

M155

Self-Propelled Windrower

Unloading and Assembly Instructions (Container Shipments)

215679 Revision A

Original Instruction

Featuring the Dual Direction® and Ultra Glide® suspension on the M155 Self-Propelled Windrower.



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EC Declaration of Conformity—Windrower Lift Sling

	<h2>EC Declaration of Conformity</h2>	
	<p>[1] MacDon MacDon Industries Ltd. 680 Moray Street, Winnipeg, Manitoba, Canada R3J 3S3</p>	<p>[4] Not Applicable</p> <p>[5] October 29, 2021</p>
<p>[2] Windrower Lift Sling</p> <p>[3] Part 306489</p>	<p>[6] _____ Adrienne Tankeu Product Integrity</p>	

EN	BG	CZ	DA
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EC Declaration of Conformity

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<p style="text-align: center;">NL</p> <p>Wij, [1] Verklaren dat het product: Machinetype: [2] Naam en model: [3] Serienummer(s): [4] voldoet aan alle relevante bepalingen van de richtlijn 2006/42/EC.</p> <p>Geharmoniseerde normen toegepast, zoals vermeld in Artikel 7(2):</p> <p style="text-align: center;">EN ISO 4254-1:2013 EN ISO 4254-7:2009</p> <p>Plaats en datum van verklaring: [5] Naam en handtekening van de bevoegde persoon om de verklaring op te stellen: [6] Naam en adres van de geautoriseerde persoon om het technisch dossier samen te stellen: Benedikt von Riedesel Algemeen directeur, MacDon Europe GmbH Hagenauer Straße 59 65203 Wiesbaden (Duitsland) bvonriedesel@macdon.com</p>	<p style="text-align: center;">PO</p> <p>My niżej podpisani, [1] Oświadczamy, że produkt: Typ urządzenia: [2] Nazwa i model: [3] Numer seryjny/numery seryjne: [4] spełnia wszystkie odpowiednie przepisy dyrektywy 2006/42/WE.</p> <p>Zastosowaliśmy następujące (zharmonizowane) normy zgodnie z artykułem 7(2):</p> <p style="text-align: center;">EN ISO 4254-1:2013 EN ISO 4254-7:2009</p> <p>Data i miejsce oświadczenia: [5] Imię i nazwisko oraz podpis osoby upoważnionej do przygotowania deklaracji: [6] Imię i nazwisko oraz adres osoby upoważnionej do przygotowania dokumentacji technicznej: Benedikt von Riedesel Dyrektor generalny, MacDon Europe GmbH Hagenauer Straße 59 65203 Wiesbaden (Niemcy) bvonriedesel@macdon.com</p>	<p style="text-align: center;">PT</p> <p>Nós, [1] Declarámos, que o produto: Tipo de máquina: [2] Nome e Modelo: [3] Número(s) de Série: [4] cumpre todas as disposições relevantes da Directiva 2006/42/CE.</p> <p>Normas harmonizadas aplicadas, conforme referido no Artigo 7(2):</p> <p style="text-align: center;">EN ISO 4254-1:2013 EN ISO 4254-7:2009</p> <p>Local e data da declaração: [5] Identidade e assinatura da pessoa autorizada a elaborar a declaração: [6] Nome e endereço da pessoa autorizada a compilar o ficheiro técnico: Benedikt von Riedesel Gerente Geral, MacDon Europa Ltda. Hagenauer Straße 59 65203 Wiesbaden (Alemanha) bvonriedesel@macdon.com</p>	<p style="text-align: center;">RO</p> <p>Noi, [1] Declarăm, că următorul produs: Tipul mașinii: [2] Denumirea și modelul: [3] Număr (numere) serie: [4] corespunde tuturor dispozițiilor esențiale ale directivei 2006/42/EC.</p> <p>Au fost aplicate următoarele standarde armonizate conform articolului 7(2):</p> <p style="text-align: center;">EN ISO 4254-1:2013 EN ISO 4254-7:2009</p> <p>Data și locul declarației: [5] Identitatea și semnătura persoanei împuternicite pentru întocmirea declarației: [6] Numele și semnătura persoanei autorizate pentru întocmirea cărții tehnice: Benedikt von Riedesel Manager General, MacDon Europe GmbH Hagenauer Straße 59 65203 Wiesbaden (Germania) bvonriedesel@macdon.com</p>
<p style="text-align: center;">SR</p> <p>Mi, [1] Izjavljujem da proizvod Tip mašine: [2] Naziv i model: [3] Serijski broj(ovi): [4] Ispunjava sve relevantne odredbe direktive 2006/42/EC.</p> <p>Korišćeni su usklađeni standardi kao što je navedeno u članu 7(2):</p> <p style="text-align: center;">EN ISO 4254-1:2013 EN ISO 4254-7:2009</p> <p>Datum i mesto izdavanja deklaracije: [5] Identitet i potpis lica ovlašćenog za sastavljanje deklaracije: [6] Ime i adresa osobe ovlašćene za sastavljanje tehničke datoteke: Benedikt von Riedesel Generalni direktor, MacDon Europe GmbH Hagenauer Straße 59 65203 Wiesbaden (Nemačka) bvonriedesel@macdon.com</p>	<p style="text-align: center;">SV</p> <p>Mi, [1] Intygat att produkten: Maskintyp: [2] Namn och modell: [3] Serienummer: [4] uppfyller alla relevanta villkor i direktivet 2006/42/EG.</p> <p>Harmonierade standarder används, såsom anges i artikel 7(2):</p> <p style="text-align: center;">EN ISO 4254-1:2013 EN ISO 4254-7:2009</p> <p>Plats och datum för intyget: [5] Identitet och signatur för person med befogenhet att upprätta intyget: [6] Namn och adress för person behörig att upprätta den tekniska dokumentationen: Benedikt von Riedesel Administrativ chef, MacDon Europe GmbH Hagenauer Straße 59 65203 Wiesbaden (Tyskland) bvonriedesel@macdon.com</p>	<p style="text-align: center;">SL</p> <p>Mi, [1] izjavljam, da izdelek: Vrsta stroja: [2] Ime in model: [3] Serijska/-e številka/-e: [4] ustreza vsem zadevnim določbam Direktive 2006/42/ES.</p> <p>Uporabljeni usklajeni standardi, kot je navedeno v členu 7(2):</p> <p style="text-align: center;">EN ISO 4254-1:2013 EN ISO 4254-7:2009</p> <p>Kraj in datum izjave: [5] Istovetnost in podpis osebe, opolnomočene za pripravo izjave: [6] Ime in naslov osebe, pooblaščenega za pripravo tehnične datoteke: Benedikt von Riedesel Generalni direktor, MacDon Europe GmbH Hagenauer Straße 59 65203 Wiesbaden (Nemčija) bvonriedesel@macdon.com</p>	<p style="text-align: center;">SK</p> <p>My, [1] týmto prehlasujem, že tento výrobok: Typ zariadenia: [2] Názov a model: [3] Výrobné číslo: [4] splňa príslušné ustanovenia a základné požiadavky smernice č. 2006/42/ES.</p> <p>Použitá harmonizované normy, ktoré sa uvádzajú v článku č. 7(2):</p> <p style="text-align: center;">EN ISO 4254-1:2013 EN ISO 4254-7:2009</p> <p>Miesto a dátum prehlásenia: [5] Meno a podpis osoby oprávnenej vypracovať toto prehlásenie: [6] Meno a adresa osoby oprávnenej zostaviť technický súbor: Benedikt von Riedesel Generálny riaditeľ MacDon Europe GmbH Hagenauer Straße 59 65203 Wiesbaden (Nemecko) bvonriedesel@macdon.com</p>

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Introduction

This instruction manual describes the unloading, setup, and predelivery requirements for the MacDon M155 Self-Propelled Windrowers shipped in containers.

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

Retain this instruction for future reference.

Conventions

The windrower is Dual Direction® and can be driven in cab-forward or 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.

NOTE:

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

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

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

This instruction is available in English and Russian and can be downloaded from our Dealer-only site.

Summary of Changes

The following list provides an account of major changes from the previous version of this document.

Section	Summary of Change	Internal Use Only
—	New Declaration of Conformity because there is a new lift sling.	ECN 61555
<i>Introduction, page iii</i>	Added contact information in case the shipment is missing parts.	Technical Publications
<i>2.2.1 Moving to Assembly Area – Crane Method, page 14</i> • <i>Figure 2.2, page 14</i>	Updated illustration to show new sling assembly.	ECN 61555
<i>2.4 Removing Drive Wheels, page 22</i> • <i>Step 1, page 22</i>	Step now specifies to discard hardware.	Technical Publications
<i>2.4 Removing Drive Wheels, page 22</i> • <i>Step 2, page 22</i>	Updated illustration and step to show the correct drive wheel shipping assembly.	ECN 43821
<i>2.6 Removing Hand Rails and Exhaust Stack, page 26</i>	Revised the entire procedure except for the first step, and added illustrations, to clarify exactly which parts are retained or discarded.	Technical Publications
<i>2.7 Removing Leg Assemblies, page 29</i> • <i>Step 3, page 29 to Step 5, page 30</i>	Revised steps to clarify which parts can be discarded.	Technical Publications
<i>2.8 Removing Wheel and Platform Support, page 32</i>	Revised all steps to clarify which parts can be discarded.	Technical Publications
—	Removed topic titled “Assembling Support Stand” because there are new assembly stands.	ECN 62447
<i>3.1 Lifting Windrower onto Assembly Stand (MD #B9064), page 35</i>	Replaced topics titled “Lifting Windrower onto Stand – Crane Method” and “Lifting Windrower onto Stand – Forklift Method” with a single topic because there are new assembly stands.	ECN 62447
<i>3.2 Installing Legs, page 38</i> • <i>Step 1, page 38</i> • <i>Step 2, page 38</i> • <i>Step 4, page 39 to Step 9, page 40</i>	Revised steps and/or added/revised illustrations for clarity. Changed the torque in <i>Step 8, page 40</i> from 136 Nm (100 lbf-ft) to 142 Nm (105 lbf-ft).	Technical Publications
<i>3.2 Installing Legs, page 38</i>	Revised step and added illustration for clarity.	Technical Publications
<i>3.3 Installing Drive Wheels, page 41</i>	Removed the introductory NOTE and the first four steps because they are new assembly stands.	ECN 62447
<i>3.3 Installing Drive Wheels, page 41</i> • <i>Step 1, page 41</i>	Revised step to clarify which parts are discarded or retained.	Technical Publications
<i>3.3 Installing Drive Wheels, page 41</i> • <i>Step 2, page 41</i>	Revised the following NOTE for clarity: • NOTE: For turf tires (diamond tread), make sure the arrow on the sidewall points in the cab-forward direction.	Technical Publications

Section	Summary of Change	Internal Use Only
<p><i>3.4 Installing Caster Wheels, page 43</i></p>	<p>Removed the following NOTE because the are new assembly stands:</p> <ul style="list-style-type: none"> • NOTE: The shipping frame does not need to be removed if the air bag lifting stand is used; however, ensure the bolts are removed prior to moving the windrower off the stand. <p>Revised the entire procedure and most illustrations:</p> <ul style="list-style-type: none"> • Specified which hardware is discarded or retained. • Added step for installing the anti-shimmy dampener. • Added step for removing and retaining the remaining step assemblies and hardware. 	<p>ECN 62447</p> <p>Technical Publications</p>
<p><i>3.5 Installing Hydraulics, page 50</i></p> <ul style="list-style-type: none"> • <i>Figure 3.28, page 52</i> • <i>Figure 3.29, page 53</i> • <i>Figure 3.30, page 53</i> 	<p>Updated illustrations to show black cable tie added to hose and pump port fitting.</p>	<p>ECN 61670</p>
<p><i>3.18 Removing Windrower from Assembly Stands, page 97</i></p>	<p>The topic titled Removing Windrower from Assembly Stands replaces the following topics because there are new assembly stands:</p> <ul style="list-style-type: none"> • “Removing Windrower from Stand” • “Removing Windrower from Factory Stand” • “Removing Windrower from Field Stand” 	<p>ECN 62447</p>
<p><i>5.1 Checking Safety System, page 169</i></p> <ul style="list-style-type: none"> • <i>Step 17, page 171</i> 	<p>Added missing picture.</p>	<p>Technical Publications</p>
<p><i>7.4 Lubricants, Fluids, and System Capacities, page 257</i></p>	<p>Updated coolant specification.</p>	<p>ECN 62224</p>

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Chapter 1: Safety

Understanding and consistently following these safety procedures will help to ensure the safety of those operating the machine and of bystanders.

1.1 Safety Alert Symbols

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

1. This symbol means:

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

Carefully read and follow the safety message accompanying this symbol.

Why is safety important to you?

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



Figure 1.1: Safety Symbol

1.2 Signal Words

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

Signal words are selected using the following guidelines:

DANGER

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

WARNING

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

CAUTION

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

IMPORTANT:

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

NOTE:

Provides additional information or advice.

1.3 General Safety

Protect yourself when assembling, operating, and servicing machinery.

CAUTION

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

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

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

In addition, take the following precautions:

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



Figure 1.2: Safety Equipment



Figure 1.3: Safety Equipment

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

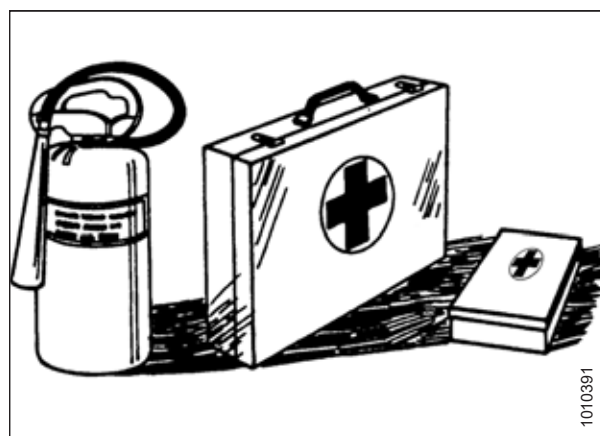


Figure 1.4: Safety Equipment

SAFETY

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



Figure 1.5: Safety around Equipment

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

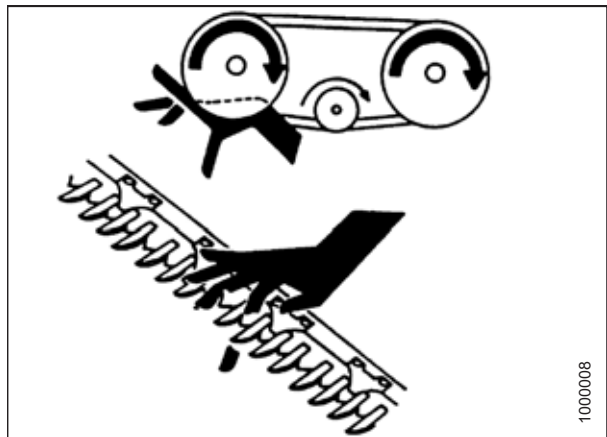


Figure 1.6: Safety around Equipment

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



Figure 1.7: Safety around Equipment

1.4 Maintenance Safety

Protect yourself when maintaining machinery.

To ensure your safety while maintaining the machine:

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



Figure 1.8: Safety around Equipment

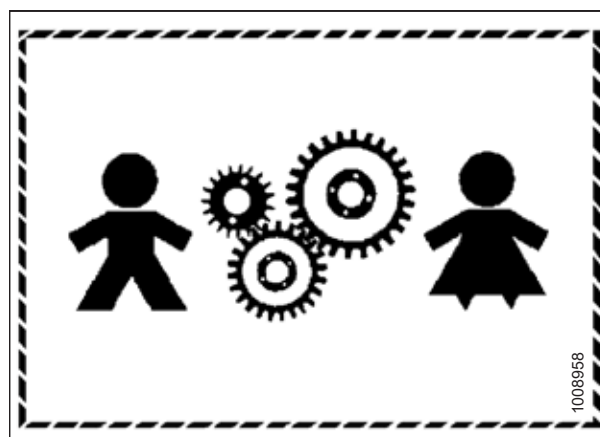


Figure 1.9: Equipment is NOT Safe for Children



Figure 1.10: Safety Equipment

1.5 Hydraulic Safety

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

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

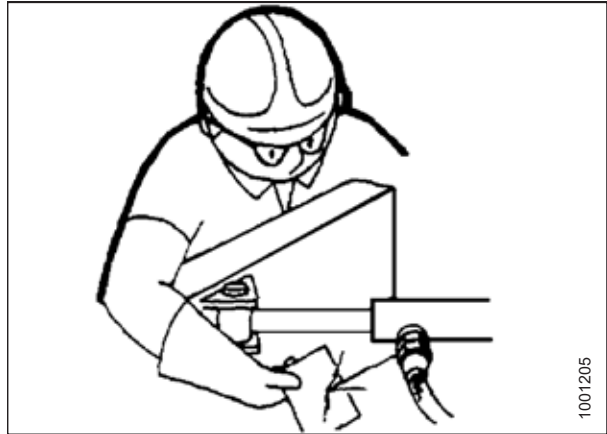


Figure 1.11: Testing for Hydraulic Leaks

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



Figure 1.12: Hydraulic Pressure Hazard

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

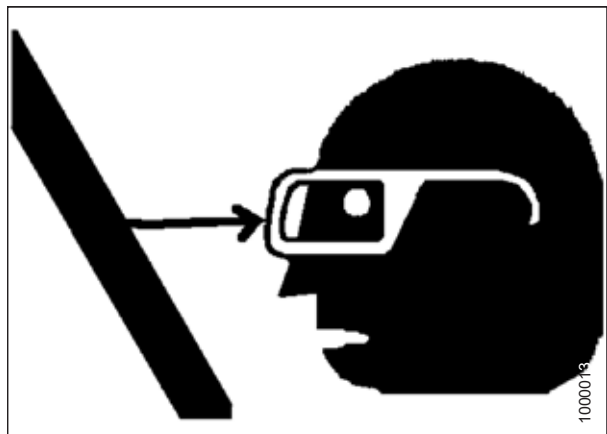


Figure 1.13: Safety around Equipment

1.6 Tire Safety

Understand the risks of handling tires before performing maintenance tasks.

WARNING

- A tire can explode during inflation, causing serious injury or death.
- Follow the proper procedures when mounting a tire. Failure to do so can produce an explosion, causing serious injury or death.

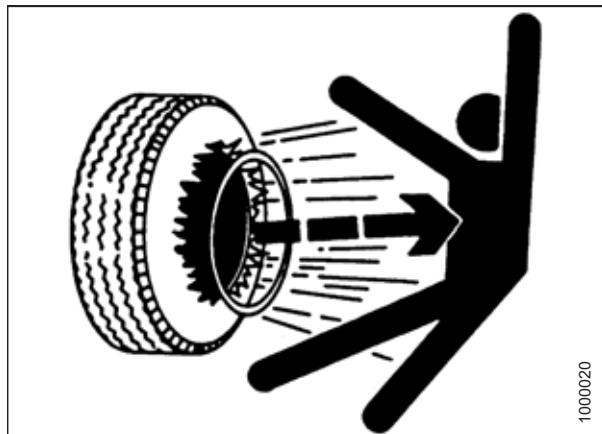


Figure 1.14: Overinflated Tire

WARNING

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

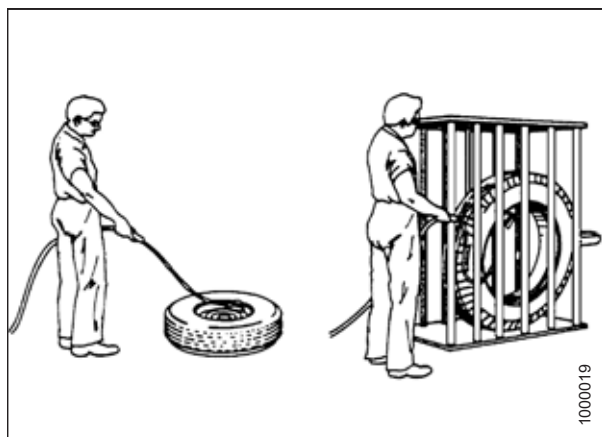


Figure 1.15: Safely Inflating Tire

1.7 Battery Safety

Understand the risks of working with lead-acid batteries before performing installation or maintenance tasks.

WARNING

- Keep all sparks and flames away from batteries. The electrolyte fluid in the battery cells emits an explosive gas which can build up over time.
- Ensure that there is adequate ventilation when charging the battery.



Figure 1.16: Safety around Batteries

WARNING

- Wear safety glasses when working near batteries.
- To avoid the loss of electrolyte fluid, do NOT tip a battery more than 45° off of its base.
- Battery electrolyte causes severe burns. Ensure that it does not contact your skin, eyes, or clothing.
- Electrolyte splashed into the eyes is extremely damaging. If you are treating this condition: force the eye open and flush it with cool, clean water for 5 minutes. Call a doctor immediately.
- If electrolyte is spilled or splashed on one's clothing or their body, neutralize it immediately with a solution of baking soda and water, then rinse the strained area with clean water.

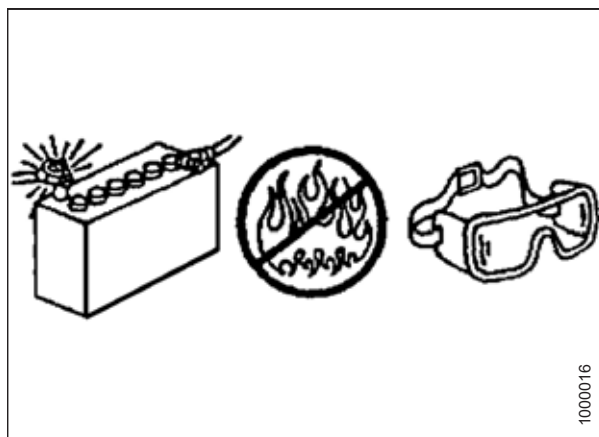


Figure 1.17: Safety around Batteries

WARNING

- To avoid injury from a spark or short circuit, disconnect the battery ground cable before servicing any part of the electrical system.
- Do NOT operate the engine with the alternator or battery disconnected. With the battery cables disconnected and the engine running, a high voltage can be built up if the cable terminals touch the machine frame. Anyone touching the machine frame under these conditions may be electrocuted.
- When working around batteries, remember that all of the exposed metal parts are live. Never lay a metal object across the terminals; this will generate a powerful spark and can electrocute the holder of the tool if they are not properly grounded.
- Keep batteries out of reach of children.

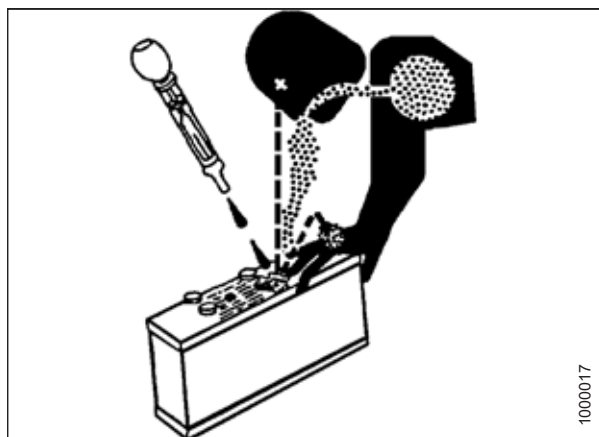


Figure 1.18: Safety around Batteries

1.8 Welding Precautions

High currents and voltage spikes associated with welding can cause damage to electronic components. Before welding on any part of the windrower or an attached header, disconnect all electronic module harness connections as well as battery cables. For instructions, refer to the windrower's technical manual.

1.9 Engine Safety

For the safety of yourself and others, understand the hazards associated with the engine before operating the machine, or before servicing the engine or nearby components.

WARNING

Do NOT use aerosol starting aids such as ether when attempting to start the engine. Use of these substances could result in an explosion.

CAUTION

- When starting up a new, serviced, or repaired engine, always be ready to stop the engine to prevent overspeeding. Do this by shutting off the air and/or fuel supply to the engine.
- Do NOT bypass or disable automatic shutoff circuits. These circuits help prevent injury and damage to the engine. For instructions, refer to the technical manual.
- Inspect the engine for potential hazards.
- Before starting the engine, ensure that no one is on, underneath, or close to the engine. Ensure that bystanders are clear of the area.
- All protective guards and covers must be installed if the engine must be started to perform service procedures.
- Work around rotating parts carefully.
- If a warning tag is attached to the engine start switch or controls, do NOT start the engine or move the controls. Consult whoever attached the warning tag before starting the engine.
- Start the engine from the operator's station. Follow the procedure in the Starting Engine section of the operator's manual. Following the correct procedure will help prevent major damage to engine components and prevent personal injury.
- To ensure that the jacket water heater (if equipped) and/or lubricant oil heater (if equipped) are working correctly, check the water temperature gauge and/or oil temperature gauge during heater operation.
- Engine exhaust contains combustion products, which can be harmful to your health. Always start and operate the engine in a well-ventilated area. If the engine is started in an enclosed area, vent the exhaust to the outside.
- Engine exhaust gases become very hot during operation and can burn people and common materials. Stay clear of the rear of machine and avoid exhaust gases when the engine is running.

NOTE:

If the engine will be operated in very cold conditions, then an additional cold-starting aid may be required.

1.9.1 High-Pressure Rail

Fuel is delivered to the engine under high pressure. Understand the hazards associated with the fuel delivery system before servicing it.

WARNING

- Before disconnecting fuel lines or any other components under high pressure between the fuel pump and the high-pressure common rail fuel system, confirm that the fuel pressure has been relieved.
- Contact with high-pressure fuel may cause fluid penetration and burn hazards. High-pressure fuel spray presents a potential fire hazard. Failure to follow these instructions may cause injury or death.

1.9.2 Engine Electronics

For the safety of yourself and of others, and to prevent damage to the engine control module (ECM), understand the hazards associated with engine electronics.



WARNING

Tampering with the electronic system or the original equipment manufacturer (OEM) wiring installation is dangerous and could result in injury to people, death, or damage to the equipment.



WARNING

Electrical Shock Hazard. The electronic unit injectors use DC voltage. The engine control module (ECM) sends this voltage to the electronic unit injectors. Do NOT touch the harness connector for the electronic unit injectors while the engine is operating. Failure to follow this instruction could result in personal injury or death.

This engine has a comprehensive, programmable engine monitoring system. The ECM has the ability to monitor engine operating conditions. If certain conditions exceed their allowable range, the ECM will initiate immediate action.

The engine monitoring system can initiate the following actions:

- Warning
- Derate
- Shut down

Abnormalities in the following monitored conditions can limit engine speed and/or engine power:

- Engine coolant temperature
- Engine oil pressure
- Engine speed
- Intake manifold air temperature

While the engine monitoring package can vary for different engine models and different engine applications, the engine monitoring system and control will be similar for all engines. Together, two controls provide engine monitoring functions for specific engine applications.

1.10 Safety Signs

Safety signs are decals placed on the machine where there is a risk of personal injury, or where the Operator should take extra precautions before operating the controls. They are usually yellow.

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

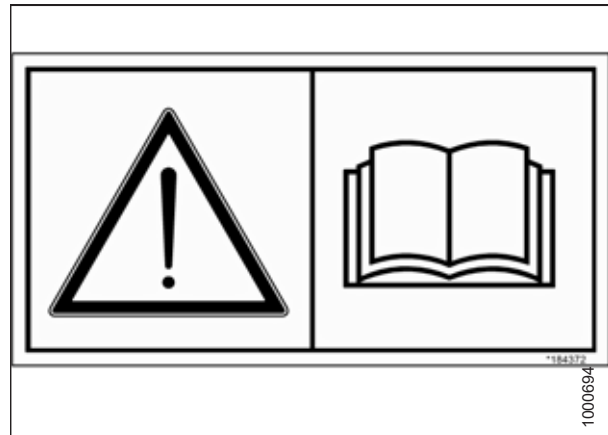


Figure 1.19: Operator's Manual Decal

1.10.1 Installing Safety Decals

If a safety decal is damaged it should be replaced.

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

Chapter 2: Unloading Windrower

Unload all windrower parts before beginning assembly. Carefully follow these procedures in the order in which they are presented.

2.1 Unloading Container

Unload the windrower properly to avoid damaging the windrower.

DANGER

To prevent injury to bystanders and to avoid striking them with machinery, do NOT allow people to stand in the unloading area.

1. Move the trailer into position and block the trailer wheels.
2. Lower the trailer storage stands.
3. Unlock and open the container doors and remove all blocking.
4. Check the container floor for nails or other obstructions and remove them if necessary.
5. Position the platform or the ramp at the container opening.
6. Attach the chain/pull strap to the slots in support channels (A).
7. Pull the windrower slowly from the container onto the platform.



Figure 2.1: Windrower Shipping Assembly

UNLOADING WINDROWER

2.2 Moving to Assembly Area

The windrower can be moved to the assembly area using either a crane or a forklift.

To move the windrower using a crane, refer to [2.2.1 Moving to Assembly Area – Crane Method, page 14](#). To move the windrower using a forklift, refer to [2.2.2 Moving to Assembly Area – Forklift Method, page 16](#).

2.2.1 Moving to Assembly Area – Crane Method

Use the specified lift sling and lifting points to lift the windrower container assembly using a crane.

DANGER

To prevent injury to bystanders and to avoid striking them with machinery, do NOT allow people to stand in the unloading area.

DANGER

The equipment used for loading or unloading a header must meet or exceed the requirements specified in this document. Using inadequate equipment may result in chain breakage, vehicle tipping, machine damage or bodily harm to operators or bystanders.

Lift Sling	
Maximum Working Load	12,884 kg (28,404 lb.)

Chain	
Type	Overhead 1/2 in. lifting quality
Minimum Working Load	3221 kg (7100 lb.)

Lifting Vehicle	
Minimum Lifting Capacity	9072 kg (20,000 lb.)

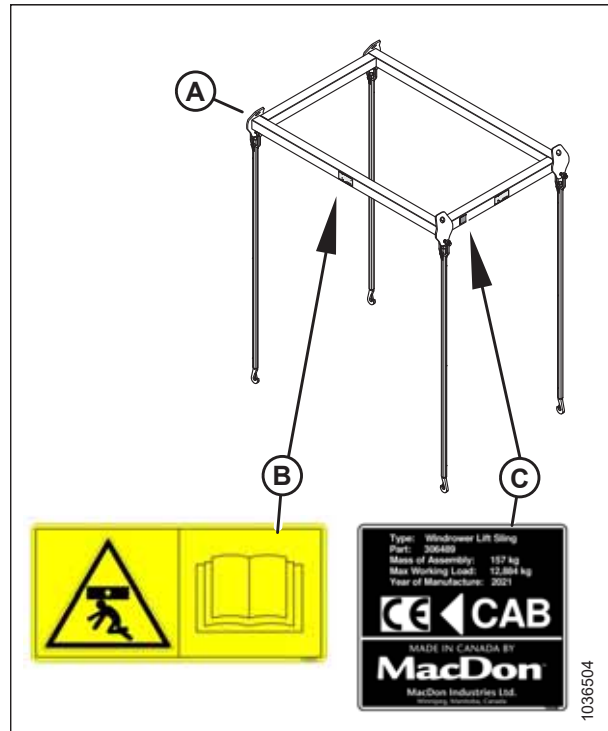


Figure 2.2: Lift Sling

- A - Lift Sling
- B - Decal (Four Places)
- C - Decal

UNLOADING WINDROWER

To move the windrower to the assembly area, follow these steps:

1. Attach the chains or cables to the four lifting points on the lift sling, and connect the loop ends to the crane hook.

IMPORTANT:

Use cables or chains with a minimum lifting capacity of 3221 kg (7100 lb.).

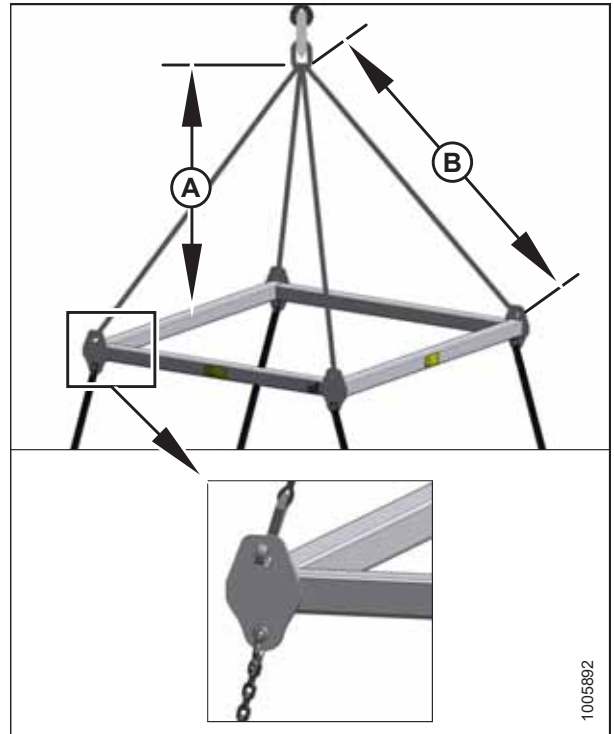


Figure 2.3: Lift Sling

A - 1500 mm (59 in.) Minimum

B - 2120 mm (83.5 in.) Typical

2. Attach the lift sling to the four designated lifting points on the windrower shipping frame as shown.



DANGER

To avoid injury or death from a swinging or falling load, keep all bystanders clear when lifting. Equipment used for lifting must exceed the maximum requirements specified in this section.

3. Lift the windrower off the platform and move it to the setup area.



Figure 2.4: Shipping Frame Lifting Points

UNLOADING WINDROWER

4. Lower windrower onto 152 mm (6 in.) blocks (A) as shown.
5. Remove the chains from the shipping frame.
6. Check for shipping damage and missing parts.



Figure 2.5: Windrower Shipping Assembly on Blocks

2.2.2 Moving to Assembly Area – Forklift Method

The windrower can be moved to the assembly area using a forklift.

DANGER

To prevent injury to bystanders and to avoid striking them with machinery, do NOT allow people to stand in the unloading area.

DANGER

The equipment used for loading or unloading a header must meet or exceed the requirements specified in this document. Using inadequate equipment may result in chain breakage, vehicle tipping, machine damage or bodily harm to operators or bystanders.

Lifting Vehicle	
Minimum Lifting Capacity ¹	9072 kg (20,000 lb.)

IMPORTANT:

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

DANGER

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

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

UNLOADING WINDROWER

1. Approach the windrower from the hood end and slide the forks underneath the lifting framework.
2. Raise the windrower off the platform and move it to the assembly area.



Figure 2.6: Forklift Method Lifting Points

3. Lower the windrower onto 152 mm (6 in.) blocks (A) as shown.
4. Check for shipping damage and missing parts.



Figure 2.7: Windrower Shipping Assembly on Blocks

2.3 Removing Wheel and Step Assembly

Remove the wheel and step assembly from their shipping configuration.

1. Remove shipping wire (A) and the bolt securing the hose support to the shipping frame. Remove the hose support.
2. Lay hose support off to the side.



Figure 2.8: Shipping Frame

3. Remove two 3/4 x 16.5 in. bolts (A) (one per side) from the front frame beam. Retain for reinstallation.



Figure 2.9: Front Frame Beam

UNLOADING WINDROWER

4. Remove the 25.4 mm (1 in.) pin (A) from the center-link.



Figure 2.10: Center-Link

5. Remove the four (two per side) carriage bolts from the rear of the wheel/step assembly.



Figure 2.11: Rear of Wheel/Step Assembly

UNLOADING WINDROWER

6. Remove the cable tie (A) and shipping wire (B) securing the hose bundles to the frame.



Figure 2.12: Hose Bundles on Frame



Figure 2.13: Hose Bundles on Frame

UNLOADING WINDROWER

- Using a chain and a lifting device, pull wheel/step assembly (A) away from the shipping assembly.



Figure 2.14: Wheel/Step Shipping Assembly

- Lift center-link (A) until it clears wheel/step assembly frame (B).



Figure 2.15: Wheel/Step Assembly Frame

- Install the leg bolts, washers, and nuts to secure the lifting plate onto the windrower frame.



Figure 2.16: Lifting Plate

2.4 Removing Drive Wheels

Remove the drive wheels from their shipping configuration.

IMPORTANT:

To prevent damage to the hood/cab, remove the drive wheels as a pair from above the hood.

1. Remove and discard two bolts and nuts (A) from the front cross member over the hood.



Figure 2.17: Front Cross Member on Hood

2. Remove and discard two bolts and nuts (A) from the rear of the hood directly under the center of the drive wheel.

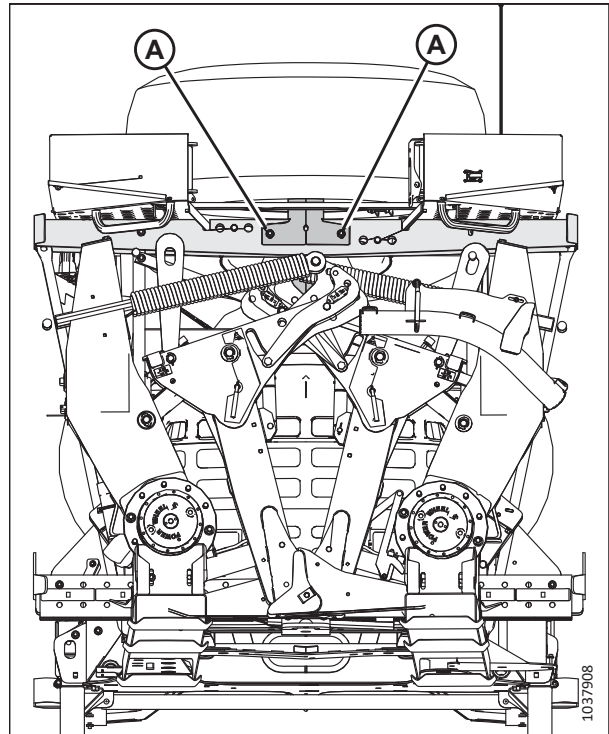


Figure 2.18: Rear of Hood

UNLOADING WINDROWER

3. Attach a lifting device to lift hooks (A) located in the center of each drive wheel.

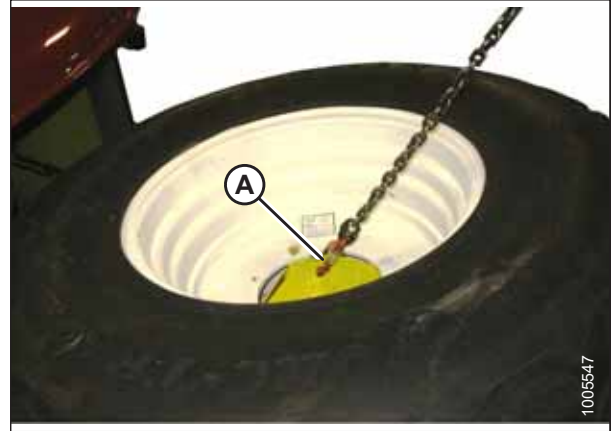


Figure 2.19: Drive Wheel

4. Carefully lift the wheels off the frame.

IMPORTANT:

Ensure the tires are guided away from the cab roof when lifting the wheels to prevent damaging the cab. The chain on the forward wheel should be snug, and the chain on the aft wheel should be loose.

5. Set the wheels aside for later installation.



Figure 2.20: Wheels on Frame

2.5 Removing Platforms

Remove the left and right platforms from their shipping configuration.

1. Remove support tube (A) on each side of the hood.

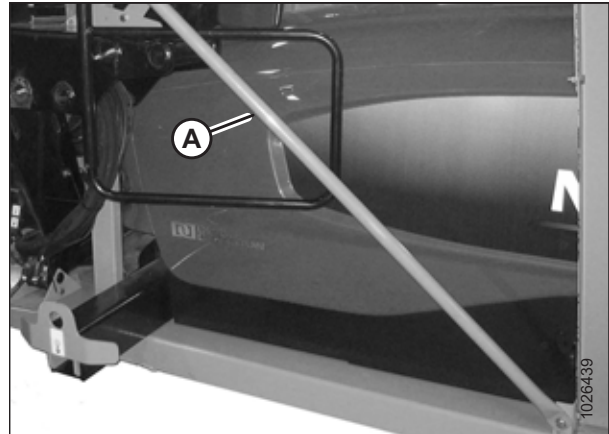


Figure 2.21: Shipping Supports

2. Attach two slings (A) and a chain (B) to the platform at the locations shown to prevent damaging the paint.
3. Attach each end of the slings and chain to a lifting device with a minimum lifting capacity of 2268 kg (5000 lb.) and a lift height of at least 4 m (13 ft.).

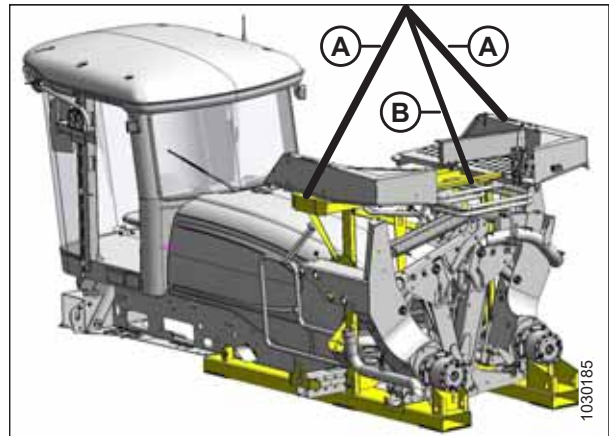


Figure 2.22: Platforms on Hood

4. Remove two 5/8 x 5 in. bolts (B) from the top of the vertical supports, and remove two 5/8 x 1 1/4 in. bolts (A) attaching the angle braces to the platforms.
5. Carefully lift the platform assembly off the frame.

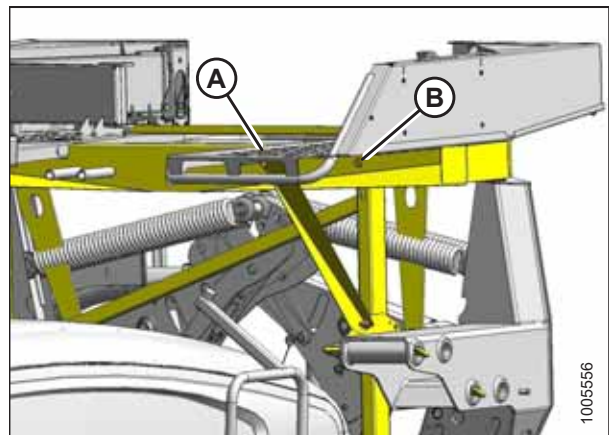


Figure 2.23: Platforms on Hood

UNLOADING WINDROWER

6. Back away from the windrower. Set the platform assembly on level ground that is covered with cardboard.

NOTE:

The cardboard will protect the paint on the platform assembly.

7. Unhook one sling and chain.
8. Lift one end of the platform assembly so it can be inverted and laid down with the base on the floor.

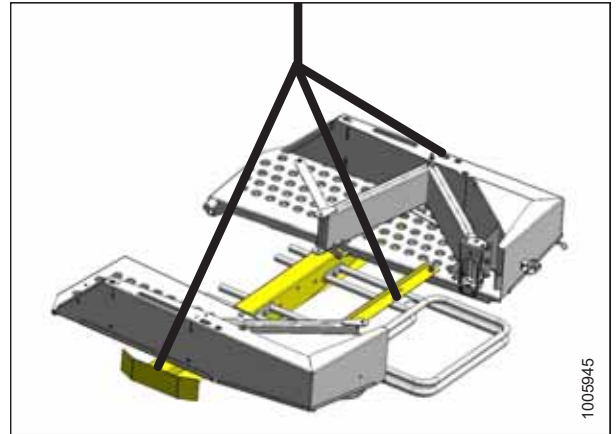


Figure 2.24: Platforms

9. Unhook the remaining sling.

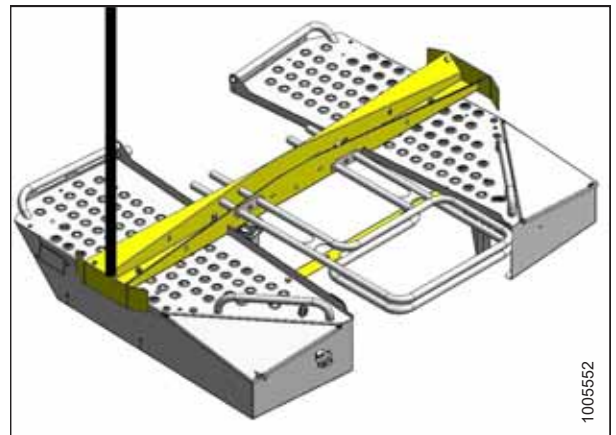


Figure 2.25: Platforms

2.6 Removing Hand Rails and Exhaust Stack

Remove the hand rails and exhaust stack from their shipping configuration.

1. Cut the cable ties and move the hose bundle clear of the platform.



Figure 2.26: Hand Rails and Exhaust Stack Shipping Assembly

2. Remove shipping wire and foam from exhaust stack (A).
3. Remove nuts (B) from clamp (C), and remove exhaust stack (A) and the clamp from the shipping frame.

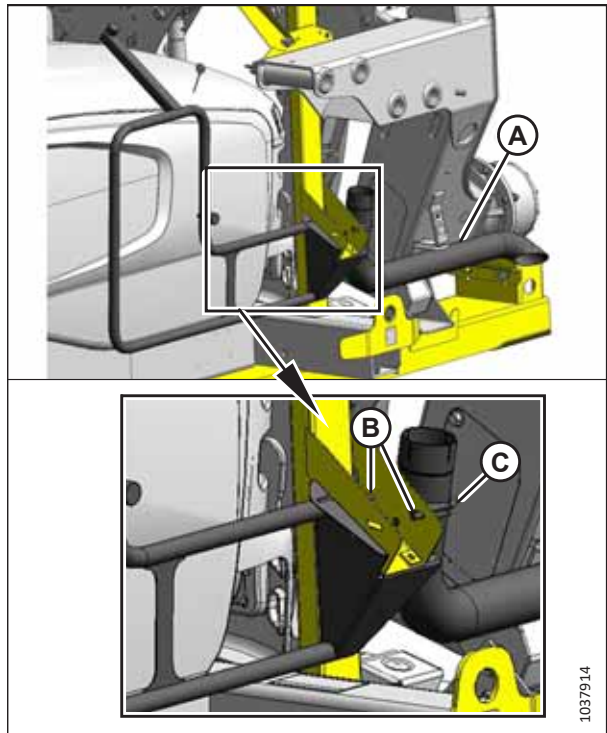


Figure 2.27: Hand Rails and Exhaust Stack Shipping Position

UNLOADING WINDROWER

4. Reinstall nuts (B) onto clamp (C) and set exhaust stack (A) aside for later installation.

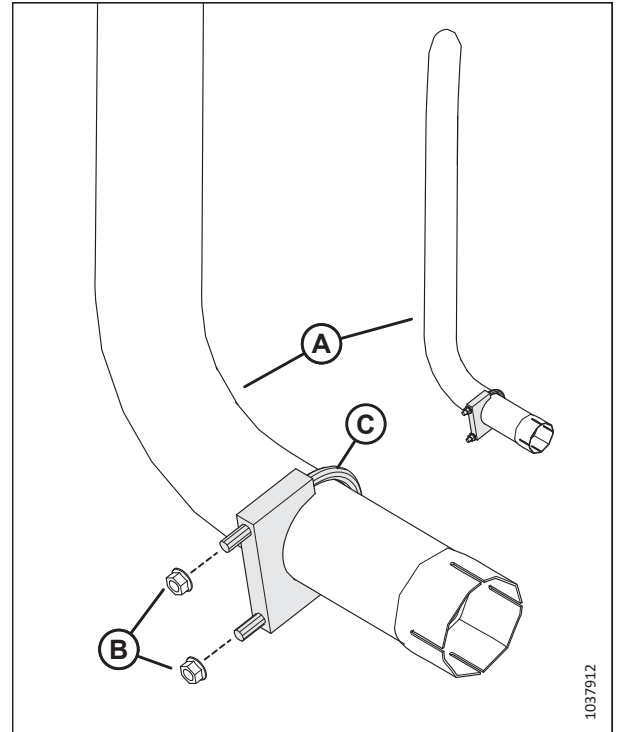


Figure 2.28: Exhaust Stack, Clamp, and Nuts Retained from Shipping

5. Remove two bolts and nuts (A) securing hand rail (B) to the shipping frame, and remove the hand rail. Retain the two bolts but discard the nuts.
6. Repeat Step 5, [page 27](#) for the hand rail on the opposite side.

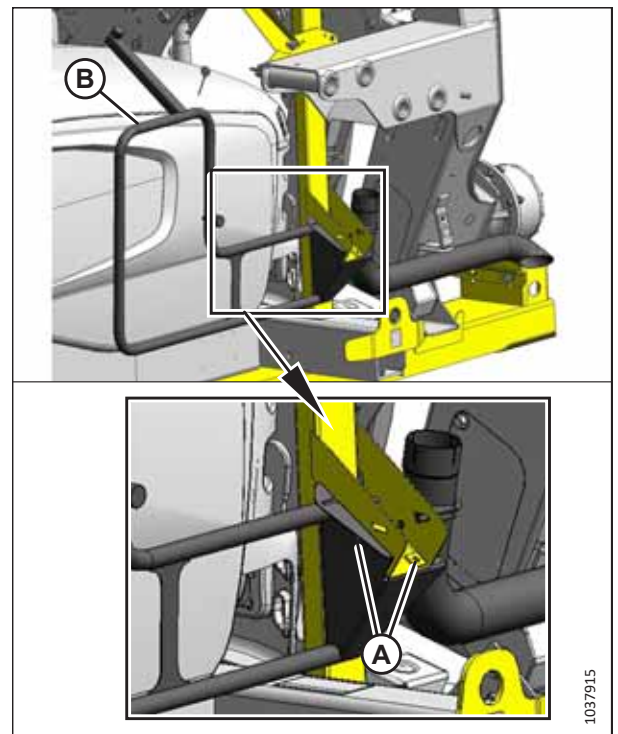


Figure 2.29: Hand Rails and Exhaust Stack Shipping Position

UNLOADING WINDROWER

7. Set the following handrail parts aside for later installation:

- Left handrail (A)
- Right handrail (B)
- Four 1/2 x 3/4 in. bolts (C)

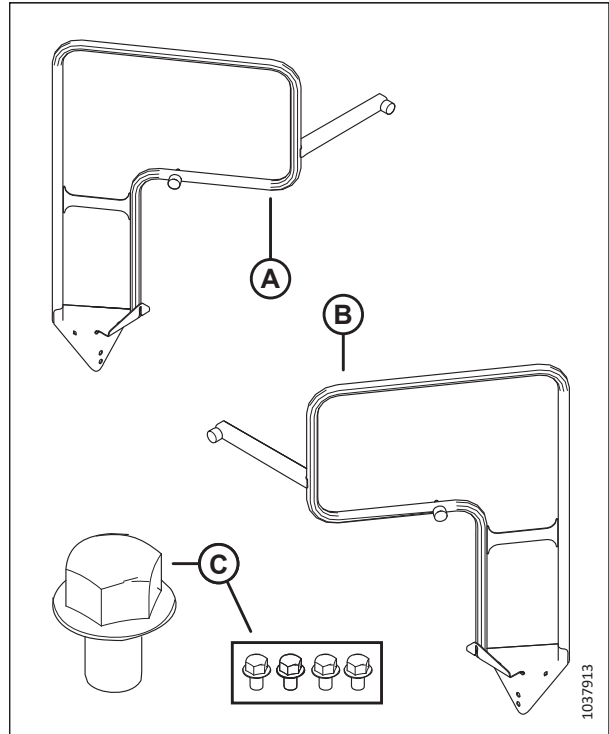


Figure 2.30: Handrails and Bolts Retained from Shipping

2.7 Removing Leg Assemblies

Remove the left and right leg assemblies from their shipping configuration.

DANGER

Objects are heavy and difficult to maneuver. Use a proper lifting device and arrange for adequate assistance. Falling objects can result in serious personal injury.

1. Ensure lift bar (B) is attached to leg assembly as shown, and the clevis pin is installed with the head on near side.
2. Attach chain (A) to lifting bar (B) on the leg assembly, and connect the chain to a lifting device with a minimum lifting capacity of 2268 kg (5000 lb.).

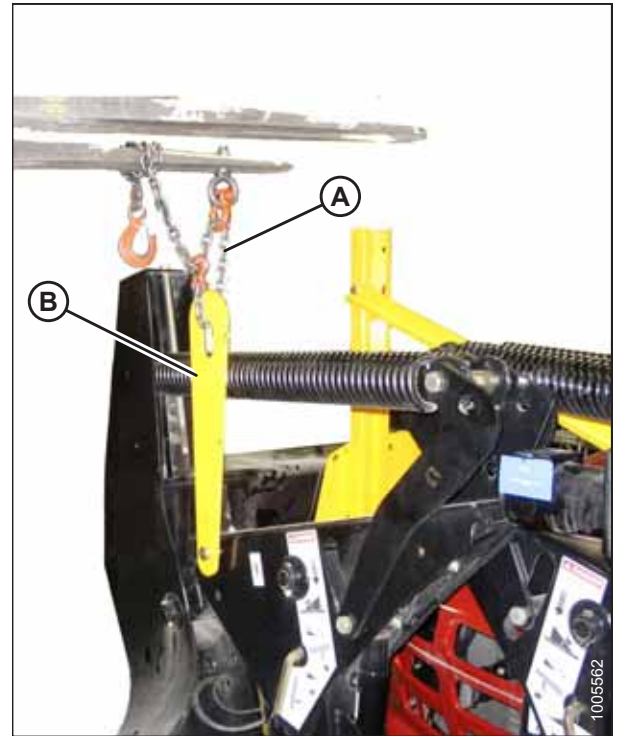


Figure 2.31: Leg Shipping Assembly

3. Remove and discard two bolts and nuts (A) from the lower support channel.

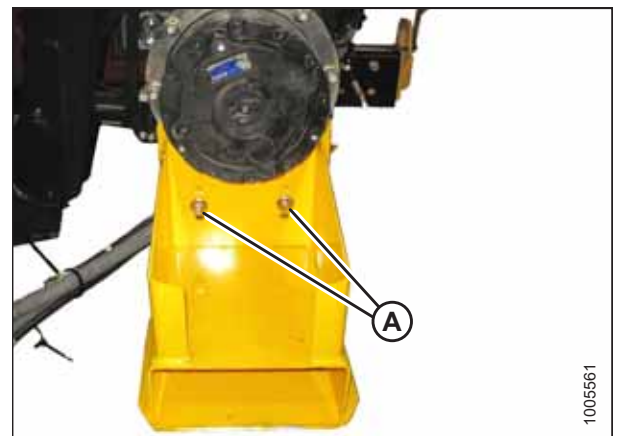


Figure 2.32: Lower Support Channel

UNLOADING WINDROWER

4. Remove and discard two bolts (A) from the shipping channel located at the top of the leg.

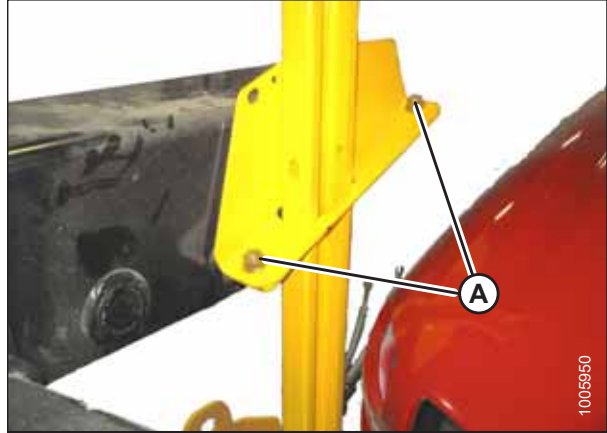


Figure 2.33: Shipping Channel on Leg

5. Remove bars (A) from the leg. Discard the bars.
6. Insert cardboard or foam between the leg assembly and the hood to avoid damage.

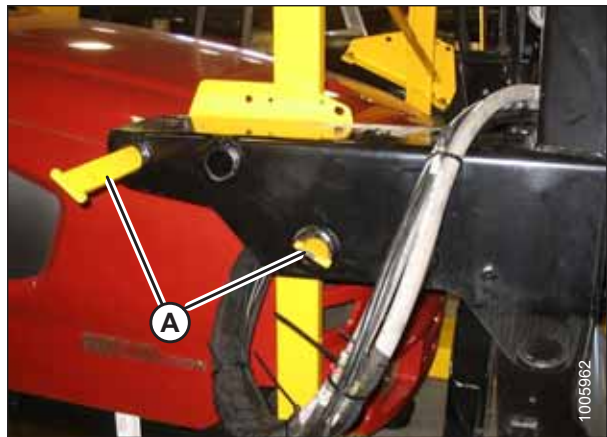


Figure 2.34: Leg Shipping Assembly

UNLOADING WINDROWER

7. Lift leg assembly (A), and set it on level ground in position (B) as shown.
8. Repeat Step 1, page 29 to Step 7, page 31 for the second leg assembly.

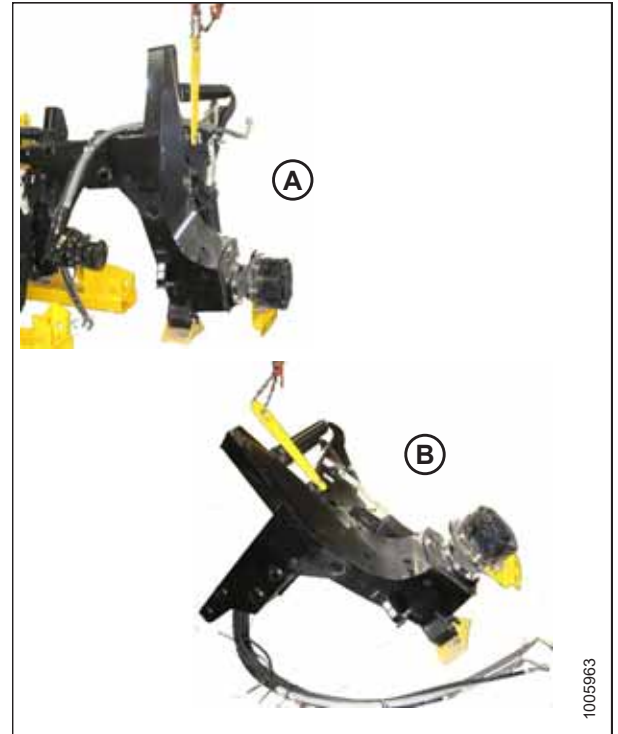


Figure 2.35: Leg Assembly Positioning

2.8 Removing Wheel and Platform Support

The wheel and platform support were installed for shipping purposes only.

1. Remove cross brace (A) and upright supports (B) and (C) from the frame. Discard the cross brace, upright supports, and the hardware that was used to install them.



Figure 2.36: Wheel and Platform Support

2. Remove cross member (A) from above the hood. Discard the cross member and the hardware that was used to install it.

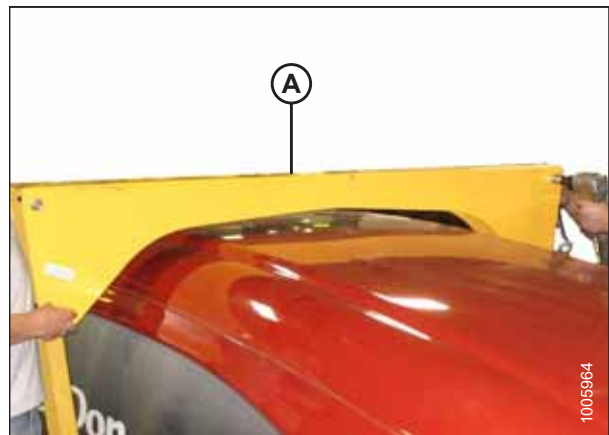


Figure 2.37: Wheel and Platform Support

UNLOADING WINDROWER

3. Remove and uprights (A) on both sides of the hood. Discard the uprights and the hardware that was used to install them.



Figure 2.38: Wheel and Platform Support

Chapter 3: Assembling Windrower

Once the various shipping assemblies have been unloaded and separated, the windrower can be assembled into field position.

3.1 Lifting Windrower onto Assembly Stand (MD #B9064)

The windrower must be assembled on a MacDon Export Assembly Lift Stand (MD #B9064).

DANGER

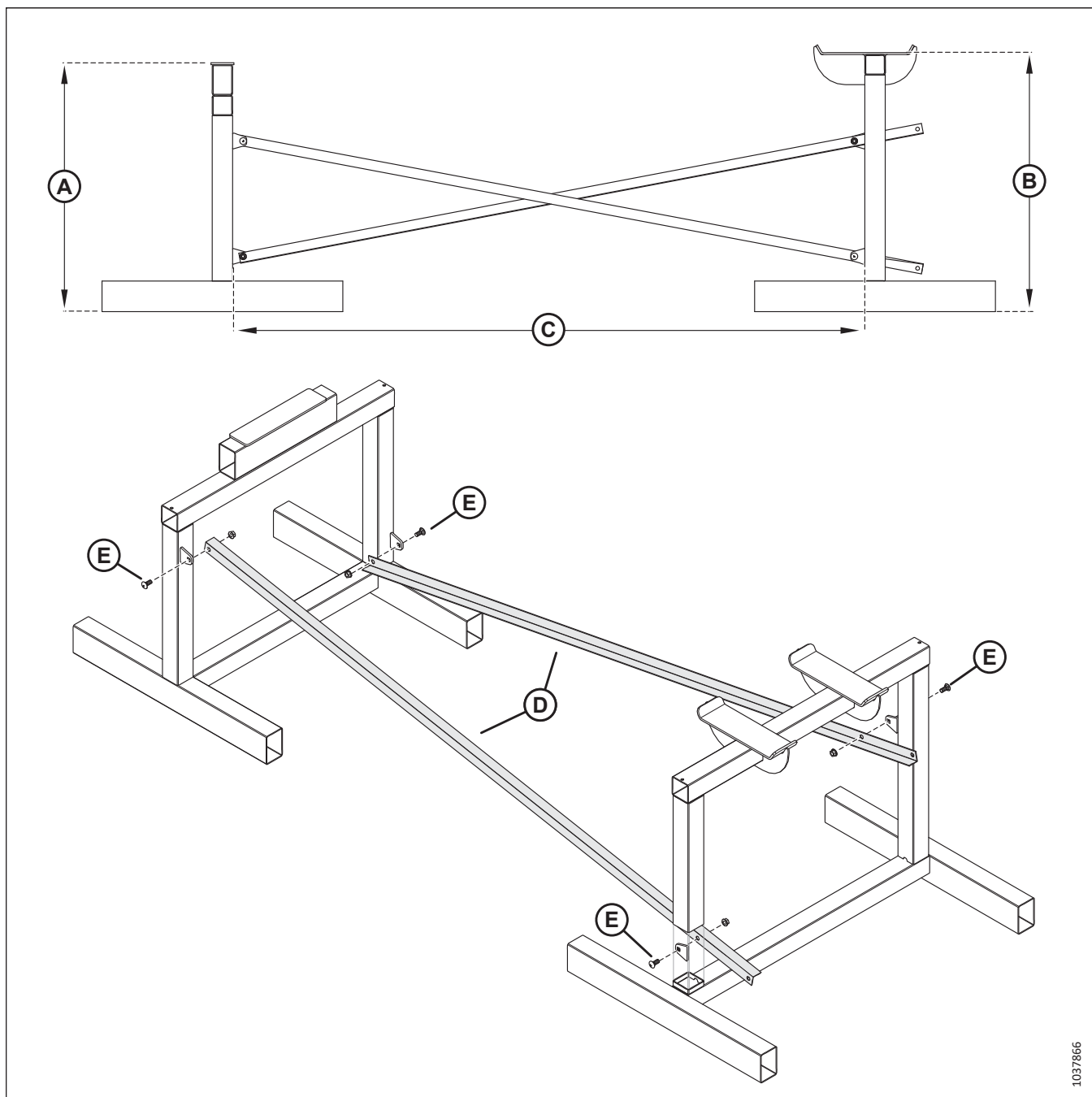
To prevent injury to bystanders and to avoid striking them with machinery, do NOT allow people to stand in the unloading area.

