

**MacDon**<sup>®</sup>

# **PW8 Pick-Up Header**

Operator's Manual

169969 Revision A

Original Instruction

*The harvesting specialists.*


PW8 Pick-Up Header



1006866

Published in January, 2015

# Declaration of Conformity

 <h2 style="text-align: center;">EC Declaration of Conformity</h2>			
<p>[1] <b>MacDon</b>                      MacDon Industries Ltd.                      680 Moray Street,                      Winnipeg, Manitoba, Canada                      R3J 3S3</p>		<p>[4] As Per Shipping Document</p>	
<p>[2] Header</p>		<p>[5] July 31, 2014</p>	
<p>[3] MacDon PW8</p>		<p>[6] <u>Natalia Kleban</u>                      Product Integrity</p>	

EN	BG	CZ	DA
<p>We, [1]                      Represented by Johannes Molitor,                      Schwarzwald Strasse 67                      66482 Zweibrücken / Germany                      HRN 31002, Amtsgericht Zweibrücken</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>to which the declaration, fulfills all relevant provisions and essential requirements of the following directive: 2006/42/EC, via self-certification.</p> <p>For the relevant implementation of the provisions of the Directives, the following (harmonized) standards have been applied:</p> <p>EN ISO 4254-1:2013                      EN ISO 4254-7:2008                      Other standards: see Operator's Manual</p> <p>Place and date of declaration: [5]</p> <p>Name and signature of authorized person: [6]</p>	<p>Ние, [1]                      Представявани от Йоханес Молитор,                      Schwarzwald Strasse 67                      66482 Zweibrücken / Германия                      HRN 31002, Amtsgericht Zweibrücken</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>вписан в декларацията, отговаря на всички приложими разпоредби и съществени изисквания на следните директива: 2006/42/EO &amp; 2004/108/EO, чрез самостоятелно сертифициране.</p> <p>За съответното изпълнение на разпоредбите на тези Директиви са приложени следните (хармонизирани) стандарти:</p> <p>EN ISO 4254-1:2013                      EN ISO 4254-7:2008                      Други стандарти: вижте Ръководството за оператора</p> <p>място и дата на декларацията: [5]</p> <p>Име и подпис на упълномощеното лице: [6]</p>	<p>My [1]                      Zastoupení Johannesem Molitorem,                      Schwarzwald Strasse 67                      66482 Zweibrücken / Německo                      HRN 31002, Amtsgericht Zweibrücken</p> <p>Prohlašujeme, že produkt:</p> <p>Typ zařízení: [2]</p> <p>Název a model: [3]</p> <p>Sériové číslo (Sériová čísla): [4]</p> <p>splňuje všechna relevantní ustanovení a základní požadavky následujících směrníc: 2006/42/EC, na základě vlastní certifikace</p> <p>V případě relevantních implementací ustanovení směrnice byly použity následující (harmonizované) normy:</p> <p>EN ISO 4254-1:2013                      EN ISO 4254-7:2008                      Ostatní normy: viz Návod k obsluze</p> <p>Místo a datum prohlášení: [5]</p> <p>Jméno a podpis pověřené osoby: [6]</p>	<p>Vi, [1]                      Repræsenteret af Johannes Molitor,                      Schwarzwald Strasse 67                      66482 Zweibrücken / Tyskland                      HRN 31002, Amtsgericht Zweibrücken</p> <p>Erklære, at produktet:</p> <p>Maskintype: [2]</p> <p>Navn og model: [3]</p> <p>Serienummer (-numre): [4]</p> <p>hvortil erklæringen gælder, opfylder alle relevante bestemmelser og obligatoriske krav i følgende direktiv: 2006/42/EF, via selvcertificering.</p> <p>For relevant implementering af bestemmelserne i direktiverne er følgende (harmoniserede) standarder blevet gjort gældende:</p> <p>EN ISO 4254-1:2013                      EN ISO 4254-7:2008                      Andre standarder: Se operatørmanualen</p> <p>Sted og dato for erklæringen: [5]</p> <p>Den bemyndigede persons navn og underskrift: [6]</p>
DE	ES	ET	FR
<p>Wir, [1]                      Vorge stellt von Johannes Molitor,                      Schwarzwald Straße 67                      66482 Zweibrücken / Deutschland                      HRN 31002, Amtsgericht Zweibrücken</p> <p>Erklären, dass das Produkt:</p> <p>Maschinentyp: [2]</p> <p>Name &amp; Modell: [3]</p> <p>Seriennummer(n): [4]</p> <p>die entsprechenden Vorschriften und wichtigen Anforderungen der folgenden Direktive entspricht/ entsprechen: 2006/42/EC, über Selbstzertifizierung.</p> <p>Für die entsprechende Umsetzung der Bestimmungen der Direktiven wurden folgende (harmonisierten) Normen angewendet:</p> <p>EN ISO 4254-1:2013                      EN ISO 4254-7:2008                      Weitere Normen: Siehe Betriebsanleitung</p> <p>Ort und Datum der Erklärung: [5]</p> <p>Name und Unterschrift der berechtigten Person: [6]</p>	<p>Nosotros, [1]                      Representado por Johannes Molitor,                      Schwarzwald Strasse 67                      66482 Zweibrücken / Alemania                      HRN 31002, Amtsgericht Zweibrücken</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>con lo cual la declaración, cumple con todas las disposiciones relevantes y los requerimientos fundamentales de las siguientes directiva: 2006/42/EC, mediante autocertificación.</p> <p>Para la implementación pertinente de las disposiciones de las directivas, se han aplicado los siguientes estándares (armonizados):</p> <p>EN ISO 4254-1:2013                      EN ISO 4254-7:2008                      Otros estándares: Consulte el Manual del operador.</p> <p>Lugar y fecha de la declaración: [5]</p> <p>Nombre y firma de la persona autorizada: [6]</p>	<p>Meie, [1]                      keda esindab Johannes Molitor,                      Schwarzwald Strasse 67                      66482 Zweibrücken / Saksamaa                      HRN 31002, Zweibrücken kohalik kohus,</p> <p>Deklareerime käesolevaga, et toode:</p> <p>Seadme tüüp: [2]</p> <p>Nimi ja mudel: [3]</p> <p>Seerianumber: [4]</p> <p>täidab kõik järgnevat direktiivi asjakohased nõuded ja tingimused: 2006/42/EÜ.</p> <p>Nimetatud direktiivide nõuete järgimisel on rakendatud alltoodud (harmoneeritud) standardeid:</p> <p>EN ISO 4254-1:2013                      EN ISO 4254-7:2008                      Muud standardid: vt kasutusjuhendit</p> <p>Deklaratsiooni koostamise koht ja aeg: [5]</p> <p>Volitatud isiku nimi ja allkiri: [6]</p>	<p>Nous, [1]                      Représenté par Johannes Molitor,                      Schwarzwald Strasse 67                      66482 Zweibrücken / Allemagne                      HRN 31002, Amtsgericht Zweibrücken</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>par la présente déclaration, remplit toutes les dispositions et exigences essentielles de directive suivantes : 2006/42/EC, par une auto-certification.</p> <p>Pour la mise en œuvre adéquate des dispositions des directives, les normes (harmonisées) suivantes ont été appliquées :</p> <p>EN ISO 4254-1:2013                      EN ISO 4254-7:2008                      Autres normes: consultez le manuel d'utilisation</p> <p>Lieu et date de la déclaration: [5]</p> <p>Nom et signature de la personne autorisée: [6]</p>

The Harvesting Specialists

**MacDon**

1012084

Figure 1: EC Declaration of Conformity

## EC Declaration of Conformity

<p style="text-align: center;"><b>IT</b></p> <p>Noi, [1] Rappresentata da Johannes Molitor, Schwarzwald Strasse 67 66482 Zweibrücken / Germania HRN 31002, Amtsgericht Zweibrücken</p> <p>Dichiariamo che il prodotto: Tipo di macchina: [2] Nome e modello: [3] Numero di serie: [4]</p> <p>cui fa riferimento la dichiarazione, soddisfa tutte le disposizioni rilevanti e i requisiti essenziali delle seguenti direttive: 2006/42/CE, mediante auto-certificazione.</p> <p>Per l'implementazione delle disposizioni principali delle Direttive, sono stati applicati i seguenti standard (armonizzati): EN ISO 4254-1:2013 EN ISO 4254-7:2008 Altri standard: si veda il Manuale dell'operatore</p> <p>Luogo e data della dichiarazione: [5] Nome e firma della persona autorizzata: [6]</p>	<p style="text-align: center;"><b>HU</b></p> <p>Mi, [1] Képviselelőnk Johannes Molitor, Schwarzwald Strasse 67 66482 Zweibrücken / Németország HRN 31002, Amtsgericht Zweibrücken</p> <p>Ezennel kijelentjük, hogy a következő termék: Gép típusa: [2] Nev és modell: [3] Szériaszám: [4]</p> <p>melyle a nyilatkozat vonatkozik, teljesíti az alábbi irányelv összes vonatkozó előírását, illetve lényegi követelményeit: 2006/42/EC, öntanúsítás útján.</p> <p>Az Irányelvek vonatkozó előírásainak gyakorolható történő ültetések az alábbi (harmonizált) szabványok kerültek alkalmazásra: EN ISO 4254-1:2013 EN ISO 4254-7:2008 Egyéb szabványok: lásd a Felhasználói Kézikönyvet</p> <p>A nyilatkozattétel ideje és helye: [5] Felhatalmazott személy neve és aláírása: [6]</p>	<p style="text-align: center;"><b>LT</b></p> <p>Mes, [1] Atstovaujami p. Johannes Molitor, Schwarzwald Strasse 67 66482 Zweibrücken / Vokietija HRN 31002, Amtsgericht Zweibrücken</p> <p>Šiuo deklaruojame, kad produktas: Mašinos tipas: [2] Pavadinimas ir modelis: [3] Serijos numeris (-iai): [4]</p> <p>Kuris yra šios deklaracijos dalykas, atitinka visas susijusias nuostatas ir esminius reikalavimus pagal šias direktyvas: 2006/42/EB savisertifikavimo pagrindu.</p> <p>Dėl susijusių nuostatų, išdėstytų minėtose direktyvose, įgyvendinimo, taikomi šie (harmonizuoti) standartai: EN ISO 4254-1:2013 EN ISO 4254-7:2008 Kiti standartai: Žr. Operatoriaus instrukciją</p> <p>Deklaracijos data ir vieta: [5] Pavardė ir parašas įgalioto asmens: [6]</p>	<p style="text-align: center;"><b>LV</b></p> <p>Mēs, [1] Ko pārstāv Johannes Molitor, Schwarzwald Strasse 67 66482 Zweibrücken / Vācija HRN 31002, Amtsgericht Zweibrücken</p> <p>Deklarējam, ka produkts: Mašīna Tips: [2] Nosaukums un modelis: [3] Sērijas numurs(-i): [4]</p> <p>ar šo deklarāciju apstiprinām, ka ir nodrošināta atbilstība visām būtiskajām direktīvu 2006/42/EK, veicot pašsertifikāciju.</p> <p>Šo direktīvu būtisko noteikumu īstenošanai piemēroti šādi (saskaņotie) standarti: EN ISO 4254-1:2013 EN ISO 4254-7:2008 Citi standarti: skatīt lietotāja rokasgrāmatu</p> <p>Deklarācijas parakstīšanas vieta un datums: [5] Pilnvarotās personas vārds, uzvārds un paraksts: [6]</p>
<p style="text-align: center;"><b>NL</b></p> <p>Wij, [1] Vertegenwoordigd door Johannes Molitor, Schwarzwald Strasse 67 66482 Zweibrücken / Duitsland HRN 31002, Amtsgericht Zweibrücken</p> <p>Verklaren, dat het product: Machinetype: [2] Naam en model: [3] Serienummer(s): [4]</p> <p>waarop de verklaring betrekking heeft, voldoet aan alle relevante bepalingen en essentiële vereisten van de volgende richtlijn: 2006/42/EC, via zelfcertificering.</p> <p>Voor de relevante implementatie van de bepalingen van de richtlijn zijn de volgende (geharmoniseerde) normen toegepast: EN ISO 4254-1:2013 EN ISO 4254-7:2008 Andere normen: zie de Bedieningshandleiding</p> <p>Plaats en datum van verklaring: [5] Naam en handtekening van bevoegde persoon: [6]</p>	<p style="text-align: center;"><b>PO</b></p> <p>My nizej podpisani, [1] Reprezentowani przez pana Johannes Molitor, Schwarzwald Strasse 67 66482 Zweibrücken / Niemcy HRN 31002, Amtsgericht Zweibrücken</p> <p>Oświadczamy, że produkt: Typ urządzenia: [2] Nazwa i model: [3] Numer seryjny/numery seryjne: [4]</p> <p>tórego oświadczenie, spełnia wszystkie odpowiednie przepisy i wymagania następujących dyrektyw: 2006/42/WE, własne certyfikaty,</p> <p>W celu odpowiedniego spełnienia przepisów dyrektyw zastosowaliśmy następujące (zharmonizowane) normy: EN ISO 4254-1:2013 EN ISO 4254-7:2008 Inne normy: patrz Instrukcja obsługi</p> <p>Data i miejsce oświadczenia: [5] Imię i nazwisko, podpis osoby upoważnionej: [6]</p>	<p style="text-align: center;"><b>PT</b></p> <p>Nós, [1] Representados por Johannes Molitor, Schwarzwald Strasse 67 66482 Zweibrücken / Alemanha HRN 31002, Amtsgericht Zweibrücken</p> <p>Declaramos, que o produto: Tipo de Máquina: [2] Nome e Modelo: [3] Número (s) de Série: [4]</p> <p>a que a presente declaração se destina, cumpre todas as disposições relevantes e requisitos essenciais das seguintes Diretiva: 2006/42/CE, através de auto-certificação.</p> <p>Para uma implementação relevante das disposições das Diretivas, aplicaram-se as seguintes normas (harmonizadas): EN ISO 4254-1:2013 EN ISO 4254-7:2008</p> <p>Outras normas: consulte o Manual do Operador</p> <p>Local e data da declaração: [5] Nome e assinatura da pessoa autorizada: [6]</p>	<p style="text-align: center;"><b>RO</b></p> <p>Noi, [1] Reprezentati de Johannes Molitor, Schwarzwald Strasse 67 66482 Zweibrücken / Germania HRN 31002, Amtsgericht Zweibrücken</p> <p>Declărăm, cã urmãtorul produs: Tipul mașinii: [2] Denumirea și modelul: [3] Număr (numere) serie: [4]</p> <p>pentru care facem declarația, corespunde tuturor dispozițiilor și cerințelor esențiale ale urmãtoarelor directive: 2006/42/EC, pe calea auto-certificării.</p> <p>Pentru implementarea dispozițiilor Directivelor, au fost aplicate urmãtoarele standarde (armonizate): EN ISO 4254-1:2013 EN ISO 4254-7:2008 Alte standarde: vezi Manualul Operatorului</p> <p>Data și locul declarației: [5] Numele și semnătura persoanei autorizate: [6]</p>
<p style="text-align: center;"><b>RS</b></p> <p>Mi, [1] Čiji je predstavnik Johannes Molitor, Schwarzwald Strasse 67 66482 Zweibrücken / Nemačka HRN 31002, Amtsgericht Zweibrücken</p> <p>Izjavljujemo da proizvod: Tip mašine: [2] Naziv i model: [3] Serijski broj(evi): [4]</p> <p>Na koji se deklaracija odnosi, ispunjava sve važeće odredbe i suštinske zahteve sledećih direktiva: 2006/42/EC, kroz samostalnu sertifikaciju.</p> <p>U cilju relevantne implementacije odredbi ovih direktivi, primenjeni su sledeći (usklađeni) standardi: EN ISO 4254-1:2013 EN ISO 4254-7:2008 Drugi standardi: pogledati priručnik za rukovanje</p> <p>Mesto i datum izdavanja deklaracije: [5] Ime i potpis ovlašćenog lica: [6]</p>	<p style="text-align: center;"><b>SE</b></p> <p>Mi, [1] Reprerenterade av Johannes Molitor, Schwarzwald Strasse 67 66482 Zweibrücken / Tyskland HRN 31002, Amtsgericht Zweibrücken</p> <p>Intygat att produkten: Maskintyp: [2] Namn och modell: [3] Serienummer: [4]</p> <p>för vilken intyget gäller, uppfyller alla relevanta bestämmelser och viktiga krav enligt följande direktiv: 2006/42/EC, via självcertifiering.</p> <p>För relevant genomförande av bestämmelserna i direktiven har följande (harmoniserade) standarder tillämpats: EN ISO 4254-1:2013 EN ISO 4254-7:2008 Övriga standarder: se användarhandboken</p> <p>Plats och datum för intyget: [5] Namn och signatur av behörig person: [6]</p>	<p style="text-align: center;"><b>SI</b></p> <p>Mi, [1] Ki nas zastopa Johannes Molitor, Schwarzwald Strasse 67 66482 Zweibrücken / Nemčija HRN 31002, okrožno sodišče Zweibrücken</p> <p>Izjavljamo, da izdelek: Vrsta stroja: [2] Ime in model: [3] Serijska številka: [4]</p> <p>za katerega je namenjena izjava, izpolnjuje vse zadevne določbe in temeljne zahteve naslednjih direktiva: 2006/42/ES prek samocertificiranja.</p> <p>Za zadevno implementacijo določb direktiv so bili uporabljeni naslednji (usklajeni) standardi: EN ISO 4254-1:2013 EN ISO 4254-7:2008 Drugi standardi: glejte Uporabniški priročnik</p> <p>Kraj in datum izjave: [5] Ime in podpis pooblaščenec osebe: [6]</p>	<p style="text-align: center;"><b>SK</b></p> <p>My, [1] Zastúpení pánom Johannesom Molitorom, Schwarzwald Strasse 67 66482 Zweibrücken / Nemecko HRN 31002, Amtsgericht Zweibrücken</p> <p>týmto prehlasujeme, že tento výrobok: Typ zariadenia: [2] Názov a model: [3] Výrobné číslo: [4]</p> <p>spĺňa príslušné ustanovenia a základné požiadavky nasledujúcich smerníc: 2006/42/ES, prostredníctvom vlastnej certifikácie.</p> <p>Pri realizácii ustanovení týchto smerníc sa uplatňujú nasledujúce (harmonizované) normy: EN ISO 4254-1:2013 EN ISO 4254-7:2008 Ďalšie normy: pozri Návod na obsluhu</p> <p>Miesto a dátum prehlásenia: [5] Meno a podpis oprávnenej osoby: [6]</p>

1012085

Figure 2: EC Declaration of Conformity

# Introduction

This manual contains operating and maintenance procedures for the MacDon PW8 Pick-Up Header for the following combines:

**Table 1 Combine Models**

Combine	Model
Case IH	5088, 6088, 7088, 5130, 6130, 7130, 5140, 6140, 7140, 7010, 8010, 7120, 8120, 9120, 7230, 8230, 9230, 7240, 8240, and 9240
John Deere	60, 70, S Series, 9660 WTS, and T670
New Holland	All CR/CX Series

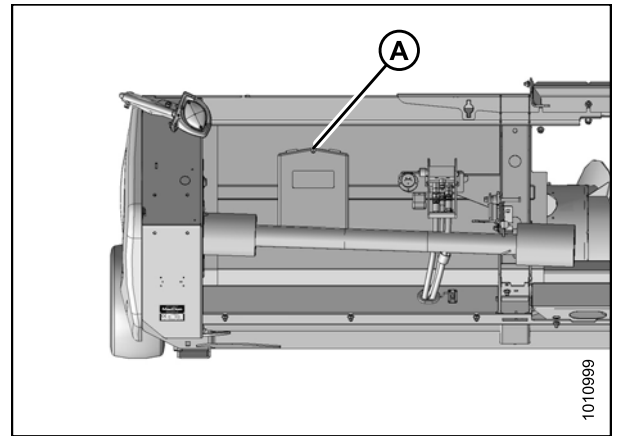
**Carefully read all the material provided before attempting to unload, assemble, or use the machine.**

Keep this manual handy for frequent reference and to pass on to new Operators or Owners. The PW8 Pick-Up Header Parts Catalog also is supplied with your new header. Call your Dealer if you need assistance, information, or additional copies of the manuals.

Store the operator's manual and the parts catalog in the manual case (A) attached to the back of the header.

**NOTE:**

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



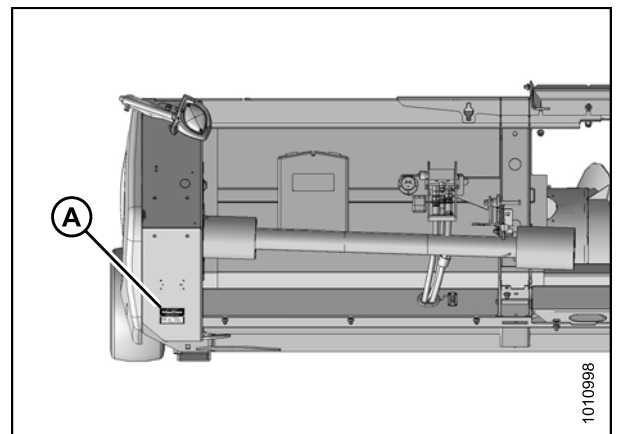
**Figure 3: Manual Case**

## Serial Number

Record the serial number of the PW8 Combine Pick-Up Header here:

\_\_\_\_\_

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



**Figure 4: Serial Number Plate**

# List of Revisions

**Table 2 List of Revisions**

<b>Summary of Change</b>	<b>Location</b>
Revised EC Declaration of Conformity.	<i>Declaration of Conformity, page i</i>
Safety decal MD #184371 replaced with MD #184422.	<i>1 Safety, page 1</i>
Revised combine model and feeder house size configurations.	<i>3.9 Changing Header Opening, page 32</i>
Added procedure for adjusting header float.	<i>3.12.4 Adjusting Header Float, page 62</i>
Revised procedure for adjusting draper belt tension.	<i>3.12.7 Draper Belt Tension, page 68</i>
Added procedure for adjusting cutterbar rubber seal.	<i>3.13.1 Adjusting Cutterbar Rubber Seal, page 73</i>
Revised Automatic Header Height Control (AHHC) to follow the D-series format.	<i>4 Auto Header Height Control (AHHC), page 77</i>
Changed auger drive chain lubrication to every ten hours using SAE 30 engine oil.	<i>Lubricating Auger Drive Chain, page 154</i>
Added procedure for replacing auger finger bushings.	<i>5.6.3 Replacing Auger Finger Bushings, page 165</i>
Revised draper deck hardware torque values to 37–45 lbf·in (4–5 N·m).	<i>Installing Front Draper Belt, page 172, Installing Rear Draper Belt, page 176, Replacing Draper Fingers, page 178, and Replacing Draper Guide, page 178</i>
Added procedure to align draper deck rollers.	<i>Aligning Rear Draper Deck Rollers, page 189 and Aligning Front Draper Deck Rollers, page 196</i>
Added procedures for removing/installing header float spring assemblies.	<i>5.8 Header Spring Float Assembly, page 199</i>
Added wheel servicing procedures.	<i>5.11 Wheels and Tires, page 217</i>
Added combine completion package kits to “Options and Attachments” chapter.	<i>7.2 Combine Completion Package Kits, page 228</i>

## TABLE OF CONTENTS

Declaration of Conformity .....	i
Introduction .....	iii
Serial Number .....	iii
List of Revisions .....	iv
<b>1 Safety .....</b>	<b>1</b>
1.1 Safety Alert Symbols .....	1
1.2 Signal Words .....	2
1.3 General Safety .....	3
1.4 Maintenance Safety .....	5
1.5 Hydraulic Safety .....	6
1.6 Safety Signs .....	7
1.6.1 Installing Safety Decals .....	7
1.7 Safety Sign Locations .....	8
1.8 Understanding Safety Signs .....	12
<b>2 Description .....</b>	<b>17</b>
2.1 PW8 Header Specifications .....	17
2.2 PW8 Header Dimensions .....	18
2.3 PW8 Component Identification .....	19
<b>3 Operation .....</b>	<b>21</b>
3.1 Owner/Operator Responsibilities .....	21
3.2 Operational Safety .....	22
3.3 Endshields .....	23
3.3.1 Opening Left-Hand Endshield .....	23
3.3.2 Closing Left-Hand Endshield .....	24
3.4 Header Lift Cylinder Safety Props .....	26
3.5 Hold-Down Lift Cylinder Safety Props .....	27
3.6 Daily Start-up Check .....	29
3.7 Shutdown Procedure .....	30
3.8 Break-In Period .....	31
3.9 Changing Header Opening .....	32
3.10 Header Attachment and Detachment .....	33
3.10.1 Case IH .....	33
Attaching to Case IH Combine .....	33
Detaching from Case IH Combine .....	36
3.10.2 John Deere 60, 70, and S Series .....	40
Attaching to John Deere 60, 70, and S Series Combine .....	40
Detaching from John Deere 60, 70, and S Series Combine .....	43
3.10.3 New Holland CR/CX Series Combine .....	46
Attaching to New Holland CR/CX Series Combine .....	46
Detaching from New Holland CR/CX Combine .....	49
3.11 Header Transport .....	52
3.11.1 Transport Lights .....	52
3.12 Header Operation .....	53
3.12.1 Operating Speed .....	53
Adjusting Draper Speed .....	54
3.12.2 Auger Operation .....	54
Auger Speed .....	54
Checking Auger Position .....	54
Auger Float .....	56
Stripper Plate Clearance .....	59
3.12.3 Operating Height .....	60
Header Height .....	60
Pick-Up Height .....	61

## TABLE OF CONTENTS

3.12.4	Adjusting Header Float .....	62
3.12.5	Hold-Downs .....	65
	Hold-Down Position .....	65
	Hold-Down Rod Angle.....	66
3.12.6	Crop Deflectors .....	66
	Removing Crop Deflectors.....	66
	Installing Crop Deflectors .....	67
3.12.7	Draper Belt Tension.....	68
	Checking Draper Belt Tension.....	68
	Adjusting Front Draper Belt Tension .....	69
	Adjusting Rear Draper Belt Tension.....	70
3.12.8	Driveline .....	72
	Clutch .....	72
	Guard .....	72
3.13	Unplugging the Header .....	73
3.13.1	Adjusting Cutterbar Rubber Seal .....	73
3.14	Storing the Header.....	75
<b>4</b>	<b>Auto Header Height Control (AHHC) .....</b>	<b>77</b>
4.1	Height Controllers.....	77
4.1.1	Removing Header Height Control (Left-Hand Side).....	78
4.1.2	Installing Header Height Control (Left-Hand Side) .....	80
4.1.3	Removing Header Height Control (Right-Hand Side) .....	81
4.1.4	Installing Header Height Control (Right-Hand Side) .....	83
4.2	Height Sensor Output Voltage Range – Combine Requirements .....	85
4.2.1	Manually Checking Voltage Range .....	85
4.2.2	Adjusting Header Height Control Voltage Range (Left-Hand Side) .....	86
4.2.3	Adjusting Header Height Control Voltage Range (Right-Hand Side).....	86
4.3	Case IH 5088/6088/7088 Combines.....	88
4.3.1	Engaging the Auto Header Height Control (Case IH 2300).....	88
4.3.2	Calibrating the Auto Header Height Control (Case IH 2300/2500 and 5088/6088/7088) .....	89
4.3.3	Setting the Sensitivity of the Auto Header Height (Case IH 2300/2500 and 5088/6088/7088).....	90
4.4	Case IH 5130/6130/7130, 7010/8010, 7120/8120/9120, and 7230/8230/9230 Combines.....	92
4.4.1	Checking Voltage Range from the Combine Cab (Case 8010).....	92
4.4.2	Checking Voltage Range from the Combine Cab (Case IH 5130/6130/7130, 7010/8010; 7120/8120/9120; 7230/8230/9230).....	94
4.4.3	Calibrating the Auto Header Height Control (Case IH 5130/6130/7130, 7010/8010; 7120/8120/9120; 7230/8230/9230).....	96
4.4.4	Calibrating the Auto Header Height Control System (Case Combines with Version 28.00 Software) .....	97
4.5	John Deere 60 Series Combines .....	99
4.5.1	Checking Voltage Range from the Combine Cab (John Deere 60 Series).....	99
4.5.2	Calibrating the Auto Header Height Control (John Deere 60 Series) .....	100
4.5.3	Turning the Accumulator Off (John Deere 60 Series) .....	101
4.5.4	Setting the Sensing Grain Header Height to 50 (John Deere 60 Series).....	102
4.5.5	Setting the Sensitivity of the Auto Header Height Control (John Deere 60 Series).....	103
4.5.6	Adjusting the Threshold for the Drop Rate Valve (John Deere 60 Series) .....	104
4.6	John Deere 70 Series Combines .....	106
4.6.1	Checking Voltage Range from the Combine Cab (John Deere 70 Series).....	106
4.6.2	Calibrating Feeder House Speed (John Deere 70 Series) .....	108
4.6.3	Calibrating the Auto Header Height Control (John Deere 70 Series) .....	108
4.6.4	Setting the Sensitivity of the Auto Header Height Control (John Deere 70 Series).....	109
4.6.5	Adjusting the Manual Header Raise/Lower Rate (John Deere 70 Series) .....	110
4.7	John Deere S Series Combines.....	112



## TABLE OF CONTENTS

4.7.1	Checking Voltage Range from the Combine Cab (John Deere S Series)	112
4.7.2	Calibrating the Auto Header Height Control (John Deere S Series)	114
4.7.3	Setting the Sensitivity of the Auto Header Height Control (John Deere S Series)	116
4.7.4	Adjusting the Manual Header Raise/Lower Rate (John Deere S Series)	117
4.7.5	Setting Preset Cutting Height (John Deere S Series)	117
4.8	New Holland Combines	120
4.8.1	Checking Voltage Range from the Combine Cab (New Holland)	120
4.8.2	Engaging the Auto Header Height Control (New Holland CR/CX Series)	121
4.8.3	Calibrating the Auto Header Height Control (New Holland CR/CX Series)	122
	Calibrating Maximum Stubble Height	124
4.8.4	Adjusting Header Raise Rate (New Holland CR/CX Series)	125
4.8.5	Setting the Header Lower Rate to 50 (New Holland CR/CX Series)	125
4.8.6	Setting the Sensitivity of the Auto Header Height Control to 200 (New Holland CR/CX Series)	126
4.9	Sensor Operation	127
<b>5</b>	<b>Maintenance and Servicing</b>	<b>129</b>
5.1	Preparing Header for Servicing	129
5.2	Maintenance Requirements	130
5.2.1	Maintenance Schedule/Record	131
5.2.2	Preseason/Annual Service	132
5.2.3	End of Season Service	132
5.3	Lubrication	133
5.3.1	Greasing Procedure	133
5.3.2	Greasing Points	134
5.3.3	Installing Sealed Bearing	135
5.4	Endshields	136
5.4.1	Removing Left-Hand Endshield	136
5.4.2	Installing Left-Hand Endshield	137
5.5	Drives	139
5.5.1	Header Driveshaft	139
5.5.2	Header Driveline	139
	Removing Header Driveline	139
	Installing Header Driveline	140
	Replacing Driveline Clutch	142
	Driveline Guard	143
	Driveline Splined Shaft	146
5.5.3	Draper Drives	147
	Removing Front Hydraulic Motor	147
	Installing Front Hydraulic Motor	148
	Removing Rear Hydraulic Motor	149
	Installing Rear Hydraulic Motor	150
	Removing Hydraulic Motor Hoses	150
	Installing Hydraulic Motor Hoses	152
5.5.4	Auger Drive	154
	Auger Drive Chain	154
	Auger Drive Sprockets	157
5.6	Auger Maintenance	163
5.6.1	Replacing Auger Fingers	163
5.6.2	Replacing Auger Finger Guides	164
5.6.3	Replacing Auger Finger Bushings	165
5.6.4	Replacing Stripper Plates	169
5.6.5	Replacing Flighting Extensions	170
5.7	Decks	171
5.7.1	Draper Belts	171

## TABLE OF CONTENTS

Removing Front Draper Belt .....	171
Installing Front Draper Belt .....	172
Removing Rear Draper Belt.....	174
Installing Rear Draper Belt.....	176
5.7.2 Draper Fingers/Draper Guides .....	178
Replacing Draper Fingers.....	178
Replacing Draper Guide.....	178
5.7.3 Draper Deck Roller Bearings.....	180
Rear Deck.....	180
Front Deck .....	192
5.8 Header Spring Float Assembly .....	199
5.8.1 Removing Header Spring Float Assembly .....	199
5.8.2 Installing Header Spring Float Assembly .....	200
5.9 Hold-Downs .....	202
5.9.1 Replacing Fiberglass Rods .....	202
5.9.2 Replacing Hold-Down Hydraulic Cylinders .....	203
Master Cylinder .....	203
Slave Cylinder .....	206
Bleeding Cylinders and Lines .....	209
5.9.3 Hydraulic Hoses and Lines .....	209
Removing Master Cylinder Hose.....	210
Installing Master Cylinder Hose.....	213
5.10 Draper Speed Sensor .....	215
5.10.1 Checking Draper Speed Sensor Position .....	215
5.10.2 Adjusting Draper Speed Sensor .....	215
5.10.3 Replacing Draper Speed Sensor .....	216
5.11 Wheels and Tires.....	217
5.11.1 Removing Wheel.....	217
5.11.2 Inflating Tire.....	217
5.11.3 Installing Wheel.....	218
5.12 Lights.....	219
5.12.1 Adjusting Transport Lights .....	219
5.12.2 Replacing Transport Light Bulb .....	220
5.12.3 Replacing Lens .....	220
5.12.4 Replacing Lamp Housing.....	221
<b>6 Troubleshooting.....</b>	<b>223</b>
<b>7 Options and Attachments .....</b>	<b>227</b>
7.1 Hold-Down Performance Kit .....	227
7.2 Combine Completion Package Kits .....	228
<b>A Appendix.....</b>	<b>229</b>
A.1 Definitions .....	229
A.2 Conversion Chart.....	231
A.3 Torque Specifications .....	231
A.3.1 Metric Bolt Specifications.....	232
A.3.2 Metric Bolt Specifications Bolting into Cast Aluminum .....	234
A.3.3 Flare-Type Hydraulic Fittings.....	234
A.3.4 O-Ring Boss (ORB) Hydraulic Fittings (Adjustable).....	236
A.3.5 O-Ring Boss (ORB) Hydraulic Fittings (Non-Adjustable) .....	238
A.3.6 O-Ring Face Seal (ORFS) Hydraulic Fittings.....	239
A.4 Recommended Fluids and Lubricants .....	241
<b>Index .....</b>	<b>243</b>

# 1 Safety

## 1.1 Safety Alert Symbols

This safety alert symbol indicates important safety messages in this manual and on safety signs on the header.

This symbol means:

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

Carefully read and follow the safety message accompanying this symbol.

### **Why is safety important to you?**

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



**Figure 1.1: Safety Symbol**

## 1.2 Signal Words

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

### **DANGER**

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

### **WARNING**

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

### **CAUTION**

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

## 1.3 General Safety

### CAUTION

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

Protect yourself.

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

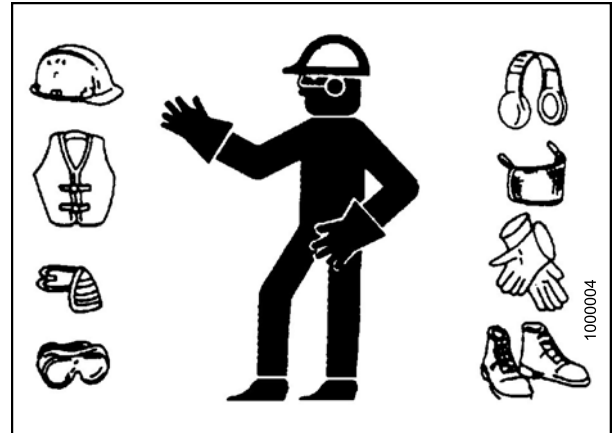


Figure 1.2: Safety Equipment



Figure 1.3: Safety Equipment

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

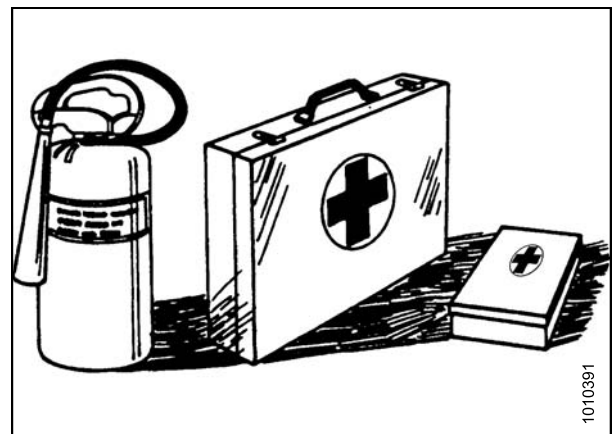


Figure 1.4: Safety Equipment

## SAFETY

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



Figure 1.5: Safety Around Equipment

- Keep hands, feet, clothing, and hair away from moving parts. Never attempt to clear obstructions or objects from a machine while the engine is running.
- Do **NOT** modify the machine. Non-authorized modifications may impair machine function and/or safety. It may also shorten the machine's life.
- Stop the engine and remove the key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

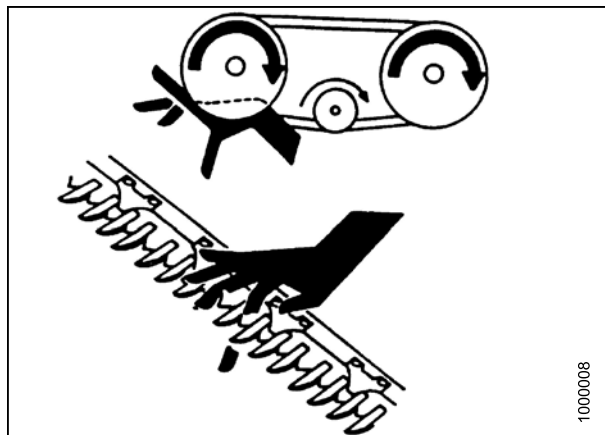


Figure 1.6: Safety Around Equipment

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



Figure 1.7: Safety Around Equipment

## 1.4 Maintenance Safety

To ensure your safety while maintaining the machine:

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



Figure 1.8: Safety Around Equipment

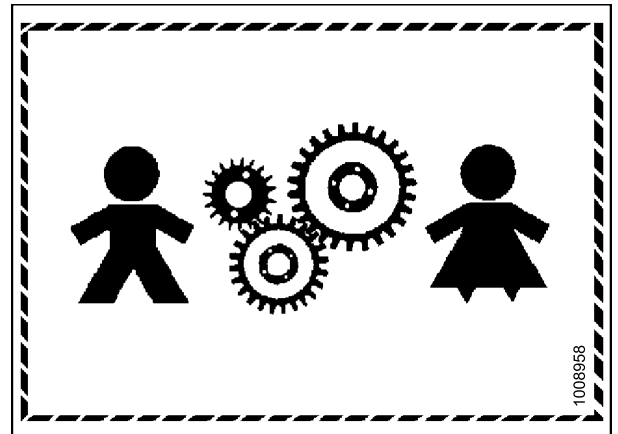


Figure 1.9: Equipment NOT Safe for Children

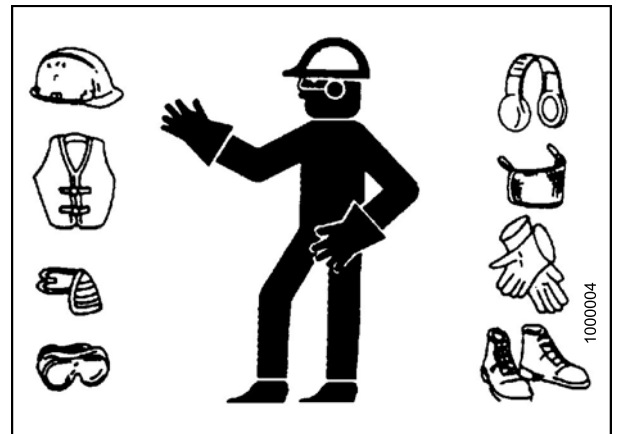


Figure 1.10: Safety Equipment

## 1.5 Hydraulic Safety

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

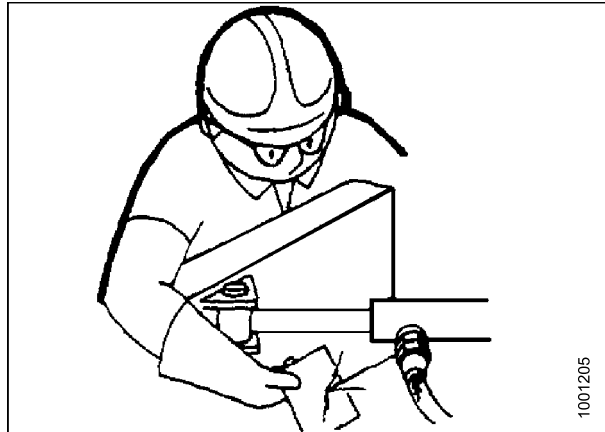


Figure 1.11: Testing for Hydraulic Leaks

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



Figure 1.12: Hydraulic Pressure Hazard

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

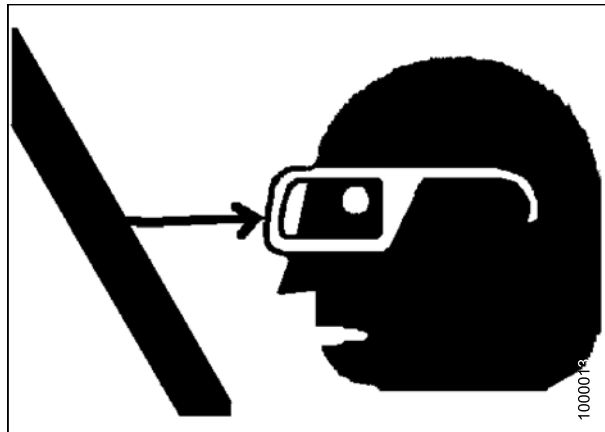
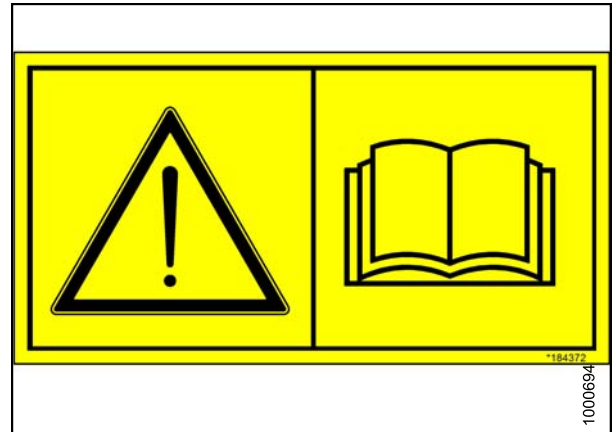


Figure 1.13: Safety Around Equipment



## **1.6 Safety Signs**

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

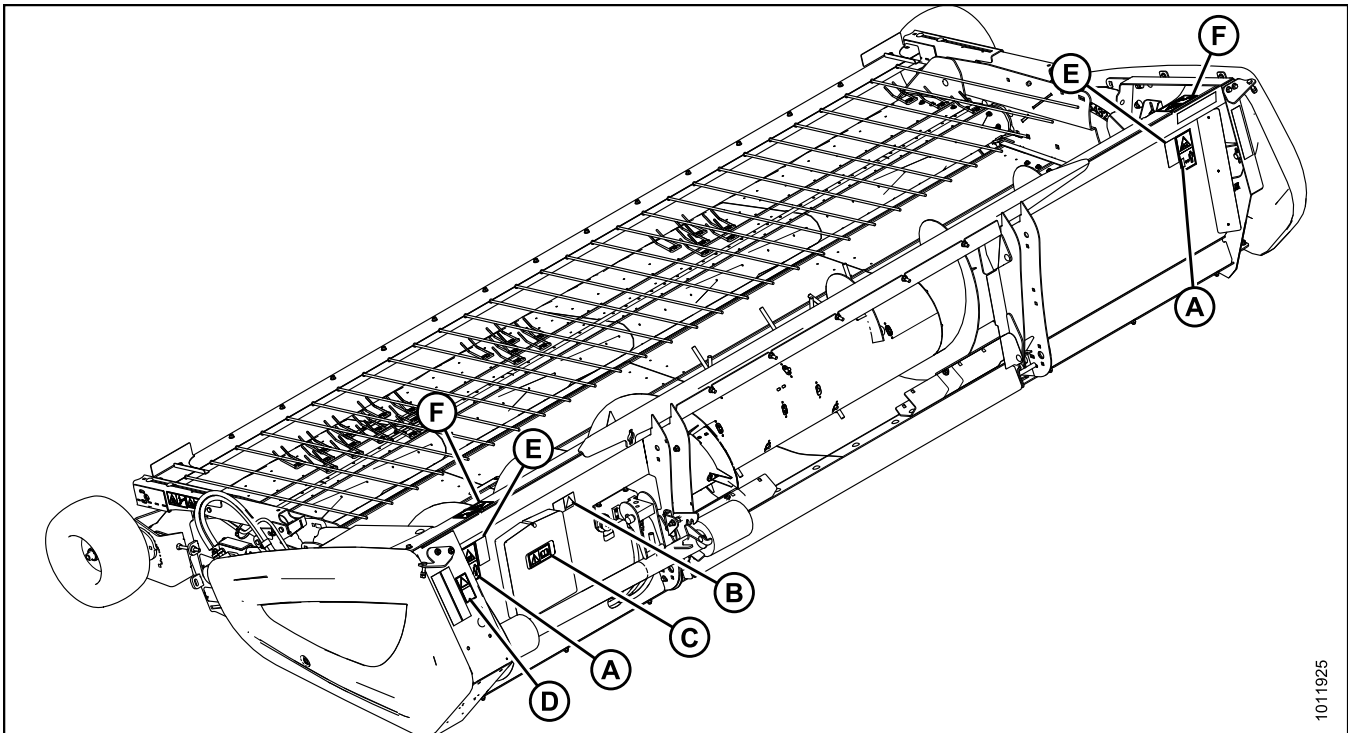


**Figure 1.14: Operator's Manual Decal**

### **1.6.1 Installing Safety Decals**

1. Clean and dry the installation area.
2. Decide on the exact location before you remove the decal backing paper.
3. Remove the smaller portion of the split backing paper.
4. Place the sign in position and slowly peel back the remaining paper, smoothing the sign as it is applied.
5. Prick small air pockets with a pin and smooth out.

## 1.7 Safety Sign Locations



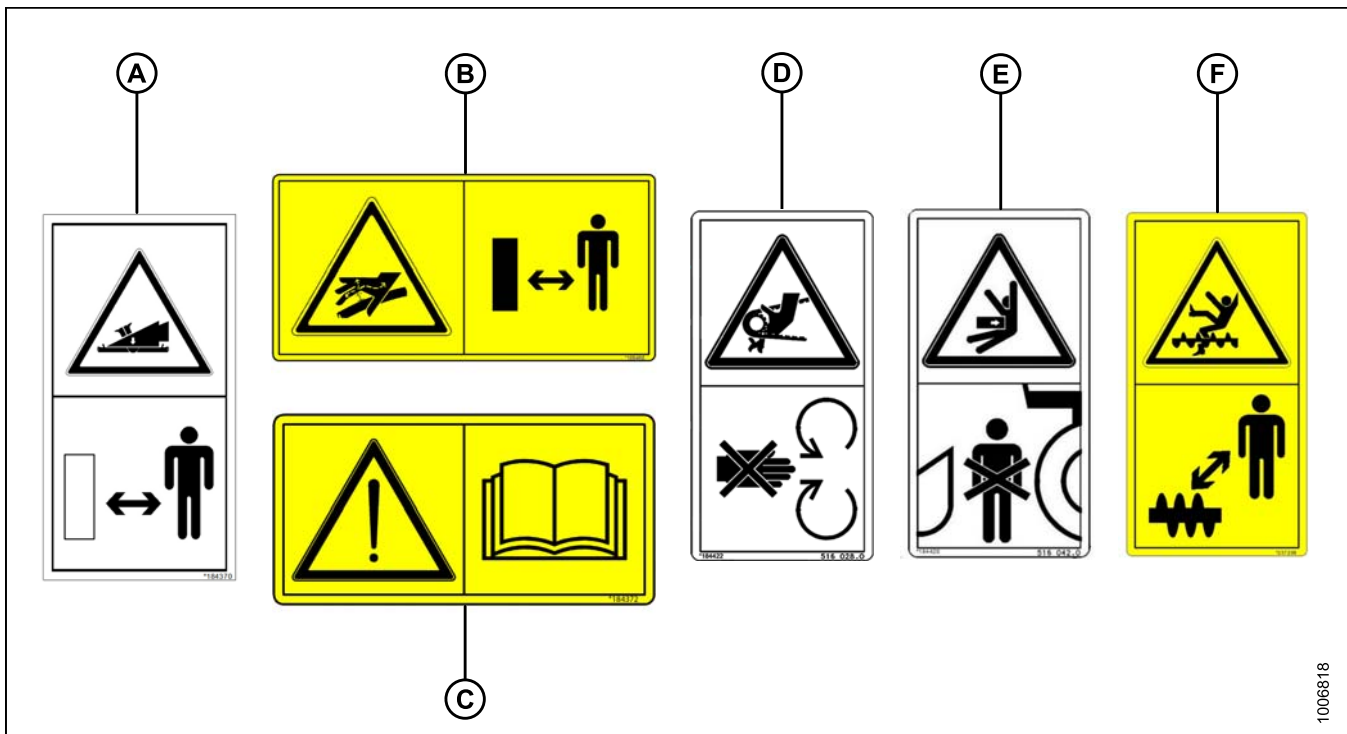
1011925

Figure 1.15: Header Decals – Case IH

A - MD #184370  
D - MD #184422

B - MD #166466  
E - MD #184420

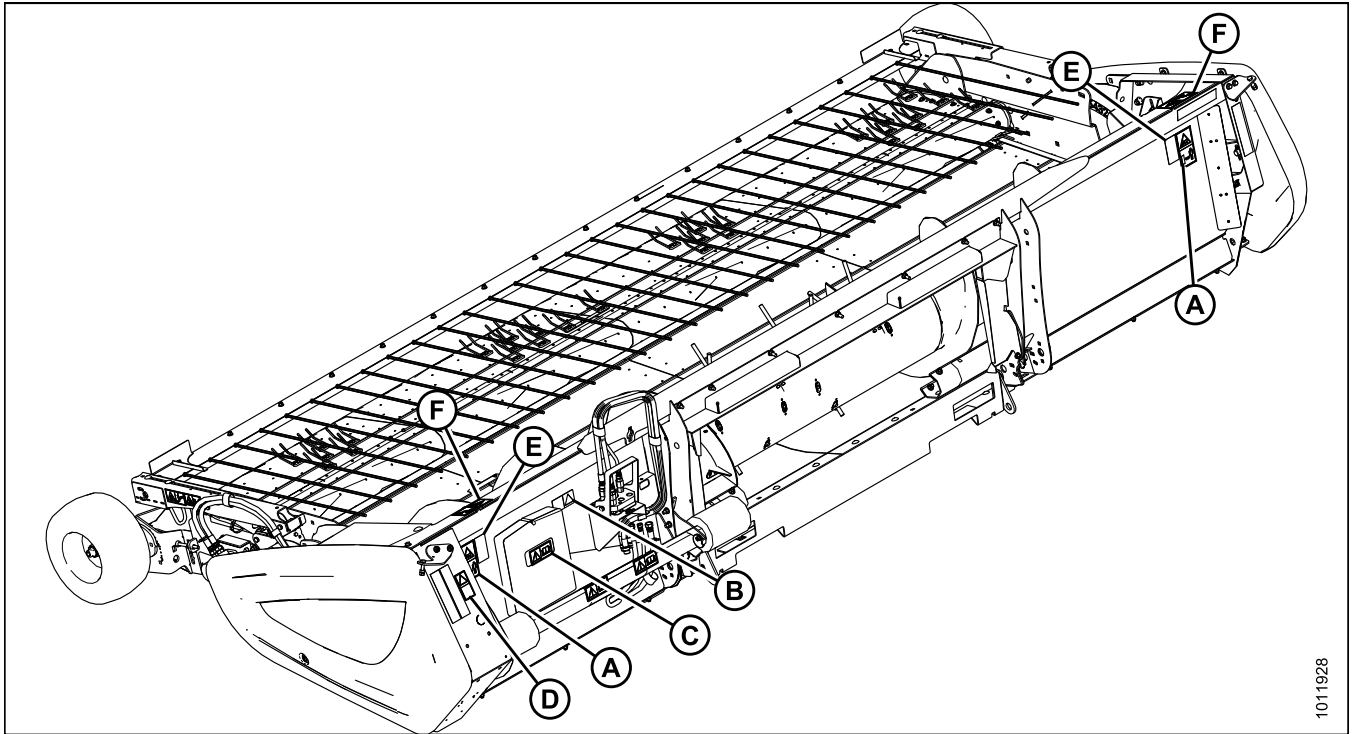
C - MD #184372  
F - MD #237298



1006818

Figure 1.16: Header Decals

SAFETY



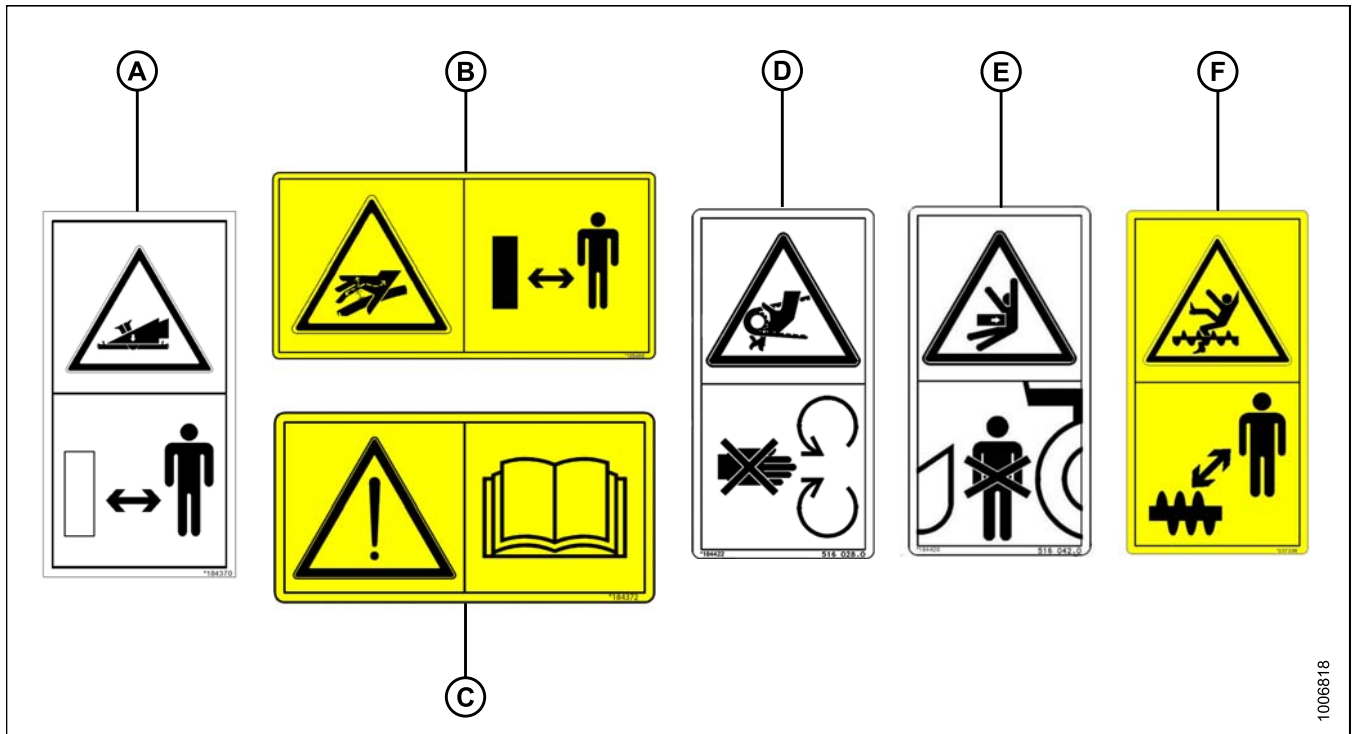
1011928

Figure 1.17: Header Decals – John Deere

A - MD #184370  
D - MD #184422

B - MD #166466  
E - MD #184420

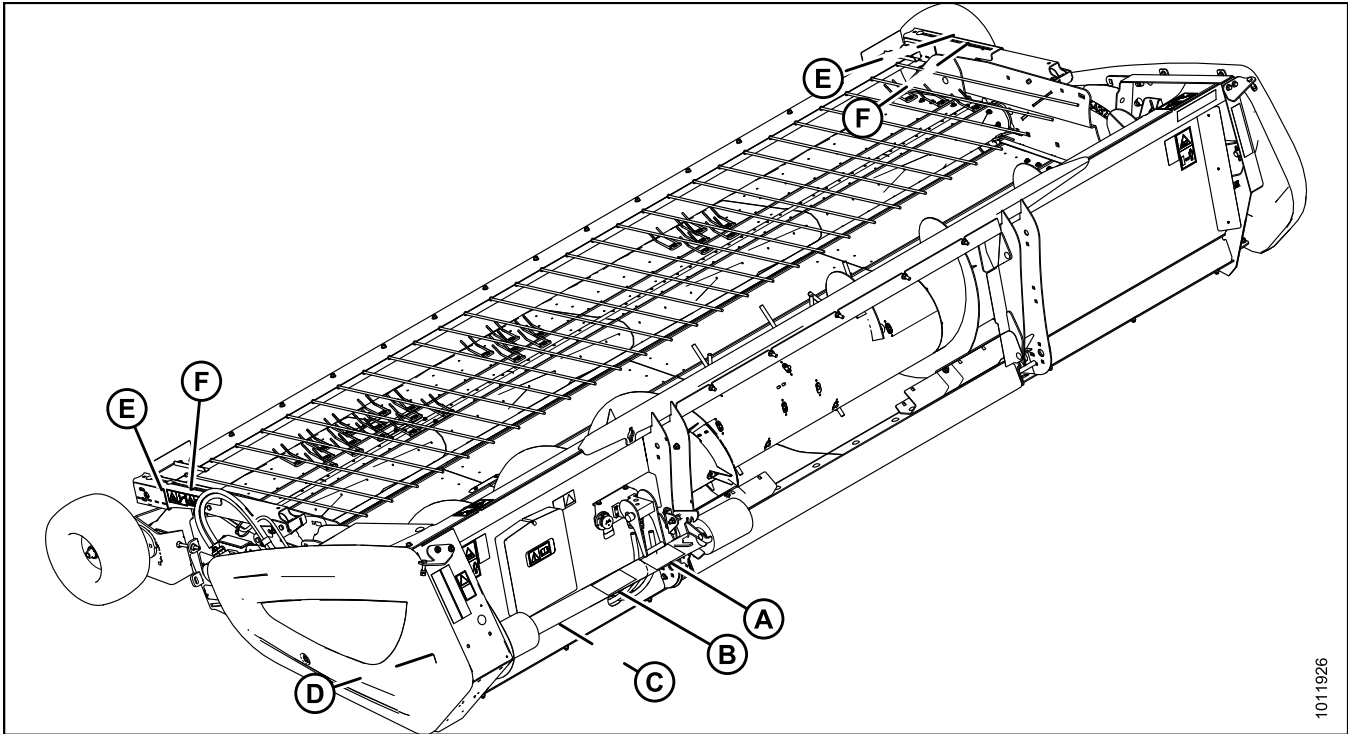
C - MD #184372  
F - MD #237298



1006818

Figure 1.18: Header Decals

SAFETY



1011926

Figure 1.19: Driveline and Hold-Down Decals – Case IH

A - MD #30316

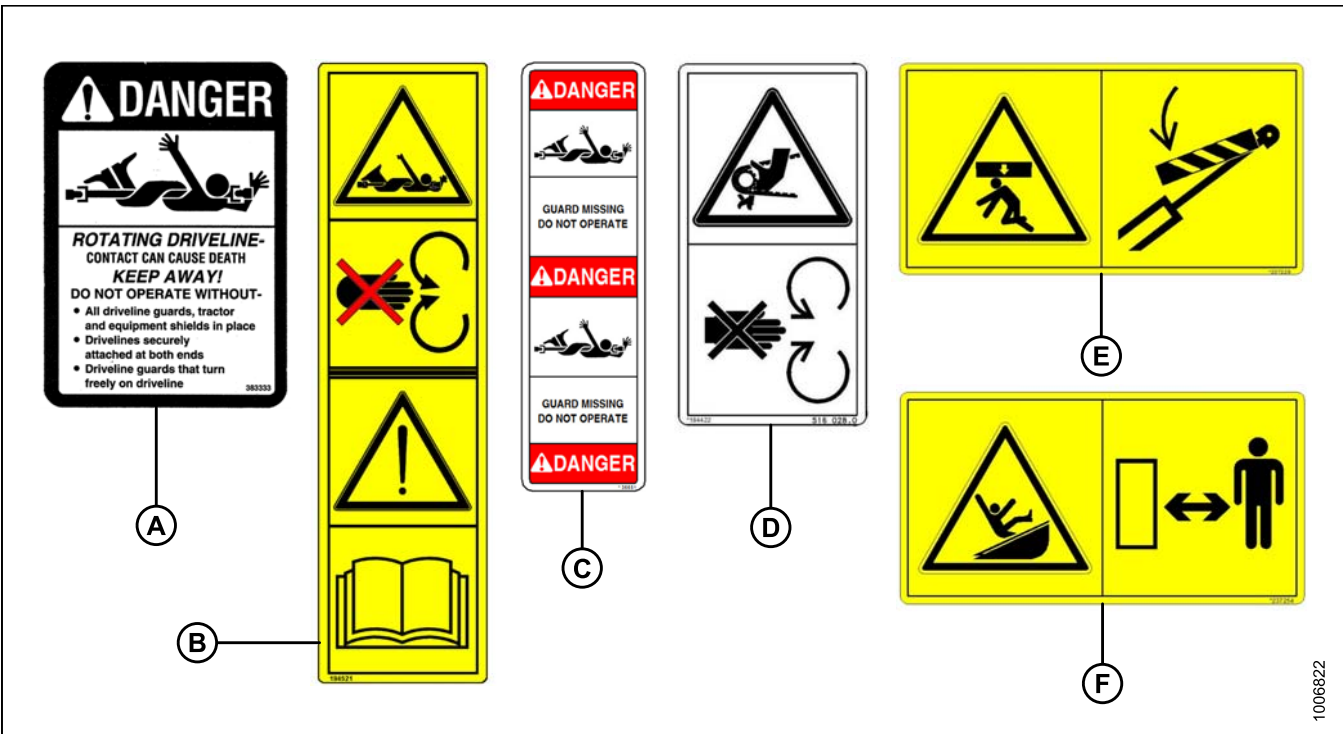
B - MD #191099

C - MD #36651

D - MD #184422 (Behind Endshield)

E - MD #237229

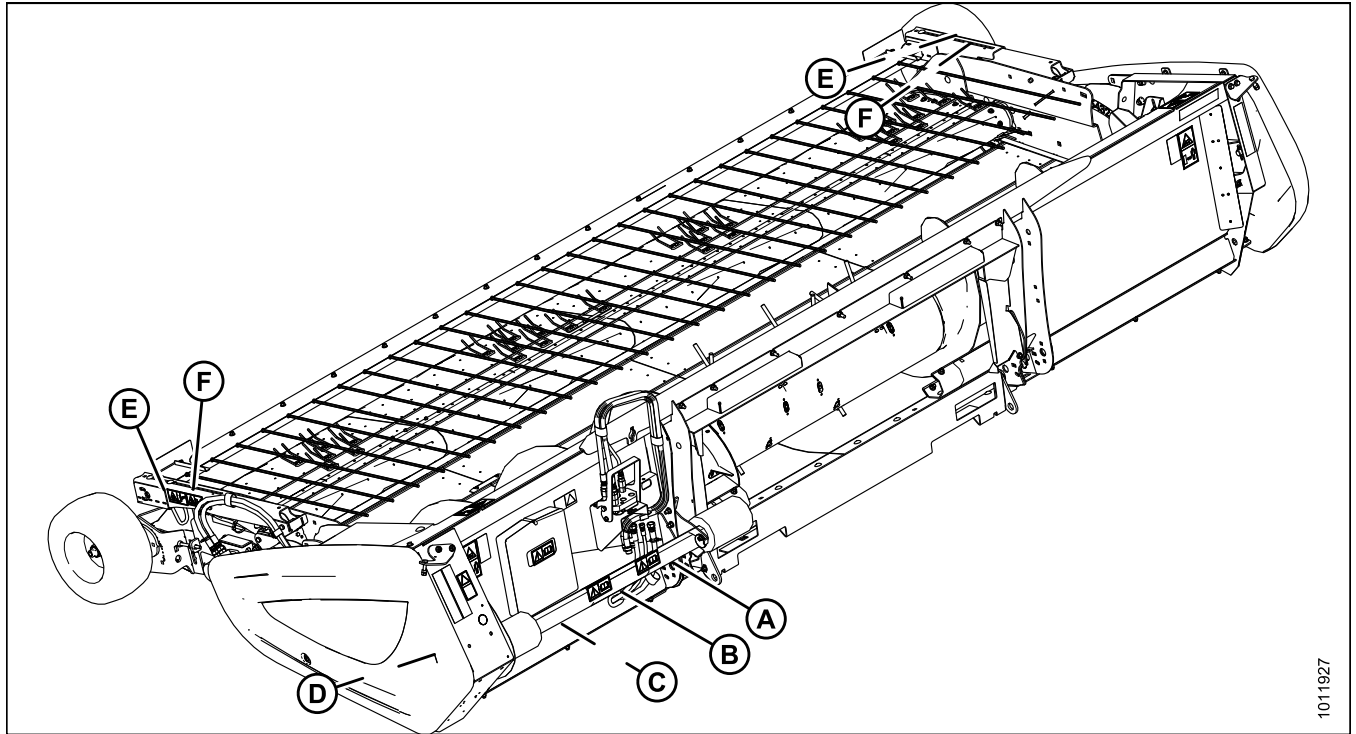
F - MD #237254



1006822

Figure 1.20: Driveline and Hold-Down Decals

SAFETY



1011927

Figure 1.21: Driveline and Hold-Down Decals – John Deere

A - MD #30316

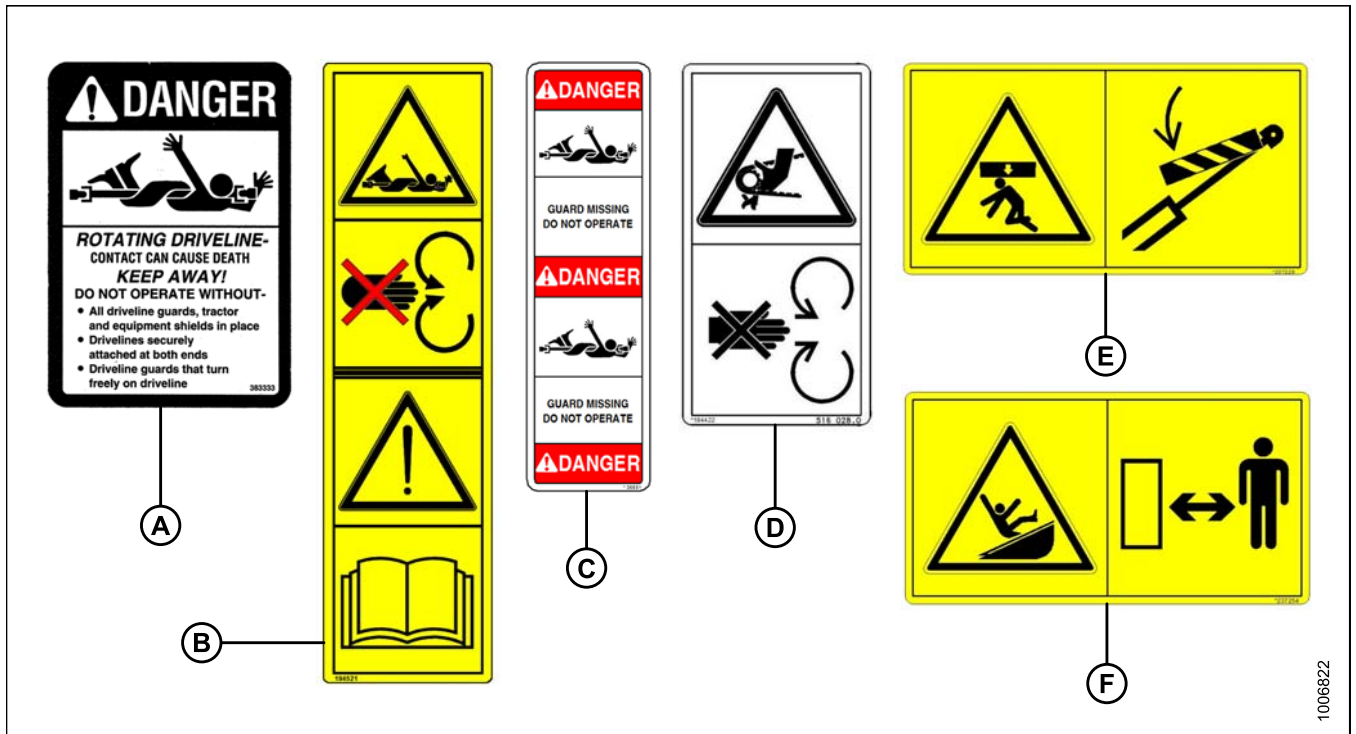
B - MD #191099

C - MD #36651

D - MD #184422 (Behind Endshield)

E - MD #237229

F - MD #237254



1006822

Figure 1.22: Driveline and Hold-Down Decals

## 1.8 Understanding Safety Signs

### MD #30316

Rotating driveline

#### DANGER

- Rotating driveline contact can cause death—**keep away!**

Do not operate without:

- All driveline guards, tractor, and equipment shields in place.
- Drivelines securely attached at both ends.
- Driveline guards that turn freely on driveline.



Figure 1.23: MD #30316

### MD #36651

Rotating driveline

#### DANGER

- Rotating driveline contact can cause death—**keep away!**

Do not operate without:

- Stopping the engine and removing the key before opening shield.
- All driveline guards, tractor, and equipment shields in place.

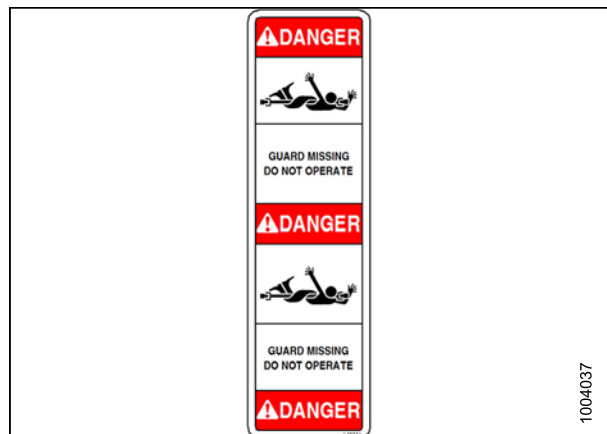


Figure 1.24: MD #36651

### MD #166466

High pressure oil hazard

#### WARNING

- Do not go near leaks.
- High pressure oil easily punctures skin causing serious injury, gangrene, or death.
- If injured, seek emergency medical help. Immediate surgery is required to remove oil.
- Do not use finger or skin to check for leaks.
- Lower load or relieve hydraulic pressure before loosening fittings.



Figure 1.25: MD #166466

## SAFETY

### MD #184370

Crushing hazard

#### CAUTION

- Rest header on ground or engage cylinder safety props before going under unit.
- Failure to comply could result in death or serious injury.

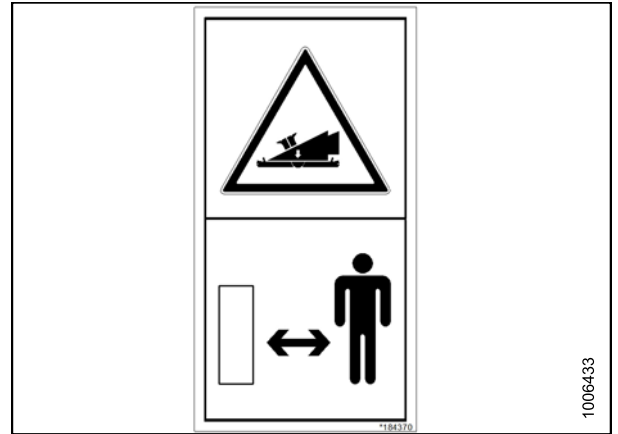


Figure 1.26: MD #184370

### MD #184371

Open drive hazard

#### WARNING

- Guard missing. Do not operate.
- Keep all shields in place.



Figure 1.27: MD #184371

## SAFETY

### MD #184372

General hazard pertaining to machine operation and servicing

#### CAUTION

To avoid injury or death from improper or unsafe machine operation:

- Read the operator's manual and follow all safety instructions. If you do not have a manual, obtain one from your Dealer.
- Do not allow untrained persons to operate the machine.
- Review safety instructions with all Operators annually.
- Ensure that all safety signs are installed and legible.
- Make certain everyone is clear of machine before starting engine and during operation.
- Keep riders off the machine.
- Keep all shields in place and stay clear of moving parts.
- Disengage header drive, put transmission in Neutral, and wait for all movement to stop before leaving operator's position.
- Shut off the engine and remove the key from ignition before servicing, adjusting, lubricating, cleaning, or unplugging machine.
- Engage safety props to prevent lowering of raised unit before servicing in the raised position.
- Use slow moving vehicle emblem and flashing warning lights when operating on roadways unless prohibited by law.

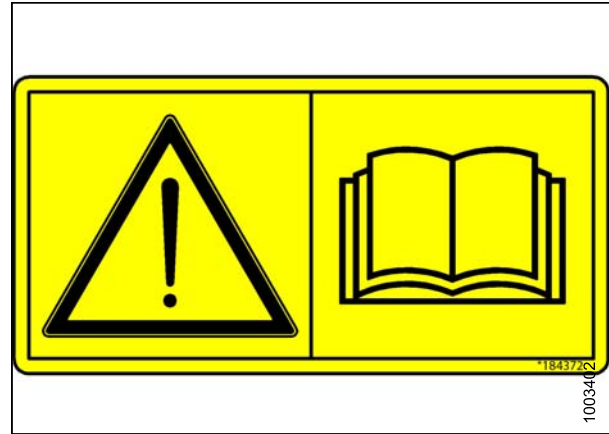


Figure 1.28: MD #184372

### MD #184420

Crushing hazard

#### WARNING

- To avoid injury from being pinned or crushed, stay clear of header while machine is operating or in motion. Failure to comply could result in death or serious injury.



Figure 1.29: MD #184420



## SAFETY

### MD #184422

Keep shields in place hazard

#### WARNING

- Do not place foot.
- To avoid injury, stop the engine and remove the key before opening power drive system shield.
- Keep all shields in place.



Figure 1.30: MD #184422

### MD #191099

Auger entanglement hazard

#### CAUTION

- To avoid injury from entanglement with rotating auger, stand clear of header while machine is running.

General hazard pertaining to machine operation and servicing

#### CAUTION

- Read the operator's manual and follow safety instructions. If you do not have a manual, obtain one from your Dealer.
- Do not allow untrained persons to operate the machine.
- Review safety instructions with all Operators every year.
- Ensure that all safety signs are installed and legible.
- Make certain everyone is clear of machine before starting engine and during operation.
- Keep riders off the machine.
- Keep all shields in place and stay clear of moving parts.
- Disengage header drive, put transmission in Neutral, and wait for all movement to stop before leaving operator's position.
- Stop the engine and remove the key from ignition before servicing, adjusting, lubricating, cleaning, or unplugging machine.
- Engage safety props to prevent lowering of unit before servicing in the raised position.
- Use slow moving vehicle emblem and flashing warning lights when operating on roadways unless prohibited by law.

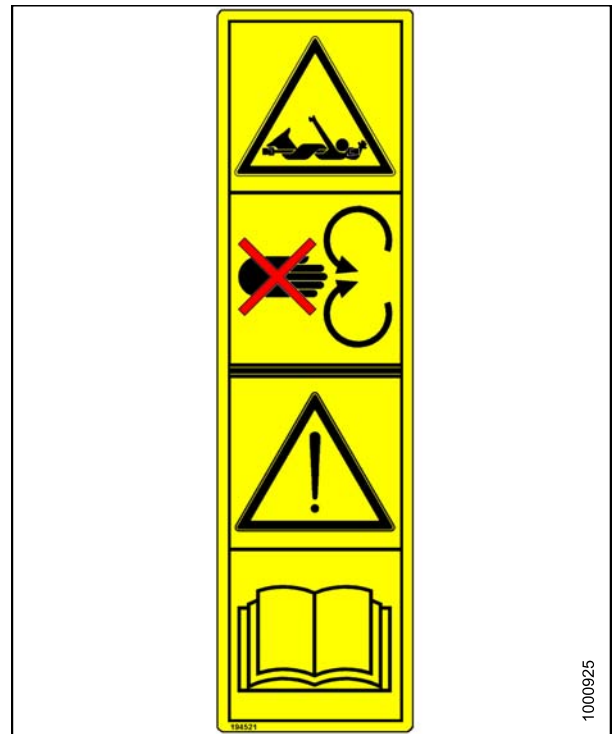


Figure 1.31: MD #191099

## SAFETY

### MD #237229

Header crushing hazard

#### WARNING

- Rest header on ground or engage cylinder safety props before going under unit.



Figure 1.32: MD #237229

### MD #237254

Header entanglement hazard

#### CAUTION

- To avoid injury from entanglement with crop gathering elements, stand clear of header while machine is running.

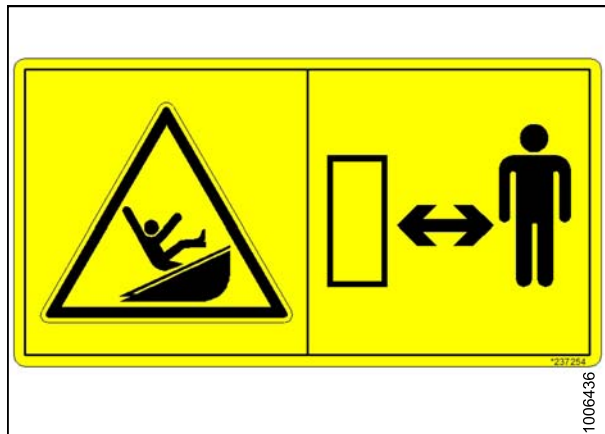


Figure 1.33: MD #237254

### MD #237298

Auger entanglement hazard

#### CAUTION

- To avoid injury from rotating auger, stand clear of auger while machine is running.



Figure 1.34: MD #237298

## 2 Description

### 2.1 PW8 Header Specifications

**Table 2.1 Header Specifications**

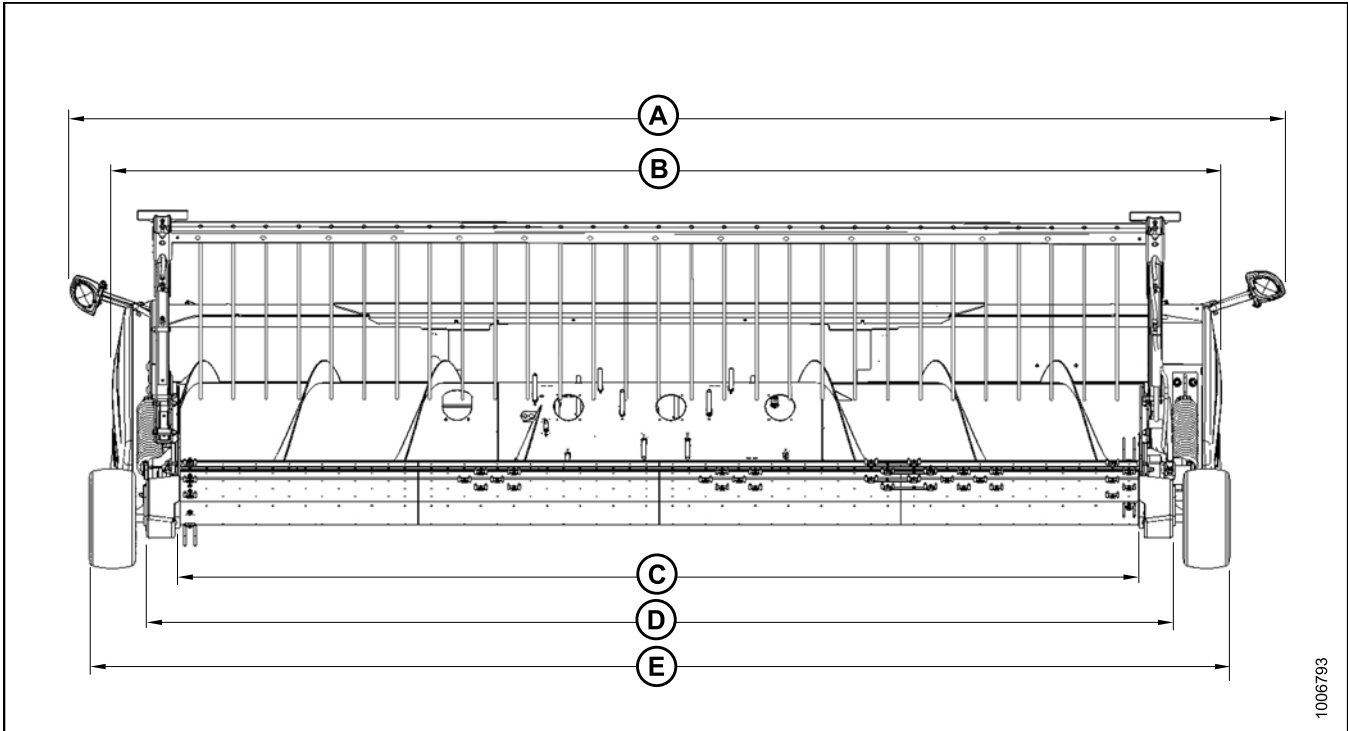
Components	Specifications
<b>Frame and Structure</b>	
Width to Edge of Tires	Refer to <a href="#">2.2 PW8 Header Dimensions, page 18</a>
Width (Transport Lights Extended)	
Depth	
Height (Transport Lights Extended)	
Weight (Not Including Completion Packages)	3006 lb (1366 kg)
Carrier	AGCO, CLAAS, Case IH, New Holland, John Deere, Lexion
Lighting	Two amber transport
Manual Storage	Header mounted manual storage case
<b>Pick-up</b>	
Finger Bat Width	N/A
Actual Picking Width	Refer to <a href="#">2.2 PW8 Header Dimensions, page 18</a>
Draper Width	
Quantity of Pick-Up Fingers	392
Draper Drives	Two 5.9 cu. in. (97 cc) hydraulic motors
<b>Auger</b>	
Diameter (Including Flighting)	24 in. (615 mm)
Tube Diameter	16 in. (410 mm)
Quantity of Fingers	13–22
Finger Diameter	5/8 in. (16 mm) diameter induction hardened
Speed (Combine Dependent)	141–204 rpm
<b>Driveline</b>	
Type	Heavy duty PTO type, fully shielded with built-in clutch
Connections	Locking collar
<b>Tires</b>	
Size	18-1/2 / 8-1/2 x 8
Pressure	35–45 psi (240–310 kPa)

**NOTE:**

Specifications and design are subject to change without notice or obligation to revise previously sold units.

