

# **M1 Series Windrowers**

Unloading and Assembly Instructions (Container Shipments)

215105 Revision A

Original Instruction

M1 Series Windrowers, featuring Dual Direction® and CrossFlex™ rear suspension



1016391

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## Introduction

This manual contains unloading, assembly, and predelivery information for MacDon M1 Series Windrowers.

The M1 Series is Dual Direction®. The windrower 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.

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# EC Declaration of Conformity—Windrower Lift Sling

Figure 1: EC Declaration of Conformity – Windrower Lift Sling (Page 1 of 2)

	<h2 style="margin: 0;">EC Declaration of Conformity</h2>
<p>[1] <b>MacDon</b>  <b>MacDon Industries Ltd.</b>          680 Moray Street,          Winnipeg, Manitoba, Canada          R3J 3S3</p>	<p>[4] Not Applicable</p> <p>[5] June 5, 2019</p>
<p>[2] Windrower Lift Sling</p> <p>[3] Part 163871</p>	<p>[6] _____  <b>Christoph Martens</b>          Product Integrity</p>

EN	BG	CZ	DA
<p>We, [1]</p> <p>Declare, that the product:</p> <p>Machine Type: [2]</p> <p>Name &amp; Model: [3]</p> <p>Serial Number(s): [4]</p> <p>fulfils all the relevant provisions of the Directive 2006/42/EC.</p> <p>Harmonized standards used, as referred to in Article 7(2):</p> <p style="text-align: center;">EN ISO 4254-1:2013 EN ISO 4254-7:2009</p> <p>Place and date of declaration: [5]</p> <p>Identity and signature of the person empowered to draw up the declaration: [6]</p> <p>Name and address of the person authorized to compile the technical file:</p> <p>Benedikt von Riedesel            General Manager, MacDon Europe GmbH            Hagenauer Straße 59            65203 Wiesbaden (Germany)            bvonriedesel@macdon.com</p>	<p>Ние, [1]</p> <p>декларираме, че следният продукт:</p> <p>Тип машина: [2]</p> <p>Наименование и модел: [3]</p> <p>Сериен номер(а) [4]</p> <p>отговаря на всички приложими разпоредби на директива 2006/42/ЕО.</p> <p>Използвани са следните хармонизирани стандарти според чл. 7(2):</p> <p style="text-align: center;">EN ISO 4254-1:2013 EN ISO 4254-7:2009</p> <p>Място и дата на декларацията: [5]</p> <p>Име и подпис на лицето, упълномощено да изготви декларацията: [6]</p> <p>Име и адрес на лицето, упълномощено да състави техническия файл:</p> <p>Бенедикт фон Рийдесел            Управител, MacDon Europe GmbH            Hagenauer Straße 59            65203 Wiesbaden (Германия)            bvonriedesel@macdon.com</p>	<p>My, [1]</p> <p>Prohlašujeme, že produkt:</p> <p>Typ zařízení: [2]</p> <p>Název a model: [3]</p> <p>Sériové(á) číslo(a): [4]</p> <p>spĺňuje všechny relevantní ustanovení směrnice 2006/42/EC.</p> <p>Byly použity harmonizované standardy, jak je uvedeno v článku 7(2):</p> <p style="text-align: center;">EN ISO 4254-1:2013 EN ISO 4254-7:2009</p> <p>Místo a datum prohlášení: [5]</p> <p>Identita a podpis osoby oprávněné k vydání prohlášení: [6]</p> <p>Jméno a adresa osoby oprávněné k vyplnění technického souboru:</p> <p>Benedikt von Riedesel            generální ředitel, MacDon Europe GmbH            Hagenauer Straße 59            65203 Wiesbaden (Německo)            bvonriedesel@macdon.com</p>	<p>Vi, [1]</p> <p>erklærer, at produktet:</p> <p>Maskintype [2]</p> <p>Navn og model: [3]</p> <p>Serienummer (-numre): [4]</p> <p>Opfylder alle bestemmelser i direktiv 2006/42/EF.</p> <p>Anvendte harmoniserede standarder, som henviser til i paragraf 7(2):</p> <p style="text-align: center;">EN ISO 4254-1:2013 EN ISO 4254-7:2009</p> <p>Sted og dato for erklæringen: [5]</p> <p>Identitet på og underskrift fra den person, som er bemyndiget til at udarbejde erklæringen: [6]</p> <p>Navn og adresse på den person, som er bemyndiget til at udarbejde den tekniske fil:</p> <p>Benedikt von Riedesel            Direktør, MacDon Europe GmbH            Hagenauer Straße 59            D-65203 Wiesbaden (Tyskland)            bvonriedesel@macdon.com</p>

DE	ES	ET	FR
<p>Wir, [1]</p> <p>Erklären hiermit, dass das Produkt:</p> <p>Maschinentyp: [2]</p> <p>Name &amp; Modell: [3]</p> <p>Seriennummer (n): [4]</p> <p>alle relevanten Vorschriften der Richtlinie 2006/42/EG erfüllt.</p> <p>Harmonisierte Standards wurden, wie in folgenden Artikeln angegeben, verwendet 7(2):</p> <p style="text-align: center;">EN ISO 4254-1:2013 EN ISO 4254-7:2009</p> <p>Ort und Datum der Erklärung: [5]</p> <p>Name und Unterschrift der Person, die dazu befugt ist, die Erklärung auszustellen: [6]</p> <p>Name und Anschrift der Person, die dazu berechtigt ist, die technischen Unterlagen zu erstellen:</p> <p>Benedikt von Riedesel            General Manager, MacDon Europe GmbH            Hagenauer Straße 59            65203 Wiesbaden            bvonriedesel@macdon.com</p>	<p>Nosotros [1]</p> <p>declaramos que el producto:</p> <p>Tipo de máquina: [2]</p> <p>Nombre y modelo: [3]</p> <p>Números de serie: [4]</p> <p>cumple con todas las disposiciones pertinentes de la directriz 2006/42/EC.</p> <p>Se utilizaron normas armonizadas, según lo dispuesto en el artículo 7(2):</p> <p style="text-align: center;">EN ISO 4254-1:2013 EN ISO 4254-7:2009</p> <p>Lugar y fecha de la declaración: [5]</p> <p>Identidad y firma de la persona facultada para draw redactar la declaración: [6]</p> <p>Nombre y dirección de la persona autorizada para elaborar el expediente técnico:</p> <p>Benedikt von Riedesel            Gerente general, MacDon Europe GmbH            Hagenauer Straße 59            65203 Wiesbaden (Alemania)            bvonriedesel@macdon.com</p>	<p>Meie, [1]</p> <p>deklareerime, et toode</p> <p>Seadme tüüp: [2]</p> <p>Nimi ja mudel: [3]</p> <p>Seerianumbrid: [4]</p> <p>vastab kõigile direktiivi 2006/42/EÜ asjakohastele sätetele.</p> <p>Kasutatud on järgnevald harmoniseeritud standardeid, millele on viidatud ka punktis 7(2):</p> <p style="text-align: center;">EN ISO 4254-1:2013 EN ISO 4254-7:2009</p> <p>Deklaratsiooni koht ja kuupäev: [5]</p> <p>Deklaratsiooni koostamiseks volitatud isiku nimi ja allkiri: [6]</p> <p>Tehnilise dokumendi koostamiseks volitatud isiku nimi ja aadress:</p> <p>Benedikt von Riedesel            Peadirektor, MacDon Europe GmbH            Hagenauer Straße 59            65203 Wiesbaden (Saksamaa)            bvonriedesel@macdon.com</p>	<p>Nous soussignés, [1]</p> <p>Déclarons que le produit :</p> <p>Type de machine : [2]</p> <p>Nom et modèle : [3]</p> <p>Numéro(s) de série : [4]</p> <p>Est conforme à toutes les dispositions pertinentes de la directive 2006/42/EC.</p> <p>Utilisation des normes harmonisées, comme indiqué dans l'Article 7(2):</p> <p style="text-align: center;">EN ISO 4254-1:2013 EN ISO 4254-7:2009</p> <p>Lieu et date de la déclaration : [5]</p> <p>Identité et signature de la personne ayant reçu le pouvoir de rédiger cette déclaration : [6]</p> <p>Nom et adresse de la personne autorisée à constituer le dossier technique :</p> <p>Benedikt von Riedesel            Directeur général, MacDon Europe GmbH            Hagenauer Straße 59            65203 Wiesbaden (Allemagne)            bvonriedesel@macdon.com</p>

Figure 2: EC Declaration of Conformity – Windrower Lift Sling (Page 2 of 2)

EC Declaration of Conformity			
IT	HU	LT	LV
<p>Noi, [1] Dichiariamo che il prodotto: Tipo di macchina: [2] Nome e modello: [3] Numero(i) di serie: [4] soddisfa tutte le disposizioni rilevanti della direttiva 2006/42/CE.</p> <p>Utilizzo degli standard armonizzati, come indicato nell'Articolo 7(2):  EN ISO 4254-1:2013 EN ISO 4254-7:2009</p> <p>Luogo e data della dichiarazione: [5] Nome e firma della persona autorizzata a redigere la dichiarazione: [6] Nome e persona autorizzata a compilare il file tecnico: Benedikt von Riedesel General Manager, MacDon Europe GmbH Hagenauer Straße 59 65203 Wiesbaden (Germania) bvonriedesel@macdon.com</p>	<p>Mi, [1] Ezennel kijelentjük, hogy a következő termék: Gép típusa: [2] Név és modell: [3] Szériaszám(ok): [4] teljesíti a következő irányelv összes vonatkozó előírásait: 2006/42/EK.</p> <p>Az alábbi harmonizált szabványok kerültek alkalmazásra a 7(2) cikkely szerint:  EN ISO 4254-1:2013 EN ISO 4254-7:2009</p> <p>A nyilatkozattétel ideje és helye: [5] Azon személy kiléte és aláírása, aki jogosult a nyilatkozat elkészítésére: [6] Azon személy neve és aláírása, aki felhatalmazott a műszaki dokumentáció összeállítására: Benedikt von Riedesel Vezérigazgató, MacDon Europe GmbH Hagenauer Straße 59 65203 Wiesbaden (Németország) bvonriedesel@macdon.com</p>	<p>Mes, [1] Pareiškiami, kad šis produktas: Mašinos tipas: [2] Pavadinimas ir modelis: [3] Serijos numeris (-iai): [4] atitinka taikomus reikalavimus pagal Direktyvą 2006/42/EB.</p> <p>Naudojami harmonizuoti standartai, kai nurodoma straipsnyje 7(2):  EN ISO 4254-1:2013 EN ISO 4254-7:2009</p> <p>Deklaracijos vieta ir data: [5] Asmens tapatybės duomenys ir parašas asmens, įgaliojoto sudaryti šią deklaraciją: [6] Vardas ir pavardė asmens, kuris įgaliojotas sudaryti šį techninį failą: Benedikt von Riedesel Generalinis direktorius, MacDon Europe GmbH Hagenauer Straße 59 65203 Wiesbaden (Vokietija) bvonriedesel@macdon.com</p>	<p>Mēs, [1] Deklarējam, ka produkts: Mašīnas tips: [2] Nosaukums un modelis: [3] Sērijas numurs(-i): [4] Atbilst visām būtiskajām Direktīvas 2006/42/EK prasībām.</p> <p>Piemēroti šādi saskaņotie standarti, kā minēts 7. panta 2. punktā:  EN ISO 4254-1:2013 EN ISO 4254-7:2009</p> <p>Deklarācijas parakstīšanas vieta un datums: [5] Tās personas vārds, uzvārds un paraksts, kas ir pilnvarota sagatavot šo deklarāciju: [6] Tās personas vārds, uzvārds un adrese, kas ir pilnvarota sastādīt tehnisko dokumentāciju: Benedikts fon Rīdizels Ģenerāldirektors, MacDon Europe GmbH Hagenauer Straße 59 65203 Wiesbaden (Vācija) bvonriedesel@macdon.com</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):  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>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):  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>Nós, [1] Declaramos, 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):  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>Noi, [1] Declărăm, cã urmãtorul 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 urmãtoarele standarde armonizate conform articolului 7(2):  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>Mi, [1] Izjavljujemo 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):  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>Vi, [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):  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>Mi, [1] izjavljamo, 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):  EN ISO 4254-1:2013 EN ISO 4254-7:2009</p> <p>Kraj in datum izjave: [5] Istovetnost in podpis osebe, pooblaščenca za pripravo izjave: [6] Ime in naslov osebe, pooblaščenca za pripravo tehnične datoteke: Benedikt von Riedesel Generalni direktor, MacDon Europe GmbH Hagenauer Straße 59 65203 Wiesbaden (Nemčija) bvonriedesel@macdon.com</p>	<p>My, [1] týmto prehlasujeme, 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>Použité harmonizované normy, ktoré sa uvádzajú v článku č. 7(2):  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>

## 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
<i>2.3 Removing Caster Wheel Shipping Assembly, page 19</i>	Add step to remove center-link shipping wire.	ECN 58530
<i>2.5 Removing Fuel Tank/Right Platform Shipping Assembly, page 24</i>	Added note about preventing railing from contacting hood, and corrected a metric conversion error.	Support Australia
<i>3.1 Lifting Windrower onto Export Assembly Lift Stand, page 35</i>	Added steps for using Lift Stand (B4649).	Tech Pubs
<i>3.3 Installing Wheel Legs, page 40</i>	Added step and important statement to remove clevis pin from shipping position.	ECN 57645
<i>3.7 Connecting Wheel Leg Hydraulics and Electrical, page 49</i>	Revised the procedural order based on feedback.	Support Australia
<i>3.12 Installing Air Inlet Duct, page 71</i>	Added step to remove parts or debris from air intake cover.	Support Australia
<i>3.18 Removing Windrower from Lift Stand, page 83</i>	Added new topic for removing the windrower assembly lift stand.	Tech Pubs
<i>4.1.9 Starting the Engine, page 90</i>	<ul style="list-style-type: none"> <li>Added a note stating the conditions that boot up the Harvest Performance Tracker.</li> <li>Added a step to ensure exhaust is unobstructed.</li> <li>Added a note to warm up hydraulic oil before taking GSL out of park.</li> </ul>	Support
<i>4.1.12 Checking Tire Pressures, page 95</i>	Added R216 Rotary Disc Header to the tire inflation chart.	Tech Pubs
<i>4.2.4 Checking Selective Catalytic Regeneration Conditioning Mode, page 104</i>	Added topic.	Tech Pubs
<i>5 Attaching a Header to an M1 Series Windrower, page 115</i>	Updated images to include new header lock decals throughout the Attaching Headers section.	ECN 58047
<i>5 Attaching a Header to an M1 Series Windrower, page 115</i>	Added attaching instructions for R216.	Tech Pubs
<i>6.1 Lubricants, Fluids, and System Capacities, page 155</i>	Updated Lubricants, Fluids, and Capacities table.	Tech Pubs
<i>Predelivery Checklist, page 171</i>	Added topic to Predelivery checklist.	Tech Pubs

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# Chapter 1: Safety

## 1.1 Signal Words

Three signal words, **DANGER**, **WARNING**, and **CAUTION**, are used to alert you to hazardous situations. 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.

## 1.2 General Safety

### CAUTION

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

Protect yourself when assembling, operating, and servicing machinery, wear all protective clothing and personal safety devices that could be necessary for 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
- Be aware that exposure to loud noises can cause hearing impairment or loss. Wear suitable hearing protection devices such as earmuffs or earplugs to help protect against loud noises.



Figure 1.1: Safety Equipment



Figure 1.2: Safety Equipment

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

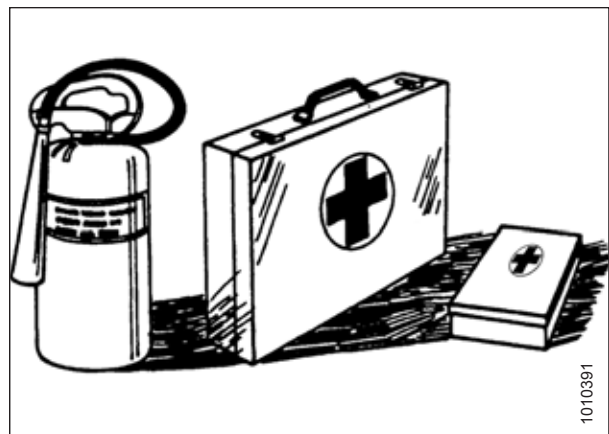


Figure 1.3: Safety Equipment

## SAFETY

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



Figure 1.4: Safety around Equipment

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

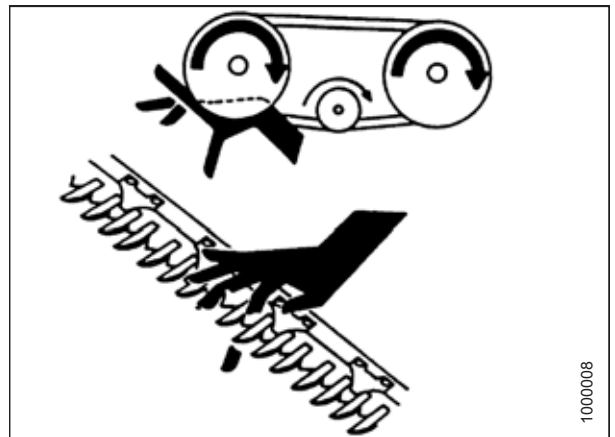


Figure 1.5: Safety around Equipment

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



Figure 1.6: Safety around Equipment

## 1.3 Tire Safety

Service tires safely.

### WARNING

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



Figure 1.7: Overinflated Tire

### WARNING

- Do NOT remove, install, or repair a tire on a rim unless you have proper equipment and experience to perform job. Take the tire and rim to a qualified tire repair shop.
- Make sure the tire is correctly seated before inflating to operating pressure. 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 area.
- Do NOT stand over tire when inflating. Use a clip-on chuck and extension hose.
- Do NOT exceed maximum inflation pressure indicated on tire label.
- Never use force on an inflated or partially inflated tire.
- Make sure all air is removed from the tire before removing the tire from the rim.
- Never weld a wheel rim.
- Replace tires that have defects and replace wheel rims that are cracked, worn, or severely rusted.



Figure 1.8: Safely Inflating Tire

## 1.4 Battery Safety

### WARNING

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



Figure 1.9: Safety around Batteries

### WARNING

- Wear safety glasses when working near batteries.
- To avoid an electrolyte loss, do NOT tip batteries more than 45°.
- Battery electrolyte causes severe burns. Avoid contact with skin, eyes, or clothing.
- Electrolyte splashed into eyes is extremely dangerous. Should this occur, force eye open, and flood with cool, clean water for 5 minutes. Call a doctor immediately.
- If electrolyte is spilled or splashed on clothing or body, neutralize it immediately with a solution of baking soda and water, then rinse with clear water.

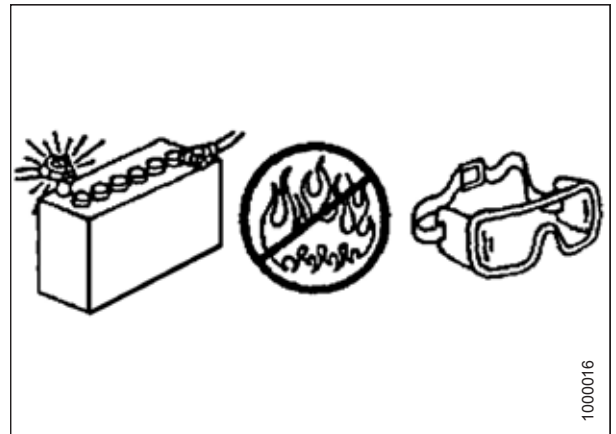


Figure 1.10: Safety around Batteries

### 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 battery cables disconnected and the engine running, a high voltage can be built up if terminals touch frame. Anyone touching the frame under these conditions would be severely shocked.
- When working around storage batteries, remember that all of the exposed metal parts are live. Never lay a metal object across the terminals because a spark or short circuit will result.
- Keep batteries out of reach of children.

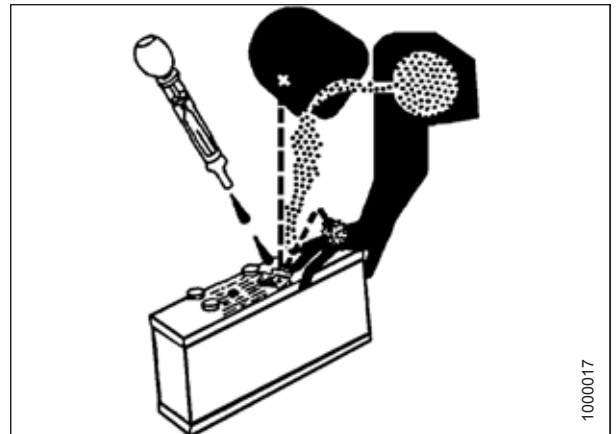


Figure 1.11: Safety around Batteries

## 1.5 Welding Precaution

### IMPORTANT:

It is very important that correct procedures be followed when welding anything connected to the windrower. If procedures are not followed, it could result in severe damage to sensitive, expensive electronics. Even if complete failure of a module doesn't happen immediately, it is impossible to know what effect high current could have with regard to future malfunctions or shorter lifespan.

Due to the number of connectors, components to be welded should be removed from the windrower whenever possible rather than welded in place. When work needs to be completed on a header, disconnect the header completely from the windrower before welding. These same guidelines apply to plasma cutting, or any other high current electrical operation performed on the machine.

### *The following items need to be disconnected:*

- Negative battery terminals (A) (two connections)

### IMPORTANT:

Always disconnect the battery terminals first, and reconnect them last.

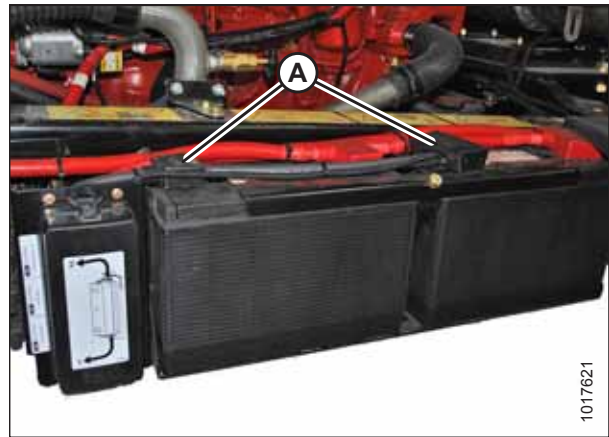


Figure 1.12: Negative Terminals

- Master controller (A)  
Four connectors: P231, P232, P233, and P234  
Location: Behind cab, near header lift/fan manifold

To disconnect the connectors, press the two outer tabs, and pull the connector away from master controller.

### IMPORTANT:

When reconnecting these connectors, double-check that the connectors are fully seated into the master controller, and that the two locking tabs on each end of all four connectors have popped outward. If the tabs are not popped outward, the connector is not fully seated.

### IMPORTANT:

Do **NOT** power up or operate the windrower until these connectors are locked into place.



Figure 1.13: Master Controller



## SAFETY

- Firewall extension module (A)  
Two connectors: P235 and P236

Location: Behind cab, near header lift/fan manifold.

To disconnect, use a small 3–6 mm (1/8–1/4 in.) blade screwdriver to insert into the connector's locking tab. Gently pry upward (no more than 6 mm [1/4 in.]) to unlock the connector tab, and then pull the connector away from the module.

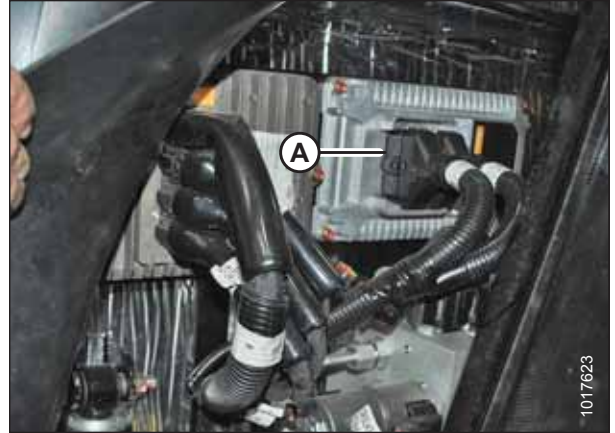


Figure 1.14: Firewall Extension Module

- Chassis extension module (A)  
Two connectors: P247 and P248

Location: Under cab, inside left frame rail

To disconnect, use a small 3–6 mm (1/8–1/4 in.) blade screwdriver to insert into the connector's locking tab. Gently pry upward (no more than 6 mm [1/4 in.]) to unlock the connector tab, and then pull the connector away from the module.

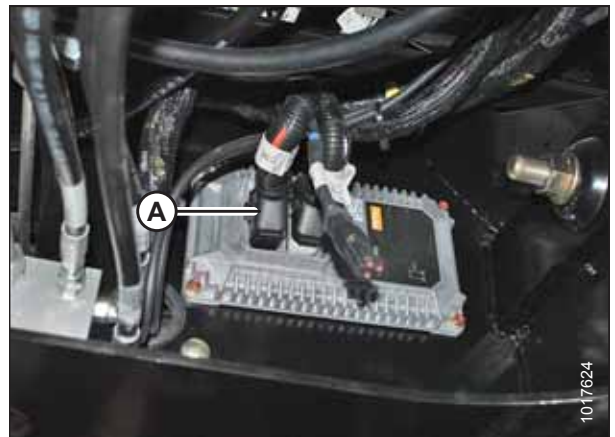


Figure 1.15: Chassis Extension Module

- Engine Control Module (ECM)  
Two connectors for Cummins: P100 (A) and J1 Cummins Proprietary ECM Connector (B)

Location: On engine

To disconnect, pull the rubber boot off the cover, unlock the latch, and undo the main over-center latch. Remove strain relief bolts (C) so the connectors can be pulled away from the ECM.

### IMPORTANT:

Be sure to disconnect both connectors. Note connector locations.

### IMPORTANT:

Be sure to reconnect connectors in the proper locations. Do **NOT** cross connect.

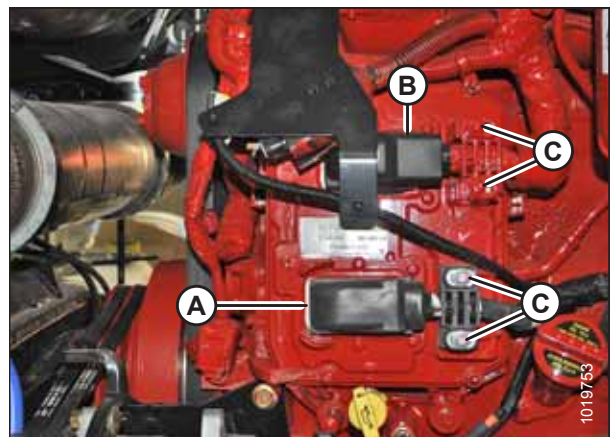


Figure 1.16: Engine Control Module

## SAFETY

### NOTE:

To disconnect the remaining circular Deutsch connectors, rotate the outer collar counterclockwise.

- Cab connectors (A)  
Two round connectors: C1 and C2  
Location: Under cab
- Roof connectors (A)  
Four connectors: C10, C12, C13, and C14  
Location: Under cab at base of left cab post
- Chassis relay module (A)  
Three connectors: P240, P241, and P242  
Location: Outside left frame rail near batteries

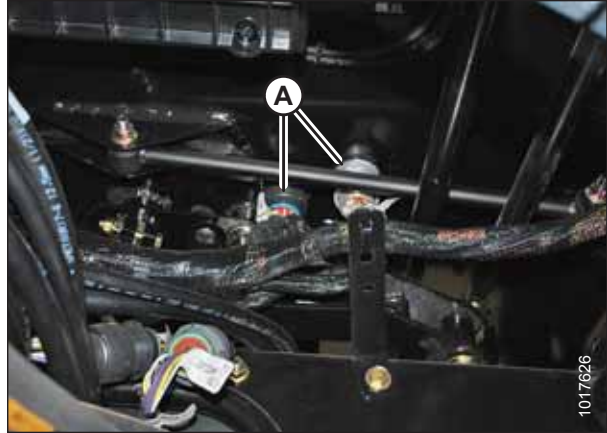


Figure 1.17: Cab Connectors

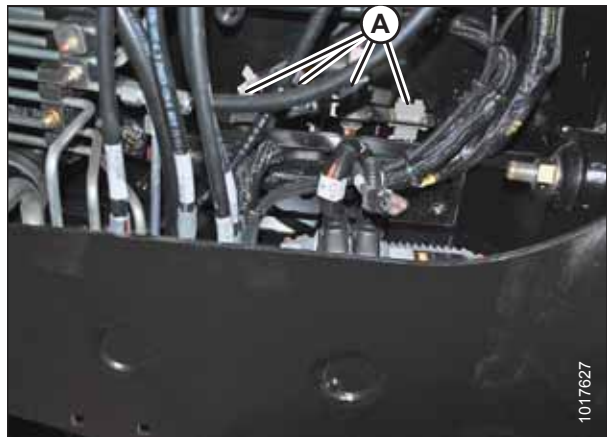


Figure 1.18: Roof Connectors



Figure 1.19: Chassis Relay Module

## SAFETY

- Engine harness (A)  
Two round connectors: C30 and C31  
Location: Inside left frame rail, at rear of windrower

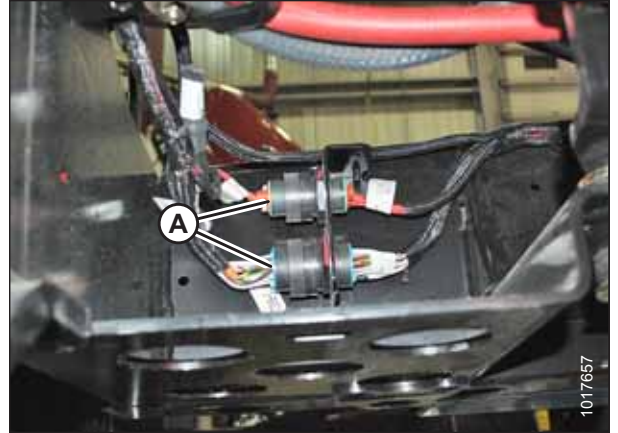


Figure 1.20: Engine Harness

- Air conditioning (A/C) box connectors (A)  
Two connectors: C15 and C16  
Location: Rear of A/C box



Figure 1.21: A/C Box Connectors

- Wheel motor connectors (A)  
Two round connectors: C25 and C26  
Location: Under center of frame, just behind front cross member

### IMPORTANT:

To connect circular Deutsch connectors without bending the pins, align the plug with the receptacle before attempting to connect.

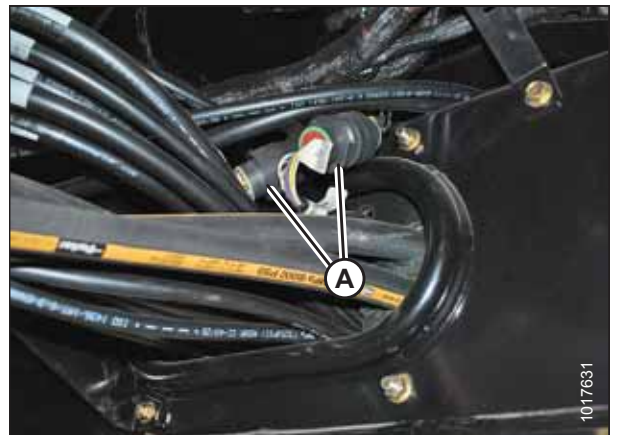


Figure 1.22: Wheel Motor Connectors

To align the connectors:

1. Observe the channel cuts and mating channel protrusions on the inner part of the circular walls of the connectors.
2. Face the mating connectors towards each other, and rotate connectors so that channels are aligned.
3. Press connectors together while turning the outer connector clockwise until collar locks.

## 1.6 Engine Safety

### WARNING

Do NOT use aerosol starting aids such as ether. Such use could result in an explosion and personal injury.

### CAUTION

- On initial start-up of a new, serviced, or repaired engine, always be ready to stop the engine to prevent an overspeed. Do this by shutting off the air and/or fuel supply to the engine.
- Do NOT bypass or disable automatic shutoff circuits. The circuits help prevent personal injury, and prevent engine damage. For instructions, refer to the technical manual.
- Inspect the engine for potential hazards.
- Before starting the engine, ensure no one is on, underneath, or close to the engine. Ensure that people clear the area.
- All protective guards and covers must be installed if the engine must be started to perform service procedures.
- To help prevent an accident, work around rotating parts carefully.
- If a warning tag is attached to the engine start switch or controls, do NOT start engine or move 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) is working correctly, check the water temperature gauge and/or oil temperature gauge during heater operation.
- Engine exhaust contains products of combustion, 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 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 engine is running.

#### NOTE:

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

### 1.6.1 High-Pressure Rail

#### WARNING

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

### 1.6.2 Engine Electronics

#### WARNING

Tampering with electronic system installation or original equipment manufacturer (OEM) wiring installation is dangerous and could result in personal injury or death and/or engine damage.

 **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 come in contact with the harness connector for the electronic unit injectors while 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 conditions exceed the 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
- Diesel exhaust fluid (DEF) system performance
- Aftertreatment system performance

## 1.7 Safety Signs

- 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, be sure the repair part displays the current safety sign.

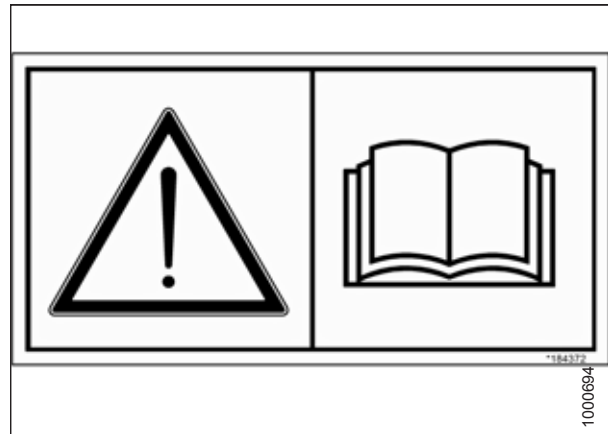


Figure 1.23: Operator's Manual Decal

## Chapter 2: Unloading the Windrower

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

### 2.1 Unloading Container

#### CAUTION

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

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



Figure 2.1: Windrower Shipping Assembly

## UNLOADING THE WINDROWER

### 2.2 Moving to Assembly Area

The windrower can be moved to the assembly area using either a crane (refer to *2.2.1 Moving to Assembly Area – Crane Method, page 14*) or a forklift (refer to *2.2.2 Moving to Assembly Area – Forklift Method, page 17*).

#### 2.2.1 Moving to Assembly Area – Crane Method

##### CAUTION

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

##### CAUTION

Equipment used for unloading must meet or exceed the requirements specified in this section. Inadequate equipment may result in chain breaking, vehicle tipping, or machine damage.

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.)

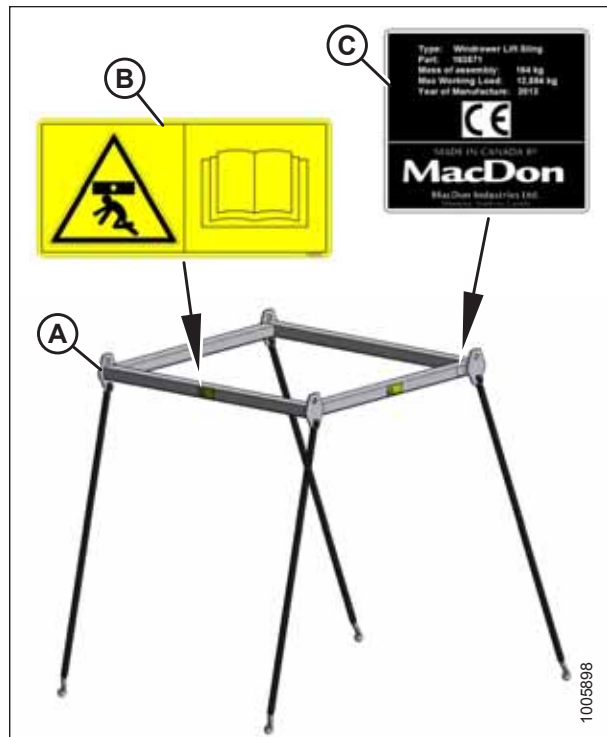


Figure 2.2: Lift Sling

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

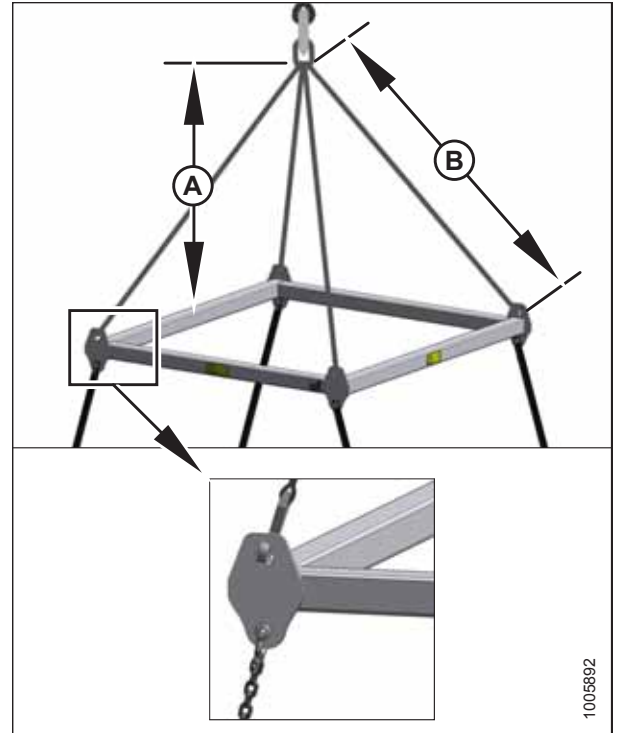


## UNLOADING THE WINDROWER

1. Attach 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

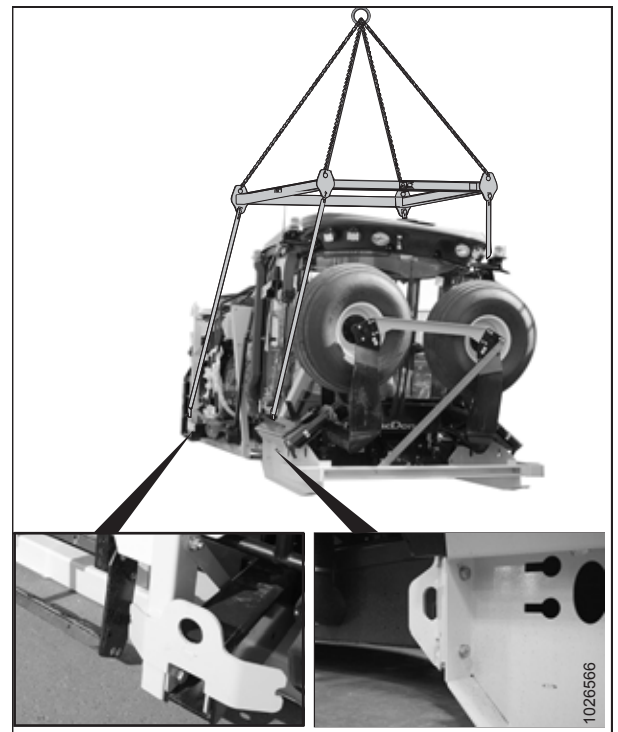
B - 2120 mm (83.5 in.) Typical

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

**⚠ WARNING**

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 THE WINDROWER

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

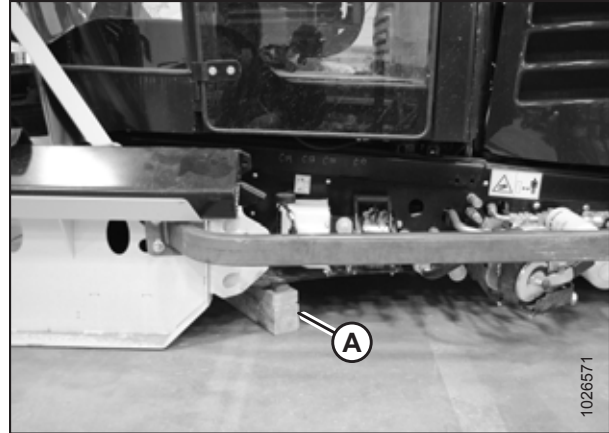


Figure 2.5: Windrower Shipping Assembly on Blocks

## UNLOADING THE WINDROWER

### 2.2.2 Moving to Assembly Area – Forklift Method

#### CAUTION

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

#### CAUTION

Equipment used for unloading must meet or exceed the requirements specified in this section. Inadequate equipment may result in chain breaking, vehicle tipping, or machine damage.

#### IMPORTANT:

Refer to the shipping assembly specifications and consult your forklift distributor to determine a suitable forklift.

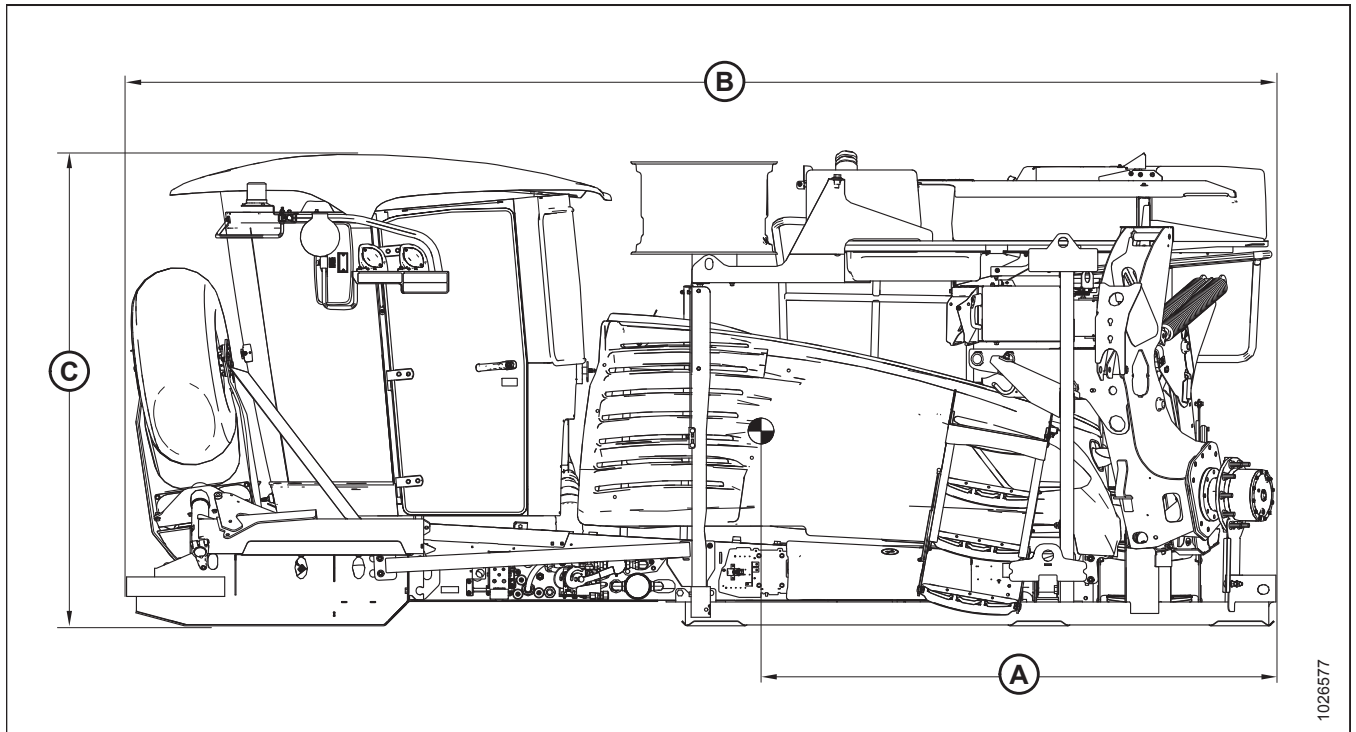


Figure 2.6: Shipping Assembly Specifications

Shipping Assembly Specifications	
Weight	6337 kg (13970 lb.)
Center of gravity (A)	2690 mm (105.9 in.)
Length (B)	6005 mm (236.4 in.)
Height (C)	2481 mm (97.7 in.)

## UNLOADING THE WINDROWER

### **WARNING**

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

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

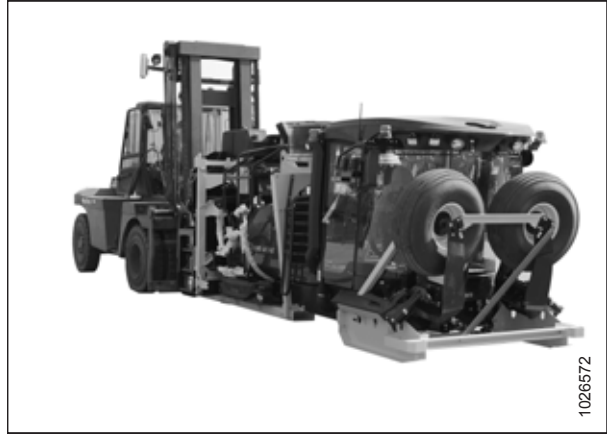


Figure 2.7: Forklift Method Lifting Points

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

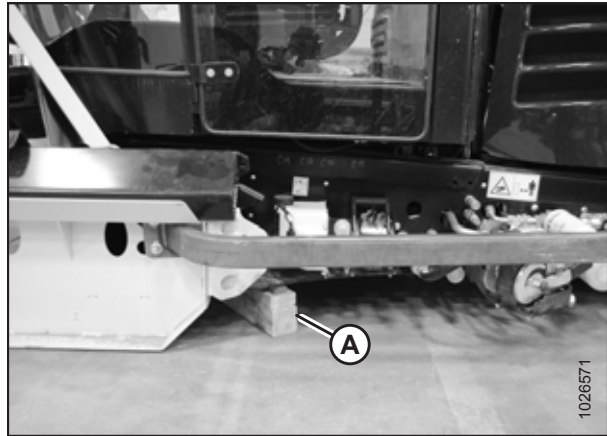


Figure 2.8: Windrower Shipping Assembly on Blocks

## 2.3 Removing Caster Wheel Shipping Assembly

Follow these steps to pull the caster wheel shipping assembly away from the windrower.

1. Remove shipping wire (A) securing center-link (B).

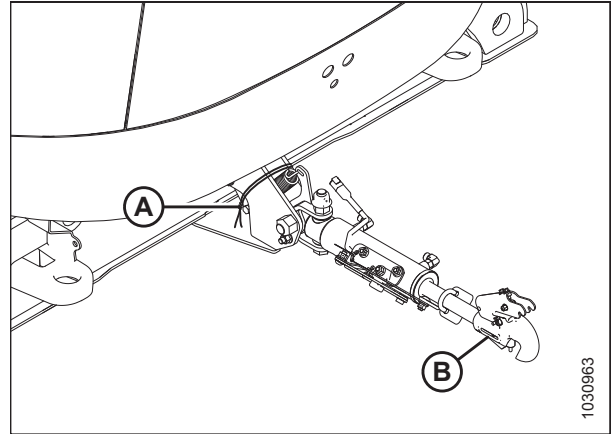


Figure 2.9: Center-Link

2. Disconnect center-link (A) and discard the pin and hardware (B).

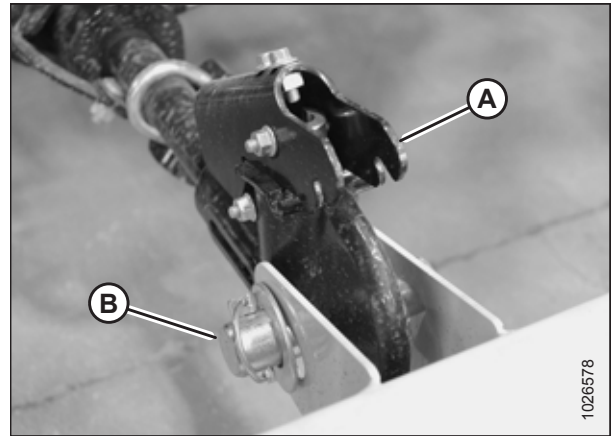


Figure 2.10: Center-Link

3. Remove two bolts at front (A), and three bolts at rear (B), and remove the coupler guard.

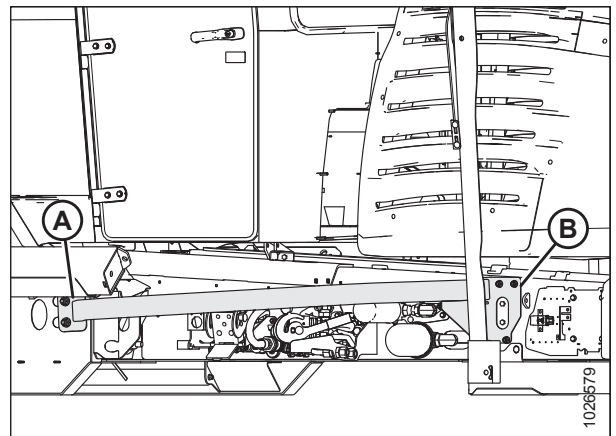


Figure 2.11: Coupler Guard

## UNLOADING THE WINDROWER

4. Remove leg pin bolts (A) from both sides, and retain caps (B) (two per side) for reuse.

**NOTE:**

If moving windrower shipping assembly with a crane, retain leg pin bolts and nuts for reinstallation.

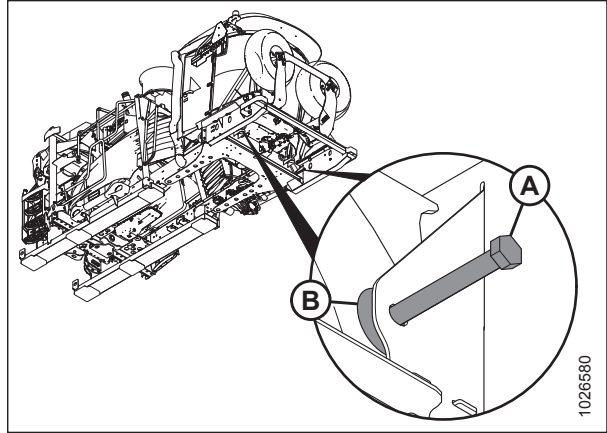


Figure 2.12: Leg Pin Bolts and Caps

5. Remove two bolts (A) securing front skids to the lifting plates (B) on each side.

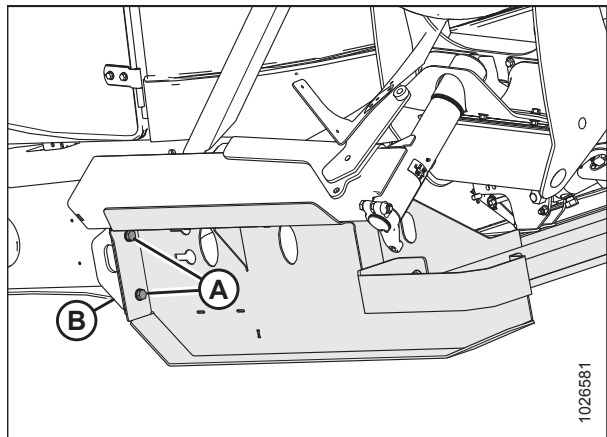


Figure 2.13: Front Skid Bolts

6. Ensure center-link does **NOT** snag the front skids, and use chains or cables to drag caster wheel shipping assembly (A) away from the windrower.

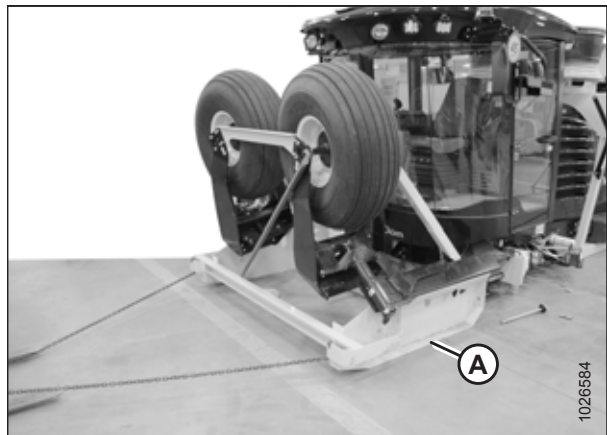


Figure 2.14: Caster Wheel Assembly

## UNLOADING THE WINDROWER

7. **If moving with a crane:** reinstall wheel leg pin bolts (A), caps (B), and nuts (C) to secure lifting plates (D) on both sides.

