

# **M1240**

# **Self-Propelled Windrower**

Unloading and Assembly Instructions (North America)

214056 Revision A  
2017 Model Year  
Original Instruction

M1240 Self-Propelled Windrower, featuring Dual Direction® and Crossflex™ rear suspension



1016391

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# Introduction

This manual contains unloading, assembly, and predelivery information for the MacDon M1240 Self-Propelled Windrower, which when coupled with one of MacDon's auger or draper headers, provides a package designed to cut and lay a variety of grain, hay, and specialty crops in windrows.

The M1240 Windrower is Dual Direction<sup>®</sup>, meaning that the windrower can be driven in the cab-forward or the engine-forward mode. Right and left designations are determined by the operator's position facing the direction of travel. This manual uses the terms "right cab-forward", "left cab-forward", "right engine-forward", and "left engine-forward" when referencing specific locations on the machine.

The ignition keys were shipped with the shipping documents and are used to lock the cab doors and tool box compartment.

**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).





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# 1 Safety

## 1.1 Signal Words

Three signal words, **DANGER**, **WARNING**, and **CAUTION**, are used to alert you to hazardous situations. The appropriate signal word for each situation has been selected using the following guidelines:

### **DANGER**

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

### **WARNING**

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

### **CAUTION**

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

## 1.2 General Safety

### CAUTION

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

Protect yourself.

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

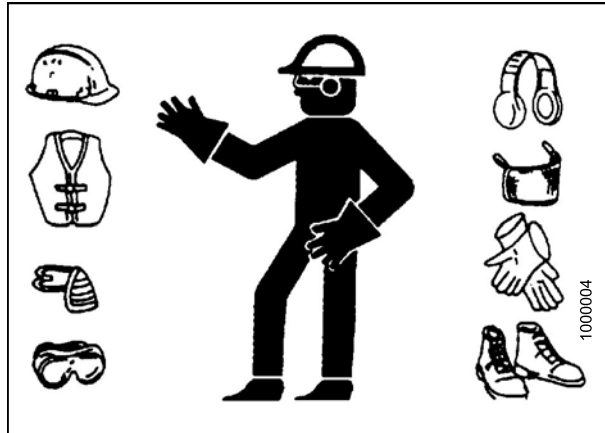


Figure 1.1: Safety Equipment



Figure 1.2: Safety Equipment

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

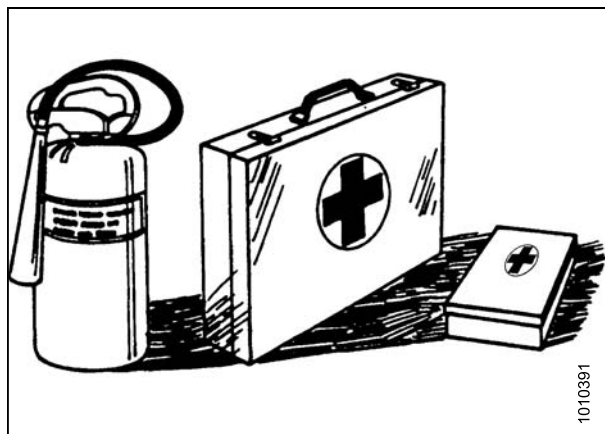


Figure 1.3: Safety Equipment

## SAFETY

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



Figure 1.4: Safety around Equipment

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

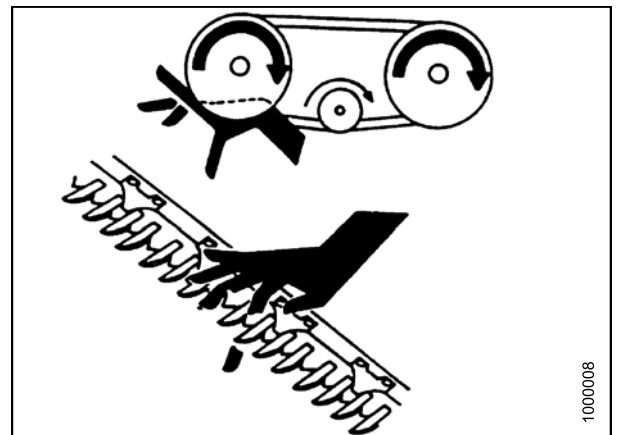


Figure 1.5: Safety around Equipment

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



Figure 1.6: Safety around Equipment

## 1.3 Battery Safety

### WARNING

- Keep all sparks and flames away from batteries, as a gas given off by electrolyte is explosive.
- Ventilate when charging in enclosed space.



Figure 1.7: Safety around Batteries

### WARNING

- Wear safety glasses when working near batteries.
- Do NOT tip batteries more than 45° to avoid electrolyte loss.
- Battery electrolyte causes severe burns. Avoid contact with skin, eyes, or clothing.
- Electrolyte splashed into eyes is extremely dangerous. Should this occur, force eye open, and flood with cool, clean water for five minutes. Call a doctor immediately.
- If electrolyte is spilled or splashed on clothing or body, neutralize it immediately with a solution of baking soda and water, then rinse with clear water.

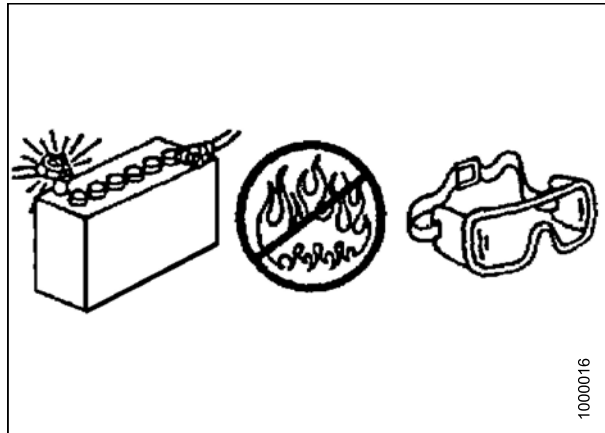


Figure 1.8: Safety around Batteries

### WARNING

- To avoid injury from spark or short circuit, disconnect battery ground cable before servicing and part of electrical system.
- Do NOT operate engine with alternator or battery disconnected. With battery cables disconnected and engine running, a high voltage can be built up if terminals touch frame. Anyone touching frame under these conditions would be severely shocked.
- When working around storage batteries, remember that all of the exposed metal parts are live. Never lay a metal object across terminals because a spark or short circuit will result.
- Keep batteries out of reach of children.

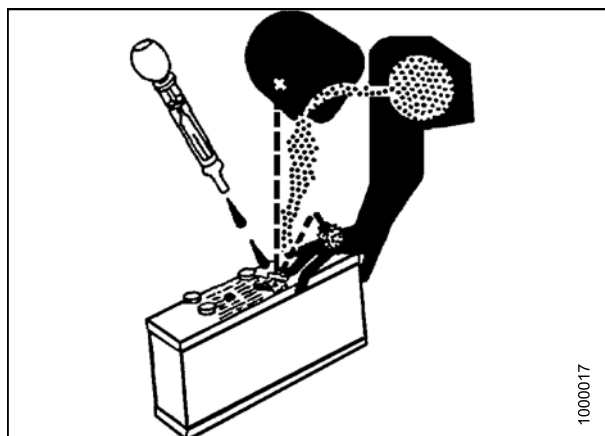


Figure 1.9: Safety around Batteries

## 1.4 Safety Signs

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

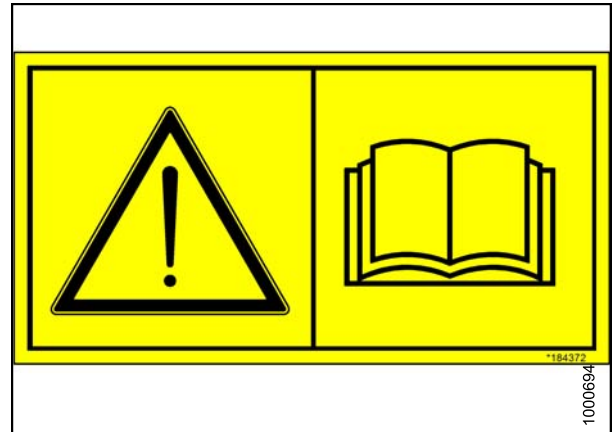


Figure 1.10: Operator's Manual Decal





## 2 Unloading the Windrower

### 2.1 Using One Forklift to Unload Windrower

#### CAUTION

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

Table 2.1 Lifting Vehicle Requirements

Minimum Capacity <sup>1</sup>	7037 kg (15,500 lb.)
Minimum Fork Length	198.1 cm (78 in.)

#### IMPORTANT:

Forklifts are normally rated for a load located 610 mm (24 in.) ahead of the back end of the forks. To obtain forklift capacity at 122.2 cm (48 in.), check with your forklift distributor.

1. Move the trailer onto level ground and block the trailer wheels.
2. Set forklift tines to the widest possible setting.

#### CAUTION

Ensure forks do not contact or lift on fuel tank (A) or engine oil pan (B) (not shown).

3. Position forklift on left or right side of trailer, and position forks (C) under windrower frame with the fuel tank (A) between the forks.

#### NOTE:

The windrower's center of gravity is approximately 157.5 cm (62 in.) rearwards from the center of the drive wheel.

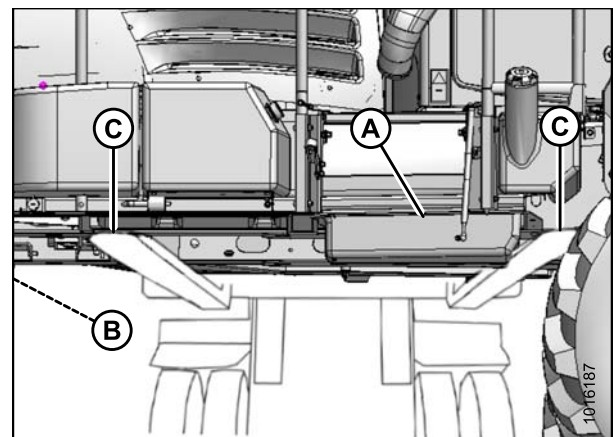


Figure 2.1: Windrower on Trailer

#### WARNING

Ensure the forks extend beyond the far side of the frame.

4. Lift until windrower is clear of the trailer deck.
5. Back forklift slowly away from trailer until the windrower is clear of the trailer deck.
6. Lower unit slowly to the ground. If the ground is soft, place wooden blocks under the front shipping stands.
7. Carefully back forklift away from windrower.
8. Check windrower for shipping damage, and check shipment for missing parts.

<sup>1</sup> At 122.2 cm (48 in.) from back end of forks.



## 3 Assembling the Windrower

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

### 3.1 Repositioning Right Leg

The right (cab-forward) leg requires repositioning from shipping to field configuration.

#### CAUTION

**Do NOT open the right cab-forward door when the right leg is in shipping configuration. If glass door contacts the leg, it may result in broken glass door and/or damaged door seal.**

1. Remove two bolts (A), washers, and nuts from frame.

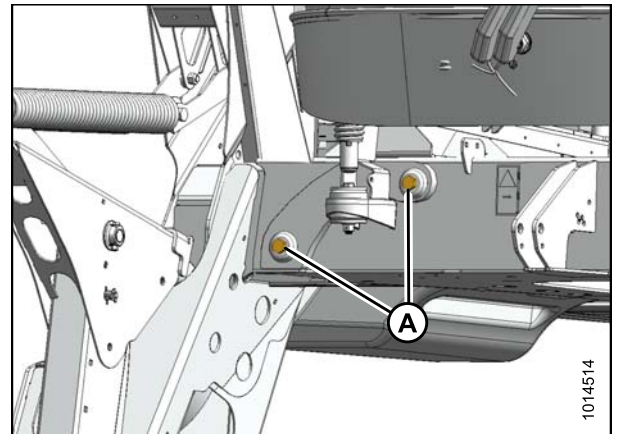


Figure 3.1: Windrower Frame

2. Support the front of the windrower with a stand (A) (or equivalent) so the right leg is off the ground.
3. Position jack (B) under the right leg and slightly raise the jack to take some weight off the leg.

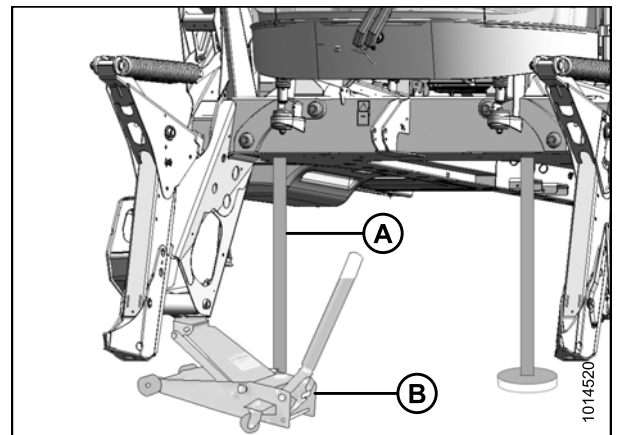


Figure 3.2: Right Leg

## ASSEMBLING THE WINDROWER

- Adjust jack height until pin (A) is loose. Extract pin from front of frame with a slide hammer (MD #209816) (B) (tool required due to limited space in front of fuel tank). Instructions are included with the tool.

**NOTE:**

Removing the pins will be difficult if the jack is not properly positioned to take the weight off the leg.

- Repeat for second pin.

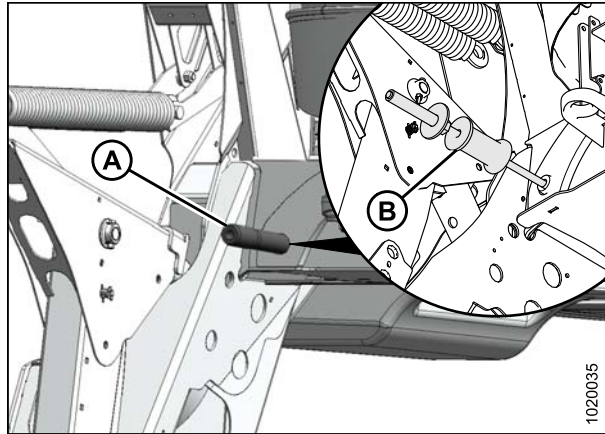


Figure 3.3: Windrower Frame

- Move leg outwards to expose one hole (A).
- Align holes at pin locations and reinstall pins (B). If necessary, tap in pin with a rubber mallet, or install bolt and washer in pin if using a metal hammer. Adjust jack to prevent damage to the outer edges of the pins.

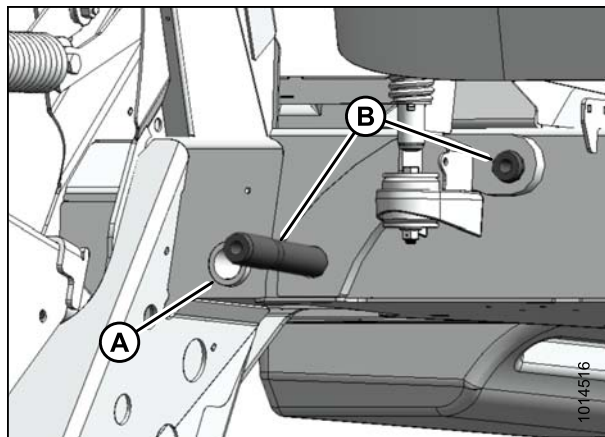


Figure 3.4: Windrower Frame

- Secure pins with bolts (A), washers, and nuts. Torque nuts to 136 N·m (100 ft·lbf).
- Lower jack and move it from work area.

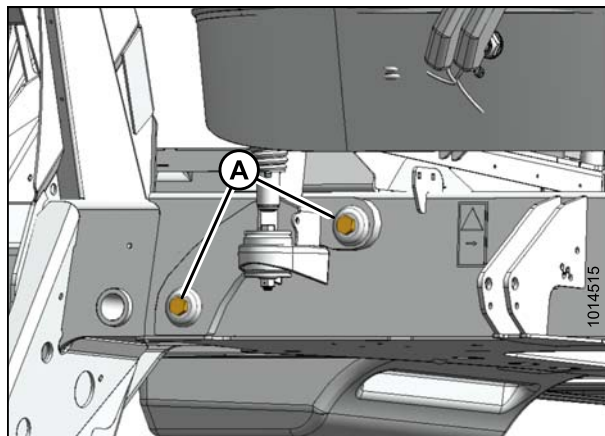


Figure 3.5: Windrower Frame

### 3.2 Installing Drive Wheels

1. Clean mount surface on wheel drive and rim.
2. Position drive wheel (A) against the wheel drive hub (B) so the air valve (C) is on the outside and the tire tread (D) points forward with the windrower in cab-forward orientation.

**NOTE:**

For turf tires (diamond tread pattern), be sure arrow on sidewall points in forward rotation with windrower in cab-forward mode.

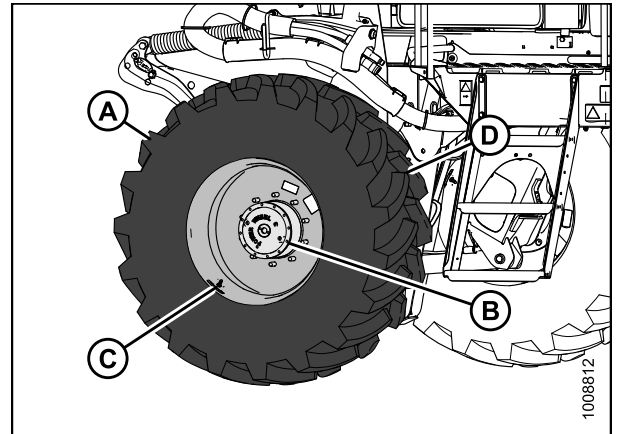


Figure 3.6: Drive Wheel Assembly

**CAUTION**

Use a lifting device capable of supporting a minimum of 907 kg (2000 lb.) to lift the wheel assembly.

3. Lift wheel onto hub using a lifting device.
4. Lower lifting device.
5. Line up the holes in the rim with the studs on the wheel drive hub and install wheel nuts (A).

**IMPORTANT:**

To avoid damage to wheel rims and studs, tighten nuts by hand. Threads must be clean and dry. Do **NOT** apply lubricant or anti-seize compound. Do **NOT** use an impact gun. Do **NOT** overtighten the wheel nuts.

6. Torque drive wheel nuts to 510 N·m (375 ft·lbf) using the tightening sequence shown.

**IMPORTANT:**

Use only manufacturer-specified nuts (MD #205397).

7. Repeat tightening sequence two additional times, ensuring the specified torque is achieved each time.
8. Repeat torque procedure every hour of operation until two consecutive checks confirm that there is no movement of the nuts.

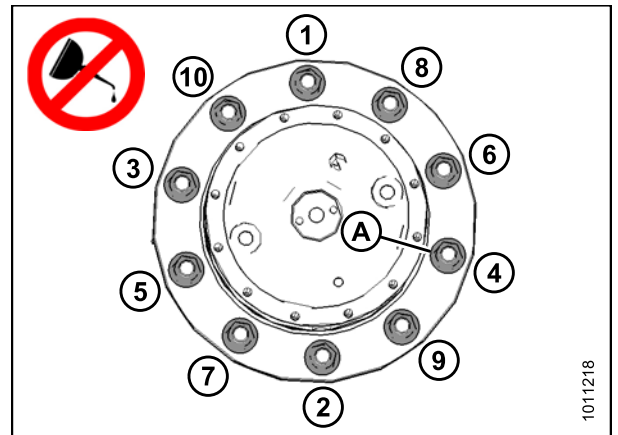


Figure 3.7: Drive Wheel Nuts

### 3.3 Installing Caster Wheels

Some shipping configurations come with caster wheels removed. Follow this procedure to install caster wheels if required.

1. Support rear of windrower on a stand so that it is approximately level. Stand must be capable of supporting a minimum of 2630 kg (5800 lb.).
2. Remove banding and blocking (A) securing walking beam to frame.

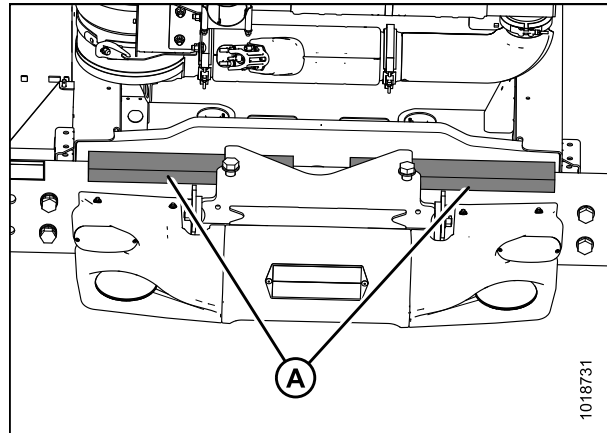


Figure 3.8: Walking Beam

3. Retrieve caster wheel assemblies (A) from shipment.
4. Remove retaining ring (B), arm (C), key (D), and one flat washer (E) from caster spindle. Leave two flat washers on spindle. Loosen nut (F) if necessary.
5. Attach a sling to caster assembly and to a suitable lifting device.

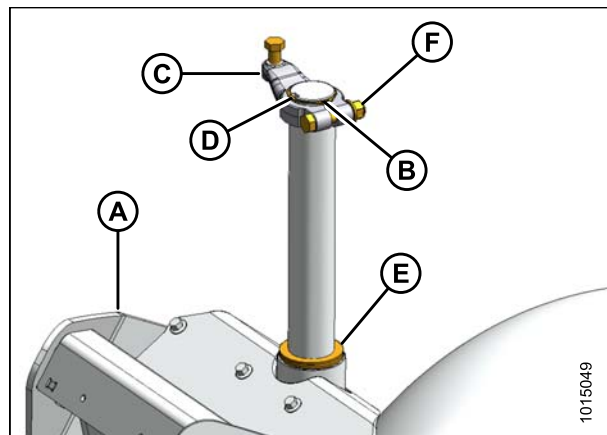


Figure 3.9: Caster

6. Tilt walking beam (A) and maneuver caster assembly (B) so that spindle can be installed onto walking beam.
7. Install the flat washer (C) onto the spindle.
8. Install arm (D) with key (E) onto spindle, ensuring that arm is positioned so there is no clearance at the top and bottom of the walking beam extension. Tighten nut (F) and torque to 190–200 N·m (140–147 ft·lbf).
9. Install retaining ring (G).
10. Remove sling from caster assembly.
11. Repeat Steps 4, page 12 to 10, page 12 for second caster assembly.

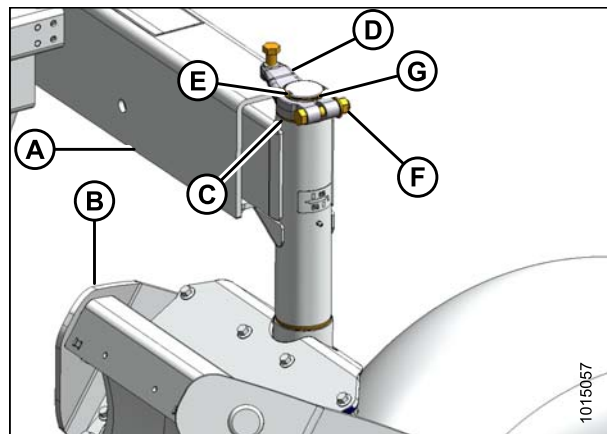


Figure 3.10: Walking Beam

### 3.4 Repositioning Walking Beam and Installing Caster Wheel Shocks

A narrow walking beam tread width is better suited for smaller headers because it allows more space for the uncut crop and provides more maneuverability around poles, irrigation inlets, and other obstacles. A wider walking beam tread width reduces runover in heavy crops that produce large windrows.

1. Support rear of windrower on a stand. Stand must be capable of supporting 2630 kg (5800 lb.).
2. Remove four bolts and washers (A), shock support brackets (B), and slow moving vehicle (SMV) sign support bracket (C) from walking beam.
3. Retain hardware and support brackets (B) and (C) for installation later.

**NOTE:**

There is one SMV support bracket (C) preinstalled on shock support brackets (B) at the left cab-forward walking beam.

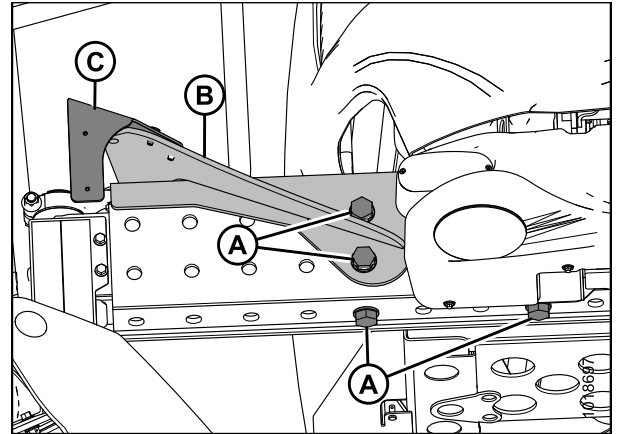


Figure 3.11: Walking Beam

4. If not done, remove banding and blocking (A) securing walking beam to frame.

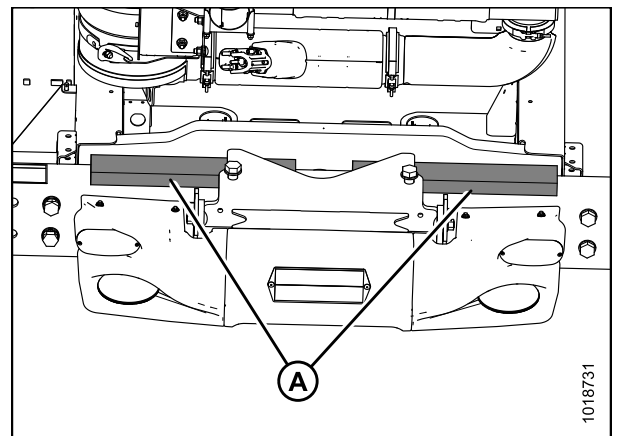


Figure 3.12: Walking Beam

5. Pull walking beam extension (A) out to desired position and line up bolt holes. Rotate the caster so the wheel is parallel to the walking beam to assist with moving the extensions.
6. Install two M24 x 60 bolts and washers (B) at inboard hole locations on backside of beam and two M24 x 60 bolts and washers (C) on bottom of beam. Do not tighten.

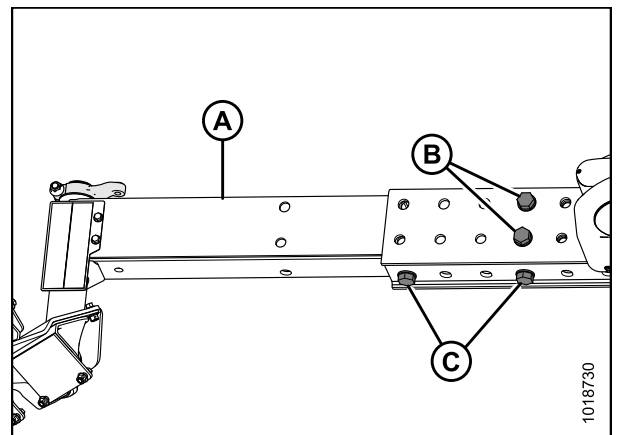


Figure 3.13: Walking Beam Extension

## ASSEMBLING THE WINDROWER

7. Place support brackets (A) onto walking beam as shown and secure with two M24 x 60 bolts coated with anti-seize compound and M24 flat washers (B). Do **NOT** fully tighten.

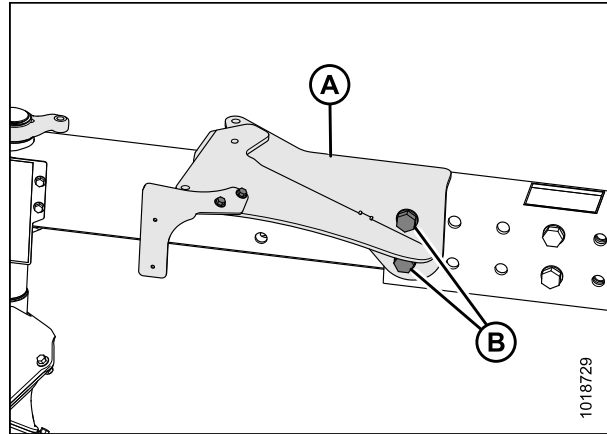


Figure 3.14: Anti-Shimmy Brackets

8. Tighten bolts as follows:
  - a. Snug bottom bolts (A), then snug back bolts (B).
  - b. Torque back bolts (B) to 745–770 N·m (549–568 ft·lbf).
  - c. Torque bottom bolts (A) to 745–770 N·m (549–568 ft·lbf).

**IMPORTANT:**

Torque bolts after first 5 hours of operation, and then again after 10 hours.

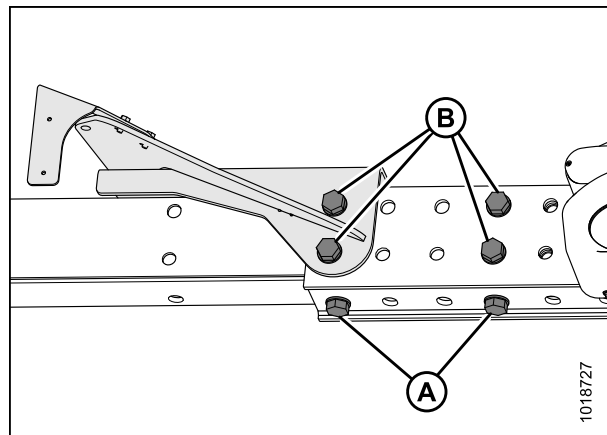


Figure 3.15: Walking Beam Bolts

9. Repeat Steps 2, page 13 to 8, page 14 at opposite end of walking beam, ensuring that casters are spaced equally from center of windrower.

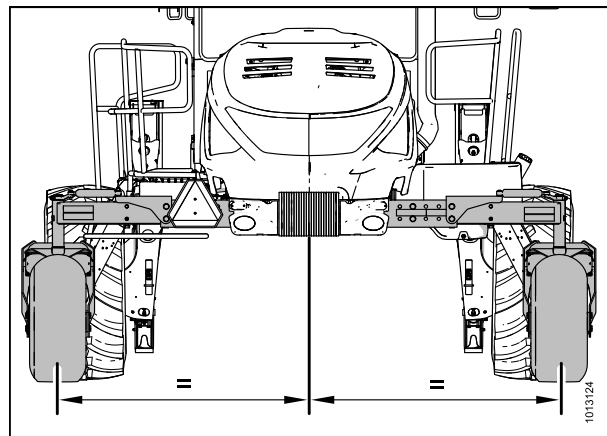


Figure 3.16: Walking Beam Adjustment



## ASSEMBLING THE WINDROWER

- Lower windrower to ground.
- Retrieve caster shock absorbers and hardware from bag in toolbox.

**NOTE:**

Use ignition key to unlock toolbox compartment.

- Attach barrel end of shock absorber (A) to forward hole in support (B) with one M16 x 75 flange head bolt (C) and one M16 tech lock nut (D). Install bolt from under support. Do **NOT** fully tighten.

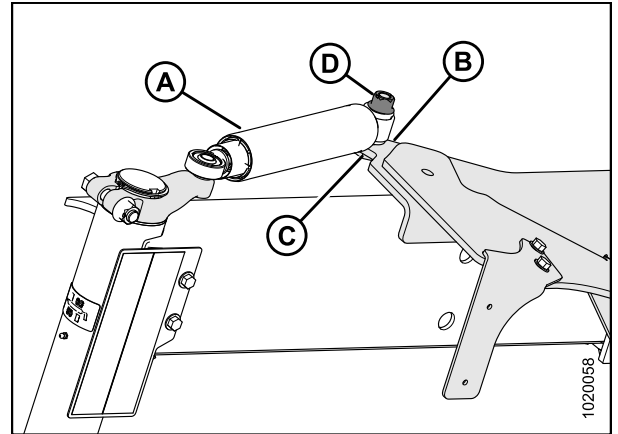


Figure 3.17: Anti-Shimmy System – Left Side

- Attach barrel end of second shock absorber (A) to support (B) at aft hole location with one M16 x 90 flange head bolt and M16 tech lock nut (C). Install bolt from under support. Do **NOT** fully tighten.
- Rotate caster so that arm (D) is aligned with walking beam.

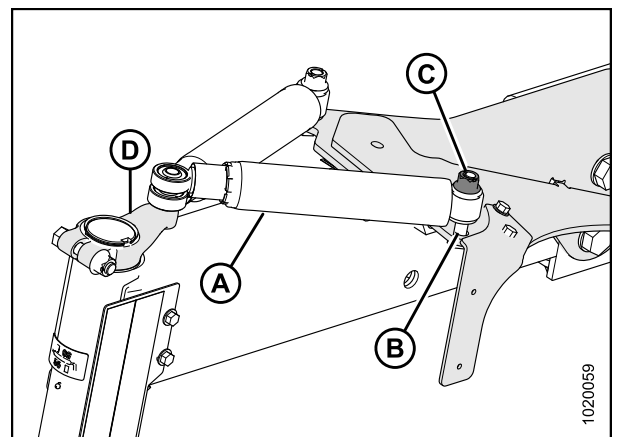


Figure 3.18: Anti-Shimmy System – Left Side

- Attach rod ends of shock absorbers to arm with bolt (A) and three hardened washers (B).
- Torque bolt (A) to 244 N·m (180 ft·lbf).
- Install jam nut (C) and torque to 136–140 N·m (100–103 ft·lbf).
- Tighten bolts (D) at barrel end of shock absorbers, and torque to 136–140 N·m (100–103 ft·lbf).

