MacDon

R216
Rotary Disc Header

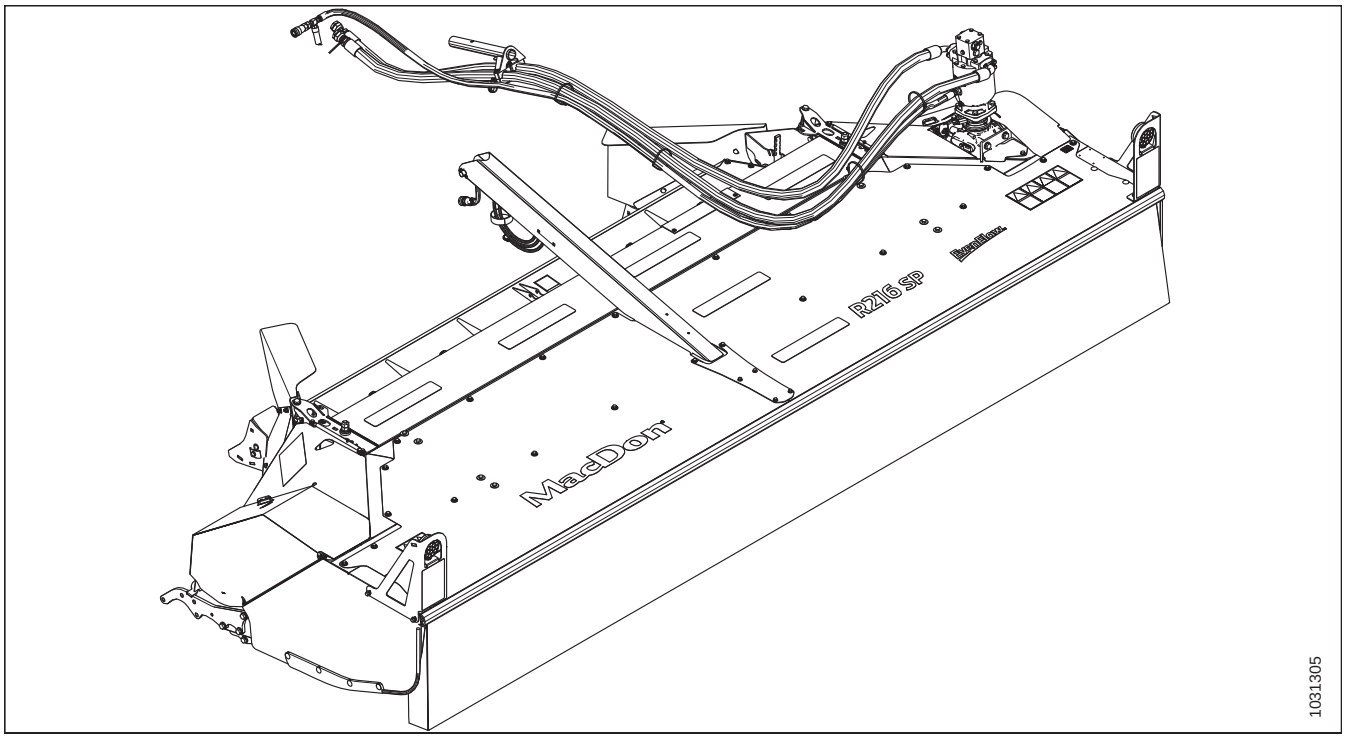
Operator's Manual

215403 Revision A

Original Instruction

The Harvesting Specialists.

R216 Rotary Disc Header



Published October 2020.

Declaration of Conformity

CE

EC Declaration of Conformity

[1] MacDon

MacDon Industries Ltd.
680 Moray Street,
Winnipeg, Manitoba, Canada
R3J 3S3

[2] Rotary Disc Header

[3] MacDon R216

[4] As per Shipping Document

[5] October 1, 2020

[6] _____
Christoph Martens
Product Integrity

EN

We, [1]

Declare, that the product:

Machine Type: [2]

Name & Model: [3]

Serial Number(s): [4]

fulfils all the relevant provisions of the Directive 2006/42/EC.

Harmonized standards used, as referred to in Article 7(2):

EN ISO 4254-1:2013
EN ISO 4254-7:2009

Place and date of declaration: [5]

Identity and signature of the person empowered to draw up the declaration: [6]

Name and address of the person authorized to compile the technical file:

Benedikt von Riedesel
General Manager, MacDon Europe GmbH
Hagenauer Straße 59
65203 Wiesbaden (Germany)
bvonriedesel@macdon.com

BG

Ние, [1]

декларираме, че следният продукт:

Тип машина: [2]

Наименование и модел: [3]

Сериен номер(а) [4]

отговаря на всички приложими разпоредби на директива 2006/42/ЕО.

Използвани са следните хармонизирани стандарти според чл. 7(2):

EN ISO 4254-1:2013
EN ISO 4254-7:2009

Място и дата на декларацията: [5]

Име и подпис на лицето, упълномощено да изготви декларацията: [6]

Име и адрес на лицето, упълномощено да състави техническия файл:

Бенедикт фон Рийдезел
Управител, MacDon Europe GmbH
Hagenauer Straße 59
65203 Wiesbaden (Германия)
bvonriedesel@macdon.com

CZ

My, [1]

Prohlašujeme, že produkt:

Typ zařízení: [2]

Název a model: [3]

Sériové(á) číslo)a): [4]

splňuje všechna relevantní ustanovení směrnice 2006/42/EC.

Byly použity harmonizované standardy, jak je uvedeno v článku 7(2):

EN ISO 4254-1:2013
EN ISO 4254-7:2009

Místo a datum prohlášení: [5]

Identita a podpis osoby oprávněné k vydání prohlášení: [6]

Jméno a adresa osoby oprávněné k vyplnění technického souboru:

Benedikt von Riedesel
generální ředitel, MacDon Europe GmbH
Hagenauer Straße 59
65203 Wiesbaden (Německo)
bvonriedesel@macdon.com

DA

Vi, [1]

erklærer, at prduktet:

Maskintype [2]

Navn og model: [3]

Serienummer (-numre): [4]

Opfylder alle bestemmelser i direktiv 2006/42/EF.

Anvendte harmoniserede standarder, som henvist til i paragraf 7(2):

EN ISO 4254-1:2013
EN ISO 4254-7:2009

Sted og dato for erklæringen: [5]

Identitet på og underskrift fra den person, som er bemyndiget til at udarbejde erklæringen: [6]

Navn og adresse på den person, som er bemyndiget til at udarbejde den tekniske fil:

Benedikt von Riedesel
Direktør, MacDon Europe GmbH
Hagenauer Straße 59
D-65203 Wiesbaden (Tyskland)
bvonriedesel@macdon.com

DE

Wir, [1]

Erklären hiermit, dass das Produkt:

Maschinentyp: [2]

Name & Modell: [3]

Seriennummer (n): [4]

alle relevanten Vorschriften der Richtlinie 2006/42/EG erfüllt.

Harmonisierte Standards wurden, wie in folgenden Artikeln angegeben, verwendet 7(2):

EN ISO 4254-1:2013
EN ISO 4254-7:2009

Ort und Datum der Erklärung: [5]

Name und Unterschrift der Person, die dazu befugt ist, die Erklärung auszustellen: [6]

Name und Anschrift der Person, die dazu berechtigt ist, die technischen Unterlagen zu erstellen:

Benedikt von Riedesel
General Manager, MacDon Europe GmbH
Hagenauer Straße 59
65203 Wiesbaden
bvonriedesel@macdon.com

ES

Nosotros [1]

declaramos que el producto:

Tipo de máquina: [2]

Nombre y modelo: [3]

Números de serie: [4]

cumple con todas las disposiciones pertinentes de la directriz 2006/42/EC.