DANGER

The equipment used for loading or unloading a header must meet or exceed the requirements specified in this document. Using inadequate equipment may result in chain breakage, vehicle tipping, machine damage or bodily harm to operators or bystanders.

1. Before lifting the windrower onto an assembly stand, make sure that the lifting device meets or exceeds the specified requirements. For lifting requirements, refer to the following topics:
 - If lifting with a forklift, refer to [2.2.2 Moving to Assembly Area – Forklift Method, page 16](#)
 - If lifting with a crane, refer to [2.2.1 Moving to Assembly Area – Crane Method, page 14](#)

ASSEMBLING WINDROWER



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Figure 3.1: Assembly Stand Setup

2. Set the assembly stands on level ground to maintain the difference in height between the assembly stands:
 - Rear assembly stand height (A) is 1240 mm (48 13/16 in.).
 - Front assembly stand height (B) is 1291 mm (50 13/16 in.)
3. Space the stands out so that dimension (C) is 3145 mm (123 13/16 in.).
4. Attach diagonal angles (D) to the stands using 5/8 x 1.5 in. bolts and nuts at locations (E).
5. Torque the nuts to 153 Nm (113 lbf·ft).

ASSEMBLING WINDROWER

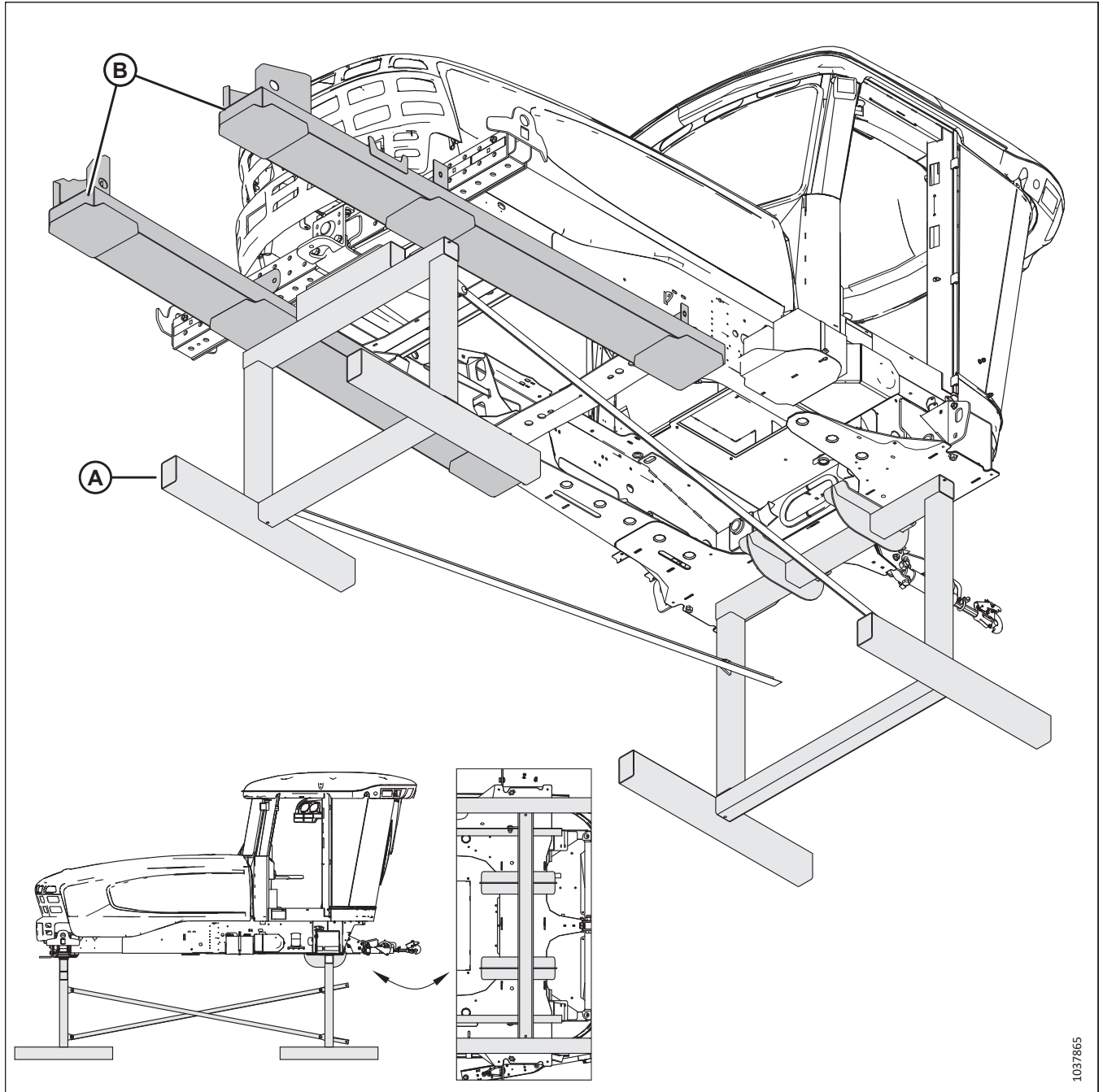


Figure 3.2: Windrower on Assembly Stands

6. Lift the windrower onto the assembly stand. Position the windrower so that you can remove fork channels (B) with a forklift, and without contacting front tractor stand (A).

3.2 Installing Legs

The right and left wheel legs are large components that must be installed before assembling the windrower any further.

1. Remove and retain the following:

- Front leg bolt (A)
- Two washers (B)
- Pin (C)
- Nut (D)

Repeat this step for the second front leg pin (E).

2. Remove carriage bolt (F) and remove lifting plate (G).
Discard the carriage bolt and plate.

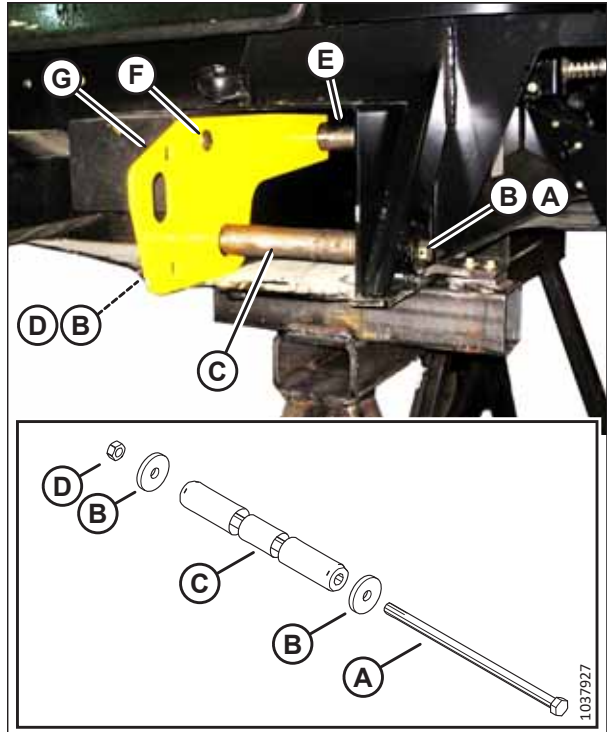


Figure 3.3: Lifting Plate

3. Attach the front leg to a lifting device using lifting bar (A).

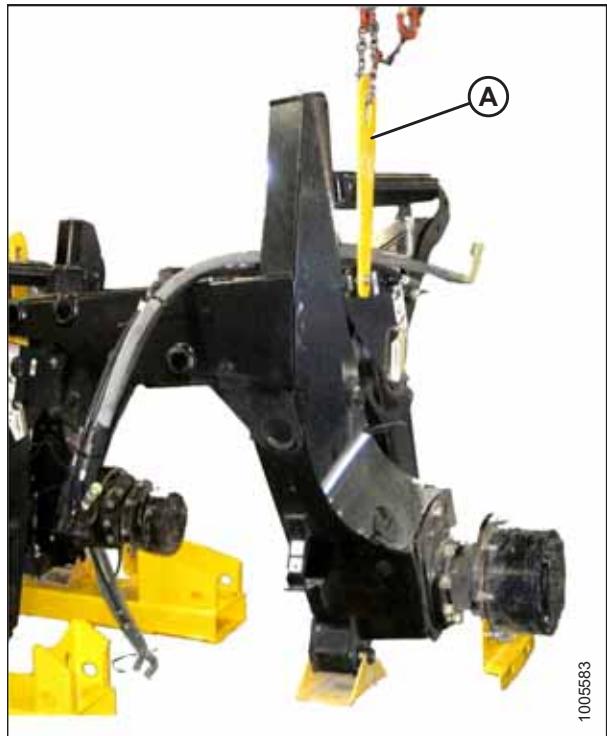


Figure 3.4: Leg Position

ASSEMBLING WINDROWER

4. Position leg (A) close to frame channel (B).

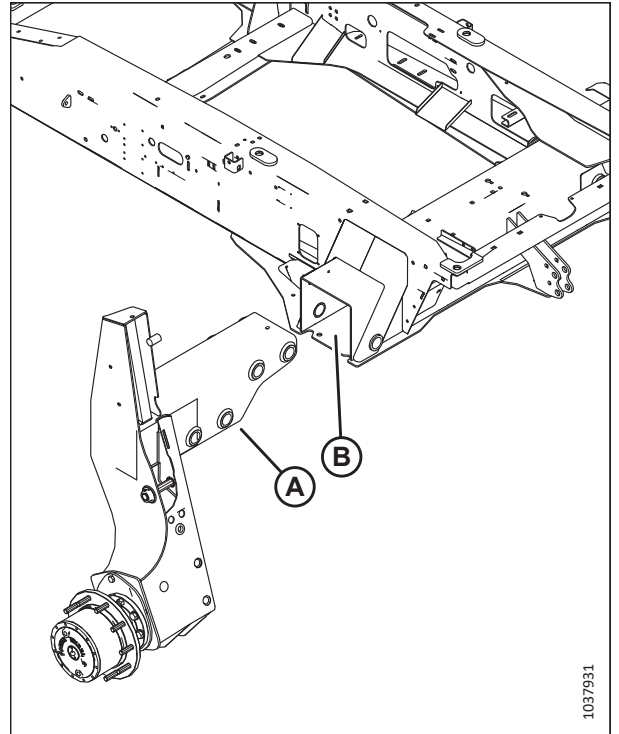


Figure 3.5: Leg Position

5. Feed hydraulic hose bundle (A) from the leg into the frame and through hole (B) at the center of the frame.

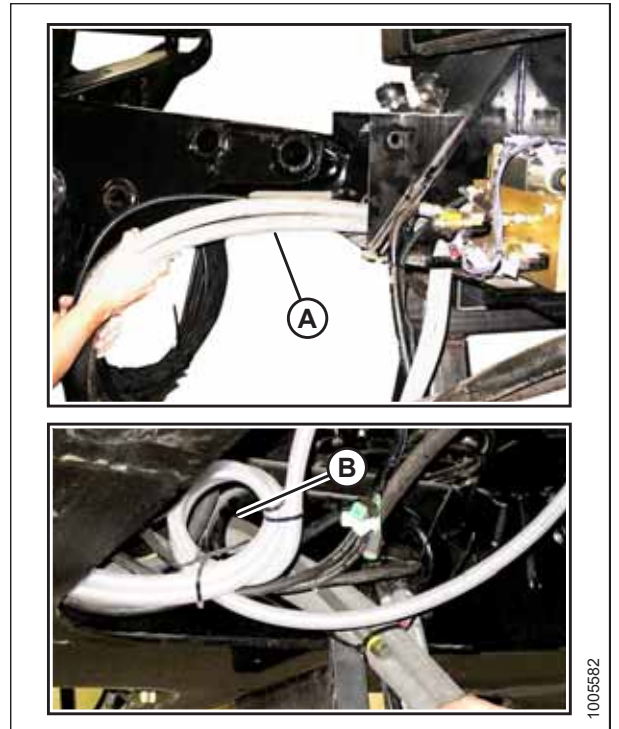


Figure 3.6: Hydraulic Hoses

ASSEMBLING WINDROWER

6. Insert the leg into the frame and line up the holes in the frame and the leg at the first position (widest tread with one exposed hole [A]).
7. Insert pins (B) and secure the with the following hardware (retained from Step 1, page 38):
 - Washers (C)
 - 3/4 x 16 1/2 in. long bolts (D)
 - Nuts (E)
8. Torque nuts (E) to 142 Nm (105 lbf-ft).
9. Repeat Step 1, page 38 to Step 8, page 40 for the opposite leg.

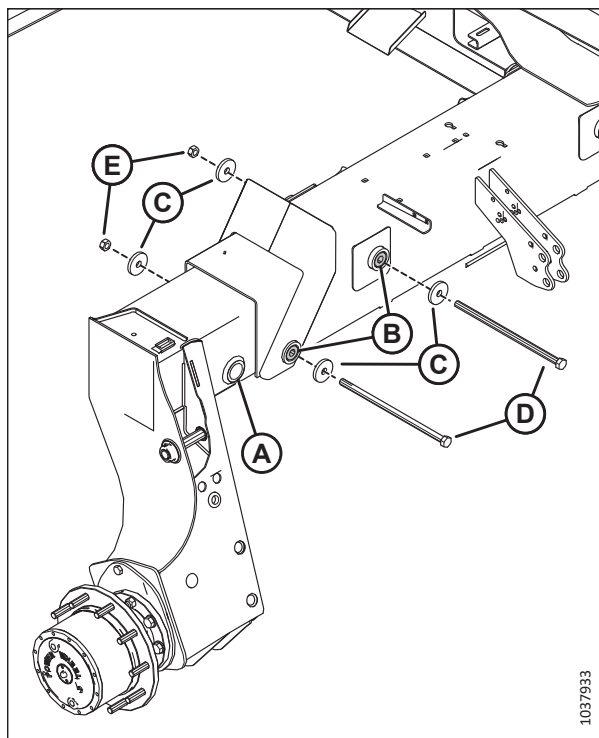


Figure 3.7: Leg Position on Frame

10. Use the lifting device to slightly lift the header lift arms, and remove lifting bars (A) from the legs.
11. Relocate spring locking pins (B) to the front of the lift arms.

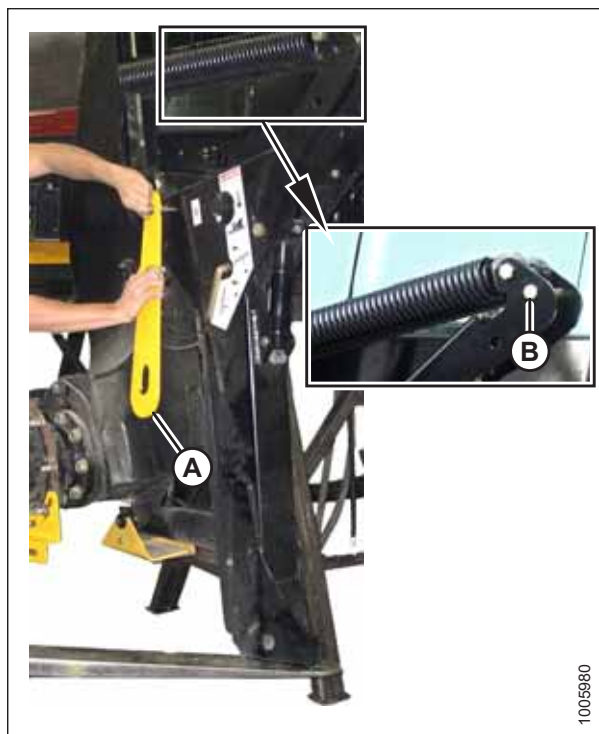


Figure 3.8: Header Lift

3.3 Installing Drive Wheels

Be sure to check the wheel nut torque again once the windrower has begun operation.

1. Remove shipping support (A) from the drive wheel hub, and remove the wheel lug nuts (B). Discard shipping support (A). Retain lug nuts (B).

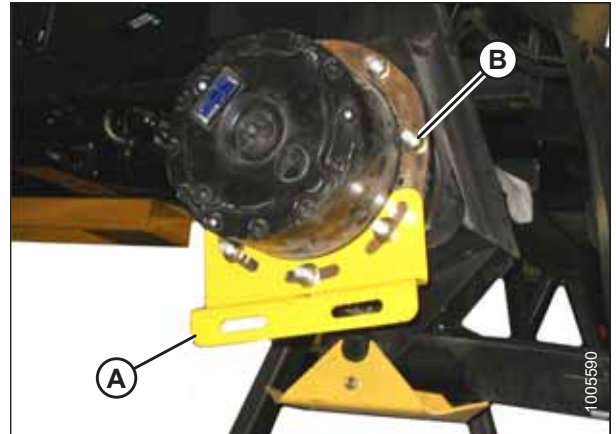


Figure 3.9: Drive Wheel Shipping Support

2. Position the wheels against the hubs so air valves (A) are on the outside and the tire tread points forward.

NOTE:

For turf tires (diamond tread), make sure the arrow on the sidewall points in the cab-forward direction.

3. Lift the wheel onto the hub using a lifting device.
4. Lower the lifting device.



Figure 3.10: Wheel Position

ASSEMBLING WINDROWER

5. Line up the holes in the rim with the studs on the wheel drive hub. Install wheel nuts (A).

IMPORTANT:

To avoid damaging the wheel rims and studs, tighten the nuts by hand. Do **NOT** use an impact wrench. Do **NOT** apply lubricant or anti-seize compound to the threads of the wheel studs. Do **NOT** overtighten the wheel nuts.

6. Torque the drive wheel nuts to 510 Nm (375 lbf-ft) using the tightening sequence shown.

IMPORTANT:

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

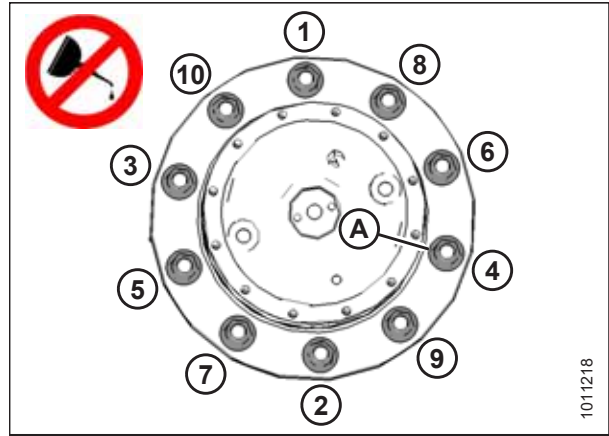


Figure 3.11: Drive Wheel Nuts

7. Repeat the torque procedure every hour until two consecutive checks confirm there is no movement of the nuts.

3.4 Installing Caster Wheels

Install the two caster wheels onto the walking beam near the engine.

1. Remove two guide plates (A) from the ends of the walking beam. Discard the guide plates and the hardware that was used to install them.

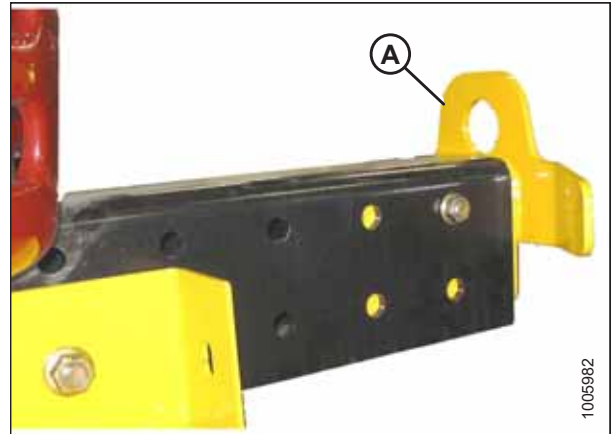


Figure 3.12: Guide Plate on Walking Beam

2. Support the shipping frame channel and remove the bolts attaching the shipping frame to the walking beam and mainframe side rail. Remove the shipping frame. Discard the shipping frame and the hardware that was used to install it. Repeat this step for the opposite shipping frame channel.

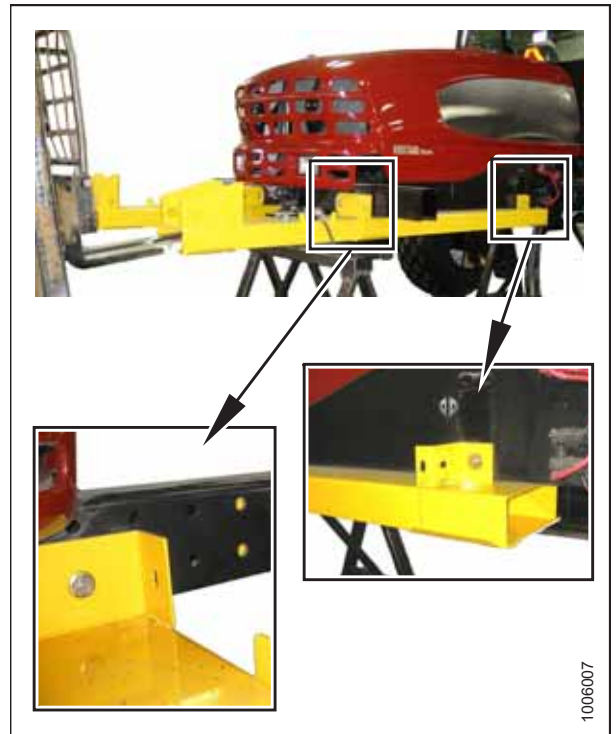


Figure 3.13: Shipping Frame

ASSEMBLING WINDROWER

3. Remove tie bar (A) from between the caster wheels. Discard tie bar (A) and the hardware that was used to install it.



Figure 3.14: Caster Wheel Shipping Assembly

4. Remove and discard the bolts and nuts from locations (A).
5. Remove and retain the following hardware for the installation of the walking beam starting in Step 11, page 47:
 - Two 3/4 x 2 1/4 in. bolts (B)
 - Two washers (C)
6. Discard supports (D).

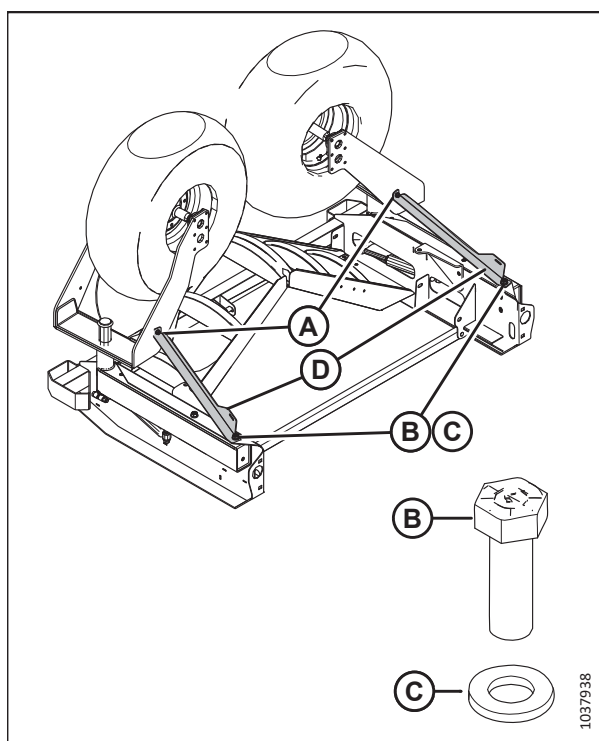


Figure 3.15: Caster Supports

ASSEMBLING WINDROWER

- Attach a chain to the right caster and support the caster with a lifting device that has a minimum lifting capacity of 2268 kg (5000 lb.). Make sure both bearing lock collars (A) are locked before lifting the caster.

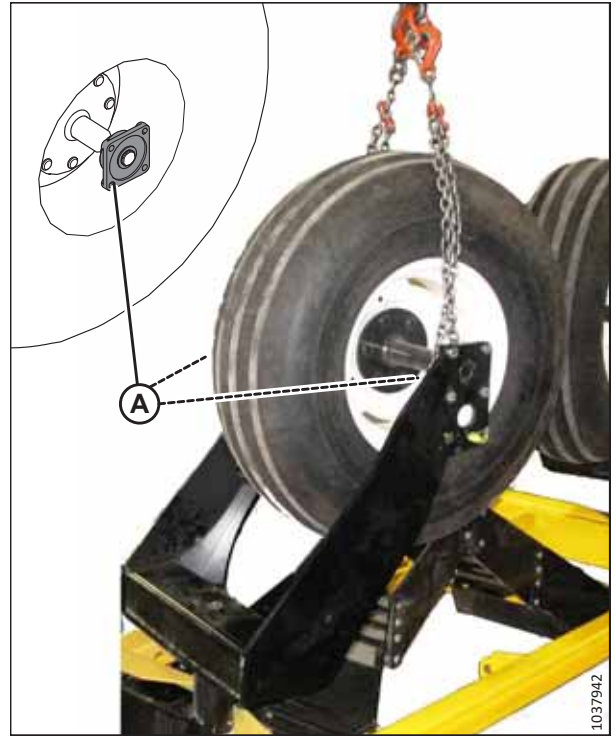


Figure 3.16: Lifting Device on Caster

- Remove and retain the remaining parts from the shipping frame:
 - Two 3/4 x 2 3/4 in. bolts (A)
 - Three 3/4 x 2 1/4 in. bolts (D)
 - Five washers (B)
 - Right anti-shimmy bracket (C) (when removing the right caster)

NOTE:

When removing the left caster from the shipping frame, remove and retain the same quantity of hardware, and retain left anti-shimmy bracket (E).

Retain the hardware for the installation of the walking beam starting in Step 11, page 47.

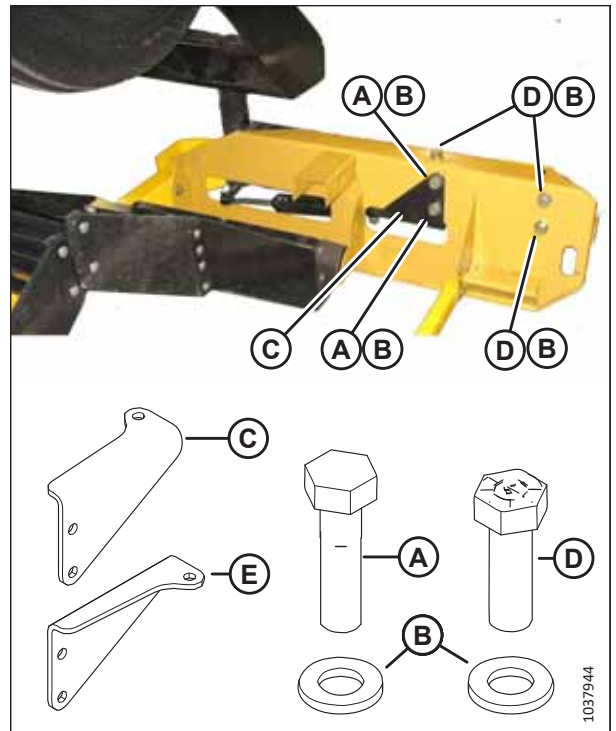


Figure 3.17: Shipping Frame on Caster

ASSEMBLING WINDROWER

CAUTION

Stand clear when lifting, as caster may swing.

9. Lift the caster assembly off of the shipping frame and position it at the end of walking beam (A).
10. Insert the right caster extension into the walking beam and position it for the desired tread.



Figure 3.18: Walking Beam

ASSEMBLING WINDROWER

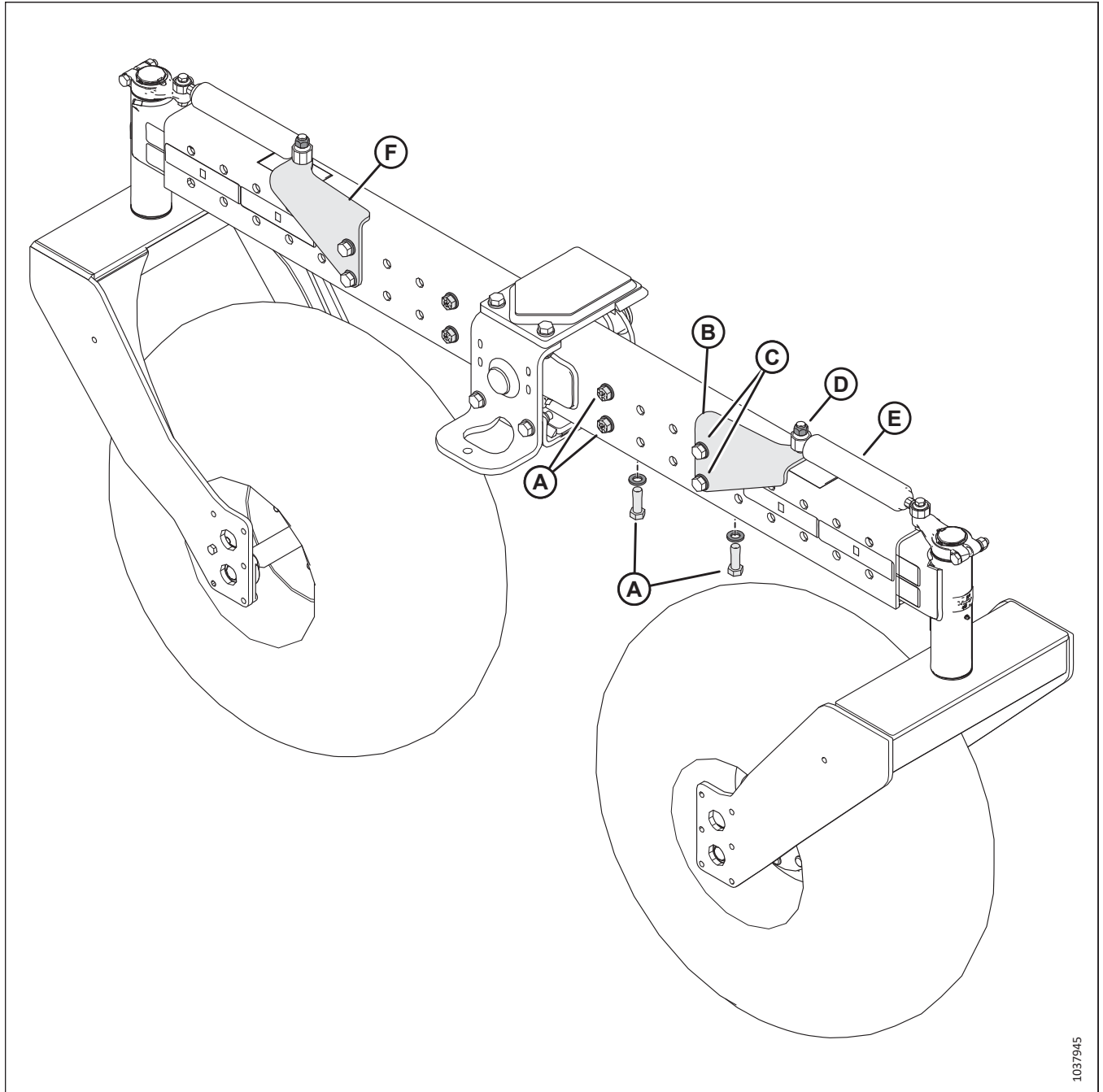


Figure 3.19: Walking Beam Installation

11. Install four 3/4 x 2 1/4 in. bolts (A) and washers into the walking beam.
12. Connect anti-shimmy dampener (E) to anti-shimmy bracket (B) using the bolt and nut (D) what was shipped attached to the dampener. Do **NOT** tighten the nut yet.
13. Install anti-shimmy bracket (B) onto the walking beam using two 3/4 x 2 3/4 in. bolts (A).

NOTE:

Anti-shimmy bracket (B) is for the right caster. Anti-shimmy bracket (F) is for the left caster.

ASSEMBLING WINDROWER

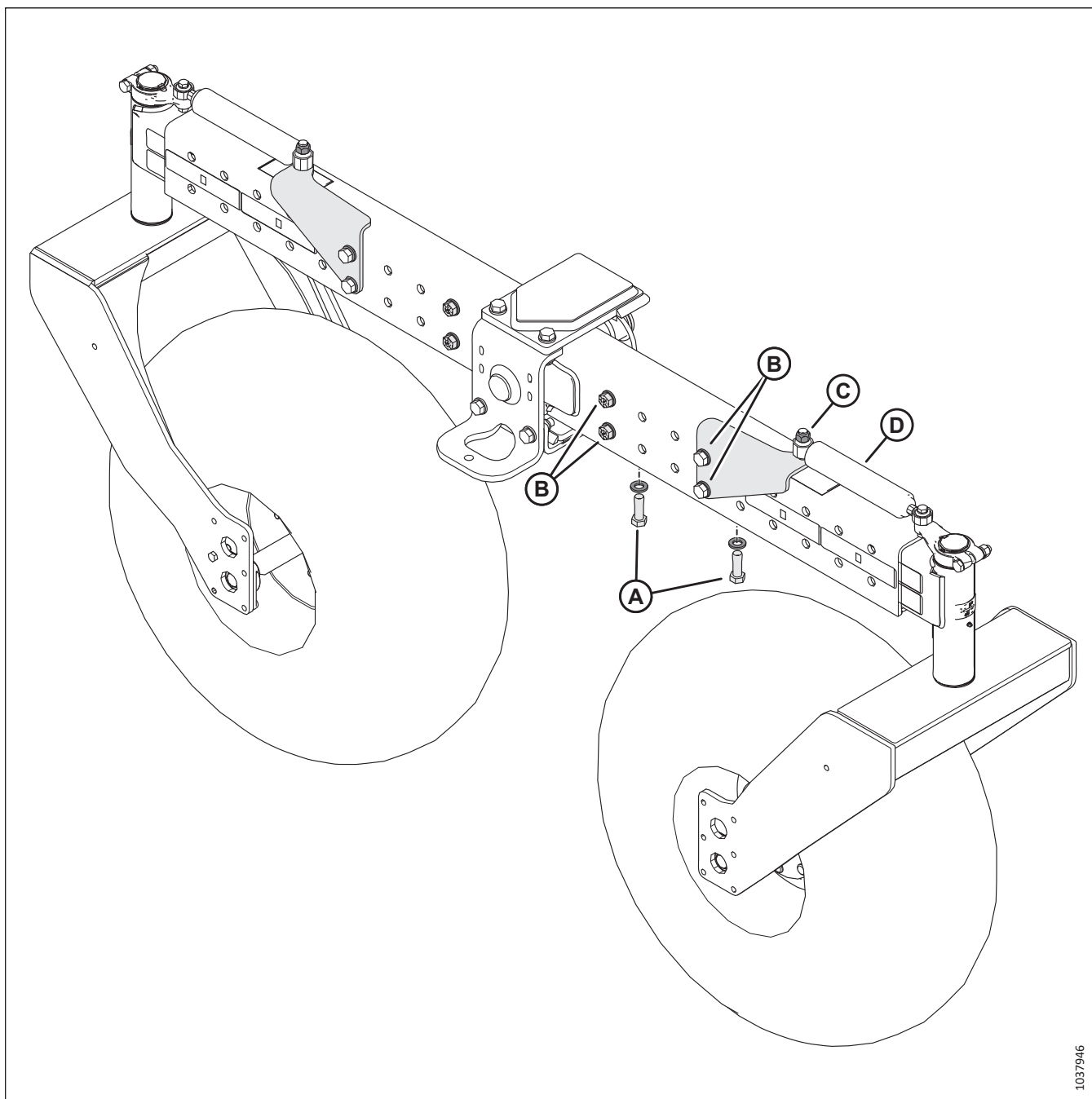


Figure 3.20: Walking Beam Installation

14. Snug up two bolts (A) underneath beam.
15. Tighten four back bolts (B) to 447 Nm (330 lbf-ft).
16. Tighten bolts (A) underneath beam to 447 Nm (330 lbf-ft).
17. Tighten nut (C) to 136 Nm (100 lbf-ft). Make sure anti-shimmer dampener (D) is parallel to the walking beam while you tighten nut (D).
18. Repeat Step 7, [page 45](#) to Step 17, [page 48](#) for the left caster.
19. Retighten the bolts (that are installed in the walking beam) after 5 and 10 hours of operation.

ASSEMBLING WINDROWER

20. Remove and retain four 1/2 x 1 in. bolts (A) and two step assemblies (B) from the shipping frame. These parts will be used in [3.9 Installing Steps, page 65](#). Discard the remaining shipping frame components and hardware.

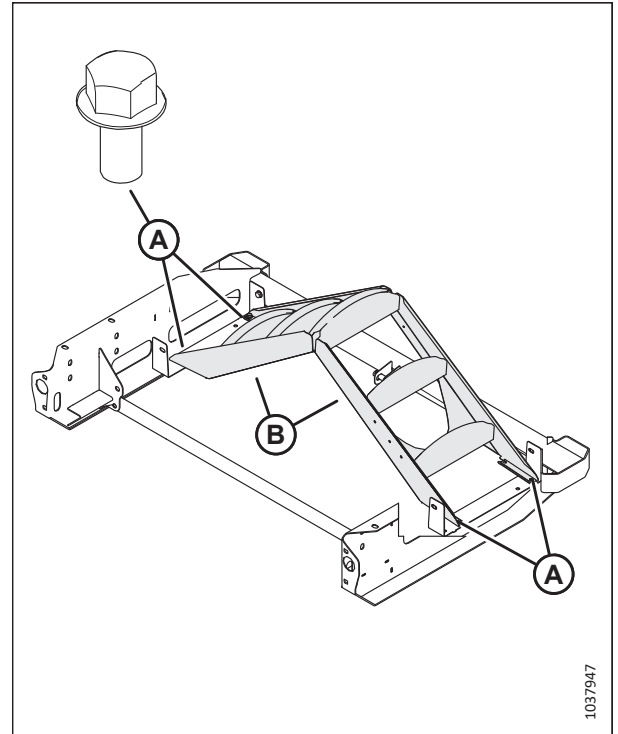


Figure 3.21: Shipping Frame and Steps

3.5 Installing Hydraulics

Reconnect the hydraulic hoses that were disconnected for shipping purposes.

1. Retrieve all capped hoses from inside the frame.
2. Locate the three hoses with capped tees extending from the valve block.
3. Remove caps from the fittings with similar colored cable ties, and connect hoses (A) to tees. Do **NOT** connect the large case drain hoses from the wheel motors at this time.

NOTE:

Remove caps on tee last to minimize oil loss.

4. Position hoses into frame.
5. Locate the two hoses with capped ends and matching colored ties. A union is connected to one of the hoses.
6. Remove the caps and connect the two hoses together. Position hoses in frame.
7. Retrieve the four remaining capped hoses coming out of the frame.

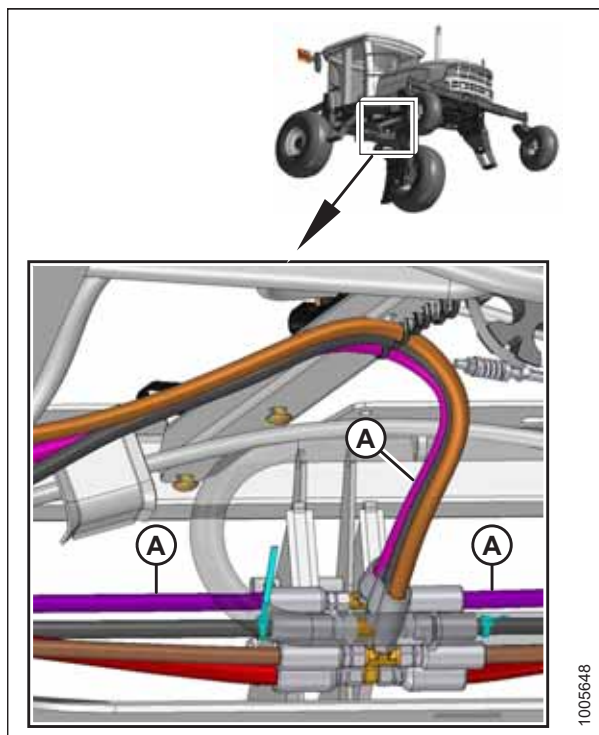


Figure 3.22: Hydraulic Hoses

8. Loosen bolts (A) and move the valve block to improve access through the hole in the frame in order to insert wrenches and tighten fittings.
9. Remove caps from hoses and matching valve block fittings (B).

NOTE:

Some hoses are hidden for clarity.

10. Make connections using colored plastic cable ties as a guide. Tighten fittings.
11. Reposition valve block and retighten bolts.

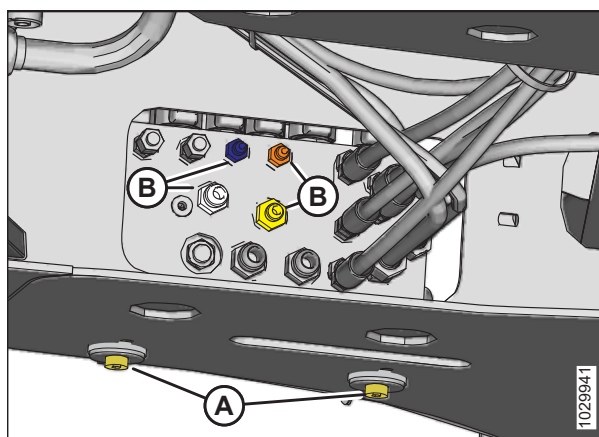


Figure 3.23: Hydraulic Valve and Hoses

ASSEMBLING WINDROWER

12. Position four hoses (A), (B), (C), and (D) against the support as shown and secure with plastic ties.

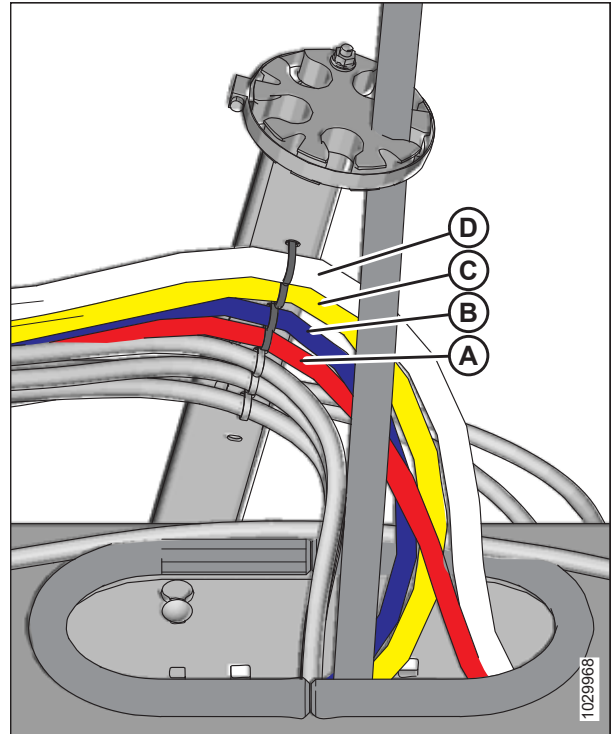


Figure 3.24: Hydraulic Hose Routing

- A - Hose (MD #111323) connected to valve block port B — orange tie
- B - Hose (MD #111323) connected to valve block port A — blue tie
- C - Hose (MD #111557) connected to valve block port E — yellow tie
- D - Hose (MD #111328) connected to valve block port F — white tie

13. Remove clamp (A) from the round plastic hose block.

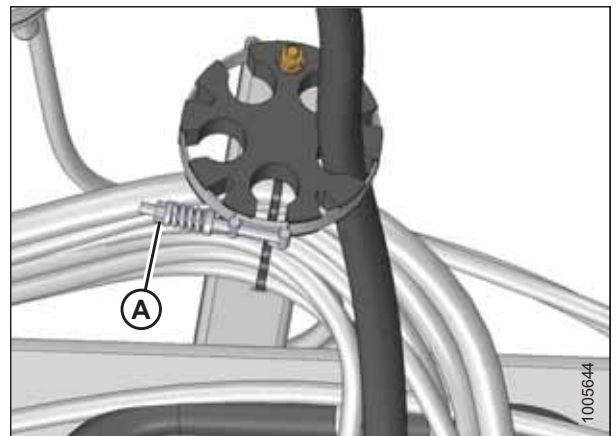


Figure 3.25: Hose Block

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14. Insert two left traction drive hoses (A) into the hose block as shown. Case drain hose (B) is preinstalled in the block.
15. Insert two right traction drive hoses (C) into the hose block as shown.

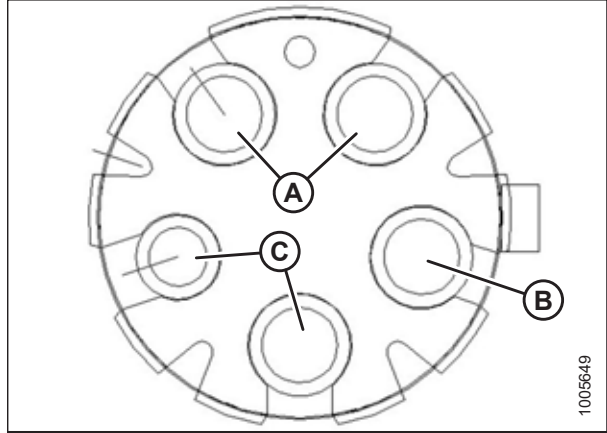


Figure 3.26: Hose Block – View Looking Forward

16. Reinstall clamp (A).

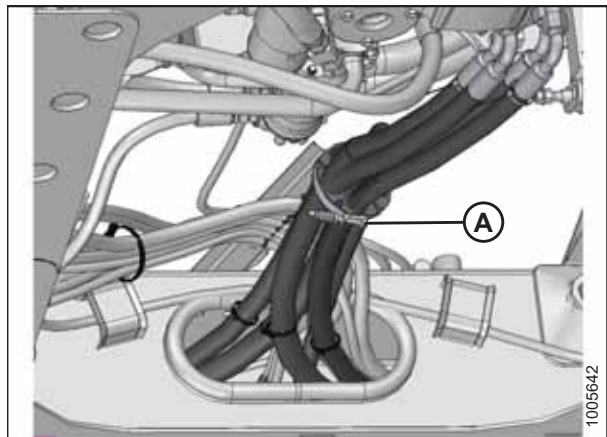


Figure 3.27: Hose Routing

17. Remove four caps (A) from traction drive pump (B).

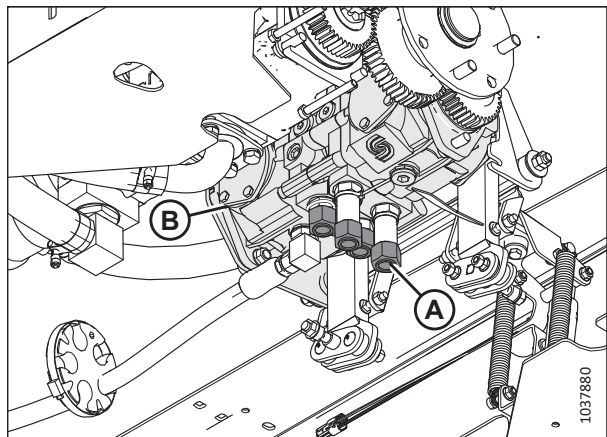


Figure 3.28: Traction Drive Pump — Bottom Left Side

ASSEMBLING WINDROWER

NOTE:

The front two traction drive pump ports are for the wheel motor on the **LEFT** side of the windrower.

18. Attach hose (A) (no tie) to pump port D (no tie). Tighten fittings.
19. Attach hose (B) (yellow tie) to pump port C (C) (yellow tie). Tighten fittings.

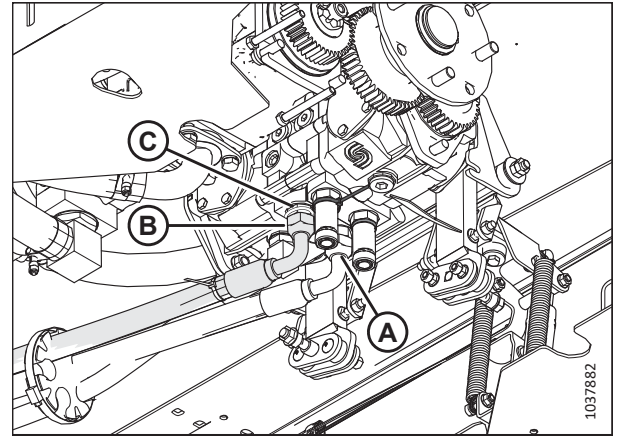


Figure 3.29: Traction Drive Pump — Bottom Left Side

NOTE:

The rear two traction drive pump ports are for the wheel motor on the **RIGHT** side of the windrower.

20. Attach hose (A) (red tie) to pump port B (B) (red tie). Tighten fittings.
21. Attach hose (C) (black tie) to pump port A (D) (black tie). Tighten fittings.

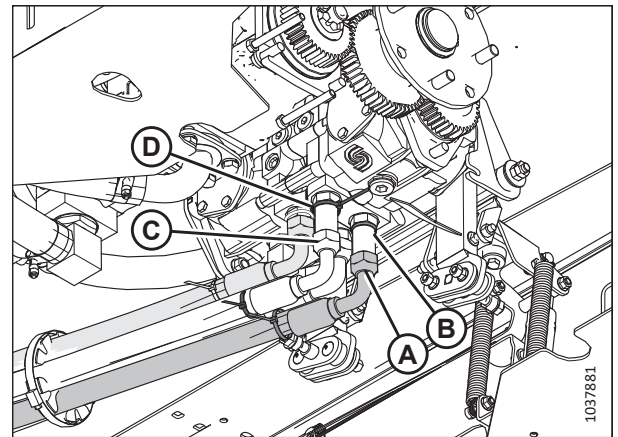


Figure 3.30: Traction Drive Pump — Bottom Left Side

22. Retrieve the two motor case drain hoses (MD #111312) at the front frame and the 22 mm (7/8 in.) tee fitting on the hose (C) from the pump.

NOTE:

The hoses are labeled with the part numbers.

23. Remove caps from the hoses (B) only.
24. Remove one cap from tee fitting (A), and quickly attach hose (B) to minimize oil spillage.
25. Remove second cap from tee fitting (A), and quickly connect other hose (B).
26. Tighten fittings.
27. Position hoses into frame.

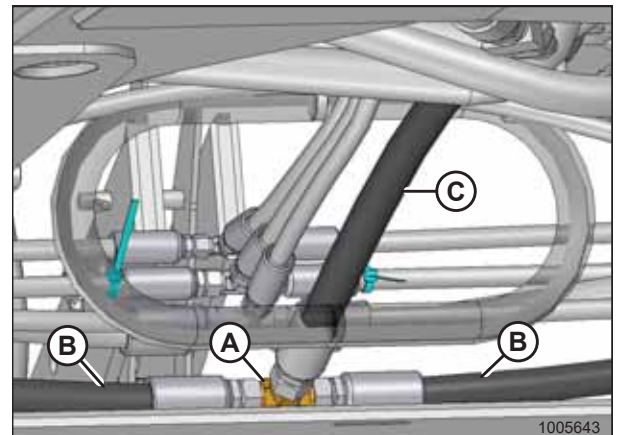


Figure 3.31: Hose Routing

ASSEMBLING WINDROWER

28. Secure hoses with cable ties (A) as required.

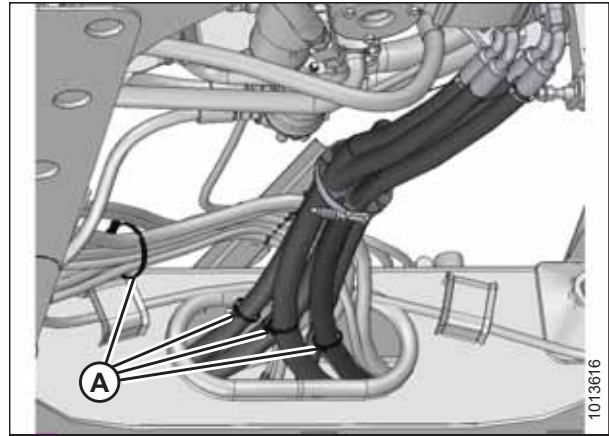


Figure 3.32: Hose Routing

29. Retrieve wheel leg harness connectors C7B (A) and C6B (C) from inside the frame.

NOTE:

C7B (A) is attached to the harness labeled as MD #109755.
C6B (C) is attached to the harness labeled as MD #109545.

30. Connect connector C7B (A) to connector C7A (B).

31. Connect connector C6B (C) to connector C6A (D).

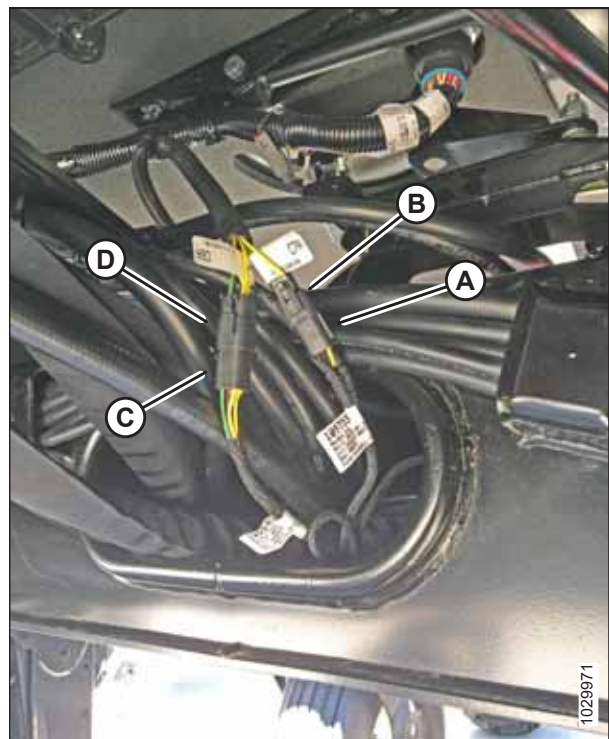


Figure 3.33: Wheel Leg Harness Connections

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32. Remove any straps that secure electrical harness (D) to hydraulic hose bundle (A).
33. Route hose bundle (A) and hose (B) through hose support (C) and lay the hoses on the tire.
34. Route electrical harness (D) along the right side of hose support (C) as shown.
35. Secure electrical harness (D) to hose support (C) using tie (E).
36. Secure electrical harness (D) and hose (B) using ties (F).

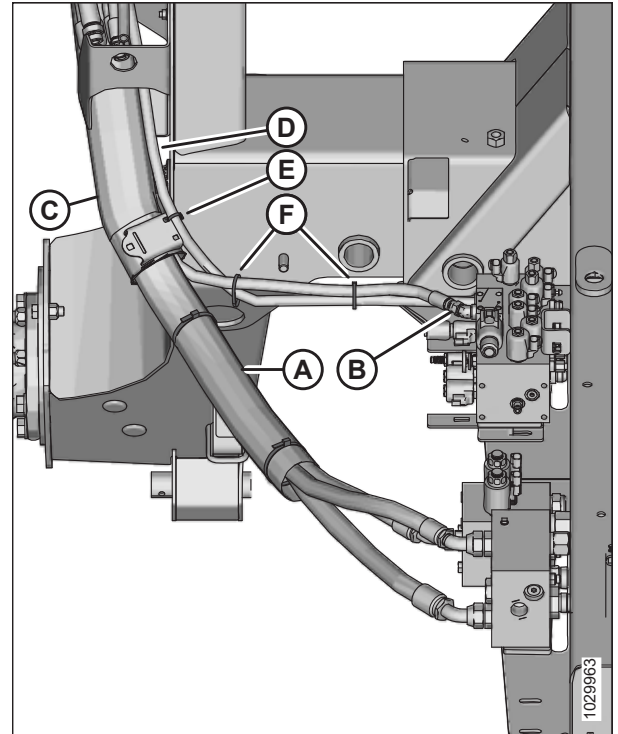


Figure 3.34: Hose Routing

37. Attach harness (A) to hose support with hose clip (B).

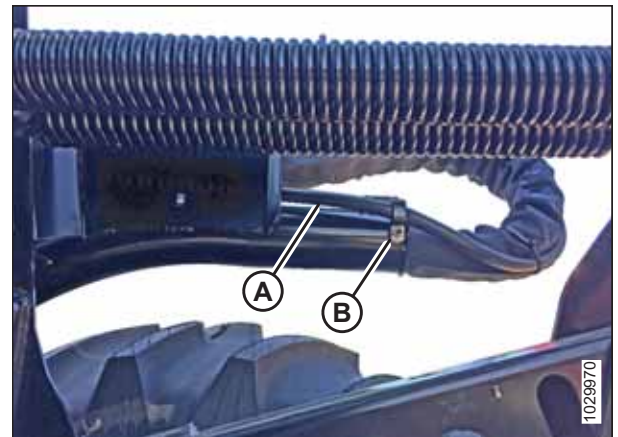


Figure 3.35: Harness Routing — Right Side of Hose Support

ASSEMBLING WINDROWER

38. Disengage and rotate hook (A) to fully up position.
39. Position hose bundle (B) over the hose support and under the hook.

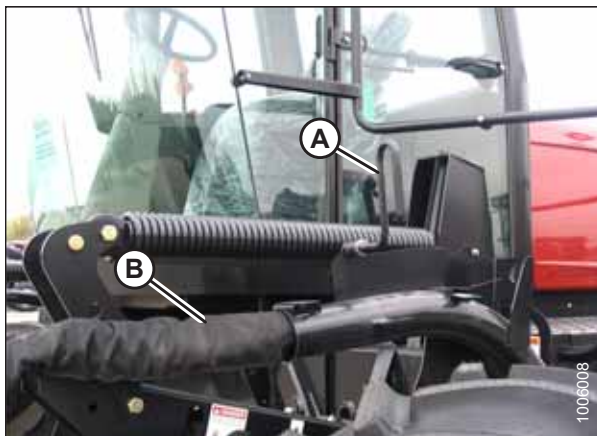


Figure 3.36: Hook Positioning

40. Route electrical harness (A) along the topside of hose bundle (B) as shown to prevent chafing of the electrical wires when the windrower is operating with a header.
41. Secure electrical harness (A) to hose bundle (B) using strap (C).



Figure 3.37: Harness Routing — Front Side of Hose Support

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42. Lower hook (A) and engage in bracket (B) in the down position.
43. Secure the electrical harness to the hose bundle using fabric strap (C).
44. Attach electrical harness coupler (D) to hose support.

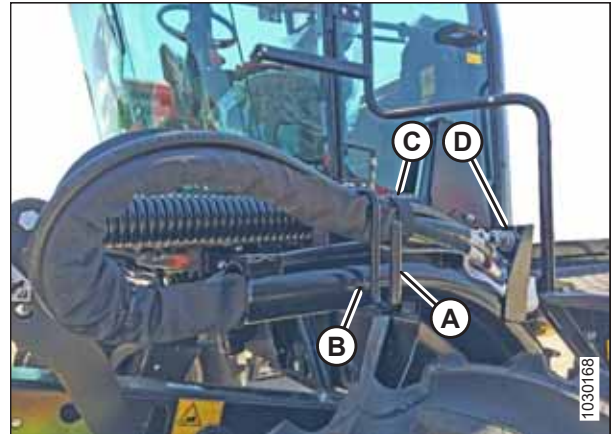


Figure 3.38: Hook Positioning and Harness Routing

45. Attach the reel hose support tube to the right leg with two 3/8 x 1 in. carriage bolts (A) and nuts.

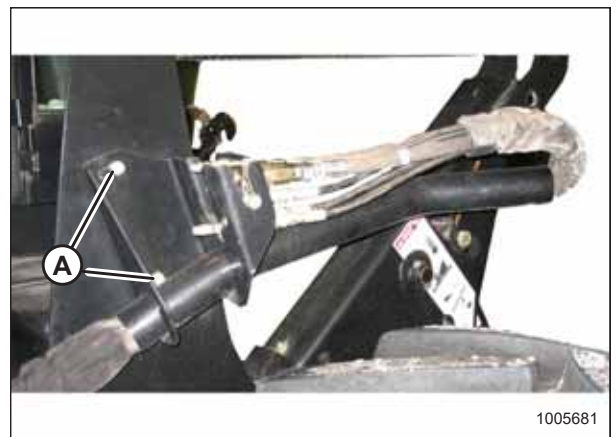


Figure 3.39: Reel Hose Support

3.6 Removing Battery Shipping Shield

Remove and discard the shield that protects the battery during shipping.

1. Loosen nut (A) on the battery clamp.
2. Slide shield (B) out from under the battery and discard.
3. Tighten nut (A) on the battery clamp.

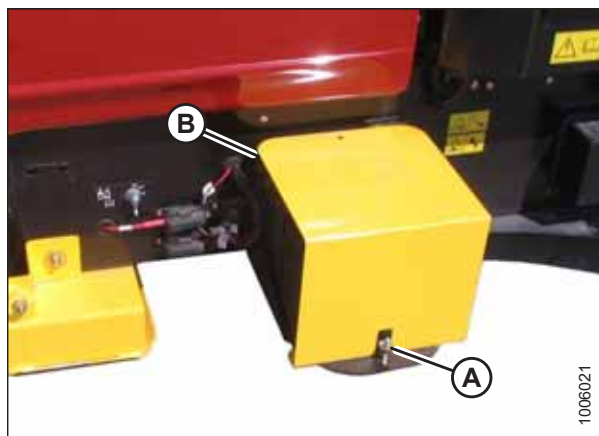


Figure 3.40: Battery Shipping Shield

4. Remove one of two bolts (A) and nuts, and loosen the other.

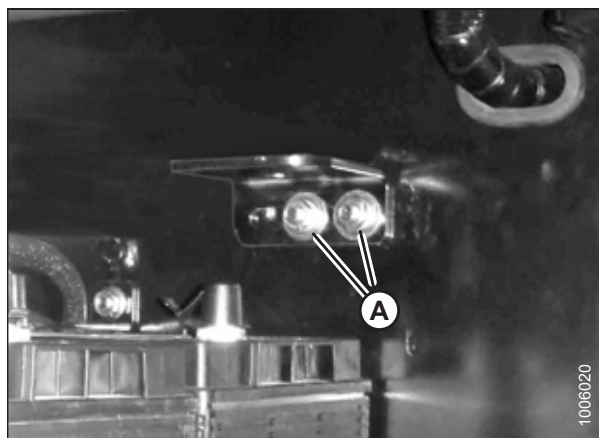


Figure 3.41: Bracket Shipping Position

5. Rotate bracket (A) by 180°, align holes, and reinstall bolt (B) and nut. Leave bolts loose.

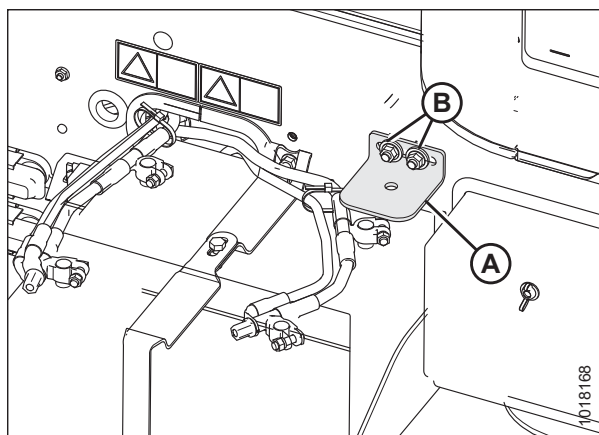


Figure 3.42: Bracket Repositioned

3.7 Unpacking Ignition Keys

The ignition keys are shipped attached to the fuse box cover.