**IMPORTANT:**

Maintain arm parallel to walking beam while tightening. Do **NOT** overtighten.

- Repeat Steps [12, page 15](#) to [18, page 15](#) for opposite end of walking beam.

**IMPORTANT:**

Torque bolts after first 5 hours of operation, and then again after 10 hours.

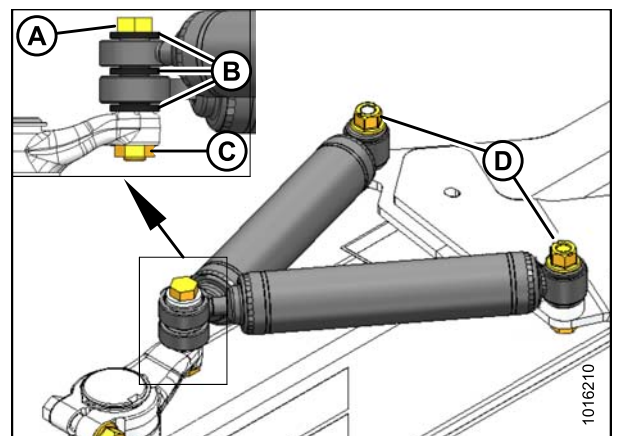


Figure 3.19: Anti-Shimmy System – Left Side

### 3.5 Lowering Steps

Lower steps from shipping position to working position as follows: left side shown, right side opposite.

1. Remove stop bolt (A) and discard.
2. Loosen pivot bolts (B) at both sides of step (C).

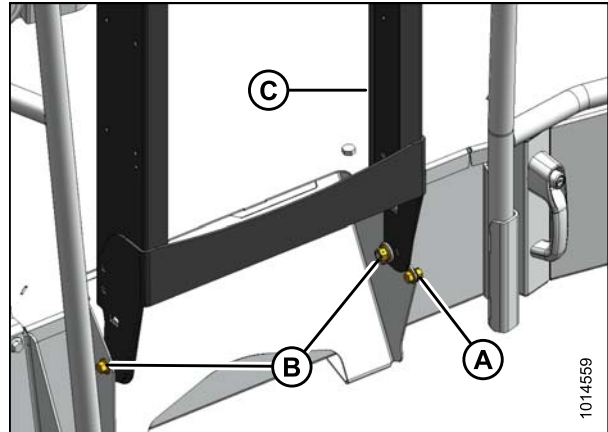


Figure 3.20: Left Step – Shipping Position

3. Lower step (A) to working position.
4. Ensure clips (B) are engaged in step.
5. Tighten pivot bolts (C) to 90–100 N·m (66–73 ft·lbf).

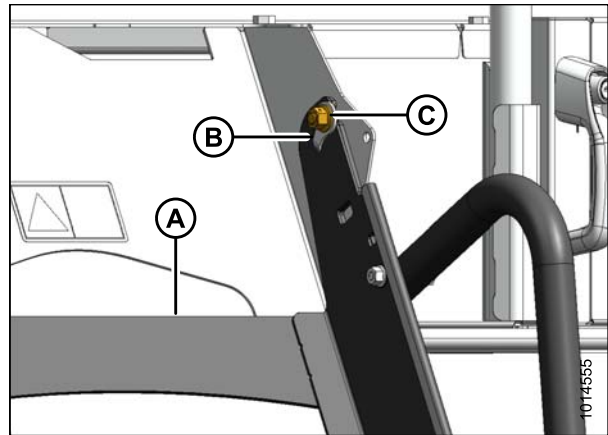


Figure 3.21: Left Step – Working Position

### 3.6 Installing Windshield Access Step

The windshield access step is secured on the railing of the right-hand side platform (cab-forward).

1. Remove windshield access step (A) from shipping location on right platform, and remove packing materials (B) from step and railing.
2. Retrieve the three self-tapping bolts from a bag in the toolbox.

**NOTE:**

Use ignition key to unlock toolbox compartment.

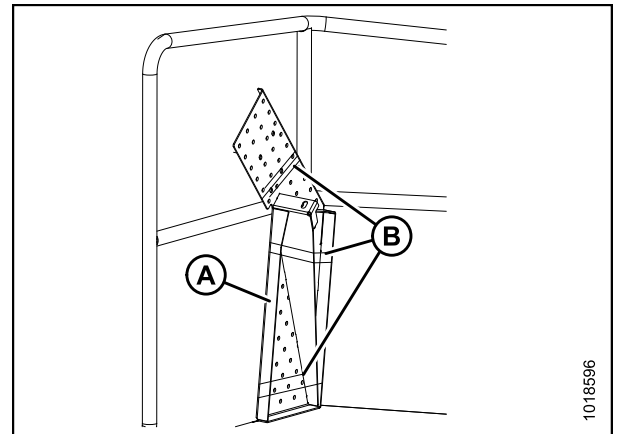


Figure 3.22: Step in Shipping Position

3. Position step (A) on right leg at forward end of platform as shown.
4. Install two M10 x 20 hex head screws (B) through top of step but do not tighten.
5. Install one M10 x 20 hex head screw (C) through step support.
6. Tighten and torque screws to 54–61 N·m (40–45 ft·lbf).

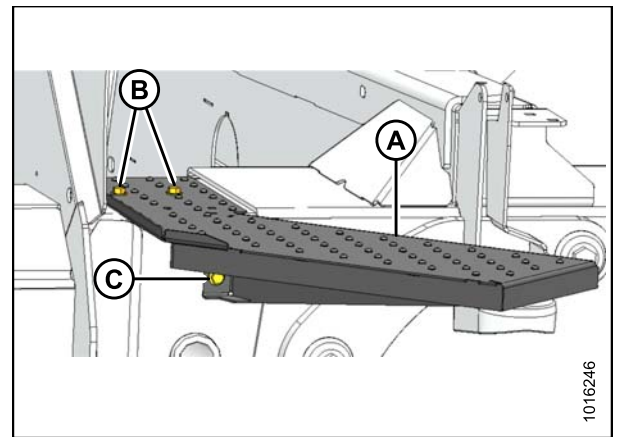


Figure 3.23: Windshield Access Step

### 3.7 Positioning Mirror Arms

The mirror/light support arms require repositioning from shipping position to working position.

1. Loosen retaining nut (A) and pivot nut (B) on support arm (C).
2. Swivel support arm (C) forward 90 degrees from shipping position to working position.

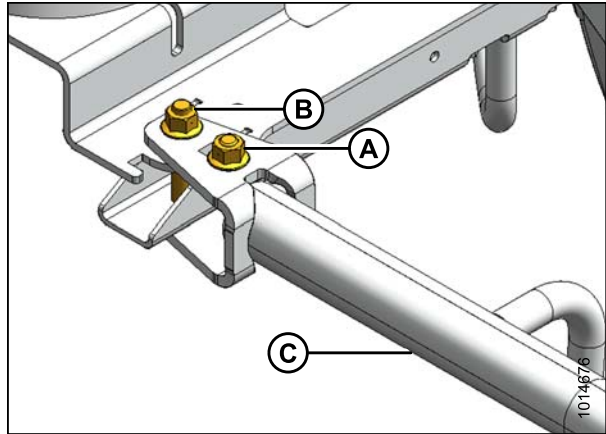


Figure 3.24: Mirror Arm in Shipping Position

3. Tighten retaining nut (A) to 37–41 N·m (28–30 ft·lbf).
4. Tighten pivot nut (B) to 24–27 N·m (18–20 ft·lbf).
5. Repeat above steps for opposite mirror.

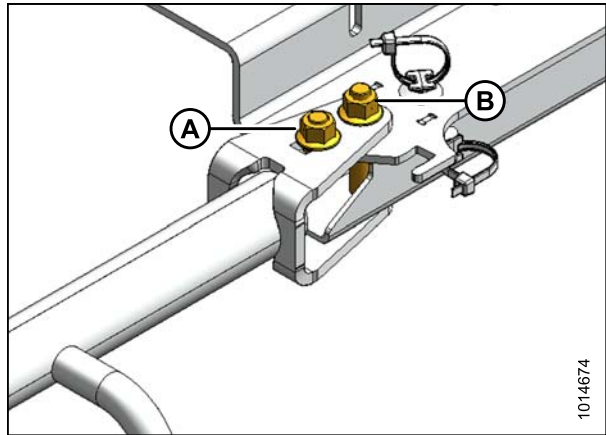


Figure 3.25: Mirror Arm in Working Position

### 3.8 Installing Slow Moving Vehicle (SMV) Signs

To install the SMV sign onto the mirror/light support and walking beam, proceed as follows:

1. Retrieve SMV signs from inside cab and hardware from toolbox.

**NOTE:**

Use ignition key to unlock cab door and toolbox compartment.

2. Position sign (A) on existing bracket (B) as shown on right cab-forward side mirror/light support, and secure with two M6 x 20 hex head bolts (C) and M6 lock nuts.

**IMPORTANT:**

Ensure SMV sign does **NOT** cover brake light.

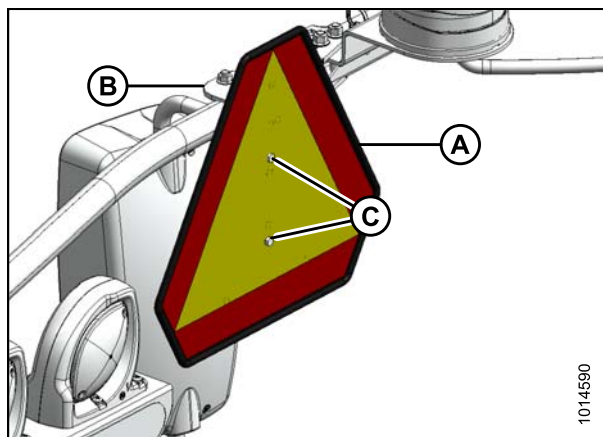


Figure 3.26: Cab Location

3. Locate support (A) on left cab-forward side of walking beam.
4. Position sign (B) on support (A) as shown, and secure with two M6 x 20 hex head bolts (C) and M6 lock nuts.

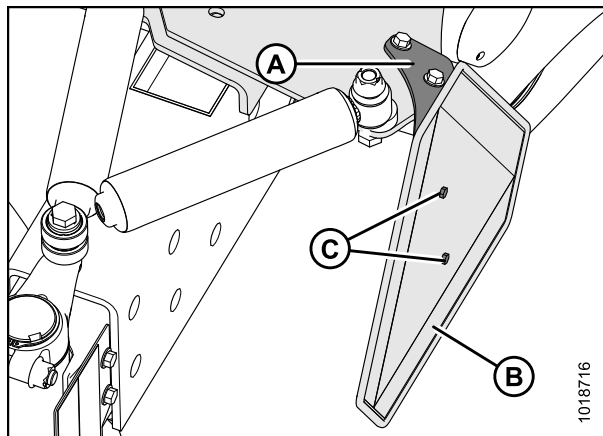


Figure 3.27: Walking Beam Location

### 3.9 Replacing Speed Identification Symbol (SIS) Decal (US Only)

This topic applies to windrowers used in the United States only.

1. Locate the existing SIS decal bracket on the left mirror/lighting arm.
2. Wipe the existing decal with a clean cloth to remove dirt and grease.
3. Apply the 30 mile/h SIS decal (A) (MD #208900) over the existing 45 km/h decal.

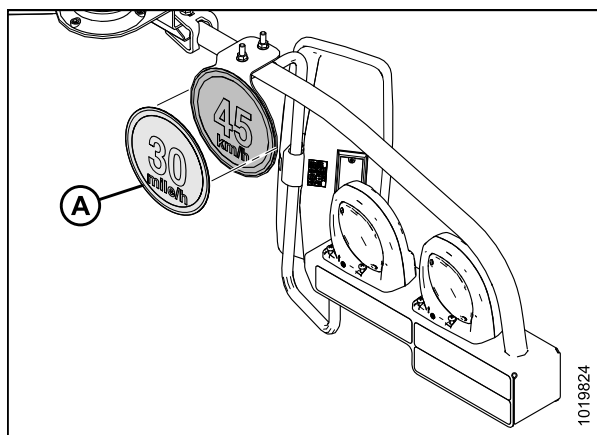


Figure 3.28: SIS Decal (US Only)

### 3.10 Installing Rear Ballast Package

When windrower operates with a heavy header, ballast needs to be added to the aft end. Use the following table to determine the amount of ballast required.

**Table 3.1 Ballast**

Header Type	Description	Options	Base Kit	Additional Kits	Additional Float Springs
D125 X	25 foot, single reel, double knife, timed	–	0	0	0
D130 XL	30 foot, single reel, double knife, timed	Transport	1	0	0
D130 XL	30 foot, single reel, double knife, timed	Transport + upper cross auger + vertical knives	1	0	B6047
D135 XL	35 foot, single reel, double knife, untimed	Base	1	1	0
D135 XL	35 foot, single reel, double knife, untimed	Transport	1	1	B6047
D135 XL	35 foot, single reel, double knife, untimed	Transport + upper cross auger + vertical knives	1	2	B6047
D135 XL	35 foot, double reel, double knife, untimed	Base	1	1	0
D135 XL	35 foot, double reel, double knife, untimed	Transport	1	1	B6047
D135 XL	35 foot, double reel, double knife, untimed	Transport + upper cross auger + vertical knives	1	2	B6047
D140 XL	40 foot, double reel, double knife, untimed	Base	1	1	0
D140 XL	40 foot, double reel, double knife, untimed	Transport	1	1	B6047
D140 XL	40 foot, double reel, double knife, untimed	Transport + upper cross auger + vertical knives	1	2	B6047
D145 XL	45 foot, double reel, double knife, untimed	Base	1	1	B6047
D145 XL	45 foot, double reel, double knife, untimed	Transport	1	2	B6047
D145 XL	45 foot, double reel, double knife, untimed	Transport + upper cross auger + vertical knives	1	2	B6106

**NOTE:**

Each kit consists of eight weights and weighs 163 kg (360 lb.).

**NOTE:**

Ballast not required for A Series Auger and R Series Rotary Disc headers.

## ASSEMBLING THE WINDROWER

To install rear ballast, follow these steps:

### DANGER

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

1. Refer to Table 3.1 *Ballast*, page 21 to determine how much ballast to add to the windrower.
2. Shut down the engine, and remove the key.
3. Move latch (A) towards right cab-forward side of the windrower.
4. Using a louver (B), lift the hood to open.

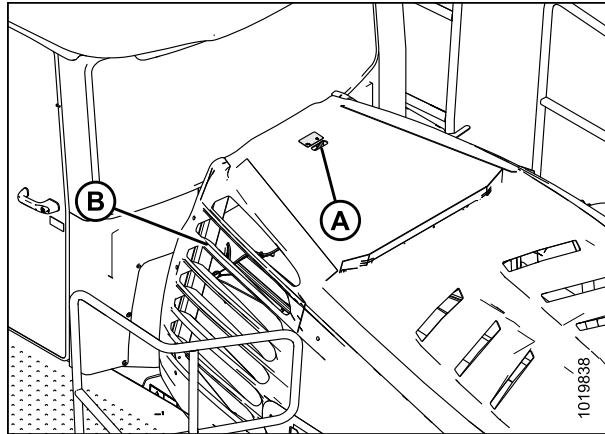


Figure 3.29: Engine Compartment Hood

5. Remove four fasteners (A) from top of rear light bezel (B).
6. Remove four fasteners (C) from bottom of rear light bezel (B), and remove bezel (B).

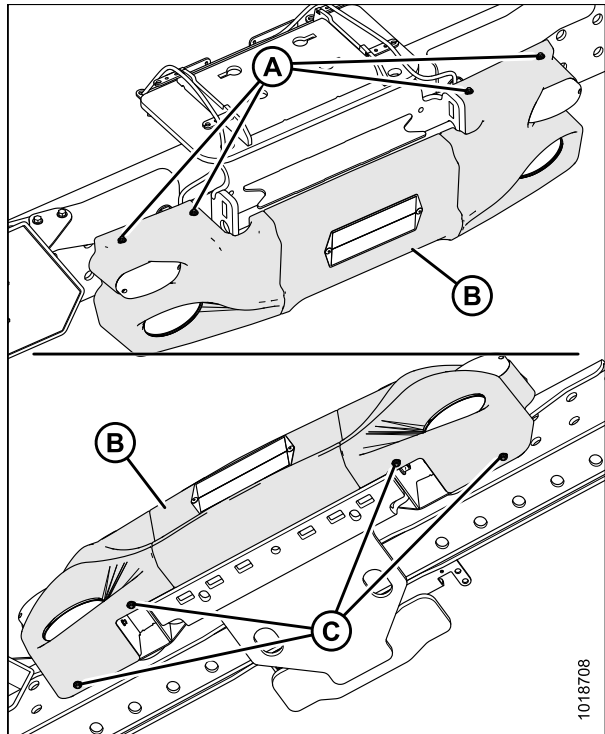


Figure 3.30: Rear Light Bezel



## ASSEMBLING THE WINDROWER

7. Separate bezel assembly (A) by removing six fasteners (B).
8. Store center portion of assembly for reinstallation if desired.

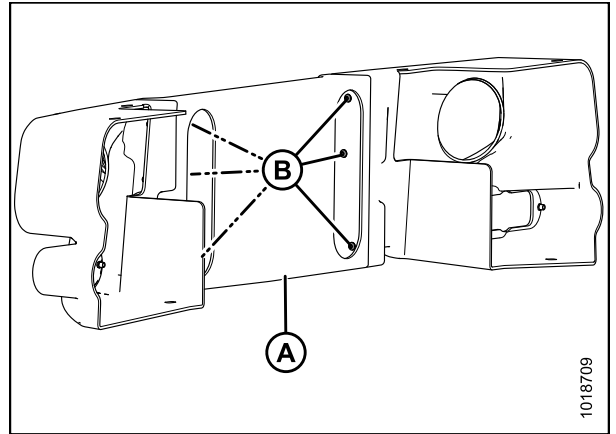


Figure 3.31: Bezel Assembly

### CAUTION

To avoid injury, keep fingers clear of weight bracket when installing weights.

9. Attach weights (A) as shown in middle of bracket on the walking beam, and install end plates (B) on each side of weight bundle.

#### IMPORTANT:

Ensure end plates (B) engage slot (C) in bracket.

10. Install rod (D) through end plates and weights with spacers (E) as required.
11. Secure with nuts and tighten.

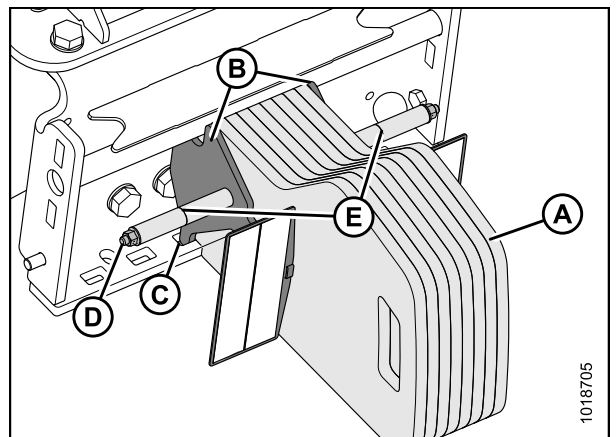


Figure 3.32: Base Kit: 163 kg (360 lb.)

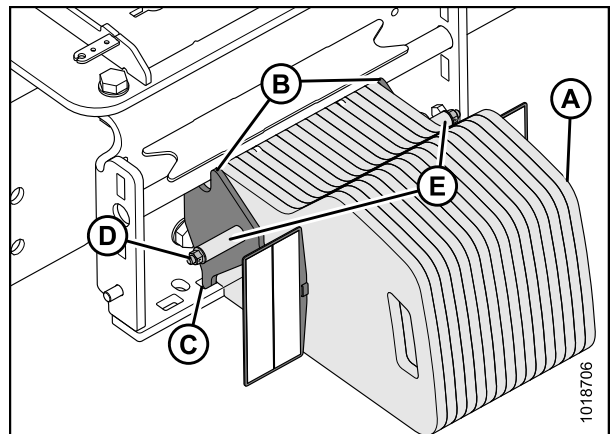


Figure 3.33: Two Sets: 326 kg (720 lb.)

## ASSEMBLING THE WINDROWER

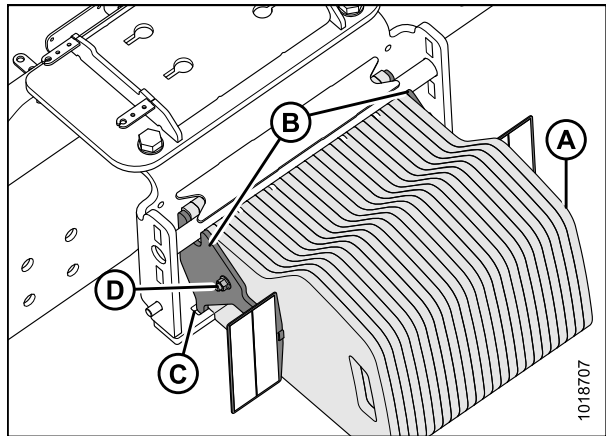


Figure 3.34: Three Sets: 489 kg (1080 lb.)

12. Attach left side bezel (A) to frame with four screws (B).
13. Attach right side bezel (C) with four screws.

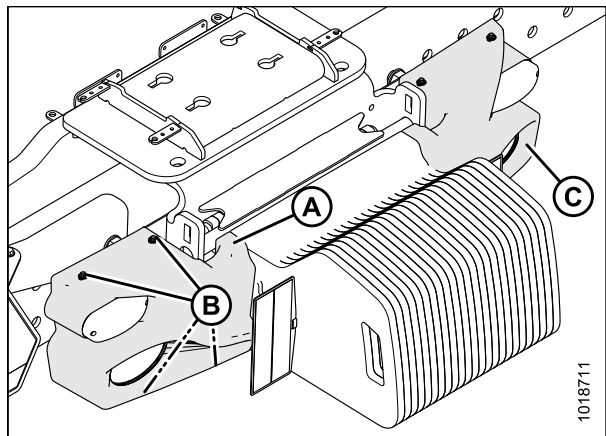


Figure 3.35: Rear Light Bezel

14. Grasp the hood by louver (A) and lower until hood engages latch.

**NOTE:**

Check that latch lever is not tilted to ensure hood is latched.

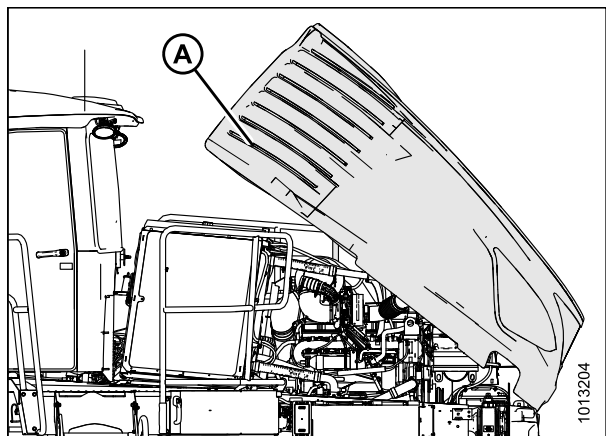


Figure 3.36: Hood Closing

## 3.11 Lubricating the Windrower

For grease specification, refer to [6.1 Lubricants, Fluids, and System Capacities, page 93](#).

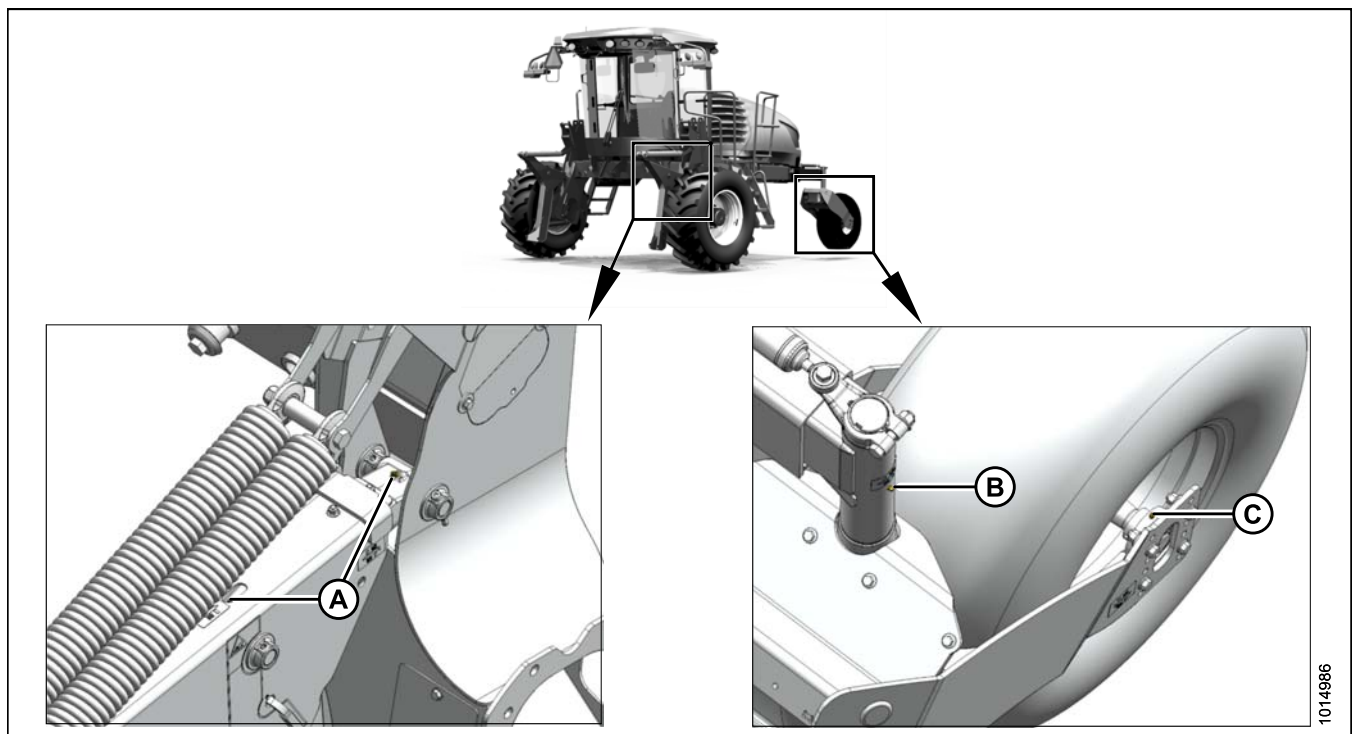
### 3.11.1 Lubrication Procedure

#### DANGER

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

1. Wipe grease fitting with a clean cloth before greasing to avoid injecting dirt and grit.
2. Inject grease through fitting with grease gun until grease overflows fitting. Do **NOT** overgrease wheel bearings.
3. Leave excess grease on fitting to keep out dirt.
4. Replace any loose or broken fittings immediately.
5. Remove and thoroughly clean any fittings (including the lubricant passageway) that will not take grease. Replace fitting, if necessary.

### 3.11.2 Lubrication Points



**Figure 3.37: Lubrication Points**

A - Top Link (Two Places) (Both Sides)

C - Forked Caster Wheel Bearing (Two Places) (Both Wheels)

B - Caster Pivot (Both Sides)

### 3.12 Connecting Batteries

1. Move latch (A) towards right cab-forward side of the windrower.
2. Using a louver (B), lift the hood to open.

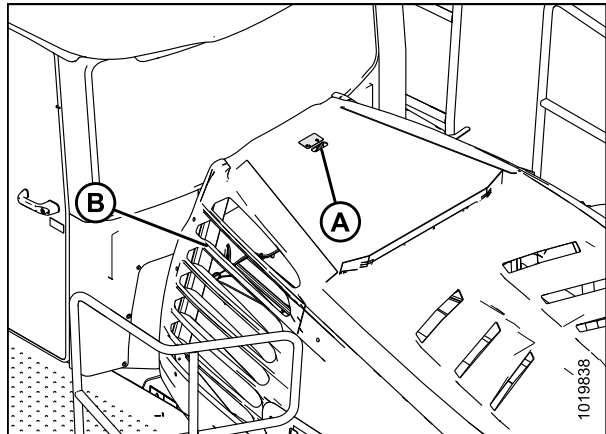


Figure 3.38: Engine Compartment Hood

3. Lift up on the cab end of the cover (A) to disengage it from the retaining tab (B), and swing cover away from the frame.

**IMPORTANT:**

**BATTERY IS NEGATIVE GROUNDED.** Always connect starter cable to the positive (+) terminal of battery and battery ground cable to negative (-) terminal of battery. Reversed polarity in battery or alternator may result in permanent damage to electrical system.

**NOTE:**

Before connecting the harness to the batteries, ensure that positive terminal is positioned on the right side of the battery when installed on the battery support.

4. If installing a new battery, remove plastic caps from battery posts.
5. Attach red positive (+) cable terminals to positive posts (B) on batteries and tighten clamps. Reposition plastic covers onto clamps.
6. Attach black negative (-) cable terminals to negative posts (A) on batteries and tighten clamps. Reposition plastic covers onto clamps.

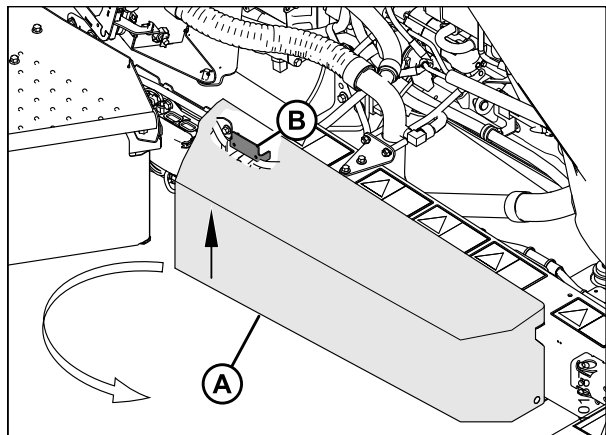


Figure 3.39: Battery Location

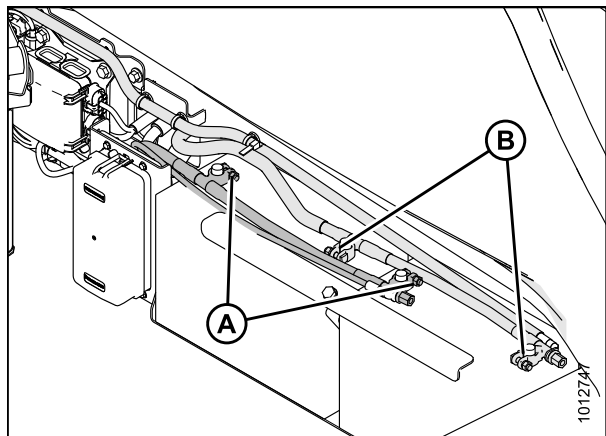


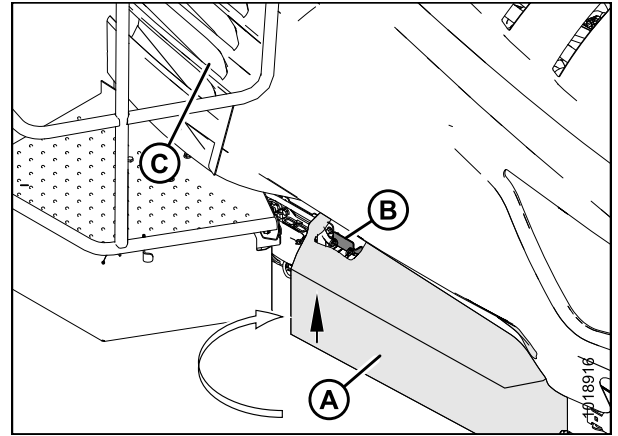
Figure 3.40: Batteries

## ASSEMBLING THE WINDROWER

7. Swing the cover (A) towards the windrower frame. Lift up on the cab end of the cover until it is secured by the retaining tab (B) on the frame.
8. Grasp the hood by the louver (C) and lower until hood engages latch.

**NOTE:**

Check that the latch lever is not tilted to ensure hood is latched.



**Figure 3.41: Battery Cover**

### 3.13 Starting the Engine

#### **⚠ DANGER**

- Avoid possible injury or death from a runaway machine.
- This machine has safety devices which allow the engine to start only when the ground speed lever is in PARK, the steering wheel is locked in the NEUTRAL position, and the HEADER ENGAGE switch is in the OFF position. Under no circumstances are these devices to be deliberately rewired or misadjusted so that the engine can be started with controls out of NEUTRAL.
- Do NOT start engine by shorting across starter or starter relay terminals. If normal starting circuitry is bypassed, machine will start with drive engaged and move.
- Start engine only from operator's seat with controls in NEUTRAL. NEVER start engine while standing on ground. Never try to start engine with someone under or near machine.
- Before starting engine, be sure there is plenty of ventilation to avoid asphyxiation.