Se utilizaron normas armonizadas, según lo dispuesto en el artículo 7(2):

EN ISO 4254-1:2013
EN ISO 4254-7:2009

Lugar y fecha de la declaración: [5]

Identidad y firma de la persona facultada para draw redactar la declaración: [6]

Nombre y dirección de la persona autorizada para elaborar el expediente técnico:

Benedikt von Riedesel
Gerente general - MacDon Europe GmbH
Hagenauer Straße 59
65203 Wiesbaden (Alemania)
bvonriedesel@macdon.com

ET

Meie, [1]

deklareerime, et toode

Seadme tüüp: [2]

Nimi ja mudel: [3]

Seerianumbrid: [4]

vastab kõigile direktiivi 2006/42/EÜ asjakohastele sätetele.

Kasutatud on järgnevaid harmoniseeritud standardeid, millele on viidatud ka punktis 7(2):

EN ISO 4254-1:2013
EN ISO 4254-7:2009

Deklaratsiooni koht ja kuupäev: [5]

Deklaratsiooni koostamiseks volitatud isiku nimi ja allkiri: [6]

Tehnilise dokumendi koostamiseks volitatud isiku nimi ja aadress:

Benedikt von Riedesel
Peadirektor, MacDon Europe GmbH
Hagenauer Straße 59
65203 Wiesbaden (Saksamaa)
bvonriedesel@macdon.com

FR

Nous soussignés, [1]

Déclarons que le produit :

Type de machine : [2]

Nom et modèle : [3]

Numéro(s) de série : [4]

Est conforme à toutes les dispositions pertinentes de la directive 2006/42/EC.

Utilisation des normes harmonisées, comme indiqué dans l'Article 7(2):

EN ISO 4254-1:2013
EN ISO 4254-7:2009

Lieu et date de la déclaration : [5]

Identité et signature de la personne ayant reçu le pouvoir de rédiger cette déclaration : [6]

Nom et adresse de la personne autorisée à constituer le dossier technique :

Benedikt von Riedesel
Directeur général, MacDon Europe GmbH
Hagenauer Straße 59
65203 Wiesbaden (Allemagne)
bvonriedesel@macdon.com

1033956

The Harvesting Specialists MacDon

EC Declaration of Conformity

IT

Noi, [1]

Dichiariamo che il prodotto:

Tipo di macchina: [2]

Nome e modello: [3]

Numero(i) di serie: [4]

soddisfa tutte le disposizioni rilevanti della direttiva 2006/42/CE.

Utilizzo degli standard armonizzati, come indicato nell'Articolo 7(2):

EN ISO 4254-1:2013

EN ISO 4254-7:2009

Luogo e data della dichiarazione: [5]

Nome e firma della persona autorizzata a redigere la dichiarazione: [6]

Nome e persona autorizzata a compilare il file tecnico:

Benedikt von Riedesel
General Manager, MacDon Europe GmbH
Hagenauer Straße 59
65203 Wiesbaden (Germania)
bvonriedesel@macdon.com

HU

Mi, [1]

Ezennel kijelentjük, hogy a következő termék:

Gép típusa: [2]

Név és modell: [3]

Sériaszám(ok): [4]

teljesíti a következő irányelv összes vonatkozó előírásait: 2006/42/EK.

Az alábbi harmonizált szabványok kerültek alkalmazásra a 7(2) cikkely szerint:

EN ISO 4254-1:2013

EN ISO 4254-7:2009

A nyilatkozattétel ideje és helye: [5]

Azon személy kiléte és aláírása, aki jogosult a nyilatkozat elkészítésére: [6]

Azon személy neve és aláírása, aki felhatalmazott a műszaki dokumentáció összeállítására:

Benedikt von Riedesel
Vezérigazgató, MacDon Europe GmbH
Hagenauer Straße 59
65203 Wiesbaden (Németország)
bvonriedesel@macdon.com

LT

Mes, [1]

Pareiškiame, kad šis produktas:

Mašinos tipas: [2]

Pavadinimas ir modelis: [3]

Serijos numeris (-iai): [4]

atitinka taikomus reikalavimus pagal Direktyvą 2006/42/EB.

Naudojami harmonizuoti standartai, kai nurodoma straipsnyje 7(2):

EN ISO 4254-1:2013

EN ISO 4254-7:2009

Deklaracijos vieta ir data: [5]

Asmens tapatybės duomenys ir parašas asmens, įgalioto sudaryti šią deklaraciją: [6]

Vardas ir pavardė asmens, kuris įgaliotas sudaryti šį techninį failą:

Benedikt von Riedesel
Generalinis direktorius, MacDon Europe GmbH
Hagenauer Straße 59
65203 Wiesbaden (Vokietija)
bvonriedesel@macdon.com

LV

Mēs, [1]

Deklarējam, ka produkts:

Mašīnas tips: [2]

Nosaukums un modelis: [3]

Sērijas numurs(-i): [4]

Atbilst visām būtiskajām Direktīvas 2006/42/EK prasībām.

Piemēroti šādi saskaņotie standarti , kā minēts 7. panta 2. punktā:

EN ISO 4254-1:2013

EN ISO 4254-7:2009

Deklarācijas parakstīšanas vieta un datums: [5]

Tās personas vārds, uzvārds un paraksts, kas ir pilnvarota sagatavot šo deklarāciju: [6]

Tās personas vārds, uzvārds un adrese, kas ir pilnvarota sastādīt tehnisko dokumentāciju:

Benedikts fon Rīdīzels
Ģenerāldirektors, MacDon Europe GmbH
Hagenauer Straße 59
65203 Wiesbaden (Vācija)
bvonriedesel@macdon.com

NL

Wij, [1]

Verklaren dat het product:

Machinetype: [2]

Naam en model: [3]

Serienummer(s): [4]

voldoet aan alle relevante bepalingen van de Richtlijn 2006/42/EC.

Geharmoniseerde normen toegepast, zoals vermeld in Artikel 7(2):

EN ISO 4254-1:2013

EN ISO 4254-7:2009

Plaats en datum van verklaring: [5]

Naam en handtekening van de bevoegde persoon om de verklaring op te stellen: [6]

Naam en adres van de geautoriseerde persoon om het technisch dossier samen te stellen:

Benedikt von Riedesel
Algemeen directeur, MacDon Europe GmbH
Hagenauer Straße 59
65203 Wiesbaden (Duitsland)
bvonriedesel@macdon.com

PO

My niżej podpisani, [1]

Oświadczamy, że produkt:

Typ urządzenia: [2]

Nazwa i model: [3]

Numer seryjny/numery seryjne: [4]

spełnia wszystkie odpowiednie przepisy dyrektywy 2006/42/WE.