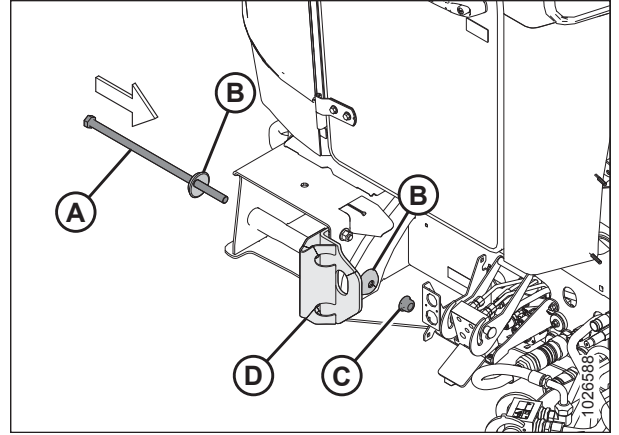


Figure 2.15: Leg Pin Bolt (Crane Lift Only)

8. **If moving with a forklift:** remove bolt (A) from lifting plate (C), slide pin (B) out and retain for reuse. Remove lifting plates (C) on both sides.

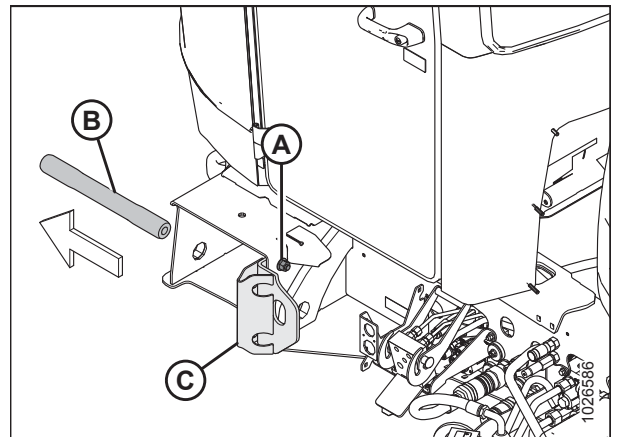


Figure 2.16: Removing Lifting Plates

## 2.4 Removing Drive Wheel Rim Assembly

**IMPORTANT:**

To prevent damage to hood or cab, follow these steps to remove drive wheel rims.

1. To help avoid damage from falling bolts or tools, cover hood with a thick, clean blanket (A).

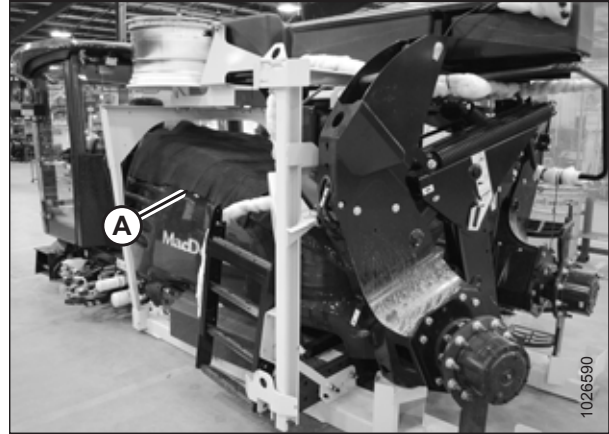


Figure 2.17: Blanket Protecting Hood

2. Attach lifting device to hooks in the center of each rim (A), and adjust lift to support the assembly equally on both sides.

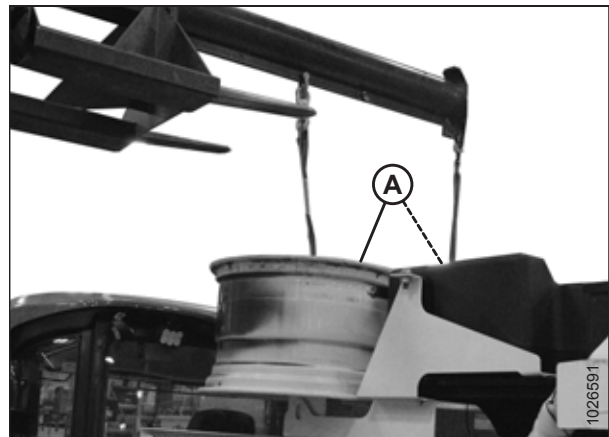


Figure 2.18: Drive Wheel Rims

3. With rims supported, remove bolts (A) and (B) from the rim assembly bracket.

**NOTE:**

Rims drawn transparent to show bolt positions.

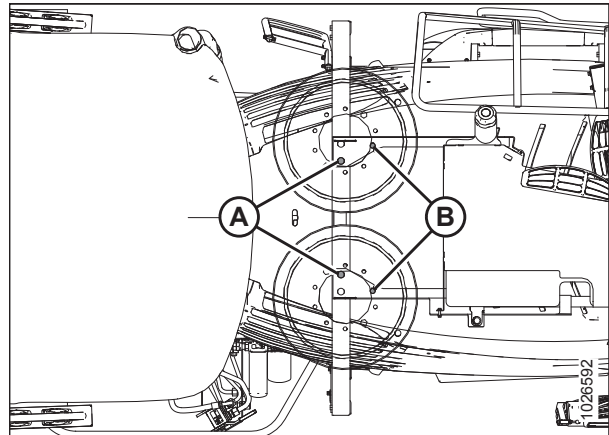


Figure 2.19: View Above Hood



## UNLOADING THE WINDROWER

4. Carefully lift rim assembly off frame.

**IMPORTANT:**

When lifting rims, guide them away from the cab/hood to avoid damage.

5. Set rim shipping assembly down, remove bolts (A) to separate rims from bracket, and install the preferred tires.



Figure 2.20: Rims on Shipping Bracket

## 2.5 Removing Fuel Tank / Right Platform Shipping Assembly

Follow these instructions and remove the handrails, fuel tank/right platform, and platform stairs. Some hardware is reused for assembly.

1. On right side of machine, remove shipping straps and wires (A) from handrails (B) and hydraulic hoses. Set hoses down beside machine.

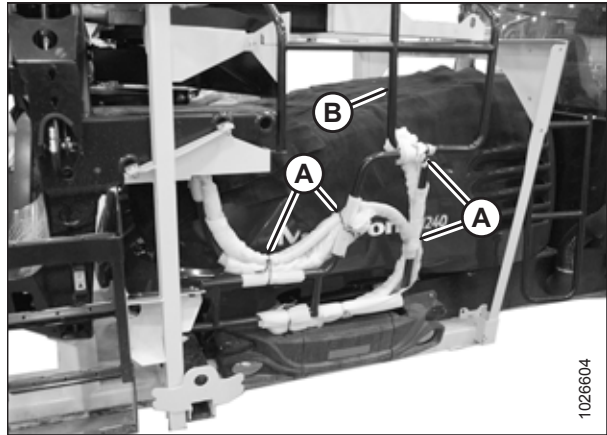


Figure 2.21: Handrails on Right Side

2. Support upper handrail (A), remove three bolts (B) securing handrail to upper shipping support, and set handrail aside.
3. Support lower handrail (C), remove three bolts (D), and set handrail aside.

**NOTE:**

Use care to prevent handrail (C) from contacting and scratching the hood.

4. Support handrail (E), remove two bolts (F), retain bolts, and set handrail aside.

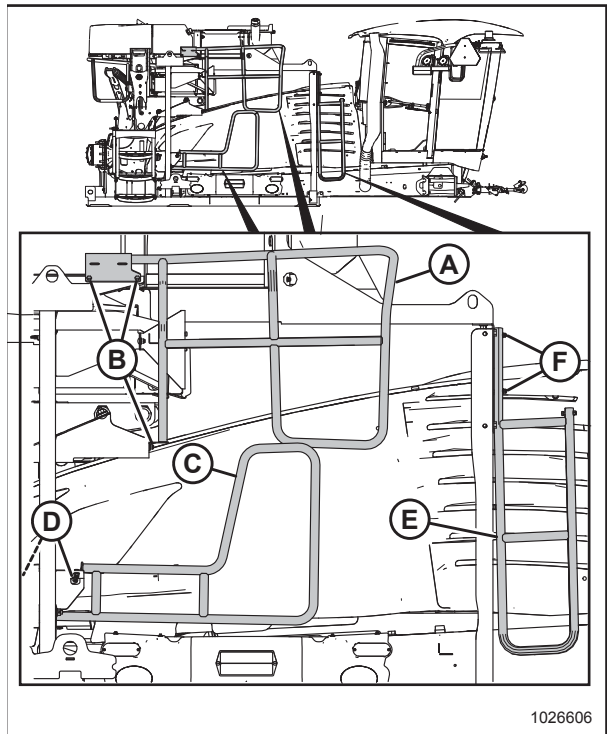


Figure 2.22: Handrails on Right Side

## UNLOADING THE WINDROWER

5. On the rear and right side of machine, cut remaining shipping wires (A) securing railings and hydraulic hoses.

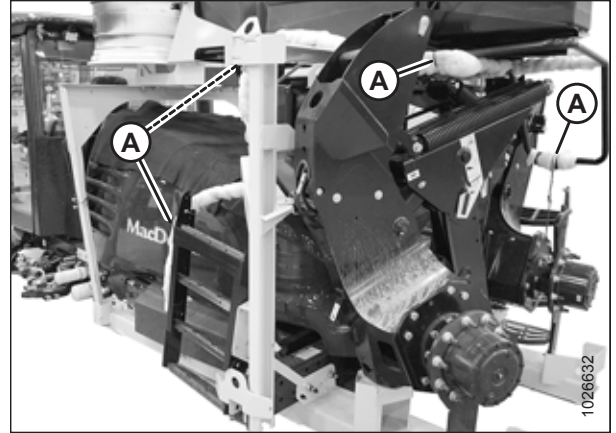


Figure 2.23: Shipping Wire Locations

6. On left side of machine, remove bolt (A) securing strap (B) to horizontal shipping brace. Loosen bolt (C) and rotate strap away from brace.

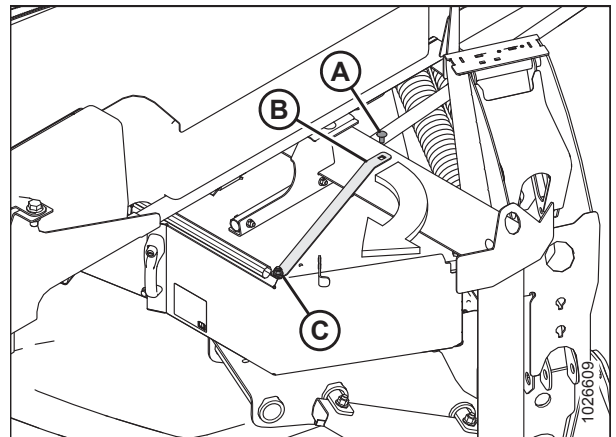


Figure 2.24: Shipping Strap

7. With lifting device positioned behind windrower, secure fuel tank assembly to lifting device with three chains as follows:

**IMPORTANT:**

Avoid damaging windrower due to unbalanced load.

- a. Attach a 147 cm (58 in.) chain (A) to the right lifting point on fuel tank shipping assembly.

**NOTE:**

Avoid snagging fuel filler neck with chain.

- b. Attach a 145 cm (57 in.) chain (B) to the left lifting point on fuel tank shipping assembly.
- c. Attach a 189 cm (74.5 in.) chain (C) to the left front lifting point on fuel tank shipping assembly.

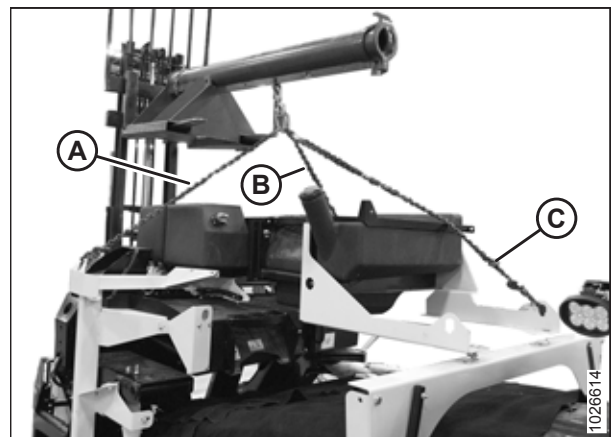


Figure 2.25: Lifting Points

## UNLOADING THE WINDROWER

8. Remove two bolts (A) securing shipping assembly to the front horizontal brace.
9. Remove two bolts (B) securing shipping assembly to the vertical side braces.
10. Before lifting, have a second person guide the assembly to avoid contact/damage with windrower.

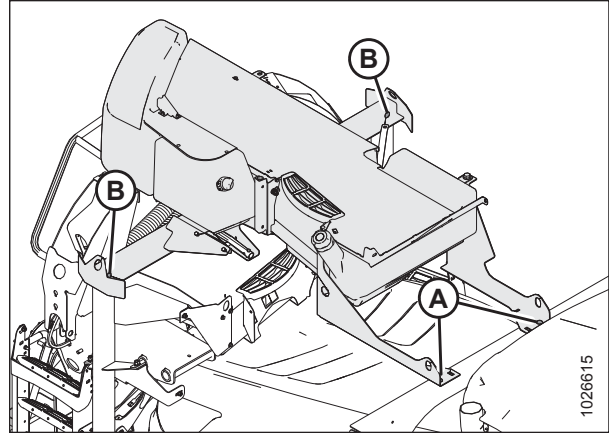


Figure 2.26: Fuel Tank Shipping Assembly

11. Slowly lift fuel tank shipping assembly. Avoid snagging handrail (A) on wheel leg assemblies (B), and move assembly away from the windrower.

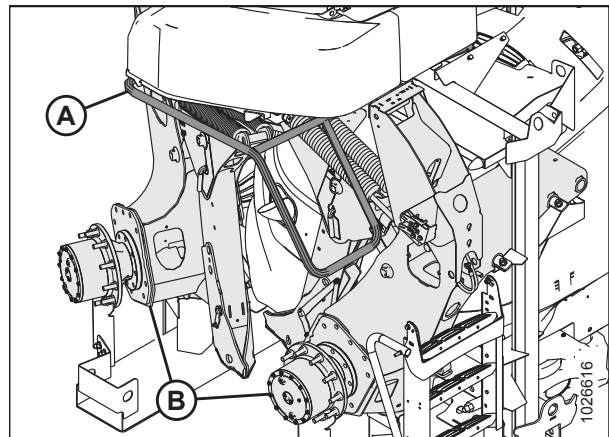


Figure 2.27: Handrail and Wheel Legs

12. With assembly suspended off the ground, support handrail (A), remove and retain hardware (B), and set handrail aside. Keep hardware with handrail for installation.
13. Lower fuel tank assembly down onto 152 mm (6 in.) blocks to avoid damage.

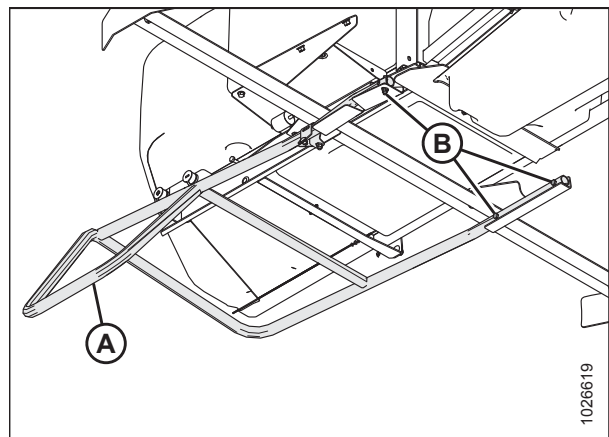


Figure 2.28: Handrail under Fuel Tank Assembly

## UNLOADING THE WINDROWER

14. Remove four bolts (A), remove stairs (B) from shipping assembly, and set stairs aside. Repeat on opposite side.

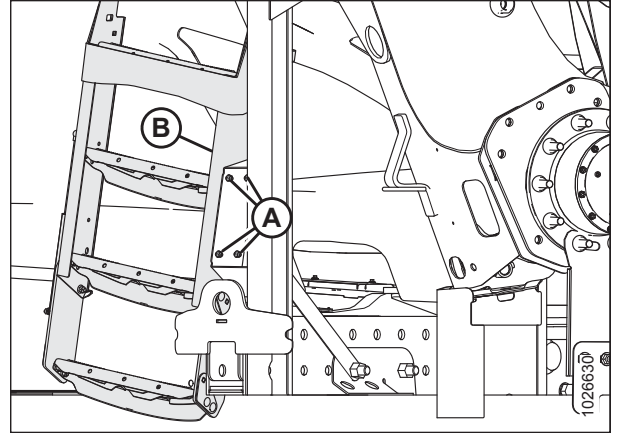


Figure 2.29: Platform Stairs (Left Shown)

## 2.6 Removing Left Platform

1. At left shipping support, remove wire (A), nut, bolt, and bushing (B) to remove platform bar (C). Retain hardware (B) for reuse.

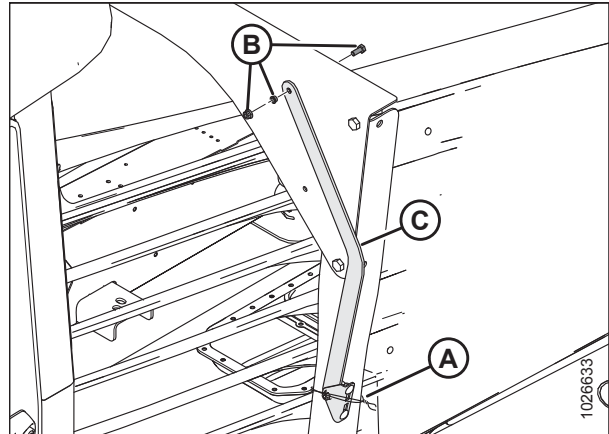


Figure 2.30: Platform Bar

2. Position lifting device behind windrower and attach straps/chains to lifting points (A) to support left platform.

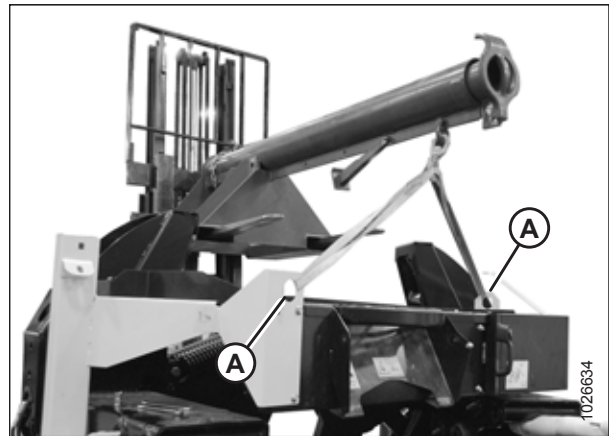


Figure 2.31: Supporting Left Platform

3. Remove nut (A) from long bolt (B) on bottom left side of platform. To prevent tool box from falling out, leave long bolt (B) in place.

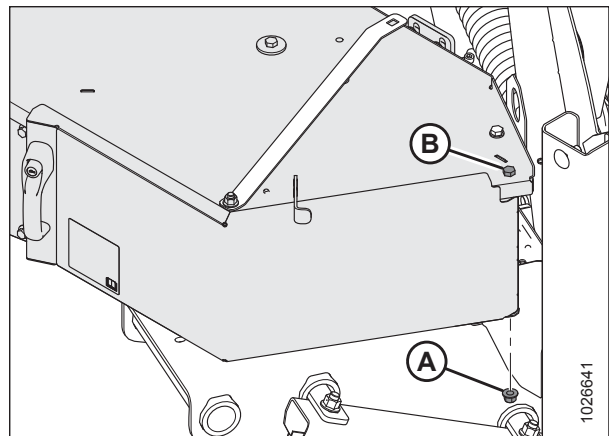


Figure 2.32: Left Platform on Left Side

## UNLOADING THE WINDROWER

4. From below platform on right side of windrower, remove nut and bolt (A), and remove door stop (B). Retain nut and bolt (A) for reuse.

**NOTE:**

To show door stop under platform, the windrower, wheel legs, and shipping supports are hidden in this illustration.

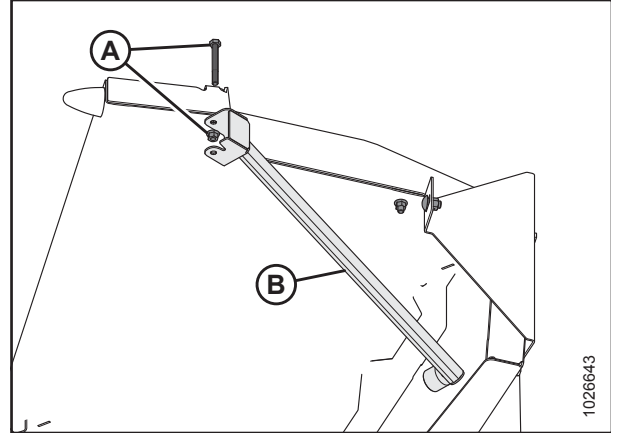


Figure 2.33: Left Platform (Right Underside)

5. Remove and discard nuts and bolts (A) and (B).
6. Carefully lift platform assembly off frame, and set it down on a level surface.

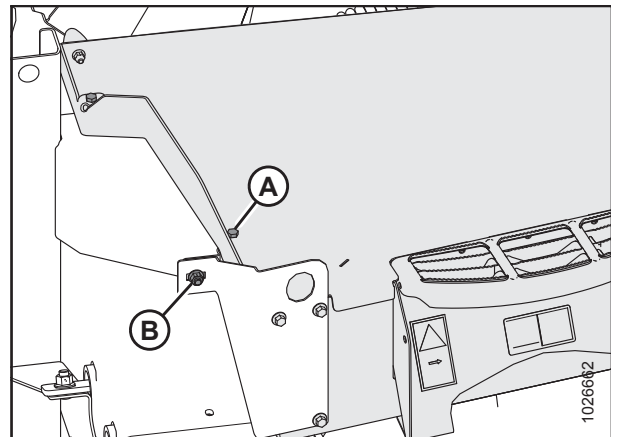


Figure 2.34: Left Platform (Right Side)

7. Replace nut (A) on retained long toolbox bolt (B).

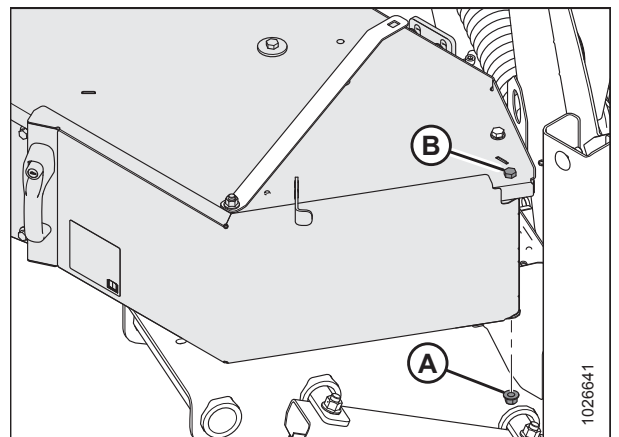


Figure 2.35: Left Platform

## 2.7 Removing Wheel Leg Assemblies

### WARNING

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. Position lifting device to remove wheel leg (A) on the left side of windrower first.

**NOTE:**

When configured for container shipments, wheel legs are shipped with right leg (A) on the left side of the shipping assembly and left leg (B) on the right side.

2. Secure hydraulic hoses to prevent damaging the windrower hood.

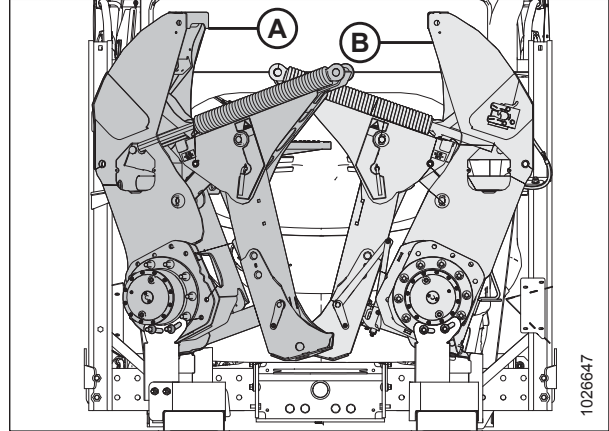


Figure 2.36: Leg Shipping Configuration

3. Attach lifting strap (A) through top of leg assembly. Position strap so leg will be balanced, but avoid damaging float sensor (B). Adjust lifting device to support leg.
4. Before lifting, have a second person available to prevent leg from swinging into the hood; lay down cardboard or rubber to prevent damage when leg assembly is set down.

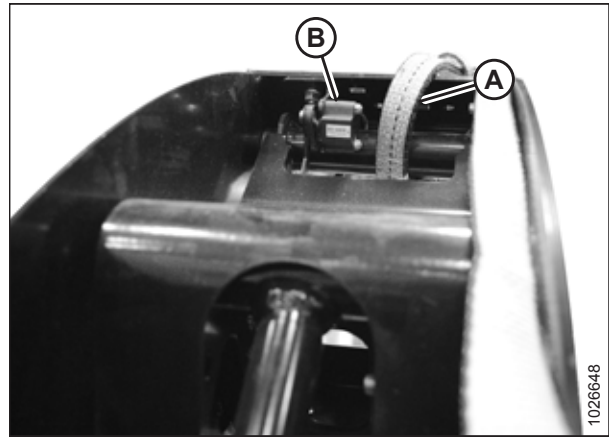


Figure 2.37: Attaching Lifting Strap

5. With leg supported and a second person in place, remove two bolts (A) from the lower fork channel brace.
6. Remove and discard two bolts (B). Remove shipping support (C).

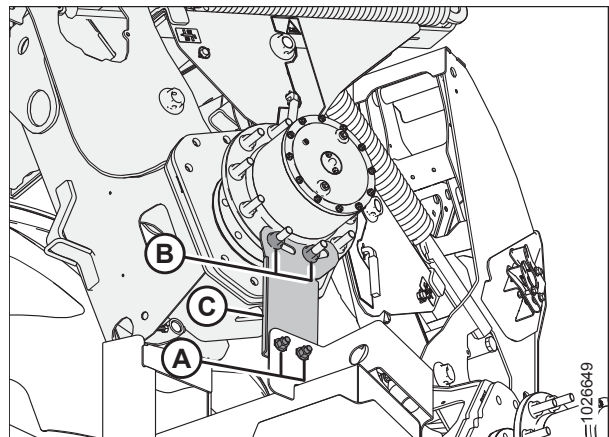


Figure 2.38: Wheel Leg on Left Side



## UNLOADING THE WINDROWER

7. Remove two bolts (A) and then pull shipping bars out of wheel leg members.

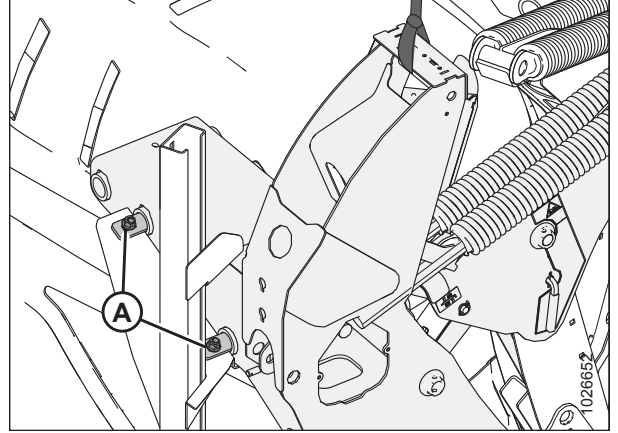


Figure 2.39: Wheel Leg on Left Side

8. Lift leg assembly away from windrower and set it on level ground. Lay leg down as shown with leg member on block (A).
9. Repeat procedure for the second leg assembly.

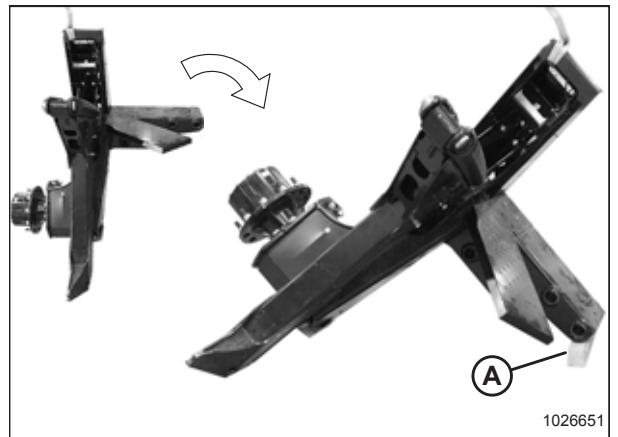


Figure 2.40: Lowering Right Leg Assembly

## 2.8 Removing Upper Shipping Supports

1. Support cross member behind cab with a suitable lifting device.
2. Remove two bolts (A) on each side and remove cross member.

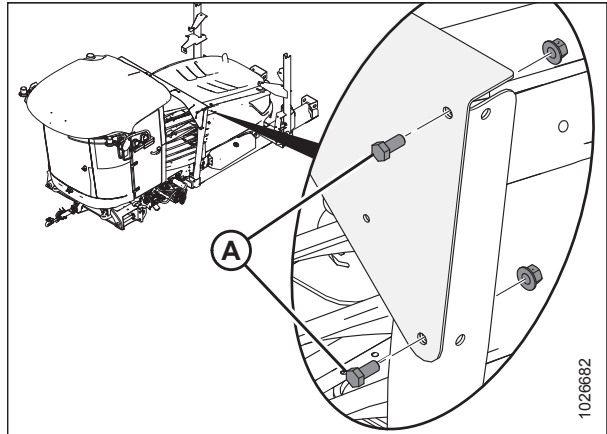


Figure 2.41: Forward Cross Member

3. Remove nut and bolt (A) and remove vertical support (B). Repeat on opposite side.

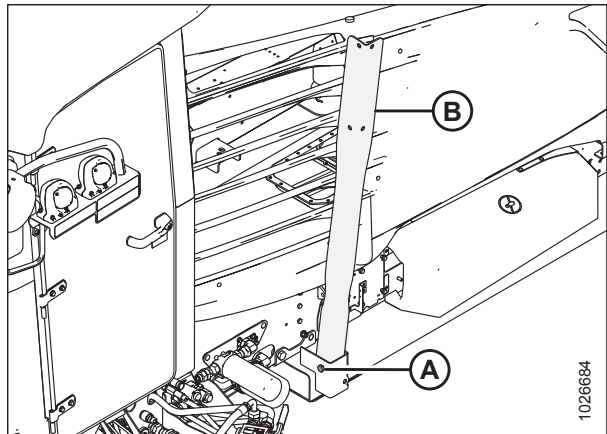


Figure 2.42: Forward Vertical Supports

4. **If lifting windrower with a crane:** Do **NOT** remove rear vertical channels/crane lifting points (A) until after lifting machine onto assembly stand.

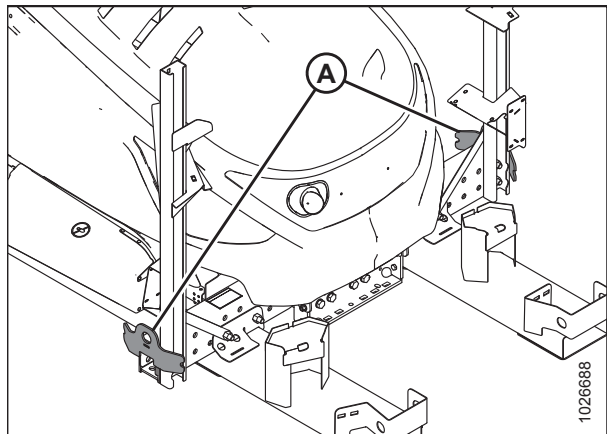


Figure 2.43: Rear Lift Points

## UNLOADING THE WINDROWER

5. Remove one nut and bolt (A) connecting vertical channel (B) to walking beam strap.
6. Remove two nuts and bolts (C) connecting channel to walking beam, and remove channel. Repeat on opposite side.

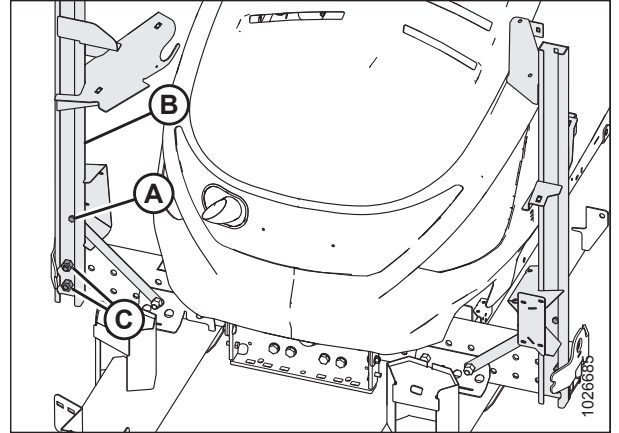


Figure 2.44: Rear Vertical Channels



# Chapter 3: Assembling the Windrower

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

## 3.1 Lifting Windrower onto Export Assembly Lift Stand

The M Series Windrower Export Assembly / Lift Stand (MD #B4649) requires the M1 Series Export Assembly / Lift Stand kit (MD #B6785) for compatibility with M1 Series Windrowers.

### CAUTION

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

### CAUTION

Equipment used for unloading must meet or exceed the requirements specified in this section. Inadequate equipment may result in chain breaking, vehicle tipping, or machine damage.

Before lifting the windrower onto the assembly stand, ensure lifting device meets or exceeds the specified requirements and refer to the following topics:

- If lifting with a forklift, refer to [2.2.2 Moving to Assembly Area – Forklift Method, page 17](#)
- If lifting with a crane, refer to [2.2.1 Moving to Assembly Area – Crane Method, page 14](#)

1. Set up the air control valve tripod (A) and install a 690 kPa (100 psi) air line. The stand is now operational.

#### IMPORTANT:

Do NOT pressurize air bags (B) beyond 690 kPa (100 psi).

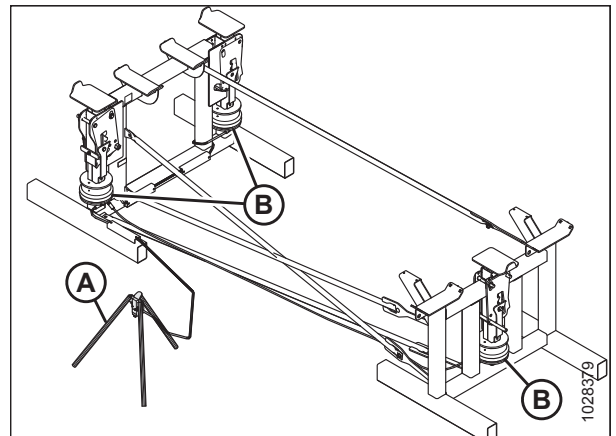


Figure 3.1: Lift Stand with Pressure Control Tripod

#### IMPORTANT:

M1 Series windrowers will NOT fit the stand's existing frame cradles (A); the windrower MUST rest on lift plates (B). To avoid damage, raise lift plates above the cradles as follows:

2. On the rear stand, pull on lift stop handle (C) to release the pin from the notched plate (D).
3. Raise the lift plate (B) to first notch and re-engage the notched plate to secure the position.

#### NOTE:

If lift plate sticks, use air pressure to raise it.

4. Repeat for the two remaining adjustable lift plates on the front lift stand.

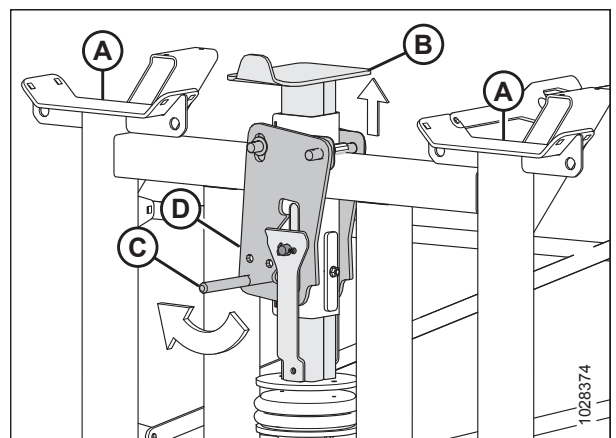


Figure 3.2: Adjusting Lift Plates

## ASSEMBLING THE WINDROWER

- Using a suitable lifting device, move the M1 Series windrower over the lift stand and slowly lower it onto the lift plates (A).

### IMPORTANT:

The front frame member should rest on the left and right lift plates (A), and the rear lift plate should be centered under the walking beam.

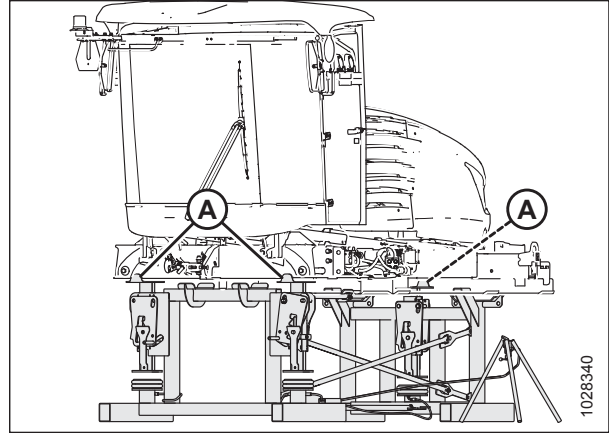


Figure 3.3: M1 Windrower on Lift Stand

- Before installing the drive wheels, raise the lift stand to maximum height as follows:
  - Ensure all three lift locks (one at rear, two at front) are activated.

### NOTE:

Lock is activated when keeper (A) is vertical and notched plate (B) is free to move.

- Pressurize the air bag system and raise the windrower to the maximum height.

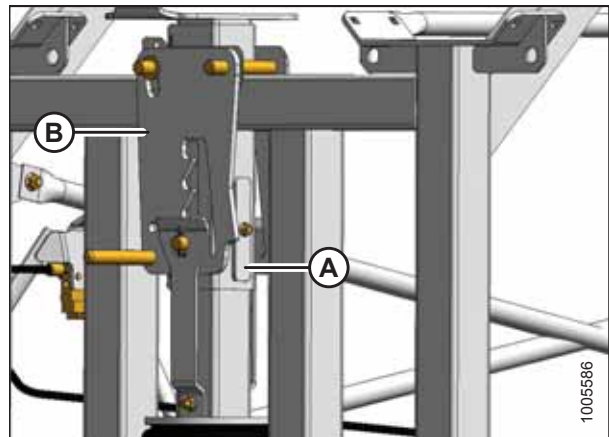


Figure 3.4: Lift Lock Mechanism – Rear Shown

- Verify that all three locks are engaged before proceeding to the next step in the assembly instructions.

### NOTE:

Lock is engaged when witness hole (A) above the pin is exposed.

- Release pressure until the locks support the weight of the windrower.

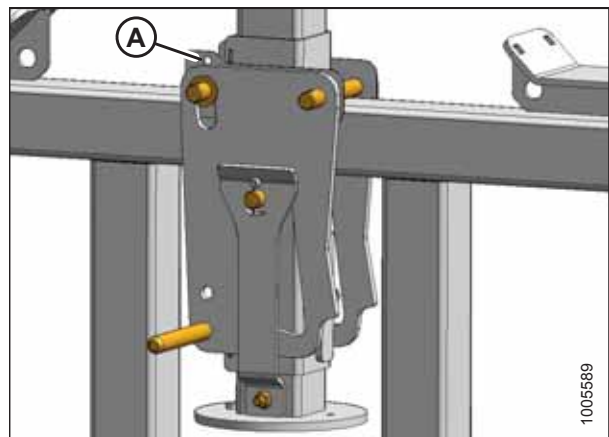


Figure 3.5: Lift Lock Mechanism – Rear Shown

## ASSEMBLING THE WINDROWER

9. When assembly is complete, lower the windrower as follows:
  - a. Increase air pressure to raise the windrower and take load off the lift locks (A).
  - b. Release the lift lock mechanisms (A) (three places) and turn keeper (B) to keep lock (A) in the released position.
  - c. Slowly release the pressure from the air bag system and lower the windrower to the ground.

**IMPORTANT:**

An assembled M1 Series windrower does NOT have the clearance necessary to drive away from the lift stands. The stand **MUST** be removed from under the windrower.

10. Remove the assembly / lift stand from below the windrower.

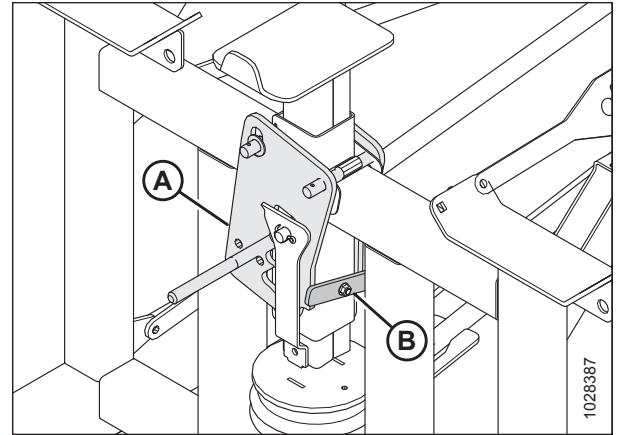


Figure 3.6: M1 Windrower on Lift Stand

### 3.2 Removing Remaining Items from Shipping Configuration

With the windrower on the assembly stand, remove the rear lighting bezel, cab suspension shipping supports, and fork channels as follows:

1. On the right side of the machine, remove two bolts (A) behind the rear lighting bezel, and remove bezel. Retain two nuts for installation, but discard bolts.

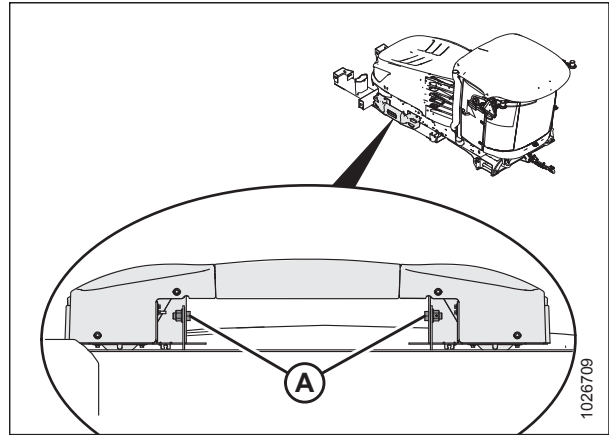


Figure 3.7: Rear Light Bezel

2. Remove two bolts (A) and remove cab suspension shipping support (B) from below the front cab. Repeat on opposite side.

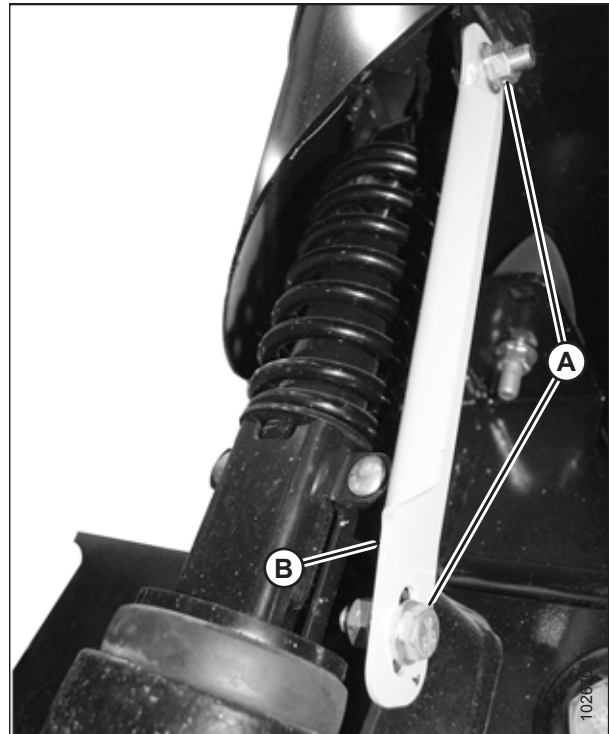


Figure 3.8: Right Cab Suspension Support



## ASSEMBLING THE WINDROWER

- Support fork channel (A) with a suitable lifting device (B), and remove two bolts (C) from walking beam.

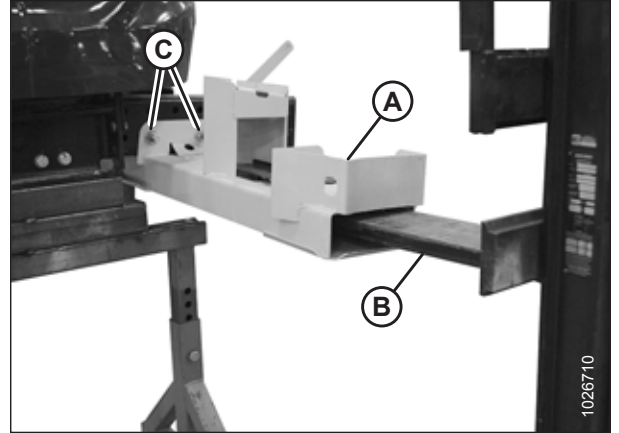


Figure 3.9: Supporting Fork Channel

- Remove bolt (A) from forward end of fork channel (B) at the side of machine.
- Ensure hoses and electrical harnesses do not catch the lower fork channel, and move it away from the windrower.
- Repeat on opposite side.

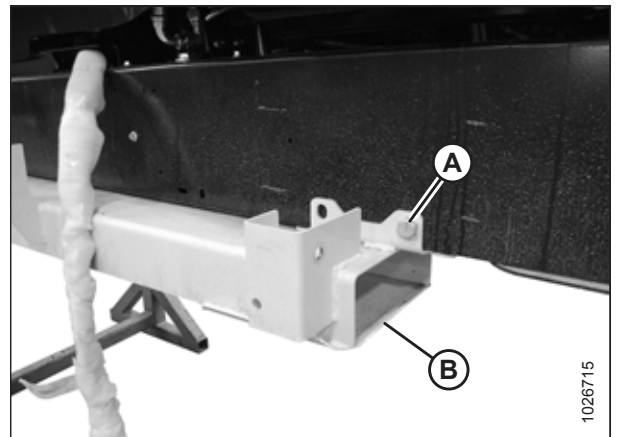


Figure 3.10: Removing Fork Channel

### 3.3 Installing Wheel Legs

#### WARNING

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. Remove inboard leg bolt, nut, two caps, and pin (A), and retain for leg installation.

**NOTE:**

If lifting with a forklift, outboard pin was removed previously.

2. **If lifting with a crane:** remove bolt, nut, two caps, and pin (B). Retain for installation.
3. **If lifting with a crane:** remove carriage bolt (C) and remove lifting plate (D).

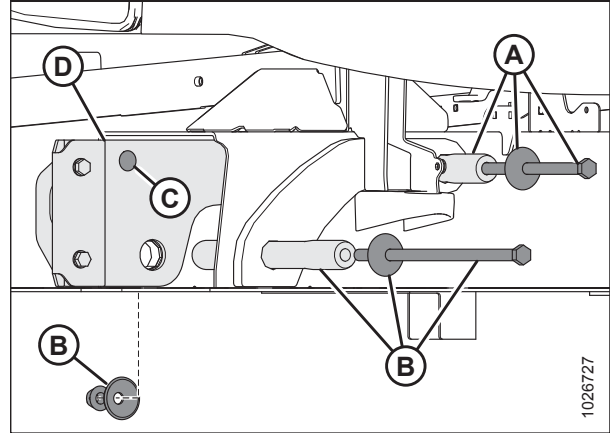


Figure 3.11: Wheel Leg Pin

4. Remove shipping material from hydraulic and electrical bundle on wheel leg.
5. Attach lifting strap (A) to top of wheel leg, and use a suitable lifting device to stand it upright.

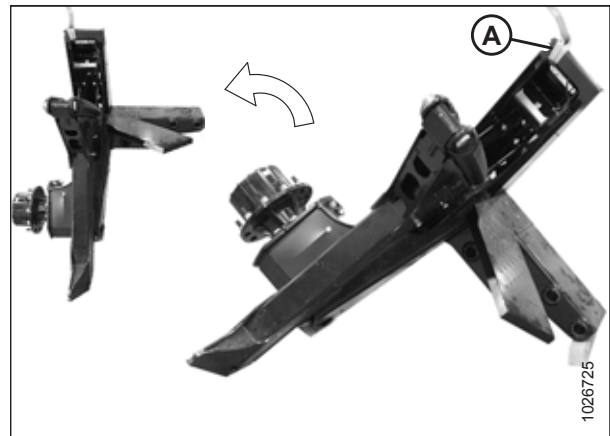


Figure 3.12: Wheel Leg

6. Position strap (A) so leg is balanced, but avoid damaging float sensor (B).

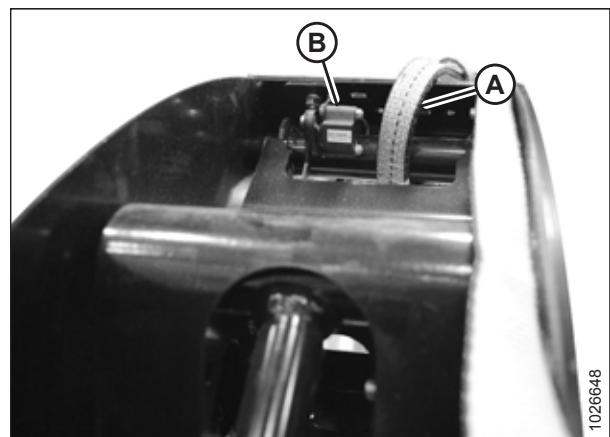


Figure 3.13: Top of Wheel Leg

## ASSEMBLING THE WINDROWER

7. Move wheel leg into position next to windrower and feed hydraulic hose and electrical bundle (A) into frame (B).

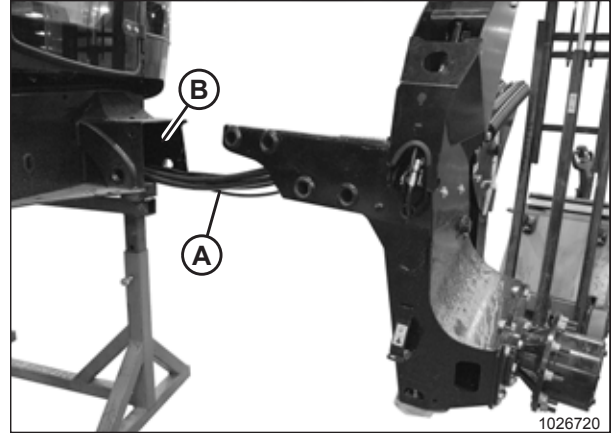


Figure 3.14: Hydraulic Hose Bundle

8. Feed bundle (A) through hole below the windrower at center of frame.

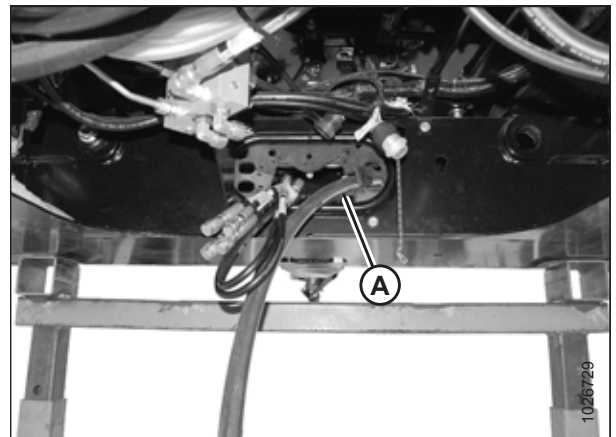


Figure 3.15: Hydraulic and Electrical Bundle

9. Insert leg into frame and line up with exposed hole (A).
10. Insert pins and secure leg with long bolts (B), two caps per pin (C), and nuts (D). Torque to 136 Nm (100 lbf-ft).

**NOTE:**

If necessary, use a pry bar to align holes.

