are shown in Table 6.14, page 119. Make sure that the tube end of a shaped connector (typically 45° or 90°) is aligned to receive the incoming tube or hose assembly. Always finish alignment of fitting in the direction of tightening. Never back off (loosen) the pipe threaded connectors to achieve alignment.
5. Clean all the residue and any excess thread conditioner with an appropriate cleaner.
6. Assess the final condition of the fitting. Pay special attention to the possibility of cracks to port opening.
7. Mark the final position of the fitting. If a fitting leaks, disassemble the fitting and check it for damage.

**NOTE:**

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

**Table 6.14 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

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

## REFERENCE

**Table 6.14 Hydraulic Fitting Pipe Thread (continued)**

<b>Tapered Pipe Thread Size</b>	<b>Recommended TFFT</b>	<b>Recommended FFFT</b>
1–1 1/2	1.5–2.5	9–15
1 1/4–1 1/2	1.5–2.5	9–15
1 1/2–1 1/2	1.5–2.5	9–15
2–1 1/2	1.5–2.5	9–15

## 6.2 Conversion Chart

Both SI units (including metric) and US customary units (sometimes referred to as standard units) of measurement are used in this manual. A list of those units along with their abbreviations and conversion factors is provided here for your reference.

**Table 6.15 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 <sup>3</sup> or cc	$\times 0.061 =$	cubic inch	in. <sup>3</sup>
Weight	kilogram	kg	$\times 2.2046 =$	pound	lb.



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# Predelivery Checklist

Perform these checks and adjustments prior to delivery to your Customer. The completed checklist should be retained by either the Operator or the Dealer.



## CAUTION

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

DWA Serial Number:

✓	Item	Reference
	Check for shipping damage or missing parts. Be sure all shipping material is removed.	—
	Check for loose hardware. Tighten to required torque.	<a href="#">6.1 Torque Specifications, page 109</a>
	Check that shipping stands have been correctly removed from the DWA deck.	<a href="#">2.5 Installing Deck, page 30</a>
	Check and adjust front skid to correct height above the draper. Tighten securing nuts.	<a href="#">4.1.4 Adjusting Front Skid, page 74</a>
	Check and adjust rear deflector to correct height above the draper. Tighten securing nuts.	<a href="#">4.1.5 Adjusting Rear Deflector, page 75</a>
	Check external draper roller seal condition. Seal should be secure and without gaps.	<a href="#">4.1.6 Maintaining Draper Rollers, page 77</a>
	Check that deck and linkage pivot points are properly greased.	<a href="#">4.2 Lubrication, page 81</a>

Date Checked:

Checked by:







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