Zastosowaliśmy następujące (zharmonizowane) normy zgodnie z artykułem 7(2):

EN ISO 4254-1:2013

EN ISO 4254-7:2009

Data i miejsce oświadczenia: [5]

Imię i nazwisko oraz podpis osoby upoważnionej do przygotowania deklaracji: [6]

Imię i nazwisko oraz adres osoby upoważnionej do przygotowania dokumentacji technicznej:

Benedikt von Riedesel
Dyrektor generalny, MacDon Europe GmbH
Hagenauer Straße 59
65203 Wiesbaden (Niemcy)
bvonriedesel@macdon.com

PT

Nós, [1]

Declaramos, que o produto:

Tipo de máquina: [2]

Nome e Modelo: [3]

Número(s) de Série: [4]

cumpre todas as disposições relevantes da Directiva 2006/42/CE.

Normas harmonizadas aplicadas, conforme referido no Artigo 7(2):

EN ISO 4254-1:2013

EN ISO 4254-7:2009

Local e data da declaração: [5]

Identidade e assinatura da pessoa autorizada a elaborar a declaração: [6]

Nome e endereço da pessoa autorizada a compilar o ficheiro técnico:

Benedikt von Riedesel
Gerente Geral, MacDon Europa Ltda.
Hagenauer Straße 59
65203 Wiesbaden (Alemanha)
bvonriedesel@macdon.com

RO

Noi, [1]

Declarăm, că următorul produs:

Tipul mașinii: [2]

Denumirea și modelul: [3]

Număr (numere) serie: [4]

corespunde tuturor dispozițiilor esențiale ale directivei 2006/42/EC.

Au fost aplicate următoarele standarde armonizate conform articolului 7(2):

EN ISO 4254-1:2013

EN ISO 4254-7:2009

Data și locul declarației: [5]

Identitatea și semnătura persoanei împuternicite pentru întocmirea declarației: [6]

Numele și semnătura persoanei autorizate pentru întocmirea cărții tehnice:

Benedikt von Riedesel
Manager General, MacDon Europe GmbH
Hagenauer Straße 59
65203 Wiesbaden (Germania)
bvonriedesel@macdon.com

SR

Mi, [1]

Izjavljujemo da proizvod

Tip mašine: [2]

Naziv i model: [3]

Serijski broj(evi): [4]

Ispunjava sve relevantne odredbe direktive 2006/42/EC.

Korišæeni su usklađeni standardi kao što je navedeno u èlanu 7(2):

EN ISO 4254-1:2013

EN ISO 4254-7:2009

Datum i mesto izdavanja deklaracije: [5]

Identitet i potpis lica ovlašæenog za sastavljanje deklaracije: [6]

Ime i adresa osobe ovlašæene za sastavljanje tehniène datoteke:

Benedikt von Riedesel
Generalni direktor, MacDon Europe GmbH
Hagenauer Straße 59
65203 Wiesbaden (Nemačka)
bvonriedesel@macdon.com

SV

Vi, [1]

Intygar att produkten:

Maskintyp: [2]

Namn och modell: [3]

Serienummer: [4]

uppfyller alla relevanta villkor i direktivet 2006/42/EG.

Harmonierade standarder används, såsom anges i artikel 7(2):

EN ISO 4254-1:2013

EN ISO 4254-7:2009

Plats och datum för intyget: [5]

Identitet och signatur för person med befogenhet att upprätta intyget: [6]

Namn och adress för person behörig att upprätta den tekniska dokumentationen:

Benedikt von Riedesel
Administrativ chef, MacDon Europe GmbH
Hagenauer Straße 59
65203 Wiesbaden (Tyskland)
bvonriedesel@macdon.com

SL

Mi, [1]

izjavljamo, da izdelek:

Vrsta stroja: [2]

Ime in model: [3]

Serijska/-e številka/-e: [4]

ustreza vsem zadevnim določbam Direktive 2006/42/ES.

Uporabljeni usklajeni standardi, kot je navedeno v členu 7(2):

EN ISO 4254-1:2013

EN ISO 4254-7:2009

Kraj in datum izjave: [5]

Istovetnost in podpis osebe, opolnomočene za pripravo izjave: [6]

Ime in naslov osebe, pooblaščene za pripravo tehnične datoteke:

Benedikt von Riedesel
Generalni direktor, MacDon Europe GmbH
Hagenauer Straße 59
65203 Wiesbaden (Nemčija)
bvonriedesel@macdon.com

SK

My, [1]

týmto prehlasujeme, že tento výrobok:

Typ zariadenia: [2]

Názov a model: [3]

Výrobné číslo: [4]

spĺňa príslušné ustanovenia a základné požiadavky smernice č. 2006/42/ES.

Použité harmonizované normy, ktoré sa uvádzajú v Článku č. 7(2):

EN ISO 4254-1:2013

EN ISO 4254-7:2009

Miesto a dátum prehlásenia: [5]

Meno a podpis osoby oprávnenej vypracovať toto prehlásenie: [6]

Meno a adresa osoby oprávnenej zostaviť technický súbor:

Benedikt von Riedesel
Generálny riaditeľ MacDon Europe GmbH
Hagenauer Straße 59
65203 Wiesbaden (Nemecko)
bvonriedesel@macdon.com

Introduction

This instructional manual contains safety, operating, and maintenance procedures for the MacDon R216 Rotary Disc Header, including a Grass Seed (GSS) version. The rotary disc header when attached to a MacDon M1240 or M205 SP Windrower, is designed to cut, condition, and lay a wide variety of grasses and hay crops in windrows.

NOTE:

The Grass Seed version of the R216 Rotary Disc Header is incompatible with M205 SP Windrowers.

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

Use this manual as your first source of information about the machine. If you follow the instructions provided in this manual, and use MacDon parts, the rotary disc header will work well for many years. If you require more detailed service information, contact your Dealer.

Use the Table of Contents and the Index to guide you to specific topics. Study the Table of Contents to familiarize yourself with how the material is organized. Keep this manual handy for frequent reference and to pass on to new Operators or Owners. Call your Dealer if you need assistance, information, or additional copies of this manual.

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

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

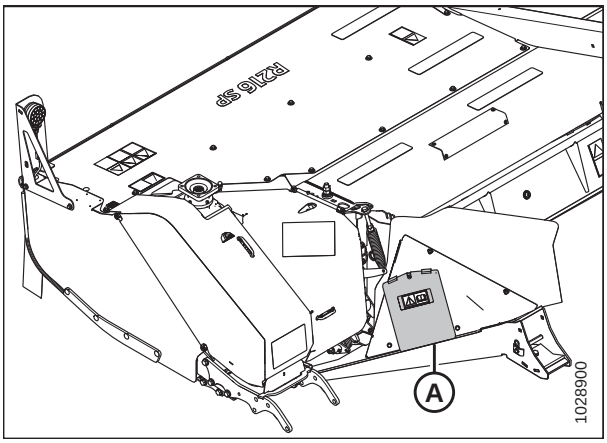
- Accident
- Misuse
- Abuse
- Improper maintenance or neglect
- Abnormal or extraordinary use of the machine
- Failure to use the machine, equipment, component, or part in accordance with the manufacturer's instructions

Conventions

The following conventions are used in this document:

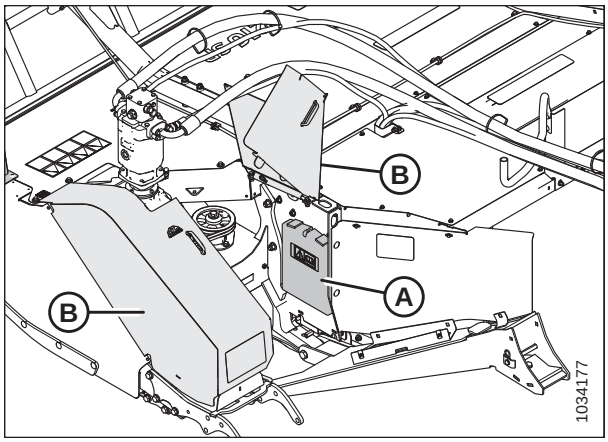
- Right and left are determined from the operator's position. The front of the rotary disc header faces the crop.
- Unless otherwise noted, use the standard torque values provided in this manual.