11. Repeat for opposite wheel leg.

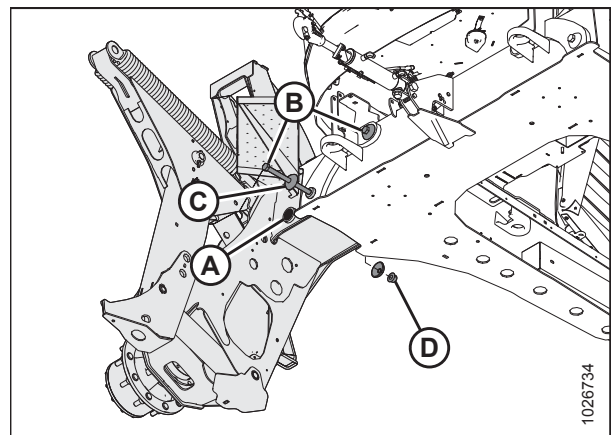


Figure 3.16: Leg Position on Frame

## ASSEMBLING THE WINDROWER

12. Remove lynch pin (A) and clevis pin (B) from lift linkage on both wheel legs.

**IMPORTANT:**

Failure to remove clevis pin from linkage can result in damage to the linkage.

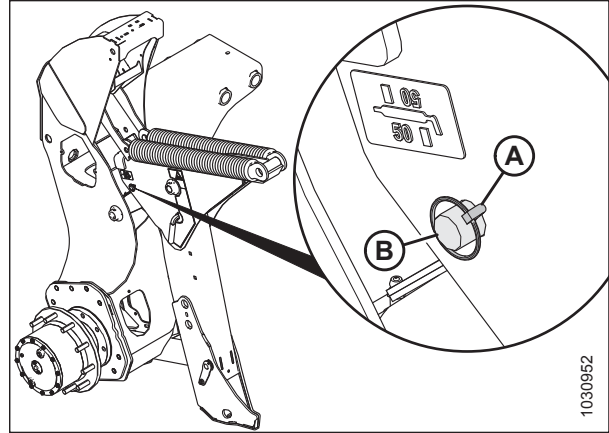


Figure 3.17: Header Lift Linkage Shipping Pin

### 3.4 Installing Drive Wheels

#### CAUTION

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

1. Retrieve windrower keys (A) from inside the chassis multiplexed Vehicle Electrical Center (mVEC), and retrieve the bag of wheel nuts from behind the operator's seat.
2. Clean mounting surface on wheel drive and rim.

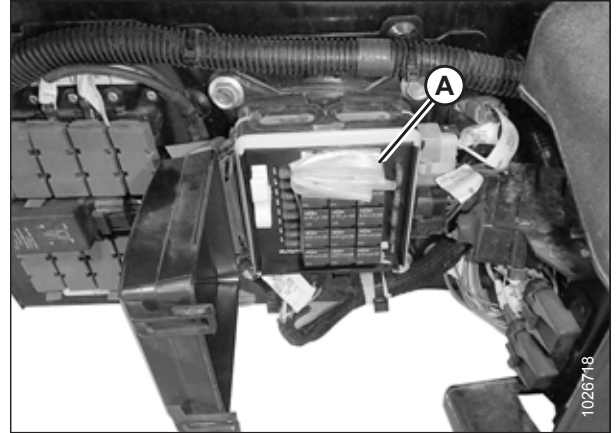


Figure 3.18: Windrower Keys Inside mVEC

3. Position a suitable lifting device (A) under the tire and raise slightly.
4. Position the wheel against wheel drive hub so air valve (B) is on the outside and tread (C) points forward (cab-forward orientation).

**NOTE:**

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

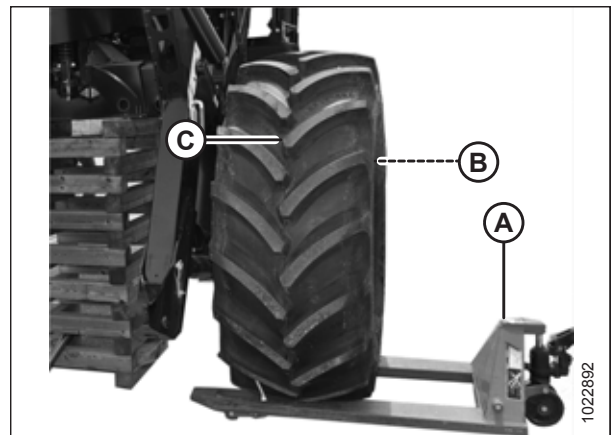


Figure 3.19: Drive Wheel

5. Align the rim with studs on the hub and push the wheel onto the hub.
6. Install wheel nuts (A).

**IMPORTANT:**

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

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

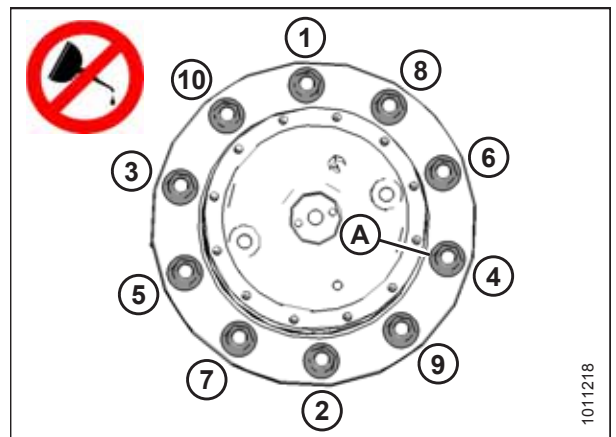


Figure 3.20: Tightening Sequence

8. Repeat the tightening sequence two additional times, ensuring the specified torque is achieved each time.
9. Repeat Steps 2, page 43 to 8, page 43 for the other drive wheel.

### 3.5 Installing Caster Wheels

#### *Installing right caster wheel*

1. Remove bolts (A) securing anti-shimmy dampener brackets (B) to shipping stand. Retain bolts and washers for installation.

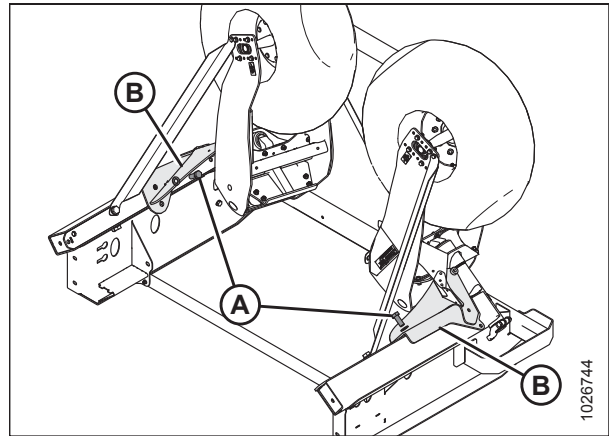


Figure 3.21: Anti-Shimmy Dampener Bracket

2. Use a suitable lifting device to support right caster wheel (A). Do **NOT** remove angled support (B).

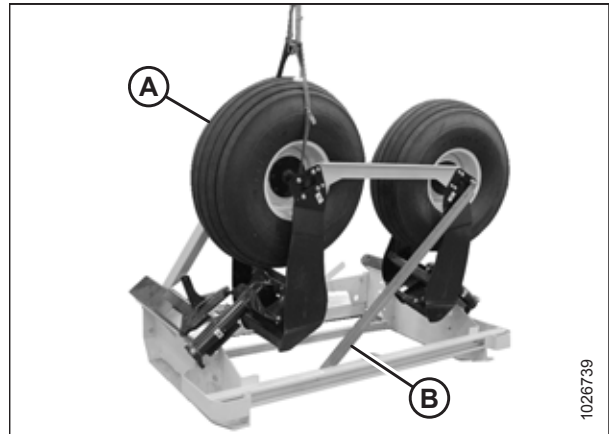


Figure 3.22: Caster Wheels Shipping Assembly

3. Remove four bolts (A) and remove horizontal strap (B) between caster wheels.

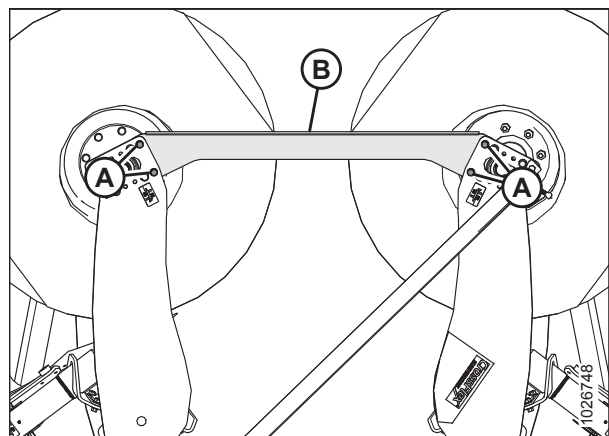


Figure 3.23: Caster Wheels Shipping Assembly

## ASSEMBLING THE WINDROWER

4. Remove four bolts (A) securing right caster wheel (B) to shipping stand. Retain bolts with washers for installation.
5. Lift right caster wheel away from shipping assembly and set it down on a non-scratch surface.

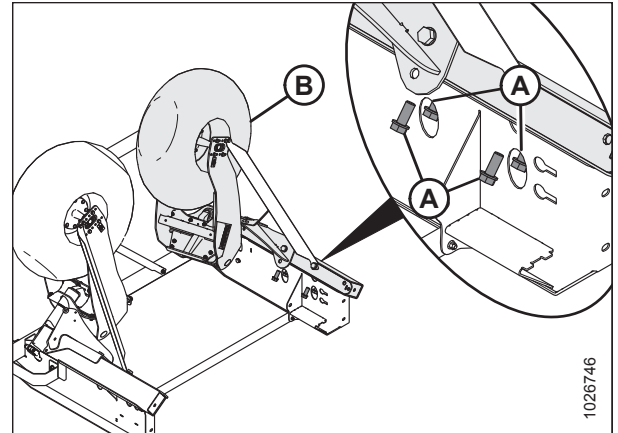


Figure 3.24: Caster Wheels Shipping Assembly

6. Reposition lifting straps (A) around caster wheel beam and shipping bracket (B), and lift wheel into position beside walking beam.
7. Insert caster wheel approximately 305 mm (12 in.) into walking beam up to shipping brace (B).

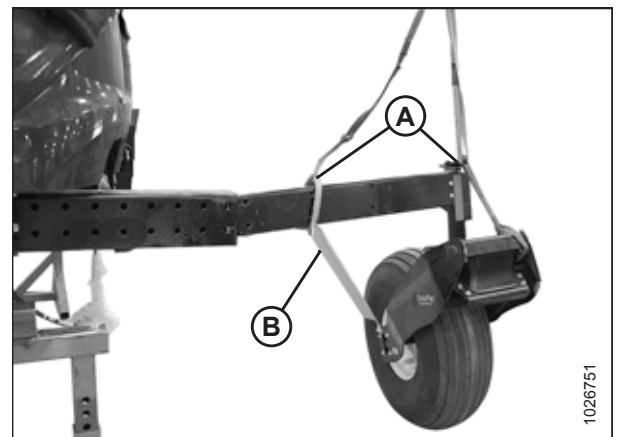


Figure 3.25: Inserting Caster Wheel

8. Remove bolts (A) and (B) securing shipping brace (C) to caster wheel. Retain bolt and washer (A) for install.
9. Rotate caster wheel and insert it into walking beam to the desired caster width.

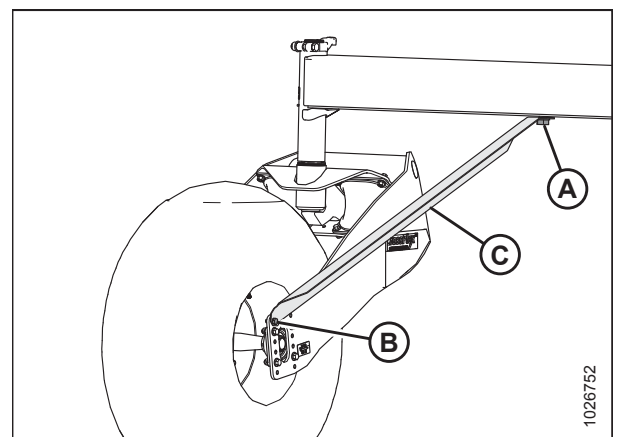


Figure 3.26: Caster Wheel Brace

## ASSEMBLING THE WINDROWER

10. Install two bolts (A) with washers into bottom of walking beam. Snug bolts.

**NOTE:**

Use a pry bar to align caster wheel holes on walking beam.

11. Install anti-shimmy dampener bracket (B) onto walking beam, and secure with two bolts and washers (C) retained from shipping.
12. Install two bolts and washers (D) retained from shipping into the outboard holes on walking beam.

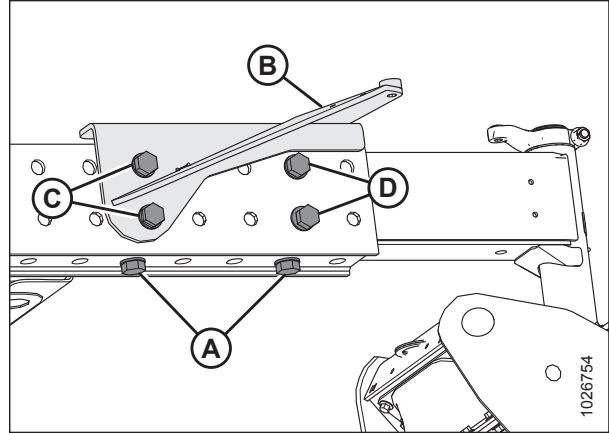


Figure 3.27: Caster Wheel Install

13. Tighten six bolts on walking beam as follows:
  - a. Snug bottom bolts (A), then snug rear-facing bolts (B).
  - b. Torque back bolts (B) to 745–770 Nm (550–570 lbf-ft).
  - c. Torque bottom bolts (A) to 745–770 Nm (550–570 lbf-ft).

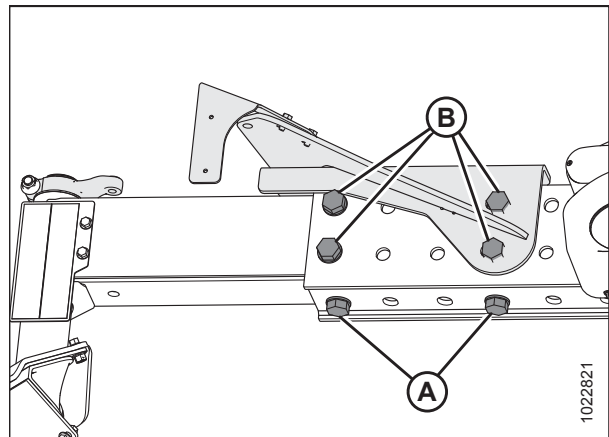


Figure 3.28: Torquing Bolts (Left Wheel Shown)

### *Installing left caster wheel*

14. Use a suitable lifting device to support the left caster wheel (A), and remove angle brace (B).

**NOTE:**

Ensure wheel is supported; wheel may shift when brace is removed.

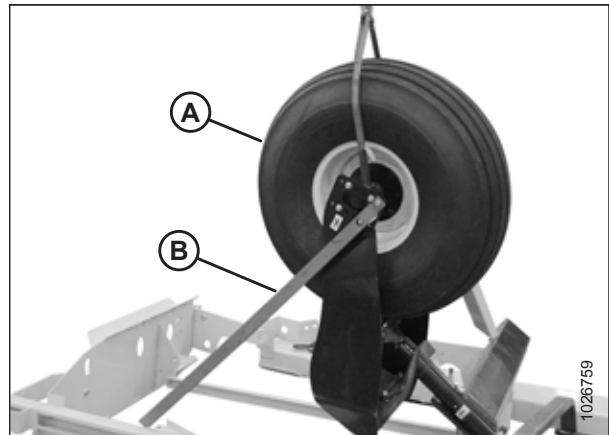


Figure 3.29: Caster Wheels Shipping Assembly



## ASSEMBLING THE WINDROWER

15. Remove four bolts (A) securing left caster wheel beam (B) to shipping stand. Retain bolts with washers for installation.
16. Lift left caster wheel away from shipping assembly and set it down on a non-scratch surface.
17. Repeat Steps 6, page 45 to 13, page 46 to install left caster wheel.

**NOTE:**

It may be necessary to raise the left end of walking beam with a jack when installing the left caster wheel.

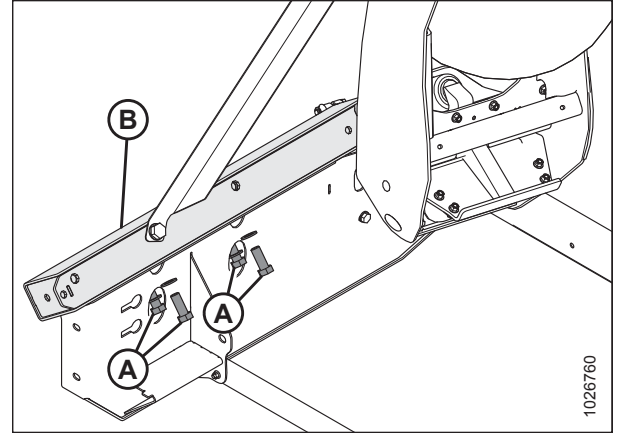


Figure 3.30: Caster Wheels Shipping Assembly

18. On left anti-shimmy dampener bracket, rotate slow moving vehicle (SVM) sign bracket (A) into working position. Secure with existing screws (B).

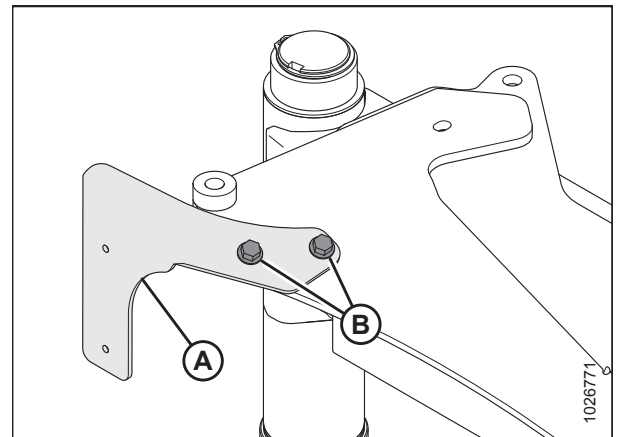


Figure 3.31: SVM Bracket in Working Position

19. Ensure left and right caster wheel width is equal.

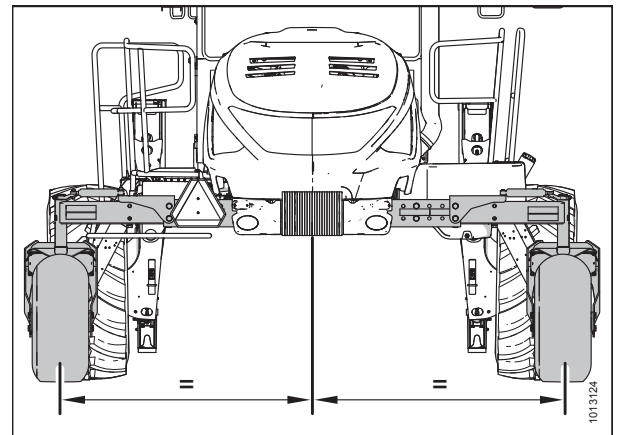


Figure 3.32: Walking Beam Adjustment

### 3.6 Installing Anti-Shimmy Dampeners

1. Retrieve anti-shimmy dampener shocks and hardware from tool box in left platform.
2. Attach barrel end of anti-shimmy dampener (A) to the forward hole in support (B) with one M16 x 75 flange head bolt (C) and one M16 tech lock nut (D). Install the bolt from under the support. Do **NOT** fully tighten.

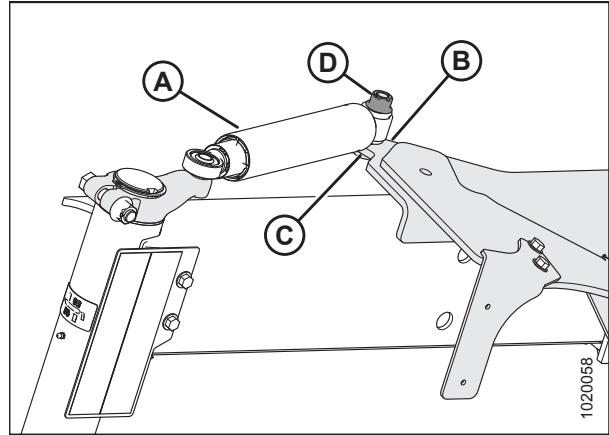


Figure 3.33: Anti-Shimmy System – Left Side

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

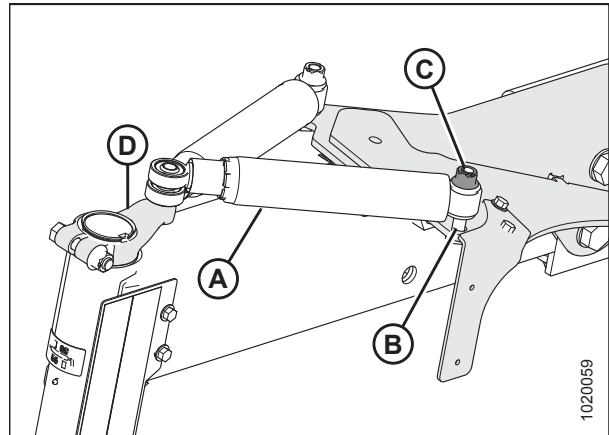


Figure 3.34: Anti-Shimmy System – Left Side

5. Attach rod ends of anti-shimmy dampeners to arm with M16 x 90 flange head bolt (A) and three hardened washers (B).

**NOTE:**

Washers (B) are stamped with L9 for identification.

6. Torque bolt (A) to 244 Nm (180 lbf-ft).
7. Install jam nut (C) and torque to 136–140 Nm (100–103 lbf-ft).
8. Tighten bolts (D) at barrel end of anti-shimmy dampeners, and torque to 136–140 Nm (100–103 lbf-ft).

**IMPORTANT:**

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

9. Repeat Steps 2, [page 48](#) to 8, [page 48](#) for opposite end of walking beam.

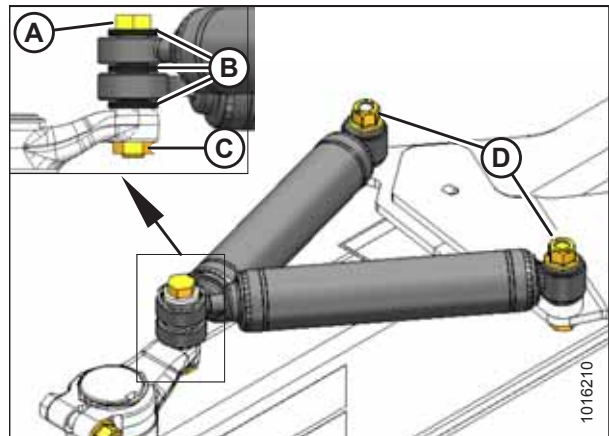


Figure 3.35: Anti-Shimmy System – Left Side

### 3.7 Connecting Wheel Leg Hydraulics and Electrical

Follow these steps to complete the hydraulic and electrical connections from the wheel legs.

**NOTE:**

A bag containing 14 medium cable ties (MD #21763) and one large cable tie (MD #30753) is shipped inside the windrower cab. This procedure requires medium cable ties.

**Junction manifold hydraulic connections**

1. Connect hoses from left wheel leg to the junction manifold as follows:
  - a. Connect the 3/8 in. internal diameter (ID) lift hose (A) with no cable tie to port HL.
  - b. Connect the 1/4 in. ID float hose (B) with yellow cable tie to port FL.
  - c. Connect the 3/8 in. ID lift hose (C) with yellow cable tie to port CL.
  - d. Connect the 1/2 in. ID case drain hose (D) with red cable tie to port MDL.

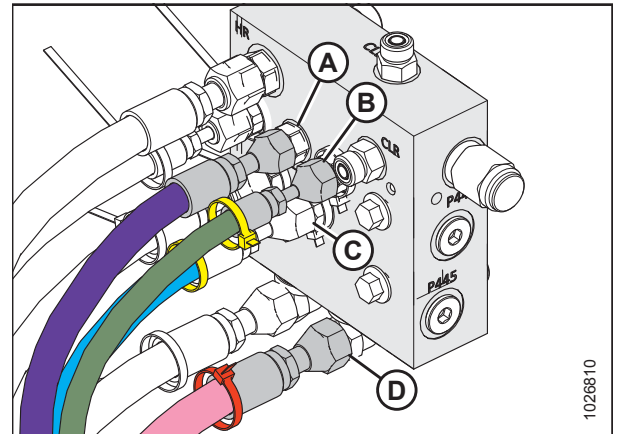


Figure 3.36: Junction Manifold Left Leg Hoses

2. Connect hoses from right wheel leg to the junction manifold as follows:
  - a. Connect the 1/2 in. internal diameter (ID) lift hose (A) with no cable tie to port HR.
  - b. Connect the 1/4 in. ID float hose (B) with black cable tie to port FR.
  - c. Connect the 3/8 in. ID lift hose (C) with black cable tie to port CR.
  - d. Connect the 1/2 in. ID case drain hose (D) with blue cable tie to port MDR.

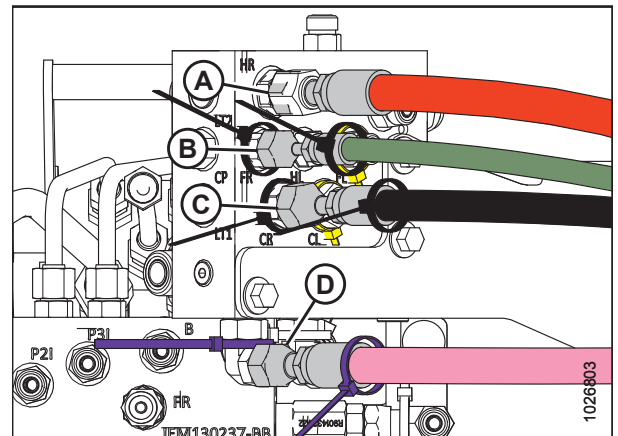


Figure 3.37: Junction Manifold Right Leg Hoses

## ASSEMBLING THE WINDROWER

### Float selector manifold hydraulic connections

3. Connect hoses from right wheel leg to the float selector manifold as follows:
  - a. Connect the 1/4 in. ID brake hose (A) with no cable tie to port BR.
  - b. Connect the 1/4 in. ID float hose (B) with no cable tie to port FR with extension.
4. Connect hoses from left wheel leg to the float selector manifold as follows:
  - a. Connect the 1/4 in. ID brake hose (C) with black cable tie to port BL.
  - b. Connect the 1/4 in. ID float hose (D) with black cable tie to port FL with extension.
5. Use provided cable tie (A) to secure two hoses (B) (from right leg to float selector manifold) to the case drain hose with blue cable tie.
6. Use provided cable tie (C) to secure two hoses (D) (from left leg to float selector manifold) to the case drain hose with red cable tie.

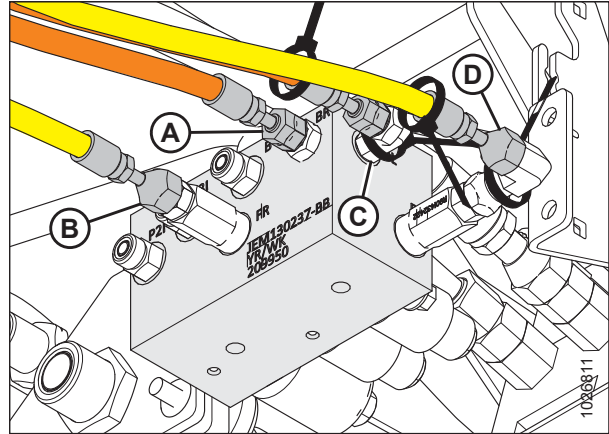


Figure 3.38: Float Selector Manifold

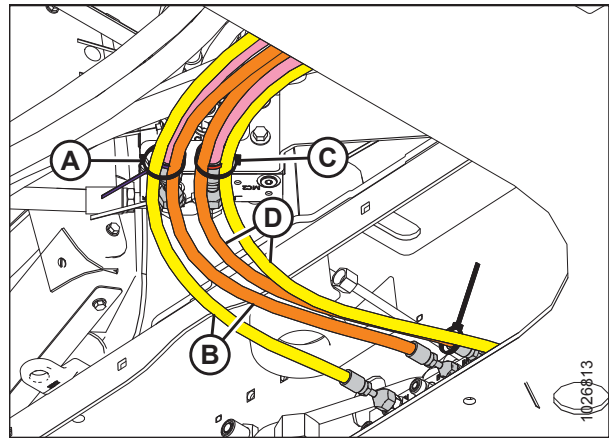


Figure 3.39: Securing Hoses

### Traction drive pump hydraulic connections

7. Route traction drive hoses through supports inside cross member and secure with cable ties (A).

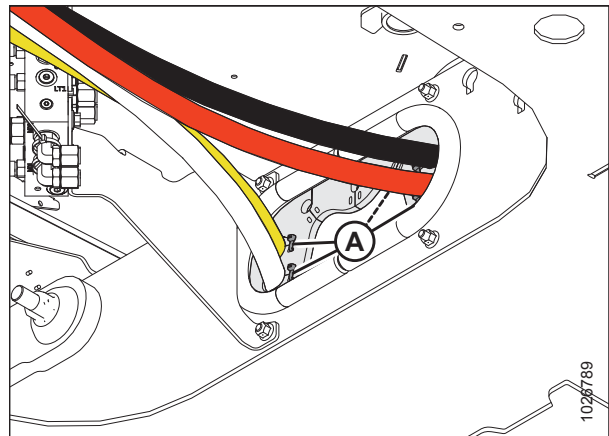


Figure 3.40: Hose Support at Cross Member

## ASSEMBLING THE WINDROWER

8. Remove nuts and bolts (A) and remove routing clamp (B) from hose support (C) in front of pump stack.
9. Route traction drive hoses through hose support, position them so they do **NOT** sag below windrower frame, and then reinstall routing clamp.

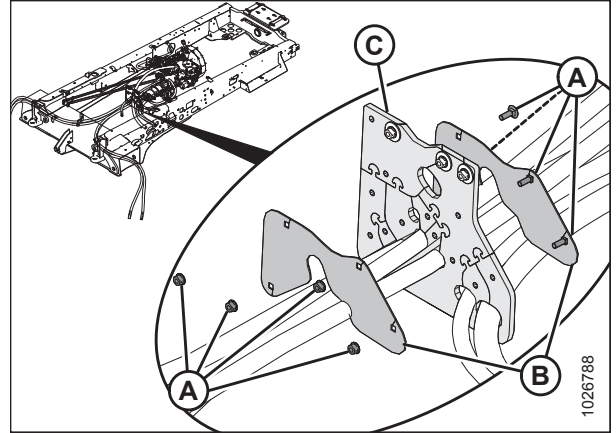


Figure 3.41: Hose Support at Pump Stack

10. Connect hoses from wheel drive motors to traction drive pump as follows:
  - a. Connect hose from port B on right wheel motor to port (A) with extended adapter and black cable tie.
  - b. Connect hose from port A on right wheel motor to port (B) with extended adapter and red cable tie.
  - c. Connect hose from port B on left wheel motor to port (C) with yellow cable tie.
  - d. Connect hose from port A on left wheel motor to port (D) with no cable tie.

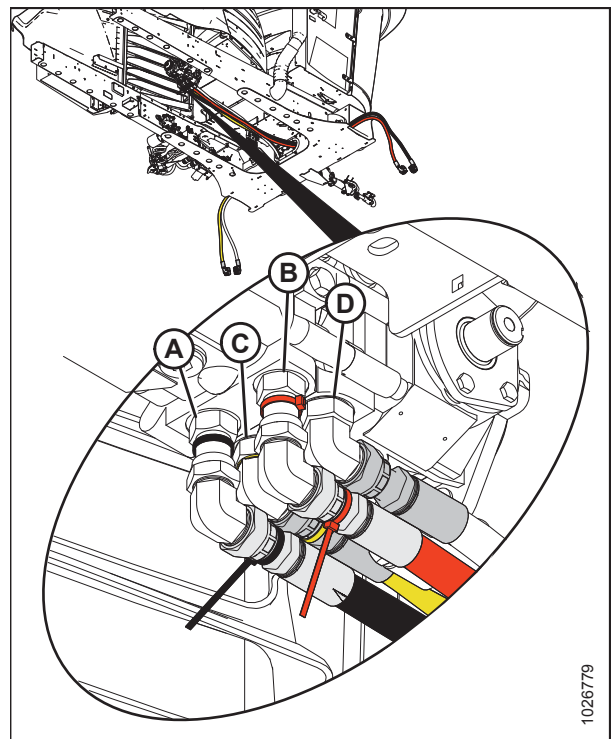


Figure 3.42: Traction Drive Pump

## ASSEMBLING THE WINDROWER

### Electrical Connections

11. Route harness (A) from each wheel motor through hose support behind front cross member, and connect to master controller harness (B).
  - Connect right wheel motor connector C25B to master controller C25A.
  - Connect left wheel motor connector C26B to master controller C26A.
  - Secure harness in hose support with cable ties (C).

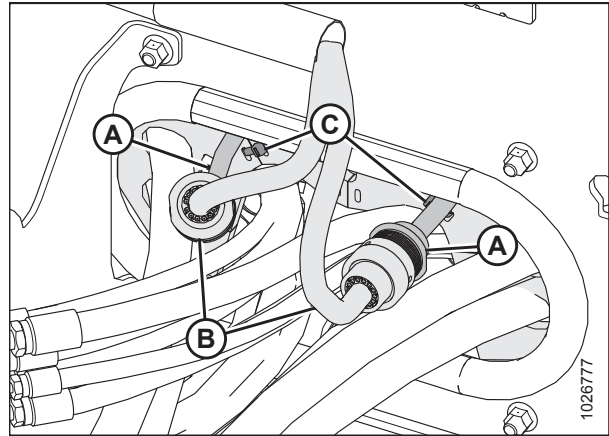


Figure 3.43: Electrical Connections

### 3.8 Installing Left Platform Assembly

Follow these steps to install the left platform, railings, and steps.

#### *Installing left platform*

1. To avoid accidental damage, raise the windrower hood.
2. Install platform linkage (A) onto frame with two existing bolts and nuts. Nuts (B) should face outward.

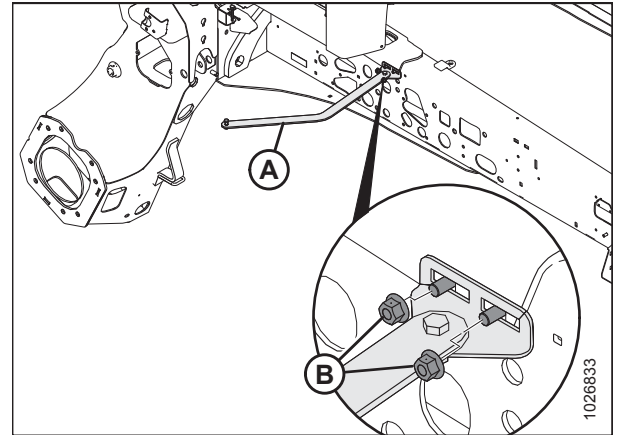


Figure 3.44: Platform Linkage

3. Remove three existing nuts and bolts (A) and adjuster bolt (B) from left platform bracket. Retain hardware for installation.
4. Attach a suitable lifting device to lift brackets (C) and move the left platform next to left side of windrower.

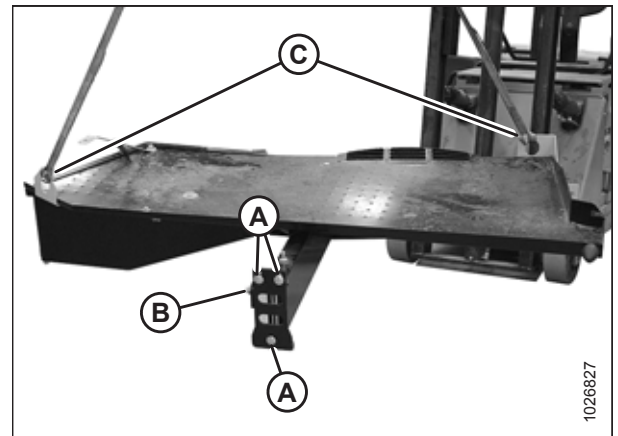


Figure 3.45: Left Platform

5. Align holes in platform bracket (A) with holes in windrower frame, and secure bracket with three existing bolts (B) and nuts (C). Nuts should face outward.

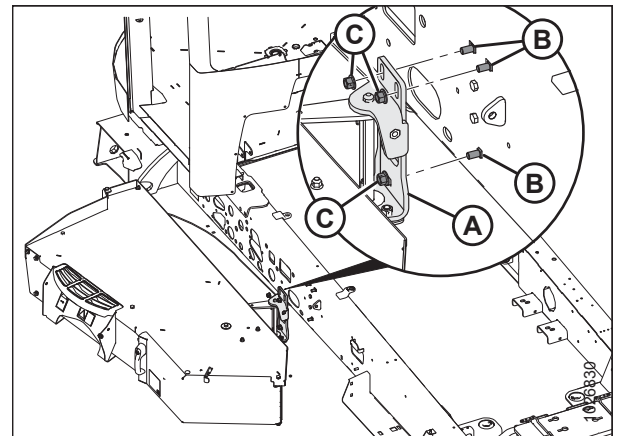


Figure 3.46: Left Platform Bracket

## ASSEMBLING THE WINDROWER

6. Reinstall platform adjuster bolt (A) through gusset (B) on left frame member.

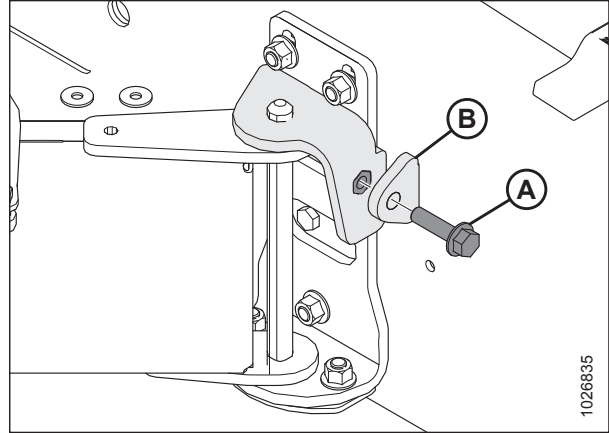


Figure 3.47: Left Platform Bracket

7. Use existing hardware to connect platform linkage (A) to hole in platform. Ensure bushing (B) remains in linkage hole; nut (C) is installed below platform. Torque nut to 14.5 Nm (11 lbf-ft).

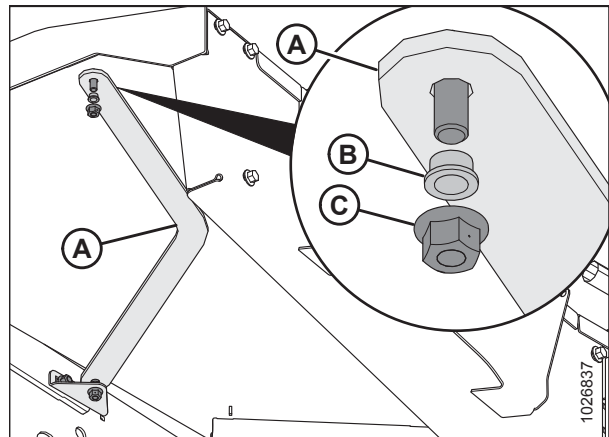


Figure 3.48: Linkage Below Platform

8. Use existing hardware to mount door stop (A) onto left platform. Insert bolt (B) from top and torque nut (C) to 28.5 Nm (21 lbf-ft).

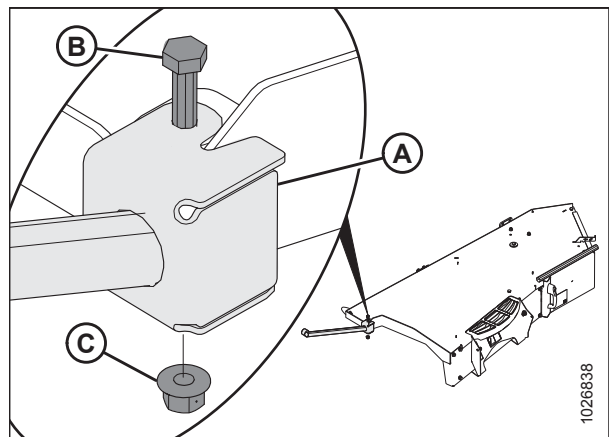


Figure 3.49: Platform Door Stop



## ASSEMBLING THE WINDROWER

- Adjust platform angle using bolt (A) until platform just touches front support (B) when closing.
- After adjustment is complete, torque three platform bracket bolts (C) to 68.5 Nm (50.5 lbf-ft), and two linkage bolts (D) to 39.5 Nm (29 lbf-ft).

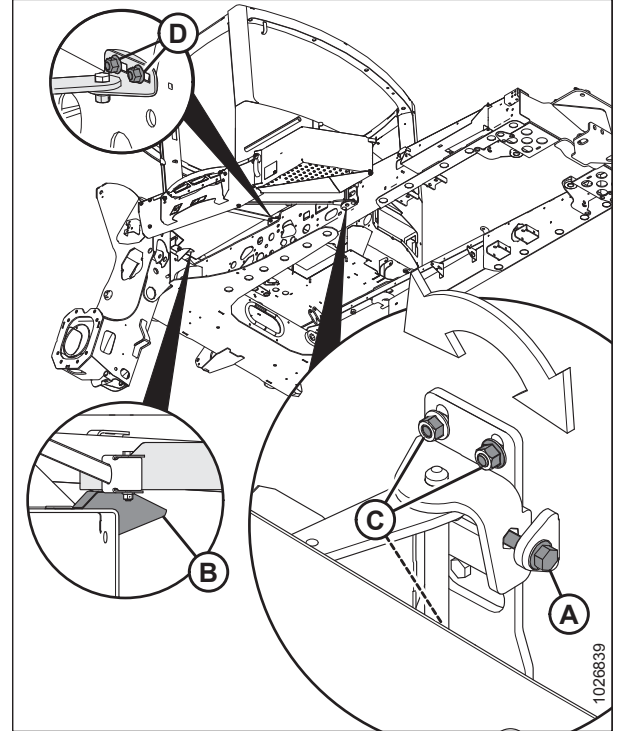


Figure 3.50: Left Platform Angle Adjust

### *Installing left platform handrails*

- Remove shipping strap (A) and retain hardware.
- Remove rear lifting bracket (B) and discard hardware.
- Ensure toolbox door (C) is locked and remove long hinge bolt and nut (D). Retain hardware.
- Remove and retain two bolts (E) next to toolbox.
- Remove forward lifting bracket (F) and retain three bolts (G).

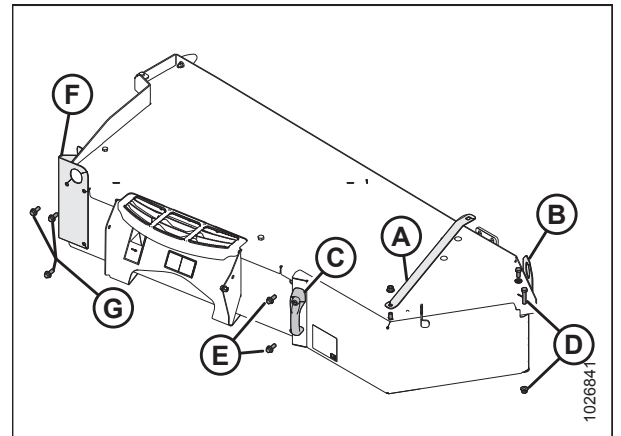


Figure 3.51: Left Platform Assembly

## ASSEMBLING THE WINDROWER

16. Set rear handrail (A) on platform and secure it as follows:
  - a. Install existing long hinge bolt (B) with nut.
  - b. Install two bolts (C) into side platform. Torque bolts to 95 Nm (70 lbf-ft).
  - c. Open toolbox tray (D) and install existing bolt and nut (E) with bolt head on top of platform.
17. Set front handrail (F) on platform and secure it with three existing bolts (G). Torque bolts to 95 Nm (70 lbf-ft).

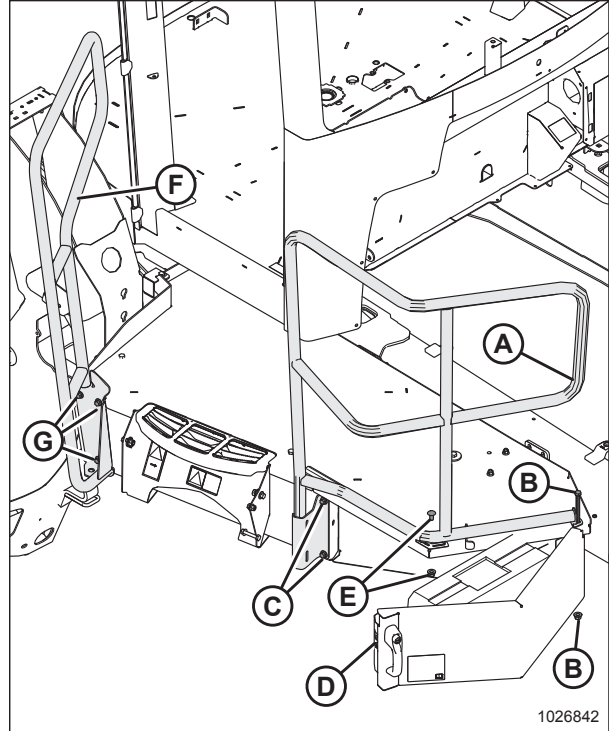


Figure 3.52: Installing Handrails

### *Installing left platform steps*

18. Remove two nuts (A), lock clips (B), and bolts (C) from step.

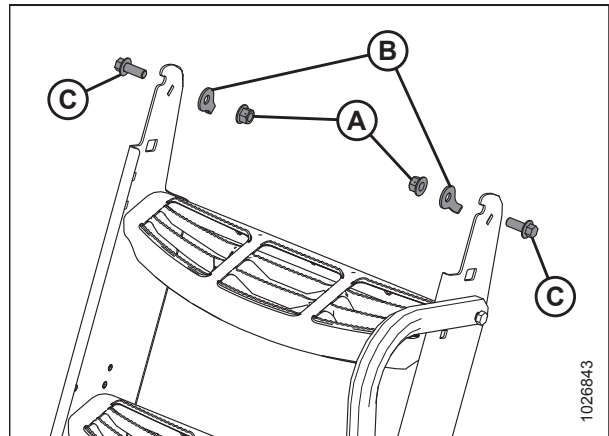


Figure 3.53: Left Platform Steps

## ASSEMBLING THE WINDROWER

19. Insert two bolts (A) into platform and hook steps (B) onto bolts.
20. Install lock clips (C) with tabs in slots and secure with nuts (D). Torque bolts to 95 Nm (70 lbf·ft).

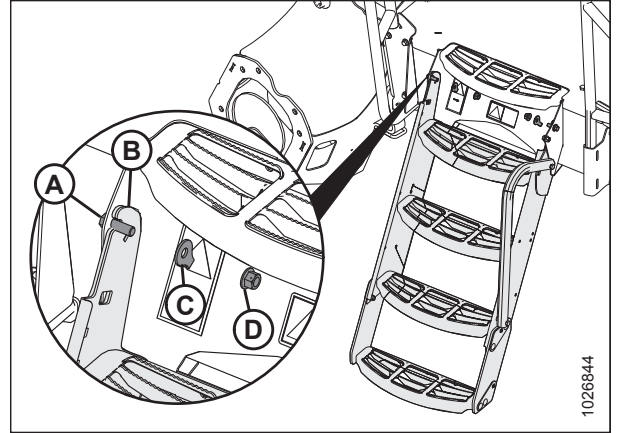


Figure 3.54: Left Platform Steps

### 3.9 Installing Right Platform / Fuel Tank Assembly

Follow these steps to install the right platform, railings, and steps.

#### *Installing right platform*

1. To avoid accidental damage, raise windrower hood.
2. Set right platform on a stand to allow access to hardware below.
3. Remove two nuts and bolts (A) and (B) to remove shipping bracket (C).
  - Retain bolt (A) for installation, but discard nut.
  - Retain bolt and nut (B) for installation.
4. Remove bolt and nut (D) and retain for installation.

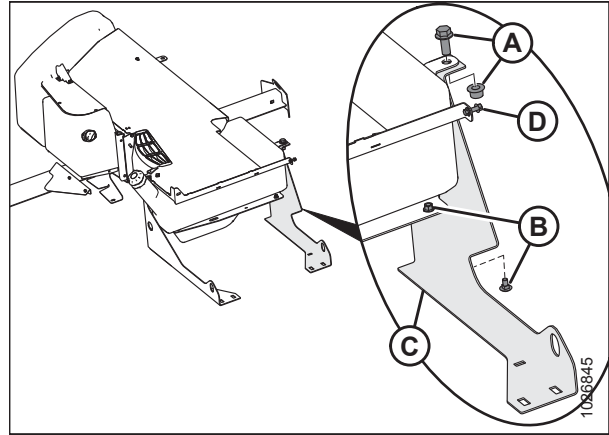


Figure 3.55: Right Platform Shipping Brackets

5. Remove two nuts and bolts (A) and remove shipping spacer tube (B) from handrail channel.
6. Remove nuts (C) from stud next to steps, remove shipping bracket (D), and reinstall nut (C) onto stud for installation.

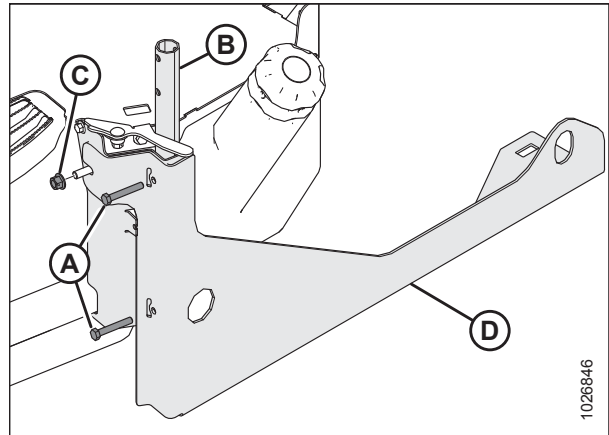


Figure 3.56: Right Platform Shipping Brackets

## ASSEMBLING THE WINDROWER

7. From below right platform assembly, remove and discard three bolts and nuts (A) and (B), and remove horizontal shipping channel.
8. Remove bolt and nut (C) and retain for installation.

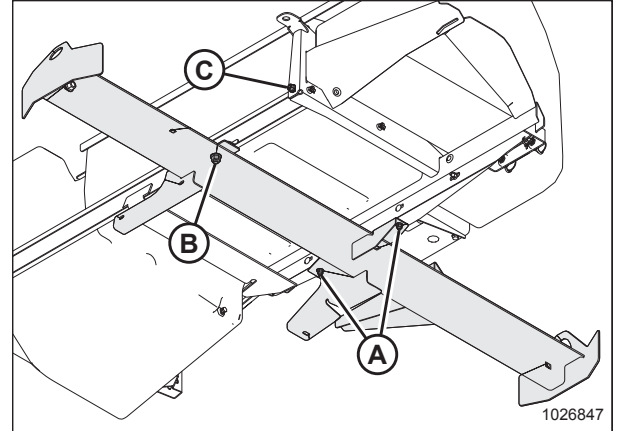


Figure 3.57: Right Platform Shipping Brackets

9. On right chassis frame member, remove two bolts (A) and remove hose cover (B).

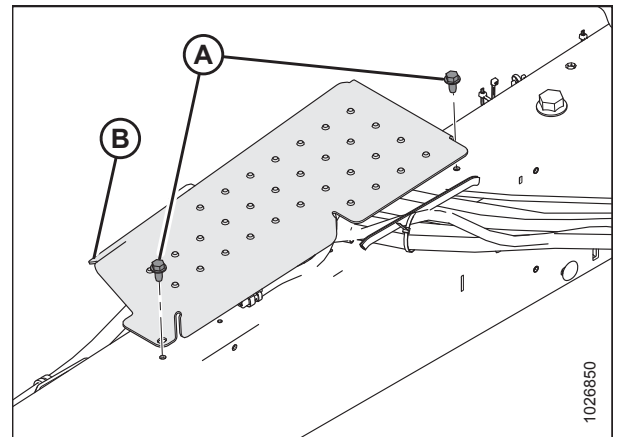


Figure 3.58: DEF Hose Cover

10. Loosen two bolts (A) securing hose brackets and move hoses away from platform mounting bolt (B).
11. Remove platform mounting bolt (B) and retain for installation.