#### **IMPORTANT:**

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

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

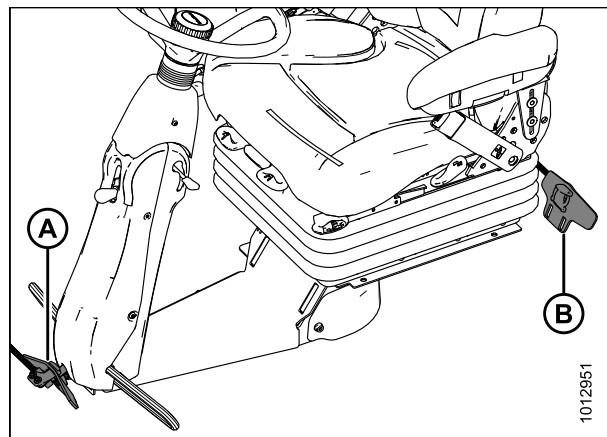


Figure 3.42: Direction Locks

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

#### **IMPORTANT:**

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

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

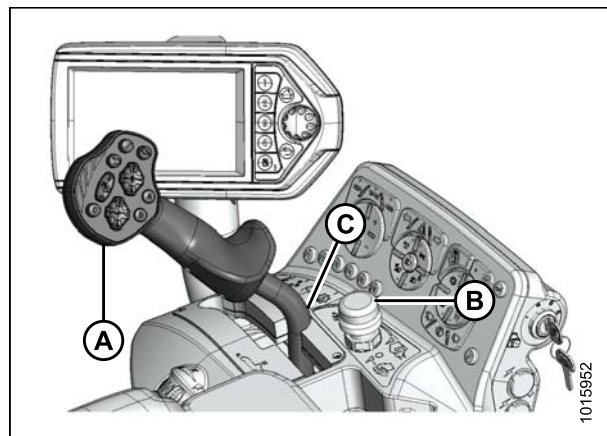


Figure 3.43: Operator Controls

## ASSEMBLING THE WINDROWER

6. Turn IGNITION switch (A) to the ON position, and the Harvest Performance Tracker (HPT) (B) will illuminate. If HPT is still booting up, wait for Wait to Start (WTS) symbol (C) to disappear before trying to start engine.
7. Check that red PARK symbol light (D) is ON and that there are no error messages on screen.
8. Press HORN button (E) three times.

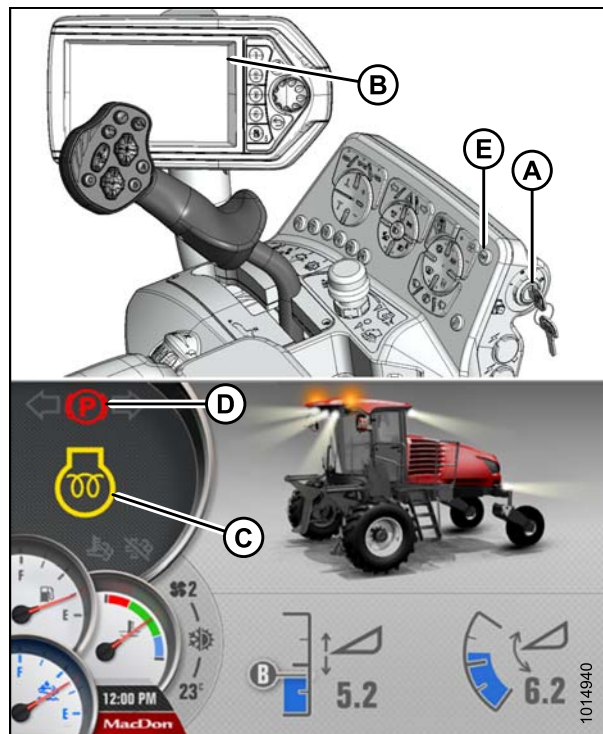


Figure 3.44: Operator Console and HPT Run Screen

9. Turn the IGNITION switch to crank (A).

### NOTE:

When the engine starts and the header is not engaged, the HPT will display as shown. This is the HEADER DISENGAGED screen (B).

### IMPORTANT:

- Do NOT operate starter for longer than 15 seconds at a time
- If engine does not start, wait at least 2 minutes before trying again
- If you crank the engine for more than 30 seconds within a 2-minute period, the engine will lock the starter circuit to prevent overheating, and a flashing WTS symbol will illuminate on the HPT display. Wait for the WTS symbol to stop flashing before attempting to crank engine again
- If engine still does not start, refer to the following table: [3.2 Engine Start Troubleshooting, page 30](#)

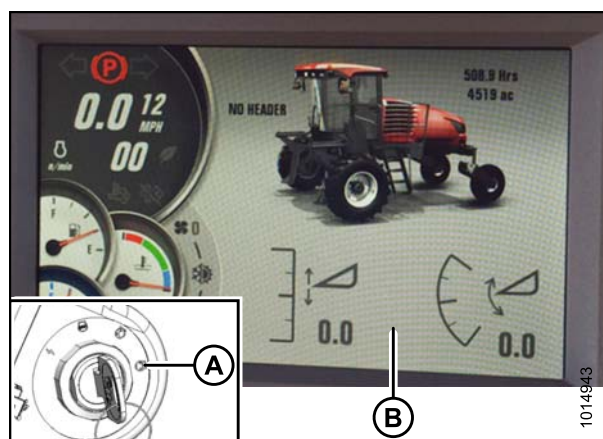


Figure 3.45: HPT Header Disengage Screen

## ASSEMBLING THE WINDROWER

**NOTE:**

When the engine temperature is below 5°C (40°F), the engine will cycle through a period where it appears to labor until the engine warms up. Do NOT operate engine above 1500 rpm until the HPT engine temperature gauge is above the blue range (A).



**Figure 3.46: HPT Header Disengage Screen**

**Table 3.2 Engine Start Troubleshooting**

Problem	Solution
Controls not in NEUTRAL	<ul style="list-style-type: none"> <li>• Move GSL to NEUTRAL</li> <li>• Move steering wheel to locked position</li> <li>• Disengage header clutch</li> </ul>
Operator's station not locked	<ul style="list-style-type: none"> <li>• Adjust position of operator's station</li> <li>• Ensure lock is engaged</li> </ul>
Neutral interlock misadjusted	<ul style="list-style-type: none"> <li>• Refer to the windrower technical manual</li> </ul>
No fuel to engine	<ul style="list-style-type: none"> <li>• Fill empty fuel tank</li> <li>• Replace clogged filter</li> <li>• Check for blocked or damaged fuel lines.</li> </ul>
Old fuel in tank	<ul style="list-style-type: none"> <li>• Drain tank</li> <li>• Refill with fresh fuel</li> </ul>
Water, dirt, or air in fuel system	<ul style="list-style-type: none"> <li>• Drain, flush, fill, and prime system</li> </ul>
Improper type of fuel	<ul style="list-style-type: none"> <li>• Use proper fuel for operating conditions</li> </ul>
Crankcase oil too heavy	<ul style="list-style-type: none"> <li>• Use recommended oil</li> </ul>
Low battery output	<ul style="list-style-type: none"> <li>• Test the battery</li> <li>• Check battery electrolyte level</li> </ul>
Poor battery connection	<ul style="list-style-type: none"> <li>• Clean and tighten loose connections</li> </ul>
Faulty starter	<ul style="list-style-type: none"> <li>• Refer to the windrower technical manual</li> </ul>
Wiring shorted, circuit breaker open	<ul style="list-style-type: none"> <li>• Check continuity of wiring and breaker (manually reset)</li> </ul>
Faulty injectors	<ul style="list-style-type: none"> <li>• Refer to the windrower technical manual</li> </ul>



## 4 Attaching Headers to M1 Series Windrower

### 4.1 A40 D Auger Header

#### 4.1.1 Attaching an A40 D Auger Header

This procedure is for 2017 and newer A40 D headers equipped with the Auger Header Compatibility kit (B5998).

#### CAUTION

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

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

#### IMPORTANT:

Remove protective cover from exhaust stack prior to starting engine.

#### CAUTION

Check to be sure all bystanders have cleared the area.

2. Start engine.

#### CAUTION

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

#### NOTE:

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

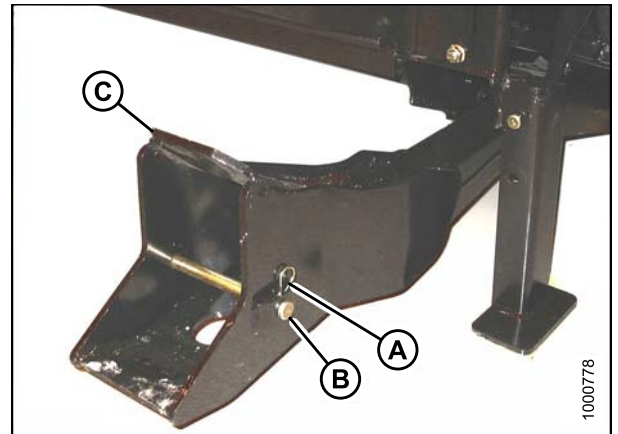


Figure 4.1: Header support

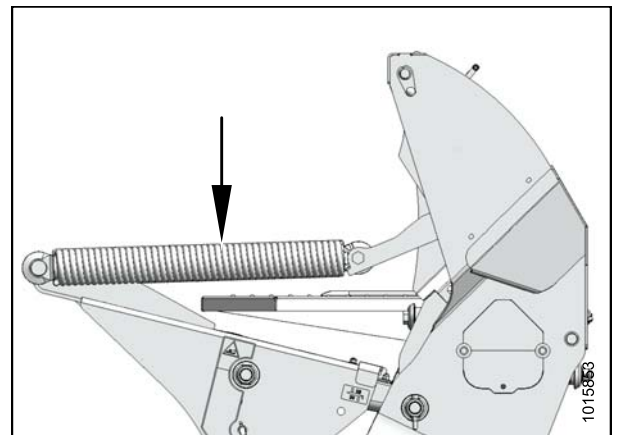


Figure 4.2: Header Float Springs

## ATTACHING HEADERS TO M1 SERIES WINDROWER

3. Press HPT scroll knob (A) to highlight QuickMenu options.
4. Rotate HPT scroll knob (A) to highlight the HEADER FLOAT symbol (B) and press to select.

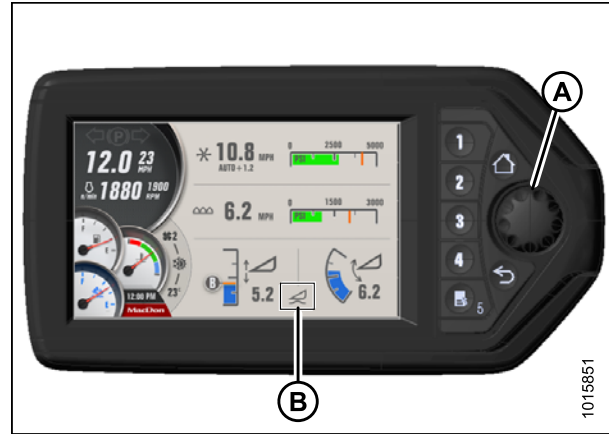


Figure 4.3: HPT Display

5. On Float Adjust page, press soft key 3 (A) to remove float.



Figure 4.4: HPT Display

6. Press the HEADER DOWN switch (A) on the ground speed lever (GSL) to fully retract header lift cylinders.
7. **For hydraulic center-link with self-alignment:** Press the REEL UP switch (B) on the GSL to raise the center-link until the hook is above the attachment pin on the header.

### IMPORTANT:

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

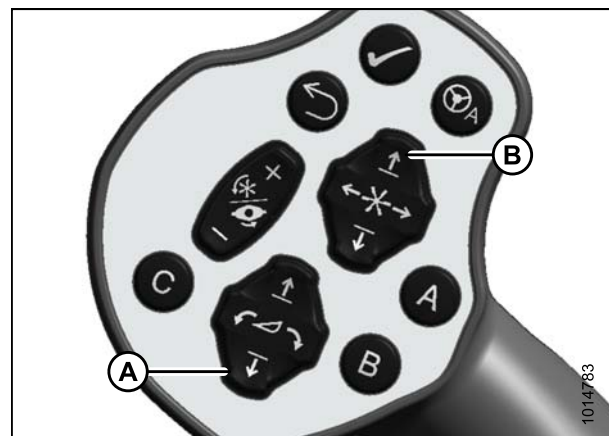


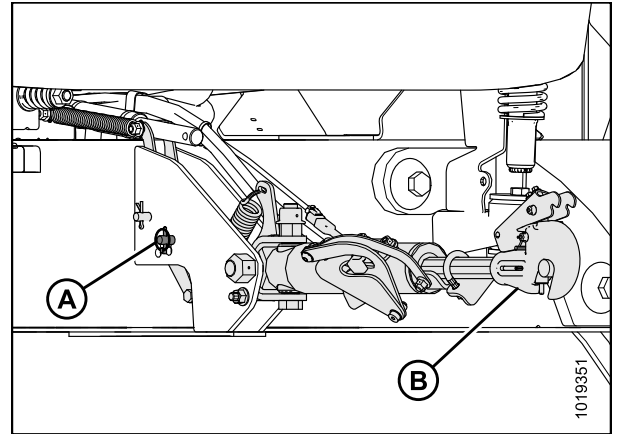
Figure 4.5: GSL

## ATTACHING HEADERS TO M1 SERIES WINDROWER

- For hydraulic center-link without self-alignment:** Relocate pin (A) in frame linkage as required to raise the center-link (B) until the hook is above the attachment pin on the header.

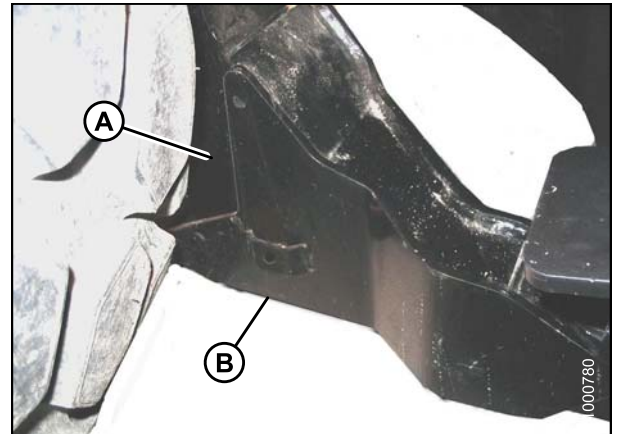
**IMPORTANT:**

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



**Figure 4.6: Hydraulic Center-Link without Self-Alignment Kit**

- Drive the windrower slowly forward so the feet (A) on the windrower enter the supports (B) on the header. Continue to drive slowly forward until the feet engage the supports and the header nudges forward.



**Figure 4.7: Header support**

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

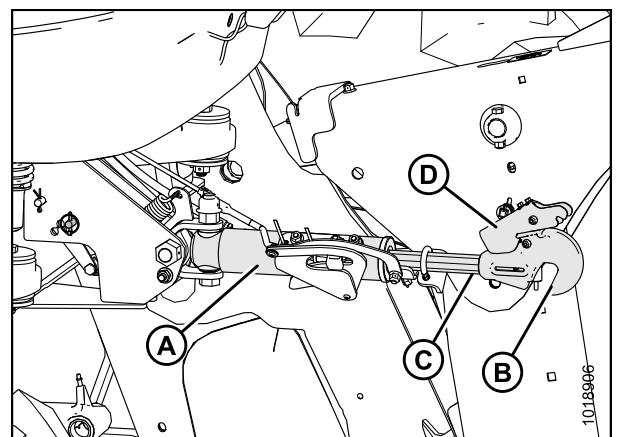
- For hydraulic center-link without self-alignment:** Push down on rod end of link cylinder (C) until hook engages and locks onto header pin.

**IMPORTANT:**

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

- For hydraulic center-link with self-alignment:** Lower center-link (A) onto the header with REEL DOWN switch on the GSL until it locks into position (hook release [D] is down).

- For hydraulic center-link with self-alignment:** Check that center-link is locked onto header by pressing the REEL UP switch on the GSL.



**Figure 4.8: Hydraulic Center-Link**

## ATTACHING HEADERS TO M1 SERIES WINDROWER

### CAUTION

Check to be sure all bystanders have cleared the area.

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

#### NOTE:

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

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

#### NOTE:

This procedure may have to be repeated if there is air in the system.

15. Stop engine, and remove key.
16. Engage safety prop on the windrower's lift cylinder as follows:
  - a. Pull lever (A) and rotate toward header to release, and lower safety prop onto cylinder.
  - b. Repeat for opposite lift cylinder.

#### IMPORTANT:

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

17. Install clevis pin (A) through support and foot, and secure with hairpin. Repeat for opposite support.

#### IMPORTANT:

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



Figure 4.9: GSL

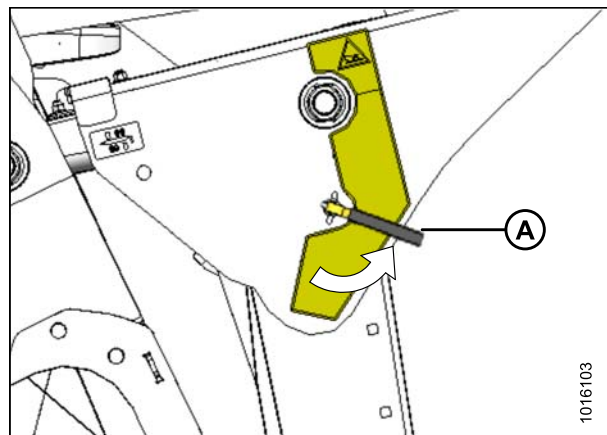


Figure 4.10: Cylinder Safety Prop

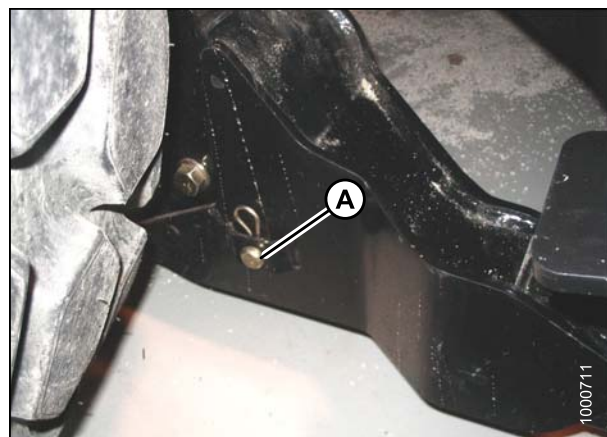


Figure 4.11: Header support

## ATTACHING HEADERS TO M1 SERIES WINDROWER

18. Remove lynch pin from clevis pin (A) in stand (B).
19. Hold stand (B) and remove pin (A).
20. Move stand to storage position by inverting and relocating onto bracket as shown. Reinsert clevis pin (A) and secure with lynch pin.

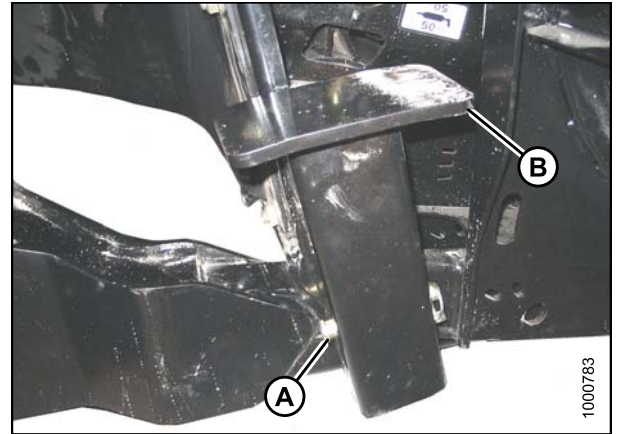


Figure 4.12: Header Stand

21. Disengage safety prop by turning lever (A) downward to raise prop until lever locks into vertical position.
22. Repeat for opposite side.

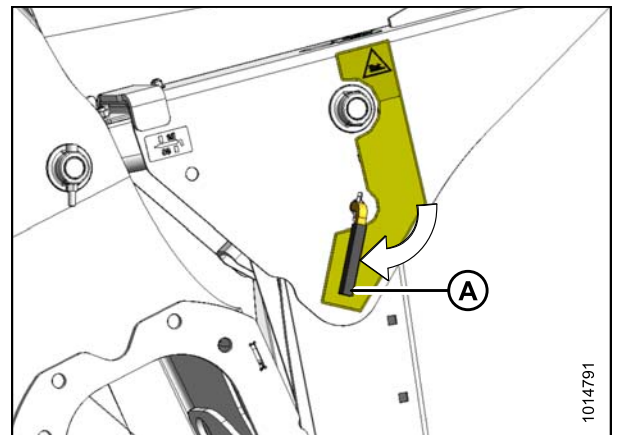


Figure 4.13: Cylinder Safety Prop

### CAUTION

Check to be sure all bystanders have cleared the area.

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

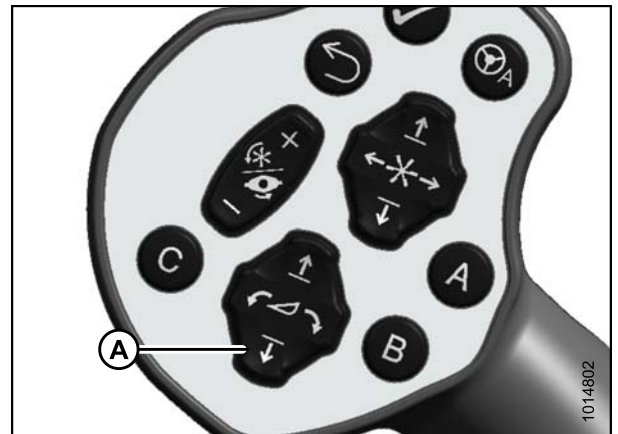


Figure 4.14: Ground Speed Lever



## ATTACHING HEADERS TO M1 SERIES WINDROWER

### NOTE:

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

24. Press rotary scroll knob (A) on HPT to highlight QuickMenu options.
25. Rotate scroll knob (A) to highlight the HEADER FLOAT symbol (B) and press scroll knob to select.



Figure 4.15: HPT Display

26. On Float Adjust page, press soft key 3 (A) to restore the header float.

### NOTE:

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



Figure 4.16: HPT Display

27. Stop engine and remove key.
28. Proceed to [4.1.2 Connecting A40 D Hydraulics](#), page 36.

## 4.1.2 Connecting A40 D Hydraulics

### CAUTION

Do NOT stand on an unlocked platform. It is unstable and may cause you to fall.

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

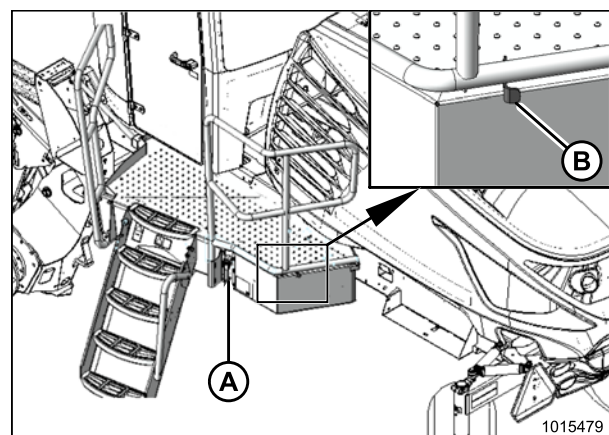
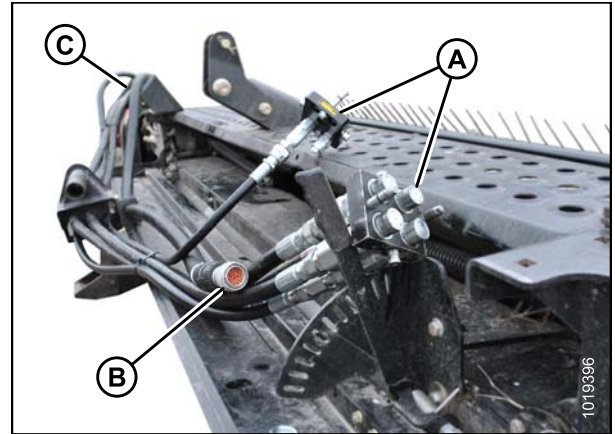


Figure 4.17: Left Cab-Forward Platform

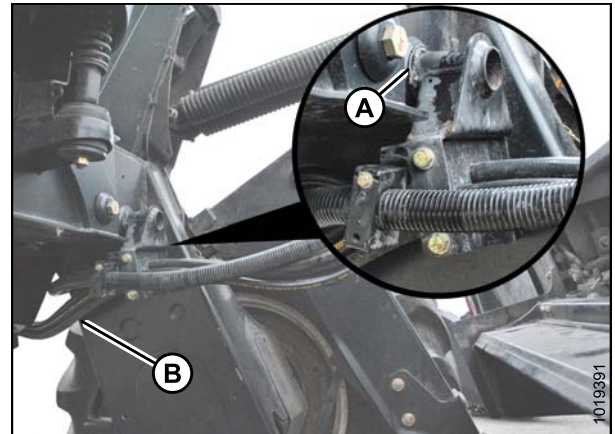
## ATTACHING HEADERS TO M1 SERIES WINDROWER

3. Retrieve hydraulic multicouplers (A) and electrical harness (B) from the header.
4. Route hose/harness bundle toward the windrower through support (C).



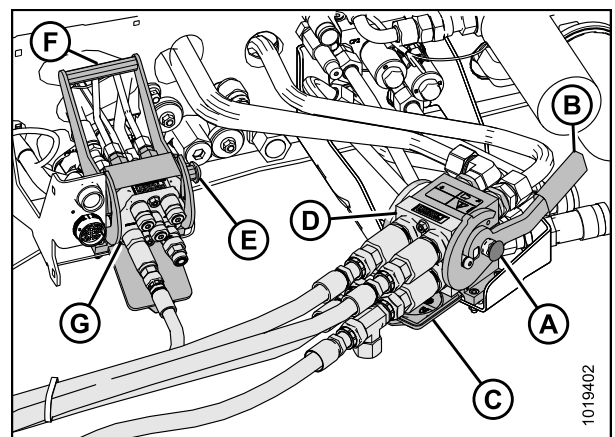
**Figure 4.18: Hydraulics Hoses in Storage Position**

5. Insert hose support (A) into hole in the windrower left leg, and route the header hose bundle (B) under the windrower to the hydraulic and electrical couplers.



**Figure 4.19: Multicoupler**

6. Clean multicouplers and receptacles to prevent contamination.
7. Push button (A) on rear multicoupler receptacle and rotate handle (B) away from windrower.
8. Open cover (C) and position multicoupler (D) onto receptacle. Align pins in coupler with slots in handle (B), and rotate handle toward windrower so that coupler is locked onto receptacle and button (A) snaps out.
9. Push button (E) on front multicoupler receptacle and rotate handle (F) away from windrower.
10. Open cover and position multicoupler (G) onto receptacle. Align pins in coupler with slots in handle, and rotate handle toward windrower so that coupler is locked onto receptacle and button (E) snaps out.



**Figure 4.20: Knife/Reel/Auger Drive Multicoupler**

## ATTACHING HEADERS TO M1 SERIES WINDROWER

11. Remove cover from receptacle (A), and connect electrical harness from header.

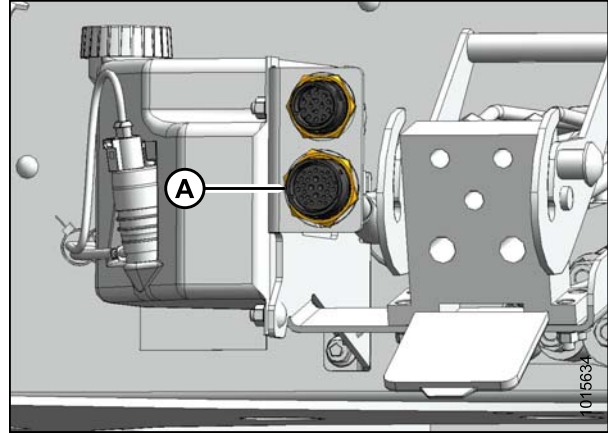


Figure 4.21: Electrical Connectors

12. Push latch (A) to unlock the platform (B).

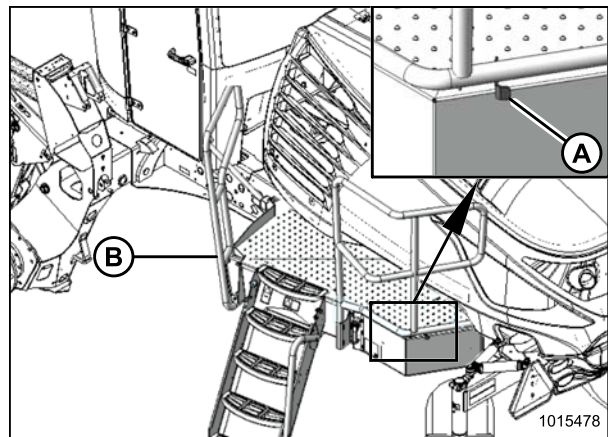


Figure 4.22: Platform: Open

13. Push platform (A) towards the cab until it stops and latch engages.

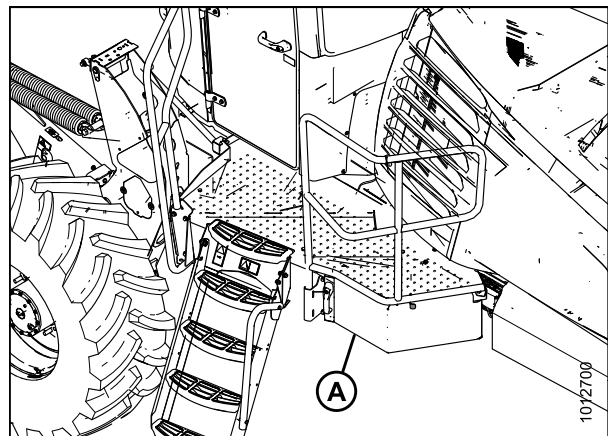


Figure 4.23: Platform: Closed

### 4.1.3 Detaching an A40 D Auger Header

#### DANGER

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



## ATTACHING HEADERS TO M1 SERIES WINDROWER

### DANGER

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

1. Start engine and press header up button (A) on ground speed lever (GSL) to raise header to maximum height.
2. If one end of the header does **NOT** raise fully, rephase the cylinders as follows:
  - a. Press and hold the header up (A) switch until both cylinders stop moving.
  - b. Continue to hold the switch for 3–4 seconds. Cylinders are now phased.
3. Stop engine and remove key.



Figure 4.24: GSL

4. Engage safety prop on the windrower's lift cylinder as follows:
  - a. Pull lever (A) and rotate toward header to release, and lower safety prop onto cylinder.
  - b. Repeat for opposite lift cylinder.

#### **IMPORTANT:**

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

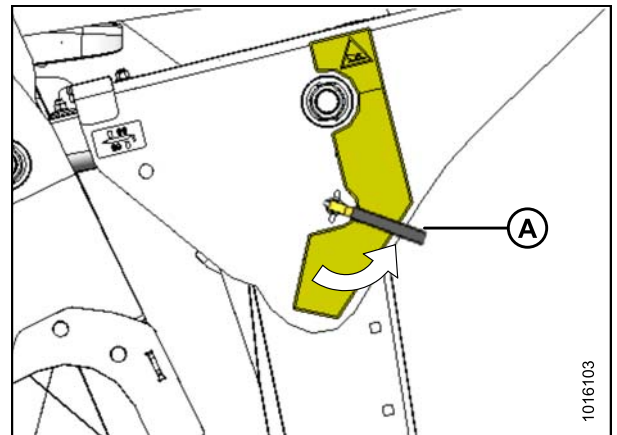


Figure 4.25: Cylinder Safety Prop

5. Remove hairpin from the clevis pin (A) and remove clevis pin from header support (B) on both sides.

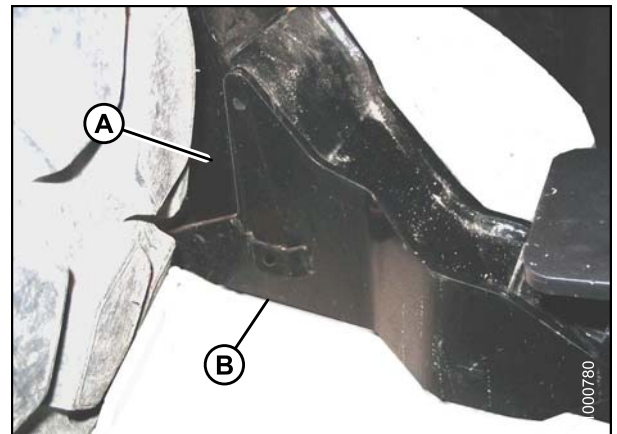


Figure 4.26: Header Support

## ATTACHING HEADERS TO M1 SERIES WINDROWER

- Lower stand (A) by pulling clevis pin (B), inverting stand, and relocating on bracket. Reinsert pin (B) and secure with hairpin.

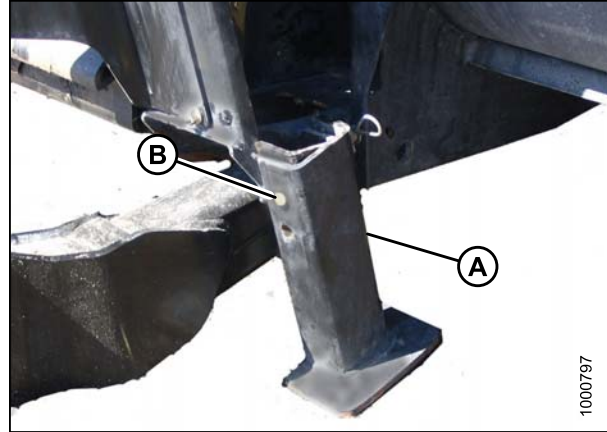


Figure 4.27: Header Stand

### CAUTION

Check to be sure all bystanders have cleared the area.