DESCRIPTION

## 2.2 PW8 Header Dimensions



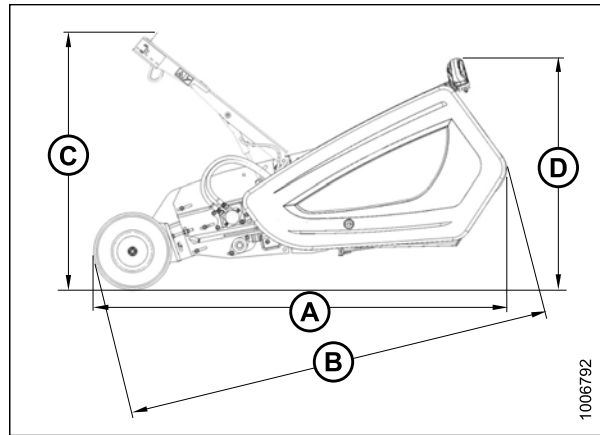
1006793

**Figure 2.1: Header Dimensions**

A - 222-3/4 in. (5658 mm)  
D - 187-5/8 in. (4766 mm)

B - 203-1/2 in. (5170 mm)  
E - 209-3/8 in. (5318 mm)

C - 178-1/8 in. (4523 mm)



1006792

**Figure 2.2: Header Dimensions**

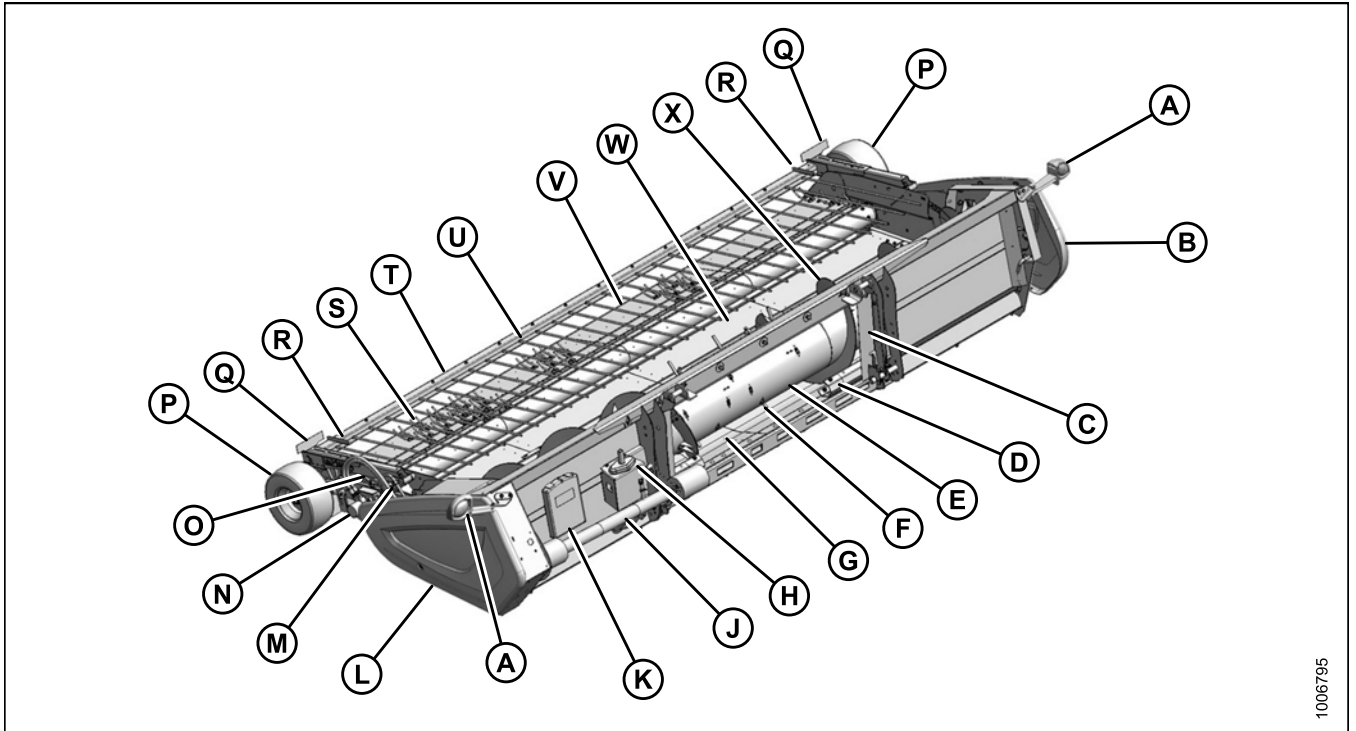
A - 96-7/8 in. (2460 mm)

B - 98-7/8 in. (2513 mm)

C - 60-3/4 in. (1544 mm)

D - 54-3/8 in. (1380 mm)

## 2.3 PW8 Component Identification



**Figure 2.3: PW8 Header**

A - Transport Light

D - Stripper Plate

G - Auger Pan

J - Driveline

M - Hold-Down Cylinder Safety Prop

P - Gauge Wheel

S - Draper Finger

V - Forward Draper Deck

B - Endshield - Fixed

E - Auger

H - Multi-Coupler Receptacle

K - Manual Case

N - Draper Drive Motor

Q - Reflector

T - Hold-Down

W - Rear Draper Deck

C - Window Frame

F - Auger Finger

I - Not Used

L - Endshield - Latched

O - Hold-Down Lift Cylinder

R - Handle

U - Hold-Down Fiberglass Rod

X - Auger Flighting

1006795



## 3 Operation

### 3.1 Owner/Operator Responsibilities

#### CAUTION

- It is your responsibility to read and understand this manual completely before operating the header. Contact your Dealer if an instruction is not clear to you.
- Follow all safety messages in the manual and on safety decals applied to the machine.
- Remember that YOU are the key to safety. Good safety practices protect you and the people around you.
- Before allowing anyone to operate the header, for however short a time or distance, make sure they have been instructed in its safe and proper use.
- Review the manual and all safety related items with all Operators annually.
- Be alert for other Operators not using recommended procedures or not following safety precautions. Immediately correct mistakes to prevent accidents.
- Do NOT modify the machine. Unauthorized modifications may impair function and/or safety and affect machine life.
- The safety information given in this manual does not replace safety codes, insurance needs, or laws governing your area. Be sure your machine meets the standards set by these regulations.

## 3.2 Operational Safety

### CAUTION

- Follow all safety and operational instructions given in your combine Operator's Manual. If you do not have a combine manual, get one from your Dealer and read it thoroughly.
- Never start or move the machine until you are sure all bystanders have cleared the area.
- Stop combine engine and remove key before adjusting or removing plugged material from the machine. A child or even a pet could engage the drive.
- Check for excessive vibration and unusual noises. If there is any indication of trouble, shut down and inspect the machine.

### CAUTION

Follow proper shutdown procedure:

- Engage combine brake.
- Turn off engine and remove key.
- Wait for all movement to stop.
- Dismount and engage safety props before inspecting raised machine.
- Operate only in daylight or good artificial light.



## 3.3 Endshields

The endshields are molded polyethylene covers that are attached to the ends of the header. They provide shielding for the header drive components and also display the make of the combine. The left endshield is hinged to the endsheet and can be opened for routine maintenance or easily removed for major servicing. The right endshield is bolted directly to the header.

### 3.3.1 Opening Left-Hand Endshield

#### DANGER

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

1. Lower header to ground, shut down engine, and remove key from ignition.
2. Unlock endshield (B) by turning latch (A) counterclockwise using a slotted screwdriver until it stops (slightly more than one-half turn).

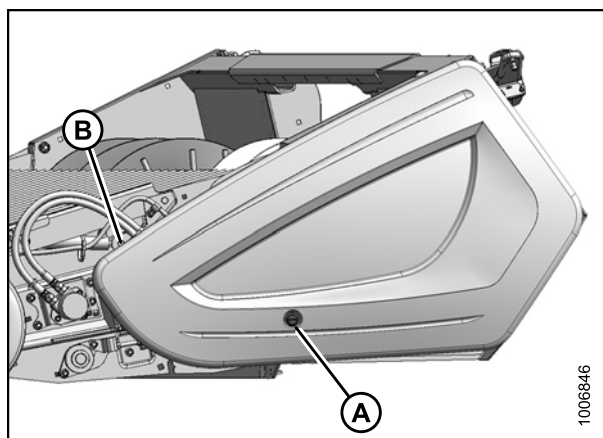


Figure 3.1: Endshield Closed

3. Grasp forward end of endshield (A) and pull open until support (B) engages and holds endshield in open position.

#### NOTE:

If additional access to the drive area is required, remove the endshield. Refer to [5.4.1 Removing Left-Hand Endshield, page 136](#).

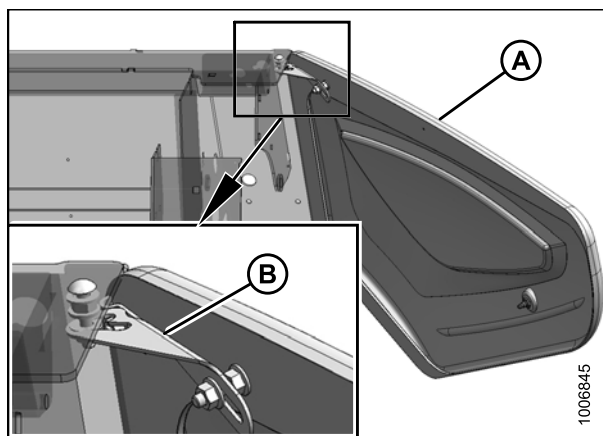


Figure 3.2: Endshield Open

### 3.3.2 Closing Left-Hand Endshield

1. Move endshield (A) slightly so support (B) can be moved out of the locked position.

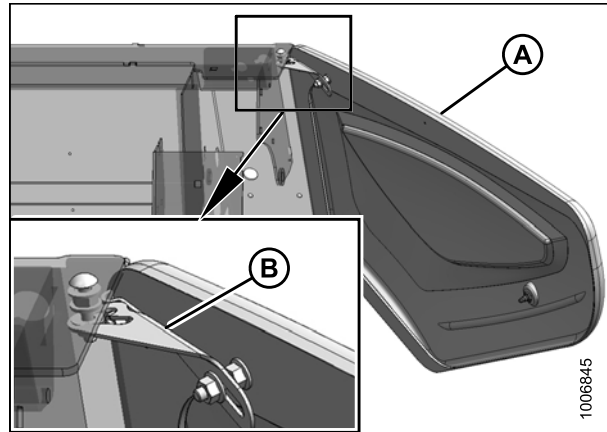


Figure 3.3: Endshield Support

2. Close shield (A) ensuring magnet (B) and stop (C) in header frame are aligned. This will ensure that latch (D) aligns with receptacle (E).

**NOTE:**

Latch (D) and magnet (B) positions are preset at the factory and should not require adjustment.

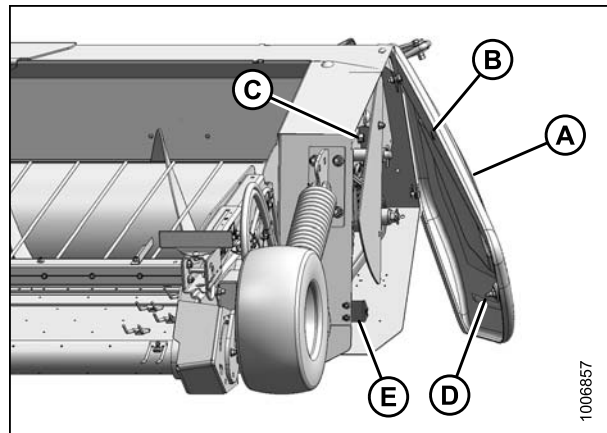


Figure 3.4: Endshield

3. If front of shield needs to be raised or lowered, loosen nuts (B) on clips (C) at the back of the shield (A) and reposition the shield. Tighten nuts (B) but do not overtighten to prevent damaging the shield.

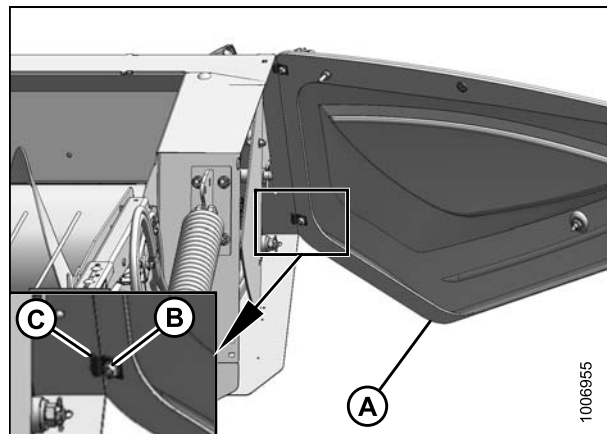


Figure 3.5: Endshield Adjustment

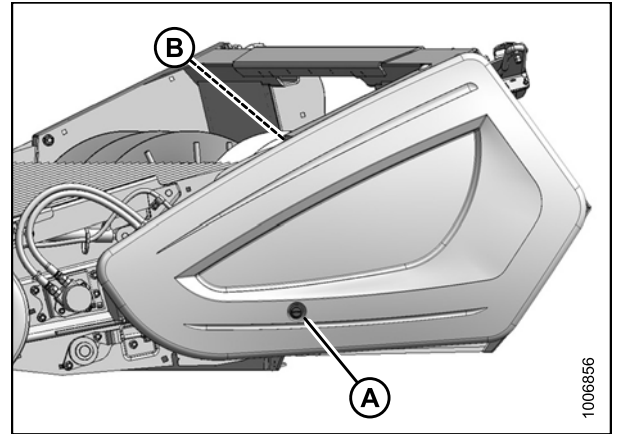
## OPERATION

4. Close the shield and turn latch (A) clockwise using a slotted screwdriver until it stops (slightly more than one-half turn).

**NOTE:**

When latch is fully engaged, the notch on the latch will align with the notch on the endsheet (not shown), and the endshield will draw tightly against the header and slightly compress.

5. Ensure magnet (B) on endshield is against the stop on endsheet and latch is engaged.



**Figure 3.6: Endshield Closed**

### 3.4 Header Lift Cylinder Safety Props

Refer to your Combine Operator's Manual.

**IMPORTANT:**

Always engage combine safety props before working on header in elevated position.

### 3.5 Hold-Down Lift Cylinder Safety Props

Lift cylinder safety props are located at each hold-down support arm. The hold-down is controlled by the reel lift control located inside the combine cab. Activate the control to raise/lower the hold-down.

**NOTE:**

John Deere combines use the fore/aft circuit to control the hold-down cylinders.

**⚠ WARNING**

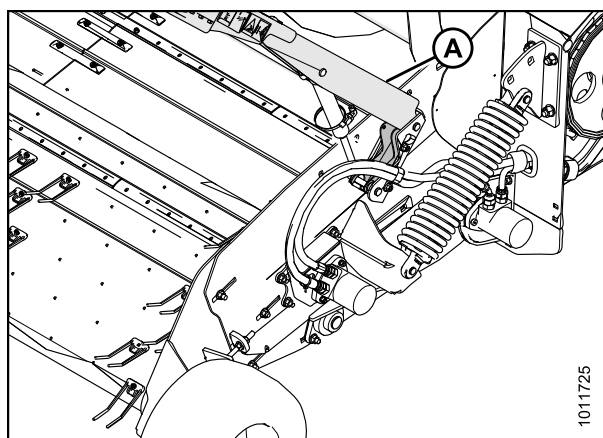
To avoid bodily injury from fall of raised hold-down, always engage cylinder safety props before going under raised hold-down for any reason.

**IMPORTANT:**

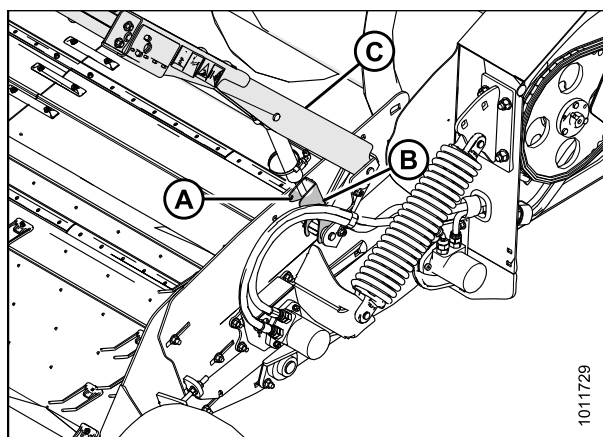
To prevent damage to hold-down support arms, do not transport header with cylinder safety props engaged.

**Engage hold-down safety props as follows:**

1. Raise hold-down (A) to maximum height.
2. Remove retaining pin (A) from safety prop.
3. Raise safety prop (B) to engaged position.
4. Install retaining pin (A) onto safety prop.
5. Lower hold-down onto safety props.



**Figure 3.7: Safety Props Engaged**

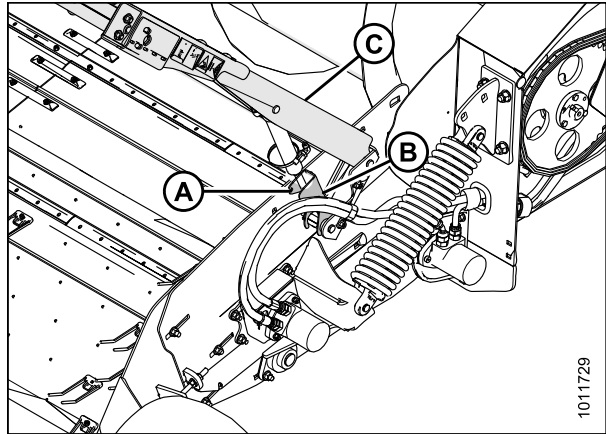


**Figure 3.8: Safety Props Engaged**

## OPERATION

### Disengage hold-down safety props as follows:

6. Raise hold-down to relieve pressure on safety props.
7. Remove retaining pin (A) from safety prop.
8. Lower safety prop (B) to disengaged position.
9. Install retaining pin (A) onto safety prop.



**Figure 3.9: Safety Props Engaged**

### 3.6 Daily Start-up Check

Perform the following checks each day before startup:

#### CAUTION

- Ensure combine and header are properly attached, all controls are in neutral and combine brake is engaged.
  - Clear the area of other persons, pets, etc. Keep children away from machinery. Walk around the machine to make sure no one is under, on, or close to it.
  - Wear close-fitting clothing and protective shoes with slip-resistant soles.
  - Remove foreign objects from the machine and surrounding area.
  - Carry with you any protective clothing and personal safety devices that could be necessary through the day. Don't take chances. You may need a hard hat, protective glasses or goggles, heavy gloves, a respirator or filter mask, or wet weather gear.
  - Protect against noise. Wear suitable hearing protection devices such as ear muffs or ear plugs to help protect against objectionable or loud noises.
1. Check the machine for leaks or any parts that are missing, broken, or not working correctly.

#### NOTE:

Use proper procedure when searching for pressurized fluid leaks. Refer to [5.9.3 Hydraulic Hoses and Lines, page 209](#).

2. Clean all lights and reflective surfaces on the machine, and check lights for proper operation.
3. Perform all daily maintenance. Refer to [5.2.1 Maintenance Schedule/Record, page 131](#).

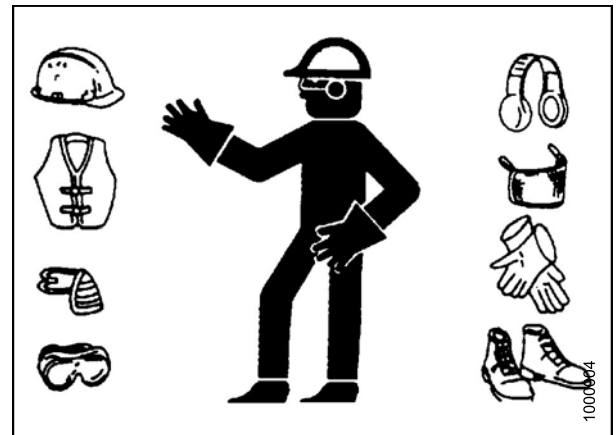


Figure 3.10: Safety Equipment

## 3.7 Shutdown Procedure

### CAUTION

Before leaving the combine seat for any reason:

- Park on level ground if possible.
- Lower the header fully.
- Place all controls in Neutral, and engage combine brake.
- Stop engine and remove key from ignition.
- Wait for all movement to stop.



## 3.8 Break-In Period

### CAUTION

**Before investigating an unusual sound or attempting to correct a problem, shut off engine, engage parking brake and remove key.**

1. After attaching header to combine for the first time, operate the machine at low speed for five minutes while carefully watching and listening **from the operator's seat** for binding or interfering parts.
2. Refer to [5.2.1 Maintenance Schedule/Record, page 131](#) and perform items listed under heading "**10 HOURS.**"

**NOTE:**

Until you become familiar with the sound and feel of your new header, be extra alert and attentive.

## OPERATION

### 3.9 Changing Header Opening

To minimize the set up at the dealer, PW8 Pick-Up Headers are shipped from the factory in a configuration to suit a particular combine make, model, and feeder house size. Each header includes the necessary parts and hardware to modify it, if required, to accommodate another model of combine with a different size feeder house.

The conversion procedure is included in the Unloading and Assembly Instruction that is provided with the header.

**Table 3.1 Combine Configurations**

Factory Header Configuration			Modified Header Configuration	
Combine Make	Combine Model(s)	Feeder House Size	Combine Model(s)	Feeder House Size
Case IH	7010, 8010, 7120, 8120, 9120, 7230, 8230, 9230, 7240, 8240, and 9240	54 in. (1372 mm)	5088, 6088, 7088, 5130, 6130, 7130, 5140, 6140, and 7140	45-1/2 in. (1156 mm)
John Deere	9660 STS, 9760 STS, 9860 STS, 9670 STS, 9770 STS, 9870 STS, S650, S660, S670, S680, and S690	55 in. (1397 mm)	9660 WTS and T670	65-1/2 in. (1664 mm)
New Holland	CR970, CR980, CR9070, CR9080, CR8090, CR9090, CR9090 Elevation, CR8.90, CR9.90, CR9.90 Elevation, and CR10.90 Elevation	50 in. (1270 mm)	CX840, CX860, CX880, CX8070, CX8080, CX8080 Elevation, CX8090, and CX8090 Elevation	62 in. (1575 mm)
			CR920, CR940, CR960, CR9020, CR9040, CR9060, CR9065, CR6090, CR7090, CR8080, CR6.90, and CR7.90	40 in. (1016 mm)

### 3.10 Header Attachment and Detachment

This section provides instruction for attaching the PW8 Pick-Up Header to, and detaching from, the combines listed in Table 3.2 *Attaching PW8 Header to Combine, page 33*.

**Table 3.2 Attaching PW8 Header to Combine**

Combine	Refer to
Case IH	<a href="#">3.10.1 Case IH, page 33</a>
John Deere 60, 70, and S Series	<a href="#">3.10.2 John Deere 60, 70, and S Series, page 40</a>
New Holland CR and CX	<a href="#">3.10.3 New Holland CR/CX Series Combine, page 46</a>

#### 3.10.1 Case IH

This section provides instruction for attaching the PW8 Pick-Up Header to, and detaching from, Case IH 5088, 6088, 7088, 5130, 6130, 7130, 5140, 6140, 7140, 7010, 8010, 7120, 8120, 9120, 7230, 8230, 9230, 7240, 8240, and 9240 combines.



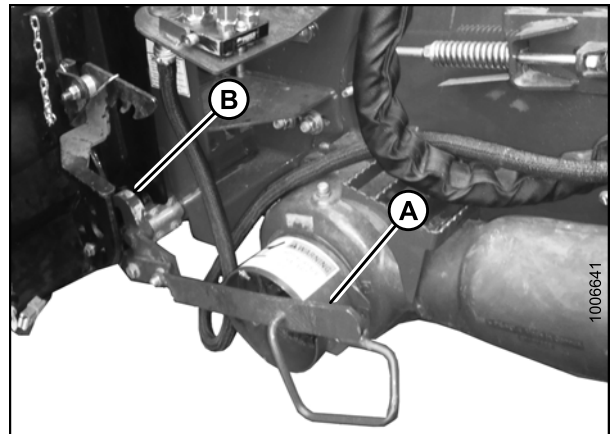
**Figure 3.11: Case IH Combine**

#### *Attaching to Case IH Combine*

#### **⚠ DANGER**

**Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.**

1. Pull handle (A) on combine to raise hooks (B) on both sides of the feeder house.



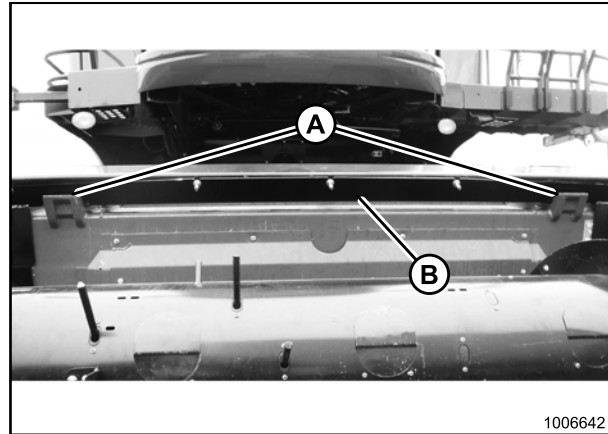
**Figure 3.12: Feeder House Locks**

## OPERATION

2. Drive combine slowly up to header until feeder house saddle (A) is directly under the header top beam (B).
3. Raise feeder house slightly to lift header ensuring feeder house saddle (A) is properly engaged in header frame.
4. Stop engine, and remove key from ignition.

### **WARNING**

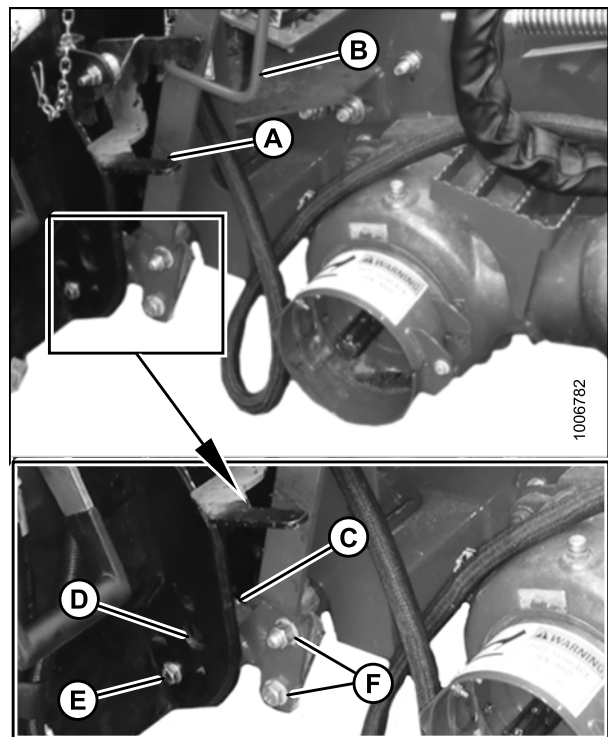
**Stop combine engine and remove key before making adjustments to machine. A child or even a pet could engage the drive.**



1006642

**Figure 3.13: Header on Combine**

5. Lift lever (A) on header at left side of feeder house and push handle (B) on combine to engage locks (C) on both sides of the feeder house.
6. Push down on lever (A) so that slot in lever engages handle (B) to lock handle in place.
7. Loosen nut (E) and adjust position of pin (D) as necessary (both sides) if locks (C) do not fully engage pins (D) on header. Tighten nut.
8. Loosen bolts (F) and adjust lock as required to obtain full lock on pin (D) when lift lever (A) and handle (B) are engaged. Retighten bolts.

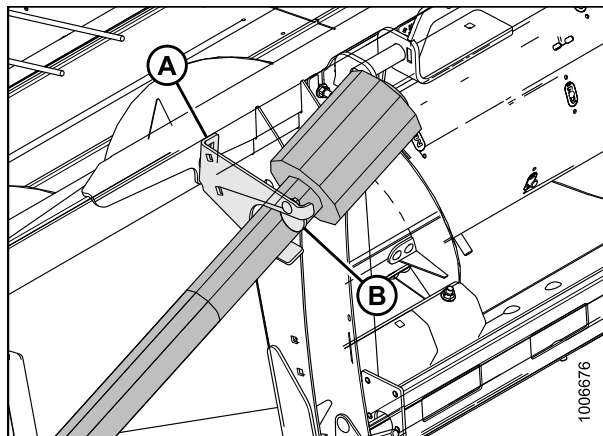


1006782

**Figure 3.14: Engaging Locks**

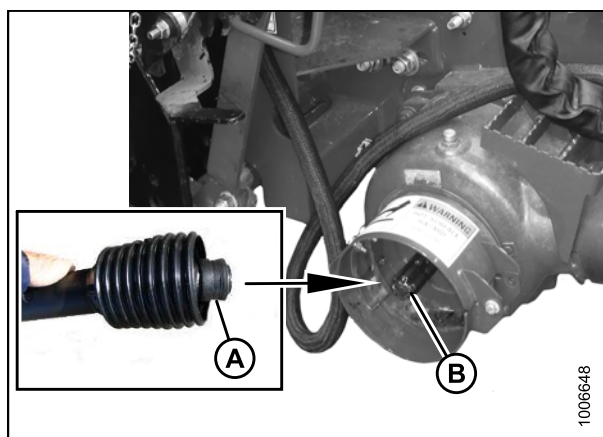
## OPERATION

9. Rotate disc (B) on header driveline storage hook (A) and remove driveline from hook.



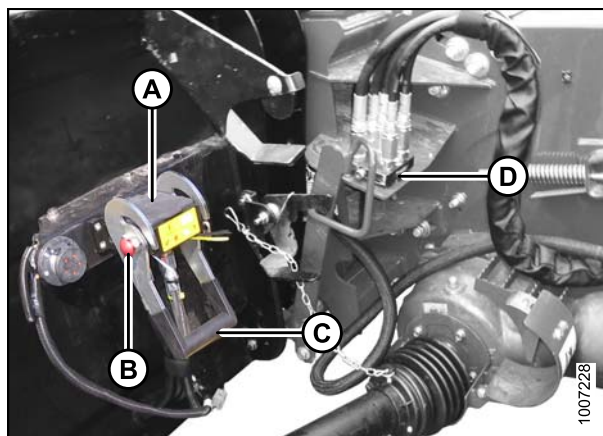
**Figure 3.15: Driveline**

10. Pull back collar (A) on end of driveline and push onto combine output shaft (B) until collar locks.



**Figure 3.16: Attaching Driveline**

11. Open cover (A) on header receptacle.
12. Push in lock button (B) and pull handle (C) upward to fully open position.
13. Remove coupler (D) from combine and clean mating surfaces.



**Figure 3.17: Coupler Lock**

## OPERATION

14. Position coupler (A) onto header receptacle and push handle (B) downward to engage coupler pins into receptacle.
15. Push handle to closed position until lock button (C) snaps out.
16. Open cover (D) on header electrical receptacle.
17. Remove electrical connector (E) from storage cup on combine.
18. Align lugs on electrical connector (E) with slots in receptacle, push connector onto receptacle, and turn collar on connector to lock it in place.

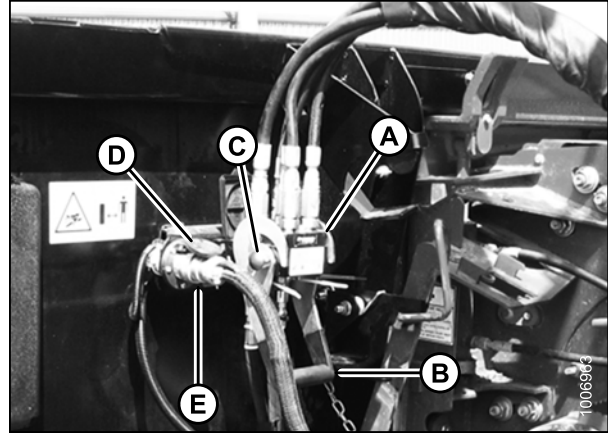


Figure 3.18: Attaching Coupler

### *Detaching from Case IH Combine*

#### **⚠ DANGER**

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

1. Choose a level area, position header slightly off the ground, stop engine and remove key.
2. Push in lock button (C), and pull handle (B) upward to release coupler (A).

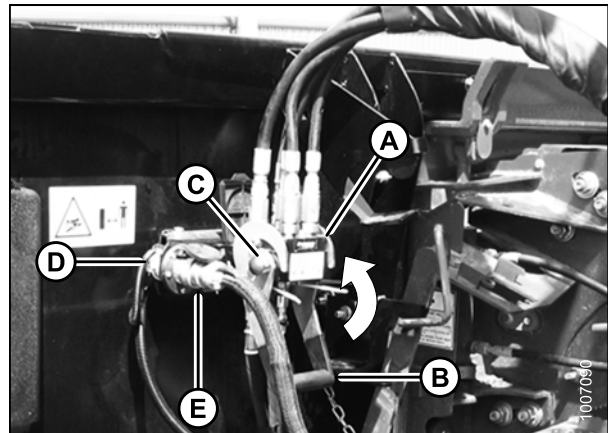
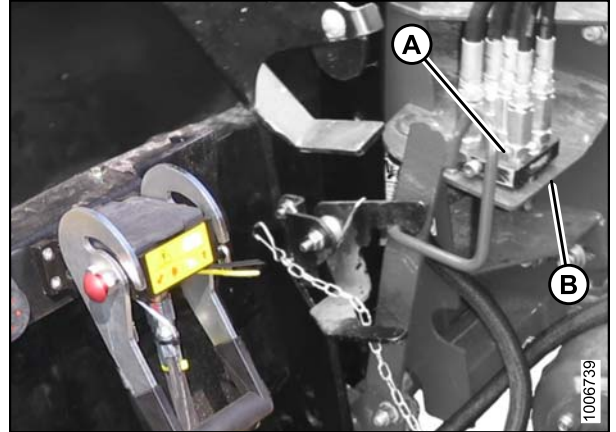


Figure 3.19: Releasing Coupler

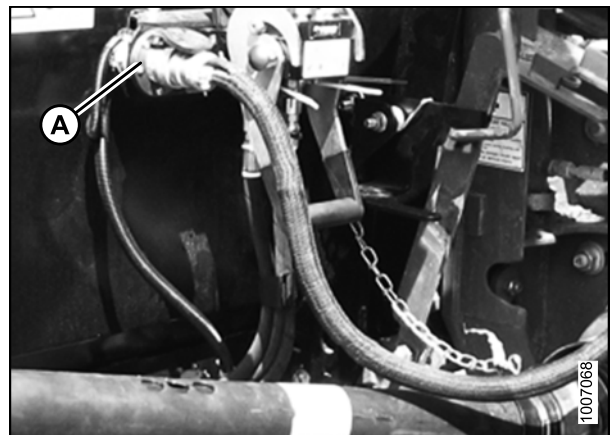
## OPERATION

3. Position coupler (A) onto storage plate (B) on combine.



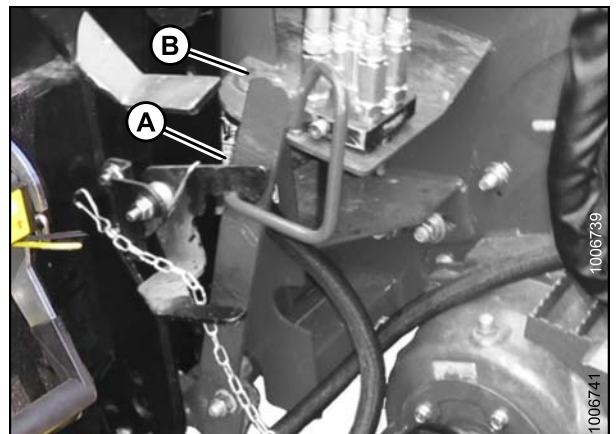
**Figure 3.20: Coupler Storage Location**

4. Disconnect electrical connector (A) from header.



**Figure 3.21: Electrical Connector**

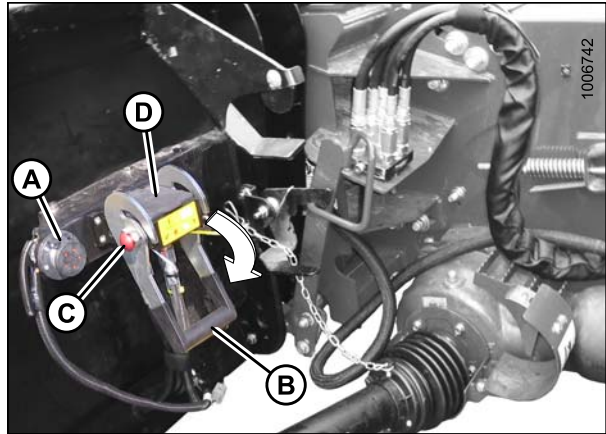
5. Place electrical connector (A) into storage cup (B) on combine.



**Figure 3.22: Electrical Connector Storage**

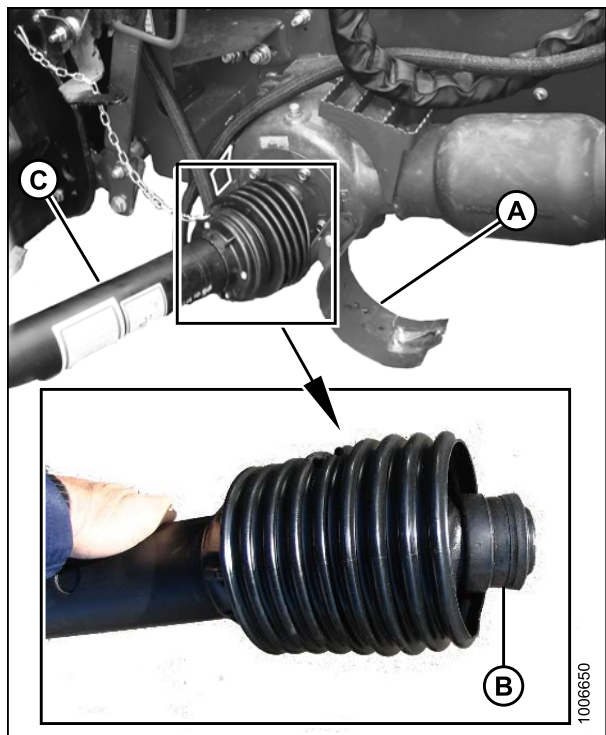
## OPERATION

6. Close cover on header electrical receptacle (A).
7. Push handle (B) on header down into storage position until lock button (C) snaps out.
8. Close cover (D).



**Figure 3.23: Locking Multi-Coupler**

9. Open driveshield (A) on combine.
10. Pull back collar (B) on driveline (C) and remove driveline (C) from combine.

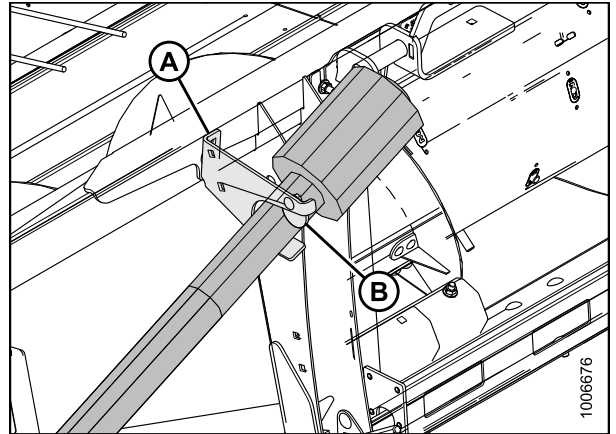


**Figure 3.24: Detaching Driveline**



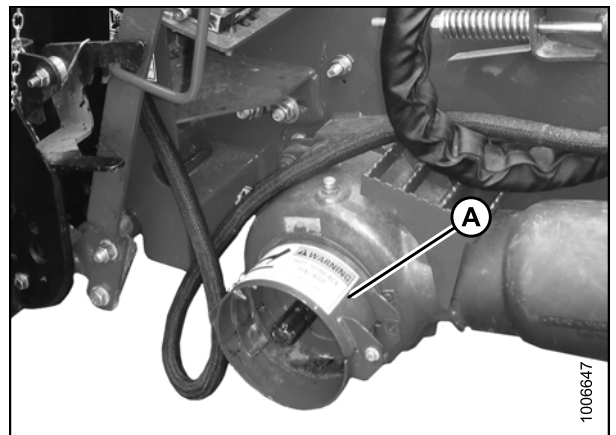
## OPERATION

- Slide driveline into storage hook (A) on header and rotate disc (B) to secure driveline.



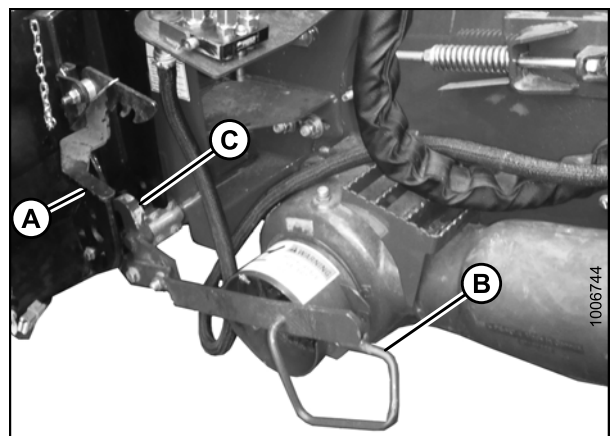
**Figure 3.25: Driveline**

- Close driveshield (A) on combine.



**Figure 3.26: Driveshield**

- Lift lever (A) and pull and lower handle (B) to disengage feeder house/header lock (C).
- Lower feeder house until it disengages from header support.
- Slowly back combine away from header.



**Figure 3.27: Disengaging Header**

### 3.10.2 John Deere 60, 70, and S Series

This section provides instruction for attaching the PW8 Pick-Up Header to, and detaching from, John Deere Contour Master and Level Land 9660 STS, 9760 STS, 9860 STS, 9670 STS, 9770 STS, 9870 STS; S Series S650, S660, S670, S680, S690, and; 9660 WTS and T670 combines.

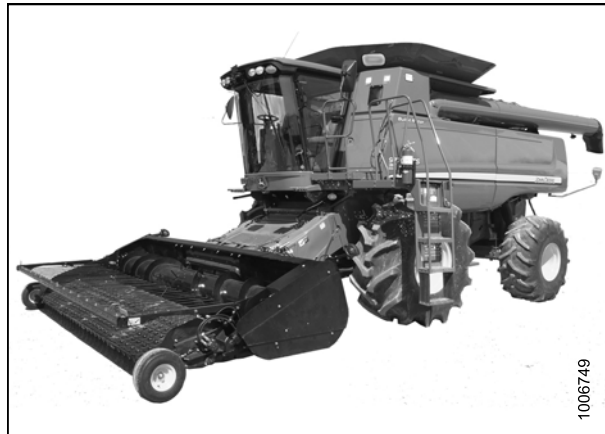


Figure 3.28: John Deere Combine

#### *Attaching to John Deere 60, 70, and S Series Combine*

1. Push handle (A) on combine coupler toward feeder house to retract pins (B) at bottom corners of feeder house.

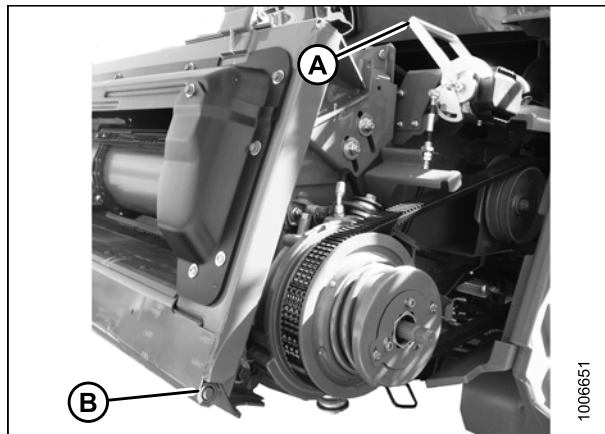


Figure 3.29: Feeder House Locks

2. Drive combine slowly up to header until feeder house saddles (A) are directly under the header top beam (B).
3. Raise feeder house to lift header ensuring feeder house saddles (A) are properly engaged in header frame.
4. Position header until slightly off the ground, stop engine, and remove key from ignition.

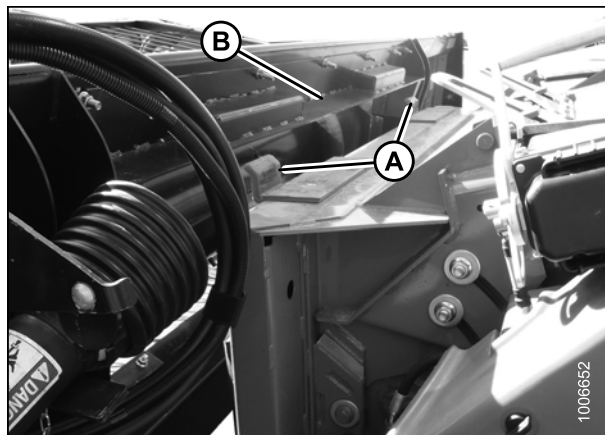


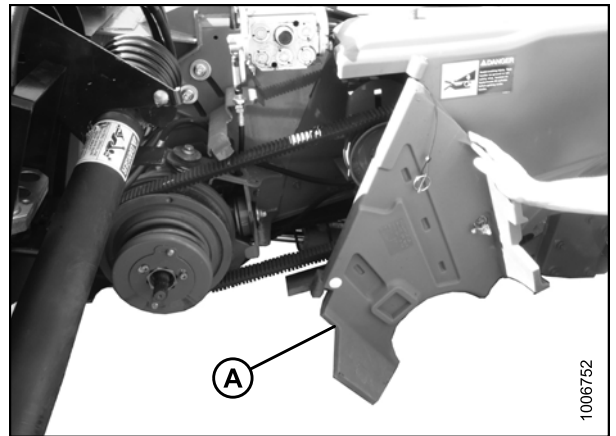
Figure 3.30: Header on Combine

## OPERATION

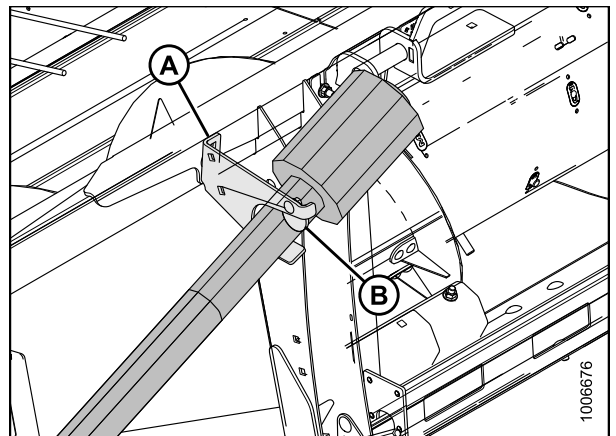
### **WARNING**

Stop combine engine and remove key before making adjustments to machine. A child or even a pet could engage the drive.

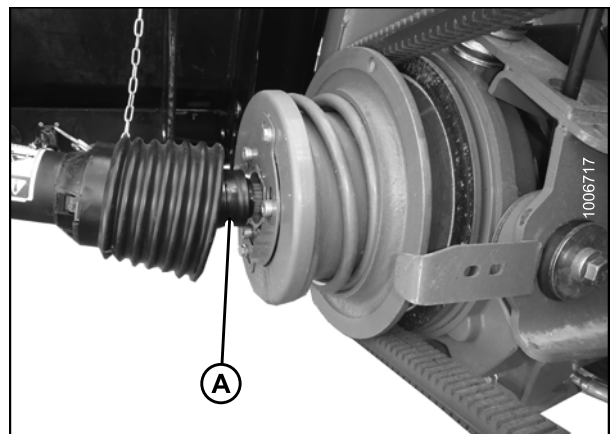
5. Open driveshield (A) on combine feeder house.
6. Rotate disc (B) on header driveline storage hook (A) and remove driveline from hook.
7. Pull back collar (A) on end of driveline and slide driveline on feeder house driveshaft until the collar locks.
8. Close feeder house driveshield.



**Figure 3.31: Combine Driveshield**



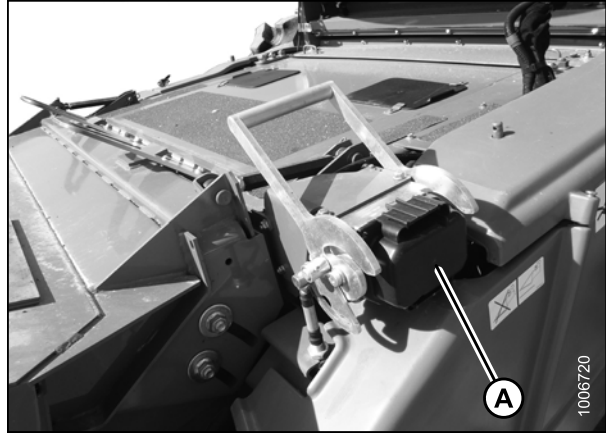
**Figure 3.32: Driveline**



**Figure 3.33: Attaching Driveline**

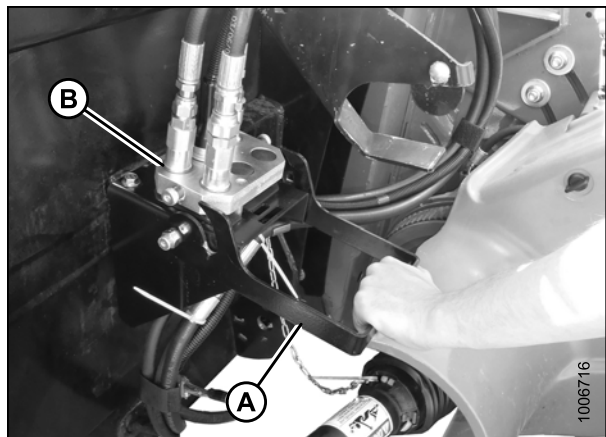
## OPERATION

9. Remove cover (A) from combine multi-coupler receptacle.



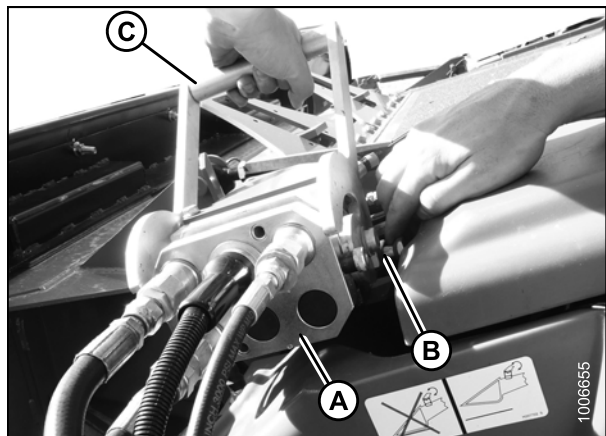
**Figure 3.34: Combine Receptacle**

10. Pull handle (A) on header to release multi-coupler (B) from storage position, remove coupler, and push handle back into header to store.



**Figure 3.35: Releasing Coupler**

11. Place coupler (A) onto combine receptacle.
12. Pull out knob (B) to release handle and pull handle (C) to engage pins in coupler.



**Figure 3.36: Engaging Coupler**

## OPERATION

13. Pull handle (A) from vertical to fully horizontal position to fully engage multi-coupler and to extend pins (B) at base of feeder house into the locking plates (C). Knob (D) will engage to lock handle.

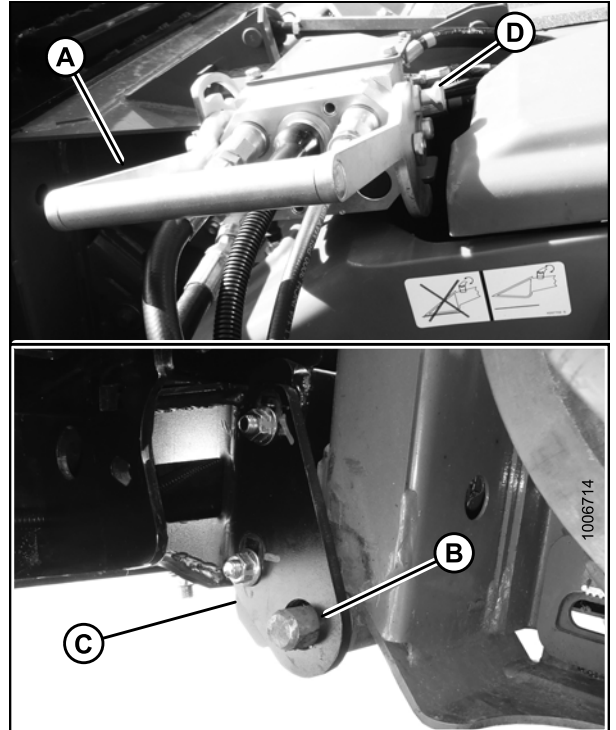


Figure 3.37: Locking Feeder House

### NOTE:

If handle does not move to fully horizontal position, check alignment of locking plates (A) on the header with locking pins (B) on both sides of the feeder house. If necessary, loosen nuts (C) and adjust plates (A) to line up with pins (B). Retighten nuts.

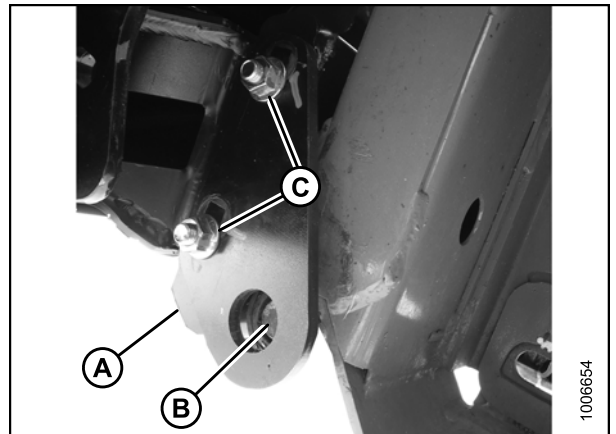


Figure 3.38: Aligning Locking Plates

### *Detaching from John Deere 60, 70, and S Series Combine*

## DANGER

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

1. Choose a level area, position header slightly above ground, stop engine and remove key.

## OPERATION

2. Pull out knob (A) on combine multi-coupler, and move handle (B) toward feeder house to release coupler (C) from combine and to retract locking pins at base of feeder house.

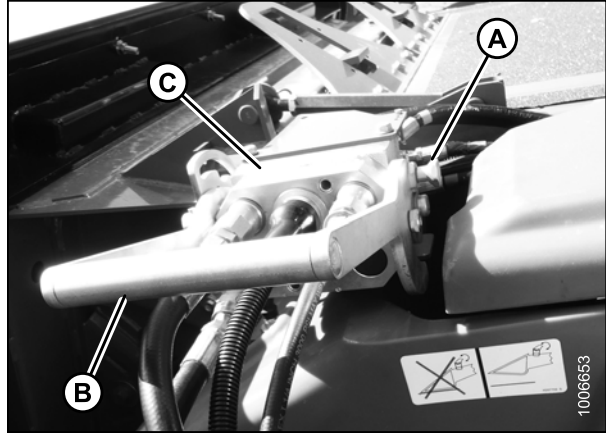


Figure 3.39: Releasing Multi-Coupler

3. Lower handle (A) on header, and position coupler (B) onto header as shown.

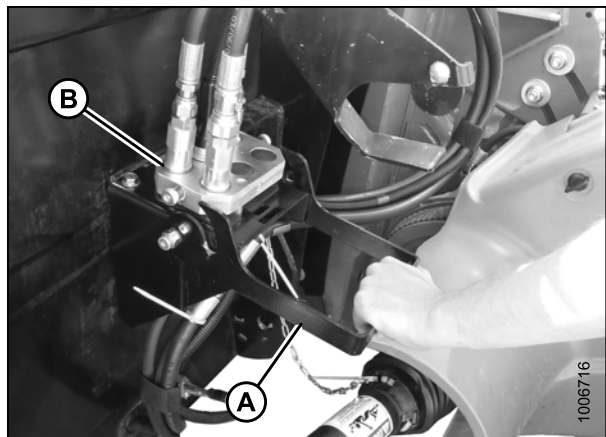


Figure 3.40: Replacing Coupler

4. Raise handle (A) to lock coupler.
5. Open feeder house driveshield (B).

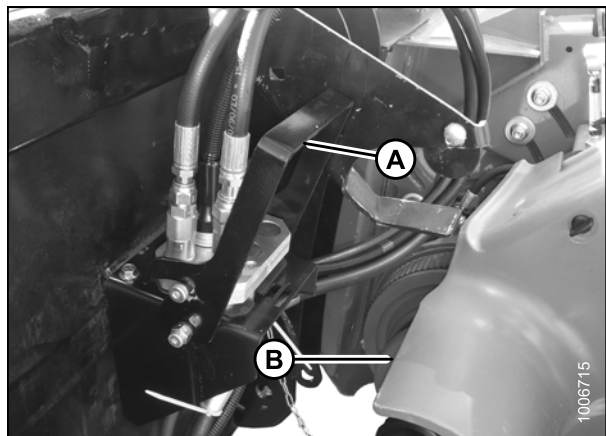
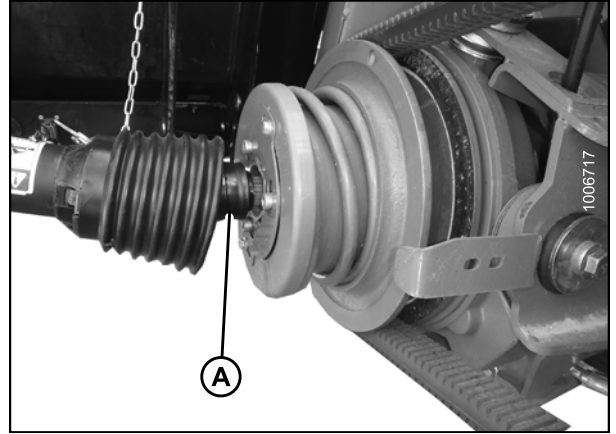


Figure 3.41: Locking Coupler

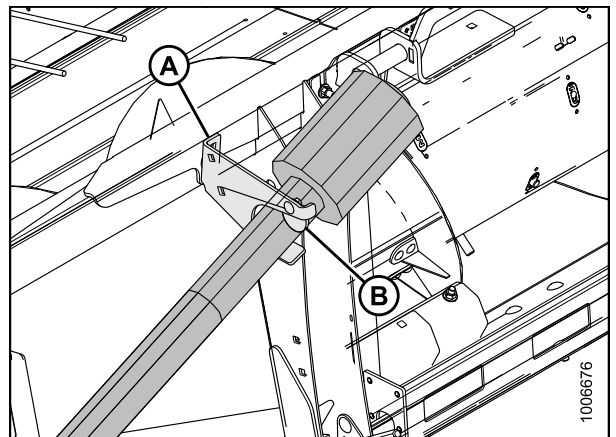
## OPERATION

6. Pull back collar (A) on driveline, and remove driveline from combine output shaft.



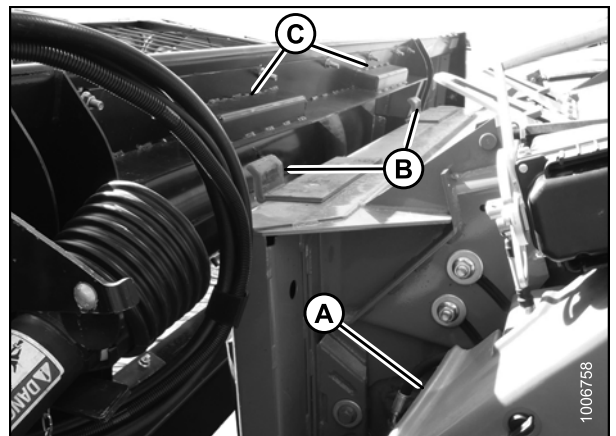
**Figure 3.42: Detaching Driveline**

7. Slide driveline into storage hook (A) on header and rotate disc (B) to secure driveline.



**Figure 3.43: Driveline**

8. Close combine driveshield (A).
9. Lower feeder house until saddle (B) disengages and clears header top beam (C).
10. Slowly back combine away from header.



**Figure 3.44: Disengaging Header**

### 3.10.3 New Holland CR/CX Series Combine

This section provides instructions for attaching the PW8 Pick-Up Header to, and detaching from, all New Holland CR/CX Series combines.



Figure 3.45: New Holland Combine

#### *Attaching to New Holland CR/CX Series Combine*

#### **⚠ DANGER**

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

1. Pull handle (A) on combine to raise hooks (B) on both sides of the feeder house.

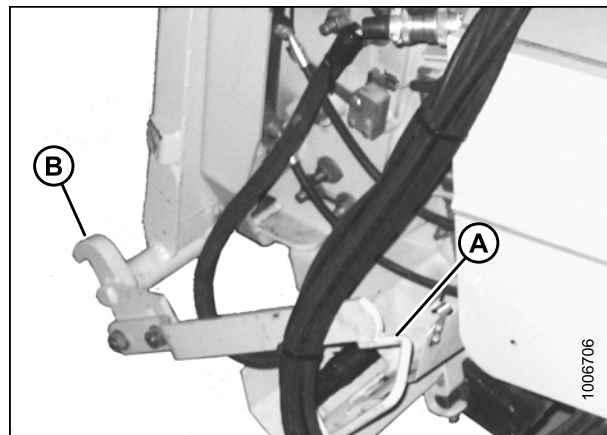


Figure 3.46: Feeder House Locks

2. Drive combine slowly up to header until feeder house saddle (A) is directly under the header top beam (B).
3. Raise feeder house to lift header ensuring feeder house saddle (A) is properly engaged in header frame.

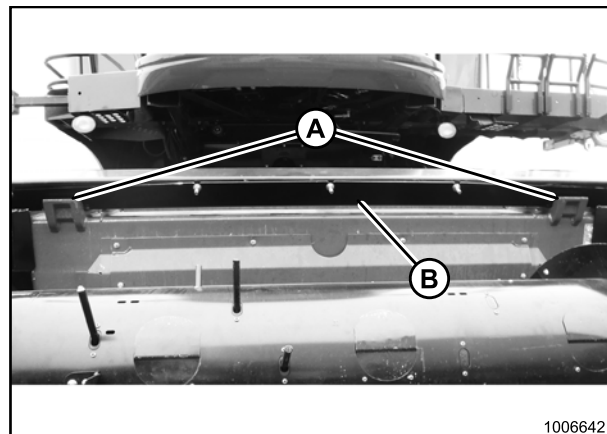


Figure 3.47: Header on Combine



## OPERATION

4. Lift lever (A) on header at left side of feeder house and push handle (B) on combine so that hooks (C) engage pins (D) on both sides of the feeder house.
5. Push down on lever (A) so that slot in lever engages handle (B) to lock handle in place.
6. Loosen nut (E) and adjust position of pin (D) as necessary (both sides) if locks (C) do not fully engage pins (D) on header. Tighten nut.
7. Loosen bolts (F) and adjust lock as required to obtain full lock on pin (D) when lift lever (A) and handle (B) are engaged. Retighten bolts.

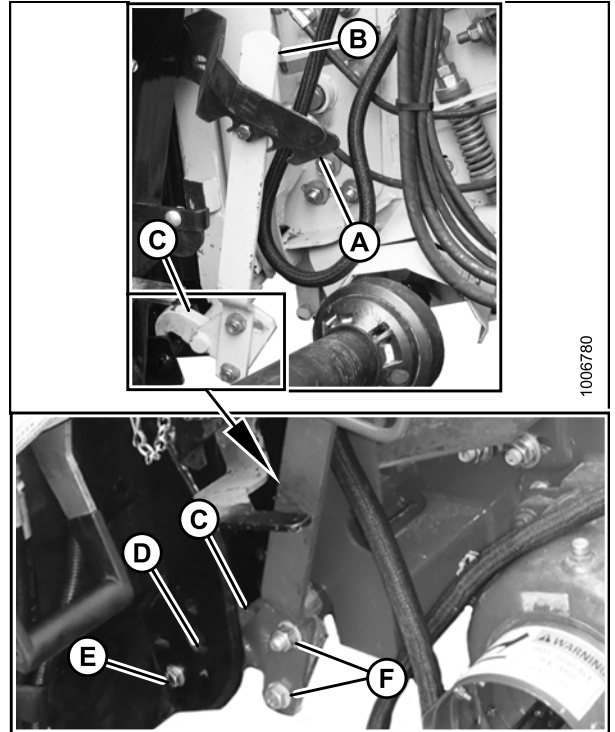


Figure 3.48: Engaging Locks

8. Rotate disc (B) on header driveline storage hook (A) and remove driveline from hook.

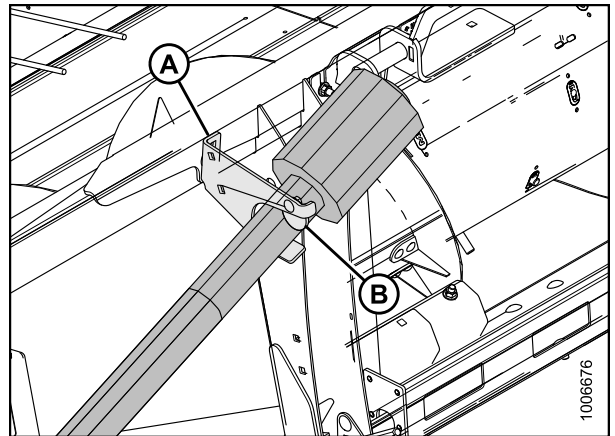
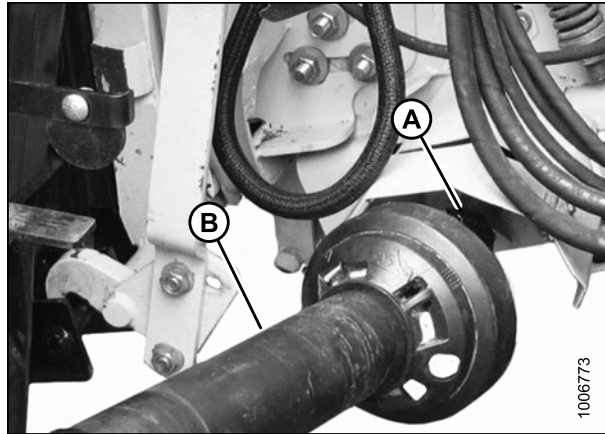


Figure 3.49: Driveline

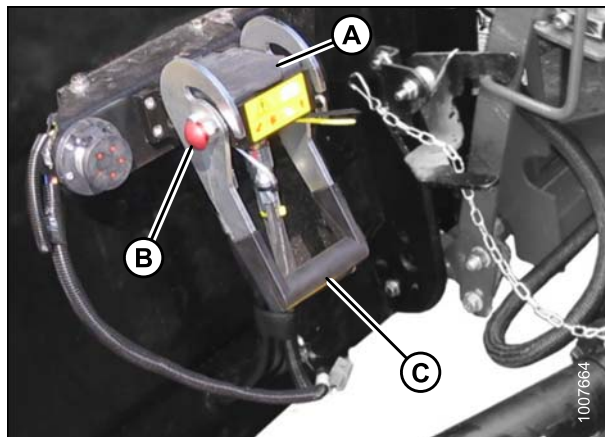
## OPERATION

9. Pull back collar (B) on end of driveline and push onto combine output shaft (A) until collar locks.



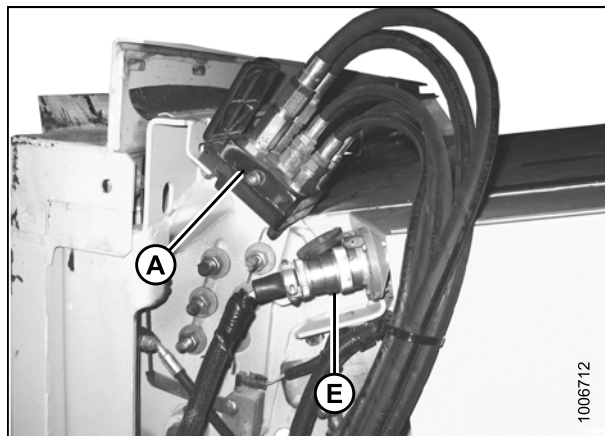
**Figure 3.50: Attaching Driveline**

10. Open cover (A).
11. Push in lock button (B) and pull handle (C) halfway up to open position.



**Figure 3.51: Header Receptacle**

12. Remove coupler (A) from storage location on combine and clean mating surface of coupler.



**Figure 3.52: Combine Coupler/Connector**

## OPERATION

13. Position coupler onto header receptacle (A) and push handle (B) downward to engage pins into receptacle.
14. Push handle (B) to closed position until lock button (C) snaps out.
15. Open cover (D) on header electrical receptacle.
16. Remove electrical connector (E) from combine.
17. Align lugs on electrical connector (E) with slots in header receptacle, push connector onto receptacle and turn collar on connector to lock it in place.

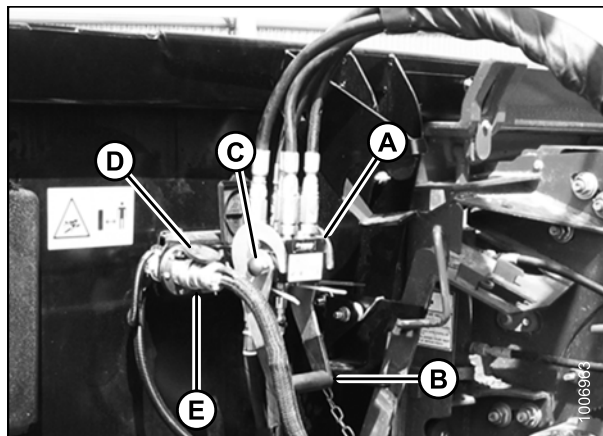


Figure 3.53: Attaching Coupler

### *Detaching from New Holland CR/CX Combine*

#### **DANGER**

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

1. Choose a level area, position header slightly off the ground, stop engine and remove key.
2. Push in lock button (C), and pull handle (B) upward to release coupler (A).
3. Remove coupler (A) from header receptacle.

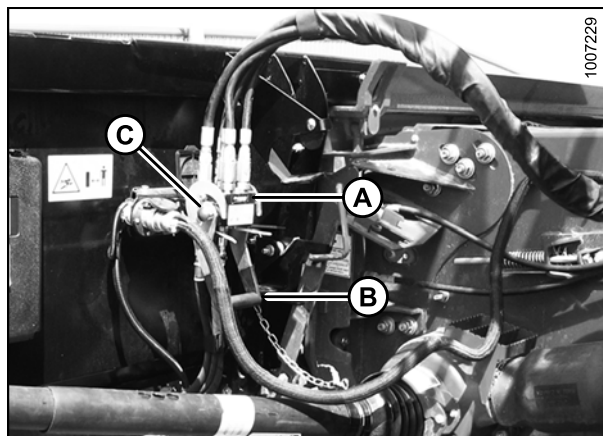
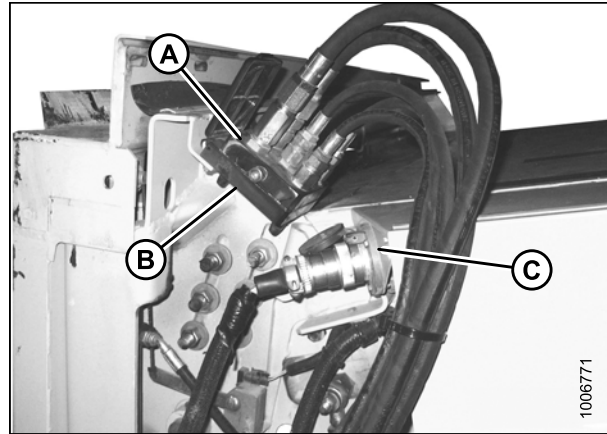


Figure 3.54: Releasing Coupler

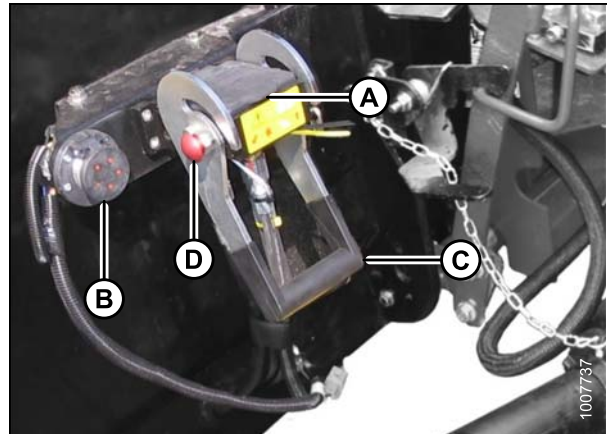
## OPERATION

4. Position coupler (A) onto storage plate (B) on combine.
5. Disconnect electrical connector from header, and place in storage cup (C) on combine.



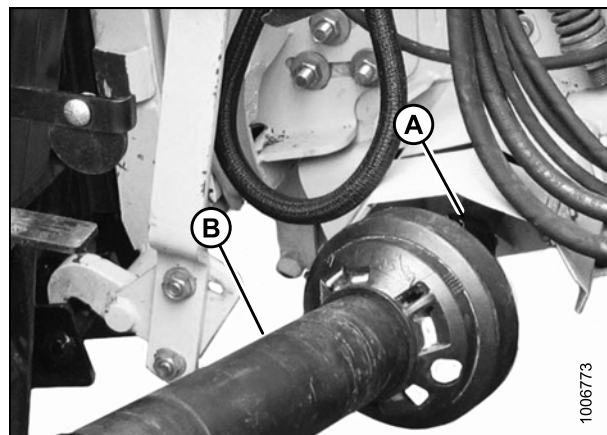
**Figure 3.55: Coupler and Electrical Connector Storage Location**

6. Close cover (A) on header hydraulic receptacle, and cover (B) on electrical receptacle.
7. Push handle (C) on header down into storage position until lock button (D) snaps out.



**Figure 3.56: Locking Multi-Coupler**

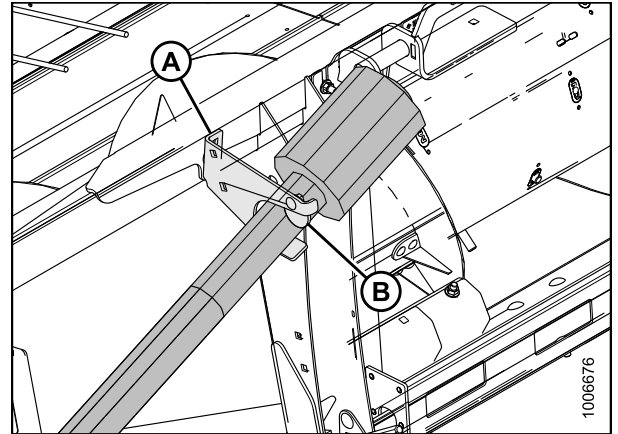
8. Pull back collar (A) on driveline (B) and remove driveline from combine.



**Figure 3.57: Detaching Driveline**

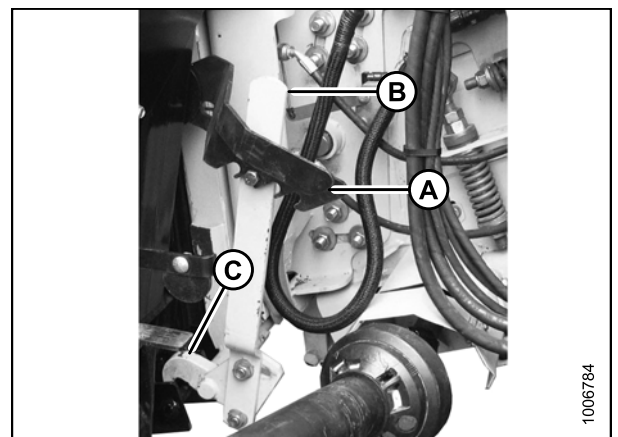
## OPERATION

- Slide driveline into storage hook (A) on header and rotate disc (B) to secure driveline.



**Figure 3.58: Driveline**

- Lift lever (A) and pull and lower handle (B) to disengage feeder house/header lock (C).
- Lower feeder house until it disengages from header support.
- Slowly back combine away from header.



**Figure 3.59: Disengaging Header**

## 3.11 Header Transport

Refer to your combine operator's manual for transporting headers when attached to the combine.

### 3.11.1 Transport Lights

The transport lights, which are mounted on both ends of the header, are activated by switches inside the combine cab. They function as flashing amber hazard lights and turn signals, and should be positioned perpendicular to the endsheet.

Refer to your combine operator's manual for operating instructions.

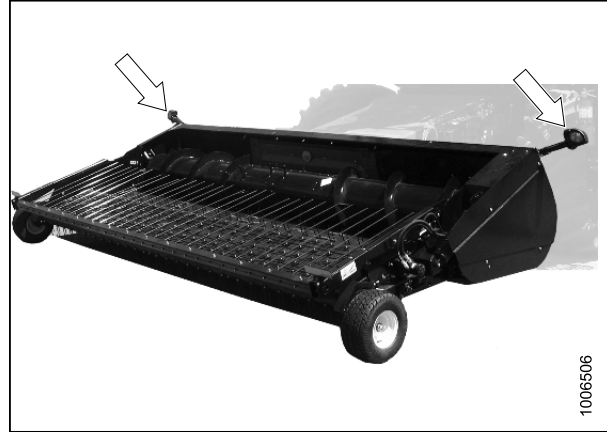


Figure 3.60: Transport Lights

## 3.12 Header Operation

Satisfactory operation of the header in all situations requires making proper adjustments to suit various crops and conditions.

Correct operation reduces crop loss and increases productivity. As well, proper adjustments and timely maintenance will increase the length of service you receive from your machine.

The variables listed in Table 3.3 *PW8 Pick-Up Header Operating Variables*, page 53 and detailed on the following pages will affect the performance of the header.

You will quickly become adept at adjusting the machine to achieve the results you desire. Most of the adjustments have been preset at the factory, but the settings can be changed to suit crop conditions.

**Table 3.3 PW8 Pick-Up Header Operating Variables**

Variable	Refer to
Operating Speed	<i>3.12.1 Operating Speed, page 53</i>
Auger Speed	<i>Auger Speed, page 54</i>
Header Height	<i>Header Height, page 60</i>
Pick-Up Height	<i>Pick-Up Height, page 61</i>
Hold-Down Position	<i>Hold-Down Position, page 65</i>
Hold-Down Rod Angle	<i>Hold-Down Rod Angle, page 66</i>
Auger Position	<i>Checking Auger Position, page 54</i>
Stripper Plates	<i>Stripper Plate Clearance, page 59</i>
Draper Belt Tension - Front	<i>Adjusting Front Draper Belt Tension, page 69</i>
Draper Belt Tension - Rear	<i>Adjusting Rear Draper Belt Tension, page 70</i>

### 3.12.1 Operating Speed

Performance of the pick-up in various crop and field conditions largely depends upon the speed at which the drapers are turning and the forward speed of the combine.

- If the swath is pushed ahead, the draper speed is too low and some of the crop may remain unpicked.
- If the swath is torn apart and is pulled toward the combine header, the draper speed is too high and uneven combine feeding will occur.

Generally, optimum pick-up speed for most conditions results when the swath is always being pushed slightly ahead.

Draper speed is adjusted from the combine cab by regulating oil flow to the pick-up hydraulic motors, typically by using the reel speed controls for the combine. The ratio of pick-up speed to combine ground speed can be set using the combine header controls. Refer to your combine operator's manual.

#### **IMPORTANT:**

Do NOT over-speed pick-up. Over-speeding causes premature wear of drive components and adversely affects pick-up performance.

The following operating speeds are suggested:

**Front and Rear Deck Aft Roller:** 51 rpm per 1 mph (1.6 km/h) of combine ground speed.

**Example:** For combining at 5 mph (8 km/h), the rear roller shaft should run at  $51 \times 5 \text{ mph} = 255 \text{ rpm}$  ( $51 \times 8/1.6 = 255 \text{ rpm}$ ).

## OPERATION

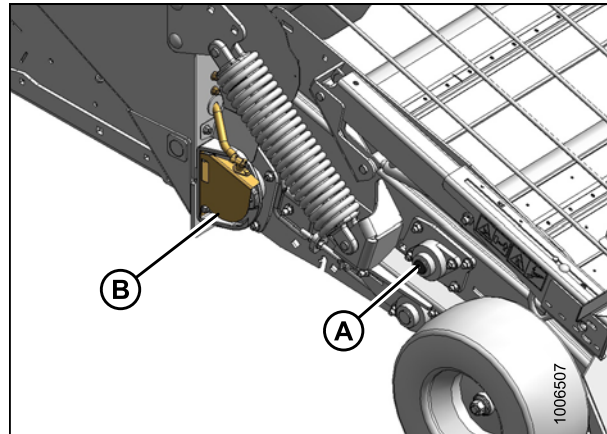
### *Adjusting Draper Speed*

Draper speed is determined by measuring the rpm of the aft roller on the rear pick-up deck.

1. Check the roller rpm (A) with a handheld tachometer and adjust with the reel speed control in the combine.

**NOTE:**

Some combines are equipped with a speed sensor (B) that displays the roller rpm inside the combine cab.



**Figure 3.61: Draper Roller and Speed Sensor**

### **3.12.2 Auger Operation**

#### *Auger Speed*

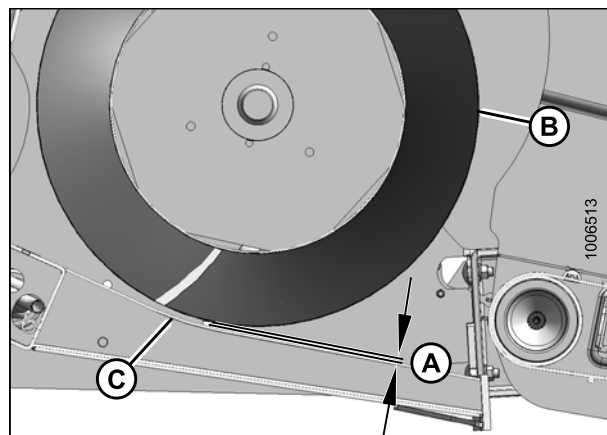
The header is supplied with an auger drive sprocket to match your combine. The auger is chain driven by a direct connection to the feeder house, and auger speed depends on the feeder house speed. You can adjust auger speeds to suit crop conditions from the combine. Contact your Dealer for available sprocket options.

Refer to [Auger Drive Sprockets, page 157](#) for instructions on changing the sprocket.