The fuse box is mounted on the right (cab-forward) side of the frame under the platform.

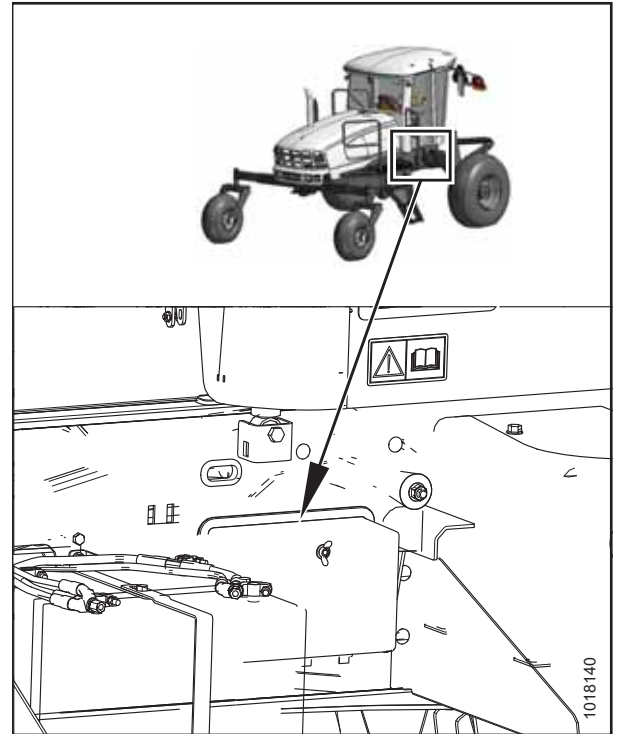


Figure 3.43: Fuse Box Location

1. Remove wing nut (A) from fuse box cover (B) and remove cover.

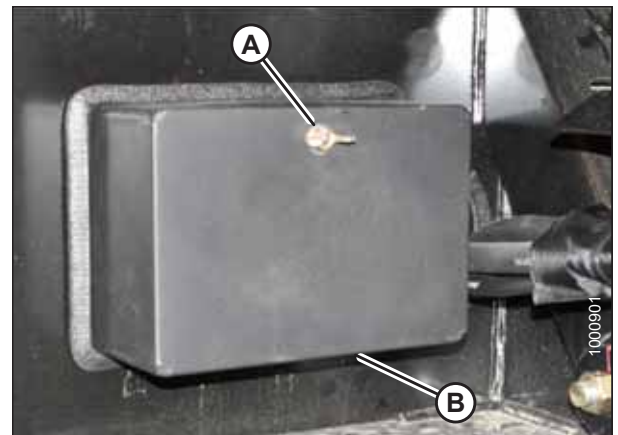


Figure 3.44: Fuse Box

ASSEMBLING WINDROWER

2. Remove tape and keys (A) from inside the cover.
3. Unlock cab doors and place keys on console.
4. Close cab doors.
5. Install fuse box cover (B) and secure with wing nut.

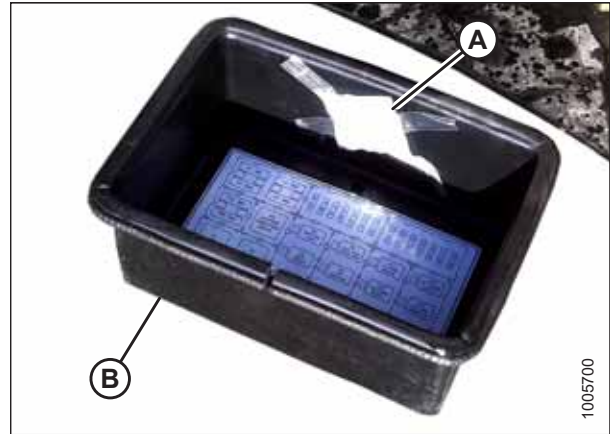


Figure 3.45: Fuse Cover

3.8 Installing Platforms

Install the platforms and railings on the both sides of the windrower.

NOTE:

The procedure for left side installation is shown—right side installation is similar.

1. Remove two 1/2 x 3/4 in. bolts (A) securing the rails to the shipping beam, and remove the rails. Retain hardware.
2. Remove the shipping brackets from the platform assembly. Retain hardware.

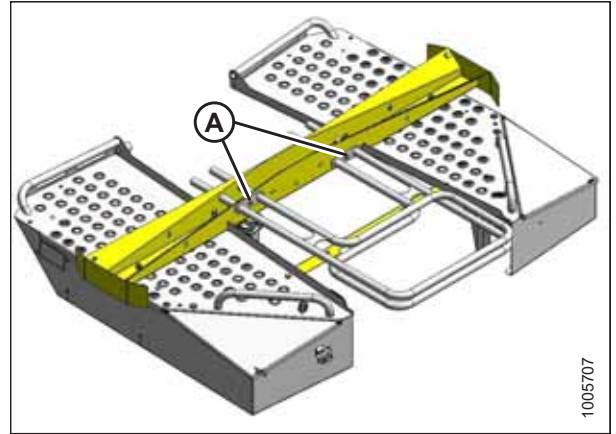


Figure 3.46: Platform Shipping Assembly

3. Attach one end of a sling to the platform and the other end to a lifting device.

⚠ DANGER

To avoid injury or death from fall or swinging of raised load, keep all bystanders clear when lifting.

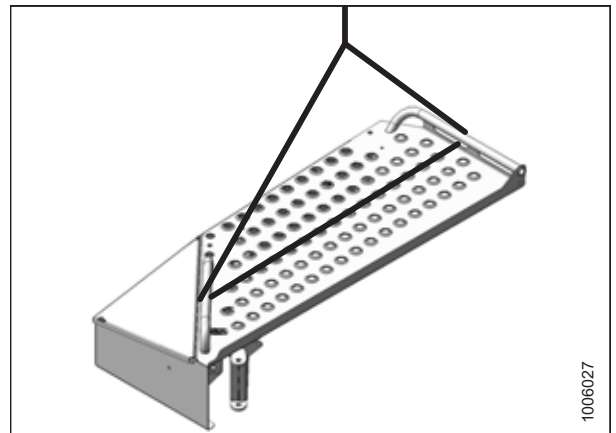


Figure 3.47: Left Platform

4. Position the platform against the windrower frame.

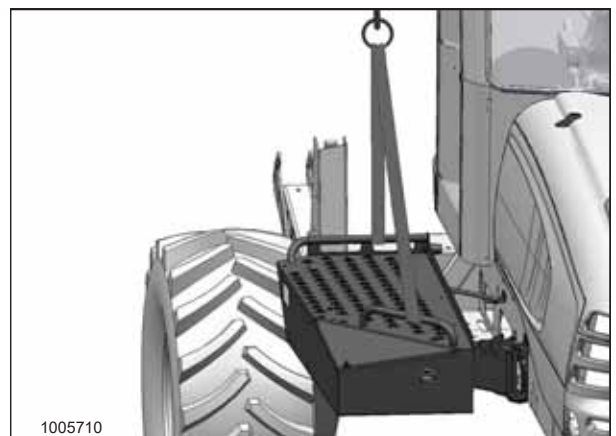


Figure 3.48: Left Platform

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5. Attach the main beam of the platform to the side frame using three $1/2 \times 1\ 1/4$ in. long carriage bolts (A). Ensure the bolt heads face inboard, and tighten just enough to permit adjustment.

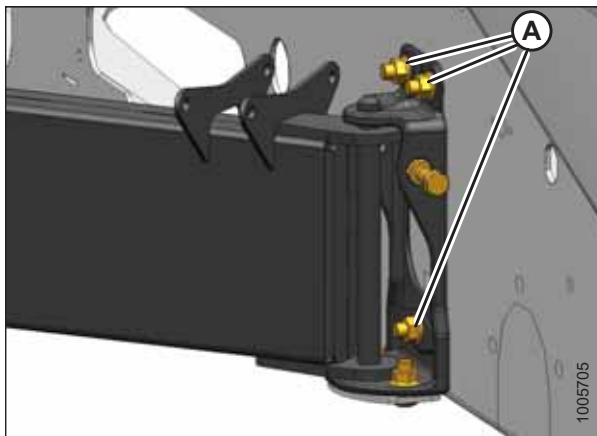


Figure 3.49: Left Platform – Main Beam

6. Attach the steering arm to the frame with two $3/8 \times 3/4$ in. long carriage bolts and nuts (A). Ensure the bolt heads face inboard, and tighten bolts.
7. Remove sling.

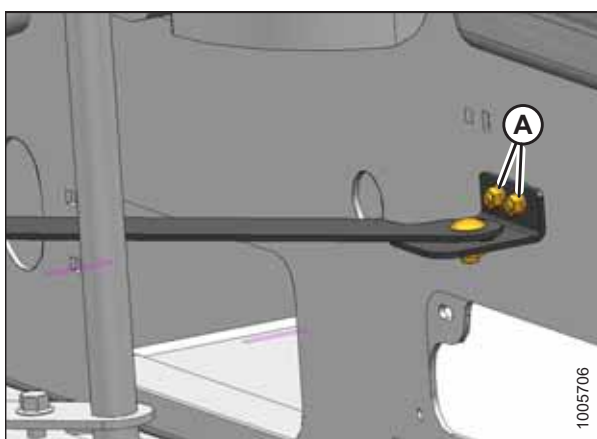


Figure 3.50: Left Platform – Steering Arm

8. Attach the railings to the platform with $1/2 \times 3/4$ in. locking bolts (A) provided. Tighten bolts to 102 Nm (75 lbf-ft).

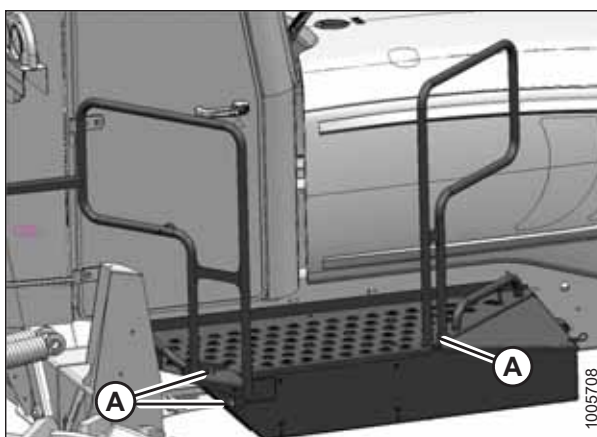


Figure 3.51: Left Platform – Railings

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9. Slowly close the platform and check that the vertical rail tubes are parallel with the cab posts when viewing from the rear.

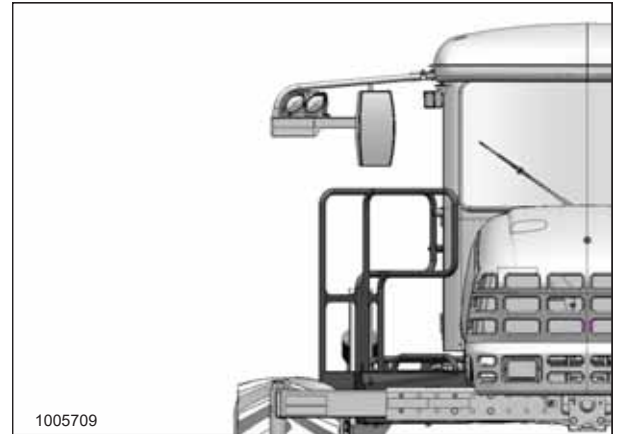


Figure 3.52: Left Platform

10. Laterally adjust king pin mounting (A) as required.

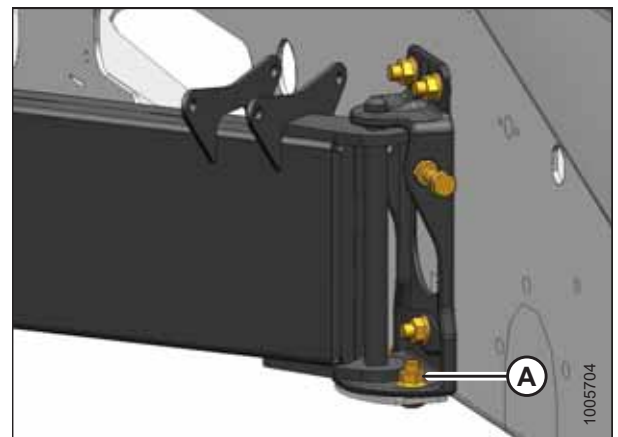


Figure 3.53: Left Platform – Main Beam

11. Ensure rubber bumper (A) is contacting the frame.

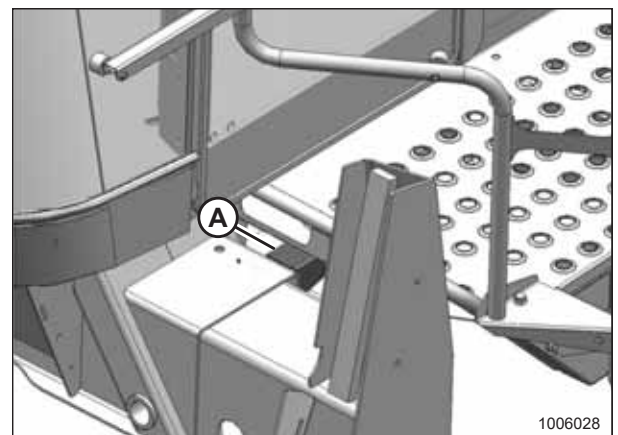


Figure 3.54: Left Platform – Rubber Bumper

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12. Ensure the front of the platform is contacting the guide (A).

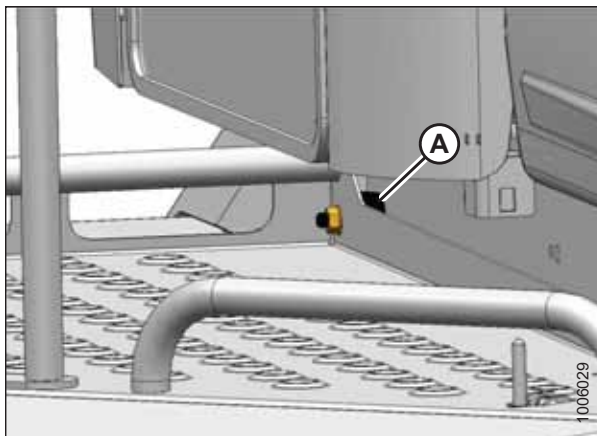


Figure 3.55: Left Platform – Guide

13. Adjust the platform horizontally with 1/2 x 2 1/4 in. bolt (A) as required.



Figure 3.56: Left Platform – Main Beam

14. If major adjustment is required, relocate steering arm (A) into either of the other holes on bracket (B).
15. Tighten the three main beam attachment bolts to 108 Nm (80 lbf-ft).
16. Repeat procedure to install the right side platform.

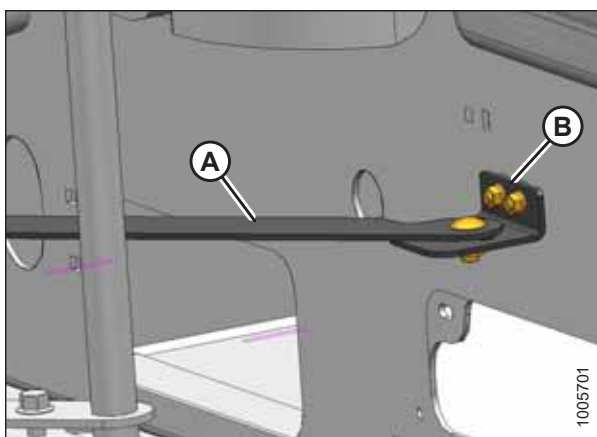


Figure 3.57: Left Platform – Steering Arm

3.9 Installing Steps

The windrower steps must be moved from their shipping position and installed.

NOTE:

The procedure for installing the left steps is shown—installation of the right steps is similar.

1. Remove two existing upper bolts (A).
2. Ensure two lower bolts (B) are not threaded in fully.

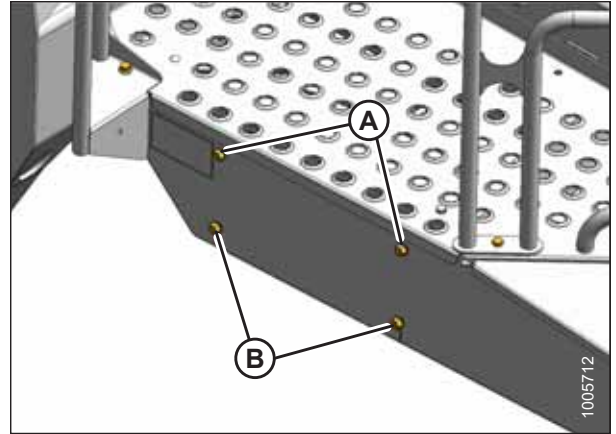


Figure 3.58: Left Platform

3. Hang the step assembly on lower bolts (B). Back off the bolts, if necessary.
4. Install two bolts (A) in the upper holes of the step and platform.
5. Torque all bolts to 20 Nm (15 lbf·ft).
6. Repeat Step to Step 5, [page 65](#) to install the opposite step assembly.

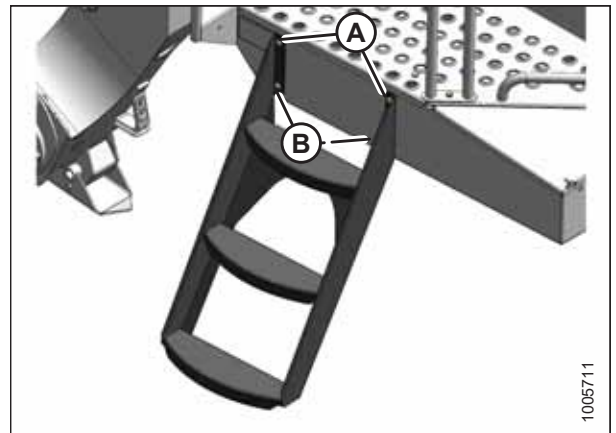


Figure 3.59: Left Steps Installed

3.10 Installing Exhaust Stack

Set up the exhaust assembly.

1. Open the engine compartment hood.
2. Retrieve exhaust stack (A) and clamp (B) (unpacked in [2.6 Removing Hand Rails and Exhaust Stack, page 26](#)).
3. Loosen clamp (B) on exhaust stack (A).

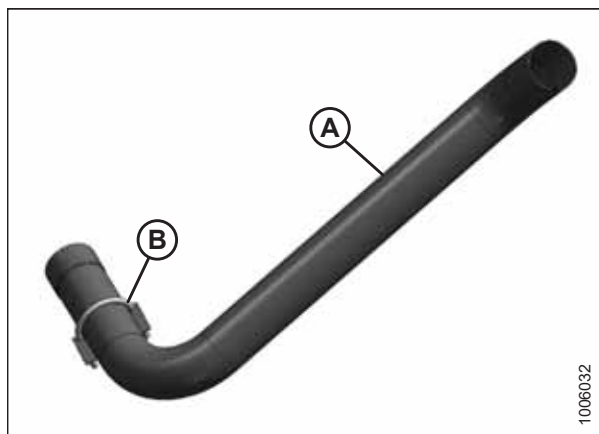


Figure 3.60: Exhaust Stack

4. Remove the covering from muffler (A), and loosen clamp (B) on the muffler.

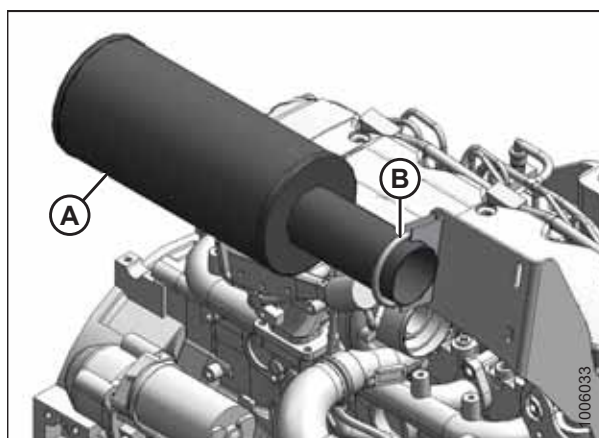


Figure 3.61: Muffler

5. Position stack (A) into the slot in exhaust shroud (B), and connect the stack to the muffler.

NOTE:

If shroud (B) interferes with stack (A), loosen wing nut (C) on the shroud and move the shroud so the stack can be installed.

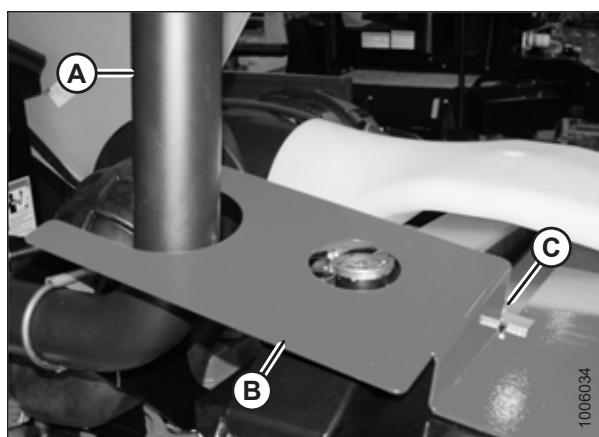


Figure 3.62: Exhaust Shroud

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6. Tighten both clamps (A) just enough to permit stack (B) to move.

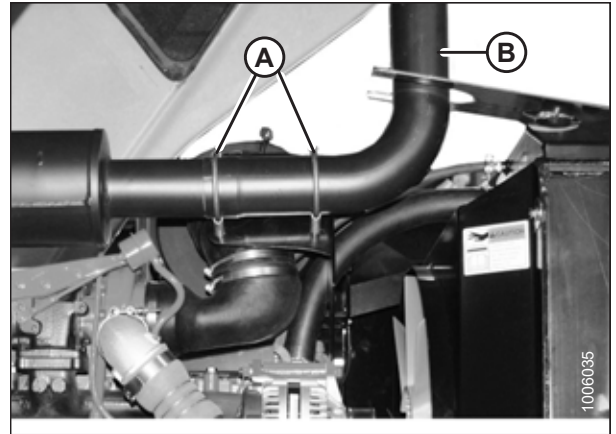


Figure 3.63: Exhaust Stack under Hood

7. Close the hood slowly so stack (A) enters hole (B) in the hood. Adjust the position of the stack as required to clear the hole in the hood.

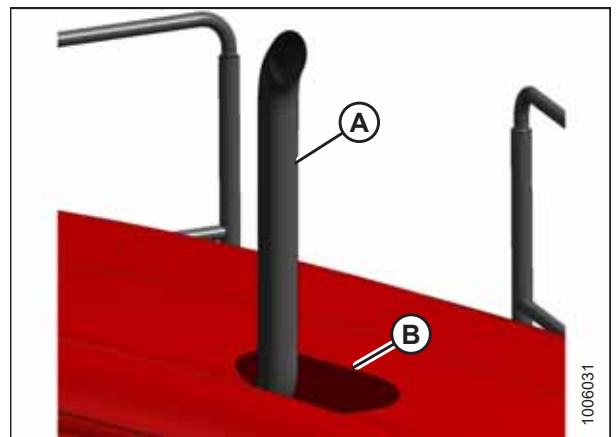


Figure 3.64: Exhaust Stack Installed

8. Raise the hood.
9. Tighten clamps (A).
10. Reposition shroud (B) and tighten wing nut.

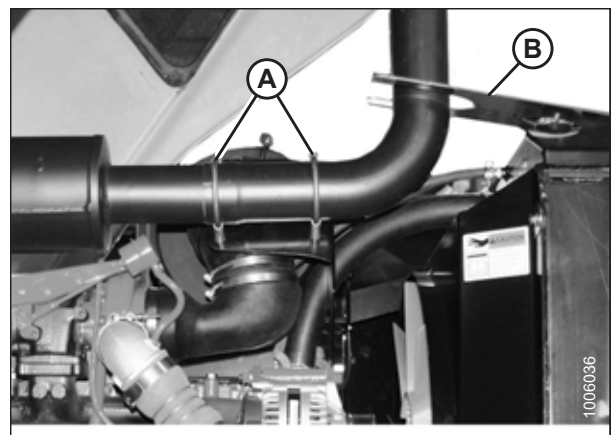


Figure 3.65: Exhaust Stack under Hood

3.11 Positioning Light and Mirror Assemblies

The mirror/light support arms must be moved from the shipping position to the working position.

1. Remove nut and bolt (A) securing the light and mirror assembly in the shipping position.
2. Swing light and mirror assembly (B) forwards and upwards.

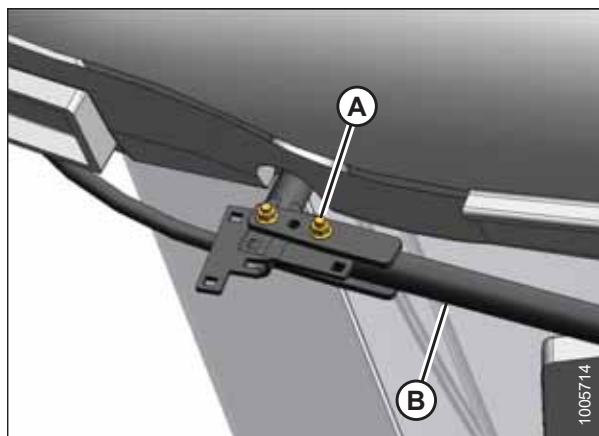


Figure 3.66: Light and Mirror Assembly in Shipping Position

3. Reinstall bolt (A) and nut in other hole.
4. Repeat for opposite mirror assembly.

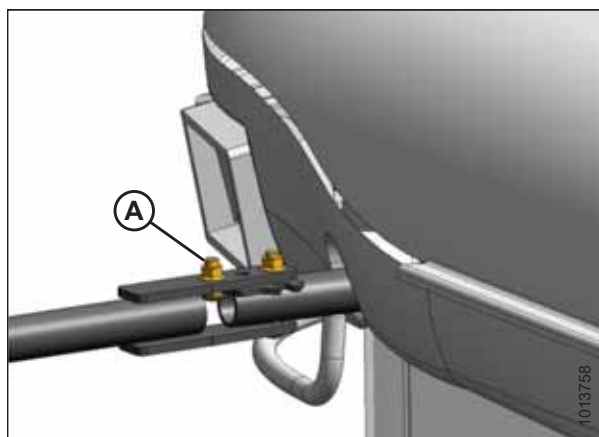


Figure 3.67: Light and Mirror Assembly in Working Position

3.12 Installing Beacons

Install the beacons onto the mounting plates located near the cab-forward mirror arms.

1. Retrieve the two beacons from the shipment.
2. Remove the hardware and rubber base from one of the beacons as shown.



Figure 3.68: Beacon Light

3. Feed the connectors from the harness through the center hole in the rubber base.
4. Place the base on the beacon bracket ensuring that the mounting holes in the rubber base line up with the holes in the bracket.



Figure 3.69: Rubber Beacon Base on Mounting Bracket

5. Connect orange wire (A) from the harness to red wire (B) in the beacon.
6. Connect black wire (C) from the harness to the ground terminal in the beacon.

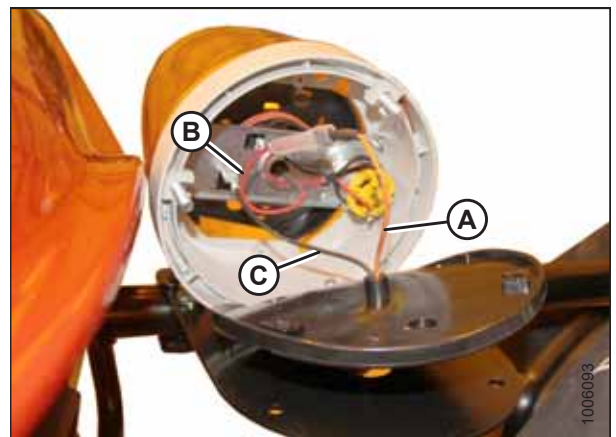


Figure 3.70: Beacon Light Wire Routing

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7. Fit the beacon onto the base making sure the beacon is oriented with the point on the lens facing forward (cab-forward) as shown.



Figure 3.71: Beacon Light Orientation

8. Mount the beacon to the base using the lock washers and nuts (A) supplied with the beacon.
9. Install the second beacon on the opposite side of the cab roof.



Figure 3.72: Beacon Light

3.13 Installing the Slow Moving Vehicle Sign

The slow moving vehicle sign is placed inside the cab for shipping. It must be installed on the windrower in a location where it is visible during road travel.

1. Install slow moving vehicle (SMV) sign (A) (shipped inside the cab) onto the windrower in accordance with the instructions supplied with the sign. SMV signs must be visible when travelling on the road.

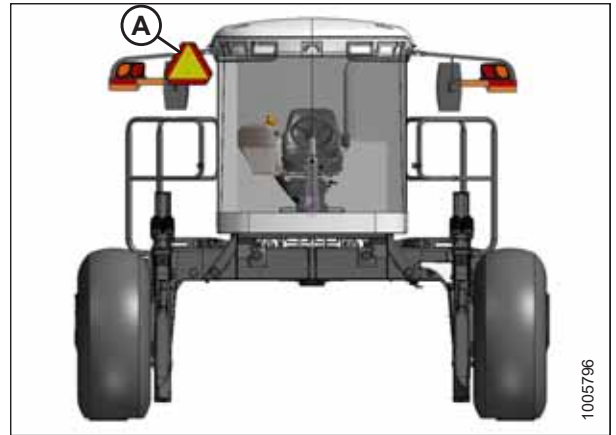


Figure 3.73: Engine-Forward Location

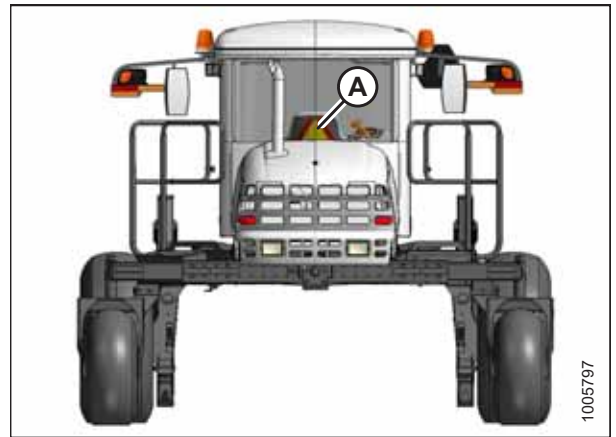


Figure 3.74: Cab-Forward Location

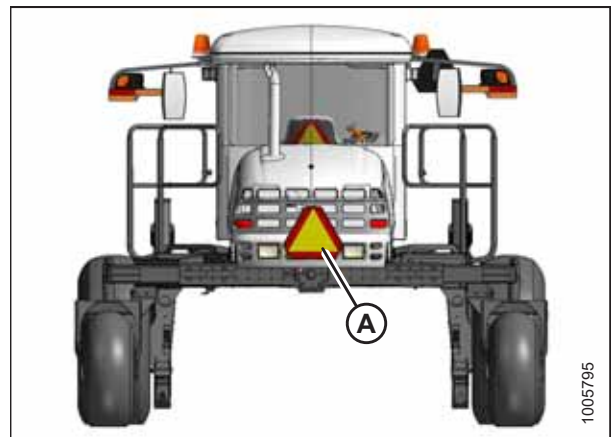


Figure 3.75: Alternate Location — Cab-Forward

3.14 Connecting Batteries

Connecting the batteries provides electrical power to the windrower.

1. Open the right (cab-forward) maintenance platform.
2. Ensure battery main disconnect switch (A) is turned to the POWER OFF position.

NOTE:

The battery main disconnect switch is located on the right frame rail beside the batteries.

3. Remove the cable ties securing the battery cables to the battery clamps.

IMPORTANT:

Batteries are negative grounded. Always connect the red starter cables to the positive (+) terminals of the batteries and the black ground cables to the negative (-) terminals of the batteries. Reversed polarity in the batteries or alternator may result in permanent damage to the electrical system.

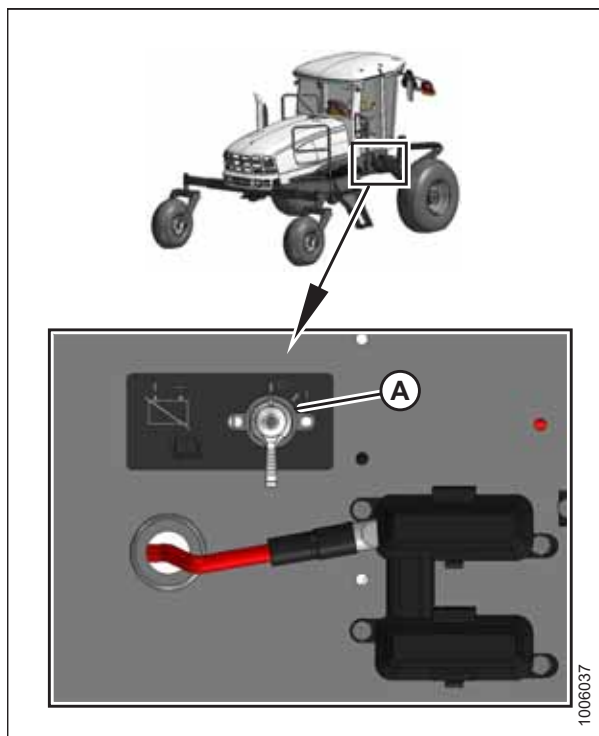


Figure 3.76: Battery Main Disconnect Switch

4. Remove the plastic caps from the battery posts.
5. Attach the red positive (+) cable terminals to positive posts (A) on the batteries and tighten the clamps. Reposition the plastic covers onto the clamps.
6. Attach the black negative (-) cable terminals to negative posts (B) on the batteries and tighten the clamps. Reposition the plastic covers onto the clamps.
7. Turn the battery main disconnect switch to the POWER ON position.
8. Move the right (cab-forward) maintenance platform forward to the closed position.

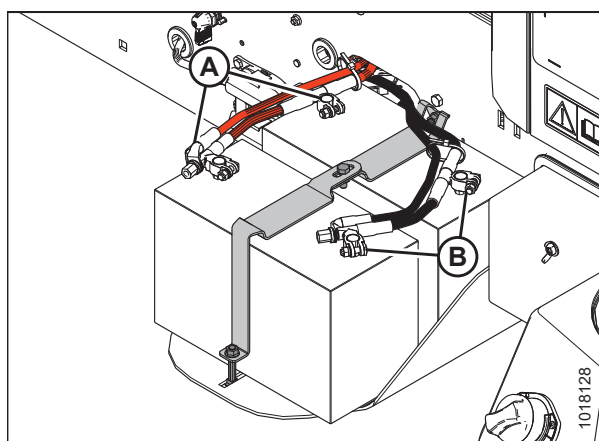


Figure 3.77: Batteries

3.15 Lubrication

Proper lubrication is essential to ensuring the service life of the windrower.

For information on the type of lubricants to use, refer to *7.4 Lubricants, Fluids, and System Capacities, page 257*.

3.15.1 Lubrication Procedure

This is a general procedure which should be followed any time you are adding grease to a fitting.



DANGER

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

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

3.15.2 Lubrication Points

Add grease to these fittings before delivering the windrower. Be sure to leave a small blob of grease on top of each fitting to prevent contamination.

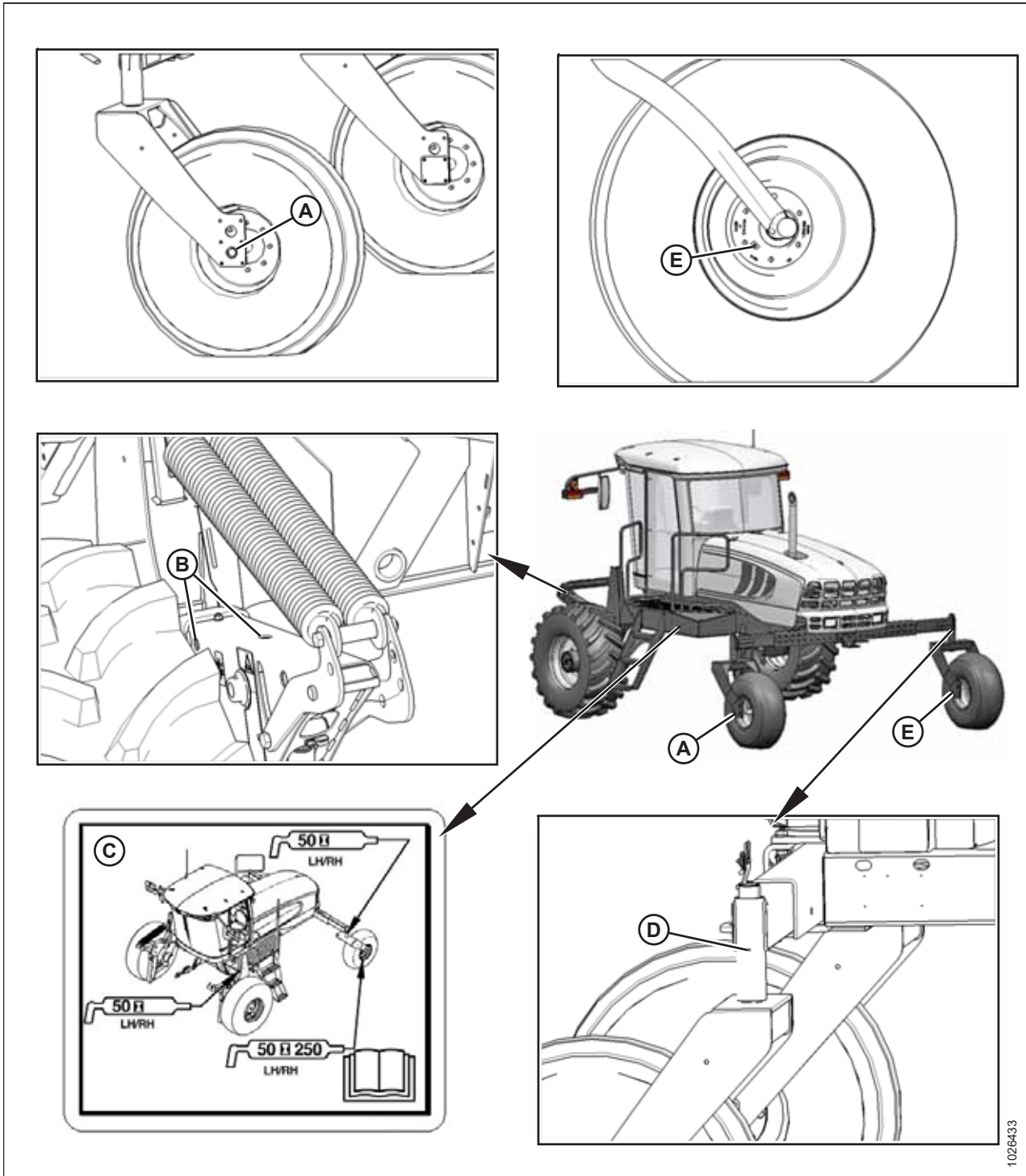


Figure 3.78: Lubrication Points

- A - Forked Caster Wheel Bearing (Two Places) (Outer – Both Wheels)
- B - Top-Link (Two Places) (Both Sides)
- C - Lubrication Decal (MD #183411)
- D - Caster Pivot (Both Sides)
- E - Forked/Formed Caster Wheel Bearing (Two Places) (Inner – Both Wheels) (50 Hrs/250 Hrs)

3.16 Installing AM/FM Radio

The windrower is designed to accommodate an AM/FM radio of specific size and dimensions.

1. Windrowers are designed to accept a DIN E style AM/FM radio with depth (X) of 161 mm, and with a 5 mm threaded centered on the rear of the radio for support in location (A). Adjustments are possible if the radio falls outside these parameters.

In order to retain the radio's settings and preset memory with the battery disconnect turned off, select a radio with non-volatile settings memory.

NOTE:

An approved radio package is available from Radio Engineering Industries (REI) of Omaha, Nebraska.

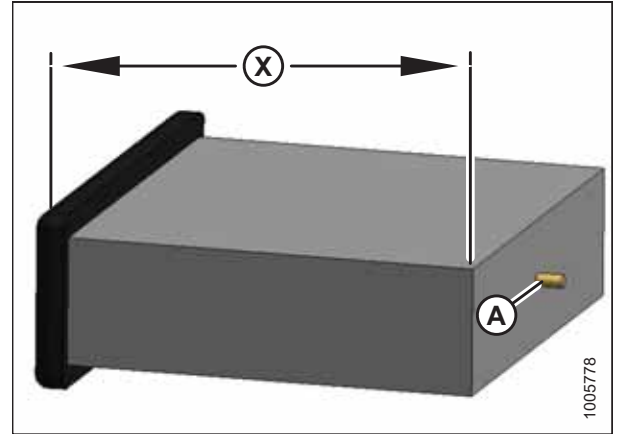


Figure 3.79: Mounting Dimension

2. Ensure battery switch (A) is turned to the OFF position.
3. Ensure the ignition is turned OFF, and remove the key.

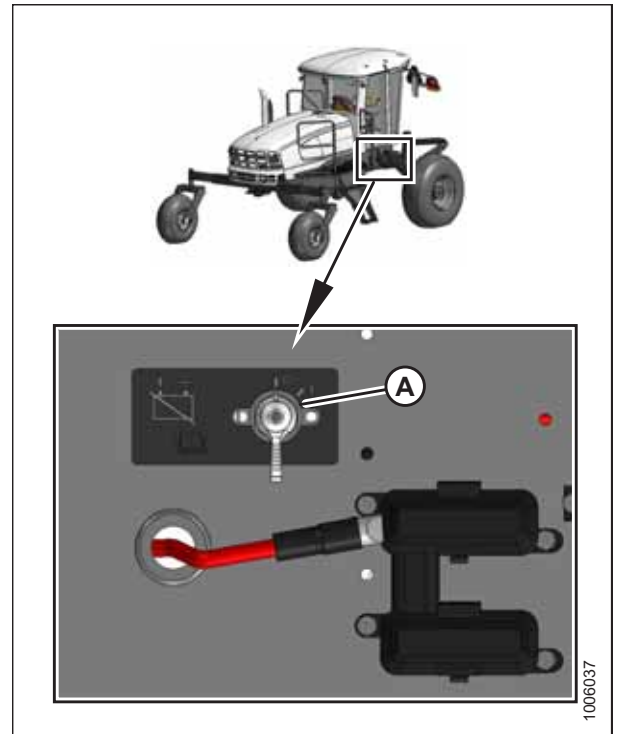


Figure 3.80: Battery Main Disconnect Switch

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4. Remove the radio panel by removing four screws (A).

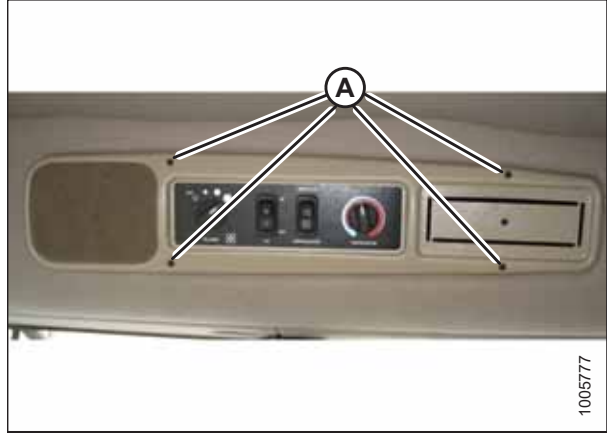


Figure 3.81: Radio Panel

5. Remove screw (A) and nut (C) to remove support (B) from the panel. Retain nut (C) and the lock washer.

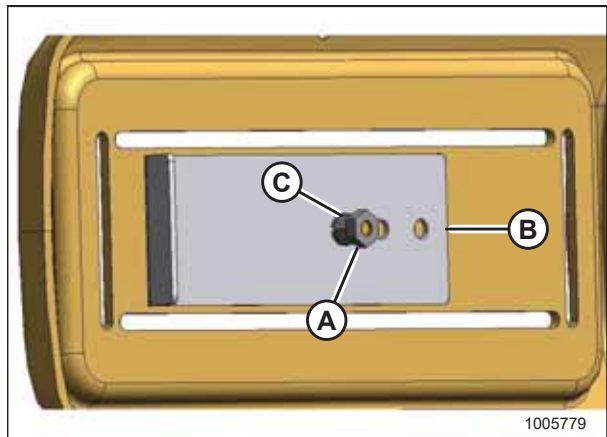


Figure 3.82: Panel Support

6. Remove the cutout by cutting tabs (A) in the panel. Remove the sharp edges from the panel.

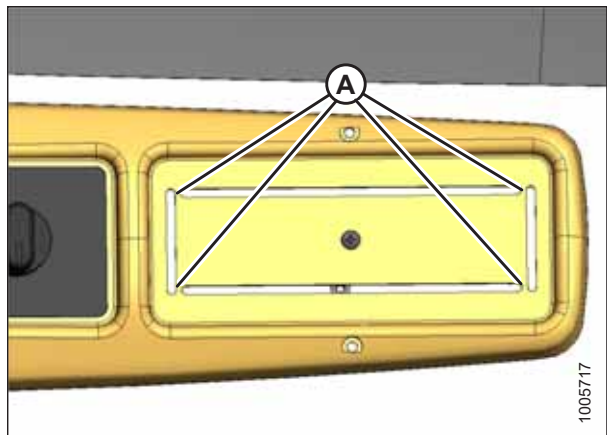


Figure 3.83: Radio Panel

ASSEMBLING WINDROWER

7. Position receptacle (A) (supplied with the radio) into the opening, and secure it by bending tabs (B) on the receptacle against the panel.

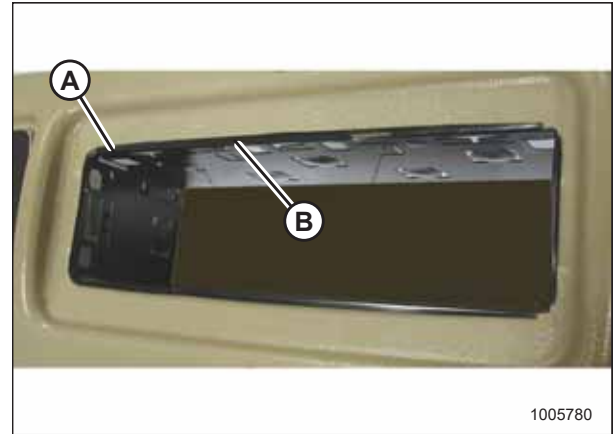


Figure 3.84: Radio Receptacle

8. Insert the radio into the receptacle and attach the radio bezel. Ensure the radio locks into position and faceplate (A) is against the panel.



Figure 3.85: Radio Installed

9. Ensure the radio has a six-pin connector (Packard #2977042) and a terminal arrangement as shown at right. This enables the radio to connect to the windrower's six-pin radio connector wiring harness.
10. Attach the following two additional wires from the wiring harness to the radio:
 - a. **Circuit 503:** The red live-wire with a 1/4 in. female blade terminal provides power for the radio clock/memory if the radio is equipped with this feature.
 - b. **Circuit 315:** The black ground-wire attaches to the radio body.
11. Plug the antenna cable into the radio.

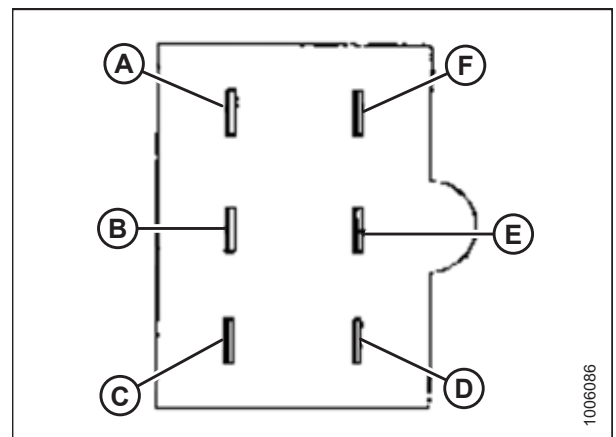


Figure 3.86: Six-Pin Connector Terminal Arrangement

- A - Left Speaker Power (+)
- B - Left Speaker Ground (-)
- C - Radio Ground (-)
- D - Right Speaker Ground (-)
- E - Right Speaker Power (+)
- F - Radio Power (+) (Live when Ignition is ON)

ASSEMBLING WINDROWER

- Attach the stud (supplied with the radio) to the center rear of the radio.
- Attach support (B) to the stud on the back of the radio with nut (A) and the lock washer supplied with the support.

NOTE:

The support can be attached to the radio in multiple locations to allow for proper radio mounting.

- Install the radio panel using the original screws.

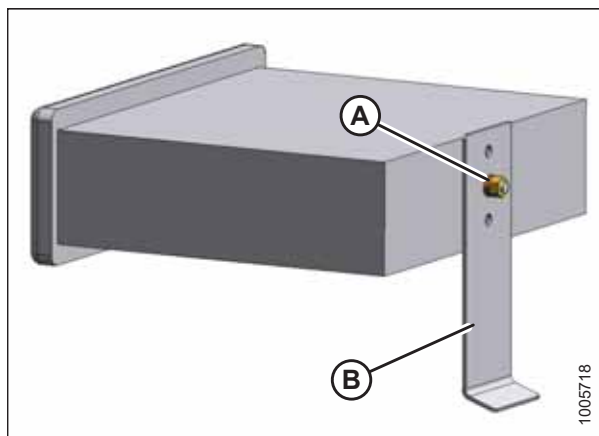


Figure 3.87: Radio and Support

- Adjust bracket (A) (if necessary) by loosening nuts (B) to allow the radio to slide into the opening and securely capture support (C).

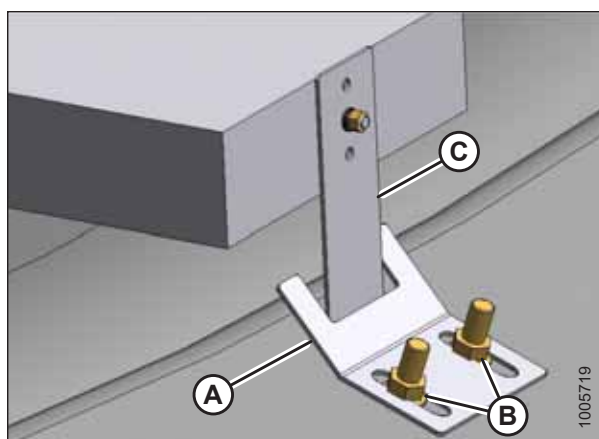


Figure 3.88: Radio and Support

- Retrieve the antenna from inside the cab and remove the protective cover from the base.
- Remove protective cover (A) from the antenna mount on the cab roof and thread the antenna onto the base until it is hand-tight.

NOTE:

Store the protective cover in the cab and reinstall it to protect the antenna mount in the event that the antenna needs to be removed.

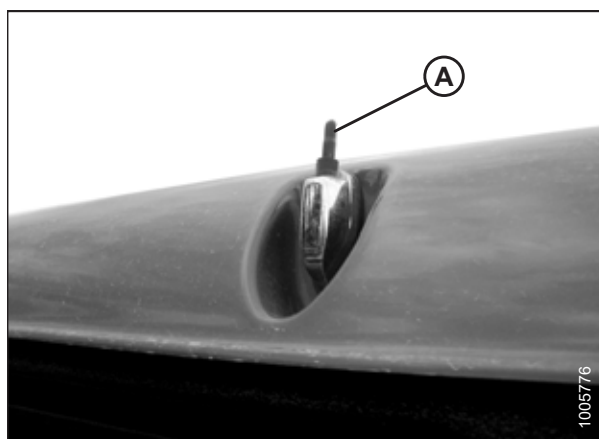


Figure 3.89: Antenna Mount on Cab Roof

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18. Turn battery switch (A) to the ON position.
19. Turn the ignition key to ACC, switch the radio ON, and check the operation in accordance with the instructions supplied with the radio.
20. Turn the ignition key to the OFF position, and remove the key.

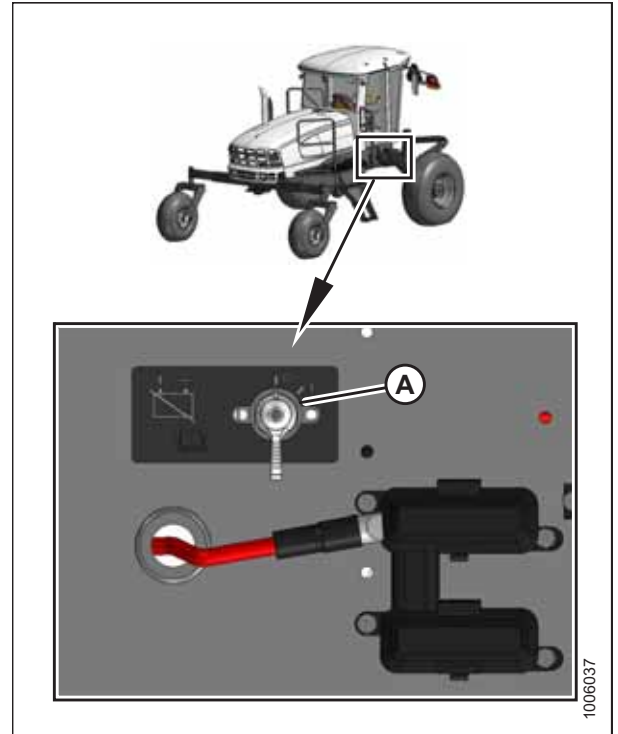


Figure 3.90: Battery Main Disconnect Switch

3.17 Performing Predelivery Checks

After assembling the windrower, the machine and its features should be inspected.

IMPORTANT:

The machine should not require further adjustments after the assembly process is completed. However, to ensure that the machine is performing properly, conduct the following checks and complete the yellow predelivery checklist at the end of this book. Make adjustments only if absolutely necessary and in accordance with the instructions in this manual.

3.17.1 Recording Serial Numbers

Serial numbers identify the specific windrower, its engine, and its factory configuration.

Follow these steps to record the serial numbers.

1. Move latch (A) toward the right cab-forward side of the windrower.
2. Grasp louver (B), and lift the hood to open it.

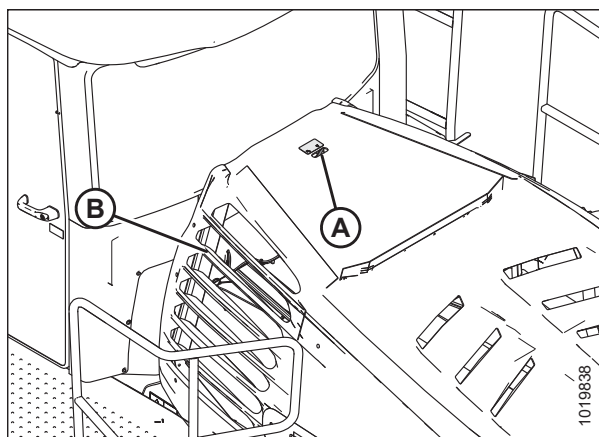


Figure 3.91: Hood

3. Record the windrower and engine serial numbers on the [Predelivery Checklist, page 261](#). Confirm that the serial number recorded matches the one found on the shipping manifest or work order.

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

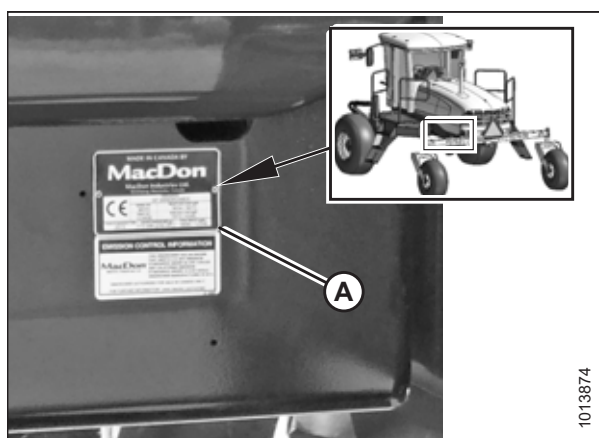


Figure 3.92: Serial Number Location

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

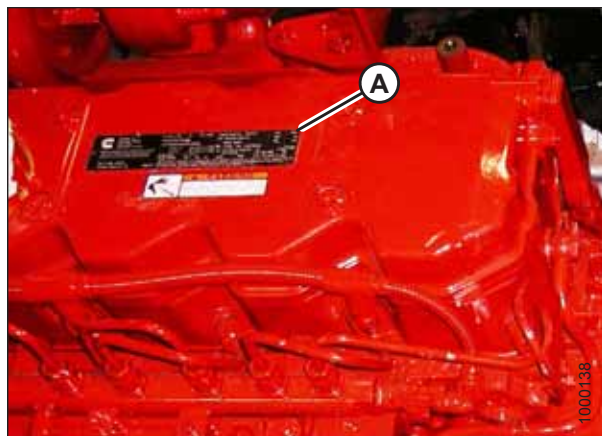


Figure 3.93: Engine Serial Number Location

3.17.2 Checking Tire Pressures and Adding Tire Ballast

Checking the tire pressure and possibly adding tire ballast will help ensure the proper operation of the windrower.

Checking Tire Pressure

The tires must be at the correct operating pressure. Check the pressure of the windrower tires using a tire pressure gauge.

Table 3.1 Tire Pressures

Tire Type	Size	Pressure
Bar	18.4–26	317 kPa (46 psi)
	600/65R28	241 kPa (35 psi)
Turf	18.4–26	317 kPa (46 psi)
	23.1–26	234 kPa (34 psi)
Rear Caster	All	69 kPa (10 psi)

Adding Tire Ballast

When using a large header on a windrower, adding fluid ballast to the caster tires will improve machine stability. Machine stability is also affected by different attachments, windrower options, terrains, and driving techniques.

The maximum fluid ballast capability per tire is 75% of full, or when the fluid is level with the valve stem at the 12 o'clock position. Always add an equal amount of fluid on both sides. Fluid can be added to any level up to maximum fill.

Table 3.2 Maximum Fluid per Tire

Tire Size	Fluid per Tire at 75% Fill liters (U.S. Gal.)	Total Weight of Both Tires kg (lb.) ²
7.5 x 16	38 (10)	91 (200)
10 x 16	69 (18)	170 (380)
16.5 x 16.1	158 (41)	377 (830)

- Weights typical for calcium chloride and water mixtures. Reduce weight by 20% if only water is used (for areas that do not freeze).

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Table 3.3 Recommended Ballast

Type	Size	Recommended Tire Size	Recommended Ballast			
			Level Ground		Hills	
			Per Tire liters (U.S. Gal.)	Both Tires kg (lb.) ³	Per Tire liters (U.S. Gal.)	Both Tires kg (lb.) ³
A Series (all options)	All	7.5 x 16 10 x 16 16.5 x 16.1	0	0	0	0
D/D1 Series	7.6 m (25 ft.) and less	7.5 x 16 10 x 16 16.5 x 16.1	0	0	0	0
D/D1 Series	9.1 m (30 ft.) single reel or double reel (without conditioner) 10.7 m (35 ft.) single reel	7.5 x 16 10 x 16 16.5 x 16.1	69 (18)	170 (380)	115 (30)	288 (630)
D/D1 Series	9.1 m (30 ft.) double reel (with steel fingers and conditioner) 10.7 m (35 ft.) double reel (5- or 6-bat)	Level ground: 10 x 16 16.5 x 16.1 Hills: 16.5 x 16.1	115 (30)	288 (630)	158 (41)	377 (830)
D/D1 Series	12.2 m (40 ft.)	16.5 x 16.1	115 (30)	288 (630)	158 (41)	377 (830)
R/R1 Series (all options)	4 m (13 ft.) and 4.9 m (16 ft.)	7.5 x 16 10 x 16 16.5 x 16.1	0	0	0	0

3.17.3 Checking Engine Air Intake

The air intake system must be inspected to ensure air intake components have been installed and tightened correctly.

1. Ensure air cleaner cap is firmly attached and latches (A) and clamps (B) are secure.

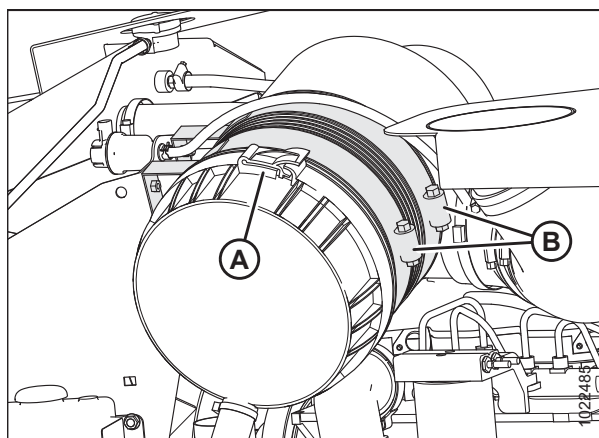


Figure 3.94: M155 Air Intake System

3. If only water is used, increase volume of water by 20% (up to maximum allowable fill per tire) to compensate.

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2. Check the constant torque spring clamp (A) at the back of the air cleaner. Hold a 0.46 mm (0.018 in.) gauge between the middle coils, tighten the clamp until the gauge is snug, and remove the gauge.

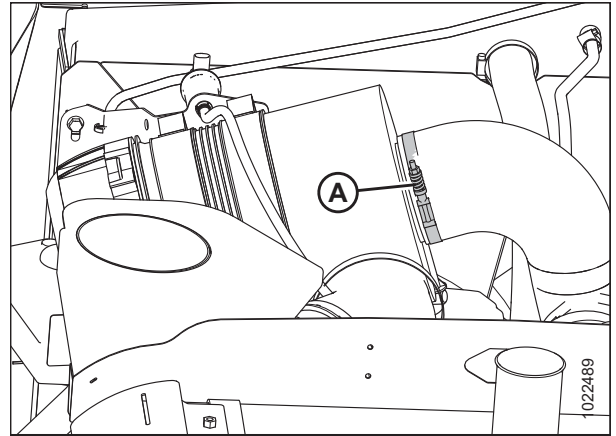


Figure 3.95: M155 Air Intake System

3.17.4 Checking Hydraulic Oil Level

The hydraulic oil reservoir can be found in the engine bay. The hydraulic oil level can be inspected using the sight glass on the side of the reservoir, or by using the dipstick.

1. Clean filler cap (A) and surrounding area.
2. Turn filler cap (A) counterclockwise to unlock the cap and remove the dipstick.

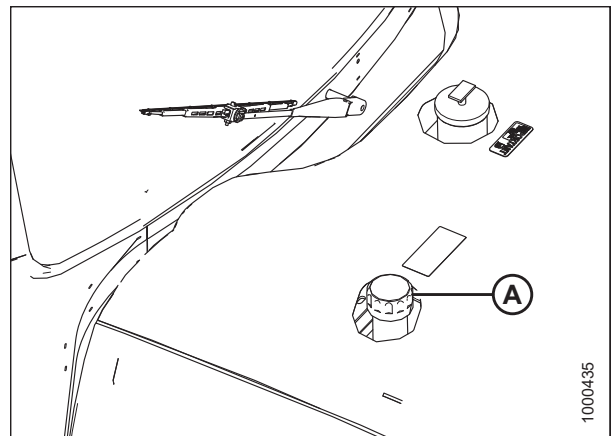


Figure 3.96: Engine Hood

3. Inspect the dipstick. The hydraulic oil level should be between the low (L) and high (H) marks on the dipstick.
4. If necessary, add hydraulic oil. Do not overfill the reservoir. Refer to Table 7.16, page 257 for specifications.
5. Reinstall the dipstick and filler cap, and turn it clockwise to tighten and lock it.