Standard headers: Store the operator's manual and the parts catalog in the plastic manual case (A) on the left fixed deflector.



Manual Storage Case – Standard Headers

Grass seed option: Store the operator's manual and the parts catalog in the plastic manual case (A) located inside driveshields (B).



Manual Storage Case – Grass Seed (GSS) Option

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

Summary of Changes

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

Section	Summary of Change	Internal Use Only
Throughout	The following bystanders statements such as the example below are consistently a DANGER throughout the manual: • Check to be sure all bystanders have cleared the area.	Tech Pubs
Throughout	The following statement is consistently a DANGER throughout the manual: • To avoid bodily injury or death from unexpected startup of the machine, always stop the engine and remove the key from the ignition before leaving the operator's seat for any reason.	Tech Pubs
Throughout	The following statement is consistently a WARNING throughout the manual: • To reduce the risk of personal injury, do NOT operate the machine without the driveshields in place and secured.	Tech Pubs
Throughout	The following statement is consistently a WARNING throughout the manual: • Never use gasoline, naphtha, or any volatile material for cleaning purposes. These materials may be toxic and/or flammable.	Tech Pubs
Throughout	The following statement is consistently a WARNING throughout the manual: • Damaged or loose disc blades or blade attachment hardware can be ejected during machine operation and may cause personal injury or machine damage.	Tech Pubs
Throughout	The following statement is consistently a WARNING throughout the manual: • Disc blades have two sharp cutting edges that can cause serious injury. Exercise caution and wear gloves when working with blades.	Tech Pubs
Throughout	The following statement is an IMPORTANT consistently throughout the manual: • Damaged blades may damage the cutterbar and result in poor cutting performance. Replace damaged blades immediately.	Tech Pubs
Throughout	Kit MD #B6664 is now consistently referred to as the Remote Baffle Control kit.	Tech Pubs

Section	Summary of Change	Internal Use Only
Throughout	Added links to M205 procedures wherever procedures for the M1240 are mentioned, if applicable. For example, procedures that linked to engaging header safety props for the M1240 now have a link for the M205.	ECN 58180
Declaration of Conformity, page i	Added Declaration of Conformity.	Tech Pubs
Introduction, page iii	Added compatibility information about M205 Windrowers.	ECN 58180
Introduction, page iii	Added information about the grass seed (GSS) version of the R216 Rotary Disc Header. Added illustration of whether the manual storage case on the GSS version.	ECN 60771 ECN 60742 ECN 60743
Serial Number, page xiii	Added information about the grass seed (GSS) version of the R216 Rotary Disc Header to the illustration caption.	ECN 60771 ECN 60742 ECN 60743
1.8 Locating Safety Decals – Standard Header, page 9 • Figure *1.17, page 10*	Added decal MD #184372.	Tech Pubs
1.9 Locating Safety Decals – Grass Seed Header, page 11	Added topic because a grass seed version of the R216 Rotary Disc Header is now available.	ECN 60771 ECN 60742 ECN 60743
1.10 Understanding Safety Signs, page 13 • Figure	Added decal MD #184372.	Tech Pubs
1.10 Understanding Safety Signs, page 13 • Figure *1.22, page 13*	Added decal MD #246959 because a grass seed version of the R216 Rotary Disc Header is now available.	ECN 60771 ECN 60742 ECN 60743
2.1 Specifications, page 17	Added “M205” to the “Compatible windrower” and “Disc speed” field.	ECN 58180
2.1 Specifications, page 17	Maximum disc speed for M1240 is now 2700 rpm, was 2650 rpm.	Product Support
2.1 Specifications, page 17	Added all references to grass seed option.	ECN 60771 ECN 60742 ECN 60743
2.3 Component Identification – Grass Seed Header, page 20	Added topic because a grass seed version of the R216 Rotary Disc Header is now available.	ECN 60771 ECN 60742 ECN 60743
2.4 Definitions, page 22	Added definition of “GSS.”	ECN 60771 ECN 60742 ECN 60743
3.2 Engaging and Disengaging Header Safety Props, page 26	Added links to M1240 and M205 topics.	ECN 58180
3.3.1 Attaching Forming Shield, page 29 • Step *6, page 30* • Step *9, page 31*	Added steps.	Tech Pubs

Section	Summary of Change	Internal Use Only
3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27	Added topic because R216 is now compatible with M205 Windrowers.	ECN 58180
3.3.2 Attaching R216 Rotary Disc Header to M1240 Windrower, page 31 • Step *7, page 32*	Added step.	Product Support
3.3.3 Connecting R216 Rotary Disc Header Hydraulics and Electrical to an M1240 Windrower, page 36 • Step *9, page 40* • Step *22, page 44* • Step *23, page 44* • Step *25, page 44*	Added steps and/or illustrations to show the grass seed version of the header, or clarified which steps apply to standard headers only.	ECN 60771 ECN 60742 ECN 60743 ECN 60889
3.3.3 Connecting R216 Rotary Disc Header Hydraulics and Electrical to an M1240 Windrower, page 36 • Step *14, page 48* to Step *21, page 49*	Clarified whether these steps apply to all windrowers, or windrower with or without the self-aligning center-link kit.	Tech Pubs
3.4.1 Detaching R216 Rotary Disc Header from an M1240 Windrower, page 45 • Step *5, page 46* • Step *9, page 47* • Step *10, page 47* • Step *11, page 47*	Added steps and/or illustrations to show the grass seed version of the header, or clarified which steps apply to standard headers only.	ECN 60771 ECN 60742 ECN 60743 ECN 60889
3.4.2 Removing Forming Shield , page 50	Added NOTE: • It is **NOT** always necessary to remove the forming shield after detaching the header from the windrower.	Product Support
3.5 Attaching Rotary Disc Header to M205 SP Windrower, page 52	Added topic because R216 is now compatible with M205 Windrowers.	ECN 58180
3.5.1 Attaching Forming Shield to M205 SP Windrower, page 52	Added topic because R216 is now compatible with M205 Windrowers.	ECN 58180
3.5.2 Attaching R216 Rotary Disc Header to M205 SP Windrower – Hydraulic Center-Link with Optional Self-Alignment, page 54	Added topic because R216 is now compatible with M205 Windrowers.	ECN 58180 ECN 60425
3.5.3 Attaching R216 Rotary Disc Header to M205 SP Windrower – Hydraulic Center-Link without Optional Self-Alignment, page 61	Added topic because R216 is now compatible with M205 Windrowers.	ECN 58180 ECN 60425
3.5.4 Connecting R216 Rotary Disc Header Hydraulics and Electrical to an M205 SP Windrower, page 67	Added topic because R216 is now compatible with M205 Windrowers.	ECN 58180
3.6 Detaching Header from M205 SP Windrower, page 73	Added topic because R216 is now compatible with M205 Windrowers.	ECN 58180