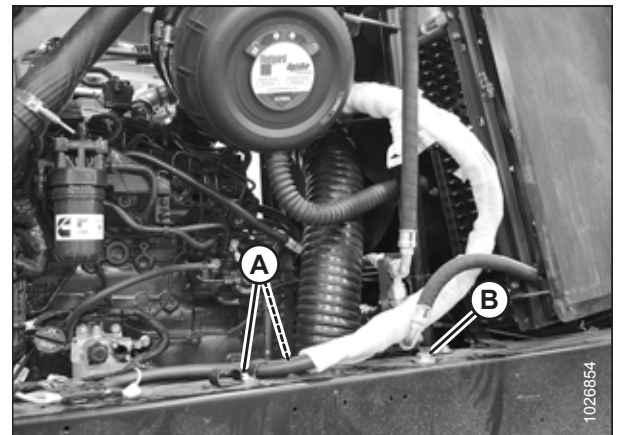


Figure 3.59: Hose Clamps on Right Frame

## ASSEMBLING THE WINDROWER

12. To improve access to right platform mounting bolts, position a bottle jack (A) and a block of wood near right front cab shock (B) and lift cab until you feel resistance.

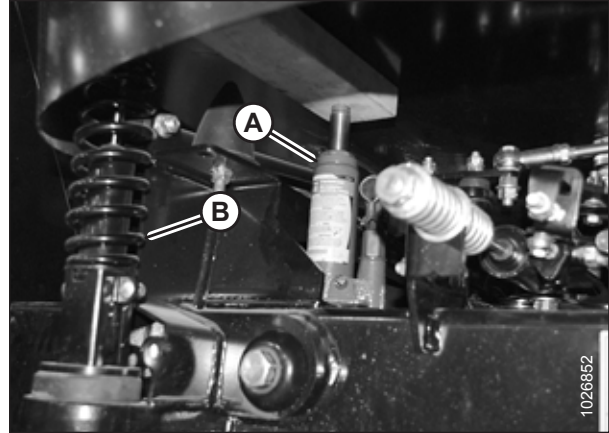


Figure 3.60: Bottle Jack Lifting Cab

13. Support right platform assembly (A) with a suitable lifting device, adjust lifting straps (B) until platform is parallel to ground, and move it into place on right side of windrower. Move hose bundle (C) to prevent pinching.

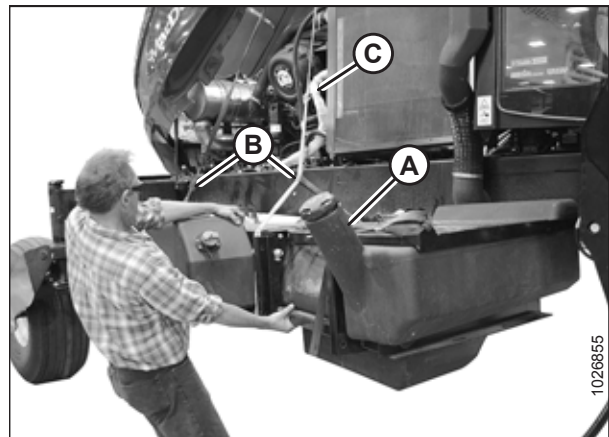


Figure 3.61: Right Platform/Fuel Tank Assembly

## ASSEMBLING THE WINDROWER

14. Secure rear platform support to frame with bolt (A) retained from frame.
15. Secure front platform support to frame with bolt (B) retained from shipping configuration.
16. With bolt head outside frame, install existing nut and bolt (C) through side of frame member at front of platform.
17. With bolt head below frame, secure front of platform to lower frame with nut and bolt (D) retained from shipping configuration.
18. With bolt head outside frame, install existing nut and bolt (E) through side of frame member at rear of platform.
19. For right platform bolt torque values, refer to Table 3.1, page 61.

**Table 3.1 Right Platform Bolt Torque**

Bolt Location (Callout)	Torque Value
Rear support, top frame (A)	500 Nm (379 lbf-ft)
Front support, top frame (B)	500 Nm (379 lbf-ft)
Front side frame (C)	54 Nm (40 lbf-ft)
Front lower frame (D)	68.5 Nm (50 lbf-ft)
Rear side frame (E)	68.5 Nm (50 lbf-ft)

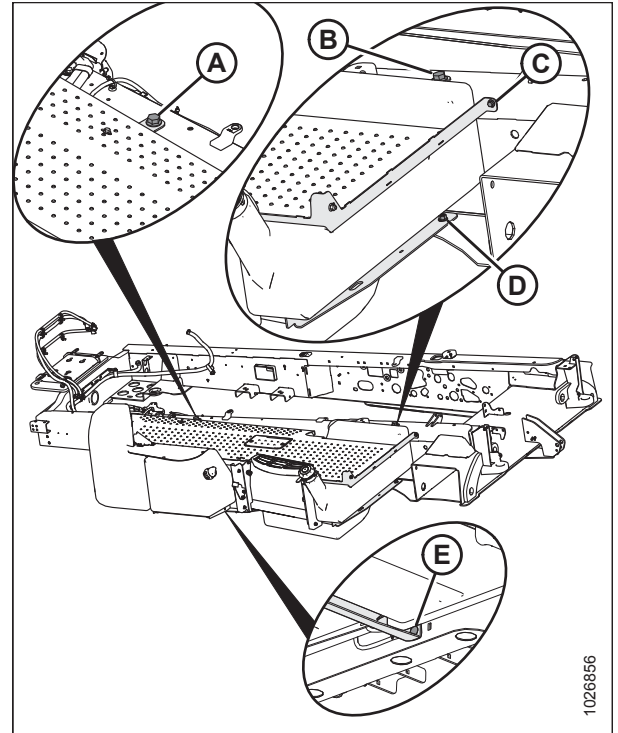
### Installing right platform steps

20. Remove all hardware shipped on steps mounting-studs and install hardware and steps in the following order:

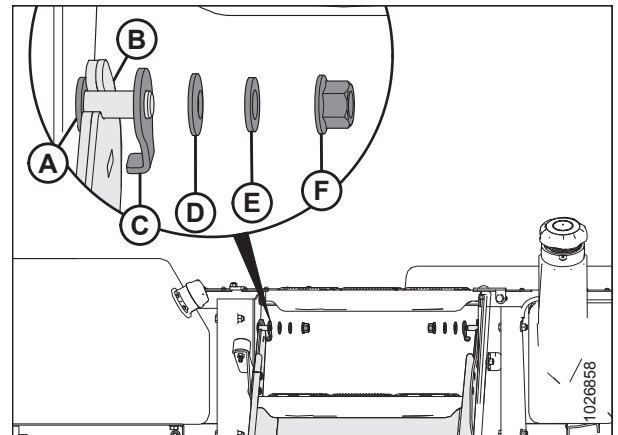
**NOTE:**

Left stud on steps shown; repeat installation order for right stud.

- a. Install flat washer (A) on studs.
- b. Hang steps (B) on studs.
- c. Install lock clips (C) with tab in slot.
- d. Install conical washers (D).
- e. Install flat washer (E).
- f. Install nut (F). Torque nut to 40 Nm (29.5 lbf-ft) and then back off 1/4 turn.



**Figure 3.62: Attaching Right Platform Assembly**



**Figure 3.63: Platform Steps Hardware**

## ASSEMBLING THE WINDROWER

21. Remove shipping wire from shock (A) (lowered position shown transparent in illustration at right).
22. Rotate steps up. Ensure latch (B) engages to lock steps in place.
23. Rotate shock (A) up and connect to steps with existing hardware.

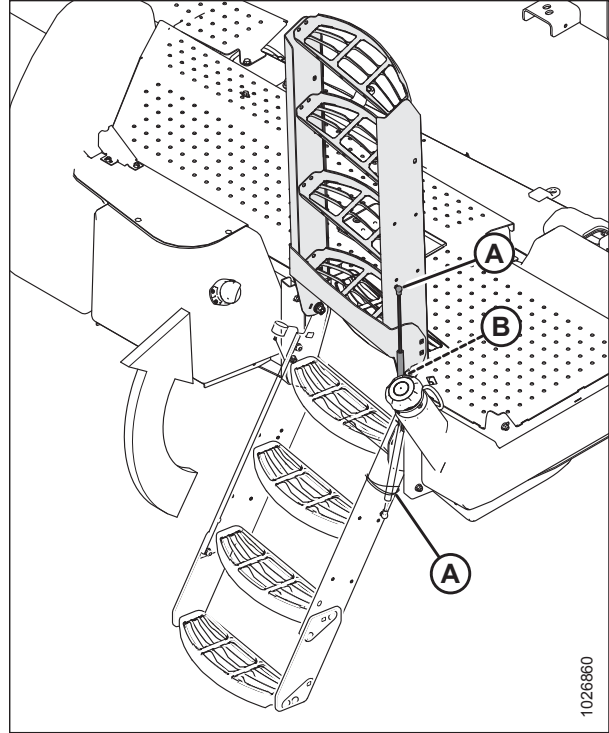


Figure 3.64: Platform Steps

### *Installing right platform handrails*

24. Retrieve forward handrail (A). Remove and retain existing hardware (3 x bolts and nuts).
25. Insert handrail tube into channel on right of steps, and secure with existing hardware (B) and (C).
26. Torque hardware to 35 Nm (26 lbf-ft).

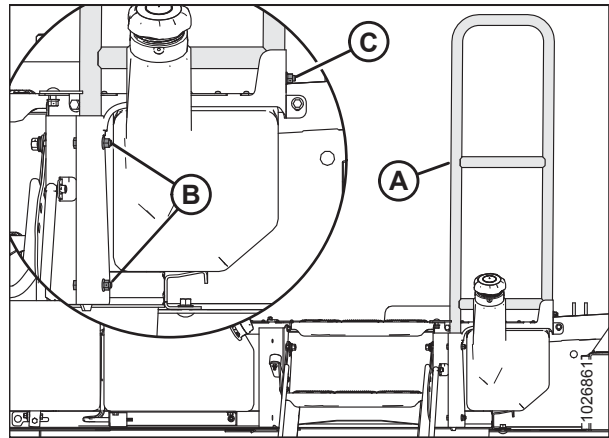


Figure 3.65: Front Handrail – Right Platform



## ASSEMBLING THE WINDROWER

27. Remove two top bolts (A) and loosen rear bolt (B) from DEF head cover (C).
28. Lift cover toward windrower and remove.
29. Retrieve rear handrail. Remove all hardware (6 x nuts and bolts) and retain for installation.

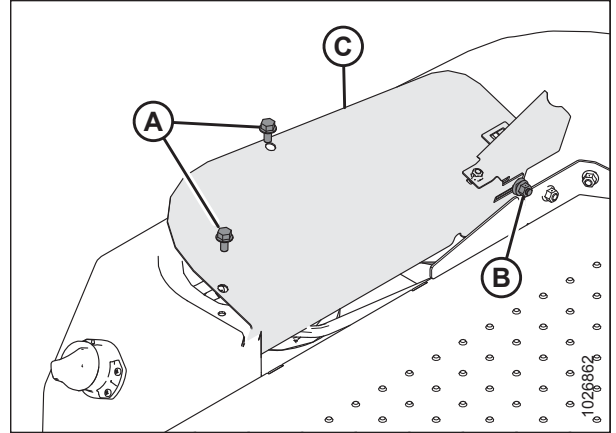


Figure 3.66: DEF Head Cover

30. Insert rear handrail into channel next to DEF tank and channel left of steps.

**NOTE:**

Fuel tank hidden to show hardware locations.

31. Secure bottom of rail with two nuts and bolts (A).
32. Secure rail near DEF head with two nuts and bolts (B).
33. Secure rail in channel left of steps with two nuts and bolts (C).
34. Torque all handrail hardware to 35 Nm (26 lbf-ft).

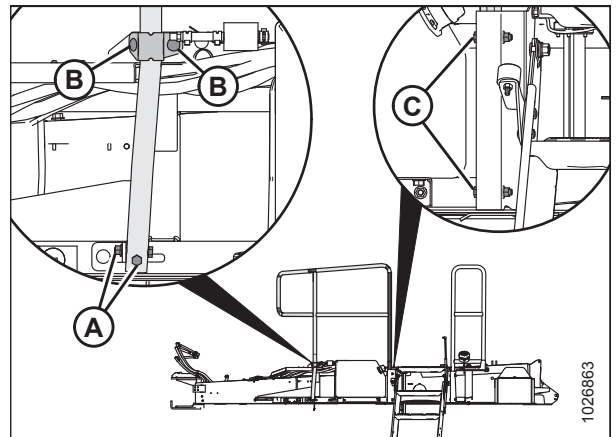


Figure 3.67: Rear Handrail – Right Platform

## ASSEMBLING THE WINDROWER

### *Positioning the air conditioning (A/C) drain hoses*

35. Route drain hoses (A) from A/C unit through hole (B) in frame and into space between front platform support and DEF tank.
36. Make a loop in drain hoses with cable ties. Loop height (C) should be 190 mm (7-1/2 in.) maximum; the remaining hose length (D) should hang 120 mm (4-3/4 in.) below bottom of the platform support.
37. Fasten loop to slot (E) in platform support with cable tie.
38. Pull hose ends through hole (F) in bottom of platform support.

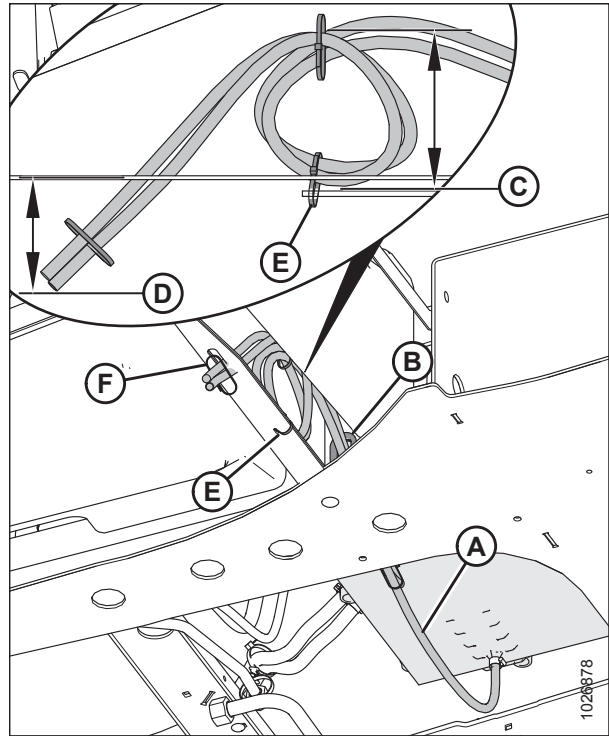


Figure 3.68: A/C Drain Hoses

### 3.10 Connecting Fuel and Diesel Exhaust Fluid (DEF) Tanks

Follow these instructions to connect hoses and electrical connections from the right platform fuel/DEF tank assembly.

#### Connecting DEF hoses

1. Unwrap packing material from fuel and DEF hose bundles.
2. Remove and discard transport fitting (A) and separate DEF heater hoses. Retain hose clamps (B) for installation.
3. Clamp DEF heater hoses to prevent spilling coolant.
  
4. Route DEF heater hoses (A) under platform to DEF head (B). Use a fish wire if necessary.
  
5. Using existing hose clamps, connect black heater hose (A) to DEF head port with black tie; connect red heater hose (B) to remaining connector.

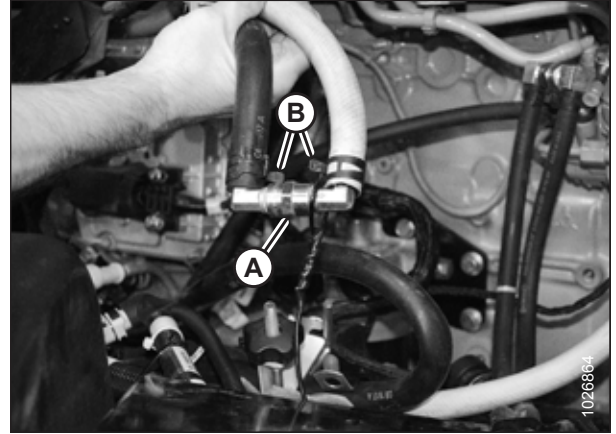


Figure 3.69: DEF Heater Hoses with Transport Fitting

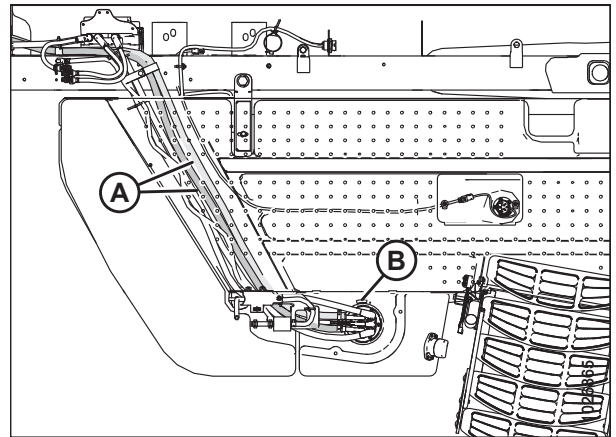


Figure 3.70: Hose Routing (Platform Shown Transparent)

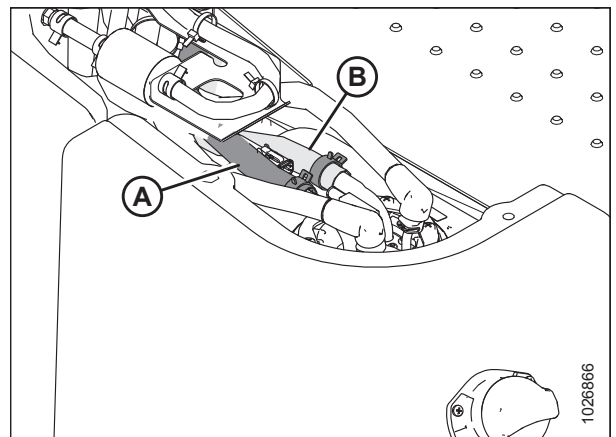


Figure 3.71: DEF Head Connections

## ASSEMBLING THE WINDROWER

- Route DEF vent hose (A) into rear handrail.

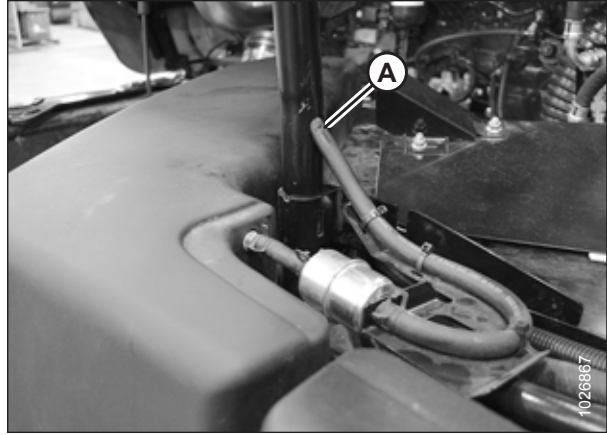


Figure 3.72: DEF Vent Hose Routing

- Press gently on lock (A) and pull on connector to separate DEF supply lines from shipping pin. Discard pin (not shown).

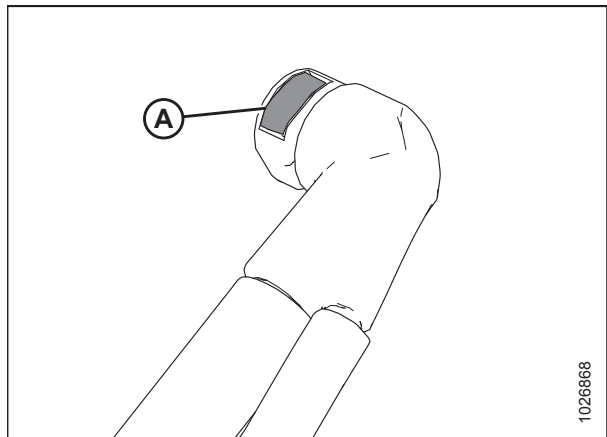


Figure 3.73: DEF Supply Hose Connectors

- Remove caps from DEF supply module and connect hoses as follows:
  - Red hose to inlet port (A) on supply module.
  - Yellow hose to backflow port (B) on supply module.
  - Press down on connectors until they click.

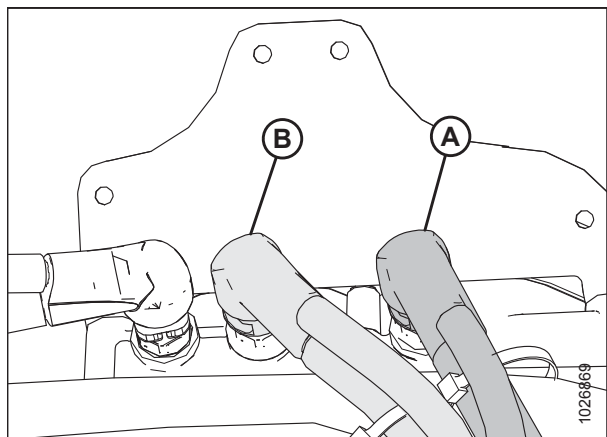


Figure 3.74: DEF Supply Module

## ASSEMBLING THE WINDROWER

### Connecting fuel hoses

9. Remove shipping connector from fuel hoses. Retain hose clamps for installation.
10. Using existing hose clamps, connect supply hose with red tie to fuel filter (A), and return hose to fuel pump port (B).

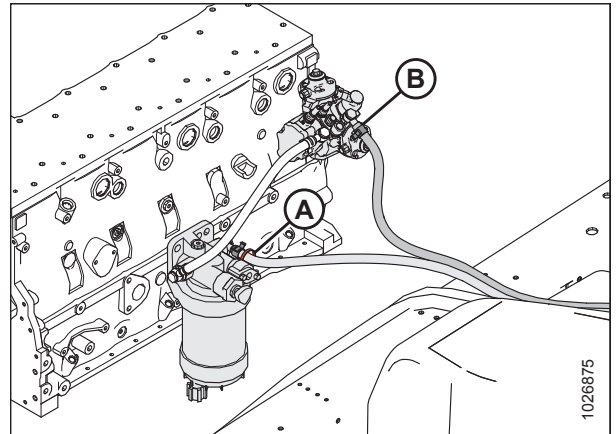


Figure 3.75: Fuel Hose Connections

11. Secure fuel hoses (A), DEF heater hoses (B), and DEF supply module hoses (C) to frame with existing P-clamps and torque bolts (D) to 22 Nm (16 lbf-ft).

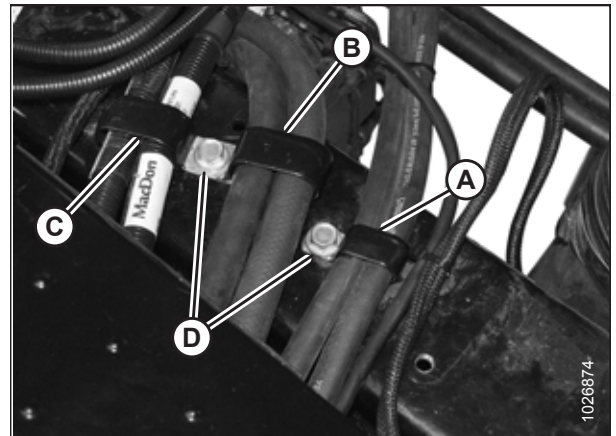


Figure 3.76: Securing Hoses to Frame with P-Clips

### Electrical connections

12. Remove protective caps and connect the following three electrical connectors:
  - Connector (A) from inlet hose to receptacle P173-C
  - Connector (B) from backflow hose to receptacle P172-C
  - Connector (C) from DEF head interconnect P164-CB to receptacle C164-CA

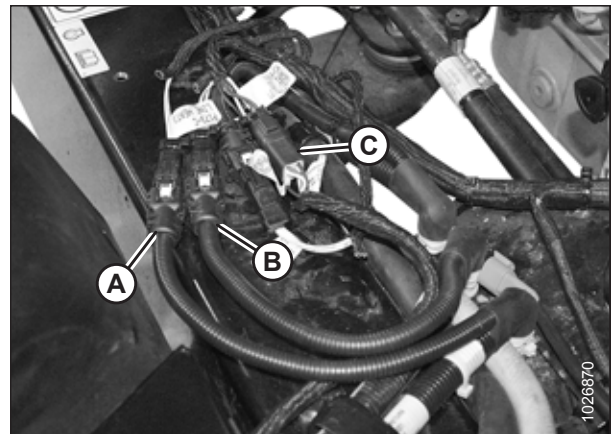


Figure 3.77: Electrical Connections

## ASSEMBLING THE WINDROWER

- Secure DEF head interconnect harness (A) to DEF supply module hose with cable ties (B).

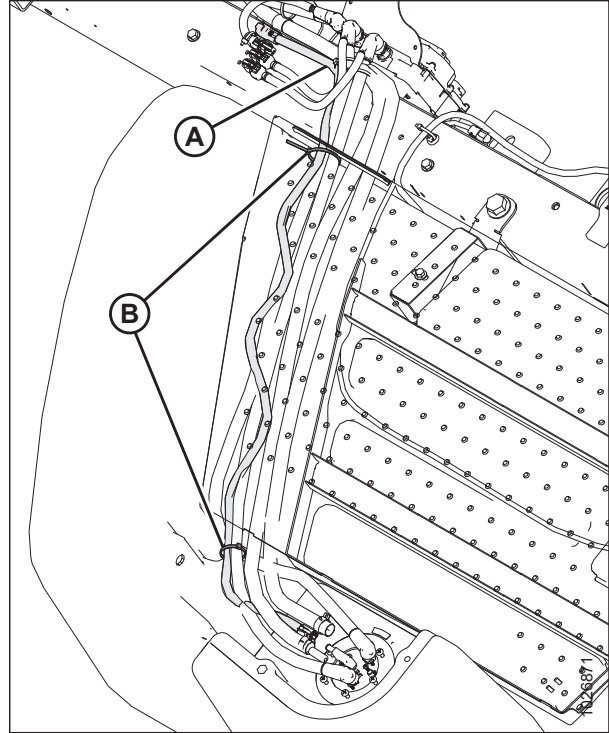


Figure 3.78: Cable Tie Locations

- Route round auxiliary power connector (B) (C40B) from right platform to bracket on frame and secure with washer and nut.
- Connect C40B (B) to C40A (A), and secure harness to air cleaner support pipe (pipe not shown) with large cable tie (C).
- Remove protective cap from fuel level sender connector (D) and plug into chassis harness P220 (not shown).
- Secure fuel level sender harness to auxiliary power harness with cable tie (E).

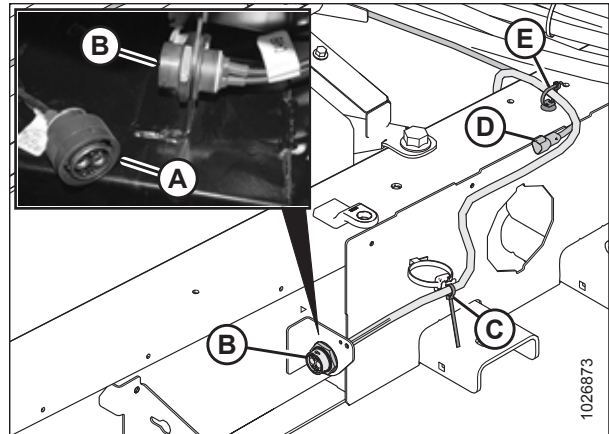


Figure 3.79: Electrical Connections

## ASSEMBLING THE WINDROWER

18. Replace DEF head cover (C) and secure it with two top bolts (A), and rear nut/bolt (B). Torque bolts (A) to 17 Nm (12.5 lbf-ft).

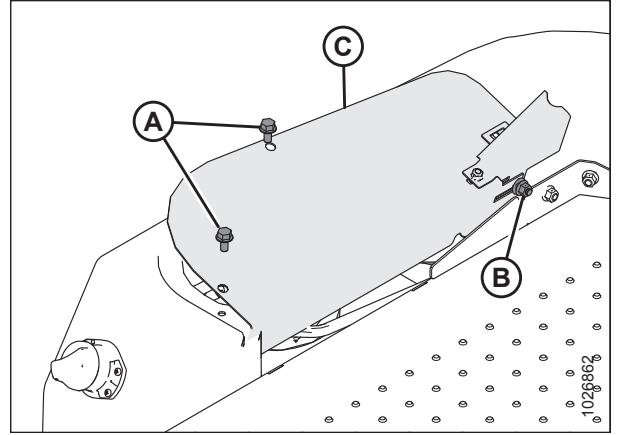


Figure 3.80: DEF Head Cover

19. Replace hose cover (B) and secure with two bolts (A).

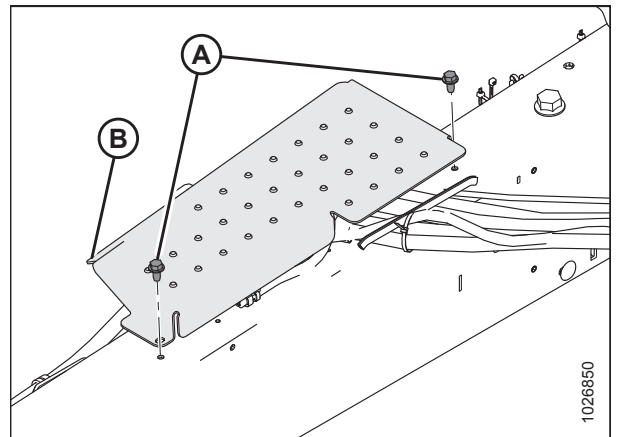


Figure 3.81: DEF Hose Cover

### 3.11 Positioning Mirror Arms

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

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

**IMPORTANT:**

Avoid pinching the wire harness when rotating the mirror arms.

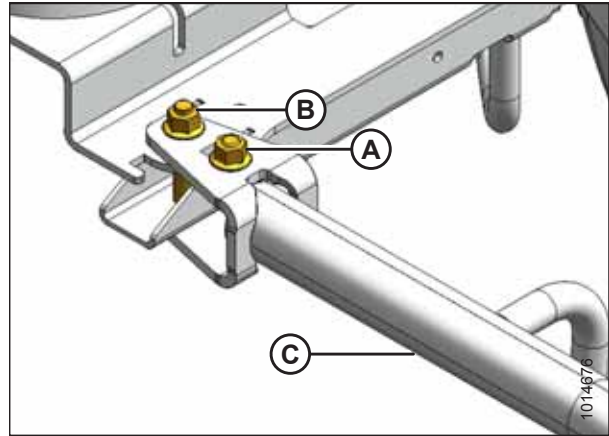


Figure 3.82: Mirror Arm in Shipping Position

3. Tighten retaining nut (A) to 37–41 Nm (28–30 lbf-ft).
4. Tighten pivot nut (B) to 24–27 Nm (18–20 lbf-ft).

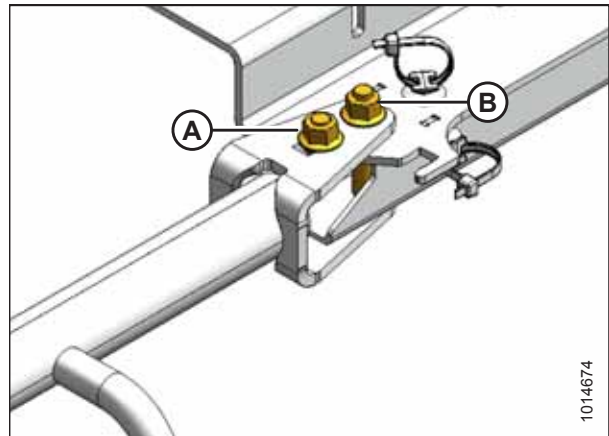


Figure 3.83: Mirror Arm in Working Position

5. To prevent pinching wires when adjusting mirror assemblies, ensure roof harness (A) and power mirror harness (B) (if installed) are secured as follows:
  - Roof harness (A) to supports with cable ties (C)
  - Mirror harness (B) (if installed) to roof harness (A) with cable tie (D)
  - Mirror harness (B) (if installed) to mirror arm tube with cable tie (E)
6. Repeat above steps for opposite mirror.

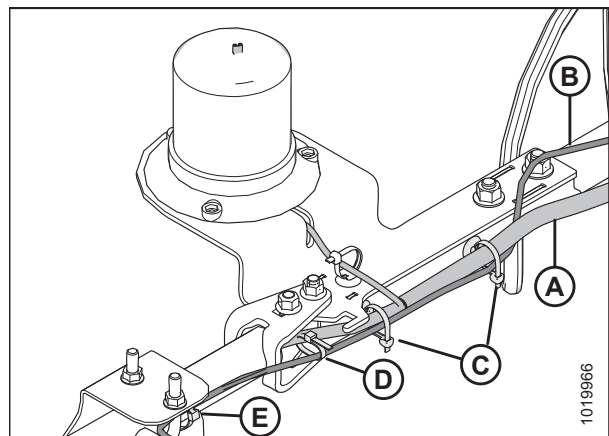


Figure 3.84: Mirror Arm in Working Position



### 3.12 Installing Air Inlet Duct

1. Retrieve air inlet duct from inside cab and remove plastic cover from the breather tube.
2. Ensure there are no parts or debris inside the inlet duct.
3. At rear right corner of the cab roof, set air inlet duct (A) over breather tube, and rotate to align predrilled holes for setscrew (B).
4. Tighten setscrew (B) and tighten tube clamp (C) to secure duct onto breather tube.

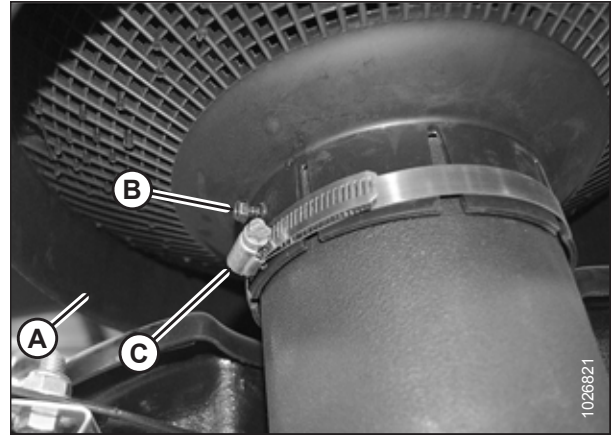


Figure 3.85: Air Inlet Duct

### 3.13 Installing Slow Moving Vehicle Signs

If required by local regulations, install SMV sign onto the mirror/light support and walking beam as follows:

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

**NOTE:**

Use ignition key to unlock cab door and toolbox compartment.

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

**IMPORTANT:**

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

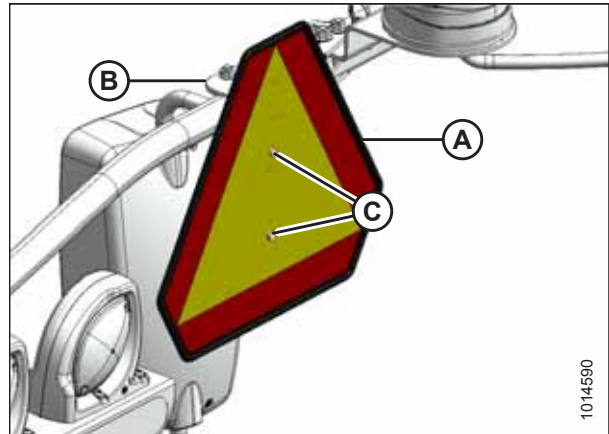


Figure 3.86: Right Side Mirror/Light Support

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

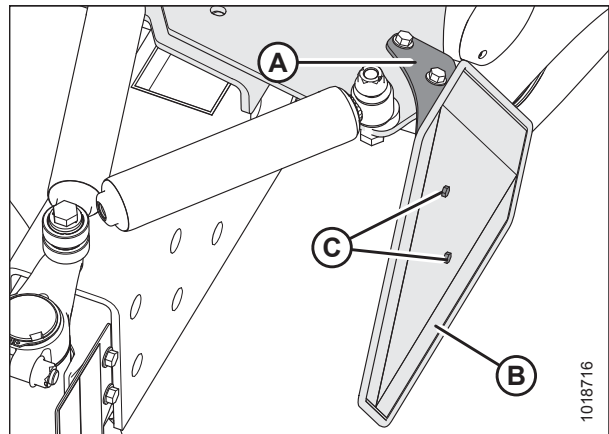


Figure 3.87: Walking Beam Left Side

### 3.14 Installing Hydraulic Coupler Holder

1. Remove nuts (A) from underside of the knife/reel multicoupler and retain nuts for installation.

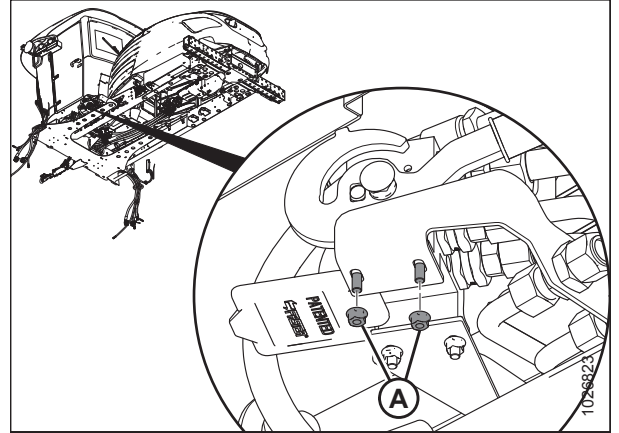


Figure 3.88: Rear Hydraulic Multicoupler

2. Retrieve hydraulic coupler holder (A) from inside the windrower cab.
3. Install coupler holder (A) onto underside of multicoupler using existing hex head screws, and secure it with existing nuts (B).

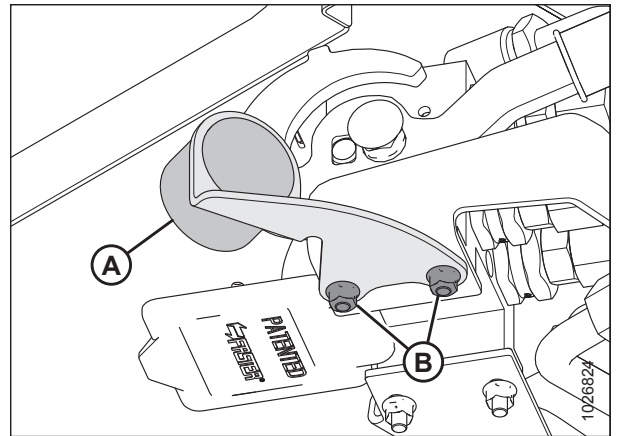


Figure 3.89: Coupler Holder Installed

### 3.15 Installing Rear Light Assembly and Optional Ballast Package

When operating the windrower with a heavy header, ballast needs to be added to the aft end. Use the following table to determine the amount of ballast required. Depending on ballast requirements, follow instructions to install rear light assembly with or without ballast package.

Refer to [4.1.12 Checking Tire Pressures, page 95](#) for proper tire pressures when operating with the applicable header.

**Table 3.2 Ballast Specifications**

Header Type	Description	Installed Options	Base Kit	Additional Kits	Additional Float Springs
D125X	7.6 m (25 ft.), single reel, double knife, timed	—	0	0	0
D130XL	9.1 m (30 ft.), single reel, double knife, timed	Base	0	0	0
D130XL	9.1 m (30 ft.), single reel, double knife, timed	Transport	1	0	0
D130XL	9.1 m (30 ft.), single reel, double knife, timed	Transport + upper cross auger + vertical knives	1	0	B6047
D135XL	10.6 m (35 ft.), single reel, double knife, untimed	Base	1	1	0
D135XL	10.6 m (35 ft.), single reel, double knife, untimed	Transport	1	1	B6047
D135XL	10.6 m (35 ft.), single reel, double knife, untimed	Transport + upper cross auger + vertical knives	1	2	B6047
D135XL	10.6 m (35 ft.), double reel, double knife, untimed	Base	1	1	0
D135XL	10.6 m (35 ft.), double reel, double knife, untimed	Transport	1	1	B6047
D135XL	10.6 m (35 ft.), double reel, double knife, untimed	Transport + upper cross auger + vertical knives	1	2	B6047
D140XL	12.2 m (40 ft.), double reel, double knife, untimed	Base	1	1	0
D140XL	12.2 m (40 ft.), double reel, double knife, untimed	Transport	1	1	B6047
D140XL	12.2 m (40 ft.), double reel, double knife, untimed	Transport + upper cross auger + vertical knives	1	2	B6047
D145XL	13.7 m (45 ft.), double reel, double knife, untimed	Base	1	1	B6047
D145XL	13.7 m (45 ft.), double reel, double knife, untimed	Transport	1	2	B6047
D145XL	13.7 m (45 ft.), double reel, double knife, untimed	Transport + upper cross auger + vertical knives	1	2	B6106

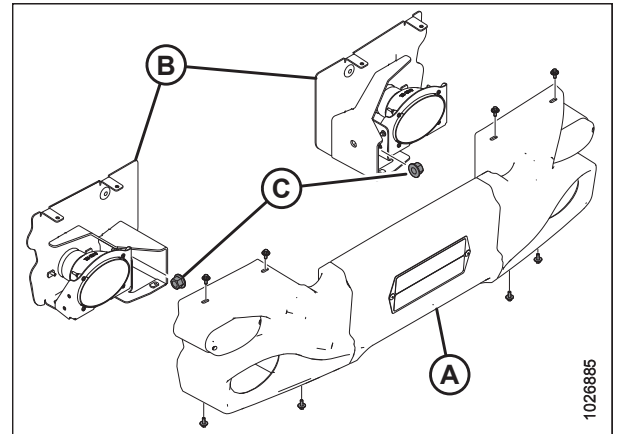
**NOTE:**

- Each kit weighs 163 kg (360 lb.). A kit contains eight 20.4 kg (45 lb.) weights.
- Ballast not required for Auger and Rotary Disc Headers.

## ASSEMBLING THE WINDROWER

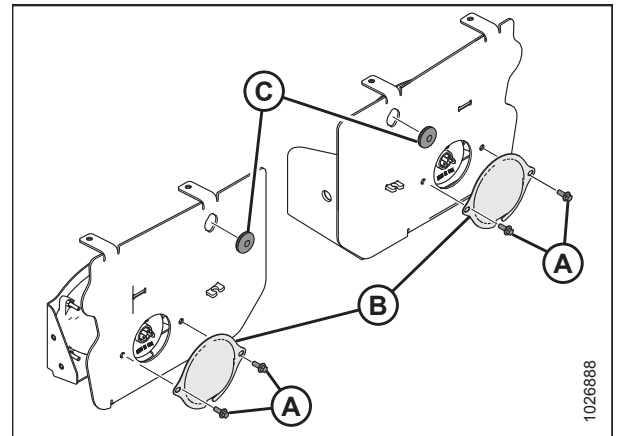
### *Installing rear light assembly (no ballast package required)*

1. Remove eight bolts and washers from rear light assembly and separate bezel (A) from left and right light supports (B).
2. Remove nuts (C) from light supports (B) and retain for installation.



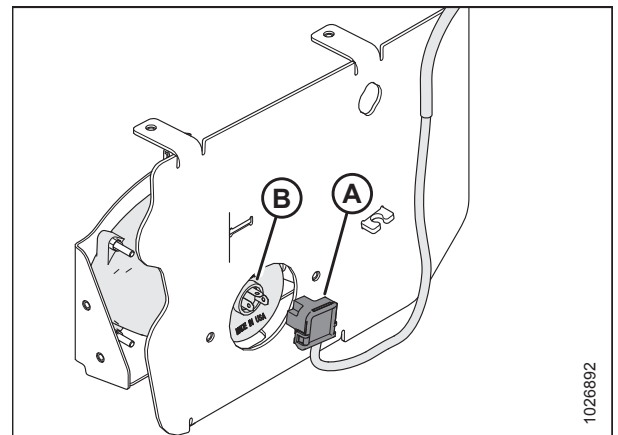
**Figure 3.90: Rear Light Bezel Assembly**

3. Remove two bolts (A), cover (B), and seal (C) behind each light support.



**Figure 3.91: Light Supports**

4. Align connector (A) and plug engine forward headlight harness into headlight (B):
  - Harness P214 to right engine forward headlight
  - Harness P213 to left engine forward headlight



**Figure 3.92: Right Light Support**

## ASSEMBLING THE WINDROWER

5. Install seal (A) onto tail/brake light harness (B) and feed harness through access hole. Seat seal into access hole.
  - Harness P210 to right tail/brake light
  - Harness P215 to left tail/brake light
6. Replace cover (C) and secure with bolts (D).
7. Press headlight harness (E) into clip (F) on light support.
8. Repeat on opposite side.

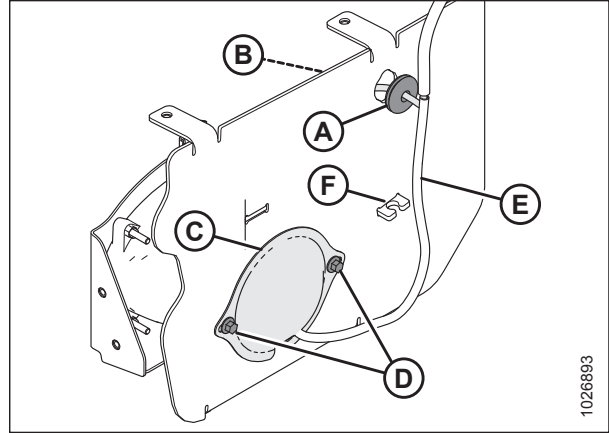


Figure 3.93: Right Light Support

9. Mount light support (A) to stud (B) on rear pivot support with existing nut (C). Repeat on opposite side.

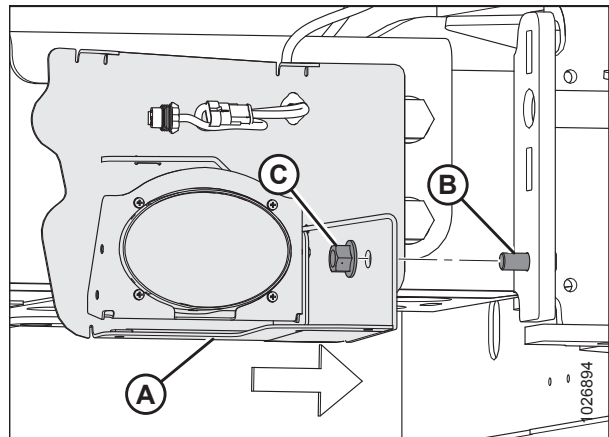


Figure 3.94: Left Light Support

10. Plug tail/brake light harnesses (A) into lights (B) on bezel assembly.

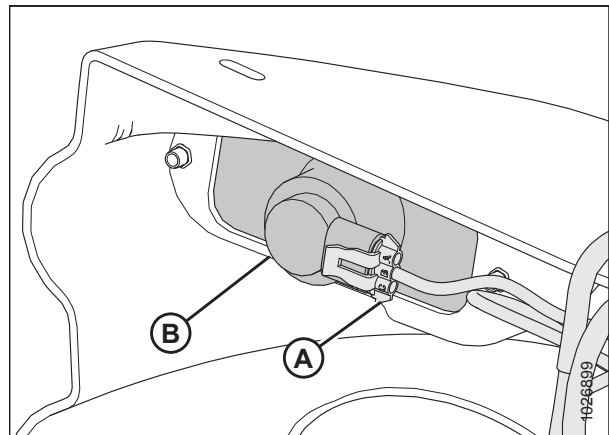


Figure 3.95: Right Tail/Brake Light

## ASSEMBLING THE WINDROWER

11. Use eight bolts and washers (A) to attach rear light bezel (B) to light supports.

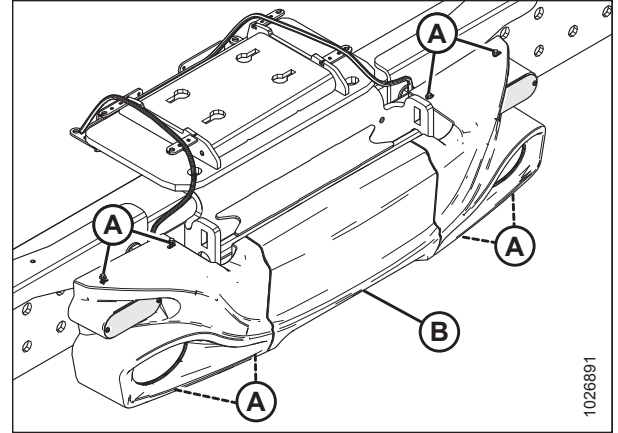


Figure 3.96: Rear Light Bezel Assembly

### Installing rear light assembly (ballast required)

#### WARNING

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

1. Refer to Table 3.2, page 74 to determine ballast to add to the windrower.
2. Separate light bezel assembly (A) by removing six hex screws (B).

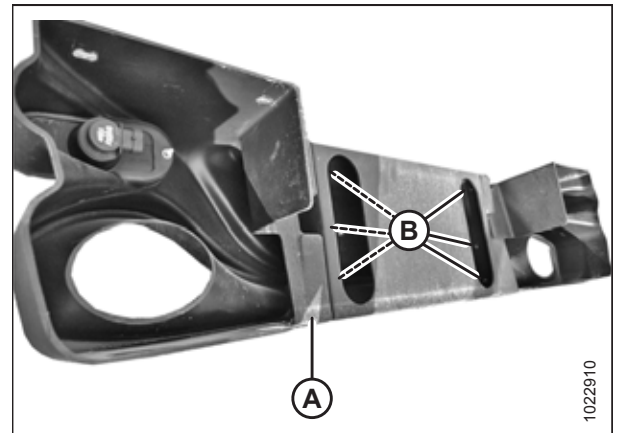


Figure 3.97: Bezel Assembly

#### NOTE:

- Retain center portion (A) of light bezel assembly for reinstallation when ballast is removed.
- Install six hex screws (B) on side bezels for safekeeping. These hex screws will be used when reinstalling center portion of light bezel.

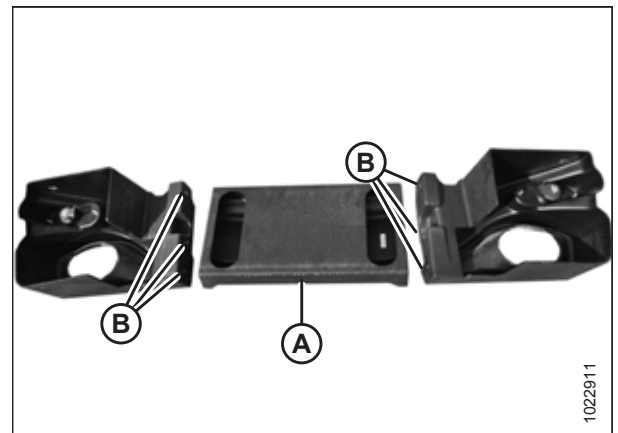


Figure 3.98: Bezel Assembly

## ASSEMBLING THE WINDROWER

### CAUTION

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

3. Install weights (A) from outboard side and slide to the middle of the bracket on the walking beam.
4. Install retaining bracket (B) on each side of the weight bundle.

#### IMPORTANT:

Ensure retaining bracket (B) engages slot (C) in the bracket.

5. Install rod (D) through retaining bracket and weights with spacers (E) as required.
6. Secure with nuts (F) and tighten.

#### IMPORTANT:

Ensure nuts (F) are flush with the rod.

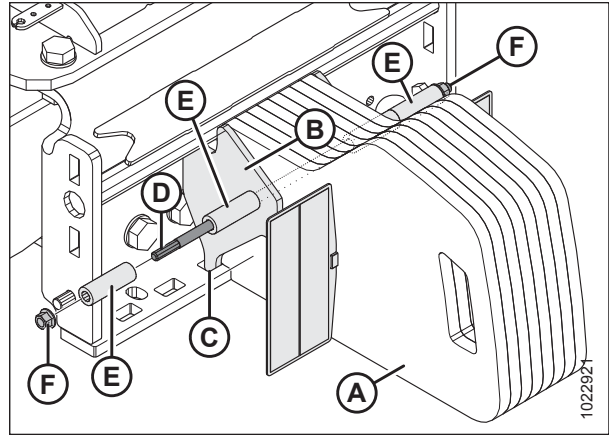


Figure 3.99: Weights Installed

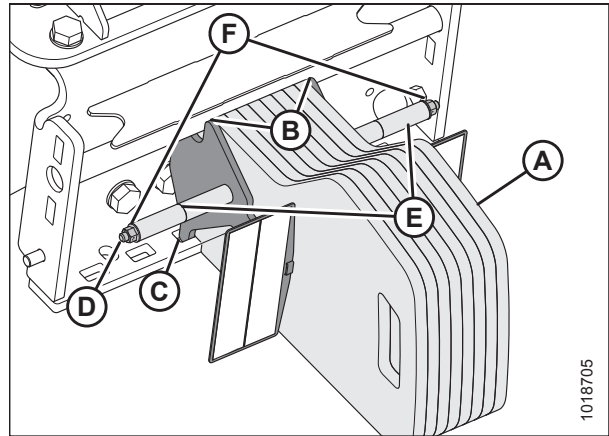


Figure 3.100: Base Kit – 163 kg (360 lb.)