#### *Checking Auger Position*

The auger position is critical for a smooth, high capacity flow of crop into the feeder house. It is factory set for normal crop conditions but may require adjustment for different crops and conditions. The auger must rotate freely without touching the auger pan or stripper bars, and the position should be checked prior to operating the pick-up.

1. Ensure clearance (A) between the auger flighting (B) and pan (C) is 3/16–7/16 in. (5–11 mm).



**Figure 3.62: Auger to Pan Clearance**



## OPERATION

2. Ensure clearance (A) between the auger fingers (B) and pan (C) is  $13/16$ –1 in. (20–25 mm).

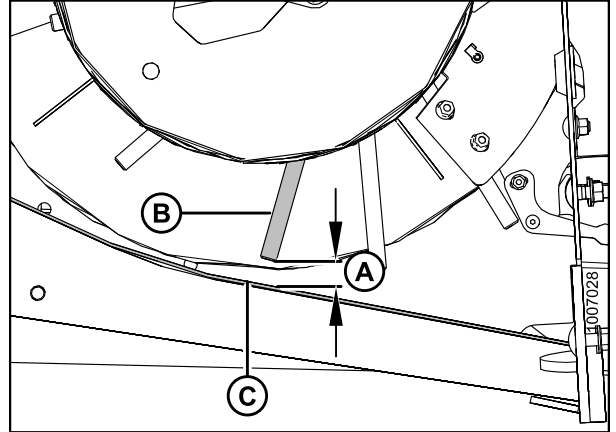


Figure 3.63: Finger to Pan Clearance

### Adjusting Auger Position

The auger is adjustable on either end in order to maintain uniform clearance across the entire width of the header.

### DANGER

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

#### NOTE:

Access the auger/pan area from the top of the header.

1. Lower header to the ground, shut down combine and remove key from ignition.
2. Open left-hand endshield (A) (refer to [3.3.1 Opening Left-Hand Endshield](#), page 23).

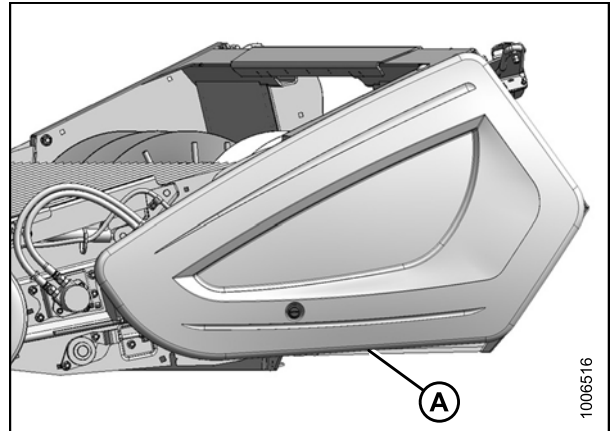


Figure 3.64: Left-Hand Endshield

## OPERATION

3. Loosen two bolts (A) on auger stops at both ends of header.
4. Loosen jam nuts (B) on adjuster bolts (C).
5. Turn adjuster bolt (C) to raise or lower auger.
6. Manually rotate the auger to check for interference and to check clearance between the auger flighting and auger pan. Adjust if necessary.
7. Tighten jam nuts (B) and downstop nuts (A).
8. Check clearance between auger flighting and stripper plates and adjust if required. Refer to [Stripper Plate Clearance](#), page 59.

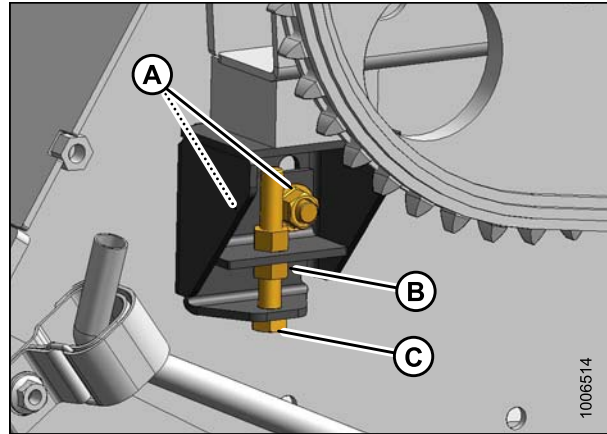


Figure 3.65: Left Side Auger Stop

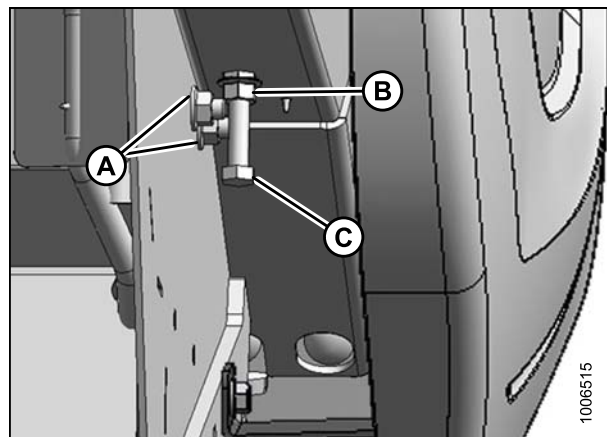


Figure 3.66: Right Side Auger Stop

### *Auger Float*

The auger has an upward float range of 1-5/16 in. (34 mm), but it can be locked to operate in rigid-header mode.

### **Locking Auger Float**

#### **DANGER**

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

1. Lower header to the ground, shut down combine and remove key from ignition.
2. Open left-hand endshield (A) (refer to [3.3.1 Opening Left-Hand Endshield](#), page 23).

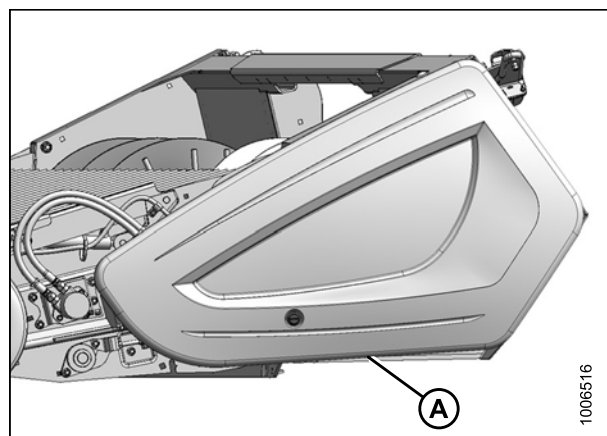


Figure 3.67: Left-Hand Endshield

## OPERATION

3. Loosen two bolts (A) on auger upstops (B) at both ends of header.
4. Slide the stops (B) downward until they contact the rubber blocks (C) on the auger arm.
5. Tighten bolts (A).

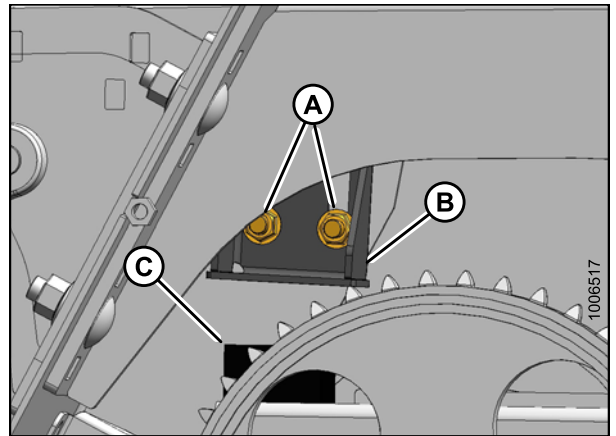


Figure 3.68: Left-Hand Stop

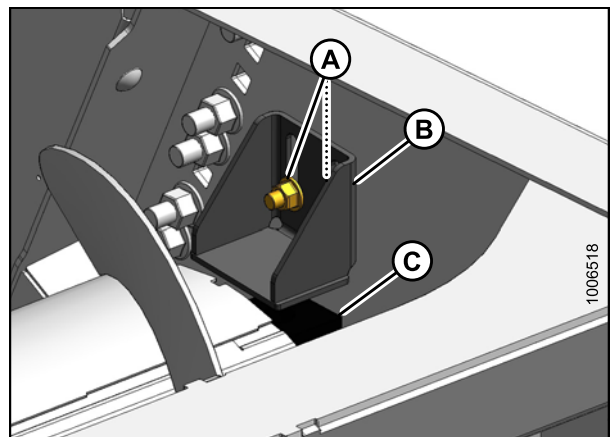


Figure 3.69: Right-Hand Stop

6. Close left-hand endshield (A) (refer to [3.3.2 Closing Left-Hand Endshield, page 24](#)).

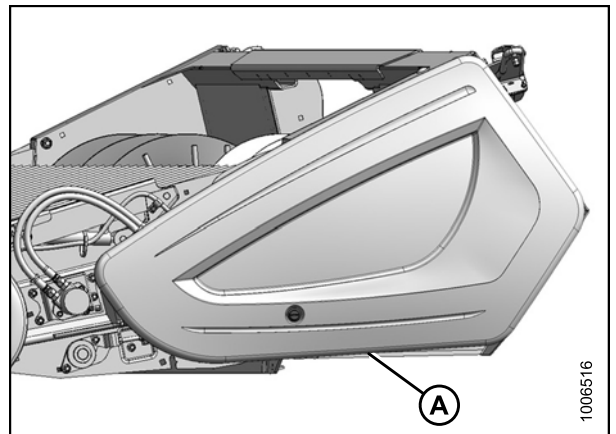


Figure 3.70: Left-Hand Endshield

Unlocking Auger Float

**⚠ DANGER**

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

1. Lower header to the ground, shut down combine and remove key from ignition.
2. Open left-hand endshield (A) (refer to [3.3.1 Opening Left-Hand Endshield, page 23](#)).
3. Loosen the two bolts (A) on auger upstops (B) at both ends of header.
4. Slide stops (C) upward to desired float range.
5. Tighten bolts (A).

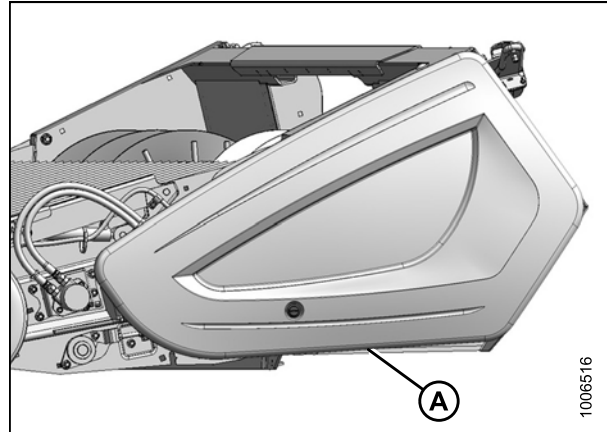


Figure 3.71: Left-Hand Endshield

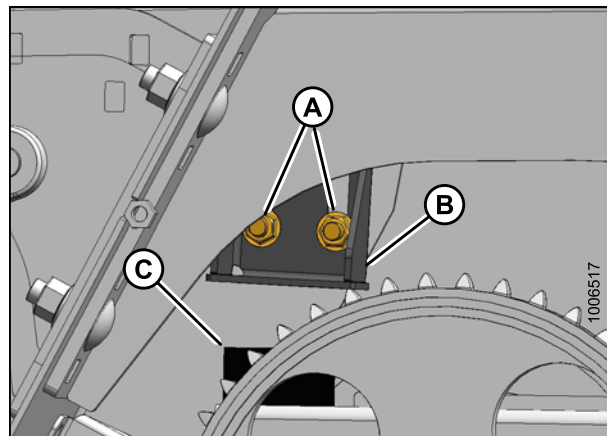


Figure 3.72: Left-Hand Stop

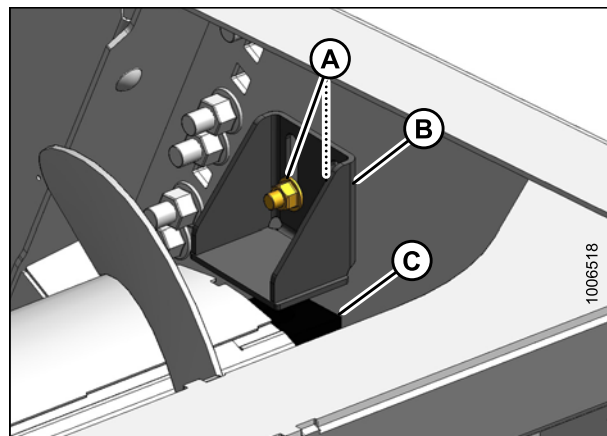


Figure 3.73: Right-Hand Stop

## OPERATION

6. Close left-hand endshield (A) (refer to [3.3.2 Closing Left-Hand Endshield, page 24](#)).

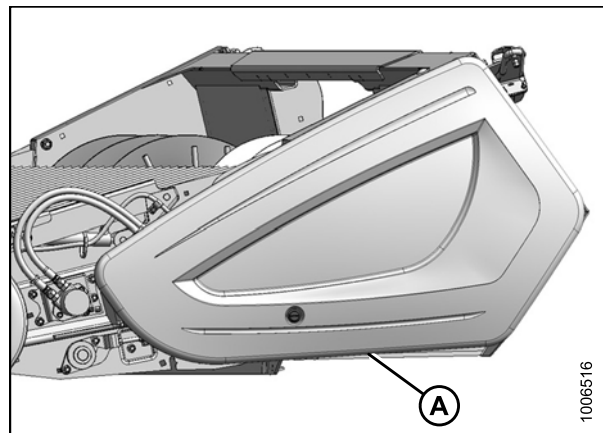


Figure 3.74: Left-Hand Endshield

### Stripper Plate Clearance

The header is equipped with a pair of stripper plates (A) located on either side of the center opening. The stripper plates are designed to minimize crop carryover behind the auger when properly adjusted.

#### NOTE:

- If the clearance between the flighting and stripper plate is too large, crop has a tendency to wrap around the auger and disrupt crop flow into the combine.
- If the clearance is too little, the auger flighting may contact the stripper plates and cause excessive wear to the flighting and stripper plates.

Stripper plate clearance is factory preset to 1/8–1/4 in. (3–6 mm).

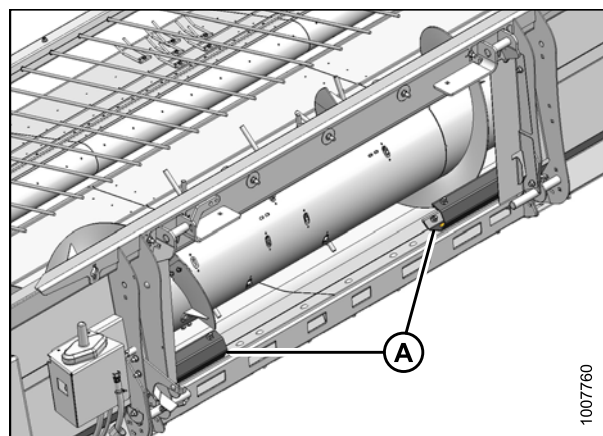


Figure 3.75: Stripper Plates

### Checking Stripper Plate Clearance

Check the stripper plate clearance whenever the auger position is changed and adjust if necessary.

#### **DANGER**

**Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.**

1. Lower header to the ground, shut down combine and remove key from ignition.
2. Manually rotate the auger to check for interference and to check the clearance between the auger flighting and stripper plates.

#### NOTE:

Access the auger/stripper plate area from top of header.

## OPERATION

### Adjusting Stripper Plate Clearance

1. Loosen nuts (A) on the stripper plate (B) and adjust plate to achieve clearance (C) of 1/8–1/4 in. (3–6 mm).
2. Tighten nuts (A).
3. Recheck clearance.

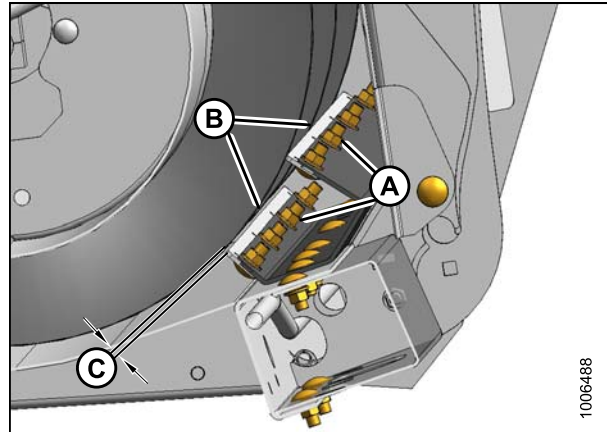


Figure 3.76: Stripper Plate Clearance

### 3.12.3 Operating Height

#### Header Height

Header height is the distance between the deck pivot and the ground. Recommended operating height (A) is between four and five on the end plate decal or 12 in. (305 mm) above the ground.

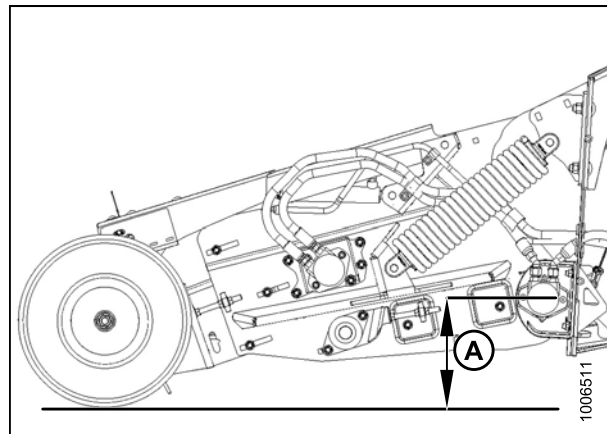


Figure 3.77: Operating Height

Header height adjustments are made using the combine header height control. The numbered decals (A) on both sides of the header indicate the header operating height if the combine is not equipped with an in-cab header height display.

The position of the end plate (B) on the decal represents the header height. Setting the end plate position between four and five will achieve the recommended operating height of 12 in. (305 mm).

#### NOTE:

Position one represents the lowest header height and position seven represents the highest.

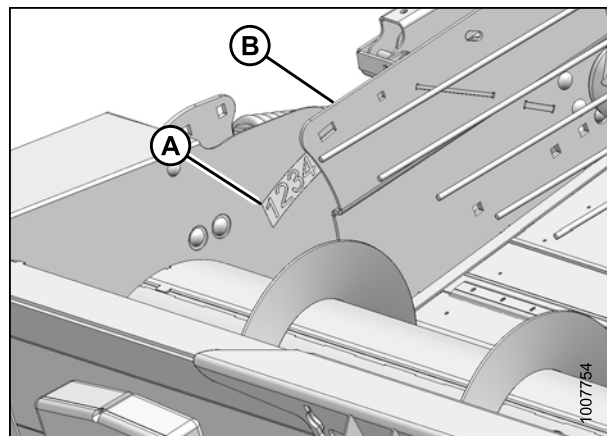


Figure 3.78: Height Gauge

## OPERATION

If your combine is factory equipped with Auto Header Height Control (AHHC), refer to the following operating and adjustment information:

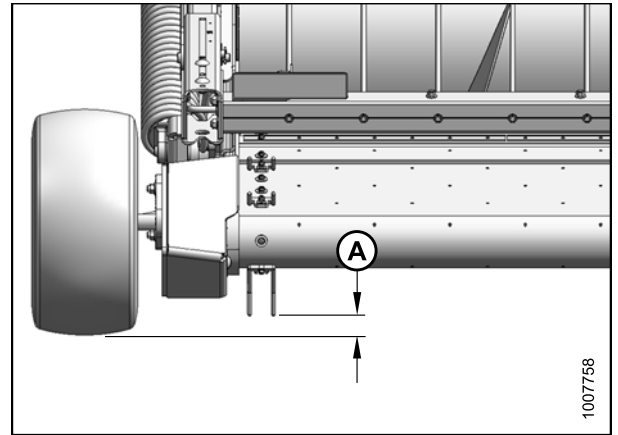
1. Ensure the optimum pick-up height is 12 in. (305 mm) off the ground under normal conditions and with the AHHC set to the NEUTRAL position.
2. Use the AHHC to change the pick-up operating height to suit your specific crop condition. Refer to your combine operator manual for details.
3. Visit your Dealer if the AHHC sensor requires adjustment.

### *Pick-Up Height*

Pick-up height (A) is the distance between the pick-up finger and the ground.

The recommended pick-up height is 1 in. (25 mm), but it may need to be adjusted to suit field conditions. The following symptoms indicate that an adjustment is required:

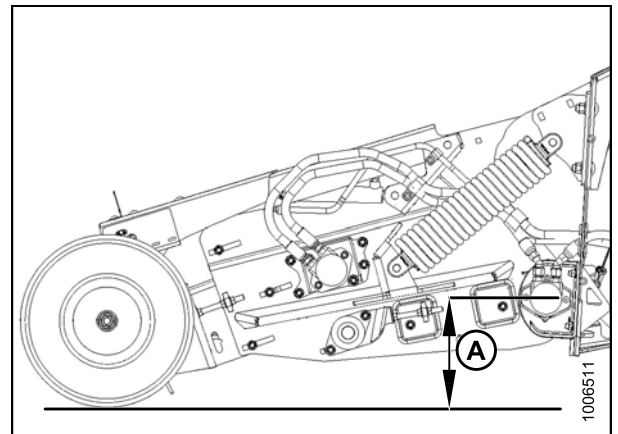
- If the pick-up leaves material in the swath, the pick-up height is too high.
- If the pick-up fingers are wearing quickly or are picking up dirt and stones, the pick-up height is too low.



**Figure 3.79: Pick-Up Height**

### **Adjusting Pick-Up Height**

1. Check that tire pressure is set to 35–45 psi (240–310 kPa).
2. Adjust the operating height (A) until the rear roller is 12 in. (300 mm) off the ground.



**Figure 3.80: Operating Height**

## OPERATION

3. Check the pick-up height (A) and complete Step 4., [page 62](#) to Step 8., [page 62](#) if adjustment is necessary.

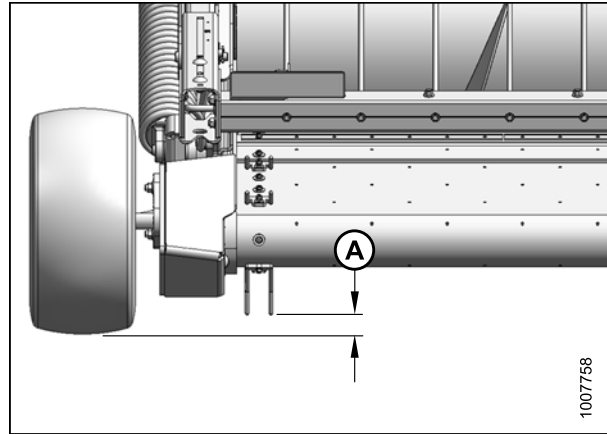


Figure 3.81: Pick-Up Height

4. Raise the header using the combine controls to take the load off the wheels.
5. Loosen two nuts (A) on wheel plate.
6. Position wheel plate cog to desired number on frame.

### NOTE:

Position number two provides 1.0 in. (25 mm) clearance to the ground.

7. Tighten nuts (A).
8. Repeat Step 4., [page 62](#) to Step 7., [page 62](#) for the opposite side.
9. Adjust the AHHC if necessary.

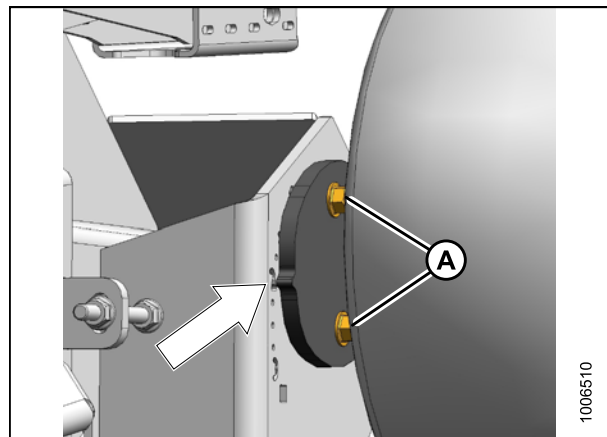


Figure 3.82: Pick-Up Height Adjustment

### 3.12.4 Adjusting Header Float

Header float is factory set, but it can be adjusted if the wheel ground pressure is higher than desired or if it is too light and the wheels don't follow ground terrain.

1. Attach the header to the combine feeder house and ensure it is latched securely. It is not necessary to hookup the driveline or hydraulics. Refer to the relevant combine attaching procedure:
  - [Attaching to Case IH Combine, page 33](#)
  - [Attaching to John Deere 60, 70, and S Series Combine, page 40](#)
  - [Attaching to New Holland CR/CX Series Combine, page 46](#)



### DANGER

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.



## OPERATION

2. Lower combine feeder house so the front draper deck is rotated upward to full floated-up position. Header frame will be close to the ground and coil spring will be fully collapsed.
3. Shut down combine and remove key from ignition.
4. Open left-hand endshield (A) (refer to [3.3.1 Opening Left-Hand Endshield, page 23](#)).

**NOTE:**

The right side spring float assembly can be removed or adjusted without removing the right-hand endshield. For improved accessibility, remove four M12 carriage bolts and hex flange nuts from endshield support (not shown), and remove right-hand endshield.

5. Ensure all spring tension is released from the spring float assembly (A), remove cotter pin (B), clevis pin (C), and three flat washers (D).

**NOTE:**

When spring tension is fully released, spring coils should not be pulled apart and the spring float assembly should rock from side to side when moved by hand. If pressure on the clevis pin persists, slightly raise or lower the header.

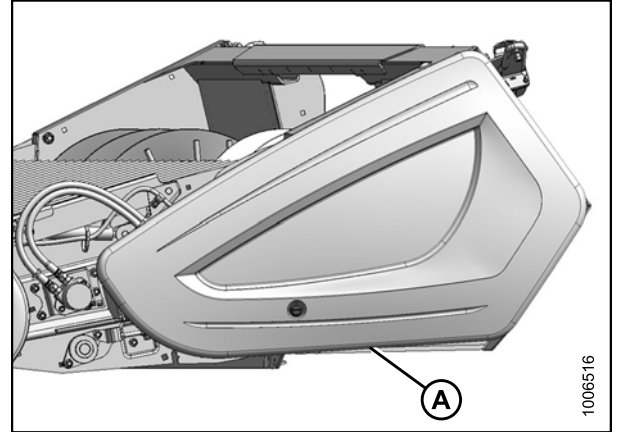
6. Move spring float assembly (A) to the upper anchor holes (B) to make wheel ground pressure lighter, or move spring float assembly to the lower anchor hole (C) to make wheel ground pressure heavier.

**IMPORTANT:**

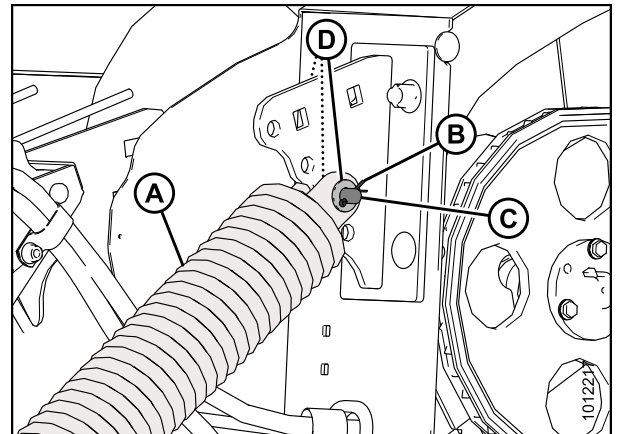
The left and right spring float assemblies must be set to the same anchor hole position or draper deck damage could result.

**NOTE:**

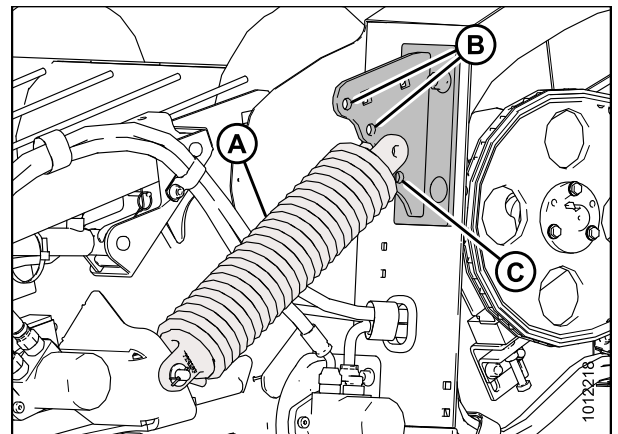
If the spring float assembly (A) hole does not align with anchor holes (B, C), raise or lower header as necessary.



**Figure 3.83: Left-Hand Endshield**



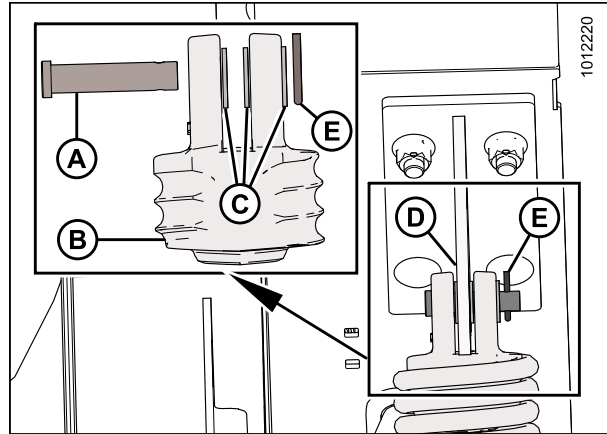
**Figure 3.84: Left Side Spring Float Assembly Shown – Right Side Opposite**



**Figure 3.85: Left Side Anchor Shown – Right Side Opposite**

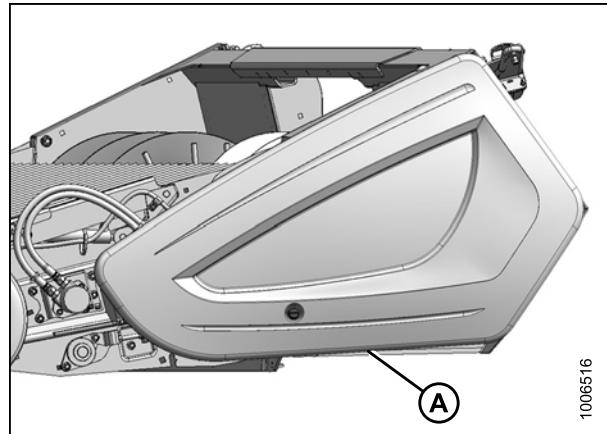
## OPERATION

7. Insert clevis pin (A) from the inboard side through rod end of spring float assembly (B), three flat washers (C), and anchor (D) as shown. Secure with cotter pin (E).



**Figure 3.86: Left Side Spring Float Assembly Shown – Right Side Opposite**

8. Repeat procedure for opposite side of header ensuring that left and right spring float assemblies are set to the same anchor hole position on header.
9. Close left-hand endshield (refer to [3.3.2 Closing Left-Hand Endshield, page 24](#)), and replace right-hand endshield if previously removed.



**Figure 3.87: Left-Hand Endshield**

### 3.12.5 Hold-Downs

#### *Hold-Down Position*

Hold-down position refers to the position of the fiberglass rods (A) with respect to the swath and can be adjusted according to crop conditions.

The fiberglass rods (A) not only ensure that contact between the swath and pick-up belts is maintained, but they also guide the crop under the auger. Applying constant downward pressure to the crop assists with pick-up performance.

Adjust the hold-down position using the combine reel height control according to the following crop conditions:

- (1) Short crop
- (2) Average crop
- (3) Heavy crop

**IMPORTANT:**

Before reversing the combine feeder house to unplug the feeder, fully raise the hold-down.

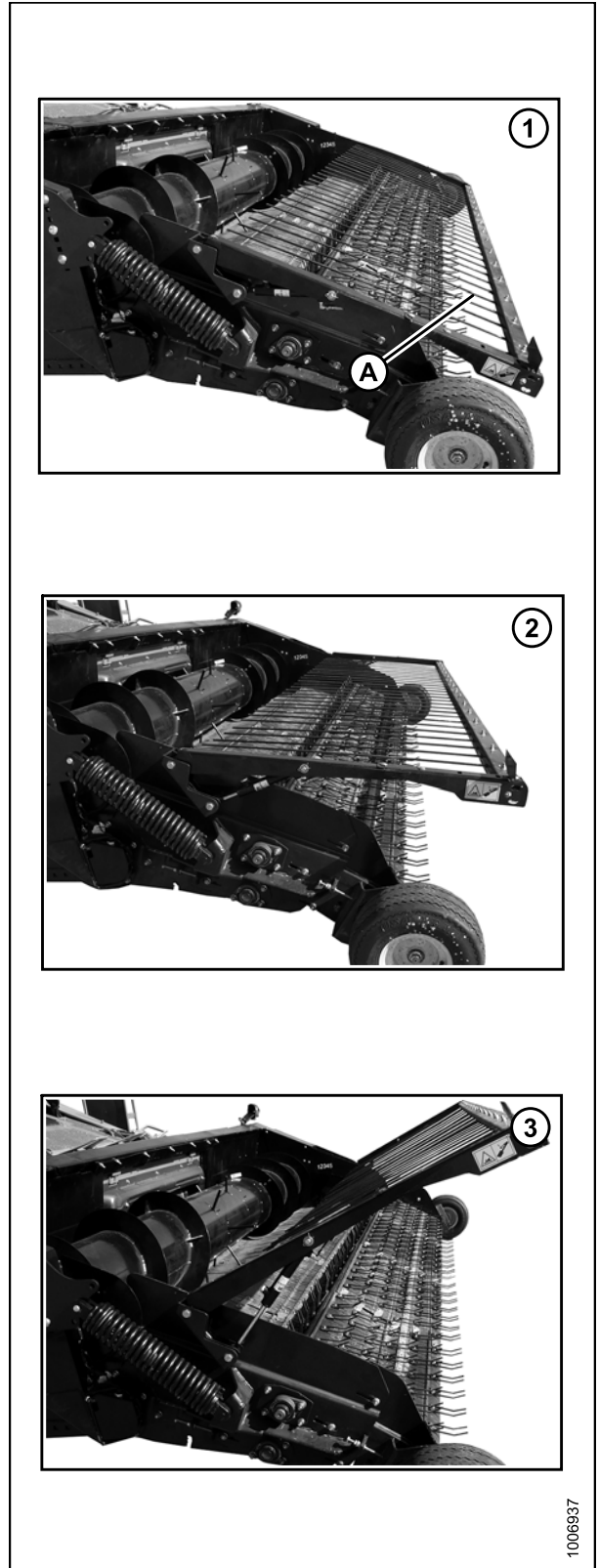


Figure 3.88: Hold-Down Positions

## OPERATION

### *Hold-Down Rod Angle*

The angle between the fiberglass rods and the hold-down support arms is adjustable and is preset at the factory to optimize crop flow into the combine. The factory setting should be satisfactory for most crop conditions, but the rods can be adjusted if necessary.

1. Loosen two hex head M12 nuts (A) on both ends of the hold-down crossbar (B) until the crossbar rotates.
2. Rotate the crossbar (B) to the desired position using handle (D).
3. Tighten nuts (A).

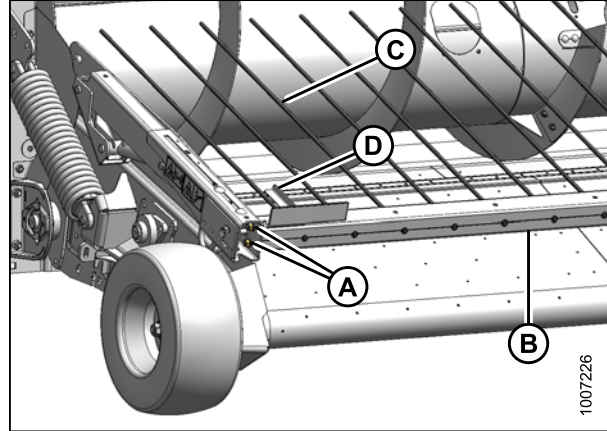


Figure 3.89: Hold-Down Rod Angle

### 3.12.6 Crop Deflectors

Crop deflectors can be installed where there is a tendency for stems to collect under the hold-down support arm pivot. They are bolted to the frame inside the left endsheet for shipment from the factory and should have been removed at the Dealer during set up and installed or retained by the operator. Under no circumstances should the header be run until the crop deflectors are removed from inside the header drive compartment.

#### **⚠ CAUTION**

To avoid damage to the header drive, do not operate the header with the crop deflectors bolted in the shipping location inside the header drive compartment.

#### *Removing Crop Deflectors*

#### **⚠ DANGER**

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

1. Lower hold-down.
2. Lower header to the ground, shut down combine and remove key from ignition.

## OPERATION

3. Remove two M12 x 25 bolts (B) and nuts and remove crop deflector (A).
4. Repeat for opposite deflector.
5. Store deflectors and hardware in combine cab or an alternate safe location.

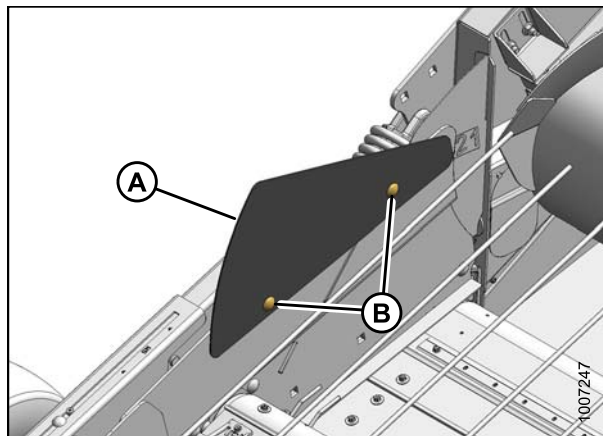


Figure 3.90: Removing Deflector

### Installing Crop Deflectors

#### DANGER

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

1. Retrieve crop deflectors from combine cab or previously stored location.
2. Lower hold-down.
3. Lower header to the ground, shut down combine and remove key from ignition.
4. Position crop deflector (A) onto header endsheet and secure with two M12 x 25 bolts (B) and nuts provided in bag.

#### NOTE:

Bolt heads must face inboard.

5. Repeat for the opposite deflector.

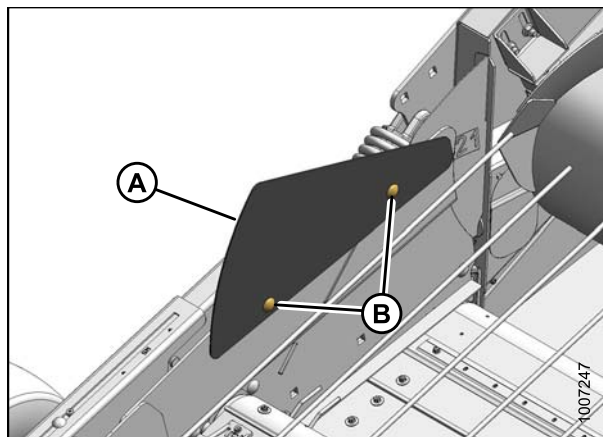


Figure 3.91: Crop Deflector

### 3.12.7 Draper Belt Tension

The pick-up draper belts are set at the factory, but the draper tension should be checked before operating.

**NOTE:**

- There should be visible sag in the underside of the draper.
- Draper tension needs to be set only to prevent slippage.
- Drapers may be sticky when new. Talcum or baby powder applied to the drapers should help reduce stickiness.
- Drapers may need to be looser than normal for the first few hours during break-in.

#### Checking Draper Belt Tension

**⚠ DANGER**

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

**NOTE:**

Drapers may be sticky when new. Talcum or baby powder applied to the drapers should help to reduce the stickiness.

1. Raise the header fully and engage the combine safety props.
2. Stop engine and remove key from ignition.
3. Ensure drapers are visible through slots (A). Proper tension is achieved when the draper aligns with indicator notch in slots (A).

**IMPORTANT:**

For proper draper tracking, ensure deck indicator (B) is in the same position on both sides of the header. If adjustment is required, refer to [Adjusting Front Draper Belt Tension, page 69](#) or [Adjusting Rear Draper Belt Tension, page 70](#).

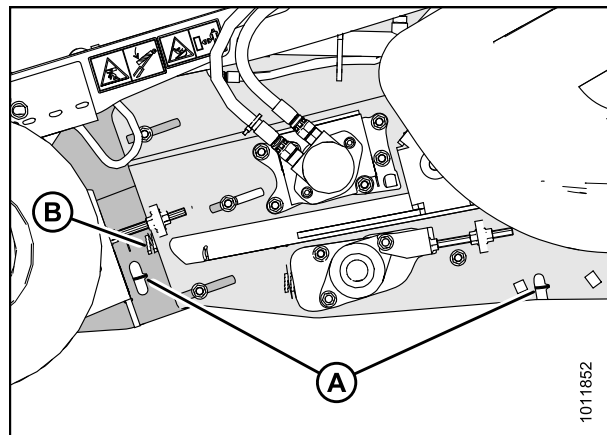


Figure 3.92: Draper Tension Indicator

## OPERATION

### Adjusting Front Draper Belt Tension

Draper tension is factory set but should be checked before operating.

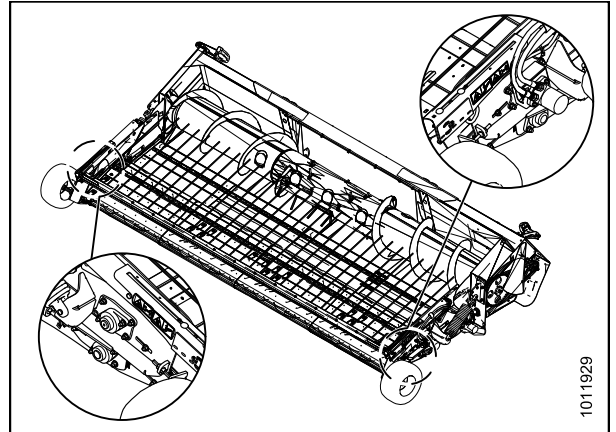


Figure 3.93: Front Deck Adjusting Bolts

The stepped deck position indicator gauges are used to precisely align each side of the front and rear decks. Each notch (A) represents an adjustment of 0.04 in. (1 mm).

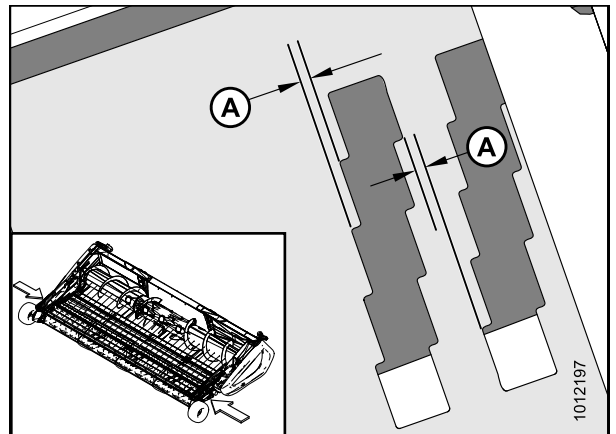


Figure 3.94: Deck Position Indicators

1. Loosen three clamp bolts (A) on each side of the header.
2. Loosen jam nut (B) on the left side.
3. Turn adjuster nut (C) to set the draper tension. Proper tension is achieved when the draper lines up with indicator notch (D).

**IMPORTANT:**

Do **NOT** tighten draper above the indicator notch. Overtightening may result in the following:

- Joining bolts pulling out of draper
- Damage to the rollers or bearings
- Twisting and wrinkling of drapers

4. Note the position of the indicator gauge (E).

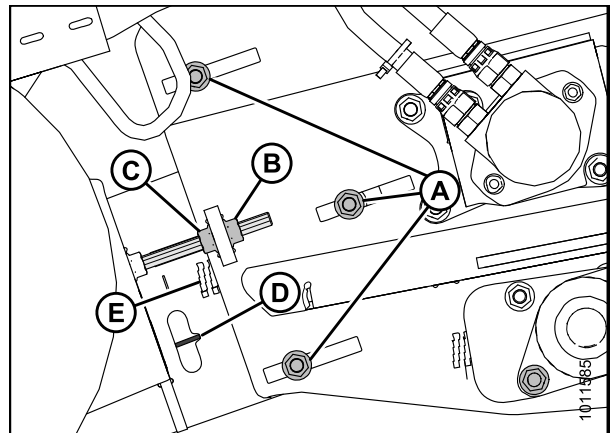


Figure 3.95: Left Side Front Deck Shown – Right Side Opposite

## OPERATION

5. Loosen jam nut (A) on the right side of the header, and turn adjuster nut (B) until the position of indicator gauge (C) is identical to the left side.

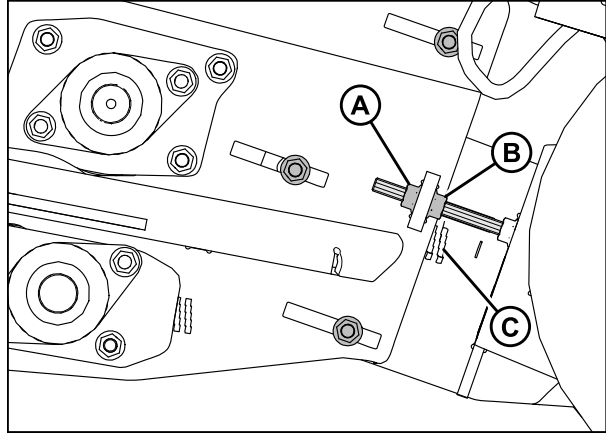


Figure 3.96: Right Side Indicator Gauge

6. Tighten three clamp bolts (A) and jam nut (B) on both sides of the header.

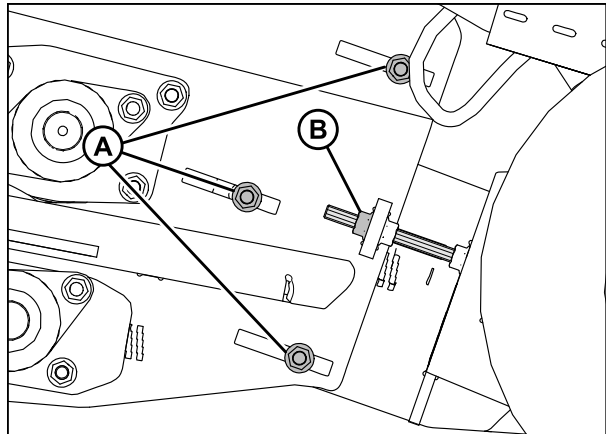


Figure 3.97: Front Deck Adjuster

### *Adjusting Rear Draper Belt Tension*

#### **IMPORTANT:**

Do **NOT** tighten draper above the indicator notch. Drapers only need to be tight enough to prevent slippage. Overtightening may result in the following:

- Joining bolts pulling out of draper
- Damage to the rollers or bearings
- Twisting and wrinkling of drapers



## OPERATION

The stepped deck position indicator gauges are used to precisely align each side of the front and rear decks. Each notch (A) represents an adjustment of 0.04 in. (1 mm).

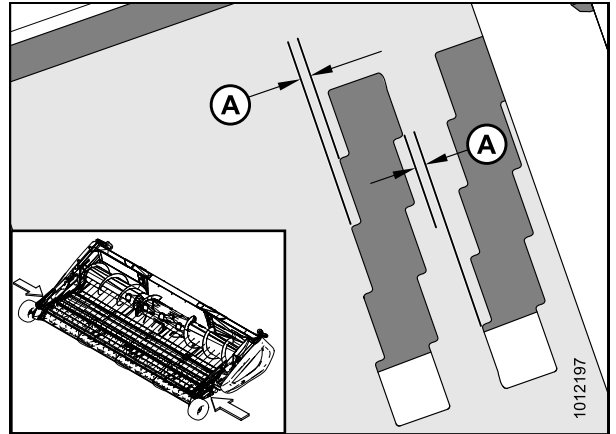


Figure 3.98: Deck Position Indicators

### Left Side

1. Loosen two clamp bolts (A).
2. Loosen jam nut (B).
3. Turn adjuster nut (C) to set draper tension. Proper tension is achieved when the draper lines up with indicator notch (D).
4. Tighten clamp bolts (A) and jam nut (B).
5. Note the position of indicator (E) and set the right side to the same position.

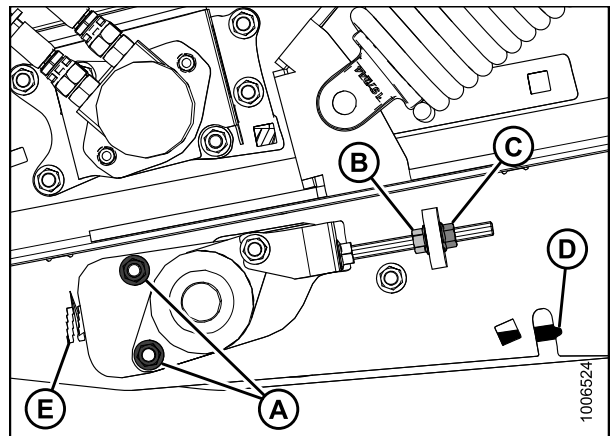


Figure 3.99: Left Side Rear Deck

### Right Side

6. Loosen three clamp bolts (A).
7. Loosen jam nut (B).
8. Turn adjuster nut (C) until the position of the indicator notch (D) is exactly the same as the left side.
9. Tighten clamp bolts (A) and jam nut (B).

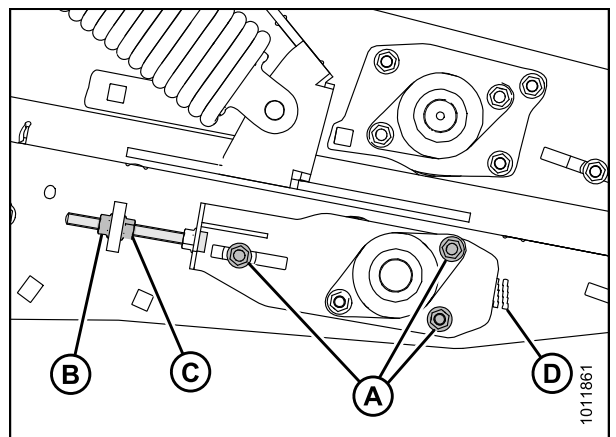


Figure 3.100: Right Side Rear Deck

### 3.12.8 Driveline

#### Clutch

The header to combine driveline contains a radial pin clutch (A) that provides protection against overload. When the auger encounters an obstruction, an overload occurs and the clutch will slip while emitting a rattling sound and generating a pulsating action. Frequent slippage of more than two or three seconds may result in clutch damage.

**IMPORTANT:**

Prolonged operation of the header with the clutch slipping will cause damage to the header and/or clutch.

If the clutch becomes permanently damaged, refer to [Replacing Driveline Clutch, page 142](#).

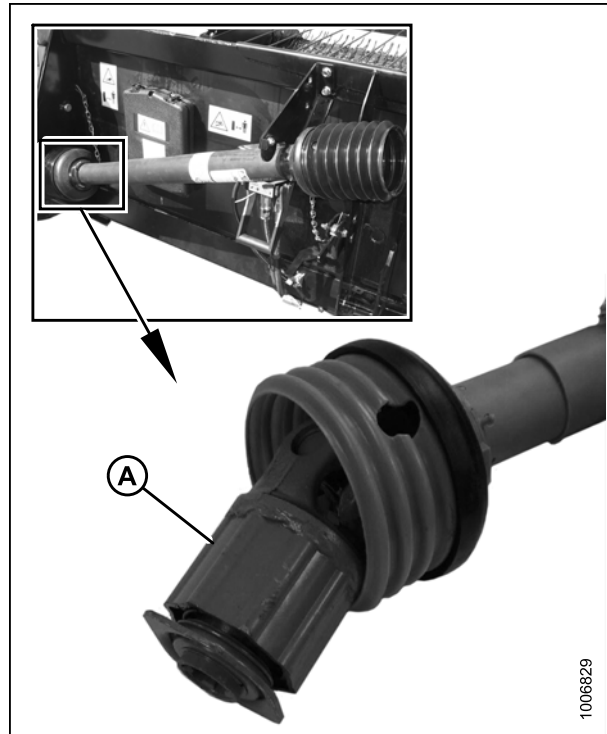


Figure 3.101: Radial Pin Clutch

#### Guard

**⚠ DANGER**

To avoid serious injury or death, do not operate machine if guard is missing or not in place.

The driveline guard (A) must always remain attached to the driveline. Tethers (light chains) (B) on either end of the driveline guard prevent the guard from rotating. Remove the guard for maintenance purposes only (refer to [Removing Driveline Guard, page 143](#)).

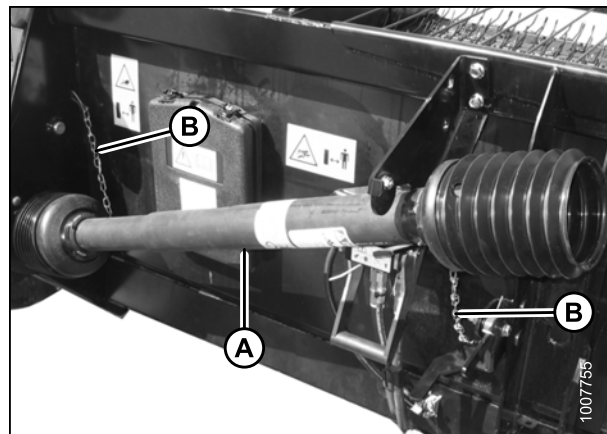


Figure 3.102: Driveline Guard

### 3.13 Unplugging the Header

#### CAUTION

**Stop combine engine and remove key before removing plugged material from header. A child or even a pet could engage the drive.**

1. Stop forward movement of the combine and disengage the header.
2. Fully raise the hold-down.
3. Disengage the pick-up draper drive.
4. Run the feeder backwards using the reverse controls inside the combine cab to clear the plug.

#### **IMPORTANT:**

To prevent damage to the feeder motor, do **NOT** engage the feeder reverser for more than five seconds if the feeder and auger will not turn.

#### **IMPORTANT:**

Pick-up drapers cannot run in reverse. Any attempt to run the pick-up in reverse will seriously damage the drapers and/or draper drive motors.

#### 3.13.1 Adjusting Cutterbar Rubber Seal

The rubber flap on the cutterbar seal assembly for 2015 and newer models comes with upper and lower holes to enable adjustment of the rubber flap height.

#### DANGER

**Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.**

1. Raise the header fully and engage the combine safety props.
2. Stop engine and remove key from ignition.

## OPERATION

### To increase draper seal:

3. Remove eight M12 carriage bolts and hex flange nuts (A) from support (B) and cutterbar (C), and remove rubber flap (D).
4. Repositioning rubber flap (D) from upper hole (F) to lower hole (E), install eight M12 carriage bolts and hex flange nuts (A) through support (B), rubber flap, and cutterbar (C), and torque to 40–50 ft·lbf (54–68 N·m).

### NOTE:

This raised flap position provides an improved seal to the rear draper, but the draper connection hardware will wear holes in rubber flap (D) over time.

### To eliminate draper seal:

If continual plugging occurs between the rear draper and the cutterbar, it may be necessary to reposition or remove the rubber flap (D) in order to eliminate the cutterbar seal.

5. Remove eight M12 carriage bolts and hex flange nuts (A) from support (B) and cutterbar (C), and remove rubber flap (D).
6. Store rubber flap (D) for reinstallation, or flip rubber flap upside down, install eight M12 carriage bolts and hex flange nuts (A) through support (B), hole (E) in rubber flap, and cutterbar (C), and torque to 40–50 ft·lbf (54–68 N·m).

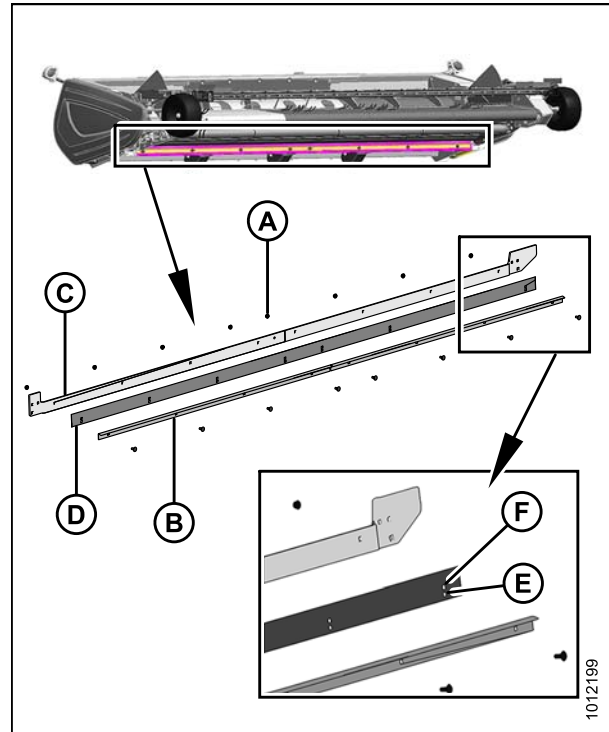


Figure 3.103: Cutterbar Rubber Seal

### 3.14 Storing the Header

Perform the following tasks before storing the header at the end of each operating season:

 **CAUTION**

**Never use gasoline, naphtha, or any volatile material for cleaning purposes. These materials may be toxic and/or flammable.**

1. Clean the header thoroughly.
2. Store in a dry, protected place if possible. If stored outside, always cover header with a waterproof canvas or other protective material.
3. Raise header and engage header lift cylinder safety props on combine.
4. Block up the header (if possible) to take weight off tires.
5. Repaint all worn or chipped painted surfaces to prevent rust.
6. Loosen draper belts.
7. Lubricate the header thoroughly leaving excess grease on fittings to keep moisture out of bearings.
8. Apply grease to exposed threads, cylinder rods, and sliding surfaces of components.
9. Check for worn components and repair as necessary.
10. Check for broken components and order replacements from your Dealer. Immediate repair of these items will save time and effort at beginning of next season.
11. Replace or tighten any missing or loose hardware. Refer to [A.3 Torque Specifications, page 231](#).



## 4 Auto Header Height Control (AHHC)

MacDon's Auto Header Height Control (AHHC) feature works in conjunction with the AHHC option available on certain combine models.

A sensor is installed at each end of the PW8 Pick-Up Header. These sensors send a signal to the combine allowing it to maintain a consistent cutting height as the header follows ground contours.

PW8 Pick-Up Headers are factory-equipped for Auto Header Height Control; however, before using the Auto Header Height Control feature, you must do the following:

1. Ensure that the Auto Header Height Control sensor's output voltage range is appropriate for the combine. For more information, refer to [4.2 Height Sensor Output Voltage Range – Combine Requirements, page 85](#).
2. Prepare the combine to use the Auto Header Height Control feature.
3. Calibrate the Auto Header Height Control system so that the combine can correctly interpret data from the height sensors on the header.

**NOTE:**

Once calibration is complete, you are ready to use the Auto Header Height Control feature in the field. For each combine, certain operation settings can be used to improve the performance of the Auto Header Height Control feature.

**NOTE:**

If your PW8 Pick-Up Header is not equipped to work with a specific combine model, you will need to install the appropriate combine completion package. Completion packages come with instructions for installing the height sensors.

Refer to the following instructions for your specific combine model:

- [4.4 Case IH 5130/6130/7130, 7010/8010, 7120/8120/9120, and 7230/8230/9230 Combines, page 92](#)
- [4.5 John Deere 60 Series Combines, page 99](#)
- [4.6 John Deere 70 Series Combines, page 106](#)
- [4.7 John Deere S Series Combines, page 112](#)
- [4.8 New Holland Combines, page 120](#)

### 4.1 Height Controllers

The PW8 Pick-Up Header is equipped with two height controllers, one at each end of the header. The height controllers do not require maintenance, but they may need to be repaired or replaced due to normal wear and tear.

The controllers may require calibration if there are problems with pick-up height control—see your Dealer.

## AUTO HEADER HEIGHT CONTROL (AHHC)

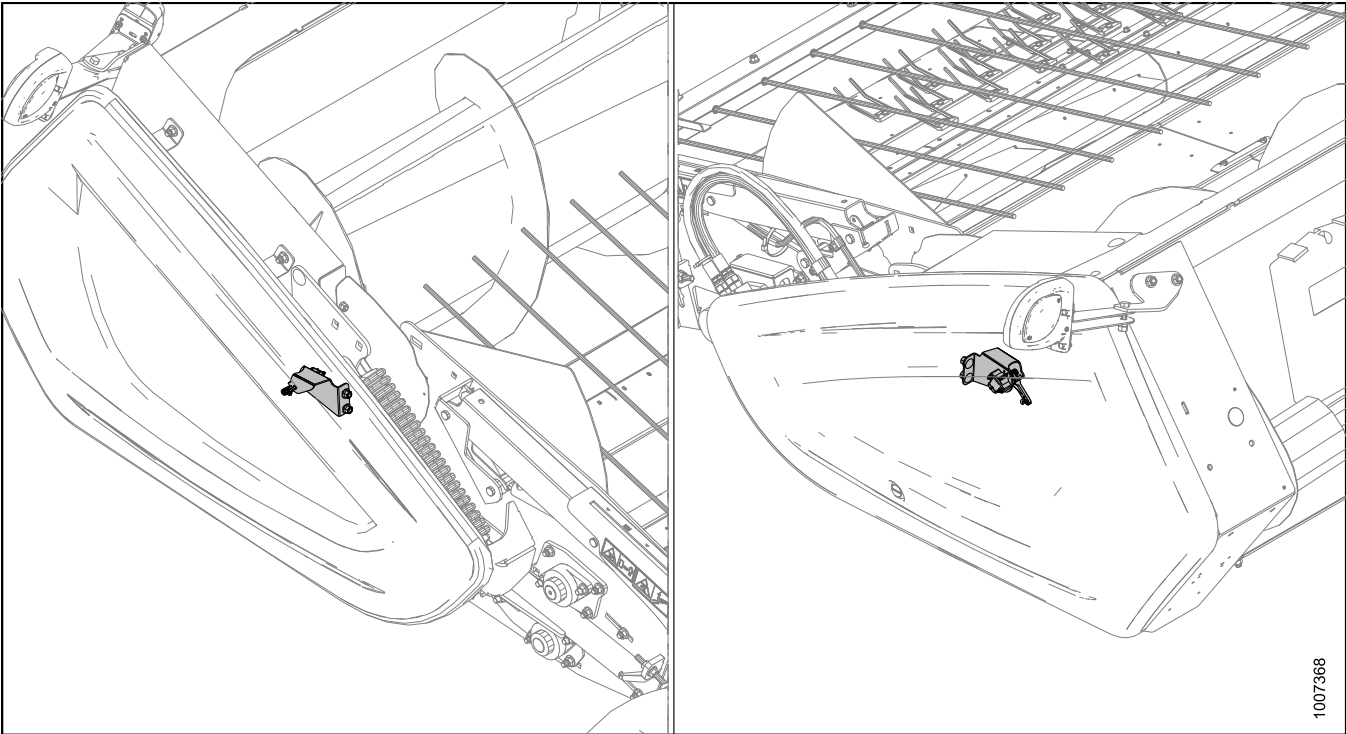


Figure 4.1: Height Controllers

### 4.1.1 Removing Header Height Control (Left-Hand Side)

1. Lower header to the ground, shut down combine, and remove key from ignition.
2. Open the left-hand endshield. Refer to [3.3.1 Opening Left-Hand Endshield, page 23](#).
3. Disconnect the wire harness (A).
4. Push up on the rod end clip (B). Slide the linkage rod (C) out of rod end clip (B).

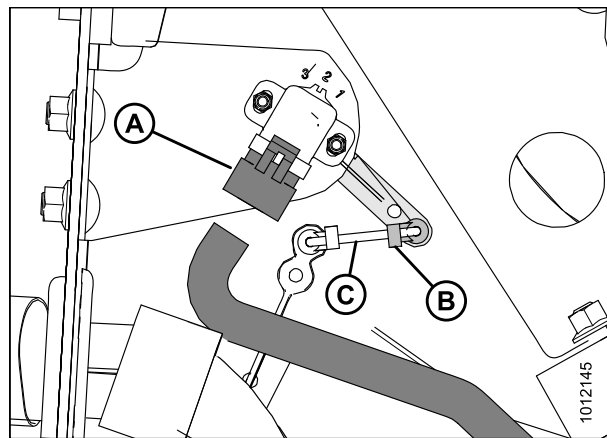


Figure 4.2: Header Height System

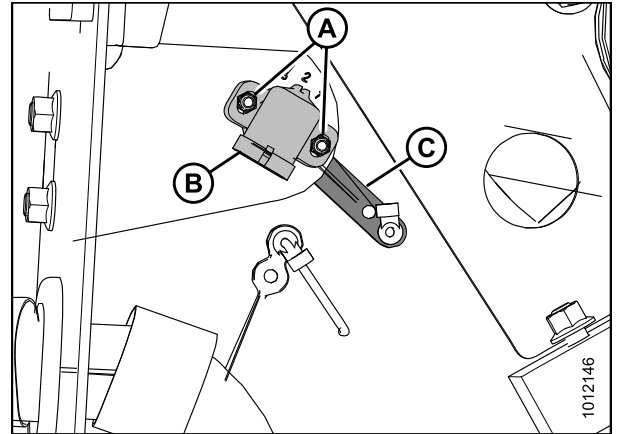


## AUTO HEADER HEIGHT CONTROL (AHHC)

5. Remove nuts and bolts (A).
6. Remove control (B) and control arm (C).

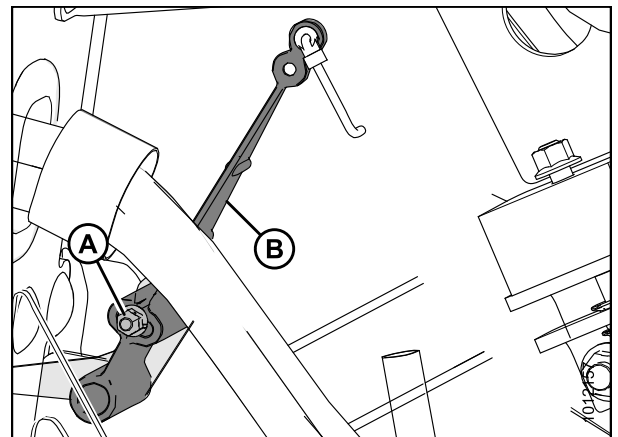
**NOTE:**

Note the orientation of the control arm, this will be required for reassembly.



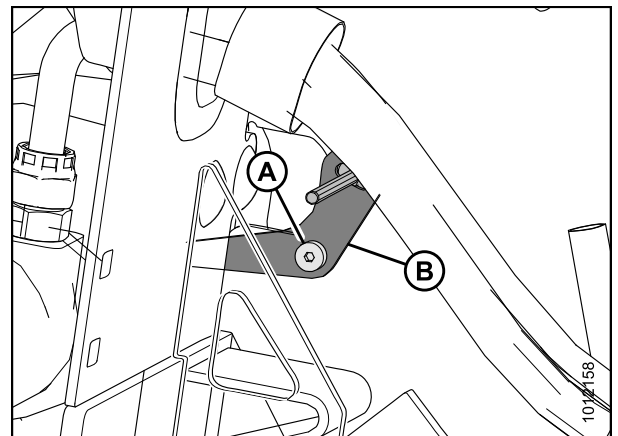
**Figure 4.3: Header Height System**

7. Remove nut (A), then remove the long control arm (B) complete with linkage rod and rod end clip.



**Figure 4.4: Header Height System**

8. Remove hex socket screw (A), then remove control activation arm (B).

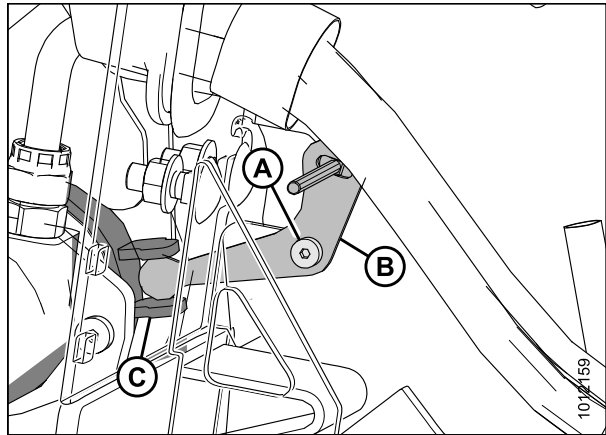


**Figure 4.5: Header Height System**

## AUTO HEADER HEIGHT CONTROL (AHHC)

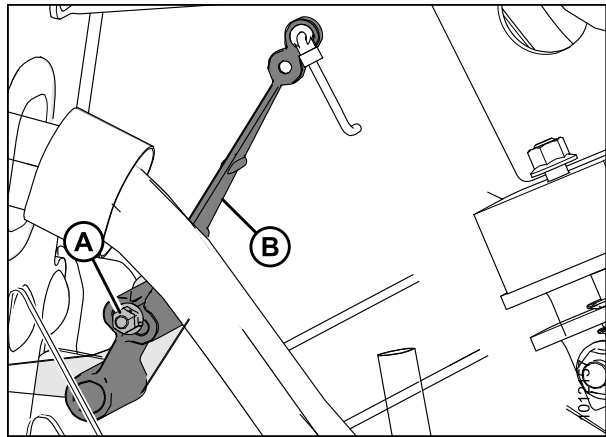
### 4.1.2 Installing Header Height Control (Left-Hand Side)

1. Install control activation arm (B) with bolt in upper location. Ensure the arm is positioned between the two tabs (C) welded to the frame. Install hex socket screw (A).



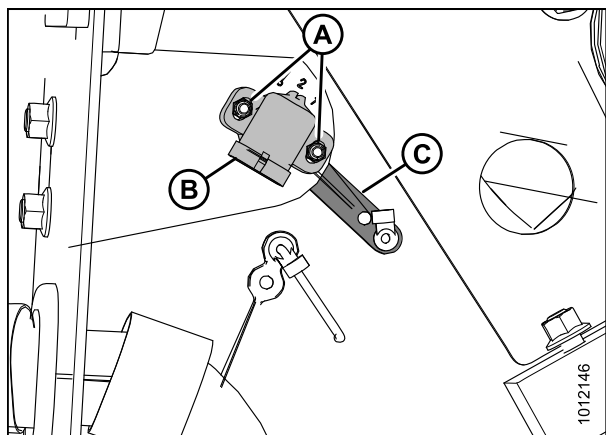
**Figure 4.6: Header Height System (Items Removed for Clarity)**

2. Install the long control arm (B) complete with linkage rod and rod end clip, secure with nut (A).



**Figure 4.7: Header Height System**

3. Install control arm (C). Ensure that the flat side is facing towards the header.
4. Install control (B), center the bolts in the slots and secure with nuts (A).



**Figure 4.8: Header Height System**

## AUTO HEADER HEIGHT CONTROL (AHC)

5. Slide the linkage rod (C) into the rod end clip (B). Secure the rod end clip by pressing it onto the linkage rod (C).
6. Connect the wire harness (A).
7. Close the left-hand endshield, refer to [3.3.2 Closing Left-Hand Endshield, page 24](#)

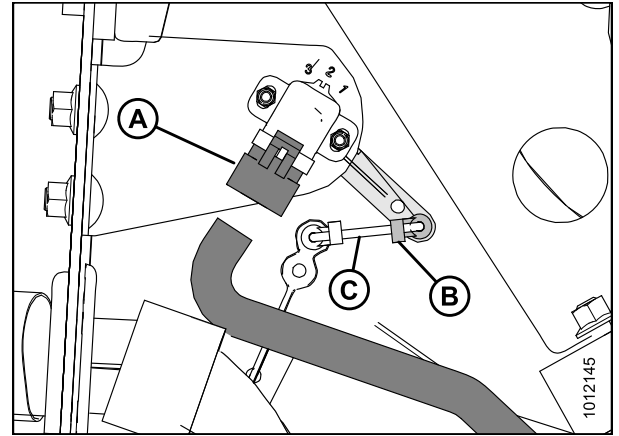


Figure 4.9: Header Height System

### 4.1.3 Removing Header Height Control (Right-Hand Side)

1. Raise the hold-down and engage lift cylinder safety props.
2. Lower header to the ground, shut down combine, and remove key from ignition.
3. Locate the access panel on the inside of the right-hand end frame. Remove the two bolts (A) from access panel (B).
4. Remove access panel (B).

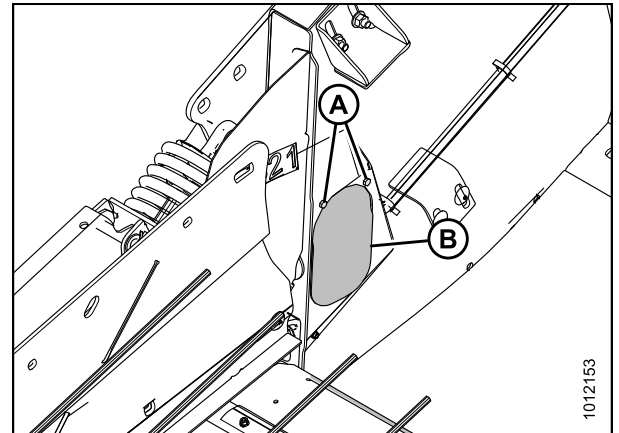


Figure 4.10: Header Height System (Auger Removed for Clarity)

## AUTO HEADER HEIGHT CONTROL (AHC)

5. Disconnect the wire harness (A).
6. Push up on the rod end clip (B). Slid the linkage rod (C) out of rod end clip (B).

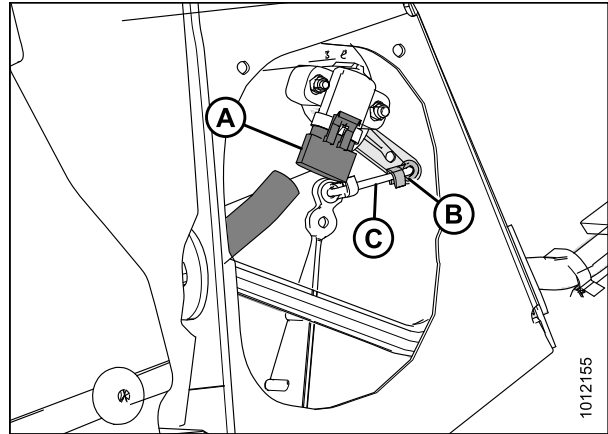


Figure 4.11: Header Height System

7. Remove nuts and bolts (A).
8. Remove control (B) and control arm (C).

**NOTE:**

Note the orientation of the control arm, this will be required for reassembly.

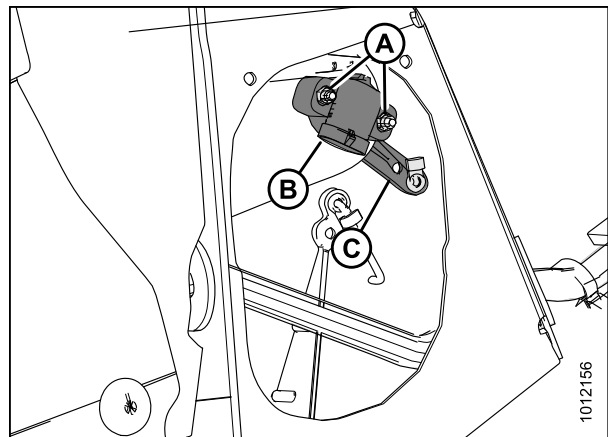


Figure 4.12: Header Height System

9. On the right-hand endpanel, outside of the header, remove the hole plug (A) to gain access to the nut that secures the long control arm to the header.
10. Remove nut (B).

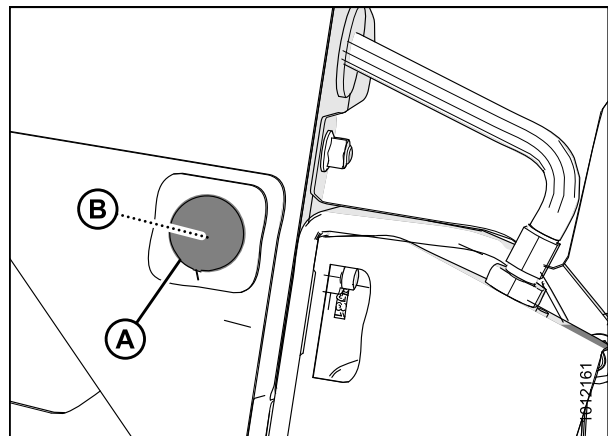


Figure 4.13: Header Height System

## AUTO HEADER HEIGHT CONTROL (AHC)

11. Remove the long control arm (A) complete with linkage rod, rod end clip and activator arm.

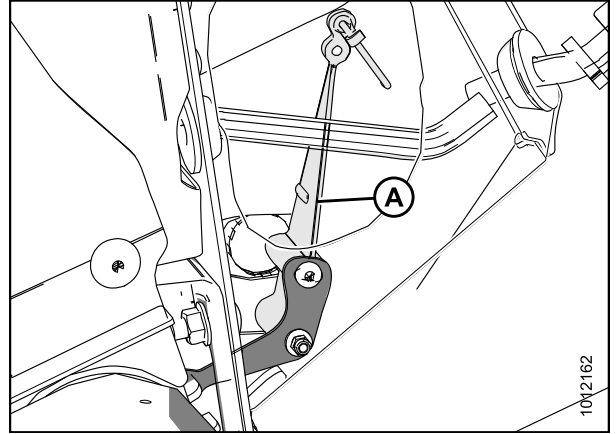


Figure 4.14: Header Height System

### 4.1.4 Installing Header Height Control (Right-Hand Side)

1. Install the long control arm (A) complete with linkage rod, rod end clip and activator arm.

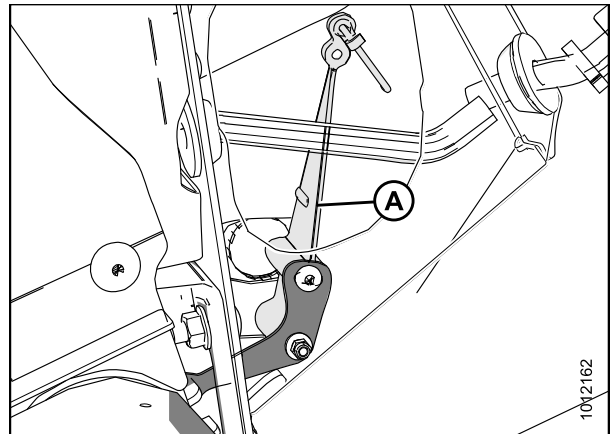


Figure 4.15: Header Height System

2. Install nut (B).
3. Install the hole plug (A).

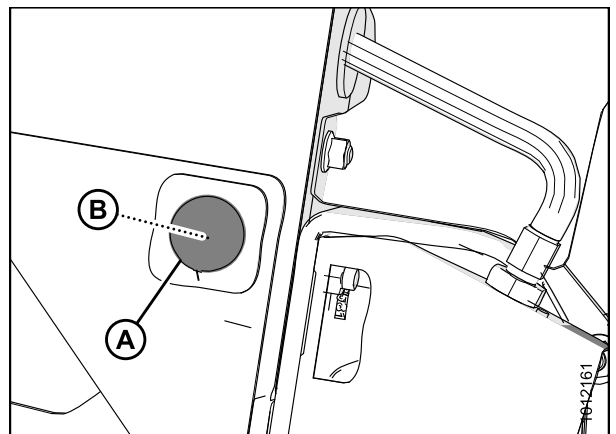
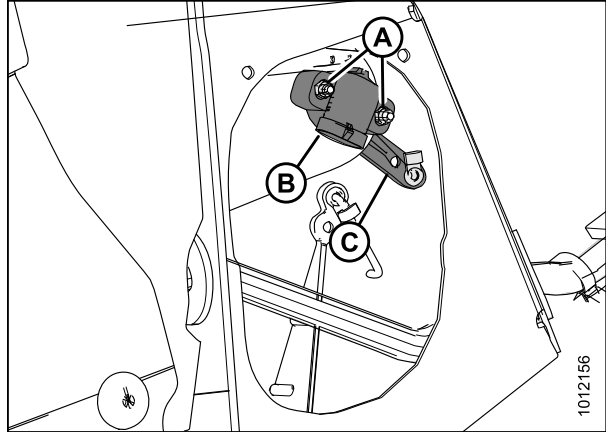


Figure 4.16: Header Height System

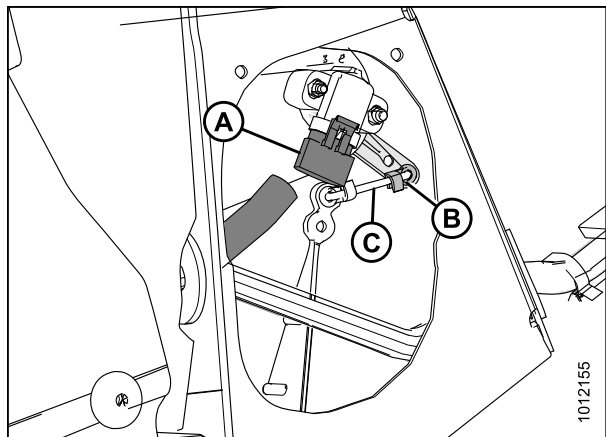
## AUTO HEADER HEIGHT CONTROL (AHC)

4. Install control arm (C). Ensure that the flat side is facing towards the header.
5. Install control (B), center the bolts in the slots and secure with nuts (A).



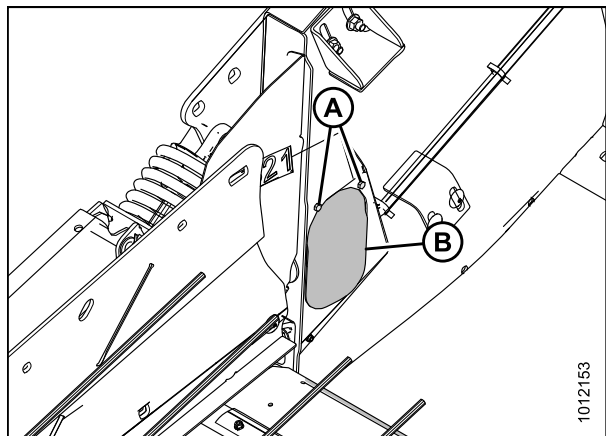
**Figure 4.17: Header Height System**

6. Slide the linkage rod (C) into the rod end clip (B). Secure the rod end clip by pressing it onto the linkage rod (C).
7. Connect the wire harness (A).



**Figure 4.18: Header Height System**

8. Install the access panel (B), secure it with bolts (A).



**Figure 4.19: Header Height System (Auger Removed for Clarity)**

## 4.2 Height Sensor Output Voltage Range – Combine Requirements

The height sensor output must be within a specific voltage range for each combine or the Auto Header Height Control (AHHC) feature will not work properly.