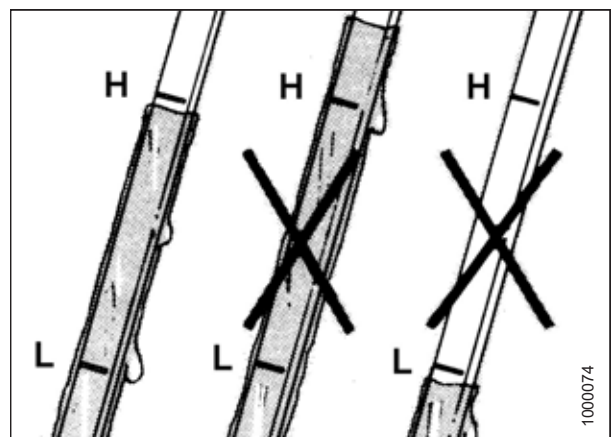


Figure 3.97: Hydraulic Oil Levels

3.17.5 Checking Fuel Separator

The fuel separator removes water and sediment from the fuel to prevent damage to the engine. It will need to be inspected to ensure that it is clean.

1. Place a container under filter drain valve (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 the sump as needed.
4. Turn drain valve (A) by hand 1 1/2 to 2 turns clockwise until it is tight.
5. Dispose of the fuel in a safe manner.

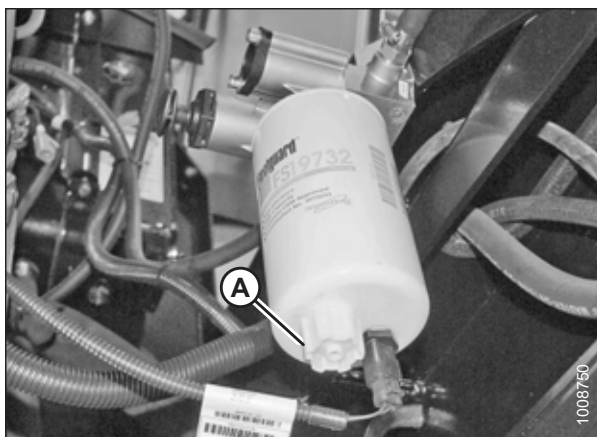


Figure 3.98: Fuel Filter

3.17.6 Checking Engine Oil Level

Ensure the engine oil is filled to the correct level.

1. Remove dipstick (A) by turning it counterclockwise to unlock it.
2. Wipe the dipstick clean and reinsert it into the engine.
3. Remove the dipstick again and check the oil level.

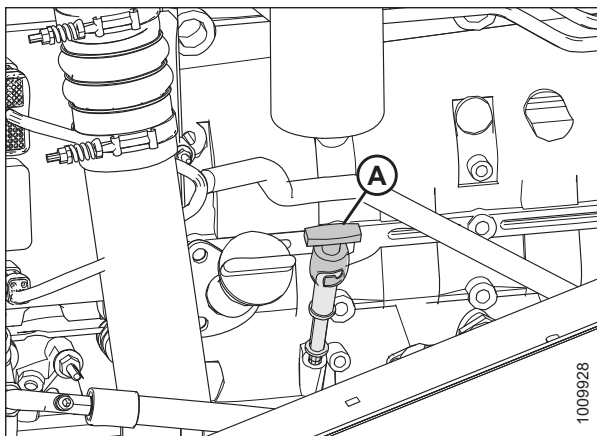


Figure 3.99: Engine Oil Dipstick

ASSEMBLING WINDROWER

4. Add oil if the level is below the low (L) mark.

IMPORTANT:

The oil level should be maintained between the low (L) and high (H) marks on the dipstick.

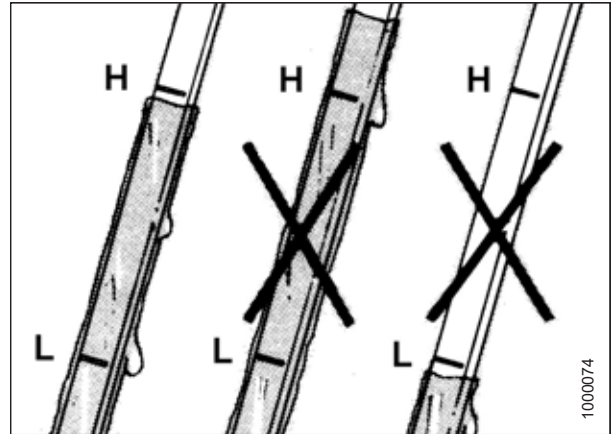


Figure 3.100: Engine Oil Level

5. Replace dipstick (A) and turn it clockwise to lock it.

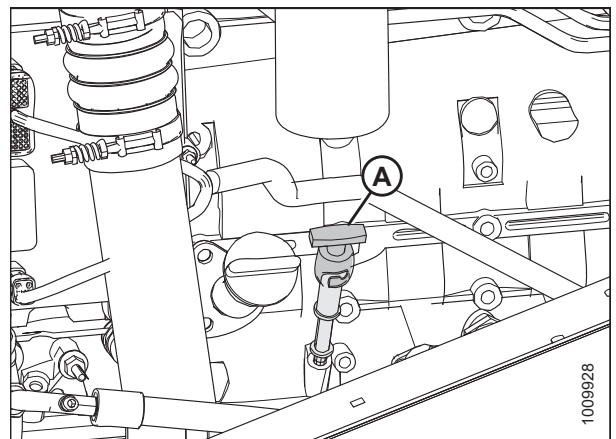


Figure 3.101: Engine Oil Dipstick

3.17.7 Checking Gearbox Lubricant Level

Ensure the gearbox lubricant is filled to the correct level.

1. Locate gearbox oil level check plug (A) under the machine. Remove plug (A) and ensure lubricant is visible or slightly running out.
2. If lubricant is required, add gearbox oil. Refer to Table 7.16, page 257 for specifications.
3. Replace plug (A) and tighten it.

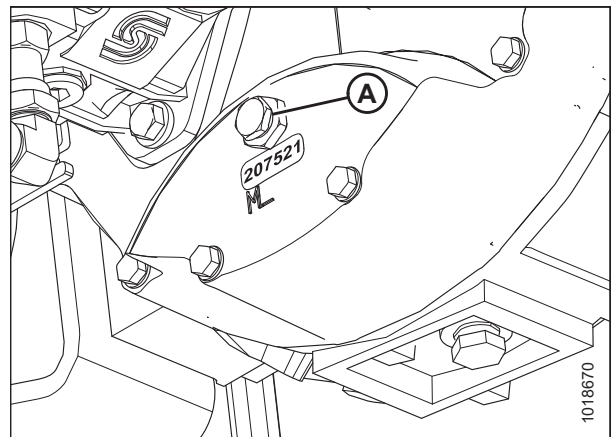


Figure 3.102: Gearbox

3.17.8 Checking Engine Coolant

Coolant is cycled through the engine to help reduce internal heat. The coolant must be at the appropriate level for the system to work correctly.

1. Visually inspect the coolant level in the coolant recovery tank (A). Tank should be at least half full.
2. If necessary, add coolant. Refer to Table 7.16, page 257 for specifications.
3. Ensure the coolant concentration in the radiator is rated for -34°C (-30°F).

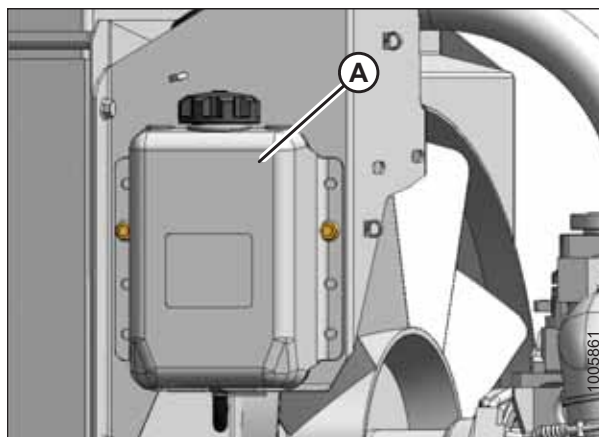


Figure 3.103: Coolant Recovery Tank

3.17.9 Checking Air Conditioning Compressor Belt

The windrower's air conditioner compressor is belt-driven. The belt must be tensioned correctly for the air conditioning system to function properly.

1. Ensure that A/C compressor belt (A) is tensioned so that a force of 45 N (10 lbf) on the belt deflects the belt 5 mm (3/16 in.) at its midspan.



Figure 3.104: A/C Compressor Belt

ASSEMBLING WINDROWER

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

NOTE:

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

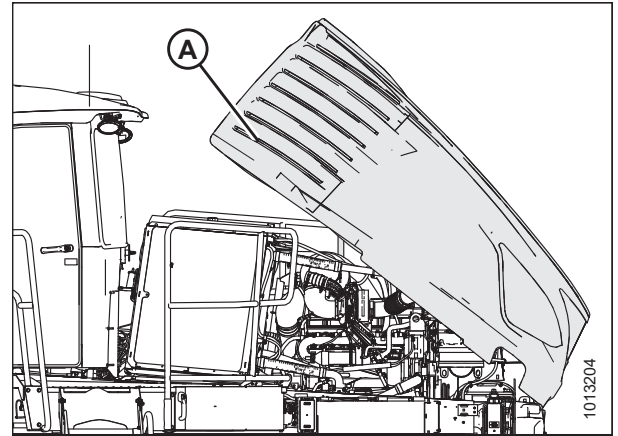


Figure 3.105: Engine Compartment

3.17.10 Starting Engine

The procedure for starting the windrower's engine varies depending on the ambient temperature. In cold weather, the engine must go through a warm-up cycle before the engine speed can be increased.

 **CAUTION**

Park on a level surface with the ground speed lever (GSL) in the N-DETENT position and the steering wheel in the locked (centered) position. Wait for the cab display module (CDM) to beep and display an "In Park" message to confirm that the parking brake is engaged.

1. Ensure that there is sufficient fuel in the fuel tank for the windrower's engine to run for at least 15 minutes.
2. Ensure that lock (A) is engaged at the cab-forward or engine-forward position.



Figure 3.106: Operator Console

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3. Move GSL (A) into the N-DETENT position.
4. Turn the steering wheel until it locks (center).
5. Push header drive switch (B) to the OFF position.

DANGER

Ensure that all bystanders have cleared the area.



Figure 3.107: Operator Console

ASSEMBLING WINDROWER

Normal start (all engines):

6. Follow these steps when starting the engine when the ambient temperature is above 16°C (60°F):

- a. Move the throttle fully back to START position (A).
- b. Sound the horn three times.

NOTE:

The horn is located on the headliner.

- c. Turn ignition key (B) to the RUN position.

NOTE:

A single loud tone will sound, engine warning lights will illuminate, and the cab display module will display HEADER DISENGAGED and IN PARK.

- d. Turn ignition key (B) to the START position until the engine starts and then release the key. The tone will cease and warning lights will go out.



Figure 3.108: Operator Console

WARNING

If the starter is able to engage when the steering wheel is unlocked, when the ground speed lever (GSL) is out of the NEUTRAL position, or when the header clutch is engaged, do NOT start the engine. Refer to the windrower's technical manual for further details.

NOTE:

When starting the engine when the ambient temperature is below 5°C (40°F), the engine will cycle through a period during which it will sound as though it is struggling to stay running. This is the engine's warm-up mode. The throttle will be nonresponsive while the engine is in warm-up mode. Warm-up mode lasts between 30 seconds and 3 minutes depending on the temperature. The throttle will become active after the engine has stabilized and is idling normally.

IMPORTANT:

Do NOT operate engine above 1500 rpm until engine temperature gauge is above 40°C (100°F).

IMPORTANT:

- Do NOT operate the starter for longer than 15 seconds at a time.
- If the engine does NOT start, wait at least 2 minutes before attempting to start the engine again.
- After the third 15-second crank attempt, allow the starter motor to cool for 10 minutes before attempting to start the engine again.
- If the engine still does NOT start, refer to Table 3.4, page 90.

Cold start:

NOTE:

Engines are equipped with a cold-start assist system.

ASSEMBLING WINDROWER

7. When the engine temperature is below 5°C (40°F), follow the procedure for a normal start. Refer to Step 6, page 89, but adhere to the following *NOTE* and *IMPORTANT* statements while starting the engine.

NOTE:

When starting the engine when the ambient temperature is below 5°C (40°F), the engine will cycle through a period during which it will sound as though it is struggling to stay running. This is the engine's warm-up mode. The throttle will be nonresponsive while the engine is in warm-up mode. Warm-up mode lasts between 30 seconds and 3 minutes depending on the temperature. The throttle will become active after the engine has stabilized and is idling normally.

IMPORTANT:

Do **NOT** operate the engine above 1500 rpm until the engine's coolant temperature is above 40°C (100°F).

Table 3.4 Engine Start Troubleshooting

Problem	Solution
Controls are not in the NEUTRAL position	<ul style="list-style-type: none"> • Move the GSL to NEUTRAL • Move the steering wheel to the locked (centered) position • Disengage the HEADER switch
Operator's station is not locked	<ul style="list-style-type: none"> • Adjust the position of the operator's station • Ensure that the lock is engaged
Neutral interlock is out of adjustment	<ul style="list-style-type: none"> • Refer to the windrower's technical manual
Fuel not reaching the engine	<ul style="list-style-type: none"> • Fill the fuel tank • Replace the fuel filter • Ensure that the fuel shut off valve is in the open position
Old fuel in the fuel tank	<ul style="list-style-type: none"> • Drain the fuel tank • Refill the fuel tank with fresh fuel
Water, dirt, or air in the fuel system	<ul style="list-style-type: none"> • Drain, flush, fill, and prime the fuel system
Improper type of fuel in the fuel tank	<ul style="list-style-type: none"> • Drain the fuel tank • Refill the fuel tank with the correct type of fuel
Crankcase oil too heavy	<ul style="list-style-type: none"> • Replace with recommended oil
Low voltage output from the battery	<ul style="list-style-type: none"> • Test the battery • Check the battery's electrolyte levels
Poor battery connection	<ul style="list-style-type: none"> • Clean and tighten loose battery connections
Faulty starter	<ul style="list-style-type: none"> • Refer to the windrower's technical manual
Wiring is shorted or the circuit breaker is open	<ul style="list-style-type: none"> • Check the continuity of the wiring and the breaker; manually reset the circuit breaker
Faulty fuel injectors	<ul style="list-style-type: none"> • Refer to the windrower's technical manual

3.17.11 Priming Hydraulic System

Air must be removed from the system for the hydraulics to perform properly. The following procedure describes the method for priming the hydraulic system to remove trapped air. Prime the hydraulics after initial installation or if the hydraulic system requires adjustment.

DANGER

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

1. Remove hydraulic oil reservoir filler cap / dipstick (A).
2. Open the engine compartment hood to the highest position.



Figure 3.109: Filler Cap

3. From underneath the machine, locate plug (A) on the side of the header drive pump housing.
4. Loosen plug (A) to bleed the pump housing. Retighten the plug once oil starts to run out.

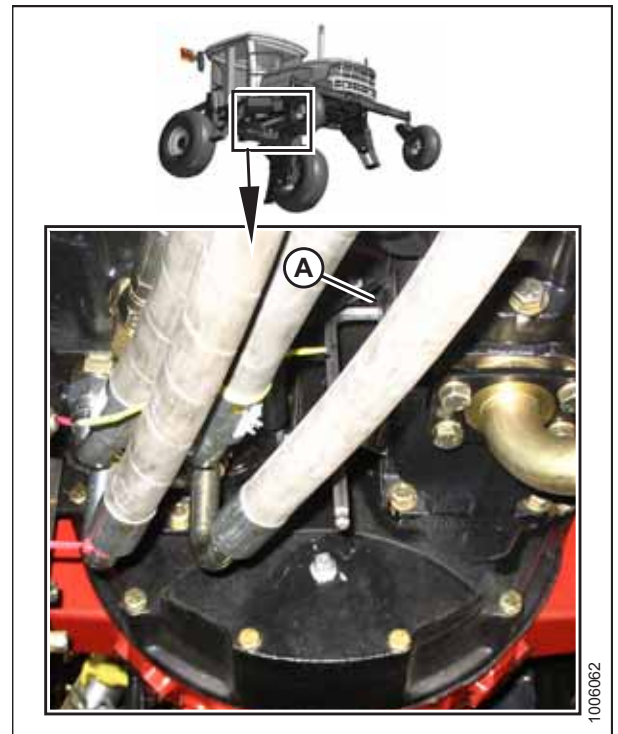


Figure 3.110: Header Drive Pump Housing

ASSEMBLING WINDROWER

5. From above the machine, locate plug (A) on the top of the header drive pump housing.
6. Loosen plug (A) to bleed the pump housing. Retighten the plug once oil starts to run out.

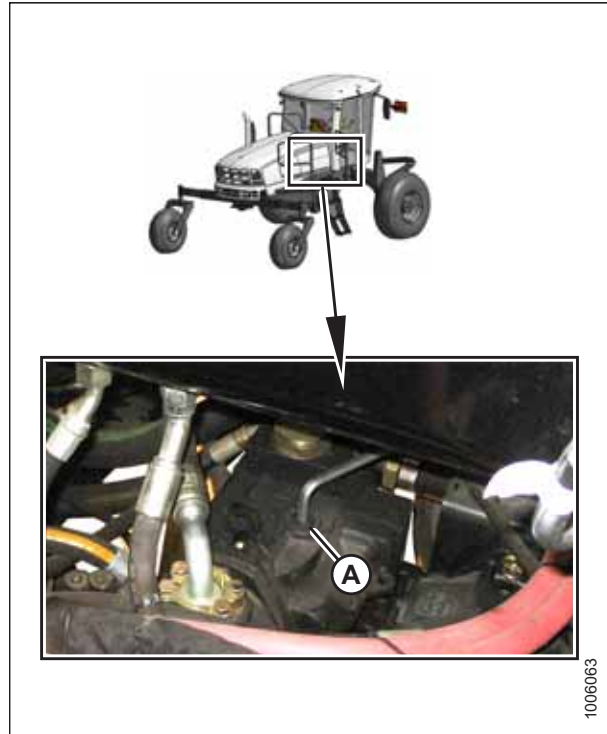


Figure 3.111: Header Drive Pump Housing

7. From above the machine, locate plug (A) on the top of the traction drive pump housing.
8. Loosen plug (A) to bleed the pump housing. Retighten the plug once oil starts to run out.
9. Replace the hydraulic oil reservoir filler cap.



Figure 3.112: Traction Drive Pump Housing

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10. Open the left (cab-forward) platform.
11. Disconnect brake engage solenoid plug (P44) (A) at the multifunction block on the left side of the windrower.

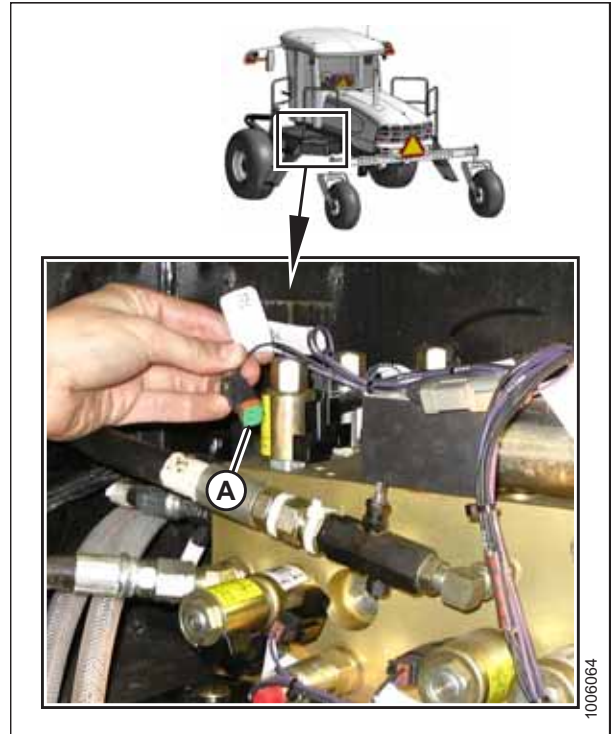


Figure 3.113: Multifunction Control Manifold

12. Disconnect electrical connection (A) at the fuel pump on the right side of the engine.

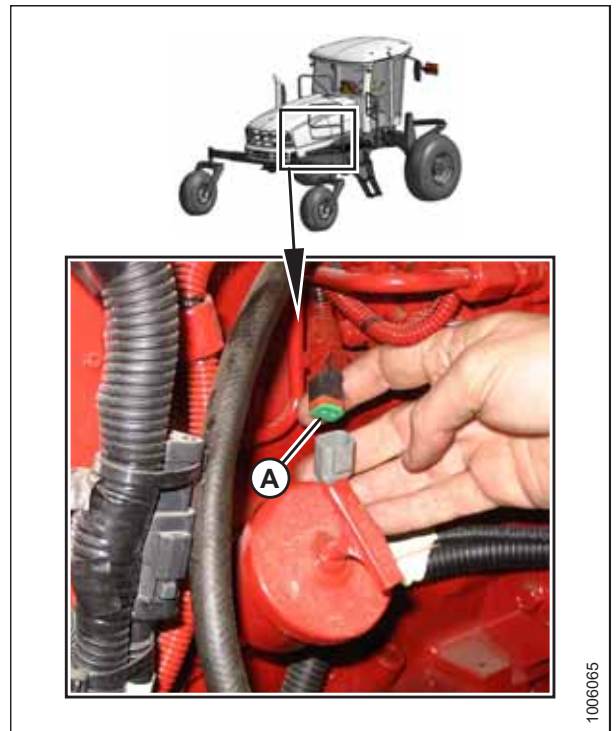


Figure 3.114: Fuel Pump Location

ASSEMBLING WINDROWER

13. Open the maintenance platform on the right (cab-forward) side.
14. Open fuse cover (A).

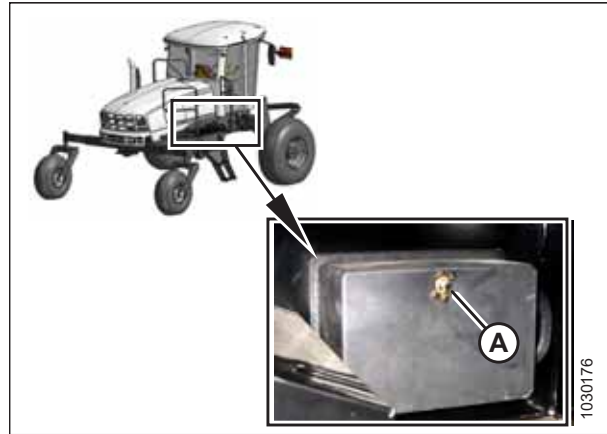


Figure 3.115: Fuse Cover

15. Remove ignition power fuse (15A) (A).

DANGER

Ensure that all bystanders have cleared the area.

16. Prime the system by cranking the engine with the starter for 15 seconds.

IMPORTANT:

Reconnect the electrical connection at the fuel pump and at the brake engage solenoid.

17. Reinstall ignition power fuse (15A) (A) and the fuse cover.
18. Close the engine compartment hood.

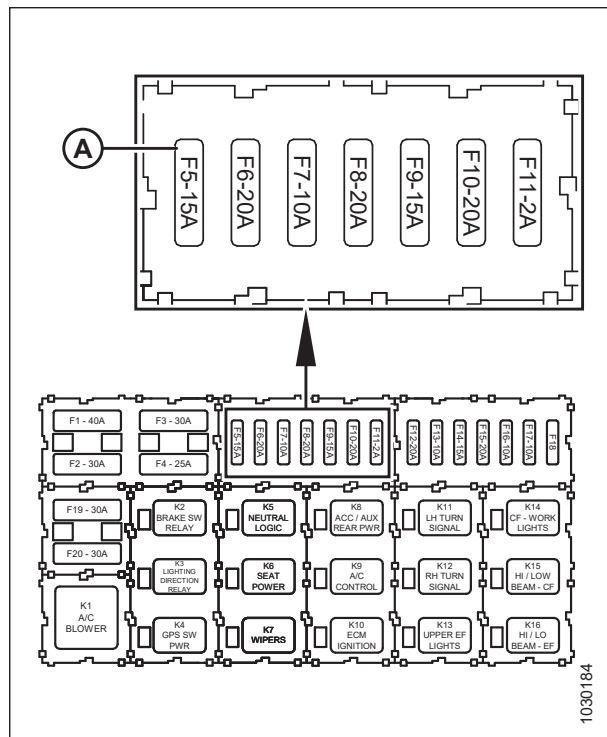


Figure 3.116: Fuse Panel

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19. Check the hydraulic oil level in the reservoir (remove filler cap / dipstick (A) and add SAE 15W-40 oil if necessary). For instructions, refer to [3.17.4 Checking Hydraulic Oil Level, page 83](#).
20. Close the platforms.

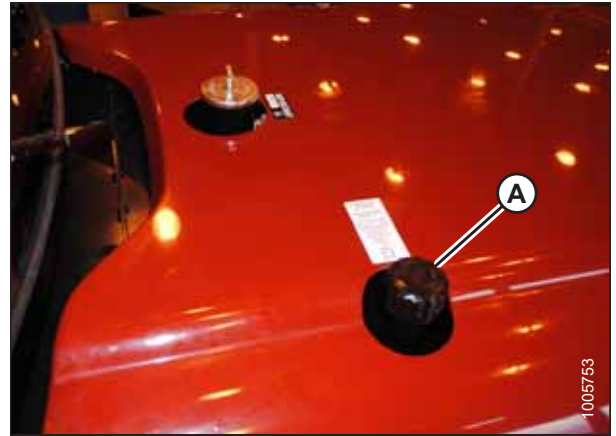


Figure 3.117: Filler Cap

3.17.12 Checking and Adding Wheel Drive Lubricant – 10 Bolt Wheels

Ensure that the wheel drive lubricant level is correct to maximize the service life of the components.

DANGER

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

CAUTION

Park on a flat, level surface with the header on the ground, the ground speed lever (GSL) in the N-DETENT position, and the steering wheel in the locked position (centered). To confirm that the parking brake is engaged, wait for the cab display module (CDM) to beep and display the message IN PARK.

1. Park the windrower on level ground.
2. Rotate the wheel drive so that the imaginary line running through plugs (A) and (B) and hub center (C) is parallel with the ground, as shown..
3. Shut down the engine, and remove the key from the ignition.
4. Remove plug (A). The lubricant should be visible through the port.
5. If lubricant needs to be added, remove plug (B), and add lubricant until lubricant runs out from port (A) or (B). For lubricant specifications, refer to [7.4 Lubricants, Fluids, and System Capacities, page 257](#).
6. Reinstall the plugs and tighten them.

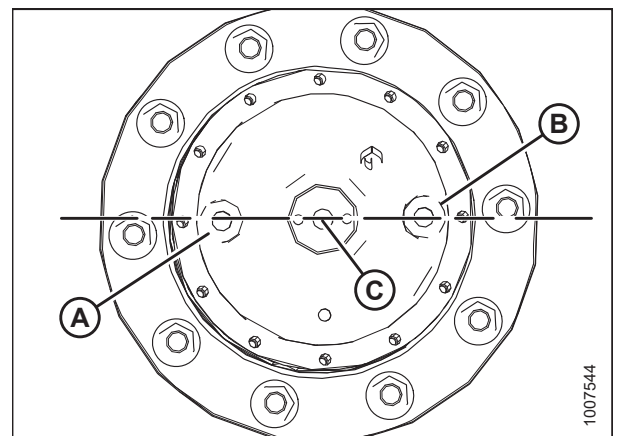


Figure 3.118: Drive Wheel Hub

3.17.13 Checking Traction Drive

The drive wheels should spin either at the same speed or at different speeds depending on how you steer the windrower.

DANGER

Ensure that all bystanders have cleared the area.

1. Move ground speed lever (GSL) (A) out of N-DETENT and slowly move the GSL forwards. Ensure wheels are rotating in the forward direction and at the same speed.
2. Turn the steering wheel and observe the motion of the drive wheels. Ensure the wheels rotate at different speeds with the slower rotating wheel on the same side of machine that the steering wheel is turned toward.
3. Turn the steering wheel in the opposite direction and ensure the slower rotating wheel is on the same side of the machine that the steering wheel is turned toward.
4. Move the GSL backwards into reverse. Ensure the wheels are rotating in the reverse direction and at the same speed.
5. Move the GSL forward into N-DETENT, and shut down the engine.



Figure 3.119: Operator Console

3.18 Removing Windrower from Assembly Stands

1. Position a jack under the jack point of each drive wheel leg and under the rear hitch.
2. Raise jacks to take the weight off the stands, and remove stands.
3. Lower windrower slowly to the ground, and remove jacks.

Chapter 4: Cab Display Module

Although the other procedures in this instruction are intended to be followed in the order in which they are listed, the sections in this chapter can be referred to in any order according to your specific requirements.

4.1 Cab Display Module – Configuration Functions

Use the cab display module's (CDM) configuration functions to set up the windrower, to change the appearance of the CDM itself, to enter diagnostic mode, and to calibrate the header sensors.



Figure 4.1: CDM

A - Side Display

B - Main Display

C - Select Switch

D - Menu Item Scroll Forward

E - Menu Item Scroll Backward

F - Program Switch

Side Display: Displays the current revision level of the windrower's operating software.

- Upper line – C### (CDM software revision level)
- Lower line – M### (Windrower control module [WCM] software revision level)

Main Display: Displays potential menu items and the current selection.

NOTE:

The current selection will flash.

- Upper line – Menu item
- Lower line – Current selection

Select Switch: Pressing this switch along with the PROGRAM switch puts the CDM into programming mode. Press SELECT to accept the highlighted menu item and to advance the selection to the next item.

CAB DISPLAY MODULE

Menu Item Scroll Forward: Displays the value of the currently selected menu item.

- Push the MENU ITEM SCROLL FORWARD button to scroll forward
- Hold the MENU ITEM SCROLL FORWARD button down to scroll rapidly

NOTE:

Fast scroll is available only when the Operator is changing the KNIFE SPEED, OVERLOAD PRESSURE, or TIRE SIZE settings.

Menu Item Scroll Backward: Displays the value of the currently selected menu item.

- Push the MENU ITEM SCROLL BACKWARD button to scroll backward
- Hold down the MENU ITEM SCROLL BACKWARD button to scroll rapidly

NOTE:

Fast scroll is available only when the Operator is changing the KNIFE SPEED, OVERLOAD PRESSURE, or TIRE SIZE settings.

Program Switch: Pressing this switch along with the SELECT switch puts the CDM into programming mode.

NOTE:

The following menus are available when the ignition key is in the RUN position:

- WINDROWER SETUP
- CAB DISPLAY SETUP
- DIAGNOSTIC MODE

The CALIBRATE SENSORS menu is available only when the engine is running.

4.2 Cab Display Options

The cab display module's (CDM) display settings, including the units of measurement, buzzer volume, and lighting options, can be changed by accessing the CDM's CAB DISPLAY SETUP menu.

NOTE:

The following procedures are current for CDM software version C512 and windrower control module (WCM) M236. The WCM is supplied with the latest released version of the operating software already installed. Any subsequent updates will be made available on the MacDon Dealer Portal (<https://portal.macdon.com>).

NOTE:

The menus in the CDM in your windrower may differ from those depicted in the illustrations in this manual if your CDM or WCM have different software versions installed. In addition, not all features are available on every machine.

4.2.1 Setting Cab Display Language

The cab display module's (CDM) language settings can be changed by accessing the CDM's DISPLAY LANGUAGE sub-menu in the CAB DISPLAY SETUP menu.

1. Turn the ignition key to the RUN position, or start the engine.
2. Press PROGRAM (A) and SELECT (B) simultaneously on the cab display module (CDM) to enter programming mode.
 - WINDROWER SETUP? will appear on the upper line.
 - NO/YES will appear on the lower line.



Figure 4.2: Windrower Setup Display

3. Press SELECT (A) until CAB DISPLAY SETUP? appears on the upper line.
 - NO/YES will appear on the lower line.



Figure 4.3: Cab Setup Display

CAB DISPLAY MODULE

4. Press right arrow (C) to select YES. Press SELECT (D).
 - DISPLAY LANGUAGE? will appear on the upper line.
 - Default language will appear on the lower line.
5. Press left arrow (B) or right arrow (C) to select your preferred language.

NOTE:

The available languages are English, Russian, and Spanish.

6. Press PROGRAM (A) to exit programming mode or press SELECT (D) to proceed to the next CAB DISPLAY SETUP? action.



Figure 4.4: Language Display

4.2.2 Changing Windrower Display Units

The cab display module (CDM) can be configured so that units of measurement are displayed in metric or in standard (imperial) format.

1. Turn the ignition key to the RUN position, or start the engine.
2. Press PROGRAM (A) and SELECT (B) simultaneously on the CDM to enter programming mode.
 - WINDROWER SETUP? will appear on the upper line.
 - NO/YES will appear on the lower line.



Figure 4.5: CDM Programming Buttons

3. Press SELECT (B) until CAB DISPLAY SETUP? is displayed on the upper line.
 - NO/YES will appear on the lower line.
4. Press right arrow (A) to select YES. Press SELECT (B).
 - DISPLAY LANGUAGE? will appear on the upper line.

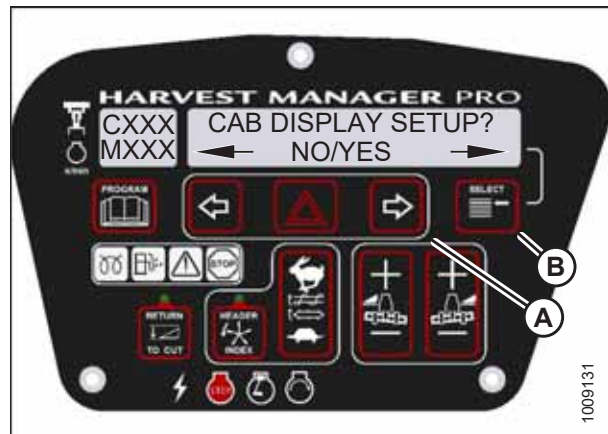


Figure 4.6: Cab Display Setup

CAB DISPLAY MODULE

5. Press SELECT (D) until DISPLAY UNITS? appears on the upper line.
 - The current setting will appear on the lower line.
6. Press left arrow (B) or right arrow (C) to select either METRIC or IMPERIAL.
7. Press PROGRAM (A) to exit programming mode or press SELECT (D) to proceed to the next CAB DISPLAY SETUP? option.



Figure 4.7: Display Units

4.2.3 Adjusting Cab Display Buzzer Volume

The volume level of the alert tones generated by the cab display module (CDM) can be changed by accessing the BUZZER VOLUME sub-menu in the CAB DISPLAY SETUP menu.

1. Turn the ignition key to the RUN position, or start the engine.
2. Press PROGRAM (A) and SELECT (B) simultaneously on the cab display module (CDM) to enter programming mode.
 - WINDROWER SETUP? will appear on the upper line.
 - NO/YES will appear on the lower line.



Figure 4.8: CDM Programming Buttons

3. Press SELECT (B) until CAB DISPLAY SETUP? appears on the upper line.
 - NO/YES will appear on the lower line.
4. Press right arrow (A) to select YES. Press SELECT (B).
 - DISPLAY LANGUAGE? will appear on the upper line.



Figure 4.9: Cab Display Setup

CAB DISPLAY MODULE

5. Press SELECT (D) until BUZZER VOLUME appears on the upper line.
 - The current setting will appear on the lower line.
6. Press left (B) or right (C) arrows to adjust the buzzer volume to the preferred level.
7. Press PROGRAM (A) to exit programming mode or press SELECT (D) to proceed to the next CAB DISPLAY SETUP? option.



Figure 4.10: Buzzer Volume

4.2.4 Adjusting Cab Display Backlighting

The cab display module (CDM) is equipped with a backlight, which makes it easier to read the display in low-light situations. The degree of backlighting can be changed by accessing the BACKLIGHTING sub-menu in the CAB DISPLAY SETUP menu.

1. Turn the ignition key to the RUN position, or start the engine.
2. Press PROGRAM (A) and SELECT (B) simultaneously on the cab display module (CDM) to enter programming mode.
 - WINDROWER SETUP? will appear on the upper line.
 - NO/YES will appear on the lower line.



Figure 4.11: CDM Programming Buttons

3. Press SELECT (B) until CAB DISPLAY SETUP? appears on the upper line.
 - NO/YES will appear on the lower line.
4. Press right arrow (A) to select YES. Press SELECT (B).
 - DISPLAY LANGUAGE? will appear on the upper line.

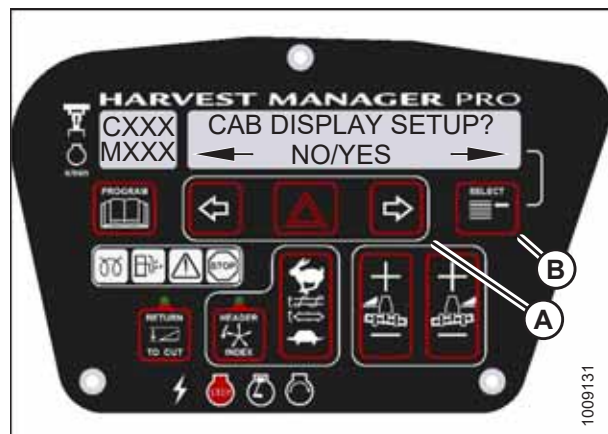


Figure 4.12: Cab Display Setup

CAB DISPLAY MODULE

5. Press SELECT (D) until BACKLIGHTING appears on the upper line.
 - The current setting will appear on the lower line.
6. Press left arrow (B) or right arrow (C) to adjust the degree of backlighting.
7. Press PROGRAM (A) to exit programming mode or press SELECT (D) to proceed to the next CAB DISPLAY SETUP? option.



Figure 4.13: Backlighting

4.2.5 Adjusting Cab Display Contrast

Contrast is the degree of difference between the lightest and darkest colours a display can produce. The contrast of the cab display module's (CDM) display screen can be adjusted by accessing the DISPLAY CONTRAST sub-menu in the CAB DISPLAY SETUP menu.

1. Turn the ignition key to the RUN position, or start the engine.
2. Press PROGRAM (A) and SELECT (B) on the cab display module (CDM) to enter programming mode.
 - WINDROWER SETUP? will appear on the upper line.
 - NO/YES will appear on the lower line.



Figure 4.14: CDM Programming Buttons

3. Press SELECT (B) until CAB DISPLAY SETUP? appears on the upper line.
 - NO/YES will appear on the lower line.
4. Press right arrow (A) to select YES. Press SELECT (B).
 - DISPLAY LANGUAGE? will appear on the upper line.



Figure 4.15: Cab Display Setup

CAB DISPLAY MODULE

5. Press SELECT (D) until DISPLAY CONTRAST appears on the upper line.
 - The current setting will appear on the lower line.
6. Press the left (B) or the right (C) arrow to adjust the CDM's contrast setting.
7. Press PROGRAM (A) to exit programming mode or press SELECT (D) to proceed to the next CAB DISPLAY SETUP? option.



Figure 4.16: Display Contrast

4.3 Configuring Windrower

The Operator can configure several windrower, header, and other attachment performance options using the cab display module (CDM).

4.3.1 Setting Header Knife Speed

The speed of the knife on non-rotary headers can be set by accessing the cab display module's (CDM) SET KNIFE SPEED sub-menu, in the WINDROWER SETUP menu.

NOTE:

The header **MUST** be attached to the windrower for the Operator to be able to perform this procedure. The cab display module (CDM) automatically adjusts its programming for each header.

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



Figure 4.17: CDM Programming Buttons

4. Press left arrow (B) or right arrow (C) to select knife speed. Press SELECT (D).
5. Press PROGRAM (A) to exit programming mode or press SELECT (D) to proceed to the next WINDROWER SETUP action.

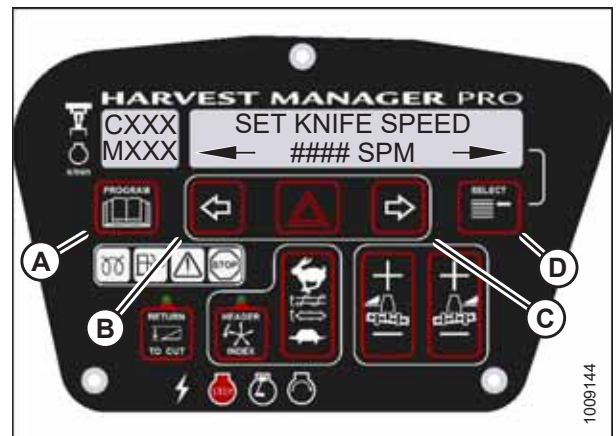


Figure 4.18: Knife Speed

4.3.2 Setting Knife Overload Speed

The knife overload speed setting determines the reported header knife speed at which a knife overload speed warning will appear on the cab display module (CDM). By default, this is 75% of the configured header knife speed, but this setting can be changed by accessing the KNIFE OVERLOAD SPD sub-menu in the WINDROWER SETUP menu.

NOTE:

- The header **MUST** be attached to the windrower to perform this procedure. The cab display module automatically adjusts its programming for each header.
- The recommended knife overload speed is 75% of knife speed.

To set the knife overload speed:

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



Figure 4.19: CDM Programming Buttons

4. Press SELECT (D) until KNIFE OVERLOAD SPD? appears on the upper line.
 - The currently configured knife overload speed will appear on the lower line.

NOTE:

The default knife overload speed setting is -300 strokes per minute (spm). The possible input range is -500 to -100 spm.

5. Press left arrow (B) or right arrow (C) to set the knife overload speed. Press SELECT (D).
6. Press PROGRAM (A) to exit programming mode or press SELECT (D) to proceed to the next WINDROWER SETUP option.



Figure 4.20: Knife Overload Speed

4.3.3 Setting Rotary Disc Overload Speed

The rotary disc overload speed setting determines the reported rotary disc speed at which a disc overload speed warning will appear on the cab display module (CDM). By default, this is 75% of the configured rotary disc speed, but this setting can be changed by accessing the DISC OVERLOAD SPD sub-menu in the WINDROWER SETUP menu.

NOTE:

- The header **MUST** be attached to the windrower to perform this procedure. The cab display module (CDM) automatically adjusts its programming for each header.
- The recommended disc overload speed is 75% of the configured disc speed. For more information, refer to the rotary disc header operator’s manual to determine the appropriate disc overload speed setting.

To set the rotary disc overload speed:

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



Figure 4.21: CDM Programming Buttons

4. Press SELECT (D) until DISC OVERLOAD SPD? appears on the upper line.
 - The current rotary disc overload speed will appear on the lower line.

NOTE:

The default setting is -300 rpm. The range of possible disc overload speeds is -500 to -100 rpm.

5. Press left (B) or right (C) arrows to set the disc overload speed. Press SELECT (D).
6. Press PROGRAM (A) to exit programming mode or press SELECT (D) to proceed to the next WINDROWER SETUP option.



Figure 4.22: Disc Overload Speed

4.3.4 Setting Hydraulic Overload Pressure

The hydraulic overload pressure setting determines the reported hydraulic pressure at which an overload pressure warning will appear on the cab display module (CDM). This setting can be changed by accessing the OVERLOAD PRESSURE sub-menu in the WINDROWER SETUP menu.

NOTE:

- This procedure requires the installation of the optional hydraulic pressure sensor kit (MD #B5574). For the appropriate overload pressure value, refer to the pressure sensor installation instructions supplied with the kit (MD #169031).
- To enable the hydraulic pressure sensor, refer to *4.8.2 Enabling or Disabling Header Sensors, page 146*.

To set the hydraulic overload pressure setting:

1. Turn the ignition key to the RUN position, or start the engine.
2. Press PROGRAM (A) and SELECT (C) simultaneously on the cab display module (CDM) to enter programming mode.
 - WINDROWER SETUP? will appear on the upper line.
 - NO/YES will appear on the lower line.
3. Press right arrow (B) to select YES. Press SELECT (C).
 - SET KNIFE SPEED? will appear.
4. Press SELECT (D) until OVERLOAD PRESSURE? appears on the upper line.
 - The current overload pressure will appear on lower line.

NOTE:

The range of possible pressure settings is 17,237–34,474 kPa (2500–5000 psi).

5. Press left arrow (B) or right arrow (C) to configure the hydraulic overload pressure setting. Press SELECT (D).
6. Press PROGRAM (A) to exit programming mode or press SELECT (D) to proceed to the next WINDROWER SETUP option.

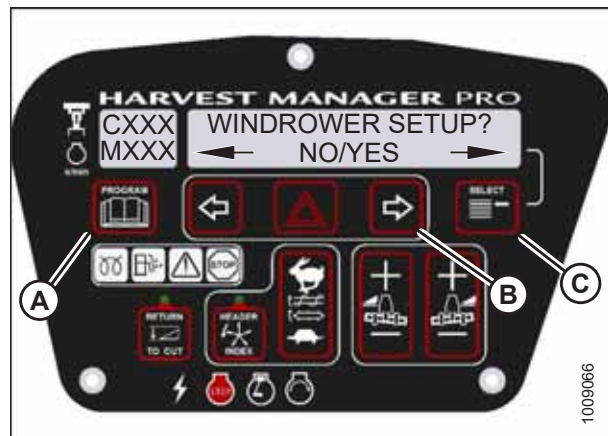


Figure 4.23: CDM Programming Buttons



Figure 4.24: Hydraulic Overload Pressure

4.3.5 Setting Header Index Mode

Enabling header index mode in the cab display module (CDM) links the speed of the reel and the draper on draper headers to the windrower's ground speed. It can be configured in the CDM by accessing the HEADER INDEX MODE sub-menu in the WINDROWER SETUP menu.

NOTE:

The header **MUST** be attached to the windrower to perform this procedure. The cab display module (CDM) automatically adjusts its programming for each header.

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



Figure 4.25: M155 CDM Programming Buttons Shown

4. Press SELECT (D) until HEADER INDEX MODE? appears on the upper line.
 - REEL & CONVEYOR or REEL ONLY will appear on the lower line.
5. Press left arrow (B) or right arrow (C) to set HEADER INDEX mode. Press SELECT (D).
6. Press PROGRAM (A) to exit programming mode or press SELECT (D) to proceed to the next WINDROWER SETUP option.



Figure 4.26: M155 Header Index Mode Shown

4.3.6 Setting Return to Cut Mode

Enabling the return to cut feature in the cab display module (CDM) allows the Operator to make use of height and (optionally) tilt position presets. The return to cut feature can be configured by accessing the RETURN TO CUT MODE sub-menu in the WINDROWER SETUP menu.

NOTE:

The header **MUST** be attached to the windrower to perform this procedure. The cab display module (CDM) automatically adjusts its programming for each header.

1. Turn the ignition key to the RUN position, or start the engine.

CAB DISPLAY MODULE

2. Press PROGRAM (A) and SELECT (C) simultaneously on the CDM to enter programming mode.
 - WINDROWER SETUP? will appear on the upper line.
 - NO/YES will appear on the lower line.
3. Press right arrow (B) to select YES. Press SELECT (C).
 - SET KNIFE SPEED? will appear.



Figure 4.27: M155 CDM Programming Buttons Shown

4. Press SELECT (D) until RETURN TO CUT MODE? appears on the upper line.
 - HEIGHT & TILT or HEIGHT ONLY will appear on the lower line.
5. Press left arrow (B) or right arrow (C) to select RETURN TO CUT MODE. Press SELECT (D).
6. Press PROGRAM (A) to exit programming mode or press SELECT (D) to proceed to the next WINDROWER SETUP option.

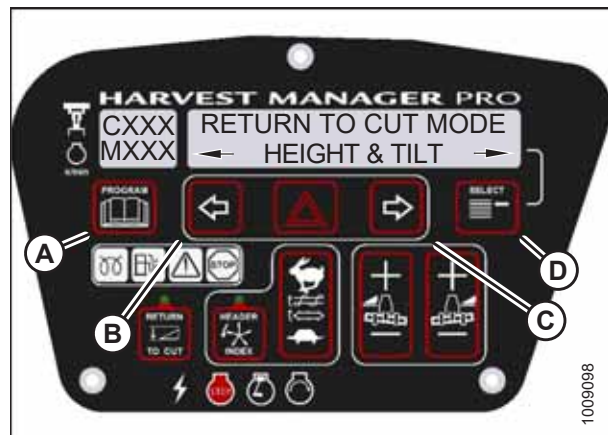


Figure 4.28: M155 Return to Cut Mode Shown

4.3.7 Setting Auto Raise Height

Enabling the auto raise height feature in the cab display module (CDM) allows the Operator to raise the header to a preset height by quickly pressing the HEADER UP switch on the ground speed lever (GSL) twice. It can be enabled by accessing the AUTO RAISE HEIGHT sub-menu in the WINDROWER SETUP MENU in the CDM.

NOTE:

The header **MUST** be attached to the windrower to perform this procedure. The cab display module (CDM) automatically adjusts its programming for each header.

CAB DISPLAY MODULE

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



Figure 4.29: CDM Programming Buttons

4. Press SELECT (D) until AUTO RAISE HEIGHT? appears on the upper line.
 - The current auto raise height setting will appear on the lower line.

NOTE:

The auto raise height setting ranges from 4.0 (minimum) to 9.5 (maximum), and can be adjusted in increments of 0.5. A setting of 10 disables the auto raise function.

5. Press left arrow (B) or right arrow (C) to change the auto raise height.
6. Press PROGRAM (A) to exit programming mode or press SELECT (D) to proceed to the next WINDROWER SETUP option.



Figure 4.30: M155 Auto Raise Height Shown

4.3.8 Configuring Double Windrow Attachment Controls

Once the Double Windrow Attachment (DWA) is installed on the windrower, it must be configured to work with the windrower's controls. The DWA can be configured in the cab display module's (CDM) WINDROWER SETUP menu.

NOTE:

- The DWA cannot be activated if the swath compressor is enabled.
- This procedure is also applicable to the installation of a drive manifold kit (MD #139508) onto the windrower.

CAB DISPLAY MODULE

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



Figure 4.31: CDM Programming Buttons

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



Figure 4.32: DWA Programming Display

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

NOTE:

This step is necessary to enable the ground speed lever's (GSL) reel fore-aft buttons to control the DWA.



Figure 4.33: DWA Programming Display

CAB DISPLAY MODULE

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

NOTE:

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

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



Figure 4.34: DWA Programming Display

4.3.9 Activating Hydraulic Center-Link

NOTE:

This procedure requires installation of the optional Hydraulic Center-Link (MD #B4650).

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



Figure 4.35: CDM Programming Buttons

4. Press SELECT (C) until TILT CYL INSTALLED? is displayed on the upper line.
 - NO/YES is displayed on the lower line.
5. Press right arrow (B) to select YES. Press SELECT (C).
6. Press PROGRAM (A) to exit programming mode or press SELECT (C) to proceed to next WINDROWER SETUP action.



Figure 4.36: CDM Programming Buttons

4.3.10 Activating Rotary Disc Header Drive Hydraulics

To use a rotary disc header with the windrower, you must activate the header drive hydraulics option on the windrower's cab display module (CDM).

NOTE:

This procedure requires installation of the optional Disc Drive Kit (MD #B4657).

For more information, refer to the rotary disc header operator's manual.

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



Figure 4.37: CDM Programming Buttons

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

NOTE:

When the disc drive kit (MD #B4657) is installed on the windrower, this setting must be YES even if a rotary header is not attached to the windrower.

6. Press PROGRAM (A) to exit programming mode, or press SELECT (C) to proceed to the next WINDROWER SETUP option.



Figure 4.38: Rotary Disc Hydraulics

4.3.11 Setting Header Cut Width

When a header is attached to the windrower, the windrower's computer automatically detects the type of header. However, the windrower is unable to determine the exact size of the header attached, only its type, and therefore defaults to the smallest available cut width for a given model. For example, A Series Auger Headers come in 4.3, 4.9, and 5.5 m (14, 16, and 18 ft.) sizes; if a 4.9 m (16 ft.) header is attached to the windrower, the windrower's computer will set the cut width to 4.3 m (14 ft.). The cut width setting must be manually adjusted in the cab display module (CDM).

NOTE:

- The header **MUST** be attached to the windrower to perform this procedure. The cab display module (CDM) automatically adjusts its programming for each header.
- Header cut width is set to less than the actual header width in order to accurately measure the number of acres cut.

To set the header cut width:

CAB DISPLAY MODULE

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



Figure 4.39: CDM Programming Buttons

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



Figure 4.40: Header Cut Width

4.3.12 Activating Swath Compressor

An optional swath compressor (MD #C2061) is available. Before the swath compressor can be used, it must be activated in the cab display module (CDM).

NOTE:

- CDM5 (version 512 or later) and WCM2 (version 237 or later), or WCM3 (version 116 or later), are required to operate the swath compressor.
- The Double Windrow Attachment (DWA) system must be disabled in the CDM when setting up the swath compressor.
- Users can activate and set up the swath compressor via in-cab controls without a header attached to the windrower.

CAUTION

Check to be sure all bystanders have cleared the area.

CAB DISPLAY MODULE

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



Figure 4.41: Programming Buttons

4. Press SELECT (B) until SWATH COMPR INSTALL? appears on the upper line.
 - NO/YES appears on the lower line.
5. Press right arrow (A) to select YES. Press SELECT (B).
6. Press SELECT (B) until CALIBRATE SENSORS appears on the upper line. NO/YES appears on the lower line.
7. Press right arrow (A) to select YES. Press SELECT (B).
 - TO CALIBRATE SELECT appears on the upper line.
 - HEADER HEIGHT appears on the lower line.
8. Press right arrow (A) to scroll through choices until SWATH COMPR HT appears. Press SELECT (B).
 - SWATH SENSOR CAL appears on the upper line.
 - SWATH UP TO START appears on the lower line.
9. Press switch (A) on the console to raise the swath compressor.
 - CALIBRATING SWATH appears on the upper line.
 - The messages FORM UP and HOLD (HOLD will be flashing) appear, and will remain on the lower line until the system has received a signal from the fully-raised swath compressor.
 - The messages SWATH FORM UP and DONE (accompanied by a buzzer tone) will appear on the lower line when the calibration procedure is complete.
 - SWATH SENSOR CAL appears on the upper line.
 - PRESS SWATH DOWN appears on the lower line.



Figure 4.42: Swath Compressor Controls

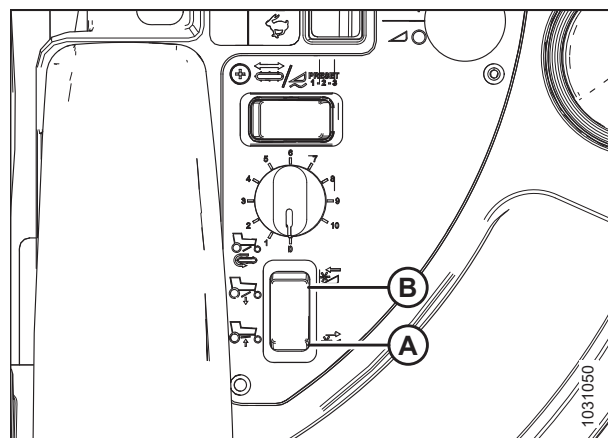


Figure 4.43: Swath Compressor Switch

CAB DISPLAY MODULE

- Press switch (B) on the console to lower the swath compressor.
 - CALIBRATING SWATH appears on the upper line.
 - The messages FORM DOWN and HOLD appear on the lower line.
 - SWATH FORM COMPLETE flashes for two seconds on the lower line (accompanied by a buzzer tone) when the calibration procedure is complete.
- Press PROGRAM (A) to exit programming mode or press SELECT (B) to proceed to the next windrower setup option.



Figure 4.44: CDM Programming Buttons

4.3.13 Activating Hay Conditioner

The HC10 Hay Conditioner feature must be enabled in the windrower's cab display module (CDM) before it can be used. The HAY CONDITIONER sub-menu can be accessed from the CDM's WINDROWER SETUP menu.

NOTE:

- This procedure applies to windrowers with an attached draper header only.
- The header **MUST** be attached to the windrower to perform this procedure. The cab display module (CDM) automatically adjusts its programming for each header.

To activate the hay conditioner:

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



Figure 4.45: CDM Programming Buttons

CAB DISPLAY MODULE

- Press SELECT (C) until HAY CONDITIONER? appears on the upper line.
 - NO/YES will appear on the lower line.
- Press right arrow (B) to select YES. Press SELECT (C).
- Press PROGRAM (A) to exit programming mode or press SELECT (C) to proceed to the next WINDROWER SETUP option.



Figure 4.46: Hay Conditioner Activation

4.3.14 Displaying Reel Speed

The preferred header reel speed can be set by accessing the HEADER REEL SPEED sub-menu in the WINDROWER SETUP menu in the windrower's cab display module (CDM).

NOTE:

- This procedure applies to windrowers with an attached draper or auger header only.
- The header **MUST** be attached to the windrower to perform this procedure. The cab display module (CDM) automatically adjusts its programming for each header.

To display the header's reel speed:

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



Figure 4.47: CDM Programming Buttons

CAB DISPLAY MODULE

- Press SELECT (D) until HEADER REEL SPEED? appears on the upper line.
 - RPM/MPH or RPM/KPH will appear on the lower line.
- Press left arrow (B) or right arrow (C) to select either IMPERIAL or METRIC units. Press SELECT (D).
- Press PROGRAM (A) to exit programming mode or press SELECT (D) to proceed to the next WINDROWER SETUP option.



Figure 4.48: Reel Speed Display

4.3.15 Setting Tire Size

The windrower's tire size must be correctly configured in the cab display module (CDM) for the windrower's ground speed to be reported accurately. This setting can be configured by accessing the SET TIRE SIZE sub-menu in the WINDROWER SETUP menu.

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



Figure 4.49: CDM Programming Buttons

- Press SELECT (D) until SET TIRE SIZE? appears on the upper line.
 - The current tire size setting will appear on the lower line.

NOTE:

The following tire size options are available:

- 18.4 x 26 TURF
- 18.4 x 26 BAR
- 23.1 x 26 TURF
- 600 – 65 R28

- Press left arrow (B) or right arrow (C) and select the desired tire size. Press SELECT (D).



Figure 4.50: Tire Size

6. Press PROGRAM (A) to exit programming mode or press SELECT (D) to proceed to the next WINDROWER SETUP option.

4.3.16 Setting Engine Intermediate Speed Control

The engine’s Intermediate Speed Control (ISC) feature provides three selectable engine speeds (1900, 2050, or 2200 rpm) for reduced load conditions. This setting can be configured in the windrower’s cab display module (CDM) by accessing the WINDROWER SETUP menu.

NOTE:

The engine **MUST** be running for this procedure to be performed.

1. Start the engine.
2. Press PROGRAM (A) and SELECT (C) on the cab display module (CDM) to enter programming mode.
 - WINDROWER SETUP? will appear on the upper line.
 - NO/YES will appear on the lower line.
3. Press right arrow (B) to select YES. Press SELECT (C).
 - SET KNIFE SPEED? will appear on the upper line.



Figure 4.51: CDM Programming Buttons

4. Press SELECT (B) until SET ENGINE ISC RPM? appears on the upper line.
 - NO/YES will appear on the lower line.
5. Press right arrow (A) to select YES. Press SELECT (B).
 - PRESS HAZARD TO SET will appear on the upper line.
 - ISC RPM ##### will appear on the lower line.



Figure 4.52: Engine ISC RPM

Table 4.1 ISC Settings

ISC and rpm			
Off ⁴	1	2	3
High Idle (M155) ⁵	2200 ⁶	2000	1800

NOTE:

The previously selected ISC setting will flash.

4. Off is always used when the header is not engaged.
5. Off does not appear as a menu selection, but is used when the header is not engaged.
6. Default setting.

CAB DISPLAY MODULE

6. Press right arrow (C) to cycle between the setting options. Press HAZARD (B) to confirm the desired setting.
7. Press SELECT (D).
 - EXIT ENGINE ISC? will appear on the upper line.
 - NO/YES will appear on the lower line.
8. Press right arrow (C) to select YES. Press SELECT (D).
9. Press PROGRAM (A) to exit programming mode.



Figure 4.53: ISC RPM

4.3.17 Clearing Sub-Acres

The windrower has two counters for acres: one counter tracks the total number of acres harvested during the machine's lifetime, while the other counter tracks the acres harvested during individual harvesting instances. The sub-acre counter can be reset to zero as needed by accessing the SUB-ACRES menu in the windrower's cab display module (CDM).

1. With the key in the ON position and the operator's station in cab-forward mode, press SELECT until SUB-ACRES appears on the bottom line.
2. Press and hold PROGRAM button (A) until the counter is reset to zero.



Figure 4.54: Cab Display Module (CDM)

4.4 Activating Cab Display Lockouts

Some header configuration settings in the windrower’s cab display module (CDM) can be locked, so that Operators lacking the proper authorization will be unable to change these settings. Use this feature to keep header settings constant when there are multiple Operators operating the windrower.

NOTE:

FUNCTION LOCKED will appear on the CDM when a header function switch which has been locked out is pressed.

4.4.1 Activating Header Tilt Control Lockout

Enabling the header tilt control lockout in the windrower’s cab display module (CDM) prevents unauthorized Operators from changing the angle of the attached header.

NOTE:

- The header **MUST** be attached to the windrower to perform this procedure. The cab display module (CDM) automatically adjusts its programming for each header.
- This procedure requires installation of the optional Hydraulic Center-Link (MD #B4650).

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



Figure 4.55: CDM Programming Buttons

4. Press SELECT (B) until SET CONTROL LOCKS? appears on the upper line.
 - NO/YES will appear on the lower line.
5. Press right arrow (A) to select YES. Press SELECT (B).



Figure 4.56: Control Locks

CAB DISPLAY MODULE

6. Press SELECT (D) until HEADER TILT appears on the upper line.
 - ENABLED/LOCKED will appear on the lower line.
7. Press left arrow (B) to enable the use of the HEADER TILT control switch.

Press right arrow (C) to lock the HEADER TILT control switch.
8. Press PROGRAM (A) to exit programming mode, or press SELECT (D) to proceed to the next WINDROWER SETUP option.



Figure 4.57: Header Tilt Control Lock

4.4.2 Activating Header Float Control Lockout

Enabling the header float control lockout in the windrower's cab display module (CDM) prevents unauthorized Operators from changing the float setting of the attached header.

NOTE:

The header **MUST** be attached to the windrower to perform this procedure. The cab display module (CDM) automatically adjusts its programming for each header.