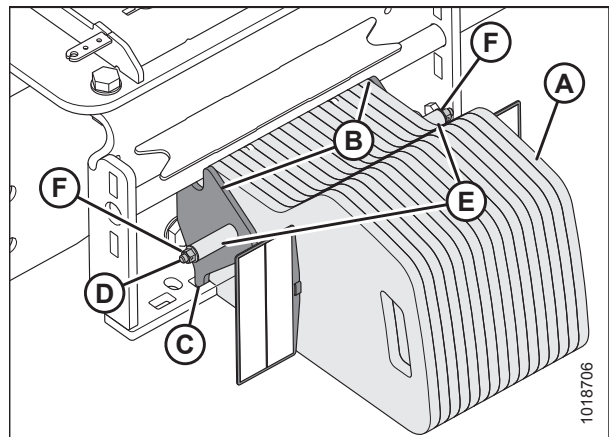


Figure 3.101: Two Sets – 326 kg (720 lb.)



## ASSEMBLING THE WINDROWER

### NOTE:

When installing the three set, 489 kg (1080 lb.) configuration, no spacers are required.

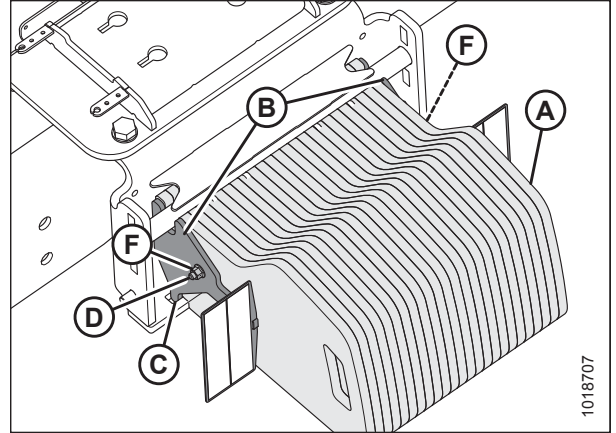


Figure 3.102: Three Sets – 489 kg (1080 lb.)

7. Move latch (A) towards the right cab-forward side of the windrower.
8. Grasp louver (B), and lift hood to open.

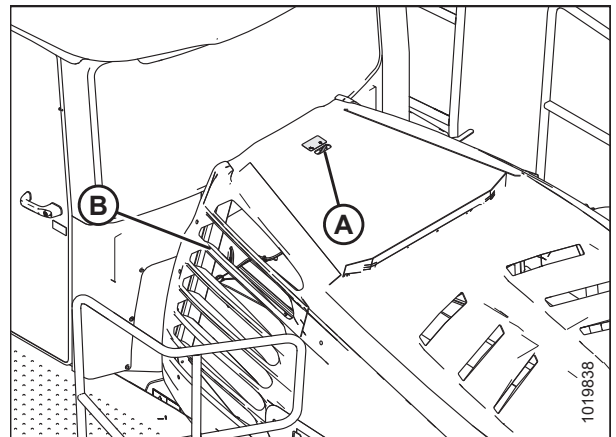


Figure 3.103: Engine Compartment Hood

9. Bring left side bezel (A) close to the frame and connect plug P215 to the back of red tail/brake light (E).
10. Loosely attach left side bezel (A) to frame with four hex flange bolts (B).
11. Repeat Steps 9, page 79 and 10, page 79, attaching plug P210 at right side bezel (C).
12. Turn the IGNITION key to the RUN position, and ensure that rear swath lights (D) and red tail/brake lights (E) are working.
13. If the lights are working, tighten hex flange bolts (B) to secure the left and right light bezels.

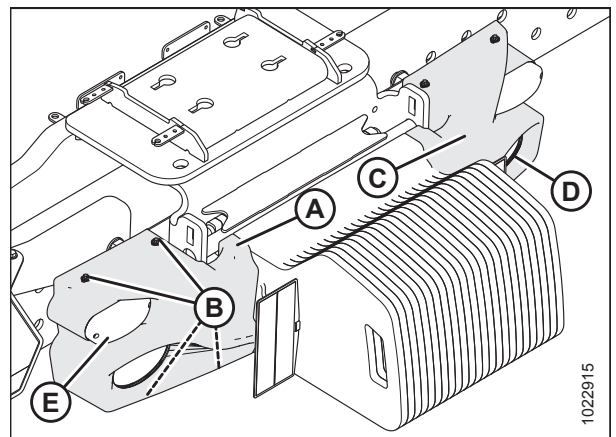


Figure 3.104: Rear Light Bezel with Ballast

### IMPORTANT:

Ensure rear swath lights (D) are centered in the light bezel.

## 3.16 Lubrication

For grease specification, refer to *6.1 Lubricants, Fluids, and System Capacities, page 155*.

### 3.16.1 Lubrication Procedure

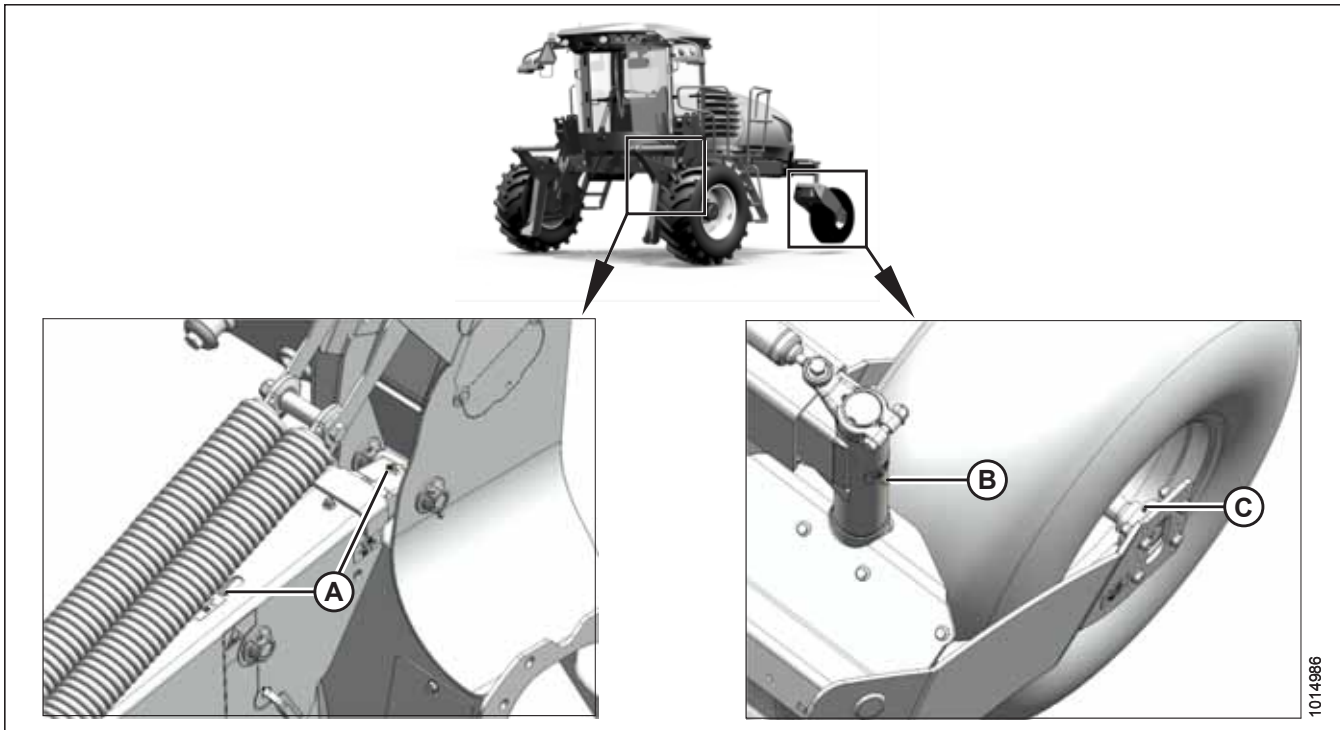
#### WARNING

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

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.
3. Inject grease through the fitting with a grease gun until the grease overflows 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 fitting, if necessary.

### 3.16.2 Lubrication Points

Figure 3.105: Lubrication Points



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

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

B - Caster Pivot (Both Sides)

### 3.17 Connecting Batteries

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

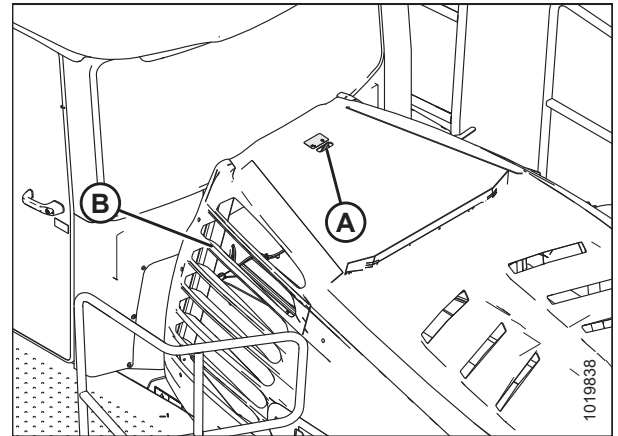


Figure 3.106: Engine Compartment Hood

3. Lift up on the cab-end of cover (A) to disengage it from retaining tab (B), and swing the cover away from the frame.
4. If installing a new battery, remove plastic caps from battery posts.

**IMPORTANT:**

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

**NOTE:**

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

5. Attach red positive (+) cable terminals to positive posts (B) on batteries and tighten clamps. Reposition plastic covers onto clamps.
6. Attach black negative (-) cable terminals to negative posts (A) on batteries and tighten clamps. Reposition plastic covers onto clamps.

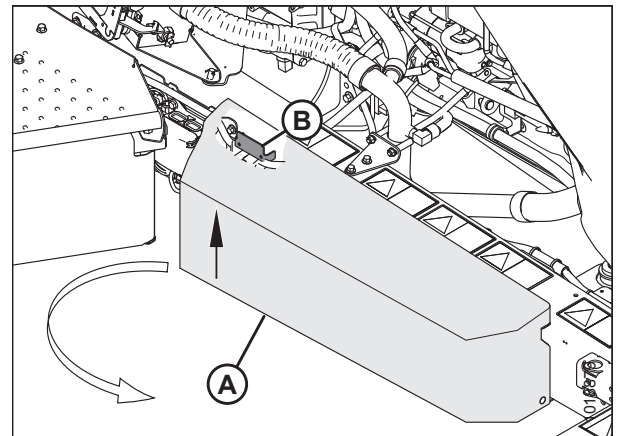


Figure 3.107: Battery Location

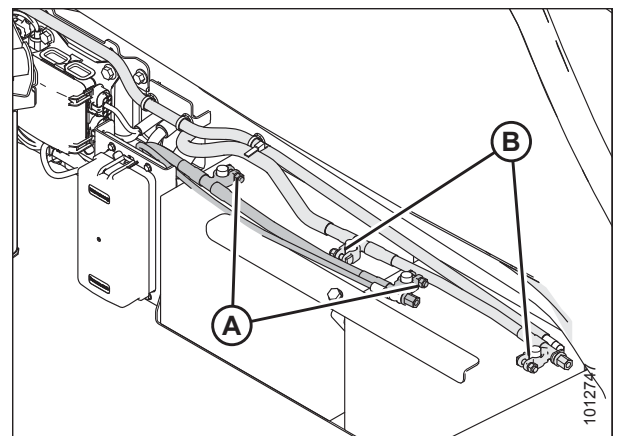


Figure 3.108: Batteries

## ASSEMBLING THE WINDROWER

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

**NOTE:**

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

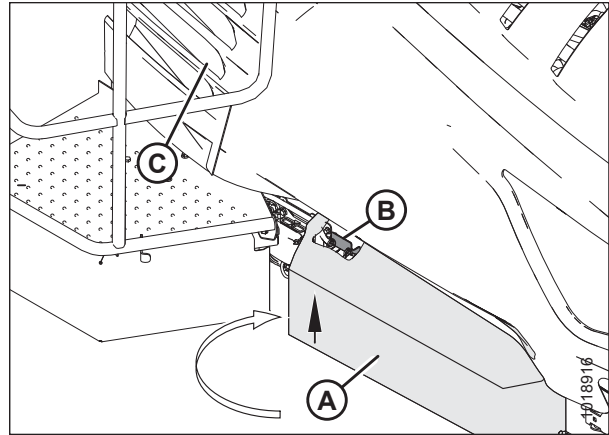


Figure 3.109: Battery Cover

### 3.18 Removing Windrower from Lift Stand

1. When assembly is complete, lower the windrower as follows:
  - a. Increase air pressure to raise the windrower and take load off the lift locks (A).
  - b. Release the lift lock mechanisms (A) (three places) and turn keeper (B) to keep lock (A) in the released position.
  - c. Slowly release the pressure from the air bag system and lower the windrower to the ground.

**IMPORTANT:**

An assembled M1 Series windrower does NOT have the clearance necessary to drive away from the lift stands. The stand MUST be removed from under the windrower.

2. Remove the assembly / lift stand from below the windrower.

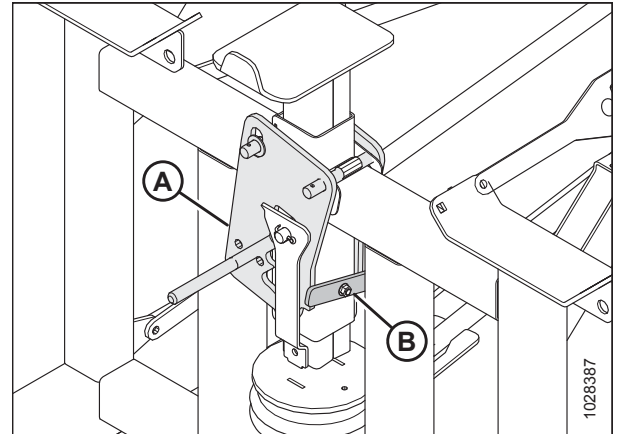


Figure 3.110: M1 Windrower on Lift Stand



## Chapter 4: Performing Predelivery Checks

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

### IMPORTANT:

The machine should not require further adjustments; however, perform the following checks and complete the yellow predelivery checklist at the end of this book to ensure your machine operates at maximum performance. Make adjustments only if absolutely necessary and in accordance with the instructions in this manual.

### 4.1 Completing Predelivery Checklist

Perform the final checks and adjustments listed on the following pages and the *Predelivery Checklist, page 171* (yellow sheet attached to this instruction) to ensure the machine is field-ready.

### IMPORTANT:

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

#### 4.1.1 Recording Serial Numbers

1. Record the windrower and engine serial numbers on the *Predelivery Checklist, page 171*, and confirm the serial number with the manifest or work order.

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

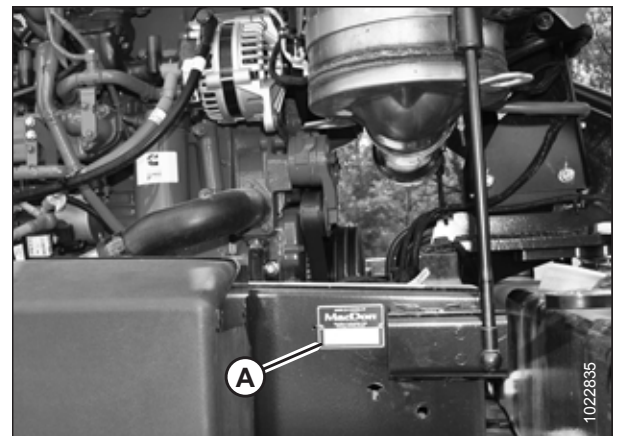


Figure 4.1: Windrower Serial Number Location

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

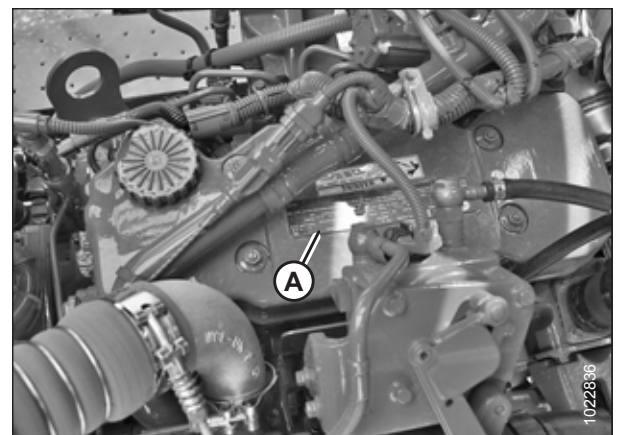


Figure 4.2: Engine Serial Number Location

### 4.1.2 Checking Engine Air Intake

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

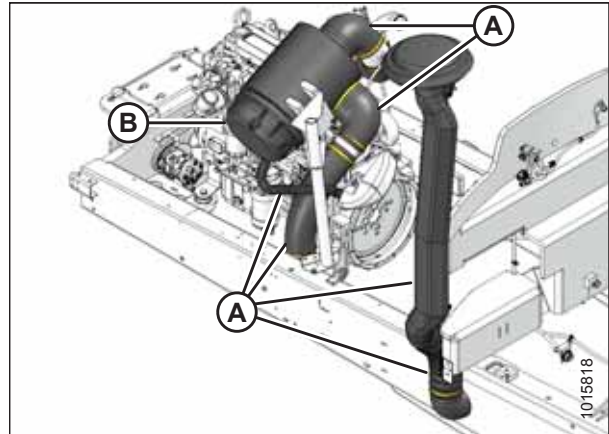


Figure 4.3: Engine Air Intake

3. Check the three constant torque hose clamps (A) and spring clamp (B) on turbocharger intake duct. Clamp (B) is properly tightened when screw tip (C) extends beyond housing and Belleville washers (D) are almost flat.

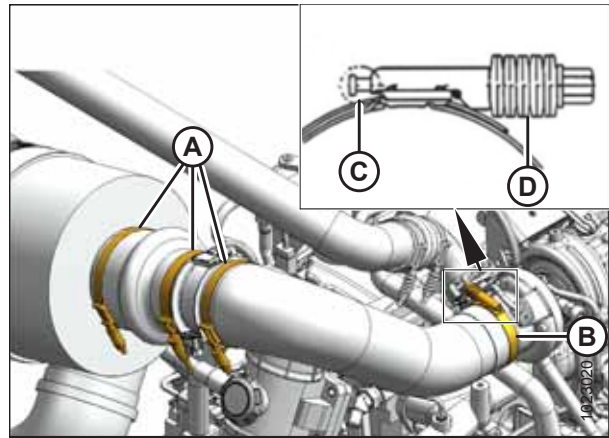


Figure 4.4: Constant Torque Clamps

### 4.1.3 Checking and Adding Hydraulic Oil

#### WARNING

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

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

**NOTE:**

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

2. Ensure the hydraulic oil level is between the low and full indicator marks.

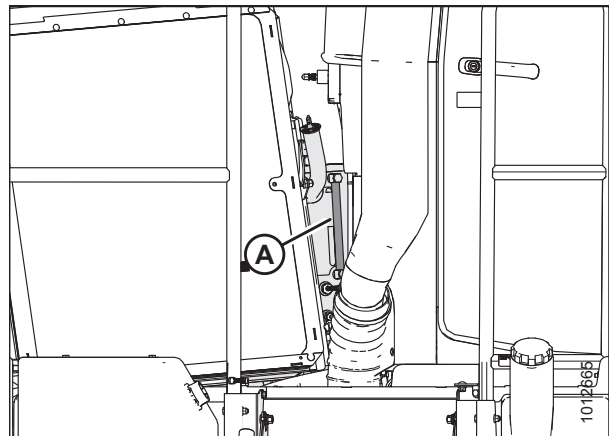


Figure 4.5: Hydraulic Oil Sight Glass



## PERFORMING PREDELIVERY CHECKS

3. If the oil level is too low, refer to [6.1 Lubricants, Fluids, and System Capacities, page 155](#) for oil specifications and add oil as follows:
  - a. Turn plug handle (B) counterclockwise until loose and remove the plug by pulling straight out.
  - b. To improve oil fill rate, open breather cap (A).

**IMPORTANT:**

Clean area to prevent debris from entering tank.

- c. Reinstall breather cap (A) and plug (B) and turn the plug handle clockwise until secure.

**NOTE:**

After running up a header, check oil level again.

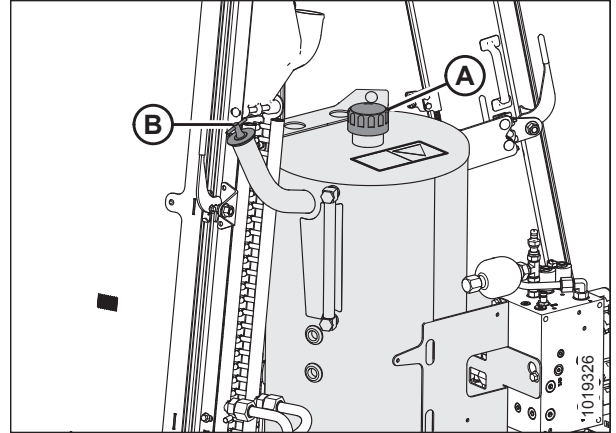


Figure 4.6: Hydraulic Oil Sight Glass

### 4.1.4 Checking Fuel Separator

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 as necessary.
4. Turn drain valve (A) by hand 1 1/2 to 2 turns clockwise until tight.
5. Dispose of fluid in a safe manner.

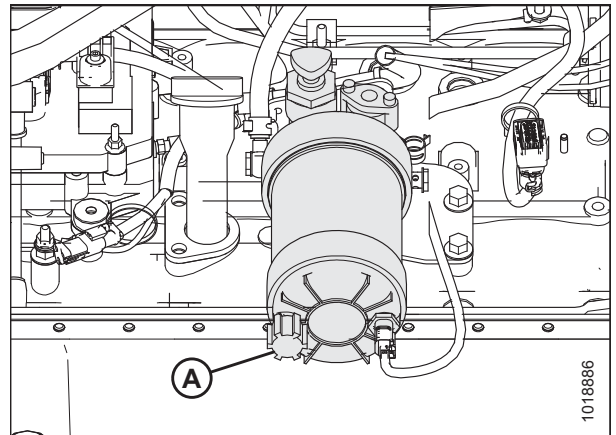


Figure 4.7: Fuel Filter

### 4.1.5 Checking Engine Coolant Level

1. Locate the coolant tank.
2. The tank has a MAX and MIN COLD line marker. Check to make sure the coolant level is at the MAX COLD line (A). If it is too low, add coolant.

**NOTE:**

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

**NOTE:**

For specifications, refer to [6.1 Lubricants, Fluids, and System Capacities, page 155](#).

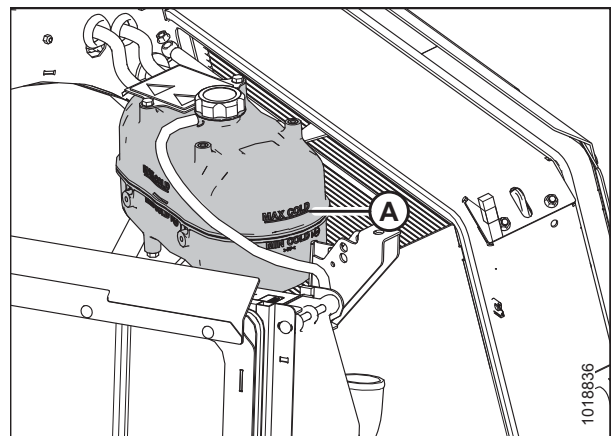


Figure 4.8: Coolant Tank

### 4.1.6 Checking and Adding Engine Oil

**NOTE:**

Oil can be checked without opening the hood.

1. Remove dipstick (A) by turning it counterclockwise to unlock.
2. Wipe dipstick clean and reinsert it into engine.

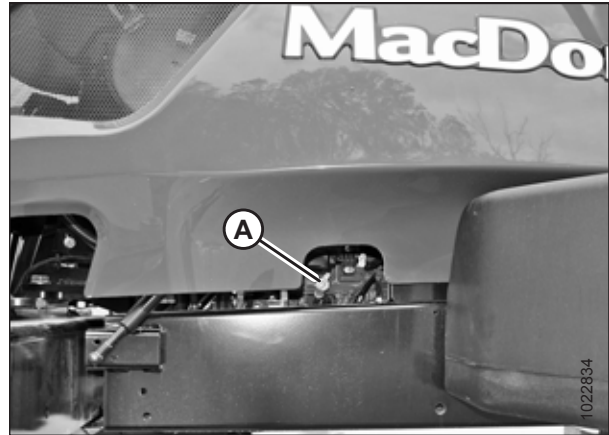


Figure 4.9: Dipstick Location

3. Remove dipstick again and check oil level. Oil level should be between LOW (L) and HIGH (H). If below the LOW mark, add oil.

**NOTE:**

Adding 1.9 liters (2 U.S. quarts) will raise the level from LOW to HIGH.

4. Replace dipstick and turn it clockwise to lock.

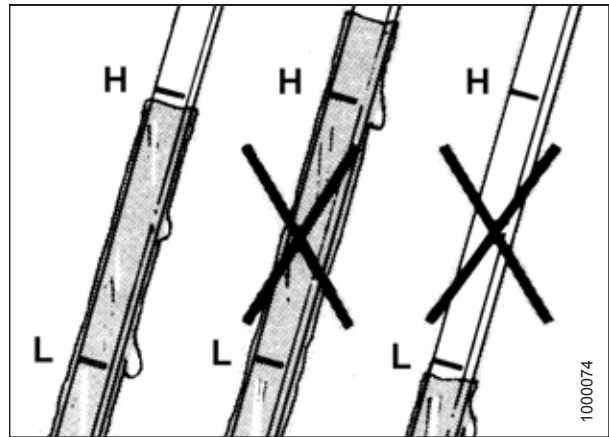


Figure 4.10: Engine Oil Level

If oil level is too low, follow these steps to add oil:

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

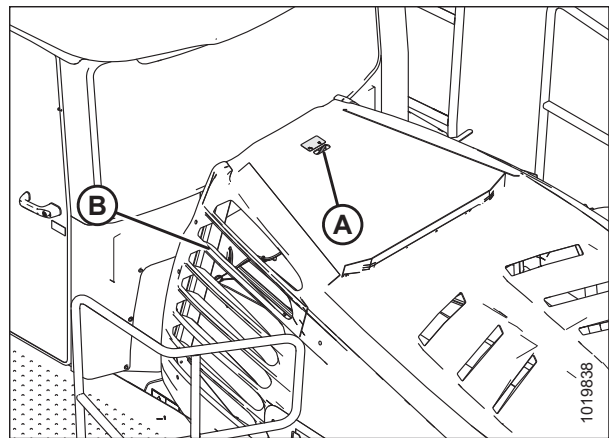


Figure 4.11: Hood

## PERFORMING PREDELIVERY CHECKS

3. Clean around filler cap (A) and remove by turning it counterclockwise.
4. Carefully add oil to achieve the desired level. A funnel is recommended to avoid spillage. For oil specifications, refer to [6.1 Lubricants, Fluids, and System Capacities, page 155](#).

### CAUTION

Do NOT fill above the HIGH mark.

5. Replace oil filler cap (A) and turn it clockwise until snug.

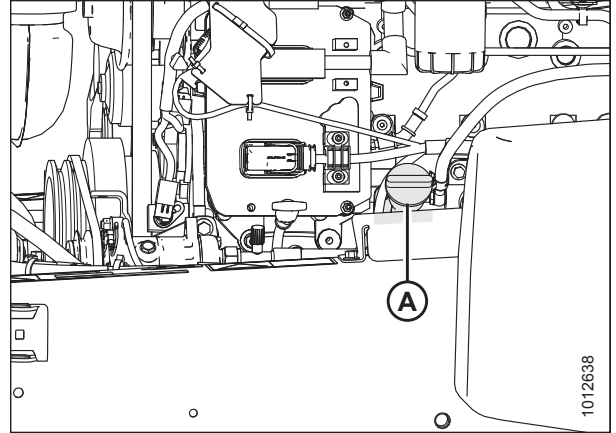


Figure 4.12: Oil Filler Cap

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

1. Remove dipstick (A) and check lubricant level.

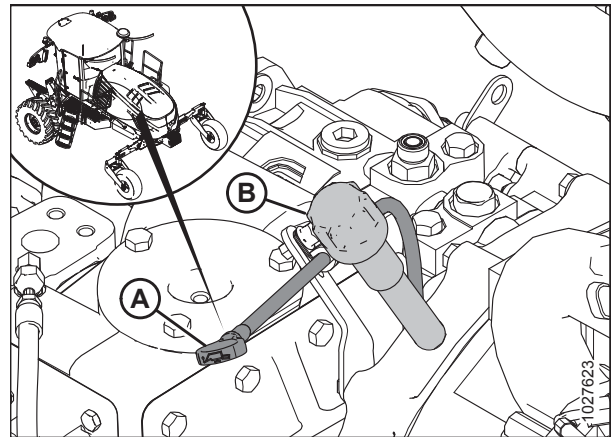


Figure 4.13: Gearbox Lubricant Dipstick

2. If lubricant level is at or below the ADD mark, remove breather (B in previous illustration) and add gearbox lubricant until it is between the ADD (A) and FULL (B) marks on the dipstick. For lubrication specifications, refer to [6.1 Lubricants, Fluids, and System Capacities, page 155](#).

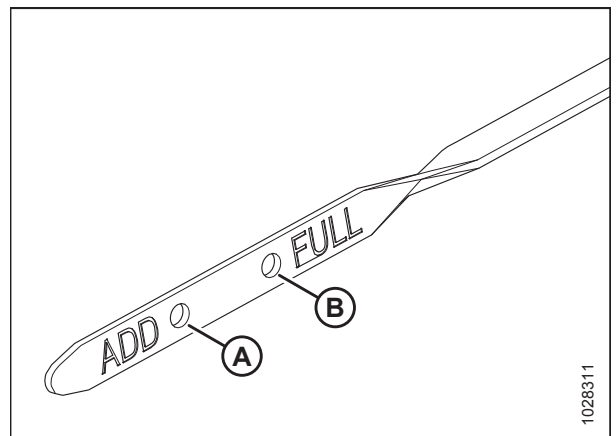


Figure 4.14: Bottom End of Dipstick

### 4.1.8 Checking Air Conditioning Compressor Belts

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

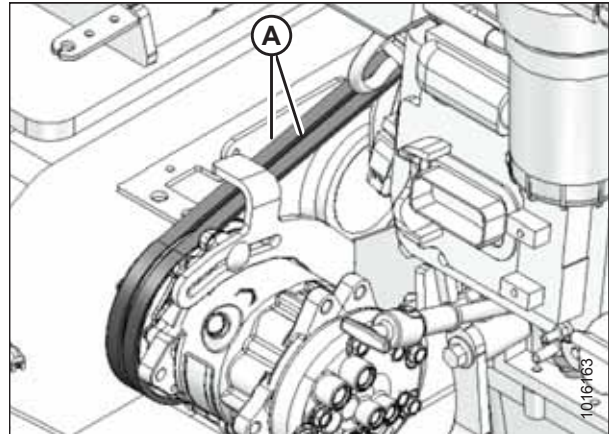


Figure 4.15: A/C Compressor Belts

### 4.1.9 Starting the Engine

**⚠ DANGER**

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

**IMPORTANT:**

Before starting the windrower, check fluid level of the following, and add fluid if necessary:

- Engine oil – Refer to the operator's manual
- Hydraulic oil – Refer to the operator's manual
- Gearbox oil – Refer to the operator's manual

**IMPORTANT:**

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

**NOTE:**

Before taking the GSL out of PARK, let the hydraulic oil warm up to 32°C (90°F). You can view the hydraulic oil temperature on Run Screen 4 on the Harvest Performance Tracker (HPT) display.

## PERFORMING PREDELIVERY CHECKS

### NOTE:

When the console receives a wake-up signal, the console awakens from sleep mode and closes the battery disconnect relay. The Harvest Performance Tracker (HPT) goes into a boot-up sequence that takes approximately 40 seconds. The following items trigger a wake-up signal for the console:

- Key switch ignition or accessory positions
  - Cab door switch
  - Horn button
  - Hazards button
  - Field lights button
  - Clearance lights button
  - Road lights button
  - High beam button
1. Before starting the engine, ensure engine exhaust pipe (A) is not covered or obstructed.



Figure 4.16: Engine Exhaust

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

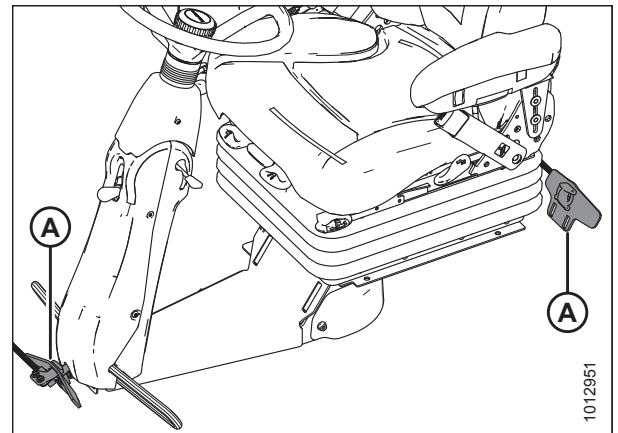


Figure 4.17: Direction Locks

## PERFORMING PREDELIVERY CHECKS

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

### IMPORTANT:

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

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

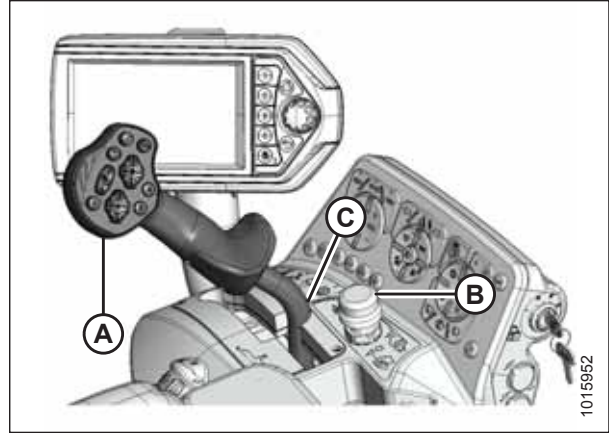


Figure 4.18: Operator Controls

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

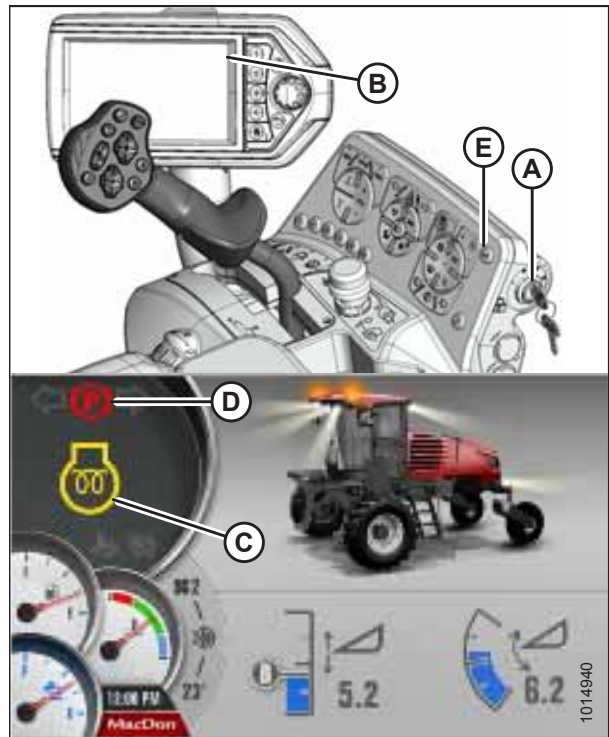


Figure 4.19: Console and HPT Run Screen

## PERFORMING PREDELIVERY CHECKS

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

### NOTE:

When the engine starts and the header is not engaged, the HPT will display the header disengaged page (B).

### 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 trying again.
- If you crank the engine for more than 30 seconds within a 2-minute period, the engine will lock the starter circuit to prevent overheating, and a flashing WTS symbol will appear on the display. Wait for the WTS symbol to stop flashing before attempting to crank engine again.
- If the engine still does not start, refer to the operator's manual.

### NOTE:

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



Figure 4.20: HPT Header Disengaged Screen



Figure 4.21: HPT No Header Screen

### 4.1.10 Checking and Adding Wheel Drive Lubricant



#### WARNING

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



#### CAUTION

Park on a flat, level surface with the header on the ground, the ground speed lever (GSL) in PARK position, and the steering wheel in locked position (centered). Wait for the HPT to beep and display a red P symbol to confirm the park brakes have engaged.

1. Park the windrower on level ground.

## PERFORMING PREDELIVERY CHECKS

2. Position windrower so plugs (A) and (B) are horizontally aligned with the center (C) of the hub.
3. Shut down the engine, and remove the key from the ignition.
4. Remove plug (A) or (B). The lubricant should be visible through the port or running out slightly.
5. If necessary, add lubricant until lubricant runs out from the open port (A) or (B). For lubricant specifications, refer to [6.1 Lubricants, Fluids, and System Capacities, page 155](#).

### NOTE:

The type of lubricant used after the first wheel drive lubricant change is not the same type of lubricant used in the factory. Refer to the manual's inside back cover for the recommended wheel drive lubricant.

6. Reinstall plugs and tighten.

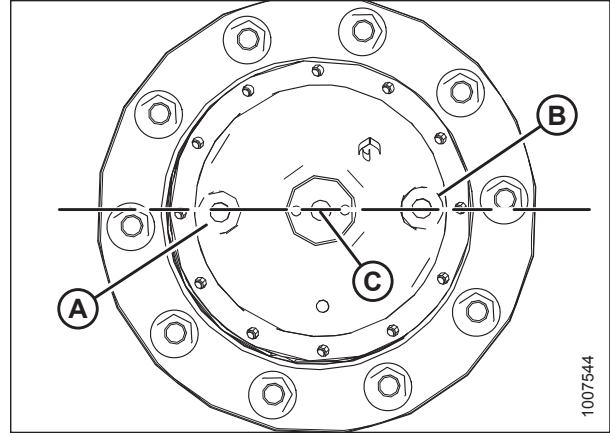


Figure 4.22: Drive Wheel Hub

### 4.1.11 Checking Traction Drive



### CAUTION

Check to be sure all bystanders have cleared the area.

### NOTE:

One person can perform this task.

1. Move ground speed lever (GSL) (A) out of PARK 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 PARK, and shut down the engine.



Figure 4.23: Operator Console



### 4.1.12 Checking Tire Pressures

Check tire pressures with a gauge.

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

**Drive Wheel Tires:** For optimal performance, drive wheel (A) tire pressures are determined by tire type, header size, and additional options. Refer to the following table:

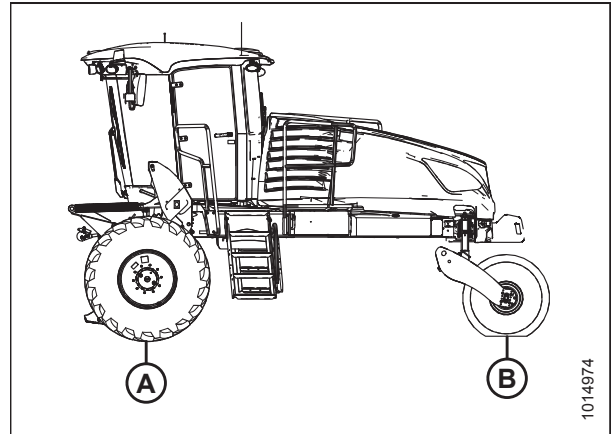


Figure 4.24: Windrower Tires

Table 4.1 Drive Tire Inflation Specifications

Header Type	Description	Installed Options	Weight Kit	Tire Type	Pressure kPa (psi)
<b>Draper Header</b>					
D115X single reel	4.6 m (15 ft.), double knife, timed	—	—	Bar	138 (20)
D115X single reel	4.6 m (15 ft.), double knife, timed	—	—	Turf	138 (20)
D120X single reel	6.1 m (20 ft.), double knife, timed	—	—	Bar	138 (20)
D120X single reel	6.1 m (20 ft.), double knife, timed	—	—	Turf	138 (20)
D125X single reel	7.6 m (25 ft.), double knife, timed	—	—	Bar	159 (23)
D125X single reel	7.6 m (25 ft.), double knife, timed	—	—	Turf	159 (23)
D130XL single reel	9.1 m (30 ft.), double knife, timed	Transport	1	Bar	200 (29)
D130XL single reel	9.1 m (30 ft.), double knife, timed	Transport	1	Turf	241 (35)
D130XL single reel	9.1 m (30 ft.), double knife, timed	Transport + upper cross auger + vertical knives	1	Bar	241 (35)
D130XL single reel	9.1 m (30 ft.), double knife, timed	Transport + upper cross auger + vertical knives	1	Turf	241 (35)
D135XL single reel	10.7 m (35 ft.), double knife, untimed	Base	2	Bar	200 (29)
D135XL single reel	10.7 m (35 ft.), double knife, untimed	Base	2	Turf	241 (35)

**PERFORMING PREDELIVERY CHECKS**

**Table 4.1 Drive Tire Inflation Specifications (continued)**

<b>Header Type</b>	<b>Description</b>	<b>Installed Options</b>	<b>Weight Kit</b>	<b>Tire Type</b>	<b>Pressure kPa (psi)</b>
D135XL single reel	10.7 m (35 ft.), double knife, untimed	Transport	2	<b>Bar</b>	241 (35)
D135XL single reel	10.7 m (35 ft.), double knife, untimed	Transport	2	<b>Turf</b>	241 (35)
D135XL single reel	10.7 m (35 ft.), double knife, untimed	Transport + upper cross auger + vertical knives	3	<b>Bar</b>	241 (35)
D135XL single reel	10.7 m (35 ft.), double knife, untimed	Transport + upper cross auger + vertical knives	3	<b>Turf</b>	241 (35)
D135XL double reel	10.7 m (35 ft.), double knife, untimed	Base	2	<b>Bar</b>	221 (32)
D135XL double reel	10.7 m (35 ft.), double knife, untimed	Base	2	<b>Turf</b>	241 (35)
D135XL double reel	10.7 m (35 ft.), double knife, untimed	Transport	2	<b>Bar</b>	241 (35)
D135XL double reel	10.7 m (35 ft.), double knife, untimed	Transport	2	<b>Turf</b>	241 (35)
D135XL double reel	10.7 m (35 ft.), double knife, untimed	Transport + upper cross auger + vertical knives	3	<b>Bar</b>	283 (41)
D135XL double reel	10.7 m (35 ft.), double knife, untimed	Transport + upper cross auger + vertical knives	3	<b>Turf</b>	241 (35)
D140XL double reel	12.2 m (40 ft.), double knife, untimed	Base	2	<b>Bar</b>	241 (35)
D140XL double reel	12.2 m (40 ft.), double knife, untimed	Base	2	<b>Turf</b>	241 (35)
D140XL double reel	12.2 m (40 ft.), double knife, untimed	Transport	2	<b>Bar</b>	241 (35)
D140XL double reel	12.2 m (40 ft.), double knife, untimed	Transport	2	<b>Turf</b>	241 (35)
D140XL double reel	12.2 m (40 ft.), double knife, untimed	Transport + upper cross auger + vertical knives	3	<b>Bar</b>	283 (41)
D140XL double reel	12.2 m (40 ft.), double knife, untimed	Transport + upper cross auger + vertical knives	3	<b>Turf</b>	241 (35)
D145XL double reel	13.7 m (45 ft.), double knife, untimed	Base	2	<b>Bar</b>	241 (35)
D145XL double reel	13.7 m (45 ft.), double knife, untimed	Base	2	<b>Turf</b>	241 (35)
D145XL double reel	13.7 m (45 ft.), double knife, untimed	Transport	3	<b>Bar</b>	262 (38)
D145XL double reel	13.7 m (45 ft.), double knife, untimed	Transport	3	<b>Turf</b>	241 (35)
D145XL double reel	13.7 m (45 ft.), double knife, untimed	Transport + upper cross auger + vertical knives	3	<b>Bar</b>	283 (41)

**PERFORMING PREDELIVERY CHECKS**

**Table 4.1 Drive Tire Inflation Specifications (continued)**

<b>Header Type</b>	<b>Description</b>	<b>Installed Options</b>	<b>Weight Kit</b>	<b>Tire Type</b>	<b>Pressure kPa (psi)</b>
D145XL double reel	13.7 m (45 ft.), double knife, untimed	Transport + upper cross auger + vertical knives	3	<b>Turf</b>	241 (35)
<b>Disc Header – M1170 Windrower</b>					
R113/R116	4 m (13 ft.) / 4.9 m (16 ft.)	No Conditioner	—	<b>Bar or Turf</b>	138 (20)
R113/R116	4 m (13 ft.) / 4.9 m (16 ft.)	Steel or Poly Roll	—	<b>Bar</b>	179 (26)
R113/R116	4 m (13 ft.) / 4.9 m (16 ft.)	Steel or Poly Roll	—	<b>Turf</b>	159 (23)
<b>Disc Header – M1240 Windrower</b>					
R85	4.9 m (16 ft.)	Base	—	<b>Bar or Turf</b>	200 (29)
R113	4 m (13 ft.)	No Conditioner	—	<b>Bar or Turf</b>	138 (20)
R113	4 m (13 ft.)	Steel or Poly Roll	—	<b>Bar</b>	179 (26)
R113	4 m (13 ft.)	Steel or Poly Roll	—	<b>Turf</b>	159 (23)
R216	4.9 m (16 ft.)	Steel or Poly Roll	—	<b>Bar</b>	200 (29)
R216	4.9 m (16 ft.)	Steel or Poly Roll	—	<b>Turf</b>	200 (29)
<b>Auger Header</b>					
A40DX	4.9 m (16 ft.)	—	—	<b>Bar</b>	200 (29)
A40DX	4.9 m (16 ft.)	—	—	<b>Turf</b>	200 (29)
A40DX GSS	4.9 m (16 ft.) (Grass Seed)	—	—	<b>Bar</b>	159 (23)
A40DX GSS	4.9 m (16 ft.) (Grass Seed)	—	—	<b>Turf</b>	159 (23)
A40DX	5.5 m (18 ft.)	—	—	<b>Bar</b>	200 (29)
A40DX	5.5 m (18 ft.)	—	—	<b>Turf</b>	220 (32)

## 4.2 Performing Operational Checks

1. Perform the final checks and adjustments listed on the following pages and the *Predelivery Checklist, page 171* (yellow sheet attached to this instruction) to ensure the machine is field-ready.
2. Ensure the Operator or the Dealer retains the completed Predelivery Checklist.

### 4.2.1 Checking Operating Safety System

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

#### WARNING

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

#### CAUTION

Check to be sure all bystanders have cleared the area.

1. With the engine running and the seat base in engine-forward mode, engage the HEADER ENGAGE switch. Confirm the header drive does **NOT** engage and the Harvest Performance Tracker (HPT) displays LOCK SEAT BASE IN CAB-FORWARD.
2. With the engine running and the seat base in cab-forward mode, stand up and engage the HEADER DRIVE switch. The header drive should **NOT** engage and the HPT should display OPERATOR MUST BE SEATED.
3. With the engine running and the seat base unlocked, move the ground speed lever (GSL) out of PARK. Confirm the engine immediately shuts down and the HPT displays LOCK SEAT BASE and sounds a tone.
4. Shut down the engine and engage HEADER ENGAGE switch. Try starting the engine and confirm the HPT displays DISENGAGE HEADER. If the engine turns over, the safety system requires adjustment. Refer to the technical manual for adjustment procedures.
5. Shut down the engine and open the cooler box door. Try starting the engine and confirm the HPT displays CLOSE COOLER BOX DOOR. If the engine turns over, the safety system requires adjustment. Refer to the technical manual for adjustment procedures.
6. Shut down the engine and perform the following safety system checks:
  - a. Open the hood.
  - b. Pry the steering interlock away from pintle arms (A) by inserting a wedge or pry bar between one of the interlock channels (B) and the pintle arm.
  - c. Insert a wooden block approximately 19 mm (3/4 in.) thick between the opposite channel and the pintle arm so the interlock channel is clear of the pintle arm.
  - d. Turn the steering wheel off-center and move the GSL to PARK.
  - e. Try starting the engine and confirm the HPT displays LOCK STEERING WHEEL IN CENTER POSITION. The engine should **NOT** turn over. If the engine turns over, the safety system requires adjustment. Refer to the technical manual for adjustment procedures.
  - f. Remove key from the ignition.

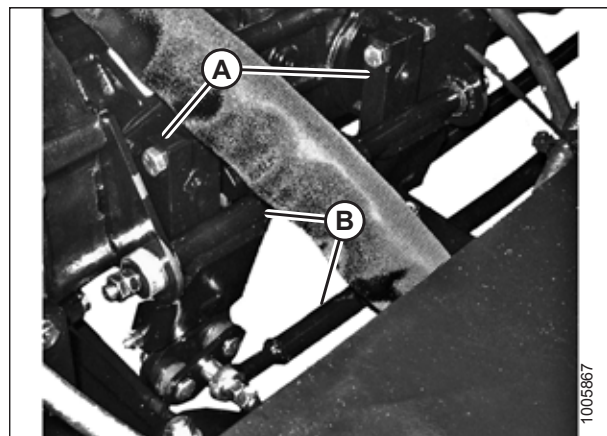


Figure 4.25: Pintle Arms

## PERFORMING PREDELIVERY CHECKS

- g. Remove wooden block and close hood.
7. Center the steering wheel. Place the GSL in NEUTRAL but not in PARK. Try starting the engine and confirm the HPT displays MOVE GSL INTO PARK. The engine should **NOT** turn over. If the engine turns over, the safety system requires adjustment. Refer to the technical manual for adjustment procedures.
8. With the engine off, center the steering wheel. Place the GSL in PARK and ensure the operator's station is **NOT** locked. Try starting the engine and confirm that the engine does **NOT** crank, and the HPT displays LOCK SEAT BASE. If the engine starts, the safety system requires adjustment. Refer to the technical manual for adjustment procedures.

### 4.2.2 Checking Harvest Performance Tracker Display

1. If not already running, start the engine. For instructions, refer to [4.1.9 Starting the Engine, page 90](#).
2. If a header is not attached, check that the no header screen is displayed.



Figure 4.26: HPT Display – No Header

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

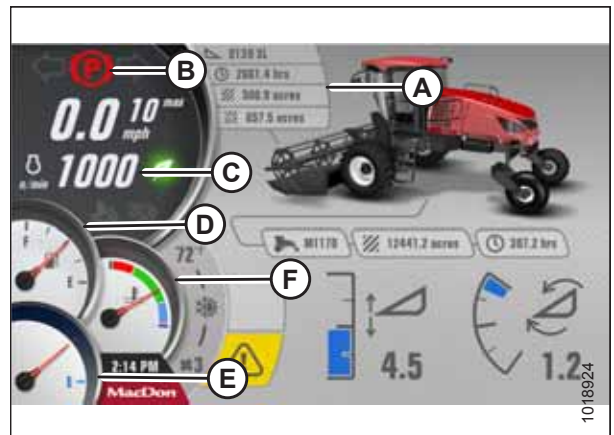


Figure 4.27: HPT Display – Header Attached

### *Navigating the Harvest Performance Tracker*

Turning scroll knob (A) on the Harvest Performance Tracker (HPT) highlights the available options within a menu and increases/decreases the available settings. Pushing the scroll knob selects functions or menu items. Scroll and select functions are duplicated on the ground speed lever (GSL) controls. Unless otherwise specified, these two buttons will

## PERFORMING PREDELIVERY CHECKS

always perform the same function and when Select is referred to in this document, either one of these buttons can be used.