**Table 4.1 Combine Voltage Range**

Combine	Low Voltage Limit	High Voltage Limit	Range (Difference between High and Low Limits)
Case IH 7/8010, 5/6/7088, 7/8/9120, 5/6/7130, 5/6/7140, 7/8/9230, 7/8/9240	0.5 V	4.5 V	2.5 V
John Deere 60/70/S/T Series	0.5 V	4.5 V	2.5 V
New Holland CR/CX - 5 V system	0.5 V	4.5 V	2.5 V
New Holland CR/CX - 10 V system	2.8 V	7.2 V	4.1–4.4 V

**NOTE:**

For instructions on manually checking the voltage range, refer to [4.2.1 Manually Checking Voltage Range, page 85](#).

### 4.2.1 Manually Checking Voltage Range

You can manually check the output voltage range of the Auto Header Height Control (AHHC) sensor at the float indicator box. Some combines will allow you to check the voltage range from the cab. For instructions, refer to your combine operator’s manual or the AHHC instructions for your combine model later in this document.

To manually check the sensor’s output voltage range, follow these steps:

1. Position the header 6 inches (150 mm) above the ground, and rest it on the down stops. Unlock the auger float.

**NOTE:**

If the header is not on down stops during the next step, the voltage may go out of range during operation, causing a malfunction of the AHHC system. Refer to [4.2 Height Sensor Output Voltage Range – Combine Requirements, page 85](#).

2. Using a voltmeter at the left-hand height sensor, measure the voltage between the ground and signal wires. Measure the high voltage limit.
3. Fully lower the combine feeder house and float the header up off the down stops.
4. Using a voltmeter at the left-hand height sensor, measure the voltage between the ground and signal wires. Measure the low voltage limit.
5. Repeat previous steps to check the voltage range at the right-hand height sensor.
6. If the sensor voltage is not within the low and high limits, or if the range between the low and high limits is less than the range specified, you need to make adjustments. For instructions, refer to [4.2.2 Adjusting Header Height Control Voltage Range \(Left-Hand Side\), page 86](#) or [4.2.3 Adjusting Header Height Control Voltage Range \(Right-Hand Side\), page 86](#).

## 4.2.2 Adjusting Header Height Control Voltage Range (Left-Hand Side)

### **⚠ DANGER**

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

1. Lower header to the ground, shut down combine, and remove key from ignition.
2. Open the left-hand endshield. Refer to [3.3.1 Opening Left-Hand Endshield, page 23](#).
3. Loosen nuts (A).
4. Rotate control (B) until desired voltage range is achieved. Refer to [4.2 Height Sensor Output Voltage Range – Combine Requirements, page 85](#).

**NOTE:**

If the voltage range is too large or too small, you may need to relocate the linkage rod (C) to a different hole in sensor control arm (D). If that doesn't work, relocate the linkage rod (C) to a different hole in sensor control arm (E).

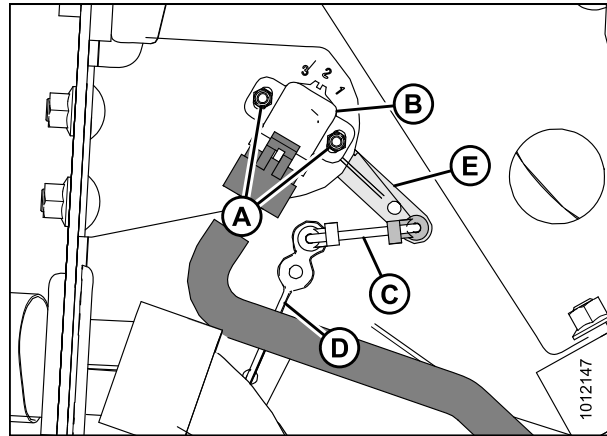


Figure 4.20: Header Height System

## 4.2.3 Adjusting Header Height Control Voltage Range (Right-Hand Side)

### **⚠ DANGER**

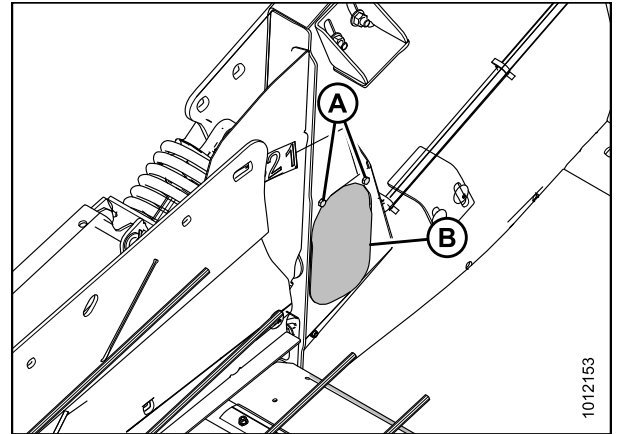
Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

1. Raise the hold-down and engage lift cylinder safety props.
2. Lower header to the ground, shut down combine, and remove key from ignition.



## AUTO HEADER HEIGHT CONTROL (AHC)

3. Locate the access panel on the inside of the right-hand end frame. Remove the two bolts (A) from access panel (B).
4. Remove access panel (B).

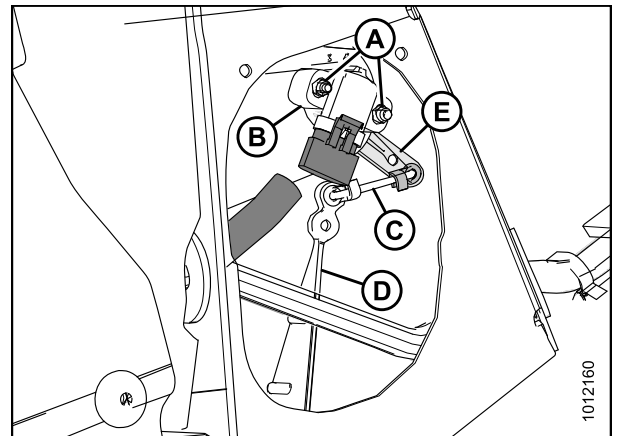


**Figure 4.21: Header Height System (Auger Removed for Clarity)**

5. Loosen nuts (A).
6. Rotate control (B) until desired voltage range is achieved. Refer to [4.2 Height Sensor Output Voltage Range – Combine Requirements, page 85](#).

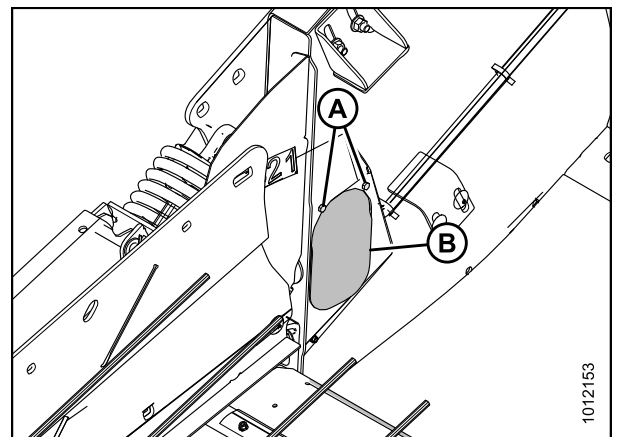
**NOTE:**

If the voltage range is too large or too small, you may need to relocate the linkage rod (C) to a different hole in sensor control arm (D). If that doesn't work, relocate the linkage rod (C) to a different hole in sensor control arm (E).



**Figure 4.22: Header Height System**

7. Once complete Install the access panel (B), secure it with bolts (A).



**Figure 4.23: Header Height System (Auger Removed for Clarity)**

## AUTO HEADER HEIGHT CONTROL (AHHC)

### 4.3 Case IH 5088/6088/7088 Combines

#### 4.3.1 Engaging the Auto Header Height Control (Case IH 2300)

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

1. Turn mode select switch (A) to HT.
2. Set the desired header height with position control knob (B). The AHHC will raise and lower the header to maintain this fixed distance from the ground.
3. Turn feeder ON.
4. Push header LOWER switch.

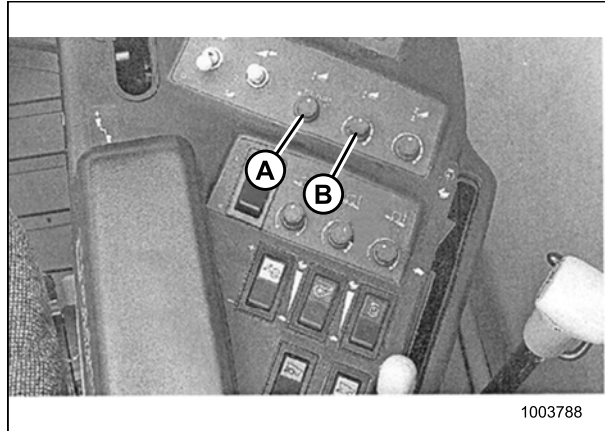


Figure 4.24: Combine Controls

5. Use header raise rate control (A) and header lower rate control (B) as required to adjust the rate at which the header raises or lowers to maintain the desired header height.



Figure 4.25: Combine Controls

## AUTO HEADER HEIGHT CONTROL (AHHC)

6. Use sensitivity control (A) to set the sensitivity to changing ground conditions.

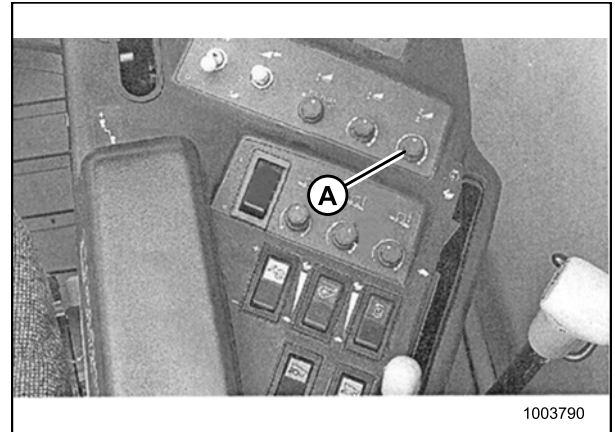


Figure 4.26: Combine Controls

### 4.3.2 Calibrating the Auto Header Height Control (Case IH 2300/2500 and 5088/6088/7088)

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To calibrate the AHHC system, follow these steps:

1. Start combine engine, but do NOT have separator or feeder house engaged.
2. Locate header control switch (A) on the right-hand console, and set to "HT" (this is AHHC mode).

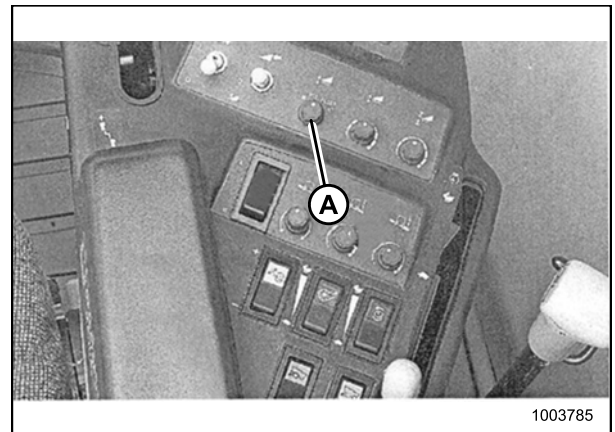


Figure 4.27: Right-Hand Console

## AUTO HEADER HEIGHT CONTROL (AHHC)

3. Press the header lower switch (A) on the joystick lever until the header is fully lowered. You may need to hold the switch for several seconds.
4. Press the header raise switch (A) on the joystick lever. The header should stop at about the halfway point. Continue holding the header raise switch, and the header will rise until the feeder house reaches its upper limit. The AHHC system is now calibrated.

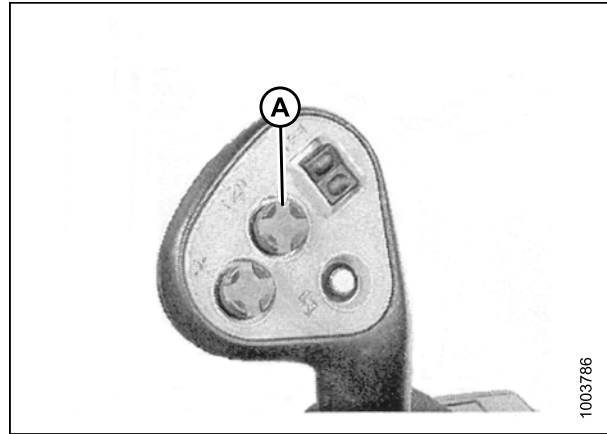


Figure 4.28: Joystick Lever (Case IH 2300/2500)

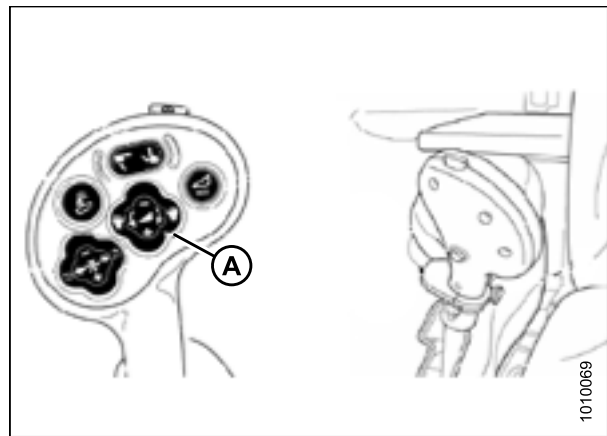


Figure 4.29: Joystick Lever (Case IH 5088/6088/7088)

### 4.3.3 Setting the Sensitivity of the Auto Header Height (Case IH 2300/2500 and 5088/6088/7088)

The sensitivity adjustment controls the distance the header must travel up or down before the Auto Header Height Control (AHHC) reacts and raises or lowers the feeder house. When the sensitivity is set to maximum, only small changes in ground height are needed to cause the feeder house to raise or lower. When the sensitivity is set to minimum, large changes in the ground height are needed to cause the feeder house to raise or lower.

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

## AUTO HEADER HEIGHT CONTROL (AHHC)

1. Use the HEADER SETTINGS key (M) to display the HEADER SENSITIVITY CHANGE SCREEN.
2. Use the UP or DOWN keys (E and H) to adjust the highlighted item. The height sensitivity setting range is 0 (least sensitive) to 250 (most sensitive) in increments of 10.

**NOTE:**

Adjustments take effect immediately. Use the CANCEL key to return to the original settings.

3. Use the HEADER SETTINGS key (M) to highlight the next changeable item.
4. Use the ENTER key (D) to save changes and return to the monitor screen. If there are no changes, the screen will return to the monitor screen after five seconds.

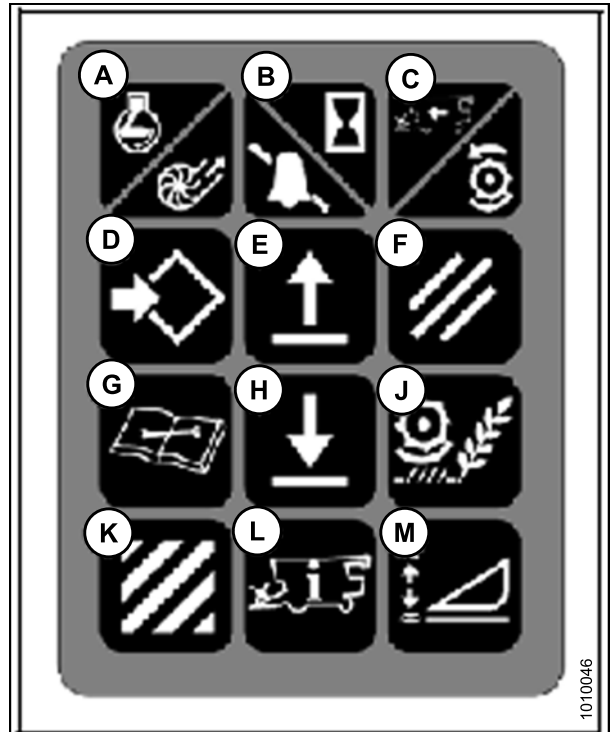


Figure 4.30: Combine Controls

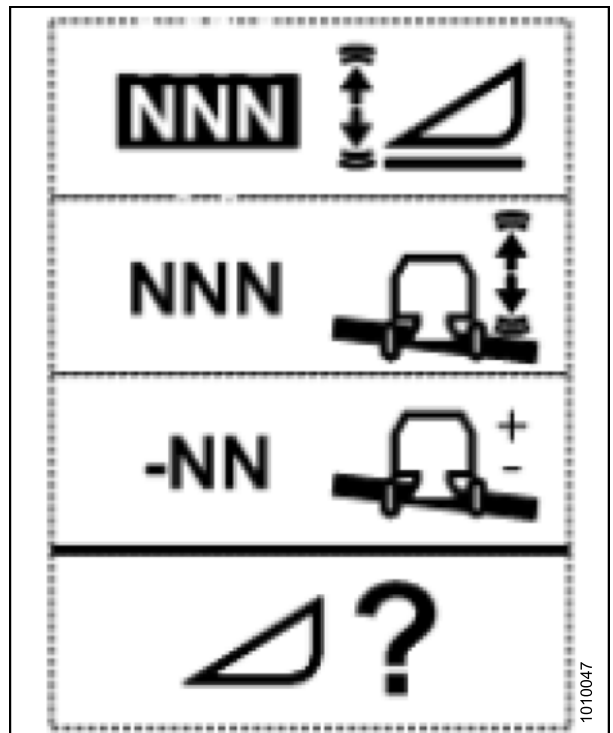


Figure 4.31: Height Sensitivity Change Screen

## 4.4 Case IH 5130/6130/7130, 7010/8010, 7120/8120/9120, and 7230/8230/9230 Combines

### 4.4.1 Checking Voltage Range from the Combine Cab (Case 8010)

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To check the sensor output voltage range from the combine cab for Universal Display, follow these steps:

1. Ensure header float is unlocked.
2. Select DIAG (A) on the Universal display MAIN screen. The DIAG screen opens.

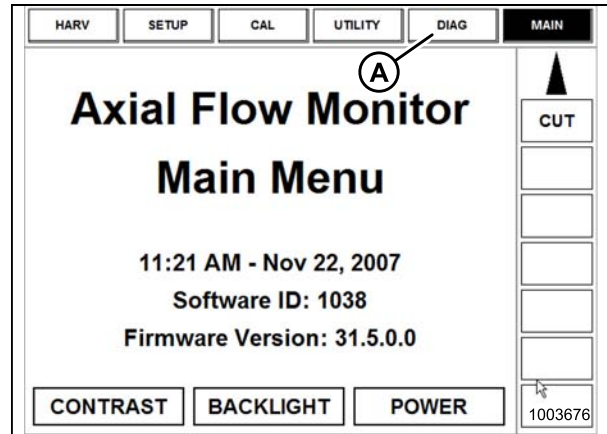


Figure 4.32: Case 8010 Combine Display

3. Select SUB SYSTEM (A). The SUB SYSTEM window opens.

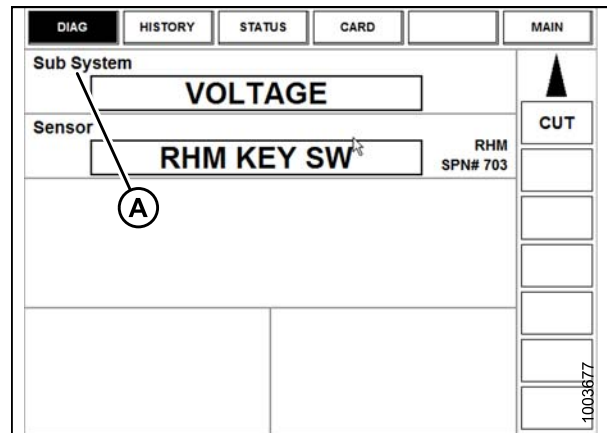
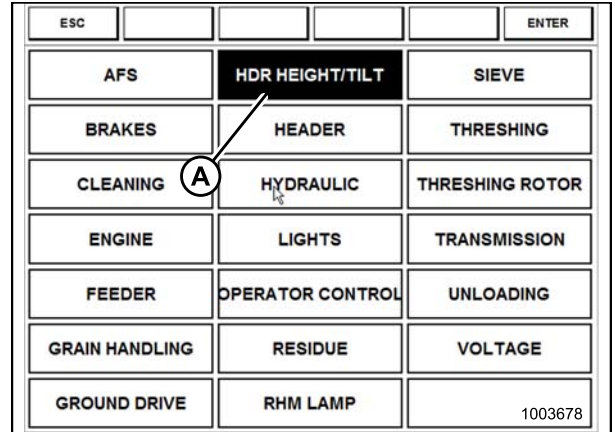


Figure 4.33: Case 8010 Combine Display

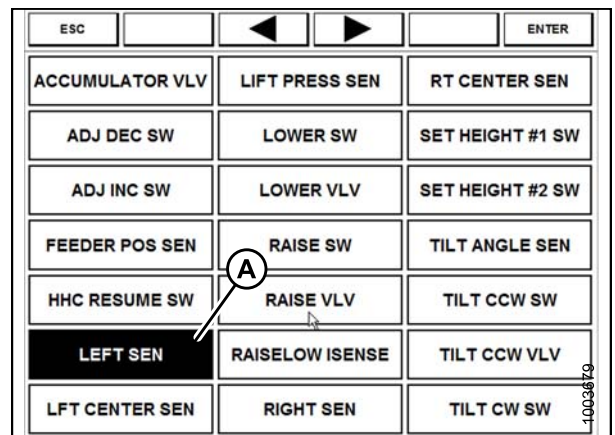
## AUTO HEADER HEIGHT CONTROL (AHHC)

4. Select HDR HEIGHT/TILT (A). The SENSOR window opens.



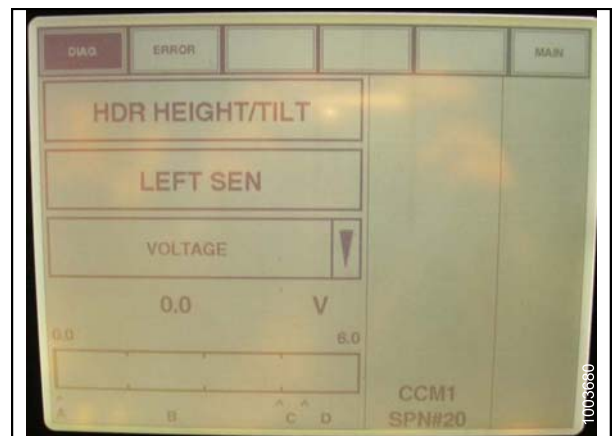
**Figure 4.34: Case 8010 Combine Display**

5. Select LEFT SEN (A). The exact voltage is displayed. Raise and lower the header to see the full range of voltage readings.



**Figure 4.35: Case 8010 Combine Display**

6. If the sensor voltage is not within the low and high limits shown in [4.2 Height Sensor Output Voltage Range – Combine Requirements, page 85](#), or if the range between the low and high limits is insufficient, you need to make adjustments. For instructions, refer to [4.2.2 Adjusting Header Height Control Voltage Range \(Left-Hand Side\), page 86](#) and [4.2.3 Adjusting Header Height Control Voltage Range \(Right-Hand Side\), page 86](#).



**Figure 4.36: Case 8010 Combine Display**

## AUTO HEADER HEIGHT CONTROL (AHHC)

### 4.4.2 Checking Voltage Range from the Combine Cab (Case IH 5130/6130/7130, 7010/8010; 7120/8120/9120; 7230/8230/9230)

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To check the sensor output voltage range from the combine cab for Pro 600 Display, follow these steps:

1. Ensure header float is unlocked.
2. Select DIAGNOSTICS (A) on the MAIN screen. The DIAGNOSTICS screen opens.
3. Select SETTINGS. The SETTINGS screen displays.

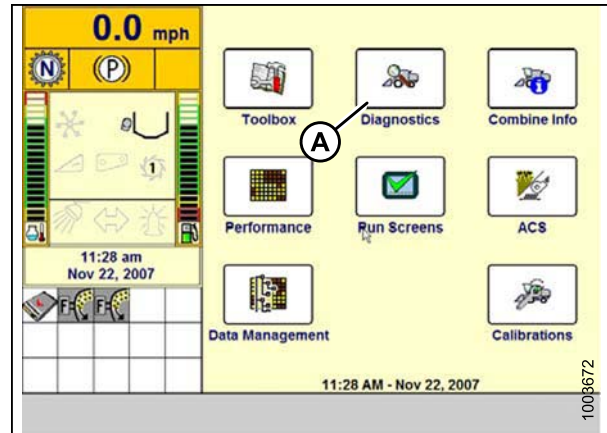


Figure 4.37: Case IH Combine Display

4. Select the GROUP arrow (A). The GROUP window opens.

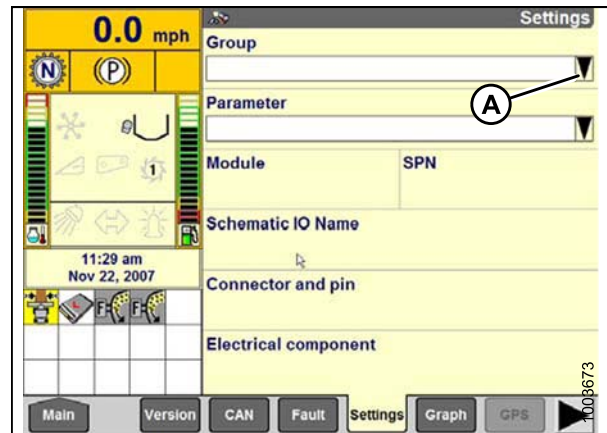
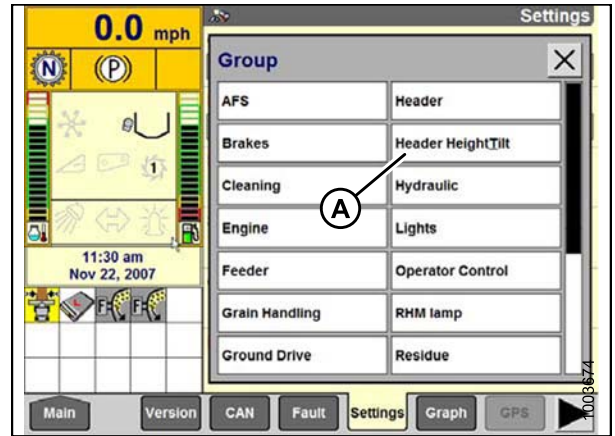


Figure 4.38: Case IH Combine Display



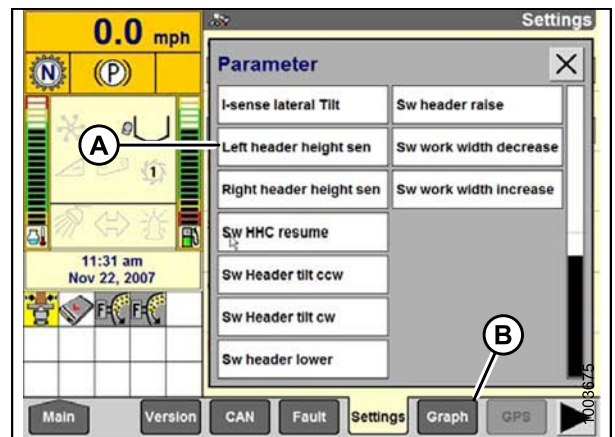
## AUTO HEADER HEIGHT CONTROL (AHHC)

5. Select HEADER HEIGHT/TILT (A). The PARAMETER window opens.



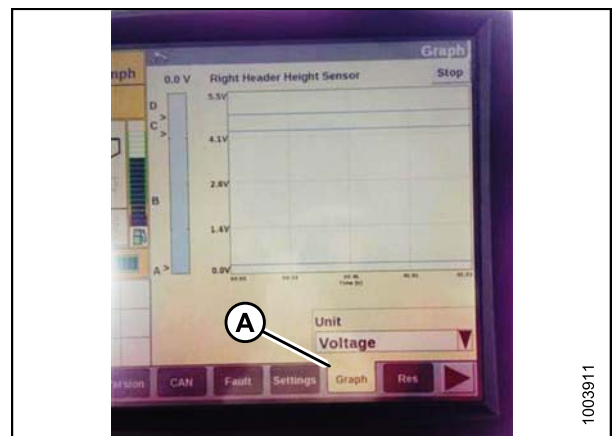
**Figure 4.39: Case IH Combine Display**

6. Select LEFT HEADER HEIGHT SEN (A), and then select the GRAPH button (B). The exact voltage is displayed at top of screen. Raise and lower the header to see the full range of voltage readings.
7. If the sensor voltage is not within the low and high limits shown in [4.2 Height Sensor Output Voltage Range – Combine Requirements, page 85](#), or if the range between the low and high limits is insufficient, you need to make adjustments. For instructions, refer to [4.2.2 Adjusting Header Height Control Voltage Range \(Left-Hand Side\), page 86](#) and [4.2.3 Adjusting Header Height Control Voltage Range \(Right-Hand Side\), page 86](#).



**Figure 4.40: Case IH Combine Display**

8. Push the GRAPH tab beside the SETTINGS tab to view the voltage.



**Figure 4.41: Case IH Combine Display**

## AUTO HEADER HEIGHT CONTROL (AHHC)

### 4.4.3 Calibrating the Auto Header Height Control (Case IH 5130/6130/7130, 7010/8010; 7120/8120/9120; 7230/8230/9230)

**NOTE:**

This procedure applies to combines with a software version below 28.00. For instructions on calibrating the AHHC for combines with software version 28.00 or above, refer to [4.4.4 Calibrating the Auto Header Height Control System \(Case Combines with Version 28.00 Software\)](#), page 97.

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To calibrate the AHHC, follow these steps:

1. Ensure all header electrical and hydraulic connections are made.
2. Select TOOLBOX on the MAIN screen, and then select HEADER.
3. Set appropriate HEADER STYLE.



Figure 4.42: Case IH Combine Display

4. Set AUTO REEL SPEED SLOPE.
5. Set HEADER PRESSURE FLOAT to YES if equipped, and ensure REEL DRIVE is HYDRAULIC.



Figure 4.43: Case IH Combine Display

## AUTO HEADER HEIGHT CONTROL (AHHC)

6. Install REEL FORE-BACK (if applicable).
7. Set HEIGHT SENSITIVITY to desired value. The recommended starting point is 180.

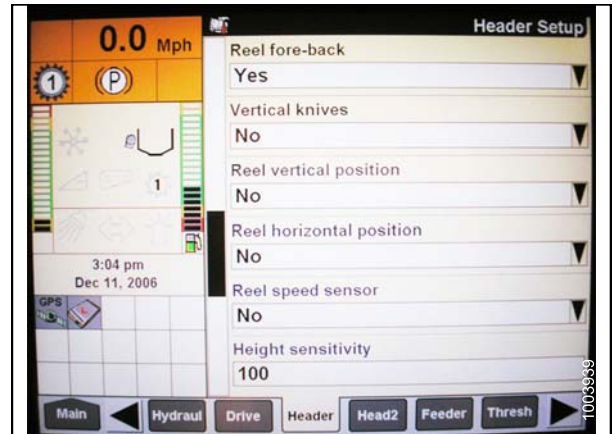


Figure 4.44: Case IH Combine Display

8. Install FORE-AFT CONTROL, and HDR FORE-AFT TILT (if applicable).

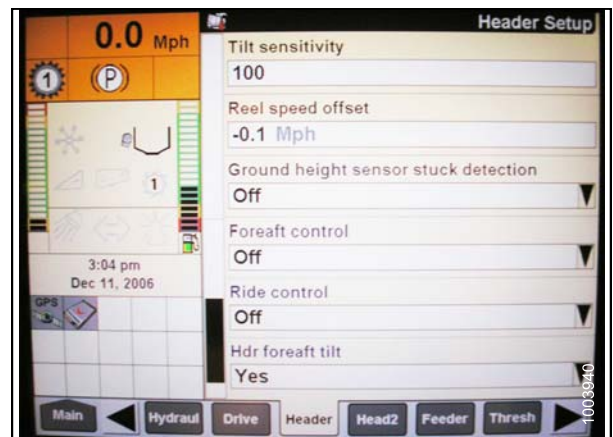


Figure 4.45: Case IH Combine Display

9. Press HEAD2 at bottom of screen.
10. Ensure HEADER TYPE is PICK-UP.

**NOTE:**

If recognition resistor is plugged in to header harness, you will not be able to change this.

11. Set cutting type to PLATFORM.
12. Set appropriate HEADER WIDTH and HEADER USAGE.

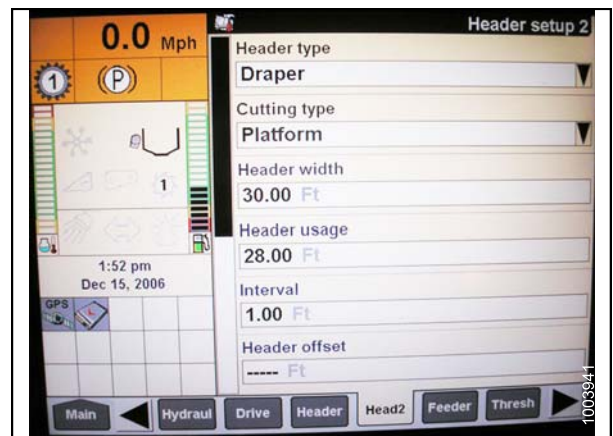


Figure 4.46: Case IH Combine Display

### 4.4.4 Calibrating the Auto Header Height Control System (Case Combines with Version 28.00 Software)

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

## AUTO HEADER HEIGHT CONTROL (AHHC)

1. Select TOOLBOX on the MAIN screen, and then select HEADER SETUP.
2. Locate the HEADER SUB TYPE field. It will be located on either the HEAD 1 or the HEAD 2 tab.
3. Select 2000 (A).



Figure 4.47: Combine Display

4. Locate the HEADER SENSORS and HEADER PRESSURE FLAT fields. They will be located on either the HEAD 1 or the HEAD 2 tab.
5. Select ENABLE (A) in the HEADER SENSORS field.
6. Select NO (B) in the HEADER PRESSURE FLAT field.

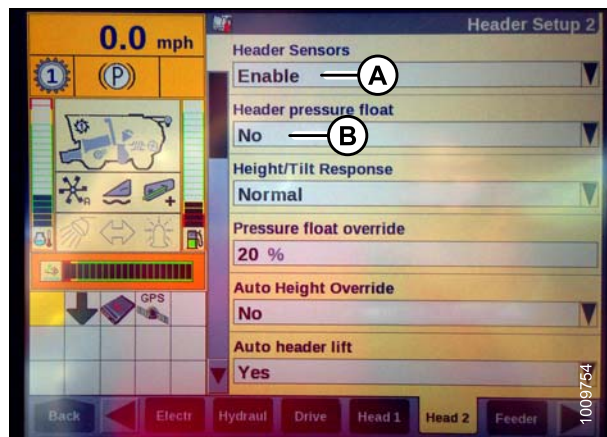


Figure 4.48: Combine Display

7. Ensure AUTO HEIGHT icon (A) appears on the monitor and is displayed as shown at (B). When the header is set for cutting on the ground, this verifies that the combine is correctly using the potentiometers on the header to sense ground pressure.

**NOTE:**

AUTO HEIGHT field (B) may appear on any of the RUN tabs and not necessarily on the RUN 1 tab.

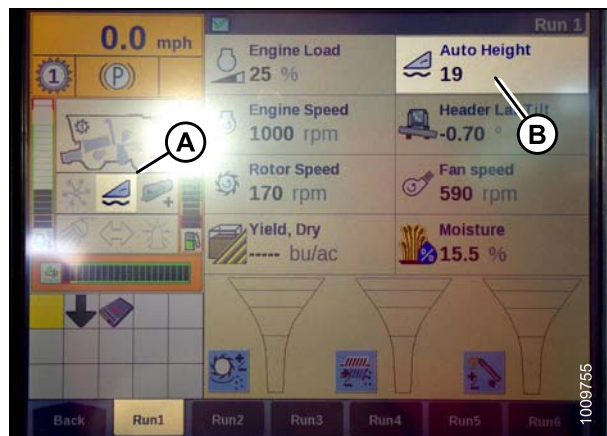


Figure 4.49: Combine Display

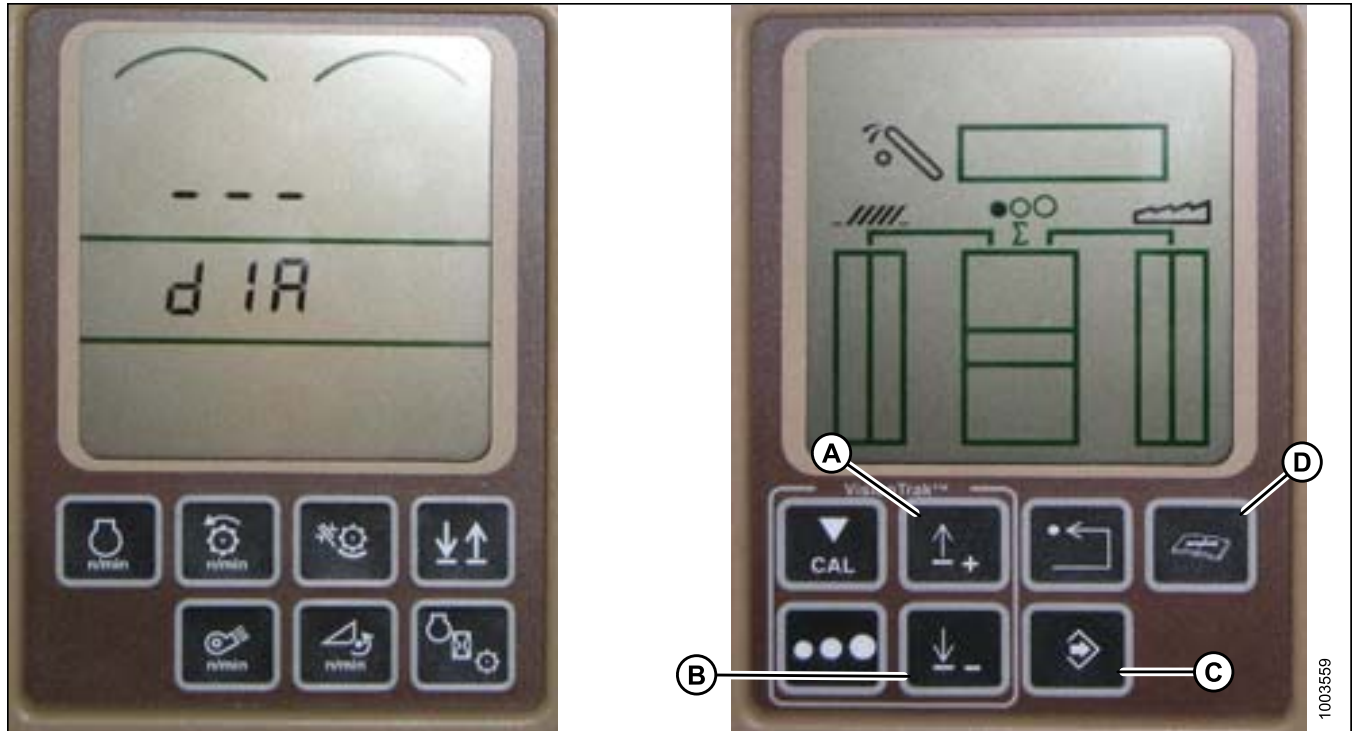
## 4.5 John Deere 60 Series Combines

### 4.5.1 Checking Voltage Range from the Combine Cab (John Deere 60 Series)

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To check the sensor output voltage range from the combine cab, follow these steps:



**Figure 4.50: Combine HHS Monitor**

1. Press the diagnostic button on the (HHS) monitor – the button with the open book with the wrench on top of it (D) d1A appears on the monitor.
2. Press the up button (A) until EO1 appears on the monitor (these are all your header adjustments).
3. Press the enter button (C).
4. Press the up (A) or down button (B) until 24 is displayed on the top portion of the monitor. This is the voltage reading of the sensor.
5. Ensure header float is unlocked.
6. Start the combine, lower feeder house to the ground until the feeder house stops moving.

**NOTE:**

You may need to hold the header down switch for a few seconds to ensure the feeder house is entirely down.

7. Check the sensor reading on the monitor.

## AUTO HEADER HEIGHT CONTROL (AHHC)

8. Raise the header so it is just off the ground, check the sensor reading again.
9. If the sensor voltage is not within the low and high limits shown in [4.2 Height Sensor Output Voltage Range – Combine Requirements, page 85](#), or if the range between the low and high limits is insufficient, you need to make adjustments. For instructions, refer to [4.2.2 Adjusting Header Height Control Voltage Range \(Left-Hand Side\), page 86](#) and [4.2.3 Adjusting Header Height Control Voltage Range \(Right-Hand Side\), page 86](#).

### 4.5.2 Calibrating the Auto Header Height Control (John Deere 60 Series)

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

1. Start the combine.
2. Press the DIAGNOSTIC button (D) on the monitor – DIA appears on the monitor.
3. Press the CAL button (B) – DIA-CAL appears on the monitor.



Figure 4.51: Combine Display

## AUTO HEADER HEIGHT CONTROL (AHHC)

4. Press the UP or DOWN buttons until HDR appears on the monitor.
5. Press the enter button – HDR H-DN appears on the monitor.

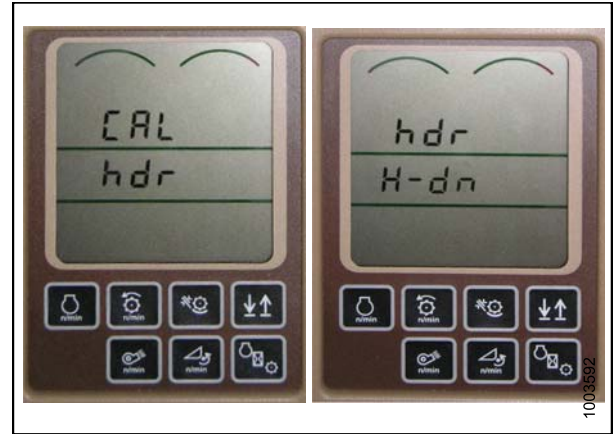


Figure 4.52: Combine Display

6. Fully lower feeder house to the ground.

**NOTE:**

You may need to hold the header down switch for a few seconds to ensure the feeder house is fully lowered.

7. Press the CAL button (A) to save the calibration of the header– HDR H-UP appears on the monitor.
8. Raise the header three feet off the ground, and press the CAL (A) button – EOC appears on the monitor.
9. Press the enter button (B) to save the calibration of the header. Your AHHC is now calibrated.

**NOTE:**

If an error code appears during calibration, the sensor is out of voltage range and will require adjustment. Refer to [4.5.1 Checking Voltage Range from the Combine Cab \(John Deere 60 Series\), page 99](#).

**NOTE:**

After the calibration is complete, specific combine operation settings need to be made to ensure proper field operation.

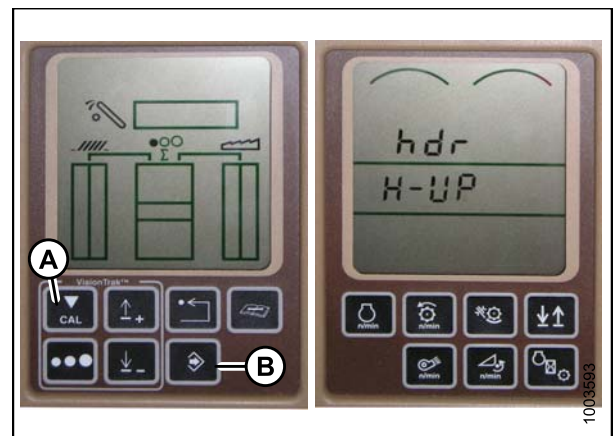


Figure 4.53: Combine Display

### 4.5.3 Turning the Accumulator Off (John Deere 60 Series)

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

## AUTO HEADER HEIGHT CONTROL (AHHC)

1. Press the DIAGNOSTIC button (A) on the monitor – DIA appears on the monitor.
2. Press the UP button (B) until EO1 appears on the monitor, and press ENTER (D) – this is the header adjustment.
3. Press the UP (B) or DOWN (C) button until '132' is displayed on the top portion of the monitor – this is the reading for the accumulator.
4. Press ENTER (D) to select '132' as the accumulator reading (this will allow you to change the display to a three-digit number so it has a '0' in it. For example, 'x0x').
5. Press the UP (B) or DOWN (C) button until the desired number is displayed, and press the CAL (E) button.
6. Press ENTER (D) to save the changes. The accumulator is now deactivated.

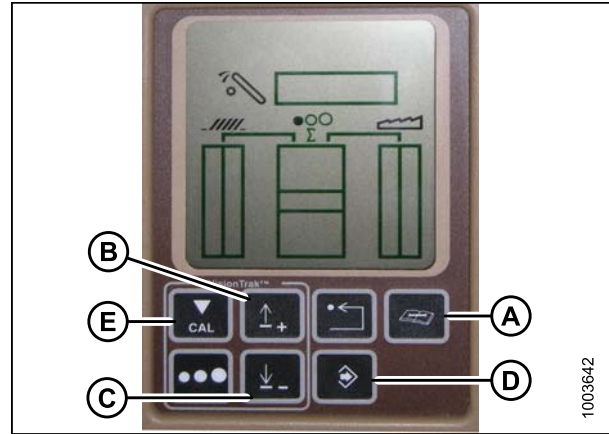


Figure 4.54: Combine Display

### 4.5.4 Setting the Sensing Grain Header Height to 50 (John Deere 60 Series)

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To set the sensing grain header height, follow these steps:

1. Press the DIAGNOSTIC button (A) on the monitor – DIA appears on the monitor.
2. Press the UP button (B) until EO1 appears on the monitor, and press ENTER (D) – this is the header adjustment.
3. Press the UP (B) or DOWN (C) button until '128' is displayed on the top portion of the monitor – this is the reading for the sensor.
4. Press ENTER (D) to select '128' as the sensor reading (this will allow you to change the display to a three-digit number so it has a '50' in it).
5. Press the UP (B) or DOWN (C) button until the desired number is displayed, and press the CAL (E) button.
6. Press ENTER (D) to save the changes. The height is now set.

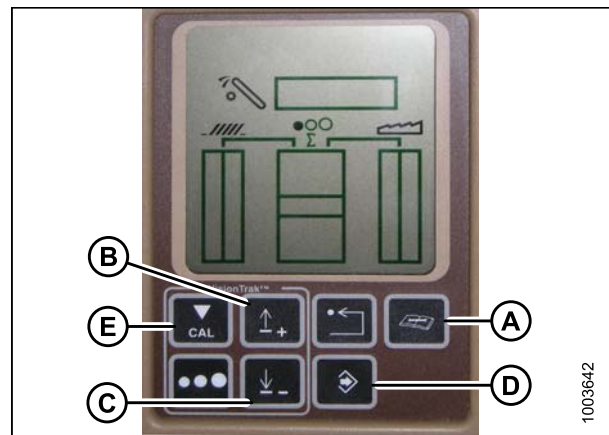


Figure 4.55: Combine Display



## AUTO HEADER HEIGHT CONTROL (AHHC)

**NOTE:**

Do **NOT** use the active header float function (A) in combination with the MacDon Auto Header Height Control (AHHC) – the two systems will counteract one another. The header symbol (B) on the display should NOT have a wavy line under it and should appear exactly as shown on the Active Header Control Display in Figure 4.56: *Combine Display*, page 103.

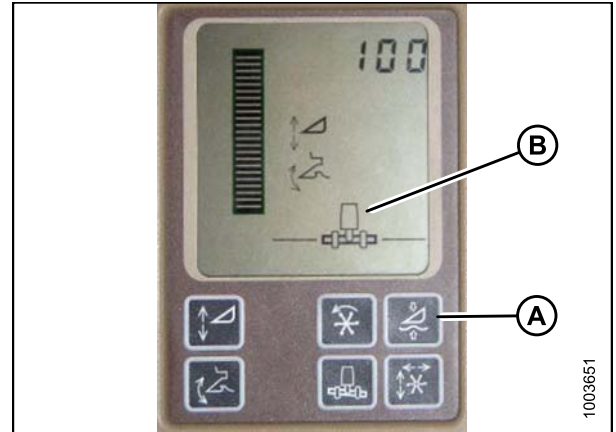


Figure 4.56: Combine Display

### 4.5.5 Setting the Sensitivity of the Auto Header Height Control (John Deere 60 Series)

This is also known as dead band adjustment.

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

## AUTO HEADER HEIGHT CONTROL (AHHC)

1. Press the DIAGNOSTIC button (A) on the monitor – DIA appears on the monitor.
2. Press the UP button (B) until EO1 appears on the monitor, and press ENTER (D) – this is the header adjustment.
3. Press the UP (B) or DOWN (C) button until '112' is displayed on the monitor – this is your sensitivity setting.

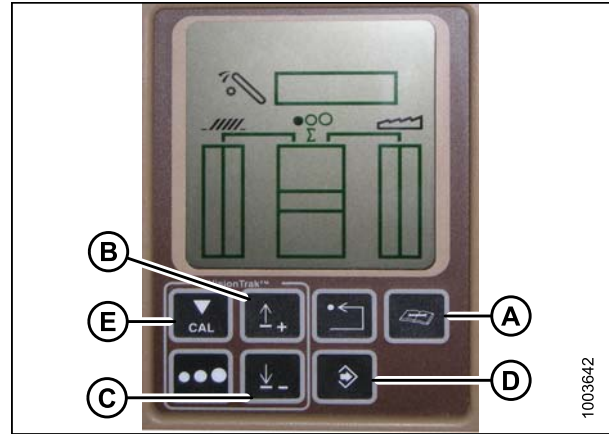
**NOTE:**

The lower the reading, the higher the sensitivity.  
Ideal operating range is typically between 50–80.

4. Press ENTER (D) to select '112' as the sensitivity setting (this will allow you to change the first digit of the number sequence).
5. Press the UP (B) or DOWN (C) button until the desired number is displayed, and press the CAL (E) button. This will you to the second digit. Repeat this procedure until the desired setting is achieved.
6. Press ENTER (D) to save changes.

**NOTE:**

The numbers depicted on the displays in these illustrations are for reference purposes only; they are not intended to represent the specific settings for your equipment.



**Figure 4.57: Combine Display**

### 4.5.6 Adjusting the Threshold for the Drop Rate Valve (John Deere 60 Series)

This adjusts the point at which the restrictor valve opens allowing full flow to the lift cylinders.

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

## AUTO HEADER HEIGHT CONTROL (AHHC)

1. Press the DIAGNOSTIC button (A) on the monitor – DIA appears on the monitor.
2. Press the UP button (B) until EO1 appears on the monitor. and press ENTER (C) – this is the header adjustment.
3. Press the UP (B) or DOWN button until '114' is displayed on the top portion of the monitor – this is the setting that adjusts when the fast drop rate starts with respect to the dead band.

**NOTE:**

The default setting is 100. Ideal operating range is typically between 60–85.

4. Press ENTER (C) to select '114' as the fast drop rate (this will allow you to change the first digit of the number sequence).
5. Press the UP (B) or DOWN (E) button until the desired number is displayed, and press the CAL button (D). This will bring you to the second digit. Repeat this procedure until the desired setting is achieved.
6. Press ENTER (C) to save changes.

**NOTE:**

The numbers depicted on the displays in these illustrations are for reference purposes only; they are not intended to represent the specific settings for your equipment.

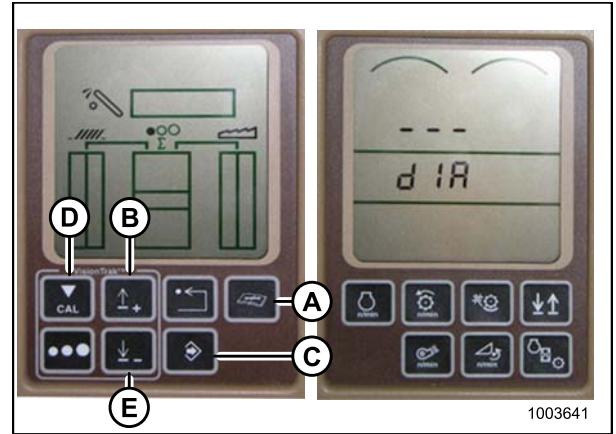


Figure 4.58: Combine Display

## 4.6 John Deere 70 Series Combines

### 4.6.1 Checking Voltage Range from the Combine Cab (John Deere 70 Series)

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To check the sensor output voltage range from the combine cab, follow these steps:

1. Press the HOME PAGE button (A) on the main page of the monitor.



Figure 4.59: Combine Display

2. Ensure the three icons (A) depicted in the illustration at right appear on the monitor.



Figure 4.60: Combine Display

## AUTO HEADER HEIGHT CONTROL (AHHC)

- Use scroll knob (A) to highlight the middle icon, the green 'i', and press the check mark button (B) to select it. This will bring up the Message Center.

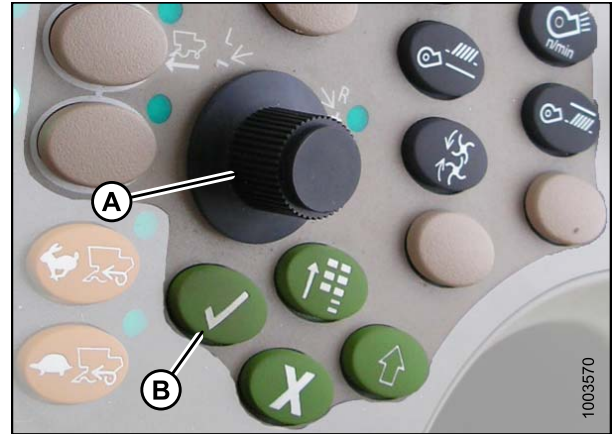


Figure 4.61: Combine Controls

- Use the scroll knob to highlight DIAGNOSTIC ADDRESSES (A) from the right-hand column, and select it by pressing the check mark button.
- Use the scroll knob to highlight drop down box (B), and press the check mark button to select it.



Figure 4.62: Combine Display

- Use the scroll knob to highlight LC 1.001 VEHICLE (A) is highlighted, and press the check mark button to select it.



Figure 4.63: Combine Display

## AUTO HEADER HEIGHT CONTROL (AHHC)

- Use the scroll knob to highlight the DOWN ARROW (A), and press the check mark button to scroll through the list until 029 DATA (B) is displayed and voltage reading (C) appears on the monitor.

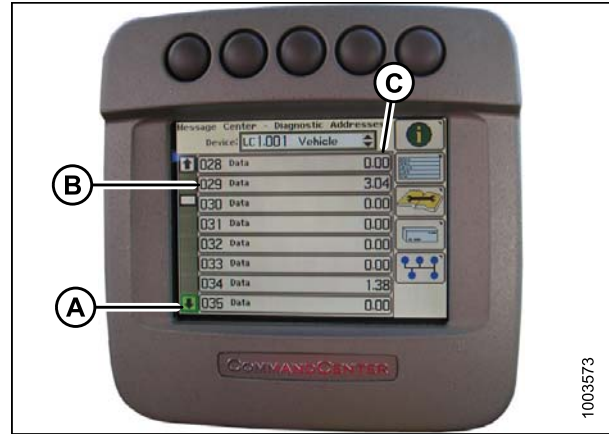


Figure 4.64: Combine Display

- Ensure header float is unlocked.
- Start the combine and fully lower feeder house to the ground.

### NOTE:

You may need to hold the header down switch for a few seconds to ensure the feeder house is fully lowered.

- Check the sensor reading on the monitor.
- Raise the header so it is just off the ground, and recheck the sensor reading.
- If the sensor voltage is not within the low and high limits shown in [4.2 Height Sensor Output Voltage Range – Combine Requirements, page 85](#), or if the range between the low and high limits is insufficient, you need to make adjustments. For instructions, Refer to [4.2.2 Adjusting Header Height Control Voltage Range \(Left-Hand Side\), page 86](#) and [4.2.3 Adjusting Header Height Control Voltage Range \(Right-Hand Side\), page 86](#).

## 4.6.2 Calibrating Feeder House Speed (John Deere 70 Series)

The feeder house speed must be calibrated before you calibrate the Auto Header Height Control (AHHC) system. Refer to the combine operator's manual for instructions.

## 4.6.3 Calibrating the Auto Header Height Control (John Deere 70 Series)

### NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

- Start the combine.

## AUTO HEADER HEIGHT CONTROL (AHHC)

2. Press the button located fourth from the left along the top of the monitor (A) to select the icon that resembles an open book with a wrench on it (B).
3. Press the top button (A) a second time to enter diagnostics and calibration mode.



Figure 4.65: Combine Display

4. Use scroll knob (A) to highlight the HEADER option, and press the check mark button (B) to select it.
5. Use the scroll knob (A) to highlight the lower right-hand icon that resembles an arrow in a diamond, and press the check mark button (B) to select it.
6. Follow the steps listed on the monitor to perform the calibration.

### NOTE:

If an error code appears on screen, the sensor is not in the correct working range. Refer to [4.6.1 Checking Voltage Range from the Combine Cab \(John Deere 70 Series\), page 106](#) to check and adjust the range.

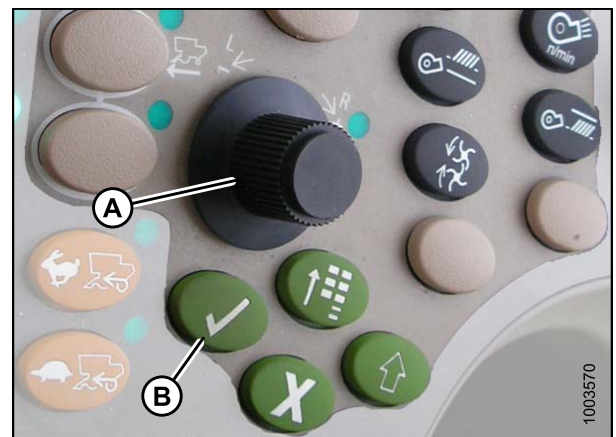


Figure 4.66: Combine Control Console



Figure 4.67: Combine Display

### 4.6.4 Setting the Sensitivity of the Auto Header Height Control (John Deere 70 Series)

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

## AUTO HEADER HEIGHT CONTROL (AHC)

1. Press button (A) twice, and the current sensitivity setting will appear on the monitor (the lower the reading, the lower the sensitivity).
2. Use scroll knob (B) to adjust the sensitivity setting. The adjustment will be saved automatically.

**NOTE:**

If the page remains idle for a short period of time, it will automatically return to the previous page. Pressing the check mark button (C) also will return the monitor to the previous page.

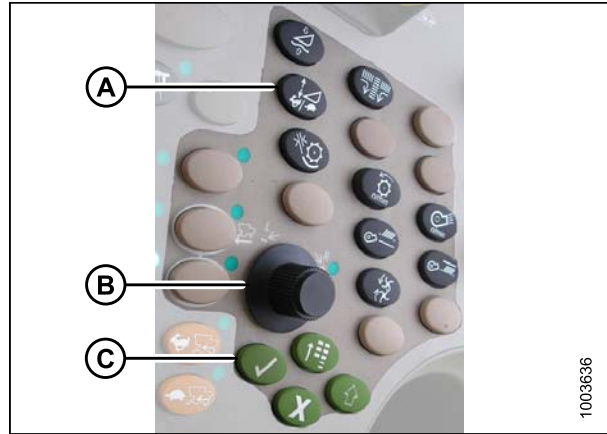


Figure 4.68: Combine Control Console

**NOTE:**

The numbers depicted on the displays in these illustrations are for reference purposes only; they are not intended to represent the specific settings for your equipment.



Figure 4.69: Combine Display

## 4.6.5 Adjusting the Manual Header Raise/Lower Rate (John Deere 70 Series)

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

1. Press button (A), and the current raise/lower rate setting will appear on the monitor (the lower the reading, the slower the rate).
2. Use scroll knob (B) to adjust the rate. The adjustment will be saved automatically.

**NOTE:**

If the page remains idle for a short period of time, it will automatically return to the previous page. Pressing the check mark button (C) also will return the monitor to the previous page.

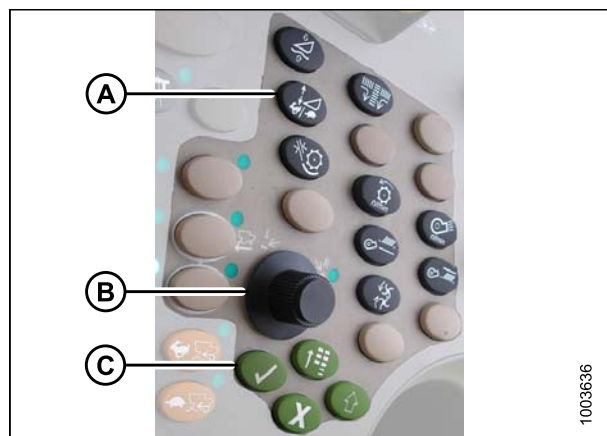


Figure 4.70: Combine Control Console



## AUTO HEADER HEIGHT CONTROL (AHC)

**NOTE:**

The numbers depicted on the displays in these illustrations are for reference purposes only; they are not intended to represent the specific settings for your equipment.



**Figure 4.71: Combine Display**

## 4.7 John Deere S Series Combines

### 4.7.1 Checking Voltage Range from the Combine Cab (John Deere S Series)

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To check the sensor output voltage range from the combine cab, follow these steps:

1. Press the CALIBRATION icon (A) on the main page of the monitor. The CALIBRATION page appears.

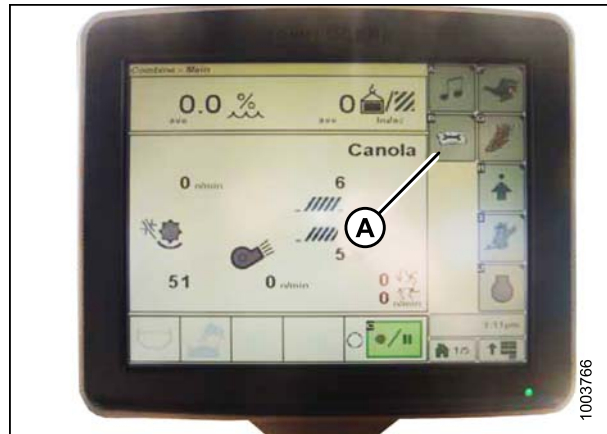


Figure 4.72: Combine Display

2. Press the DIAGNOSTIC READINGS icon (A) on the CALIBRATION page. The DIAGNOSTIC READINGS page appears. This page is where you will be able to complete calibrations, modify header options, and read diagnostic information.

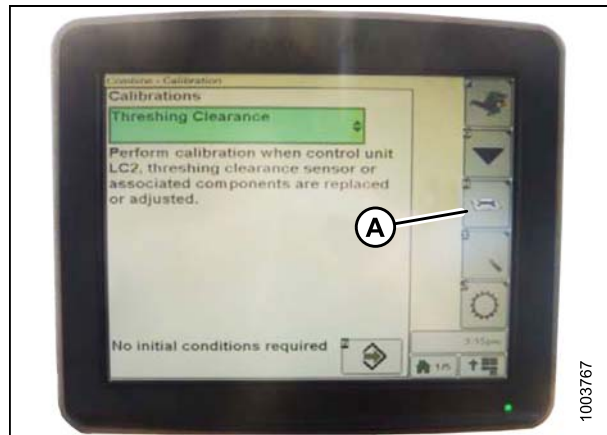


Figure 4.73: Combine Display

## AUTO HEADER HEIGHT CONTROL (AHHC)

3. Select AHHC RESUME (A), and a list of calibration options appears.



Figure 4.74: Combine Display

4. Select the AHHC SENSING option.
5. Press the icon that resembles an arrow in a box (A). The AHHC SENSING menu appears and five pages of information are displayed.



Figure 4.75: Combine Display

6. Press icon (A) until it reads 'Page 5' near the top of the page. On Page 5 you will see the following sensor readings:
  - LEFT HEADER HEIGHT
  - CENTER HEADER HEIGHT
  - RIGHT HEADER HEIGHT



Figure 4.76: Combine Display

## AUTO HEADER HEIGHT CONTROL (AHHC)

7. Ensure header float is unlocked.
8. Start the combine, and fully lower feeder house to the ground.

**NOTE:**

You may need to hold the header down switch for a few seconds to ensure the feeder house is fully lowered.

9. Check the sensor reading on the monitor.
10. If the sensor voltage is not within the low and high limits shown in [4.2 Height Sensor Output Voltage Range – Combine Requirements, page 85](#), or if the range between the low and high limits is insufficient, you need to make adjustments. For instructions, refer to [4.2.2 Adjusting Header Height Control Voltage Range \(Left-Hand Side\), page 86](#) and [4.2.3 Adjusting Header Height Control Voltage Range \(Right-Hand Side\), page 86](#).

### 4.7.2 Calibrating the Auto Header Height Control (John Deere S Series)

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To calibrate the AHHC, follow these steps:

1. Press the DIAGNOSTIC icon (A) on the main page of the monitor. The CALIBRATION page appears.

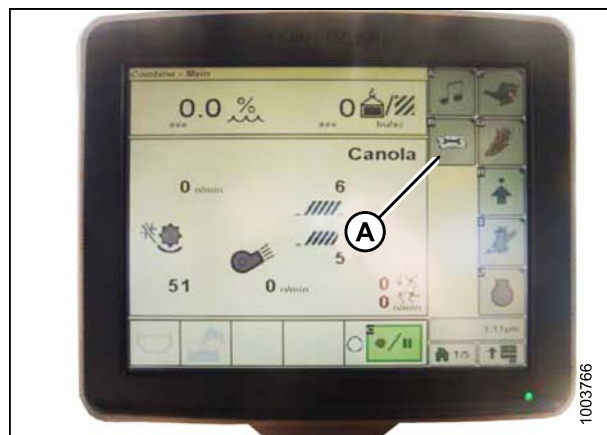


Figure 4.77: Combine Display

## AUTO HEADER HEIGHT CONTROL (AHHC)

2. Select THRESHING CLEARANCE (A) and a list of calibration options appears.

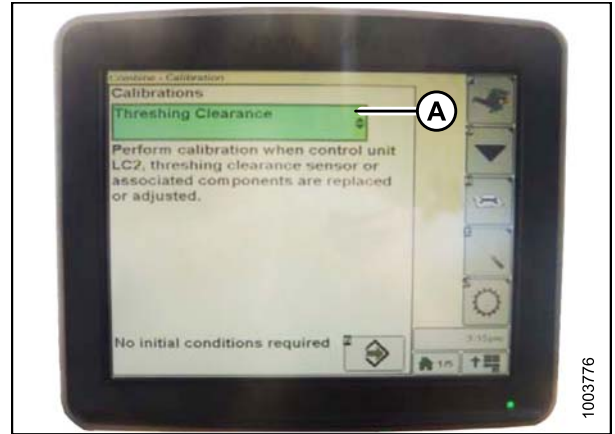


Figure 4.78: Combine Display

3. Select FEEDER HOUSE SPEED (A) and calibrate.
4. Select HEADER (B) and calibrate.

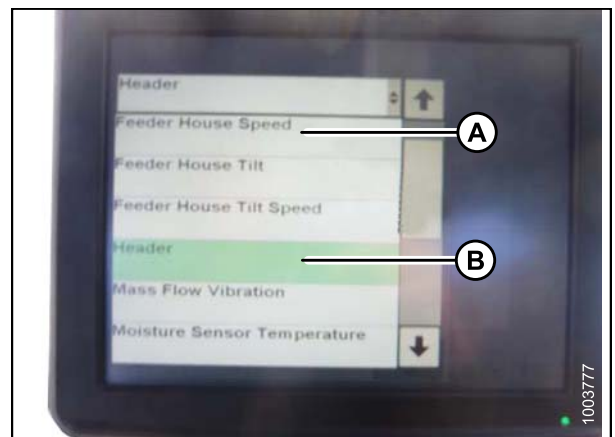


Figure 4.79: Combine Display

5. Press icon (A) with either FEEDER HOUSE SPEED or HEADER selected, and the icon will turn green.

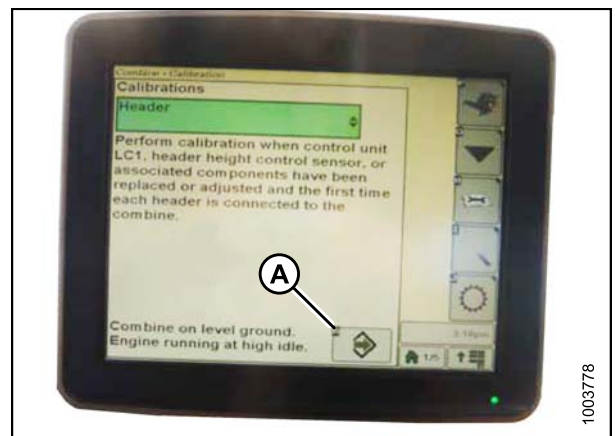


Figure 4.80: Combine Display

## AUTO HEADER HEIGHT CONTROL (AHC)

- Click button (A) and instructions will appear on screen to guide you through the remaining calibration steps.

### NOTE:

If an error code appears during calibration, the sensor is out of voltage range and will require adjustment. Refer to [4.7.1 Checking Voltage Range from the Combine Cab \(John Deere S Series\)](#), page 112.

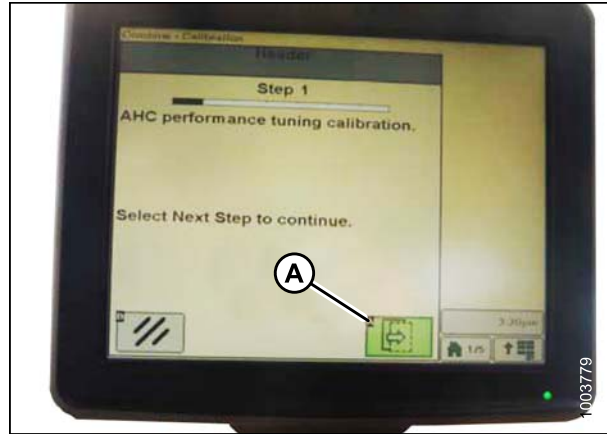


Figure 4.81: Combine Display

### 4.7.3 Setting the Sensitivity of the Auto Header Height Control (John Deere S Series)

### NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

- Press button (A) twice, and the current sensitivity setting will appear on the monitor.



Figure 4.82: Combine Command Center

- Press the '-' or '+' icon (A) to adjust rates.

### NOTE:

The numbers depicted on the displays in these illustrations are for reference purposes only; they are not intended to represent the specific settings for your equipment.

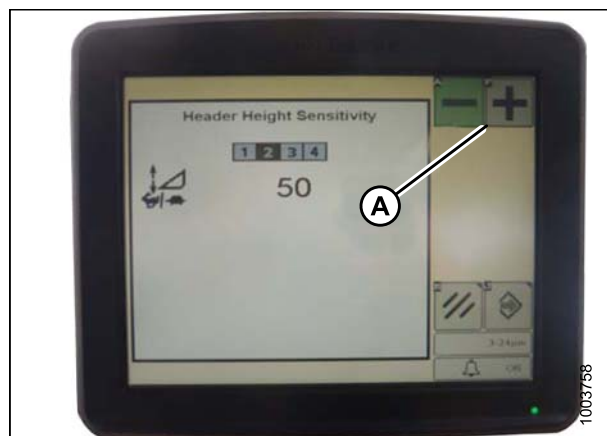


Figure 4.83: Combine Display

## AUTO HEADER HEIGHT CONTROL (AHHC)

### 4.7.4 Adjusting the Manual Header Raise/Lower Rate (John Deere S Series)

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

1. Press button (A) and the current sensitivity setting will appear on the monitor.



Figure 4.84: Combine Command Center

2. Press the '-' or '+' icon (A) to adjust rates.

**NOTE:**

The numbers depicted on the displays in these illustrations are for reference purposes only; they are not intended to represent the specific settings for your equipment.

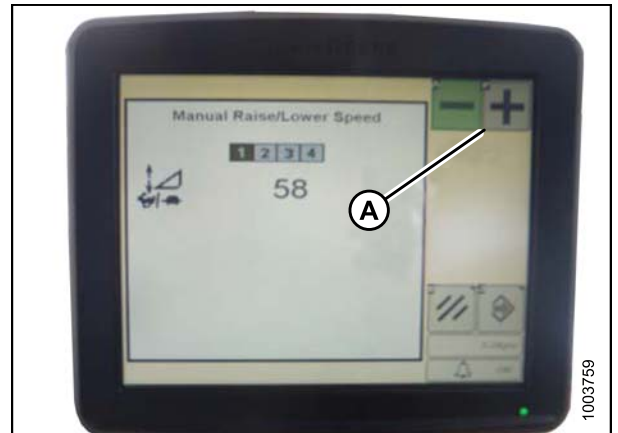


Figure 4.85: Combine Display

### 4.7.5 Setting Preset Cutting Height (John Deere S Series)

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

## AUTO HEADER HEIGHT CONTROL (AHHC)

1. Press the COMBINE - HEADER SETUP icon (A) on the main page. The COMBINE - HEADER SETUP page displays. This page is used to set various header settings such as reel speed, header width, and height of feeder house for acre counter engagement.



Figure 4.86: Combine Display

2. Select the COMBINE – HEADER SETUP AHC icon (A). The COMBINE – HEADER SETUP AHC screen displays.



Figure 4.87: Combine Display

3. Select the top-left and top-center icons for auto height sensing and return to cut.

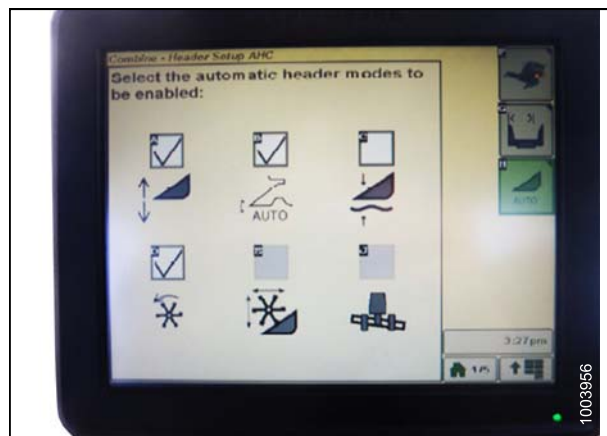


Figure 4.88: Combine Display



## AUTO HEADER HEIGHT CONTROL (AHHC)

4. Select an appropriate ground pressure setting using preset button '2' (B) on the joystick for a light ground pressure setting in muddy or soft soil conditions, or preset button '3' (C) for a heavy ground pressure setting in harder soil conditions and a faster ground speed.

**NOTE:**

Preset button '1' (A) is reserved for header lift on the headland, it is not used for ground cutting.



Figure 4.89: Joystick Buttons

5. Use control knob (A) to scroll through the different button options.



Figure 4.90: Combine Control Console

**NOTE:**

When the AHHC is engaged, the AHHC icon (A) appears on the monitor, and the number indicating which button was pressed (B) is displayed on the screen.

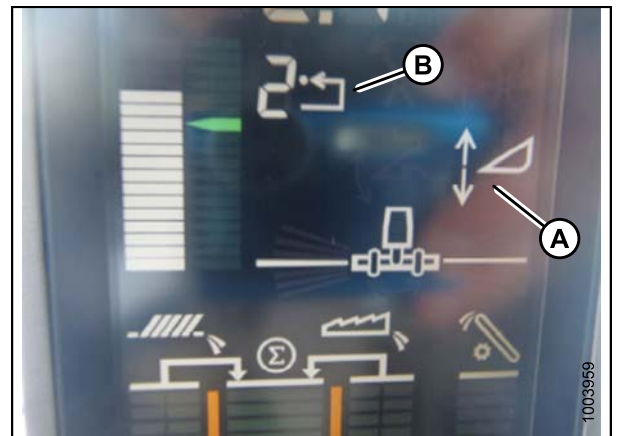


Figure 4.91: Combine Display

## 4.8 New Holland Combines

### 4.8.1 Checking Voltage Range from the Combine Cab (New Holland)

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To check the sensor output voltage range from the combine cab, follow these steps:

1. Ensure header float is unlocked.
2. Select DIAGNOSTICS (A) on the main screen. The DIAGNOSTICS screen displays.
3. Select SETTINGS. The SETTINGS screen displays.

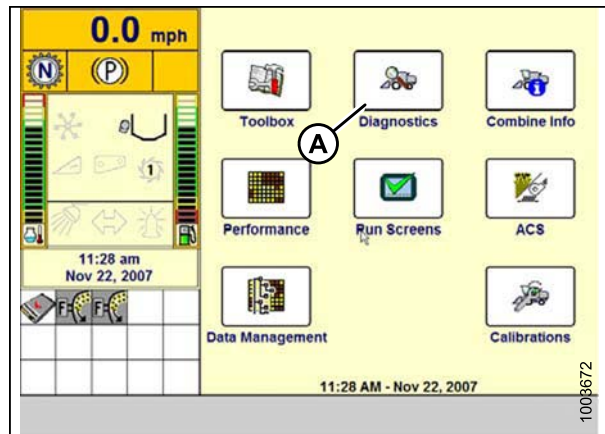


Figure 4.92: Combine Display

4. Select the GROUP drop-down arrow (A). The GROUP window opens.

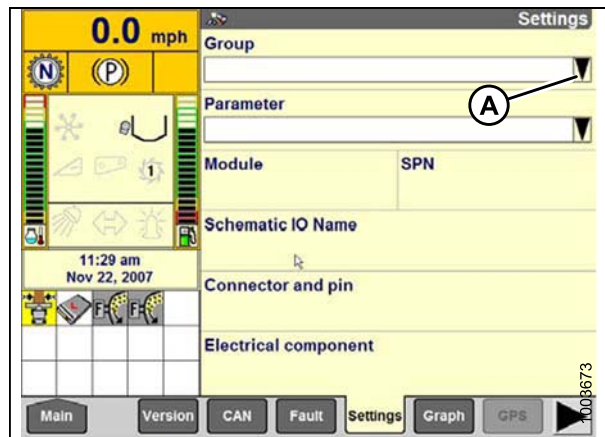
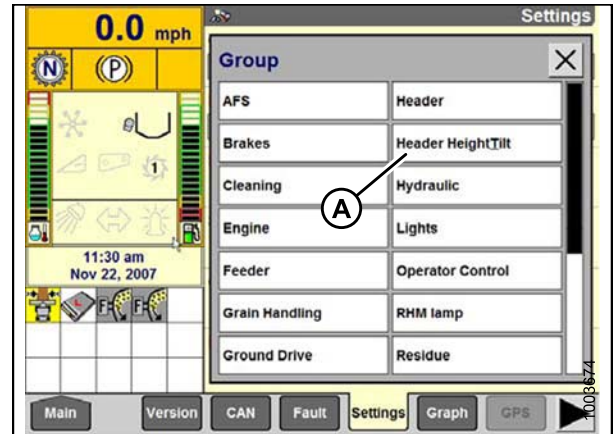


Figure 4.93: Combine Display

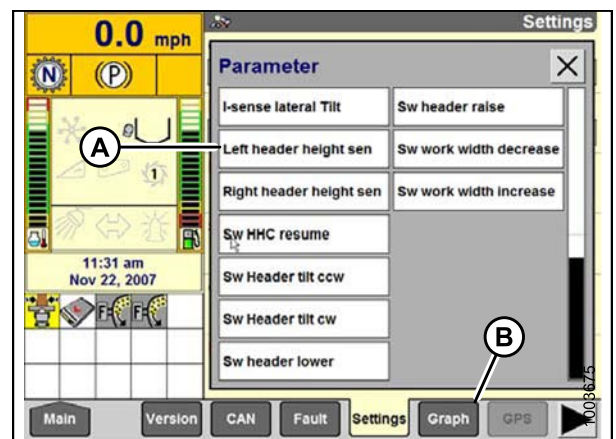
## AUTO HEADER HEIGHT CONTROL (AHHC)

5. Select HEADER HEIGHT/TILT(A). The PARAMETER window opens.



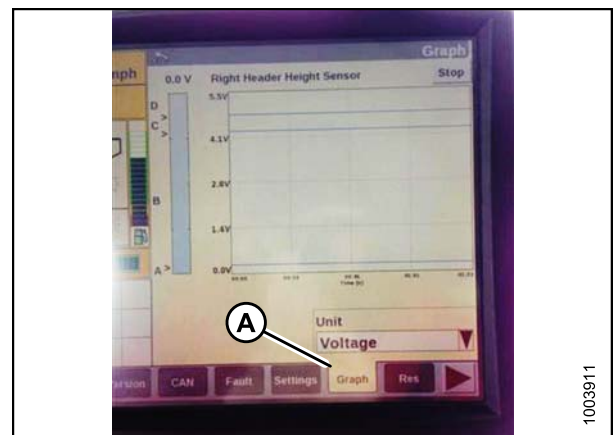
**Figure 4.94: Combine Display**

6. Select LEFT HEADER HEIGHT SEN (A), and then select GRAPH button (B). The exact voltage is displayed at top of screen.
7. Raise and lower the header to see the full range of voltage readings.
8. If the sensor voltage is not within the low and high limits shown in [4.2 Height Sensor Output Voltage Range – Combine Requirements, page 85](#), or if the range between the low and high limits is insufficient, you need to make adjustments. For instructions, Refer to [4.2.2 Adjusting Header Height Control Voltage Range \(Left-Hand Side\), page 86](#) and [4.2.3 Adjusting Header Height Control Voltage Range \(Right-Hand Side\), page 86](#).



**Figure 4.95: Combine Display**

9. Push the GRAPH tab (A) to view the voltage.



**Figure 4.96: Combine Display**

### 4.8.2 Engaging the Auto Header Height Control (New Holland CR/CX Series)

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

## AUTO HEADER HEIGHT CONTROL (AHHC)

1. Select HEADER LATERAL FLOAT on the combine display screen, and press ENTER.
2. Use the up and down navigation keys to move between options, and select INSTALLED from the open window.

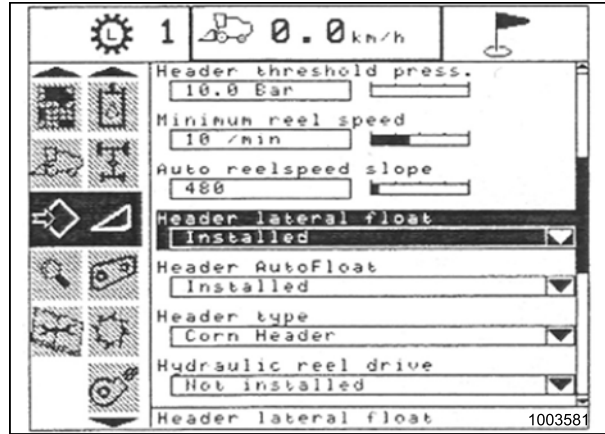


Figure 4.97: Combine Display

3. Select HEADER AUTOFLOAT on the combine display screen, and press ENTER.
4. Use the up and down navigation keys to move between options, and select INSTALLED from the open window.



Figure 4.98: Combine Display

### 4.8.3 Calibrating the Auto Header Height Control (New Holland CR/CX Series)

#### NOTE:

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

Check the following conditions before starting the header calibration procedure:

- The header is attached to the combine.
- The combine is on level ground, with the header level to the ground.
- The engine is running.
- The combine is not moving.
- No faults have been received from the Header Height Controller (HHC) module.
- Header/feeder is disengaged.
- Lateral flotation buttons are NOT pressed.
- ESC key is NOT pressed.