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

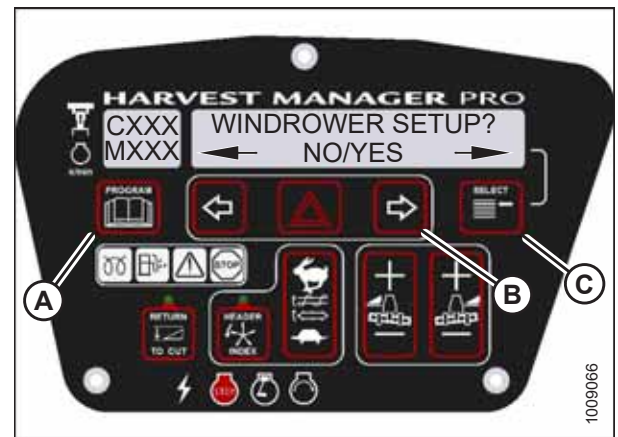


Figure 4.58: CDM Programming Buttons

CAB DISPLAY MODULE

- Press SELECT (B) until SET CONTROL LOCKS? appears on the upper line.
 - NO/YES will appear on the lower line.
- Press right arrow (A) to select YES. Press SELECT (B).



Figure 4.59: Control Locks

- Press SELECT (D) until HEADER FLOAT appears on the upper line.
 - ENABLED/LOCKED will appear on the lower line.
- Press left arrow (B) to enable the HEADER FLOAT control switch, or press right arrow (C) to lock the HEADER FLOAT control switch.
- Press PROGRAM (A) to exit programming mode or press SELECT (D) to proceed to the next WINDROWER SETUP option.

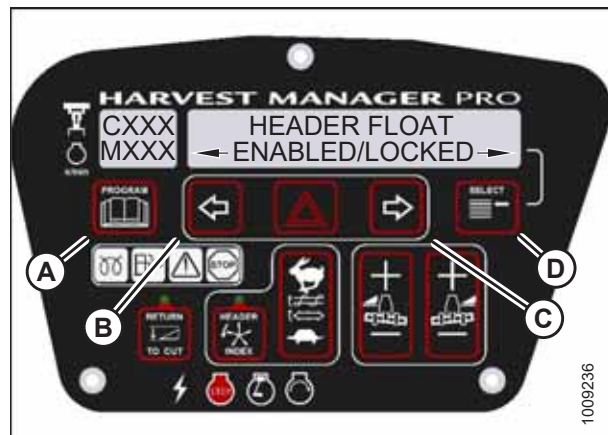


Figure 4.60: Header Float Control Lock

4.4.3 Activating Reel Fore-Aft Control Lockout

Enabling the header reel fore-aft control lockout in the windrower's cab display module (CDM) prevents unauthorized Operators from changing the reel fore-aft setting of the attached header.

NOTE:

- This procedure applies to windrowers with attached draper headers only.
- The header **MUST** be attached to the windrower to perform this procedure. The cab display module (CDM) automatically adjusts its programming for each header.

To activate the reel fore-aft control lockout:

CAB DISPLAY MODULE

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



Figure 4.61: CDM Programming Buttons

4. Press SELECT (B) until SET CONTROL LOCKS? appears on the upper line.
 - NO/YES will appear on the lower line.
5. Press right arrow (A) to select YES. Press SELECT (B).



Figure 4.62: Control Locks

6. Press SELECT (D) until REEL FORE/AFT appears on the upper line.
 - ENABLED/LOCKED will appear on the lower line.
7. Press left arrow (B) to enable the REEL FORE/AFT control switch.
Press right arrow (C) to lock the REEL FORE/AFT control switch.
8. Press PROGRAM (A) to exit programming mode, or press SELECT (D) to proceed to the next WINDROWER SETUP option.

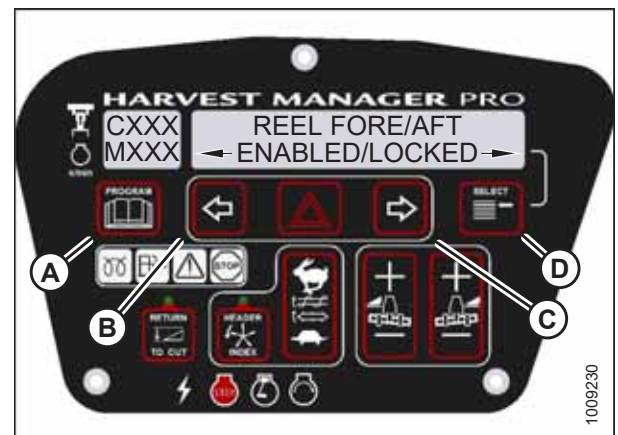


Figure 4.63: Reel Fore-Aft Control Lock

4.4.4 Activating Draper Speed Control Lockout

Enabling the header draper speed control lockout in the windrower’s cab display module (CDM) prevents unauthorized Operators from changing the draper speed setting of the attached header.

NOTE:

- This procedure applies to windrowers with attached draper headers only.
- The header **MUST** be attached to the windrower to perform this procedure. The cab display module (CDM) automatically adjusts its programming for each header.

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



Figure 4.64: CDM Programming Buttons

4. Press SELECT (B) until SET CONTROL LOCKS? appears on the upper line.
 - NO/YES will appear on the lower line.
5. Press right arrow (A) to select YES. Press SELECT (B).



Figure 4.65: Control Locks

CAB DISPLAY MODULE

- Press SELECT (D) until DRAPER SPEED appears on the upper line.
 - ENABLED/LOCKED will appear on the lower line.
- Press left arrow (B) to enable the DRAPER SPEED control switch, or press right arrow (C) to lock the DRAPER SPEED control switch.
- Press PROGRAM (A) to exit programming mode or press SELECT (D) to proceed to the next WINDROWER SETUP option.



Figure 4.66: Draper Control Lock

4.4.5 Activating Auger Speed Control Lockout

Enabling the auger speed control lockout in the windrower's cab display module (CDM) prevents unauthorized Operators from changing the auger speed of the attached header.

NOTE:

- This procedure applies to windrowers with attached A40D Auger Headers only.
- An auger header **MUST** be attached to the windrower to perform this procedure. The cab display module (CDM) automatically adjusts its programming for each header.

To activate the auger speed control lockout:

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



Figure 4.67: CDM Programming Buttons

CAB DISPLAY MODULE

- Press SELECT (B) until SET CONTROL LOCKS? appears on the upper line.
 - NO/YES will appear on the lower line.
- Press right arrow (A) to select YES. Press SELECT (B).



Figure 4.68: Control Locks

- Press SELECT (D) until AUGER SPEED appears on the upper line.
 - ENABLED/LOCKED will appear on the lower line.
- Press left arrow (B) to enable the AUGER SPEED control switch.
Press right arrow (C) to lock the AUGER SPEED control switch.
- Press PROGRAM (A) to exit programming mode, or press SELECT (D) to proceed to the next WINDROWER SETUP option.

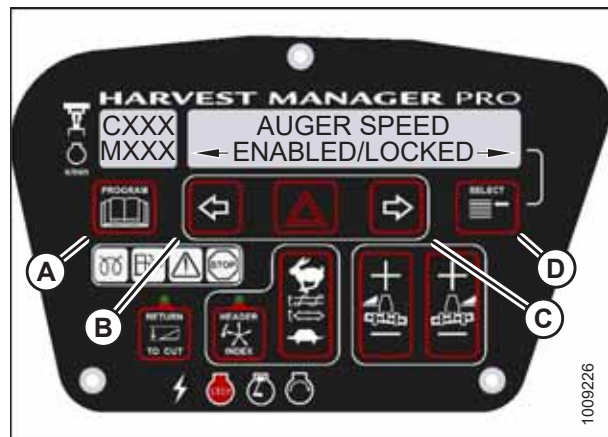


Figure 4.69: Auger Control Lock

4.4.6 Activating Knife Speed Control Lockout

Enabling the header knife speed control lockout in the windrower's cab display module (CDM) prevents unauthorized Operators from changing the knife speed of the attached header.

NOTE:

The header **MUST** be attached to the windrower to perform this procedure. The cab display module (CDM) automatically adjusts its programming for each header.

CAB DISPLAY MODULE

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



Figure 4.70: CDM Programming Buttons

4. Press SELECT (B) until SET CONTROL LOCKS? appears on the upper line.
 - NO/YES will appear on the lower line.
5. Press right arrow (A) to select YES. Press SELECT (B).



Figure 4.71: Control Locks

6. Press SELECT (D) until KNIFE SPEED appears on the upper line.
 - ENABLED/LOCKED will appear on the lower line.
7. Press left arrow (B) to enable the KNIFE SPEED control switch, or press right arrow (C) to lock the KNIFE SPEED control switch.
8. Press PROGRAM (A) to exit programming mode or press SELECT (D) to proceed to the next WINDROWER SETUP option.

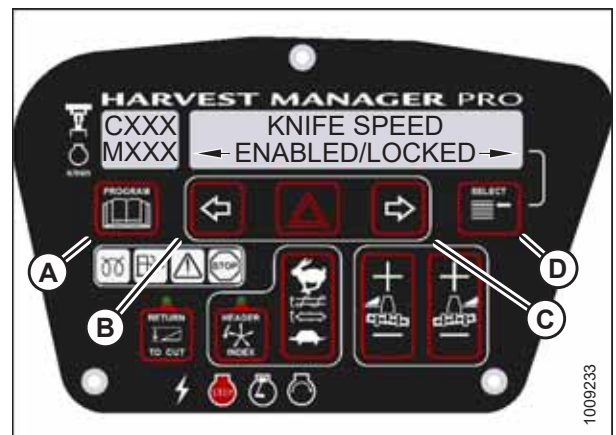


Figure 4.72: Knife Speed Control Lock

4.4.7 Activating Rotary Disc Speed Control Lockout

Enabling the rotary disc speed control lockout in the windrower's cab display module (CDM) prevents unauthorized Operators from changing the disc speed of the attached rotary header.

NOTE:

- This procedure applies to windrowers with attached rotary disc headers only.
- The header **MUST** be attached to the windrower to perform this procedure. The cab display module (CDM) automatically adjusts its programming for each header.

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



Figure 4.73: CDM Programming Buttons

4. Press SELECT (B) until SET CONTROL LOCKS? appears on the upper line.
 - NO/YES will appear on the lower line.
5. Press right arrow (A) to select YES. Press SELECT (B).



Figure 4.74: Control Locks

CAB DISPLAY MODULE

- Press SELECT (D) until DISK SPEED appears on the upper line.
 - ENABLED/LOCKED will appear on the lower line.
- Press left arrow (B) to enable the DISK SPEED control switch, or press right arrow (C) to lock the DISK SPEED control switch.
- Press PROGRAM (A) to exit programming mode or press SELECT (D) to proceed to the next WINDROWER SETUP option.



Figure 4.75: Disc Speed Control Lock

4.4.8 Activating Reel Speed Control Lockout

Enabling the reel speed control lockout in the windrower's cab display module (CDM) prevents unauthorized Operators from changing the reel speed of the attached rotary header.

NOTE:

This procedure applies to windrowers with attached draper headers only.

NOTE:

The header **MUST** be attached to the windrower to perform this procedure. The cab display module (CDM) automatically adjusts its programming for each header.

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



Figure 4.76: CDM Programming Buttons

CAB DISPLAY MODULE

4. Press SELECT (B) until SET CONTROL LOCKS? appears on the upper line.
 - NO/YES will appear on the lower line.
5. Press right arrow (A) to select YES. Press SELECT (B).



Figure 4.77: Control Locks

6. Press SELECT (D) until REEL SPEED appears on the upper line.
 - ENABLED/LOCKED will appear on the lower line.
7. Press left arrow (B) to enable the REEL SPEED control switch.
Press right arrow (C) to lock the REEL SPEED control switch.
8. Press PROGRAM (A) to exit programming mode, or press SELECT (D) to proceed to the next WINDROWER SETUP option.



Figure 4.78: Reel Speed Control Lock

4.5 Displaying Active Cab Display Lockouts

The Operator can generate a list of all windrower features which have been locked out by accessing the cab display module's (CDM) VIEW CONTROL LOCKS sub-menu.

NOTE:

Displaying header tilt control lock requires installation of the optional Hydraulic Center-Link (MD #B4650).

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

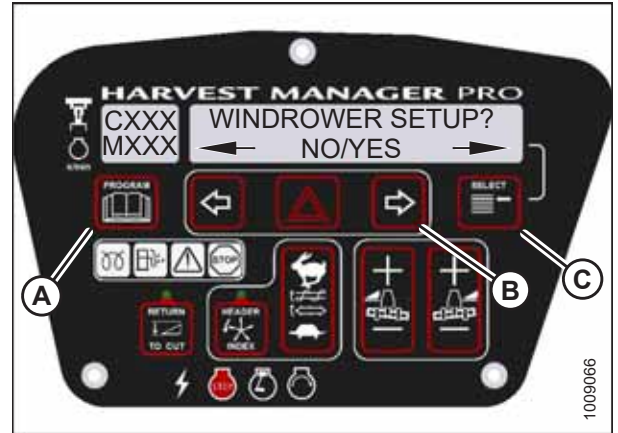


Figure 4.79: CDM Programming Buttons

4. Press SELECT (B) until VIEW CONTROL LOCKS? appears on the upper line.
 - NO/YES will appear on the lower line.
5. Press right arrow (A) to select YES. Press SELECT (B).
 - The control switch status will appear on the lower line. The hours displayed indicate when a switch was enabled or locked.



Figure 4.80: Control Locks

CAB DISPLAY MODULE

6. Press left arrow (B) or right arrow (C) to cycle between control switch lockouts. The displayed control switches are as follows:

- HEADER TILT
- HEADER FLOAT
- REEL FORE/AFT
- DRAPER SPEED
- AUGER SPEED
- KNIFE SPEED
- DISK SPEED
- REEL SPEED

NOTE:

Not all control lock options apply to every type of header.

7. Press SELECT (D).
- EXIT VIEW LOCKOUTS? will appear on the upper line.
 - NO/YES will appear on the lower line.
8. Press right (C) to select YES.
9. Press PROGRAM (A) to exit programming mode or press SELECT (D) to proceed to the next WINDROWER SETUP option.



Figure 4.81: Control Locks



Figure 4.82: Control Locks

4.6 Calibrating Header Sensors

When a new header is attached to the windrower, the header's sensors must be calibrated using the cab display module (CDM) so that their output can be correctly interpreted by the windrower control module (WCM).

4.6.1 Calibrating Header Height Sensor

The header height sensor can be calibrated by accessing the cab display module's (CDM) WINDROWER SETUP menu. The calibration procedure must be completed for the sensor to be correctly calibrated.

NOTE:

- The header must be attached to the windrower to perform this procedure. The cab display module (CDM) automatically adjusts its configuration for each header type.
- The engine must be running to perform this procedure.

⚠ DANGER

Ensure that all bystanders have cleared the area.

To calibrate the header height sensor:

1. Start the engine.
2. Press PROGRAM (A) and SELECT (B) on the CDM to enter programming mode.
 - WINDROWER SETUP? will appear on the upper line.
3. Press SELECT (B) until CALIBRATE SENSORS? appears on the upper line.
 - NO/YES will appear on the lower line.
4. Press right arrow (B) to select YES. Press SELECT (C).
5. Press left arrow (A) or right arrow (B) until HEADER HEIGHT appears on the lower line. Press SELECT (C).
 - CALIBRATING HEIGHT will appear on the upper line.
 - RAISE HEADER HOLD will appear on the lower line.



Figure 4.83: CDM Programming Buttons



Figure 4.84: Header Height Calibration

CAB DISPLAY MODULE

6. Press and hold HEADER UP button (A) on the ground speed lever (GSL).

- CALIBRATING HEIGHT will appear on the upper line.
- RAISE HEADER HOLD will appear on the lower line.

NOTE:

The word HOLD will flash during calibration. RAISE HEADER DONE will display on the lower line once calibration is complete.

7. Release HEADER UP button (A).

- HEIGHT SENSOR CAL will appear on the upper line.
- PRESS LOWER HEADER will appear on the lower line.

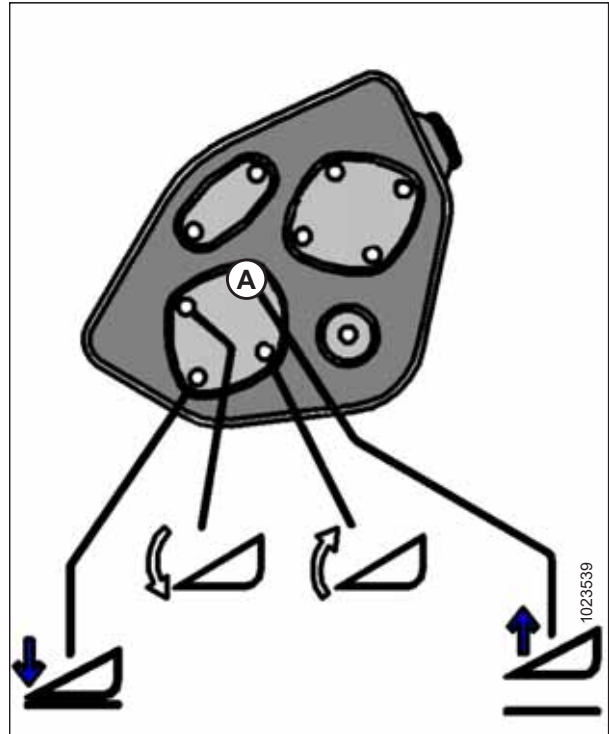


Figure 4.85: Header Height Controls on GSL

8. Press and hold HEADER DOWN button (A) on the GSL.

NOTE:

The word HOLD will flash during calibration. HT SENSOR COMPLETE will display on the lower line once calibration is complete.

9. Release HEADER DOWN button (A).

- TO CALIBRATE SELECT will appear on the upper line.
- HEADER HEIGHT will appear on the lower line.

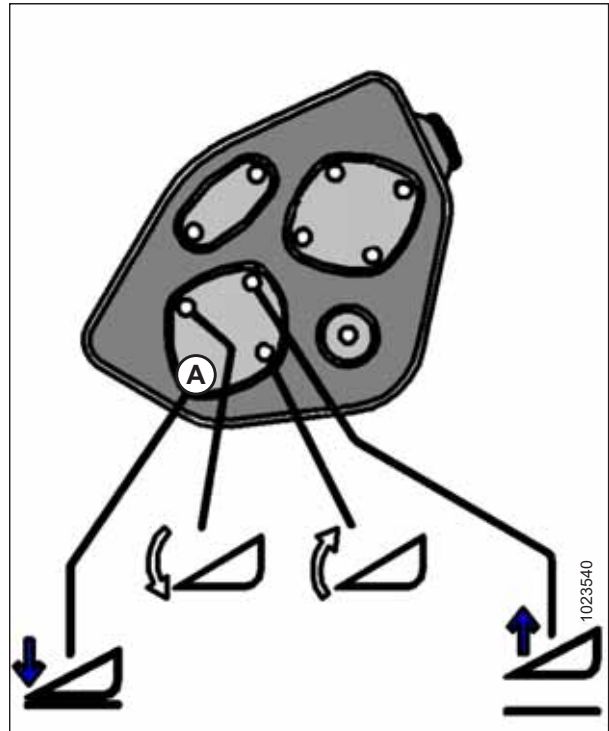


Figure 4.86: Header Height Controls on GSL

10. Press the right arrow to select the next header sensor calibration or select STOP & EXIT. Press SELECT.

11. Press PROGRAM to exit programming mode.

4.6.2 Calibrating Header Tilt Sensor

The header tilt sensor can be calibrated by accessing the cab display module's (CDM) WINDROWER SETUP menu. The calibration procedure must be completed for the sensor to be correctly calibrated.

NOTE:

- The header must be attached to the windrower to perform this procedure. The cab display module (CDM) automatically adjusts its programming for each header.
- This procedure requires installation of the optional Hydraulic Center-Link (MD #B4650).
- The engine must be running to perform this procedure.

! WARNING

Check to be sure all bystanders have cleared the area.

1. Start the engine.
2. Press PROGRAM (A) and SELECT (B) simultaneously on the CDM to enter programming mode.
 - WINDROWER SETUP? will appear on the upper line.
3. Press SELECT (B) until CALIBRATE SENSORS? appears on the upper line.
 - NO/YES will appear on the lower line.



Figure 4.87: CDM Programming Buttons

4. Press right arrow (B) to select YES. Press SELECT (C).
5. Press left arrow (A) or right arrow (B) until HEADER TILT appears on the lower line. Press SELECT (C).



Figure 4.88: Header Tilt Calibration

CAB DISPLAY MODULE

6. Press and hold HEADER TILT EXTEND button (A) on the ground speed lever (GSL).

- CALIBRATING TILT will appear on the upper line.
- EXTEND TILT HOLD will appear on the lower line.

NOTE:

The word HOLD will flash during calibration. HEADER TILT DONE will display on the lower line once calibration is complete.

7. Release HEADER TILT EXTEND button (A).

- HEADER TILT SENSOR CAL will appear on the upper line.
- PRESS RETRACT TILT will appear on the lower line.

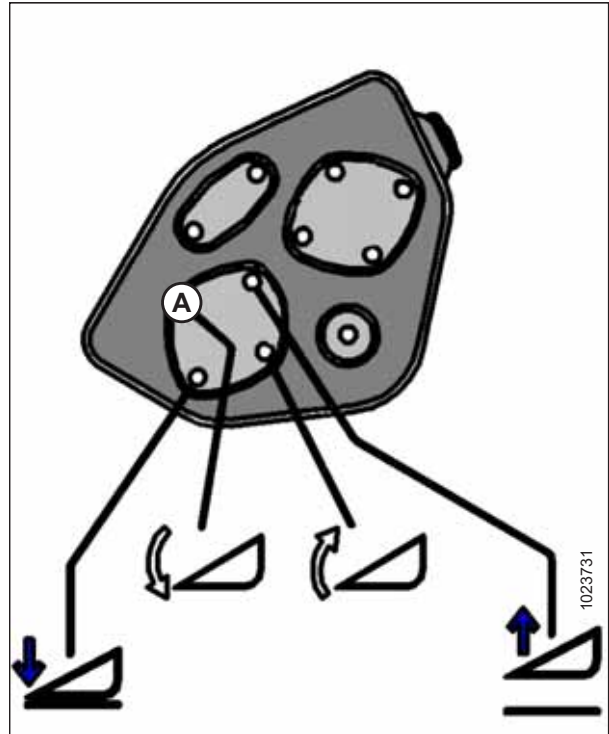


Figure 4.89: Header Tilt Controls on GSL

8. Press and hold HEADER TILT RETRACT button (A) on the GSL.

- CALIBRATING TILT will appear on the upper line.
- RETRACT TILT HOLD will appear on the lower line.

NOTE:

The word HOLD will flash during calibration. HEADER TILT COMPLETE will display on the lower line once calibration is complete.

9. Release HEADER TILT RETRACT button (A).

- TO CALIBRATE SELECT will appear on the upper line.
- HEADER TILT will appear on the lower line.

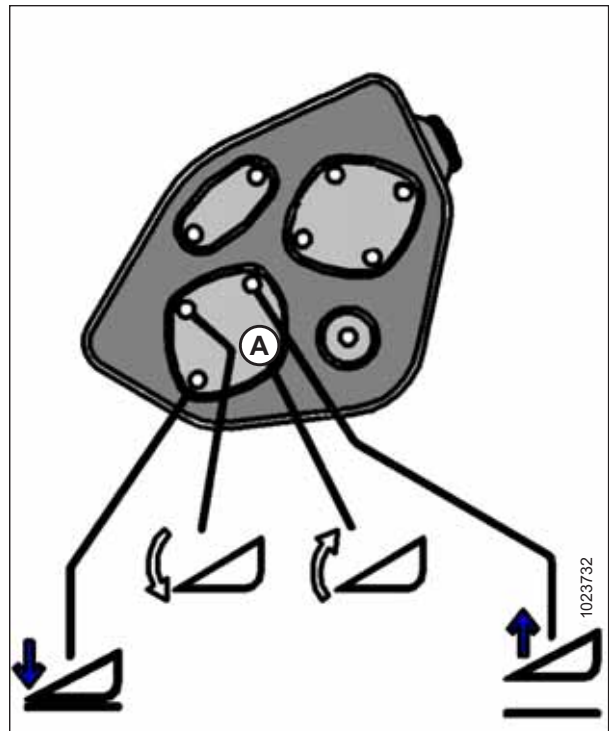


Figure 4.90: Header Tilt Controls on GSL

10. Press the right arrow to select the next header sensor calibration or select STOP & EXIT. Press SELECT.

11. Press PROGRAM to exit programming mode.

4.6.3 Calibrating Header Float Sensors

The header float sensors can be calibrated by accessing the cab display module's (CDM) WINDROWER SETUP menu. The calibration procedure must be completed for the sensors to be correctly calibrated.

NOTE:

- The header must be attached to the windrower to perform this procedure. The cab display module (CDM) automatically adjusts its programming for each header.
- Use the left or right FLOAT buttons on the CDM to perform this procedure.

⚠ WARNING

Check to be sure all bystanders have cleared the area.

IMPORTANT:

Ensure that float pins (A) are installed in the working position.

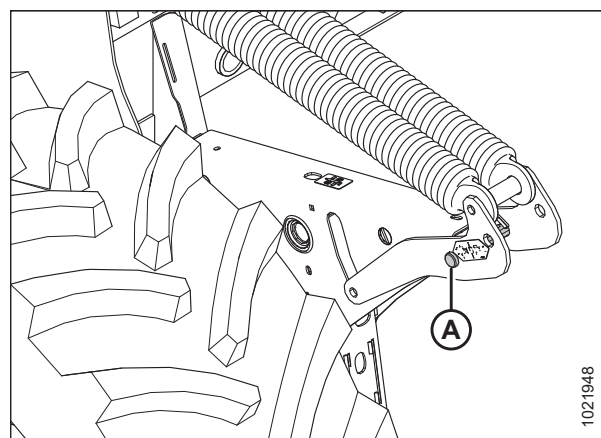


Figure 4.91: Float Pin – Right Side

1. Start the engine.
2. Press PROGRAM (A) and SELECT (B) simultaneously on the CDM to enter programming mode.
 - WINDROWER SETUP? will appear on the upper line.
3. Press SELECT (B) until CALIBRATE SENSORS? appears on the upper line.
 - NO/YES will appear on the lower line.



Figure 4.92: CDM Programming Buttons

CAB DISPLAY MODULE

4. Press right arrow (B) to select YES. Press SELECT (C).
 - TO CALIBRATE SELECT will appear on the upper line.
5. Press left arrow (A) or right arrow (B) until HEADER FLOAT appears on the lower line. Press SELECT (C).
 - CALIBRATING FLOAT will appear on the upper line.
 - PRESS FLOAT + TO START will appear on the lower line.



Figure 4.93: Header Float Display

6. Press and hold FLOAT + button (A) on the CDM.
 - CALIBRATING FLOAT will appear on the upper line.
 - FLOAT (+) HOLD will appear on the lower line.

NOTE:

The word HOLD will flash during calibration. FLOAT (+) DONE will appear on the lower line once calibration is complete.

7. Release FLOAT + button (A).
 - CALIBRATING FLOAT will appear on the upper line.
 - FLOAT (-) HOLD will appear on the lower line.



Figure 4.94: Positive Header Float Display

8. Press and hold FLOAT - button (A) on the CDM.
 - CALIBRATING FLOAT will appear on the upper line.
 - FLOAT (-) HOLD will appear on the lower line.

NOTE:

The word HOLD will flash during calibration. HDR FLOAT COMPLETE will appear on the lower line once calibration is complete.

9. Release FLOAT - button (A).
 - TO CALIBRATE SELECT will appear on the upper line.
 - HEADER FLOAT will appear on the lower line.



Figure 4.95: Negative Header Float Display

10. Press the right arrow to select the next header sensor calibration or select STOP & EXIT. Press SELECT.
11. Press PROGRAM to exit programming mode.

4.7 Calibrating Swath Compressor Sensor

The swath compressor's sensor can be calibrated by accessing the cab display module's (CDM) WINDROWER SETUP menu. The calibration procedure must be completed for the sensor to be correctly calibrated. This procedure applies only to windrowers equipped with a swath compressor.

1. Turn the ignition key to the RUN position, or start the engine.
2. Press PROGRAM (A) and SELECT (B) simultaneously on the cab display module (CDM) to enter programming mode.
 - WINDROWER SETUP? will appear on the upper line.
3. Press SELECT (B) until CALIBRATE SENSORS? appears on the upper line.
 - NO/YES will appear on the lower line.



Figure 4.96: CDM Programming Buttons

4. Press right arrow (A) to select YES. Press SELECT (B).
 - TO CALIBRATE SELECT will appear on the upper line.
5. Press right arrow (A) to scroll through the choices until SWATH COMPR HT appears on the lower line. Press SELECT (B).
 - SWATH SENSOR CAL will appear on the upper line.
 - SWATH UP TO START will appear on the lower line.



Figure 4.97: Swath Compressor Sensor Calibration

6. Press and hold button (B) to raise the swath compressor.
 - CALIBRATING SWATH will appear on the upper line.
 - The messages FORM UP and HOLD (this message will flash) will appear on the lower line and will remain until the system has received a signal from the swath compressor indicating that it has risen fully.
 - SWATH FORM UP DONE (accompanied by a buzzer tone) will appear on the lower line when the process is complete.

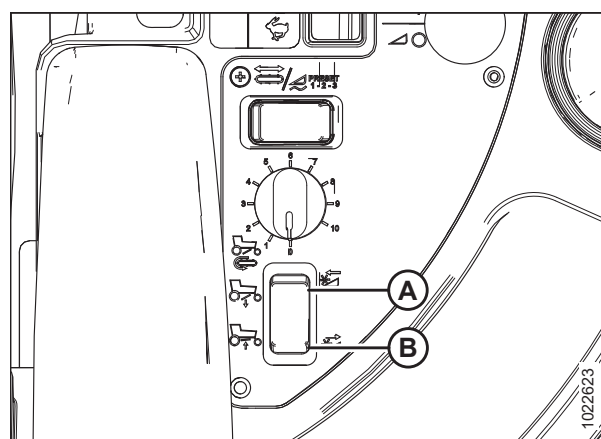


Figure 4.98: Swath Compressor Controls

A - Lower Swath Compressor
B - Raise Swath Compressor

CAB DISPLAY MODULE

- SWATH SENSOR CAL will appear on the upper line.
- PRESS SWATH DOWN will appear on the lower line.



Figure 4.99: Swath Compressor Sensor Calibration

7. Press and hold button (A) to lower the swath compressor.
 - CALIBRATING SWATH will appear on the upper line.
 - The messages FORM DOWN and HOLD (this message will flash) will appear on the lower line.
 - SWATH FORM COMPLETE will appear for two seconds on the lower line (accompanied by a buzzer tone) when the calibration procedure is complete.
8. Press PROGRAM to exit programming mode.

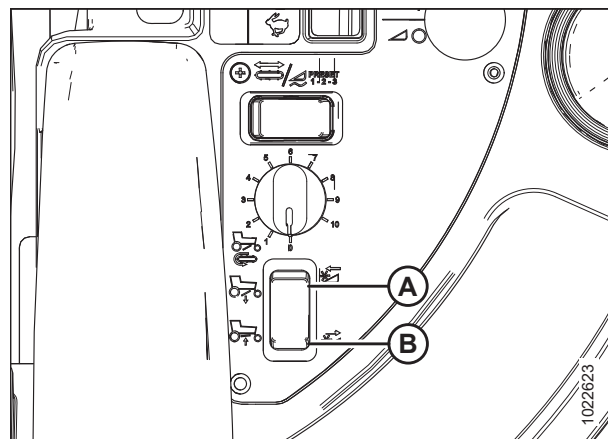


Figure 4.100: Swath Compressor Controls

- A - Lower Swath Compressor
- B - Raise Swath Compressor

4.8 Troubleshooting Windrower Problems

Refer to this section if you are encountering difficulties configuring certain windrower features in the cab display module (CDM).

4.8.1 Displaying Windrower and Engine Error Codes

The windrower's cab display module (CDM) may generate and store error codes during the course of configuration or operation. Follow this procedure to review the CDM's stored error codes.

1. Turn the ignition key to the RUN position, or start the engine.
2. Press PROGRAM (A) and SELECT (B) simultaneously on the cab display module (CDM) to enter programming mode. Press SELECT (B).
 - WINDROWER SETUP? will appear on the upper line.
3. Press SELECT (B) until DIAGNOSTIC MODE? appears on the upper line.
 - NO/YES will appear on the lower line.



Figure 4.101: CDM Programming Buttons

4. Press right arrow (A) to select YES. Press SELECT (B).
5. VIEW ERROR CODES? will appear on the upper line.
 - NO/YES will appear on the lower line.
6. Press right arrow (A) to select YES. Press SELECT (B).
 - VIEW WINDRWR CODES? will appear on the upper line.
 - NO/YES will appear on the lower line.



Figure 4.102: Diagnostic Functions

CAB DISPLAY MODULE

7. Press right arrow (A) to select YES. Press SELECT (C).
 - The most recent error code will appear.
8. Press right arrow (A) or left arrow (B) to cycle through the last ten recorded windrower error codes until EXIT WINDROWER CODES appears.
9. Press right arrow (A) to select YES. Press SELECT (C).
 - VIEW ENGINE CODES will appear on the upper line.
 - NO/YES will appear on the lower line.



Figure 4.103: Windrower Codes

10. Press right arrow (C) to select YES. Press SELECT (D).
11. Press left arrow (B) or right arrow (C) to cycle through the last ten recorded engine error codes until EXIT ENGINE CODES appears.
12. Press right arrow (C) to select YES. Press SELECT (D).
13. Press PROGRAM (A) to exit programming mode or press SELECT (D) to proceed to the next diagnostic option.

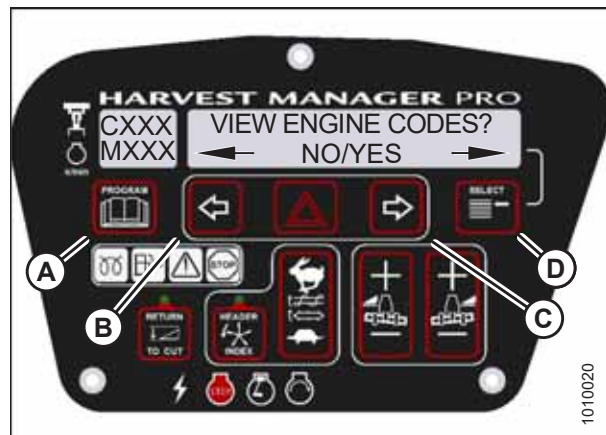


Figure 4.104: Engine Codes

4.8.2 Enabling or Disabling Header Sensors

You can selectively enable or disable specific header sensors using the windrower's cab display module (CDM).

NOTE:

- The header must be attached to the windrower to perform this procedure. The cab display module (CDM) automatically adjusts its programming for each header.
- Disabled sensors generate the flashing message SENSOR on the CDM during regular operation, indicating that output from this sensor has been suppressed.

To enable or disable certain header sensors:

CAB DISPLAY MODULE

1. Turn the ignition key to the RUN position, or start the engine.
2. Press PROGRAM (A) and SELECT (C) on the CDM to enter programming mode.
 - WINDROWER SETUP? will appear on the upper line.
 - NO/YES will appear on the lower line.
3. Press SELECT (C) until DIAGNOSTIC MODE? will appear on the upper line.
 - NO/YES will appear on the lower line.
4. Press right arrow (B) to select YES. Press SELECT (C).
 - VIEW ERROR CODES? will appear on the upper line.
5. Press SELECT (B) until ENTER SENSOR SETUP? appears on the upper line.
 - NO/YES will appear on the lower line.
6. Press right arrow (A) to select YES. Press SELECT (B).
 - KNIFE SPEED SENSOR will appear on the lower line.
 - ENABLE/DISABLE will appear on the lower line.



Figure 4.105: CDM Programming Buttons



Figure 4.106: Diagnostic Functions

7. Press left arrow (B) to enable the selected sensor. Press right arrow (C) to disable the selected sensor. Press SELECT (D) to confirm your selection and to proceed to the next sensor.

These sensors can be enabled or disabled:

- HEADER HT SENSOR
- HEADER TILT SENSOR
- KNIFE SPEED SENSOR
- REEL SPEED SENSOR
- HEADER FLOAT SENSOR
- OVERLOAD PRESSURE SENSOR⁷
- HYD OIL TEMP SENSOR

Press SELECT (D) to display the EXIT SENSOR SETUP? selection.

8. Press right arrow (C) to select YES. Press SELECT.



Figure 4.107: Header Sensor Setup

7. Requires installation of optional pressure sensor (MD #B5574).

9. Press PROGRAM (A) to exit programming mode or press SELECT to proceed to the next diagnostic option.

4.8.3 Displaying Header Sensor Input Signals

The output voltage from individual header sensors can be reviewed by accessing the DIAGNOSTIC MODE sub-menu in the WINDROWER SETUP menu in the windrower's cab display module (CDM).

NOTE:

The header must be attached to the windrower to perform this procedure. The cab display module (CDM) automatically adjusts its programming for each header.

1. Turn the ignition key to the RUN position, or start the engine.
2. Press PROGRAM (A) and SELECT (B) simultaneously on the CDM to enter programming mode.
 - WINDROWER SETUP? will appear on the upper line.
 - NO/YES will appear on the lower line.



Figure 4.108: CDM Programming Buttons

3. Press SELECT (B) until DIAGNOSTIC MODE? appears on the upper line.
 - NO/YES will appear on the lower line.
4. Press right arrow (A) to select YES. Press SELECT (B).
 - VIEW ERROR CODES? will appear on the upper line.
5. Press SELECT (B) until READ SENSOR SETUP? appears on the upper line.
 - NO/YES will appear on the lower line.



Figure 4.109: Diagnostic Functions

CAB DISPLAY MODULE

- Press right arrow (C) to select YES. Press SELECT (D).
 - SENSOR INPUT will appear on the upper line.
 - HDR HEIGHT 1.23 V will appear on the lower line.
- Press left arrow (B) or right arrow (C) to review the outputs from different sensors.
- Press SELECT (D) to skip to EXIT READ SENSORS? selection.
- Press right arrow (C) to select YES. Press SELECT.
- Press PROGRAM (A) to exit programming mode or press SELECT (D) to proceed to the next diagnostic option.



Figure 4.110: Header Sensors

4.8.4 Forcing Header Identification

The header must be recognized by the windrower's cab display module (CDM) in order to proceed with troubleshooting. If damage has occurred to the header wiring, or if no header is available, you can force the windrower control module (WCM) to behave as if a header is attached to the windrower by manually inputting a header identification code.

IMPORTANT:

Forcing a header ID that is different from that of the attached header can damage the windrower and/or the header. Doing so can cause the header to run too fast, which can cause excessive vibration and component failure.

NOTE:

The WCM will revert to reading NO HEADER each time the engine ignition is cycled.

- Turn the ignition key to the RUN position, or start the engine.
- Press PROGRAM (A) and SELECT (B) simultaneously on the CDM to enter programming mode.
 - WINDROWER SETUP? will appear on the upper line.



Figure 4.111: CDM Programming Buttons

CAB DISPLAY MODULE

3. Press SELECT (B) until DIAGNOSTIC MODE? appears on the upper line.
 - NO/YES will appear on the lower line.
4. Press right arrow (A) to select YES. Press SELECT (B).



Figure 4.112: Diagnostic Functions

5. Press SELECT (B) until FORCE HEADER TYPE? appears on the upper line.
 - NO/YES will appear on the lower line.
6. Press right arrow (A) to select YES. Press SELECT (B).
 - SELECT HEADER TYPE will appear on the upper line.
 - DISK HEADER will appear on the lower line.



Figure 4.113: Header Type

7. Press left arrow (A) or right arrow (B) to cycle through the list of header types.
8. When the desired header type appears, press SELECT (C).
 - EXIT FORCE HEADER? will appear on the upper line.
 - NO/YES will appear on the lower line.
9. Press right arrow (B) to select YES. Press SELECT (C).

Proceed to the next diagnostic option, or press PROGRAM to exit programming mode.



Figure 4.114: Header Type

4.9 Troubleshooting Header Problems

Refer to this section if you are encountering difficulties configuring certain header features in the cab display module (CDM).

4.9.1 Testing Header Up/Down Activate Function Using Cab Display Module

It may be necessary to use the cab display module (CDM) to change the height of the attached header, rather than using the height controls on the ground speed lever (GSL).

NOTE:

- The header must be attached to the windrower to perform this procedure. The cab display module (CDM) automatically adjusts its programming for each header.
- The engine must be running to perform this procedure.

⚠ DANGER

Ensure that all bystanders have cleared the area.

1. Start the engine.
2. Press PROGRAM (A) and SELECT (B) simultaneously on the CDM to enter programming mode. Press SELECT (B).
 - WINDROWER SETUP? will appear on the upper line.



Figure 4.115: CDM Programming Buttons

3. Press SELECT (B) until DIAGNOSTIC MODE? appears on the upper line.
 - NO/YES will appear on the lower line.
4. Press right arrow (A) to select YES. Press SELECT (B).



Figure 4.116: Diagnostic Functions

CAB DISPLAY MODULE

5. Press SELECT (B) until ACTIVATE FUNCTIONS? appears on the upper line.
 - NO/YES will appear on the lower line.
6. Press right arrow (A) to select YES. Press SELECT (B).



Figure 4.117: Functions

7. Press SELECT (D) until ACTIVATE HEADER HT appears on the upper line.
 - DOWN/UP will appear on the lower line.
8. Press and hold left arrow (B) to lower the header, or press and hold right arrow (C) to raise the header. Ensure that the header is working properly.
9. Press PROGRAM (A) to exit programming mode or press SELECT (D) to proceed to the next header function option.



Figure 4.118: Header Height

4.9.2 Testing Reel Up/Down Activate Function Using Cab Display Module

It may be necessary to use the cab display module (CDM) to change the height of the attached header's reel, rather than using the reel height controls on the ground speed lever (GSL).

NOTE:

- This procedure applies to windrowers with attached draper headers only.
- The header must be attached to the windrower to perform this procedure. The cab display module (CDM) automatically adjusts its programming for each header.

DANGER

Ensure that all bystanders have cleared the area.

CAB DISPLAY MODULE

1. Start the engine.
2. Press PROGRAM (A) and SELECT (B) simultaneously on the CDM to enter programming mode. Press SELECT (B).
 - WINDROWER SETUP? will appear on the upper line.



Figure 4.119: CDM Programming Buttons

3. Press SELECT (B) until DIAGNOSTIC MODE? appears on the upper line.
 - NO/YES will appear on the lower line.
4. Press right arrow (A) to select YES. Press SELECT (B).



Figure 4.120: Diagnostic Functions

5. Press SELECT (B) until ACTIVATE FUNCTIONS? appears on the upper line.
 - NO/YES will appear on the lower line.
6. Press right arrow (A) to select YES. Press SELECT (B).



Figure 4.121: Functions

CAB DISPLAY MODULE

- Press SELECT (D) until ACTIVATE REEL HT appears on the upper line.
 - DOWN/UP will appear on the lower line.

DANGER

Ensure that all bystanders have cleared the area.

- Press and hold left arrow (B) to lower the reel. Press and hold right arrow (C) to raise the reel. Ensure that the reel is working properly.
- Press PROGRAM (A) to exit programming mode or press SELECT (D) to proceed to next ACTIVATE FUNCTION.



Figure 4.122: Reel Height

4.9.3 Testing Header Tilt Activate Function Using Cab Display Module

It may be necessary to use the cab display module (CDM) to change the angle of the attached header, rather than using the header tilt controls on the ground speed lever (GSL).

NOTE:

- The header must be attached to the windrower to perform this procedure. The cab display module (CDM) automatically adjusts its programming for each header.
- This procedure requires installation of the optional Hydraulic Center-Link (MD #B4650).
- The engine must be running to perform this procedure.

DANGER

Ensure that all bystanders have cleared the area.

- Start the engine.
- Press PROGRAM (A) and SELECT (B) simultaneously on the CDM to enter programming mode.
 - WINDROWER SETUP? will appear on the upper line.



Figure 4.123: CDM Programming Buttons

CAB DISPLAY MODULE

3. Press SELECT (B) until DIAGNOSTIC MODE? appears on the upper line.
 - NO/YES will appear on the lower line.
4. Press right arrow (A) to select YES. Press SELECT (B).

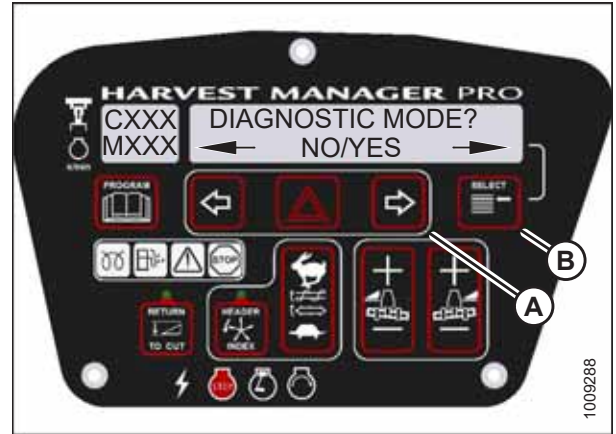


Figure 4.124: Diagnostic Functions

5. Press SELECT (B) until ACTIVATE FUNCTIONS? appears on the upper line.
 - NO/YES will appear on the lower line.
6. Press right arrow (A) to select YES. Press SELECT (B).



Figure 4.125: Functions

7. Press SELECT (D) until ACTIVATE HDR TILT appears on the upper line.
 - IN/OUT will appear on the lower line.
8. Press and hold left arrow (B) to tilt the header toward the ground. Press and hold right arrow (C) to tilt the header away from the ground. Ensure that the tilt functions are working correctly.
9. Press PROGRAM (A) to exit programming mode or press SELECT (D) to proceed to the next header function option.



Figure 4.126: Header Tilt Angle

4.9.4 Testing Knife Drive Circuit Using Cab Display Module

It may be necessary to use the cab display module (CDM) to test the knife drive circuit, rather than using the controls on the operator's station.

IMPORTANT:

Do **NOT** overspeed the header's knife drive. Overspeeding can lead to vibration, belt failures, or other overspeeding-related problems.

NOTE:

The header must be attached to windrower to perform this procedure.

⚠ DANGER

Ensure that all bystanders have cleared the area.

1. Start the engine.
2. Press PROGRAM (A) and SELECT (B) simultaneously on the cab display module (CDM) to enter programming mode. Press SELECT (B).
 - WINDROWER SETUP? will appear on the upper line.



Figure 4.127: CDM Programming Buttons

3. Press SELECT (B) until DIAGNOSTIC MODE? appears on the upper line.
 - NO/YES will appear on the lower line.
4. Press right arrow (A) to select YES. Press SELECT (B).



Figure 4.128: Diagnostic Functions

CAB DISPLAY MODULE

5. Press SELECT (B) until ACTIVATE FUNCTIONS? appears on the upper line.
 - NO/YES will appear on the lower line.
6. Press right arrow (A) to select YES. Press SELECT (B).
 - ACTIVATE HEADER HT will appear on the upper line.



Figure 4.129: Functions

7. Press SELECT (E) until KNIFE DRIVE SPD XXXX appears on the upper line.
8. Press and hold HAZARD (C) button.
 - Press left arrow (B) to decrease the knife speed.
 - Press right arrow (D) to increase the knife speed.

IMPORTANT:

Do **NOT** overspeed the knife drive.

IMPORTANT:

Ensure that the knife drive is working properly.

9. Release HAZARD button (C). The knife will stop.
10. Press PROGRAM (A) to exit programming mode or press SELECT (E) to proceed to the next header function option.



Figure 4.130: Knife Drive

4.9.5 Testing Draper Drive Circuit Activate Function Using Cab Display Module

It may be necessary to use the cab display module (CDM) to test the draper drive circuit, rather than using the controls on the operator's station.

IMPORTANT:

Do **NOT** overspeed the draper drive. Overspeeding can lead to vibration, belt failures, or other overspeeding-related problems.

NOTE:

- A draper header must be attached to windrower to perform this procedure.
- The engine must be running to perform this procedure.



DANGER

Ensure that all bystanders have cleared the area.

CAB DISPLAY MODULE

1. Start the engine.
2. Press PROGRAM (A) and SELECT (B) simultaneously on the cab display module (CDM) to enter programming mode.
 - WINDROWER SETUP? will appear on the upper line.



Figure 4.131: CDM Programming Buttons

3. Press SELECT (B) until DIAGNOSTIC MODE? appears on the upper line.
 - NO/YES will appear on the lower line.
4. Press right arrow (A) to select YES. Press SELECT (B).



Figure 4.132: Diagnostic Functions

5. Press SELECT (B) until ACTIVATE FUNCTIONS? appears on the upper line.
 - NO/YES will appear on the lower line.
6. Press right arrow (A) to select YES. Press SELECT (B).
 - ACTIVATE HEADER HT will appear on the upper line.



Figure 4.133: Functions

CAB DISPLAY MODULE

7. Press SELECT (E) until DRAPER DRV SPD XXXX appears on the upper line.
8. Press and hold HAZARD button (C).
 - Press left arrow (B) to decrease the draper speed.
 - Press right arrow (D) to increase the draper speed.

IMPORTANT:

Do **NOT** overspeed the drapers.

IMPORTANT:

Ensure that the draper drive is working properly.

9. Release the HAZARD (C) button. The drapers will stop.
10. Press PROGRAM (A) to exit programming mode or press SELECT (E) to proceed to the next header function option.



Figure 4.134: Draper Drive

4.9.6 Testing Reel Drive Circuit Activate Function Using Cab Display Module

It may be necessary to use the cab display module (CDM) to test the reel drive circuit, rather than using the controls on the operator's station.

IMPORTANT:

Do **NOT** overspeed the reel drive. Overspeeding can lead to vibration, belt failures, or other overspeeding-related problems.

NOTE:

- The header must be attached to the windrower to follow this procedure.
- This procedure does not apply to windrowers with attached rotary disc headers.
- The engine must be running to perform this procedure.

! DANGER

Ensure that all bystanders have cleared the area.

1. Start the engine.
2. Press PROGRAM (A) and SELECT (B) simultaneously on the cab display module (CDM) to enter programming mode.
 - WINDROWER SETUP? will appear on the upper line.



Figure 4.135: CDM Programming Buttons

CAB DISPLAY MODULE

3. Press SELECT (B) until DIAGNOSTIC MODE? appears on the upper line.
 - NO/YES will appear on the lower line.
4. Press right arrow (A) to select YES. Press SELECT (B).



Figure 4.136: Diagnostic Functions

5. Press SELECT (B) until ACTIVATE FUNCTIONS? appears on the upper line.
 - NO/YES will appear on the lower line.
6. Press right arrow (A) to select YES. Press SELECT (B).
 - ACTIVATE HEADER HT will appear on the upper line.



Figure 4.137: Functions

7. Press SELECT (E) until REEL DRV SPD XXXX appears on the upper line.
8. Press and hold HAZARD (C) button.
 - Press left arrow (B) to decrease the reel speed.
 - Press right arrow (D) to increase the reel speed.

IMPORTANT:

Do **NOT** overspeed the reel.

IMPORTANT:

Ensure that the reel drive is working properly.

9. Release HAZARD (C) button. The reel will stop.
10. Press PROGRAM (A) to exit programming mode or press SELECT (E) to proceed to the next header function option.



Figure 4.138: Reel Drive

4.9.7 Testing Rotary Disc Drive Circuit Activate Function Using Cab Display Module

It may be necessary to use the cab display module (CDM) to test the rotary drive circuit, rather than using the controls on the operator's station.

IMPORTANT:

Do **NOT** overspeed the rotary drive. Overspeeding can lead to vibration, belt failures, or other overspeeding-related problems.

NOTE:

- A rotary disc header must be attached to windrower to follow this procedure.
- The engine must be running to perform this procedure.

! DANGER

Ensure that all bystanders have cleared the area.

1. Start the engine.
2. Press PROGRAM (A) and SELECT (B) simultaneously on the cab display module (CDM) to enter programming mode.
 - WINDROWER SETUP? will appear on the upper line.



Figure 4.139: CDM Programming Buttons

3. Press SELECT (B) until DIAGNOSTIC MODE? appears on the upper line.
 - NO/YES will appear on the lower line.
4. Press right arrow (A) to select YES. Press SELECT (B).



Figure 4.140: Diagnostic Functions

CAB DISPLAY MODULE

5. Press SELECT (B) until ACTIVATE FUNCTIONS? appears on the upper line.
 - NO/YES will appear on the lower line.
6. Press right arrow (A) to select YES. Press SELECT (B).
 - ACTIVATE HEADER HT will appear on the upper line.



Figure 4.141: Functions

7. Press SELECT (E) until DISC DRV SPD XXXX appears on the upper line.
8. Press and hold HAZARD button (C).
 - Press left arrow (B) to decrease the disc speed.
 - Press right arrow (D) to increase the disc speed.

IMPORTANT:

Do **NOT** overspeed the disc drive.

IMPORTANT:

Ensure that the disc drive is working properly.

9. Release HAZARD button (C). The disc drive will stop.
10. Press PROGRAM (A) to exit programming mode or press SELECT to proceed to the next header function option.



Figure 4.142: Disc Drive

4.9.8 Testing Double Windrow Attachment Drive Activate Function Using Cab Display Module

It may be necessary to use the cab display module (CDM) to test the Double Windrower Attachment (DWA) drive circuit, rather than using the controls on the operator's station.

IMPORTANT:

Do **NOT** overspeed the DWA drive. Overspeeding can lead to vibration, belt failures, or other overspeeding-related problems.

NOTE:

- The DWA must be attached to the windrower and must have been activated under the WINDROWER SETUP menu. For more information, refer to [4.3.8 Configuring Double Windrow Attachment Controls, page 113](#).
- The engine must be running to perform this procedure.

DANGER

Ensure that all bystanders have cleared the area.

CAB DISPLAY MODULE

1. Start the engine.
2. Press PROGRAM (A) and SELECT (B) simultaneously on the cab display module (CDM) to enter programming mode. Press SELECT (B).
 - WINDROWER SETUP? will appear on the upper line.



Figure 4.143: CDM Programming Buttons

3. Press SELECT (B) until DIAGNOSTIC MODE? appears on the upper line.
 - NO/YES will appear on the lower line.
4. Press right arrow (A) to select YES. Press SELECT (B).



Figure 4.144: Diagnostic Functions

5. Press SELECT (B) until ACTIVATE FUNCTIONS? appears on the upper line.
 - NO/YES will appear on the lower line.
6. Press right arrow (A) to select YES. Press SELECT (B).
 - ACTIVATE HEADER HT will appear on the upper line.



Figure 4.145: Functions

CAB DISPLAY MODULE

- Press SELECT (E) until ACTIVATE DWA DRV appears on the upper line.
- Press and hold HAZARD button (C).
 - Press left arrow (B) to decrease the DWA drive speed.
 - Press right arrow (D) to increase the DWA drive speed.

IMPORTANT:

Do **NOT** overspeed the DWA drive.

IMPORTANT:

Ensure that the DWA drive is working properly.

- Release HAZARD button (C). The DWA drive will stop.
- Press PROGRAM (A) to exit programming mode or press SELECT (E) to proceed to the next header function option.



Figure 4.146: DWA Drive

4.9.9 Testing Reel Fore-Aft Activate Function Using Cab Display Module

It may be necessary to use the cab display module (CDM) to test the reel fore-aft circuit, rather than using the controls on the operator's station.

NOTE:

- The windrower must be attached to a header to perform this procedure.
- The engine must be running to perform this procedure.

DANGER

Ensure that all bystanders have cleared the area.

- Start the engine.
- Press PROGRAM (A) and SELECT (B) simultaneously on the cab display module (CDM) to enter programming mode.
 - WINDROWER SETUP? will appear on the upper line.



Figure 4.147: CDM Programming Buttons

CAB DISPLAY MODULE

3. Press SELECT (B) until DIAGNOSTIC MODE? appears on the upper line.
 - NO/YES will appear on the lower line.
4. Press right arrow (A) to select YES. Press SELECT (B).



Figure 4.148: Diagnostic Functions

5. Press SELECT (B) until ACTIVATE FUNCTIONS? appears on the upper line.
 - NO/YES will appear on the lower line.
6. Press right arrow (A) to select YES. Press SELECT (B).



Figure 4.149: Functions

7. Press SELECT (D) until ACTIVATE REEL F/A appears on the upper line.
 - FORE/AFT will appear on the lower line.
8. Ensure that the reel fore-aft function is working properly.
 - a. Press and hold left arrow (B) to move the reel forward. Press and hold right arrow (C) to move the reel aftward.
 - b. Press PROGRAM (A) to exit programming mode or press SELECT (D) to proceed to the next header function option.



Figure 4.150: Reel Fore-Aft

4.9.10 Activating Hydraulic Purge Using Cab Display Module

The hydraulic purge removes air from the hydraulic pump system after it has been repaired or changed. A purge can be initiated by accessing the WINDROWER SETUP menu in the windrower's cab display module (CDM).

NOTE:

The engine must be running to perform this procedure.

⚠ DANGER

Ensure that all bystanders have cleared the area.

1. Start the engine.
2. Press PROGRAM (A) and SELECT (B) simultaneously on the cab display module (CDM) to enter programming mode.
 - WINDROWER SETUP? will appear on the upper line.



Figure 4.151: CDM Programming Buttons

3. Press SELECT (B) until DIAGNOSTIC MODE? appears on the upper line.
 - NO/YES will appear on the lower line.
4. Press right arrow (A) to select YES. Press SELECT (B).



Figure 4.152: Diagnostic Functions

5. Press SELECT (B) until ACTIVATE FUNCTIONS? appears on the upper line.
 - NO/YES will appear on the lower line.
6. Press right arrow (A) to select YES. Press SELECT (B).
 - ACTIVATE HEADER HT will appear on the upper line.
 - DOWN/UP will appear on the lower line.



Figure 4.153: Functions

CAB DISPLAY MODULE

7. Press SELECT (B) until ACTIVATE HYD PURGE? appears on the upper line.
 - NO/YES will appear on the lower line.
8. Press right arrow (A) to select YES. Press SELECT (B).
 - TO ACTIVATE PURGE will appear on the upper line.
 - PRESS AND HOLD will appear on the lower line.

NOTE:

Holding right arrow (A) activates a timed purge cycle. The CDM will jump to the exit menu if the arrow is released before the end of the timed cycle.



Figure 4.154: Hydraulic Purge

9. Press and hold right arrow (A) to begin the purge cycle.
 - PURGE CYCLE STARTED will appear on the upper line.
10. When the message PURGE CYCLE ENDED appears, release right arrow (A).
 - NO EXIT YES will appear on the lower line.
11. Press the right arrow to select YES. Press SELECT.
12. Press PROGRAM to exit programming mode or press SELECT to proceed to the next header function option.



Figure 4.155: Hydraulic Purge Cycle

Chapter 5: Performing Operational Checks

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

5.1 Checking Safety System

The operating safety system protects the operator and the windrower from injury or damage. Perform these checks to ensure that the operating safety system is functioning correctly.

DANGER

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

DANGER

Ensure that all bystanders have cleared the area.

A properly functioning safety system should operate as follows. If the system does not function as described, refer to the windrower technical manual for adjustment procedures.

- With the ground speed lever (GSL) in N-DETENT position and the steering wheel locked (centered), the park brakes should engage and the cab display module (CDM) should display IN PARK accompanied by an audible beep.
 - The starter should engage **ONLY** when the GSL is in N-DETENT, the steering wheel is locked (centered), and the header drive switch is in the OFF position.
 - The brake should engage and the machine should **NOT** move after engine start-up.
 - The steering wheel should **NOT** lock with the engine running and the GSL out of N-DETENT.
1. Ensure the battery disconnect switch is in the POWER ON position.

NOTE:

The battery disconnect switch (A) is located on the right (cab-forward) frame rail behind the maintenance platform and can be accessed by moving the platform rearwards.

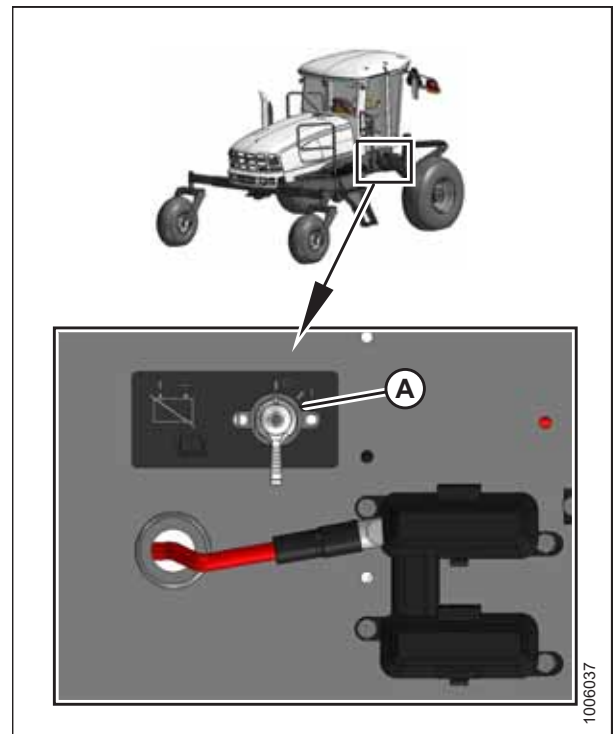


Figure 5.1: Battery Switch

PERFORMING OPERATIONAL CHECKS

Header drive engaged safety check:

2. Shut down the engine, and pull up on collar (B) while pressing down on switch (A) to engage the header drive.
3. Try starting the engine and confirm the cab display module (CDM) displays HEADER ENGAGED on the upper line and DISENGAGE HEADER on the lower line.
4. If the engine turns over, the safety system requires adjustment or repair. Refer to the windrower technical manual for adjustment procedures.

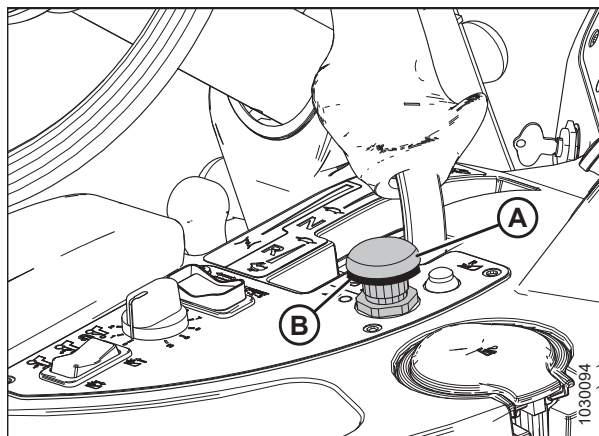


Figure 5.2: Header Drive Switch

Pintle switch safety check:

5. Shut down the engine, and remove the key.
6. Open the engine compartment hood.
7. Pry the steering interlock away from pintle arms (A) by inserting a wedge or pry bar between one of the interlock channels (B) and the pintle arm.
8. 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.
9. Turn the steering wheel off-center, and move the GSL to N-DETENT.
10. Try starting the engine and confirm the CDM flashes CENTER STEERING accompanied by a short beep with each flash. The engine should **NOT** turn over.
11. If the engine turns over, the safety system requires adjustment or repair. Refer to the windrower technical manual for adjustment procedures.
12. Remove the key from the ignition.
13. Remove the wooden block and close the hood.