Section	Summary of Change	Internal Use Only
3.6.1 Detaching R216 Rotary Disc Header from M205 SP Windrower, page 73	Added topic because R216 is now compatible with M205 Windrowers.	ECN 58180
3.6.2 Removing the Forming Shield , page 79	Added topic because R216 is now compatible with M205 Windrowers.	ECN 58180
3.7.1 Opening Driveshields, page 82 • Step *4, page 83*	Added step.	Tech Pubs
3.7.2 Closing Driveshields, page 84 • Step *1, page 84*	Added “when lifting driveshield” to step. Revised associated illustration to show latch positioned correctly.	Tech Pubs
3.9 Header Settings, page 89 • Table *3.1, page 89*	Added grass seed version of header to table.	ECN 60771 ECN 60742 ECN 60743
Adjusting Gauge Roller Height, page 91 • Step *4, page 91*	Revised illustration to correctly identify scraper plate.	Tech Pubs
Adjusting Gauge Roller Height, page 91 • Step*6, page 92*	Added step to and revised associated illustration.	Tech Pubs
Adjusting Gauge Roller Height, page 91 • Step *3, page 92* • Step *1, page 93*	Revised illustration to correctly identify clevis pins.	Tech Pubs
Adjusting Gauge Roller Height, page 91 • Step *3, page 93*	Replaced two illustrations with this single illustration.	Tech Pubs
3.9.3 Header Float, page 94	Replaced statement about M1240 windrowers with “For instructions on setting and adjusting the header float, refer to your windrower operator’s manual” because the header is now also compatible with M205.	ECN 58180
Adjusting Roll Timing, page 99 • Step *5, page 100* to Step *13, page 102*	Added callouts to illustrations and associated steps for clarity.	Tech Pubs
Positioning Forming Shield Side Deflectors, page 103 • Step *1, page 103*	Added safety step: • Shut down the engine, and remove the key from the ignition.	Tech Pubs
Positioning Rear Baffle, page 104 • Step *1, page 104*	Added safety step: • Shut down the engine, and remove the key from the ignition.	Tech Pubs
Positioning Rear Baffle, page 104 • Step *6, page 104*	Revised NOTE in step about kit MD #B6664 compatibility with M1240 versus M205.	ECN 58180
Positioning Rear Baffle Deflector Fins, page 105 • Step *1, page 105*	Added safety step: • Shut down the engine, and remove the key from the ignition.	Tech Pubs

Section	Summary of Change	Internal Use Only
• *3.11 Grass Seed Version Operation, page 107* • *3.11.1 Activating the Grass Seed Option, page 108* • *3.11.2 Operating in the Field, page 110* • *3.11.3 Preparing for Transport, page 113*	Added grass seed operation topics.	ECN 60771 ECN 60742 ECN 60743
3.12 Cutterbar Deflectors, page 114	Revised introduction: • Kit MD #B6967 supersedes MD #6847	ECN 60280
—	Removed topic titled “Installing Cutterbar Deflectors”.	Tech Pubs
4.2 Preparing Machine for Servicing, page 121 • Step *1, page 121* • Step *2, page 121*	Added M205 Windrower information.	ECN 58180
4.4.1 Maintenance Schedule/Record, page 124	Added gauge roller lubrication to the 25–hour maintenance tasks.	Product Support
4.4.1 Maintenance Schedule/Record, page 124	Added grass seed maintenance task to “Every 50 Hours”.	ECN 60771 ECN 60742 ECN 60743
4.5.3 Lubrication Locations – Grass Seed (Option), page 131	Added grass seed topic.	ECN 60771 ECN 60742 ECN 60743
4.5.4 Lubrication Locations – Gauge Rollers (Option), page 132	Added gauge roller (option) lubrication topic.	Product Support
Refer to topics contained in*4.6 Cutterbar System, page 133*	Revised the hazard statements and introductory safety steps across cutterbar topics to follow the action required by this DANGER statement: • DANGER: To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator’s seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.	Tech Pubs
Inspecting Cutterbar Discs, page 139 • Step *8, page 140*	Added NOTE.	Tech Pubs

Section	Summary of Change	Internal Use Only
Removing Left Driven Drum and Driveline, page 180 • Step *6, page 181* • Step *7, page 182*	Flipped the order of these steps.	Tech Pubs
Lubricating Vertical Drivelines, page 193	Added vertical drivelines lubrication topic.	Engineering
Changing R216 Rotary Disc Header Cutterbar Crop Stream Configuration, page 208	Removed topic titled “Reconfiguring Cutterbar Crop Stream” because all the information is now in “Changing R216 Rotary Disc Header Cutterbar Crop Stream Configuration”	Tech Pubs
4.7.1 Checking and Changing Conditioner Roll Timing Gearbox Oil, page 212	Revised the following WARNING with the following DANGER to mention windrower safety props: • WARNING: To avoid bodily injury or death from unexpected start-up or fall of raised machine: stop engine, remove key, and engage lift cylinder lock-out valves before going under machine. • DANGER To avoid bodily injury or death from unexpected start-up or fall of a raised machine, stop the engine, remove the key, and engage the windrower lift cylinder safety props before going under the machine for any reason.	Tech Pubs
4.8.2 Changing Oil in Header Drive Gearbox, page 217 • Step *1, page 217* to Step *4, page 217*	Added steps.	Tech Pubs
4.10.1 Inspecting Conditioner Components, page 221 • Step *10, page 223*	Updated illustration to show drivelines phased correctly.	ECN 58852
4.11.2 Installing Driveshields, page 229 • Step *1, page 229*	Revised illustration to show the driveshield in the correct position.	Tech Pubs
4.12.2 Replacing Amber Hazard/Signal Light, page 231	Added illustration of grass seed (GSS) version of the R216 Rotary Disc Header.	ECN 60771 ECN 60742 ECN 60743
4.12.3 Replacing Header Disc Speed Sensor, page 233 • Step *10, page 234*	Added illustration of M205 SP Windrower speed sensor.	ECN 58180
4.12.3 Replacing Header Disc Speed Sensor, page 233 • Step *11, page 234*	Changed the torque value of sensor mounting nuts from 12 Nm to 15 Nm.	Tech Pubs

Section	Summary of Change	Internal Use Only
5.1 Tall Crop Kit (Cutterbar Deflectors and Tall Crop Feed Plates) – MD #B6967, page 237	Two kits are now combined into one: Tall Crop kit MD #B6967 supersedes disc feed plate kit MD #B6669 and two-piece cutterbar deflector kit MD #B6847. The two topics for the superseded kits are replaced by one topic.	ECN 60280
5.2 Double Windrow Attachment, page 238	Added M205 to topic.	ECN 58180
5.3 Grass Seed Configuration – MD #C2081, page 239	Added grass seed topic.	ECN 60771 ECN 60742 ECN 60743
5.4 Remote Baffle Control Kit – MD #B6664, page 240	Updated illustration to show the following changes to electrical components: • The main header harness now has a round connector. • The header adapter harness now has a round connector. The connector for the remote baffle kit now has a cap. • The actuator harness connector now has a tethered cap and heat shrink.	ECN 58695 ECN 59853
5.4 Remote Baffle Control Kit – MD #B6664, page 240	Added operation information.	Tech Pubs
6.3 Grass Seed Problems, page 252	Added topic for grass seed (GSS) version of the R216 Rotary Disc Header.	ECN 60771 ECN 60742 ECN 60743
Inside back cover	Conditioner roll timing gearbox oil is now 80W-140, was 85W-140.	ECN 60418

Noise Levels

The A-weighted sound pressure level inside the operator's station of a typical self-propelled vehicle (e.g., M1240), when operated in conjunction with this R216 Rotary Disc Header, **is 70 dBA**. This measurement was taken in accordance with ISO 5131. The sound pressure level depends upon the rotary disc speed, crop conditions, as well as the exact type of self-propelled vehicle used to power the R216 Rotary Disc Header.