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

### NOTE:

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



Figure 4.28: HPT Scroll Knob

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

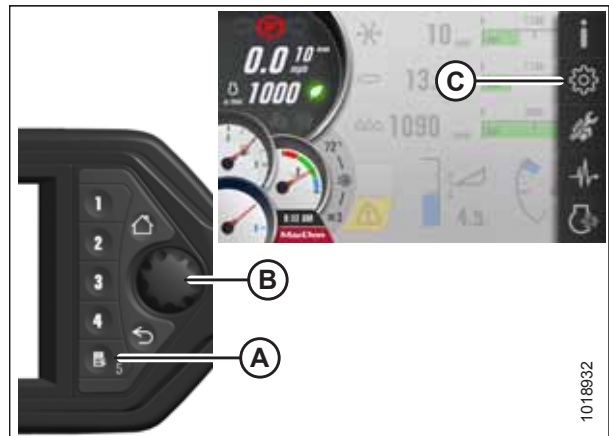


Figure 4.29: Main Menu

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



Figure 4.30: HPT

## PERFORMING PREDELIVERY CHECKS

### Setting Language and Units of Measurement

To set the language and units of measurement displayed, follow these steps:

1. Navigate to the SETTINGS menu with soft key 5 and the Harvest Performance Tracker (HPT) scroll knob. For instructions, refer to [Navigating the Harvest Performance Tracker, page 99](#).
2. Scroll to SCREEN icon (A) and select it.
3. Scroll to LANGUAGE AND UNITS icon (B), and select it to open the adjustment window.
4. Scroll through the available options on the HPT, select desired item, and scroll to adjust:

#### LANGUAGE

- ENGLISH (default)
- SPANISH

#### UNITS

- METRIC
- USA (default)

Refer to [6.4 Conversion Chart, page 166](#) for a comprehensive list of U.S. and metric units.

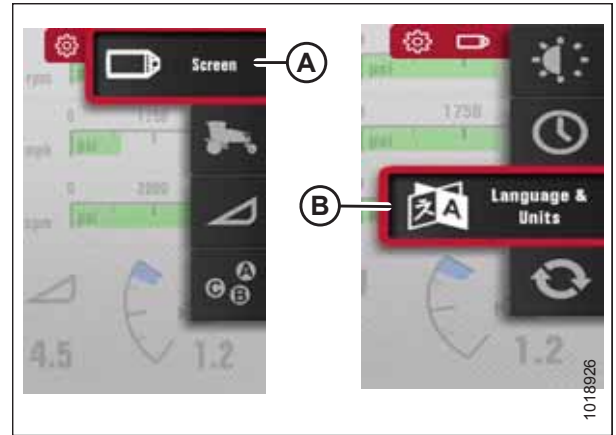


Figure 4.31: Language and Units

### Setting Time and Date

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

1. Navigate to the SETTINGS Menu with soft key 5 and the HPT scroll knob. For instructions, refer to [Navigating the Harvest Performance Tracker, page 99](#).
2. Scroll to the SCREEN option (A) and select it.
3. Scroll to the TIME AND DATE option (B), and select it to open the adjustment window.



Figure 4.32: Time and Date

## PERFORMING PREDELIVERY CHECKS

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



Figure 4.33: Time and Date

### Setting Windrower Tire Size

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

1. Navigate to the SETTINGS menu with soft key 5 and the HPT scroll knob. For instructions, refer to [Navigating the Harvest Performance Tracker, page 99](#).
2. Scroll to the WINDROWER SETTINGS icon (A) and select it.
3. Scroll to the TIRES icon (B), and select it to display the adjustment window.

#### NOTE:

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



Figure 4.34: Tire Size

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

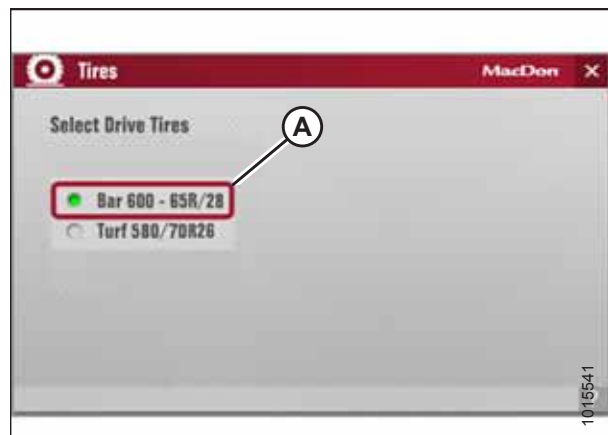


Figure 4.35: Tire Selection



## PERFORMING PREDELIVERY CHECKS

### Adjusting Header Settings on the Harvest Performance Tracker

Before operating the header, ensure the Harvest Performance Tracker (HPT) settings are appropriate for your header.

1. Navigate to SETTINGS menu with soft key 5 and HPT scroll knob. For instructions, refer to *Navigating the Harvest Performance Tracker, page 99* if required.

2. Scroll to SET-UP HEADER option (A) and press the scroll knob to select it.

**NOTE:**

Settings vary depending on the header type.

3. Scroll to highlight appropriate option and press the scroll knob to select it.

- For example, if a draper header is attached, and ATTACHMENTS (B) is selected, the available choice is DOUBLE DRAPER DRIVE.

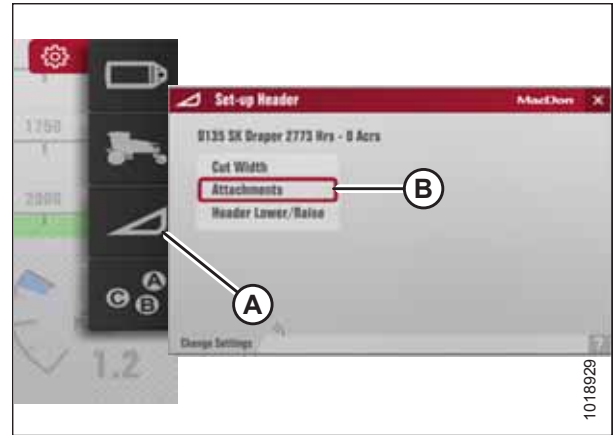


Figure 4.36: Header Settings

### 4.2.3 Checking Engine Speed

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

Table 4.2 Engine Speed

Model	Idle	Maximum (No Load)
M1170	1000 rpm	2500 rpm
M1240	1000 rpm	2300 rpm



Figure 4.37: HPT Display

#### 4.2.4 Checking Selective Catalytic Regeneration Conditioning Mode

To prevent loss of engine power due to inhibiting exhaust system cleaning for a prolonged period, ensure that the selective catalytic regeneration (SCR) conditioning inhibit mode is off—indicator (A) on the Harvest Performance Tracker (HPT) display is **NOT** highlighted—before delivery to the customer.

If the SCR conditioning inhibit symbol is highlighted, turn inhibit mode off as follows:



Figure 4.38: HPT Display

1. Press the soft key 5/menu button (A) on the HPT.
2. Press soft key 5/menu button (A) next to the EXHAUST AFTERTREATMENT icon (B).

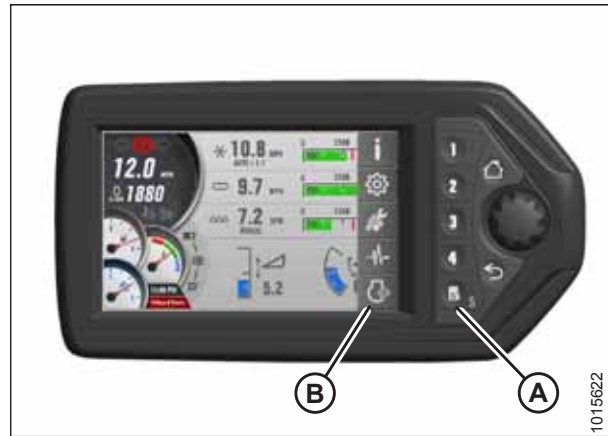


Figure 4.39: HPT Display

3. To turn off SCR conditioning inhibit mode, press soft key 5/ menu button (A) next to the INHIBIT SCR CONDITIONING icon (B), and hold for 3 seconds. The highlighted SCR CONDITIONING INHIBIT icon (C) will turn off.



Figure 4.40: HPT Display

### 4.2.5 Checking Exterior Lights

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

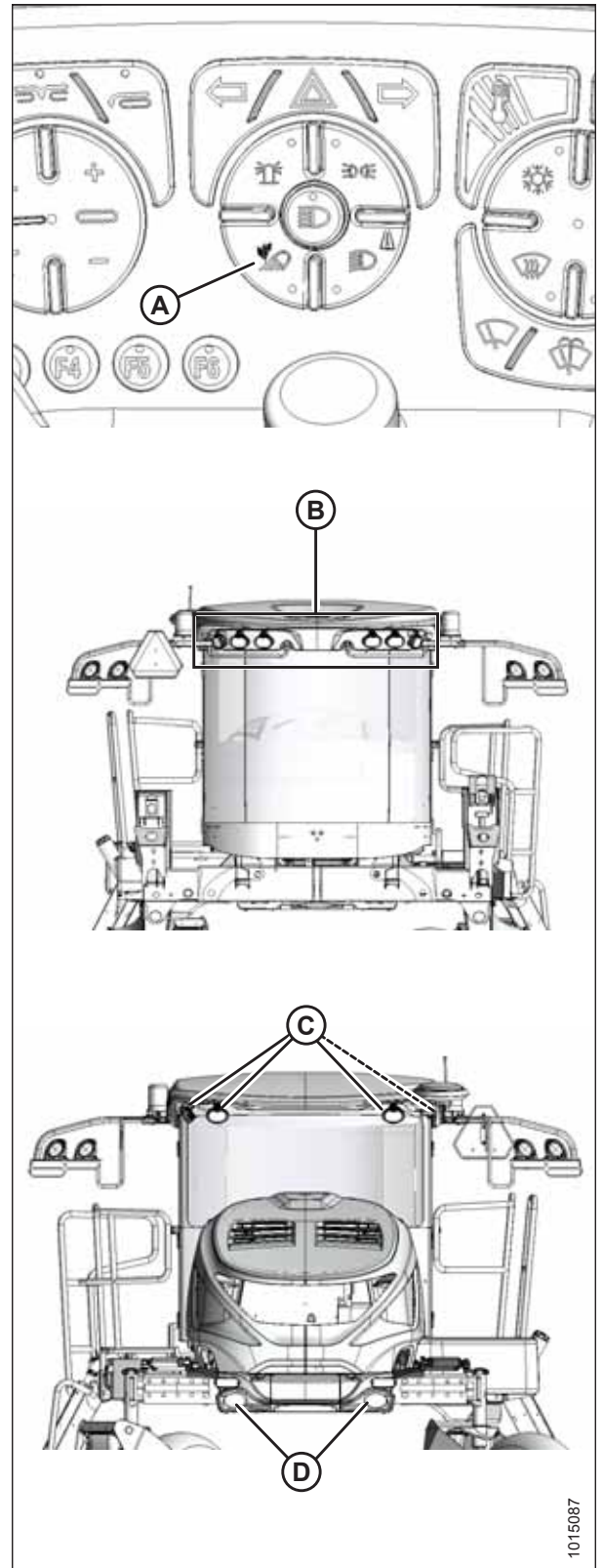


Figure 4.41: Field Lights

## PERFORMING PREDELIVERY CHECKS

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

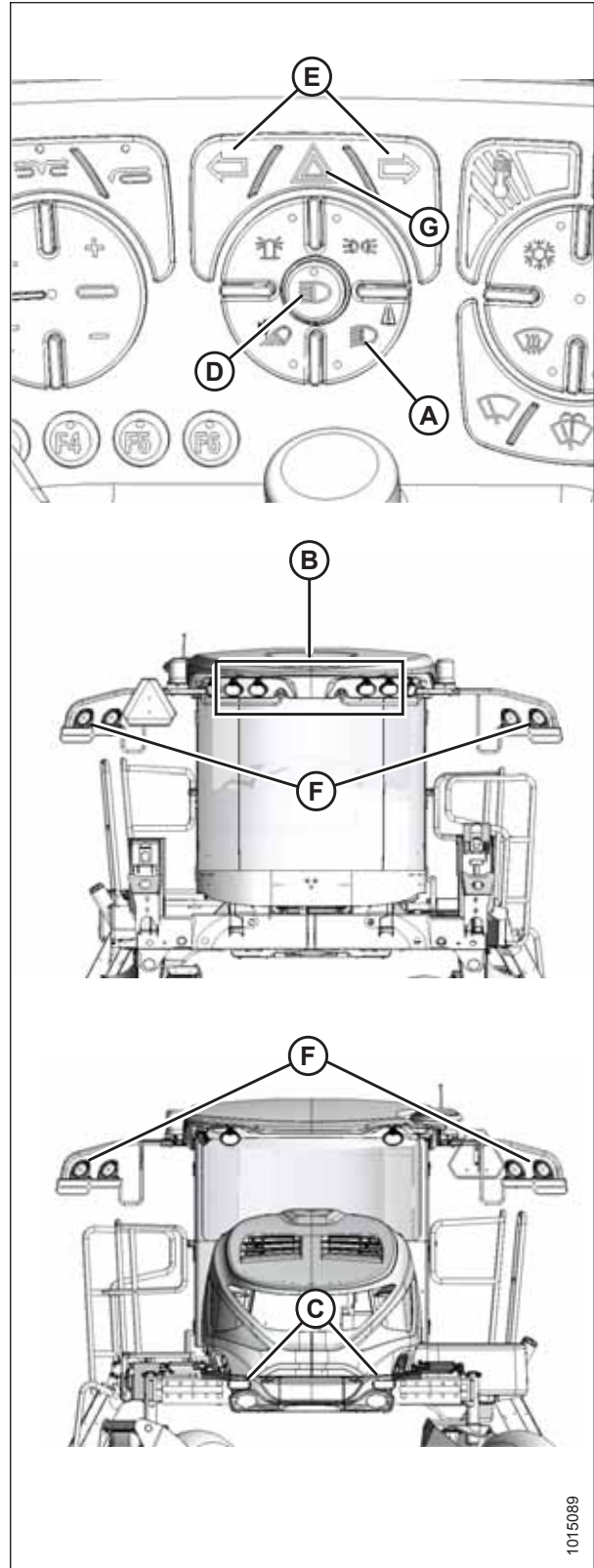


Figure 4.42: Road Lights – Cab-Forward

## PERFORMING PREDELIVERY CHECKS

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

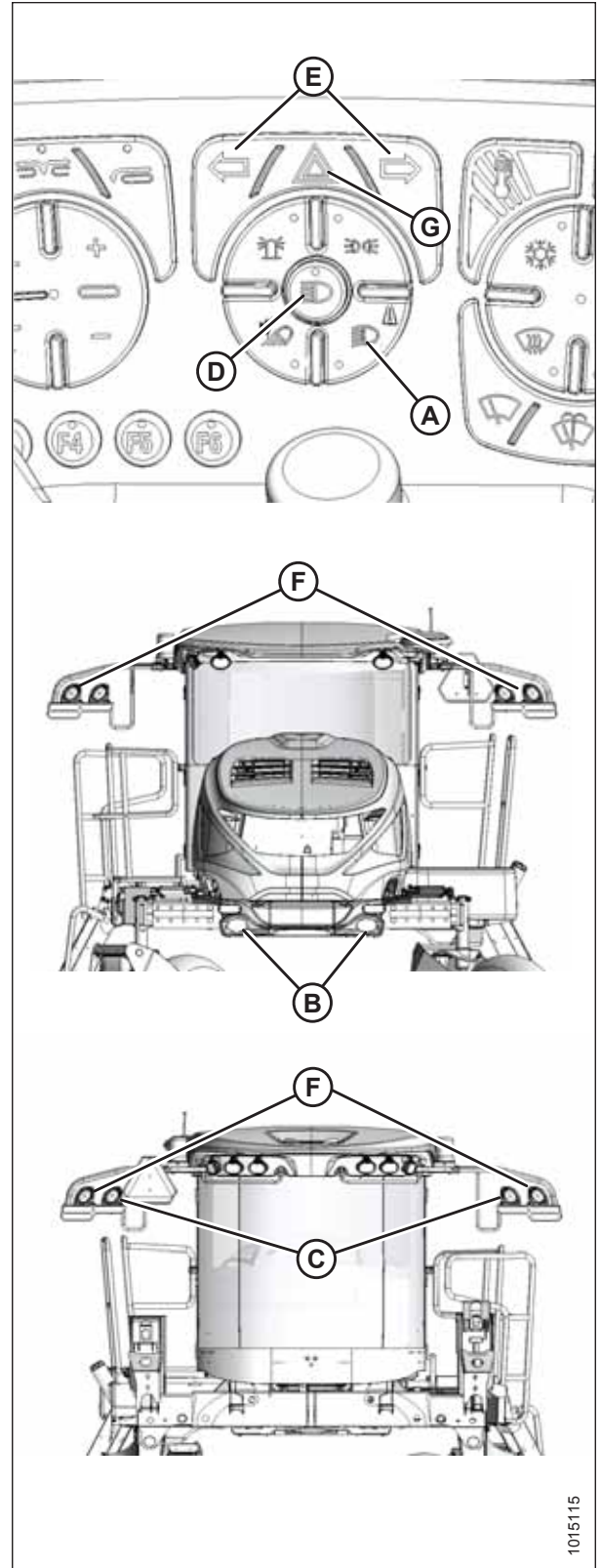


Figure 4.43: Road Lights – Engine-Forward

## PERFORMING PREDELIVERY CHECKS

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

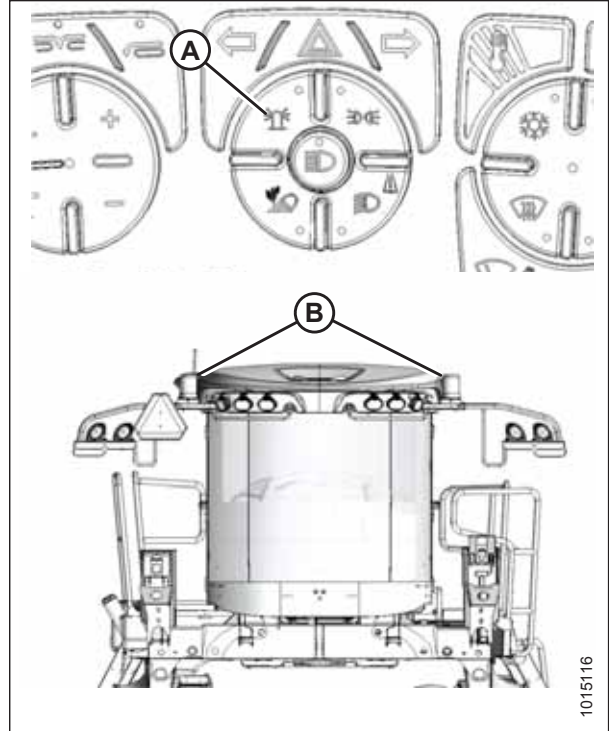


Figure 4.44: Beacons

### 4.2.6 Checking Horn

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

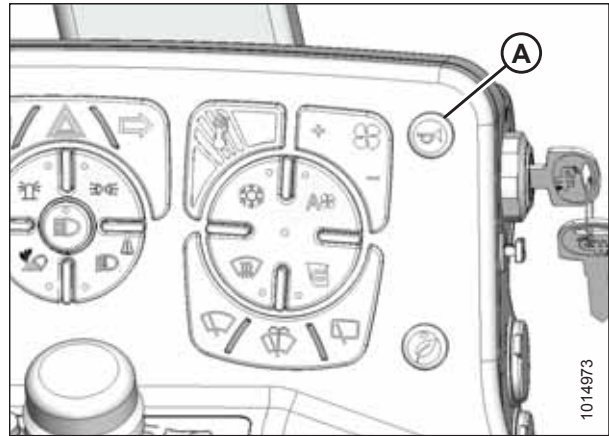


Figure 4.45: Horn Button

### 4.2.7 Checking Interior Lights

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

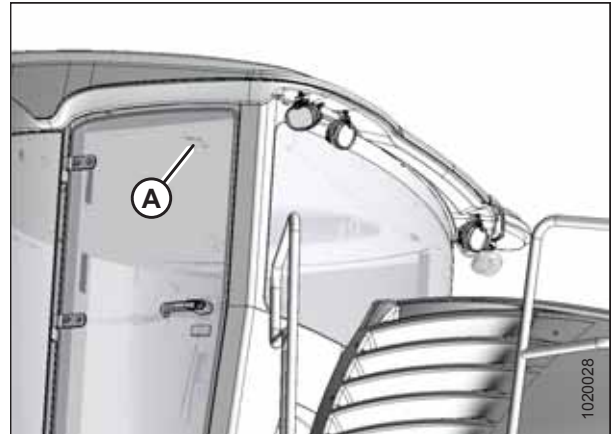


Figure 4.46: Interior Light

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

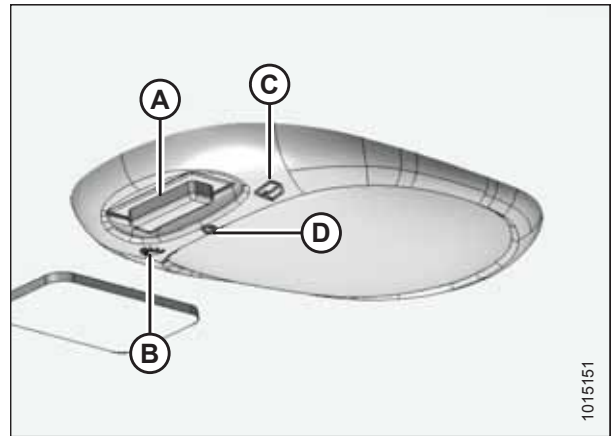


Figure 4.47: Interior Light

### 4.2.8 Checking Climate Controls

1. Start the engine and allow it to reach operating temperature.
2. If starting a machine that has been stored for more than 1 week, distribute the oil throughout the A/C system as follows:
  - a. Press + (A) on the FAN SPEED switch to start the fan, adjust temperature control (B) to maximum heating, and press A/C switch (C) if necessary so that the LED light is **NOT** lit.
  - b. Press A/C switch (C) to ON (LED light is lit) for one second, then OFF for 5 to 10 seconds. Repeat this step ten times.

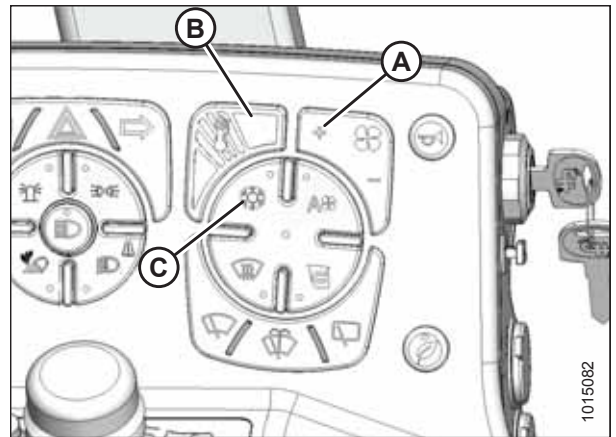


Figure 4.48: A/C Controls

## PERFORMING PREDELIVERY CHECKS

3. Press AUTO FAN switch (A) (LED light shows orange) and then press RED TEMPERATURE CONTROL switch (B) until warm air flows through cab vents.
4. Press BLUE TEMPERATURE CONTROL switch (C) until cool air enters the cab.
5. Press FAN SPEED switch (D) (+ or -) and note change in air flow. The AUTO FAN light should be off.
6. Press RECIRCULATING AIR switch (E) and check air flow in cab.
7. Press WINDSHIELD DEFOG/DEFROST switch (F) and check air flow on windshield.

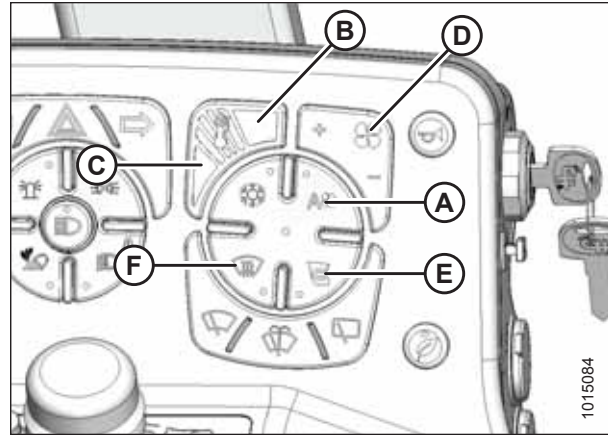


Figure 4.49: Climate Controls

### 4.2.9 Checking the Radio and Activating the Bluetooth® Feature

A radio (A) and two speakers (B) are factory-installed in the cab headliner. The radio operates in AM, FM, CD, and USB modes. It also supports Bluetooth® wireless technology audio streaming and hands-free calling.

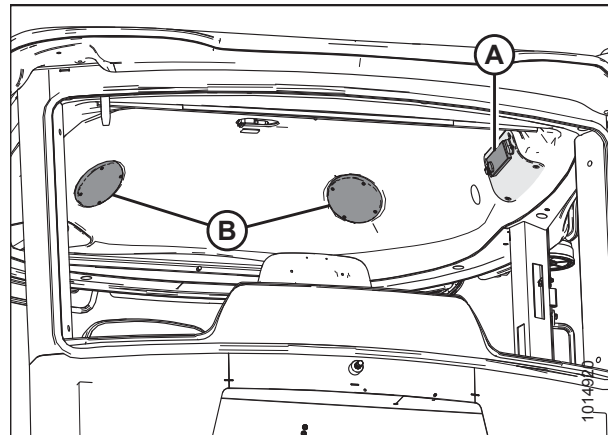


Figure 4.50: Radio and Speakers

1. To check the radio, follow this procedure:
  - a. Turn the IGNITION key to RUN position.
  - b. Press POWER button (A) to turn the radio on. Hold the POWER button to turn it off.

**NOTE:**

The button will illuminate red when OFF and blue when ON.

- c. Press BAND/BACK button (B) to change radio bands.
- d. Rotate Volume/Select knob (C) to change the volume level.
- e. Insert a CD into disc slot (D), or connect a USB storage device to the unit. The radio will automatically switch mode and begin playback after media is successfully loaded.

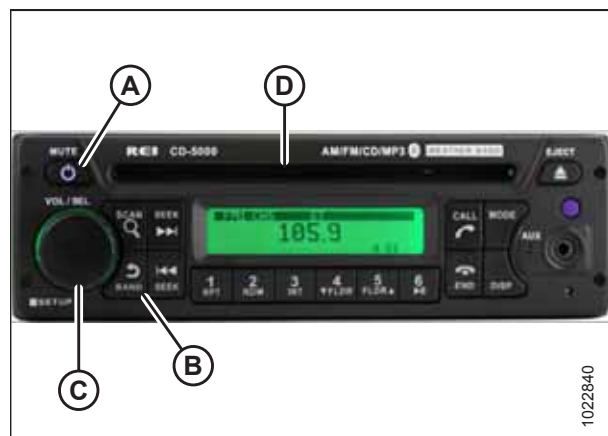


Figure 4.51: Radio



## PERFORMING PREDELIVERY CHECKS

2. To activate the Bluetooth® feature, follow this procedure:
  - a. Press POWER button (A) to turn radio on.
  - b. Press and hold VOL/SEL knob (B) for two seconds. MENU is displayed on screen (C).
  - c. Rotate VOL/SEL (B) to highlight BT SET menu and press VOL/SEL to select. BLUETOOTH ON/OFF is displayed (C).
  - d. Press VOL/SEL to select BLUETOOTH.
  - e. Rotate the VOL/SEL knob to display ON and press VOL/SEL to select.
  - f. Rotate the VOL/SEL knob and select DISCOVER.
  - g. Rotate the VOL/SEL knob to display ON and press VOL/SEL to select.

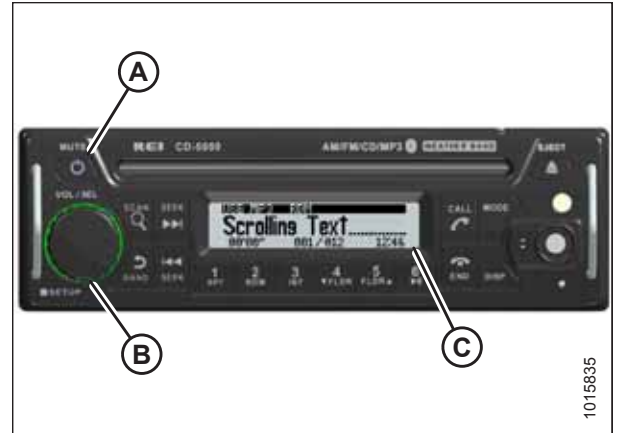


Figure 4.52: Bluetooth® Radio

### 4.3 Checking Manuals

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

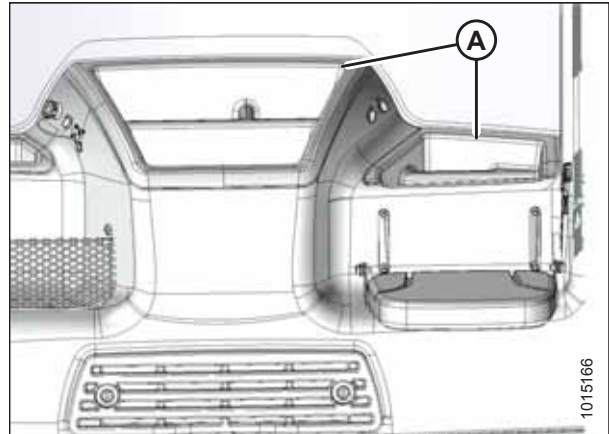


Figure 4.53: Manual Storage Case

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

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



Figure 4.54: Manuals and Quick Card

## 4.4 Performing Final Steps

1. After the predelivery checks are complete, remove the plastic covering from the Harvest Performance Tracker (HPT) and the seats.
2. If the optional GPS kit is included, locate GPS mount parts bag inside the cab, and install it according to the instructions included with the EZ Pilot® or Autopilot™ bundle. If not installing kit, place GPS mount parts bag in toolbox for future installation.
3. Remove the Keep This Door Closed sign from the right door **AFTER** the right leg is repositioned to field configuration.
4. Do **NOT** remove the drive wheel torque procedure decal from the windshield.



Figure 4.55: Windshield Decal



# Chapter 5: Attaching a Header to an M1 Series Windrower

## 5.1 Attaching a Header to an M1 Series Windrower

### 5.1.1 A40DX Auger Header

#### Attaching an A40DX Auger Header

The windrower may have an optional self-aligning hydraulic center-link that allows vertical position control of the center-link from the cab.

#### **WARNING**

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

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

#### **CAUTION**

Check to be sure all bystanders have cleared the area.

2. Start the engine. For instructions, refer to [4.1.9 Starting the Engine, page 90](#).

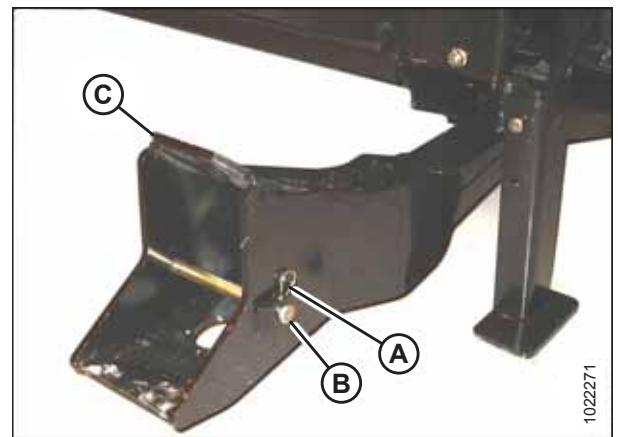


Figure 5.1: Header Support

#### **IMPORTANT:**

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

#### **NOTE:**

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

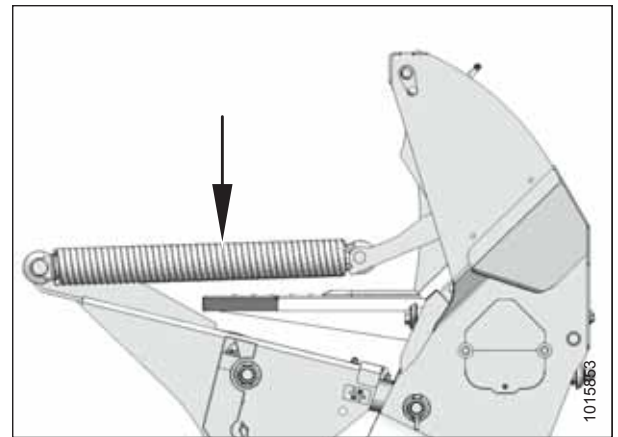


Figure 5.2: Header Float Springs

## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

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



Figure 5.3: HPT Display

5. On FLOAT ADJUST PAGE, press soft key 3 (A) to remove float.



Figure 5.4: HPT Display

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

### IMPORTANT:

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



Figure 5.5: GSL

## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

8. If the hydraulic center-link self-alignment kit is not installed, relocate pin (A) in frame linkage as required to raise the center-link (B) until the hook is above the attachment pin on the header.

**IMPORTANT:**

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

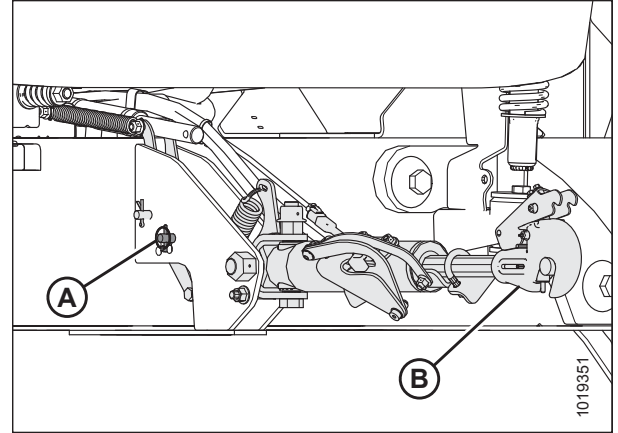


Figure 5.6: Hydraulic Center-Link without Self-Alignment Kit

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

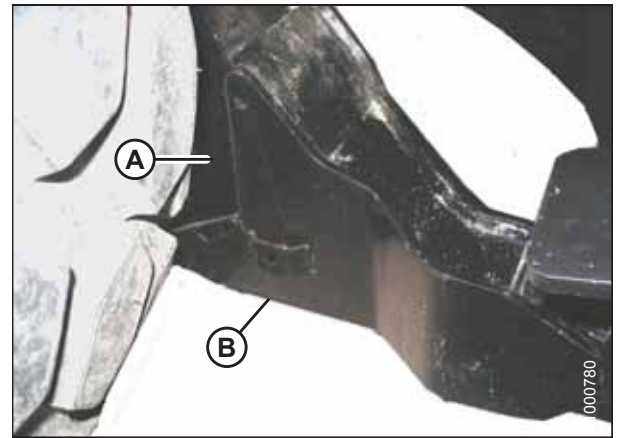


Figure 5.7: Header Support

10. If the hydraulic center-link self-alignment kit is installed, adjust position of the center-link cylinder (A) with switches on the GSL until the hook (B) is above the header attachment pin.
11. For hydraulic center-link without self-alignment, push down on the rod end of link cylinder (C) until the hook engages and locks onto the header pin.

**IMPORTANT:**

Hook release (D) 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.

12. For hydraulic center-link with self-alignment, lower center-link (A) onto the header with REEL DOWN switch on the GSL until it locks into position (hook release [D] is down).
13. For hydraulic center-link with self-alignment, check that center-link is locked onto header by pressing the REEL UP switch on the GSL.

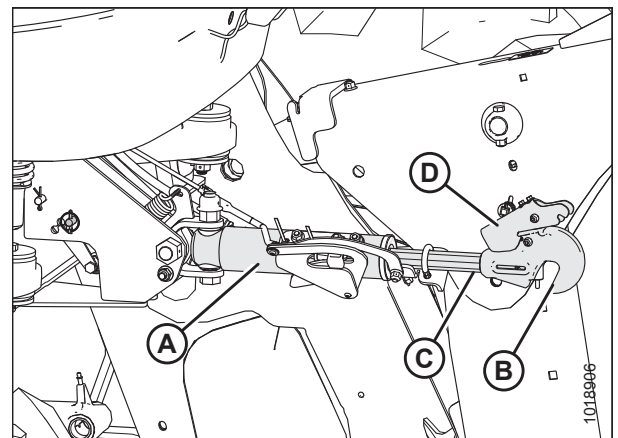


Figure 5.8: Hydraulic Center-Link

## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

### CAUTION

Check to be sure all bystanders have cleared the area.

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

#### NOTE:

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

16. Shut down the engine, and remove the key from the ignition.
17. Engage the safety props on both lift cylinders as follows:
  - a. Pull lever (A) toward you to release, and then rotate toward header to lower the safety prop onto the cylinder.
  - b. Repeat for the opposite lift cylinder.

#### IMPORTANT:

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

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

#### IMPORTANT:

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



Figure 5.9: GSL

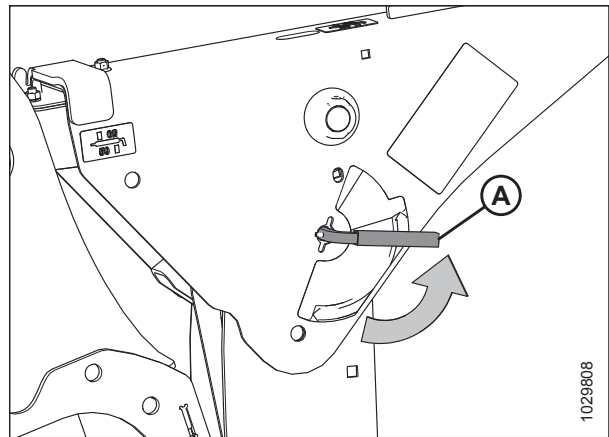


Figure 5.10: Safety Prop Lever

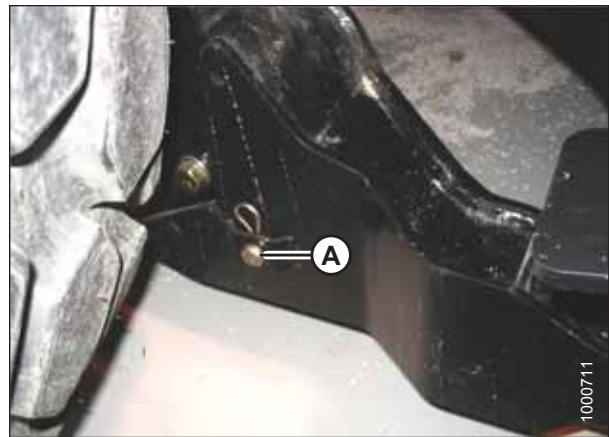


Figure 5.11: Header Support



## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

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

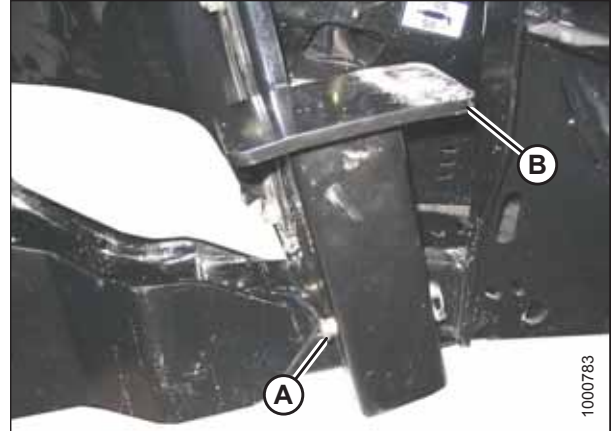


Figure 5.12: Header Stand

22. Disengage the safety props on both lift cylinders as follows:

**NOTE:**

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

- a. Turn lever (A) away from the header to raise the safety prop until the lever locks into the vertical position.
  - b. Repeat for the opposite cylinder.
23. Repeat for the opposite side.

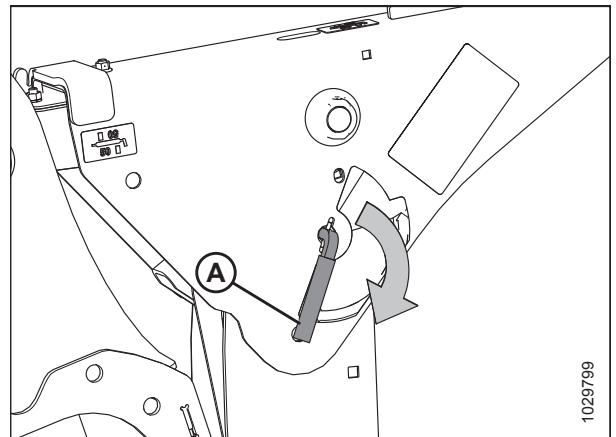


Figure 5.13: Safety Prop Lever



### CAUTION

Check to be sure all bystanders have cleared the area.

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

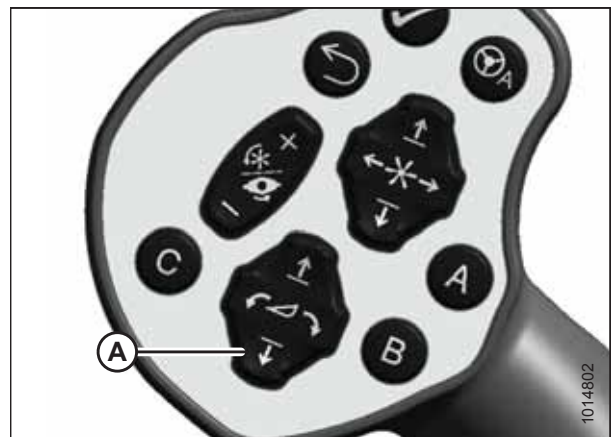


Figure 5.14: GSL

## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

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



Figure 5.15: HPT Display

27. Turn scroll knob (A) to highlight left (B) or right (C) float and press knob (A) to activate selection.
28. Rotate scroll knob (A) to adjust the float setting and press the knob when finished.

### IMPORTANT:

Float adjustments of 1.0 (out of 10) change the header weight at the cutterbar by approximately 91 kg (200 lb.). Adjust the float in increments of 0.05 to optimize field performance.

29. Shut down the engine, and remove the key from the ignition.
30. Grasp one end of the auger header and lift. Lifting force should be 335–380 N (75–85 lbf) at both ends.



Figure 5.16: HPT Display

### Connecting A40DX Auger Hydraulics

#### CAUTION

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

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

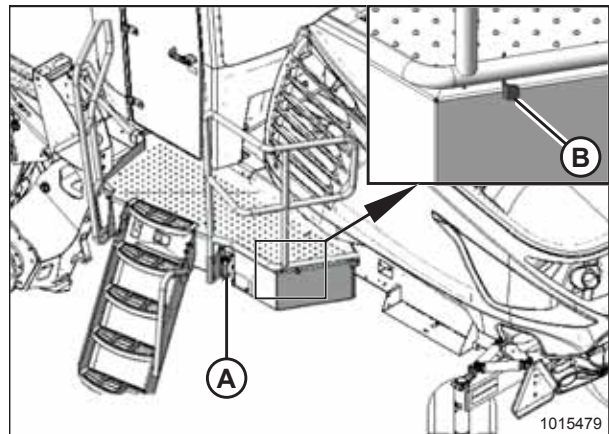


Figure 5.17: Left Cab-Forward Platform

## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

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

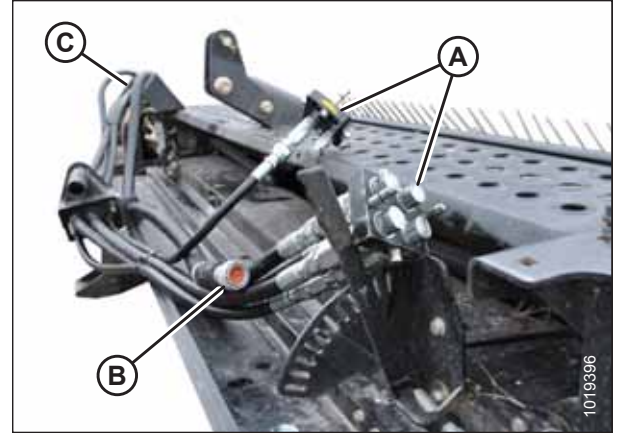


Figure 5.18: Hydraulic Hoses in Storage Position

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

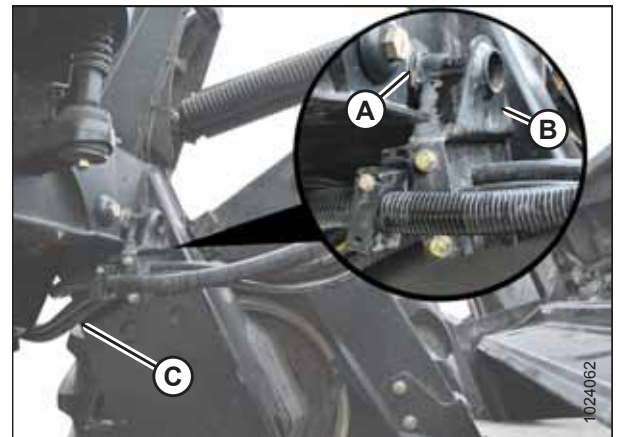


Figure 5.19: Multicoupler

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

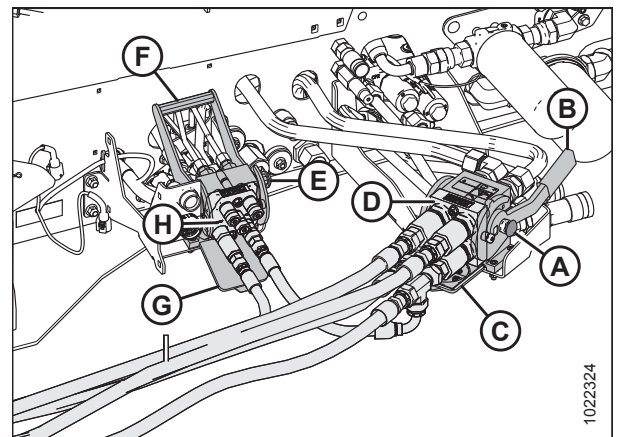
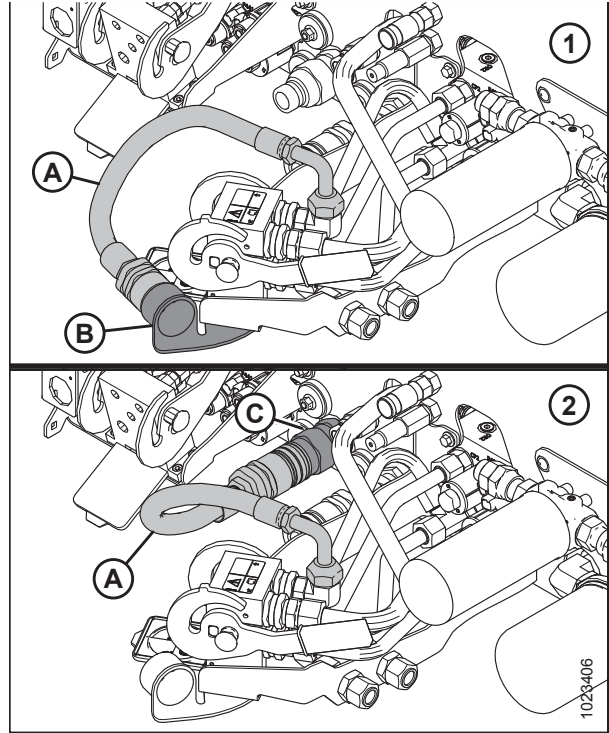


Figure 5.20: Knife/Reel/Auger Drive Multicoupler

## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

### *M1170 configured with R1 Hydraulic Drive Bundle (B6621):*

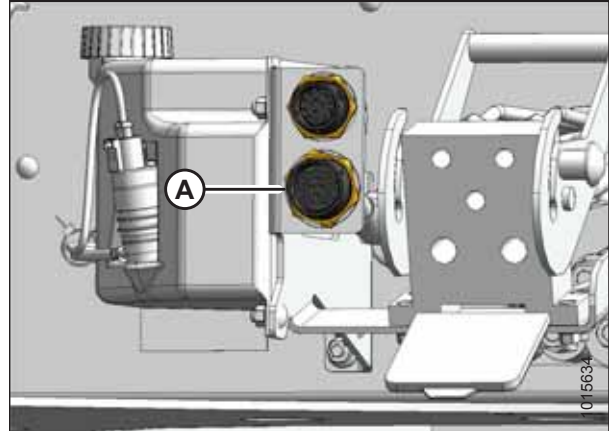
11. If switching from a rotary header to an auger header, remove hose (A) from storage location (B) and connect to knife pressure receptacle (C) on the frame.



**Figure 5.21: Knife Pressure Hose Positions**

- 1 - Hose in Storage Position (Rotary Configuration)
- 2 - Hose to Knife Pressure Receptacle (Auger/Draper Configuration)

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



**Figure 5.22: Electrical Connectors**

## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

13. Push latch (A) to unlock platform (B).

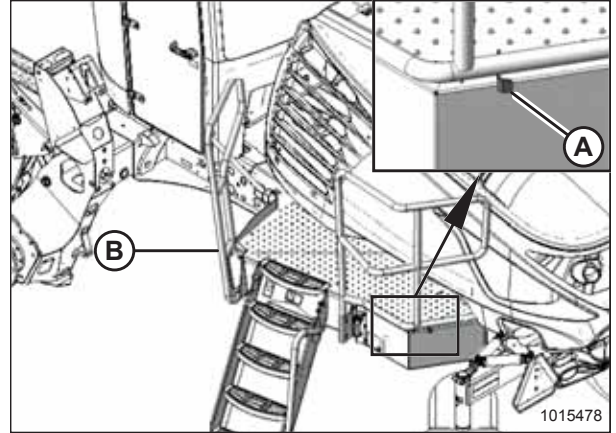


Figure 5.23: Left Cab-Forward Platform

14. Pull platform (A) towards the cab until it stops and latch engages.

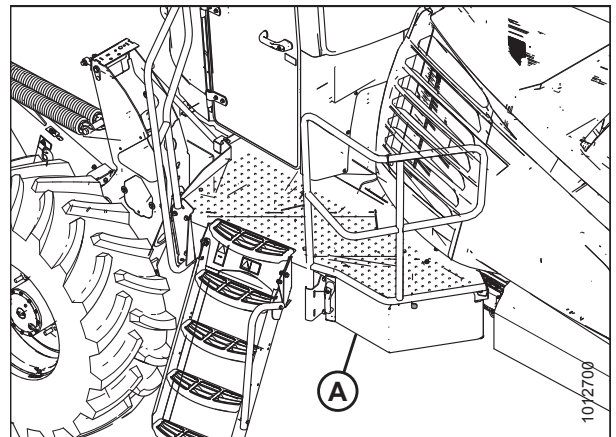


Figure 5.24: Left Cab-Forward Platform

### 5.1.2 D1X or D1XL Series Draper Header

#### *Attaching Draper Header Supports*

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



#### **WARNING**

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

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

## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

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

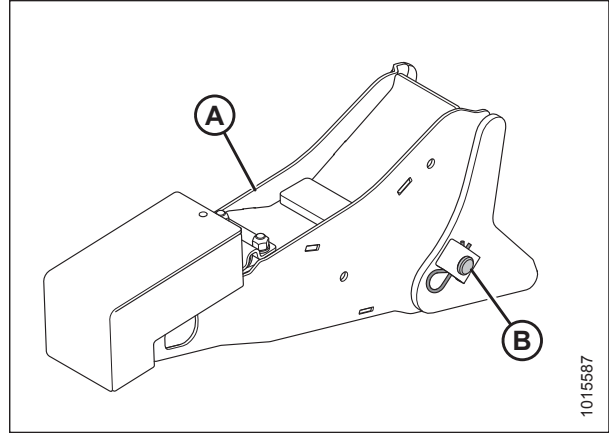


Figure 5.25: Draper Header Support

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

**NOTE:**

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

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

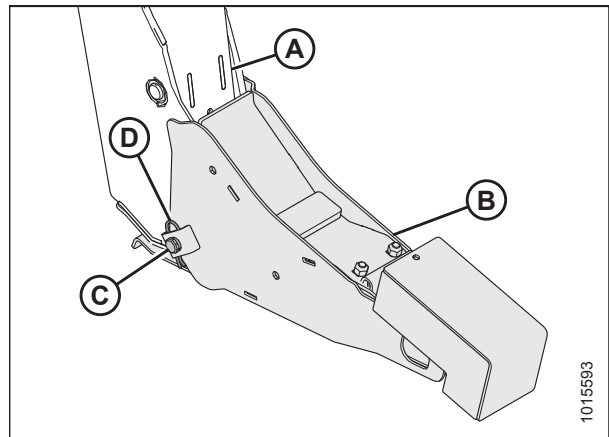


Figure 5.26: Draper Header Support

### Attaching a D1X or D1XL Series Draper Header

The windrower may have an optional self-aligning hydraulic center-link that allows vertical position control of the center-link from the cab.