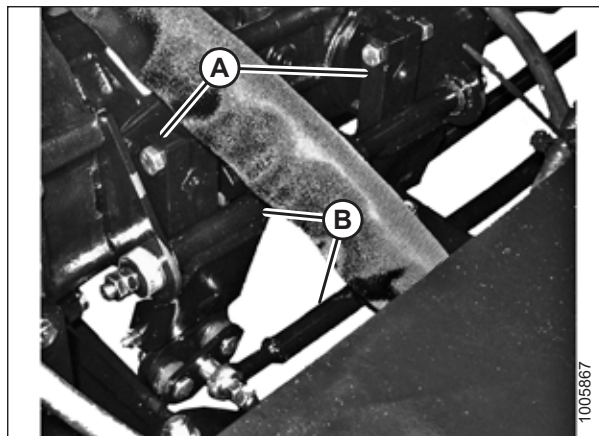


Figure 5.3: Pintle Arms

PERFORMING OPERATIONAL CHECKS

Steering and neutral safety check:

14. Shut down the engine and center the steering wheel. Place the GSL (A) in NEUTRAL, but not in N-DETENT.
15. Try starting the engine and confirm the CDM flashes CENTER STEERING on the upper line and PLACE GSL INTO N on the lower line accompanied by a short beep with each flash. The engine should **NOT** turn over.
16. If the engine turns over, the safety system requires adjustment. Refer to the windrower technical manual for adjustment procedures.



Figure 5.4: Operator's Station

Seat base lock safety check:

17. Ensure the operator's station is **NOT** locked. To unlock the operator's station, pull up and hold knob (B) to release latch (C), and turn the steering wheel to unlock the operator's station.
18. Center the steering wheel and place GSL (A) in N-DETENT. Try starting the engine and confirm that the engine cranks but does **NOT** start, and the CDM displays SEAT BASE NOT LOCKED.
19. If the engine starts, the safety system requires adjustment. Refer to the windrower technical manual for adjustment procedures.



Figure 5.5: Operator's Station

5.2 Checking Engine Warning Lights

Upon engine startup, a single loud tone sounds, and engine warning lights illuminate as a self-test.

1. Turn ignition key (A) to RUN position. A single loud tone will be audible and the engine warning lights (B) will illuminate.
2. Turn ignition key (A) to OFF position.



Figure 5.6: Operator Console

5.3 Checking Windrower Startup

Ensure that the windrower functions as expected after startup.

⚠ DANGER

Ensure that all bystanders have cleared the area.

1. Start the engine.

NOTE:

The brakes should engage and the machine should not move after engine start-up.

2. Ensure the steering wheel is centered. Move ground speed lever (GSL) (A) straight out of N-DETENT (neither forward nor reverse). The machine should not move.
3. Check that the steering wheel is free to move.
4. If the machine does not function as described, the system requires adjustment. Refer to the windrower technical manual.



Figure 5.7: Operator Console

5.4 Checking Engine Speed

Check the idle speed and maximum speed of the engine to make sure it is running properly.

DANGER

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

DANGER

Ensure that all bystanders have cleared the area.

1. Start the engine.
2. Move the throttle to the idle position.
3. Check the engine speed on the cab display module (CDM) (A) and compare it to the value in the table below.
4. Move the throttle to the maximum rpm position.
5. Check the engine speed on CDM (A) and compare it to the value in the table below.

Table 5.1 Engine Speed

Model	Idle	Maximum rpm (No Load)
M155	1100	2320–2350

6. Shut down the engine, and remove the key from the ignition.



Figure 5.8: Cab Display Module (CDM)

5.5 Checking Gauges and Cab Display Module Display

All gauges in the cab must function as expected.

1. Ensure engine temperature gauge (A) and fuel gauge (B) are working.



Figure 5.9: Temperature and Fuel Gauges

2. Ensure cab display module (CDM) display (A) is working by pushing SELECT button (B) on the CDM or SELECT button (C) on the ground speed lever (GSL).
3. If the system does not function as described, refer to the windrower technical manual.

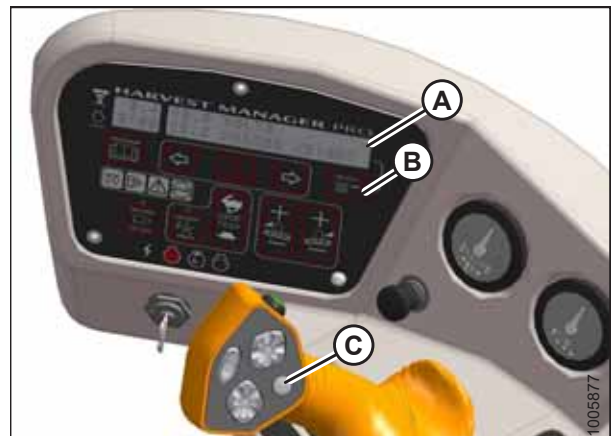


Figure 5.10: CDM

5.6 Checking Electrical System

The electrical system can be checked using the cab display module (CDM).

1. Push SELECT button (C) on the ground speed lever (GSL) or SELECT button (B) on the cab display module (CDM) until CDM display (A) shows VOLTS. The display indicates the condition of the battery and alternator. To evaluate the reading, refer to Table 5.2, page 176.



Figure 5.11: Cab Display Module (CDM)

Table 5.2 Battery and Alternator Condition

Ignition	Engine	Reading	Indicated Condition
ON	Running	13.8–15.0	Normal
		>16.0 (see note)	Regulator out of adjustment
	<12.5 (see note)	Alternator not working Regulator out of adjustment	
	Shut down	12.0	Battery normal

NOTE:

The display flashes the voltage reading accompanied by a single loud tone every 30 minutes until the condition is fixed.

5.7 Checking Operator's Presence System

The operator presence system is a safety feature that requires someone to sit in the operator's seat in order for the windrower to be operational.

DANGER

Ensure that all bystanders have cleared the area.

1. Start the engine.
2. Place ground speed lever (GSL) (A) in NEUTRAL and turn the steering wheel until it locks.
3. Engage header drive switch (B).
4. Stand up from the operator's seat. The header should shut off after approximately 5 seconds. If the header does not shut off, the operator presence system requires adjustment. Refer to the windrower technical manual.

NOTE:

To restart the header, move header drive switch (B) to the OFF position and then back to the ON position.

5. Position the GSL (A) in NEUTRAL and in N-DETENT.
 - a. Swivel the operator's station but do **NOT** lock it into position.
 - b. Move the GSL out of N-DETENT. The engine should shut down and the lower display will flash LOCK SEAT BASE → CENTER STEERING WHEEL → NOT IN NEUTRAL.
 - c. Swivel and lock the operator's station and the display should return to normal.
 - d. If the engine does not shut down, the seat position switches require adjustment. Refer to the technical manual.
6. Start the engine and drive the windrower at a speed **LESS THAN** 8 km/h (5 mph):
 - a. Stand up from the operator's seat.
 - b. Ensure the CDM flashes NO OPERATOR on the upper line and ENGINE SHUTDOWN 5...4...3...2...1...0 on the lower line accompanied by a steady tone. When the CDM display reaches 0, the engine will shut down.
 - c. If the engine does not shut down, the operator presence system requires adjustment. Refer to the windrower technical manual.



Figure 5.12: Operator Console

PERFORMING OPERATIONAL CHECKS

7. Start the engine and drive the windrower at a speed **MORE THAN** 8 km/h (5 mph):
 - a. Stand up from the operator's seat.
 - b. The CDM beeps once and displays NO OPERATOR on the lower line.
 - c. If the CDM does not beep and display this message, the operator presence system requires adjustment. Refer to the windrower technical manual.

5.8 Checking Exterior Lights

Remove any plastic film (if present) from the exterior lights. Check all parts of the exterior lighting system for functionality.

NOTE:

Rotate the operator's seat to cab-forward mode before checking the exterior lights. If the operator's seat is already in cab-forward mode, skip to Step 5, [page 180](#).

1. Turn the ignition key to RUN, or start the engine.
2. Move GSL (A) to the N-DETENT position.

IMPORTANT:

If the GSL is NOT in the N-DETENT position, the GSL cable may be damaged when you swivel the operator's station.

3. Pull up and hold knob (B) to release latch (C) at the base of the steering column.
4. Turn the steering wheel counterclockwise to pivot the operator's station clockwise 180°. When the operator's station has turned fully, the pin will engage the latch, securing the operator's station in its position.



Figure 5.13: Operator Console

PERFORMING OPERATIONAL CHECKS

- 5. Turn field light switch (A) to the ON position and ensure front field lights (B), rear flood lights (C), and rear swath lights (D) are functioning.

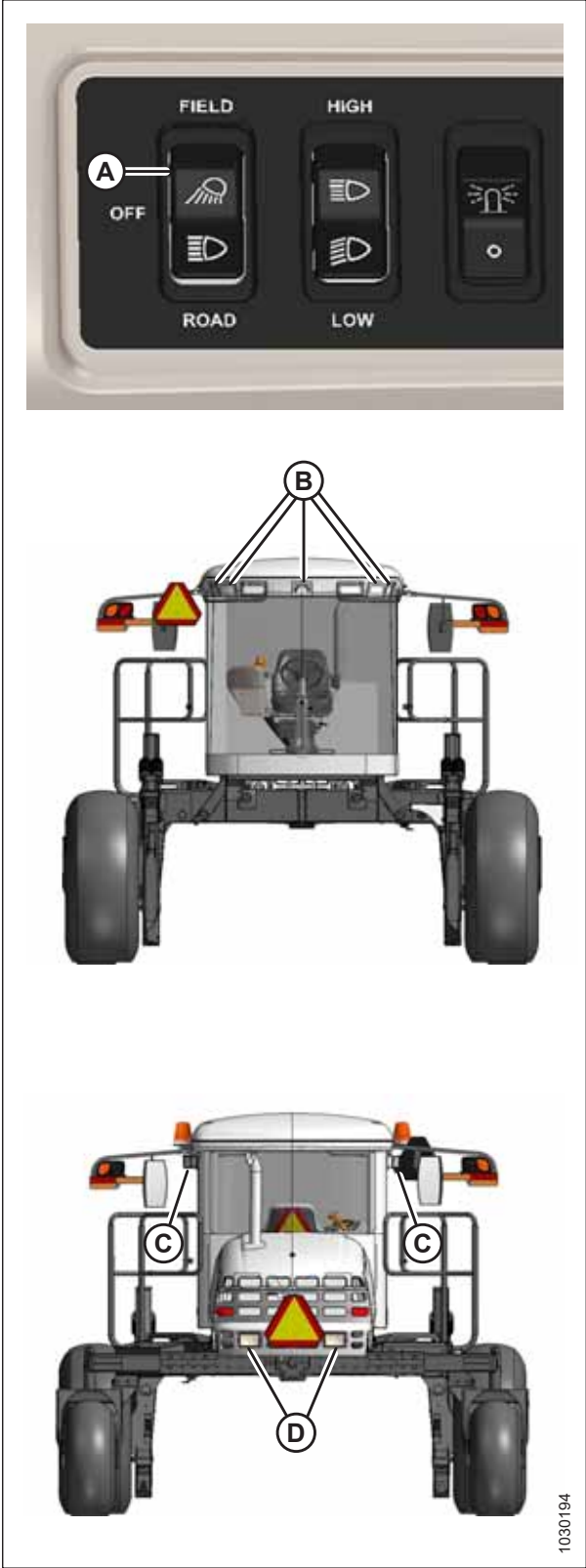


Figure 5.14: Exterior Lights – Cab Forward

PERFORMING OPERATIONAL CHECKS

6. Turn road light switch (A) to the ON position and ensure front road lights (B) and rear red tail/brake lights (C) (if equipped) are functioning.
7. Activate high/low switch (D) and check lights.
8. Activate amber turn signal/hazard warning lights (E) using switches on the cab display module (CDM) and check lights.
9. Turn off lights.

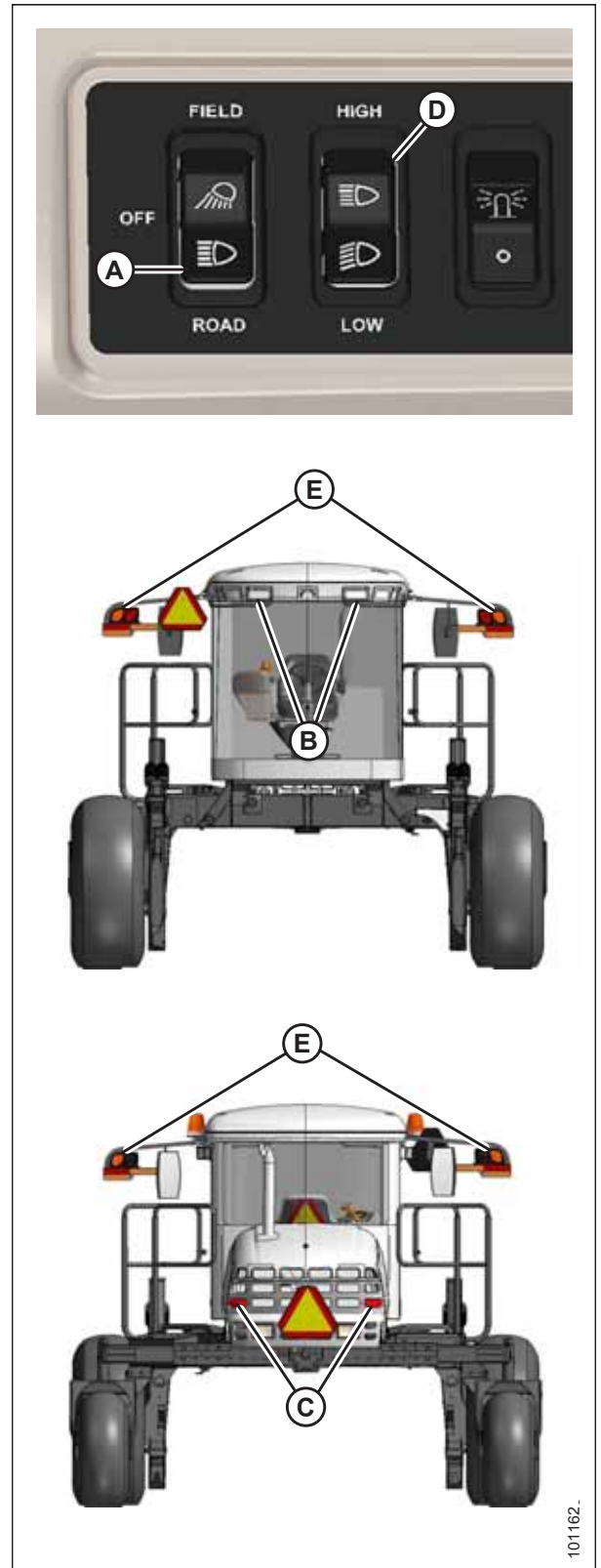


Figure 5.15: Exterior Lights – Cab Forward

PERFORMING OPERATIONAL CHECKS

10. Turn beacon switch (A) to the ON position and ensure amber beacons (B) are functioning.
11. If an exterior light is not functioning, refer to the windrower technical manual.

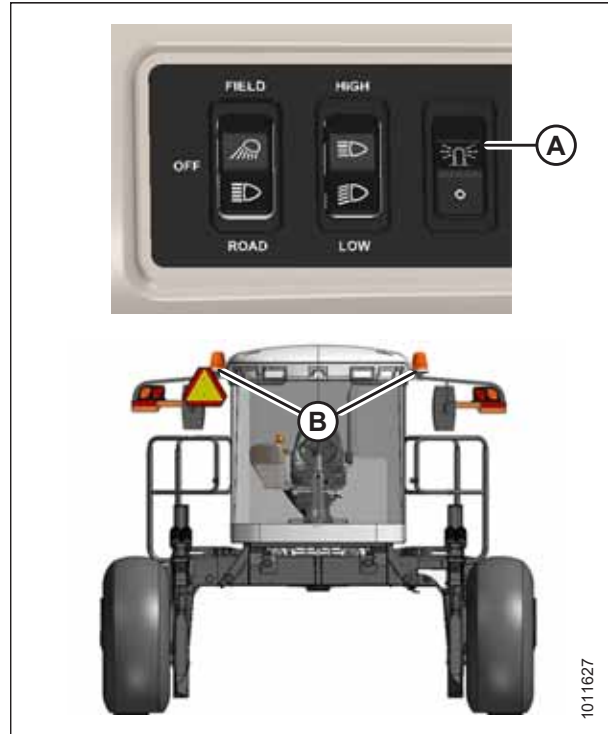


Figure 5.16: Exterior Lights – Beacons

5.9 Checking Horn

The horn is a safety device for notifying other people of the windrower's presence.

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

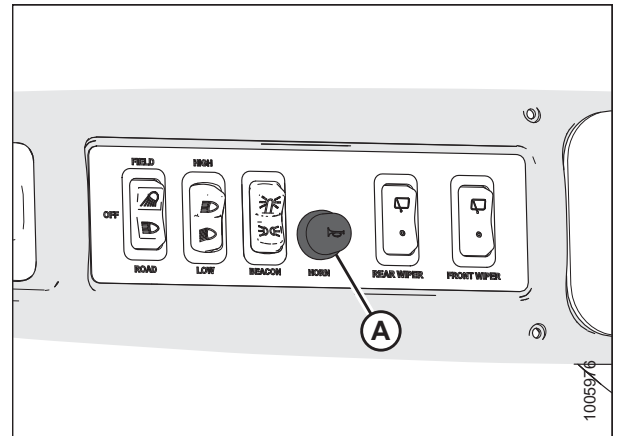


Figure 5.17: Horn Button

5.10 Checking Interior Lights

Interior lights provide visibility within the cab. Check all parts of the interior lighting system for functionality.

1. Switch road and field lights ON and OFF using switch (A).

NOTE:

Ambient light in roof liner (B) and interior light (C) work only when road or field lights (A) are switched ON.

2. If interior lights do not function properly, refer to windrower technical manual.

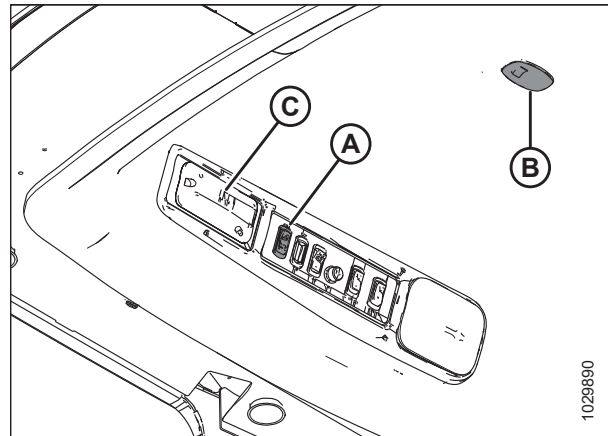


Figure 5.18: Interior Lights

5.11 Checking Air Conditioning and Heater

The windrower's cab is equipped with a heating, ventilation, and air conditioning system. Ensure that this system and its controls are functioning properly.

Figure 5.19: Air Conditioning (A/C) and Heater Controls



1. Confirm that the following A/C and heating controls function properly:
 - **Blower switch (A):** Controls the blower speed. The switch settings are OFF, LO, MEDIUM, and HI.
 - **Air conditioning switch (B):** Controls the A/C system. When set to ON, the A/C operates if blower switch (A) is switched ON. When set to OFF, the A/C system does not operate.
 - **Outside air switch (C):** Controls the air source. When set to FRESH AIR, the booster fan starts and draws filtered outside air into the cab. When set to RECIRCULATED, the booster fan stops and air inside the cab is recirculated.
 - **Temperature control (D):** Controls the cab temperature. Turn the knob clockwise to increase the temperature, and turn the knob counterclockwise to decrease the temperature.

IMPORTANT:

To distribute oil throughout the A/C system, perform the following steps:

2. Start the engine and turn blower switch (A) to the LO setting and then turn temperature control (D) to maximum heating, and turn A/C switch (B) to OFF.
3. Turn A/C switch (B) from the OFF to the ON position for 1 second, then back to OFF for 5 to 10 seconds. Repeat this step ten times.
4. Shut down the engine, and remove the key from the ignition.

5.12 Checking Manuals

MacDon provides manuals with every windrower to provide information on its safe operation and maintenance.

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

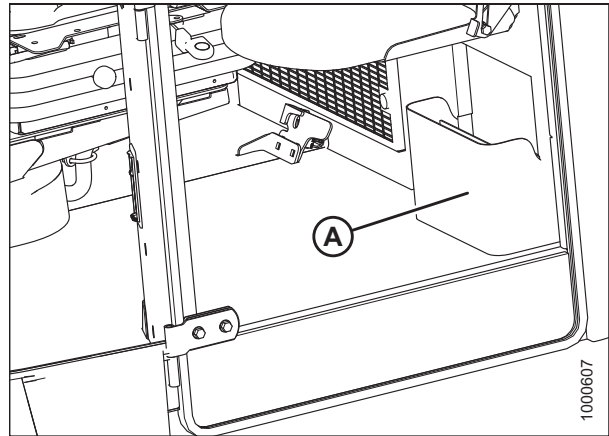


Figure 5.20: Manual Storage Case

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

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



Figure 5.21: Manuals and Quick Card

5.13 Performing Final Steps

Prepare the windrower cab for the Operator and, if necessary, install any remaining kits.

1. After the predelivery checks are complete, remove the plastic covering from the cab display module (CDM) and the seats.
2. Locate the bag inside the cab containing the GPS mount kit. If you wish to install the kit, do so in accordance with the instructions provided in the kit. If you choose not to install the kit, label the bag "GPS Completion kit" and place it in a toolbox for safekeeping.
3. Do **NOT** remove the drive wheel torque procedure decal from the windshield.

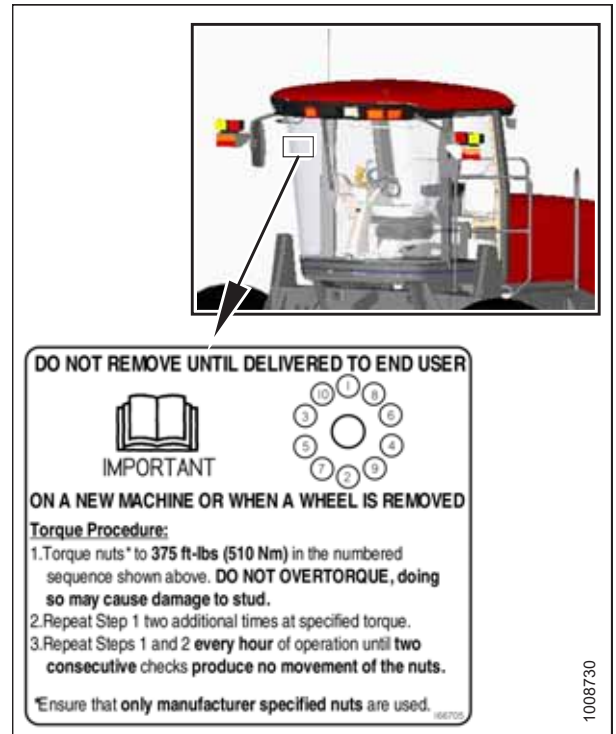


Figure 5.22: Windshield Decal

Chapter 6: Attaching Headers

6.1 Attaching Headers

Follow these procedures to safely attach these MacDon headers from the windrower.

6.1.1 Attaching Header Boots

Header boots are required to attach a D Series or D1 Series Draper Header to the windrower. Attach header boots to the windrower's lift linkage if they are not already installed. Header boots are supplied with the header.

IMPORTANT:

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

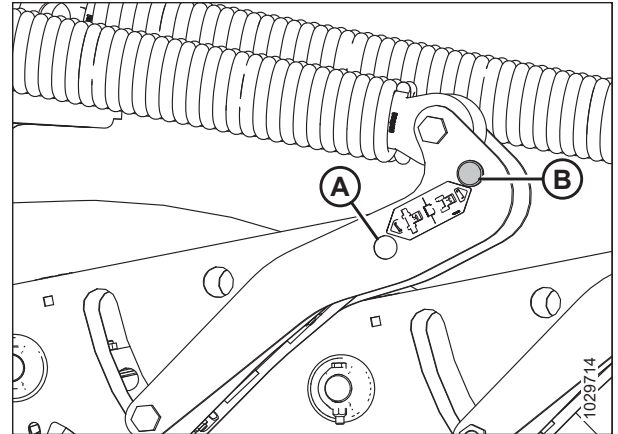


Figure 6.1: Header Float Linkage

1. Remove pin (B) from boot (A).

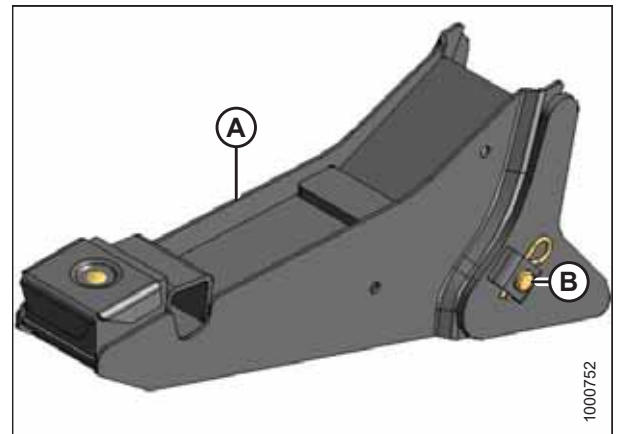


Figure 6.2: Header Boot

ATTACHING HEADERS

2. Position boot (B) onto lift linkage (A) and reinstall pin (C). The pin may be installed from either side of the boot.
3. Secure pin (C) with hairpin (D).
4. Repeat Step 1, page 189 to Step 3, page 190 to install the boot on the opposite side of the header.

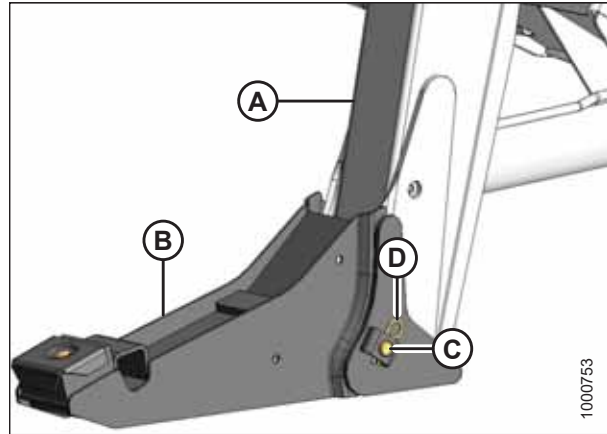


Figure 6.3: Header Boot

6.1.2 Attaching D Series or D1 Series Draper Header

D and D1 Series Draper Headers can be attached to an M155 Self-Propelled Windrower.

1. The M155 Self-Propelled Windrower is factory-equipped to run a D or D1 Series Draper Header.

If installing an HC10 Hay Conditioner, Reverser kit (MD #B4656) is recommended. If necessary, obtain the recommended kit and install it in accordance with the instructions supplied with the kit.

The procedure for attaching a D or D1 Series Draper Header to the windrower differs slightly depending on the configuration of the windrower. Proceed to the relevant topic:

- [Attaching D Series or D1 Series Draper Header – Hydraulic Center-Link with Self-Alignment, page 190](#)
- [Attaching D Series or D1 Series Draper Header – Hydraulic Center-Link without Self-Alignment, page 196](#)
- [Attaching D Series or D1 Series Draper Header – Mechanical Center-Link, page 202](#)

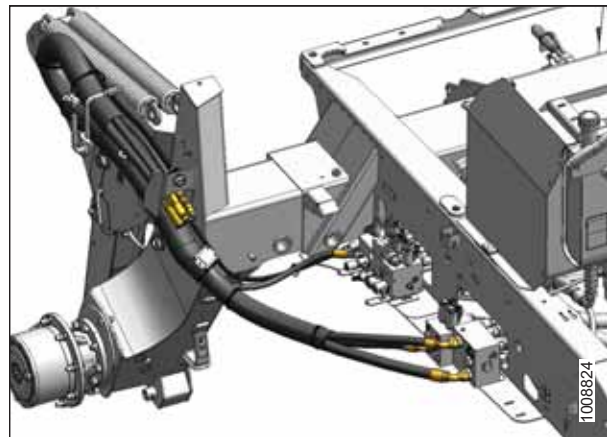


Figure 6.4: M155 Draper Header Hydraulics

Attaching D Series or D1 Series Draper Header – Hydraulic Center-Link with Self-Alignment

The windrower may be equipped with an optional self-aligning hydraulic center-link, which allows the Operator to control the vertical position of the center-link from the cab.

NOTE:

Draper header boots must be installed onto the windrower lift linkage before beginning this procedure. For instructions, refer to [6.1.1 Attaching Header Boots, page 189](#).

⚠ DANGER

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

1. Shut down the engine, and remove the key from the ignition.

ATTACHING HEADERS

2. Remove hairpin (A) from pins (B), and remove the pins from both header legs.

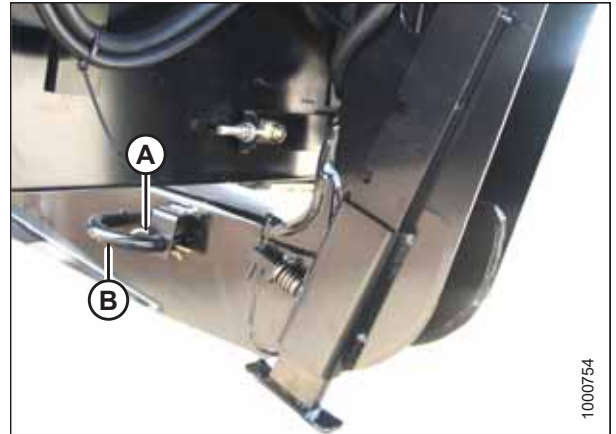


Figure 6.5: Header Leg

DANGER

Ensure that all bystanders have cleared the area.

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

IMPORTANT:

Before starting the engine for the first time the windrower is operated in a season, remove the protective cover from the exhaust stack.

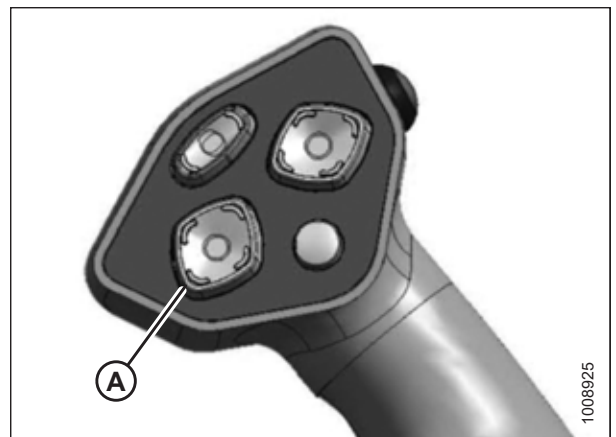


Figure 6.6: Ground Speed Lever

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

IMPORTANT:

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

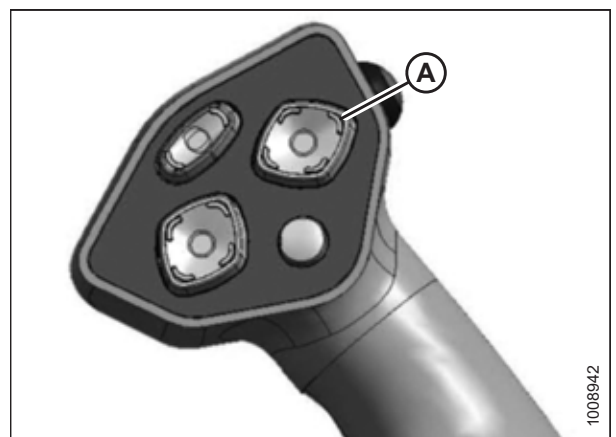


Figure 6.7: Ground Speed Lever

ATTACHING HEADERS

5. Drive the windrower slowly forward until boots (A) enter header legs (B). Continue driving slowly forward until the lift linkages contact the support plates in the header legs and the header is nudged forward.
6. Ensure that the lift linkages are properly engaged in the header legs and are contacting the support plates.

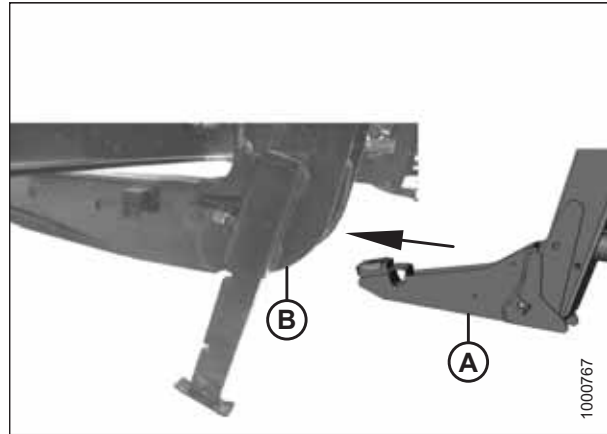


Figure 6.8: Header Leg and Boot

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

IMPORTANT:

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

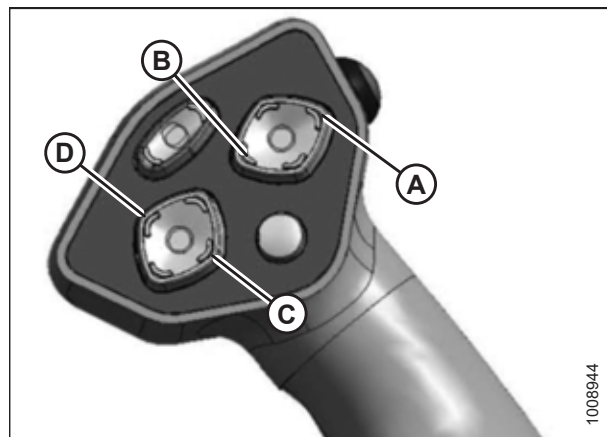


Figure 6.9: Ground Speed Lever

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

DANGER

Ensure that all bystanders have cleared the area.

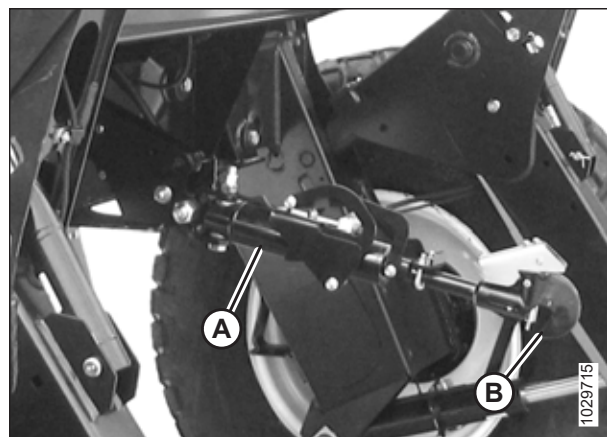


Figure 6.10: Hydraulic Center-Link

ATTACHING HEADERS

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

NOTE:

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



Figure 6.11: Ground Speed Lever

12. Engage the safety props on both lift cylinders:
 - a. Shut down the engine, and remove the key from the ignition.
 - b. Pull lever (A) and rotate it towards the header to release and lower safety prop (B) onto the lift cylinder.
 - c. Repeat the previous steps for the opposite lift cylinder.

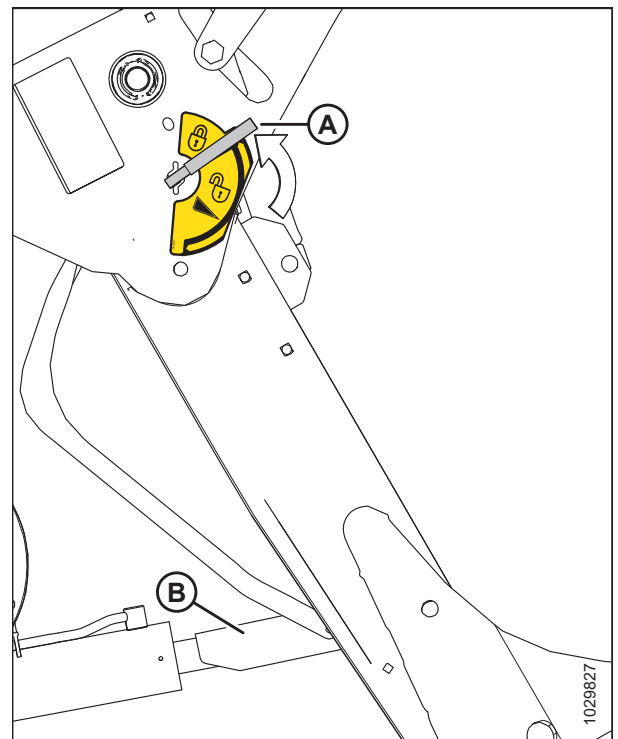


Figure 6.12: Safety Prop

ATTACHING HEADERS

13. Install pin (B) through the header leg, engaging the U-bracket in the lift linkage. Secure the pin with hairpin (A).
14. Repeat the previous step on the other side of the header.
15. Raise header stand (D) to its storage position by pulling spring pin (C) and lifting the stand into the uppermost position. Release the spring pin.

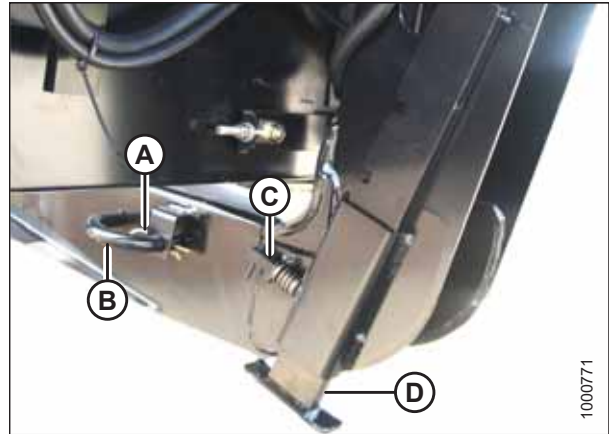


Figure 6.13: Header Leg

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

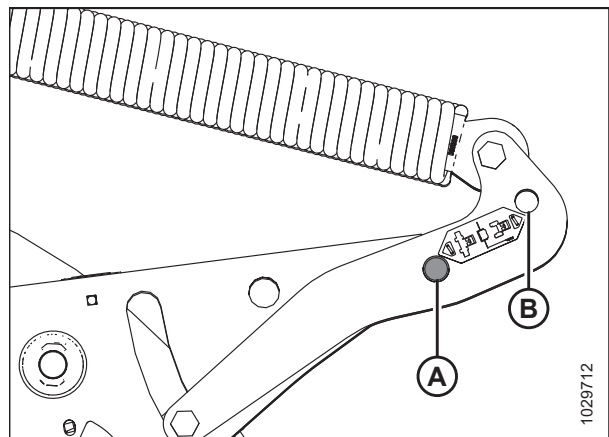


Figure 6.14: Header Float Linkage

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

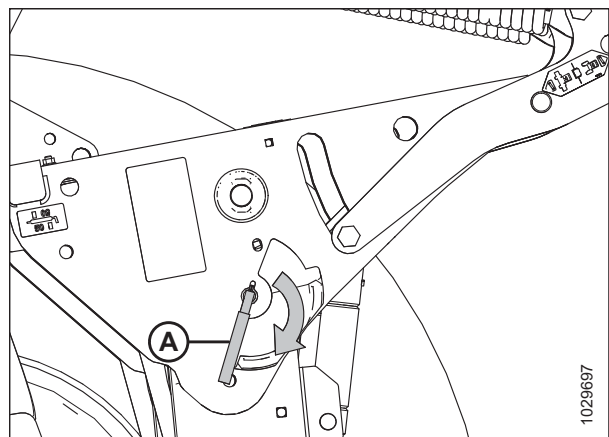


Figure 6.15: Safety Prop Lever

ATTACHING HEADERS

DANGER

Ensure that all bystanders have cleared the area.

19. Start the engine, and press HEADER DOWN switch (A) on the GSL to fully lower the header.
20. Stop the engine, and remove the key from the ignition.

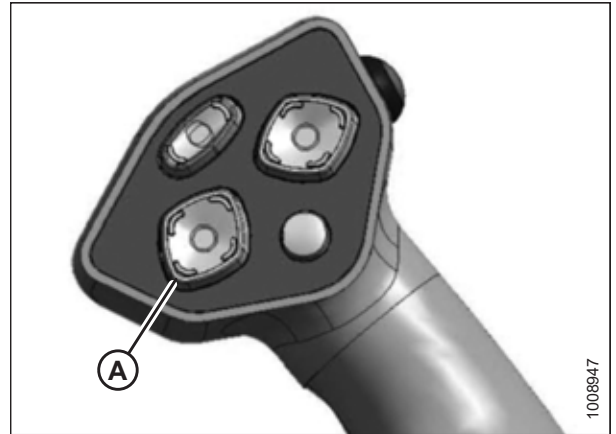


Figure 6.16: Ground Speed Lever

21. Connect header drive hoses (A) and electrical harness (B) to the header. For instructions, refer to the header operator's manual.

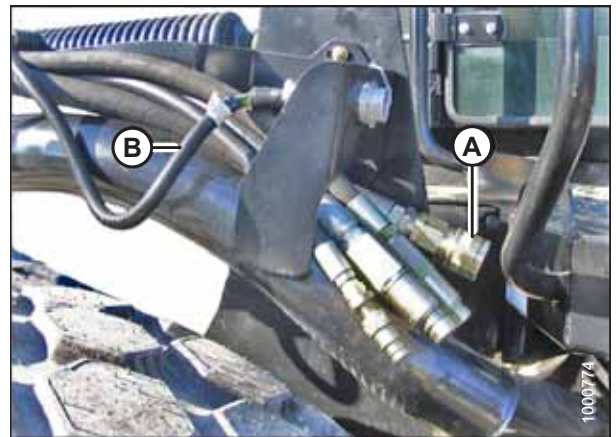


Figure 6.17: Header Drive Hoses and Harness

22. Connect reel hydraulics (A) at the right cab-forward side of the windrower. For instructions, refer to the draper header operator's manual.
23. Start the engine, and raise and lower the header and the reel a few times to remove trapped air.

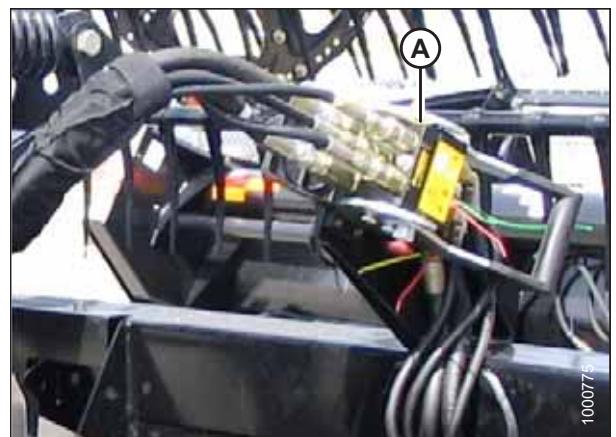


Figure 6.18: Reel Hydraulics

ATTACHING HEADERS

Attaching D Series or D1 Series Draper Header – Hydraulic Center-Link without Self-Alignment

The windrower may be equipped with a hydraulic center-link which lacks the self-alignment capability; the Operator will have to manually attach the hydraulic center-link's hook to the header's center pin.

NOTE:

Draper header boots must be installed onto the windrower's lift linkage before starting this procedure. For instructions, refer to [6.1.1 Attaching Header Boots, page 189](#).

DANGER

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

1. Shut down the engine, and remove the key from the ignition.
2. Remove hairpin (A) from pins (B), and remove the pins from both header legs.

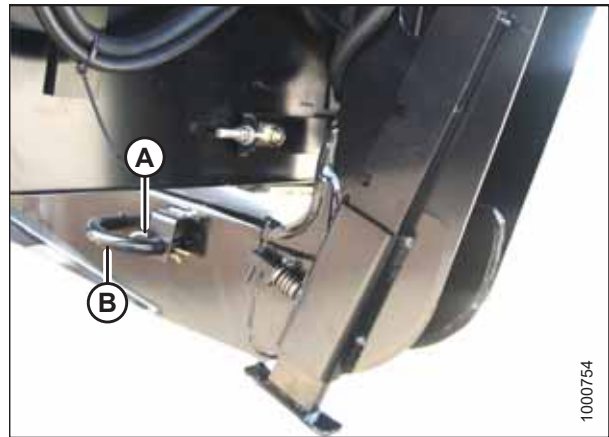


Figure 6.19: Header Leg

DANGER

Ensure that all bystanders have cleared the area.

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

IMPORTANT:

Before starting the engine for the first time the windrower is operated in a season, remove the protective cover from the exhaust stack.

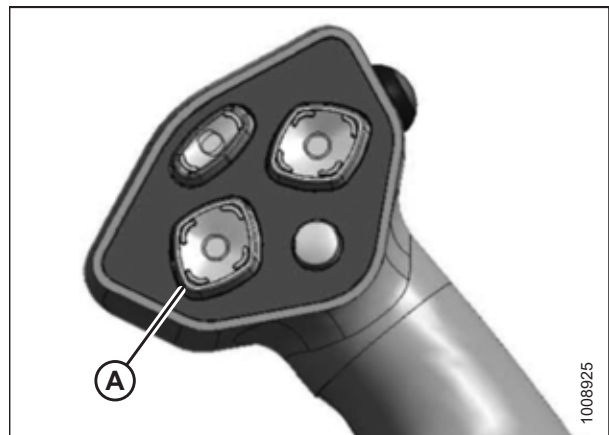


Figure 6.20: Ground Speed Lever

ATTACHING HEADERS

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

IMPORTANT:

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

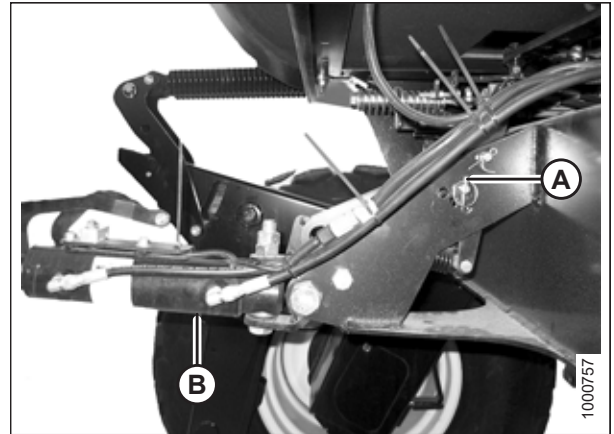


Figure 6.21: Hydraulic Center-Link without Self-Alignment Kit

5. Drive the windrower slowly forward until boots (A) enter header legs (B). Continue driving slowly forward until the lift linkages contact the support plates in the header legs and the header is nudged forward.
6. Ensure that the lift linkages are properly engaged in the header legs and are contacting the support plates.

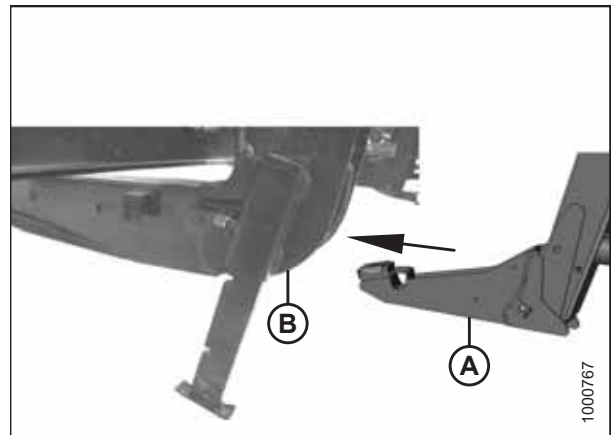


Figure 6.22: Header Leg and Boot

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

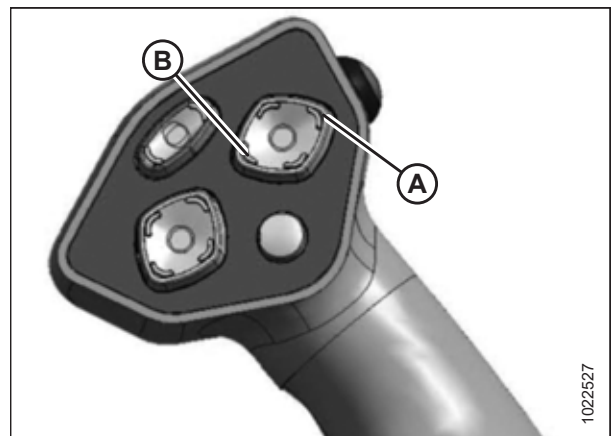


Figure 6.23: Ground Speed Lever

ATTACHING HEADERS

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

IMPORTANT:

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

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

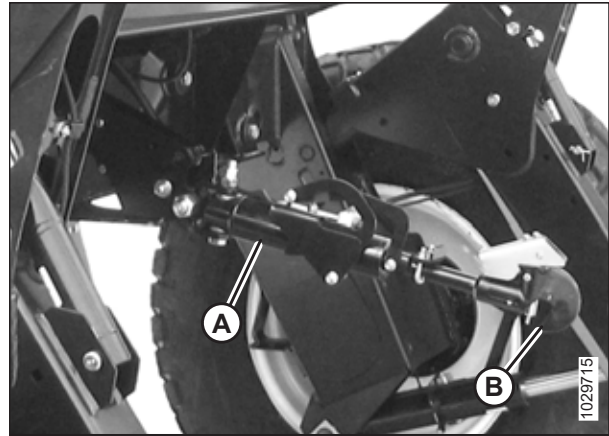


Figure 6.24: Hydraulic Center-Link

DANGER

Ensure that all bystanders have cleared the area.

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

NOTE:

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



Figure 6.25: Ground Speed Lever

ATTACHING HEADERS

14. Engage the safety props on both lift cylinders:
 - a. Shut down the engine, and remove the key from the ignition.
 - b. Pull lever (A) and rotate it towards the header to release and lower safety prop (B) onto the lift cylinder.
 - c. Repeat the previous steps for the opposite lift cylinder.

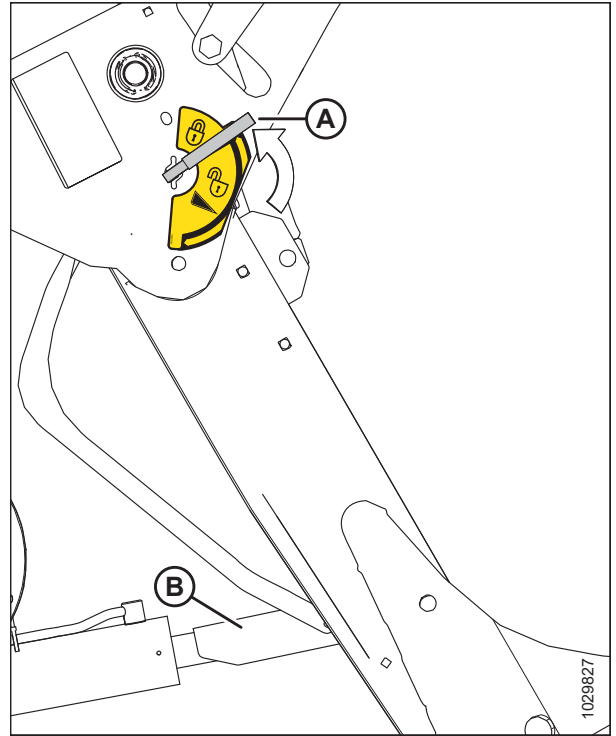


Figure 6.26: Safety Prop

15. Install pin (B) through the header leg, engaging the U-bracket in the lift linkage. Secure the pin with hairpin (A).
16. Raise header stand (D) to its storage position by pulling spring pin (C) and lifting the stand into the uppermost position. Release the spring pin.

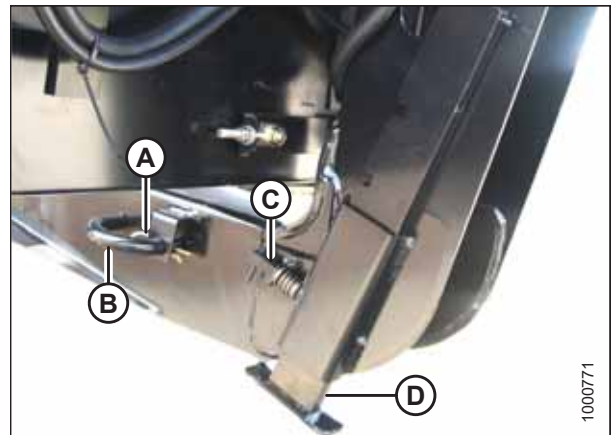


Figure 6.27: Header Leg

ATTACHING HEADERS

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

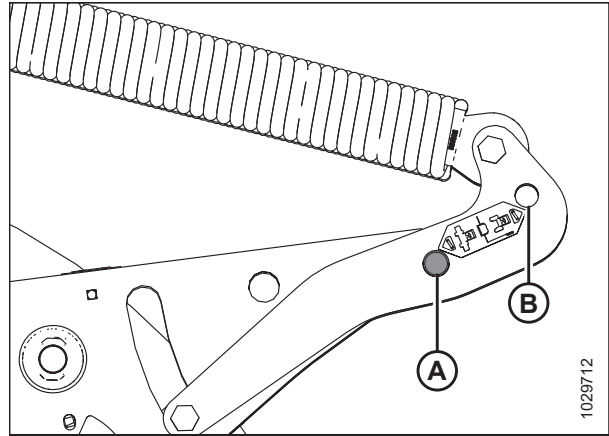


Figure 6.28: Header Float Linkage

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

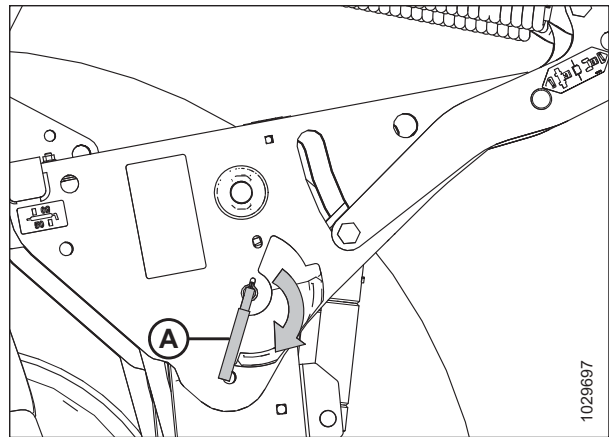


Figure 6.29: Safety Prop Lever

DANGER

Ensure that all bystanders have cleared the area.

20. Start the engine, and press HEADER DOWN switch (A) on the GSL to fully lower the header.
21. Shut down the engine, and remove the key from the ignition.

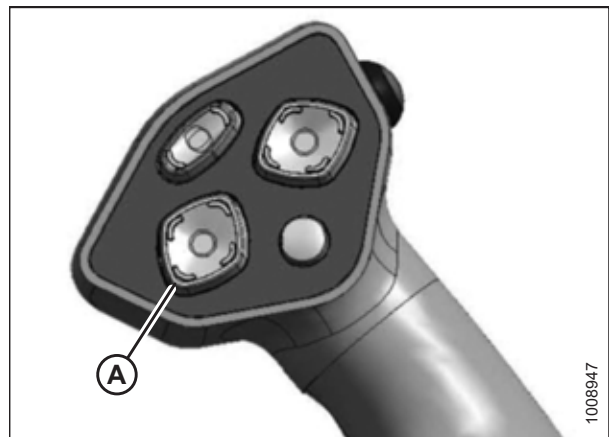


Figure 6.30: Ground Speed Lever

ATTACHING HEADERS

22. Connect header drive hoses (A) and electrical harness (B) to the header. For instructions, refer to the header operator's manual.

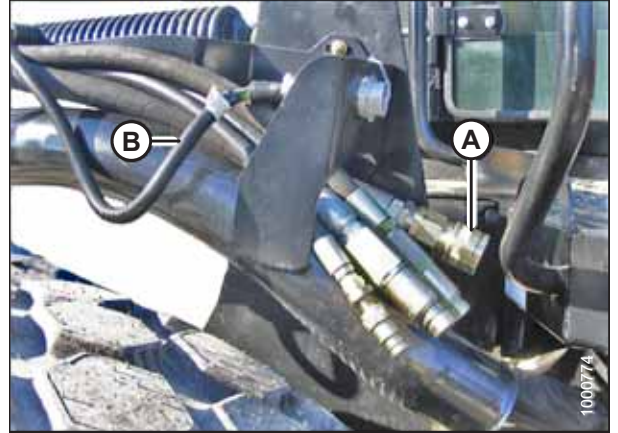


Figure 6.31: Header Drive Hoses and Harness

23. Connect reel hydraulics (A) at the right cab-forward side of the windrower. For instructions, refer to the draper header operator's manual.
24. Start the engine, and raise and lower the header and the reel a few times to remove trapped air.

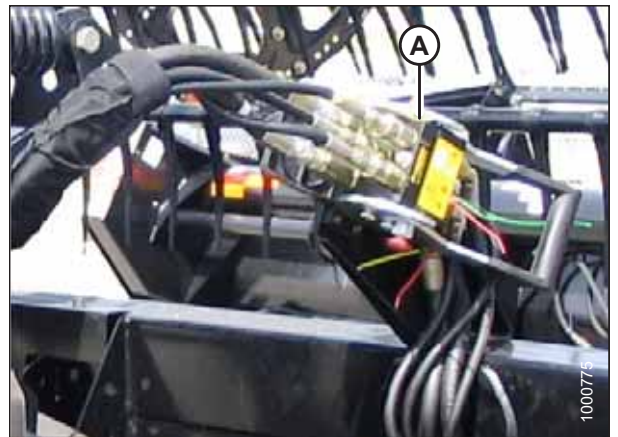


Figure 6.32: Reel Hydraulics

ATTACHING HEADERS

Attaching D Series or D1 Series Draper Header – Mechanical Center-Link

NOTE:

Draper header boots must be installed onto the windrower lift linkage before starting this procedure. Refer to [6.1.1 Attaching Header Boots, page 189](#).

DANGER

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

1. Shut down the engine, and remove the key from the ignition.
2. Remove hairpin (A) from pins (B), and remove the pins from both header legs.

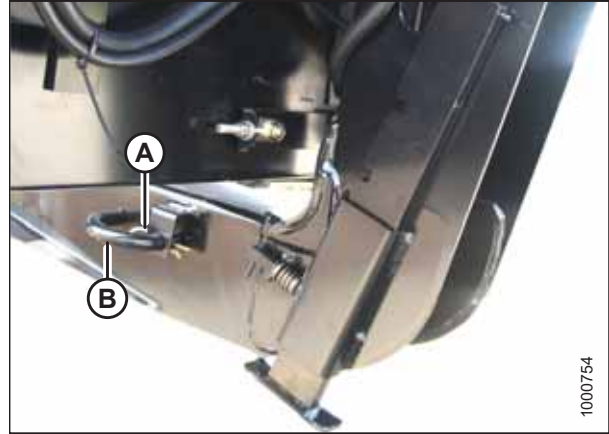


Figure 6.33: Header Leg

DANGER

Ensure that all bystanders have cleared the area.

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

IMPORTANT:

Before starting the engine for the first time the windrower is operated in a season, remove the protective cover from the exhaust stack.

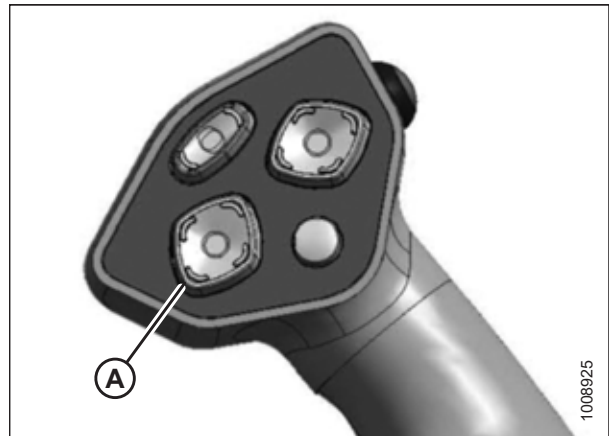


Figure 6.34: Ground Speed Lever

ATTACHING HEADERS

4. Drive the windrower slowly forward until boots (A) enter header legs (B). Continue driving slowly forward until the lift linkages contact the support plates in the header legs and the header is nudged forward.
5. Ensure that the lift linkages are properly engaged in the header legs and are contacting the support plates.

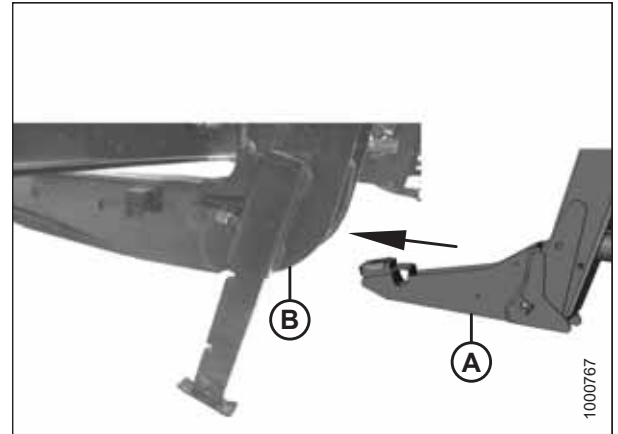


Figure 6.35: Header Leg and Boot

6. Shut down the engine, and remove the key from the ignition.
7. Loosen nut (A) and rotate barrel (B) to adjust length until the link is aligned with the header bracket.
8. Install clevis pin (C) and secure with cotter pin (D).
9. Adjust length of link to achieve proper header angle by rotating barrel (B). Tighten nut (A) against barrel (a slight tap with a hammer is sufficient).

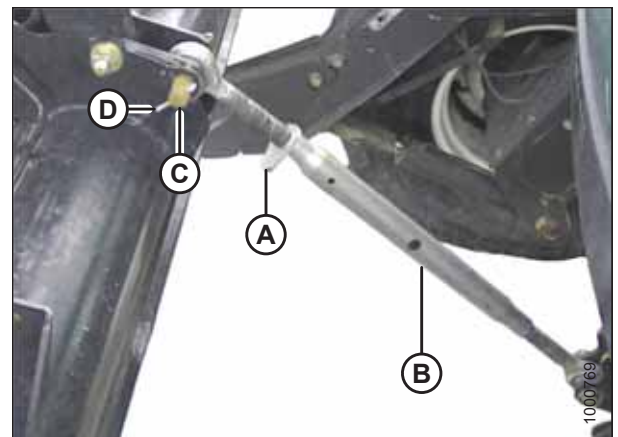


Figure 6.36: Mechanical Center-Link

DANGER

Ensure that all bystanders have cleared the area.

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

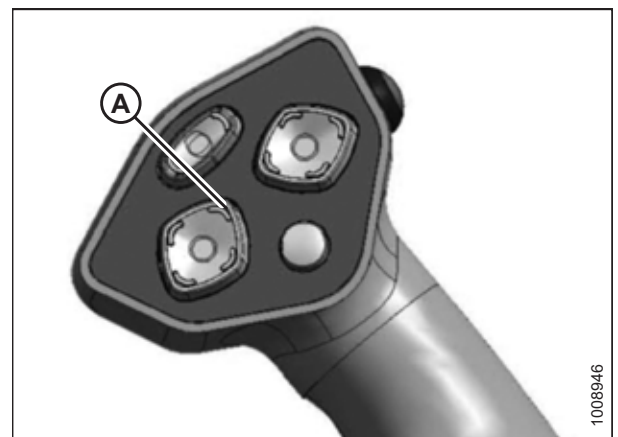


Figure 6.37: Ground Speed Lever

NOTE:

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

ATTACHING HEADERS

13. Engage the safety props on both lift cylinders:
 - a. Shut down the engine, and remove the key from the ignition.
 - b. Pull lever (A) and rotate it towards the header to release and lower safety prop (B) onto the lift cylinder.
 - c. Repeat the previous steps for the opposite lift cylinder.