Serial Number

Record the serial number and model year of the header in the spaces provided below.

Header model: R216 Rotary Disc Header

Serial number: _____

Model year: _____

The serial number plate (A) is located on the left side of the header, on top of the end panel.

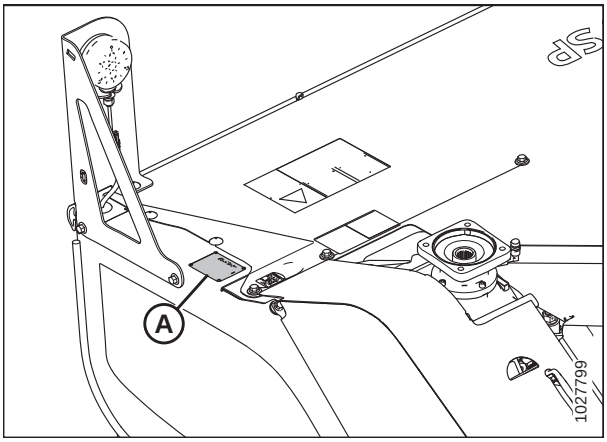


Figure 1: Serial Number Location – Standard Header Shown, Grass Seed Option Location is the Same

Chapter 1: Safety

1.1 Safety Alert Symbols

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

This symbol means:

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

Carefully read and follow the safety message accompanying this symbol.

Why is safety important to you?

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

Figure 1.1: Safety Symbol

1.2 Signal Words

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

Signal words are selected using the following guidelines:

DANGER

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

WARNING

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

CAUTION

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

IMPORTANT:

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

NOTE:

Provides additional information or advice.

1.3 General Safety

Protect yourself when assembling, operating, and servicing machinery.

CAUTION

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

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

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

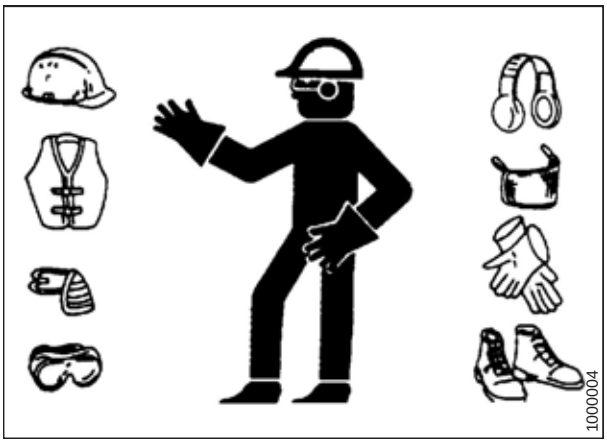


Figure 1.2: Safety Equipment

In addition, take the following precautions:

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

Figure 1.3: Safety Equipment

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

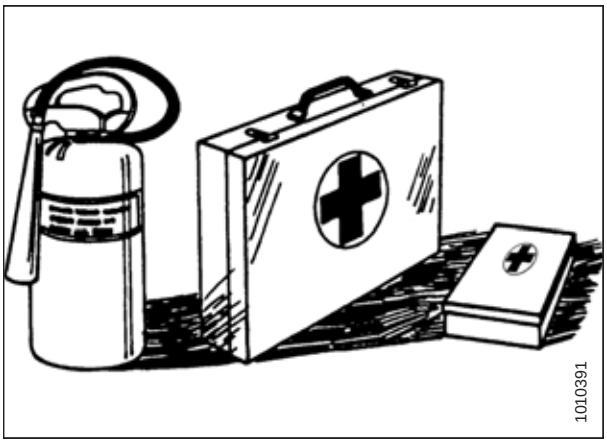


Figure 1.4: Safety Equipment

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

Figure 1.5: Safety around Equipment

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

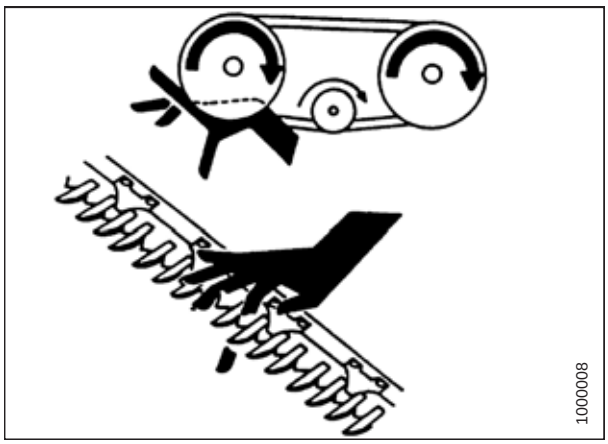


Figure 1.6: Safety around Equipment

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

Figure 1.7: Safety around Equipment

1.4 Maintenance Safety

To ensure your safety while maintaining 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
  - Keep work area well lit

Figure 1.8: Safety around Equipment

- 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 hydraulic systems.
- Keep hands, feet, clothing, and hair away from all moving and/or rotating parts.
- Clear the area of bystanders, especially children, when carrying out any maintenance, repairs, or adjustments.
- Install transport lock or place safety stands under the frame before working under the machine.
- If more than one person is servicing the machine at the same time, be aware that rotating a driveline or other mechanically-driven component by hand (for example, accessing a lubricant fitting) will cause drive components in other areas (belts, pulleys, and knives) to move. Stay clear of driven components at all times.

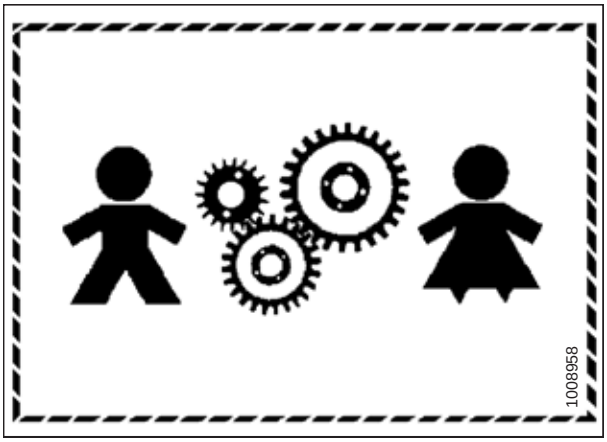


Figure 1.9: Equipment NOT Safe for Children

- Wear protective gear when working on the machine.
- Wear heavy gloves when working on knife components.