**NOTE:**

Draper header supports must be installed onto the windrower lift linkage before starting this procedure. For instructions, refer to [Attaching Draper Header Supports, page 123](#).

### **WARNING**

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

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

## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

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

### IMPORTANT:

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

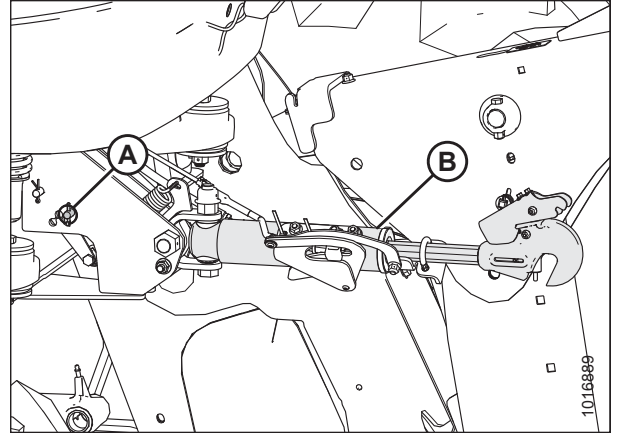


Figure 5.27: Center-Link without Self-Alignment

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

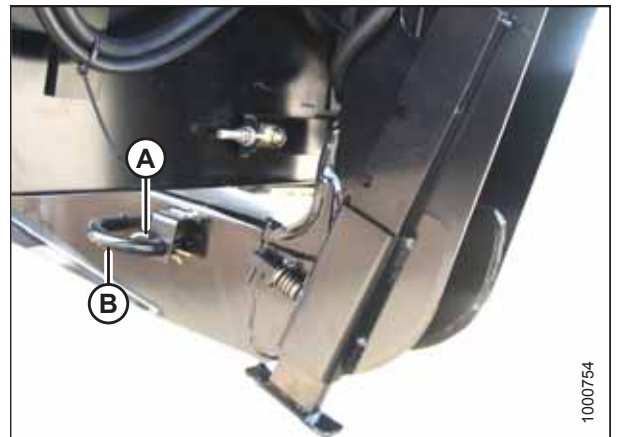


Figure 5.28: Header Leg

### CAUTION

Check to be sure all bystanders have cleared the area.

4. Start the engine. For instructions, refer to [4.1.9 Starting the Engine, page 90](#).

### CAUTION

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

### NOTE:

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

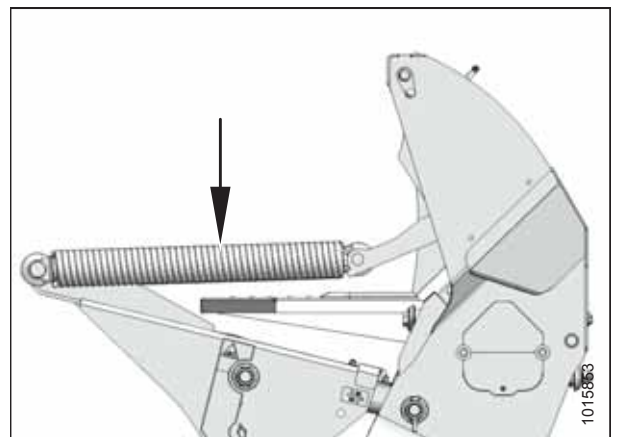


Figure 5.29: Header Float Springs

## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

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

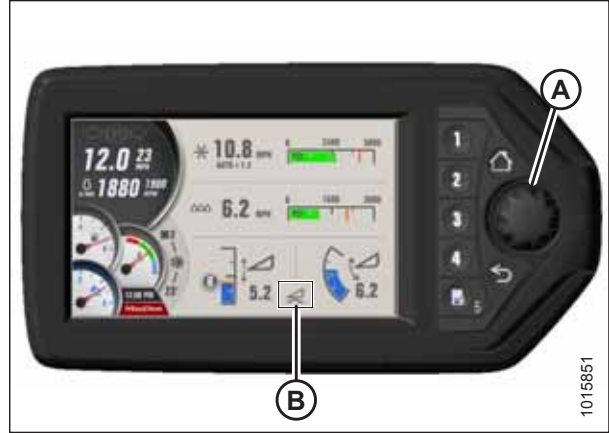


Figure 5.30: HPT Display

7. On the FLOAT ADJUST page, press soft key 3 (A) to remove float.



Figure 5.31: HPT Display

8. **For windrowers equipped with the self-aligning center-link kit:**
  - a. Press the HEADER DOWN switch on the ground speed lever (GSL) to fully retract the header lift cylinders.
  - b. Press the REEL UP switch on the GSL to raise the center-link until the hook is above the attachment pin on the header.

### IMPORTANT:

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

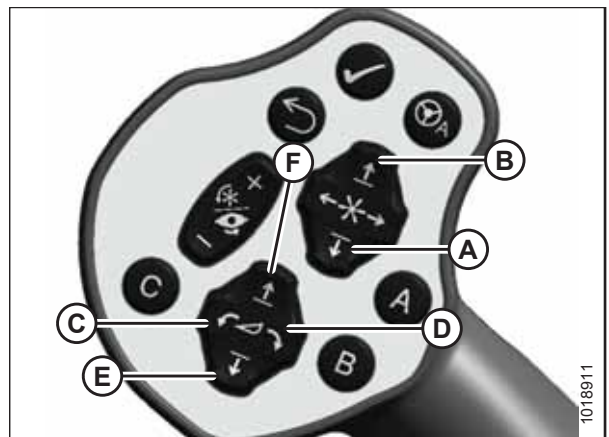


Figure 5.32: GSL Switches

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



## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

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

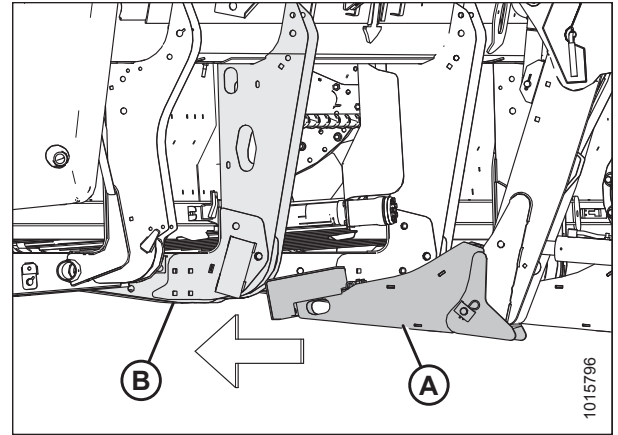


Figure 5.33: Header Leg and Draper Header Support

### 11. Self-Aligning Hydraulic Center-Link:

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

#### IMPORTANT:

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

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

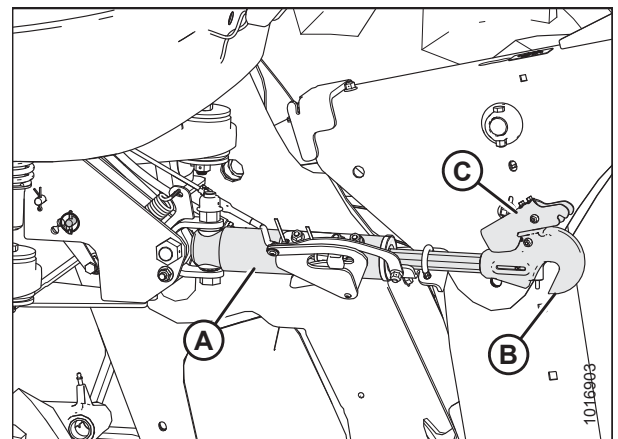


Figure 5.34: Hydraulic Center-Link

### 12. Hydraulic Center-Link without Self-Alignment:

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

#### IMPORTANT:

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

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

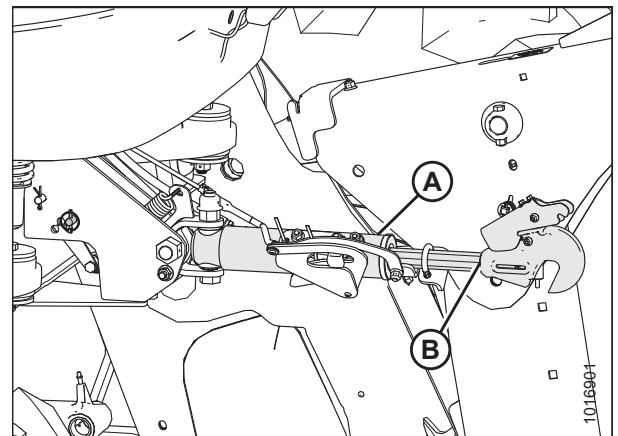


Figure 5.35: Hydraulic Center-Link

## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

### CAUTION

Check to be sure all bystanders have cleared the area.

e. Start the engine.

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

#### NOTE:

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

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

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



Figure 5.36: GSL

15. Engage the safety props on both lift cylinders as follows:

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

#### IMPORTANT:

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

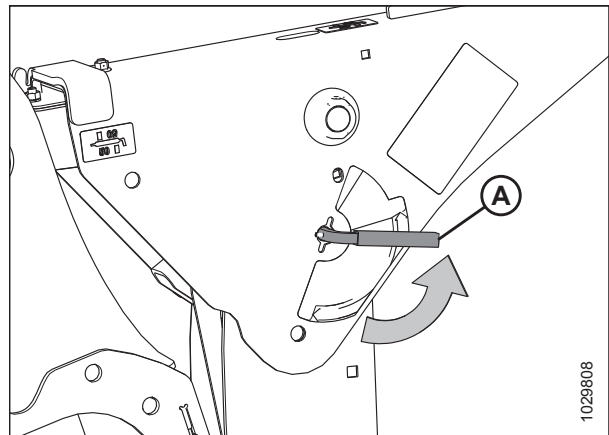


Figure 5.37: Safety Prop Lever

16. Install pin (B) through the header leg (engaging U-bracket in draper header support) on both sides and secure with a hairpin (A).

17. Raise header stand (D) to storage position by pulling spring pin (C) and lifting stand into uppermost position. Release spring pin.

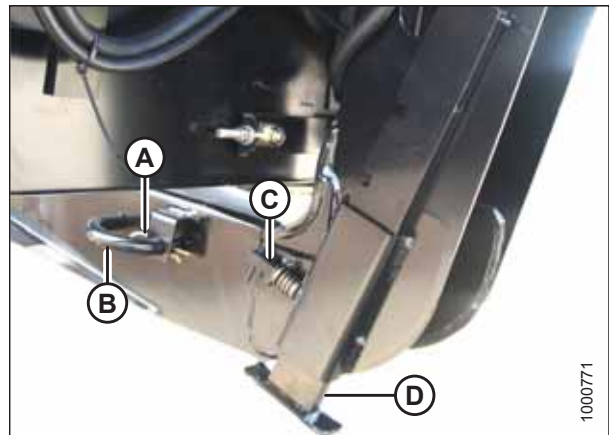


Figure 5.38: Header Leg

## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

18. Disengage the safety props on both lift cylinders as follows:

**NOTE:**

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

- a. Turn lever (A) away from the header to raise the safety prop until the lever locks into the vertical position.
- b. Repeat for the opposite cylinder.

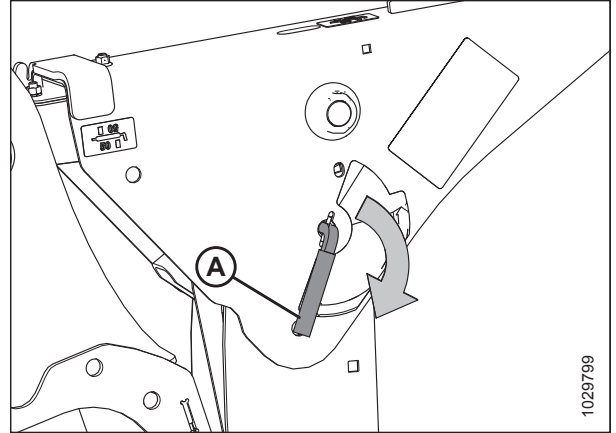


Figure 5.39: Safety Prop Lever

**CAUTION**

Check to be sure all bystanders have cleared the area.

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

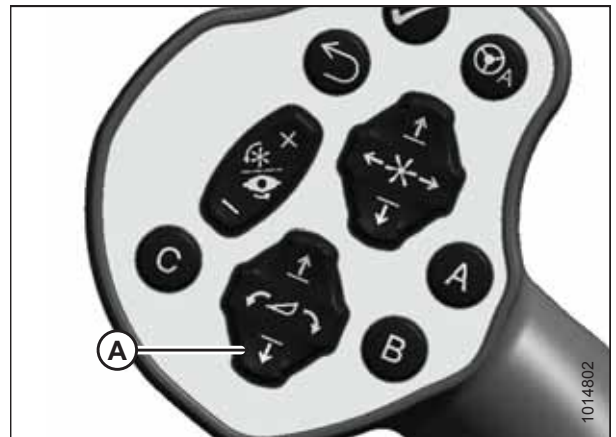


Figure 5.40: GSL

20. Press rotary scroll knob (A) on Harvest Performance Tracker (HPT) to highlight QuickMenu options.

21. Rotate scroll knob (A) to highlight HEADER FLOAT symbol (B), and press scroll knob to select.



Figure 5.41: HPT Display

## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

- Turn scroll knob (A) to highlight left (B) or right (C) float and press knob (A) to activate selection.
- Rotate scroll knob (A) to adjust float setting and press knob (A) when finished.

### IMPORTANT:

Float adjustments of 1.0 (out of 10) change the header weight at the cutterbar by approximately 91 kg (200 lb.). Adjust float in increments of 0.05 to optimize field performance.

- Shut down the engine, and remove the key from the ignition.
- Grasp one end of the draper header and lift. Lifting force should be 335–380 N (75–85 lbf) and should be the same at both ends.
- Proceed to *Connecting D1X or D1XL Series Draper Header Hydraulics*, page 130.

### Connecting D1X or D1XL Series Draper Header Hydraulics

### IMPORTANT:

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

- Push link on latch (C) and pull handle (A) on hose management system (B) rearward to disengage arm from the latch.
- Move hose management system (B) toward the left cab-forward side of the windrower.



Figure 5.42: HPT Display

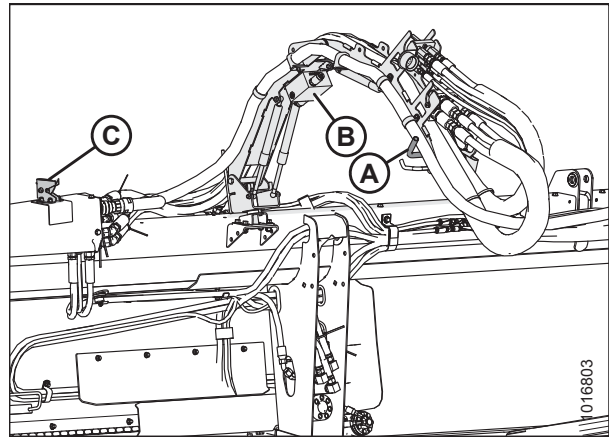


Figure 5.43: Hydraulic Hose Management System

## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

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

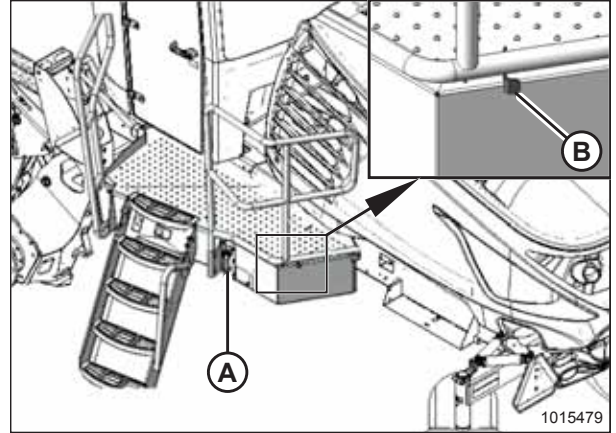


Figure 5.44: Platform

5. Connect hydraulic hose management system (A) to the windrower by securing ball joint (B) into latch support (C) on the windrower leg.
6. Open the platform.

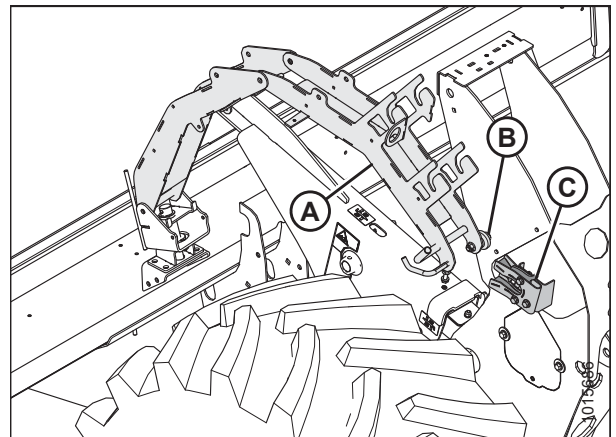
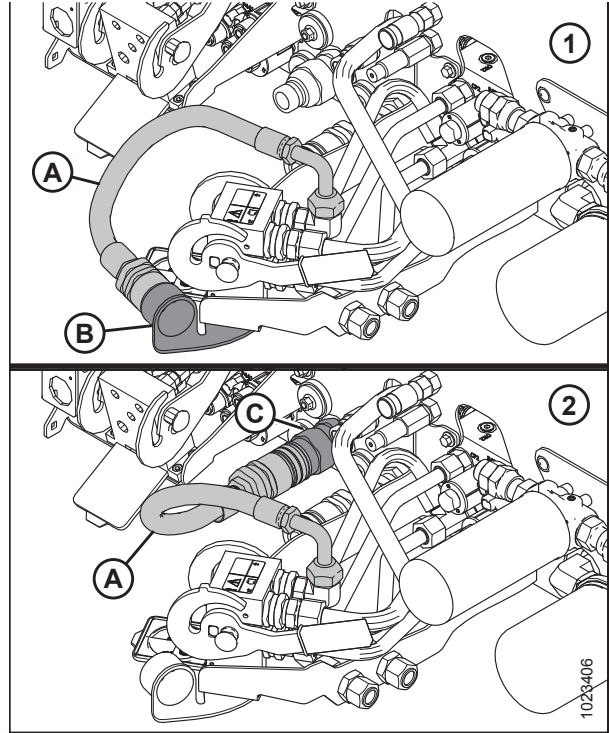


Figure 5.45: Hydraulic Hose Management System

## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

### **M1170 configured with R1 Hydraulic Drive kit (MD #B6621):**

7. If switching from a rotary header to a draper header, remove hose (A) from storage location (B) and connect to knife pressure receptacle (C) on the frame.



**Figure 5.46: Knife Pressure Hose Positions**

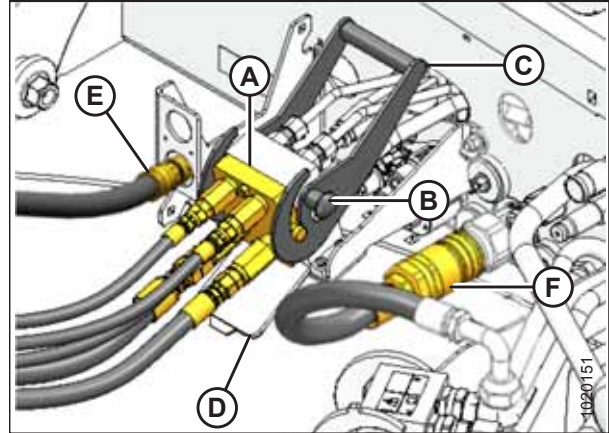
- 1 - Hose in Storage Position (Rotary Configuration)
- 2 - Hose to Knife Pressure Receptacle (Auger/Draper Configuration)

8. Retrieve draper drive and reel control multicoupler (A) from the hose management system.
9. Push knob (B) on hydraulic receptacle and pull handle (C) fully away from the windrower.
10. Open cover (D) and position coupler onto the receptacle. Align the pins in the coupler with slots in handle (C) and push the handle toward the windrower so that the coupler locks onto the receptacle and knob (B) snaps out.
11. Remove hose quick-disconnect (F) from the storage location and connect to receptacle on the frame.

#### **NOTE:**

Hose quick-disconnect (F) is only present on M1240 machines configured for draper headers, and on M1170 machines with the R1 Series Hydraulic Drive kit (MD #B6621) installed.

12. Remove the cover from electrical connector (E), push the electrical connector onto the receptacle, and secure it by turning the collar on the electrical connector clockwise.



**Figure 5.47: Draper/Reel Multicoupler**

## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

13. Retrieve knife and reel drive multicoupler (A) from the hose management system.
14. Push knob (B) on the hydraulic receptacle and pull handle (C) fully away from the windrower.
15. Open cover (D) and position the coupler onto the receptacle. Align the pins in the coupler with the slots in handle (C), and push the handle toward the windrower so that the coupler locks onto the receptacle and knob (B) snaps out.
16. Close the platform.

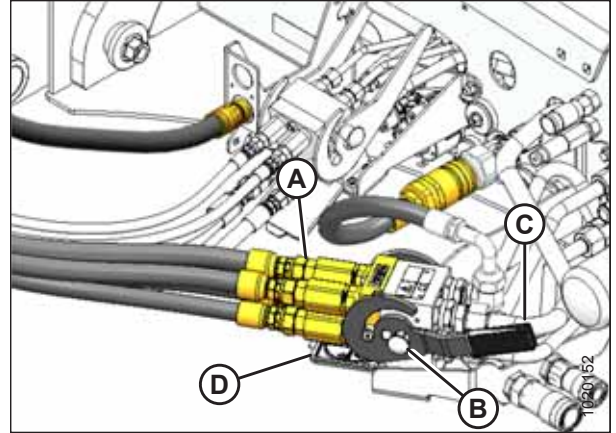


Figure 5.48: Knife/Reel Drive Multicoupler

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

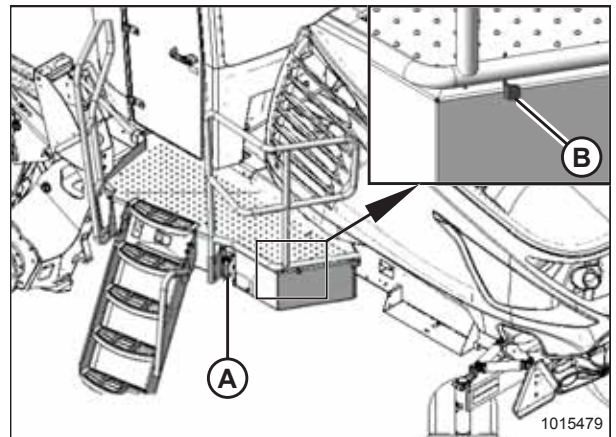


Figure 5.49: Platform

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

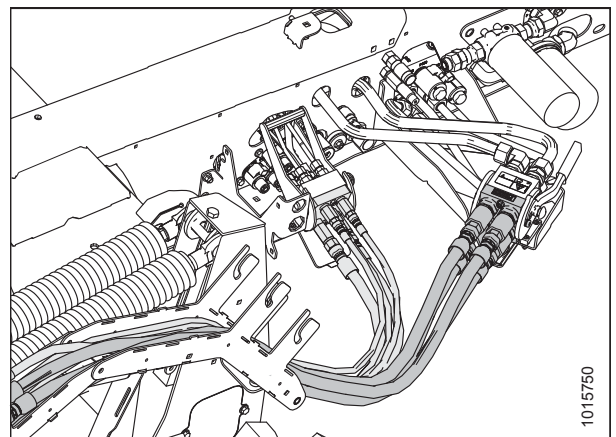


Figure 5.50: Hydraulic Multicouplers and Hose Routing

### 5.1.3 R1 or R2 Series Rotary Disc Headers

#### *Attaching R113 or R216 SP Rotary Disc Header*

The windrower may have an optional self-aligning hydraulic center-link that allows vertical position control of the center-link from the cab.

#### **WARNING**

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

1. **Hydraulic Center-Link without Self-Alignment:** Remove pin (A) and raise center-link (B) until hook is above the attachment pin on header. Replace pin (A) to hold 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.

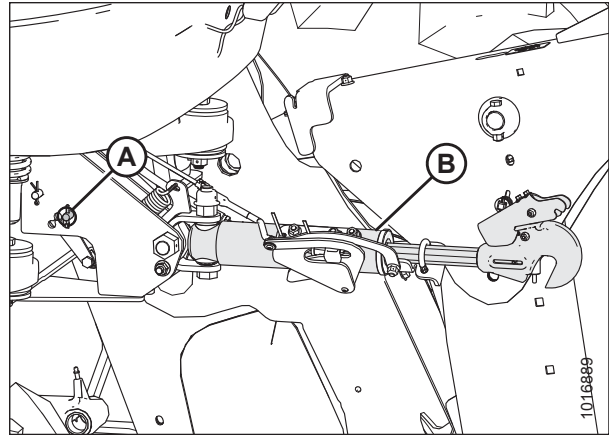


Figure 5.51: Hydraulic Center-Link



## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

2. Remove hairpin (A) from clevis pin (B), and remove pin from header support (C) on both sides of the header.
3. Start the engine. For instructions, refer to [4.1.9 Starting the Engine, page 90](#).



### CAUTION

Check to be sure all bystanders have cleared the area.

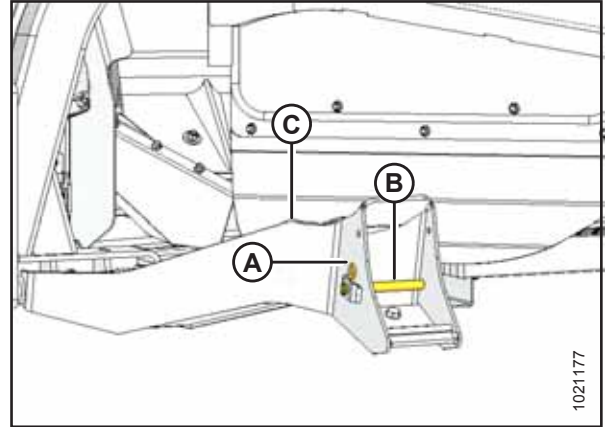


Figure 5.52: R113 Header Support

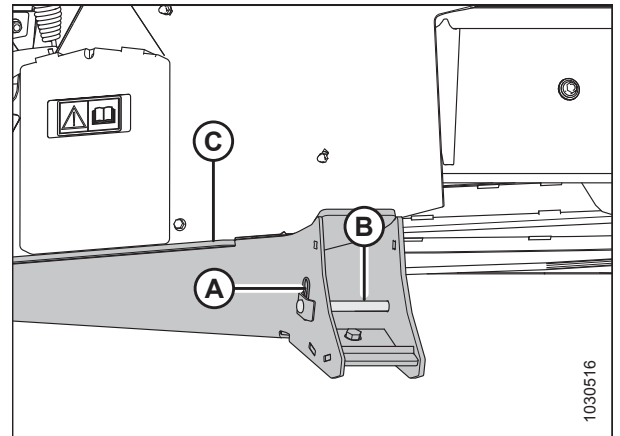


Figure 5.53: R216 Header Support



### CAUTION

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

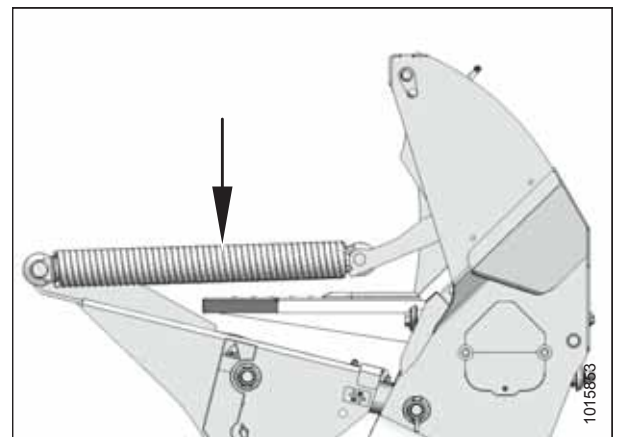


Figure 5.54: Header Float Spring

## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

4. Press rotary scroll knob (A) on display to highlight QuickMenu options.
5. Rotate scroll knob (A) to highlight the HEADER FLOAT symbol (B), and press scroll knob to select. The header float adjust screen displays.



Figure 5.55: HPT Display

6. Press soft key 3 (A) to remove the header float.

**NOTE:**

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



Figure 5.56: HPT Display

7. Press HEADER DOWN switch (E) on ground speed lever (GSL) to fully retract header lift cylinders.
8. **Self-Aligning Hydraulic Center-Link:** Press REEL UP switch (B) on the GSL to raise the center-link until the hook is above the attachment pin on the header.

**IMPORTANT:**

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

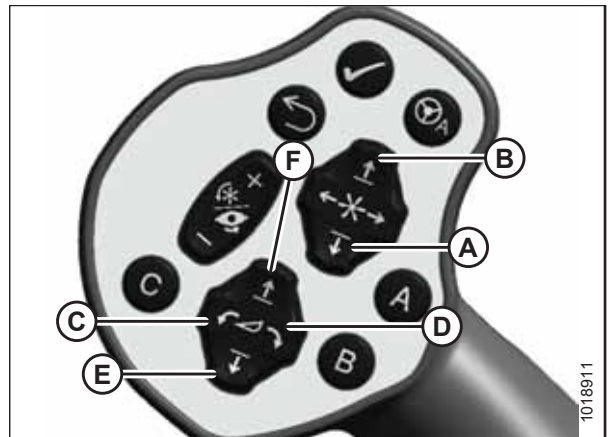


Figure 5.57: GSL

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

## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

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

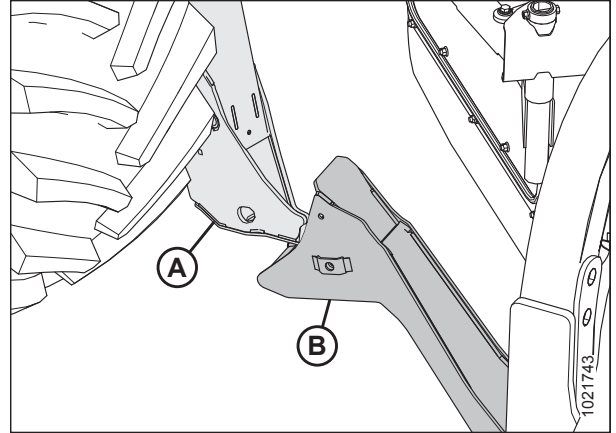


Figure 5.58: Header Support

### 11. Self-Aligning Hydraulic Center-Link:

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

**IMPORTANT:**

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

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

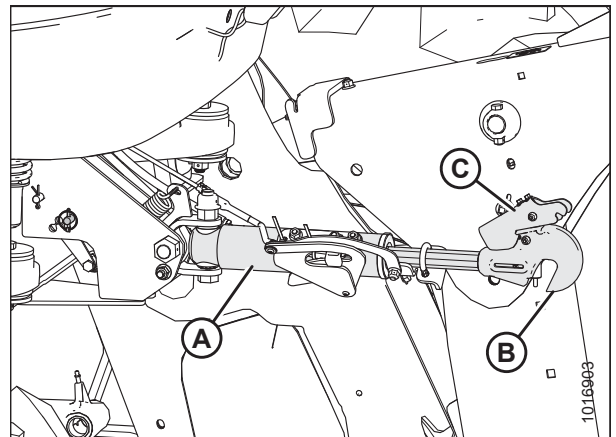


Figure 5.59: Hydraulic Center-Link

### 12. Hydraulic Center-Link without Self-Alignment:

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

**IMPORTANT:**

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

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

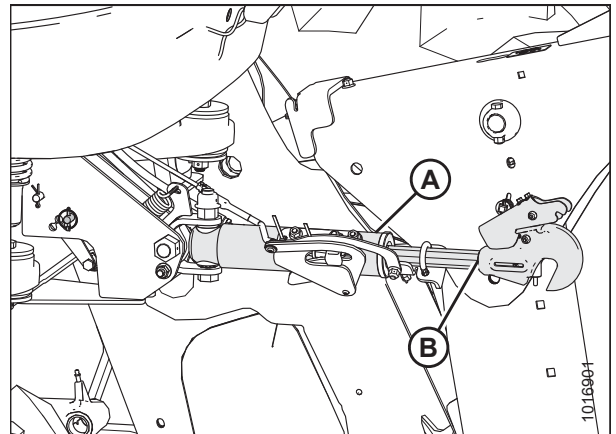


Figure 5.60: Hydraulic Center-Link

## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

### CAUTION

Check to be sure all bystanders have cleared the area.

e. Start the engine.

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

#### NOTE:

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

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

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



Figure 5.61: GSL

15. Engage the safety props on both lift cylinders as follows:

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

#### IMPORTANT:

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

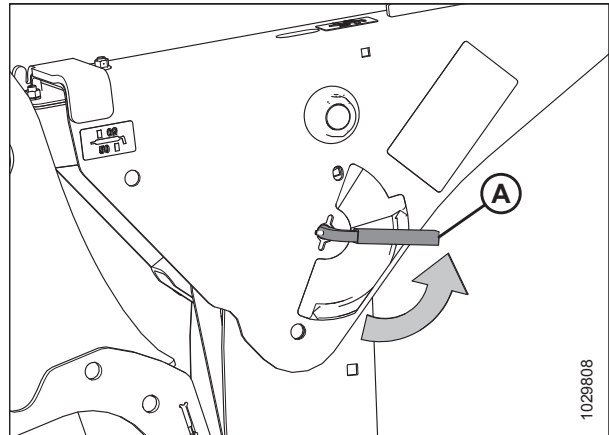


Figure 5.62: Safety Prop Lever

16. Install clevis pin (A) through support and windrower lift arm and secure with hairpin (B). Repeat for the opposite side of the header.

#### IMPORTANT:

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

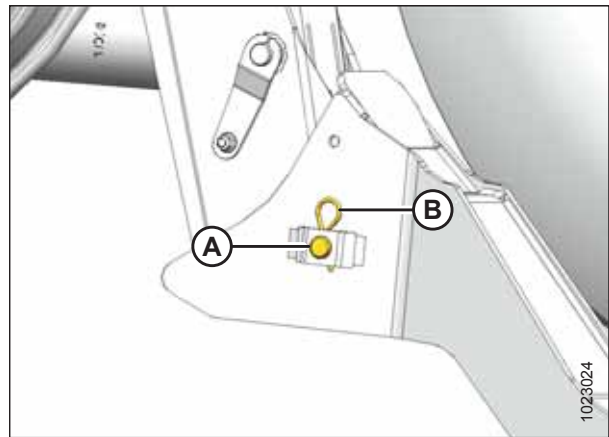


Figure 5.63: Header Support

## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

17. Disengage the safety props on both lift cylinders as follows:

**NOTE:**

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

- Turn lever (A) away from the header to raise the safety prop until the lever locks into the vertical position.
- Repeat for the opposite cylinder.

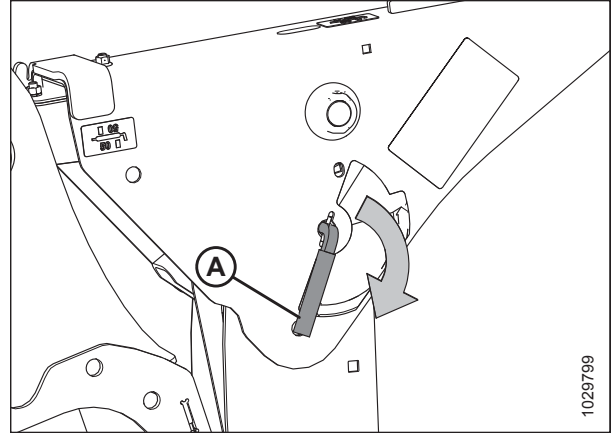


Figure 5.64: Safety Prop Lever

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

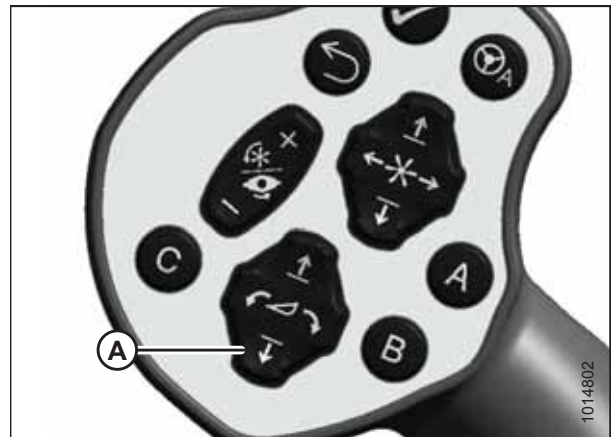


Figure 5.65: GSL

20. If not prompted by the HPT display to restore header float, restore header float manually by doing the following:
- Press rotary scroll knob (A) on Harvest Performance Tracker (HPT) to highlight QuickMenu options.
  - Rotate scroll knob (A) to highlight HEADER FLOAT symbol (B), and press scroll knob to select. Screen changes.



Figure 5.66: HPT Display

## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

21. Press soft key 3 (A) to restore the header float.

**NOTE:**

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

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



Figure 5.67: HPT Display

### Connecting R1 Series Rotary Disc Header Hydraulics to an M1170

**IMPORTANT:**

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

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

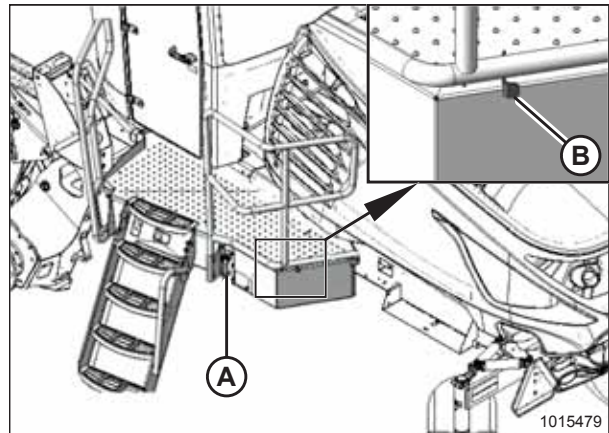


Figure 5.68: Left Cab-Forward Platform

5. Attach hose support (A) to the frame near the windrower left cab-forward leg, and route hoses under frame.

**NOTE:**

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

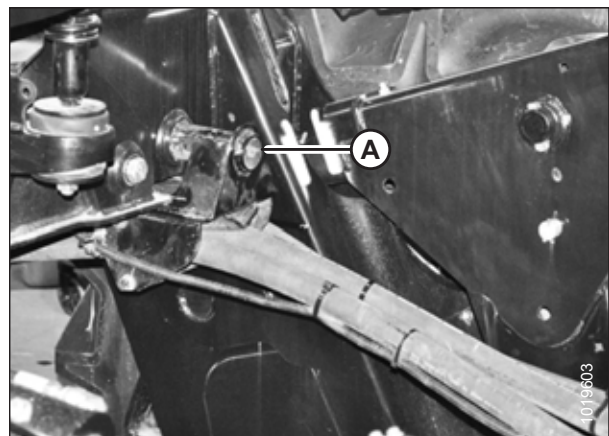
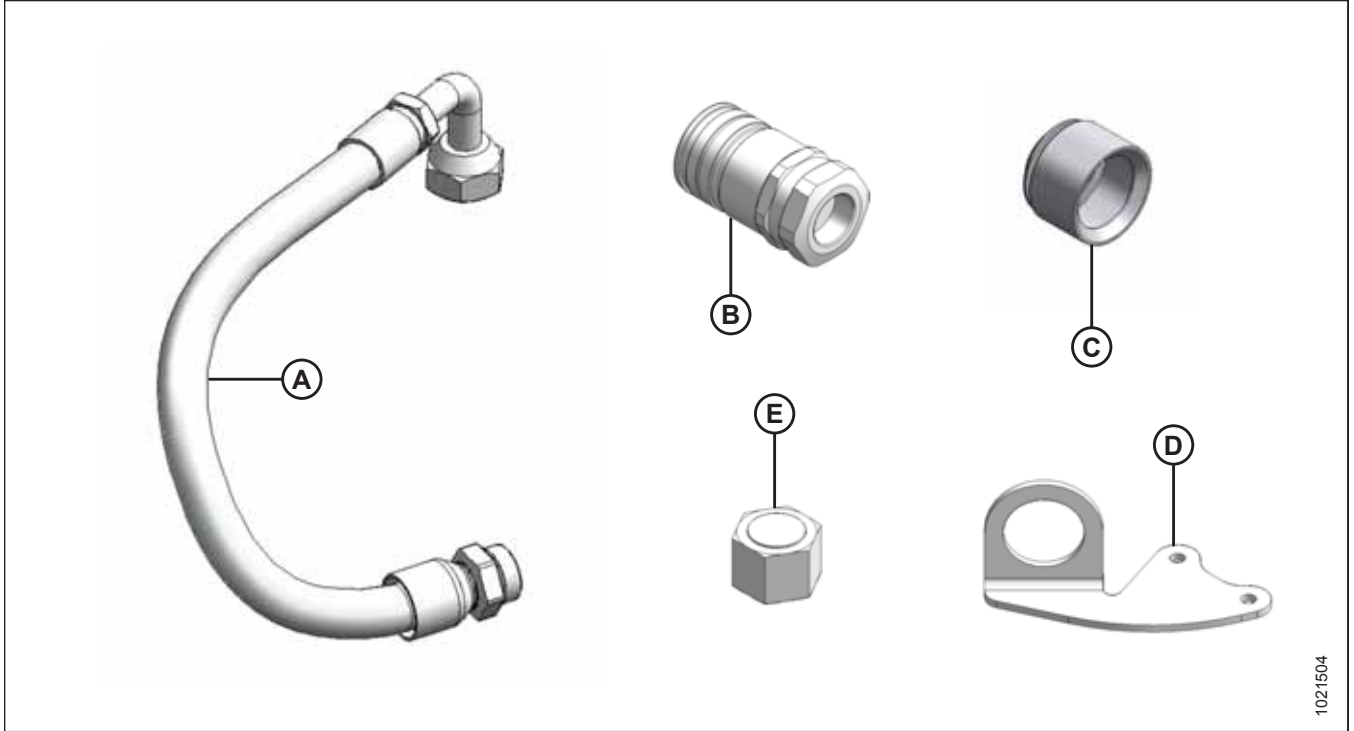


Figure 5.69: Hose Support Attachment

## ATTACHING A HEADER TO AN M1 SERIES WINDROWER



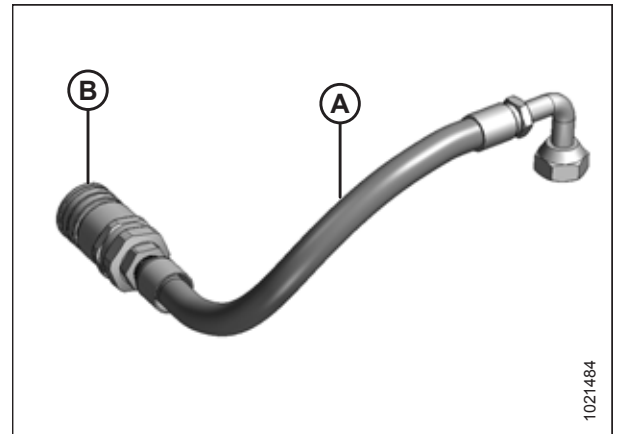
**Figure 5.70: Hydraulic Drive Parts – M1170 Only**

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

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

C - MD #243604, Cap, Harness (1)

6. Retrieve the parts shown in Figure 5.70, page 141 from the bag located inside left header support.
7. Connect female coupler (B) to hose (A).



**Figure 5.71: Knife Pressure Hose**

## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

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

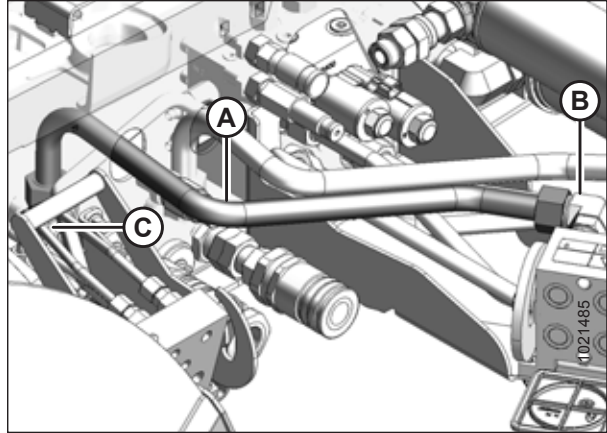


Figure 5.72: Windrower Couplers

9. Install cap (A) on tee.
10. Reposition elbow (B) as shown.

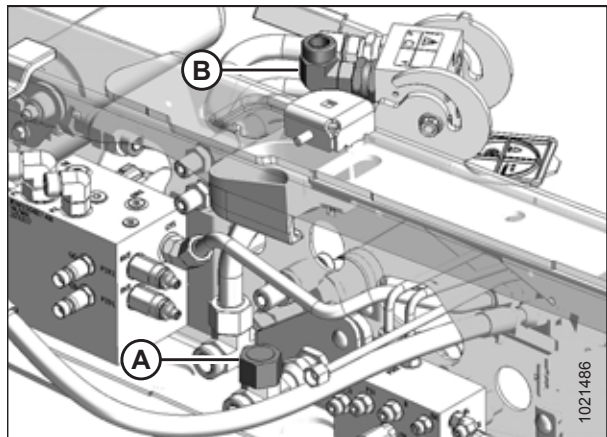


Figure 5.73: Windrower Header Drive

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

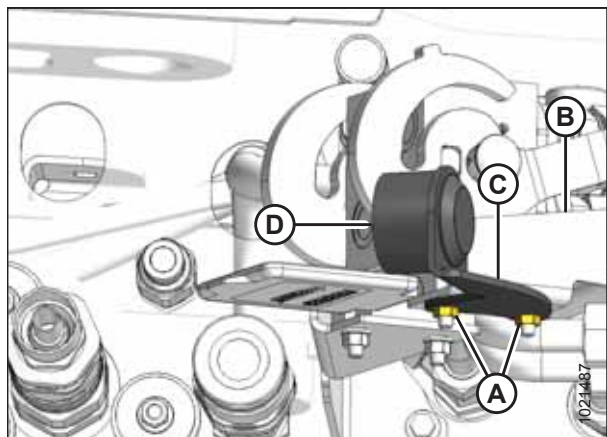


Figure 5.74: Windrower Couplers



## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

14. Connect fitting (A) on knife pressure hose to elbow fitting (B).
15. Place female coupler (C) on knife pressure hose into holder (D).

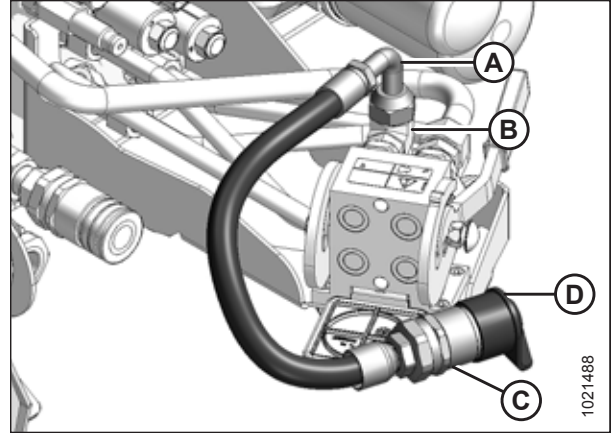


Figure 5.75: Windrower Coupler

*If switching from an auger/drapper header to a rotary header:*

16. Disconnect hose (A) from knife pressure receptacle (C) on frame, and move to storage location (B).

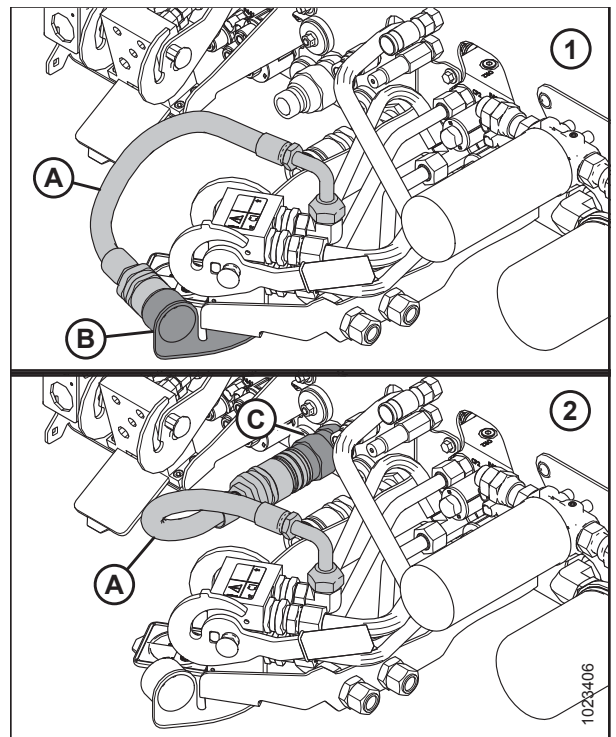


Figure 5.76: Knife Pressure Hose Positions

- 1 - Knife Pressure Hose in Storage Position (Rotary Configuration)
- 2 - Hose to Knife Pressure Receptacle (Auger/Draper Configuration)

## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

17. Attach couplers to receptacles on windrower as follows:
  - a. Connect pressure hose female coupler to receptacle (A)
  - b. Connect return hose male coupler to receptacle (B)
  - c. Connect case drain hose coupler to receptacle (C)
  - d. Connect the electrical harness to receptacle (D)

### IMPORTANT:

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

18. Push latch (B) to unlock platform (A).

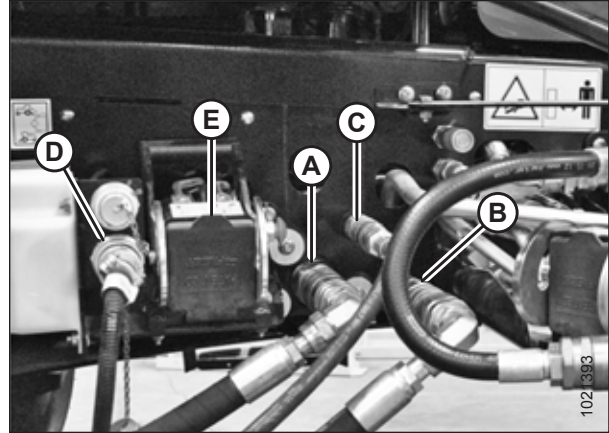


Figure 5.77: Hydraulic and Electrical Connections

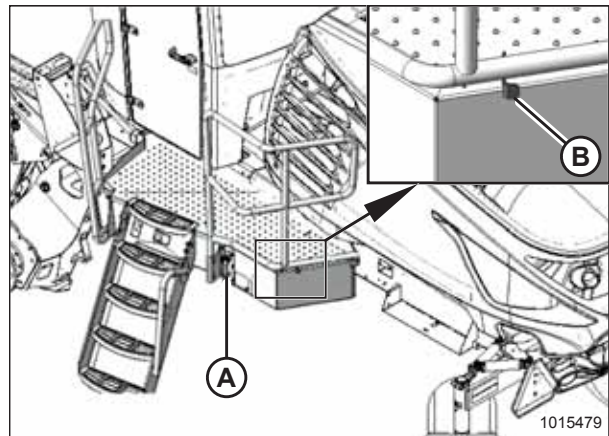


Figure 5.78: Left Cab-Forward Platform

19. Pull platform (A) towards the cab until it stops and latch engages.
20. Close the platform.

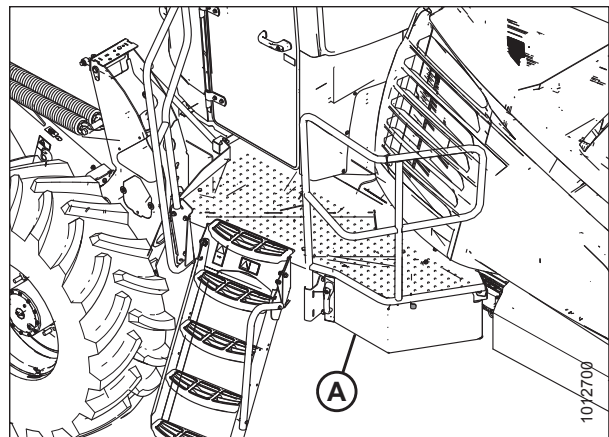


Figure 5.79: Left Cab-Forward Platform

## Connecting R113 or R216 Rotary Disc Header Hydraulics to an M1240 Windrower

### IMPORTANT:

Before connecting the hydraulics from an R113 SP to an M1240 Windrower, first install the M1240 Low Pressure Case Drain kit (MD #B6698) by following the instructions provided in the kit.