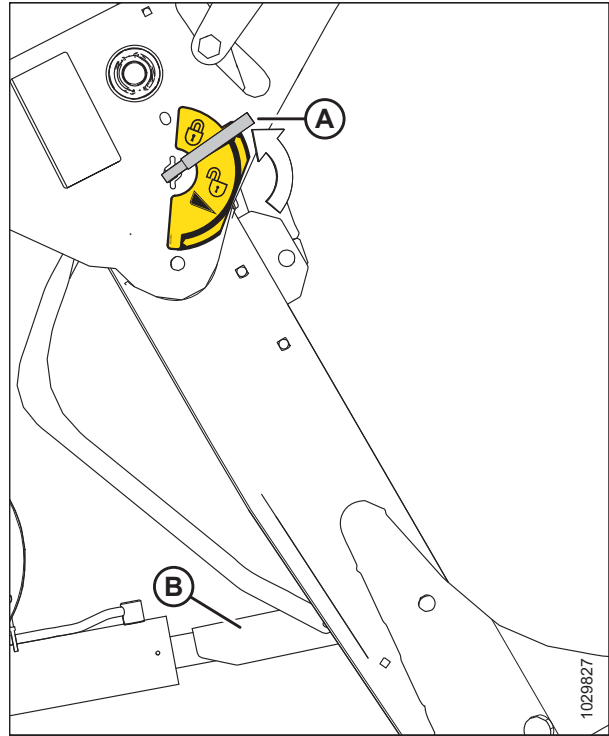


Figure 6.38: Safety Prop

14. Install pin (B) through the header leg, engaging the U-bracket in the lift linkage. Secure the pin with hairpin (A).
15. Raise header stand (D) to its storage position by pulling spring pin (C) and lifting the stand into the uppermost position. Release the spring pin.

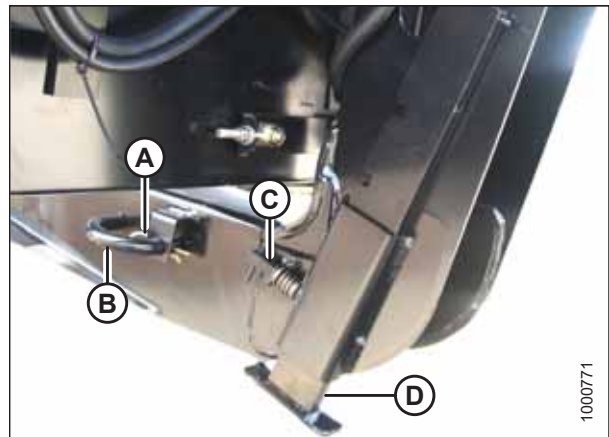


Figure 6.39: Header Leg

ATTACHING HEADERS

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

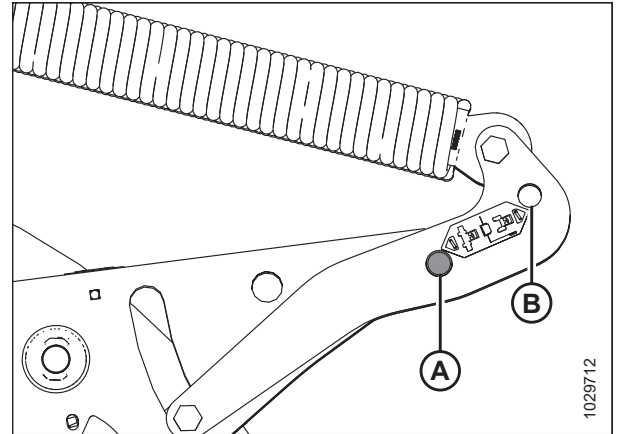


Figure 6.40: Header Float Linkage

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

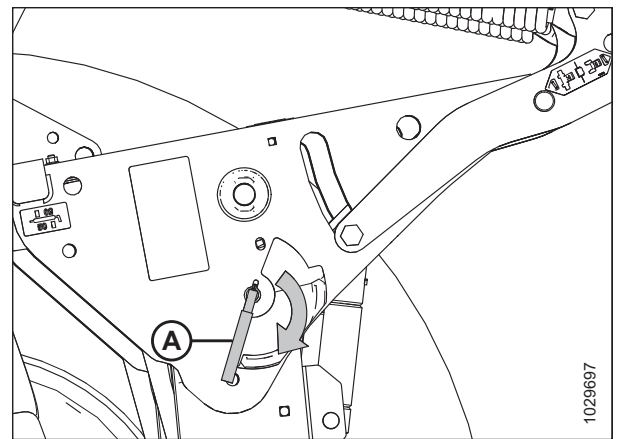


Figure 6.41: Safety Prop Lever

DANGER

Ensure that all bystanders have cleared the area.

19. Start the engine, and press HEADER DOWN switch (A) on the GSL to fully lower the header.
20. Shut down the engine, and remove the key from the ignition.

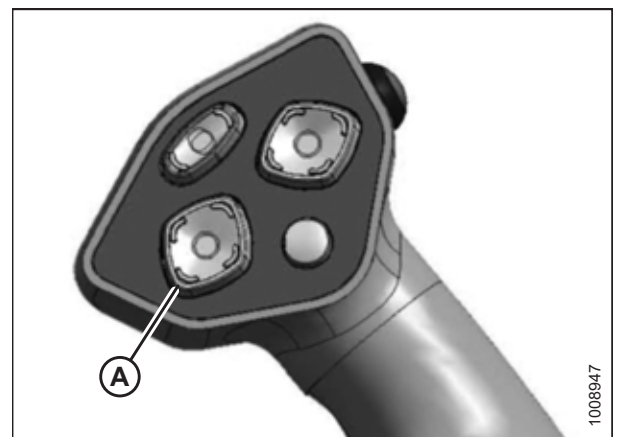


Figure 6.42: Ground Speed Lever

ATTACHING HEADERS

21. Connect header drive hoses (A) and electrical harness (B) to the header. For instructions, refer to the header operator's manual.

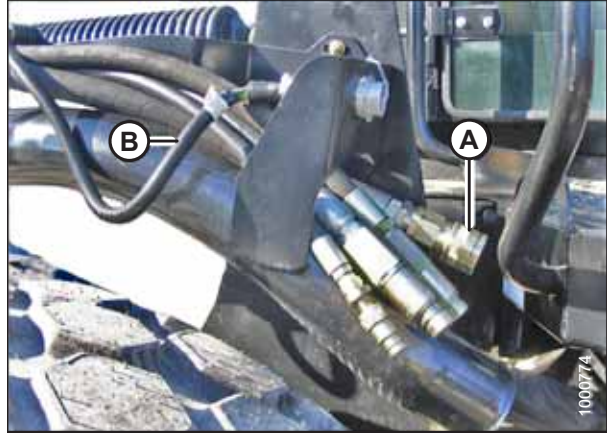


Figure 6.43: Header Drive Hoses and Harness

22. Connect reel hydraulics (A) at the right cab-forward side of the windrower. For instructions, refer to the draper header operator's manual.

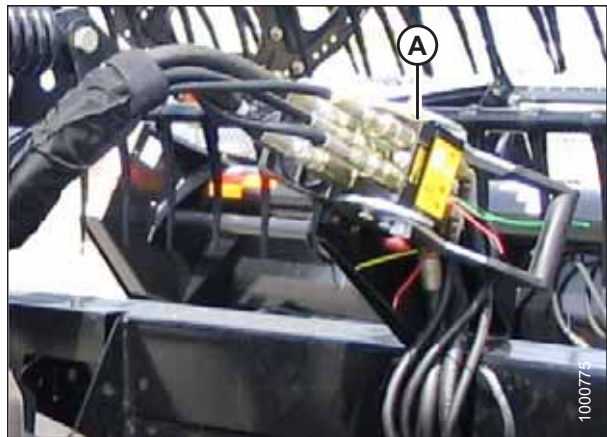


Figure 6.44: Reel Hydraulics

6.1.3 Attaching A Series Auger Header

A30D, A30S, and A40D Auger Headers can be attached to an M155 Self-Propelled Windrower.

1. The M155 Self-Propelled Windrower is factory-equipped to run an A Series Auger Header.

Windrowers equipped with A Series hydraulics have four header-drive hoses on the left side.

The attachment procedure varies depending on the type of center-link installed on the windrower. Refer to the following instructions based on the type of center-link installed on your windrower:

- *Attaching A Series Auger Header – Hydraulic Center-Link with Self-Alignment, page 207*
- *Attaching A Series Auger Header – Hydraulic Center-Link without Self-Alignment, page 213*
- *Attaching A Series Header – Mechanical Center-Link, page 219*



Figure 6.45: M155 and A40D Auger Header

Attaching A Series Auger Header – Hydraulic Center-Link with Self-Alignment

The windrower may be equipped with an optional self-aligning hydraulic center-link, which allows the Operator to control the vertical position of the center-link from the cab.

⚠ DANGER

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

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

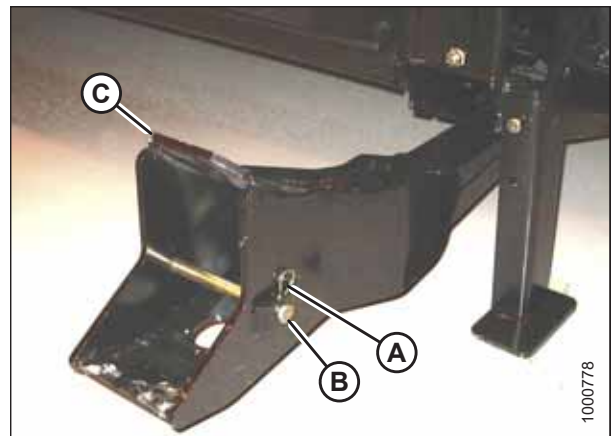


Figure 6.46: Header Boot

ATTACHING HEADERS

3. Check that the float engagement pin is installed in storage position (B) and **NOT** in engaged position (A).

IMPORTANT:

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

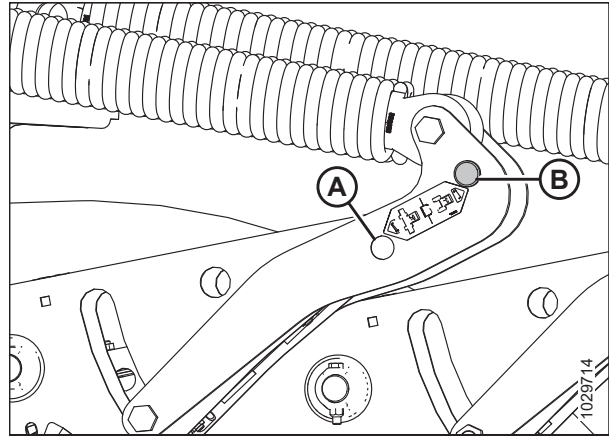


Figure 6.47: Header Float Linkage

DANGER

Ensure that all bystanders have cleared the area.

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

IMPORTANT:

Before starting the engine for the first time the windrower is operated in a season, remove the protective cover from the exhaust stack.

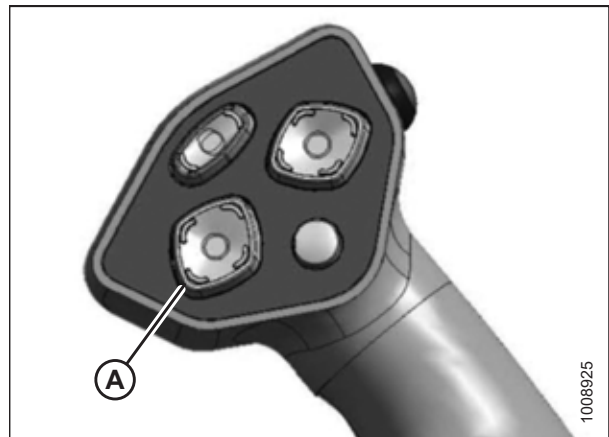


Figure 6.48: Ground Speed Lever

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

IMPORTANT:

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



Figure 6.49: Ground Speed Lever

ATTACHING HEADERS

6. Drive the windrower slowly forward until windrower feet (A) enter header supports (B). Continue driving slowly forward until the feet engage the supports and the header is nudged forward.

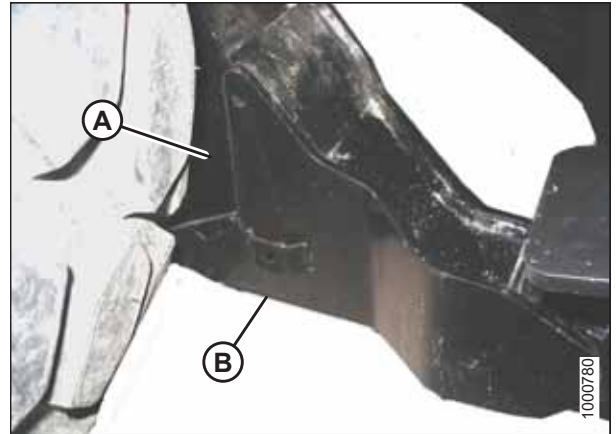


Figure 6.50: Header Support

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

IMPORTANT:

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

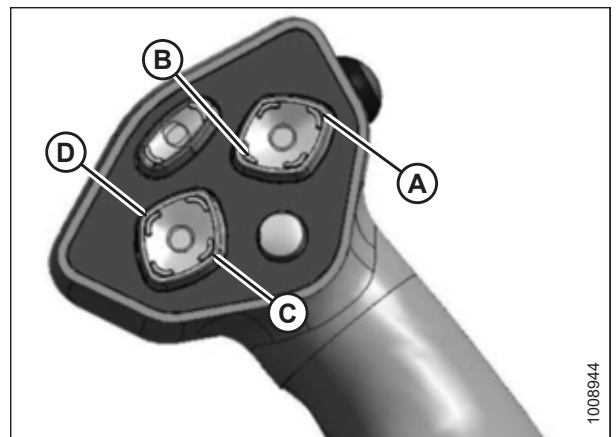


Figure 6.51: Ground Speed Lever

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

IMPORTANT:

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

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

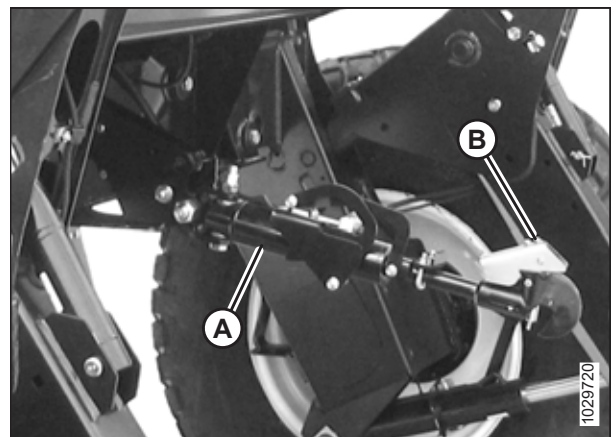


Figure 6.52: Hydraulic Center-Link

ATTACHING HEADERS

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

NOTE:

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



Figure 6.53: Ground Speed Lever

13. Engage the safety props on both lift cylinders:
 - a. Shut down the engine, and remove the key from the ignition.
 - b. Pull lever (A) and rotate it towards the header to release and lower safety prop (B) onto the lift cylinder.
 - c. Repeat the previous steps for the opposite lift cylinder.

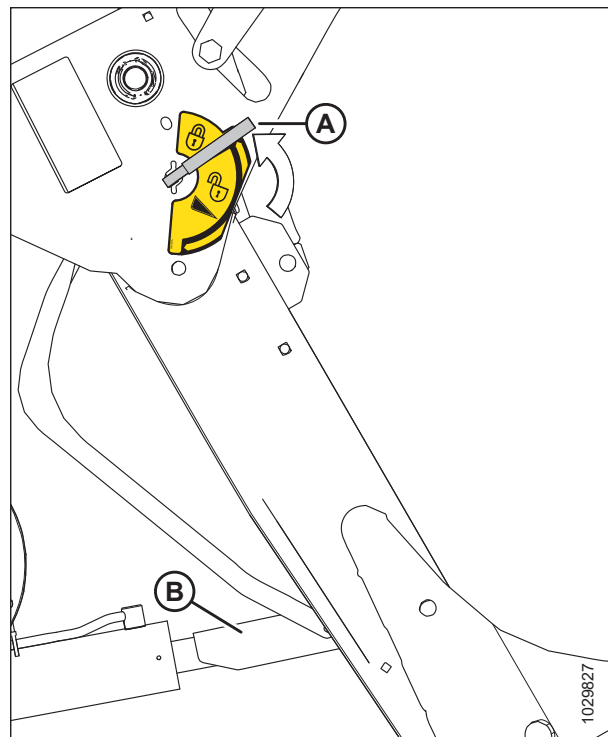


Figure 6.54: Safety Prop

ATTACHING HEADERS

14. Install clevis pin (A) through the support and the foot and secure it with the hairpin.

IMPORTANT:

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

15. Repeat the previous step to secure the support on the other side of the header.

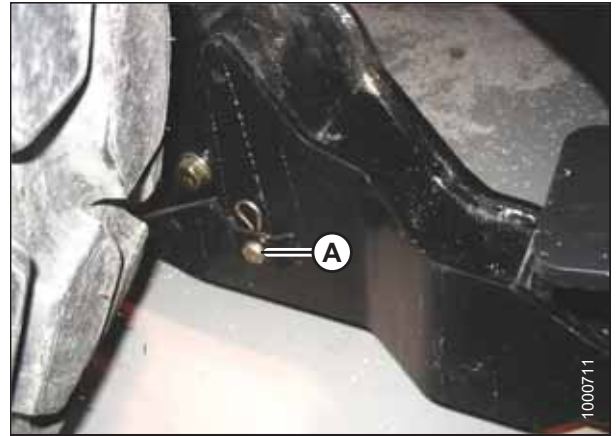


Figure 6.55: Header Support

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

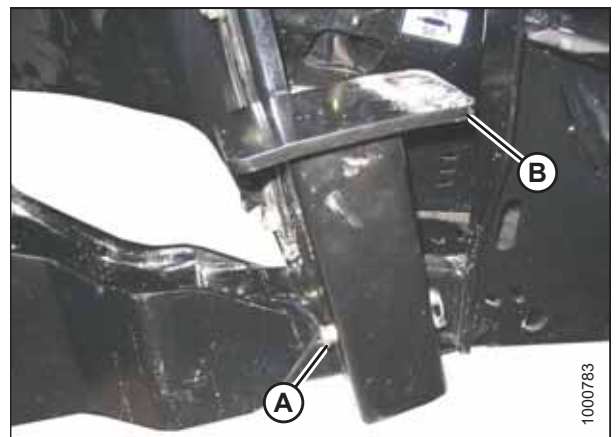


Figure 6.56: Header Stand

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

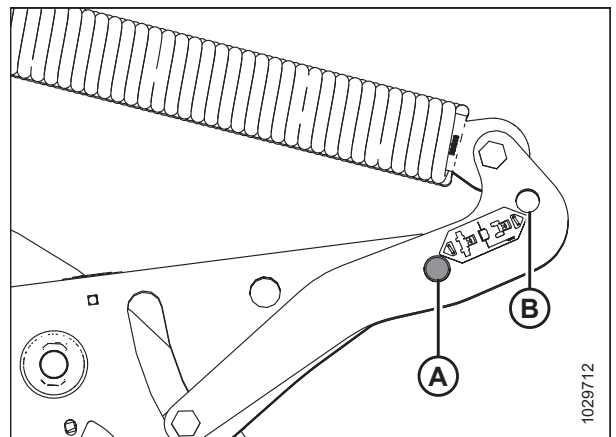


Figure 6.57: Header Float Linkage

ATTACHING HEADERS

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

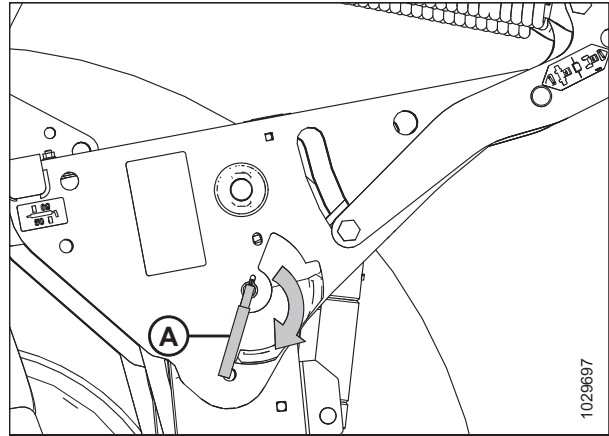


Figure 6.58: Safety Prop Lever

DANGER

Ensure that all bystanders have cleared the area.

22. Start the engine, and press HEADER DOWN switch (A) on the GSL to fully lower the header.
23. Stop the engine, and remove the key from the ignition.

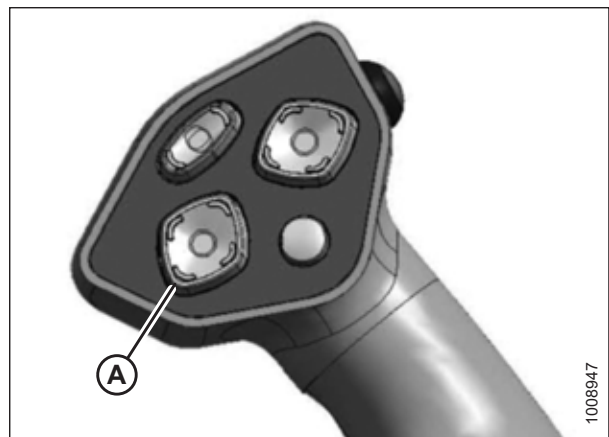


Figure 6.59: Ground Speed Lever

24. Connect header drive hoses (A) and electrical harness (B) to the header. For instructions, refer to the header operator's manual.

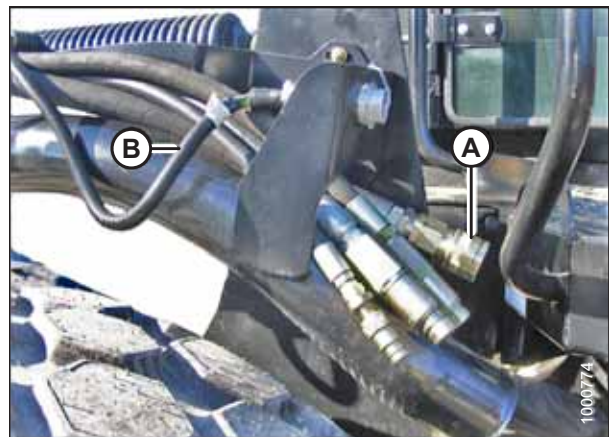


Figure 6.60: Header Drive Hoses and Harness

ATTACHING HEADERS

Attaching A Series Auger Header – Hydraulic Center-Link without Self-Alignment

The windrower may be equipped with a hydraulic center-link which lacks the self-alignment capability; the Operator will have to manually attach the hydraulic center-link's hook to the header's center pin.

DANGER

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

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

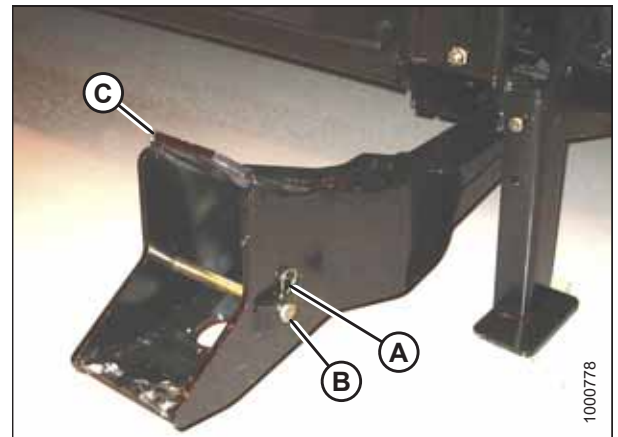


Figure 6.61: Header Boot

3. Check that the float engagement pin is installed in storage position (B) and **NOT** in engaged position (A).

IMPORTANT:

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

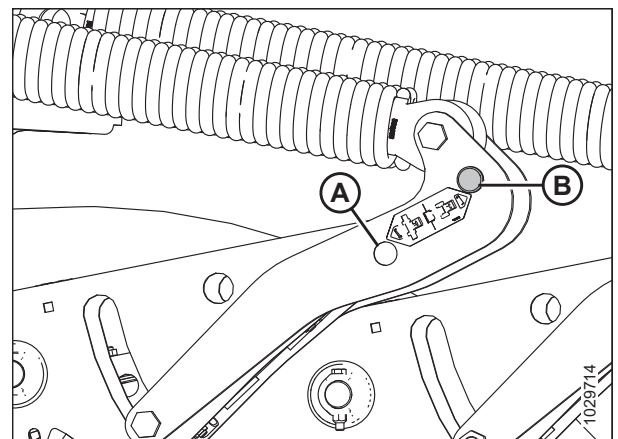


Figure 6.62: Header Float Linkage

ATTACHING HEADERS

DANGER

Ensure that all bystanders have cleared the area.

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

IMPORTANT:

Before starting the engine for the first time the windrower is operated in a season, remove the protective cover from the exhaust stack.

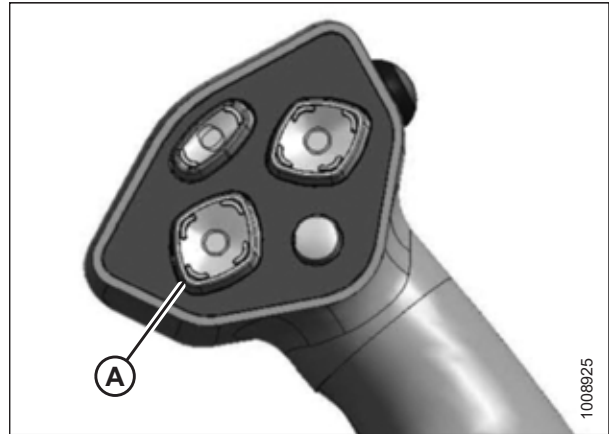


Figure 6.63: Ground Speed Lever

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

IMPORTANT:

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

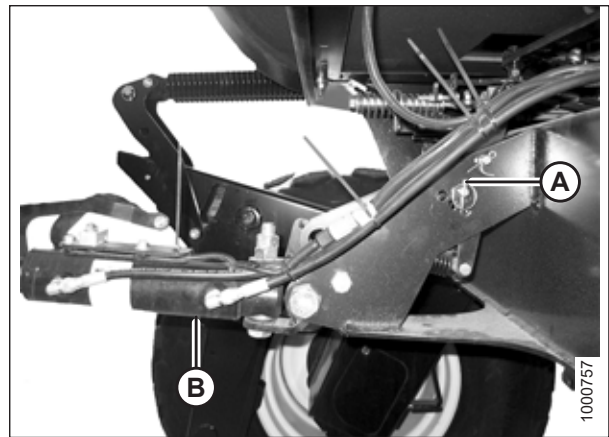


Figure 6.64: Hydraulic Center-Link without Self-Alignment Kit

6. Drive the windrower slowly forward until windrower feet (A) enter header supports (B). Continue driving slowly forward until the feet engage the supports and the header is nudged forward.

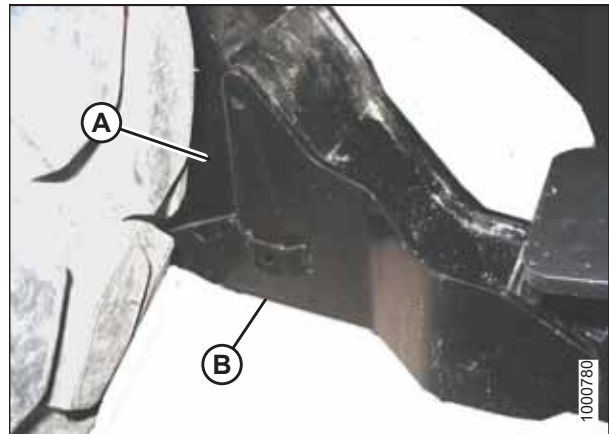


Figure 6.65: Header Support

ATTACHING HEADERS

7. Use the following ground speed lever functions to position the center-link hook above the header attachment pin:
 - HEADER TILT UP (A) to retract the center-link
 - HEADER TILT DOWN (B) to extend the center-link
8. Shut down the engine, and remove the key from the ignition.

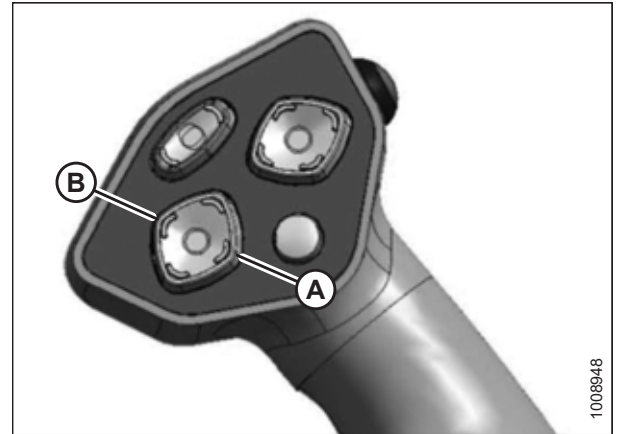


Figure 6.66: Ground Speed Lever

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

IMPORTANT:

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

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

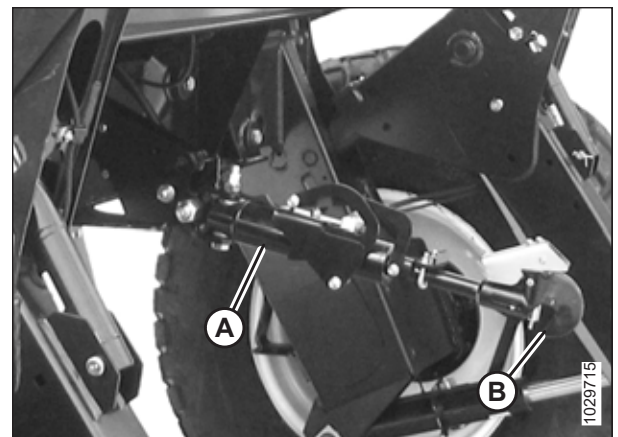


Figure 6.67: Hydraulic Center-Link

⚠ DANGER

Ensure that all bystanders have cleared the area.

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

NOTE:

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

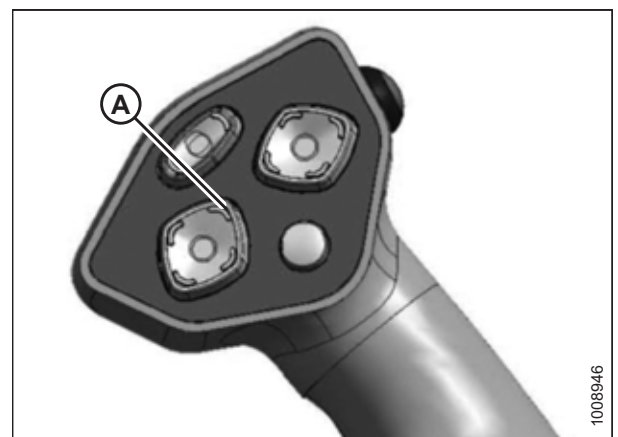


Figure 6.68: Ground Speed Lever

ATTACHING HEADERS

14. Engage the safety props on both lift cylinders:
 - a. Shut down the engine, and remove the key from the ignition.
 - b. Pull lever (A) and rotate it towards the header to release and lower safety prop (B) onto the lift cylinder.
 - c. Repeat the previous steps for the opposite lift cylinder.

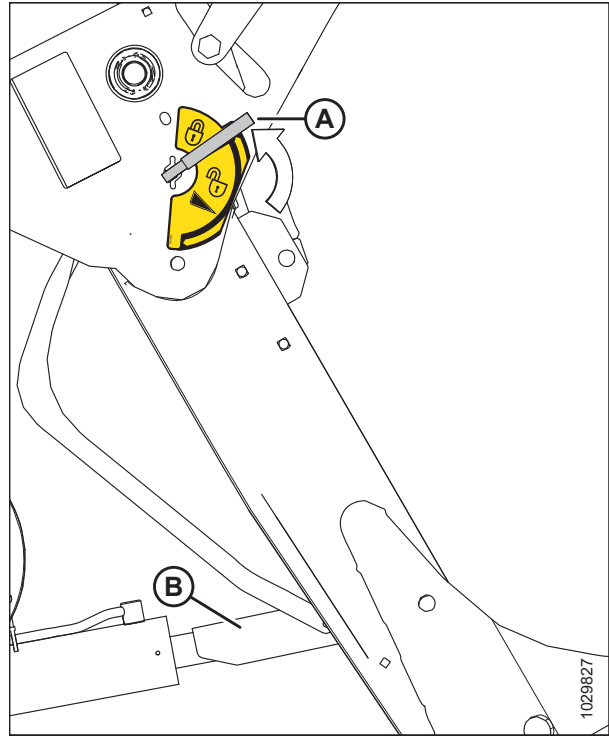


Figure 6.69: Safety Prop

15. Install clevis pin (A) through the support and the foot and secure it with the hairpin.

IMPORTANT:

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

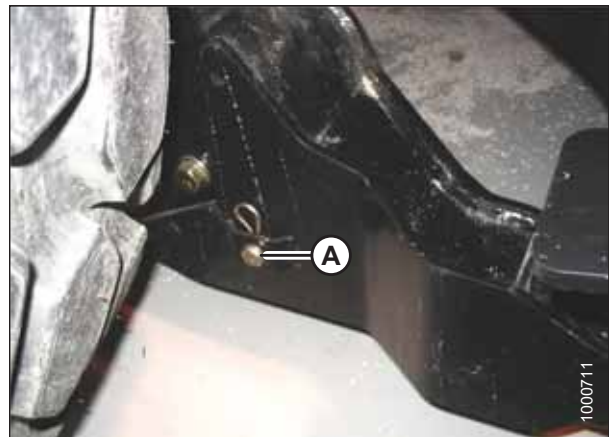


Figure 6.70: Header Support

ATTACHING HEADERS

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

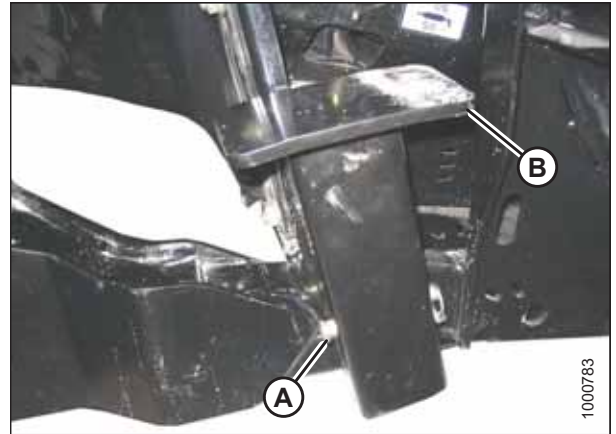


Figure 6.71: Header Stand

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

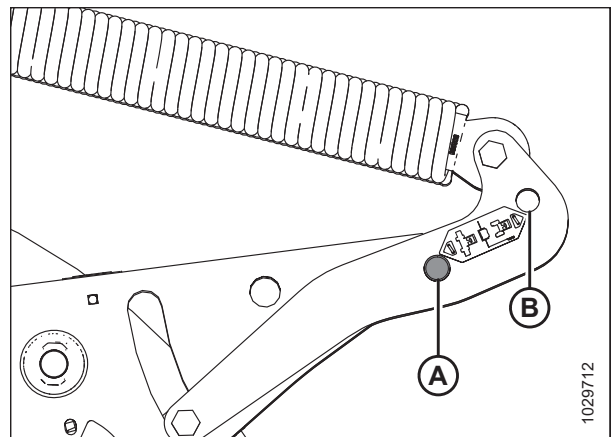


Figure 6.72: Header Float Linkage

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

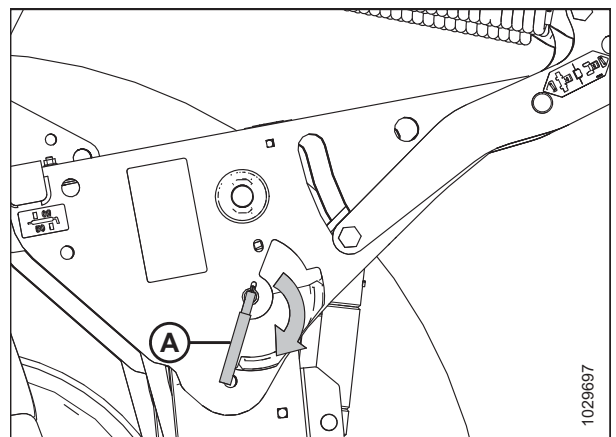


Figure 6.73: Safety Prop Lever

ATTACHING HEADERS

DANGER

Ensure that all bystanders have cleared the area.

22. Start the engine, and press HEADER DOWN switch (A) on the GSL to fully lower the header.
23. Stop the engine, and remove the key from the ignition.



Figure 6.74: Ground Speed Lever

24. Connect header drive hoses (A) and electrical harness (B) to the header. For instructions, refer to the header operator's manual.

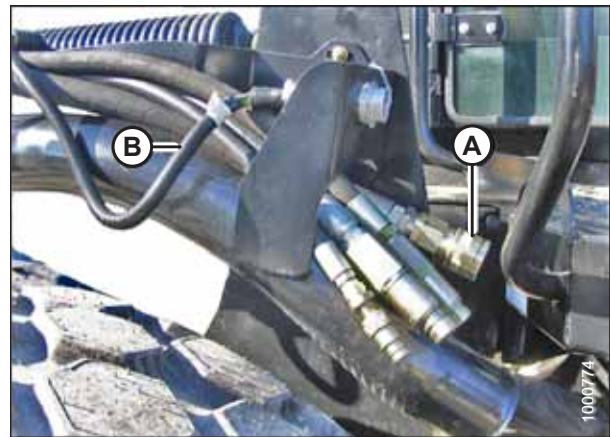


Figure 6.75: Header Drive Hoses and Harness

ATTACHING HEADERS

Attaching A Series Header – Mechanical Center-Link

DANGER

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

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

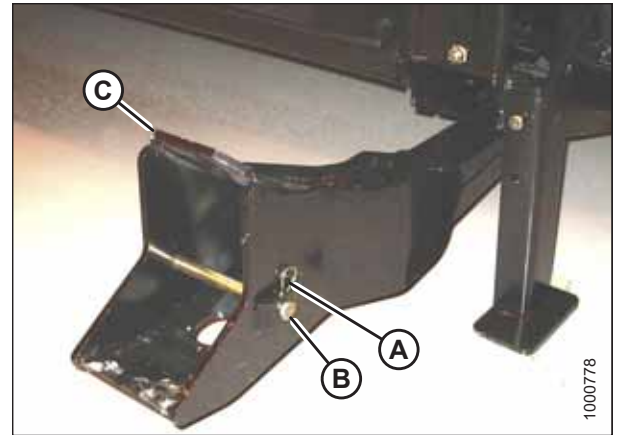


Figure 6.76: Header Boot

3. Check that the float engagement pin is installed in storage position (B) and **NOT** in engaged position (A).

IMPORTANT:

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

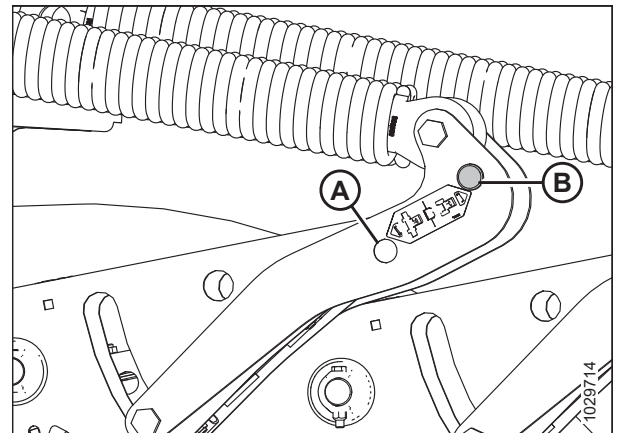


Figure 6.77: Header Float Linkage

DANGER

Ensure that all bystanders have cleared the area.

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

IMPORTANT:

Before starting the engine for the first time the windrower is operated in a season, remove the protective cover from the exhaust stack.

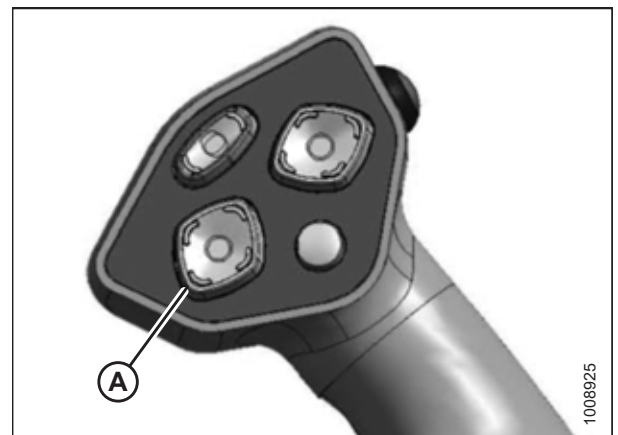


Figure 6.78: Ground Speed Lever

ATTACHING HEADERS

5. Drive the windrower slowly forward until boots (A) enter header legs (B). Continue driving slowly forward until the lift linkages contact the support plates in the header legs and the header is nudged forward.
6. Ensure that the lift linkages are properly engaged in the header legs and are contacting the support plates.

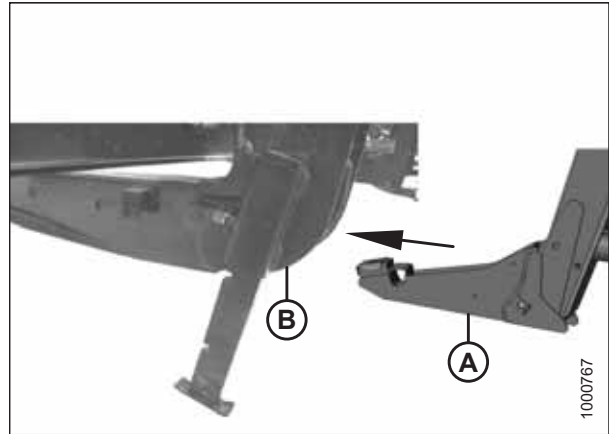


Figure 6.79: Header Leg and Boot

7. Shut down the engine, and remove the key from the ignition.
8. Loosen nut (A) and rotate barrel (B) to adjust length until the link is aligned with the header bracket.
9. Install clevis pin (C) and secure with cotter pin (D).
10. Adjust the length of the link to achieve proper header angle by rotating barrel (B). Tighten nut (A) against barrel (a slight tap with a hammer is sufficient).

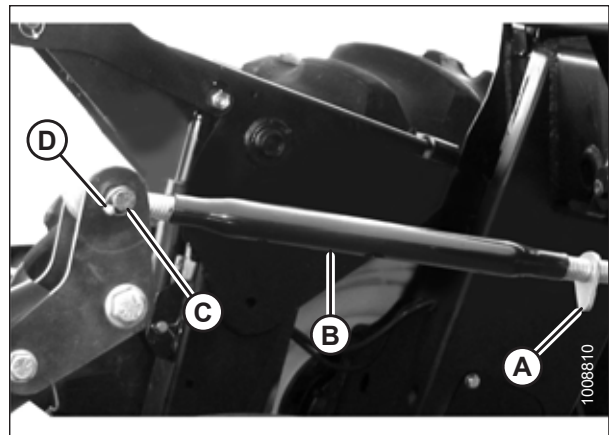


Figure 6.80: Mechanical Center Link

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

NOTE:

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



Figure 6.81: Ground Speed Lever

ATTACHING HEADERS

14. Engage the safety props on both lift cylinders:
 - a. Shut down the engine, and remove the key from the ignition.
 - b. Pull lever (A) and rotate it towards the header to release and lower safety prop (B) onto the lift cylinder.
 - c. Repeat the previous steps for the opposite lift cylinder.

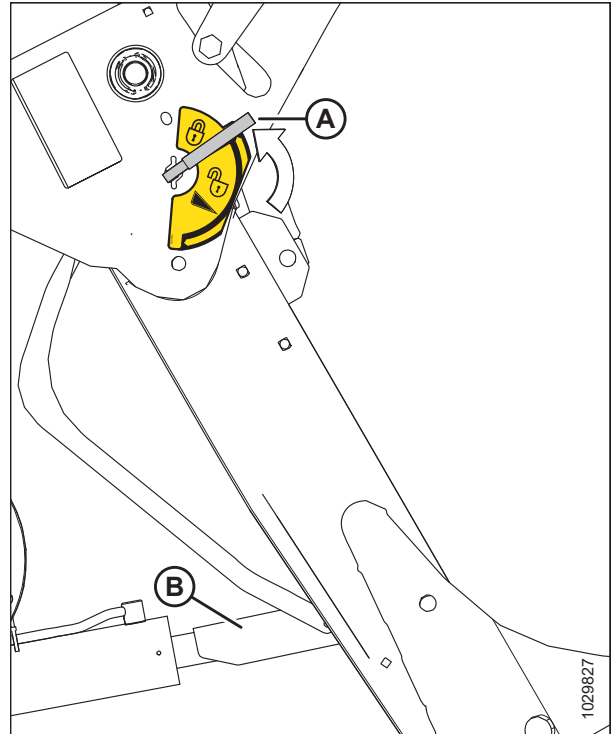


Figure 6.82: Safety Prop

15. Install clevis pin (A) through the support and the foot and secure it with the hairpin.

IMPORTANT:

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

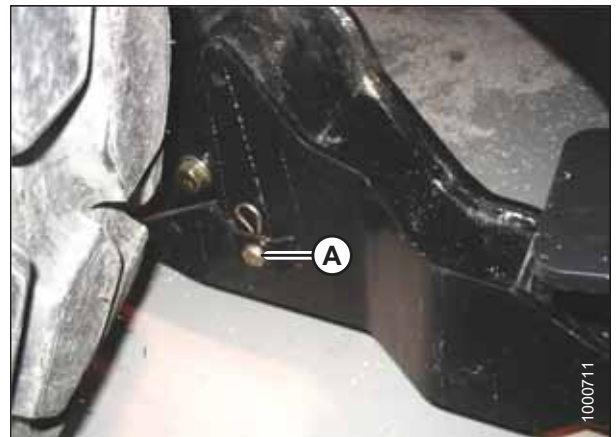


Figure 6.83: Header Support

ATTACHING HEADERS

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

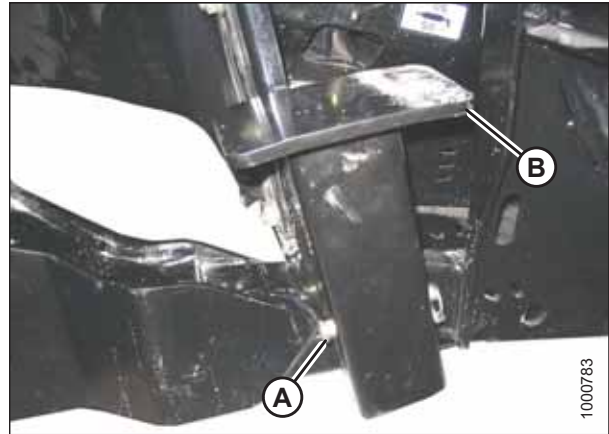


Figure 6.84: Header Stand

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

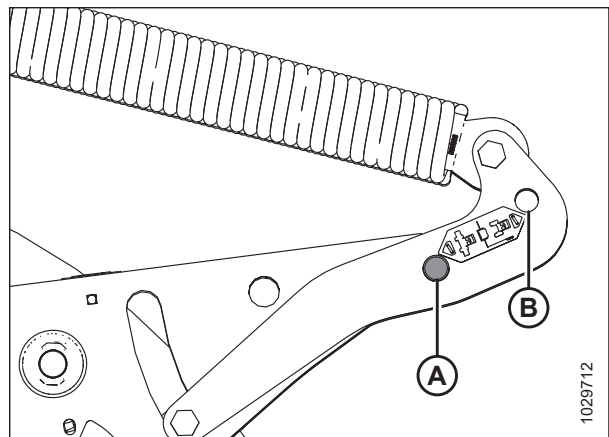


Figure 6.85: Header Float Linkage

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

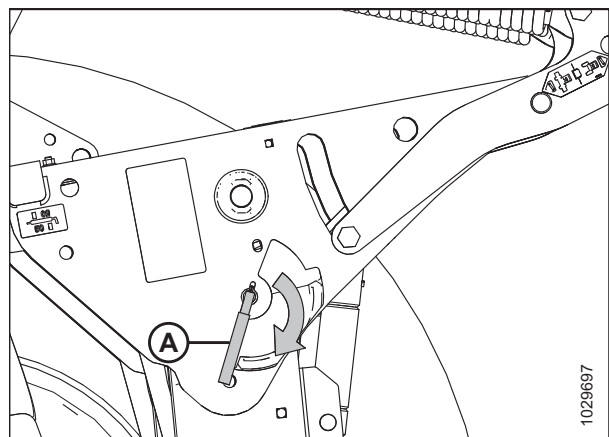


Figure 6.86: Safety Prop Lever

ATTACHING HEADERS

22. Connect header drive hoses (A) and electrical harness (B) to the header. For instructions, refer to the header operator's manual.

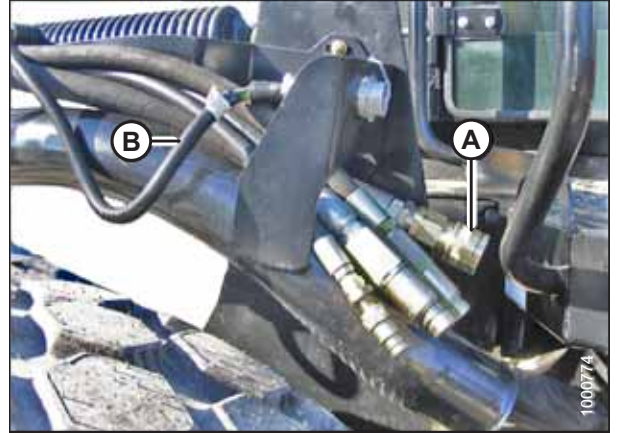


Figure 6.87: Header Drive Hoses and Harness

23. Connect reel hydraulics (A) at the right cab-forward side of the windrower. For instructions, refer to the draper header operator's manual.

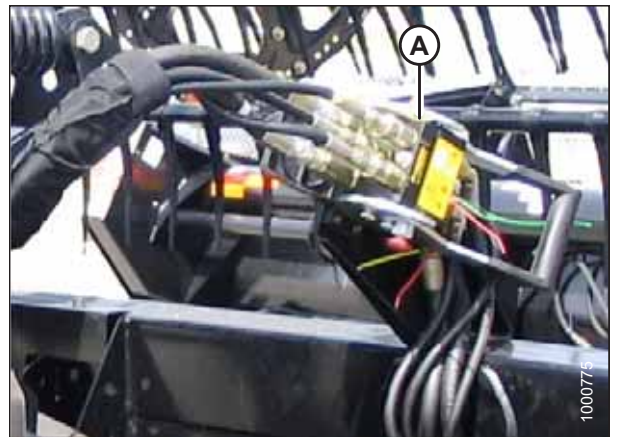


Figure 6.88: Reel Hydraulics

6.1.4 Attaching R Series or R1 Series Rotary Disc Header

M155 Self-Propelled Windrowers are compatible with R and R1 Series Rotary Disc Headers.

NOTE:

Install 18.4 x 26 tires on the drive wheels when operating an M155 Self-Propelled Windrower with an attached 4 m (13 ft.) R or R1 Series Rotary Disc Header. These drive tires are reversible and should be mounted inset at 3792 mm (149.3 in.) to provide the greatest amount of clearance to uncut crop. Mounting these tires outset or mounting any other drive tire option will result in the drive tires being slightly wider than the header. This may cause some uncut crop to be trampled by the tires when turning the windrower, and may leave some uncut strips of crop in the windrower’s next pass.

1. The M155 Self-Propelled Windrower can operate the following rotary disc headers:

- 4 m (13 ft.) R Series
- R1 Series

These headers are shipped without the motor or hoses installed, so a separate motor, hose bundle, and hydraulic valve kit is required to operate the header.

If necessary, obtain the following kits and install them in accordance with the instructions supplied with the kits.

Table 6.1 Rotary Disc Header Bundles – R Series

Kit Description	Kit Number
Hydraulic Drive kit	MD #B5510
Hydraulic Valve kit	MD #B4657

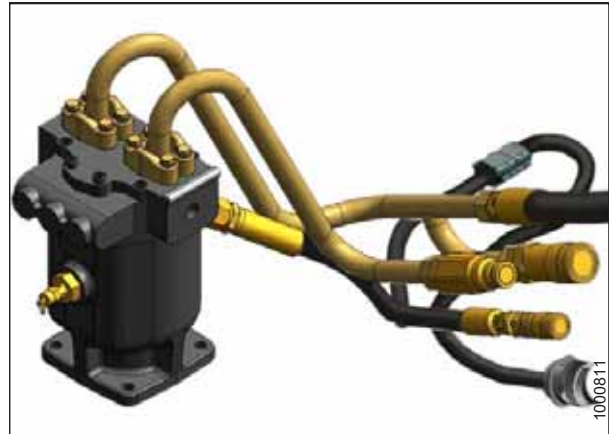


Figure 6.89: M155 Hydraulic Drive Kit (MD #B5510)

Refer to the following instructions based on the type of center-link installed on your windrower:

- [Attaching R or R1 Series Rotary Header – Hydraulic Center-Link with Self-Alignment, page 224](#)
- [Attaching R or R1 Series Rotary Header – Hydraulic Center-Link without Self-Alignment, page 230](#)
- [Attaching an R Series or R1 Series Header – Mechanical Center-Link, page 237](#)

Attaching R or R1 Series Rotary Header – Hydraulic Center-Link with Self-Alignment

The windrower may be equipped with an optional self-aligning hydraulic center-link, which allows the Operator to control the vertical position of the center-link from the cab.

 DANGER

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

1. Shut down the engine, and remove the key from the ignition.

ATTACHING HEADERS

2. Locate header supports (A) on the rear of the header.

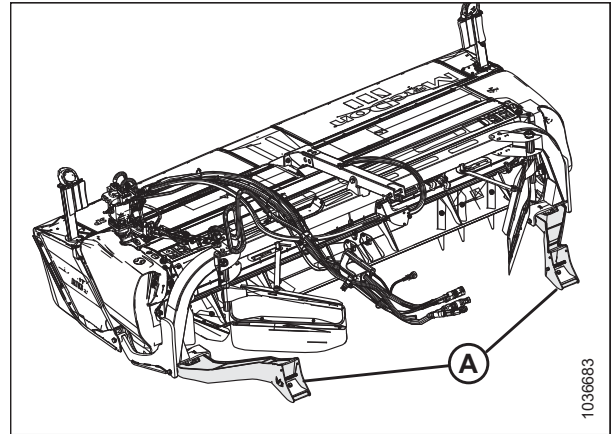


Figure 6.90: Header Supports – R113 SP

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

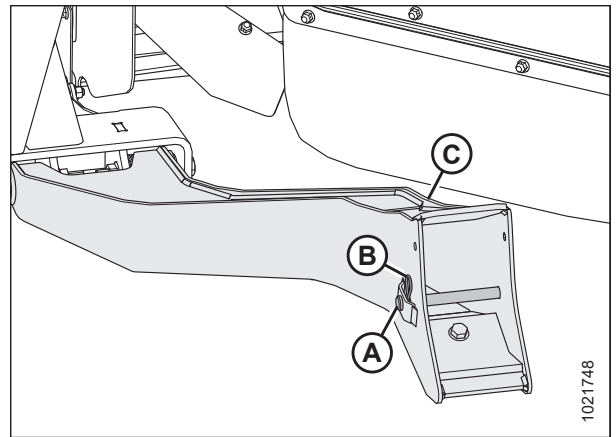


Figure 6.91: Header Support

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

IMPORTANT:

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

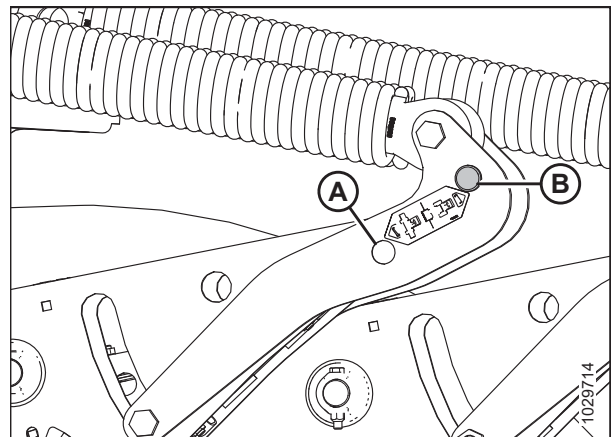


Figure 6.92: Float Linkage

ATTACHING HEADERS

DANGER

Ensure that all bystanders have cleared the area.

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

IMPORTANT:

Before starting the engine for the first time the windrower is operated in a season, remove the protective cover from the exhaust stack.

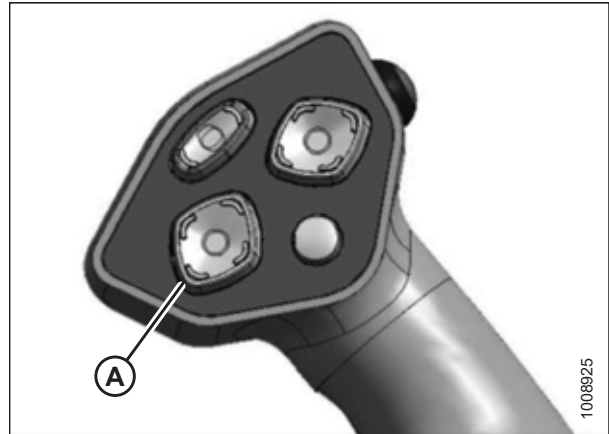


Figure 6.93: Ground Speed Lever

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

IMPORTANT:

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



Figure 6.94: Ground Speed Lever

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

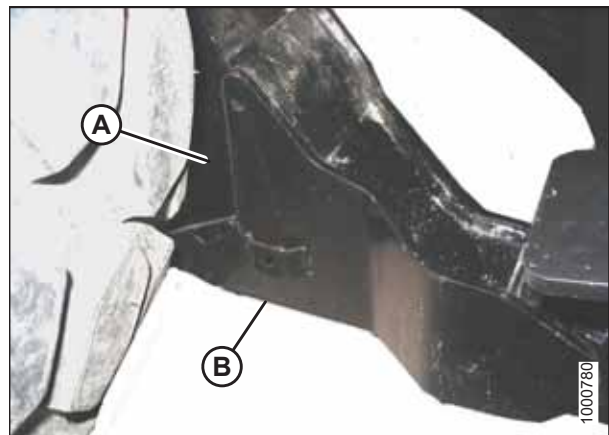


Figure 6.95: Header Support

ATTACHING HEADERS

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

IMPORTANT:

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

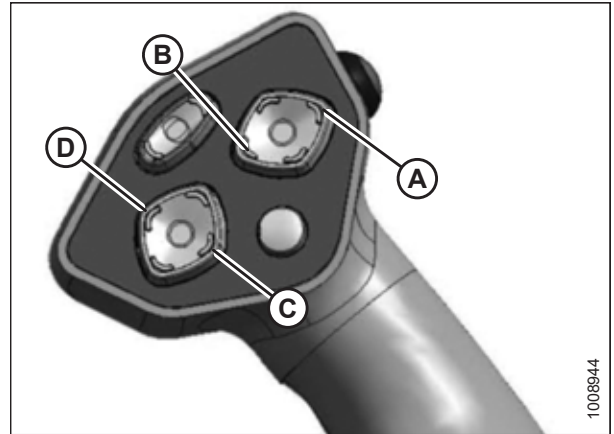


Figure 6.96: Ground Speed Lever

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

IMPORTANT:

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

10. Lower center-link (A) onto the header using the REEL DOWN switch on the GSL until the center-link locks into position and hook release (B) is down.
11. Check that the center-link is locked onto the header by pressing the REEL UP switch on the GSL.
12. Press HEADER UP switch (A) to raise the header to its maximum height.
13. If one end of the header does **NOT** fully rise, rephase the lift cylinders as follows:
 - a. Press and hold the HEADER UP switch until both cylinders stop moving.
 - b. Continue to hold the switch for 3–4 seconds. The cylinders are now phased.

NOTE:

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

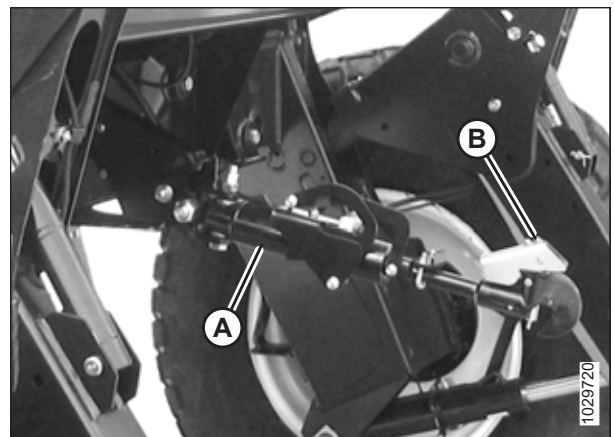


Figure 6.97: Hydraulic Center-Link



Figure 6.98: Ground Speed Lever

ATTACHING HEADERS

14. Engage the safety props on both lift cylinders:
 - a. Shut down the engine, and remove the key from the ignition.
 - b. Pull lever (A) and rotate it towards the header to release and lower safety prop (B) onto the lift cylinder.
 - c. Repeat the previous steps for the opposite lift cylinder.