To calibrate the Auto Header Height Control, follow these steps:

## AUTO HEADER HEIGHT CONTROL (AHHC)

1. Select CALIBRATION on the combine display, and press the right arrow navigation key to enter the information box.
2. Select HEADER (A), and press ENTER. The CALIBRATION window opens.

**NOTE:**

You can use the up and down navigation keys to move between options.

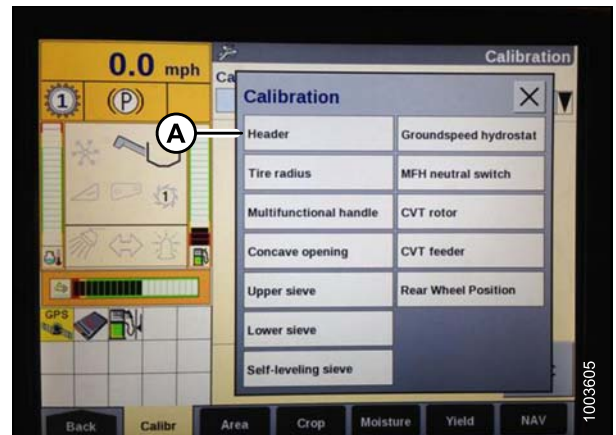


Figure 4.99: Combine Display

3. Follow the calibration steps in the order in which they appear in the window. As you proceed through the calibration process, the display will automatically update to show the next step.

**NOTE:**

Pressing the ESC key during any of the steps or letting the system sit idle for more than three minutes will cause the calibration procedure to stop.

**NOTE:**

Refer to your combine operator's manual for an explanation of any error codes.

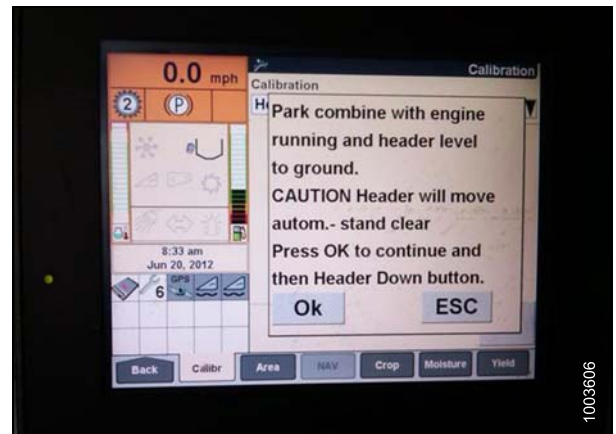


Figure 4.100: Combine Display

4. Ensure that CALIBRATION SUCCESSFUL message is displayed on the screen when all steps have been completed, and exit the CALIBRATION menu by pressing the ENTER or ESC key.

**NOTE:**

If float was set heavier to complete ground calibration procedure, adjust to recommended operating float after the calibration is complete.

5. Conduct the maximum stubble height calibration if unit does not function properly.

## AUTO HEADER HEIGHT CONTROL (AHC)

### *Calibrating Maximum Stubble Height*

This procedure describes how to calibrate the area counter to know from which height it should stop or start counting. When the header is raised above this level, the area counter assumes you are not cutting crop; therefore, you must raise the header to a specific height that you will always exceed when not cutting, and lower the header to a specific height you will always stay below when cutting.

Select the height of the header that corresponds to the description above.

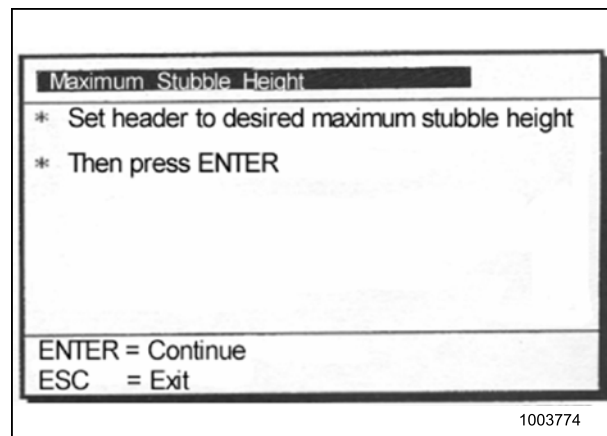
#### **IMPORTANT:**

- If the value is set too low, area may be counted since the header is sometimes raised above this threshold although the combine is still cutting.
- If the value is set too high, the area counter will keep cutting even when the header is raised (but below this threshold) and the combine is no longer cutting crop.

1. Select the MAXIMUM STUBBLE HEIGHT calibration window.

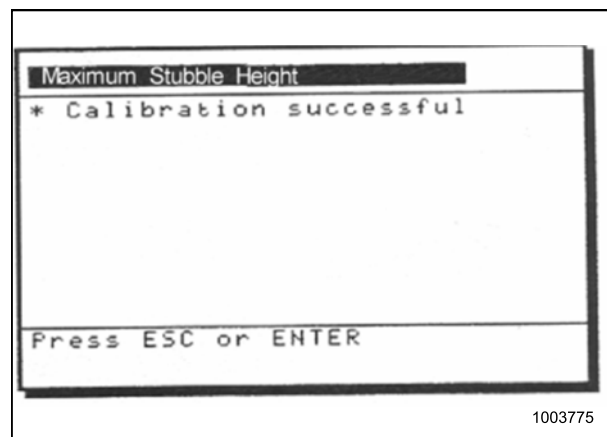
Message: "Set header to desired maximum stubble height".

Message: "Then press ENTER".



**Figure 4.101: Calibration Window**

2. Move header to the correct position using the header up or down control switch on the multifunction handle.
3. Press ENTER to continue.  
Message: "Calibration successful".
4. Press ENTER or ESC to close the calibration window.  
The calibration is now complete.



**Figure 4.102: Calibration Window**

## AUTO HEADER HEIGHT CONTROL (AHHC)

### 4.8.4 Adjusting Header Raise Rate (New Holland CR/CX Series)

If necessary, the header raise rate (the first speed on the header height rocker switch of the multifunctional handle) can be adjusted.

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

1. Select HEADER RAISE RATE on the combine display screen.
2. Use the '+' or '-' buttons to change the setting.
3. Press ENTER to save the new setting.

**NOTE:**

The raise rate can be changed from 32–236 in steps of 34. The factory setting is 100.

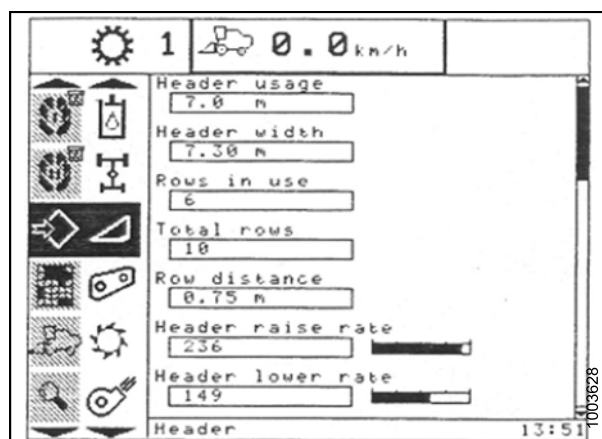


Figure 4.103: Combine Display

### 4.8.5 Setting the Header Lower Rate to 50 (New Holland CR/CX Series)

If necessary, the header lower rate (the automatic header height control button or second speed on the header height rocker switch of the multi-function handle) can be adjusted.

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

1. Select HEADER LOWER RATE on the combine display screen.
2. Use the '+' or '-' buttons to change the setting to 50.
3. Press ENTER to save the new setting.

**NOTE:**

The lower rate can be changed from 2–247 in steps of 7. It is factory set to 100.

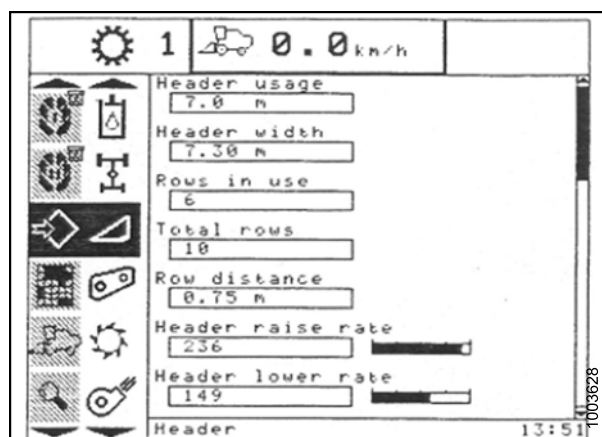


Figure 4.104: Combine Display

## AUTO HEADER HEIGHT CONTROL (AHHC)

### 4.8.6 Setting the Sensitivity of the Auto Header Height Control to 200 (New Holland CR/CX Series)

**NOTE:**

Changes may have been made to the combine controls or display since this document was published. Refer to the combine operator's manual for updates.

To set the Auto Header Height Control sensitivity, follow these steps:

1. Engage threshing and feeder house.
2. Select HEIGHT SENSITIVITY on the combine display screen.
3. Use the '+' or '-' buttons to change the setting to 200.
4. Press ENTER to save the new setting.

**NOTE:**

The sensitivity can be changed from 10–250 in steps of 10. It is factory set to 100.

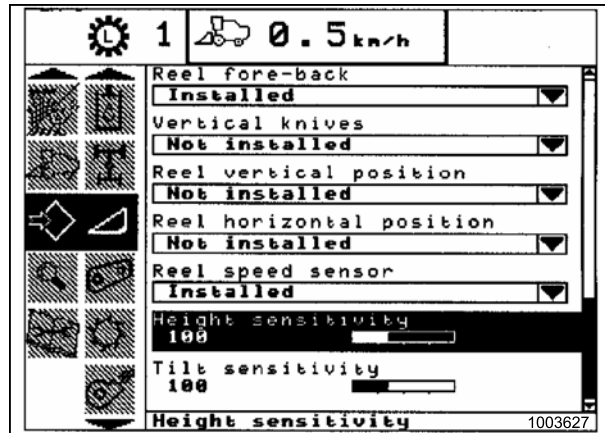


Figure 4.105: Combine Display



## 4.9 Sensor Operation

The position sensors supplied with the Auto Header Height Control (AHHC) system are (1K) 1000 ohm industrial series sensors containing sealed connectors. Normal operating signal voltages for the sensors fall between 10% (0.5VDC) and 90% (4.5VDC).

A sensor operating with a signal voltage below 5% is considered to be shorted, and a sensor with a signal voltage above 95% is considered to be open. An increase in sensor voltage correlates to an increase in header height.

Each sensor is constructed with a power wire and a ground wire. Inside the sensor, these two wires are connected by a high resistance filament band (C). The resistance measured across the power (A) and ground (B) wires should read a constant value between 800 and 1200 ohms (0.8-1.2 k) with the nominal reading being 1000 ohms (1 k).

In addition to the power (A) and ground (B) wires, a signal wire (C) is connected internally to a movable wiper that is attached to an external arm and sweeps the high resistance filament band. As the external arm is rotated and the wiper is moved toward or away from the power wire connection, the measured resistance at the signal wire (C) changes.

The resistance measured across the signal and ground wires should increase uniformly from a low (80–100 ohms) to a high (800–1200 ohms). This can be observed if an ohmmeter is connected across the signal and power wires and the sensor shaft rotated. When an input voltage is applied to the high resistance filament band through the power wire (A), the output (or 'measured') voltage in the signal wire (C) is changed by this variable resistance.

**NOTE:**

Ground and power wires may differ depending on combine.

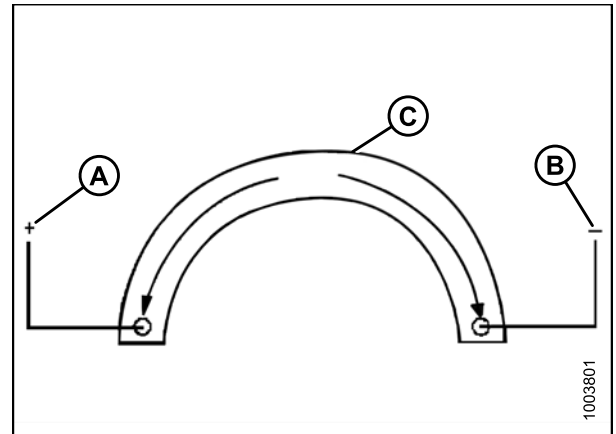


Figure 4.106: Power, Ground, and Signal Wires

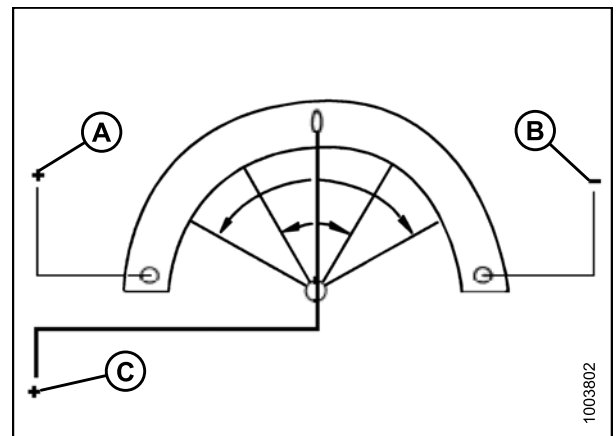


Figure 4.107: Power, Ground, and Signal Wires



## 5 Maintenance and Servicing

The following instructions provide information about routine maintenance and servicing of the PW8 Pick-Up Header. Detailed maintenance and service information is contained in the technical service manual that is available from your Dealer. A parts catalog is located in the manual case at the left end of the header.

Log hours of operation and use the Maintenance Schedule/Record provided to keep a record of scheduled maintenance. Refer to [5.2.1 Maintenance Schedule/Record, page 131](#).

### 5.1 Preparing Header for Servicing

#### CAUTION

To avoid personal injury, before servicing header or opening drive covers, perform the following procedures:

- Lower the header fully. If necessary to service in the raised position, always engage header lift cylinder safety props on combine.
- Stop engine and remove key.
- Engage park brake.
- Wait for all moving parts to stop.

## 5.2 Maintenance Requirements

Periodic maintenance requirements are organized according to service intervals.

Regular maintenance is the best insurance against early wear and untimely breakdowns. Following the maintenance schedule will increase your machine's life.

When servicing the machine, refer to the specific headings in this section and use only fluids and lubricants specified in [A.4 Recommended Fluids and Lubricants, page 241](#).

If a service interval specifies more than one timeframe, e.g., "100 hours or Annually", service the machine at whichever interval is reached first.

**IMPORTANT:**

Recommended intervals are for average conditions. Service the machine more often if operated under adverse conditions (severe dust, extra heavy loads, etc.).




 **CAUTION**

Carefully follow all safety messages, refer to [1 Safety, page 1](#).

**MAINTENANCE AND SERVICING**

### 5.2.1 Maintenance Schedule/Record

**Table 5.1 Maintenance Schedule/Record**

ACTION:		✓ - Check				◆ - Lubricate				▲ - Change			
	Hour Meter Reading												
	Service Date												
	Serviced By												
<b>10 HOURS</b>													
◆	Lubricate auger drive chain - Refer to <a href="#">Lubricating Auger Drive Chain, page 154.</a>												
✓	Auger drive chain tension - Refer to <a href="#">Adjusting Auger Drive Chain Tension, page 156.</a>												
✓	Hydraulic hoses for leaks - Refer to <a href="#">5.9.3 Hydraulic Hoses and Lines, page 209.</a>												
✓	Draper belt tension - Refer to <a href="#">3.12.7 Draper Belt Tension, page 68.</a>												
<b>50 HOURS</b>													
✓	Auger drive chain tension - Refer to <a href="#">Adjusting Auger Drive Chain Tension, page 156.</a>												
✓	Hydraulic hoses for leaks - Refer to <a href="#">5.9.3 Hydraulic Hoses and Lines, page 209.</a>												
✓	Draper belt tension - Refer to <a href="#">3.12.7 Draper Belt Tension, page 68.</a>												
✓	Draper belt condition - Refer to <a href="#">5.7.1 Draper Belts, page 171.</a>												
✓	Draper plastic guides for wear - Refer to <a href="#">5.7.1 Draper Belts, page 171.</a>												
<b>100 HOURS</b>													
◆	Clean and grease driveshaft splines - Refer to <a href="#">Driveline Splined Shaft, page 146.</a>												
◆	Driveline slip-joint and clutch - Refer to <a href="#">5.3 Lubrication, page 133.</a>												
◆	Auger drive chain and bearing - Refer to <a href="#">5.3 Lubrication, page 133.</a>												
✓	Tire pressure - Refer to <a href="#">5.11.2 Inflating Tire, page 217.</a>												
✓	Wheel bolt torque - Refer to <a href="#">5.11.3 Installing Wheel, page 218.</a>												
✓	Loose fasteners - Refer to <a href="#">A.3 Torque Specifications, page 231.</a>												
✓	Bearings and seals - Refer to <a href="#">5.7.3 Draper Deck Roller Bearings, page 180.</a>												

## MAINTENANCE AND SERVICING

✓	Pick-up fingers for wear - Refer to <a href="#">5.7.2 Draper Fingers/Draper Guides, page 178</a> .																			
✓	Height control sensor pivot points - Refer to <a href="#">4.1 Height Controllers, page 77</a> .																			
<b>End of Season</b>																				
	Clean and touch-up worn paint spots																			
	Clean header																			
✓	Check header for wear																			

### 5.2.2 Preseason/Annual Service

 **CAUTION**

- Review the Operator's Manual to refresh your memory on safety and operating recommendations.
- Review all safety signs and other decals on the header and note hazard areas.
- Ensure all shields and guards are properly installed and secured. Never alter or remove safety equipment.
- Make certain you understand and have practiced safe use of all controls. Know the capacity and operating characteristics of the machine.

Perform the following at the beginning of each operating season:

1. Lubricate machine completely. Refer to [5.3 Lubrication, page 133](#).
2. Perform all annual maintenance. Refer to [5.2.1 Maintenance Schedule/Record, page 131](#).

### 5.2.3 End of Season Service

Refer to [3.14 Storing the Header, page 75](#) for end of season servicing information.

## 5.3 Lubrication

### WARNING

To avoid personal injury, before servicing header or opening drive covers, refer to [5.1 Preparing Header for Servicing, page 129](#).

Lubricate the machine after every 100 hours of operation.

The greasing points are marked on the machine by decals showing a grease gun (A) and grease interval in hours of operation (B).

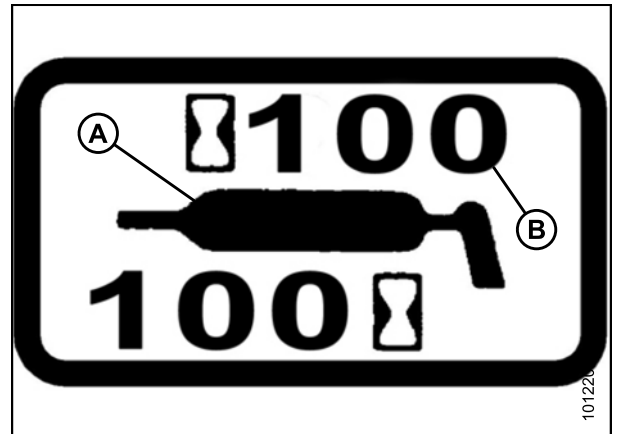


Figure 5.1: Lubrication Decal

Log hours of operation and use the maintenance schedule provided to keep a record of scheduled maintenance. Refer to [5.2.1 Maintenance Schedule/Record, page 131](#).

### 5.3.1 Greasing Procedure

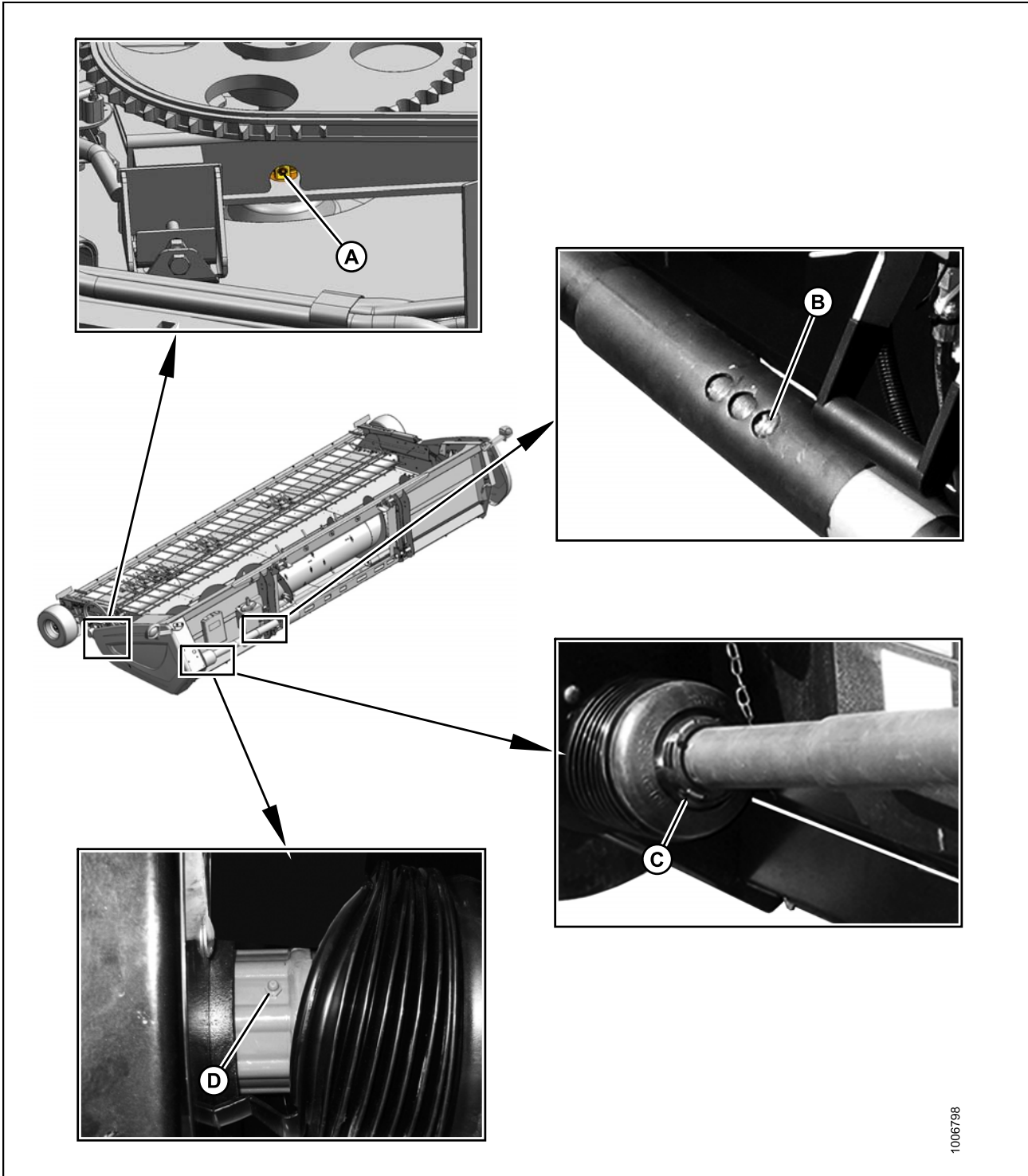
#### WARNING

**Stop combine engine and remove key before making adjustments to machine. A child or even a pet could engage the drive.**

1. Use the recommended lubricants specified in this manual. Refer to [A.4 Recommended Fluids and Lubricants, page 241](#).
2. Wipe grease fitting with a clean cloth before greasing to avoid injecting dirt and grit.
3. Inject grease through fitting with grease gun until grease overflows fitting, except where noted.
4. Leave excess grease on fitting to keep out dirt.
5. Replace any loose or broken fittings immediately.
6. If fitting will not take grease, remove and clean thoroughly. Also clean lubricant passageway. Replace fitting if necessary.

### 5.3.2 Greasing Points

Every 100 Hours



1006798

**Figure 5.2: Greasing Points**

A - Auger Bearing  
C - Driveline Guard (Both Ends)

B - Driveline Slip-Joint  
D - Driveline Clutch



### 5.3.3 Installing Sealed Bearing

1. Clean shaft and apply rust preventive coating.
2. Install flangette (A), bearing (B), second flangette (C), and lock collar (D).

**NOTE:**

The locking cam is on only one side of the bearing.

3. Install (but do not tighten) the flangette bolts (E).
4. Lock the lock collar with a punch once the shaft is correctly positioned.

**NOTE:**

Lock the collar in the same direction the shaft rotates, and tighten the setscrew in the collar.

5. Tighten the flangette bolts (E).
6. Loosen the flangette bolts on the mating bearing one turn, and retighten. This will enable the bearing to properly line up.

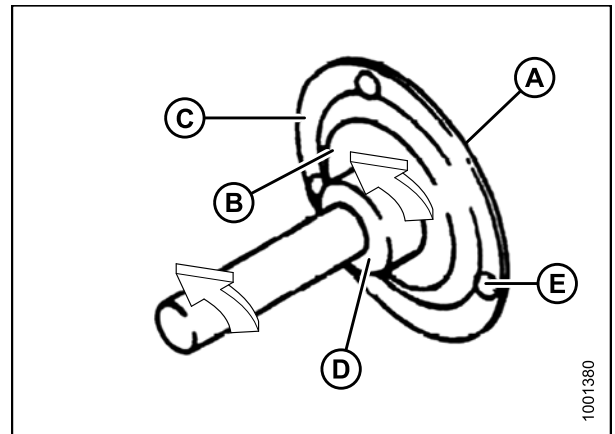


Figure 5.3: Sealed Bearing

## 5.4 Endshields

The endshields are molded polyethylene covers that are attached to the ends of the header. They provide shielding for the header drive components and also display the make of the combine. The left endshield is hinged to the endsheet and can be opened for routine maintenance or easily removed for major servicing. The right endshield is bolted directly to the header.

### 5.4.1 Removing Left-Hand Endshield

#### DANGER

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

1. Lower header to ground, shut down engine, and remove key from ignition.
2. Unlock endshield (B) by turning latch (A) counterclockwise using a slotted screwdriver until it stops (slightly more than one-half turn).

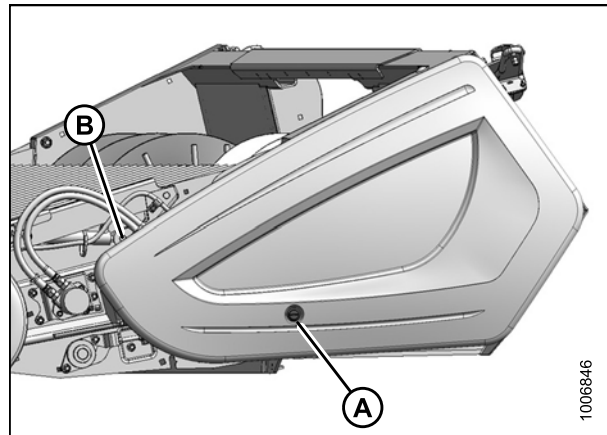


Figure 5.4: Endshield Closed

3. Grasp forward end of endshield (A) and pull open until support (B) engages and holds endshield in open position.

#### NOTE:

If additional access to the drive area is required, remove the endshield. Refer to [5.4.1 Removing Left-Hand Endshield, page 136](#).

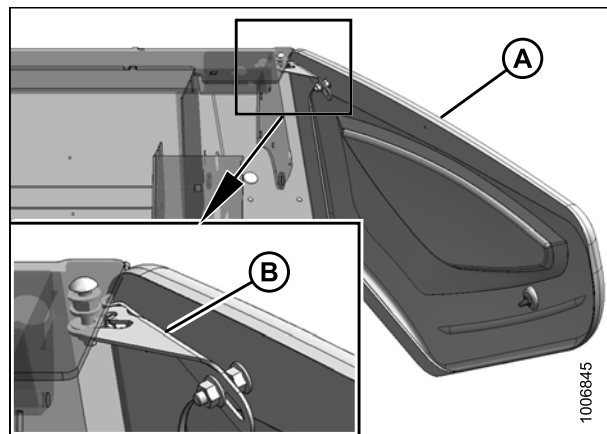


Figure 5.5: Endshield Open

## MAINTENANCE AND SERVICING

4. Remove nut (A) securing support (B) to endshield (C), and move support (B) off the bolt.

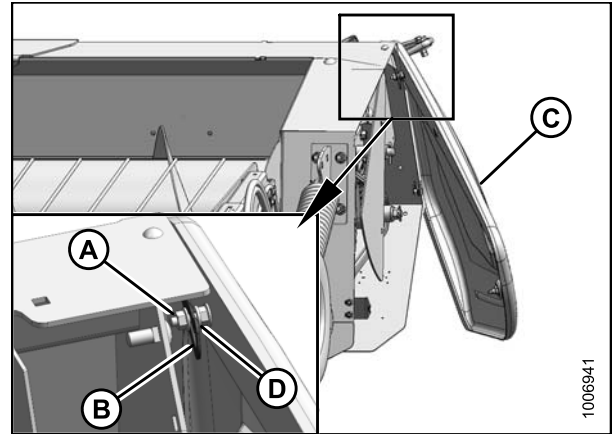


Figure 5.6: Removing Endshield

5. Swing endshield (A) fully back and loosen nuts (B) on clips (C) at back of endshield so clips disengage slots in header frame.
6. Move endshield (A) away from header.

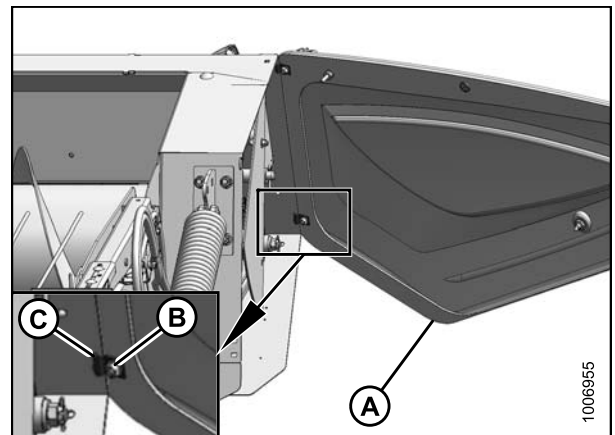


Figure 5.7: Removing Endshield

### 5.4.2 Installing Left-Hand Endshield

1. Hold endshield (A) up to frame and insert clips (C) into slots in header frame.
2. Tighten nuts (B) on clips (C) just enough to hold endshield in place.

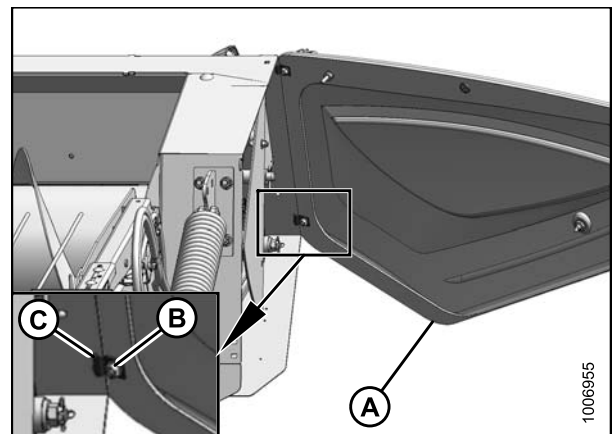


Figure 5.8: Attaching Endshield

## MAINTENANCE AND SERVICING

- Close endshield (A) ensuring that magnet (B) and stop (C) in header frame are aligned (this ensures that latch [D] lines up with receptacle [E]).

**NOTE:**

Latch (D) and magnet (B) positions are preset at the factory and do not require adjustment.

- Loosen nuts on clips installed in Step 1., page 137 and reposition the endshield (A) if necessary. Tighten nuts but do not overtighten to prevent damaging the endshield.

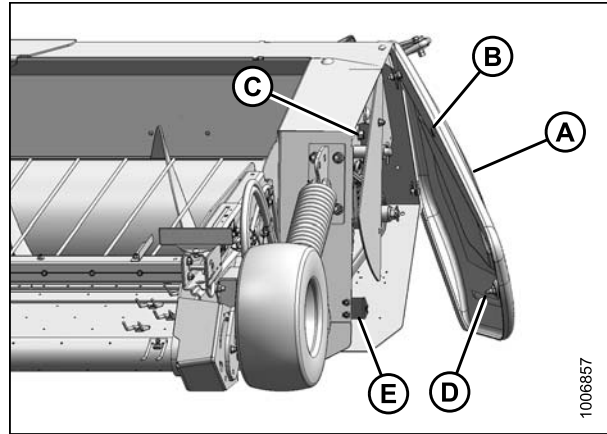


Figure 5.9: Aligning Endshield

- Open endshield (C) slightly so support (B) can be installed onto endshield. Check that washer (D) is between the support and the endshield.
- Install nut (A) leaving a gap of 5/16–3/8 in. (8–10 mm) between the nut and washer (D) which allows support (B) to move.

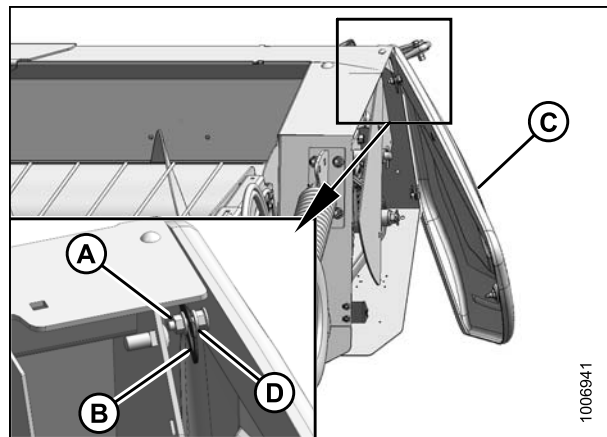


Figure 5.10: Attaching Support

- Close the endshield and turn latch (A) clockwise using a slotted screwdriver until it stops (slightly more than one-half turn).

**NOTE:**

When latch is fully engaged, the notch on the latch will align with the notch on the endsheet (not shown), and the endshield will draw tightly against the header and slightly compress.

- Check that magnet (B) on endshield is against the header endsheet and that latch (A) is engaged.

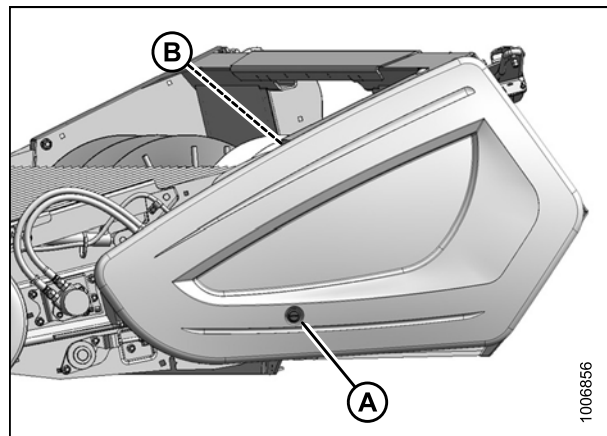


Figure 5.11: Endshield Closed

## 5.5 Drives

### 5.5.1 Header Driveshaft

Clean and grease header driveshaft splines annually to prevent excessive corrosion and wear.

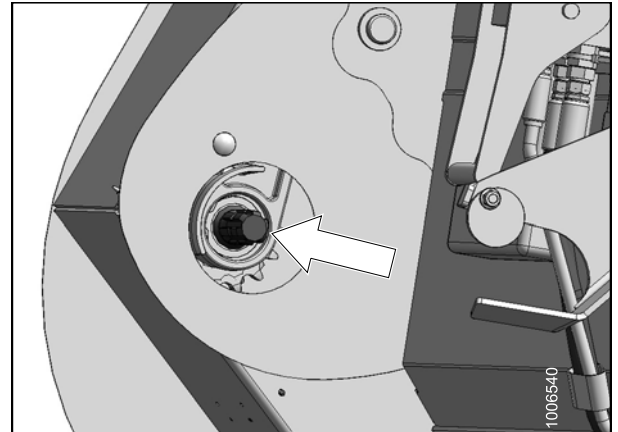


Figure 5.12: Header Driveshaft

### 5.5.2 Header Driveline

#### *Removing Header Driveline*

#### **⚠ DANGER**

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

1. Lower header to ground, shut down combine, and remove key from ignition.
2. Disconnect tethers (A) securing driveline guard to header.
3. Pull back guard (B) to expose collar (C) at the combine end of the driveline.

#### **⚠ CAUTION**

To prevent injury, or damage to the driveline, hold the driveline so that it doesn't fall to the floor.

4. Pull back collar (C) and pull driveline (D) off feeder house shaft while supporting end of driveline.

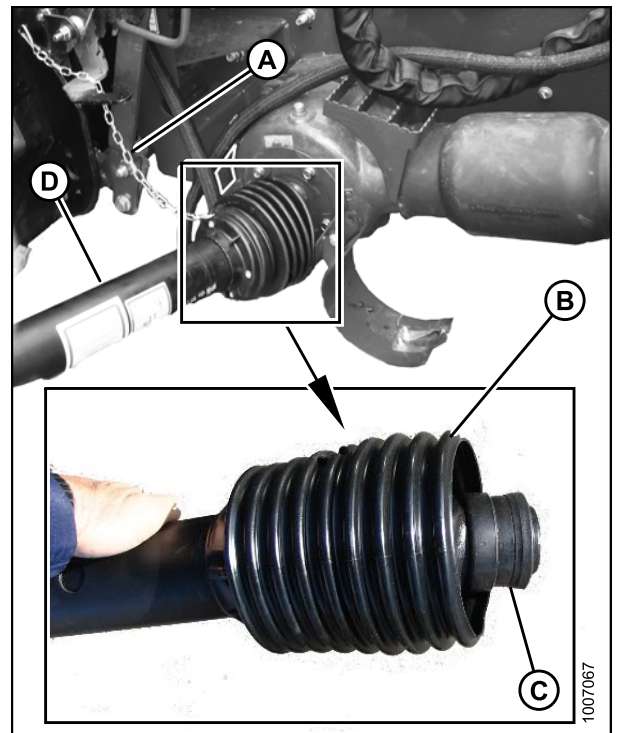


Figure 5.13: Combine End of Driveline

## MAINTENANCE AND SERVICING

5. Pull back guard (A) to expose collar (B) at the header end of driveline. If necessary, loosen bolt (C) and move plate (D) to release guard.
6. Pull back collar (B), and pull driveline off header driveshaft.

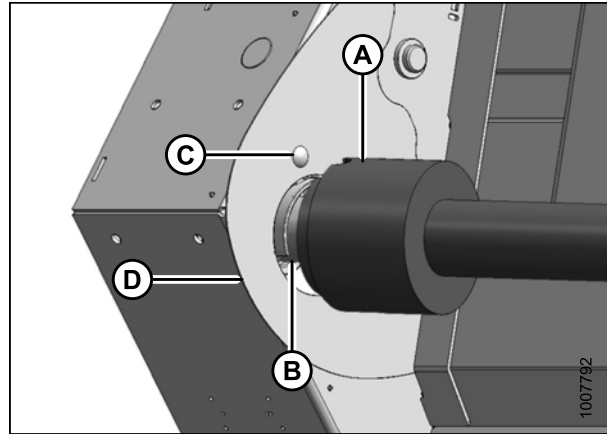


Figure 5.14: Header End of Driveline

### Installing Header Driveline

#### DANGER

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

#### CAUTION

To prevent injury, or damage to the driveline, hold the driveline so that it doesn't fall to the floor.

1. Lower header to ground, shut down combine, and remove key from ignition.
2. Pull back guard (A) to expose collar (B) at the header (notched) end of the driveline.

#### NOTE:

The driveline may separate if not supported at both ends.

3. Pull back collar (B), and slide coupler onto splined input shaft (C) until it locks. Release collar (B).
4. Loosen bolt (D) and move plate (E) (if necessary) to provide sufficient clearance for driveline guard.

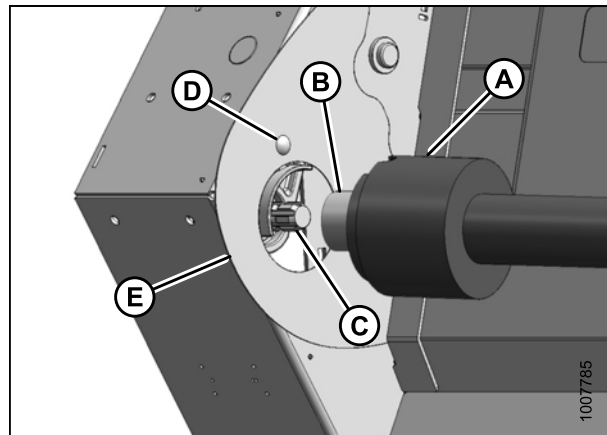
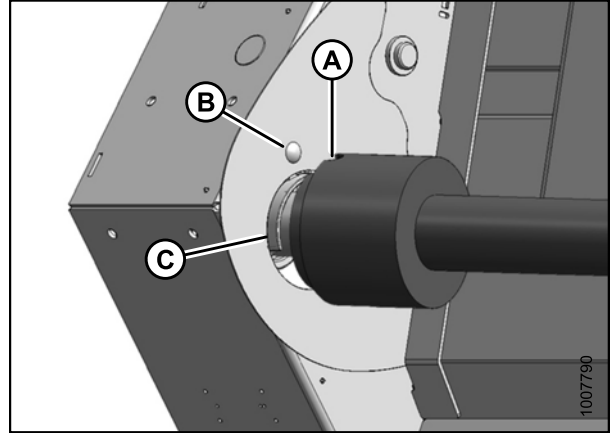


Figure 5.15: Driveline

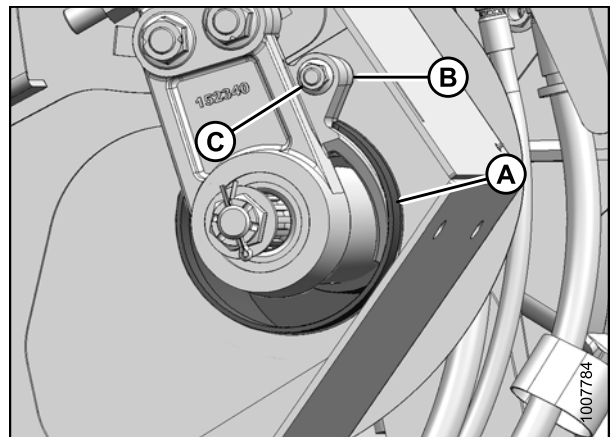
## MAINTENANCE AND SERVICING

5. Line up notch (A) in the driveline's rubber bellows with bolt (B) so the notch fits around casting (C) inside the auger drive compartment.



**Figure 5.16: Driveline**

6. Sandwich the lip (A) on the driveline bellows between the hole in the endsheet and the casting (B).
7. Tighten bolt (C).



**Figure 5.17: Driveline Shield**

## MAINTENANCE AND SERVICING

8. Pull back guard (B) to expose collar (C) at the combine end of the driveline (D).
9. Pull back collar (C), and push driveline (D) onto feeder house shaft until collar locks.
10. Attach tethers (A) to secure driveline guard to header.

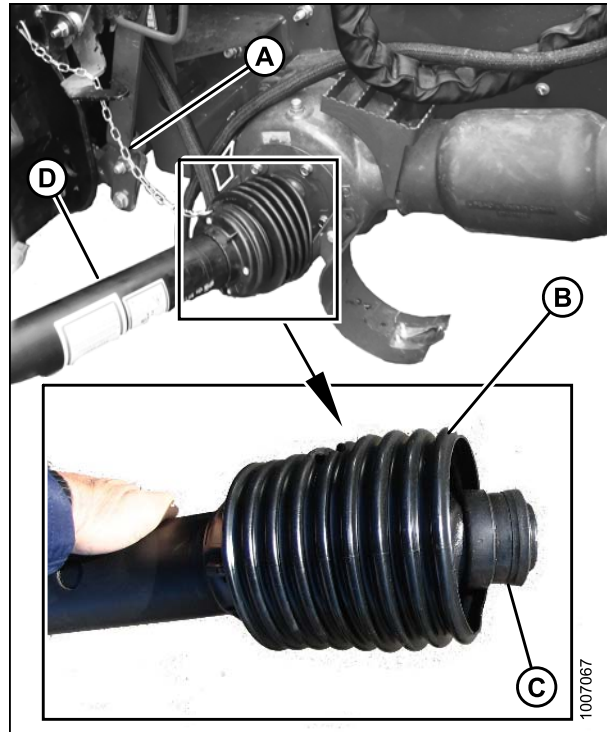


Figure 5.18: Driveline

### Replacing Driveline Clutch

Repair or replace the driveline clutch if it can no longer generate the necessary torque to operate the header. Refer to your PW8 Pick-Up Header Parts Catalog for available replacement parts.

#### NOTE:

It is recommended that driveline clutch repairs be performed by your Dealer.

1. Remove the driveline from the header. Refer to [Removing Header Driveline, page 139](#).
2. Remove the driveline guard. Refer to [Removing Driveline Guard, page 143](#).
3. Remove cross and bearings (A) connecting clutch (B) to driveline yoke (C).
4. Install new cross and bearings (A) and new clutch (B) onto existing driveline yoke (C).
5. Reinstall driveline guard. Refer to [Installing Driveline Guard, page 144](#).
6. Reinstall driveline. Refer to [Installing Header Driveline, page 140](#).

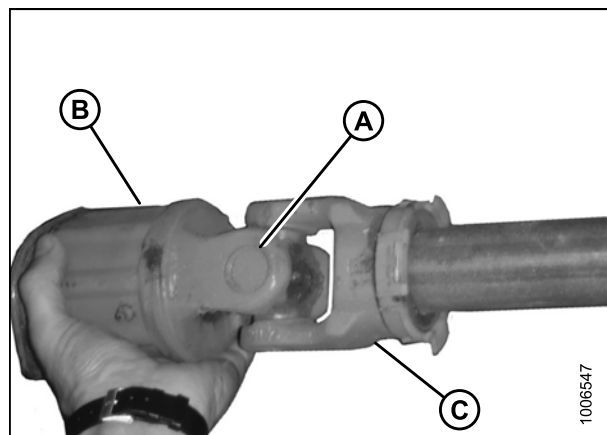


Figure 5.19: Driveline Clutch



*Driveline Guard*

**Removing Driveline Guard**

The driveline guard must remain attached to the driveline, but can be removed for maintenance purposes only.

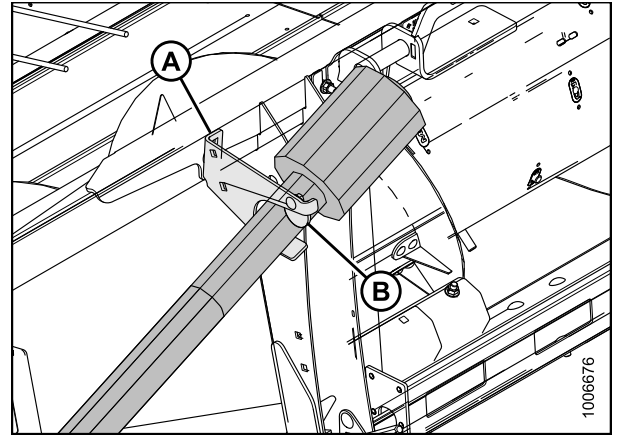
**⚠ DANGER**

**Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.**

**NOTE:**

The driveline does **NOT** need to be removed from the header in order to remove the driveline guard.

1. Disconnect tethers (not shown) at ends of driveline.
2. Rotate disc (B) on driveline storage hook (A), and remove driveline from hook.
3. Extend driveline (A) until it separates. Hold end of driveline to prevent it from dropping and hitting the ground.



**Figure 5.20: Driveline**



**Figure 5.21: Driveline Separated**

4. Use a slotted screwdriver to release grease zerk/lock (A).



**Figure 5.22: Grease Zerk/Lock**

## MAINTENANCE AND SERVICING

5. Rotate driveline guard locking ring (A) counterclockwise using a slotted screwdriver until lugs (B) line up with slots in guard.
6. Pull driveline guard off driveline.

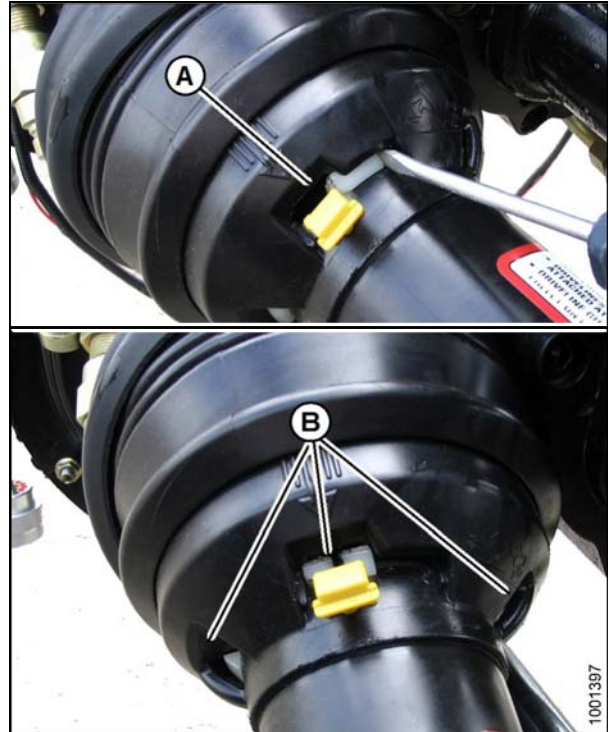


Figure 5.23: Driveline Guard

### Installing Driveline Guard

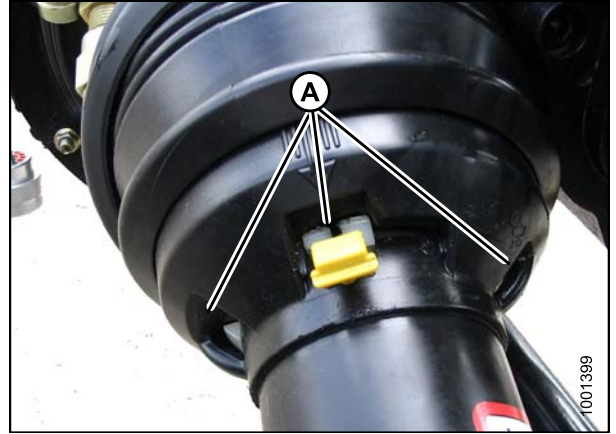
1. Slide driveline guard onto driveline, and line up slotted lug on locking ring (A) with arrow (B) on guard.



Figure 5.24: Driveline Guard

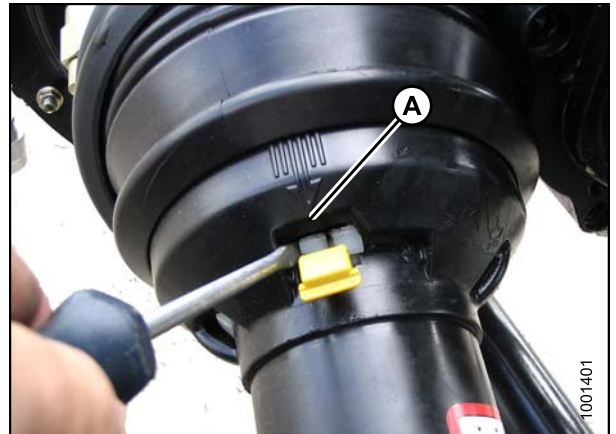
## MAINTENANCE AND SERVICING

2. Push driveline guard onto ring until locking ring is visible in slots (A).



**Figure 5.25: Driveline Guard**

3. Use a slotted screwdriver to rotate ring (A) clockwise and lock ring in guard.



**Figure 5.26: Driveline Guard**

4. Push grease zerk (A) back into guard.



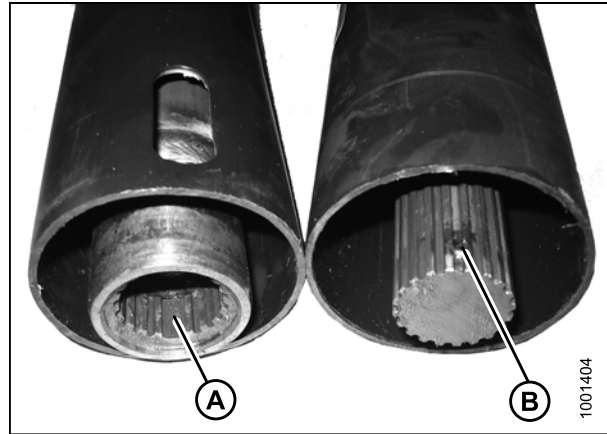
**Figure 5.27: Grease Zerk**

## MAINTENANCE AND SERVICING

5. Reassemble driveline.
6. Align weld (A) with missing spline (B) when reassembling.

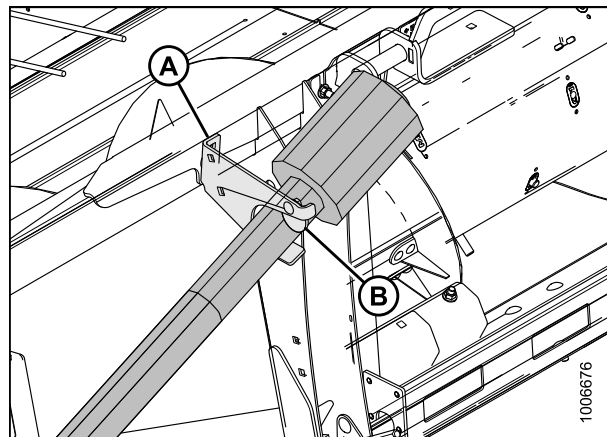
**NOTE:**

The splines are keyed to ensure proper alignment of the universals.



**Figure 5.28: Driveline Splines**

7. Slide driveline into hook (A) on header and rotate disc (B) to secure driveline (or connect driveline to combine).
8. Attach tethers (not shown) to header.



**Figure 5.29: Driveline**

### *Driveline Splined Shaft*

1. Remove the driveline guard. Refer to [Removing Driveline Guard, page 143](#).
2. Clean internal and external splines.
3. Install driveline guard. Refer to [Installing Driveline Guard, page 144](#).

### 5.5.3 Draper Drives

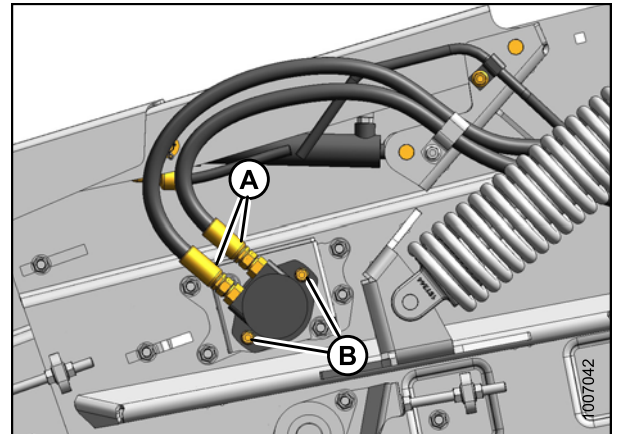
The two hydraulic drive motors do not require any maintenance. If repairs, other than motor seal kits, are required, the motors should be removed and serviced at your Dealer.

#### *Removing Front Hydraulic Motor*

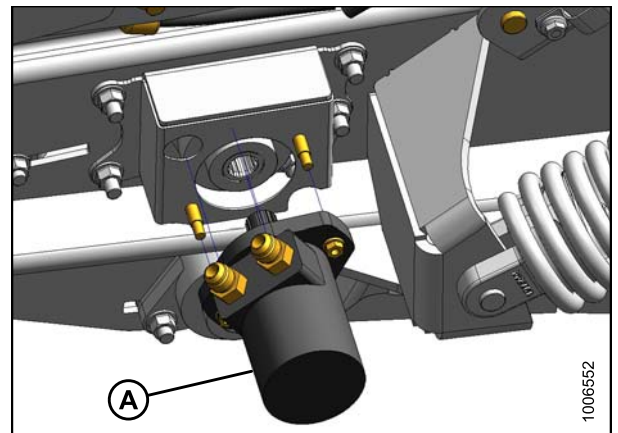
#### **⚠ DANGER**

**Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.**

1. Lower header to the ground, shut down combine, and remove key from ignition.
2. Disconnect hydraulic hoses (A) from motor. Install caps onto hose ends, or wrap with plastic and move hoses away from work area.
3. Remove two M8 hex flange nuts (B) using a 13 mm socket wrench.
4. Pull hydraulic motor (A) from roller shaft.



**Figure 5.30: Hydraulic System**



**Figure 5.31: Front Hydraulic Motor**

### Installing Front Hydraulic Motor

1. Apply grease (extreme pressure (EP) performance with 1.5–5% molybdenum disulphide, NLGI grade 2), to splines of hydraulic motor (A) shaft.
2. Install hydraulic motor (A) onto roller shaft (B) and shoulder bolts (C).

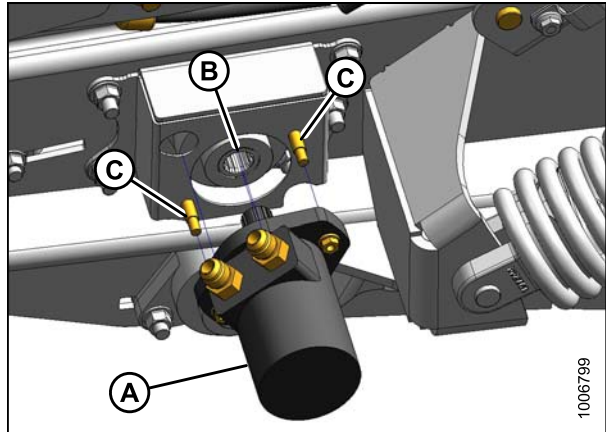


Figure 5.32: Hydraulic Motor

3. Secure hydraulic motor with two M8 hex flange nuts (A) and torque to 37 lbf-ft (50 N·m) using a 13 mm socket wrench.

**IMPORTANT:**

Hydraulic motor must be able to move slightly during operation. Tighten to required torque only, and do NOT use washers or shims. It is normal for the motor and the hardware to feel somewhat loose after torquing.

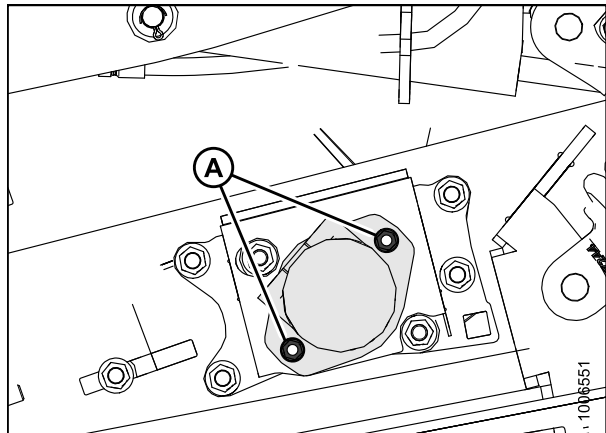


Figure 5.33: Hydraulic Motor

4. Install hydraulic fittings (A) from original motor (if installing new motor).

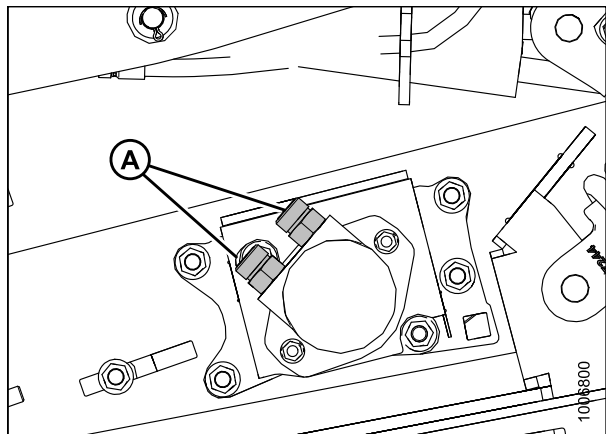


Figure 5.34: Hydraulic Fittings

5. Reconnect hydraulic hoses (A) to motor.

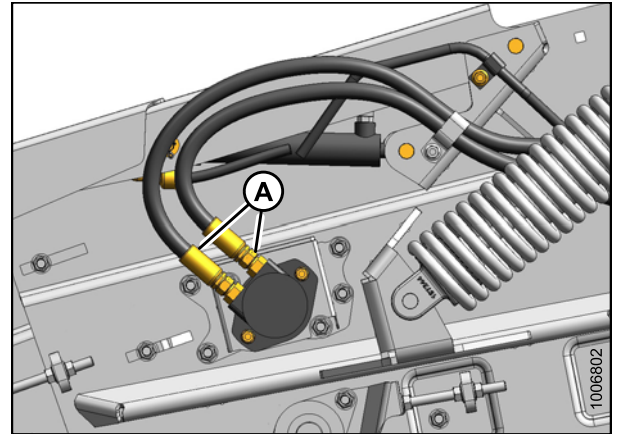


Figure 5.35: Hydraulic Hoses

### Removing Rear Hydraulic Motor

#### DANGER

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

1. Lower header to the ground, shut down combine, and remove key from ignition.
2. Open left-hand endshield (A). Refer to [3.3.1 Opening Left-Hand Endshield, page 23](#).
3. Disconnect hydraulic hoses (A) from motor. Install plugs onto hose ends, or wrap with plastic and move hoses away from work area. Loosen or remove adjacent cinch straps if necessary.
4. Remove two 10 mm shoulder bolts (B) using an 8 mm hex key.
5. Pull hydraulic motor (C) from roller shaft.

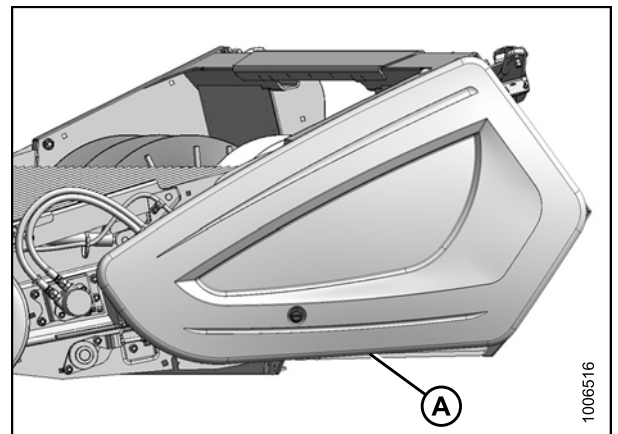


Figure 5.36: Left-Hand Endshield

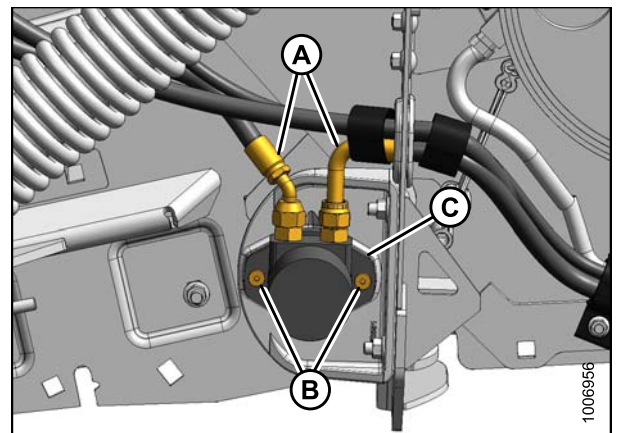


Figure 5.37: Hydraulic System

### Installing Rear Hydraulic Motor

1. Apply grease (extreme pressure (EP) performance with 1.5–5% molybdenum disulphide, NLGI grade 2), to splines of hydraulic motor shaft (A).
2. Install hydraulic motor (B) onto roller shaft, and secure with two 10 mm shoulder bolts (C).
3. Torque bolts to 37 lbf-ft (50 N-m) using an 8 mm hex key.

**IMPORTANT:**

Hydraulic motor must be able to move slightly during operation. Tighten to required torque only, and do NOT use washers or shims. It is normal for the motor and the hardware to feel somewhat loose after torquing.

4. Install hydraulic fittings (D) from original motor (if installing new motor).
5. Reconnect hydraulic hoses (A) to motor.
6. Install previously removed cinch straps.
7. Close endshield. Refer to [3.3.2 Closing Left-Hand Endshield, page 24](#).

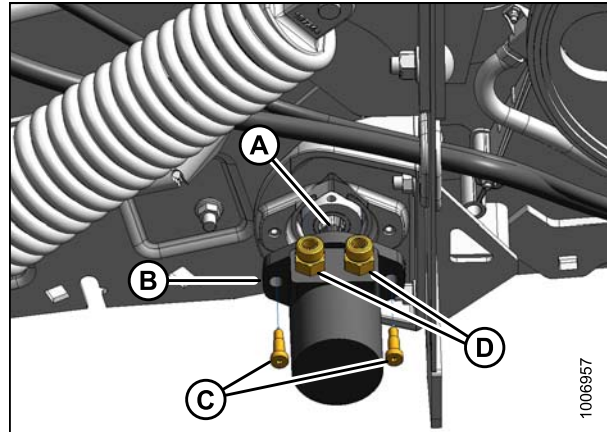


Figure 5.38: Hydraulic System

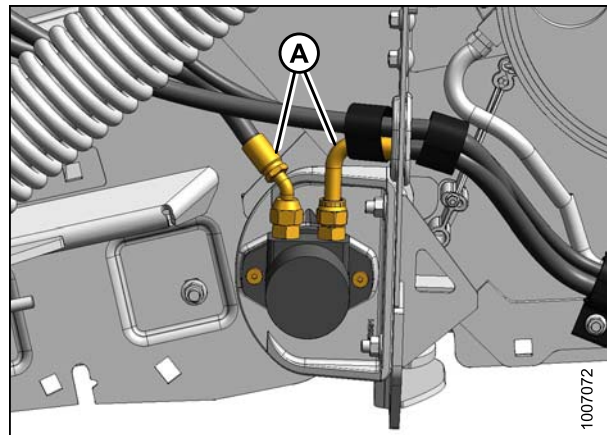


Figure 5.39: Hydraulic System

### Removing Hydraulic Motor Hoses

1. Lower header to the ground, and lower the hold-down completely.

**⚠ DANGER**

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

2. Shut down combine, and remove key from ignition.
3. Open left-hand endshield (A). Refer to [3.3.1 Opening Left-Hand Endshield, page 23](#).

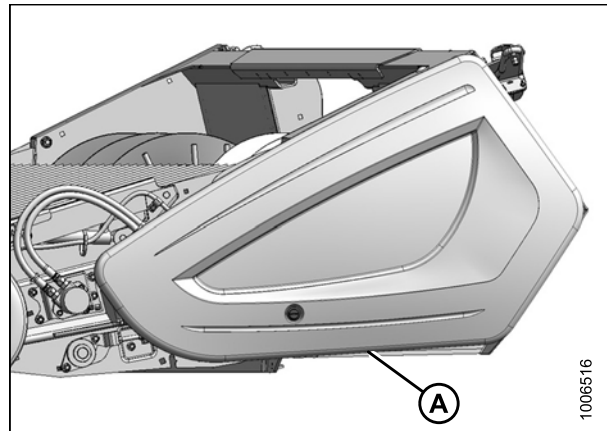


Figure 5.40: Left-Hand Endshield



## MAINTENANCE AND SERVICING

4. Remove hose clips (A) and cinch straps (B).

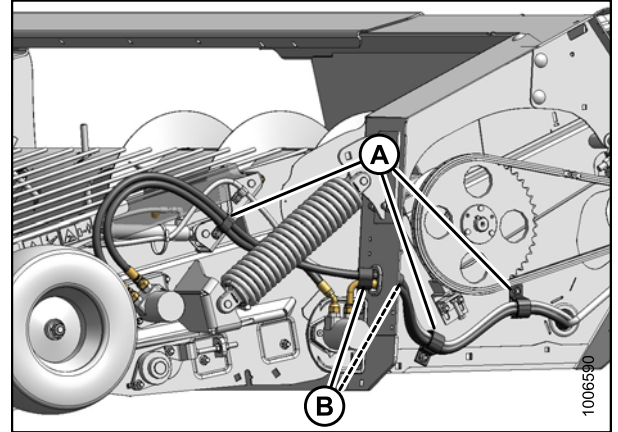


Figure 5.41: Hydraulic System

5. Disconnect and remove hydraulic hoses (A), (B), and (C) from drive motors (D) and (E). Install caps onto hose ends or wrap with plastic.

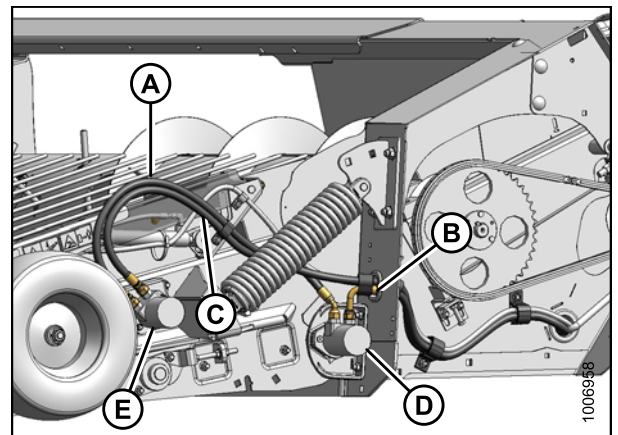


Figure 5.42: Hydraulic System

6. Remove cinch strap (A).
7. Disconnect hoses (B) and (C) from multi-coupler (D).

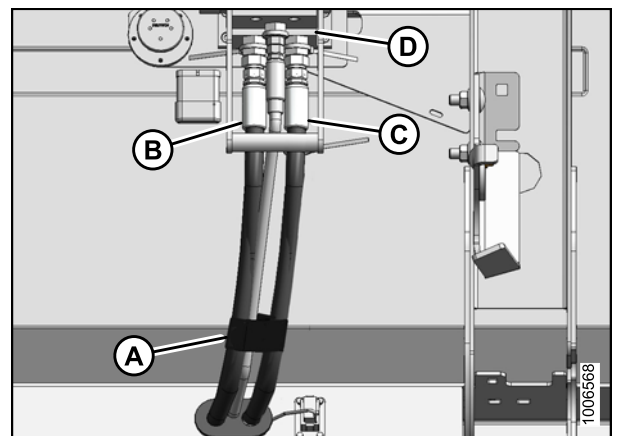


Figure 5.43: Hydraulic System

## MAINTENANCE AND SERVICING

- Loosen three M12 hex flange nuts (A), and remove bottom beam cover (B).
- Pull hoses out of bottom beam cover (B).

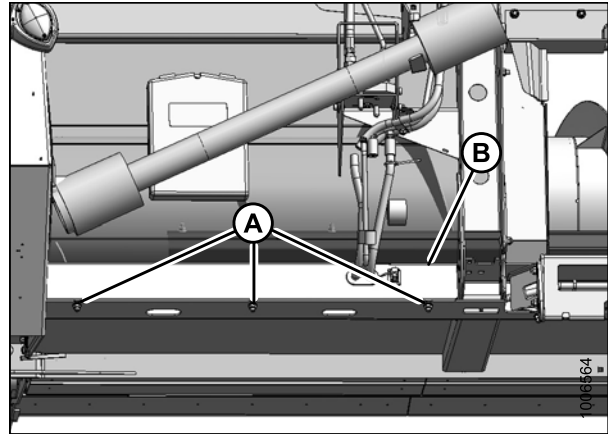


Figure 5.44: Bottom Beam Cover

- Pull hoses through hole (B) in endsheet and through hole (A) in frame.

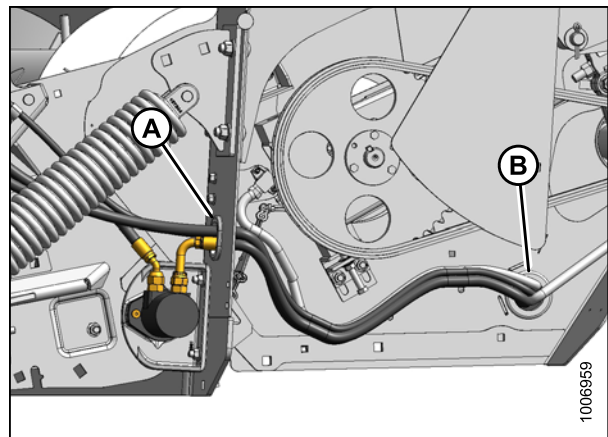


Figure 5.45: Hydraulic System

### Installing Hydraulic Motor Hoses

- Route the two longer hoses (A) and (B) through hole (C) in endsheet and hole (D) in frame.

#### NOTE:

Angled fitting on hose (B) attaches to the pick-up rear drive motor. Hose (A) with yellow cable ties has identical fittings at both ends and attaches to the forward drive motor fitting that has a matching yellow cable tie.

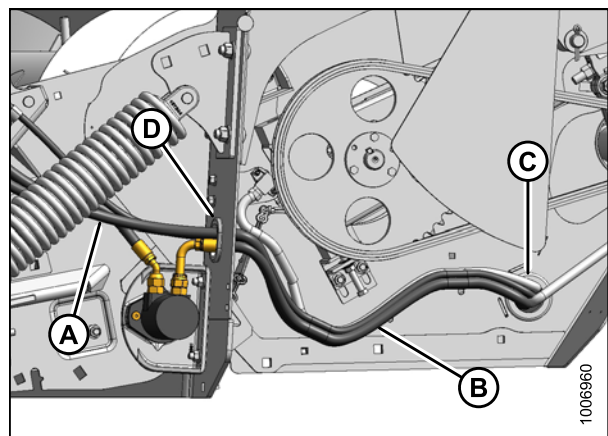


Figure 5.46: Hydraulic System

## MAINTENANCE AND SERVICING

2. Route hoses (A) and (B) through grommet (C) in bottom beam cover. Match colored cable ties and attach hoses (A) and (B) to multi-coupler. If colored cable ties are missing, attach as follows:
  - a. Attach longer hose (A) to forward port on forward drive motor and to connector (E) on multi-coupler.
  - b. Attach shorter hose (B) to aft port on rear drive motor and to connector (F) on multi-coupler.
  - c. Secure hoses with cinch strap (D).

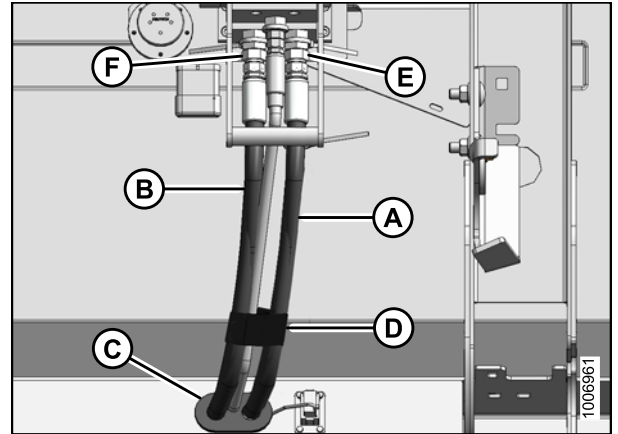


Figure 5.47: Hydraulic System

3. Connect the shorter hose (A) to the hydraulic motors.

**NOTE:**

Angled fitting attaches to rear motor (B).

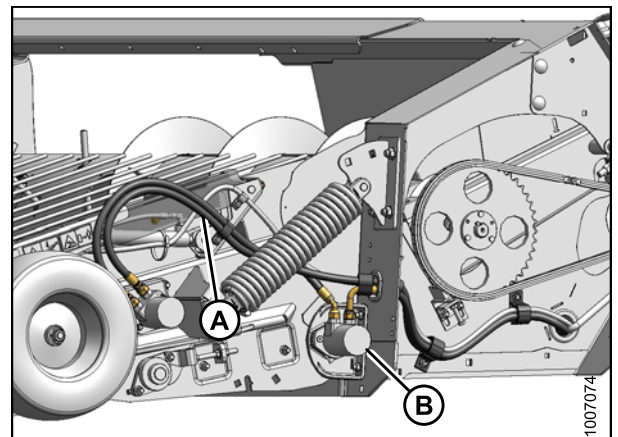


Figure 5.48: Hydraulic System

4. Secure hoses with clips (A) and cinch straps (B).

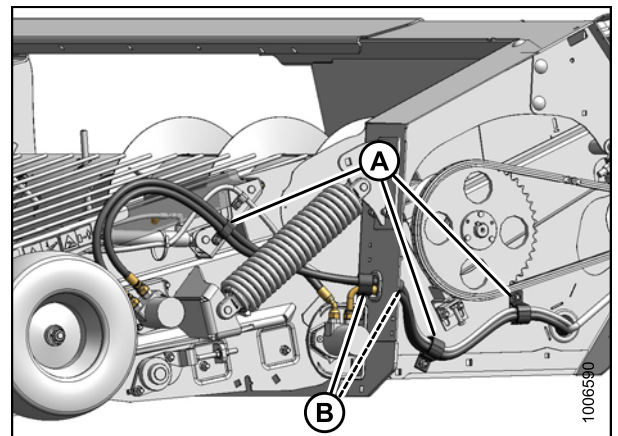


Figure 5.49: Hydraulic System

## MAINTENANCE AND SERVICING

5. Install bottom beam cover (B), and tighten three M12 hex flange nuts (A) along lower edge of cover.
6. Close left-hand endshield. Refer to [3.3.2 Closing Left-Hand Endshield, page 24](#).

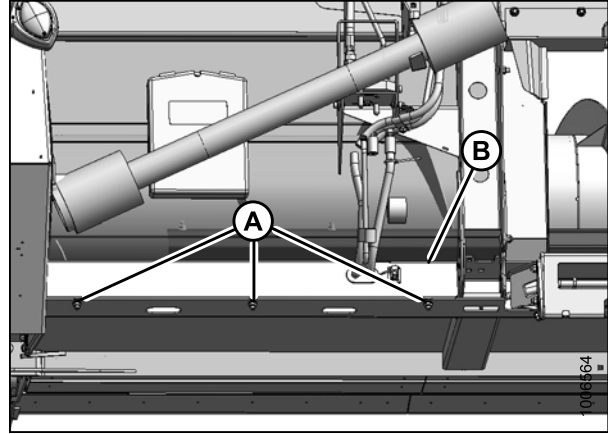


Figure 5.50: Bottom Beam Cover

### 5.5.4 Auger Drive

The auger is chain driven by a direct connection to the feeder house, and auger speed depends on the feeder house speed. You can adjust auger speeds from the combine to suit crop conditions. Contact your Dealer for available sprocket options. Refer to [Auger Drive Sprockets, page 157](#) for procedure on changing sprockets.

#### *Auger Drive Chain*

#### Lubricating Auger Drive Chain

#### **⚠ DANGER**

**Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.**

1. Lower header to the ground, shut down combine, and remove key from ignition.
2. Open left-hand endshield (A). Refer to [3.3.1 Opening Left-Hand Endshield, page 23](#).

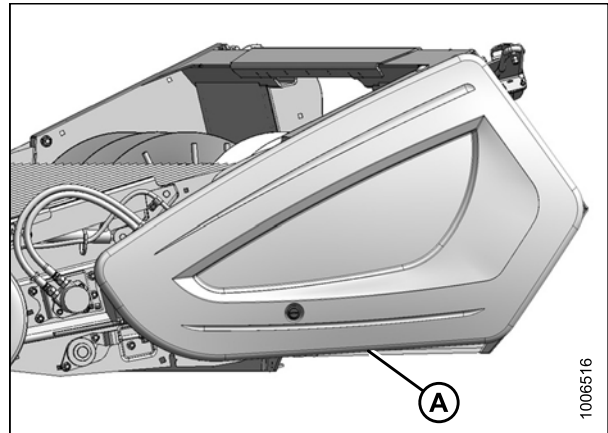


Figure 5.51: Left-Hand Endshield

## MAINTENANCE AND SERVICING

3. Liberally apply SAE 30 engine oil to the chain every ten hours.
4. Close left-hand endshield. Refer to [3.3.2 Closing Left-Hand Endshield, page 24](#).

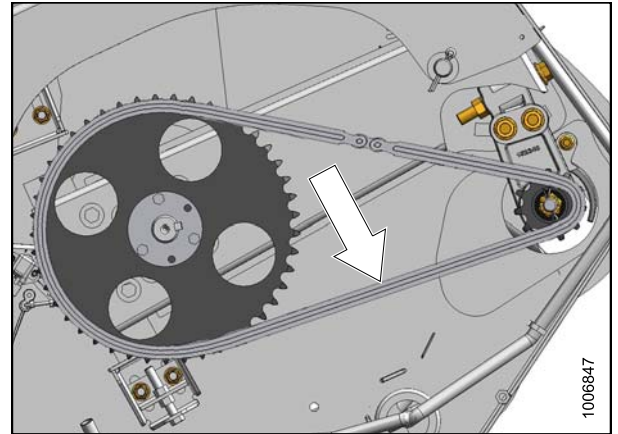


Figure 5.52: Auger Drive Chain

### Removing Auger Drive Chain

#### DANGER

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

1. Lower header to the ground, shut down combine, and remove key from ignition.
2. Open left-hand endshield (A). Refer to [3.3.1 Opening Left-Hand Endshield, page 23](#).
3. Release tension on chain (A) until chain can be removed from small sprocket (B). Refer to [Adjusting Auger Drive Chain Tension, page 156](#).
4. Remove chain from large sprocket (C).

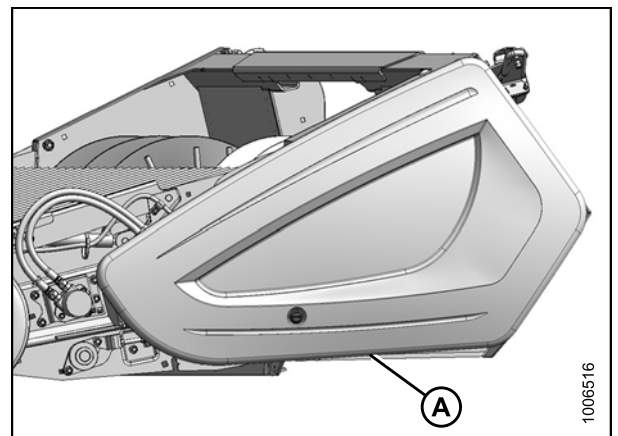


Figure 5.53: Left-Hand Endshield

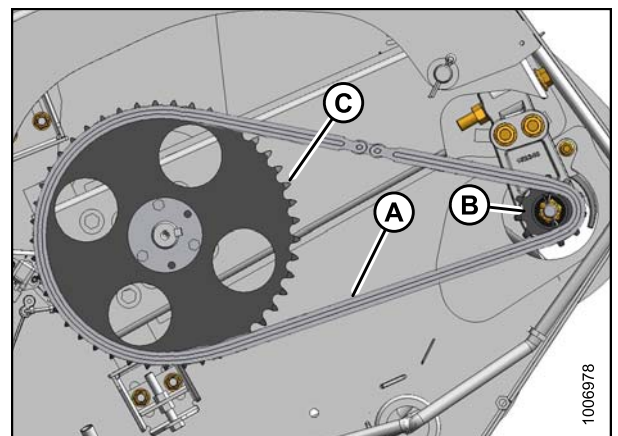


Figure 5.54: Auger Drive Chain

### Installing Auger Drive Chain

1. Install chain (A) onto large sprocket (C) and then onto small sprocket (B).
2. Tighten chain. Refer to [Adjusting Auger Drive Chain Tension, page 156](#).
3. Apply a liberal amount of SAE multi-purpose grease to chain.
4. Close left-hand endshield. Refer to [3.3.2 Closing Left-Hand Endshield, page 24](#).