The R113 or R216 SP hydraulics connection procedure varies depending on the windrower configuration:

## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

- Draper header ready windrowers include one set of hydraulic quick couplers which are compatible with the header drive hoses on the R113 and R216 SP.
- Rotary disc header ready windrowers include hard plumbed hydraulics connections.

### NOTE:

The R113 SP hydraulic bundle includes a complete set of quick couplers that can be installed onto a rotary disc header configured windrower.

### NOTE:

Quick couplers can be installed if desired on disc-only configured windrowers – two sets of quick coupler bundle B6277 are required to do so.

### IMPORTANT:

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

1. Using a clean rag, remove dirt and moisture from the couplers on the left side of the windrower frame.
2. Retrieve hydraulic hoses (A) from the header and route the hose bundle under the windrower frame.
3. Insert pin (B) into hole (C) in windrower frame.

### IMPORTANT:

Route hydraulic hoses as straight as possible, and avoid rub/wear points that could damage the hoses. To prevent damage, hoses should have enough slack to pass by the multicoupler bracket without contact. To adjust hose slack, loosen hose holder (B) on the front windrower leg, adjust hoses, then retighten the hose holder.

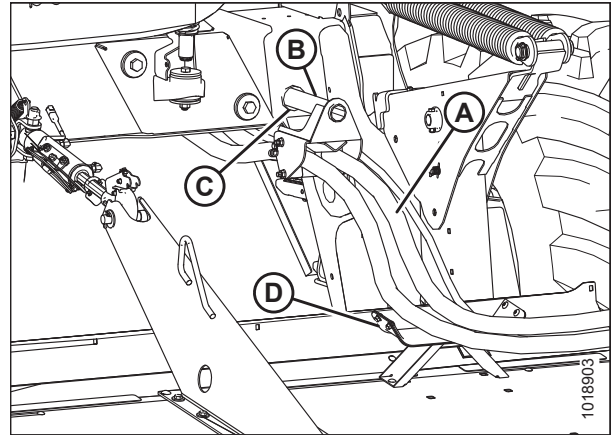


Figure 5.80: Hose Support Attachment

4. Remove protective plugs (A) from the ends of the hydraulic hoses.

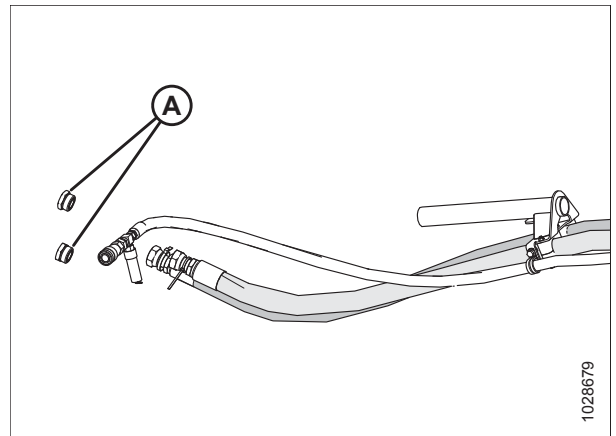


Figure 5.81: Hydraulic Hoses Protective Plugs  
– R216 SP Shown

## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

Proceed with the steps that are relevant to the following windrower configurations:

Windrower Configuration	Steps for Connecting Hydraulics and Electrical
Rotary disc/drapper ready configuration (A)	Steps 5, page 146 to 10, page 148
Rotary disc only hard plumbed configuration (B)	Steps 11, page 148 to 14, page 149
Rotary disc ready configuration (B) with quick couplers installed	Steps 15, page 150 to 22, page 152

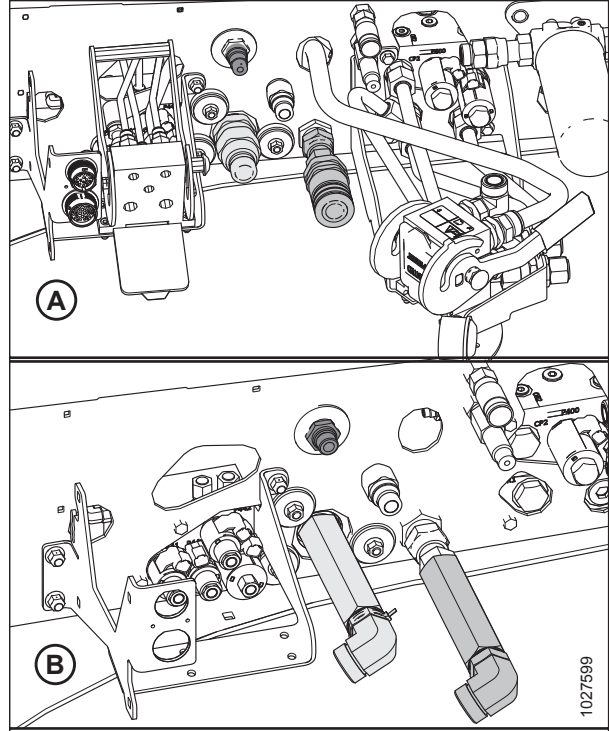


Figure 5.82: Header Hydraulics Configurations

### Rotary disc/drapper ready configuration with quick couplers:

5. Ensure hose (A) is disconnected from windrower receptacle (B) and placed in storage cup (C) on multicoupler.

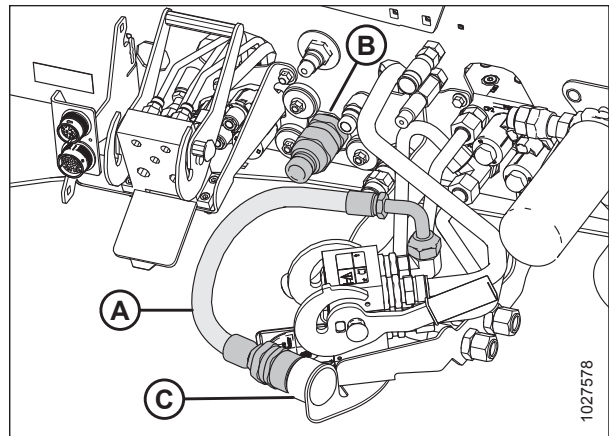


Figure 5.83: Couplers – Draper Ready

## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

6. **For R113 SP:** Remove the extra hydraulic quick couplers from pressure hose (A) and return hose (B) and store them as spares.

**NOTE:**

It is normal to have an extra set of quick couplers with the rotary disc/draper ready configuration.

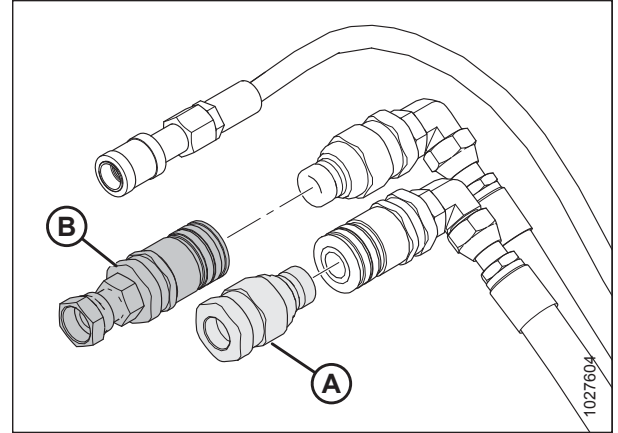


Figure 5.84: Hydraulic Quick Couplers

7. **For R113 SP:** Connect the hydraulic hoses to the windrower with quick coupler fittings as follows:
  - a. Connect pressure hose female coupler to receptacle (A).
  - b. Connect return hose male coupler to receptacle (B).
  - c. Connect case drain hose (C) to mating 1/2 in. coupler on frame—installed with the M1240 Low Pressure Case Drain kit (MD #B6698). The other 1/2 in. flat faced coupler for case drain (E) is **NOT** suitable for the R113 SP.
  - d. Connect the electrical harness to receptacle (D).

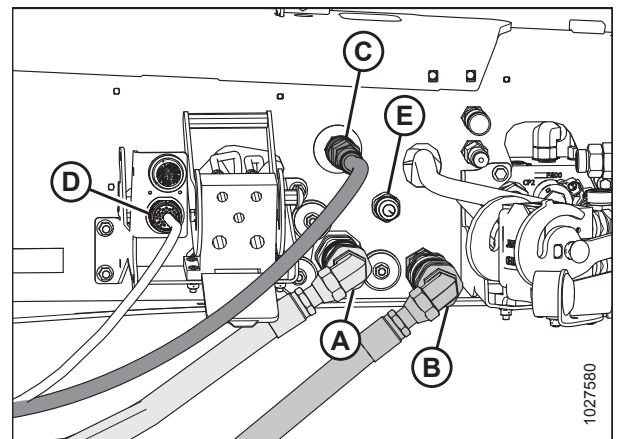


Figure 5.85: R113 SP Hydraulics and Electrical – Draper Ready

8. **For R216 SP:** Connect hydraulic fittings to the hydraulic hoses as follows:
  - a. Attach 90° elbow fitting (A) and 1 in. female coupler fitting (B) to disc pressure hose (C).
  - b. Attach 90° elbow fitting (A) and 1 in. male coupler fitting (D) to disc return hose (E).

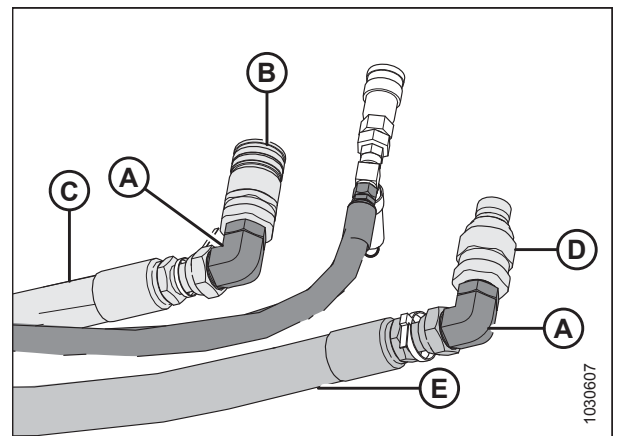


Figure 5.86: R216 SP Hydraulic Fittings

## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

9. **For R216 SP:** Connect the hydraulic hoses to the windrower with quick coupler fittings as follows:
- Connect disc pressure hose (A) with coupler (B) and torque to 205–226 Nm (151–167 lbf-ft).
  - Connect disc return hose (C) with coupler (D) and torque to 205–226 Nm (151–167 lbf-ft).
  - Connect case drain hose (E) to fitting (F), with relief valve pointing towards the ground.

**NOTE:**

If required, loosen fitting (F) and retighten as needed to ensure relief valve is pointing straight down as shown.

10. To connect an R2 SP electrical harness, refer to Steps 23, page 152 to 26, page 153.

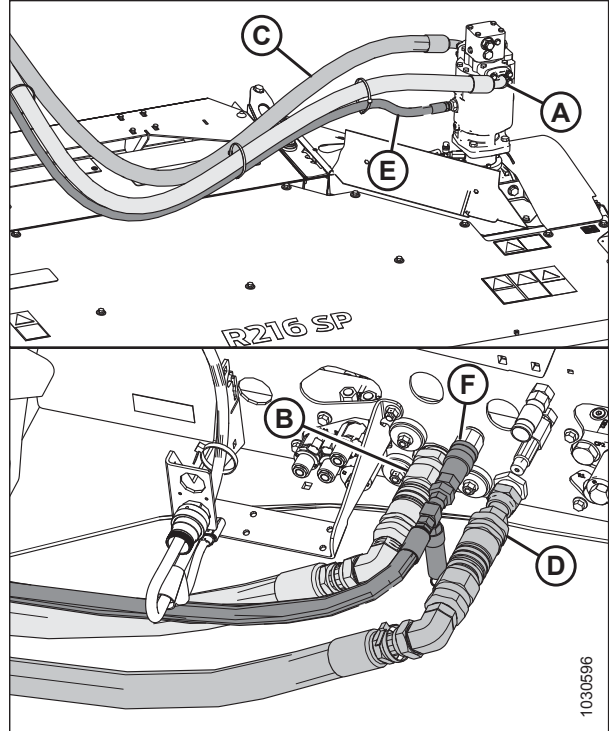


Figure 5.87: R216 SP Hydraulics and Electrical – Draper Ready

**Hard plumbed fittings – rotary disc ready configuration:**

11. **For R113 SP:** If installed, remove the existing quick couplers and elbow fittings from header hydraulic pressure hose (A) and return hose (B). Do **NOT** remove fittings from case drain hose (C).

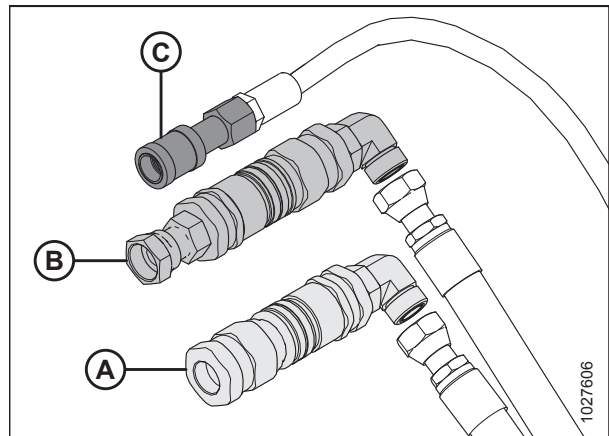


Figure 5.88: R113 Hose Bundle – Rotary Disc Ready Windrower

## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

12. **For R113 SP:** Connect the hydraulic hoses to the windrower with hard plumbed fittings as follows:
- Connect rotary disc pressure hose (A) to fitting on frame and torque to 205–226 Nm (151–167 lbf-ft).
  - Connect rotary disc return hose (B) to fitting on frame and torque to 205–226 Nm (151–167 lbf-ft).
  - Connect case drain hose (C) to mating 1/2 in. coupler on frame—installed with the M1240 Low Pressure Case Drain kit (MD #B6698). The other 1/2 in. flat faced coupler for case drain (E) is **NOT** suitable for the R113 SP.
  - Connect the electrical harness to receptacle (D).

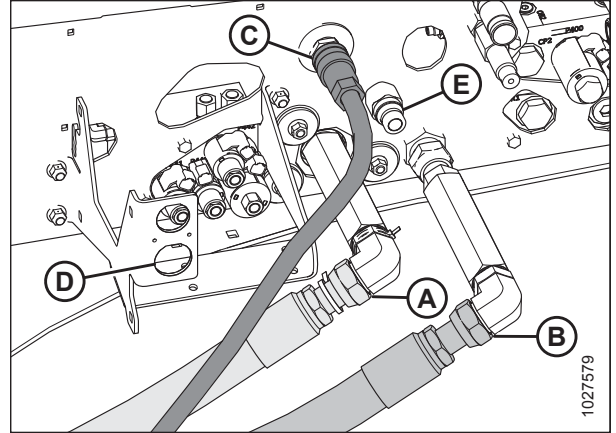


Figure 5.89: Hard Plumbed Connections on R113 SP Ready Windrower

13. **For R216 SP:** Connect the hydraulic hoses to the windrower with hard plumbed fittings as follows:
- Connect disc pressure hose (A) marked with a red cable tie (B) to hard plumb fitting marked with a red cable tie (C) and torque to 205–226 Nm (151–167 lbf-ft).
  - Connect disc return hose (D) to hard plumb fitting (E) and torque to 205–226 Nm (151–167 lbf-ft).
  - Connect case drain hose (F) to fitting (G).
14. To connect an R2 SP electrical harness, refer to Steps 23, page 152 to 26, page 153.

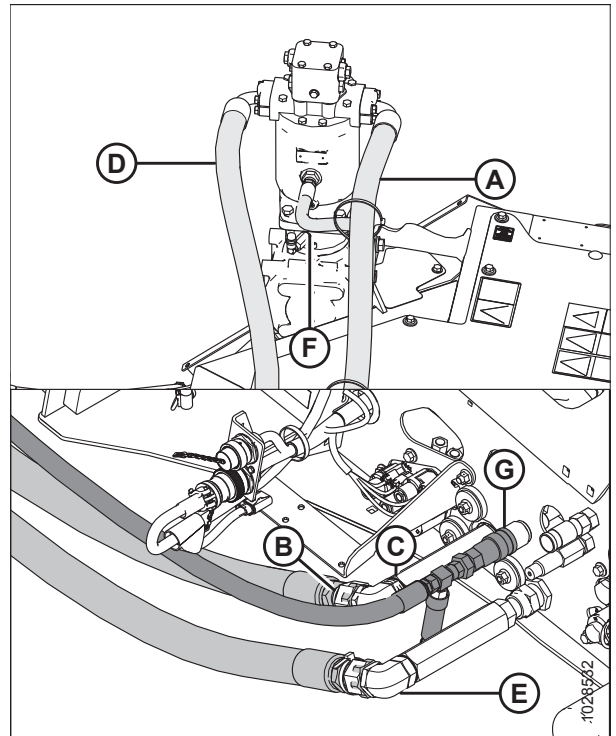


Figure 5.90: Hard Plumbed Connections on R216 SP Ready Windrower

## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

### Quick coupler fittings – rotary disc ready configuration:

15. **For R113 SP:** Remove quick couplers from pressure hose (A) and return hose (B) on the R113 SP hydraulic hose bundle.

#### NOTE:

Do **NOT** remove the fittings on the case drain hose that were installed with the M1240 Low Pressure Case Drain kit (MD #B6698).

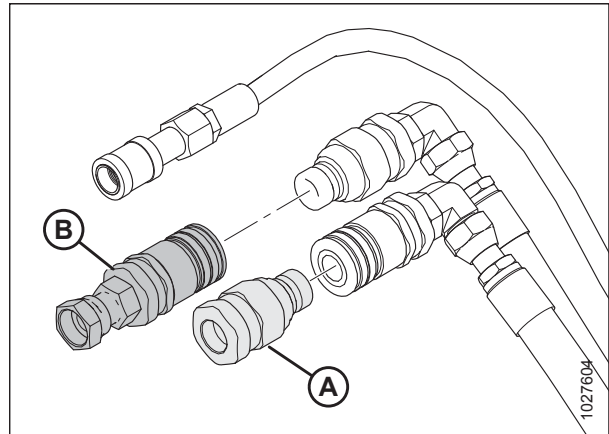


Figure 5.91: R113 SP Hydraulic Quick Couplers

16. **For R216 SP:** Connect hydraulic fittings to the hydraulic hoses as follows:
- Attach 90° elbow fitting (A) and 1 in. female coupler fitting (B) to disc pressure hose (C).
  - Attach 90° elbow fitting (A) and 1 in. male coupler fitting (D) to disc return hose (E).

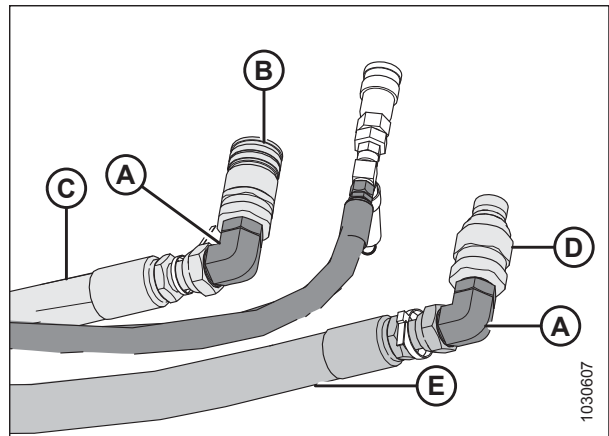


Figure 5.92: R216 SP Hydraulic Fittings

17. Remove the extension fittings and elbows (A) from the rotary disc header hydraulic pressure and return connections.

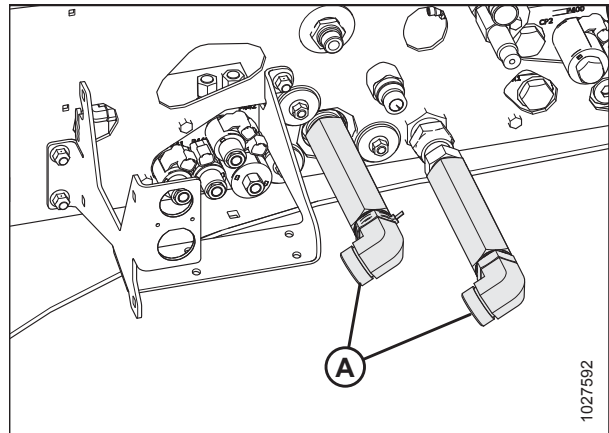


Figure 5.93: Hard Plumbed Connections – Rotary Disc Ready Windrower



## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

18. Install the male quick coupler at windrower pressure receptacle (A).
19. Install the female quick coupler with adapter at windrower return receptacle (B).

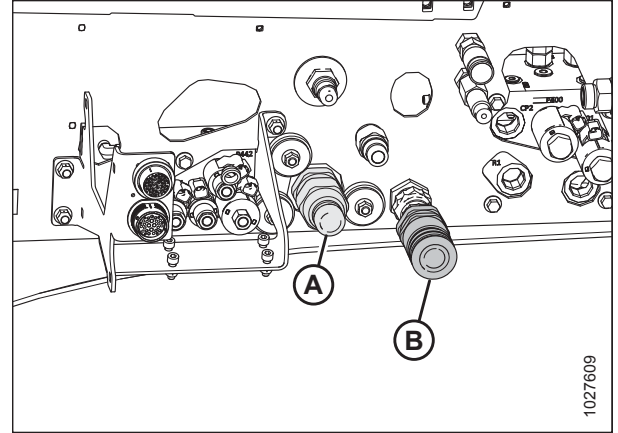


Figure 5.94: Quick Couplers on Rotary Disc Ready Windrower

20. **For R113 SP:** Connect the hydraulic hoses to the windrower with quick connect fittings, as follows:
  - a. Connect pressure hose (A) female coupler to receptacle.
  - b. Connect return hose (B) male coupler to receptacle.
  - c. Connect case drain hose (C) to mating 1/2 in. coupler on frame—installed with the M1240 Low Pressure Case Drain kit (MD #B6698). The other 1/2 in. flat faced coupler for case drain (E) is **NOT** suitable for the R113 SP.
  - d. Connect the electrical harness to receptacle (D).

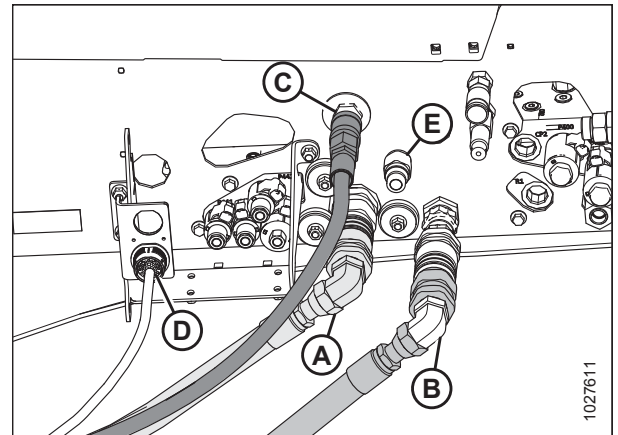


Figure 5.95: Quick Couplers on Rotary Disc Ready Windrower

## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

21. **For R216 SP:** Connect the hydraulic hoses to the windrower with quick coupler fittings as follows:
- Connect disc pressure hose (A) with coupler (B) and torque to 205–226 Nm (151–167 lbf·ft).
  - Connect disc return hose (C) with coupler (D) and torque to 205–226 Nm (151–167 lbf·ft).
  - Connect case drain hose (E) to fitting (F), with relief valve pointing towards the ground.

**NOTE:**

If required, loosen fitting (F) and retighten as needed to ensure relief valve is pointing straight down as shown.

22. To connect an R2 SP electrical harness, refer to Steps 23, [page 152](#) to 26, [page 153](#).

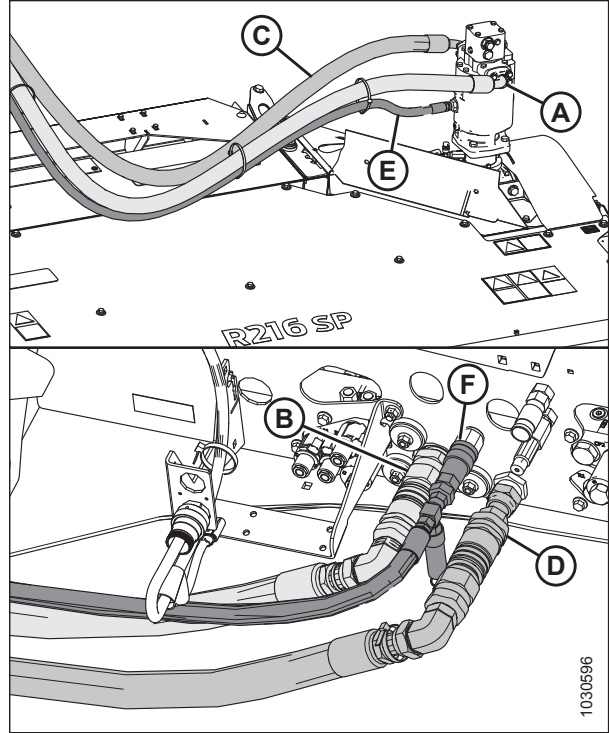


Figure 5.96: R216 SP Hydraulic Connections

To connect electrical harness between R2 SP and M1240 windrower, follow these steps:

23. Free electrical harness (A) from adjustable strap (B).

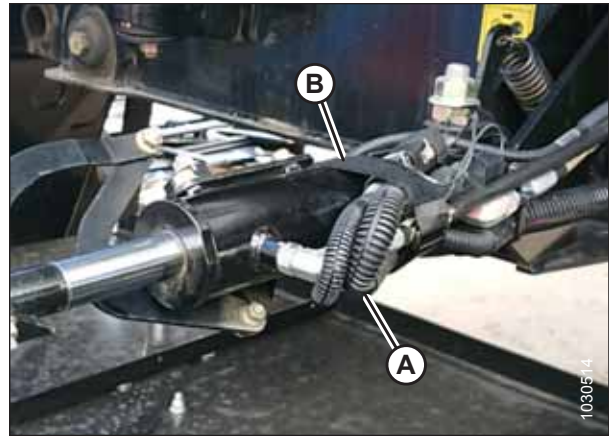


Figure 5.97: Electrical Harness Secured to Center-Link

## ATTACHING A HEADER TO AN M1 SERIES WINDROWER

24. Connect main header harness (A) to adapter harness (B).
25. Connect electric baffle control harness (C) to adapter harness (D) if installed.

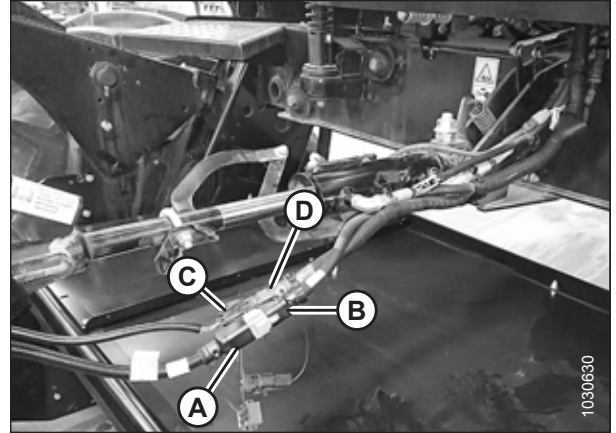


Figure 5.98: Electrical Harness Connection at Center-Link

26. Check electrical connection (A) at the windrower.

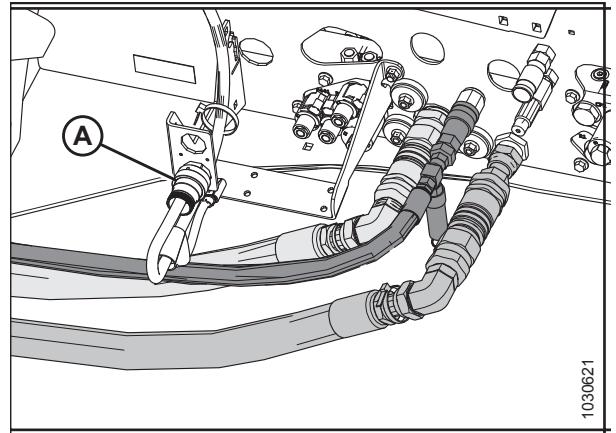


Figure 5.99: Electrical Connection at Windrower

## 5.2 Adjusting Header Settings on the Harvest Performance Tracker

Before operating the header, ensure the Harvest Performance Tracker (HPT) settings are appropriate for your header.

1. Navigate to SETTINGS menu with soft key 5 and HPT scroll knob. For instructions, refer to *Navigating the Harvest Performance Tracker, page 99* if required.
2. Scroll to SET-UP HEADER option (A) and press the scroll knob to select it.

**NOTE:**

Settings vary depending on the header type.

3. Scroll to highlight appropriate option and press the scroll knob to select it.
  - For example, if a draper header is attached, and ATTACHMENTS (B) is selected, the available choice is DOUBLE DRAPER DRIVE.

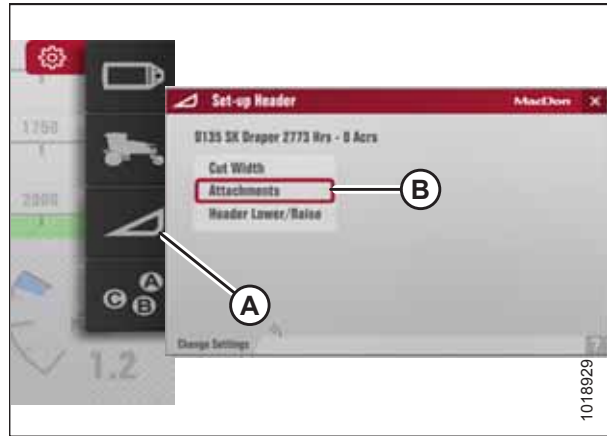


Figure 5.100: Header Settings

## Chapter 6: Reference

### 6.1 Lubricants, Fluids, and System Capacities



#### WARNING

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

Table 6.1 System Capacities

Lubricant/Fluid	Location	Description	Capacity
Diesel exhaust fluid (DEF)	Diesel exhaust fluid tank	Must meet ISO 22241 requirements.	28 liters (7.5 U.S. gallons)
Grease	As required unless otherwise specified	SAE multi-purpose high temperature extreme pressure (EP2) performance with 1% max molybdenum disulphide (NLGI Grade 2) lithium base	As required unless otherwise specified
Diesel fuel	Fuel tank	Ultra low sulphur diesel (ULSD) Grade No. 2, or ULSD Grade No. 1 and 2 mix <sup>1</sup> ; refer to for more information	518 liters (137 U.S. gallons)
Hydraulic oil	Hydraulic reservoir	Single grade transmission/hydraulic fluid (THF) Recommend Viscosity: <ul style="list-style-type: none"> <li>• 60.1 cSt @ 40°C</li> <li>• 9.5 cSt @ 100°C</li> </ul> Recommended brands: <ul style="list-style-type: none"> <li>• AGCO Power Fluid 821XL</li> <li>• Case HY-TRAN ULTRACTION</li> <li>• John Deere Hy-Gard J20C</li> <li>• Petro-Canada Duratran</li> </ul>	60 liters (15.8 U.S. gallons) <sup>2</sup>
Gear lubricant	Gearbox	SAE 75W-140 or 80W-140, API service class GL-5 fully synthetic gear lubricant (SAE J2360 preferred)	2.3 liters (2.4 U.S. quarts)
Gear lubricant	Wheel drive	SAE 75W-140 or 80W-140, API service class GL-5 fully synthetic gear lubricant (SAE J2360 preferred)	1.4 liters (1.5 U.S. quarts)
Antifreeze M1240	Engine cooling system	ASTM D-6210 and Fleetguard ES Compleat®	33 liters (8.7 U.S. gallons) <sup>3</sup>
Antifreeze M1170	Engine cooling system	ASTM D-6210 and Fleetguard ES Compleat®	31 liters (8.2 U.S. gallons)
Engine oil M1240	Engine oil pan	SAE 15W-40 compliant with SAE specs for API Class SJ and CJ-4 engine oil	14 liters (14.8 U.S. quarts)

1. Optional when operating temperature is below 0°C (32°F).
2. Denotes capacity of a dry system. Refill capacity is 58 liters (15 U.S. gallons).
3. Equal parts with water; high quality, soft, deionized or distilled water as recommended by Supplier.

**REFERENCE**

**Table 6.1 System Capacities (continued)**

Lubricant/Fluid	Location	Description	Capacity
Engine oil M1170	Engine oil pan	SAE 15W-40 compliant with SAE specs for API Class SJ and CJ-4 engine oil	11 liters (11.6 U.S. quarts)
Air conditioning refrigerant	Air conditioning system	R134A	2.38 kg (5.25 lb.)
Air conditioning refrigerant oil	Air conditioning system total capacity	PAG SP-15	240 cc (8.1 fl. oz.)
Windshield washer fluid	Windshield washer fluid tank	SAE J942 compliant	4 liters (1 U.S. gallon)

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

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

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

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

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

**IMPORTANT:**

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

## 6.2 Fuel Specifications

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

**Table 6.2 Fuel Specification**

Fuel	Specification	Sulphur (by weight)	Water and Sediment (by volume)	Cetane No.	Lubricity
No.2 ULSD	ASTM D975	0.5% maximum	0.05% maximum	40°C (104°F) minimum	520 microns
No.1 and No.2 mix <sup>4</sup> 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 6.2, [page 157](#).

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

### 6.3 Torque Specifications

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

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

**Jam nuts**

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

**Self-tapping screws**

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

#### 6.3.1 Metric Bolt Specifications

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

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

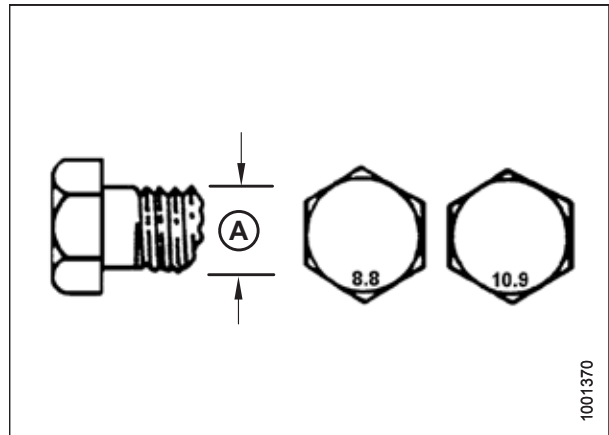


Figure 6.1: Bolt Grades



REFERENCE

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

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

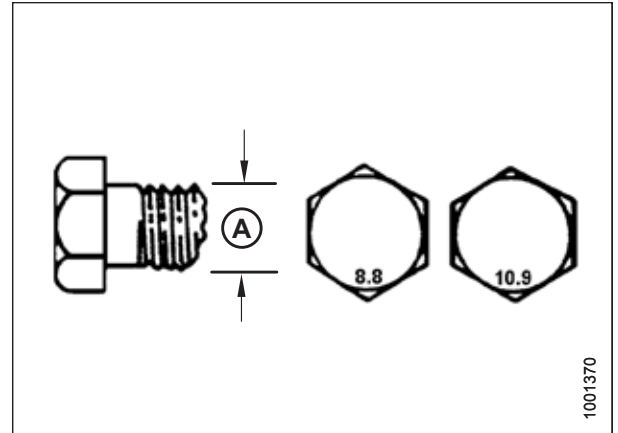


Figure 6.2: Bolt Grades

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

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

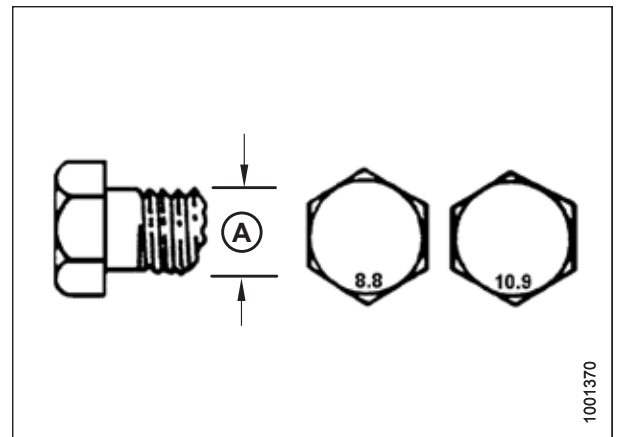


Figure 6.3: Bolt Grades

REFERENCE

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

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

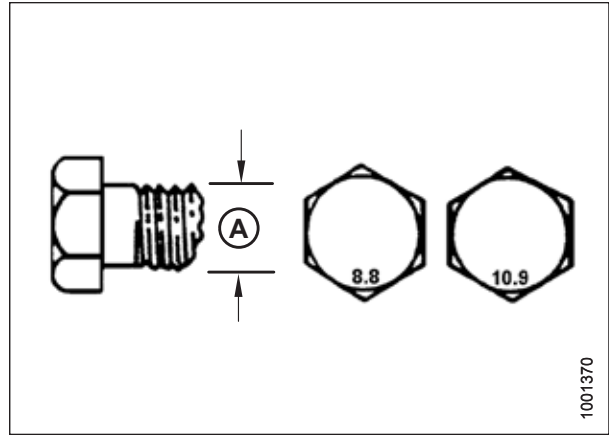


Figure 6.4: Bolt Grades

### 6.3.2 Metric Bolt Specifications Bolting into Cast Aluminum

Table 6.7 Metric Bolt Bolting into Cast Aluminum

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

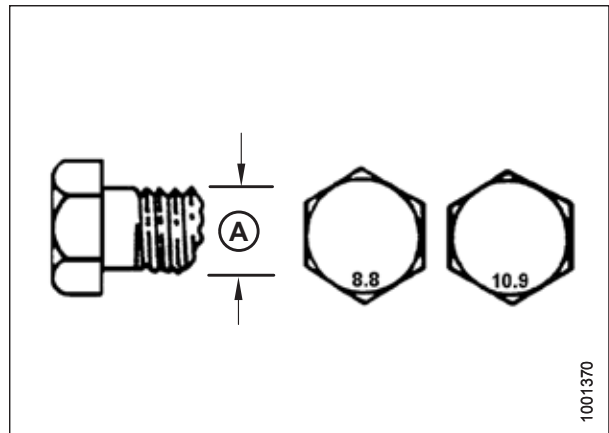


Figure 6.5: Bolt Grades

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

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

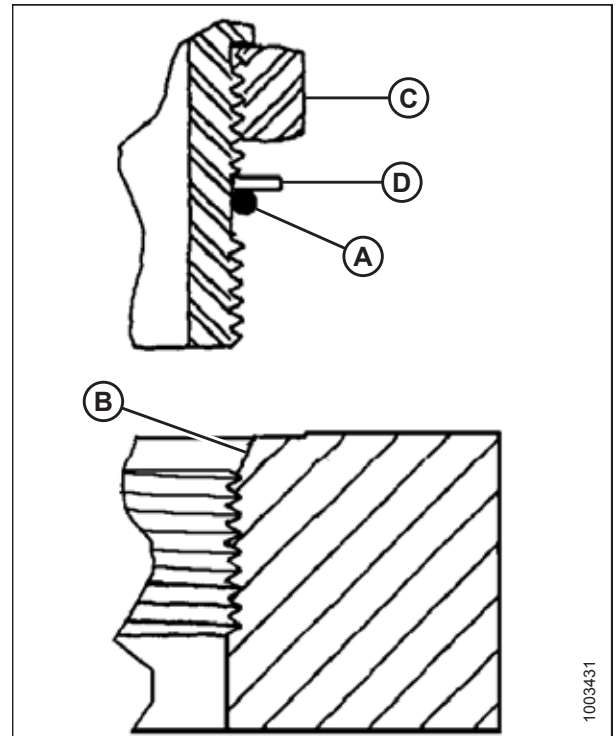


Figure 6.6: Hydraulic Fitting

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

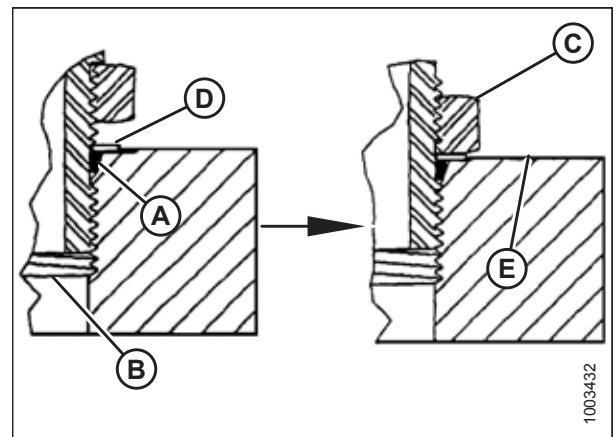


Figure 6.7: Hydraulic Fitting

REFERENCE

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

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

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

REFERENCE

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

1. Inspect O-ring (A) and seat (B) for dirt or obvious defects.
2. Check that O-ring (A) is **NOT** on threads and adjust if necessary.
3. Apply hydraulic system oil to O-ring.
4. Install fitting (C) into port until fitting is hand-tight.
5. Torque fitting (C) according to values in Table 6.9, page 163.
6. Check final condition of fitting.

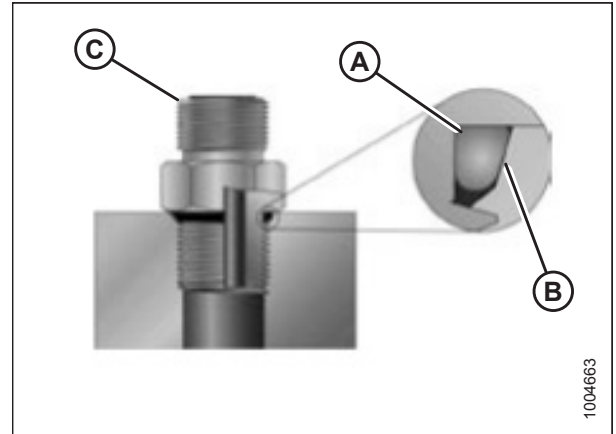


Figure 6.8: Hydraulic Fitting

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

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

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

### 6.3.5 O-Ring Face Seal Hydraulic Fittings

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



Figure 6.9: Hydraulic Fitting

2. Apply hydraulic system oil to O-ring (B).
3. Align tube or hose assembly so that flat face of sleeve (A) or (C) comes in full contact with O-ring (B).
4. Thread tube or hose nut (D) until hand-tight. The nut should turn freely until it is bottomed out.
5. Torque fittings according to values in Table 6.10, page 164.

**NOTE:**

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

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

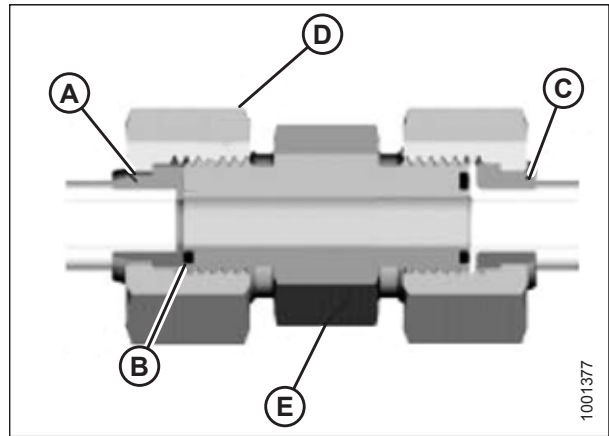


Figure 6.10: Hydraulic Fitting

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

SAE Dash Size	Thread Size (in.)	Tube O.D. (in.)	Torque Value <sup>7</sup>	
			Nm	lbf-ft
-3	Note	3/16	–	–
-4	9/16	1/4	25–28	18–21
-5	Note	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	7/8	–	–
-16	1 7/16	1	150–165	111–122

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

**REFERENCE**

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

SAE Dash Size	Thread Size (in.)	Tube O.D. (in.)	Torque Value <sup>8</sup>	
			Nm	lbf-ft
-20	1 11/16	1 1/4	205–226	151–167
-24	1–2	1 1/2	315–347	232–256
-32	2 1/2	2	510–561	376–414

### 6.3.6 Tapered Pipe Thread Fittings

Assemble pipe fittings as follows:

1. Check components to ensure that fitting and port threads are free of burrs, nicks, scratches, or any form of contamination.
2. Apply pipe thread sealant (paste type) to external pipe threads.
3. Thread fitting into port until hand-tight.
4. Torque connector to appropriate torque angle. The turns from finger tight (TFFT) and flats from finger tight (FFFT) values are shown in Table 6.11, page 165. Make sure that tube end of a shaped connector (typically 45° or 90°) is aligned to receive incoming tube or hose assembly. Always finish alignment of fitting in tightening direction. Never back off (loosen) pipe threaded connectors to achieve alignment.
5. Clean all residue and any excess thread conditioner with appropriate cleaner.
6. Assess final condition of fitting. Pay special attention to possibility of cracks to port opening.
7. Mark final position of fitting. If a fitting leaks, disassemble fitting and check for damage.

**NOTE:**

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

**Table 6.11 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

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

REFERENCE

## 6.4 Conversion Chart

Table 6.12 Conversion Chart

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



REFERENCE

## 6.5 Definitions

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

Term	Definition
A Series header	MacDon A40D, A40DX, and Grass Seed auger headers
API	American Petroleum Institute
ASTM	American Society of Testing and Materials
Bolt	A headed and externally threaded fastener that is designed to be paired with a nut
Cab-forward	Windrower operation with Operator and cab facing in direction of travel
Center-link	A hydraulic cylinder link between header and machine used to change header angle
CGVW	Combined gross vehicle weight
D1X Series Header	MacDon D115X, D120X, and D125X rigid draper headers for M1 Series Windrowers
D1XL Series Header	MacDon D130XL, D135XL, D140XL, and D145XL rigid draper headers for M1 Series Windrowers
DDD	Double-drapeer drive
DEF	Diesel exhaust fluid; also called AdBlue in Europe, and AUS 32 in Australia
DEF Supply Module	Pump that supplies diesel exhaust fluid through system
DM	Dosing module
DK	Double knife
DKD	Double-knife drive
DOC	Diesel oxidation catalyst
DRT	Aftertreatment decomposition tube
DWA	Double Windrow Attachment
ECM	Engine control module
EEC	Eco engine control
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 where sealing surfaces or components are making contact with each other, and fitting has been tightened to a point where fitting is no longer loose
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 and is attached to a windrower
Hex key	A tool of hexagonal cross-section used to drive bolts and screws that have a hexagonal socket in head (internal-wrenching hexagon drive); also known as an Allen key and various other synonyms
HDS	Hydraulic deck shift

## REFERENCE

Term	Definition
hp	Horsepower
HPT display	Harvest Performance Tracker display module on an M1 Series Windrower
JIC	Joint Industrial Council: A standards body that developed standard sizing and shape for original 37° flared fitting
Knife	A cutting device which uses a reciprocating cutter (also called a sickle)
MDS	Mechanical deck shift
M1 Series	MacDon M1170 and M1240 Windrowers
n/a	Not applicable
NPT	National Pipe Thread: A style of fitting used for low-pressure port openings. Threads on NPT fittings are uniquely tapered for an interference fit
Nut	An internally threaded fastener that is designed to be paired with a bolt
ORB	O-ring boss: A style of fitting commonly used in port openings on manifolds, pumps, and motors
ORFS	O-ring face seal: A style of fitting commonly used for connecting hoses and tubes. This style of fitting is also commonly called ORS, which stands for O-ring seal
PARK	The slot opposite the NEUTRAL position on operator's console of M1 Series windrowers
R Series	MacDon R80 and R85 Rotary Disc Headers for windrowers
R1 SP Series	MacDon R113 and R116 Rotary Disc Headers for windrowers
R2 SP Series	MacDon R216 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
SCR	Selective catalytic reduction
Screw	A headed and externally threaded fastener that threads into preformed threads or forms its own thread into a mating part
SDD	Single-draped drive
SK	Single knife
SKD	Single-knife drive
Soft joint	A joint made with use of a fastener where joining materials are compressible or experience relaxation over a period of time
spm	Strokes per minute
Tension	Axial load placed on a bolt or screw, usually measured in Newtons (N) or pounds (lb.)
TFFT	Turns from finger tight
Torque	The product of a force X lever arm length, usually measured in Newton-meters (Nm) or foot-pounds (lbf-ft)
Torque angle	A tightening procedure where fitting is assembled to a precondition (finger tight) and then nut is turned farther a number of degrees to achieve its final position
Torque-tension	The relationship between assembly torque applied to a piece of hardware and axial load it induces in bolt or screw

## REFERENCE

Term	Definition
ULSD	Ultra-low sulphur diesel
Washer	A thin cylinder with a hole or slot located in the center that is to be used as a spacer, load distribution element, or locking mechanism
Windrower	Power unit for a header
WOT	Wide open throttle



# 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.



## CAUTION

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

Windrower Serial Number:

Engine Serial Number:

### M1 Series Predelivery Checklist

✓	Item	Reference
	Check for shipping damage or missing parts. Be sure all shipping dunnage is removed.	—
	Check for loose hardware. Tighten to required torque.	<i>6 Reference, page 155</i>
	Check tire air pressures and adjust as required.	<i>4.1.12 Checking Tire Pressures, page 95</i>
	Check wheel drive hub lubricant level.	<i>4.1.10 Checking and Adding Wheel Drive Lubricant, page 93</i>
	Check engine coolant level and strength at pressurized coolant tank.	<i>4.1.5 Checking Engine Coolant Level, page 87</i>
	Check air cleaner and clamps.	<i>4.1.2 Checking Engine Air Intake, page 86</i>
	Check engine oil level and check for leaks.	<i>4.1.6 Checking and Adding Engine Oil, page 88</i>
	Check hydraulic oil level and check for leaks along lines.	<i>4.1.3 Checking and Adding Hydraulic Oil, page 86</i>
	Check fuel separator for water and foreign material, drain and clean as necessary, and add fuel.	<i>4.1.4 Checking Fuel Separator, page 87</i>
	Check gearbox lubricant level.	<i>4.1.7 Checking Engine Gearbox Lubricant Level and Adding Lubricant, page 89</i>
	Check tension of A/C compressor belt.	<i>4.1.8 Checking Air Conditioning Compressor Belts, page 90</i>
	Check that machine is completely lubricated.	<i>3.16.2 Lubrication Points, page 80</i>
	Check Operator's Presence System	<i>4.2.1 Checking Operating Safety System, page 98</i>
	Check horn operation.	<i>4.2.6 Checking Horn, page 108</i>
	<b>Start engine and run to operating temperature.</b>	<i>4.1.9 Starting the Engine, page 90</i>
	Check HPT, fuel, and diesel exhaust fluid (DEF) gauges for operation.	<i>4.2.2 Checking Harvest Performance Tracker Display, page 99</i>
	Check engine speed on HPT.	<i>4.2.3 Checking Engine Speed, page 103</i>
	Ensure selective catalytic reduction (SCR) conditioning inhibit is off.	<i>4.2.4 Checking Selective Catalytic Regeneration Conditioning Mode, page 104</i>
	Check that air conditioning and heater are functioning properly.	<i>4.2.8 Checking Climate Controls, page 109</i>
	Check that interior lights are functioning properly.	<i>4.2.7 Checking Interior Lights, page 109</i>

**REFERENCE**

✓	Item	Reference
	Check that exterior lights are functioning properly.	<i>4.2.5 Checking Exterior Lights, page 105</i>
	Check that hazard and signal lights are functioning properly.	<i>4.2.5 Checking Exterior Lights, page 105</i>
	Check that beacons are functioning properly (if installed).	<i>4.2.5 Checking Exterior Lights, page 105</i>
	Complete the header's Predelivery Checklist (if applicable).	—
	Check that manuals are in the windrower manual case.	<i>4.3 Checking Manuals, page 112</i>
	Remove plastic coverings and windshield decal from cab interior.	<i>4.4 Performing Final Steps, page 113</i>

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