- Disengage safety props by turning lever (A) away from header to raise safety prop until lever locks into vertical position. Repeat for opposite cylinder.
- Start engine, choose a level area, and lower header to the ground.

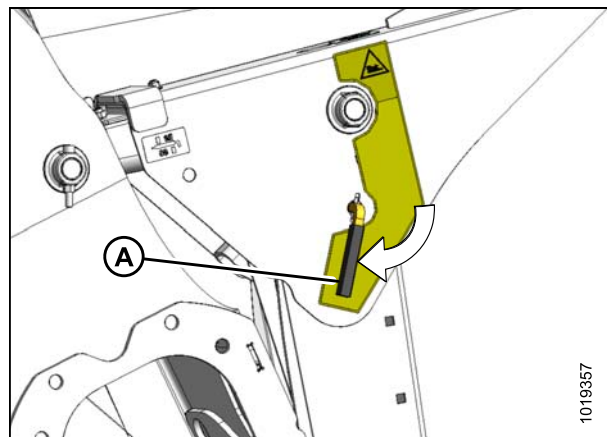


Figure 4.28: Safety Props

- Activate HEADER TILT UP (A) and HEADER TILT DOWN (B) cylinder switches on GSL to release the load on center-link cylinder.

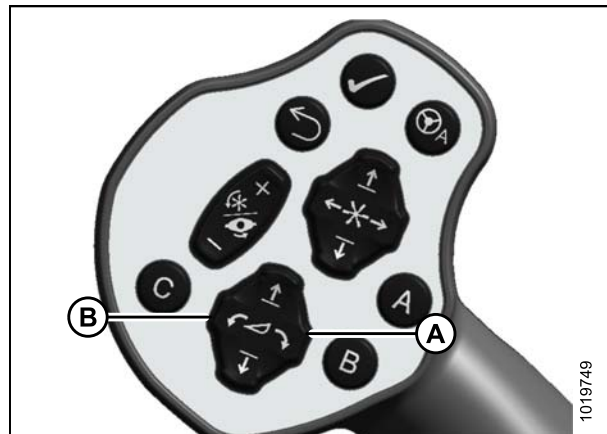


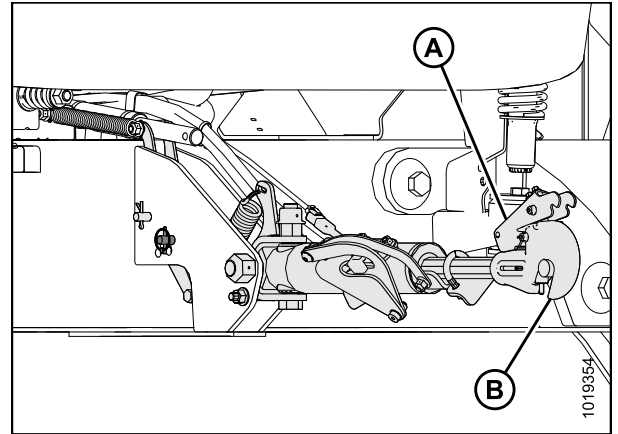
Figure 4.29: GSL

## ATTACHING HEADERS TO M1 SERIES WINDROWER

10. Stop engine and remove key from ignition.
11. Lift hook release (A) and lift hook (B) off header pin.

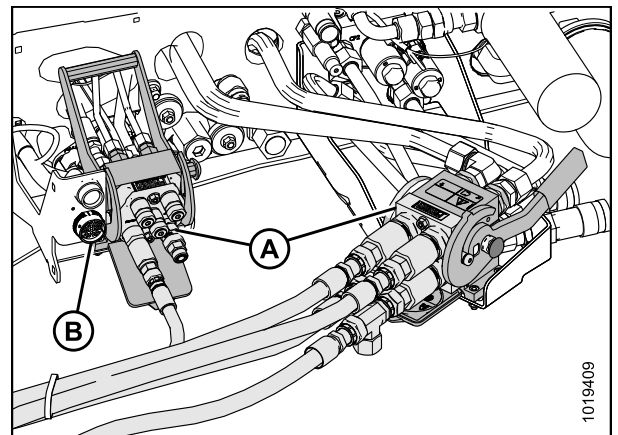
**NOTE:**

If optional center-link self-alignment kit is installed, lift release (C) and then operate the link lift cylinder with the REEL UP switch on the GSL to disengage the center-link from the header.



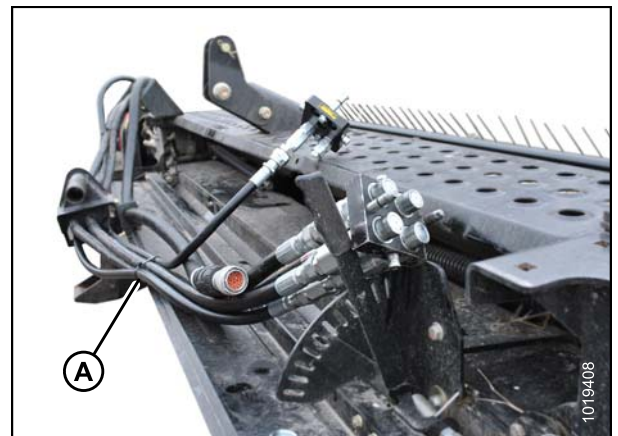
**Figure 4.30: Hydraulic Center-Link**

12. Disconnect header drive hydraulics (A) and electrical harness (B) from the windrower.



**Figure 4.31: Header Drive Hydraulics**

13. Place the hydraulics/electrical bundle (A) in storage position on the header.
14. Back windrower slowly away from header.



**Figure 4.32: Hydraulics Hoses in Storage Position**

## ATTACHING HEADERS TO M1 SERIES WINDROWER

15. Reinstall clevis pin (B) into header support (C) and secure with hairpin (A). Repeat for opposite side.

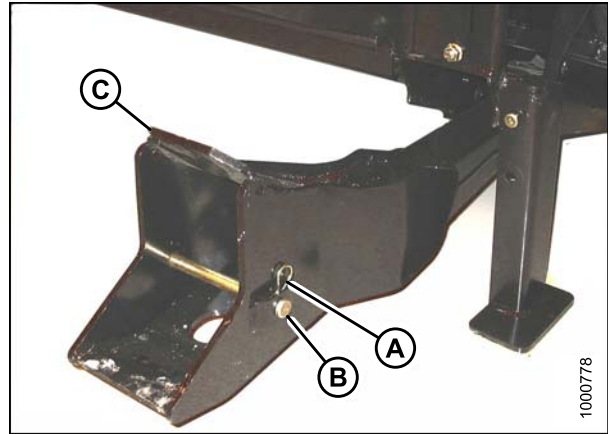


Figure 4.33: Header Support

## 4.2 D1X or D1XL Series Header

### 4.2.1 Attaching Draper Header Supports

Draper header supports are required to attach a D1X or D1XL Series Draper Header to the windrower.

#### DANGER

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

If **NOT** installed, attach draper header support (supplied with header) to windrower lift linkage as follows:

1. Remove hairpin and clevis pin (B) from the draper header support (A).

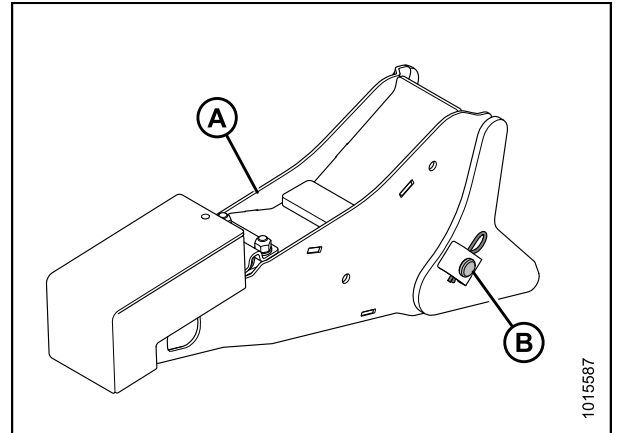


Figure 4.34: Draper Header Support

2. Position the draper header support (B) on lift linkage (A), and reinstall clevis pin (C).

#### NOTE:

To avoid pin snagging the windrow, install the clevis pin on the outboard side of the draper header support.

3. Secure clevis pin (C) with hairpin (D).
4. Repeat for opposite lift linkage.

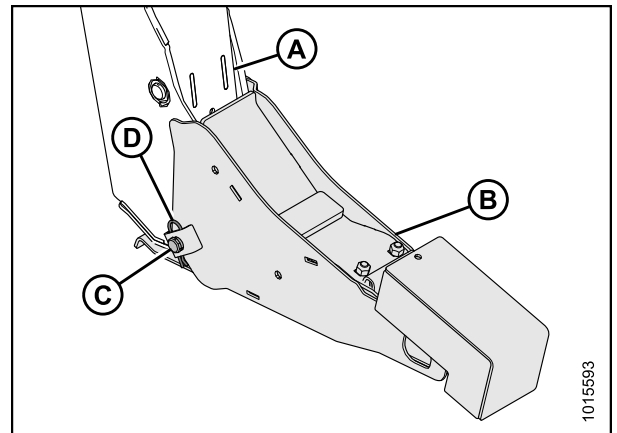


Figure 4.35: Draper Header Support

### 4.2.2 Attaching a D1X or D1XL Series Header

#### NOTE:

Draper header supports must be installed onto the windrower lift linkage before starting this procedure. Refer to [4.2.1 Attaching Draper Header Supports, page 43](#).

#### DANGER

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

## ATTACHING HEADERS TO M1 SERIES WINDROWER

1. **For hydraulic center-link without self-alignment:**  
Relocate pin (A) in frame linkage as required to raise the center-link (B) until the hook is above the attachment pin on the header.

**IMPORTANT:**

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

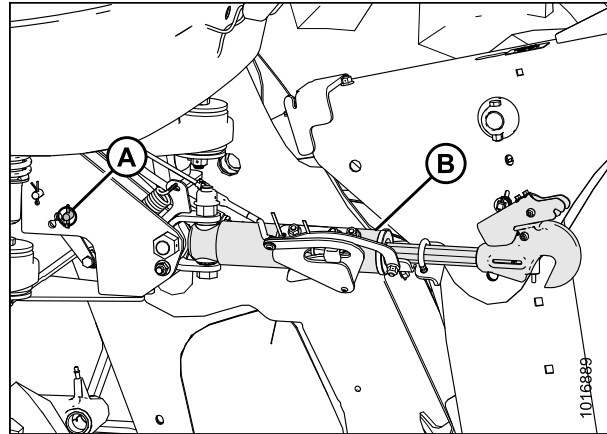


Figure 4.36: Center-Link without Self-Aligning

2. Remove hairpin (A) from pin (B), and remove pin (B) from header leg. Repeat on the other header leg.

**CAUTION**

Check to be sure all bystanders have cleared the area.

**IMPORTANT:**

Remove protective cover from exhaust stack prior to starting engine.

3. Start engine.

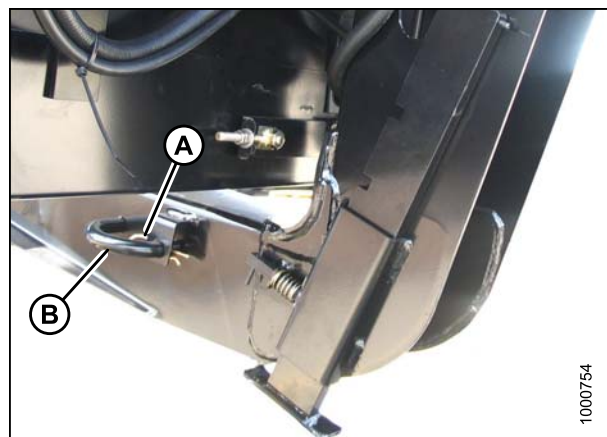


Figure 4.37: Header Leg

**CAUTION**

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

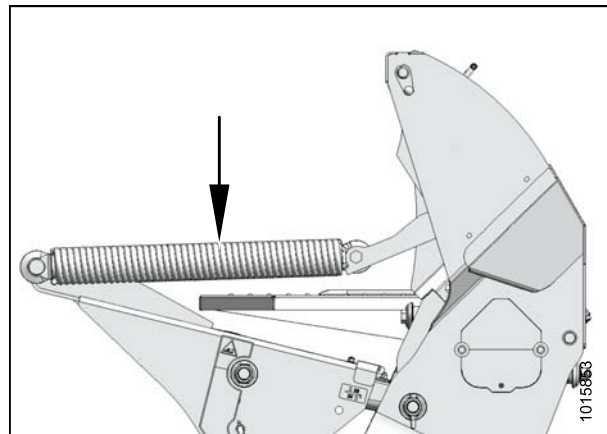


Figure 4.38: Header Float Springs



## ATTACHING HEADERS TO M1 SERIES WINDROWER

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



Figure 4.39: HPT Display

6. On Float Adjust page, press soft key 3 (A) to remove float.



Figure 4.40: HPT Display

7. **For hydraulic center-link with optional self-alignment:**

- a. Press HEADER DOWN switch on the ground speed lever (GSL) to fully retract header lift cylinders.
- b. Press REEL UP switch on the GSL to raise the center-link until the hook is above the attachment pin on the header.

**IMPORTANT:**

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

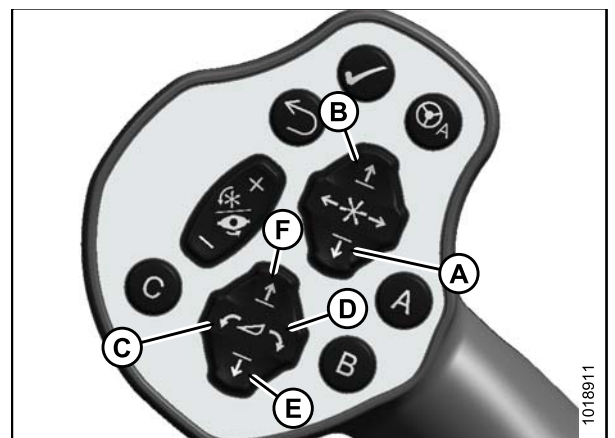
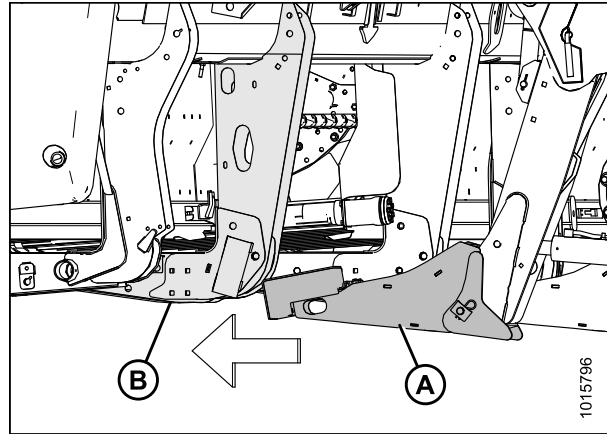


Figure 4.41: Ground Speed Lever Switches

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

## ATTACHING HEADERS TO M1 SERIES WINDROWER

8. Drive the windrower slowly forward until the draper header supports (A) enter the header legs (B). Continue driving slowly forward until lift linkages contact the support plates in the header legs and the header nudges forward.
9. Ensure that lift linkages are properly engaged in header legs and are contacting the support plates.



**Figure 4.42: Header Leg and Draper Header Support**

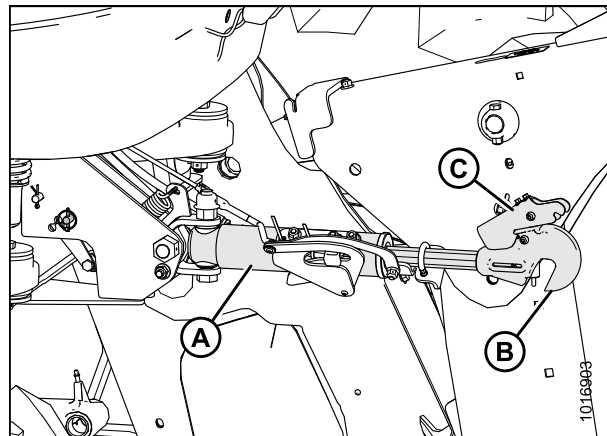
10. **For hydraulic center-link with optional self-alignment:**

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

**IMPORTANT:**

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

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



**Figure 4.43: Center-Link**



## ATTACHING HEADERS TO M1 SERIES WINDROWER

### 11. For hydraulic center-link without self-alignment:

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

#### IMPORTANT:

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

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

### CAUTION

Check to be sure all bystanders have cleared the area.

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

#### NOTE:

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

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

- Stop engine, and remove key from ignition.
- Engage safety prop on the windrower's lift cylinder as follows:
  - Pull lever (A) and rotate toward header to release, and lower safety prop onto cylinder.
  - Repeat for opposite lift cylinder.

#### IMPORTANT:

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

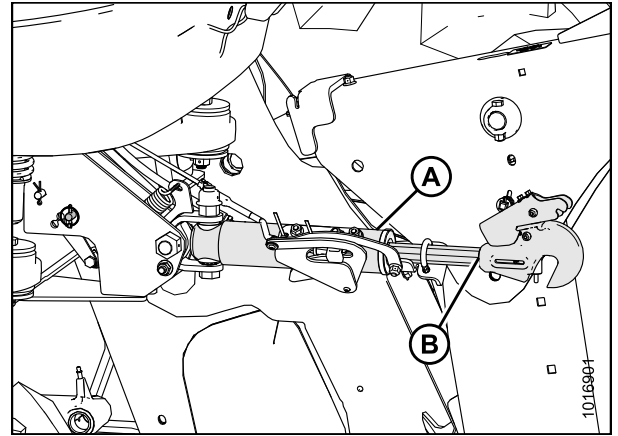


Figure 4.44: Hydraulic Center-Link



Figure 4.45: Ground Speed Lever

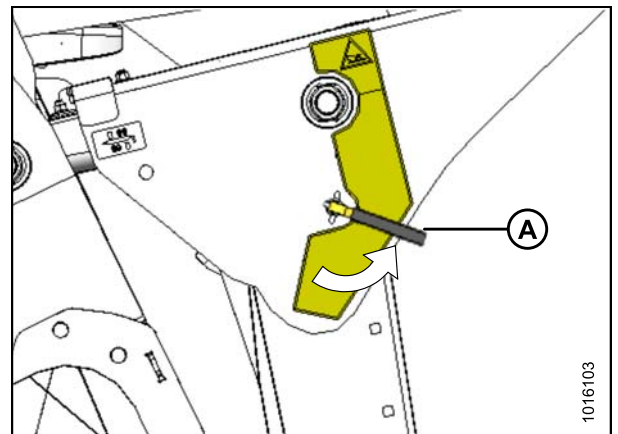


Figure 4.46: Cylinder Safety Prop

## ATTACHING HEADERS TO M1 SERIES WINDROWER

15. Install pin (B) through the header leg (engaging U-bracket in draper header support) on both sides and secure with a hairpin (A).
16. Raise header stand (D) to storage position by pulling spring pin (C) and lifting stand into uppermost position. Release spring pin.

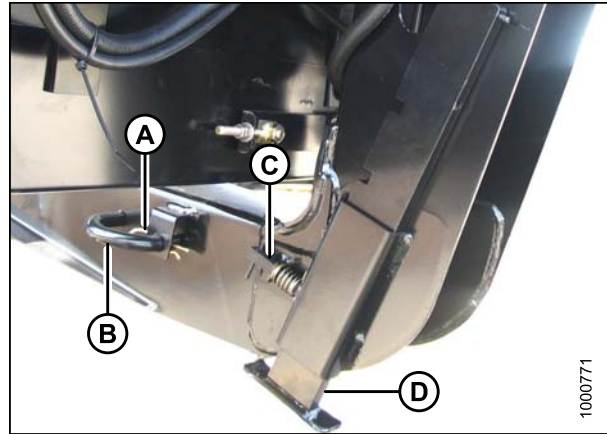


Figure 4.47: Header Leg

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

**NOTE:**

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

18. Repeat for opposite side.

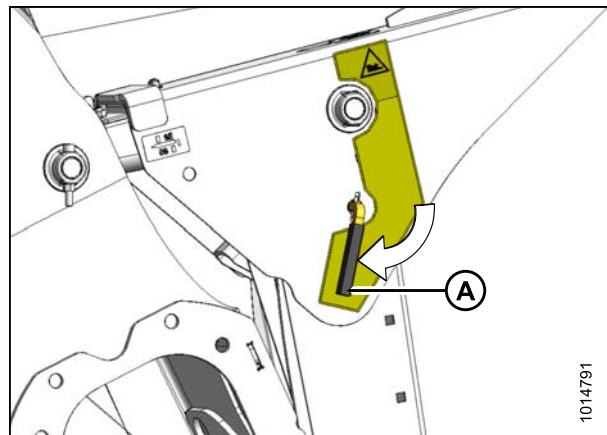


Figure 4.48: Cylinder Safety Prop

**CAUTION**

Check to be sure all bystanders have cleared the area.

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

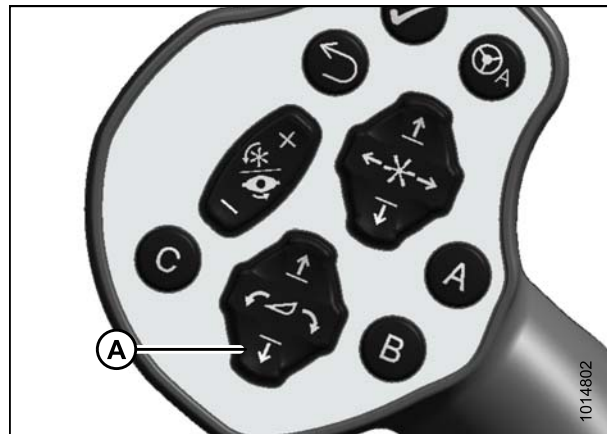


Figure 4.49: Ground Speed Lever

## ATTACHING HEADERS TO M1 SERIES WINDROWER

### NOTE:

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

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

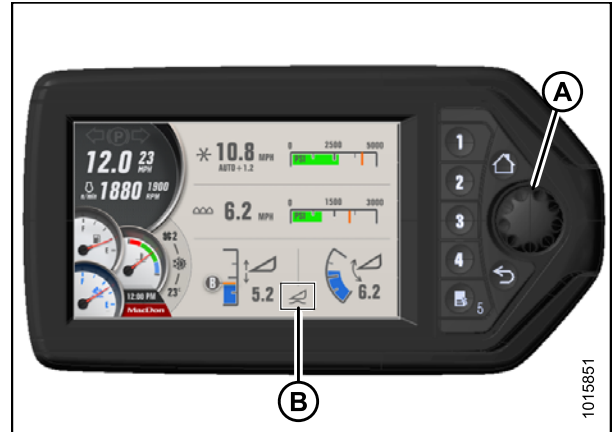


Figure 4.50: HPT Display

22. On Float Adjust page, press soft key 3 (A) to restore the header float.

### NOTE:

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



Figure 4.51: HPT Display

23. Stop engine, and remove key.
24. Proceed to [4.2.3 Connecting D1X or D1XL Series Hydraulics, page 49](#).

## 4.2.3 Connecting D1X or D1XL Series Hydraulics

### IMPORTANT:

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

## ATTACHING HEADERS TO M1 SERIES WINDROWER

1. Pull handle (A) on hose management arm (B) rearwards to disengage arm from support (C).
2. Move arm (B) toward left cab-forward side of windrower.

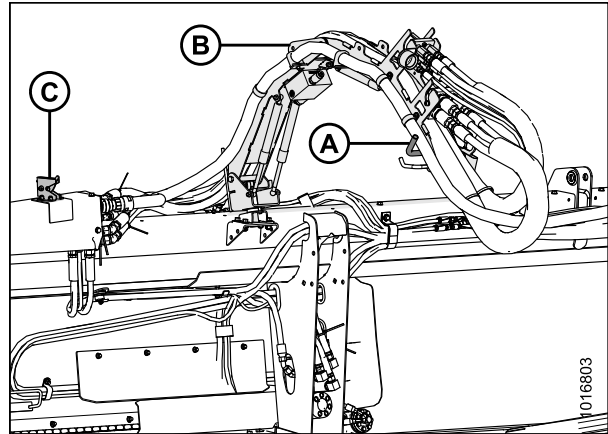


Figure 4.52: Hydraulic Hose Management Arm

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

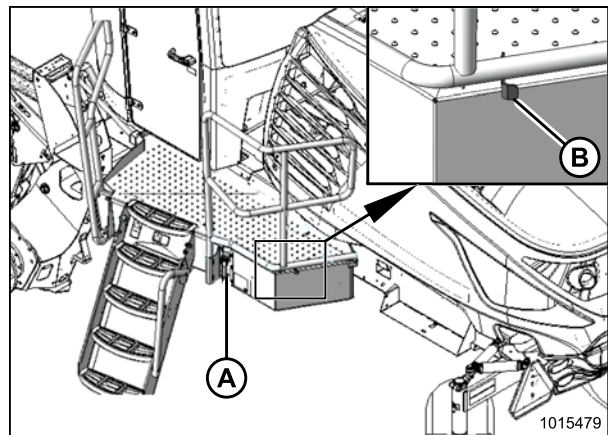


Figure 4.53: Platform

5. Unhook hoses from arm assembly.
6. Connect hydraulic hose management arm (A) to windrower by securing the ball joint (B) on arm into the latch support (C) on windrower leg.

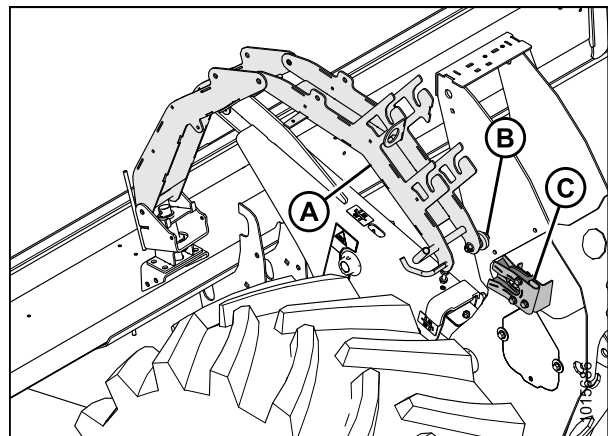
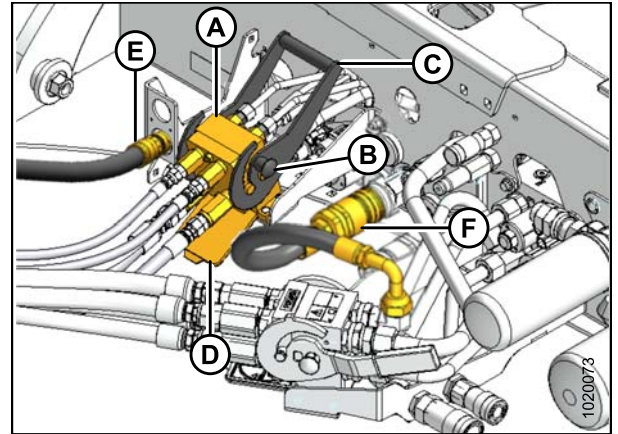


Figure 4.54: Windrower Left Leg

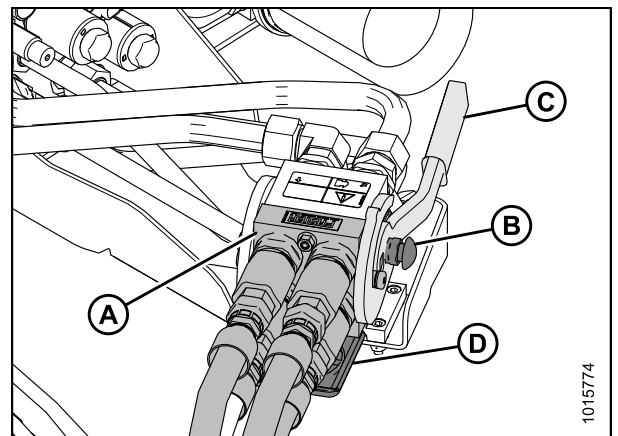
## ATTACHING HEADERS TO M1 SERIES WINDROWER

7. Retrieve draper drive and reel control multicoupler (A) from hose management arm.
8. Push knob (B) on hydraulic receptacle and pull handle (C) fully away from windrower.
9. Open cover (D) and position coupler onto receptacle. Align pins in coupler with slots in handle (C) and push handle toward windrower so that coupler is locked onto receptacle and knob (B) snaps out.
10. Remove cover from electrical connector (E), push electrical connector onto receptacle, and secure by turning collar on electrical connector clockwise.
11. Remove hose quick-disconnect (F) from storage location and connect to receptacle on frame.
12. Retrieve knife and reel drive multicoupler (A) from hose management arm.
13. Push knob (B) on hydraulic receptacle and pull handle (C) fully away from windrower.
14. Open cover (D) and position coupler onto receptacle. Align pins in coupler with slots in handle (C) and push handle toward windrower so that coupler is locked onto receptacle and knob (B) snaps out.

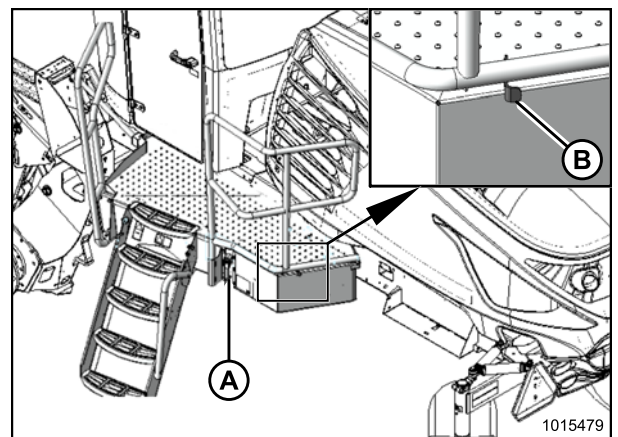


**Figure 4.55: Draper/Reel Multicoupler**

15. Push latch (B) to unlock the platform (A).
16. Push the platform (B) towards the cab until it stops and latch engages.



**Figure 4.56: Knife/Reel Drive Multicoupler**



**Figure 4.57: Platform**



## ATTACHING HEADERS TO M1 SERIES WINDROWER

17. Ensure hydraulic hose routing is as straight as possible and avoids potential rub/wear points.

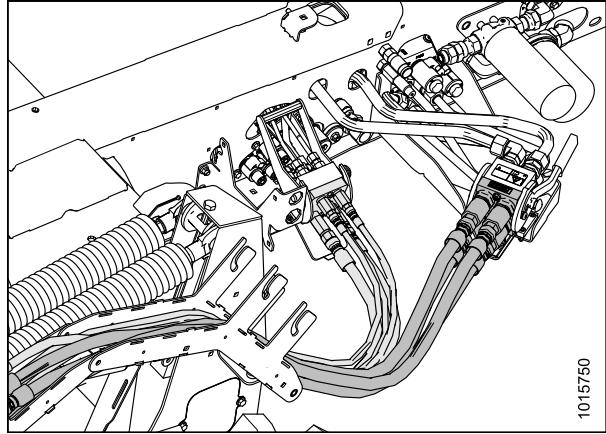


Figure 4.58: Hydraulic Multicouplers and Hose Routing

### 4.2.4 Detaching a D1X or D1XL Series Header

#### DANGER

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

1. Lower the reel fully.
2. Lift the header fully.
3. Stop the engine and remove the key from the ignition.
4. Engage safety prop on the windrower's lift cylinder as follows:
  - a. Pull lever (A) and rotate toward header to release, and lower safety prop onto cylinder.
  - b. Repeat for opposite lift cylinder.

#### **IMPORTANT:**

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

5. Open left side platform.

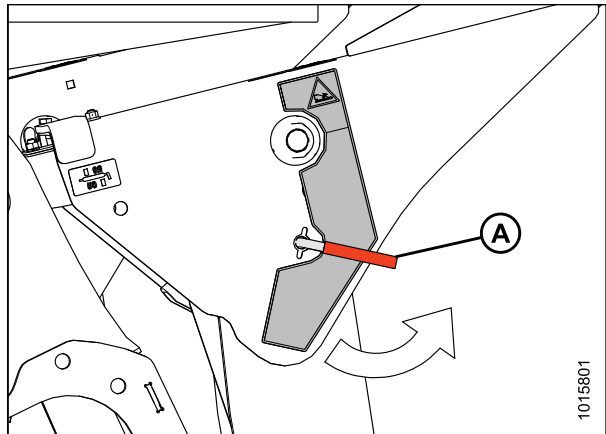


Figure 4.59: Engaging Cylinder Safety Prop

## ATTACHING HEADERS TO M1 SERIES WINDROWER

### NOTE:

Firmly hold handle (B) when disconnecting the multicoupler (C). Pressure may cause the handle to kick back with force.

6. Push lock button (A) and pull handle (B) to disengage multicoupler (C) and disconnect the hydraulics from the rear knife/reel drive receptacle.
7. Route knife/reel drive hose bundle back to the storage position (D) on the hydraulic hose management arm.
8. Remove any debris that may have accumulated on the receptacle, and close the cover (E).