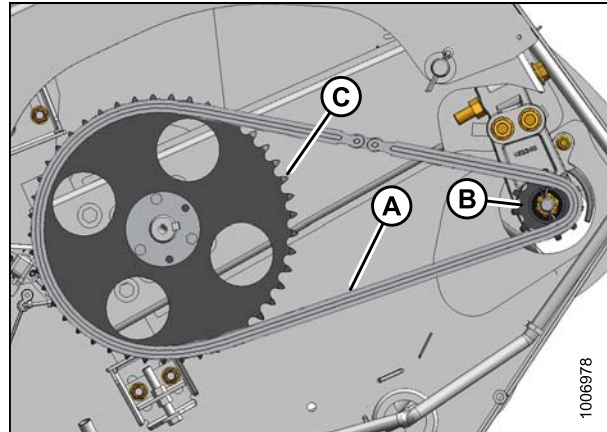


Figure 5.55: Auger Drive Chain

### Adjusting Auger Drive Chain Tension

The drive chain tension is set at the factory and should be checked after the first three hours of operation and at regular intervals thereafter.

#### DANGER

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

1. Lower header to the ground, shut down combine, and remove key from ignition.
2. Open left-hand endshield (A). Refer to [3.3.1 Opening Left-Hand Endshield, page 23](#).

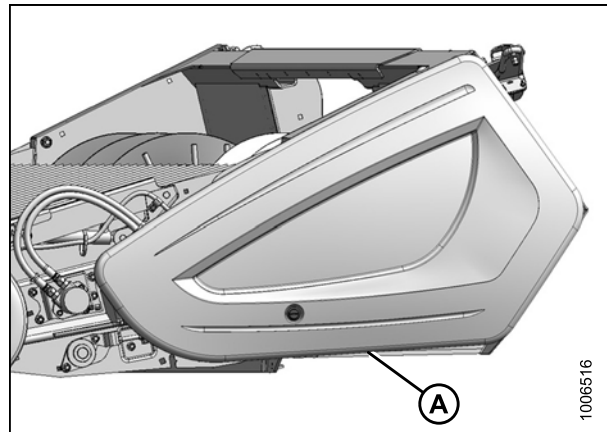


Figure 5.56: Left-Hand Endshield

3. Loosen two M16 hex flange nuts (A) using a 24 mm wrench until arm moves.
4. Loosen jam nut (B) on adjuster bolt.
5. Turn adjuster bolt (C) to adjust chain tension.

**NOTE:**

Remove the plug from access hole in endsheet for better access to adjuster bolt (C).

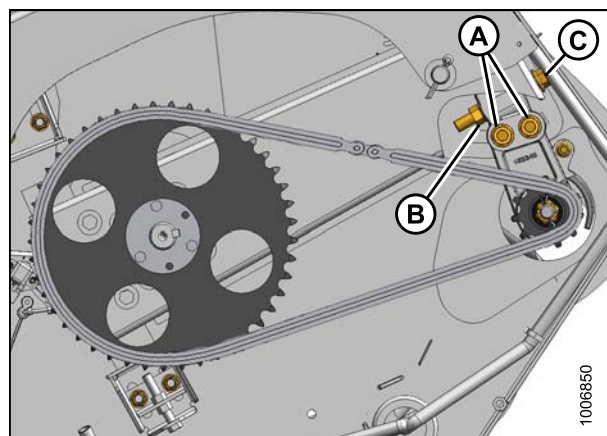


Figure 5.57: Auger Drive Chain

## MAINTENANCE AND SERVICING

6. Rotate chain until the tightest point is at the mid-span, and ensure there is 1/2–3/4 in. (13–19 mm) of deflection (A) when 10 lbf (44.5 N) force is applied at the mid-span.

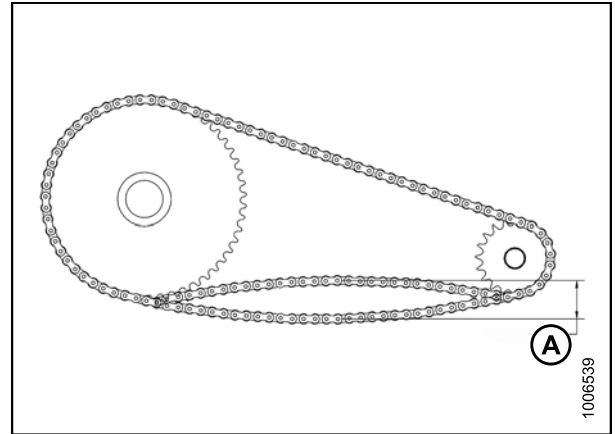


Figure 5.58: Chain Deflection

7. Tighten jam nut (B), and torque two M16 hex flange nuts (A) to 155 lbf-ft (210 N·m).

### IMPORTANT:

Ensure the two M16 hex flange nuts (A) are correctly torqued to 155 lbf-ft (210 N·m).

8. Close left-hand endshield. Refer to [3.3.2 Closing Left-Hand Endshield, page 24](#).

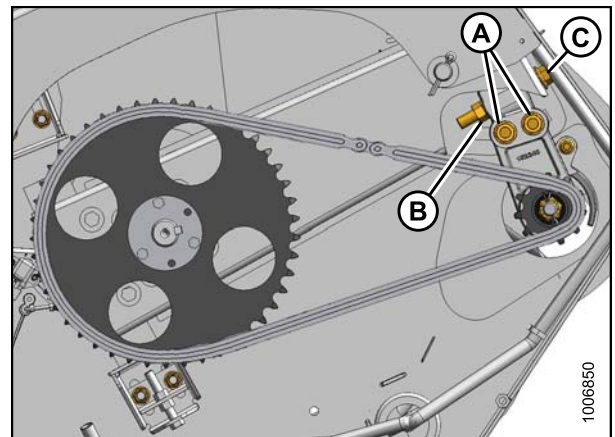


Figure 5.59: Auger Drive Chain

### Auger Drive Sprockets

#### Removing Driven Sprocket

### DANGER

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

1. Lower header to the ground, shut down combine, and remove key from ignition.
2. Open left-hand endshield (A). Refer to [3.3.1 Opening Left-Hand Endshield, page 23](#). If more access is required, remove endshield. Refer to [5.4.1 Removing Left-Hand Endshield, page 136](#).
3. Remove drive chain. Refer to [Removing Auger Drive Chain, page 155](#).

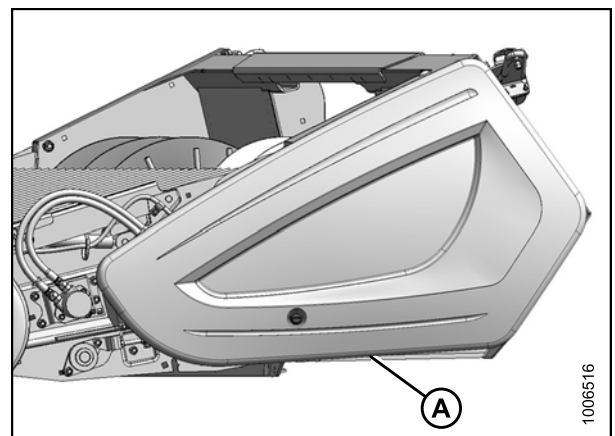


Figure 5.60: Left-Hand Endshield

## MAINTENANCE AND SERVICING

4. Remove three M10 hex bolts (A) from tapered bushing (D) in sprocket (C) using a 16 mm wrench.
5. Reinstall two of the M10 hex bolts (A) into the threaded holes (B) in the tapered bushing (D).
6. Turn bolts into tapered bushing equal amounts in half-turn increments until the tapered bushing (D) becomes loose.
7. Remove tapered bushing (D) and sprocket (C) from shaft.
8. Retain keys from driveshaft and tapered bushing.
9. Clean and inspect components. Replace worn or damaged parts.

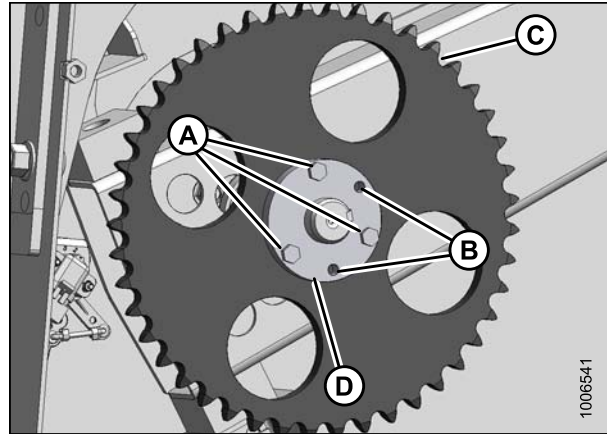


Figure 5.61: Driven Sprocket

### Installing Driven Sprocket

1. Apply anti-seize compound to the mating surfaces of driveshaft (A), tapered bushing (B), and sprocket (C).
2. Install keys into driveshaft (A) and tapered bushing (B).
3. Insert tapered bushing (B) into sprocket (C) while aligning key with keyway in sprocket.
4. Align key in shaft (A) with keyway in tapered bushing (B), and slide bushing and sprocket (C) onto shaft.

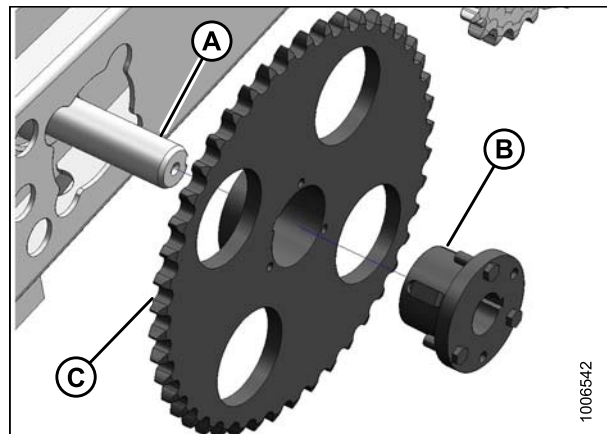


Figure 5.62: Driven Sprocket

5. Remove two M10 hex bolts from threaded holes (B) in tapered bushing (D).
6. Reinstall three M10 hex bolts (A) through tapered bushing (D) and into sprocket (C). Do not tighten.

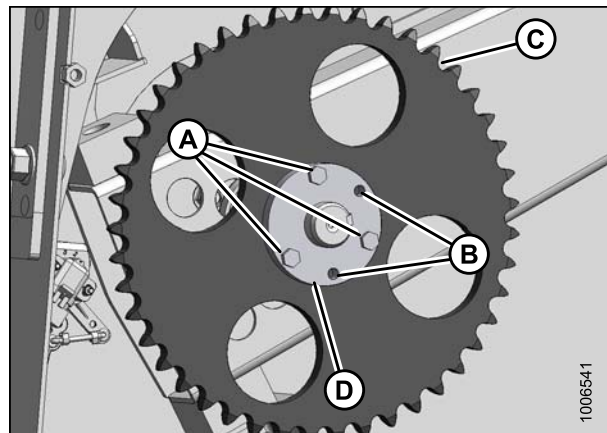


Figure 5.63: Driven Sprocket



## MAINTENANCE AND SERVICING

7. Align sprocket (A) with sprocket (B) using a straight edge. The sprockets are aligned when the two faces are within 0.04 in. (1 mm) of each other.

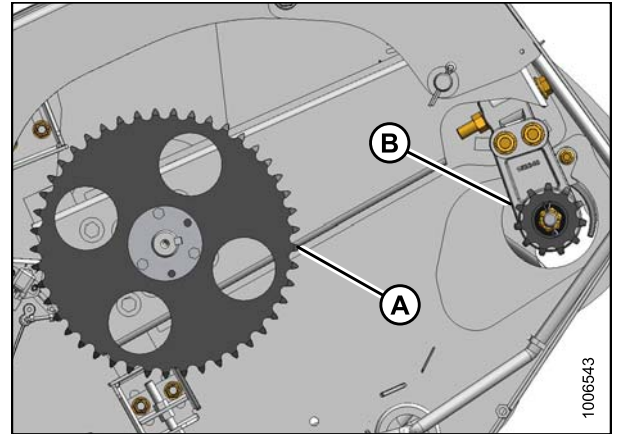


Figure 5.64: Sprockets

8. Torque three M10 hex bolts (A) in equal increments to 32 lbf·ft (44 N·m) while maintaining sprocket alignment.
9. Tap bushing (B) with a hammer and retorque. Repeat three times or until bolts no longer turn at 32 lbf·ft (44 N·m).

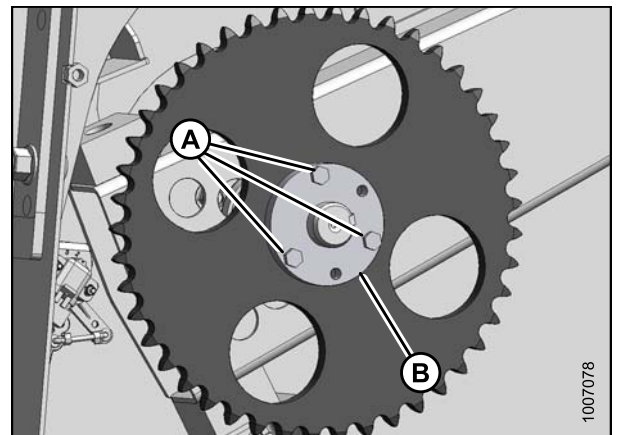


Figure 5.65: Driven Sprocket

10. Check alignment of sprockets. If misaligned more than 0.04 in. (1 mm), proceed as follows:
  - a. Measure and record the position of the tapered bushing relative to the driveshaft.
  - b. Remove the three M10 hex bolts (A) from tapered bushing (D).
  - c. Reinstall two of the M10 hex bolts (A) into the threaded holes (B) in tapered bushing (D).
  - d. Turn bolts into tapered bushing equal amounts in half-turn increments until the tapered bushing (D) and sprocket (C) can be moved.
  - e. Reposition the tapered bushing to account for the misalignment.
  - f. Repeat Step 5., page 158 to Step 10., page 159.
  - g. Check alignment of sprockets.
  - h. Repeat Step 10., page 159 until specified alignment is achieved.

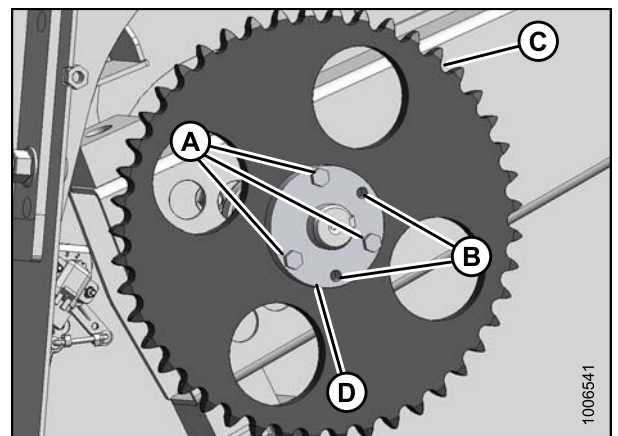


Figure 5.66: Driven Sprocket

11. Install and tension chain. Refer to [Installing Auger Drive Chain, page 156](#).

12. Close left-hand endshield. Refer to [3.3.2 Closing Left-Hand Endshield, page 24](#)

**Removing Drive Sprocket**

**⚠ DANGER**

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

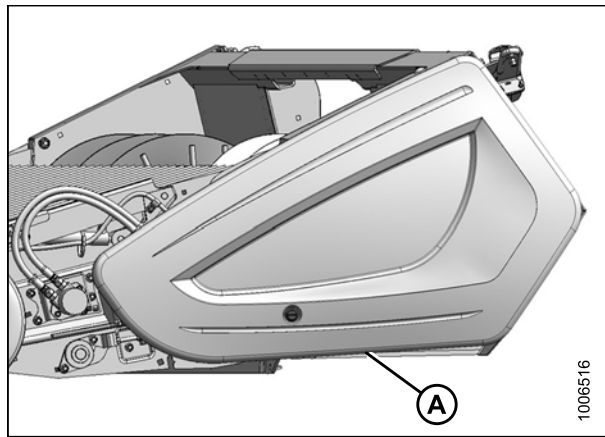
1. Lower header to the ground, shut down combine, and remove key from ignition.

2. Open left-hand endshield (A). Refer to [3.3.1 Opening Left-Hand Endshield, page 23](#).

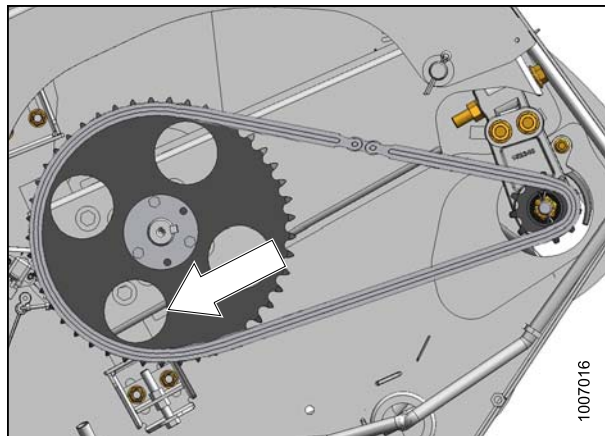
3. Place a pry bar or equivalent through a hole in the large sprocket and against the frame to stop the driveshaft from rotating (if header is not attached to combine).

4. Remove chain (A). Refer to [Removing Auger Drive Chain, page 155](#).

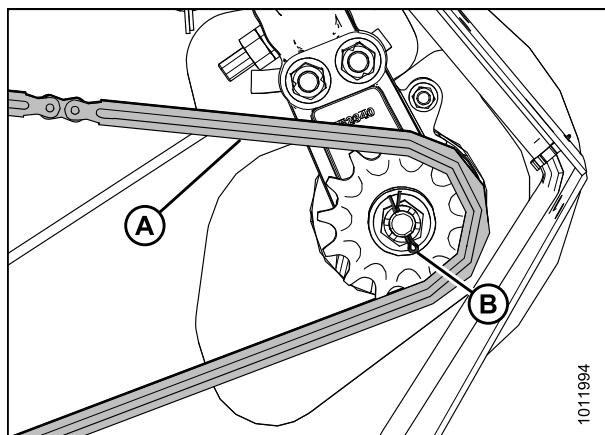
5. Remove cotter pin (B).



**Figure 5.67: Left-Hand Endshield**



**Figure 5.68: Driven Sprocket**



**Figure 5.69: Drive Sprocket**

## MAINTENANCE AND SERVICING

6. Remove M20 castle nut (A) and washer (B) from driveshaft.

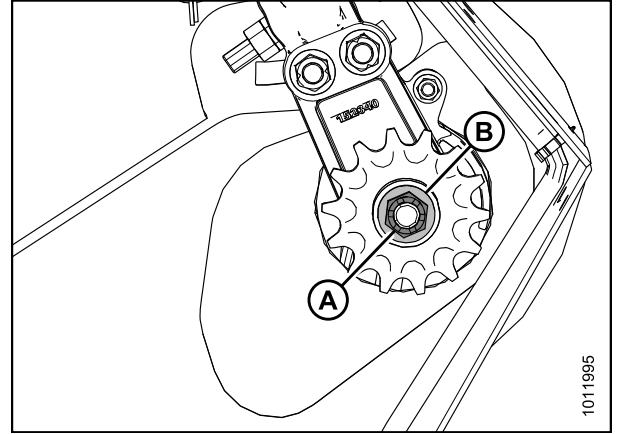


Figure 5.70: Drive Sprocket

7. Remove sprocket (A) using a puller if necessary.
8. Clean and inspect components. Replace worn or damaged parts.

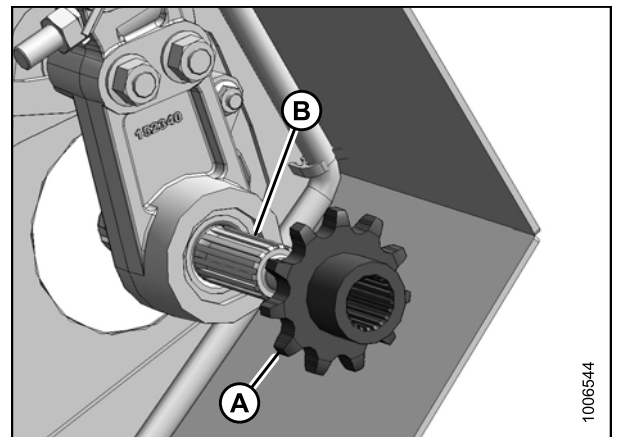


Figure 5.71: Drive Sprocket

### Installing Drive Sprocket

1. Apply anti-seize compound to driveshaft (B) and sprocket (A) splines.

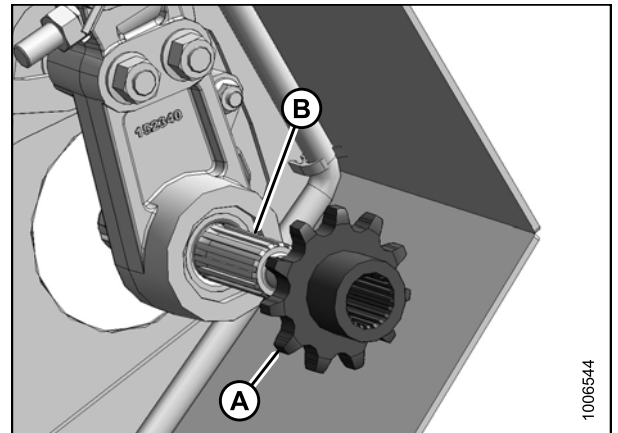


Figure 5.72: Drive Sprocket

## MAINTENANCE AND SERVICING

2. Install sprocket (A), washer (B), and castle nut (C) onto driveshaft.
3. Reinstall drive chain, but do not fully tension. Refer to [Installing Auger Drive Chain, page 156](#).

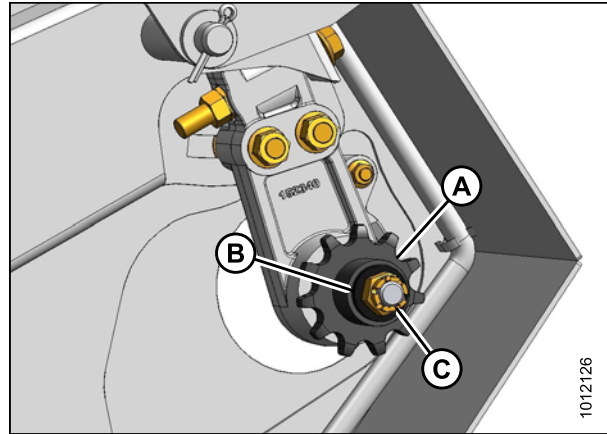


Figure 5.73: Drive Sprocket

4. Place a pry bar or equivalent through a hole in the large sprocket and against the frame to stop the driveshaft from rotating (if header is not attached to combine).

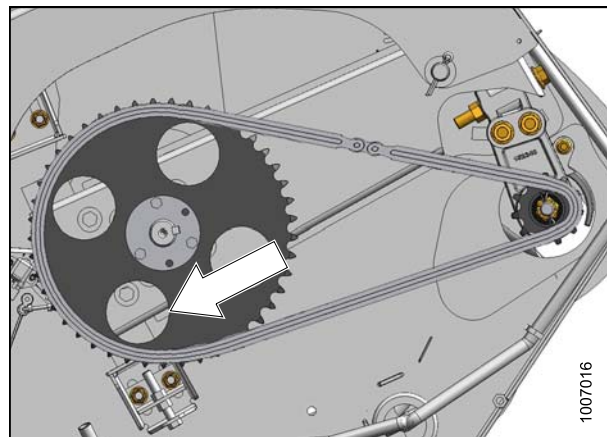


Figure 5.74: Driven Sprocket

5. Torque castle nut (B) to 50 lbf·ft (68 N·m). If slot in castle nut (B) and hole in driveshaft are not aligned, continue to tighten castle nut (B) to 60 lbf·ft (81 N·m). If alignment is still not achieved, back nut off until cotter pin can be installed.
6. Install cotter pin (A) into driveshaft.
7. Bend cotter pin (A) around castle nut (B).
8. Set drive chain (D) tension. Refer to [Adjusting Auger Drive Chain Tension, page 156](#).

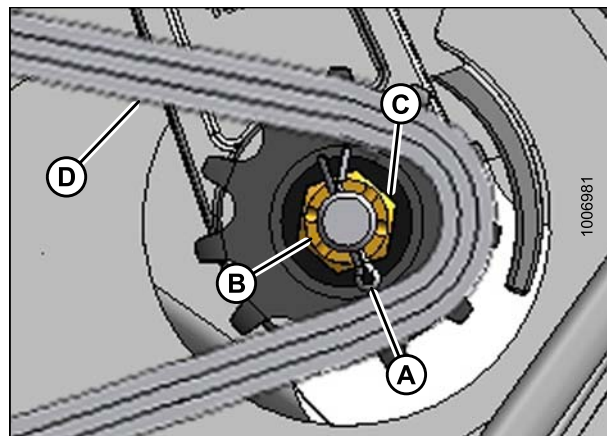


Figure 5.75: Drive Sprocket

9. Close left-hand endshield. Refer to [3.3.2 Closing Left-Hand Endshield, page 24](#).

## 5.6 Auger Maintenance

### 5.6.1 Replacing Auger Fingers

Periodically check auger for missing, bent, or severely worn fingers and replace if necessary.

1. Raise the hold-down fully, and engage lift cylinder safety props.

#### **DANGER**

**Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.**

2. Remove two screws (A) from access cover (B) closest to the finger (C) being serviced, and remove access cover.

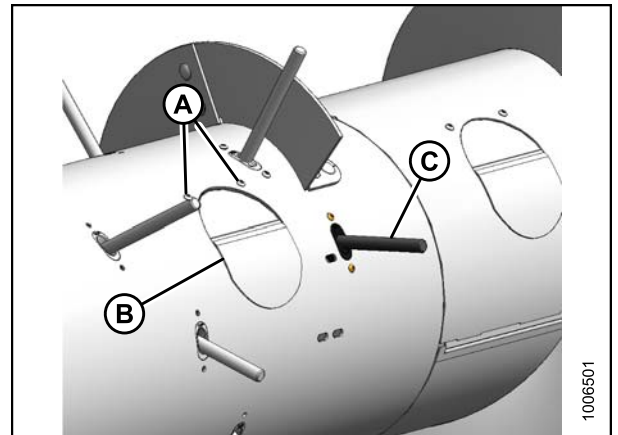


Figure 5.76: Access Cover

3. Reach inside the auger, remove hairpin (A) and pull finger (B) out of bushing (C).
4. Reach inside the auger, swivel finger away from bushing, pull from plastic guide (D), and remove from auger.
5. Insert new finger (B) through plastic guide (D) from inside the auger.
6. Insert finger into bushing (C), and secure finger in bushing with hairpin (A). Install hairpin with closed end leading with respect to auger forward rotation.

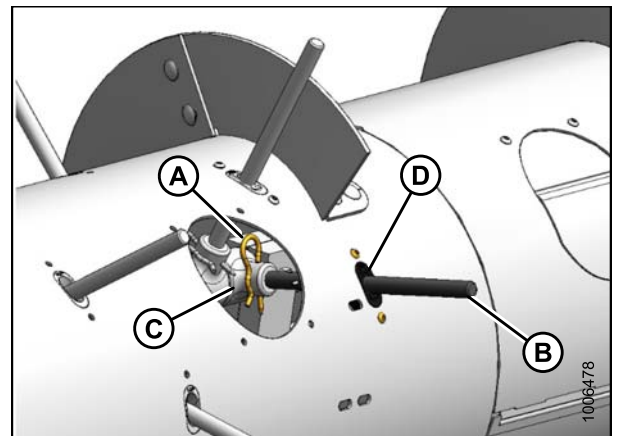


Figure 5.77: Auger Fingers

7. Install access cover (B) using two screws (A) coated with Loctite®. Torque screws to 75 lbf-in (8.5 N·m).

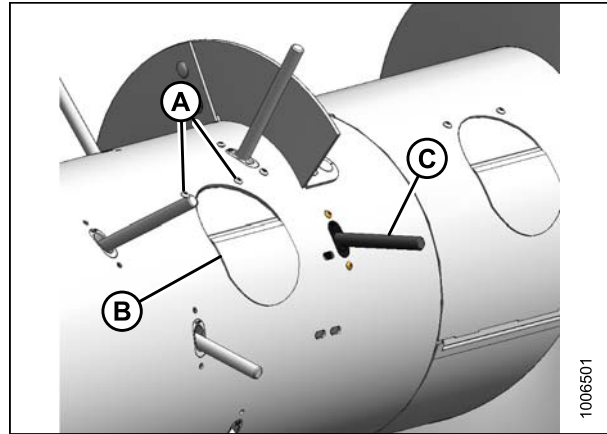


Figure 5.78: Access Cover

## 5.6.2 Replacing Auger Finger Guides

1. Raise the hold-down fully, and engage lift cylinder safety props.

### DANGER

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

2. Remove two screws (A) from access cover (B) closest to the guide being replaced, and remove access cover.
3. Remove finger. Refer to [5.6.1 Replacing Auger Fingers](#), page 163.

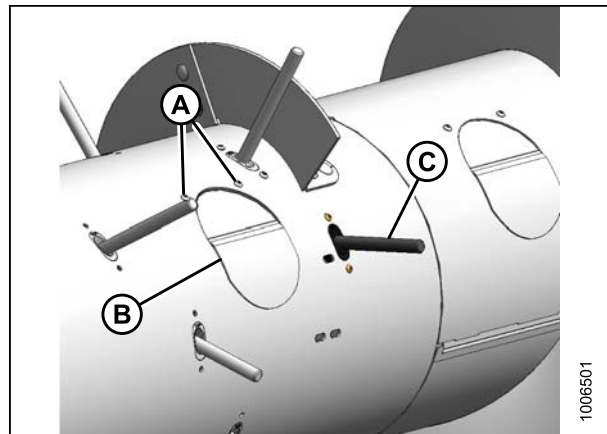


Figure 5.79: Access Cover

4. Remove two screws (A) from guide (B) and remove guide.

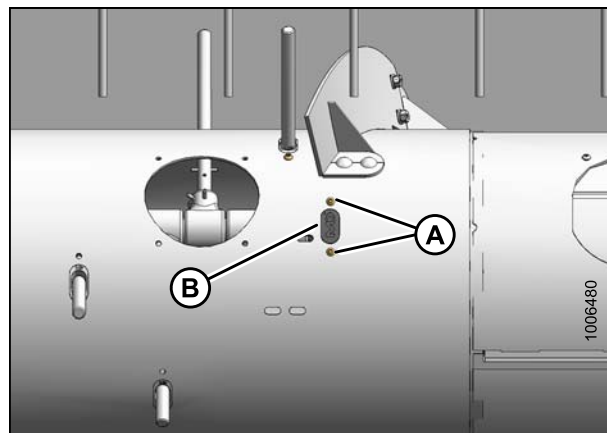


Figure 5.80: Auger Finger Guide

## MAINTENANCE AND SERVICING

5. Install new guides (A) from inside auger using existing screws (B) and tee nuts (C) as shown. Torque screws to 75 lbf-in. (85 N·m).
6. Reinstall finger. Refer to [5.6.1 Replacing Auger Fingers](#), page 163.

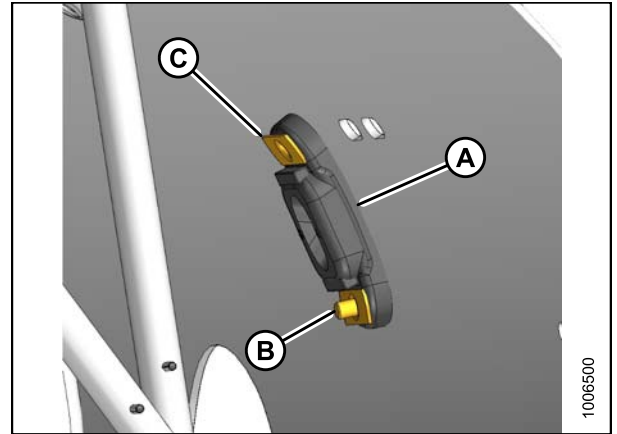


Figure 5.81: Auger Finger Guide

7. Install access cover (B) using two screws (A) coated with Loctite®. Torque screws to 75 lbf-in (8.5 N·m).

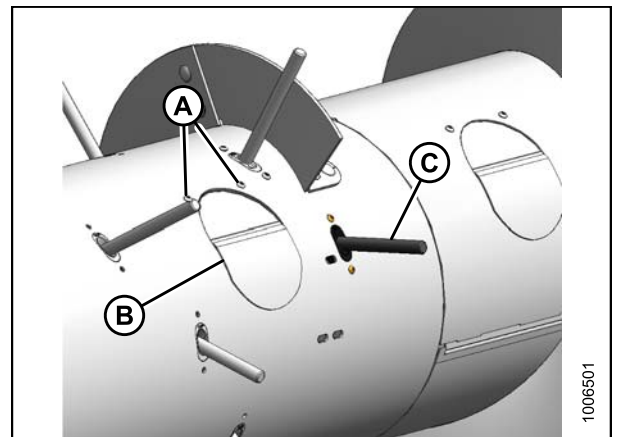


Figure 5.82: Access Cover

### 5.6.3 Replacing Auger Finger Bushings

Periodically check auger for damaged or severely worn finger bushings and replace if necessary.

1. Raise the hold-down fully, and engage lift cylinder safety props.

 **DANGER**

**Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.**

## MAINTENANCE AND SERVICING

2. Remove two screws (A) and remove center access cover (B).

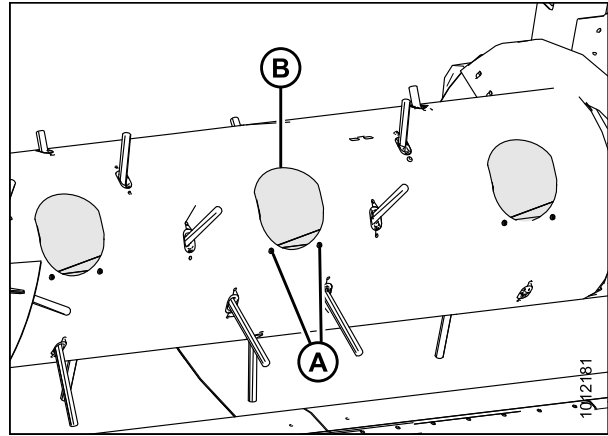


Figure 5.83: Center Access Cover

3. Remove two screws (A) and remove right access cover (B) if the finger bushing requiring replacement is located on the right side of the auger, or remove two screws (C) and remove the left access cover (D) if the finger bushing is located on the left side.

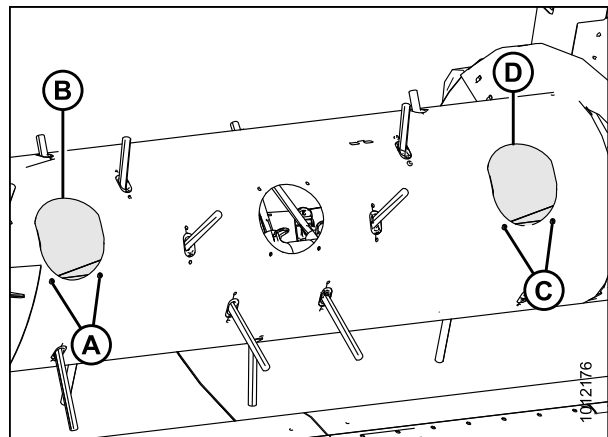


Figure 5.84: Access Covers

4. Reach inside the auger, remove hairpin (A) from the finger (B) requiring bushing replacement, and pull finger out of bushing (C).
5. Reach inside the auger, swivel finger away from bushing, pull from plastic guide (D), and remove from auger.

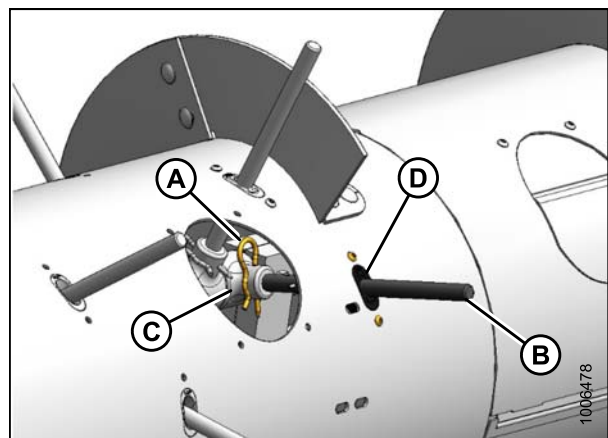


Figure 5.85: Auger Fingers

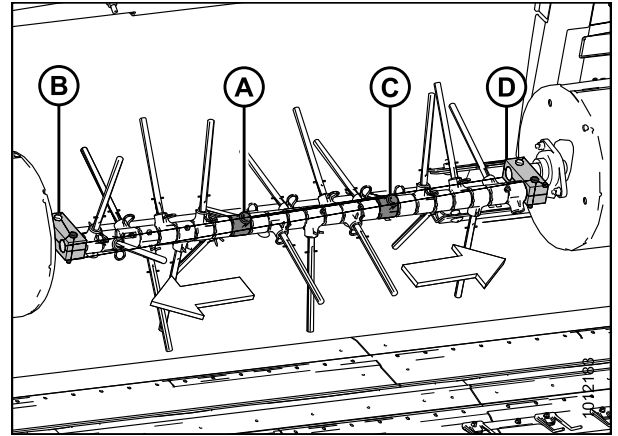


## MAINTENANCE AND SERVICING

6. Reach inside the auger and remove all the fingers between the damaged bushing (A) and the right finger support clamp (B) if the finger removed in Step 4., [page 166](#) is on the right side of the auger, or remove all the fingers between the damaged bushing (C) and the left finger support clamp (D) if the finger removed is on the left side of the auger.

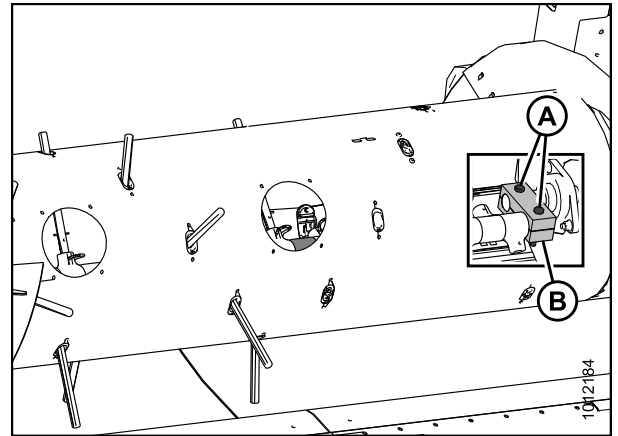
**NOTE:**

Middle auger sheet removed from image for improved clarity.



**Figure 5.86: Auger Fingers (Middle Auger Sheet Removed for Clarity)**

7. Reach inside the auger; remove two M10 hex head bolts, nuts, and washers (A), and; remove finger support clamp (B) from the shaft.

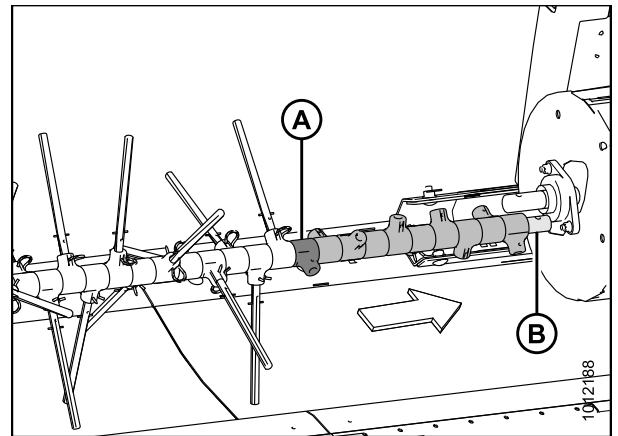


**Figure 5.87: Left Side Finger Support Clamp (Cutaway View Shown)**

8. Reach inside the auger and slide the auger finger bushings (A) off the end of the shaft (B).

**NOTE:**

Middle auger sheet removed from image for improved clarity.



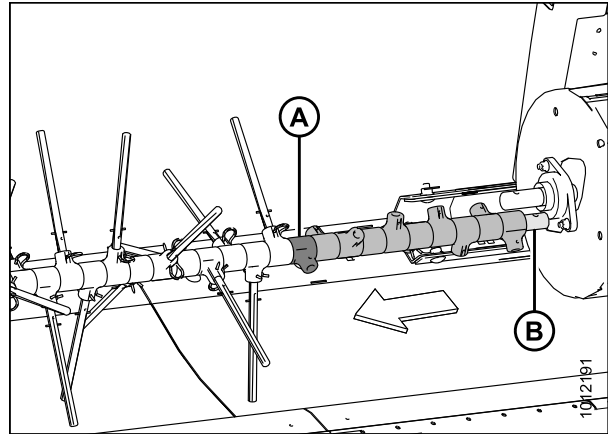
**Figure 5.88: Left Side Auger Finger Bushings (Middle Auger Sheet Removed for Clarity)**

## MAINTENANCE AND SERVICING

- Reach inside the auger and slide new auger finger bushings (A) onto the shaft (B).

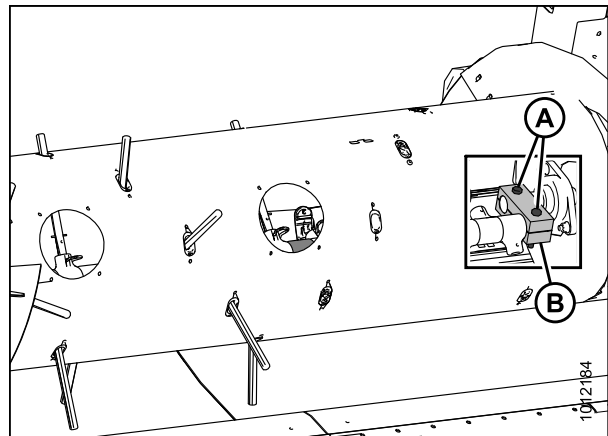
**NOTE:**

Middle auger sheet removed from image for improved clarity.



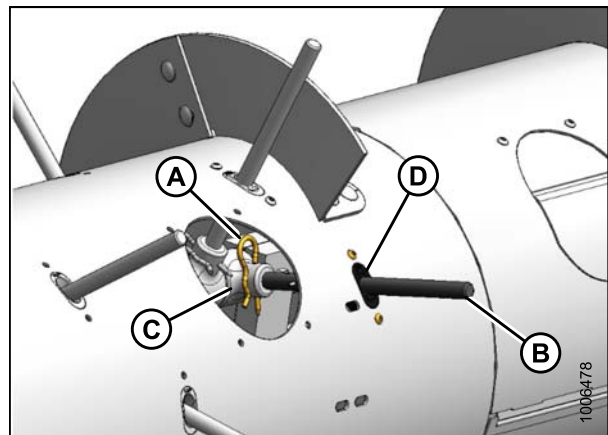
**Figure 5.89: Left Side Auger Finger Bushings (Middle Auger Sheet Removed for Clarity)**

- Reach inside the auger; place finger support clamp (B) onto shafts, and; secure with two M10 hex head bolts, nuts, and washers (A). Torque bolts to 40–45 lbf·in (55–60 N·m).



**Figure 5.90: Left Side Finger Support Clamp (Cutaway View Shown)**

- Reach inside the auger and insert new fingers (B) through plastic guides (D) from the inside.
- Insert fingers into bushings (C), and secure fingers in bushing with hairpins (A). Install hairpins with closed end leading with respect to auger forward rotation.



**Figure 5.91: Auger Fingers**

## MAINTENANCE AND SERVICING

13. Install access covers (A) using two screws (B) coated with Loctite®. Torque screws to 75 lbf-in (8.5 N·m).

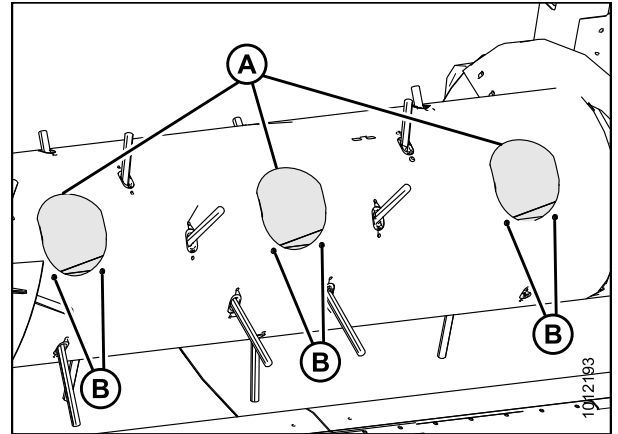


Figure 5.92: Access Covers

### 5.6.4 Replacing Stripper Plates

Replace stripper plates and missing or damaged fasteners if specified clearance cannot be maintained.

#### DANGER

**Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.**

1. Lower header to the ground, shut down combine, and remove key from ignition.

#### NOTE:

Access the auger/stripper plate area from top of header.

2. Remove four bolts and nuts (A) from stripper plate (B).
3. Replace stripper plate (B), and secure with four bolts and nuts (A), but do not fully tighten.
4. Adjust stripper plate to achieve 1/8–1/4 in. (3–6 mm) clearance (C) to auger flighting.
5. Tighten nuts (A).
6. Recheck the clearance.

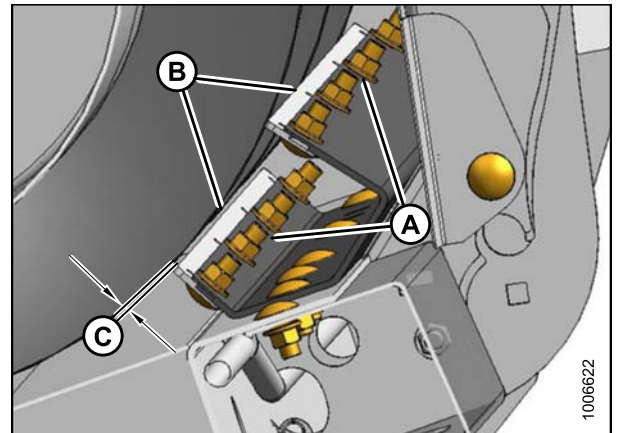
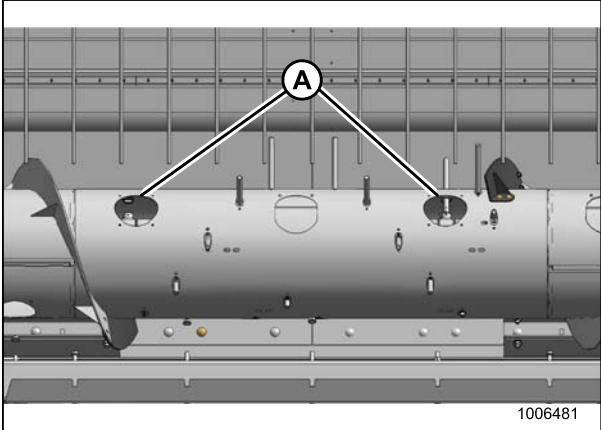
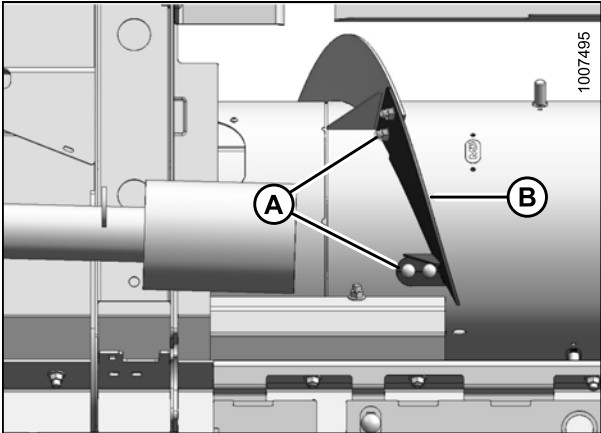
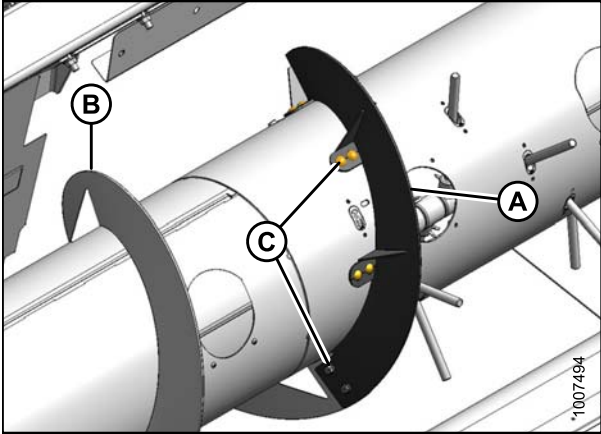


Figure 5.93: Stripper Plate Clearance

## 5.6.5 Replacing Flighting Extensions

With header removed from combine, proceed as follows:

1. Remove two access covers on either side of center.
- 
2. Remove hardware (A) securing existing auger flighting extensions (B) and remove extensions. Retain hardware.
- 
3. Place the new flighting extension (A) on auger and ensure that new flighting is positioned on the outboard side of the existing flighting (B).
  4. Secure flighting extension (A) to auger using existing hardware (C).
- 

**NOTE:**

Bolts (C) must be installed with heads facing inboard and nuts facing outboard.

5. Repeat for opposite side.

**NOTE:**

To replace original flighting, see your Dealer.

Figure 5.94: Access Covers

Figure 5.95: Flighting Extension

Figure 5.96: Flighting Extension

## 5.7 Decks

### 5.7.1 Draper Belts

Periodically check the draper belts for signs of wear and damage. Replace drapers that have stretched, have cuts or tears, or have worn slats. Replace missing or damaged fasteners, damaged connector bars, and damaged straps.

#### *Removing Front Draper Belt*

#### **⚠ WARNING**

To avoid bodily injury from fall of raised hold-down, always engage reel props before going under raised reel for any reason.

#### **⚠ DANGER**

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

1. Raise the hold-down fully and engage lift cylinder safety props. Refer to [3.5 Hold-Down Lift Cylinder Safety Props, page 27](#).
2. Raise the header fully, and engage the combine lift cylinder safety props.
3. Stop engine and remove key from ignition.
4. Release draper belt tension fully. Refer to [Adjusting Front Draper Belt Tension, page 69](#).
5. Remove seven M6 flange nuts (A), belt edge protector (B), and pronged elevator bolts (C) from belt (D) (if removing end belt).

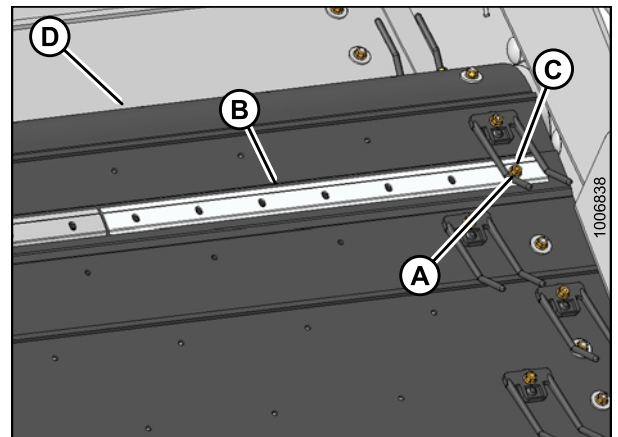


Figure 5.97: End Draper Belt

## MAINTENANCE AND SERVICING

- Remove M6 flange nuts (A), connector bar (B), and pronged elevator bolts (C) from belt (D.)

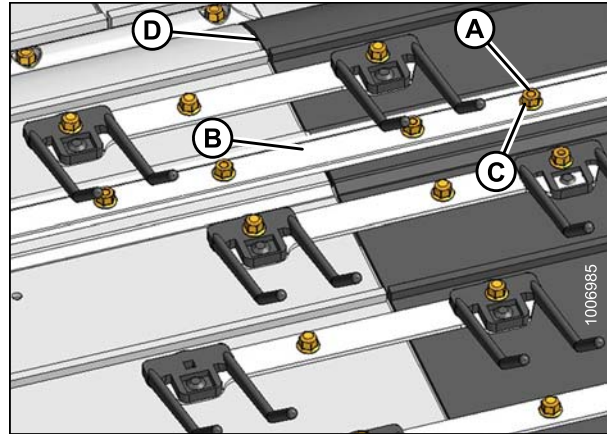


Figure 5.98: Front Draper Belt

- Remove M6 flange nuts (A), fingers (B), and straps (C) connecting adjacent belts.
- Remove draper belt (D).

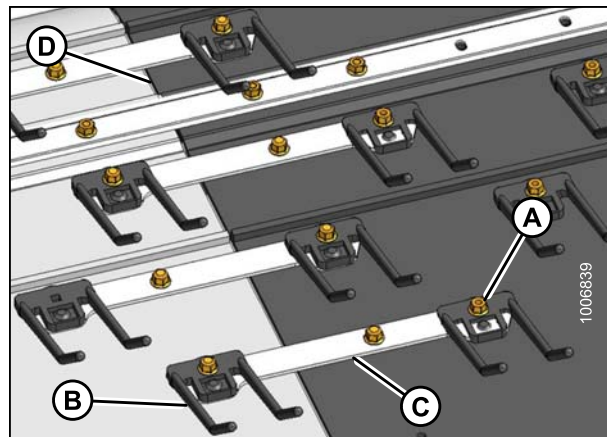


Figure 5.99: Front Draper Belt

### *Installing Front Draper Belt*

- Wrap new draper belt (A) around the rollers with slats facing outwards.

**IMPORTANT:**

Arrow on belt (not shown) must point in direction of rotation.

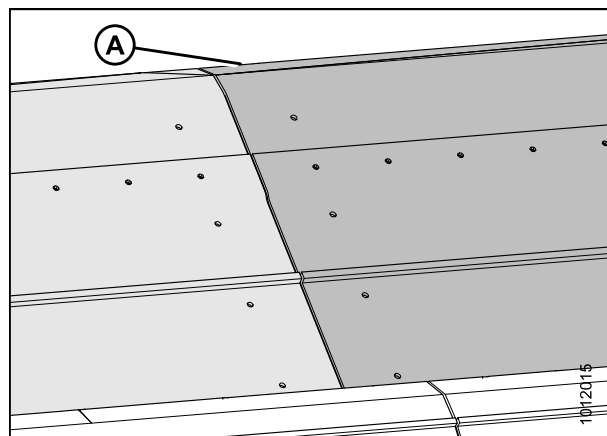
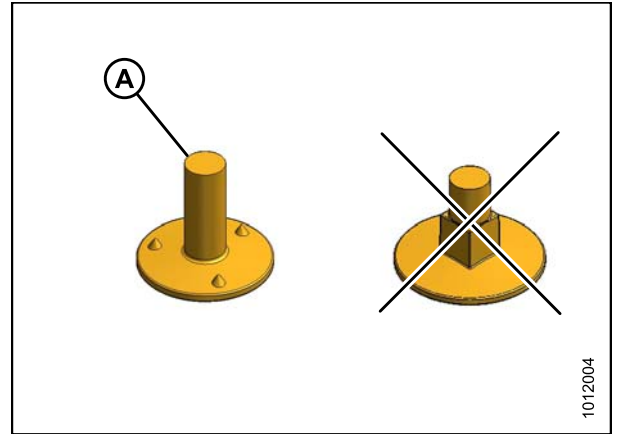


Figure 5.100: Front Draper Belt

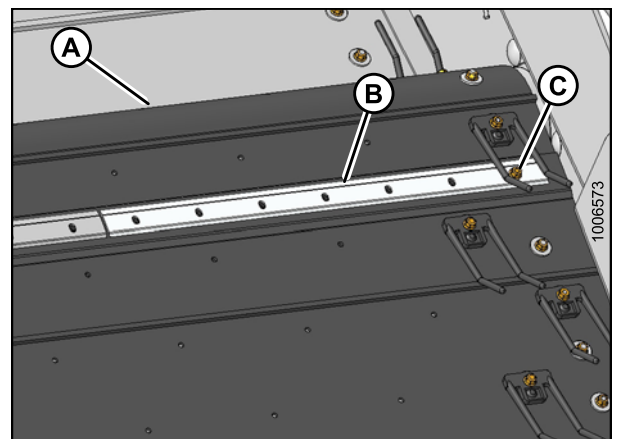
## MAINTENANCE AND SERVICING

2. Connect draper belt using M6 x 15.5 pronged elevator bolts (A).



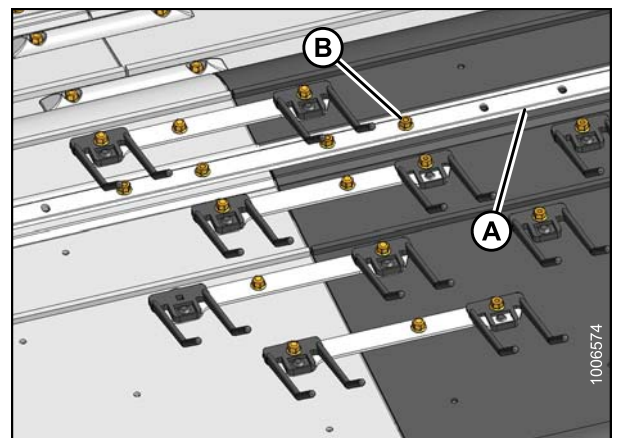
**Figure 5.101: Pronged Elevator Bolts**

3. Attach edge protector (B) to pronged elevator bolts previously installed into belt (A), and secure with M6 flange nuts (C) (if installing end belt). Do not tighten.
4. Torque M6 flange nuts (C) to 37–45 lbf-in (4–5 N·m).



**Figure 5.102: End Draper Belt**

5. Install connector bars (A) onto bolts, and secure with M6 flange nuts (B).
6. Torque M6 flange nuts (B) to 37–45 lbf-in (4–5 N·m).



**Figure 5.103: Front Draper Belt**

## MAINTENANCE AND SERVICING

7. Connect draper belt using M6 x 16 and M6 x 23 square neck elevator bolts (A). Refer to Step 8., page 174 for installation locations.

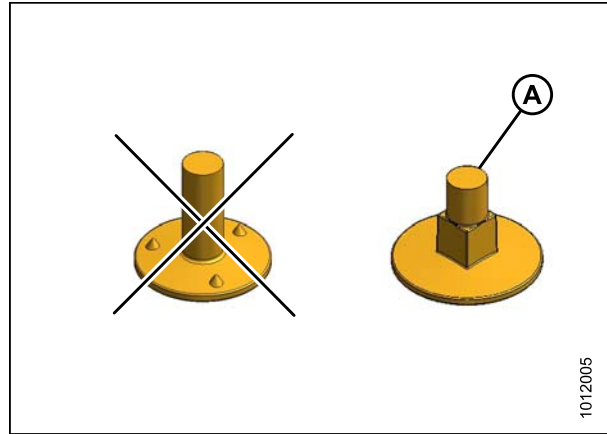


Figure 5.104: Square-Neck Elevator Bolts

8. Install M6 x 16 square neck elevator bolt (A) at center location, and install M6 x 23 square neck elevator bolt (B) at finger locations.
9. Install straps (C) and fingers (D) onto bolts, and secure with M6 flange nuts (E).
10. Torque M6 flange nuts (E) to 37–45 lbf·in (4–5 N·m).
11. Tension draper belts. Refer to [Adjusting Front Draper Belt Tension, page 69](#).

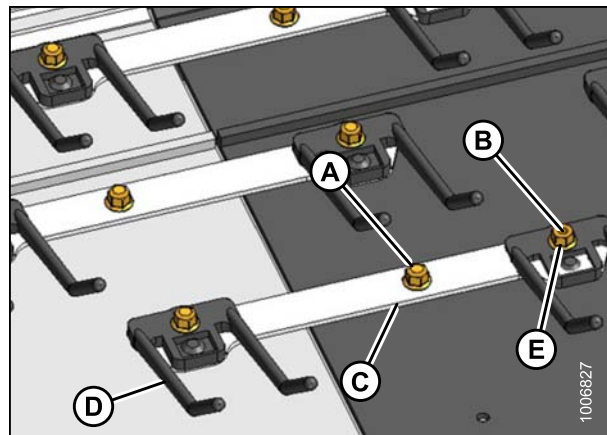


Figure 5.105: Front Draper Belt

### Removing Rear Draper Belt

#### **WARNING**

To avoid bodily injury from fall of raised hold-down, always engage reel props before going under raised reel for any reason.

#### **DANGER**

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

1. Raise the hold-down fully and engage lift cylinder safety props. Refer to [3.5 Hold-Down Lift Cylinder Safety Props, page 27](#).
2. Raise the header fully, and engage the combine lift cylinder safety props.
3. Stop engine and remove key from ignition.



## MAINTENANCE AND SERVICING

4. Release draper belt tension fully. Refer to [Adjusting Front Draper Belt Tension, page 69](#).
5. Remove seven M6 flange nuts (A), belt edge protector (B), and pronged elevator bolts (C) from belt (D) (if removing end belt).

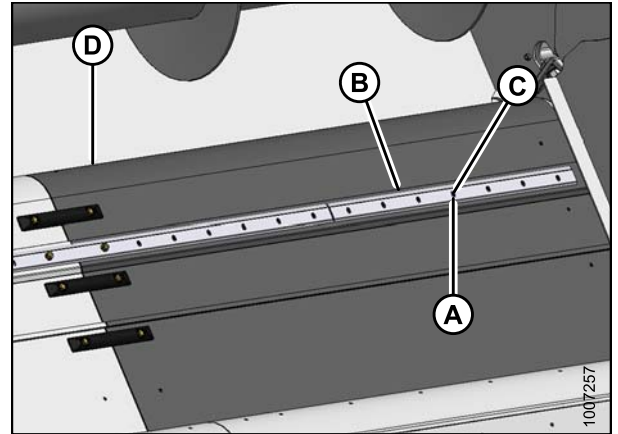


Figure 5.106: End Draper Belt

6. Remove M6 flange nuts (A), connector bar (B), and pronged elevator bolts (C) from belt (D).

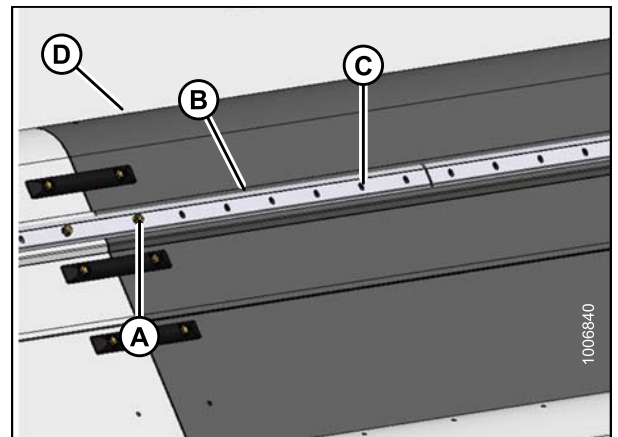


Figure 5.107: Front Draper Belt

7. Remove M6 flange nuts (A) and straps (B) connecting adjacent belts.
8. Remove elevator bolts (C).
9. Remove draper belt (D).

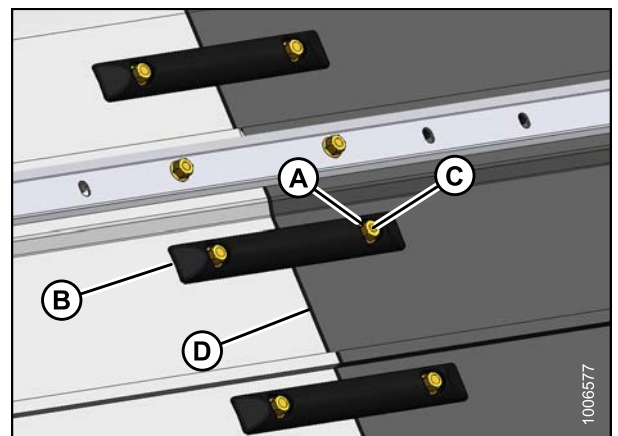


Figure 5.108: Front Draper Belt

*Installing Rear Draper Belt*

1. Wrap new draper belt (A) around the rollers with slats facing outwards.

**IMPORTANT:**

Arrow on belt (not shown) must point in direction of rotation.

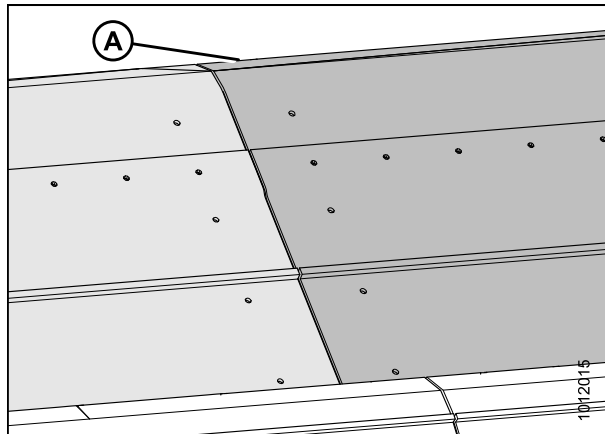


Figure 5.109: End Draper Belt

2. Connect draper belt using M6 x 15.5 pronged elevator bolts (A).

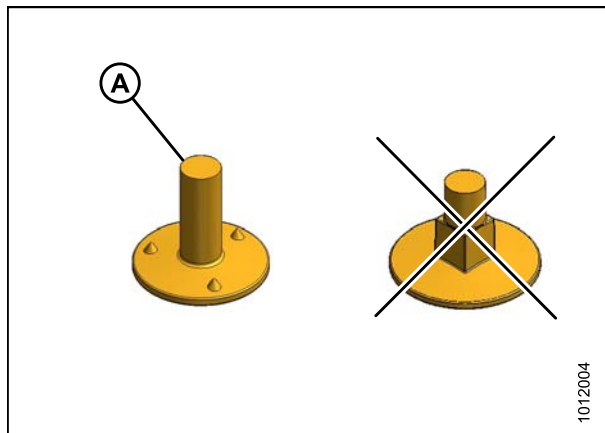


Figure 5.110: Pronged Elevator Bolts

3. Attach edge protector (B) to pronged elevator bolts (A) previously installed into belt (D), and secure with M6 flange nuts (C) (if installing end belt). Do not tighten.
4. Torque M6 flange nuts (C) to 37–45 lbf-in (4–5 N·m).

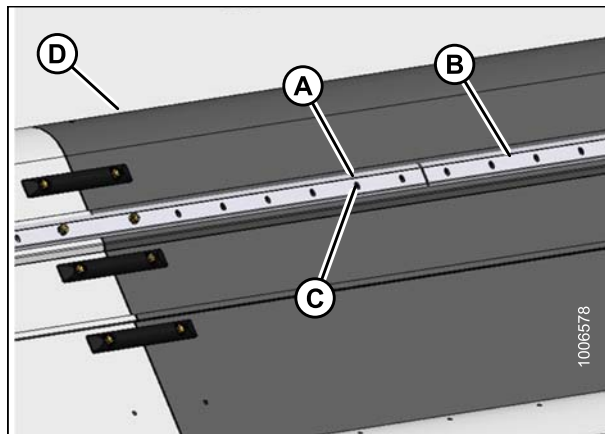


Figure 5.111: End Draper Belt

## MAINTENANCE AND SERVICING

5. Install two M6 x 16 square neck elevator bolts (A) at each strap location. Refer to Step 8., [page 177](#) for installation locations.

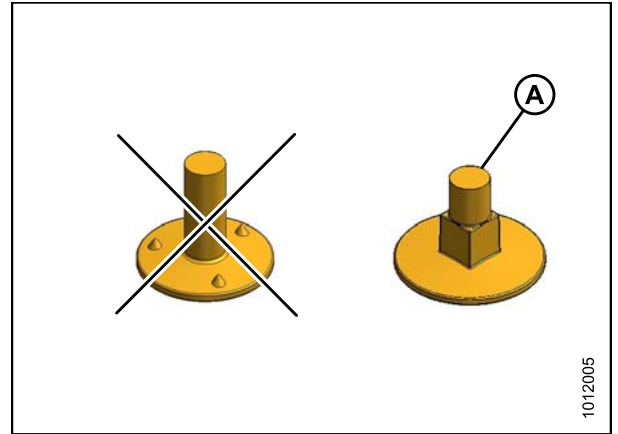


Figure 5.112: Square-Neck Elevator Bolts

6. Install connector bars (A) onto bolts, and secure with M6 flange nuts (B).
7. Torque M6 flange nuts (B) to 37–45 lbf·in (4–5 N·m).
8. Install two square neck elevator bolts (C) at each strap location.

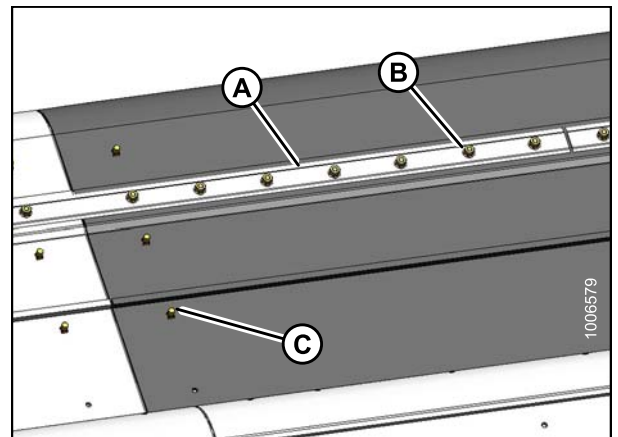


Figure 5.113: Front Draper Belt

9. Install straps (B) onto bolts, and secure with M6 flange nuts (A).
10. Torque M6 flange nuts (A) to 37–45 lbf·in (4–5 N·m).
11. Tension draper belts. Refer to [Adjusting Rear Draper Belt Tension, page 70](#).

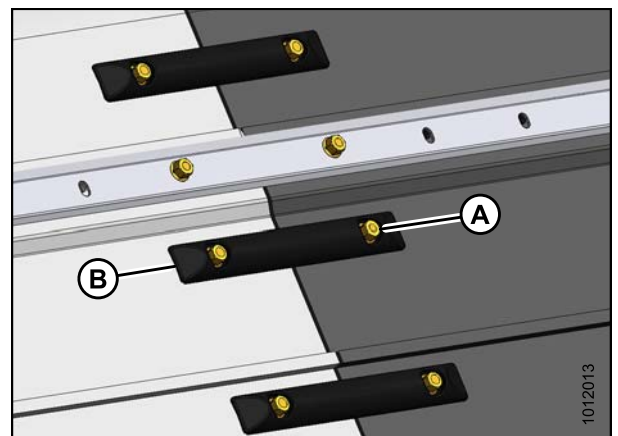


Figure 5.114: Front Draper Belt

## 5.7.2 Draper Fingers/Draper Guides

Replace any broken or worn fingers to maintain machine performance. Excessively worn fingers will reduce picking efficiency resulting in losses that far exceed the cost of new fingers.

The guides, which maintain draper tracking, are located along the outboard edge on the inside of the right draper belt on both decks. If any guide is worn enough to cause large amounts of draper tracking/shifting, replace the guide. Check to make sure the guides are aligned perpendicular to the direction of draper travel. Excessively worn or misaligned guides can cause the drapers to shift and ride up on the frame causing premature draper edge wear and draper tearing.

**NOTE:**

It may be necessary to remove the draper belt when replacing the fingers/guides. Refer to [Removing Front Draper Belt, page 171](#).

### Replacing Draper Fingers

1. Raise the hold-down fully, and engage lift cylinder safety props.
2. Raise the header fully, and engage the combine lift cylinder safety props.

**⚠ DANGER**

**Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.**

3. Stop engine and remove key from ignition.
4. Remove M6 flange nut (A) attaching finger (B) to the draper belt.
5. Remove finger (B) and replace with new finger.
6. Secure with M6 flange nut (A).
7. Torque flange nut (A) to 37–45 lbf·in (4–5 N·m).

**NOTE:**

Hold finger to prevent turning while tightening nut.

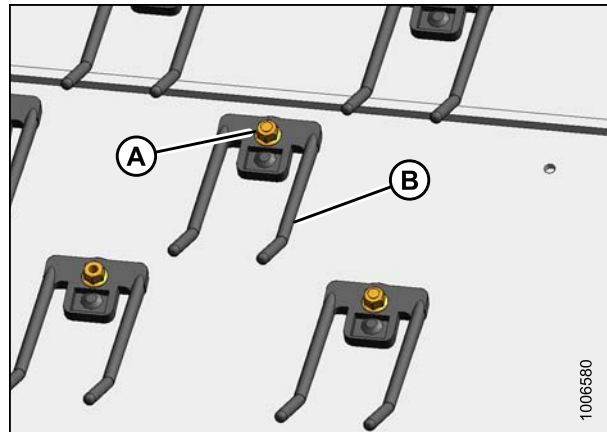


Figure 5.115: Draper Fingers

### Replacing Draper Guide

1. Raise the hold-down fully, and engage lift cylinder safety props.
2. Raise the header fully, and engage the combine lift cylinder props.

**⚠ DANGER**

**Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.**

3. Stop engine and remove key from ignition.

## MAINTENANCE AND SERVICING

4. Remove the M6 flange nut (A) and washer (B) attaching guide (C) to the draper belt (D). If guide is under a finger (E), remove the finger.
  5. Loosen draper belt as much as possible.
  6. Pull the draper belt away from the frame from under the deck to expose guide (C).
  7. Remove guide (C) and elevator bolt (F). Discard the old guide.
  8. Place a new guide (C) onto the M6 x 26 elevator bolt (F), and install onto the draper belt (D).
  9. Install M6 washer (B) and flange nut (A).
10. Use an M6 x 30 elevator bolt (A) if guide is in a finger location, and install the finger (B) **before** installing the flange nut (C).
  11. Torque flange nut (C) to 37–45 lbf·in (4–5 N·m). Hold the finger or guide to prevent turning while tightening nut.
- IMPORTANT:**  
Ensure guides (D) are perpendicular to the direction of draper travel.
12. Rotate draper belt manually to access all the guides.
  13. Retighten draper belt.

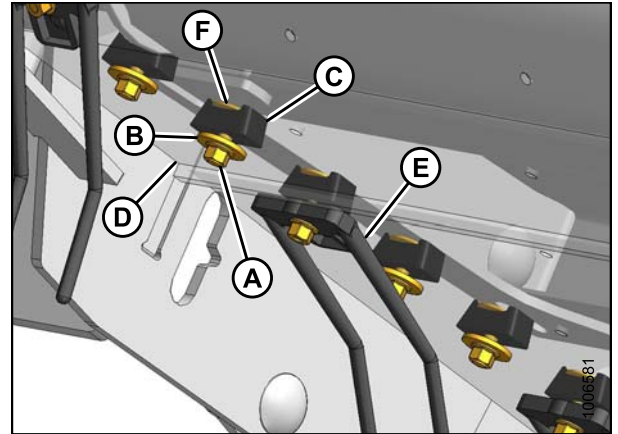


Figure 5.116: Draper Guide

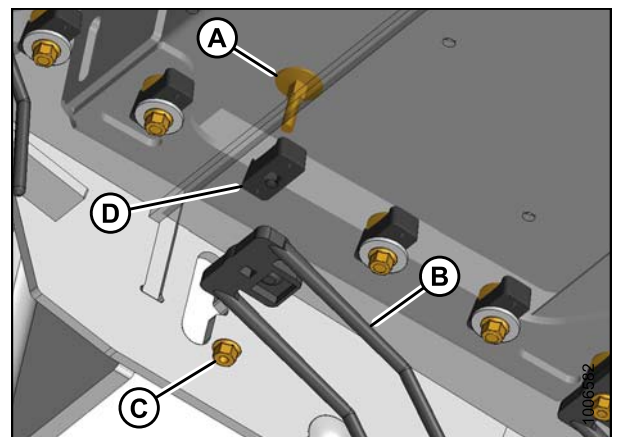


Figure 5.117: Draper Guide

### 5.7.3 Draper Deck Roller Bearings

Each draper deck roller is supported by two self-aligning, non-greasable roller bearings. Replace the roller bearings if they are worn or damaged.

1. Lower the hold-down fully.
2. Lower header to the ground until the two float springs are loose.

**⚠ DANGER**

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

3. Stop engine, and remove key from ignition.

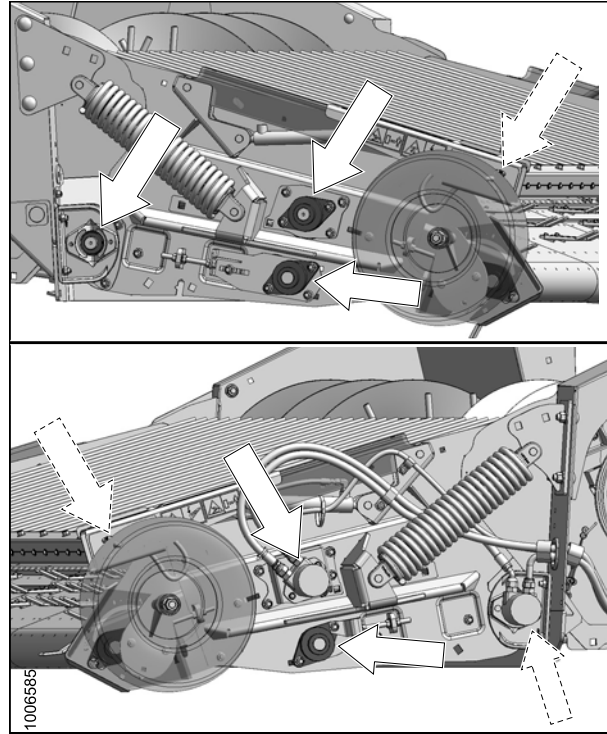


Figure 5.118: Draper Roll Bearings

#### Rear Deck

##### Replacing Rear Deck Left Side Drive Roller Bearing

1. Release draper belt tension fully. Refer to [Adjusting Rear Draper Belt Tension, page 70](#).
2. Support the deck at both ends by placing a wooden block (A) under the frame close to the bearing.

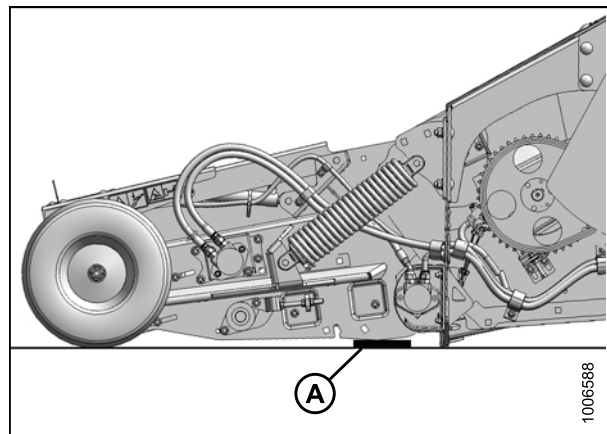


Figure 5.119: Wooden Block

## MAINTENANCE AND SERVICING

3. Open left-hand endshield (A). Refer to [3.3.1 Opening Left-Hand Endshield](#), page 23.

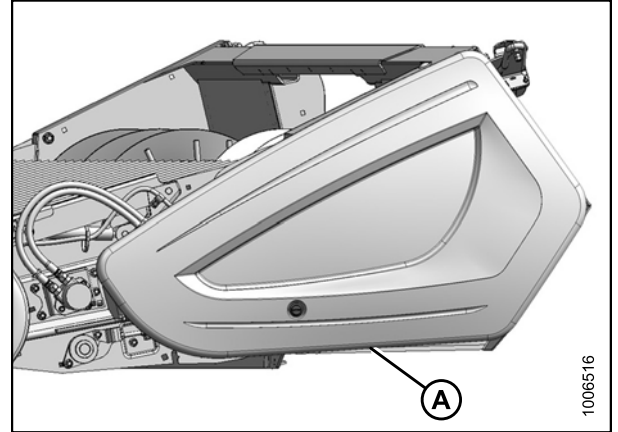


Figure 5.120: Left-Hand Endshield

4. Remove rear hydraulic motor (A). Refer to [Removing Rear Hydraulic Motor](#), page 149.

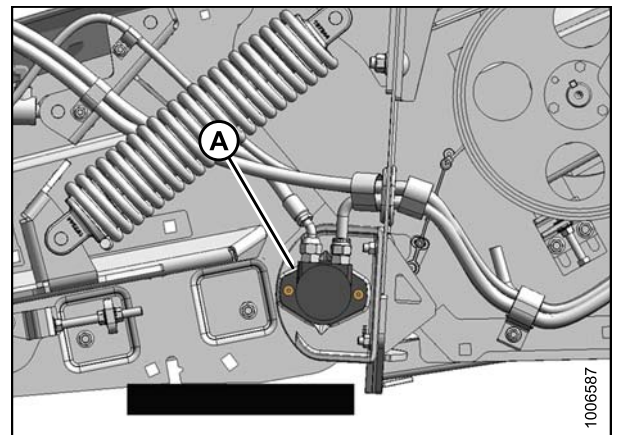


Figure 5.121: Rear Hydraulic Motor

5. Turn the roller manually until setscrew (A) in lock collar (B) lines up with the recess in bearing support (C).
6. Loosen setscrew (A) in lock collar (B) using a 6 mm hex key. Rotate collar counterclockwise to loosen and remove collar.

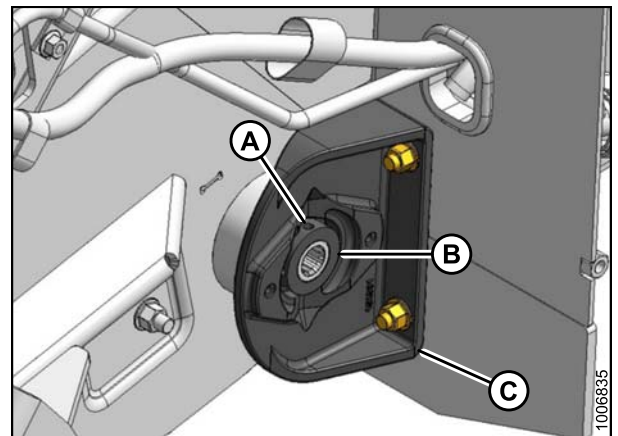


Figure 5.122: Left Side Rear Deck

## MAINTENANCE AND SERVICING

7. Ensure deck is fully supported and loosen float springs.
8. Remove the four nuts (A) attaching bearing support (B) to frame.

**NOTE:**

Ensure that height controller is not damaged when removing bolts.