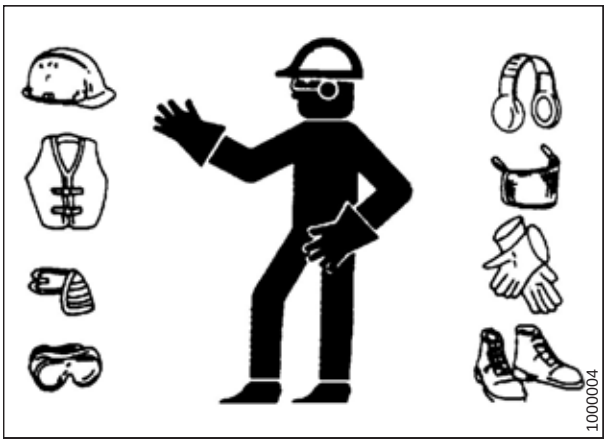


Figure 1.10: Safety Equipment

1.5 Hydraulic Safety

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

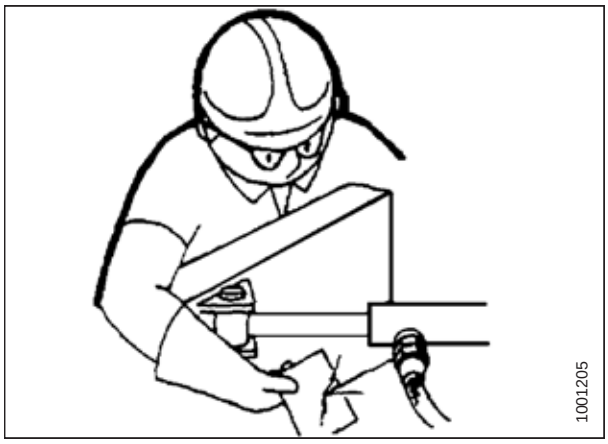


Figure 1.11: Testing for Hydraulic Leaks

- Wear proper hand and eye protection when searching for high-pressure hydraulic leaks. 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 steel lines, hoses, and couplings are in good condition before applying pressure to a hydraulic system.

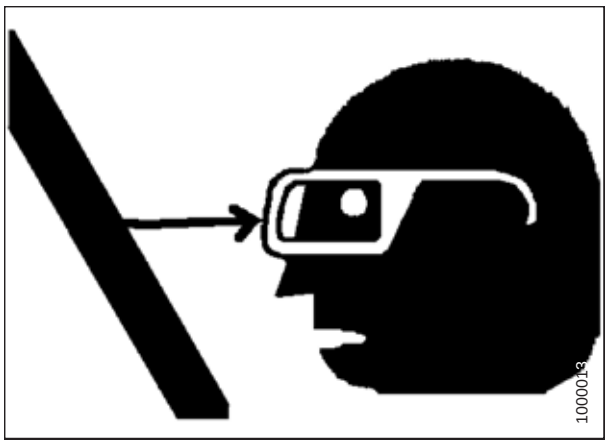


Figure 1.13: Safety around Equipment

1.6 Welding Precaution

To prevent damage to sensitive electronics, welding should never be attempted on the rotary disc header while it is connected to a windrower.

WARNING

Severe damage to sensitive, expensive electronics can result from welding on the header while it is connected to the windrower. It can be impossible to know what effect high current could have with regard to future malfunctions or shorter lifespan. It is very important that welding on the header is not attempted while the header is connected to the windrower.

If it is unfeasible to disconnect the rotary disc header from the windrower before welding, contact your MacDon Dealer for welding precautions detailing all electrical components that must be disconnected first for safe welding.

1.7 Safety Signs

Safety signs (decals) are usually yellow, and are placed on the machine where there is a risk of personal injury, or where the operator has to take extra precaution before operating controls. Operator manuals and technical manuals identify the location and meaning of all safety signs placed on the machine.