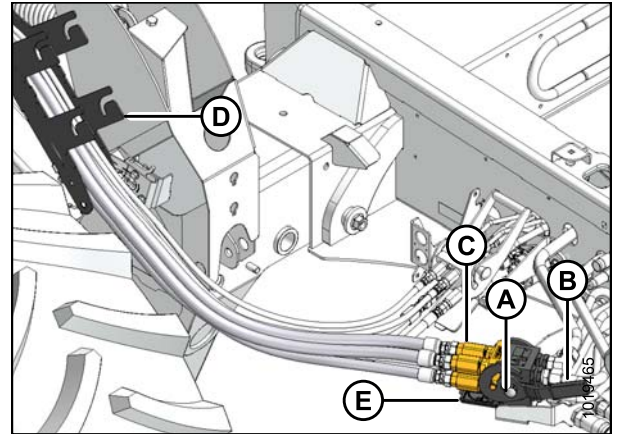


Figure 4.60: Knife/Reel Drive Multicoupler

9. Push lock button (B), and pull handle (C) to disengage multicoupler (A) and disconnect the hydraulics from the windrower draper drive/reel lift receptacle.
10. Disconnect electrical connector (E).
11. Remove any debris that may have accumulated on the windrower front receptacle, and close cover (D).

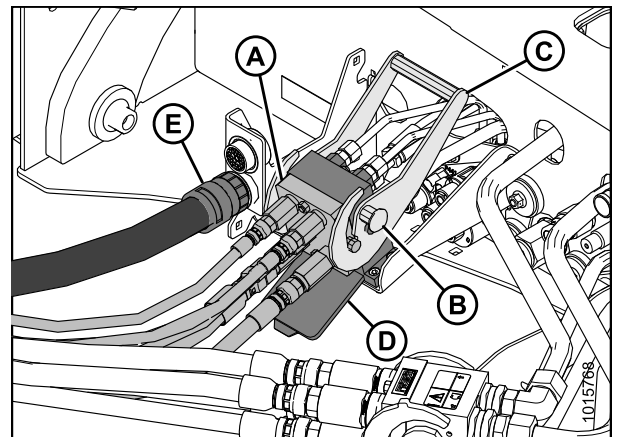


Figure 4.61: Draper/Reel Multicoupler

12. Route draper drive/reel hose bundle back to the storage position (A) on the hydraulic hose management arm (B).
13. Insert electrical connector into storage cup (C).
14. Close platform.

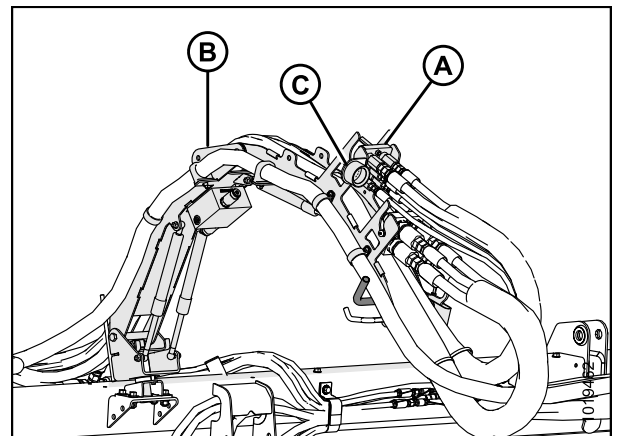


Figure 4.62: Hose Management Arm

## ATTACHING HEADERS TO M1 SERIES WINDROWER

15. Disconnect hose management arm (A) from windrower by pulling latch lever (B) to open latch. Keep latch open and move hose management arm (A) away from header with handle (C).

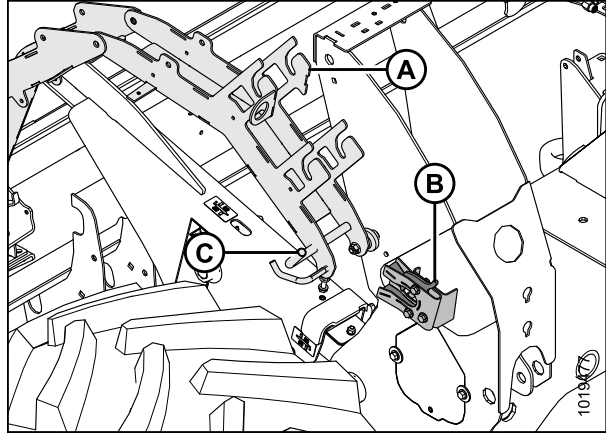


Figure 4.63: Hose Management Arm

16. Pivot hose management arm (B) forward with handle (A), and engage hook (D) into latch (C) on header.

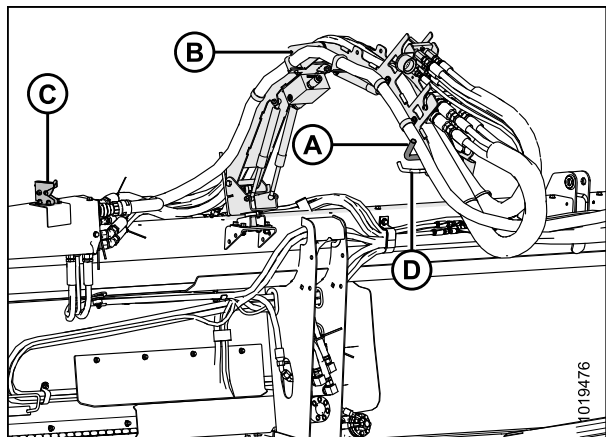


Figure 4.64: Hose Management Arm

17. Remove the header leg pin (B) by removing the hairpin (A) from header leg on both sides.
18. Lower header stand (D) by pulling spring loaded pin (C). Release spring pin to lock stand.

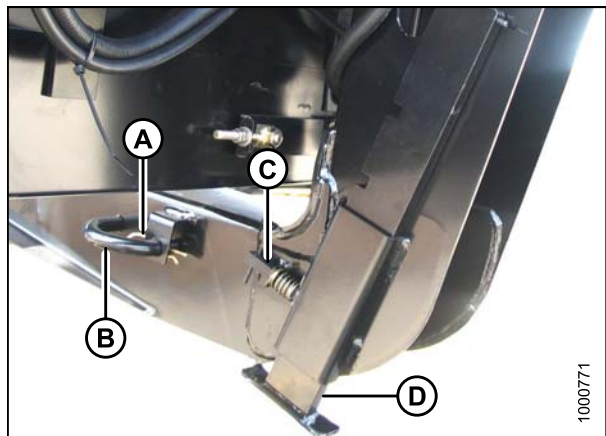


Figure 4.65: Header Stand



## ATTACHING HEADERS TO M1 SERIES WINDROWER

### *Windrowers with self-aligning center-link:*

19. Release the center-link latch (A) before returning to the cab.

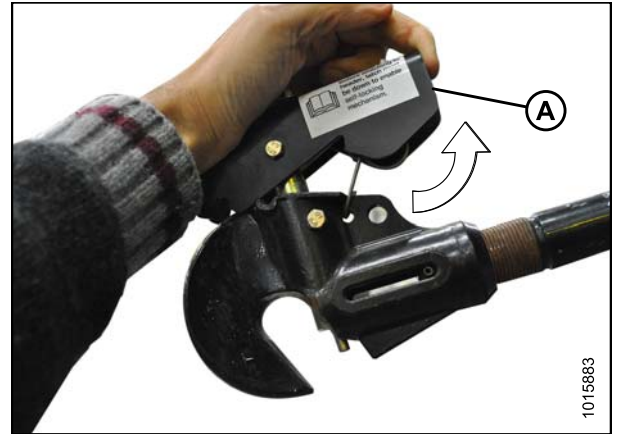


Figure 4.66: Center-Link

20. Disengage safety prop by turning lever (A) downwards until lever locks into the vertical position.
21. Repeat for the opposite side.

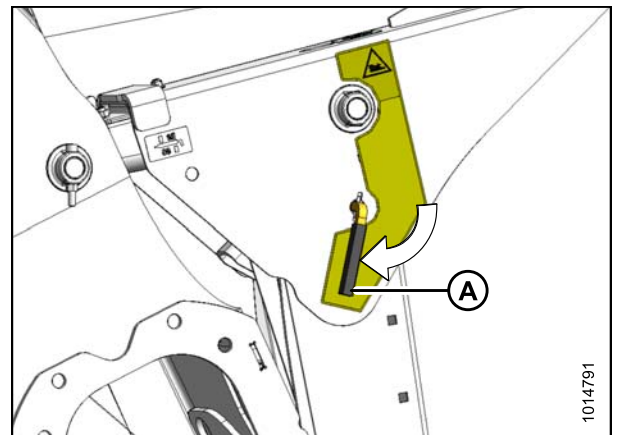


Figure 4.67: Disengaging Safety Prop

### CAUTION

Check to be sure all bystanders have cleared the area.

22. Start engine.
23. Remove header float when prompted by the Harvest Performance Tracker (HPT).

#### NOTE:

If not prompted by the HPT to remove float, remove float manually.

24. Lower the header to the ground with HEADER DOWN switch (A).
25. Press HEADER TILT switches (B) as required on GSL to release load on center-link.
26. *Windrowers with self-aligning center-link:* Press the REEL UP switch (C) to disengage center-link from header.
27. Proceed to Step [31.](#), [page 56.](#)

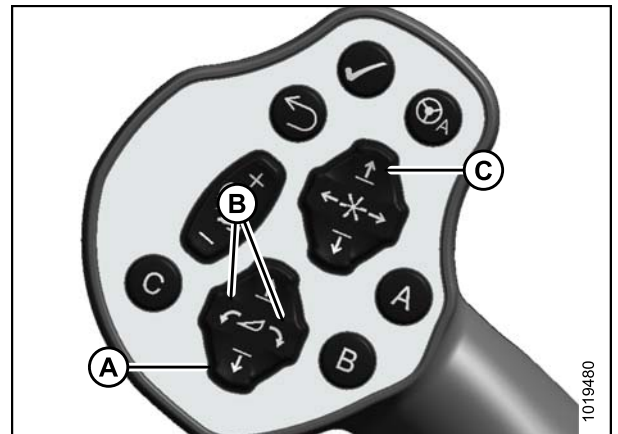


Figure 4.68: GSL

## ATTACHING HEADERS TO M1 SERIES WINDROWER

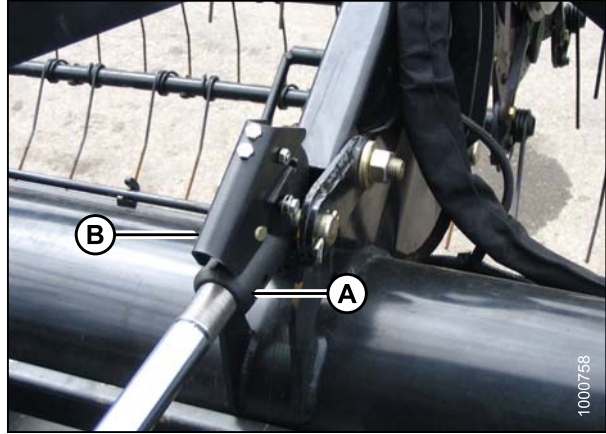
### *Windrowers without self-aligning center-link:*

28. Shut off the engine and remove the key.
29. Disconnect center-link by lifting release (B) and lift hook (A) off header.

### **⚠ CAUTION**

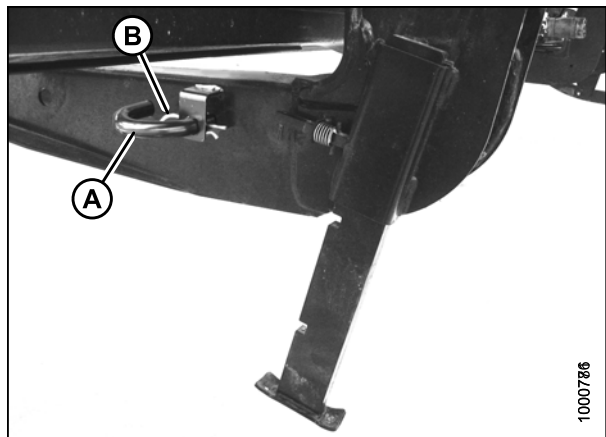
**Check to be sure all bystanders have cleared the area.**

30. Start the engine.



**Figure 4.69: Hydraulic Center-Link**

31. Back windrower away from header.
32. Reinstall pin (A) into header leg, and secure with hairpin (B).



**Figure 4.70: Header Stand**

## 4.3 R85 16-Footer Header

### 4.3.1 Attaching an R85 16-Footer Header

#### DANGER

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

1. **Hydraulic center-link without self-alignment:**  
Relocate pin (A) in frame linkage as required to raise the center-link (B) until the hook is above the attachment pin on the header.

#### IMPORTANT:

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

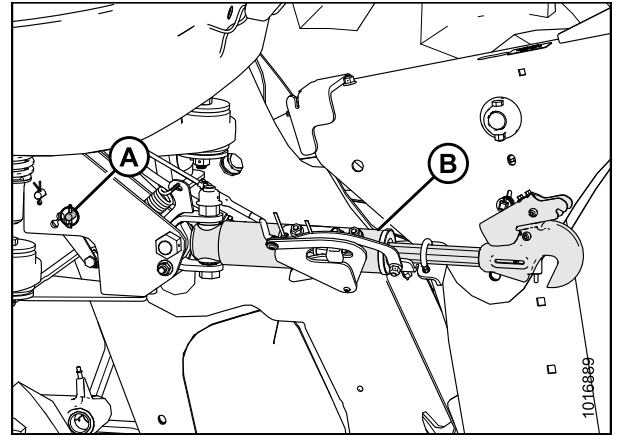


Figure 4.71: Hydraulic Center-Link without Self-Alignment Kit

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

#### CAUTION

Check to be sure all bystanders have cleared the area.

#### IMPORTANT:

Remove protective cover from exhaust stack prior to starting engine.

3. Start engine.

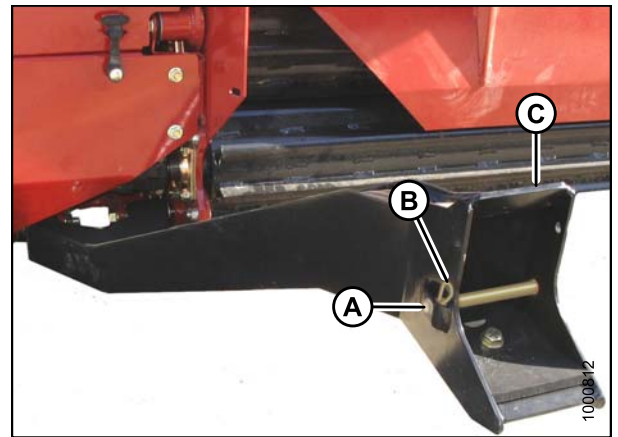


Figure 4.72: Header support

## ATTACHING HEADERS TO M1 SERIES WINDROWER

### CAUTION

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

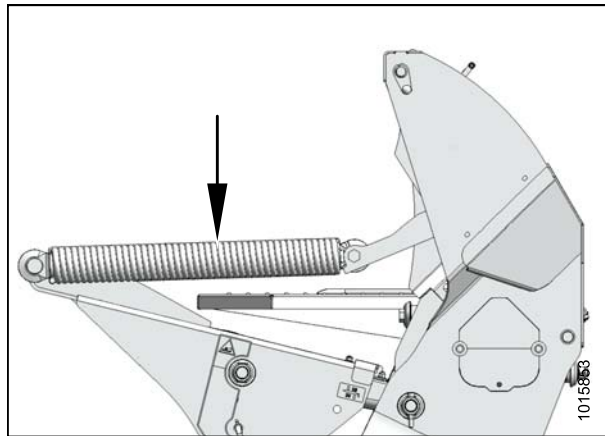


Figure 4.73: Header Float Spring

#### NOTE:

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

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

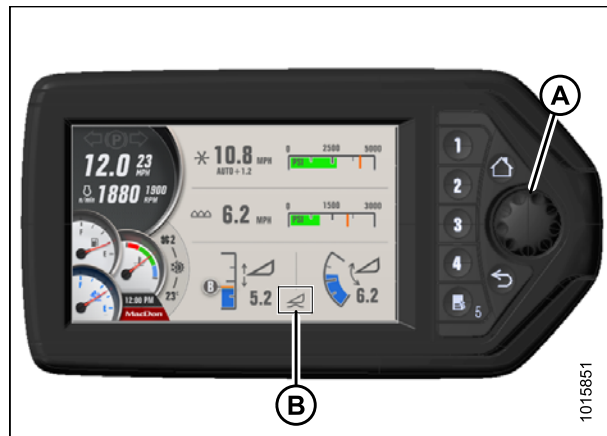


Figure 4.74: HPT Display

6. On Float Adjust page, press soft key 3 (A) to remove the header float.

#### NOTE:

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



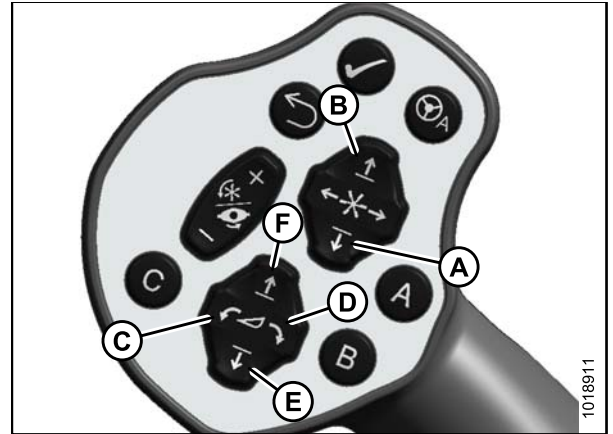
Figure 4.75: HPT Display

## ATTACHING HEADERS TO M1 SERIES WINDROWER

7. Press HEADER DOWN switch (E) on the ground speed lever (GSL) to fully retract header lift cylinders.
8. **For hydraulic center-link with self-alignment:** Press the REEL UP switch (B) on the GSL to raise the center-link until the hook is above the attachment pin on the header.

**IMPORTANT:**

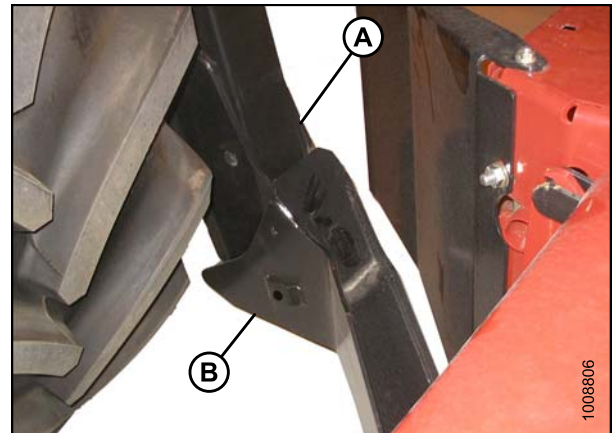
If the center-link is too low, it may contact the header as the windrower approaches the header for hookup.



**Figure 4.76: Ground Speed Lever**

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

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



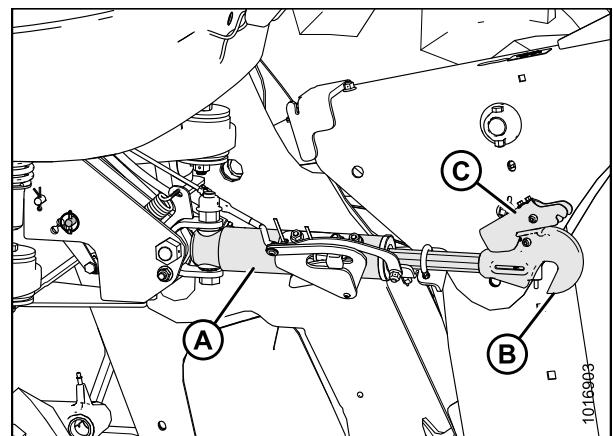
**Figure 4.77: Header support**

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

**IMPORTANT:**

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

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



**Figure 4.78: Center-Link**



## ATTACHING HEADERS TO M1 SERIES WINDROWER

### 12. For hydraulic center-link without self-alignment:

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

#### IMPORTANT:

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

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

### CAUTION

Check to be sure all bystanders have cleared the area.

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

#### NOTE:

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

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

- Stop engine, and remove the key.

- Engage safety prop on the windrower's lift cylinder as follows:

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

#### IMPORTANT:

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

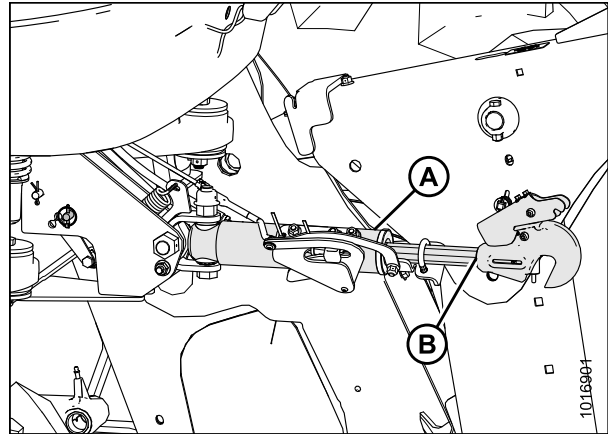


Figure 4.79: Hydraulic Center-Link



Figure 4.80: Ground Speed Lever

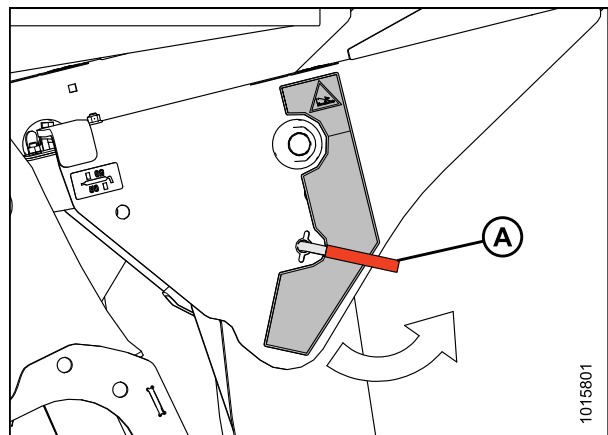


Figure 4.81: Cylinder Safety Prop

## ATTACHING HEADERS TO M1 SERIES WINDROWER

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

**IMPORTANT:**

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

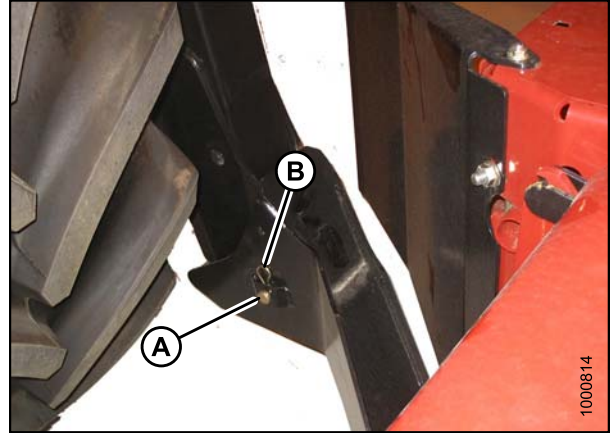


Figure 4.82: Header support

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

**NOTE:**

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

18. Repeat for opposite side.

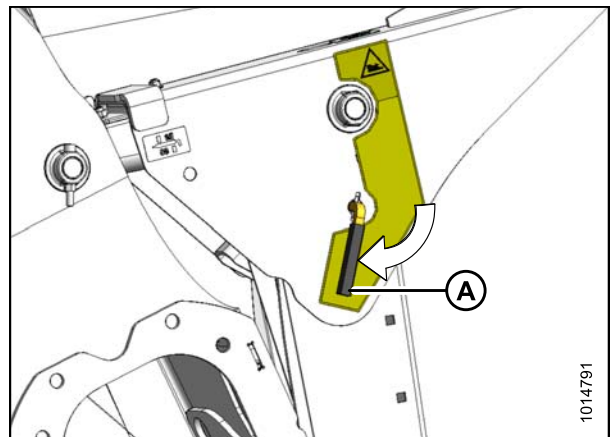


Figure 4.83: Cylinder Safety Prop

**CAUTION**

Check to be sure all bystanders have cleared the area.

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

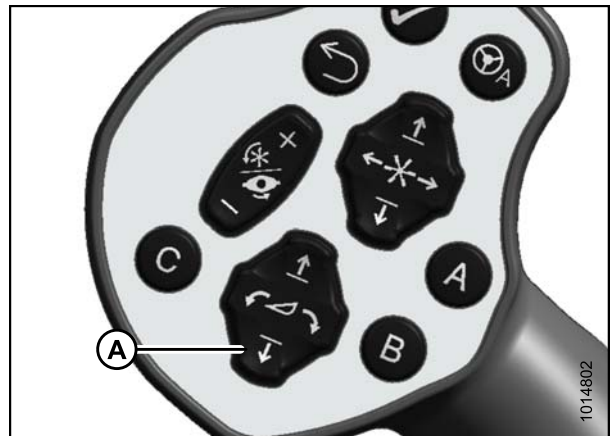


Figure 4.84: Ground Speed Lever

## ATTACHING HEADERS TO M1 SERIES WINDROWER

### NOTE:

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

20. Press rotary scroll knob (A) on Harvest Performance Tracker (HPT) to highlight QuickMenu options.
21. Rotate scroll knob (A) to highlight the HEADER FLOAT symbol (B) and press scroll knob to select.
22. Stop engine, and remove key.



Figure 4.85: HPT Display

23. On Float Adjust page, press soft key 3 (A) to restore the header float.

### NOTE:

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



Figure 4.86: HPT Display



### 4.3.2 Connecting R85 16-Footer Header Hydraulics

Refer to the following steps to attach the hydraulic hoses and electrical harness from the header to the windrower. Note that these steps are also included in the R85 rotary header operator's manual.

1. Open the left side platform (A).

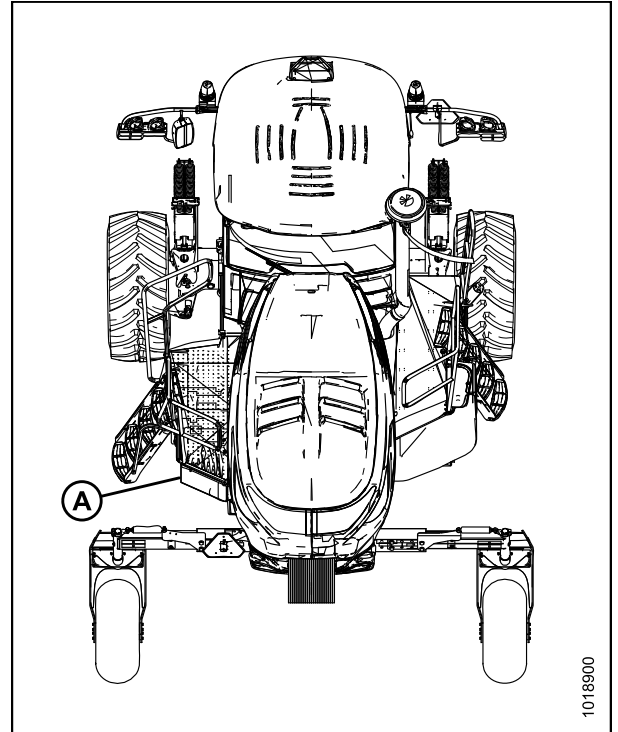


Figure 4.87: M1240 Windrower

2. Route hose bundle (A) from header to under windrower frame.

**NOTE:**

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

3. Insert pin (B) into hole (C) in windrower frame and place hose bundle on support (D).

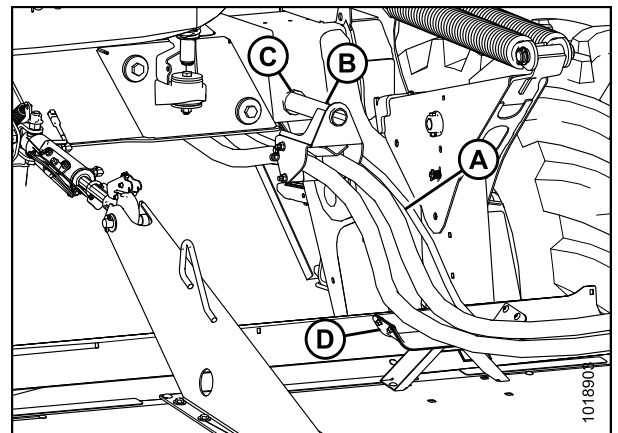


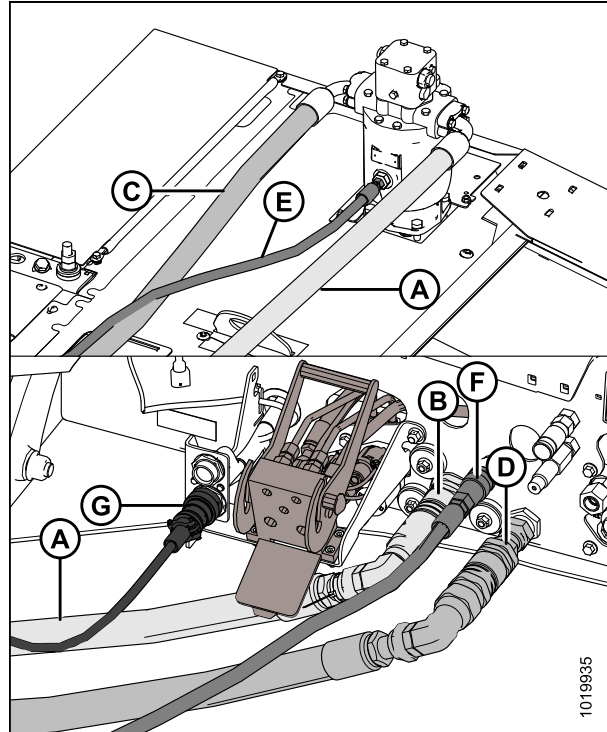
Figure 4.88: Hose and Electrical Routing

## ATTACHING HEADERS TO M1 SERIES WINDROWER

4. Refer to the following to connect hydraulic hoses with quick disconnect fittings, and electrical connections to the windrower. If hoses are not equipped with quick-disconnect fittings, they can be attached directly to the windrower fittings. Proceed to Step 5., page 64.
  - a. Use a clean rag to remove dirt and moisture from the couplers.
  - b. Connect the disc pressure hose (A) with red plastic tie to receptacle (B).
  - c. Connect the disc return hose (C) to receptacle (D).
  - d. Connect the case drain hose (E) to receptacle (F).
  - e. Connect the electrical harness to receptacle (G).

**NOTE:**

Ensure the hydraulic hoses have sufficient slack to clear the multicoupler without coming into contact with it. If necessary, increase slack in the hoses by loosening the hose holder at the windrower frame and moving the hoses as required.

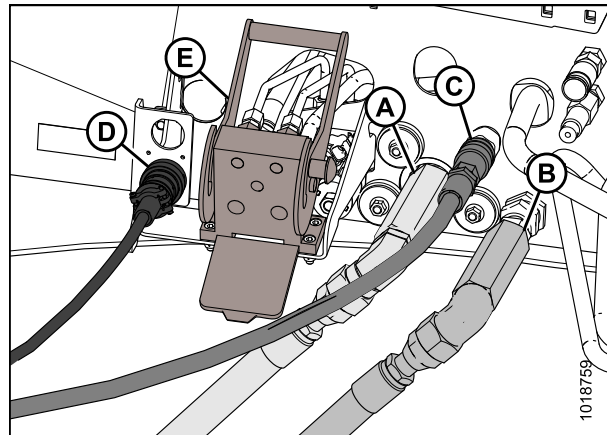


**Figure 4.89: Quick-Disconnect Hydraulic and Electrical Connections (Parts Removed for Clarity)**

5. Refer to the following to directly connect the hydraulic hoses to the windrower as shown:
  - a. Use a clean rag to remove dirt and moisture from the couplers.
  - b. Attach the disc pressure hose (A) to fitting on frame and torque to 205–226 N·m (151–167 ft·lbf).
  - c. Connect the disc return hose (B) to fitting on frame and torque to 205–226 N·m (151–167 ft·lbf).
  - d. Connect the case drain hose (C) to fitting on frame and tighten.
  - e. Connect the electrical harness to receptacle (D).

**NOTE:**

Ensure the hydraulic hoses have sufficient slack to clear the multicoupler (E) without coming into contact with it. If necessary, increase slack in the hoses by loosening the hose holder at the windrower frame and moving the hoses as required.



**Figure 4.90: Hydraulic and Electrical Connections (Parts Removed for Clarity)**

6. Close the side platform.

### 4.3.3 Detaching R85 16-Footer Header

#### **⚠ DANGER**

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

#### **⚠ CAUTION**

Check to be sure all bystanders have cleared the area.

1. Start the windrower and press switch (A) to raise the header to the maximum height.
2. Stop engine and remove key from ignition.