9. Pull bearing support (B) off roller shaft.

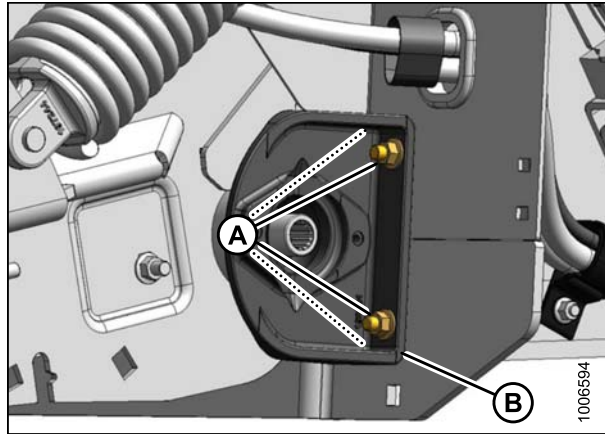


Figure 5.123: Left Side Rear Deck

**Replace bearing as follows:**

10. Swivel bearing (A) 90 degrees in support until outer race lines up with slots in bearing support.
11. Push out the bearing (A).

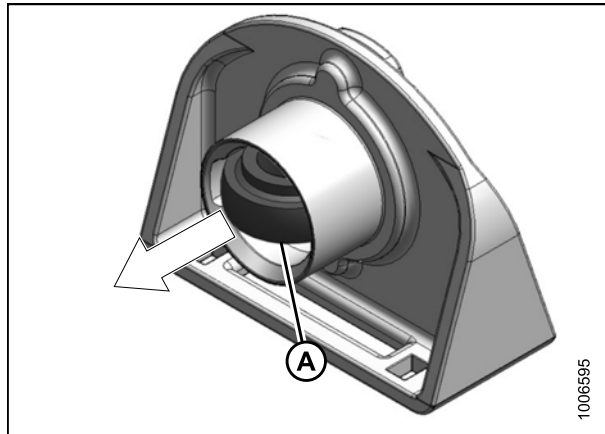


Figure 5.124: Left Side Rear Deck

12. Line up new bearing (A) with slots in bearing support, and push bearing into bearing support.
13. Swivel bearing 90 degrees and slide it into groove inside bearing support.

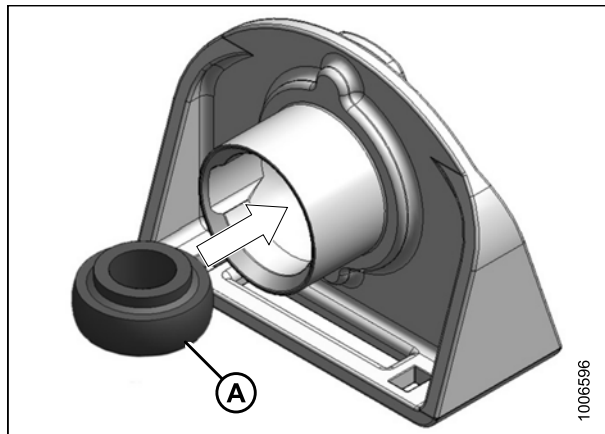


Figure 5.125: Left Side Rear Deck



## MAINTENANCE AND SERVICING

14. Remove and install new bushing (A) (if necessary).

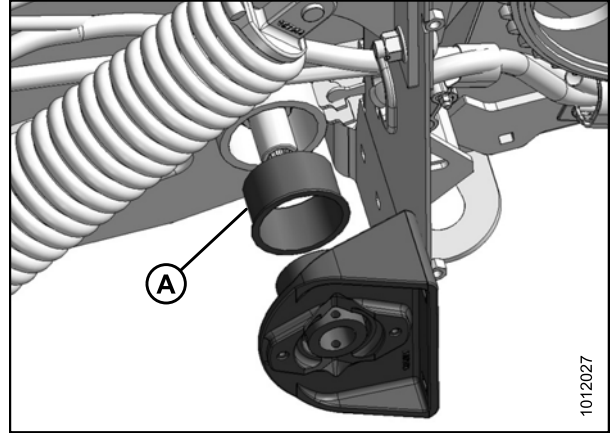


Figure 5.126: Left Side Rear Deck

15. Place bearing support (B) on roller shaft (A).
16. Position base of bearing assembly against frame, and align mounting holes.

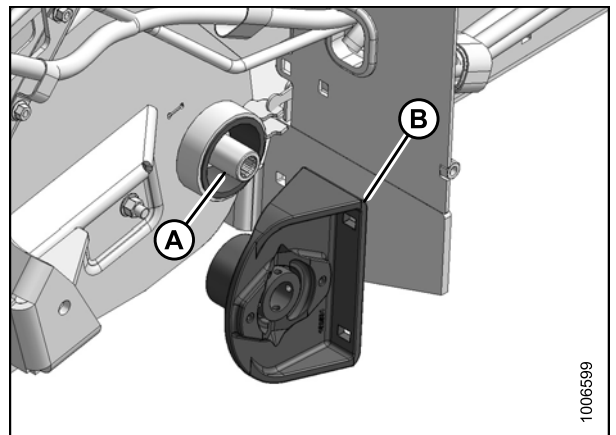


Figure 5.127: Left Side Rear Deck

17. Install two M12 x 30 carriage bolts (A) in the upper holes and two M12 x 40 carriage bolts (B) in the lower holes. Bolt heads must face aft. Secure with lock nuts.

**NOTE:**

Ensure height controller is not damaged when installing bolts.

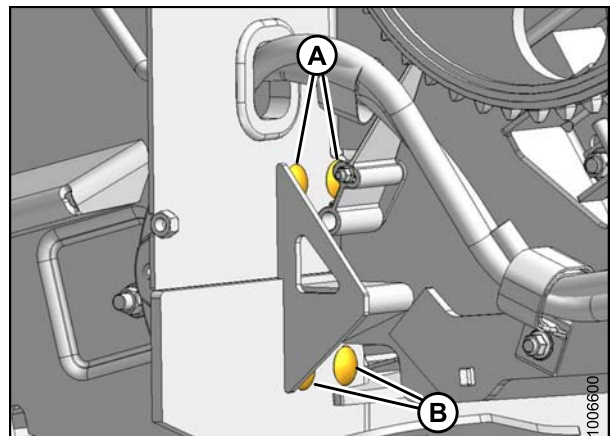


Figure 5.128: Left Side Rear Deck

## MAINTENANCE AND SERVICING

18. Install lock collar (B) onto bearing, and rotate clockwise until tight.
19. Turn the roller manually until setscrew (A) in lock collar (B) lines up with the recess in bearing support (C).
20. Tighten setscrew (A) using a 6 mm hex key.

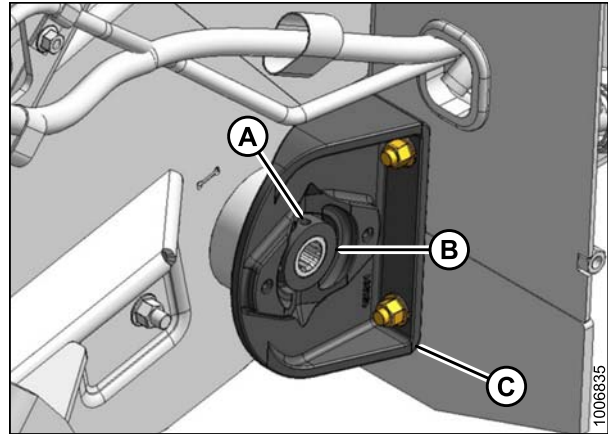


Figure 5.129: Left Side Rear Deck

21. Install the hydraulic motor. Refer to [Installing Rear Hydraulic Motor, page 150](#).

### Replacing Rear Deck Right Side Drive Roller Bearing

1. Release draper belt tension fully. Refer to [Adjusting Rear Draper Belt Tension, page 70](#).
2. Support the deck at both ends by placing a wooden block under the frame close to the bearing.
3. Check that the float springs are loose.

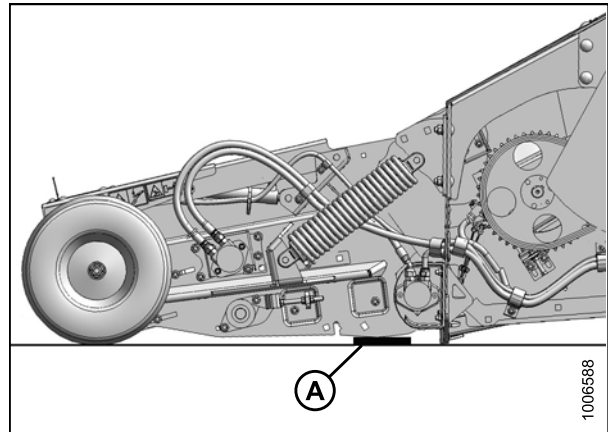


Figure 5.130: Wooden Block

4. Loosen nuts (A) on bearing support (B), remove draper speed sensor assembly, and move it clear of work area.

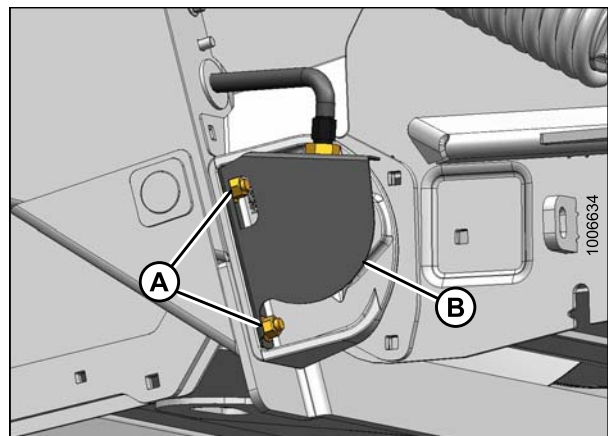


Figure 5.131: Right Side Rear Deck

## MAINTENANCE AND SERVICING

5. Remove screws (A), and remove cover (B) on inboard side of endsheet to access the bearing mounting bolts.

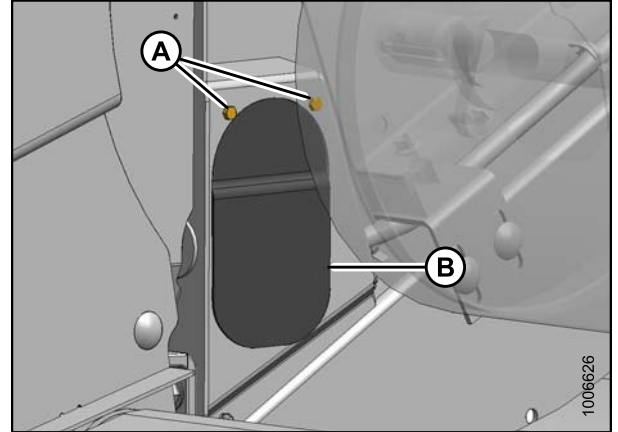


Figure 5.132: Right Side Rear Deck

6. Remove bolt (A), and remove speed sensor disk (B).

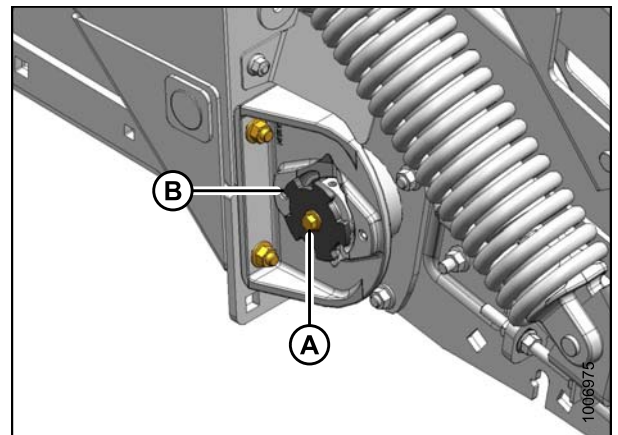


Figure 5.133: Right Side Rear Deck

7. Turn the roller manually until setscrew (A) in lock collar (B) lines up with the recess in bearing support (C).
8. Loosen setscrew (A) in lock collar (B) using a 6 mm hex key. Rotate collar clockwise to loosen and remove collar.

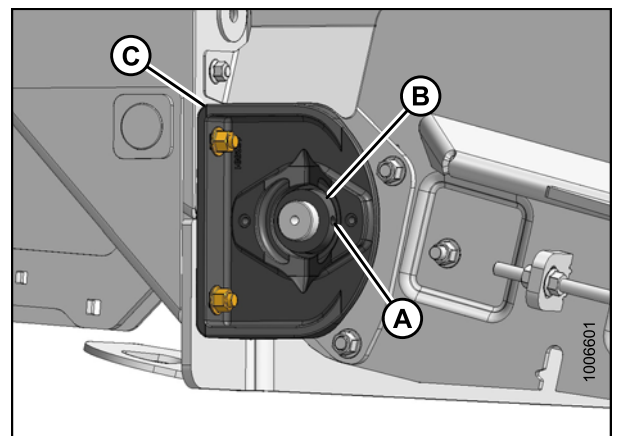


Figure 5.134: Right Side Rear Deck

## MAINTENANCE AND SERVICING

9. Ensure deck is fully supported and loosen float springs.
10. Remove the four nuts (A) attaching bearing support (B) to frame.

**NOTE:**

Ensure that height controller is not damaged when removing bolts.

11. Pull bearing support (B) off roller shaft.

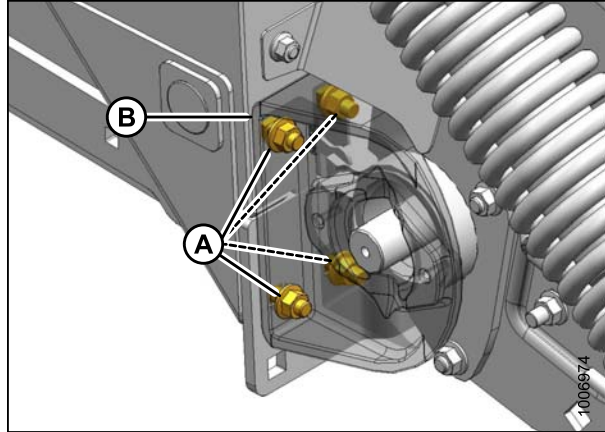


Figure 5.135: Right Side Rear Deck

**Replace bearing as follows:**

12. Swivel bearing (A) 90 degrees in support until outer race lines up with slots in bearing support.
13. Push out the bearing (A).

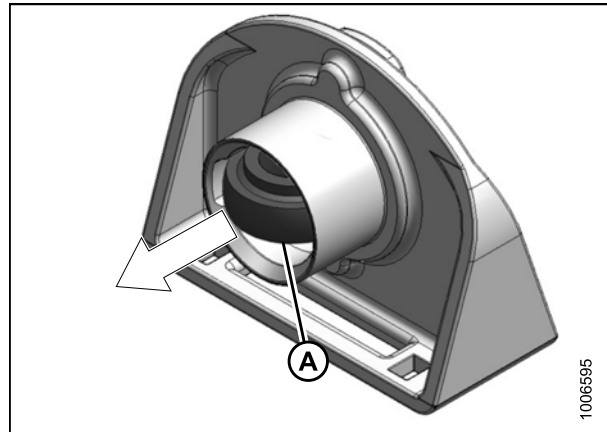


Figure 5.136: Right Side Rear Deck

14. Line up new bearing (A) with slots in bearing support, and push bearing into bearing support.
15. Swivel bearing 90 degrees and slide it into groove inside bearing support.

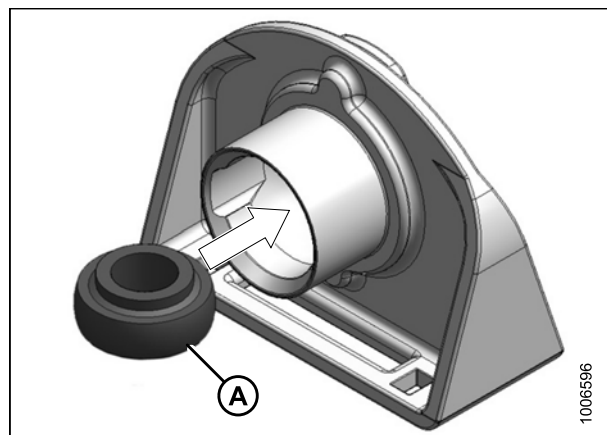
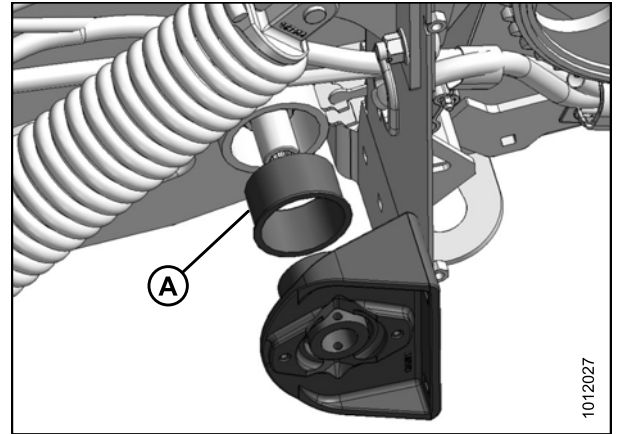


Figure 5.137: Right Side Rear Deck

## MAINTENANCE AND SERVICING

16. Remove and install new bushing (A) (if necessary).

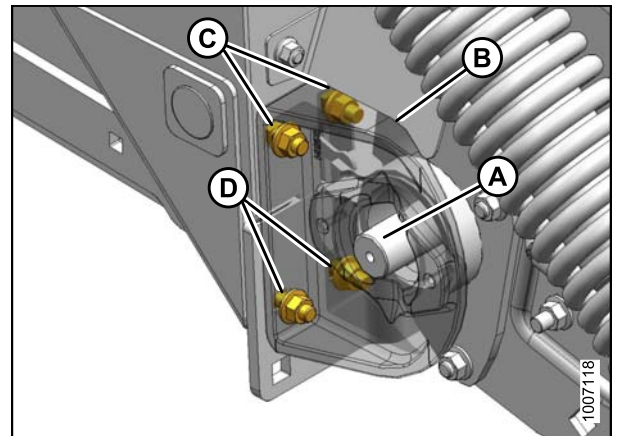


**Figure 5.138: Left Side Shown—Right Side Opposite**

17. Place bearing support (B) on roller shaft (A).
18. Position base of bearing support against frame, and align mounting holes.
19. Install two M12 x 30 carriage bolts (C) in the upper holes and two M12 x 40 carriage bolts (D) in the lower holes. Secure with lock nuts.

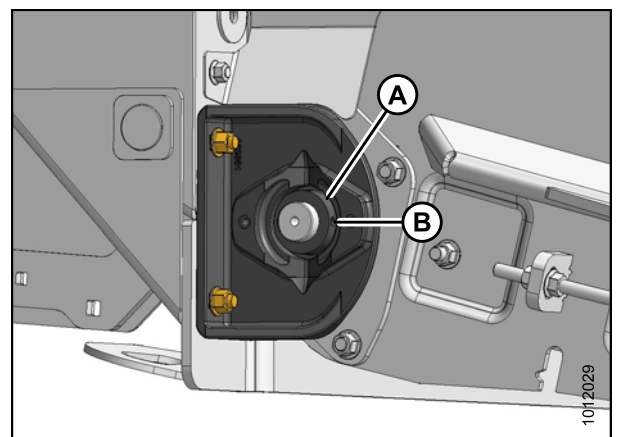
**NOTE:**

Ensure height controller is not damaged when installing bolts.



**Figure 5.139: Right Side Rear Deck**

20. Install lock collar (A) onto the bearing. Lock the collar in direction of shaft rotation, and tighten setscrew (B).

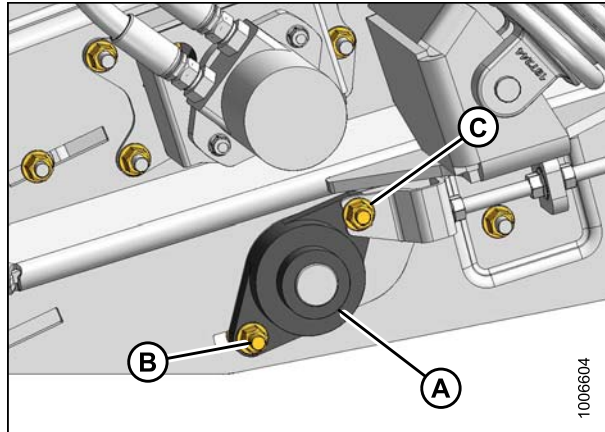


**Figure 5.140: Right Side Rear Deck**

21. Start combine, and raise header fully. Shut down combine, and remove key from ignition.
22. Remove wooden support.
23. Engage combine header lift cylinder safety props.
24. Tension the drapers. Refer to [Adjusting Rear Draper Belt Tension, page 70](#).

### Replacing Rear Deck Left Side Idler Roller Bearing

1. Open left endshield. Refer to [3.3.1 Opening Left-Hand Endshield, page 23](#).
2. Fully release draper belt tension. Refer to [Adjusting Rear Draper Belt Tension, page 70](#).
3. Loosen setscrew in lock collar (A) using a 6 mm hex key.
4. Loosen collar (A) by rotating collar counterclockwise.
5. Support the roller with a wooden block, and loosen bolts (B) and (C) securing bearing to frame.
6. Remove nuts on bolts (B) and (C).
7. Pull bearing off roller shaft.
8. Place new bearing on roller shaft, and align mounting holes.
9. Install the M12 x 45 carriage bolt (B) in the forward hole and the M12 x 40 carriage bolt (C) in the aft hole. Ensure bolt heads face inboard, secure with lock nuts, but do not fully tighten.
10. Install lock collar (A) onto bearing, and rotate collar clockwise until tight.
11. Tighten the setscrew using a 6 mm hex key.
12. Tension the drapers. Refer to [Adjusting Rear Draper Belt Tension, page 70](#).
13. Close the endshield. Refer to [3.3.2 Closing Left-Hand Endshield, page 24](#).



**Figure 5.141: Left Side Idler Bearing**

### Replacing Rear Deck Right Side Idler Roller Bearing

1. Open left endshield. Refer to [3.3.1 Opening Left-Hand Endshield, page 23](#).
2. Fully release draper belt tension. Refer to [Adjusting Rear Draper Belt Tension, page 70](#).

## MAINTENANCE AND SERVICING

- Loosen setscrew in lock collar (A) using a 6 mm hex key.
- Rotate collar (A) clockwise to loosen and remove collar.
- Support the roller with a wooden block, and loosen bolts (B) and (C) securing bearing to frame.
- Remove nuts on bolts (B) and (C).
- Pull bearing off roller shaft.
- Place new bearing on roller shaft and align mounting holes.
- Install the M12 x 45 carriage bolt (B) in the forward hole and the M12 x 40 carriage bolt (C) in the aft hole. Ensure bolt heads face inboard, secure with lock nuts, but do not fully tighten.
- Install lock collar (A) onto the bearing, and rotate lock collar counterclockwise until tight.
- Tighten the setscrew using a 6 mm hex key.
- Tension the drapers. Refer to [Adjusting Rear Draper Belt Tension, page 70](#).
- Close the endshield. Refer to [3.3.2 Closing Left-Hand Endshield, page 24](#).

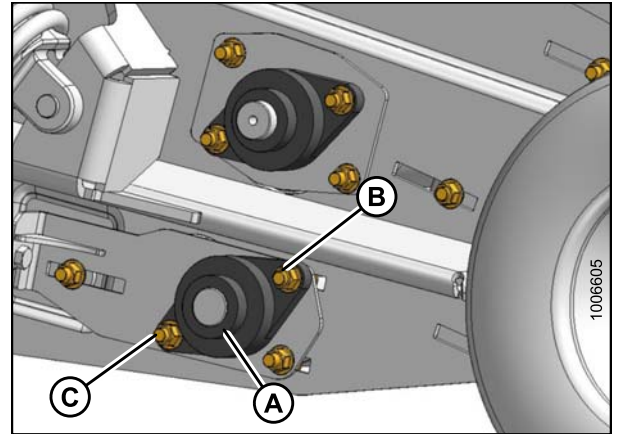


Figure 5.142: Right Side Idler Bearing

### Aligning Rear Draper Deck Rollers

Draper roller alignment is necessary for proper draper tracking. Perform this procedure after replacing a roller bearing.

- Lower the header to the ground, shut down the combine, and remove key from ignition.
- Open the left-hand endshield (A). Refer to [3.3.1 Opening Left-Hand Endshield, page 23](#).
- Remove the hydraulic motor from the rear roller on the front deck. Refer to [Removing Front Hydraulic Motor, page 147](#).
- Release the draper belt tension. Refer to [Adjusting Front Draper Belt Tension, page 69](#).

## MAINTENANCE AND SERVICING

5. Loosen the locking collar (A) and the three nuts (B) attaching the bearing flange to the frame on each side of the header.

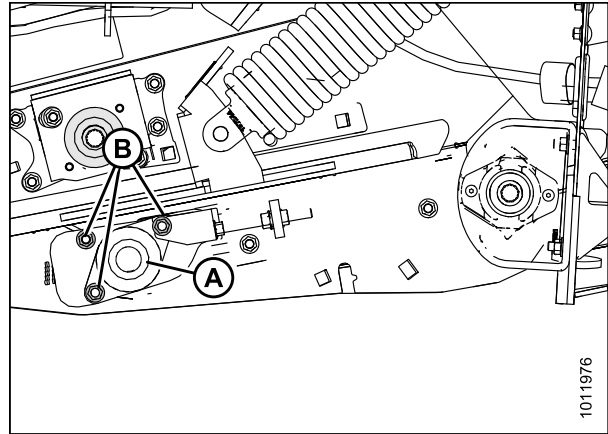


Figure 5.143: Left Side Rear Deck Idler Roller

6. Loosen the locking collar (A) and the three nuts (B) attaching the bearing flange to the frame on each side of the header.
7. Loosen locking bolt (C).

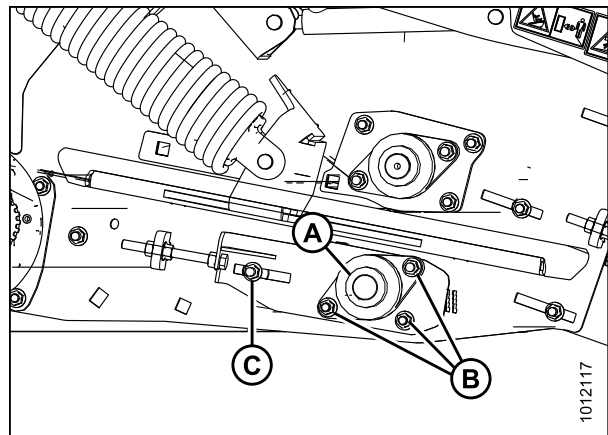


Figure 5.144: Right Side Rear Deck Idler Roller

8. Turn adjuster nut (A) and draw the rear draper deck roller assembly into the header until the leading edge (B) of the bearing support plate lines up with the single cutout (C) on each side of the header.

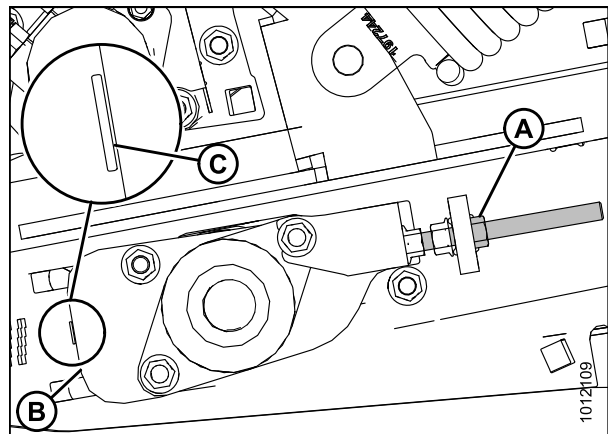
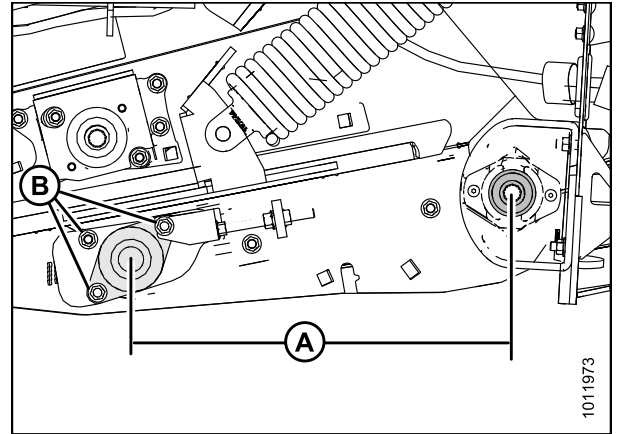


Figure 5.145: Left Side Rear Deck Shown—Right Side Opposite



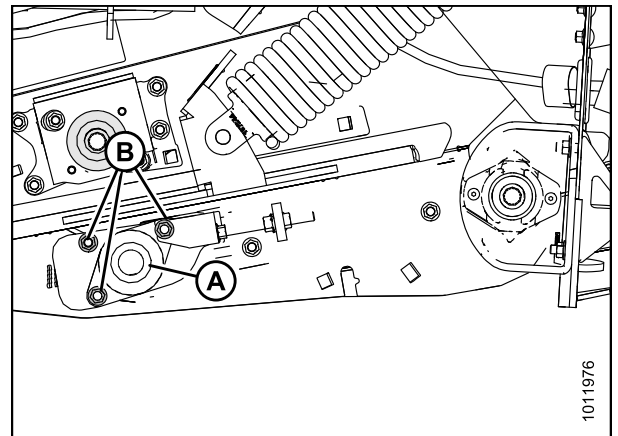
## MAINTENANCE AND SERVICING

9. Measure from the center of the rear drive roller to the center of the front driven roller. Set dimension (A) to 19.29 in (490 mm) on each side of the header.



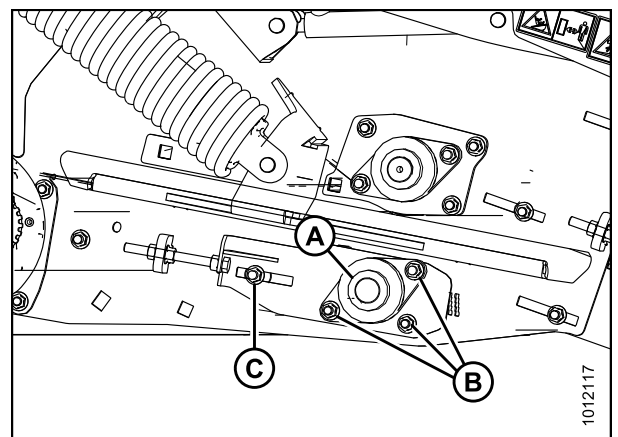
**Figure 5.146: Left Side Rear Deck Shown—Right Side Opposite**

10. Tighten the locking collar (A) and the three nuts (B) attaching the bearing flange to the frame on each side of the header.



**Figure 5.147: Left Side Rear Deck Idler Roller**

11. Tighten the locking collar (A) and the three nuts (B) attaching the bearing flange to the frame on each side of the header.
12. Tighten locking bolt (C).
13. Recheck measurement in Step 9., [page 191](#) to ensure nothing has moved while tightening the nuts on each side of the header.
14. Tension the draper belt. Refer to [Adjusting Front Draper Belt Tension, page 69](#).
15. Install the hydraulic motor from the rear roller on the front deck. Refer to [Installing Rear Hydraulic Motor, page 150](#).
16. Close the left-hand endshield (A). Refer to [3.3.2 Closing Left-Hand Endshield, page 24](#).



**Figure 5.148: Right Side Rear Deck Idler Roller**

Front Deck

Replacing Front Deck Left Side Drive Roller Bearing

1. Open left-hand endshield. Refer to [3.3.1 Opening Left-Hand Endshield, page 23](#).
2. Release draper belt tension fully. Refer to [Adjusting Front Draper Belt Tension, page 69](#).
3. Remove front hydraulic motor (A). Refer to [Removing Front Hydraulic Motor, page 147](#).

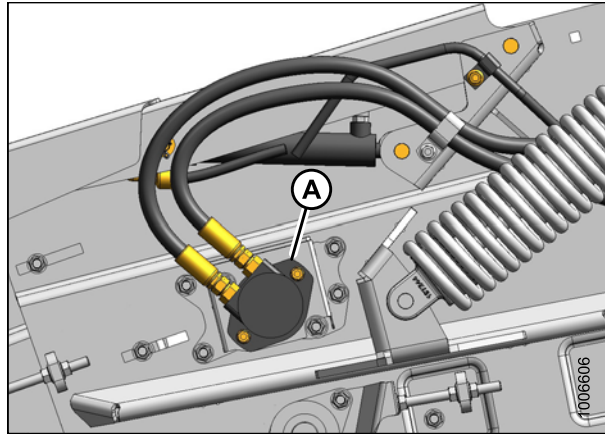


Figure 5.149: Front Hydraulic Motor

4. Turn roller manually until setscrew on collar (A) is accessible.
5. Loosen setscrew using a 6 mm hex key, and turn collar (A) counterclockwise to loosen and remove collar.
6. Support drive roller, and remove four M12 nuts from bolts (B) securing bearing housing (C) to frame using an 18 mm socket.

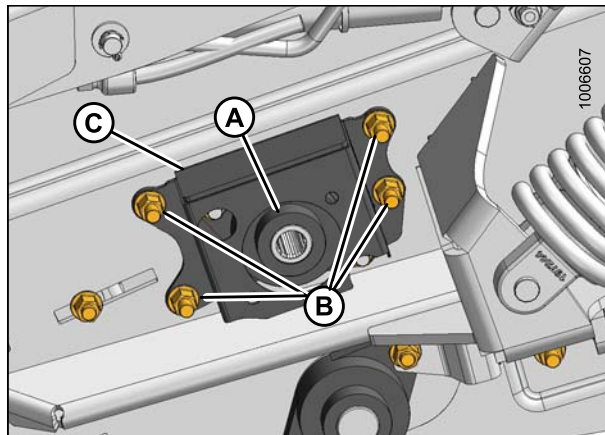


Figure 5.150: Left Side Front Deck

7. Pull bearing and housing (A) off the roller shaft.

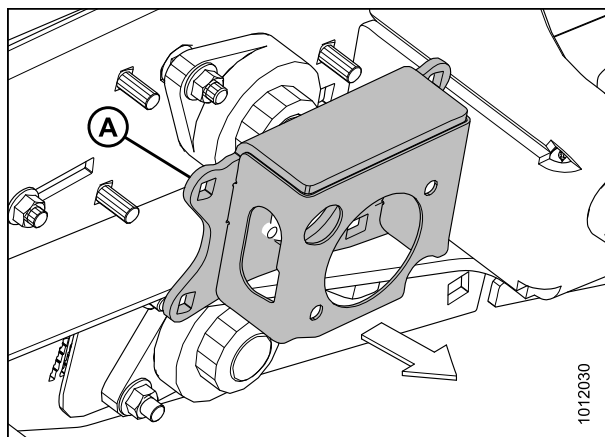


Figure 5.151: Left Side Front Deck

## MAINTENANCE AND SERVICING

- Remove two M12 bolts (A) securing bearing (B) to housing (C), and remove bearing.
- Install new bearing (B) into housing (C) using two M12 x 40 carriage bolts (A) and lock nuts (D).

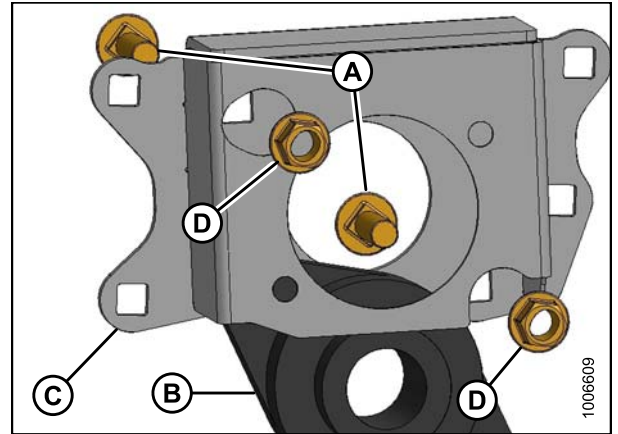


Figure 5.152: Left Side Front Deck

- Place bearing housing (A) onto roller shaft (B), and secure using four M12 x 35 bolts (C) (with bolt heads facing inboard) and lock nuts (D). Tighten lock nuts.

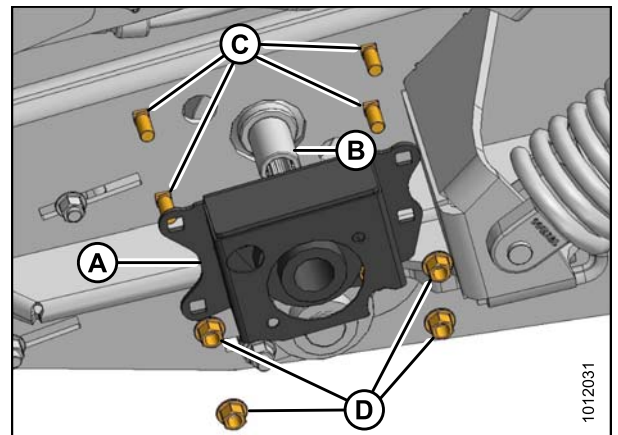


Figure 5.153: Left Side Front Deck

- Install lock collar (A) onto roller shaft, and turn clockwise until tight.
- Remove support under drive roller.
- Turn roller manually until setscrew in lock collar (A) is accessible.
- Tighten setscrew using a 6 mm hex key.
- Reinstall the hydraulic motor (A). Refer to [Installing Front Hydraulic Motor, page 148](#).
- Align the rollers. Refer to [Aligning Front Draper Deck Rollers, page 196](#).
- Tension the drapers. Refer to [Adjusting Front Draper Belt Tension, page 69](#).
- Close left-hand endshield. Refer to [3.3.2 Closing Left-Hand Endshield, page 24](#).

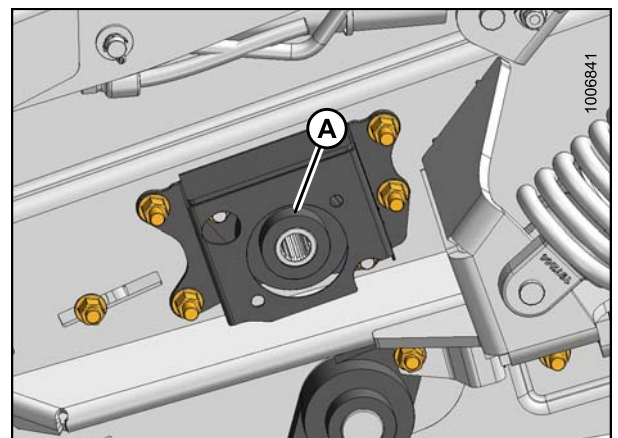


Figure 5.154: Left Side Front Deck

## MAINTENANCE AND SERVICING

### Replacing Front Deck Right Side Drive Roller Bearing

1. Release draper belt tension fully. Refer to [3.12.7 Draper Belt Tension, page 68](#).
2. Loosen setscrew in lock collar (A) using a 6 mm hex key.
3. Rotate lock collar (A) clockwise to loosen and remove collar.
4. Support the roller with a wooden block, and loosen two bolts (B) securing bearing (C) to frame.
5. Remove existing bearing (C) from roller shaft.
6. Place new bearing on roller shaft and align mounting holes.
7. Install M12 x 40 mounting bolts (B) (if previously removed) with heads facing inboard, and secure with lock nuts.
8. Install lock collar (A) onto the bearing (C), and rotate lock collar counterclockwise until tight.
9. Tighten the setscrew using a 6 mm hex key.
10. Tension the drapers. Refer to [3.12.7 Draper Belt Tension, page 68](#).

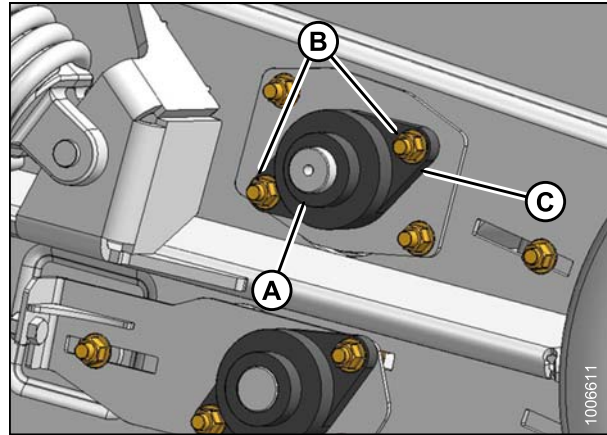


Figure 5.155: Right Side Front Deck

### Replacing Front Deck Idler Roller Bearings

#### NOTE:

The following describes the bearing replacement procedure for the **left side**—the procedure for the **right side** is identical.

1. Release draper belt tension fully. Refer to [Adjusting Front Draper Belt Tension, page 69](#).
2. Remove setscrew in lock collar (A) using a 6 mm hex key. Rotate lock collar (A) counterclockwise (clockwise for right side) to loosen and remove collar.
3. Support the roller with a wooden block, and loosen two nuts on bolts (B) attaching bearing to frame.

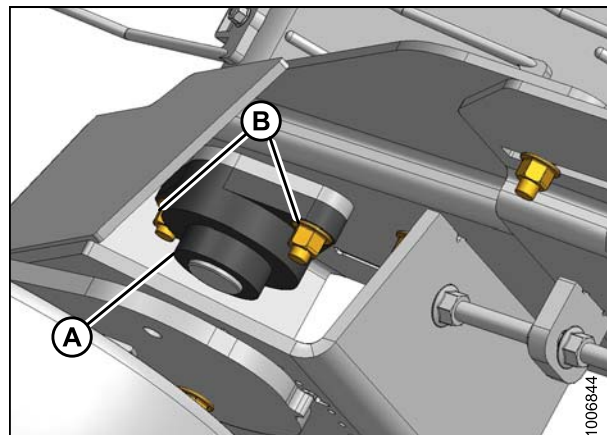
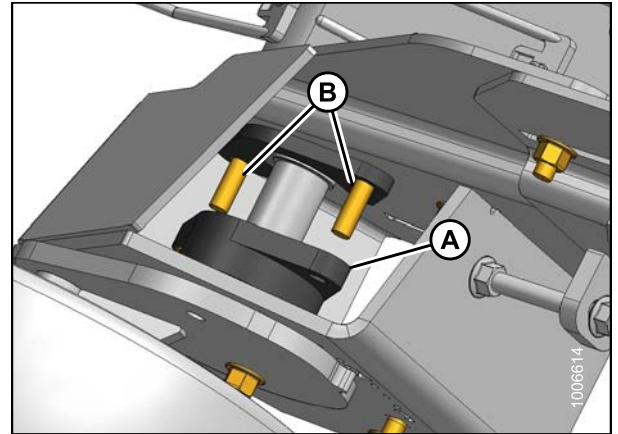


Figure 5.156: Left Side Front Deck – Right Side Opposite

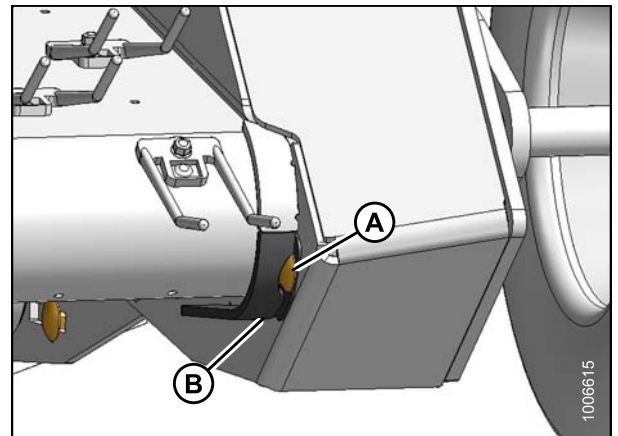
## MAINTENANCE AND SERVICING

4. Pull bearing assembly (A) off roller shaft and remove from frame.
5. Place new bearing assembly (A) onto roller shaft and bolts (B).
6. Position bearing against frame.



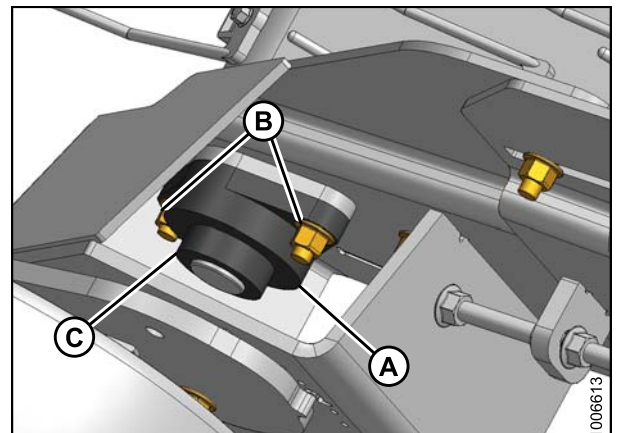
**Figure 5.157: Left Side Front Deck – Right Side Opposite**

7. Install bolt (A) (if previously removed), and ensure shield (B) is in place.



**Figure 5.158: Left Side Front Deck – Right Side Opposite**

8. Secure bearing (A) with lock nuts (B).
9. Install lock collar (C) onto bearing, and rotate lock collar clockwise (counterclockwise for right side) until tight.
10. Tighten the setscrew using a 6 mm hex key.
11. Remove support from under the roller.
12. Align the rollers. Refer to [Aligning Front Draper Deck Rollers, page 196](#).
13. Tension the drapers. Refer to [Adjusting Front Draper Belt Tension, page 69](#).



**Figure 5.159: Left Side Front Deck – Right Side Opposite**

### Aligning Front Draper Deck Rollers

Draper roller alignment is necessary for proper draper tracking. Perform this procedure after replacing a roller bearing.

1. Lower the header to the ground, shut down the combine, and remove key from ignition.
2. Open the left-hand endshield. Refer to [3.3.1 Opening Left-Hand Endshield, page 23](#).
3. Remove the hydraulic motor from the rear roller on the front deck. Refer to [Removing Front Hydraulic Motor, page 147](#).
4. Release draper belt tension fully. Refer to [Adjusting Front Draper Belt Tension, page 69](#).
5. Loosen the locking collar (A) and the two nuts (B) attaching the bearing flange to the frame on the driven roller on each side of the header.

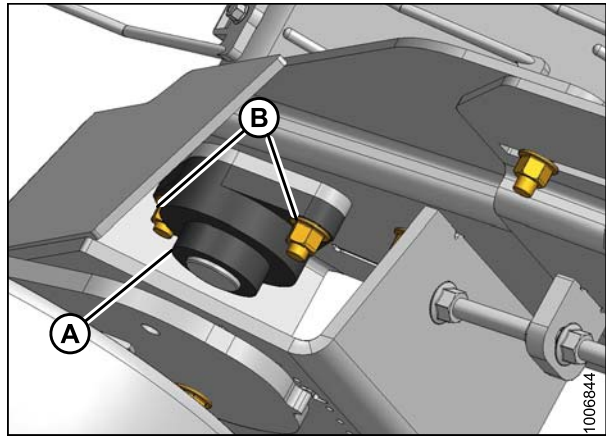


Figure 5.160: Front Deck Idler Roller

6. Loosen the locking collar (A) and the two nuts (B) attaching the bearing flange to the frame.

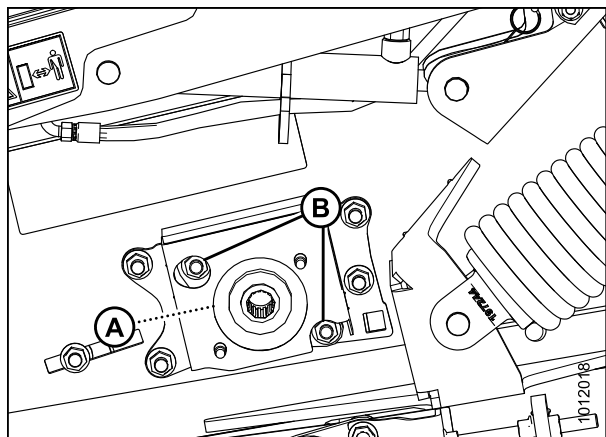
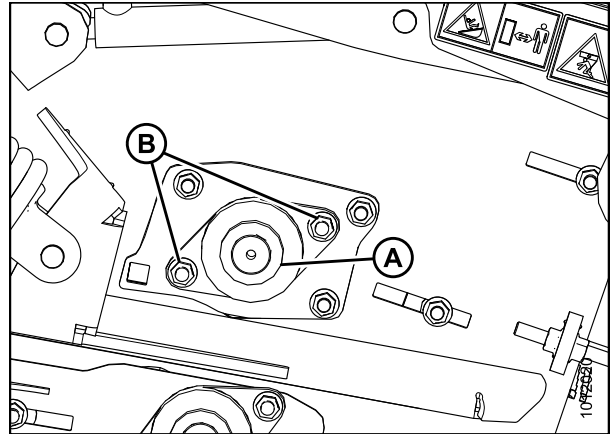


Figure 5.161: Left Side Front Deck Drive Roller

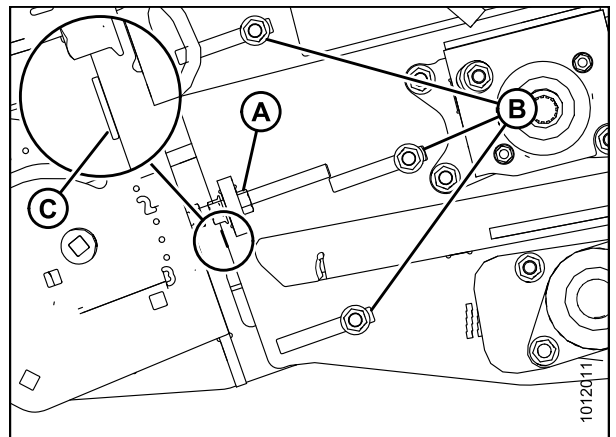
## MAINTENANCE AND SERVICING

7. Loosen the locking collar (A) and the two nuts (B) attaching the bearing flange to the frame.



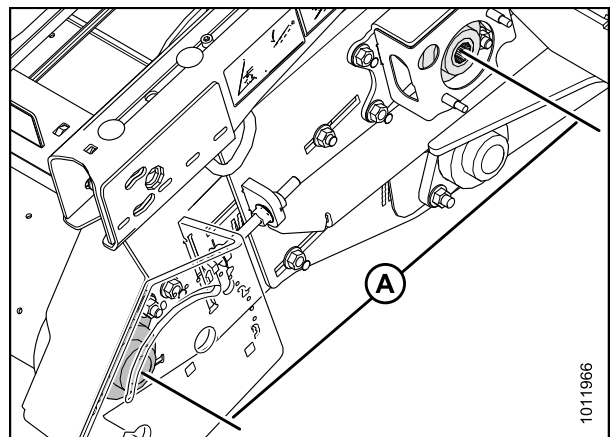
**Figure 5.162: Right Side Front Deck Drive Roller**

8. Turn adjuster nut (A) and draw the front draper deck roller assembly into the header until the edge of the header frame lines up with the single cutout (C) above the draper tension indicator cutout.
9. Tighten the three clamp bolts (B) on each side of the header.



**Figure 5.163: Left Side Front Deck – Right Side Opposite**

10. Measure from the center of the rear drive roller to the center of the front driven roller. Set dimension (A) to 19.29 in (490 mm). on each side of the header.



**Figure 5.164: Left Side Front Deck – Right Side Opposite**

## MAINTENANCE AND SERVICING

11. Tighten the locking collar (A) and the two nuts (B) attaching the bearing flange to the frame on the driven roller on each side of the header.

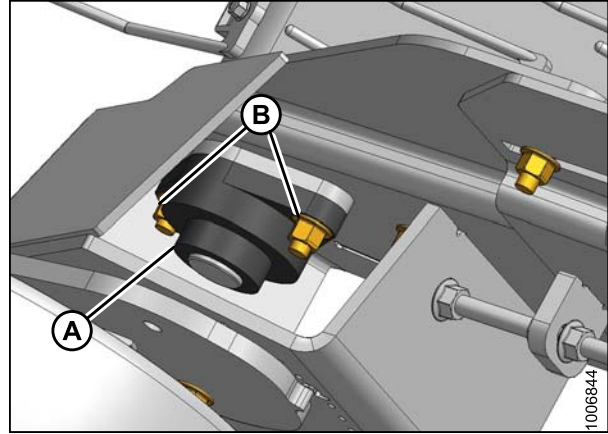


Figure 5.165: Front Deck Idler Roller

12. Tighten the locking collar (A) and the two nuts (B) attaching the bearing flange to the frame.

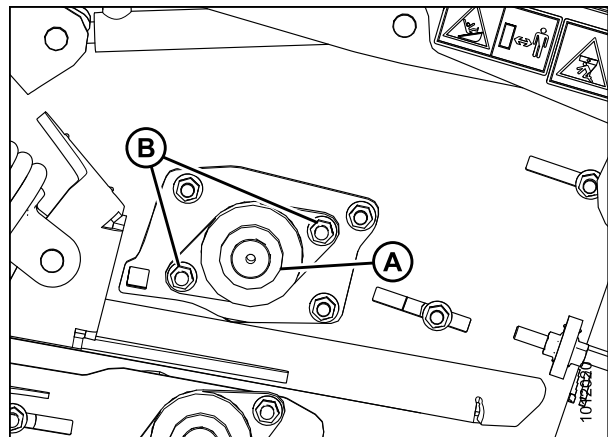


Figure 5.166: Right Side Front Deck Drive Roller

13. Tighten the locking collar (A) and the two nuts (B) attaching the bearing flange to the frame.
14. Recheck measurement in Step 10., page 197 to ensure nothing moved while tightening the nuts on each side of the header.
15. Tension the draper belt. Refer to [Adjusting Front Draper Belt Tension, page 69](#).
16. Install the hydraulic motor from the rear roller on the front deck. Refer to [Installing Front Hydraulic Motor, page 148](#).
17. Close the left-hand endshield (A). Refer to [3.3.2 Closing Left-Hand Endshield, page 24](#).

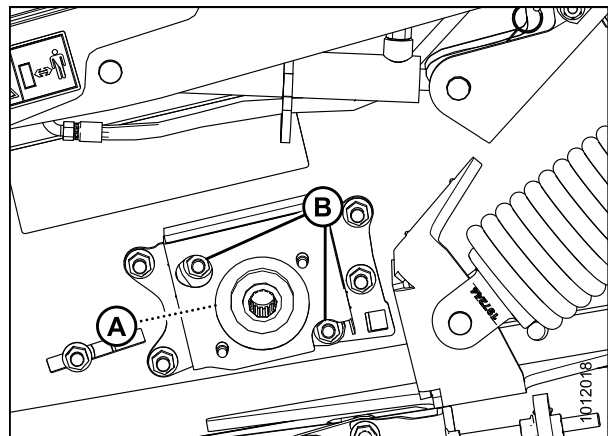


Figure 5.167: Left Side Front Deck Drive Roller



## 5.8 Header Spring Float Assembly

### 5.8.1 Removing Header Spring Float Assembly

1. Attach the header to the combine feeder house and ensure it is latched securely. It is not necessary to hookup the driveline or hydraulics. Refer to the relevant combine attaching procedure:
  - [Attaching to Case IH Combine, page 33](#)
  - [Attaching to John Deere 60, 70, and S Series Combine, page 40](#)
  - [Attaching to New Holland CR/CX Series Combine, page 46](#)

#### DANGER

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

2. Lower combine feeder house so the front draper deck is rotated upward to full floated-up position. Header frame will be close to the ground and coil spring will be fully collapsed.
3. Shut down combine and remove key from ignition.
4. Open left-hand endshield (A) (refer to [3.3.1 Opening Left-Hand Endshield, page 23](#)).

#### NOTE:

The right side spring float assembly can be removed or adjusted without removing the right-hand endshield. For improved accessibility, remove four M12 carriage bolts and hex flange nuts from endshield support (not shown), and remove right-hand endshield.

5. Ensure all spring tension is released from the spring float assembly (A), remove cotter pin (B), clevis pin (C), and three flat washers (D).

#### NOTE:

When spring tension is fully released, spring coils should not be pulled apart and the spring float assembly should rock from side to side when moved by hand. If pressure on the clevis pin persists, slightly raise or lower the header.

#### IMPORTANT:

Note the spring float assembly position on the anchor, and ensure the left and right assemblies are set to the same anchor hole position during installation or draper deck damage could result.

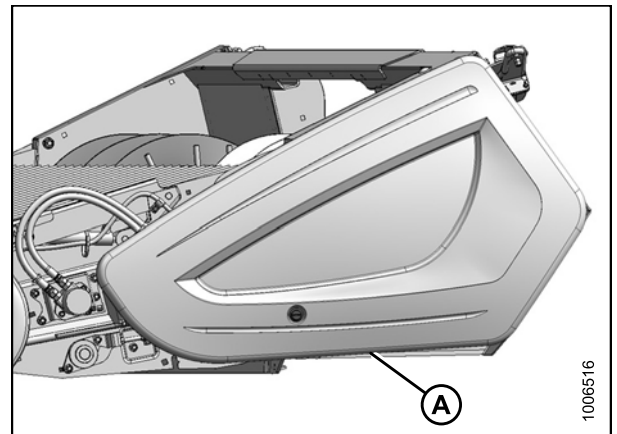


Figure 5.168: Left-Hand Endshield

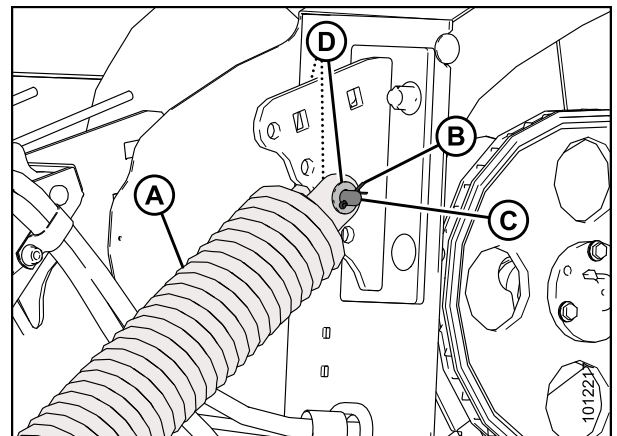


Figure 5.169: Left Side Spring Float Assembly Shown – Right Side Opposite

## MAINTENANCE AND SERVICING

- Remove cotter pin (B), clevis pin (C), and three flat washers (D) from spring float assembly (A) at front anchor.
- Remove spring float assembly (A).

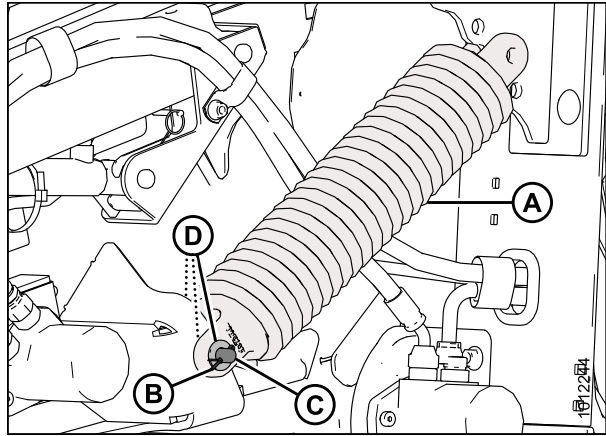


Figure 5.170: Left Side Front Anchor Shown – Right Side Opposite

### 5.8.2 Installing Header Spring Float Assembly

- Position rod end (D) of spring float assembly (A) onto anchor (B), and position opposite end of assembly onto front anchor (C).

**IMPORTANT:**

The word **ROD** (D) is stamped onto the casting to indicate which side of the spring float assembly (A) contains the rod end of the shock. Ensure the rod end of the shock is installed onto anchor (B) as shown.

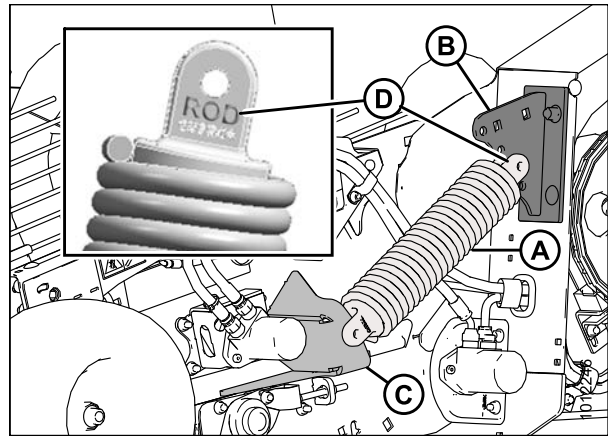


Figure 5.171: Left Side Anchors Shown – Right Side Opposite

- Insert clevis pin (A) from the inboard side through spring float assembly (B), three flat washers (C), and front anchor (D) as shown. Secure with cotter pin (E).

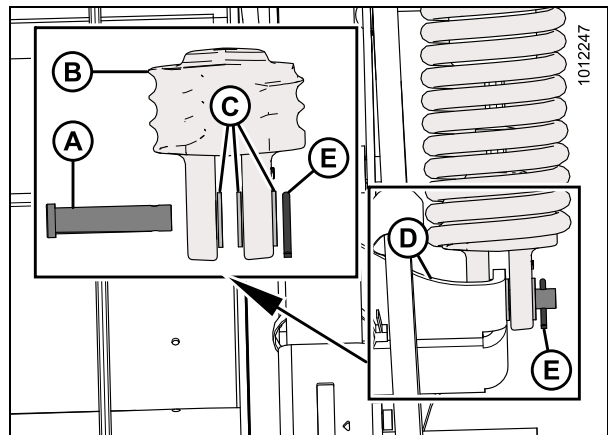


Figure 5.172: Left Side Spring Float Assembly Shown – Right Side Opposite

## MAINTENANCE AND SERVICING

- Align spring float assembly (A) with anchor hole (B) noted in [5.8.1 Removing Header Spring Float Assembly, page 199](#), or refer to [3.12.4 Adjusting Header Float, page 62](#) to change the header float setting.

### IMPORTANT:

The left and right spring float assemblies must be set to the same anchor hole position or draper deck damage could result.

### NOTE:

If the spring float assembly (A) hole does not align with anchor hole (B), raise or lower header as necessary.

- Insert clevis pin (A) from the inboard side through rod end of spring float assembly (B), three flat washers (C), and anchor (D) as shown. Secure with cotter pin (E).

- Close left-hand endshield (refer to [3.3.2 Closing Left-Hand Endshield, page 24](#)), and replace right-hand endshield if previously removed.

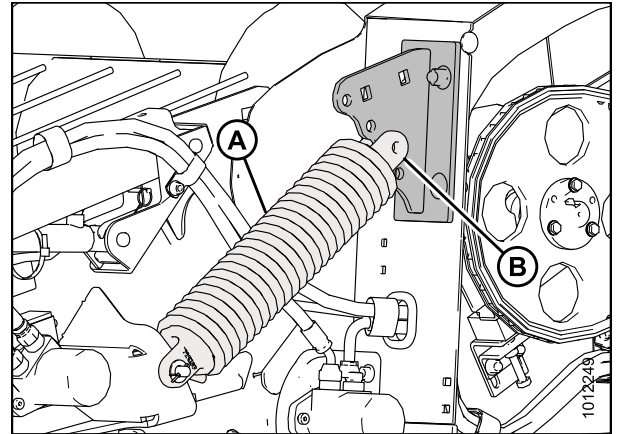


Figure 5.173: Left Side Anchor Shown – Right Side Opposite

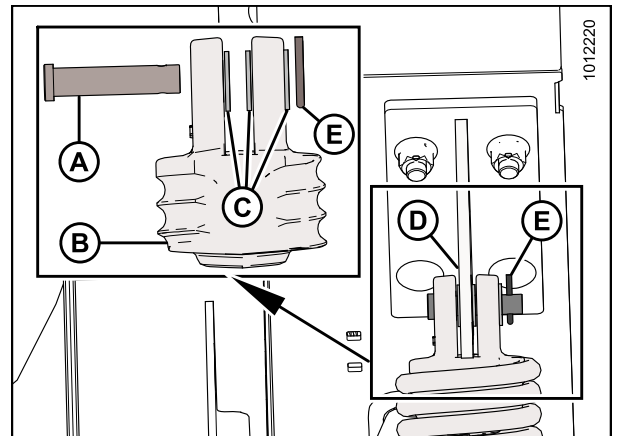


Figure 5.174: Left Side Spring Float Assembly Shown – Right Side Opposite

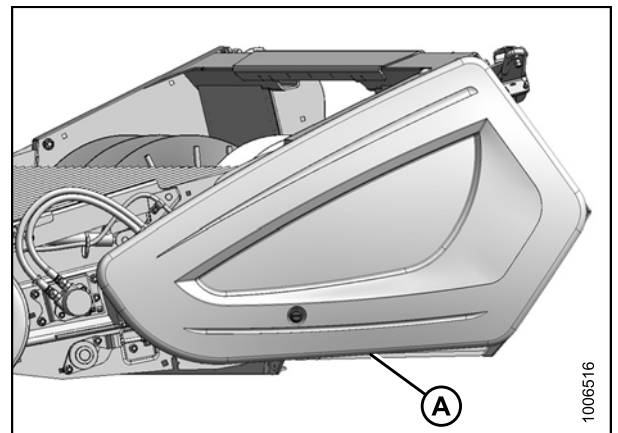


Figure 5.175: Left-Hand Endshield

## 5.9 Hold-Downs

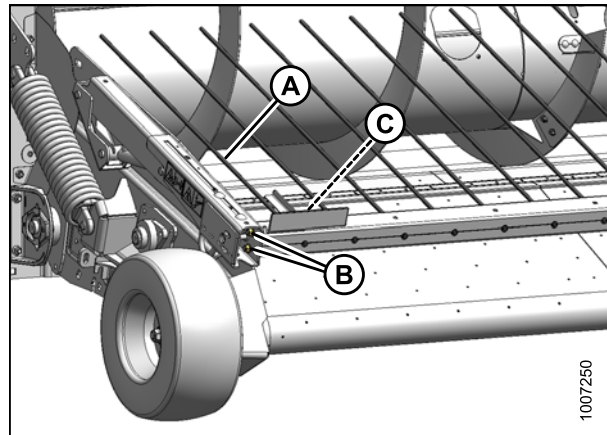
### 5.9.1 Replacing Fiberglass Rods

1. Lower hold-down, and lower header to the ground.

**⚠ DANGER**

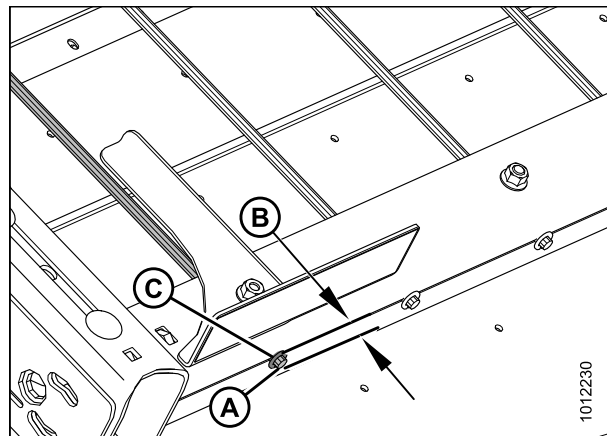
**Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.**

2. Shut down combine, and remove key from ignition.
3. Loosen flange nuts (B) securing hold-down bar to hold-down arms on outer rods (A), and loosen nut (C) next to rod.



**Figure 5.176: Outer Fiberglass Rod**

4. Slide out existing rod (A), and replace with new rod. Ensure rod extends 3/8 in. (10 mm) (B) beyond plastic sleeve (C).



**Figure 5.177: Outer Fiberglass Rod**

- Tighten nuts (B) and (C).

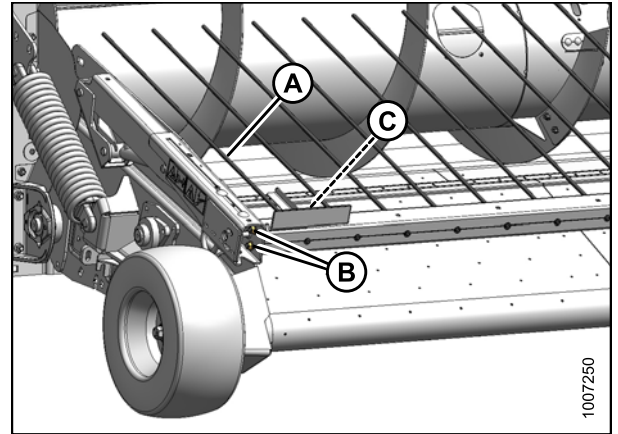


Figure 5.178: Outer Fiberglass Rod

- Loosen adjacent nuts (B) on remaining rods (A), and repeat Step 4., [page 202](#).
- Tighten nuts (B).

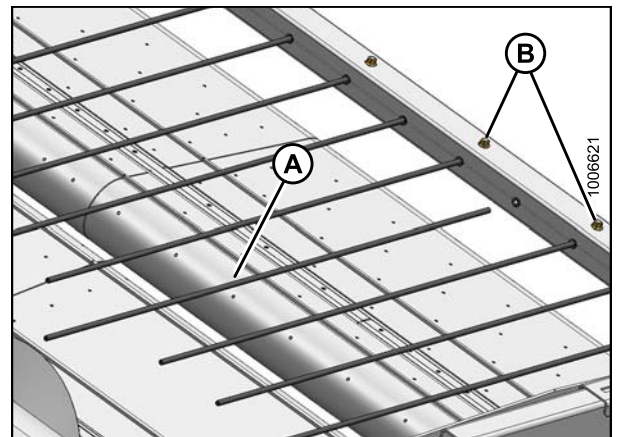


Figure 5.179: Fiberglass Rods

## 5.9.2 Replacing Hold-Down Hydraulic Cylinders

The hold-down is raised and lowered by two single-acting hydraulic cylinders.

Cylinder operation is adversely affected by air in the system or cylinder seal failure. Remove, repair, or replace cylinders if either of these issues arise.

### Master Cylinder

The master cylinder is located at the left end of the hold-down.

### Removing Master Cylinder

- Lower header to the ground.



**Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.**

- Release all hydraulic pressure in the system.
- Open left-hand endshield. Refer to [3.3.1 Opening Left-Hand Endshield, page 23](#).

## MAINTENANCE AND SERVICING

4. Remove cotter pins (A) and washers (B) from clevis pins (C) and (D).
5. Raise hold-down (E) by hand, use a prop device to support hold-down and take the weight off of cylinder (F), and remove clevis pin (C) at barrel end of cylinder. Cylinder should drop free from hold-down arm.

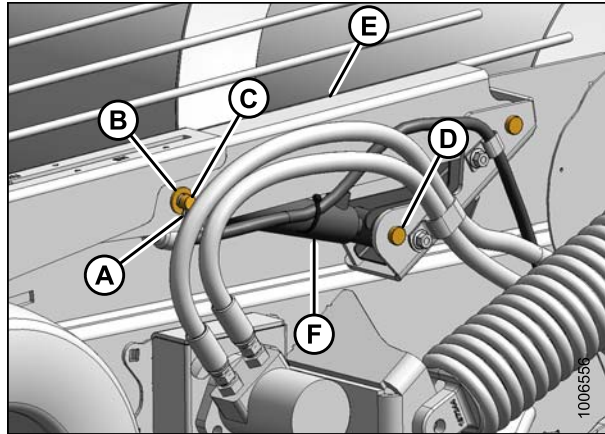


Figure 5.180: Left Side Master Cylinder

6. Insert a block of wood between the hold-down arm (A) and the pick-up to keep the hold-down elevated and clear of the work area.

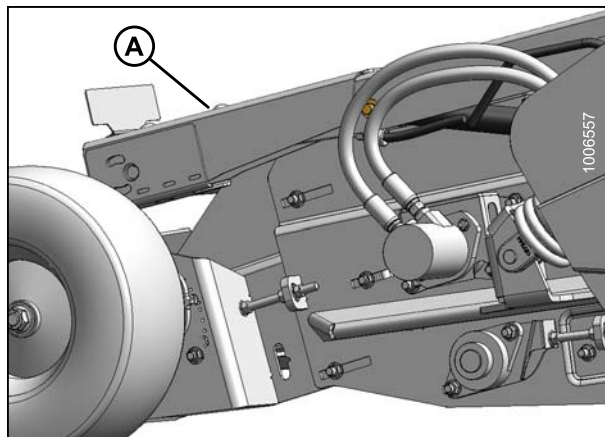


Figure 5.181: Block Location

7. Remove clevis pin (A) at rod end of cylinder, and remove cylinder and safety prop (B).

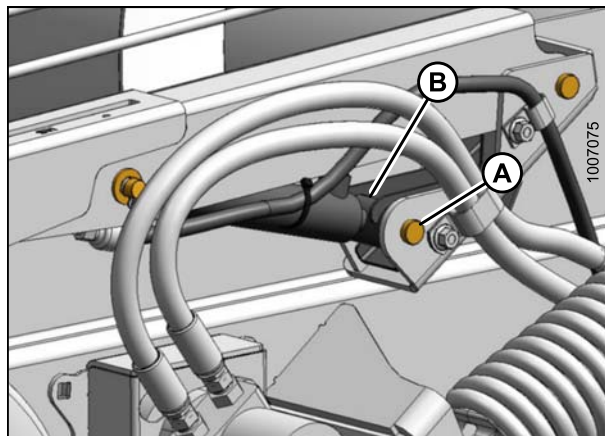


Figure 5.182: Left Side Master Cylinder

## MAINTENANCE AND SERVICING

8. Cut cable ties on hoses (A) and (B), and disconnect hoses from cylinder. Install caps onto hose ends or wrap with plastic.

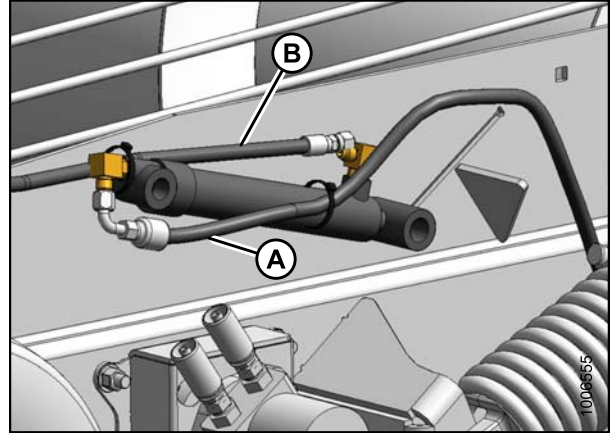


Figure 5.183: Left Side Master Cylinder

### Installing Master Cylinder

1. Install a new master cylinder as follows:
  - a. Remove the two 90 degree elbows (A) and (B) from existing master cylinder.
  - b. Remove plugs from new master cylinder ports.
  - c. Install elbows (A) and (B) onto new master cylinder as shown (C). Tighten jam nuts on elbows.

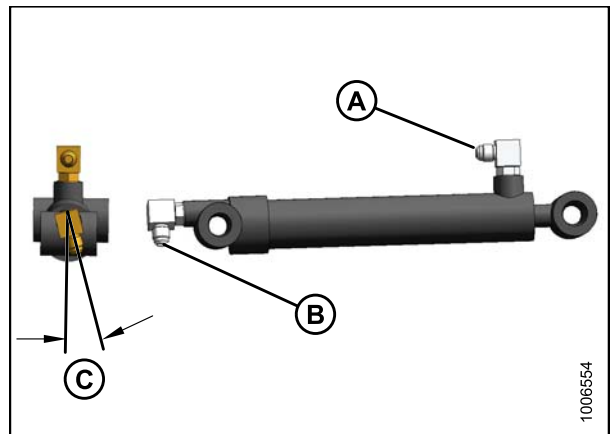


Figure 5.184: Left Side Master Cylinder

2. Connect hose (A) from slave cylinder to elbow (C) at rod (aft) end, and hose (B) from header to elbow (D) at barrel (forward) end. Tighten fittings ensuring hose (B) is routed parallel to the cylinder.

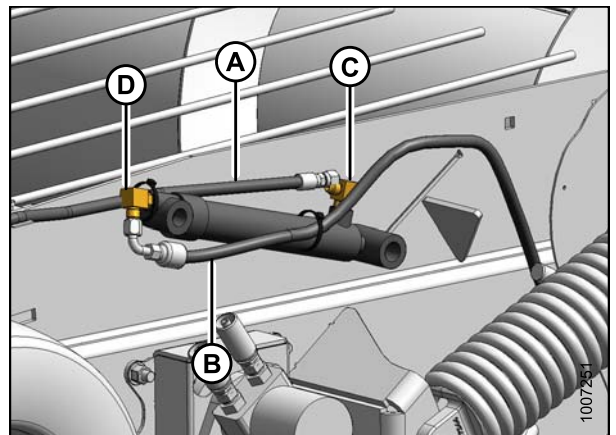


Figure 5.185: Left Side Master Cylinder

## MAINTENANCE AND SERVICING

3. Position rod end of cylinder (F) and safety prop into cylinder support bracket, and secure with the shorter clevis pin (D). Ensure clevis pin head faces outboard.
4. Secure clevis pin (D) with washer and cotter pin (not shown).
5. Lift hold-down arm (E) until clevis pin (C) can be installed through lift arm and barrel end of cylinder. Ensure clevis pin head faces outboard.
6. Secure with washer (B) and cotter pin (A).
7. Secure hoses with cable ties.
8. Remove previously inserted block of wood.
9. Bleed cylinders and lines. Refer to [Bleeding Cylinders and Lines, page 209](#).
10. Close left-hand endshield. Refer to [3.3.2 Closing Left-Hand Endshield, page 24](#).

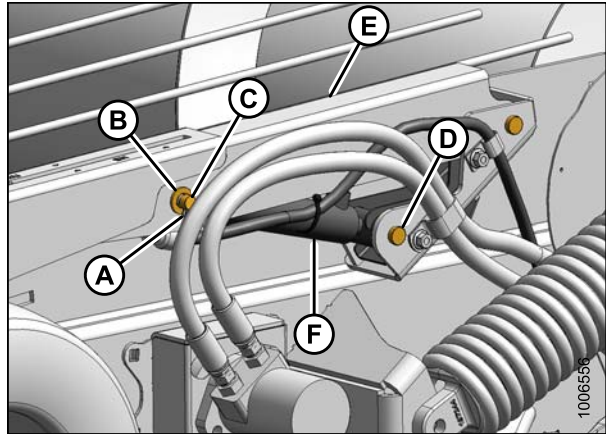


Figure 5.186: Left Side Master Cylinder

### Slave Cylinder

The slave cylinder is located at the right end of the hold-down and is connected to the master cylinder by a hose that passes through the hold-down beam.

### Removing Slave Cylinder

1. Lower header to the ground, and lower the hold-down completely.



**DANGER**

**Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.**

2. Release all hydraulic pressure in the system.
3. Remove cotter pins (A) and washers (B) from clevis pins (C) and (D).
4. Support hold-down (E) to take the weight off of cylinder (F), and remove clevis pin (C) at barrel end of cylinder. Cylinder should drop free from hold-down arm.

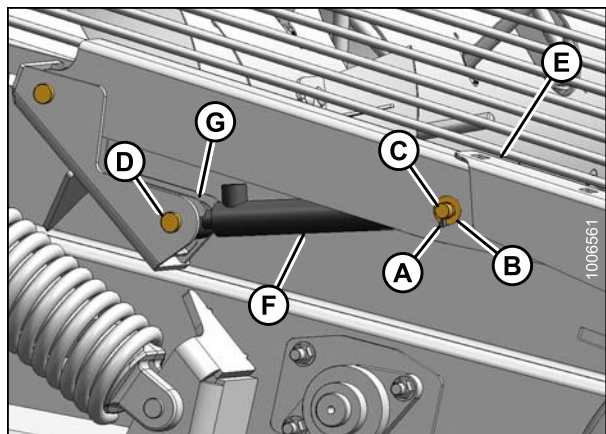
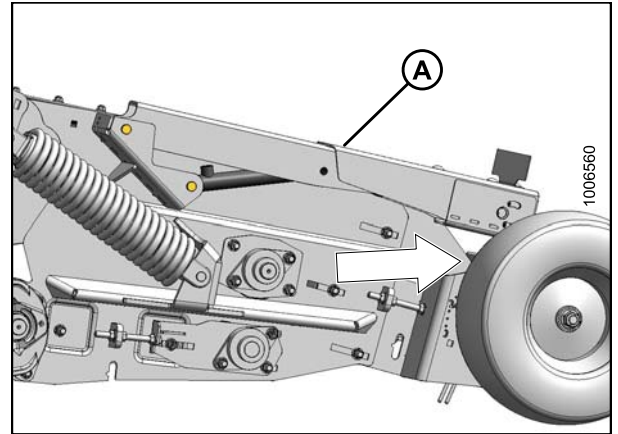


Figure 5.187: Right Side Slave Cylinder



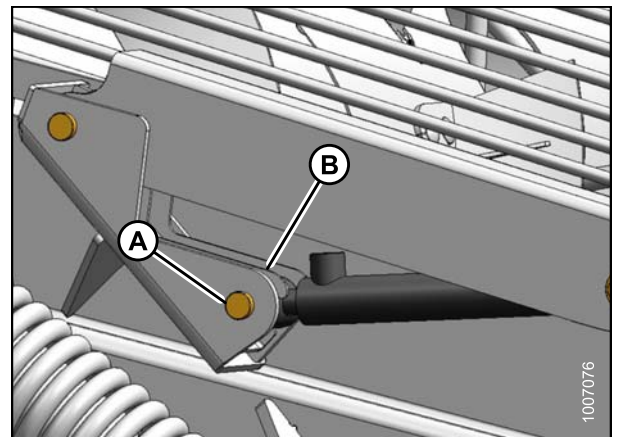
## MAINTENANCE AND SERVICING

5. Insert a block of wood between the hold-down arm (A) and the pick-up to keep the hold-down elevated and clear of the work area.



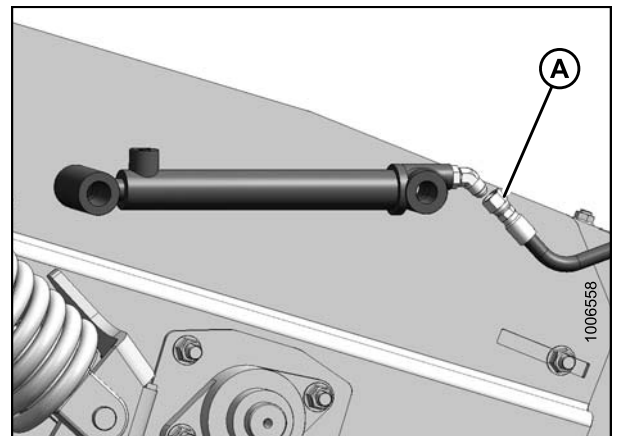
**Figure 5.188: Block Location**

6. Remove clevis pin (A) at rod end of cylinder, and remove cylinder and safety prop (B).



**Figure 5.189: Right Side Slave Cylinder**

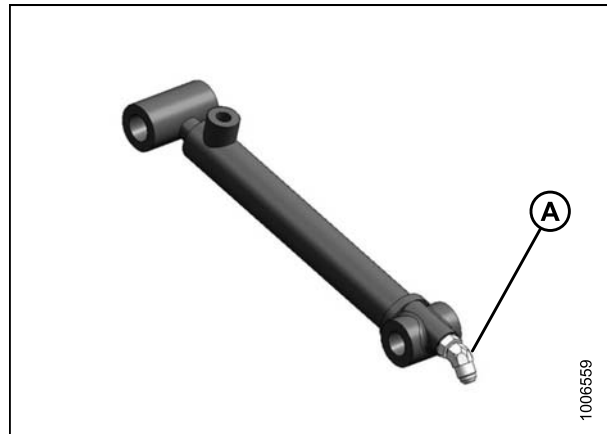
7. Disconnect hydraulic hose (A) from cylinder. Install cap onto hose end, or wrap with plastic.