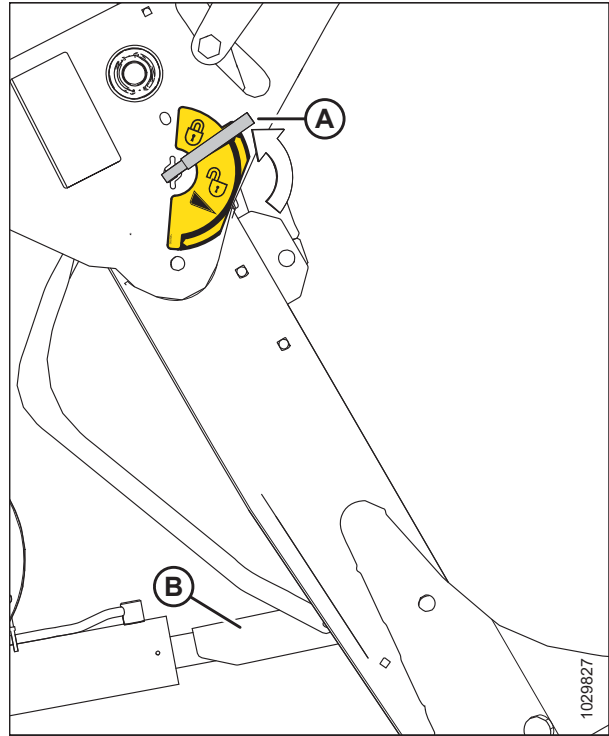


Figure 6.99: Safety Prop

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

IMPORTANT:

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

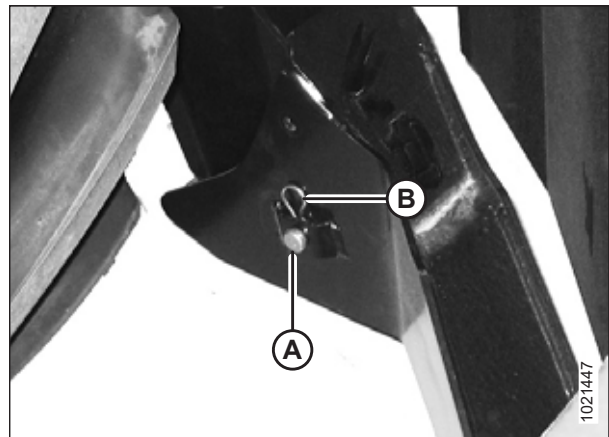


Figure 6.100: Header Support

ATTACHING HEADERS

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

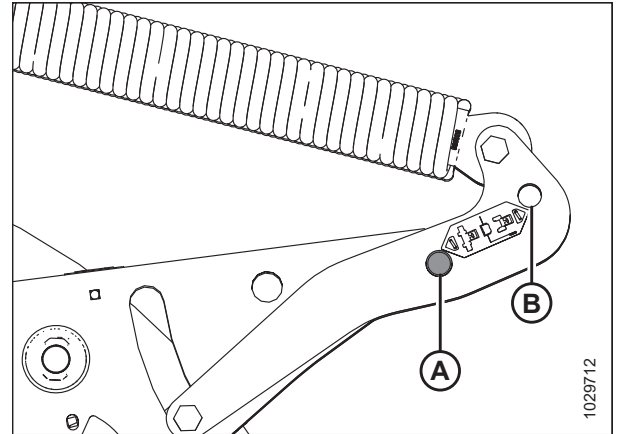


Figure 6.101: Header Float Linkage

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

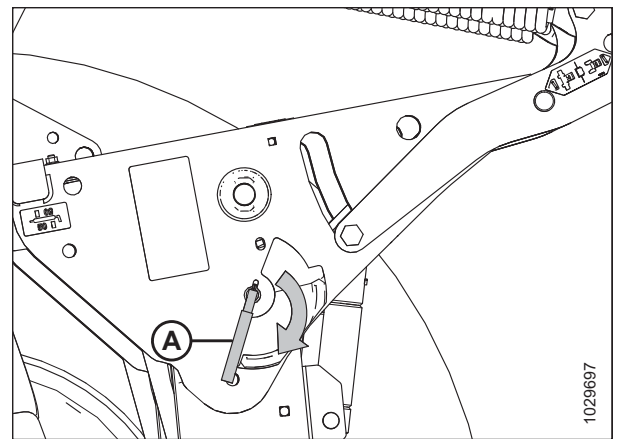


Figure 6.102: Safety Prop Lever

DANGER

Ensure that all bystanders have cleared the area.

19. Start the engine, and press HEADER DOWN switch (A) on the GSL to fully lower the header.
20. Stop the engine, and remove the key from the ignition.

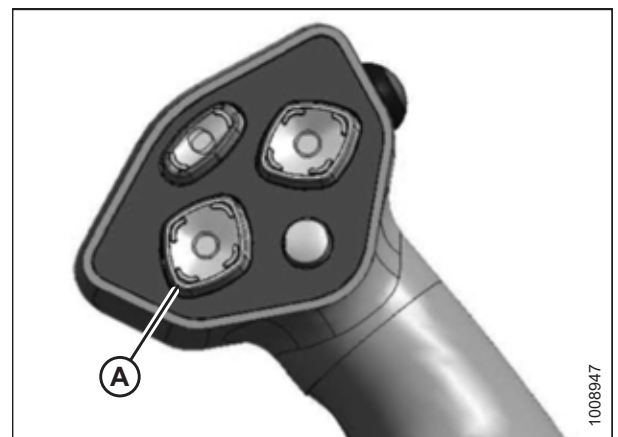


Figure 6.103: Ground Speed Lever

ATTACHING HEADERS

21. Connect header drive hoses (A) and electrical harness (B) to the header. For instructions, refer to the header operator's manual.

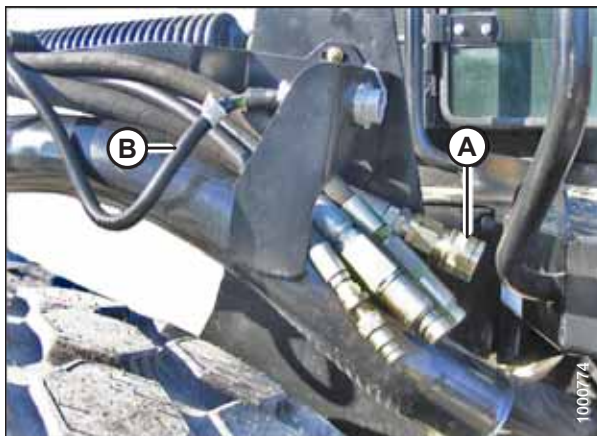


Figure 6.104: Header Drive Hoses and Harness

Attaching R or R1 Series Rotary Header – Hydraulic Center-Link without Self-Alignment

The windrower may be equipped with a hydraulic center-link which lacks the self-alignment capability; the Operator will have to manually attach the hydraulic center-link's hook to the header's center pin.

⚠ DANGER

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

1. Shut down the engine, and remove the key from the ignition.
2. Locate header supports (A) on the rear of the header.

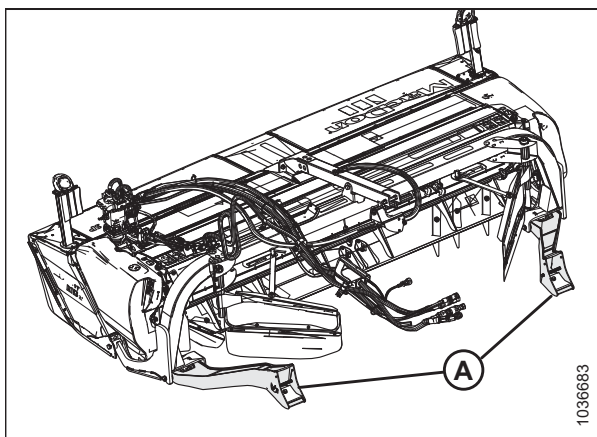


Figure 6.105: Header Supports – R113 SP

ATTACHING HEADERS

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

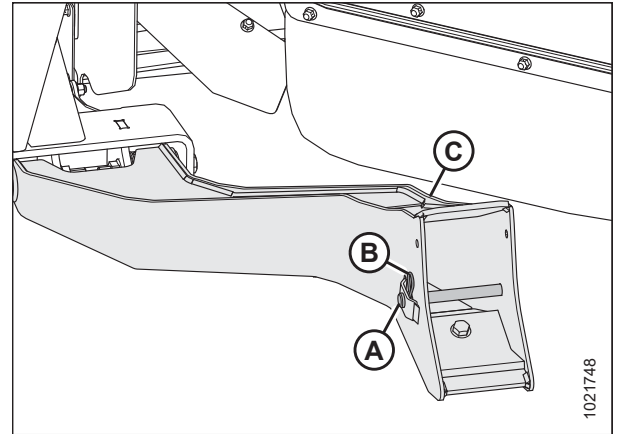


Figure 6.106: Header Support

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

IMPORTANT:

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

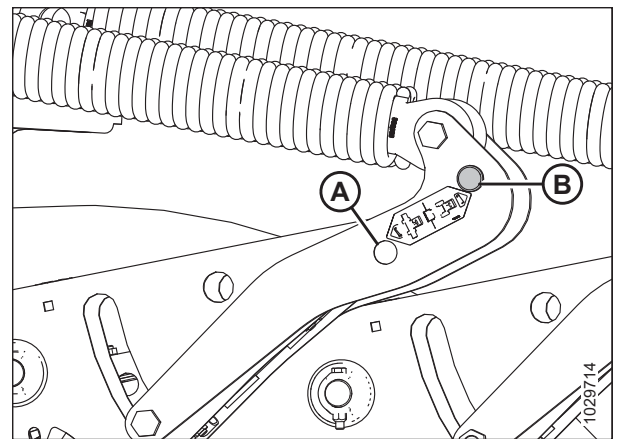


Figure 6.107: Header Float Linkage

DANGER

Ensure that all bystanders have cleared the area.

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

IMPORTANT:

Before starting the engine for the first time the windrower is operated in a season, remove the protective cover from the exhaust stack.

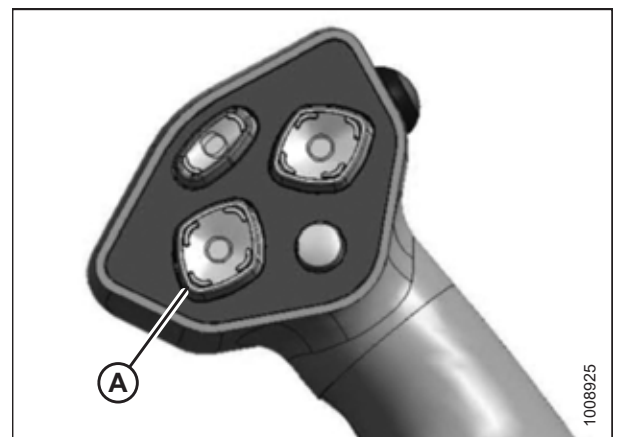


Figure 6.108: Ground Speed Lever

ATTACHING HEADERS

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

IMPORTANT:

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

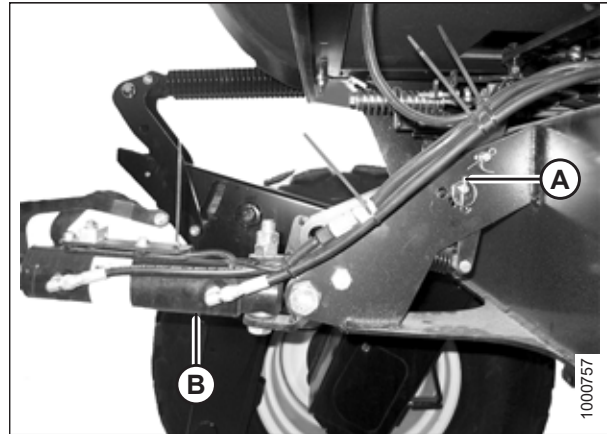


Figure 6.109: Hydraulic Center-Link without Self-Alignment Kit

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

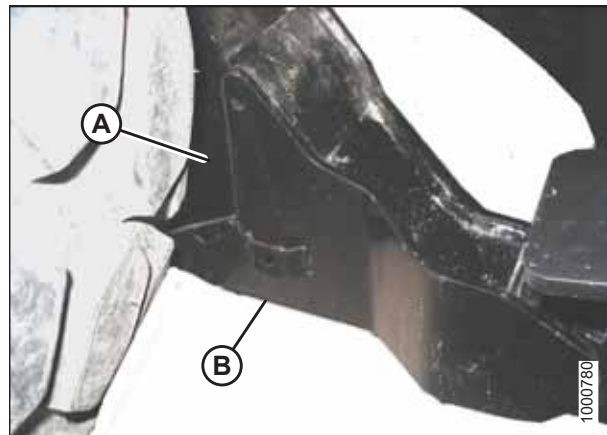


Figure 6.110: Header Support

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

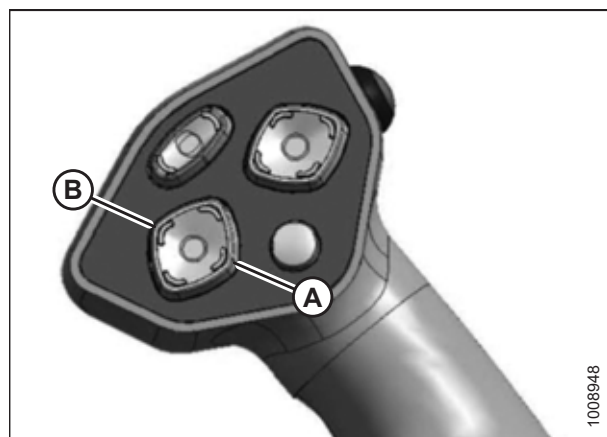


Figure 6.111: Ground Speed Lever

ATTACHING HEADERS

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

IMPORTANT:

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

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

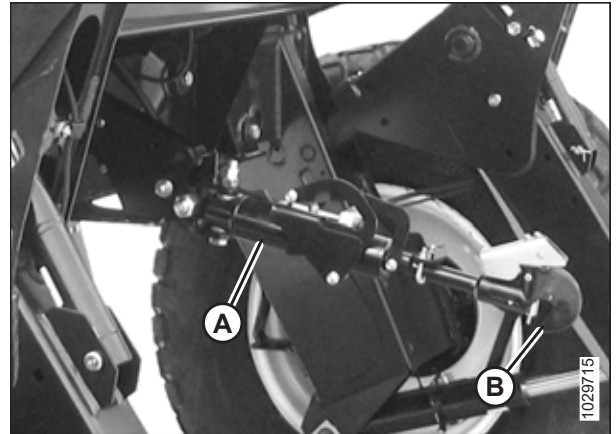


Figure 6.112: Hydraulic Center-Link



DANGER

Ensure that all bystanders have cleared the area.

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

NOTE:

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



Figure 6.113: Ground Speed Lever

ATTACHING HEADERS

15. Engage the safety props on both lift cylinders:
 - a. Shut down the engine, and remove the key from the ignition.
 - b. Pull lever (A) and rotate it towards the header to release and lower safety prop (B) onto the lift cylinder.
 - c. Repeat the previous steps for the opposite lift cylinder.

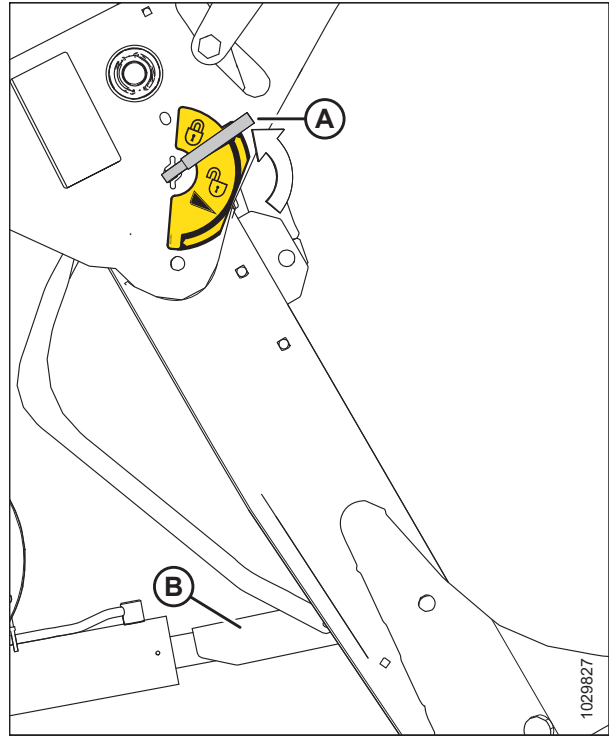


Figure 6.114: Safety Prop

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

IMPORTANT:

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

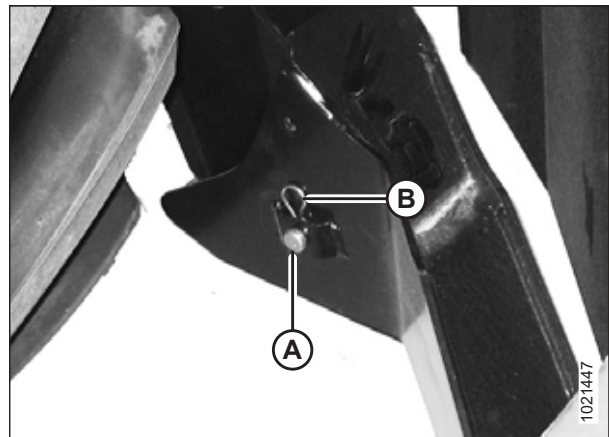


Figure 6.115: Header Support

ATTACHING HEADERS

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

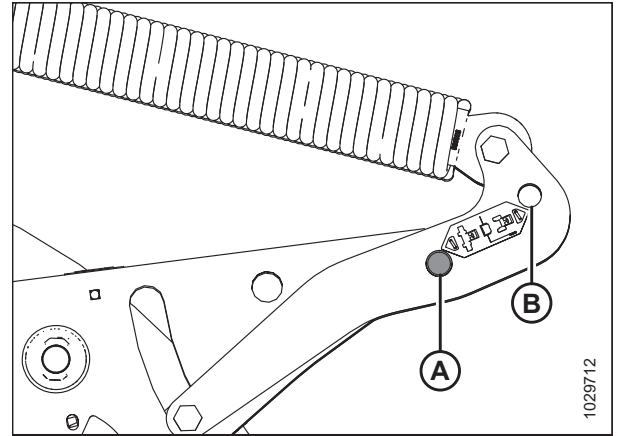


Figure 6.116: Header Float Linkage

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

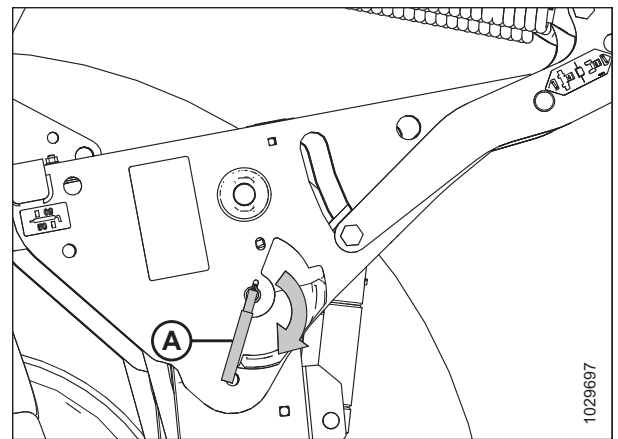


Figure 6.117: Safety Prop Lever

DANGER

Ensure that all bystanders have cleared the area.

20. Start the engine, and press HEADER DOWN switch (A) on the GSL to fully lower the header.
21. Stop the engine, and remove the key from the ignition.

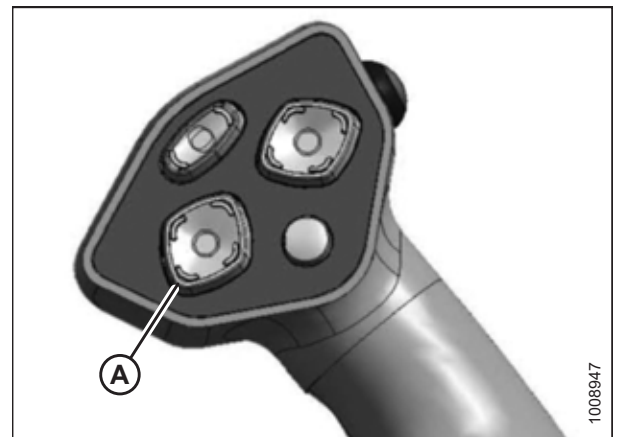


Figure 6.118: Ground Speed Lever

ATTACHING HEADERS

22. Connect header drive hoses (A) and electrical harness (B) to the header. For instructions, refer to the header operator's manual.

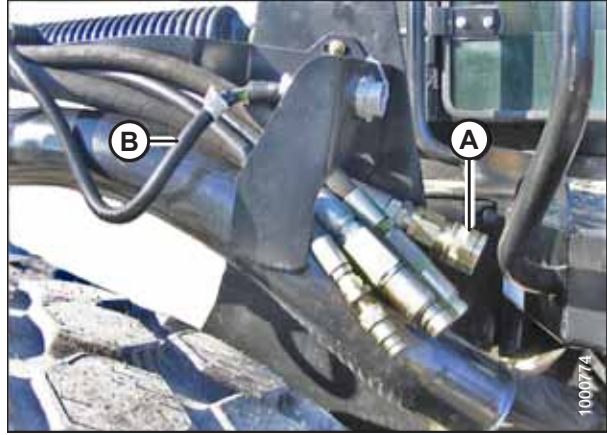


Figure 6.119: Header Drive Hoses and Harness

ATTACHING HEADERS

Attaching an R Series or R1 Series Header – Mechanical Center-Link

DANGER

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

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

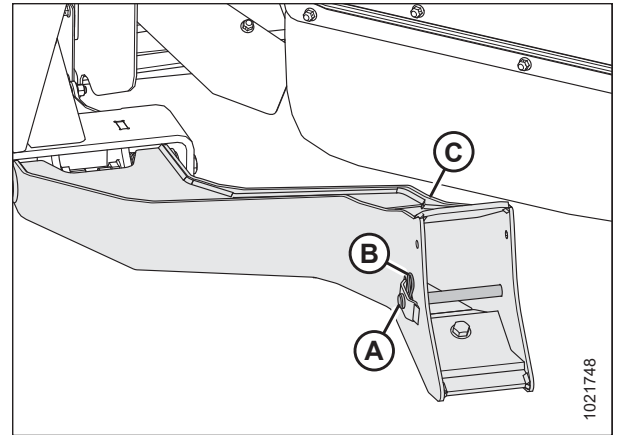


Figure 6.120: Header Support

3. Check that the float engagement pin is installed in storage position (B) and **NOT** in engaged position (A).

IMPORTANT:

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

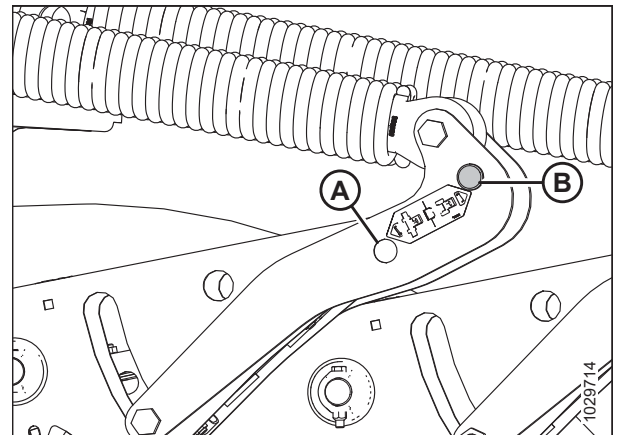


Figure 6.121: Header Float Linkage

DANGER

Ensure that all bystanders have cleared the area.

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

IMPORTANT:

Before starting the engine for the first time the windrower is operated in a season, remove the protective cover from the exhaust stack.

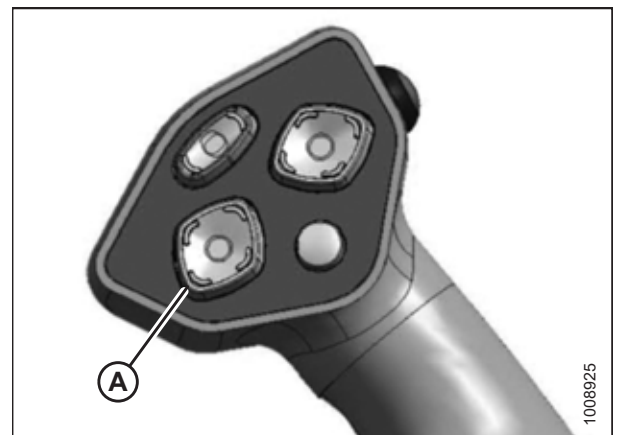


Figure 6.122: Ground Speed Lever

ATTACHING HEADERS

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

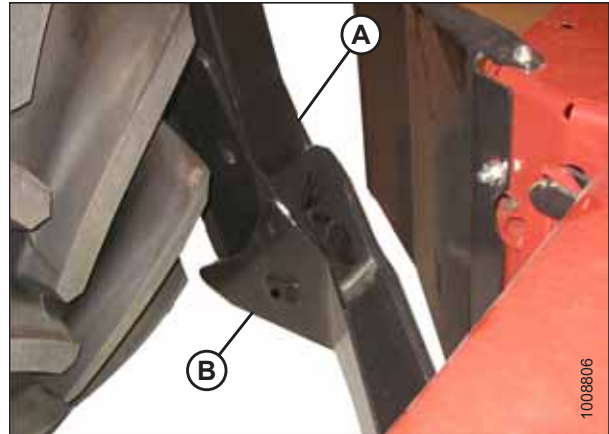


Figure 6.123: Header Support

6. Shut down the engine, and remove the key from the ignition.
7. Loosen nut (A) and rotate barrel (B) to adjust length until the link is aligned with the header bracket.
8. Install clevis pin (C) and secure with cotter pin (D).
9. Adjust the length of the link to achieve proper header angle by rotating barrel (B). Tighten nut (A) against barrel (a slight tap with a hammer is sufficient).

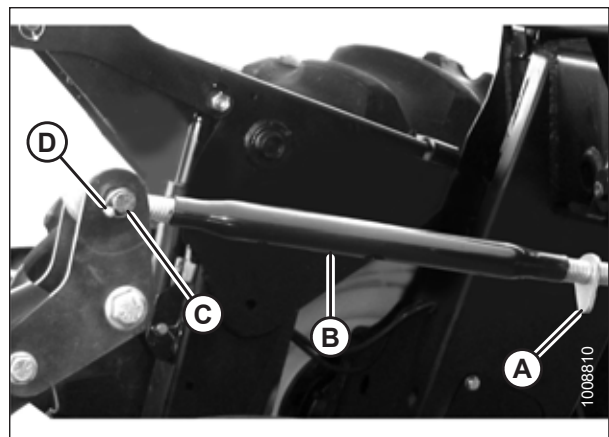


Figure 6.124: Mechanical Center-Link

DANGER

Ensure that all bystanders have cleared the area.

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



Figure 6.125: Ground Speed Lever

NOTE:

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

ATTACHING HEADERS

13. Engage the safety props on both lift cylinders:
 - a. Shut down the engine, and remove the key from the ignition.
 - b. Pull lever (A) and rotate it towards the header to release and lower safety prop (B) onto the lift cylinder.
 - c. Repeat the previous steps for the opposite lift cylinder.

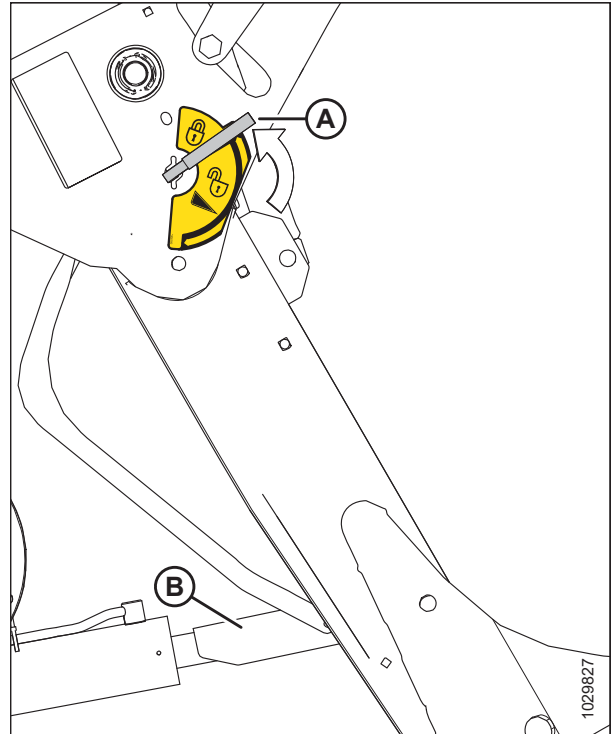


Figure 6.126: Safety Prop

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

IMPORTANT:

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

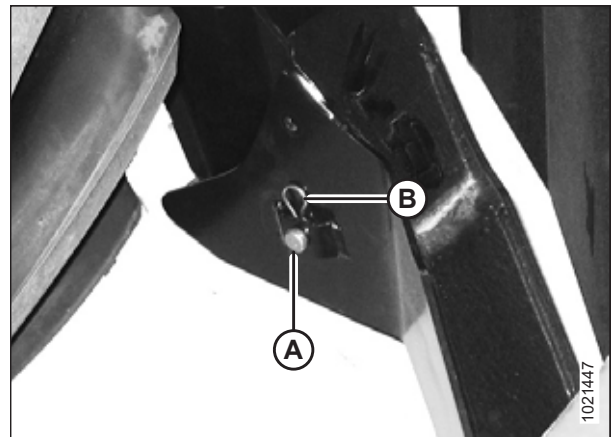


Figure 6.127: Header Support

ATTACHING HEADERS

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

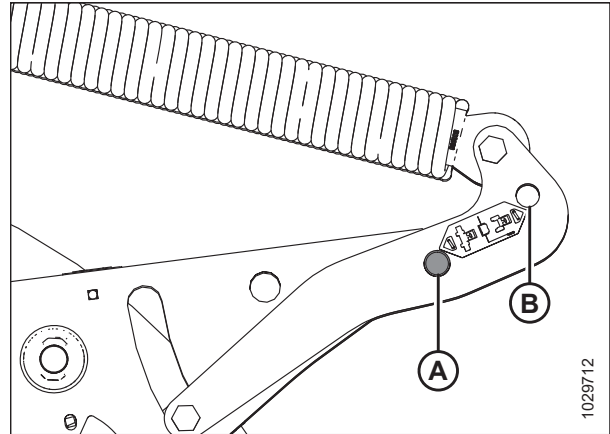


Figure 6.128: Header Float Linkage

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

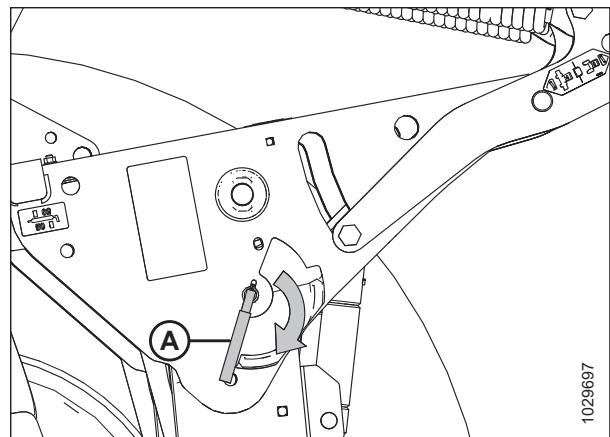


Figure 6.129: Safety Prop Lever

DANGER

Ensure that all bystanders have cleared the area.

18. Start the engine, and press HEADER DOWN switch (A) on the GSL to fully lower the header.
19. Stop the engine, and remove the key from the ignition.

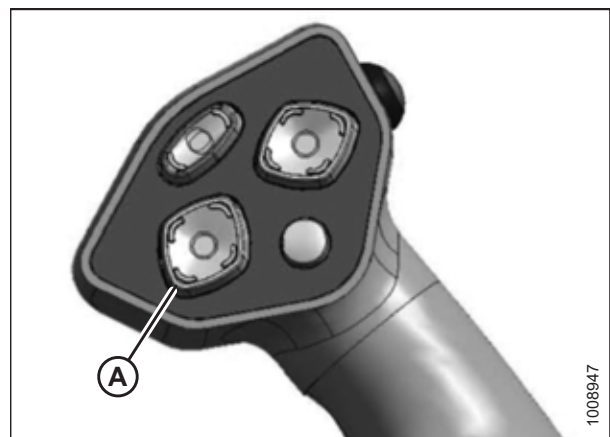


Figure 6.130: Ground Speed Lever

ATTACHING HEADERS

20. Connect header drive hoses (A) and electrical harness (B) to the header. For instructions, refer to the header operator's manual.

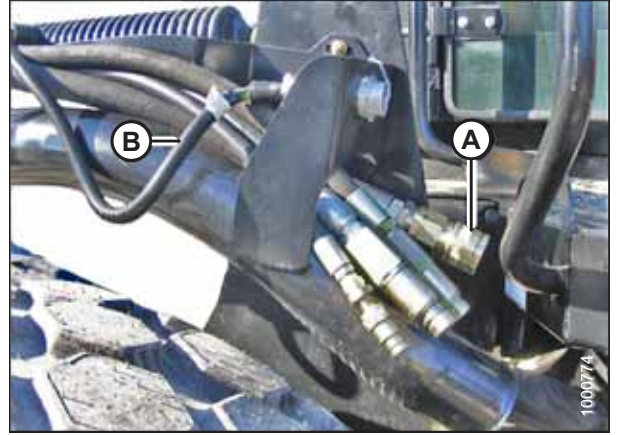


Figure 6.131: Header Drive Hoses and Harness

Chapter 7: Reference

The reference section provides additional information on topics such as lubricants, fluids and their system capacities, fuel and torque specifications, and converting between metric and SAE measurement. It also details the acronyms, abbreviations, and technical terminology used in this publication.

7.1 Torque Specifications

The following tables provide torque values for various bolts, cap screws, and hydraulic fittings. Use these values only when no other torque value has been specified in a given procedure.

- Tighten all bolts to the torque values specified in the charts below, unless you are directed otherwise in this manual.
- Replace removed hardware with hardware of the same strength and grade.
- Use the torque value tables as a guide when periodically checking the tightness of bolts.
- Understand the torque categories for bolts and cap screws by reading the markings on their heads.

Jam nuts

Jam nuts require less torque than nuts used for other purposes. When applying torque to finished jam nuts, multiply the torque applied to regular nuts by 0.65 to obtain the modified torque value.

Self-tapping screws

Use the standard torque values when installing self-tapping screws. Do **NOT** install self-tapping screws on structural or otherwise critical joints.

7.1.1 SAE Bolt Torque Specifications

The torque values provided in the following SAE bolt torque tables apply to hardware installed dry; that is, hardware with no grease, oil, or threadlocker on the threads or heads. Do **NOT** grease or oil bolts or cap screws unless directed to do so in this manual.

Table 7.1 SAE Grade 5 Bolt and Grade 5 Free Spinning Nut

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

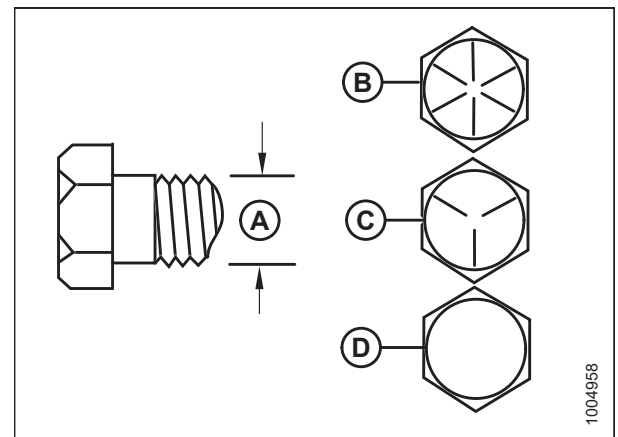


Figure 7.1: Bolt Grades

A - Nominal Size
C - SAE-5

B - SAE-8
D - SAE-2

1004958

REFERENCE

Table 7.2 SAE Grade 5 Bolt and Grade F Distorted Thread Nut

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

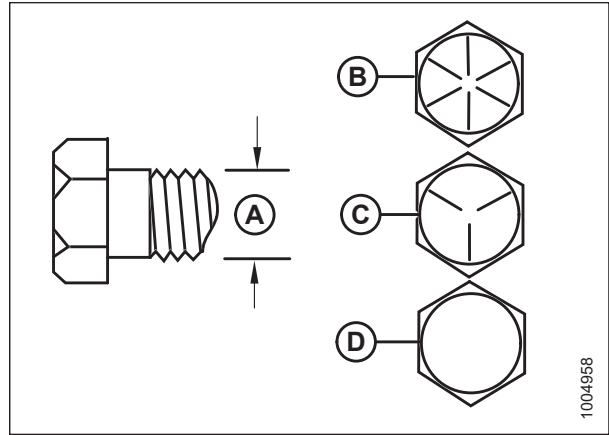


Figure 7.2: Bolt Grades

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

Table 7.3 SAE Grade 8 Bolt and Grade G Distorted Thread Nut

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

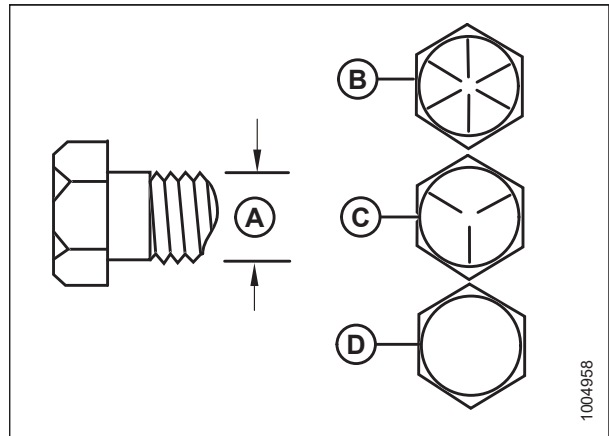


Figure 7.3: Bolt Grades

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

Table 7.4 SAE Grade 8 Bolt and Grade 8 Free Spinning Nut

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

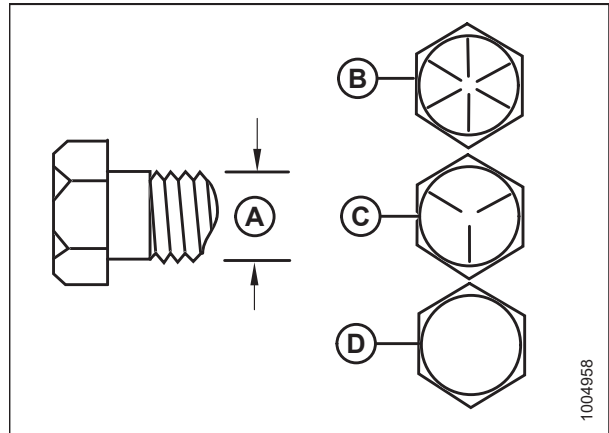


Figure 7.4: Bolt Grades

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

7.1.2 Metric Bolt Specifications

The torque values provided in the following metric bolt torque tables apply to hardware installed dry; that is, hardware with no grease, oil, or threadlocker on the threads or heads. Do **NOT** grease or oil bolts or cap screws unless directed to do so in this manual.

Table 7.5 Metric Class 8.8 Bolts and Class 9 Free Spinning Nut

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

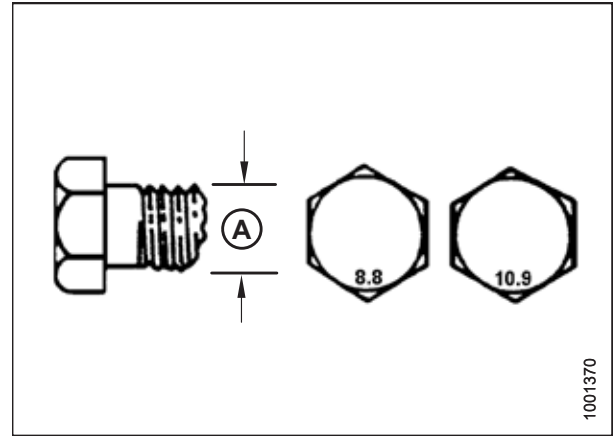


Figure 7.5: Bolt Grades

Table 7.6 Metric Class 8.8 Bolts and Class 9 Distorted Thread Nut

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

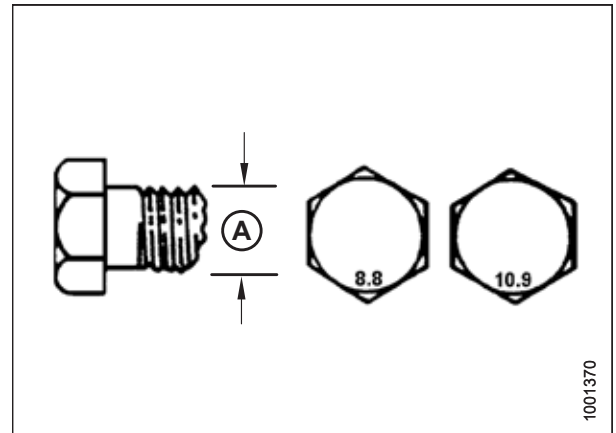


Figure 7.6: Bolt Grades

REFERENCE

Table 7.7 Metric Class 10.9 Bolts and Class 10 Free Spinning Nut

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

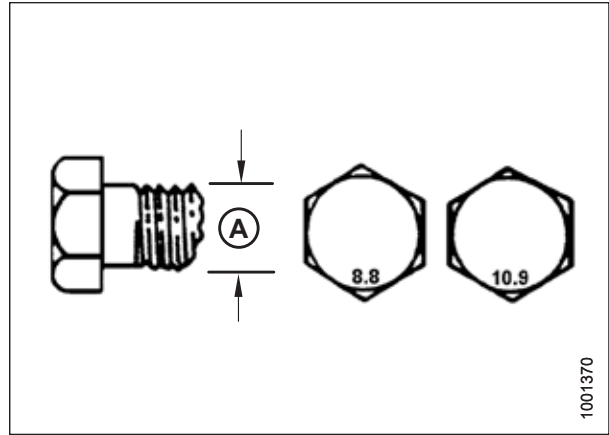


Figure 7.7: Bolt Grades

Table 7.8 Metric Class 10.9 Bolts and Class 10 Distorted Thread Nut

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

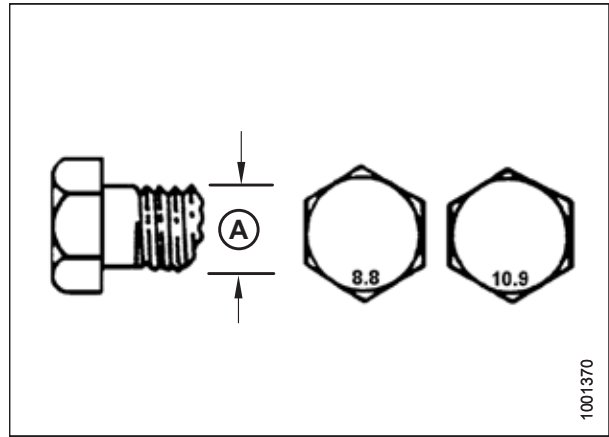


Figure 7.8: Bolt Grades

7.1.3 Metric Bolt Specifications Bolting into Cast Aluminum

The torque values provided in the following metric bolt torque tables apply to hardware installed dry; that is, hardware with no grease, oil, or threadlocker on the threads or heads. Do **NOT** grease or oil bolts or cap screws unless directed to do so in this manual.

Table 7.9 Metric Bolt Bolting into Cast Aluminum

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

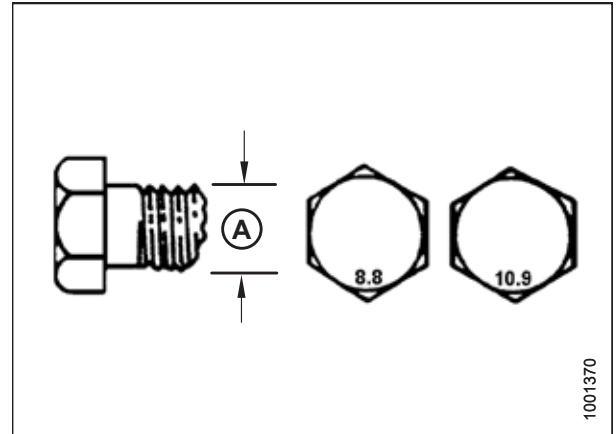


Figure 7.9: Bolt Grades

7.1.4 Flare-Type Hydraulic Fittings

1. Check flare (A) and flare seat (B) for defects that might cause leakage.
2. Align tube (C) with fitting (D) and thread nut (E) onto the fitting without lubrication until contact is made between the flared surfaces.
3. Torque fitting nut (E) to the specified number of flats from finger tight (FFFT) or to a given torque value in Table 7.10, page 247.
4. Use two wrenches to prevent fitting (D) from rotating. Place one wrench on fitting body (D), and tighten nut (E) with the other wrench to the torque value shown.
5. Assess the final condition of connection.

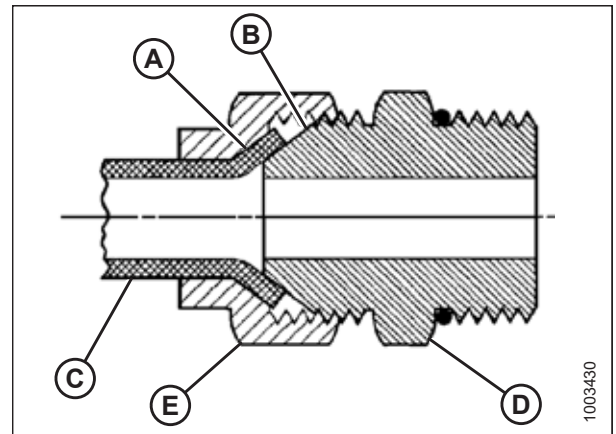


Figure 7.10: Hydraulic Fitting

Table 7.10 Flare-Type Hydraulic Tube Fittings

SAE Dash Size	Thread Size (in.)	Torque Value ⁸		Flats from Finger Tight (FFFT)	
		Nm	lbf-ft	Tube	Swivel Nut or Hose
-2	5/16–24	4–5	3–4	–	–
-3	3/8–24	7–8	5–6	–	–
-4	7/16–20	18–19	13–14	2 1/2	2
-5	1/2–20	19–21	14–15	2	2
-6	9/16–18	30–33	22–24	2	1 1/2

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

REFERENCE

Table 7.10 Flare-Type Hydraulic Tube Fittings (continued)

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

7.1.5 O-Ring Boss Hydraulic Fittings – Adjustable

The standard torque values are provided for adjustable hydraulic fittings. If a procedure specifies a different torque value for the same type and size of fitting found in this topic, use the value specified in the procedure instead.

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

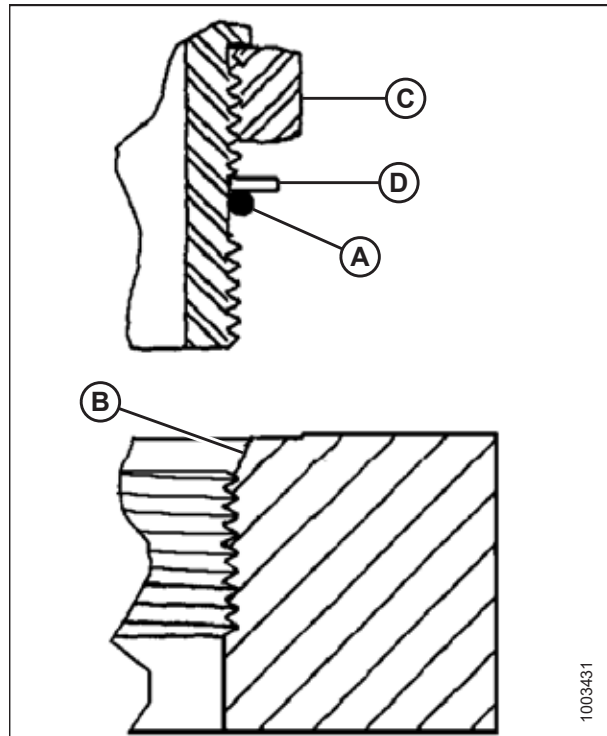


Figure 7.11: Hydraulic Fitting

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

REFERENCE

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

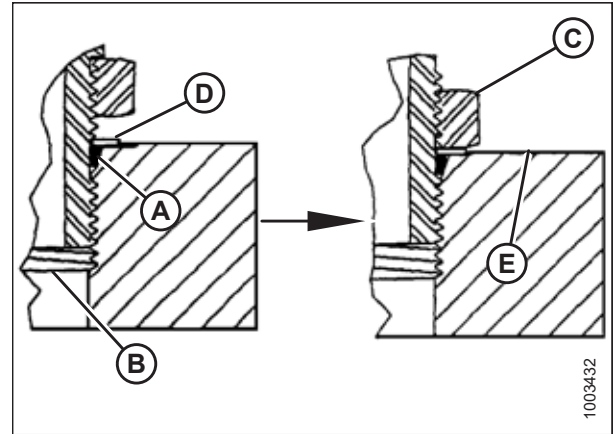


Figure 7.12: Hydraulic Fitting

Table 7.11 O-Ring Boss (ORB) Hydraulic Fittings – Adjustable

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

7.1.6 O-Ring Boss Hydraulic Fittings – Non-Adjustable

The standard torque values are provided for non-adjustable hydraulic fittings. If a procedure specifies a different torque value for the same type and size of fitting found in this topic, use the value specified in the procedure instead.

Torque values are shown in the table below.

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

REFERENCE

1. Inspect O-ring (A) and seat (B) for dirt or obvious defects.
2. Check that O-ring (A) is **NOT** on the threads. Adjust O-ring (A) if necessary.
3. Apply hydraulic system oil to the O-ring.
4. Install fitting (C) into the port until the fitting is hand-tight.
5. Torque fitting (C) according to values in Table [7.12, page 251](#).
6. Check the final condition of the fitting.

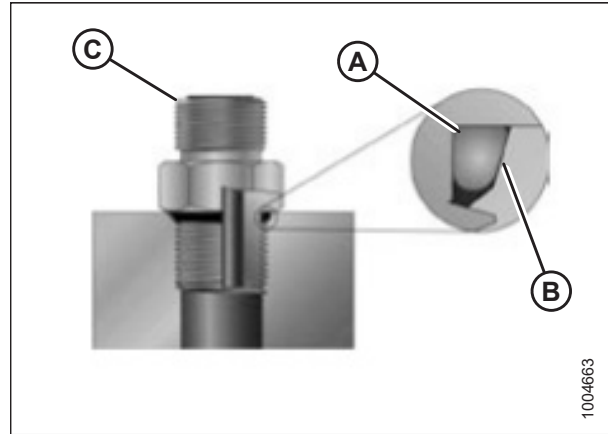


Figure 7.13: Hydraulic Fitting

REFERENCE

Table 7.12 O-Ring Boss (ORB) Hydraulic Fittings – Non-Adjustable

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

7.1.7 O-Ring Face Seal Hydraulic Fittings

The standard torque values are provided for O-ring face seal hydraulic fittings. If a procedure specifies a different torque value for the same type and size of fitting found in this topic, use the value specified in the procedure instead.

Torque values are shown in the table below.

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



Figure 7.14: Hydraulic Fitting

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

REFERENCE

2. Apply hydraulic system oil to O-ring (B).
3. Align the tube or hose assembly so that the flat face of sleeve (A) or (C) comes into full contact with O-ring (B).
4. Thread tube or hose nut (D) until it is hand-tight. The nut should turn freely until it bottoms out.
5. Torque the fittings according to values in Table 7.13, page 252.

NOTE:

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

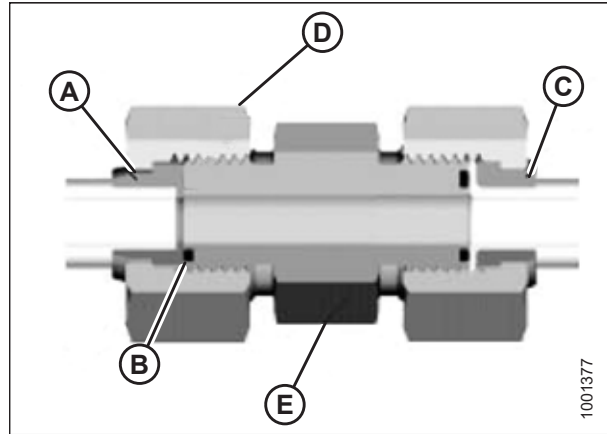


Figure 7.15: Hydraulic Fitting

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

Table 7.13 O-Ring Face Seal (ORFS) Hydraulic Fittings

SAE Dash Size	Thread Size (in.)	Tube O.D. (in.)	Torque Value ¹²	
			Nm	lbf-ft
-3	Note ¹³	3/16	–	–
-4	9/16	1/4	25–28	18–21
-5	Note ¹³	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 ¹³	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

7.1.8 Tapered Pipe Thread Fittings

The standard torque values are provided for tapered pipe thread fittings. If a procedure specifies a different torque value for the same type and size of fitting found in this topic, use the value specified in the procedure instead.

Assemble pipe fittings as follows:

1. Check the components to ensure that the fitting and the port threads are free of burrs, nicks, scratches, and any other form of contamination.
2. Apply paste-type pipe thread sealant to the external pipe threads.
3. Thread the fitting into the port until it is hand-tight.

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

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

REFERENCE

4. Torque the connector to the appropriate torque angle. The turns from finger tight (TFFT) and flats from finger tight (FFFT) values are shown in Table 7.14, page 253. Make sure that the tube end of a shaped connector (typically a 45° or 90° elbow) is aligned to receive the incoming tube or hose assembly. Always finish the alignment of the fitting in the direction of tightening. Never back off (i.e., loosen) the threaded connectors to achieve alignment.
5. Clean all residue and any excess thread conditioner with an appropriate cleaner.
6. Assess the final condition of the fitting. Pay special attention to the possibility of cracks in the port opening.
7. Mark the final position of the fitting. If a fitting leaks, disassemble the fitting and check it for damage.

NOTE:

The failure of fittings due to overtightening may not be evident until the fittings are disassembled and inspected.

Table 7.14 Hydraulic Fitting Pipe Thread

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

7.2 Conversion Chart

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

Table 7.15 Conversion Chart

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

REFERENCE

7.3 Definitions

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

Term	Definition
A Series Header	MacDon A30D, A30S, and A40D auger headers
API	American Petroleum Institute
ASTM	American Society of Testing and Materials
Bolt	A headed and externally threaded fastener designed to be paired with a nut
Cab-forward	Windrower operation mode, in which the Operator's seat faces the header
CDM	Cab display module on an M Series Windrower
Center-link	A hydraulic cylinder or manually adjustable turnbuckle type connection between the header and the vehicle, which is used to change the angle of the header relative to the vehicle
CGVW	Combined gross vehicle weight
D Series Header	MacDon D50, D60, and D65 rigid draper headers
D1 SP Series Header	MacDon D115, D120, D125, D130, D135, and D140 rigid draper headers for windrowers
DDD	Double-draper drive
DK	Double knife
DKD	Double-knife drive
DWA	Double Windrow Attachment
ECM	Engine control module
Engine-forward	Windrower operation with Operator and engine facing in direction of travel
FFFT	Flats from finger tight
Finger tight	Finger tight is a reference position in which the given sealing surfaces or components are making contact with each other and the fitting has been tightened by hand to a point where the fitting is no longer loose and cannot be tightened further by hand
GSL	Ground speed lever
GSS	Grass Seed
GVW	Gross vehicle weight
Hard joint	A joint made with use of a fastener where joining materials are highly incompressible
Header	A machine that cuts and lays crop into a windrow when attached to a windrower
Hex key	A tool of hexagonal cross-section used to drive bolts and screws that have a hexagonal socket in the head (internal-wrenching hexagon drive); also known as an Allen key
HDS	Hydraulic deck shift
hp	Horsepower
ISC	Intermediate Speed Control
JIC	Joint Industrial Council: A standards body that developed standard sizing and shape for original 37° flared fitting
Knife	A cutting device found on a header's cutterbar which uses a reciprocating cutter (also called a sickle) to cut crop so that it can be fed into the header
MDS	Mechanical Deck Shift
n/a	Not applicable
N-DETENT	The slot opposite the NEUTRAL position on the operator's console of M Series SP Windrowers
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

REFERENCE

Term	Definition
Nut	An internally threaded fastener designed to be paired with a bolt
ORB	O-ring boss: A style of fitting commonly used in port openings on manifolds, pumps, and motors
ORFS	O-ring face seal: A style of fitting commonly used for connecting hoses and tubes. This style of fitting is also commonly called ORS, which stands for O-Ring Seal
R Series	MacDon R80 and R85 Rotary Disc Headers
R1 SP Series	MacDon R113 and R116 Rotary Disc Headers for windrowers
RoHS (Reduction of Hazardous Substances)	A directive by the European Union to restrict use of certain hazardous substances (such as hexavalent chromium used in some yellow zinc platings)
rpm	Revolutions per minute
SAE	Society of Automotive Engineers
Screw	A headed and externally threaded fastener that threads into preformed threads or forms its own thread when inserted into a mating part
SDD	Single-drawer drive
Self-Propelled (SP) Windrower	Self-propelled machine consisting of a power unit and a header. It is designed to cut and lay crops into windrows for later harvest
SK	Single knife
SKD	Single-knife drive
Soft joint	A flexible joint made by use of a fastener in which the joining materials compress or relax over a period of time
spm	Strokes per minute
Tension	An axial load placed on a bolt or screw, usually measured in Newtons (N) or pounds (lb.). This term can also be used to describe the force a belt exerts on a pulley or sprocket
TFFT	Turns from finger tight
Torque	The product of a force * the length of a lever arm, usually measured in Newton-meters (Nm) or foot-pounds (lbf-ft)
Torque angle	A tightening procedure in which a fitting is assembled to a specified tightness (usually finger tight) and then the nut is turned farther by a specified number of degrees until it achieves its final position
Torque-tension	The relationship between the assembly torque applied to a piece of hardware and the axial load it induces in a bolt or screw
UCA	Upper cross auger
ULSD	Ultra-low sulphur diesel
Washer	A thin cylinder with a hole or a slot located in the center, used as a spacer, a load distribution element, or a locking mechanism
WCM	Windrower control module
Windrower	The power unit for a header

7.4 Lubricants, Fluids, and System Capacities

Refer to the table below for information on the appropriate lubricants and fluids for the windrower, and for the capacity of each system. Follow the procedures for filling each system provided in this manual.

WARNING

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

Table 7.16 Windrower System Capacities

Lubricant/Fluid	Location	Description	Capacity
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	Diesel Grade No. 2, or Diesel Grade No. 1 and 2 mix ¹⁴ ; refer to 7.5 Fuel Specifications, page 259 for more information	378 L (97 U.S. gal)
Hydraulic oil	Hydraulic reservoir	SAE 15W-40 compliant with SAE specs for API class SJ and CH-4 engine oil.	65 L (17.2 U.S. gal)
Gear lubricant	Gearbox	SAE 80W-140 ¹⁵ , API service class GL-5. Fully synthetic gear lubricant (SAE J2360 preferred)	2.1 L (2.2 U.S. qt.)
Gear lubricant	Wheel drive ¹⁶	SAE 75W-90, API service class GL-5. Fully synthetic gear lubricant (SAE J2360 preferred)	1.4 L (1.5 U.S. qt.)
Coolant	Engine cooling system	ASTM D-6210 and CES-14603, Peak Final Charge Global™, Fleetguard® ES Compleat™ OAT Refer to notes following this table	27.5 L (7.3 U.S. gal) ¹⁷
Engine oil	Engine oil pan	SAE 15W-40 compliant with SAE specs for API class SJ and CH-4 engine oil	11 L (11.6 U.S. qt.)
Air conditioning refrigerant ¹⁸	Air conditioning system	R134A	2.27 kg (5 lb.)
Air conditioning refrigerant oil ¹⁹	Air conditioning system total capacity	PAG SP-15	240 cc (8.1 fl. oz.)

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

15. SAE 75W-140 may be substituted for SAE 80W-140 if necessary.

16. SAE 85W-140 API Service Class GL-5. Extreme Pressure Gear Lubricant is used before initial change.

17. Equal parts with high quality, soft, deionized or distilled water as recommended by Supplier.

18. For prior models that have not upgraded to 2.27 kg (5 lb.) of refrigerant order Kit MD #183180, which includes decal to advise of systems 2.27 kg (5 lb.) charge requirement, refer to Service Bulletin 1254.

19. New compressor (MD #183515) comes filled. If installing on 2014 and prior models, refer to Service Bulletin 1254.

REFERENCE

NOTE:

If Peak Final Charge Global™ or Fleetguard ES Compleat™ OAT, use a coolant concentrate or prediluted coolant intended for use with heavy-duty diesel engines. Ensure the coolant meets 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.
- Coolant **MUST** be nitrite-free and **MUST** be free of 2-Ethylhexanoic (2-EH) acid.

NOTE:

Windrowers have Peak Final Charge Global™ coolant installed at the factory.

An additive package should contain 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. Ethylene glycol and propylene glycol may alter the freeze temperature. Verify that the mixture meets the freeze protection criteria of its intended use.

7.5 Fuel Specifications

Table 7.17 Fuel Specification

Fuel	Specification	Sulphur (by weight)	Water and Sediment (by volume)	Cetane No.	Lubricity
No.2 ULSD	ASTM D975	0.5% maximum	0.05% maximum	40°C (104°F) minimum	520 microns
No.1 and No.2 mix ²⁰ ULSD	n/a	0.5% maximum preferred (1% maximum)	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 specific to certain operations, additives can be used; however, the engine manufacturer recommends consulting 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 improve 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 Table 7.17, page 259.

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

Predelivery Checklist

Perform these checks and adjustments prior to delivery to your Customer. Complete this checklist and provide it to the Dealer or the Operator.



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 .18 Self-Propelled Windrower Predelivery Checklist – Container Shipments

✓	Item	Reference
	Check for shipping damage or missing parts. Be sure all shipping dunnage is removed.	—
	Check for loose hardware. Tighten to required torque.	<i>7 Reference, page 243</i>
	Check tire air pressures and adjust as required.	<i>Checking Tire Pressure, page 81</i>
	Check final drive hub lubricant level.	<i>3.17.12 Checking and Adding Wheel Drive Lubricant – 10 Bolt Wheels, page 95</i>
	Check engine coolant level and strength at reserve tank.	<i>3.17.8 Checking Engine Coolant, page 86</i>
	Check air cleaner and clamps.	<i>3.17.3 Checking Engine Air Intake, page 82</i>
	Check hydraulic oil level and check for leaks along lines.	<i>3.17.4 Checking Hydraulic Oil Level, page 83</i>
	Check fuel separator for water and foreign material. Drain and clean as necessary. Add fuel.	<i>3.17.5 Checking Fuel Separator, page 84</i>
	Check engine oil level.	<i>3.17.6 Checking Engine Oil Level, page 84</i>
	Check gearbox lubricant level.	<i>3.17.7 Checking Gearbox Lubricant Level, page 85</i>
	Check tension of air conditioning compressor belt.	<i>3.17.9 Checking Air Conditioning Compressor Belt, page 86</i>
	Check that machine is completely lubricated.	<i>3.15 Lubrication, page 73</i>
	Check neutral interlock system.	<i>5.1 Checking Safety System, page 169</i>
	Start engine and run to operating temperature.	<i>5.3 Checking Windrower Startup, page 173</i>
	Check CDM for operation.	<i>5.5 Checking Gauges and Cab Display Module Display, page 175</i>
	Check Operator’s Presence System.	<i>5.7 Checking Operator’s Presence System, page 177</i>
	Check alternator charge rate on CDM.	<i>5.6 Checking Electrical System, page 176</i>
	Check fuel gauge / indicator for operation.	<i>5.5 Checking Gauges and Cab Display Module Display, page 175</i>
	Check that air conditioning is functioning properly.	<i>5.11 Checking Air Conditioning and Heater, page 185</i>
	Check that heater is functioning properly.	<i>5.11 Checking Air Conditioning and Heater, page 185</i>
	Check instrument console gauge lights.	<i>5.5 Checking Gauges and Cab Display Module Display, page 175</i>
	Check maximum (no load) engine speed at CDM.	<i>5.4 Checking Engine Speed, page 174</i>
	Check that exterior lights are functioning properly.	<i>5.8 Checking Exterior Lights, page 179</i>
	Check that interior lights are functioning properly.	<i>5.10 Checking Interior Lights, page 184</i>

REFERENCE

Table .18 Self-Propelled Windrower Predelivery Checklist – Container Shipments (continued)

✓	Item	Reference
	Complete the header's Predelivery Checklist.	—
	Check that manuals are in the windrower manual case.	<i>5.12 Checking Manuals, page 186</i>
	Remove plastic coverings from cab interior.	<i>5.13 Performing Final Steps, page 187</i>

Date Checked:

Checked by:

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