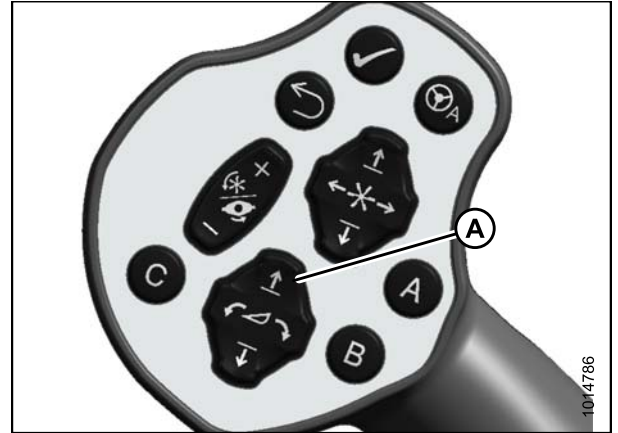


Figure 4.91: Ground Speed Lever

3. Engage safety prop on the windrower's lift cylinder as follows:
  - a. Pull lever (A) and rotate toward header to release, and lower safety prop onto cylinder.
  - b. Repeat for opposite lift cylinder.

**IMPORTANT:**

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

4. Open left side platform.

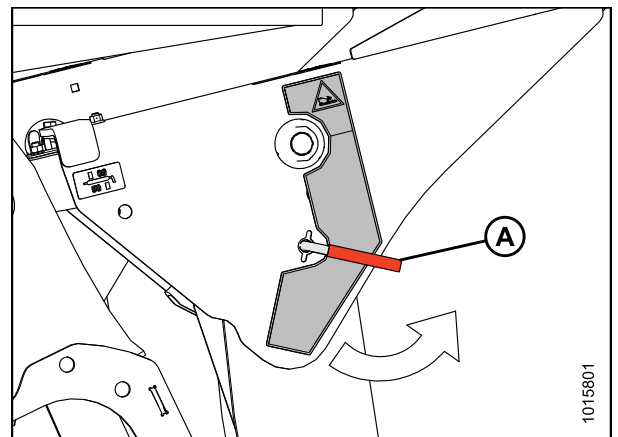


Figure 4.92: Engaging Cylinder Safety Prop

5. Disconnect the following electrical harness and hydraulic hoses from the windrower:
  - a. Disconnect the disc pressure hose from receptacle (A).
  - b. Disconnect the disc return hose from receptacle (B).
  - c. Disconnect the case drain hose from receptacle (C).
  - d. Disconnect the electrical harness from receptacle (D).

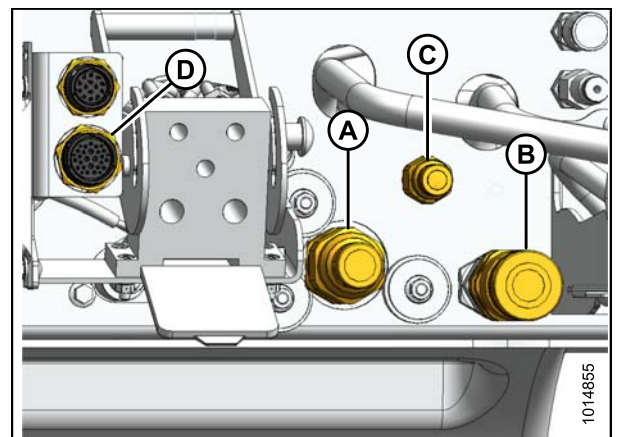


Figure 4.93: Header Drive Hydraulics

## ATTACHING HEADERS TO M1 SERIES WINDROWER

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

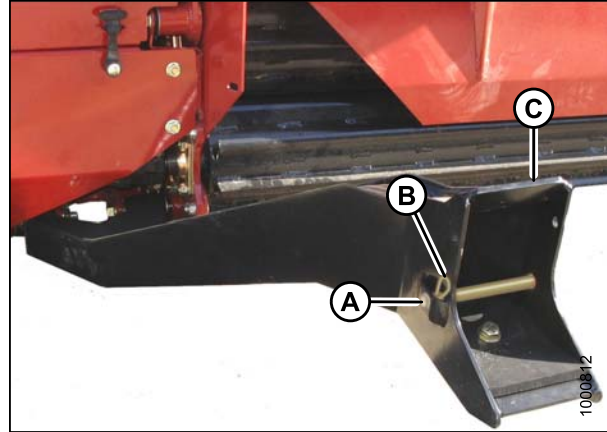


Figure 4.94: Header Supports

7. Engage safety prop on the windrower's lift cylinder as follows:
  - a. Pull lever (A) and rotate toward header to release, and lower safety prop onto cylinder.
  - b. Repeat for opposite lift cylinder.

**IMPORTANT:**

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

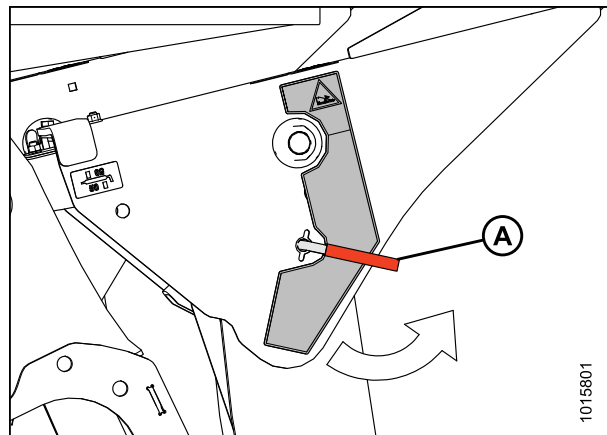


Figure 4.95: Engaging Cylinder Safety Prop

8. **For windrowers with self-aligning center-link:** Release the center-link latch (A) before returning to the cab.

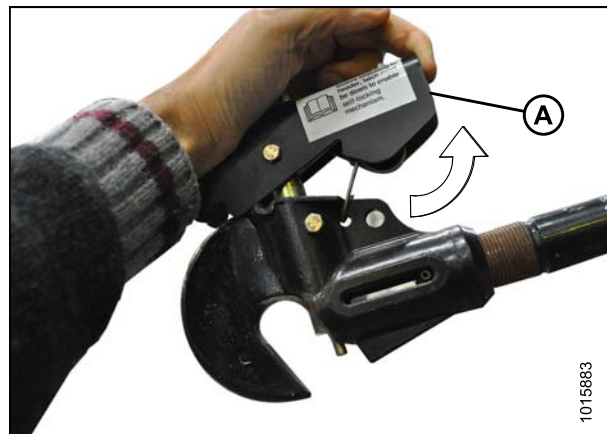


Figure 4.96: Center-Link

## ATTACHING HEADERS TO M1 SERIES WINDROWER

9. Disengage safety prop by turning lever (A) downwards until lever locks into the vertical position.
10. Repeat for the opposite side.

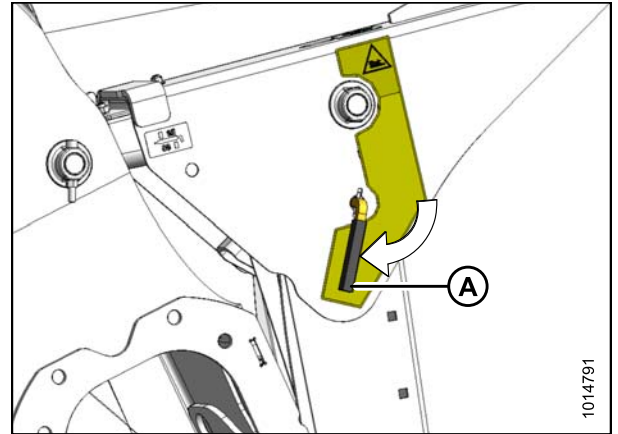


Figure 4.97: Safety Props

### CAUTION

Check to be sure all bystanders have cleared the area.

11. Start engine and remove header float when prompted by the Harvest Performance Tracker (HPT).

#### NOTE:

If not prompted by the HPT to remove float, remove float manually.

12. Lower the header to the ground
13. **For windrowers with self-aligning center-link:** Use HEADER TILT cylinder switches (A) on GSL to release load on center-link cylinder.
14. Operate the link lift cylinder with the REEL UP switch (B) to disengage the center-link from the header.

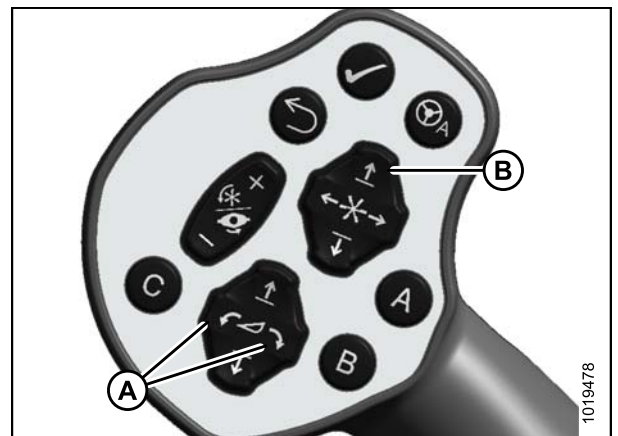


Figure 4.98: GSL

## ATTACHING HEADERS TO M1 SERIES WINDROWER

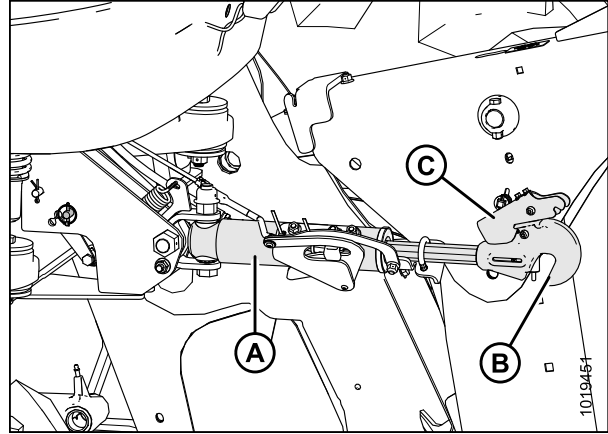
15. **For windrowers without self-aligning center-link:**  
Shut off the engine and remove the key.

16. Lift hook release (C) and lift hook (B) off header pin.

**⚠ CAUTION**

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

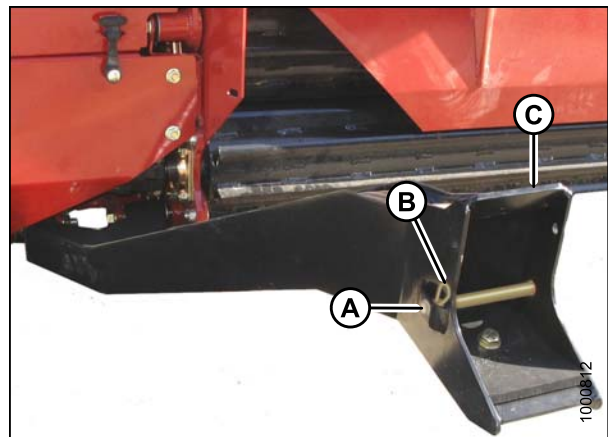
17. Start the engine.



**Figure 4.99: Hydraulic Center-Link**

18. Back the windrower slowly away from header.

19. Reinstall clevis pin (A) through support (C) and secure with hairpin (B). Repeat for opposite side.



**Figure 4.100: Header Support**

## 5 Performing Predelivery Checks

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

### **IMPORTANT:**

The machine is factory-set and should not require further adjustments; however, perform the following checks to ensure your machine operates at maximum performance. Adjustments should be made only if absolutely necessary and in accordance with the instructions in this manual.

### 5.1 Completing Predelivery Checklist

1. Lower header so that lift cylinders are fully retracted.
2. Shut down engine, and remove key.
3. Perform the final checks and adjustments listed on the following pages and the [Predelivery Checklist, page 111](#) (yellow sheet attached to this instruction) to ensure the machine is field-ready.

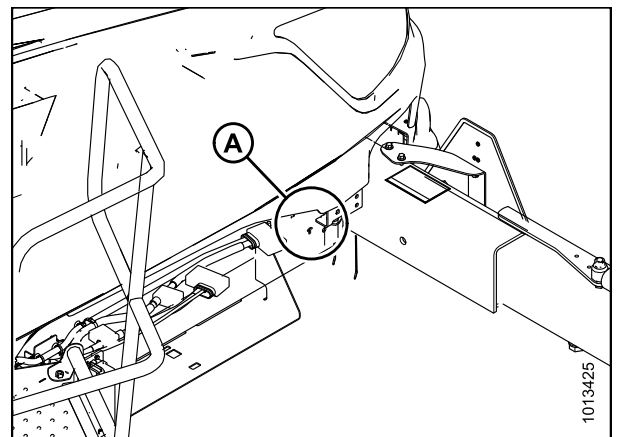
### **IMPORTANT:**

Ensure the Operator or the Dealer retains the completed Predelivery Checklist.

#### 5.1.1 Recording Serial Numbers

Record the windrower and engine serial numbers on the [Predelivery Checklist, page 111](#).

1. The windrower serial number plate (A) is located on the left side of the main frame near the walking beam as shown.



**Figure 5.1: Windrower Serial Number Location**



## PERFORMING PREDELIVERY CHECKS

2. The engine serial number plate (A) is located on top of the engine cylinder head cover as shown.

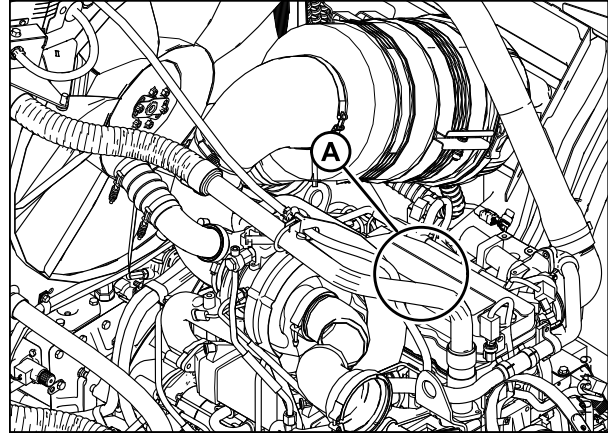


Figure 5.2: Engine Serial Number Location

### 5.1.2 Checking and Adding Wheel Drive Lubricant Level

1. Remove plug (A or B). The lubricant should be visible through the port or running out slightly.
2. If necessary, add lubricant until lubricant runs out from the open port (A or B). For lubricant specifications, refer to [6.1 Lubricants, Fluids, and System Capacities, page 93](#).

**NOTE:**

The type of lubricant used after the first lubricant change is different from the factory supplied lubricant.

3. Reinstall plugs and tighten.

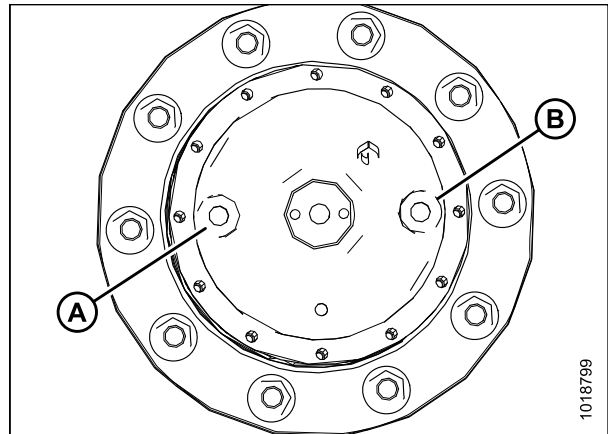


Figure 5.3: Drive Wheel Hub

### 5.1.3 Checking Tire Pressures

Check tire pressures with a gauge.

**Drive Wheel Tires:** For optimal performance, drive wheel (A) tire pressures are determined by tire type, header size, and additional options. Refer to [Table 5.1 M1240 Tire Inflation Recommendations, page 71](#).

**Caster Wheel Tires:** Inflate all caster wheel (B) tires to 110 kPa (16 psi).

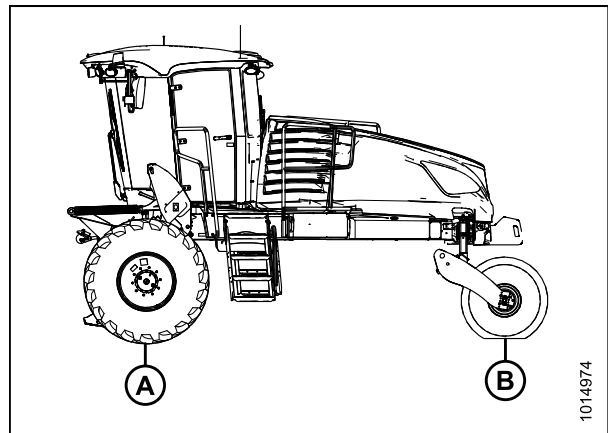


Figure 5.4: Windrower Tires

**PERFORMING PREDELIVERY CHECKS**

**Table 5.1 M1240 Tire Inflation Recommendations**

<b>Header Type</b>	<b>Description</b>	<b>Options</b>	<b>Weight Kit</b>	<b>Tire Type</b>	<b>Pressure kPa (psi)</b>
<b>Draper Header</b>					
D125X single reel	25-foot, double knife, timed	—	—	<b>Bar</b>	159 (23)
				<b>Turf</b>	159 (26)
D130XL single reel	30-foot, double knife, timed	Transport	1	<b>Bar</b>	200 (29)
				<b>Turf</b>	221 (32)
	30-foot, double knife, timed	Transport + upper cross auger + vertical knives	1	<b>Bar</b>	241 (35)
				<b>Turf</b>	—
D135XL single reel	35-foot, double knife, untimed	Base	2	<b>Bar</b>	200 (29)
				<b>Turf</b>	221 (32)
	35-foot, double knife, untimed	Transport	2	<b>Bar</b>	241 (35)
				<b>Turf</b>	—
	35-foot, double knife, untimed	Transport + upper cross auger + vertical knives	3	<b>Bar</b>	241 (35)
				<b>Turf</b>	—
D135XL double reel	35-foot, double knife, untimed	Base	2	<b>Bar</b>	221 (32)
				<b>Turf</b>	—
	35-foot, double knife, untimed	Transport	2	<b>Bar</b>	241 (35)
				<b>Turf</b>	—
	35-foot, double knife, untimed	Transport + upper cross auger + vertical knives	3	<b>Bar</b>	283 (41)
				<b>Turf</b>	—
D140XL double reel	40-foot, double knife, untimed	Base	2	<b>Bar</b>	241 (35)
				<b>Turf</b>	—
	40-foot, double knife, untimed	Transport	2	<b>Bar</b>	241 (35)
				<b>Turf</b>	—
	40-foot, double knife, untimed	Transport + upper cross auger + vertical knives	3	<b>Bar</b>	283 (41)
				<b>Turf</b>	—
D145XL double reel	45-foot, double knife, untimed	Base	2	<b>Bar</b>	241 (35)
				<b>Turf</b>	—
	45-foot, double knife, untimed	Transport	3	<b>Bar</b>	262 (38)
				<b>Turf</b>	—
	45-foot, double knife, untimed	Transport + upper cross auger + vertical knives	3	<b>Bar</b>	283 (41)
				<b>Turf</b>	—

## PERFORMING PREDELIVERY CHECKS

Header Type	Description	Options	Weight Kit	Tire Type	Pressure kPa (psi)
<b>Rotary Disc Header</b>					
R85	16-foot	—	—	<b>Bar</b>	179 (26)
			—	<b>Turf</b>	179 (26)
<b>Auger Header</b>					
A40 D	16-foot	—	—	<b>Bar</b>	179 (26)
			—	<b>Turf</b>	159 (23)
A40 D	18-foot	—	—	<b>Bar</b>	179 (26)
			—	<b>Turf</b>	179 (26)

### 5.1.4 Checking Engine Air Intake

1. Check all engine air intake ducting (A) and joints for looseness. Tighten hose clamps as required.
2. Check that end cap (B) is secure and locked.

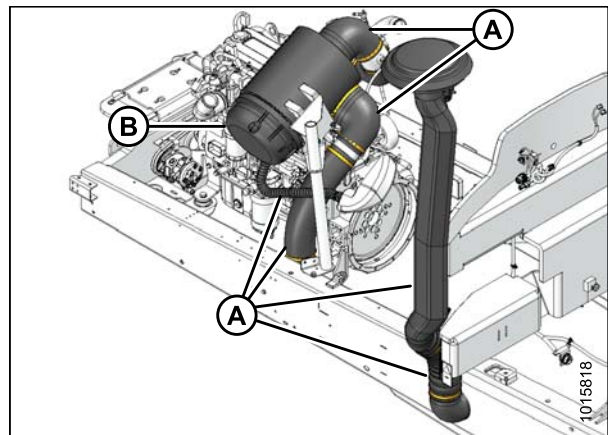


Figure 5.5: Engine Air Intake

3. Check the three constant torque hose clamps (A) on intake duct. Clamp is properly tightened when screw tip (A) extends beyond housing and belleville washers (B) are almost flat.
4. Check clamp (D) at turbo inlet.

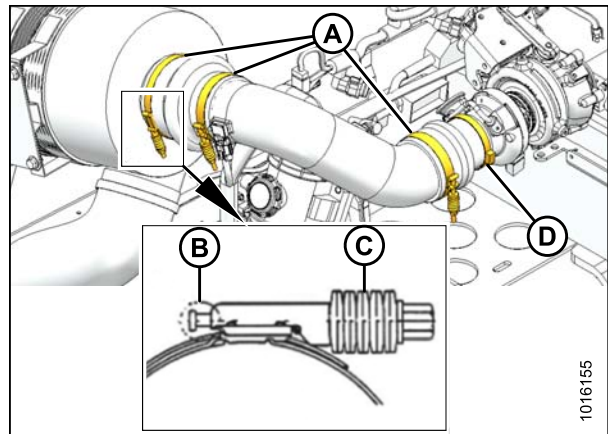


Figure 5.6: Constant Torque Clamps

### 5.1.5 Checking Engine Oil Level

**NOTE:**

Oil can be checked without opening the hood.

## PERFORMING PREDELIVERY CHECKS

1. Operate the engine at low idle and check for leaks at the filter and drain plug.
2. Shut down the engine and remove the key. Wait about five minutes.
3. Remove the dipstick (A) by turning it counterclockwise to unlock.
4. Wipe the dipstick clean and reinsert it into the engine.
5. Remove the dipstick again and check the oil level.

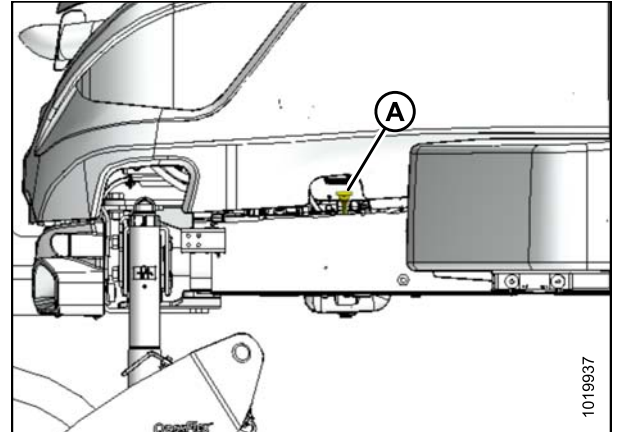


Figure 5.7: Dipstick Location

6. Oil level should be between LOW (L) and HIGH (H). If level is below LOW mark, 1.9 liters (2 US quarts) will raise the level from LOW to HIGH.
7. Replace dipstick and turn it clockwise to lock.

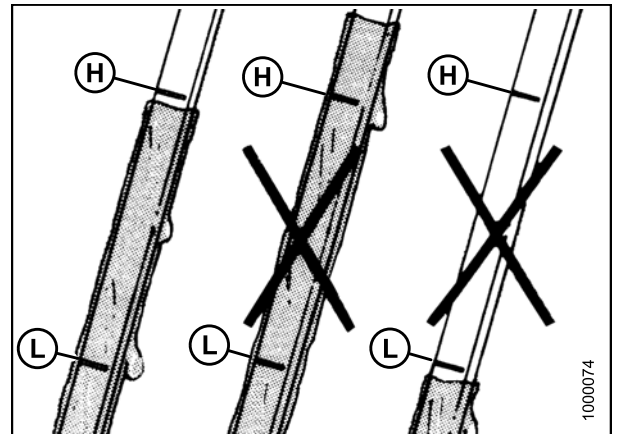


Figure 5.8: Engine Oil Level

### 5.1.6 Checking and Adding Hydraulic Oil

#### WARNING

**Avoid high-pressure fluids. Escaping fluid can penetrate the skin causing serious injury.**

1. Park windrower on level ground, and lower header so that lift cylinders are fully retracted.
2. Shut down the engine, and remove the key.

## PERFORMING PREDELIVERY CHECKS

3. Locate the sight glass (A) that is provided on the right side of the tank. It indicates the oil level and any signs of contamination.

**NOTE:**

No oil in the sight glass indicates that the oil level is below the add mark on the dipstick. The sight glass is viewable with the hood open or closed.

4. Ensure the hydraulic oil level is between the low and full indicator marks.
5. Add oil if necessary. For specifications, refer to [6.1 Lubricants, Fluids, and System Capacities, page 93](#).

**NOTE:**

After running up a header, the oil level should be checked again.

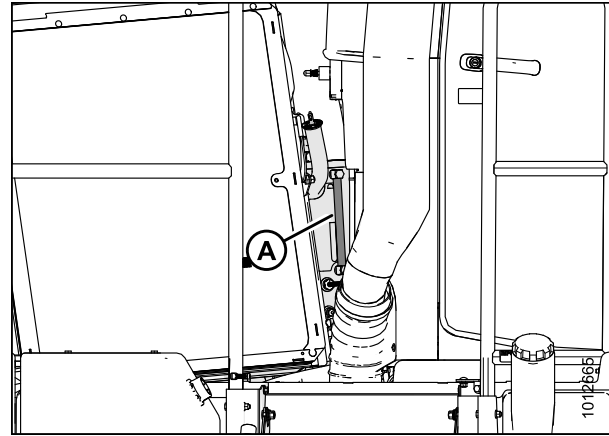


Figure 5.9: Hydraulic Oil Sight Glass

### 5.1.7 Checking Fuel Separator

1. Place a container under the filter drain (A).
2. Turn drain valve (A) by hand 1-1/2 to 2 turns counterclockwise until fuel begins draining.
3. Drain the filter sump of water and sediment until clear fuel is visible. Clean as necessary.
4. Turn the drain valve (A) by hand 1-1/2 to 2 turns clockwise until tight.
5. Dispose of fluid in container in a safe manner.

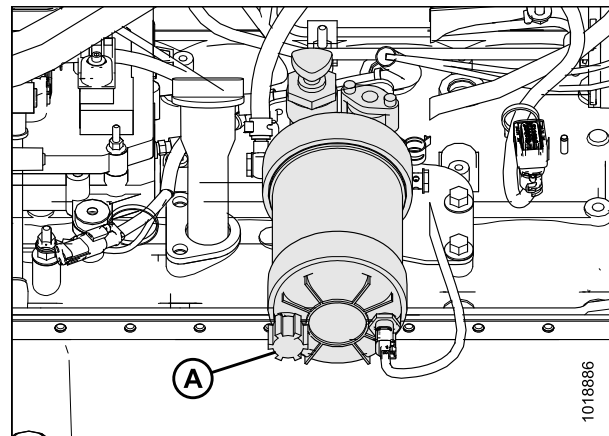


Figure 5.10: Fuel Filter

### 5.1.8 Checking Engine Coolant Level

**NOTE:**

Ensure the engine has cooled down prior to checking.

## PERFORMING PREDELIVERY CHECKS

1. Move latch (A) towards right cab-forward side of the windrower.
2. Using a louver (B), lift the hood to open.

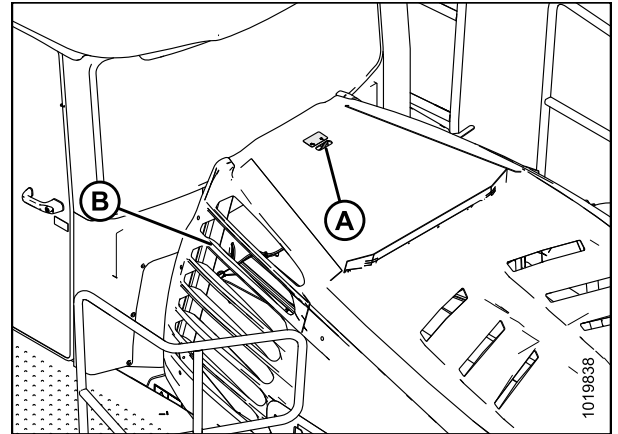


Figure 5.11: Engine Compartment Hood

3. The tank has a MAX and MIN COLD line marker. Coolant level should be kept at the MAX COLD line (A).

**NOTE:**

When checking coolant level, use the MAX COLD line on the side of tank that faces cab for an accurate measurement.

**NOTE:**

For specifications, refer to [6.1 Lubricants, Fluids, and System Capacities, page 93](#).

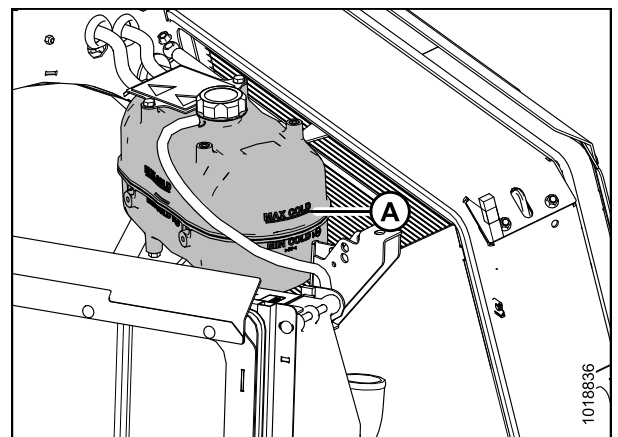


Figure 5.12: Coolant Tank

4. Grasp the hood by louver (A) and lower until hood engages latch.

**NOTE:**

Check that latch lever is not tilted to ensure hood is latched.

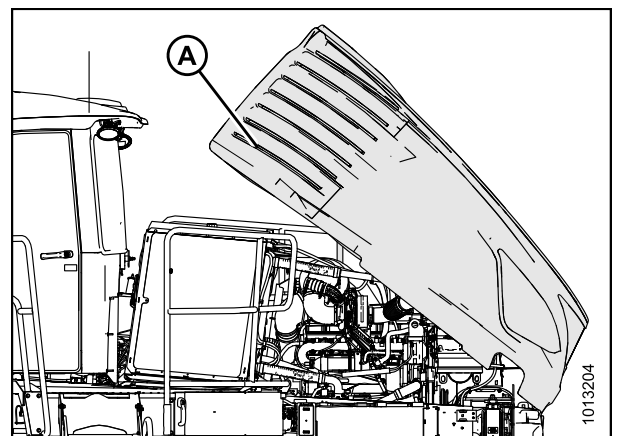


Figure 5.13: Hood Closing



### 5.1.9 Checking Engine Gearbox Lubricant Level and Adding Lubricant

1. Remove check plug (A) on underside of windrower beneath the main pumps. The lubricant should be visible through the hole or slightly running out.
2. Add lubricant, if required, through the check plug hole (A) using a squeeze bottle, or by removing the breather at the top right side of the gearbox. Refer to [6.1 Lubricants, Fluids, and System Capacities, page 93](#).

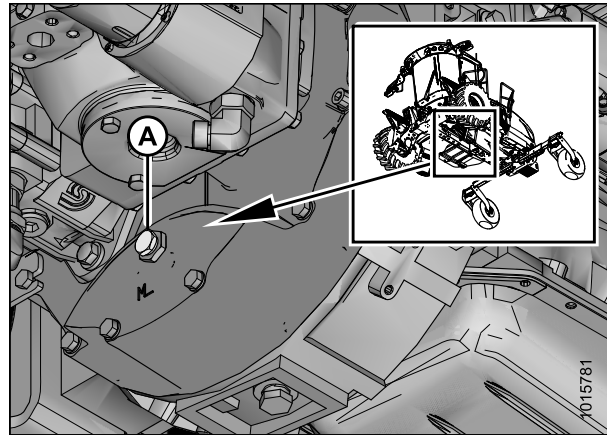


Figure 5.14: Gearbox Lubricant Check Plug

### 5.1.10 Checking Air Conditioning (A/C) Compressor Belts

1. Ensure A/C compressor belts (A) are tensioned so that a force of 35–55 N (8–12 lbf) on each belt deflects belt 5 mm (3/16 in.) at midspan.

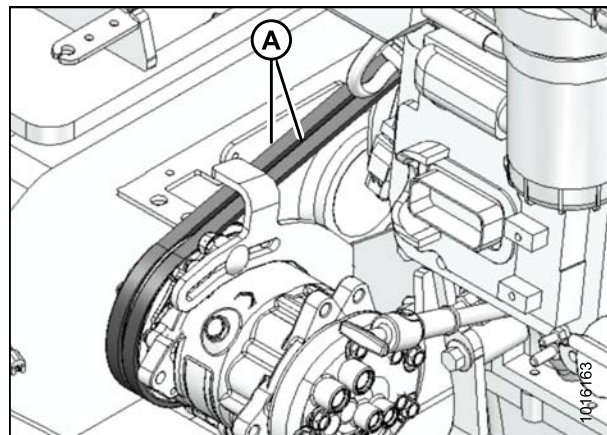


Figure 5.15: A/C Compressor Belts

### 5.1.11 Checking Operating Safety System

Perform the following checks to ensure the windrower operating safety systems are functioning properly:

#### DANGER

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

#### CAUTION

Check to be sure all bystanders have cleared the area.