**Figure 5.190: Right Side Slave Cylinder**

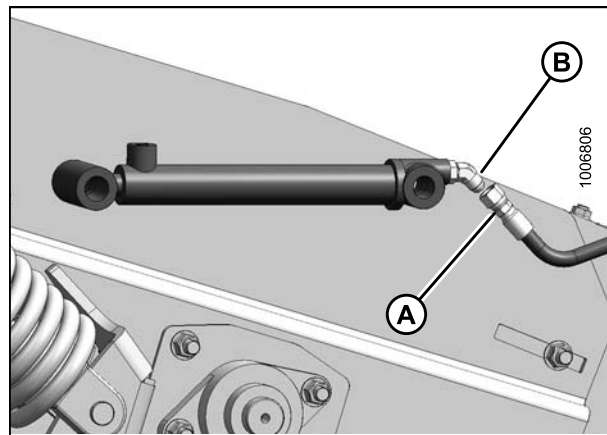
**Installing Slave Cylinder**

1. Install a new slave cylinder as follows:
  - a. Remove the 45 degree elbow (A) from existing slave cylinder.
  - b. Remove plug from new slave cylinder port.
  - c. Install elbow (A) onto new slave cylinder as shown. Ensure fitting is in line with cylinder, and tighten jam nut on elbow.



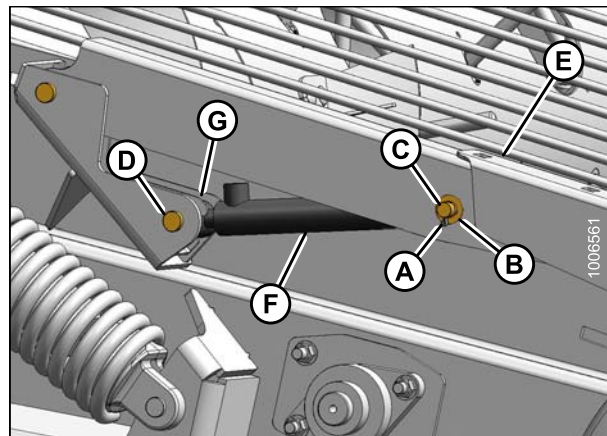
**Figure 5.191: Right Side Slave Cylinder**

2. Connect hose (A) from master cylinder to elbow (B). Tighten fitting.



**Figure 5.192: Right Side Slave Cylinder**

3. Position rod end of cylinder (F) and safety prop (G) into cylinder support bracket on pick-up, and secure with the shorter clevis pin (D). Ensure clevis pin head faces outboard.
4. Secure clevis pin (D) with washer and cotter pin (not shown).
5. Lift hold-down arm until clevis pin (C) can be installed through lift arm and barrel end of cylinder. Ensure clevis pin head faces outboard.
6. Secure with washer (B) and cotter pin (A).
7. Remove previously inserted block of wood.
8. Bleed cylinders and lines. Refer to [Bleeding Cylinders and Lines](#), page 209.



**Figure 5.193: Right Side Slave Cylinder**

### Bleeding Cylinders and Lines

In order for the hydraulics to perform properly, all or most of the air must be removed from the system. The following procedure is the simplest method for bleeding the hydraulics. The hydraulics should be bled after initial installation, if the unit has been idle for a significant period of time, or if the hydraulic system requires adjustment.

#### CAUTION

**High-pressure hydraulic oil can cause serious injuries such as burns, cuts, and tissue damage. Always take precautions when working with hydraulic oil. Wear safety goggles, gloves, and thick clothing. Seek immediate medical attention if cut or burned.**

1. Raise the hold-down fully using the combine reel lift control.
2. Engage the hold-down safety props. Ensure safety prop is fully rotated over center so it remains engaged.
3. Lower the hold-down onto the safety props to relieve the hydraulic pressure in the lines.

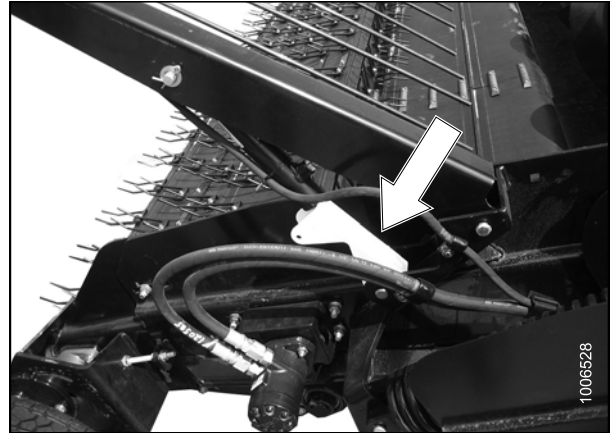


Figure 5.194: Hold-Down Safety Props

4. Hold a plastic container up to the bleed plug.
5. Loosen the bleed screw using a 1/4 in. wrench.
6. Activate the lift control. The hold-down may lift slightly, and a stream of oil will flow from the bleed screw.
7. Bleed oil until it is a steady clear stream. Release lift control, and tighten the 1/4 in. bleed screw.
8. Raise the hold-down fully.
9. Disengage the safety props.
10. Lower the hold-down.



Figure 5.195: Bleed Cylinders

### 5.9.3 Hydraulic Hoses and Lines

Check hydraulic hoses and lines daily for signs of leaks. Replace any leaking or damaged hoses.

For hold-down systems, refer to [Removing Master Cylinder Hose, page 210](#) and [Installing Master Cylinder Hose, page 213](#).

For draper drive systems, refer to [Removing Hydraulic Motor Hoses, page 150](#) and [Installing Hydraulic Motor Hoses, page 152](#).

**⚠ WARNING**

- Avoid high-pressure fluids. Escaping fluid can penetrate the skin causing serious injury.
- Relieve pressure before disconnecting hydraulic lines.
- Tighten all connections before applying pressure. Keep hands and body away from pin holes and nozzles which eject fluids under high pressure.
- If any fluid is injected into the skin, it must be surgically removed within a few hours by a doctor familiar with this type of injury or gangrene may result.

**⚠ WARNING**

- Use a piece of cardboard or paper to search for leaks.

**IMPORTANT:**

Keep hydraulic coupler tips and connectors clean. Allowing dust, dirt, water, or foreign material to enter the system is the major cause of hydraulic system damage. Do NOT attempt to service hydraulic systems in the field. Precision fits require a perfectly clean connection during overhaul.



Figure 5.196: Hydraulic Pressure Hazard

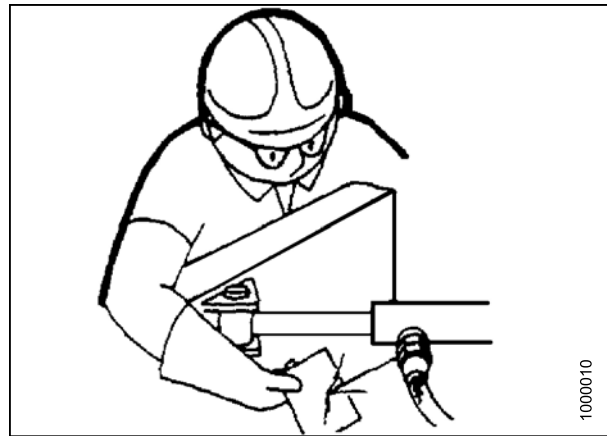


Figure 5.197: Testing for Hydraulic Leaks

*Removing Master Cylinder Hose*

1. Lower header to the ground, and lower the hold-down completely.

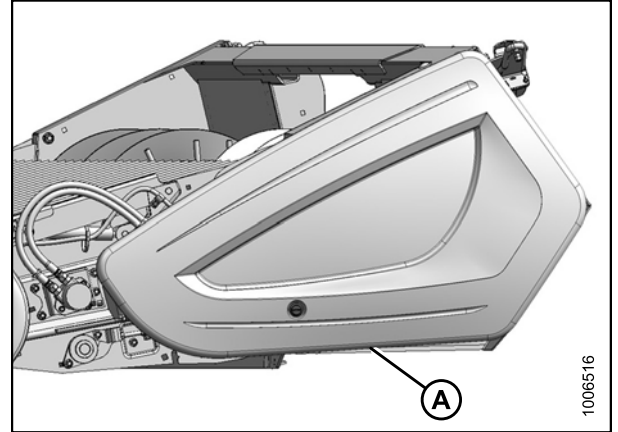
**⚠ DANGER**

**Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.**

2. Release all hydraulic pressure in the system.

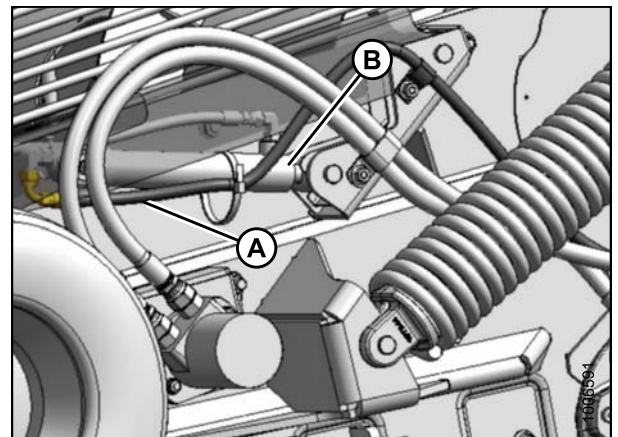
## MAINTENANCE AND SERVICING

3. Open the left-hand endshield (A). Refer to [3.3.1 Opening Left-Hand Endshield](#), page 23.



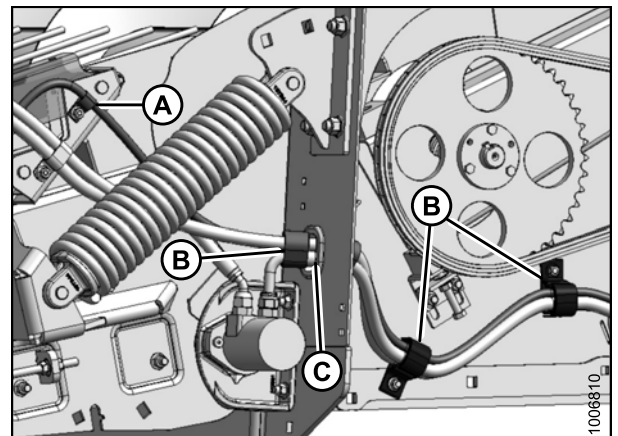
**Figure 5.198: Left-Hand Endshield**

4. Disconnect hydraulic hose (A) from master lift cylinder (B). Install caps onto hose ends or wrap with plastic.



**Figure 5.199: Left Side Master Cylinder**

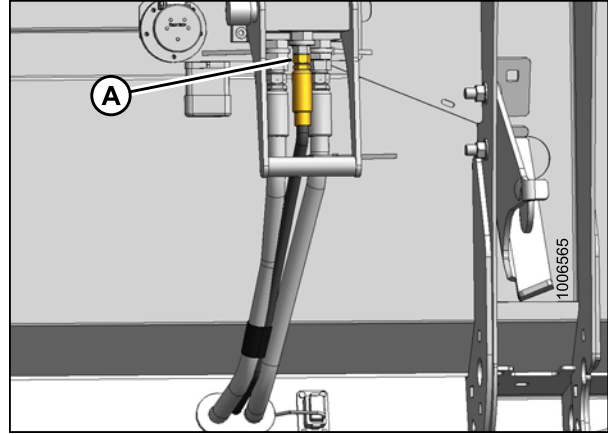
5. Loosen or remove hose clips (A), and undo cinch strap(s) (B).
6. Pull hose through grommet (C).



**Figure 5.200: Hydraulic System**

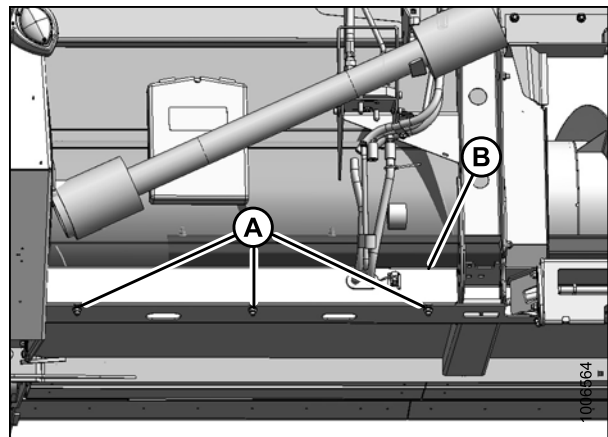
## MAINTENANCE AND SERVICING

7. Disconnect hydraulic hose (A) from multi-coupler.



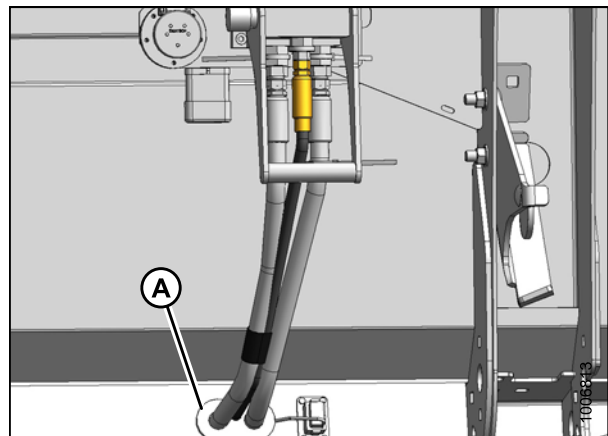
**Figure 5.201: Left-Hand Backsheet**

8. Loosen three bolts (A) and remove cover (B).
9. Pull hose out of cover (B).



**Figure 5.202: Bottom Beam Cover**

10. Remove grommet (A) to remove hydraulic hose (if necessary).



**Figure 5.203: Hydraulic System**

## MAINTENANCE AND SERVICING

11. Pull hose through grommet (A) in endsheet.

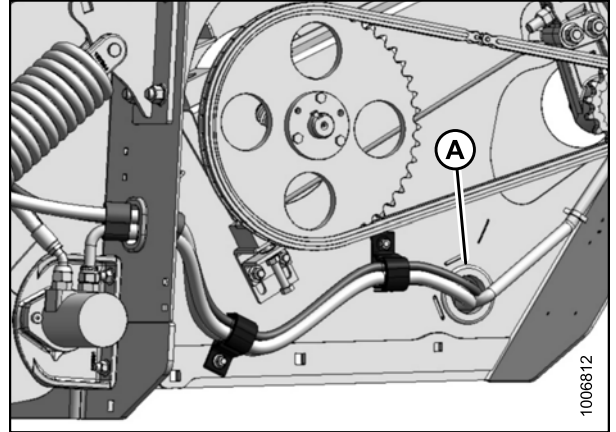


Figure 5.204: Left Endsheet

### *Installing Master Cylinder Hose*

1. Feed hose (A) through grommet (B) in endsheet.
2. Feed hose through clips (C) and grommet (D) to master cylinder.

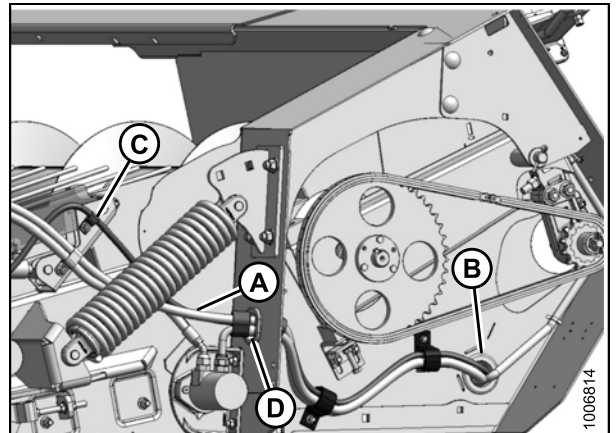


Figure 5.205: Hydraulic System

3. Feed hose (A) through grommet (B).
4. Connect hose (A) to multi-coupler.

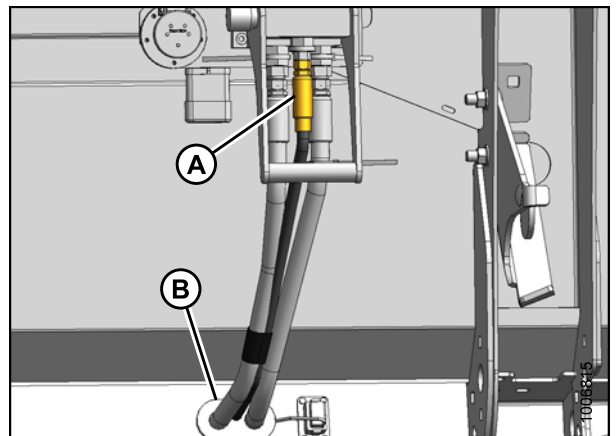


Figure 5.206: Left-Hand Backsheet

## MAINTENANCE AND SERVICING

5. Connect hose (A) to master cylinder (B), and secure hose to master cylinder with cable tie (C).

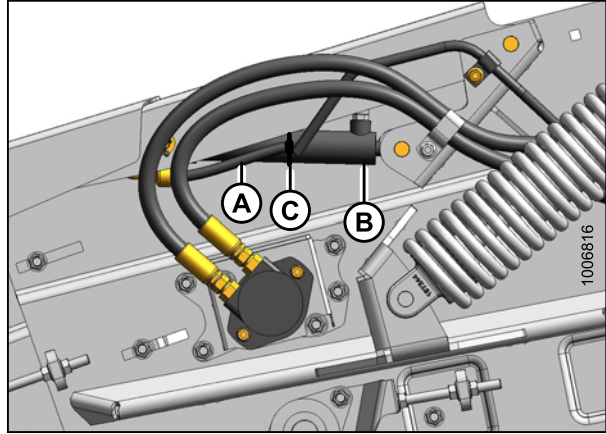


Figure 5.207: Hydraulic System

6. Secure hose with clips (A) and cinch straps (B).

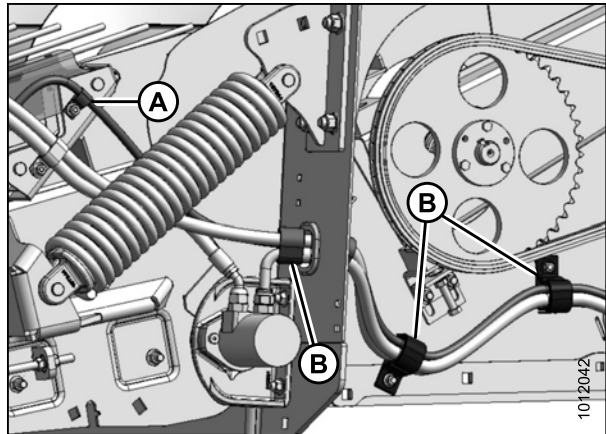


Figure 5.208: Hydraulic System

7. Install bottom beam cover (B) and tighten bolts (A).
8. Close endshield. Refer to [3.3.2 Closing Left-Hand Endshield, page 24](#).
9. Bleed cylinders and lines. Refer to [Bleeding Cylinders and Lines, page 209](#).

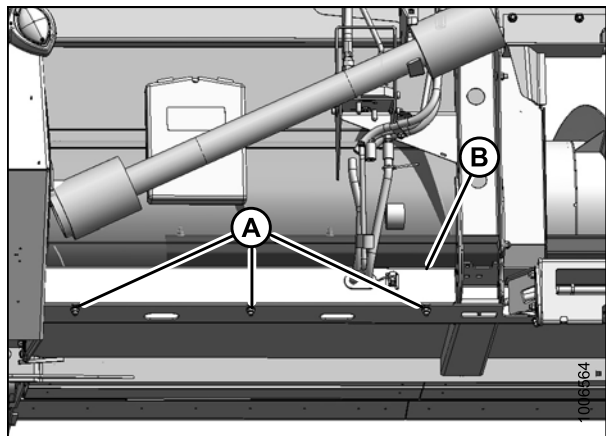


Figure 5.209: Bottom Beam Cover



## 5.10 Draper Speed Sensor

This section does **not** apply to Case IH and New Holland combines. Refer to your combine operator's manual for further information.

### 5.10.1 Checking Draper Speed Sensor Position

1. Check clearance (A) between speed sensor and disc. The recommended clearance is 1/8 in. (3 mm).
2. Refer to [5.10.2 Adjusting Draper Speed Sensor, page 215](#) if clearance requires adjustment.

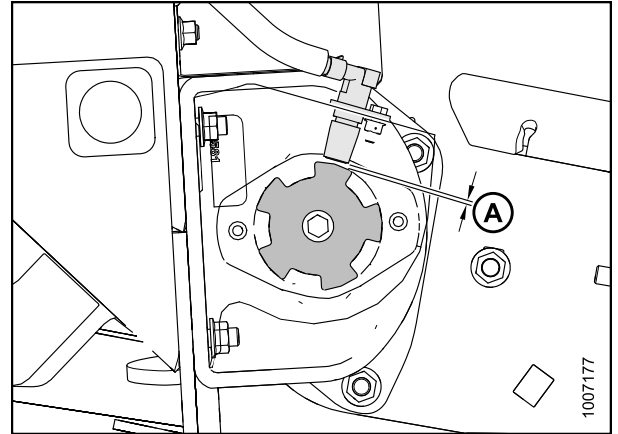


Figure 5.210: Clearance

3. Check vertical alignment (A) of sensor (B) and sensor disc (C). If required, adjust support (D) inboard or outboard to adjust vertical alignment.

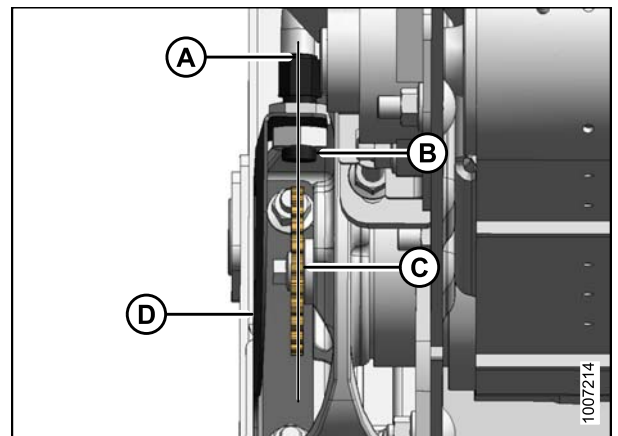


Figure 5.211: Alignment

### 5.10.2 Adjusting Draper Speed Sensor

The draper speed sensor position is set at the factory, but it may require adjustment if problems occur with the draper speed system or when replacing sensor components. Check the draper speed sensor position prior to making any adjustments. Refer to [5.10.1 Checking Draper Speed Sensor Position, page 215](#).

#### **DANGER**

**Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.**

1. Lower header to the ground, and lower the hold-down completely.

## MAINTENANCE AND SERVICING

2. Hold sensor (B) with a wrench and loosen jam nut (C).
3. Turn jam nuts (C) and (A) to achieve the required sensor to disc clearance.
4. Tighten jam nuts (C) and (A).

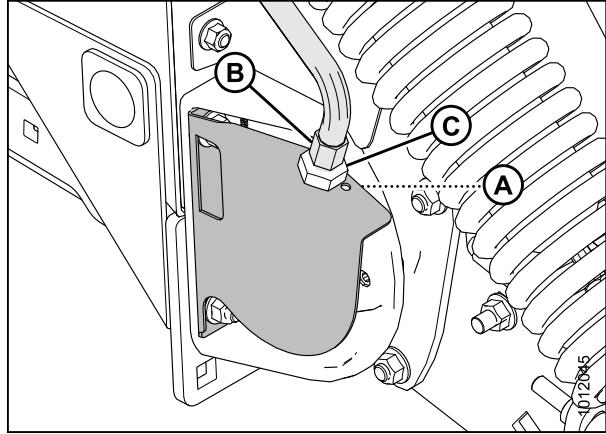


Figure 5.212: Draper Speed Sensor

### 5.10.3 Replacing Draper Speed Sensor

The speed sensor may require replacement if it is malfunctioning or if service is being performed to adjacent components.

#### DANGER

**Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.**

1. Lower header to the ground, and lower the hold-down completely.
2. Remove lower jam nut (A), and pull sensor (B) from support (C).
3. Disconnect sensor (B) from harness, and remove top jam nut (D).
4. Attach new sensor (B) to harness, and install top jam nut (D) onto sensor.
5. Position sensor (B) in support (C), and secure with lower jam nut (A).
6. Adjust clearance between sensor and sensor disc. Refer to [5.10.2 Adjusting Draper Speed Sensor, page 215](#).

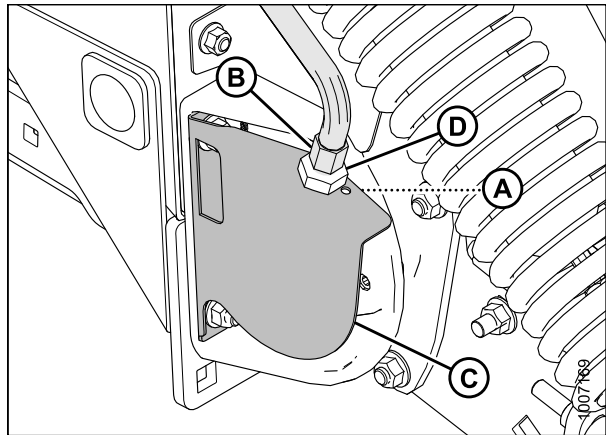


Figure 5.213: Draper Speed Sensor

## 5.11 Wheels and Tires

### DANGER

- Never install a tube in a cracked wheel rim.
- Never weld a wheel rim.
- Make sure all the air is removed from the tire before removing the tire from the rim.
- Never use force on an inflated or partially inflated tire. Make sure the tire is correctly seated before inflating to operating pressure.
- Do NOT remove, install, or repair a tire on a rim unless you have the proper equipment and experience to perform the job. Take the tire and rim to a qualified tire repair shop.
- If the tire is overinflated or is incorrectly position on the rim, 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 propel the tire in any direction and endanger anyone in the area.
- Do NOT exceed the maximum inflation pressure indicated on the tire label.

### 5.11.1 Removing Wheel

Replace the tire if it is worn or damaged beyond repair.

1. Position header with wheels (A) raised slightly off the ground.

### DANGER

**Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.**

2. Remove wheel nut (B) using a 30 mm socket wrench.
3. Pull wheel (A) off spindle.

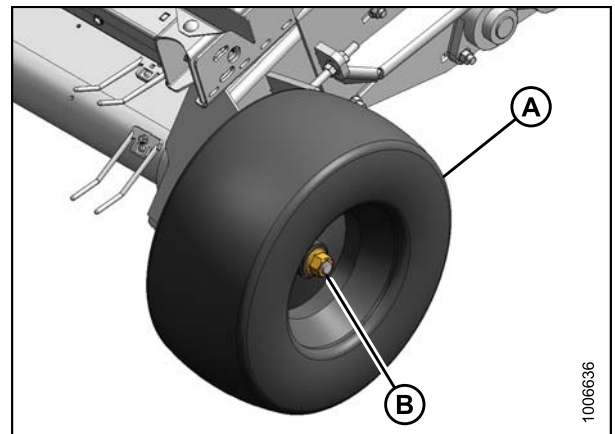


Figure 5.214: Left Side Wheel

### 5.11.2 Inflating Tire

Maintain correct tire pressure to achieve desired cutting height. Check tire pressure daily.

Table 5.2 Tire (MD #152724)

Tire	Pressure
18.50 x 8.50-8	35–45 psi (240–310 kPa) <sup>1</sup>

1. Use the lower end of this range if operating on rough terrain.

### 5.11.3 Installing Wheel

1. Ensure lock washer (A) is installed onto spindle.

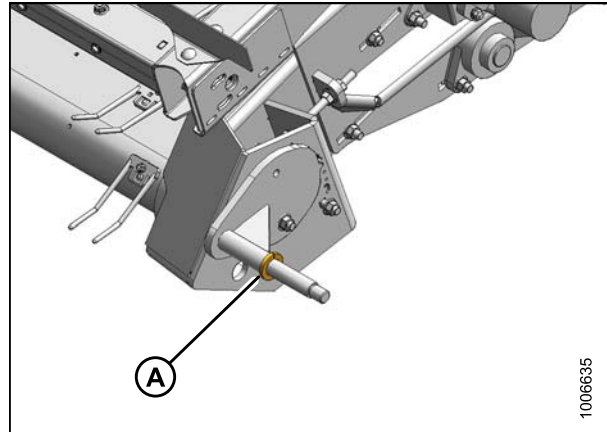


Figure 5.215: Left Side Spindle

2. Install wheel (A) onto spindle and secure with wheel nut (B). Torque to 80 lbf-ft (108 N·m).

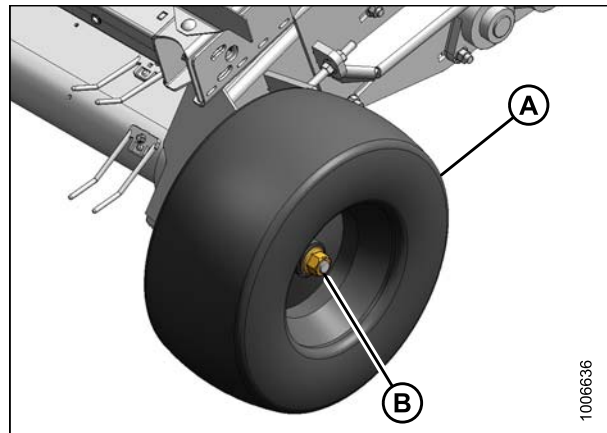


Figure 5.216: Left Side Wheel

## 5.12 Lights

### DANGER

Stop engine and remove key from ignition before leaving operator's seat for any reason. A child or even a pet could engage an idling machine.

- Use electrical tape and wire clips to prevent wires from dragging or rubbing.
- Keep lights clean, and replace defective bulbs.
- Replace the light housing if it is cracked or broken.

### 5.12.1 Adjusting Transport Lights

The transport lights, located at each end of the header, are used when driving the combine on the road with the header attached. Lights should be positioned perpendicular to the endsheet.

1. If repositioning is required, swivel the lights with hand force.
2. If the swivel is too loose or too tight, loosen jam nut (A) and turn nut (B) so the light maintains its position and can be moved with hand force. Do not overtighten.
3. Tighten jam nut (A).

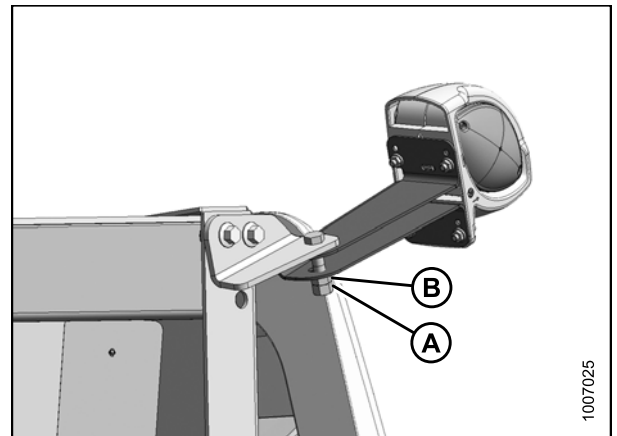


Figure 5.217: Transport Light

### 5.12.2 Replacing Transport Light Bulb

Transport lights are an important safety feature. Keep lights clean, and replace defective bulbs.

1. Lower header to the ground, shut off combine, and remove key from ignition.
2. Remove two screws (A) using a Phillips screwdriver.
3. Pry off the lens (B).
4. Push in and slightly turn bulb counterclockwise. Remove the bulb.
5. Place the new bulb in the socket, push in, and turn clockwise until bulb stops.
6. Replace lens (B) and secure with two screws (A).

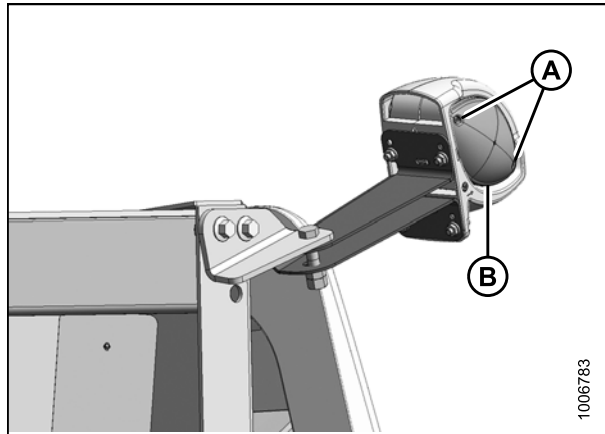


Figure 5.218: Transport Light

### 5.12.3 Replacing Lens

Transport lights are an important safety feature. Keep lenses clean, and replace if cracked or broken.

1. Lower header to the ground, shut off combine, and remove key from ignition.
2. Remove two screws (A) using a Phillips screwdriver.
3. Pry off the lens (B).
4. Install new lens (B), and secure with two screws (A).

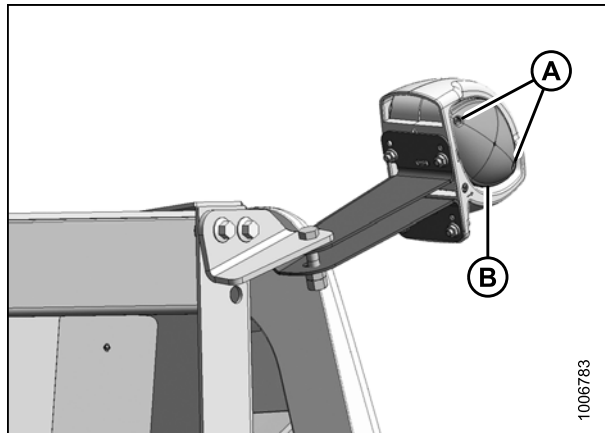


Figure 5.219: Transport Light

## 5.12.4 Replacing Lamp Housing

Transport lights are an important safety feature. Replace housing if cracked or broken.

1. Lower header to the ground, shut off combine, and remove key from ignition.
2. Pull wiring harness (A) out of lamp bracket, and locate connectors inside the wiring harness.
3. Disconnect light wiring from harness.
4. Remove four nuts (B), and remove lamp (C) from bracket.
5. Install new lamp (C) on bracket, and secure with four nuts (B).
6. Connect lamp wiring to harness (A), and route wires inside plastic covering. Seal with black tape.
7. Ensure that wiring harness is not damaged, and secure harness inside lamp bracket.
8. Check operation of new lamp.

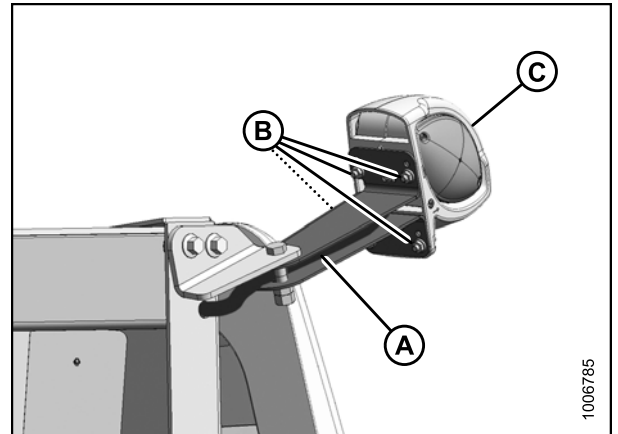


Figure 5.220: Transport Light





## 6 Troubleshooting

Symptom	Problem	Solution	Refer to Section
Material overshoots the table auger	Draper speed too high	Reduce draper speed until pickup is just pushing the swath.	<a href="#">Adjusting Draper Speed, page 54</a>
	Incorrect header height	Measure and adjust header height to 12 in. (300 mm) from the center of the rear draper roller to the ground.	<a href="#">Header Height, page 60</a>
	Improperly adjusted hold-down rods	Adjust the rod tube so the tips of the rods are close enough to the draper belts to prevent overshoot.	<a href="#">Hold-Down Rod Angle, page 66</a>
Swath forms a ball and rolls to the right or left where it is eventually lost off the end of the pick-up	Draper speed too high	Reduce draper speed until pickup is just pushing the swath.	<a href="#">Adjusting Draper Speed, page 54</a>
	Light crop flowing forward and fingers unable to move swath rearward	Add optional hold-down performance kit MD #B5475.	See your Dealer. <a href="#">7.1 Hold-Down Performance Kit, page 227</a>
Shelling in delicate crops	Draper speed too high	Reduce draper speed until pickup is just pushing the swath.	<a href="#">Adjusting Draper Speed, page 54</a>
	Improperly adjusted hold-down	Raise the hold-down assembly high enough to clear the swath.	<a href="#">Hold-Down Position, page 65</a>
Pick-up leaves material in the field	Pick-up teeth are set too high	Raise wheels to lower the pick-up height.	<a href="#">Pick-Up Height, page 61</a>
	Draper speed too low	Increase draper speed.	<a href="#">Adjusting Draper Speed, page 54</a>
	Pick-up is running too fast (pulling swath apart)	Slow down the pick-up until it is just pushing the swath.	<a href="#">Adjusting Draper Speed, page 54</a>
The pick-up is picking a large amount of dirt and stones	Draper speed too high	Reduce draper speed until pickup is just pushing the swath.	<a href="#">Adjusting Draper Speed, page 54</a>
	Pick-up height too low	Lower wheels so that teeth are 1 in. (25 mm) off ground.	<a href="#">Pick-Up Height, page 61</a>

## TROUBLESHOOTING

Symptom	Problem	Solution	Refer to Section
Material stalls on the header before the auger can pull it into the feeder house	Rough header pan surface	Polish the header pan with emery cloth or buffing wheel.	—
	Incorrect header height	Adjust header height.	<a href="#">Header Height, page 60</a>
	Incorrect header lateral tilt	Header lateral tilt can be adjusted on some combine headers. Adjust combine header tilt so when header is at operating height, the header floor pan and ground are parallel. (Note: Adjust header tilt to Corn Setting from Grain Setting.)	Refer to your combine operator's manual.
Draper belts roll up side frame	Belts are too tight	Loosen draper belt tension.	<a href="#">Adjusting Front Draper Belt Tension, page 69</a> or <a href="#">Adjusting Rear Draper Belt Tension, page 70</a>
	Belts are tightened unevenly	Adjust draper belt tension evenly on both ends of the pick-up.	<a href="#">Adjusting Front Draper Belt Tension, page 69</a> or <a href="#">Adjusting Rear Draper Belt Tension, page 70</a>
	Dirt/crop buildup on rollers	Remove draper belts and remove dirt/crop buildup from roller surface and roller groove.	<a href="#">5.7.1 Draper Belts, page 171</a>
	Belts are sometimes tacky when new	Rub talcum or baby powder onto belts to reduce tackiness. Belts may also need to be run loose for the first few hours of break-in.	—
Stalling of belts when loaded with crop material	Draper belts are too loose	Increase belt tension.	<a href="#">Adjusting Front Draper Belt Tension, page 69</a> or <a href="#">Adjusting Rear Draper Belt Tension, page 70</a>
Slave lags behind master on lift	Air in system	Bleed cylinders.	<a href="#">Bleeding Cylinders and Lines, page 209</a>
Master lags behind slave on descent and ahead of slave on lift	Obstruction preventing cylinder movement	Check lift cylinder and lift arm attachments.	—
	Air in system	Bleed cylinders.	<a href="#">Bleeding Cylinders and Lines, page 209</a>
	Flow is too restricted	Check hoses and lines.	<a href="#">5.9.3 Hydraulic Hoses and Lines, page 209</a>
Slave cylinder remains extended more than 1/2 in. (13 mm) when hold-down is fully lowered	Air in system	Bleed cylinders.	<a href="#">Bleeding Cylinders and Lines, page 209</a>

## TROUBLESHOOTING

<b>Symptom</b>	<b>Problem</b>	<b>Solution</b>	<b>Refer to Section</b>
Hold-down remains raised and will not lower	Safety prop is engaged	Disengage safety prop.	<a href="#">3.5 Hold-Down Lift Cylinder Safety Props, page 27</a>
	Hydraulics not connected properly	Ensure hydraulic lines are connected properly and not damaged.	<a href="#">5.9.3 Hydraulic Hoses and Lines, page 209</a>
Driveline clutch is slipping	Clutch is worn	Replace clutch.	<a href="#">Replacing Driveline Clutch, page 142</a>
	Obstruction in auger	Shut off combine, remove key, and remove obstruction.	<a href="#">3.13 Unplugging the Header, page 73</a>
Pick-up wheels bounce over bumps	Header height is too high	Lower header until rear pick-up roller is 12 in. (305 mm) above the ground.	<a href="#">Header Height, page 60</a>
Draper speed sensor not working properly	Sensor positioned incorrectly	Reposition sensor.	<a href="#">5.10.2 Adjusting Draper Speed Sensor, page 215</a>



## 7 Options and Attachments

### 7.1 Hold-Down Performance Kit

The Hold-Down Performance kit assists with the delivery of light crop onto the pick-up, especially when the fingers have difficulty picking up the crop and have a tendency to throw the crop forward.

The kit attaches to the hold-down bar and consists of a series of spring wires that rotate or lock by moving the centre nut and project forward and downward into the crop.

Attachment hardware and installation instructions are included with the kit.

MD #B5475

Instruction MD #169464

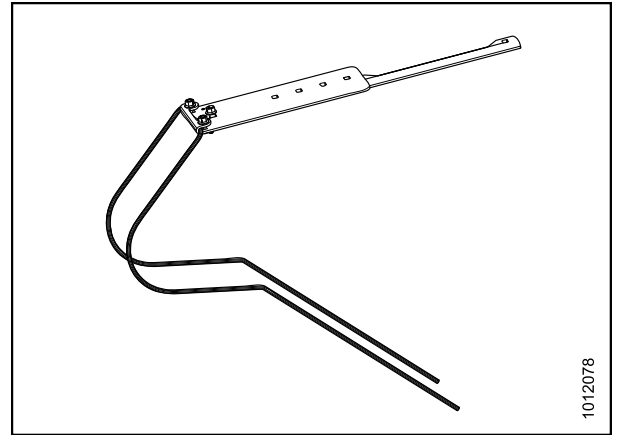


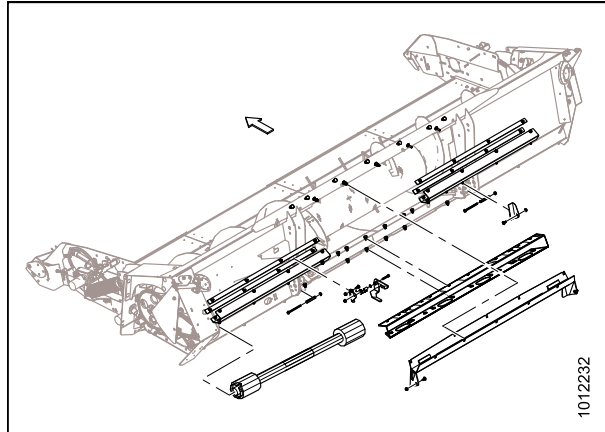
Figure 7.1: Hold-Down Performance Kit

## 7.2 Combine Completion Package Kits

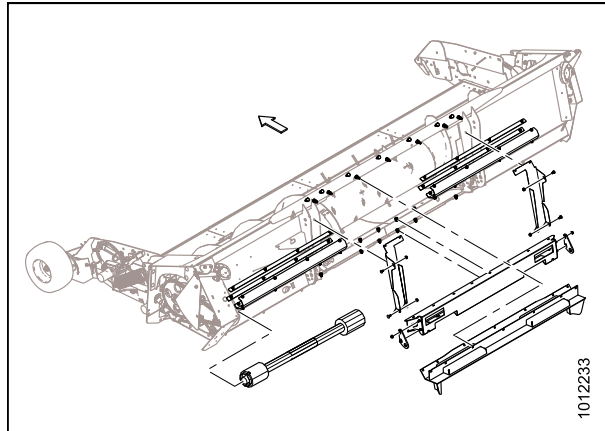
PW8 Combine Pick-Up Headers are factory configured for particular combine makes, models, and feeder house sizes; however, combine completion packages provide the necessary parts and hardware to modify headers to accommodate other combine models with different feeder house sizes. Refer to [3.9 Changing Header Opening, page 32](#) for a detailed list of supported combine models and feeder house sizes.

Attachment hardware and installation instructions are included with the kits.

Combine Make	Bundle #
Case IH, New Holland	MD #B5469
John Deere	MD #B5471



**Figure 7.2: Combine Completion Package Kit – Case IH and New Holland**



**Figure 7.3: Combine Completion Package Kit – John Deere**

# A Appendix

## Topics Covered in this Appendix

- [A.1 Definitions](#)
- [A.2 Conversion Chart](#)
- [A.3 Torque Specifications](#)
- [A.4 Recommended Fluids and Lubricants](#)

## A.1 Definitions

The following definitions and acronyms may be used in this manual:

Term	Definition
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.
CGVW	Combined Vehicle Gross Weight.
Finger tight	Finger tight is a reference position where sealing surfaces or components are making contact with each other and the fitting has been tightened to a point where the fitting is no longer loose.
F.F.F.T.	Flats from finger tight.
GVW	Gross Vehicle Weight.
hp	Horsepower
JIC	Joint Industrial Council: A standards body that developed the standard sizing and shape for original 37° flared fitting.
n/a	Not applicable
Nut	An internally threaded fastener that is designed to be paired with a bolt.
NPT	National Pipe Thread: A style of fitting used for low pressure port openings. Threads on NPT fittings are uniquely tapered for an interference fit.
ORB	O-ring Boss: a style of fitting commonly used in port opening on manifolds, pumps and motors.
ORFS	O-ring face seal: A style of fitting commonly used for connecting hoses and tubes. This style of fitting is also commonly called ORS, which stands for O-ring Seal.
Pick-Up Header	A machine that picks up grain that has been cut and laid in windrows, and is attached to a combine.
PTO	Power take-off.
RoHS (Reduction of Hazardous Substances)	A directive by the European Union to restrict the use of certain hazardous substances (such as hexavalent chromium used in some yellow zinc platings).
SAE	Society of Automotive Engineers.
Screw	A headed and externally threaded fastener that threads into preformed threads or forms its own thread in one of the mating parts.

## APPENDIX

Term	Definition
Soft joint	A joint made with the use of a fastener where the 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 pounds (lb) or Newtons (N).
T.F.F.T.	Turns from finger tight.
Torque	The product of a force X lever arm length, usually measured in foot-pounds (ft-lbf) or Newton-meters (N·m).
Torque angle	A tightening procedure where the fitting is assembled to a precondition (finger tight) and then the nut is turned further a number of degrees or a number of flats to achieve its final position.
Torque-tension	The relationship between the assembly torque applied to a piece of hardware and the axial load it induces in the bolt or screw.
Tractor	Agricultural-type tractor.
Truck	A four-wheel highway/road vehicle weighing no less than 7500 lb (3400 kg).
Washer	A thin cylinder with a hole or slot located in the center and is to be used as a spacer, load distribution element or a locking mechanism.



## A.2 Conversion Chart

Table A.1 Conversion Chart

Quantity	Inch-Pound Units		Factor	SI Units (Metric)	
	Unit Name	Abbreviation		Unit Name	Abbreviation
Area	Acres	acres	x 0.4047 =	Hectares	ha
Flow	US gallons per minute	gpm	x 3.7854 =	Liters per minute	L/min
Force	Pounds force	lbf	x 4.4482 =	Newtons	N
Length	Inch	in.	x 25.4 =	Millimeters	mm
	Foot	ft.	x 0.305 =	Meters	m
Power	Horsepower	hp	x 0.7457 =	Kilowatts	kW
Pressure	Pounds per square inch	psi	x 6.8948 =	Kilopascals	kPa
			x .00689 =	Megapascals	MPa
			÷ 14.5038 =	Bar (Non-SI)	bar
Torque	Pound feet or foot pounds	ft·lbf	x 1.3558 =	Newton meters	N·m
	Pound inches or inch pounds	in·lbf	x 0.1129 =	Newton meters	N·m
Temperature	Degrees Fahrenheit	°F	(°F-32) x 0.56 =	Celsius	°C
Velocity	Feet per minute	ft/min	x 0.3048 =	Meters per minute	m/min
	Feet per second	ft/s	x 0.3048 =	Meters per second	m/s
	Miles per hour	mph	x 1.6063 =	Kilometres per hour	km/h
Volume	US gallons	US gal	x 3.7854 =	Liters	L
	Ounces	oz.	x 29.5735 =	Milliliters	ml
	Cubic inches	in. <sup>3</sup>	x 16.3871 =	Cubic centimeters	cm <sup>3</sup> or cc
Weight	Pounds	lbs	x 0.4536 =	Kilograms	kg

## A.3 Torque Specifications

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

- Tighten all bolts to the torque values specified in the charts (unless otherwise noted throughout this manual).
- Replace hardware with the same strength and grade of bolt.
- Use the 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.

### A.3.1 Metric Bolt Specifications

Table A.2 Metric Class 8.8 Bolts and Class 9 Free Spinning Nut

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

Table A.3 Metric Class 8.8 Bolts and Class 9 Distorted Thread Nut

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

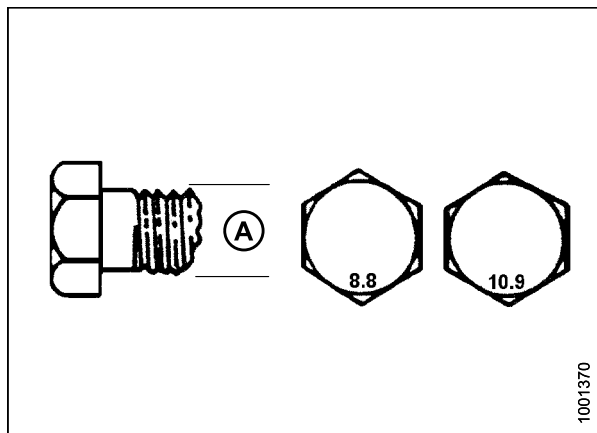


Figure 5: Bolt Grades

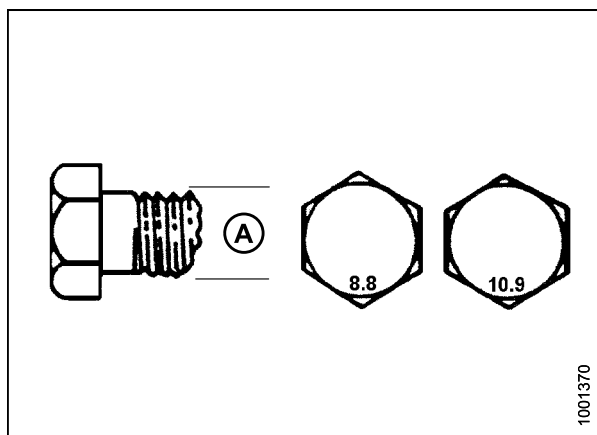


Figure 6: Bolt Grades

APPENDIX

Table A.4 Metric Class 10.9 Bolts and Class 10 Free Spinning Nut

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

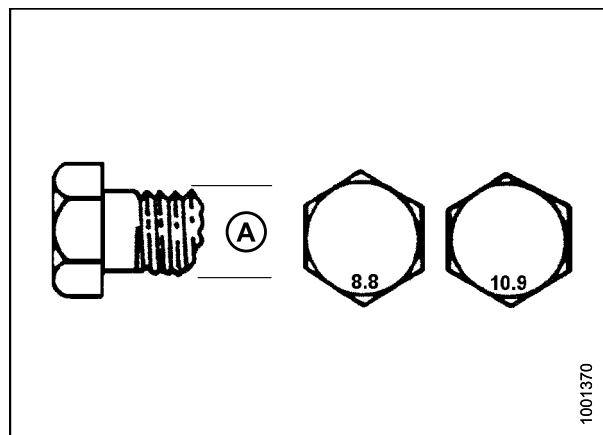


Figure 7: Bolt Grades

Table A.5 Metric Class 10.9 Bolts and Class 10 Distorted Thread Nut

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

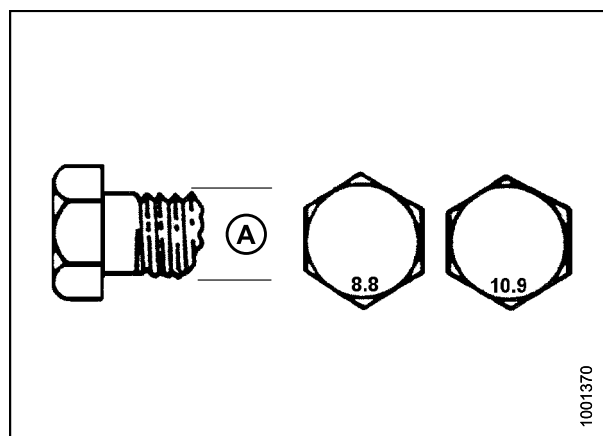


Figure 8: Bolt Grades

### A.3.2 Metric Bolt Specifications Bolting into Cast Aluminum

Table A.6 Metric Bolt Bolting into Cast Aluminum

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

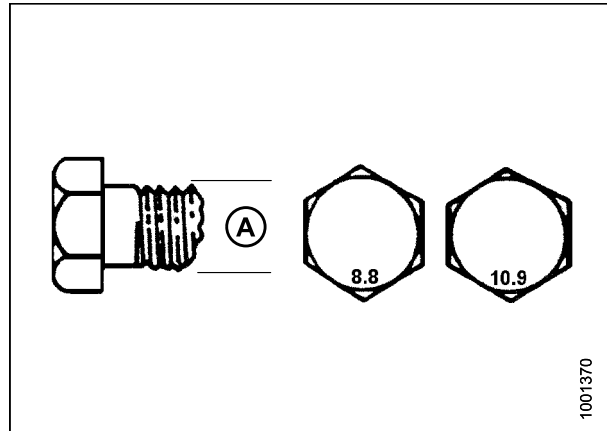


Figure 9: Bolt Grades

### A.3.3 Flare-Type Hydraulic Fittings

1. Check flare (A) and flare seat (B) for defects that might cause leakage.
2. Align tube (C) with fitting (D), and thread nut (E) onto fitting without lubrication until contact has been made between the flared surfaces.
3. Torque the fitting nut (E) to the specified number of flats from finger tight (FFFT) or to a given torque value shown in Table [A.7 Flare-Type Hydraulic Tube Fittings](#), page 235.
4. Use two wrenches to prevent fitting (D) from rotating. Place one wrench on the fitting body (D), and tighten nut (E) with the other wrench to the torque shown.
5. Assess the final condition of the connection.

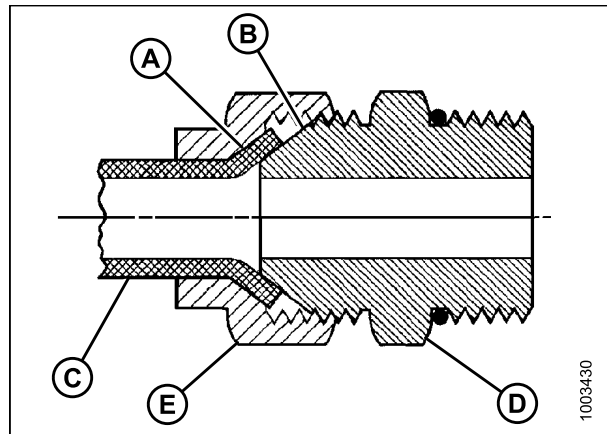


Figure 10: Hydraulic Fitting

**APPENDIX**

**Table A.7 Flare-Type Hydraulic Tube Fittings**

SAE No.	Tube Size O.D.(in.)	Thread Size (in.)	Nut Size Across Flats (in.)	Torque Value <sup>2</sup>		Flats from Finger Tight (FFFT)	
				ft-lbf	N-m	Flats	Turns
3	3/16	3/8	7/16	6	8	1	1/6
4	1/4	7/16	9/16	9	12	1	1/6
5	5/16	1/2	5/8	12	16	1	1/6
6	3/8	9/16	11/16	18	24	1	1/6
8	1/2	3/4	7/8	34	46	1	1/6
10	5/8	7/8	1	46	62	1	1/6
12	3/4	1-1/16	1-1/4	75	102	3/4	1/8
14	7/8	1-3/8	1-3/8	90	122	3/4	1/8
16	1	1-5/16	1-1/2	105	142	3/4	1/8

---

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

### A.3.4 O-Ring Boss (ORB) Hydraulic Fittings (Adjustable)

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

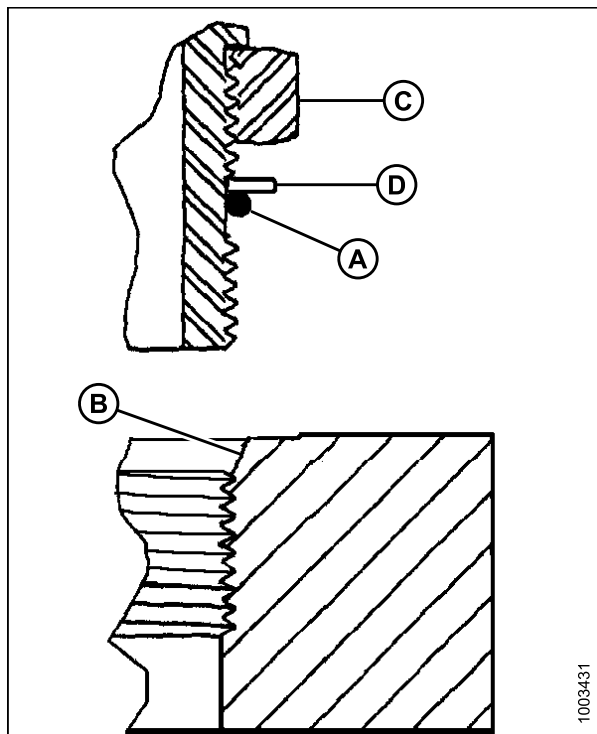


Figure 11: Hydraulic Fitting

5. Install fitting (B) into port until back up washer (D) and O-ring (A) contact the 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 the other on lock nut (C).
8. Check the final condition of the fitting.

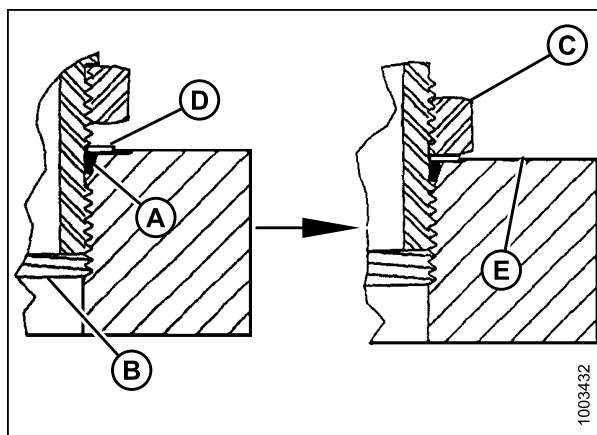


Figure 12: Hydraulic Fitting

**APPENDIX**

**Table A.8 O-Ring Boss (ORB) Hydraulic Fittings (Adjustable)**

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

---

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





### A.3.6 O-Ring Face Seal (ORFS) Hydraulic Fittings

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



Figure 14: Hydraulic Fitting

2. Apply hydraulic system oil to the O-ring (B).
3. Align the tube or hose assembly so that the flat face of the 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 the values in Table [A.10 O-Ring Face Seal \(ORFS\) Hydraulic Fittings, page 240](#).

**NOTE:**

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

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

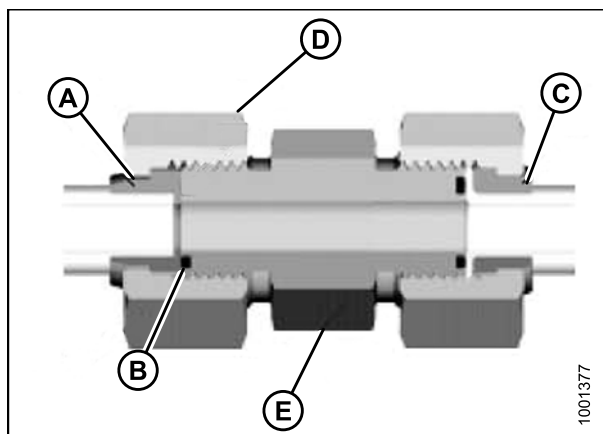


Figure 15: Hydraulic Fitting

**APPENDIX**

**Table A.10 O-Ring Face Seal (ORFS) Hydraulic Fittings**

SAE Dash Size	Thread Size (in.)	Torque Value <sup>5</sup>	
		ft·lbf (*in·lbf)	N·m
-3	Note <sup>6</sup>	–	–
-4	9/16–18	18–21	25–28
-5	Note <sup>6</sup>	–	–
-6	11/16–16	29–32	40–44
-8	13/16–16	41–45	55–61
-10	1–14	59–65	80–88
-12	1-3/16–12	85–94	115–127
-14	Note <sup>6</sup>	–	–
-16	1-7/16–12	111–122	150–165
-20	1-11/16–12	151–167	205–226
-24	2–12	232–256	315–347
-32	2-1/2–12	376–414	510–561

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

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

## A.4 Recommended Fluids and Lubricants

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

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

**Table A.11 Recommended Lubricants**

Lubricant	Specification	Description	Use
Grease	SAE multi-purpose	High temperature extreme pressure (EP2) performance with 1% max molybdenum disulphide (NLGI Grade 2) lithium base	As required unless otherwise specified
		Extreme pressure (EP) performance with 1.5–5% molybdenum disulphide (NLGI Grade 2) lithium base	Drive motor shaft
Oil	SAE 30	—	Auger drive chain



# Index

## A

attaching to combines	
Case IH .....	33
John Deere 60/70 and S series .....	40
New Holland .....	46
auger drive chain	
adjusting tension .....	156
installing .....	156
lubricating .....	154
removing .....	155
auger drive chains .....	154
auger fingers	
replacing auger finger bushings .....	165
replacing auger finger guides .....	164
replacing auger fingers .....	163
auger float .....	56
locking .....	56
unlocking .....	58
augers	
auger drive chain, See auger drive chain	
auger drive sprockets, See sprockets	
auger finger bushings, See auger fingers	
auger fingers, See auger fingers	
auger position	
adjusting auger position .....	55
checking .....	54
auger speed .....	54
maintenance .....	163
operation .....	54
auto header height control (AHHC), See specific combine section below	
AGCO 6 series combines	
calibrating	
maximum stubble height .....	124
height sensor output voltage range –	
combine requirements .....	85
sensor operation .....	127
sensor output voltage	
checking voltage range manually .....	85
AGCO 7 series combines	
calibrating	
maximum stubble height .....	124
sensor operation .....	127
sensor output voltage	
checking voltage range manually .....	85
Case IH 2300 combines .....	88
adjusting	
sensitivity .....	90
calibrating	
AHHC .....	89
maximum stubble height .....	124
height sensor output voltage range –	
combine requirements .....	85
how AHHC works .....	77
sensor operation .....	127
sensor output voltage	
checking voltage range manually .....	85
Case IH 5088/6088/7088 combines .....	88
adjusting	
sensitivity .....	90
calibrating	
AHHC .....	89
maximum stubble height .....	124
height sensor output voltage range –	
combine requirements .....	85
how AHHC works .....	77
sensor operation .....	127
sensor output voltage	
checking voltage range manually .....	85
Case IH 5130/6130/7130 combines .....	92
calibrating	
AHHC .....	96
maximum stubble height .....	124
height sensor output voltage range –	
combine requirements .....	85
how AHHC works .....	77
sensor operation .....	127
sensor output voltage	
checking voltage range from the cab .....	94
Case IH 7010 combines .....	92
calibrating	
AHHC .....	96
maximum stubble height .....	124
height sensor output voltage range –	
combine requirements .....	85
how AHHC works .....	77
sensor operation .....	127
sensor output voltage	
checking voltage range from the cab .....	94
engaging AHHC .....	88
height sensor output voltage range –	
combine requirements .....	85
how AHHC works .....	77
sensor operation .....	127
sensor output voltage	
checking voltage range manually .....	85
Case IH 2500 combines .....	88
adjusting	
sensitivity .....	90
calibrating	
AHHC .....	89
maximum stubble height .....	124
height sensor output voltage range –	
combine requirements .....	85
how AHHC works .....	77
sensor operation .....	127
sensor output voltage	
checking voltage range manually .....	85

## INDEX

<ul style="list-style-type: none"> <li>checking voltage range manually ..... 85</li> <li>Case IH 7120/8120/9120 combines ..... 92               <ul style="list-style-type: none"> <li>calibrating                   <ul style="list-style-type: none"> <li>AHHC ..... 96</li> <li>maximum stubble height ..... 124</li> </ul> </li> <li>height sensor output voltage range –                   <ul style="list-style-type: none"> <li>combine requirements ..... 85</li> </ul> </li> <li>how AHHC works ..... 77</li> <li>sensor operation ..... 127</li> <li>sensor output voltage                   <ul style="list-style-type: none"> <li>checking voltage range from the cab ..... 94</li> <li>checking voltage range manually ..... 85</li> </ul> </li> </ul> </li> <li>Case IH 7230/8230/9230 combines ..... 92               <ul style="list-style-type: none"> <li>calibrating                   <ul style="list-style-type: none"> <li>AHHC ..... 96</li> <li>maximum stubble height ..... 124</li> </ul> </li> <li>height sensor output voltage range –                   <ul style="list-style-type: none"> <li>combine requirements ..... 85</li> </ul> </li> <li>how AHHC works ..... 77</li> <li>sensor operation ..... 127</li> <li>sensor output voltage                   <ul style="list-style-type: none"> <li>checking voltage range from the cab ..... 94</li> <li>checking voltage range manually ..... 85</li> </ul> </li> </ul> </li> <li>Case IH 8010 combines ..... 92               <ul style="list-style-type: none"> <li>calibrating                   <ul style="list-style-type: none"> <li>AHHC ..... 96</li> <li>maximum stubble height ..... 124</li> </ul> </li> <li>height sensor output voltage range –                   <ul style="list-style-type: none"> <li>combine requirements ..... 85</li> </ul> </li> <li>how AHHC works ..... 77</li> <li>sensor operation ..... 127</li> <li>sensor output voltage                   <ul style="list-style-type: none"> <li>checking voltage range from the cab ..... 94</li> <li>checking voltage range manually ..... 85, 92</li> </ul> </li> </ul> </li> <li>Case IH combines with version 28.00 software               <ul style="list-style-type: none"> <li>calibrating the AHHC ..... 97</li> </ul> </li> <li>Gleaner R62/R72 series combines               <ul style="list-style-type: none"> <li>calibrating                   <ul style="list-style-type: none"> <li>maximum stubble height ..... 124</li> </ul> </li> <li>sensor operation ..... 127</li> <li>sensor output voltage                   <ul style="list-style-type: none"> <li>checking voltage range manually ..... 85</li> </ul> </li> </ul> </li> <li>Gleaner R65/R75 series combines               <ul style="list-style-type: none"> <li>calibrating                   <ul style="list-style-type: none"> <li>maximum stubble height ..... 124</li> </ul> </li> <li>sensor operation ..... 127</li> <li>sensor output voltage                   <ul style="list-style-type: none"> <li>checking voltage range manually ..... 85</li> </ul> </li> </ul> </li> <li>John Deere 50 series combines               <ul style="list-style-type: none"> <li>calibrating                   <ul style="list-style-type: none"> <li>maximum stubble height ..... 124</li> </ul> </li> <li>height sensor output voltage range –                   <ul style="list-style-type: none"> <li>combine requirements ..... 85</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>how AHHC works ..... 77</li> <li>sensor operation ..... 127</li> <li>sensor output voltage               <ul style="list-style-type: none"> <li>checking voltage range manually ..... 85</li> </ul> </li> <li>John Deere 60 series combines ..... 99               <ul style="list-style-type: none"> <li>adjusting                   <ul style="list-style-type: none"> <li>drop rate valve threshold ..... 104</li> <li>sensing grain header height ..... 102</li> <li>sensitivity ..... 103</li> </ul> </li> <li>calibrating                   <ul style="list-style-type: none"> <li>AHHC ..... 100</li> <li>maximum stubble height ..... 124</li> </ul> </li> <li>height sensor output voltage range –                   <ul style="list-style-type: none"> <li>combine requirements ..... 85</li> </ul> </li> <li>how AHHC works ..... 77</li> <li>sensor operation ..... 127</li> <li>sensor output voltage                   <ul style="list-style-type: none"> <li>checking voltage range from the cab ..... 99</li> <li>checking voltage range manually ..... 85</li> <li>turning the accumulator off ..... 101</li> </ul> </li> </ul> </li> <li>John Deere 70 series combines ..... 106               <ul style="list-style-type: none"> <li>adjusting                   <ul style="list-style-type: none"> <li>raise/lower rate manually ..... 110</li> <li>sensitivity ..... 109</li> </ul> </li> <li>calibrating                   <ul style="list-style-type: none"> <li>AHHC ..... 108</li> <li>feeder house speed ..... 108</li> <li>maximum stubble height ..... 124</li> </ul> </li> <li>height sensor output voltage range –                   <ul style="list-style-type: none"> <li>combine requirements ..... 85</li> </ul> </li> <li>how AHHC works ..... 77</li> <li>sensor operation ..... 127</li> <li>sensor output voltage                   <ul style="list-style-type: none"> <li>checking voltage range from the cab ..... 106</li> <li>checking voltage range manually ..... 85</li> </ul> </li> </ul> </li> <li>John Deere S series combines ..... 112               <ul style="list-style-type: none"> <li>adjusting                   <ul style="list-style-type: none"> <li>preset cutting height ..... 117</li> <li>raise/lower rate manually ..... 117</li> <li>sensitivity ..... 116</li> </ul> </li> <li>calibrating                   <ul style="list-style-type: none"> <li>AHHC ..... 114</li> <li>maximum stubble height ..... 124</li> </ul> </li> <li>height sensor output voltage range –                   <ul style="list-style-type: none"> <li>combine requirements ..... 85</li> </ul> </li> <li>how AHHC works ..... 77</li> <li>sensor operation ..... 127</li> <li>sensor output voltage                   <ul style="list-style-type: none"> <li>checking voltage range from the cab ..... 112</li> <li>checking voltage range manually ..... 85</li> </ul> </li> </ul> </li> <li>Lexion 500 series combines               <ul style="list-style-type: none"> <li>calibrating                   <ul style="list-style-type: none"> <li>maximum stubble height ..... 124</li> </ul> </li> <li>sensor operation ..... 127</li> </ul> </li> </ul>
---	--

## INDEX

- sensor output voltage
    - checking voltage range manually ..... 85
  - Lexion 700 series combines
    - calibrating
      - maximum stubble height ..... 124
    - sensor operation ..... 127
    - sensor output voltage
      - checking voltage range manually ..... 85
  - New Holland CR/CX series combines ..... 120
    - adjusting
      - header lower rate ..... 125
      - header raise rate ..... 125
      - sensitivity ..... 126
    - calibrating
      - AHHC ..... 122
      - maximum stubble height ..... 124
    - engaging AHHC ..... 121
    - height sensor output voltage range –
      - combine requirements ..... 85
    - how AHHC works ..... 77
    - sensor operation ..... 127
    - sensor output voltage
      - checking voltage range from the cab ..... 120
      - checking voltage range manually ..... 85
- B**
- break-in periods ..... 31
- C**
- Case IH combines ..... 33
    - attaching to ..... 33
    - detaching from ..... 36
  - clutch ..... 72
  - combine completion package
    - combine completion package kit (optional) ..... 228
  - component identification ..... 19
  - conversion charts ..... 231
  - crop deflectors ..... 66
    - installing ..... 67
    - removing ..... 66
  - cutterbar rubber seal
    - adjusting cutterbar rubber seal ..... 73
  - cylinders
    - bleeding cylinders and lines ..... 209
    - cylinder hoses, *See* hydraulic hoses and lines
    - master cylinder, *See* master cylinder
    - replacing hold-down hydraulic cylinders ..... 203
    - slave cylinder, *See* slave cylinders
- D**
- decks
    - maintenance ..... 171
  - declaration of conformity ..... i
  - detaching from combines
    - Case IH ..... 36
    - John Deere 60/70 and S series ..... 43
    - New Holland ..... 49
  - draper belts ..... 171
    - belt tension ..... 68
      - adjusting front deck ..... 69
      - adjusting rear deck ..... 70
      - checking tension ..... 68
    - installing belts
      - front draper belt ..... 172
      - rear draper belt ..... 176
    - removing belts
      - front draper belt ..... 171
      - rear draper belt ..... 174
  - draper fingers and guides ..... 178
    - replacing draper fingers ..... 178
    - replacing draper guide ..... 178
  - draper roll bearings
    - drive roller bearings
      - replacing front deck left side bearing ..... 192
      - replacing front deck right side bearing ..... 194
      - replacing rear deck left side bearing ..... 180
      - replacing rear deck right side bearing ..... 184
    - idler roller bearings
      - replacing front deck idler roller bearings ..... 194
      - replacing rear deck left side idler roll bearing ..... 188
      - replacing rear deck right side idler roll bearing ..... 188
  - draper roller bearings ..... 180
  - draper speed sensors ..... 215
    - adjusting sensor ..... 215
    - checking sensor position ..... 215
    - replacing sensor ..... 216
  - drapers ..... 171
    - See also* draper fingers and guides
    - See also* draper roller bearings
    - See also* draper belts
    - See also* draper speed sensors
    - adjusting draper speed ..... 54
  - drivelines ..... 72
    - driveline clutch
      - replacing ..... 142
    - driveline guard ..... 72, 143
      - installing ..... 144
      - removing ..... 143
    - driveline splined shaft ..... 146
    - header driveline ..... 139
      - installing ..... 140

## INDEX

- removing ..... 139
  - header driveshaft ..... 139
  - drives
    - auger drives ..... 154
    - draper drives ..... 147
    - driveline guard ..... 143
    - header driveline ..... 139
    - header driveshaft ..... 139
    - maintenance ..... 139
- E**
- electrical, *See* lights
  - electrical system
    - components
      - header height controller (MD #158069)
        - adjusting left-hand side ..... 86
        - adjusting right-hand side ..... 86
        - installing left-hand side ..... 80
        - installing right-hand side ..... 83
        - removing left-hand side ..... 78
        - removing right-hand side ..... 81
    - endshields ..... 23, 136
      - left-hand endshield
        - closing ..... 24
        - installing ..... 137
        - opening ..... 23
        - removing ..... 136
- F**
- flighting extensions
    - replacing flighting extensions ..... 170
  - float, *See* auger float, header float
  - fluids and lubricants ..... 241
  - front deck, *See* roller bearings
    - aligning rollers ..... 196
- G**
- greasing
    - fluids and lubricants ..... 241
    - maintenance schedule/record ..... 131
- H**
- header float
    - adjusting ..... 62
  - header spring float assemblies ..... 199
    - installing header spring float assembly ..... 200
    - removing header spring float assembly ..... 199
  - headers
    - attaching/detaching the header ..... 33
  - changing header opening ..... 32
  - maintaining and servicing the header, *See* maintenance and servicing
  - operating the header ..... 53
    - See also* attaching to combine
    - See also* detaching from combine
    - See also* operating heights
    - See also* operating speeds
    - See also* transporting the header
  - storing the header ..... 75
  - transporting the header ..... 52
  - height controllers ..... 77
  - hold-downs ..... 65, 202
    - hold-down performance kit (optional) ..... 227
    - hold-down position ..... 65
    - hold-down rods
      - replacing fiberglass rods ..... 202
      - rod angle ..... 66
    - lift cylinder safety props
      - engaging ..... 27
    - replacing hold-down hydraulic cylinders ..... 203
  - hydraulic cylinders
    - master cylinder, *See* master cylinders
    - replacing hold-down hydraulic cylinders ..... 203
      - bleeding cylinders and lines ..... 209
      - master cylinder
        - installing master cylinder ..... 205
        - removing master cylinder ..... 203
      - slave cylinder
        - installing slave cylinder ..... 208
        - removing slave cylinder ..... 206
    - slave cylinder, *See* slave cylinders
  - hydraulic hoses and lines ..... 209
    - bleeding cylinders and lines ..... 209
    - replacing cylinder hoses
      - installing master cylinder hose ..... 213
      - removing master cylinder hose ..... 210
  - hydraulic motors
    - draper drives ..... 147
    - hydraulic motor hoses
      - installing hoses ..... 152
      - removing hoses ..... 150
    - hydraulic motors
      - front hydraulic motor
        - installing ..... 148
        - removing ..... 147
      - rear hydraulic motor
        - installing ..... 150
        - removing ..... 149
  - hydraulics, *See* hydraulic hoses and lines
  - fittings
    - flare-type ..... 234
    - O-ring boss (ORB) adjustable ..... 236
    - O-ring boss (ORB) non-adjustable ..... 238



## INDEX

- O-ring face seal (ORFS)..... 239
- hydraulic safety ..... 6
- I**
- introduction ..... iii
- declaration of conformity ..... i
- J**
- John Deere combines ..... 40
- attaching to 60/70 and S series ..... 40
- detaching from 60/70 and S series ..... 43
- L**
- lift cylinder safety props
- header ..... 26
- hold-down ..... 27
- lighting
- transport lights ..... 52
- lights ..... 219
- transport lights
- adjusting lights ..... 219
- replacing lamp housing ..... 221
- replacing lens ..... 220
- replacing light bulb ..... 220
- lubricating headers
- greasing procedure ..... 133
- lubricating the header ..... 133
- greasing points ..... 134
- installing sealed bearing ..... 135
- recommended fluids and lubricants ..... 241
- M**
- maintenance
- metric bolts
- torque when bolting onto cast
- aluminum ..... 234
- torque specifications ..... 231
- flare-type hydraulic fittings ..... 234
- metric bolt specifications ..... 232
- O-ring boss (ORB) hydraulic fittings
- adjustable ..... 236
- non-adjustable ..... 238
- O-ring face seal (ORFS) hydraulic fittings ..... 239
- maintenance and servicing ..... 129
- conversion charts ..... 231
- end of season service ..... 132
- lights ..... 219
- lubricating the header ..... 133
- maintenance record ..... 131
- maintenance requirements ..... 130
- maintenance safety ..... 5
- maintenance schedule ..... 131
- preparing header for servicing ..... 129
- preseason/annual service ..... 132
- recommended fluids and lubricants ..... 241
- master cylinders
- bleeding cylinders and lines ..... 209
- master cylinder ..... 203
- installing master cylinder ..... 205
- removing master cylinder ..... 203
- master cylinder hose
- installing master cylinder hose ..... 213
- removing master cylinder hose ..... 210
- metric bolts
- torque specifications ..... 232
- N**
- New Holland combines ..... 46
- attaching to ..... 46
- detaching from ..... 49
- O**
- operating heights ..... 60
- header height ..... 60
- pick-up height ..... 61
- adjusting pick-up height ..... 61
- operating speeds ..... 53
- auger speed ..... 54
- draper speed ..... 54
- operator responsibilities ..... 21
- options
- combine completion package kit ..... 228
- hold-down performance kit ..... 227
- options and attachments ..... 227
- owner responsibilities ..... 21
- R**
- rear deck, See roller bearings
- aligning rollers ..... 189
- rods (fiberglass) ..... 202
- S**
- safety
- alert symbols ..... 1
- break-in period ..... 31
- daily start-up checks ..... 29
- general safety ..... 3
- hydraulic safety ..... 6
- maintenance and servicing ..... 5

## INDEX

- safety sign decals..... 7
    - installing decals ..... 7
    - interpreting decals..... 12
    - location ..... 8
  - shutdown procedures ..... 30
  - signal words..... 2
  - safety props, *See* lift cylinder safety props
  - sensors
    - draper speed sensor, *See* draper speed sensors
  - serial numbers
    - locating..... iii
  - shutdown procedures..... 30
  - slave cylinders..... 206
    - bleeding cylinders and lines ..... 209
    - installing slave cylinder ..... 208
    - removing slave cylinder ..... 206
  - specifications
    - component identification ..... 19
    - header dimensions ..... 18
    - header specifications ..... 17
    - recommended fluids and lubricants ..... 241
    - torque specifications ..... 231
  - sprockets ..... 157
    - drive sprocket
      - installing ..... 161
      - removing ..... 160
    - driven sprocket
      - installing ..... 158
      - removing ..... 157
  - start-up procedures
    - daily start-up check ..... 29
  - storing headers..... 75
  - stripper plates
    - replacing stripper plates..... 169
    - stripper plate clearance..... 59
      - adjusting clearance ..... 60
      - checking clearance ..... 59
- ### T
- torque specifications ..... 231
    - flare-type hydraulic fittings ..... 234
    - metric bolt specifications ..... 232
      - bolting into cast aluminum ..... 234
    - O-ring boss (ORB) fittings
      - (non-adjustable) ..... 238
      - O-ring boss (ORB) hydraulic fittings
        - (adjustable) ..... 236
        - O-ring face seal (ORFS) fittings..... 239
  - transporting the header ..... 52
    - lights ..... 219
    - transport lights ..... 52
  - troubleshooting..... 223
- ### U
- unplugging headers ..... 73
- ### W
- wheels and tires ..... 217
    - tires
      - inflating tire ..... 217
      - installing wheel ..... 218
      - removing wheel ..... 217



**MacDon Industries Ltd.**

680 Moray Street  
Winnipeg, Manitoba  
Canada R3J 3S3  
t. (204) 885-5590  
f. (204) 832-7749

**MacDon, Inc.**

10708 N. Pomona Avenue  
Kansas City, Missouri  
United States 64153-1924  
t. (816) 891-7313  
f. (816) 891-7323

**MacDon Australia Pty. Ltd.**

A.C.N. 079 393 721  
P.O. Box 243, Suite 3, 143 Main Street  
Greensborough, Victoria, Australia 3088  
t. 03 9432 9982  
f. 03 9432 9972

**LLC MacDon Russia Ltd.**

123317 Moscow, Russia  
10 Presnenskaya nab, Block C  
Floor 5, Office No. 534, Regus Business Centre  
t. +7 495 775 6971  
f. +7 495 967 7600

## CUSTOMERS

[MacDon.com](http://MacDon.com)

## DEALERS

[Portal.MacDon.com](http://Portal.MacDon.com)

Trademarks of products are the marks of their respective manufacturers and/or distributors.

Printed in Canada