1. With the engine running and the seat base in engine-forward mode, engage the HEADER ENGAGE switch. Confirm the header drive does **NOT** engage and the Harvest Performance Tracker (HPT) displays LOCK SEAT BASE IN CAB-FORWARD.
2. With the engine running and the seat base in cab-forward mode, stand up and engage the HEADER DRIVE switch. The header drive should **NOT** engage and the HPT displays OPERATOR MUST BE SEATED.



## PERFORMING PREDELIVERY CHECKS

3. With the engine running and the seat base is between locked positions, move the GSL out of PARK. Confirm the engine immediately shuts down and the HPT displays LOCK SEAT BASE and sounds a tone.
4. Shut down the engine and engage HEADER ENGAGE switch. Try starting the engine and confirm the HPT displays DISENGAGE HEADER. If the engine turns over, the safety system requires adjustment. Refer to the technical manual for adjustment procedures.
5. Shut down the engine and open the cooler box door. Try starting the engine and confirm the HPT displays CLOSE COOLER BOX DOOR. If the engine turns over, the safety system requires adjustment. Refer to the technical manual for adjustment procedures.
6. Shut down the engine and perform the following safety system checks:
  - a. Open engine compartment hood.
  - b. Pry the steering interlock away from pintle arms (A) by inserting a wedge or pry bar between one of the interlock channels (B) and pintle arm.
  - c. Insert a wooden block approximately 19 mm (3/4 in.) thick between the opposite channel and the pintle arm so the interlock channel is clear of the pintle arm.
  - d. Turn the steering wheel off-center and move the GSL to PARK.
  - e. Try starting the engine and confirm the HPT displays LOCK STEERING WHEEL IN CENTER POSITION. The engine should **NOT** turn over. If the engine turns over, the safety system requires adjustment. Refer to the technical manual for adjustment procedures.
  - f. Remove key from ignition.
  - g. Remove wooden block and close hood.
7. Shut down the engine and center the steering wheel. Place the GSL in NEUTRAL but not in PARK. Try starting the engine and confirm the HPT displays MOVE GSL INTO PARK. The engine should **NOT** turn over. If the engine turns over, the safety system requires adjustment. Refer to the technical manual for adjustment procedures.
8. Shut down the engine and center the steering wheel. Place the GSL in PARK and ensure the operator's station is **NOT** locked. Try starting the engine and confirm that the engine does **NOT** crank, and the HPT displays LOCK SEAT BASE. If the engine starts, the safety system requires adjustment. Refer to the technical manual for adjustment procedures.

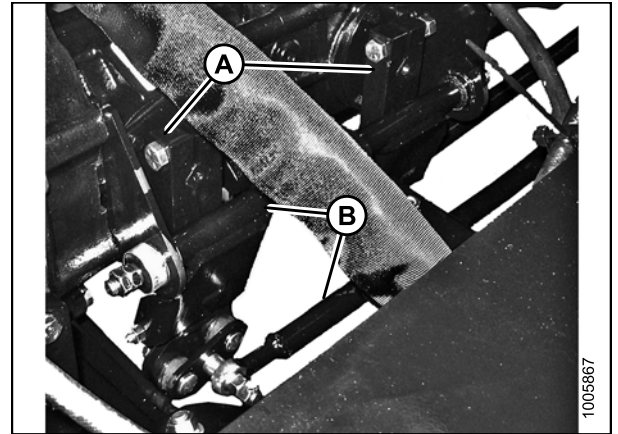


Figure 5.16: Pintle Arms

## 5.2 Performing Operational Checks

1. Perform the final checks and adjustments listed on the following pages and the [Predelivery Checklist, page 111](#) (yellow sheet attached to this instruction) to ensure the machine is field-ready.
2. Ensure the Operator or the Dealer retains the completed Predelivery Checklist.

### 5.2.1 Checking Harvest Performance Display (HPT)

1. If not already running, start the engine. Refer to [3.13 Starting the Engine, page 28](#).
2. If a header is not attached, check that No Header screen is displayed.



Figure 5.17: No Header Screen

3. If a header is attached, check that the header screen (A) is displayed.
4. Check red park symbol (B) is on.
5. Check engine rpm (C) is displayed.
6. Check fuel gauge (D), DEF gauge (E) and temperature gauge (F) in display screen.

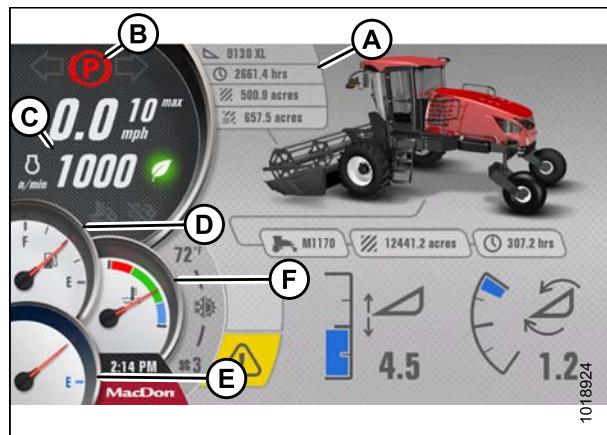


Figure 5.18: Header Attached Screen

## PERFORMING PREDELIVERY CHECKS

### *Navigating the Harvest Performance Tracker*

Turning the scroll knob (A) on the Harvest Performance Tracker (HPT) highlights the available options within a menu and increases/decreases the available settings. Pushing the scroll knob selects functions or menu items. Scroll and select functions are duplicated on the ground speed lever (GSL) controls. Unless otherwise specified, these two buttons will always perform the same function and when 'select' is referred to in this document, either one of these buttons can be used.

1. Turn rotary scroll knob (A) clockwise to move selections down the screen, to the right, clockwise, or to increase settings. Push scroll knob to activate selection.
2. Turn rotary scroll knob (A) counterclockwise to move selections up the screen, to the left, counterclockwise, or to decrease settings. Push scroll knob to activate selection.



Figure 5.19: HPT Scroll Knob

#### **NOTE:**

The scroll wheel (A) on the back of the GSL and the SELECT button (B) on the front of the GSL perform the same functions as the HPT scroll knob.

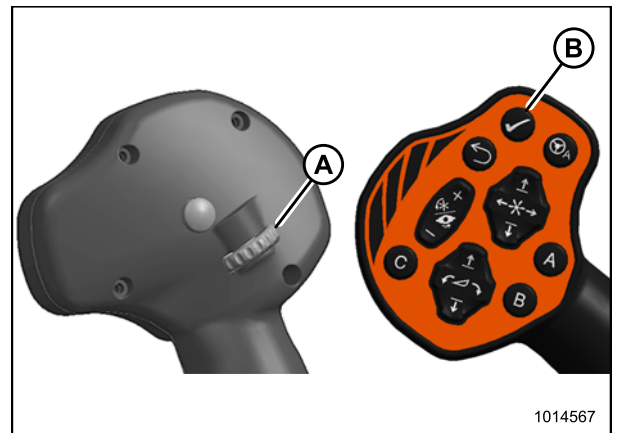


Figure 5.20: GSL Scroll Wheel and Select Button

3. Press soft key 5 (A) to open main menu.
4. Use HPT scroll knob (B) or ground speed lever (GSL) scroll wheel to place red cursor over SETTINGS icon (C).
5. Press HPT scroll knob (B) or GSL SELECT button to activate SETTINGS menu options.

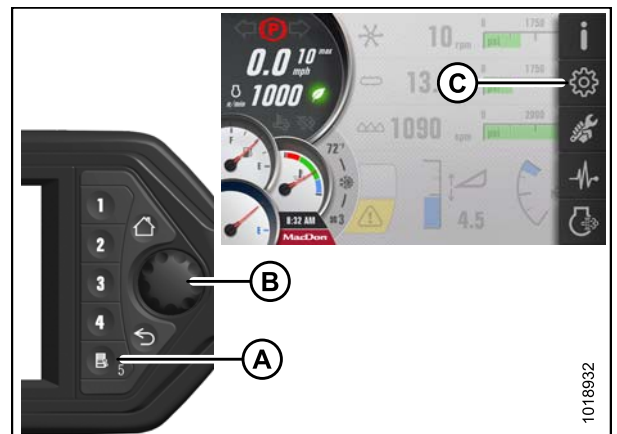


Figure 5.21: Main Menu

## PERFORMING PREDELIVERY CHECKS

6. Press BACK button (A) on HPT to return to previous level within menu structure.
7. Press HOME button (B) on HPT to return to last selected run screen (or header disengaged screen).



Figure 5.22: HPT

### Setting Display Language and Units of Measure

1. Navigate to the SETTINGS menu with soft key 5 and Harvest Performance Tracker (HPT) scroll knob. Refer to [Navigating the Harvest Performance Tracker, page 79](#) if required.
2. Scroll to the DISPLAY SETTING icon (A) and select it.
3. Scroll to the DISPLAY LANGUAGE AND UNITS icon (B), and select it to open the adjustment window.

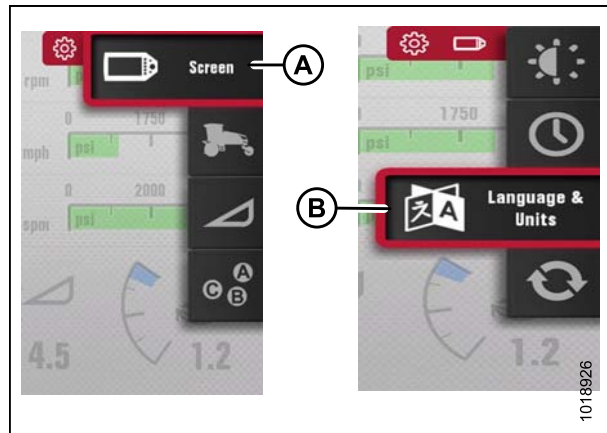


Figure 5.23: Language and Units

4. Scroll through the available options on the HPT display, select desired item, and scroll to adjust:

#### LANGUAGE

- ENGLISH (default)
- SPANISH

#### UNITS

- METRIC
- USA (default)

Refer to [6.4 Conversion Chart, page 106](#) for a comprehensive list of imperial and metric units.

## PERFORMING PREDELIVERY CHECKS

### Setting Display Time and Date

Whenever the Harvest Performance Tracker (HPT) display boots up, the time and date will display according to your selected configuration.

1. Navigate to the SETTINGS Menu with soft key 5 and the HPT scroll knob. Refer to [Navigating the Harvest Performance Tracker, page 79](#) if required.
2. Scroll to the DISPLAY SETTING option (A) and select it.
3. Scroll to the TIME AND DATE option (B), and select it to open the adjustment window.

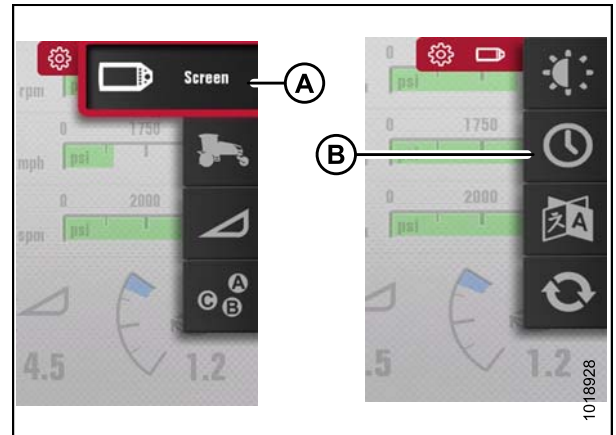


Figure 5.24: Time and Date

4. Scroll through the available options on the HPT display, select desired option, and scroll to adjust.

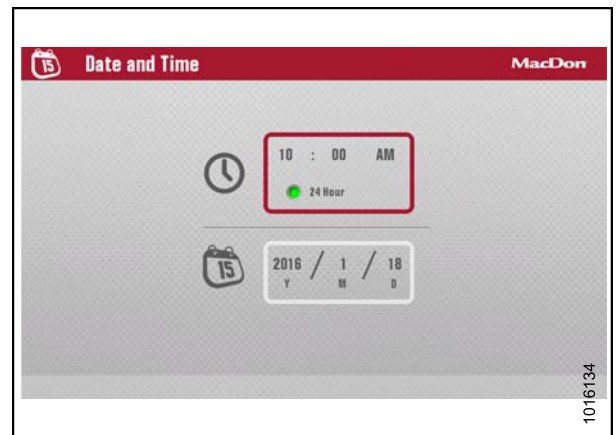


Figure 5.25: Time and Date

## PERFORMING PREDELIVERY CHECKS

### Setting Windrower Tire Size

The Harvest Performance Tracker (HPT) is factory-set for 600/65R28 bar tires. If the windrower has a different tire type, you need to change this setting. Setting the proper tire size is important for accurate tracking of ground speed, acres, and productivity data.

1. Navigate to the SETTINGS menu with soft key 5 and the HPT scroll knob. Refer to [Navigating the Harvest Performance Tracker, page 79](#) if required.
2. Scroll to the WINDROWER SETTINGS icon (A) and select it.
3. Scroll to the TIRES icon (B), and select it to display the adjustment window.

#### NOTE:

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

4. Scroll to highlight the appropriate tire size (A) and select it. The new selection will be displayed with a shaded green radio button.

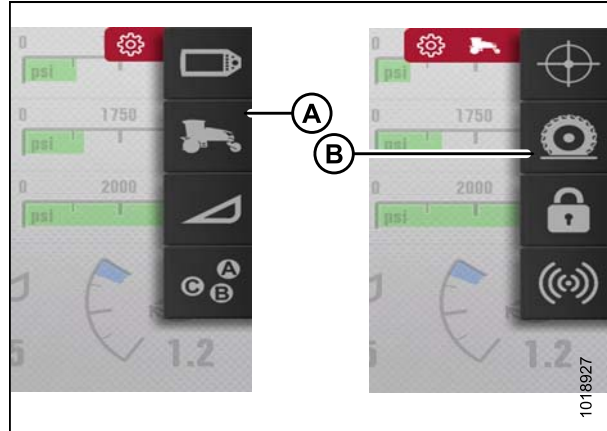


Figure 5.26: Tire Size

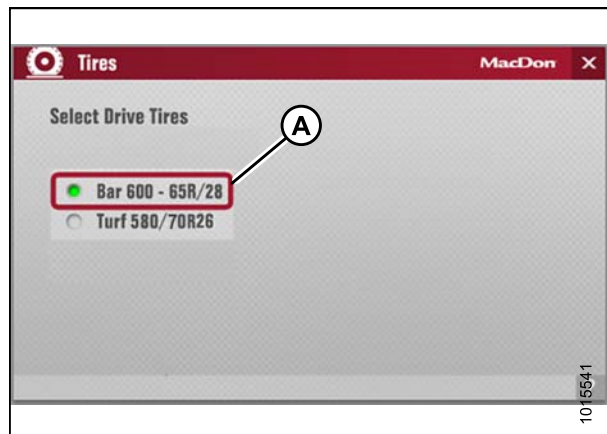


Figure 5.27: Tire Selection

### Checking Header Settings

1. Navigate to SETTINGS menu with soft key 5 and Harvest Performance Tracker (HPT) scroll knob. Refer to [Navigating the Harvest Performance Tracker, page 79](#) if required.
2. Scroll to SET-UP HEADER option (A) and select it.
3. Scroll to highlight appropriate item and select it.
4. Scroll to highlight appropriate option and select it.
  - Example: If a draper header is attached, and ATTACHMENTS (B) is selected, the available choice is DOUBLE DRAPER DRIVE.
5. Scroll to highlight appropriate item and select it.

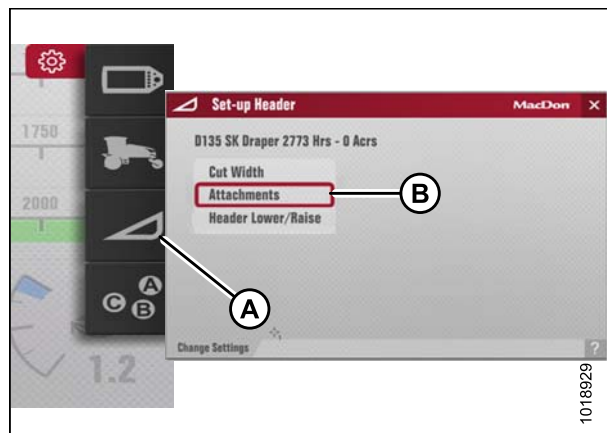


Figure 5.28: Header Settings

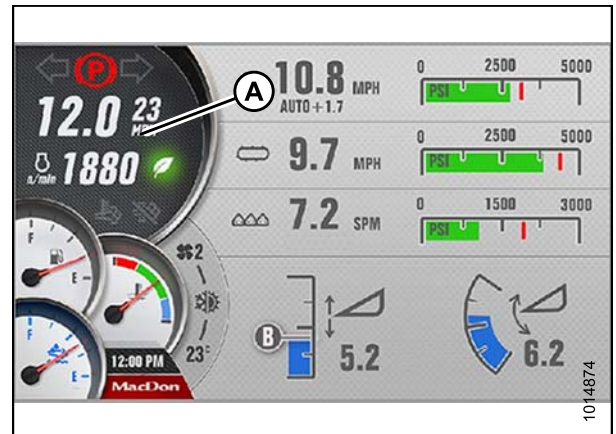
## PERFORMING PREDELIVERY CHECKS

### 5.2.2 Checking Engine Speed

1. Move throttle to idle position.
2. Check engine speed (A) on Harvest Performance Tracker (HPT) display and compare to value in table.
3. Move throttle to maximum rpm position.

**Table 5.2 Engine Speed**

Idle	Maximum (No Load)
1000 rpm	2300 rpm



**Figure 5.29: Harvest Performance Tracker**



### 5.2.3 Checking Exterior Lights

1. **For models with LED lighting:** Remove plastic film from LED lighting.
2. Rotate operator's seat to cab-forward mode.
3. Press FIELD LIGHT switch (A).
4. Check that front field lights (B), rear field lights (C), and rear swath lights (D) are functioning.

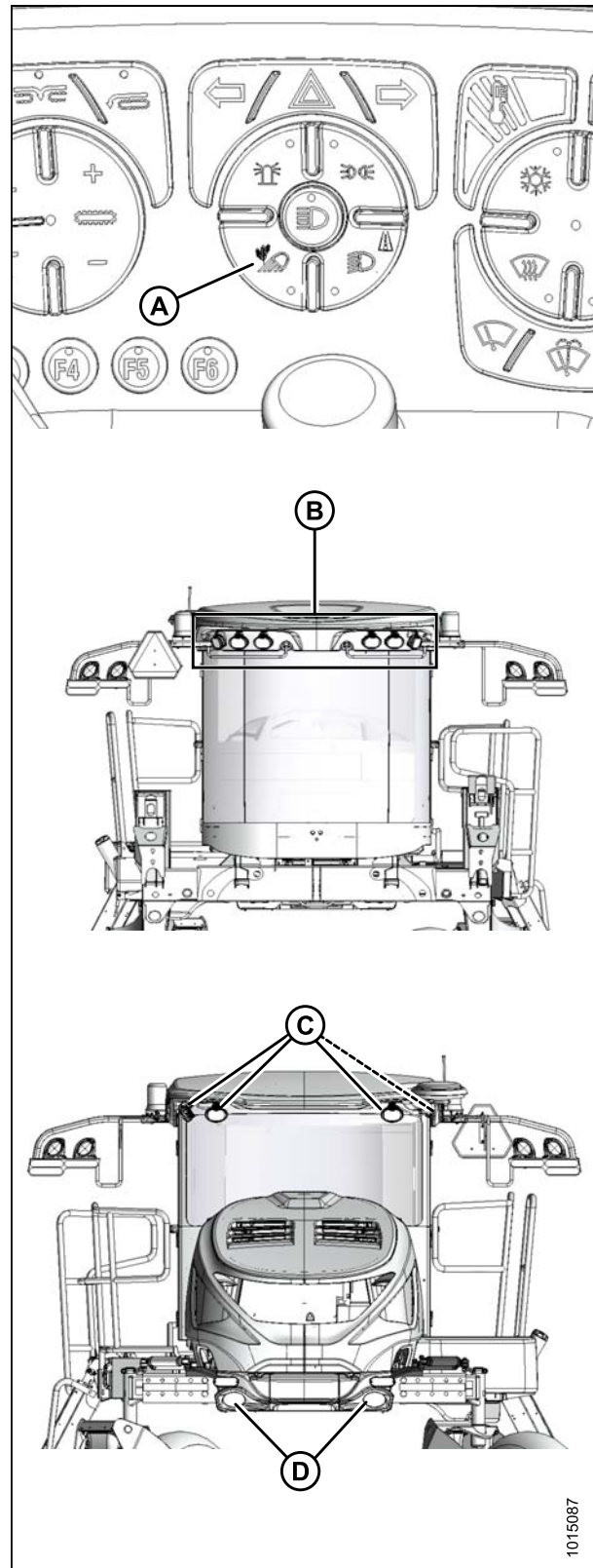


Figure 5.30: Field Lights

## PERFORMING PREDELIVERY CHECKS

5. Press ROAD LIGHT switch (A), and check that front road lights (B) and rear red tail/brake lights (C) are functioning.
6. Press HIGH/LOW switch (D), and check lights (B).
7. Press TURN SIGNAL switches (E) on console, and check amber lights (F).
8. Press HAZARD LIGHT switch (G), and check flashing hazard lights (F).
9. Press switches to shut off lights.

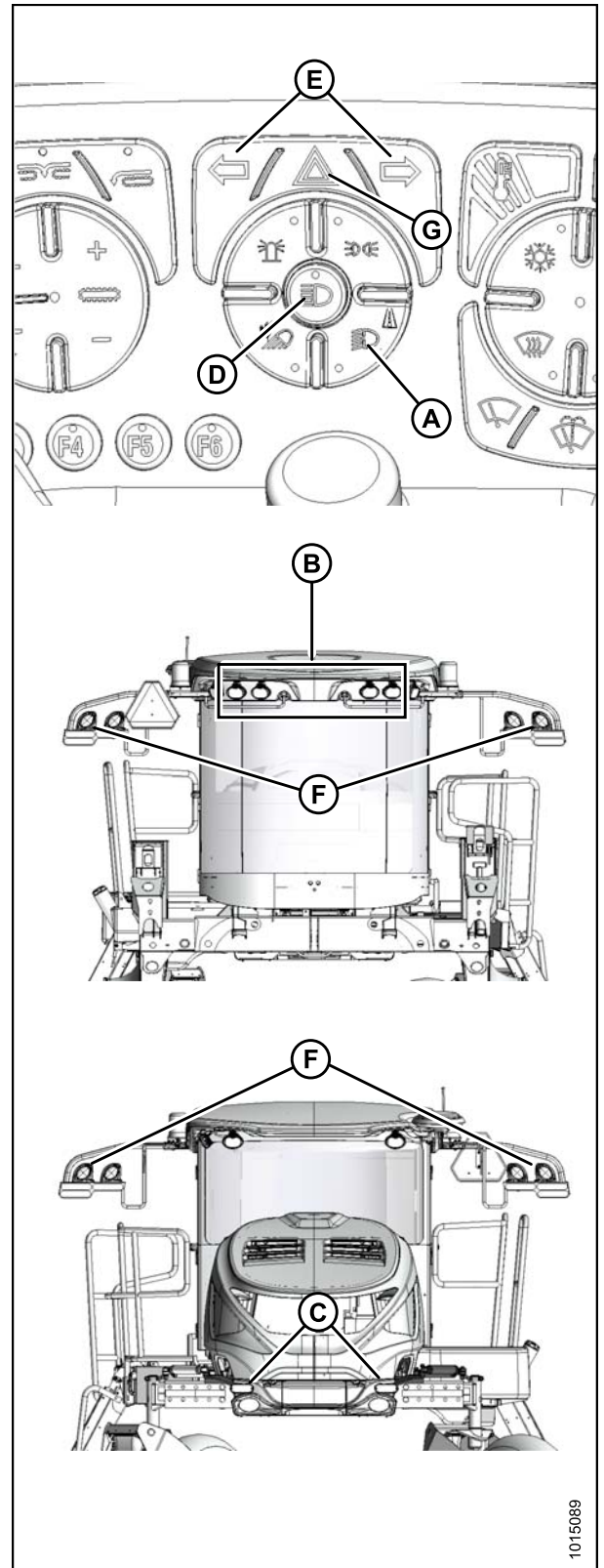


Figure 5.31: Road Lights – Cab-Forward

## PERFORMING PREDELIVERY CHECKS

10. Rotate operator's seat to engine-forward mode.
11. Press ROAD LIGHT switch (A), and check that front road lights (B) and rear red tail/brake lights (C) are functioning.
12. Press HIGH/LOW switch (D) and check lights (B).
13. Press TURN SIGNAL switches (E) switches on console and check amber lights (F).
14. Press HAZARD LIGHT switch (G) and check flashing hazard lights (F).
15. Press switches to shut off lights.

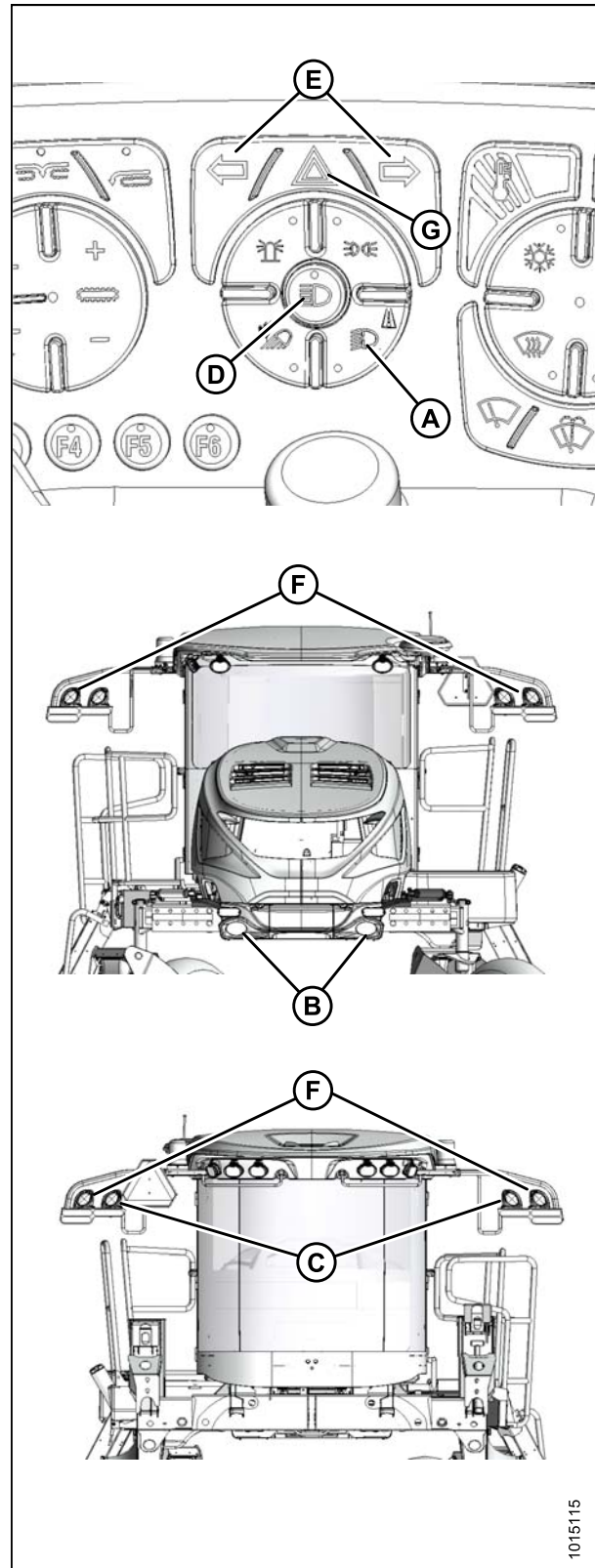


Figure 5.32: Road Lights – Engine-Forward

## PERFORMING PREDELIVERY CHECKS

16. Push BEACON SWITCH (A), and check that amber beacons (B) are functioning.
17. Press switch to shut off beacons.

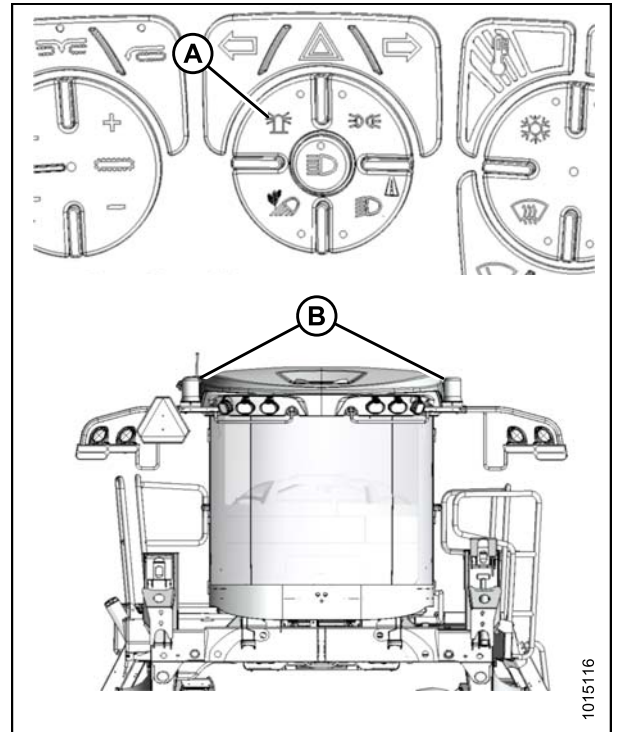


Figure 5.33: Beacons

### 5.2.4 Checking Horn

1. Push HORN button (A) and listen for horn.

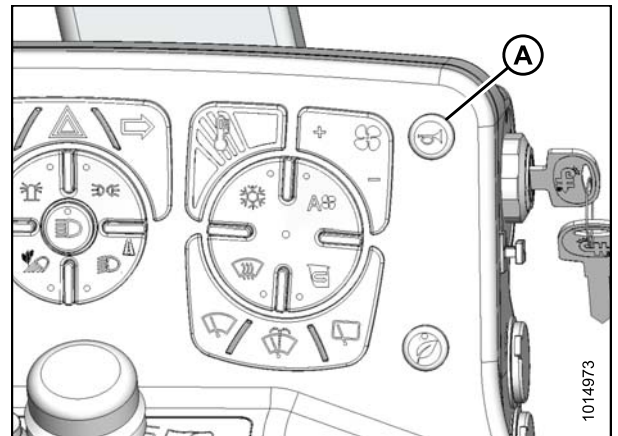


Figure 5.34: Horn Button

## PERFORMING PREDELIVERY CHECKS

### 5.2.5 Checking Interior Lights

1. Open cab door and check that interior light (A) illuminates.
2. Enter the cab and close door; light should go off.

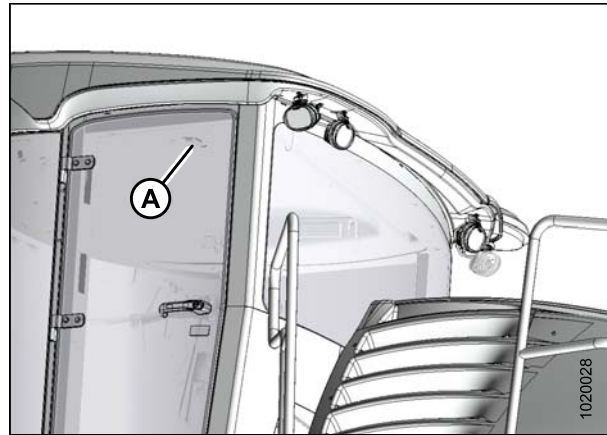


Figure 5.35: Ingress/Egress Lights

3. Turn IGNITION key to RUN position.
4. Push OVERHEAD DOME LIGHT switch (A) to the ON position (B) and check that the light illuminates.
5. Push LIGHT switch to the DOOR position (C) and check that the light is off.
6. Open the door and check that the light illuminates. Leave door open.
7. Push switch (A) to OFF position (D) and check that light is off.

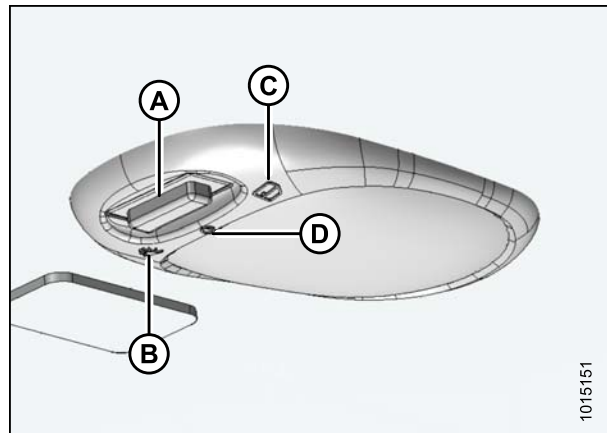


Figure 5.36: Dome Light

### 5.2.6 Checking Air Conditioning and Heater

1. Start engine and allow it to reach operating temperature.

#### IMPORTANT:

To distribute oil throughout the A/C system, perform the following steps after starting a machine that has been stored for more than one week:

- Press + (A) on FAN SPEED switch to start fan, adjust temperature control (B) to maximum heating, and press A/C switch (C) if necessary so that LED light is **NOT** lit.
- Press A/C switch (C) to ON (LED light is lit) for one second, then OFF for 5 to 10 seconds. Repeat this step ten times.

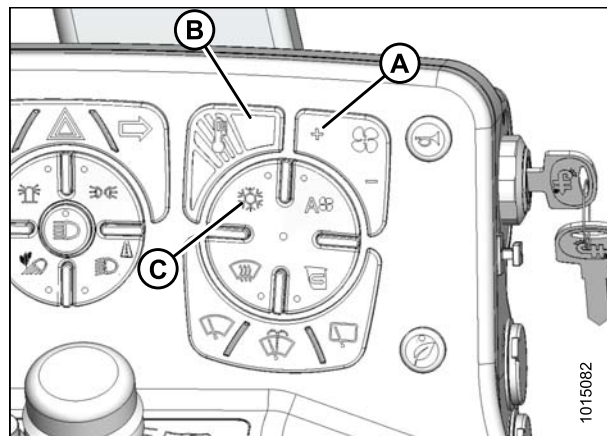
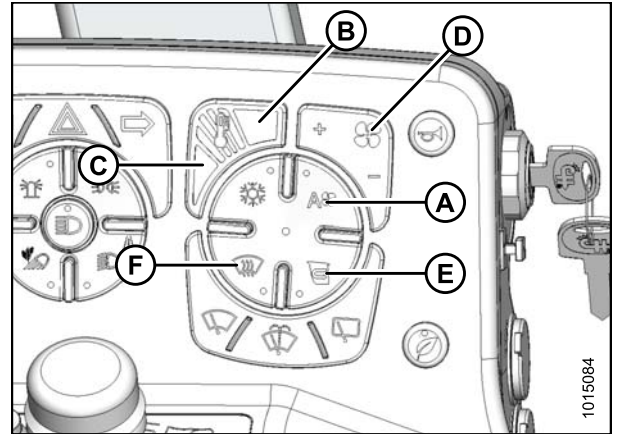


Figure 5.37: A/C Controls

## PERFORMING PREDELIVERY CHECKS

2. Press AUTO FAN switch (A) (LED light shows orange) and then press RED TEMPERATURE CONTROL switch (B) until warm air enters cab through vents.
3. Press BLUE TEMPERATURE CONTROL switch (C) until cool air is entering the cab.
4. Press FAN SPEED switch (D) (+ or -) and note change in air flow. AUTO FAN light should be off.
5. Press RECIRCULATING AIR switch (E) and check air flow in cab.



**Figure 5.38: Climate Controls**



## 5.3 Checking Manuals

Manuals are stored in one of the manual storage cases (A) behind the operator's seat.

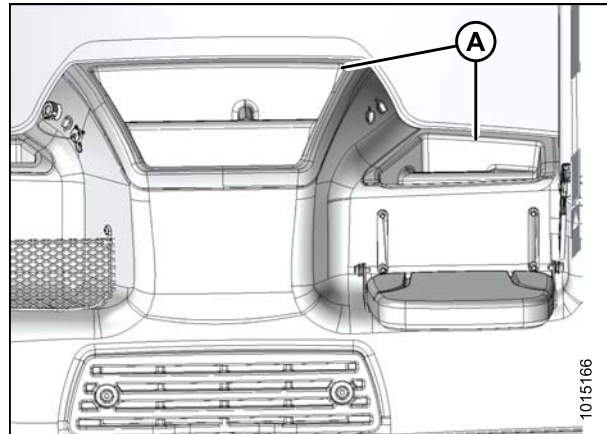


Figure 5.39: Manual Storage Case

1. Ensure the following manuals are included with the windrower:

- Operator's Manual
- Parts Catalog
- Quick Card
- Engine Manual

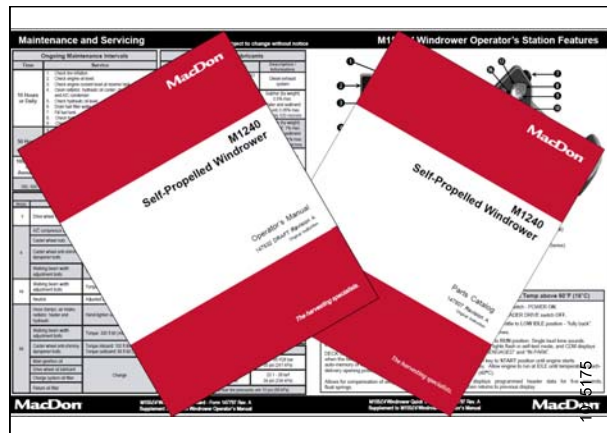


Figure 5.40: Manuals and Quick Card



## 5.4 Performing Final Steps

1. Remove plastic covering from Harvest Performance Tracker (HPT) and seats after predelivery checks are complete.
2. If there is an optional GPS kit included, locate bag inside the cab containing the kit, and install in accordance with the instructions included. If not installing kit, label bag (GPS Completion kit) and place kit in toolbox for safekeeping.
3. Remove instruction (MD #214082) from the right cab-forward door only **AFTER** right leg is repositioned to field configuration.
4. Remove decal (MD #166705) from windshield only **AFTER** machine is delivered to the end user.

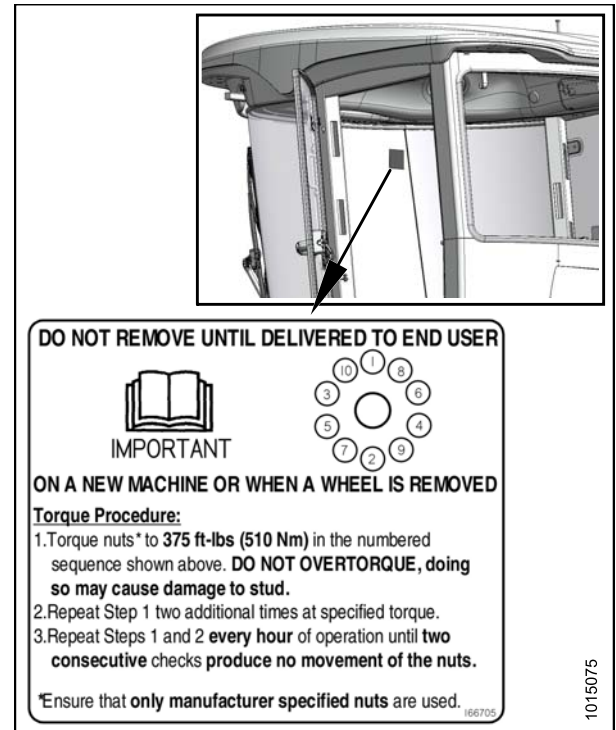


Figure 5.41: Windshield Decal (MD #166705)



## 6 Reference

### 6.1 Lubricants, Fluids, and System Capacities

#### CAUTION

To avoid injury or death, do not allow ANY machine fluids to enter the body.

Table 6.1 System Capacities

Lubricant/Fluid	Location	Description	Capacity
Diesel exhaust fluid (DEF)	Diesel exhaust fluid tank	Must meet ISO 22241 requirements.	28 liters (7.5 US gallons)
Grease	As required unless otherwise specified	SAE multi-purpose. High temperature extreme pressure (EP2) performance with 1% max molybdenum disulphide (NLGI Grade 2) lithium base	
Diesel fuel	Fuel tank	Ultra low sulphur diesel (ULSD) Grade No.2, or ULSD Grade No.1 and 2 mix <sup>2</sup> ; refer to <a href="#">6.2 Fuel Specifications, page 95</a> for more information	518 liters (137 US gallons)
Hydraulic oil	Hydraulic reservoir	SAE 15W-40 compliant with SAE specs for API Class CJ-4 engine oil which meets or exceeds CES20081 and API performance classification CJ-4	58 liters (15.3 US gallons)
Gear lubricant	Gear box	SAE 75W-140 or 80W-140, API service class GL-5. Fully synthetic gear lubricant, (SAE J2360 preferred)	2.1 liters (2.2 US quarts)
	Wheel drive <sup>3</sup>		1.4 liters (1.5 US quarts)
Antifreeze	Engine cooling system	ASTM D-6210 and Fleetguard ES Compleat <sup>®</sup> See below	33 liters (8.7 US gallons) <sup>4</sup>
Engine oil	Engine oil pan	SAE 15W-40 compliant with SAE specs for API Class SJ and CJ-4 engine oil	12 liters (12.6 US quarts)
Air conditioning refrigerant	Air conditioning system	R134A	2.27 kg (5 lb.)
Air conditioning refrigerant oil	Air conditioning system total capacity	PAG SP-15	240 cc (8.1 fl. oz.)

2. Optional when operating temperature is below 0°C (32°F).

3. SAE 85W-140 API Service Class GL-5. Extreme pressure gear lubricant is used before initial change.

4. Equal parts with water, high quality, soft, de-ionized or distilled water as recommended by Supplier.

## REFERENCE

If Fleetguard ES Compleat® is unavailable, use a coolant concentrate or prediluted coolant intended for use with heavy duty diesel engines and with a minimum of the following chemical and physical properties:

- Provides cylinder cavitation protection according to fleet study run at or above 60% load capacity.
- Protects the cooling system metals (cast iron, aluminum alloys, and copper alloys such as brass) from corrosion.

The additive package must be part of one of the following coolant mixtures:

- Ethylene glycol or propylene glycol base prediluted (40–60%) heavy duty coolant.
- Ethylene glycol or propylene glycol base heavy duty coolant concentrate in a 40–60% mixture of concentrate with quality water.

Water quality is important to the performance of the cooling system. Distilled, deionized, or demineralized water is recommended for mixing with ethylene glycol and propylene glycol base engine coolant concentrate.

### **IMPORTANT:**

Do **NOT** use cooling system sealing additives or antifreeze that contains sealing additives.

## REFERENCE

### 6.2 Fuel Specifications

Use only ultra low sulphur diesel (ULSD) from a reputable supplier. For most year-round service, No.2 ULSD fuel meeting ASTM specification D975 Grade S15 will provide good performance.

**Table 6.2 Fuel Specification**

Fuel	Specification	Sulphur (by weight)	Water and Sediment (by volume)	Cetane No.	Lubricity
ULSD Grade no. 2	ASTM D975	0.5% maximum	0.05% maximum	40°C (104°F) minimum	520 Microns
ULSD Grade no.1 and 2 mix <sup>5</sup>	n/a	1% maximum 0.5% maximum preferred	0.1% maximum	45–55°C (113–131°F) cold weather / high altitude	460 Microns

In extreme situations, when available fuels are of poor quality or problems exist which are peculiar to certain operations, additives can be used. However, the engine manufacturer recommends consultation with the fuel supplier or engine manufacturer before using fuel additives. Situations where additives are useful include:

- A cetane improver additive can be used with low cetane fuels.
- A wax crystal modifier can help with fuels with high cold filter plugging points (CFPP).
- An anti-icer can help prevent ice formation in wet fuel during cold weather.
- An antioxidant or storage stability additive can help with fuel system deposits and poor storage stability.
- A lubricity enhancer can be used to increase the lubricity of fuels so that they meet the requirements given in the table on the previous page. Diesel fuel conditioner is available from your Dealer.

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5. Optional when operating temperature is below 0°C (32°F).

## 6.3 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).

### 6.3.1 Metric Bolt Specifications

Table 6.3 Metric Class 8.8 Bolts and Class 9 Free Spinning Nut

Nominal Size (A)	Torque (N·m)		Torque (ft·lbf) (*in·lbf)	
	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

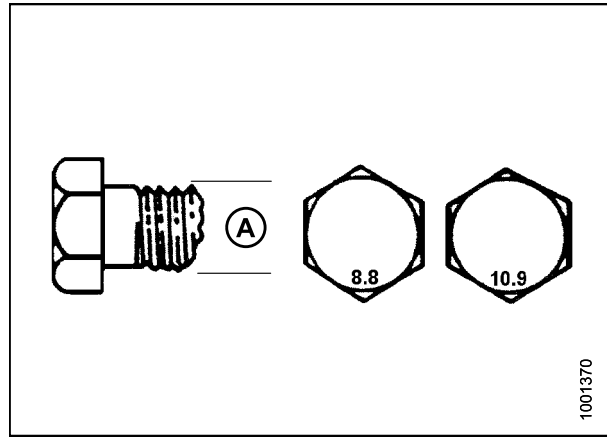


Figure 6.1: Bolt Grades

REFERENCE

Table 6.4 Metric Class 8.8 Bolts and Class 9 Distorted Thread Nut

Nominal Size (A)	Torque (N·m)		Torque (ft·lbf) (*in·lbf)	
	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

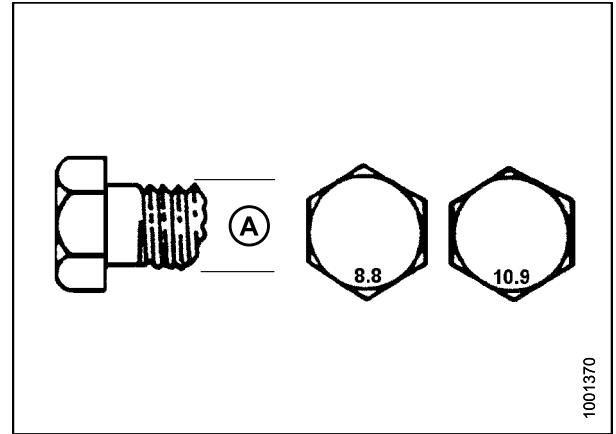


Figure 6.2: Bolt Grades

Table 6.5 Metric Class 10.9 Bolts and Class 10 Free Spinning Nut

Nominal Size (A)	Torque (N·m)		Torque (ft·lbf) (*in·lbf)	
	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

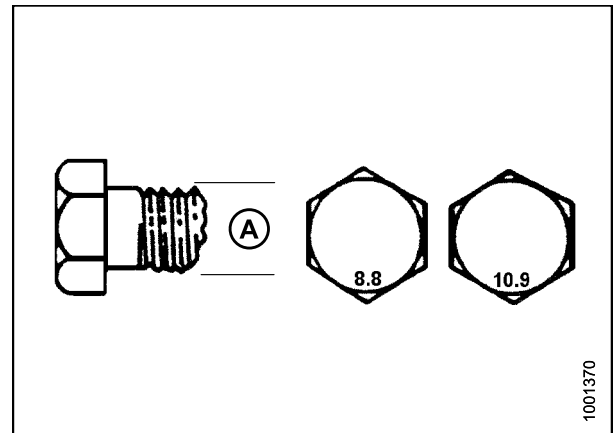


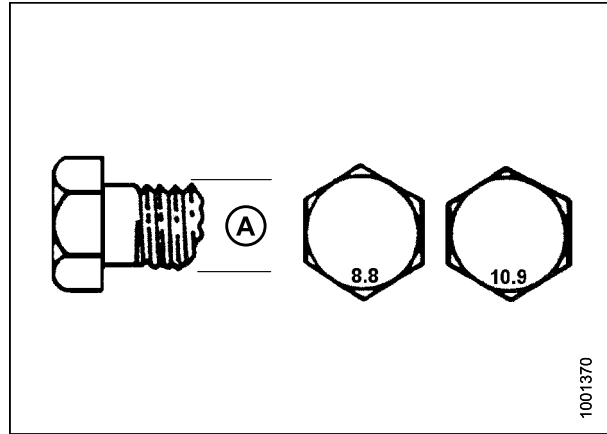
Figure 6.3: Bolt Grades



## REFERENCE

**Table 6.6 Metric Class 10.9 Bolts and Class 10 Distorted Thread Nut**

Nominal Size (A)	Torque (N·m)		Torque (ft·lbf) (*in·lbf)	
	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 6.4: Bolt Grades**

### 6.3.2 Metric Bolt Specifications Bolting into Cast Aluminum

Table 6.7 Metric Bolt Bolting into Cast Aluminum

Nominal Size (A)	Bolt Torque			
	8.8 (Cast Aluminum)		10.9 (Cast Aluminum)	
	N·m	ft·lbf	N·m	ft·lbf
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	–	–	–	–

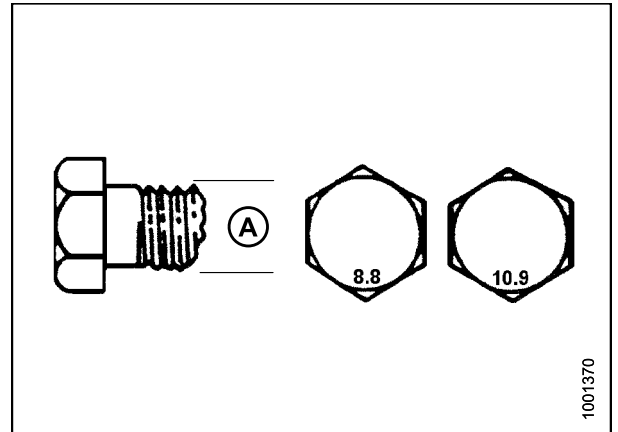


Figure 6.5: Bolt Grades

## REFERENCE

### 6.3.3 O-Ring Boss (ORB) Hydraulic Fittings (Adjustable)

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

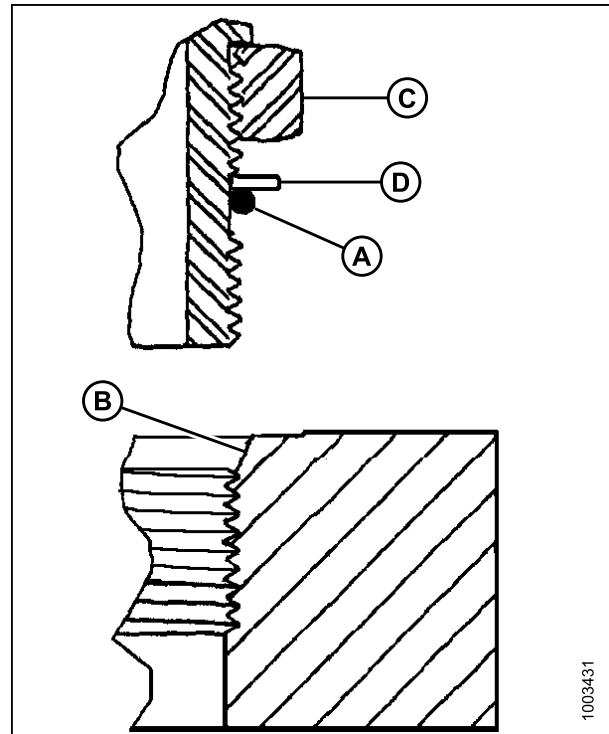


Figure 6.6: Hydraulic Fitting

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

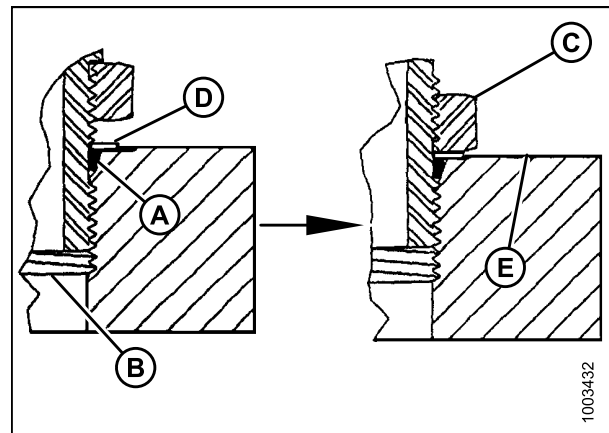


Figure 6.7: Hydraulic Fitting

**REFERENCE**

**Table 6.8 O-Ring Boss (ORB) Hydraulic Fittings (Adjustable)**

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

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

REFERENCE

### 6.3.4 O-Ring Boss (ORB) Hydraulic Fittings (Non-Adjustable)

1. Inspect O-ring (A) and seat (B) for dirt or obvious defects.
2. Check that O-ring (A) is **NOT** on threads and adjust if necessary.
3. Apply hydraulic system oil to O-ring.
4. Install fitting (C) into port until fitting is hand tight.
5. Torque fitting (C) according to values in Table 6.9 *O-Ring Boss (ORB) Hydraulic Fittings (Non-Adjustable)*, page 102.
6. Check final condition of fitting.

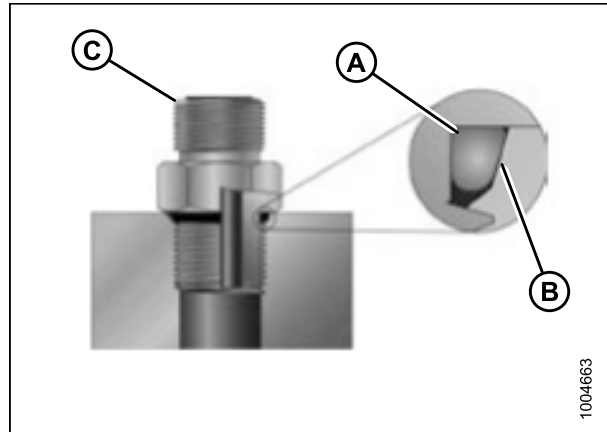


Figure 6.8: Hydraulic Fitting

Table 6.9 O-Ring Boss (ORB) Hydraulic Fittings (Non-Adjustable)

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

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

### 6.3.5 O-Ring Face Seal (ORFS) Hydraulic Fittings

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



Figure 6.9: Hydraulic Fitting

2. Apply hydraulic system oil to O-ring (B).
3. Align tube or hose assembly so that flat face of sleeve (A) or (C) comes in full contact with O-ring (B).
4. Thread tube or hose nut (D) until hand-tight. The nut should turn freely until it is bottomed out.
5. Torque fittings according to values in Table 6.10 *O-Ring Face Seal (ORFS) Hydraulic Fittings*, page 104.

**NOTE:**

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

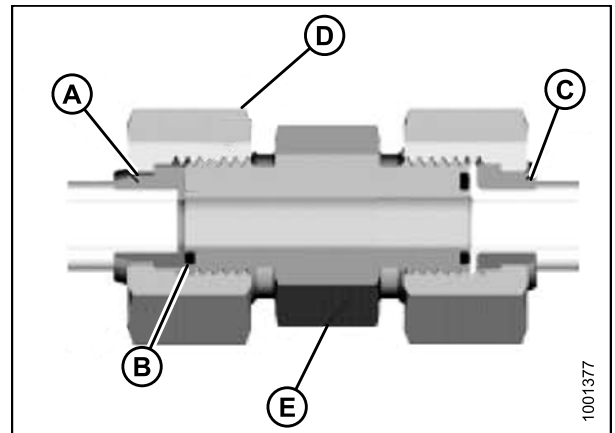


Figure 6.10: Hydraulic Fitting

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

**REFERENCE**

**Table 6.10 O-Ring Face Seal (ORFS) Hydraulic Fittings**

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

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

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



### 6.3.6 Tapered Pipe Thread Fittings

Assemble pipe fittings as follows:

1. Check components to ensure that fitting and port threads are free of burrs, nicks and scratches, or any form of contamination.
2. Apply pipe thread sealant (paste type) to external pipe threads.
3. Thread fitting into port until hand-tight.
4. Torque connector to appropriate torque angle. The Turns From Finger Tight (T.F.F.T.) values are shown in Table [6.11 Hydraulic Fitting Pipe Thread, page 105](#). Make sure that tube end of a shaped connector (typically 45° or 90°) is aligned to receive incoming tube or hose assembly. Always finish alignment of fitting in tightening direction. Never back off (loosen) pipe threaded connectors to achieve alignment.
5. Clean all residue and any excess thread conditioner with appropriate cleaner.
6. Assess final condition of fitting. Pay special attention to possibility of cracks to port opening.
7. Mark final position of fitting. If a fitting leaks, disassemble fitting and check for damage.

**NOTE:**

Over-torque failure of fittings may not be evident until fittings are disassembled.

**Table 6.11 Hydraulic Fitting Pipe Thread**

Tapered Pipe Thread Size	Recommended T.F.F.T.	Recommended F.F.F.T.
1/8-27	2-3	12-18
1/4-18	2-3	12-18
3/8-18	2-3	12-18
1/2-14	2-3	12-18
3/4-14	1.5-2.5	12-18
1-11 1/2	1.5-2.5	9-15
1 1/4-11 1/2	1.5-2.5	9-15
1 1/2-11 1/2	1.5-2.5	9-15
2-11 1/2	1.5-2.5	9-15

REFERENCE

## 6.4 Conversion Chart

Table 6.12 Conversion Chart

Quantity	SI Units (Metric)		Factor	Inch-Pound Units	
	Unit Name	Abbreviation		Unit Name	Abbreviation
Area	hectares	ha	$\times 2.4710 =$	acres	acres
Flow	liters per minute	L/min	$\times 0.2642 =$	US gallons per minute	gpm
Force	Newtons	N	$\times 0.2248 =$	pounds force	lbf
Length	millimeters	mm	$\times 0.0394 =$	inch	in.
	meters	m	$\times 3.2808 =$	foot	ft.
Power	kilowatts	kW	$\times 1.341 =$	horsepower	hp
Pressure	kilopascals	kPa	$\times 0.145 =$	pounds per square inch	psi
	megapascals	MPa	$\times 145.038 =$		
	bar (Non-SI)	bar	$\times 14.5038$		
Torque	Newton meters	N·m	$\times 0.7376 =$	pound feet or foot pounds	ft·lbf
	Newton meters	N·m	$\times 8.8507 =$	pound inches or inch pounds	in·lbf
Temperature	Celsius	°C	$(C^{\circ} \times 1.8) + 32 =$	degrees Fahrenheit	°F
Velocity	meters per minute	m/min	$\times 3.2808 =$	feet per minute	ft/min
	meters per second	m/s	$\times 3.2808 =$	feet per second	ft/s
	kilometers per hour	km/h	$\times 0.6214 =$	miles per hour	mph
Volume	liters	L	$\times 0.2642 =$	US gallons	US gal
	milliliters	ml	$\times 0.0338 =$	ounces	oz.
	cubic centimeters	cm <sup>3</sup> or cc	$\times 0.061 =$	cubic inches	in. <sup>3</sup>
Weight	kilograms	kg	$\times 2.2046 =$	pounds	lb.

## REFERENCE

### 6.5 Definitions

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

<b>Term</b>	<b>Definition</b>
A Series header	MacDon A30 D and A40 D auger headers
API	American Petroleum Institute
ASTM	American Society of Testing and Materials
Bolt	A headed and externally threaded fastener that is designed to be paired with a nut
Cab-forward	Windrower operation with Operator and cab facing in direction of travel
Center-link	A hydraulic cylinder link between header and machine to which it is attached: It is used to change header angle
CGVW	Combined vehicle gross weight
DEF	Diesel exhaust fluid; also called AdBlue in Europe, and AUS 32 in Australia
DEF supply module	Pump that supplies diesel exhaust fluid through system
DM	Dosing module
D1XL Series header	MacDon D130XL, D135XL, D140XL, and D145XL rigid draper headers for windrowers.
DK	Double knife
DKD	Double-knife drive
DDD	Double-draper drive
DOC	Diesel oxidation catalyst
DRT	Decomposition reactor tube
DWA	Double Windrow Attachment
ECM	Engine control module
ECU	Electronic control unit
EEC	Eco Engine Control
Engine-forward	Windrower operation with Operator and engine facing in direction of travel
Finger tight	Finger tight is a reference position where sealing surfaces or components are making contact with each other and fitting has been tightened to a point where fitting is no longer loose
FFFT	Flats from finger tight
GSL	Ground speed lever
GSS	Grass Seed Special
GVW	Gross vehicle weight
Hard joint	A joint made with use of a fastener where joining materials are highly incompressible
HPT display	Harvest Performance Tracker display module on a self-propelled windrower
Header	A machine that cuts and lays crop into a windrow and is attached to a self-propelled windrower

## REFERENCE

<b>Term</b>	<b>Definition</b>
Hex key	A tool of hexagonal cross-section used to drive bolts and screws that have a hexagonal socket in head (internal-wrenching hexagon drive). Also known as an Allen key and various other synonyms.
HDS	Hydraulic deck shift
hp	Horsepower
JIC	Joint Industrial Council: A standards body that developed standard sizing and shape for original 37° flared fitting
Knife	A cutting device which uses a reciprocating cutter (also called a sickle)
M1 Series windrower	MacDon M1240 self-propelled windrowers
MDS	Mechanical deck shift
n/a	Not applicable
Nut	An internally threaded fastener that is designed to be paired with a bolt
N-DETENT	The slot opposite the NEUTRAL position on operator's console
NPT	National Pipe Thread: A style of fitting used for low pressure port openings Threads on NPT fittings are uniquely tapered for an interference fit
ORB	O-ring boss: A style of fitting commonly used in port opening on manifolds, pumps, and motors
ORFS	O-ring face seal: A style of fitting commonly used for connecting hoses and tubes This style of fitting is also commonly called ORS, which stands for O-ring seal
rpm	Revolutions per minute
R Series header	MacDon R80 and R85 rotary disc headers
RoHS (Reduction of Hazardous Substances)	A directive by the European Union to restrict use of certain hazardous substances (such as hexavalent chromium used in some yellow zinc platings)
SAE	Society of Automotive Engineers
SCR	Selective catalytic reduction
Screw	A headed and externally threaded fastener that threads into preformed threads or forms its own thread in one of mating parts
SDD	Single-drapeer drive
Self-Propelled (SP) Windrower	Self-propelled machine consisting of a power unit with a header
SK	Single knife
SKD	Single-knife drive
Soft joint	A joint made with use of a fastener where joining materials are compressible or experience relaxation over a period of time
spm	Strokes per minute
Tension	Axial load placed on a bolt or screw, usually measured in Newtons (N) or pounds (lb.)
TFFT	Turns from finger tight
Torque	The product of a force X lever arm length, usually measured in Newton-meters (N·m) or foot-pounds (ft·lbf)

## REFERENCE

<b>Term</b>	<b>Definition</b>
Torque angle	A tightening procedure where fitting is assembled to a precondition (finger tight) and then nut is turned farther a number of degrees or a number of flats to achieve its final position
Torque-tension	The relationship between assembly torque applied to a piece of hardware and axial load it induces in bolt or screw
ULSD	Ultra low sulphur diesel
Washer	A thin cylinder with a hole or slot located in the center that is to be used as a spacer, load distribution element, or a locking mechanism
Windrower	Power unit of a self-propelled header



# 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.

Windrower Serial Number:

Engine Serial Number:

**Table 1 M1240 Self-Propelled Windrower Predelivery Checklist**

✓	Item	Reference
	Check for shipping damage or missing parts. Be sure all shipping dunnage is removed.	—
	Check for loose hardware. Tighten to required torque.	<a href="#">6 Reference, page 93</a>
	Check tire air pressures and adjust as required.	<a href="#">5.1.3 Checking Tire Pressures, page 70</a>
	Check wheel drive hub lubricant level.	<a href="#">5.1.2 Checking and Adding Wheel Drive Lubricant Level, page 70</a>
	Check engine coolant level and strength at pressurized coolant tank.	<a href="#">5.1.8 Checking Engine Coolant Level, page 74</a>
	Check air cleaner and clamps.	<a href="#">5.1.4 Checking Engine Air Intake, page 72</a>
	Check engine oil level and check for leaks.	<a href="#">5.1.5 Checking Engine Oil Level, page 72</a>
	Check hydraulic oil level and check for leaks along lines.	<a href="#">5.1.6 Checking and Adding Hydraulic Oil, page 73</a>
	Check fuel separator for water and foreign material, drain and clean as necessary, and add fuel.	<a href="#">5.1.7 Checking Fuel Separator, page 74</a>
	Check gearbox lubricant level.	<a href="#">5.1.9 Checking Engine Gearbox Lubricant Level and Adding Lubricant, page 76</a>
	Check tension of A/C compressor belt.	<a href="#">5.1.10 Checking Air Conditioning (A/C) Compressor Belts, page 76</a>
	Check that machine is completely lubricated.	<a href="#">3.11.2 Lubrication Points, page 25</a>
	Check Operator's Presence System	<a href="#">5.1.11 Checking Operating Safety System, page 76</a>
	Check horn operation.	<a href="#">5.2.4 Checking Horn, page 87</a>
	<b>Start engine and run to operating temperature.</b>	<a href="#">3.13 Starting the Engine, page 28</a>
	Check HPT, fuel and diesel exhaust fluid (DEF) gauges for operation.	<a href="#">5.2.1 Checking Harvest Performance Display (HPT), page 78</a>
	Check engine speed on HPT.	<a href="#">5.2.2 Checking Engine Speed, page 83</a>
	Check that air conditioning and heater are functioning properly.	<a href="#">5.2.6 Checking Air Conditioning and Heater, page 88</a>
	Check that interior lights are functioning properly.	<a href="#">5.2.5 Checking Interior Lights, page 88</a>



## PREDELIVERY CHECKLIST

✓	Item	Reference
	Check that exterior lights are functioning properly.	<a href="#">5.2.3 Checking Exterior Lights, page 84</a>
	Check that hazard and signal lights are functioning properly.	<a href="#">5.2.3 Checking Exterior Lights, page 84</a>
	Check that beacons are functioning properly (if installed).	<a href="#">5.2.3 Checking Exterior Lights, page 84</a>
	Complete the header's Predelivery Checklist (if applicable).	—
	Check that manuals are in the windrower manual case.	<a href="#">5.3 Checking Manuals, page 90</a>
	Check that plastic coverings and windshield decal from cab interior have been removed.	<a href="#">5.4 Performing Final Steps, page 91</a>

**Date Checked:**

**Checked by:**



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