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

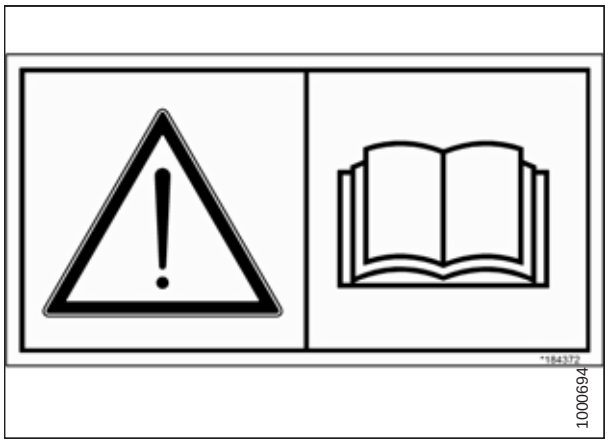


Figure 1.14: Operator's Manual Decal

1.7.1 Installing Safety Decals

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

1.8 Locating Safety Decals – Standard Header

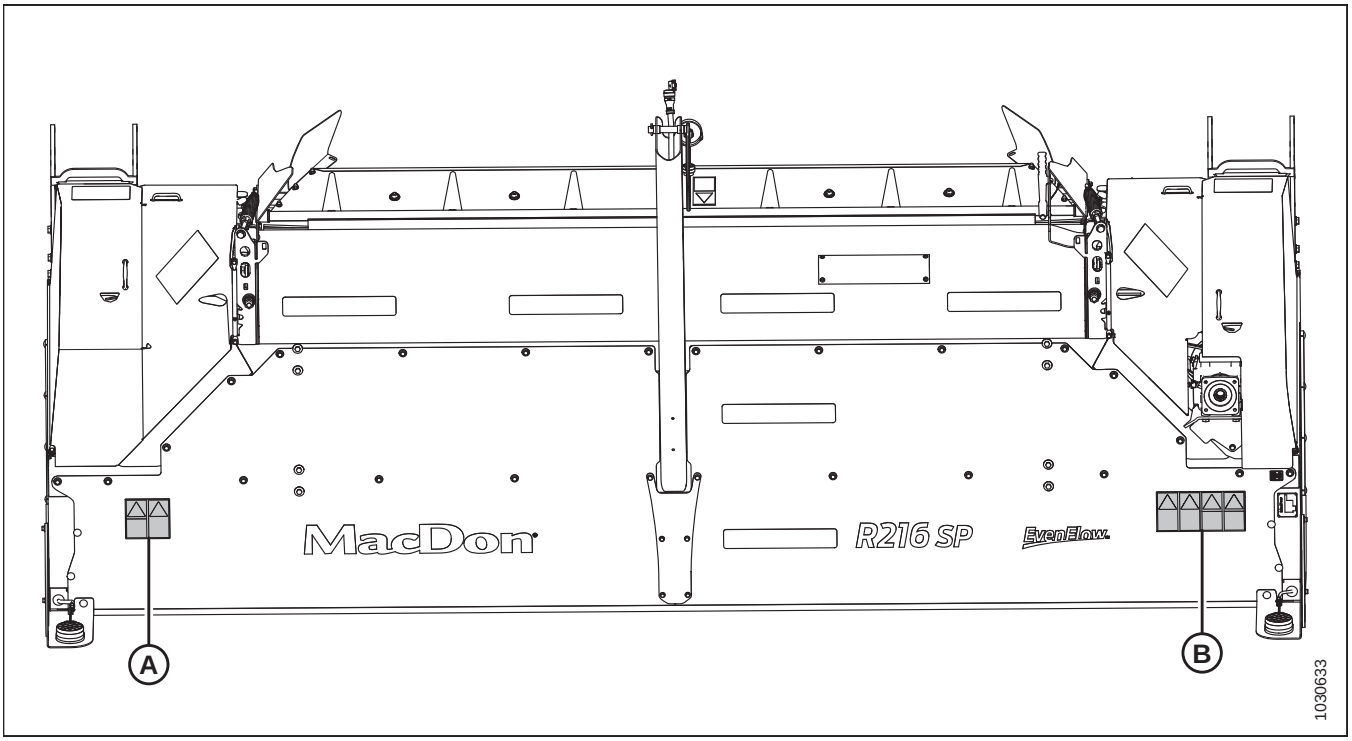


Figure 1.15: Safety Sign Decal Locations – Top View

A - MD #307746 **B - MD #325706**

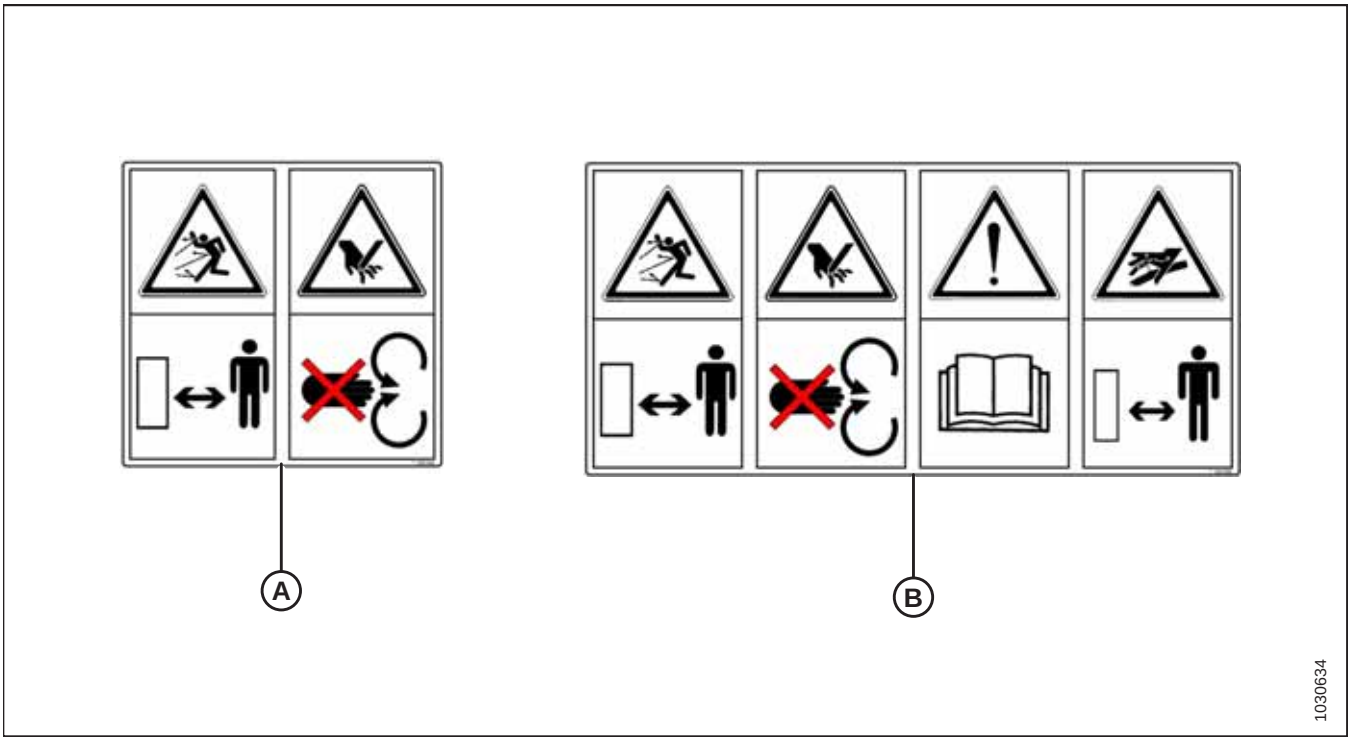


Figure 1.16: Safety Sign Decals

A - MD #307746 **B - MD #325706**

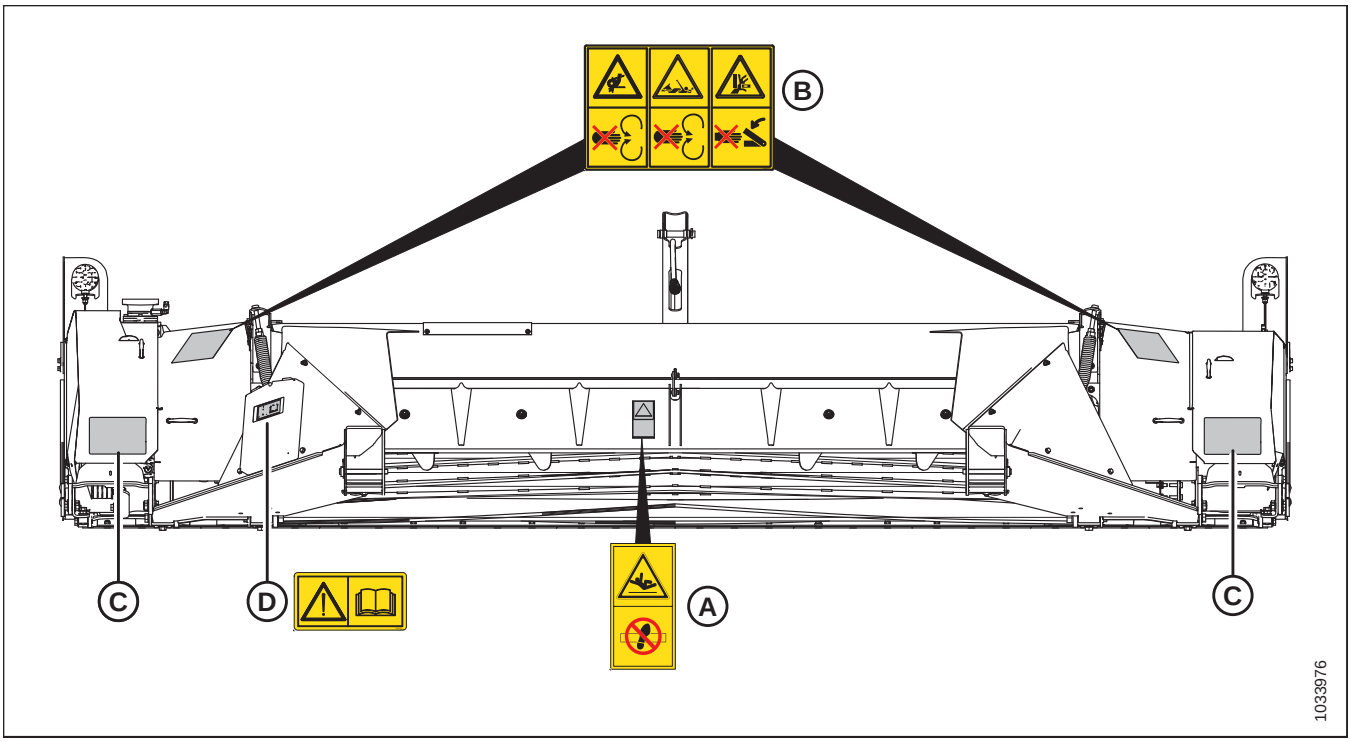


Figure 1.17: Safety Sign Decal Locations – Rear View

A - MD #190546
B - MD #325070
C - Reflector
D - MD #184372

1.9 Locating Safety Decals – Grass Seed Header

Replace missing or damaged decals.

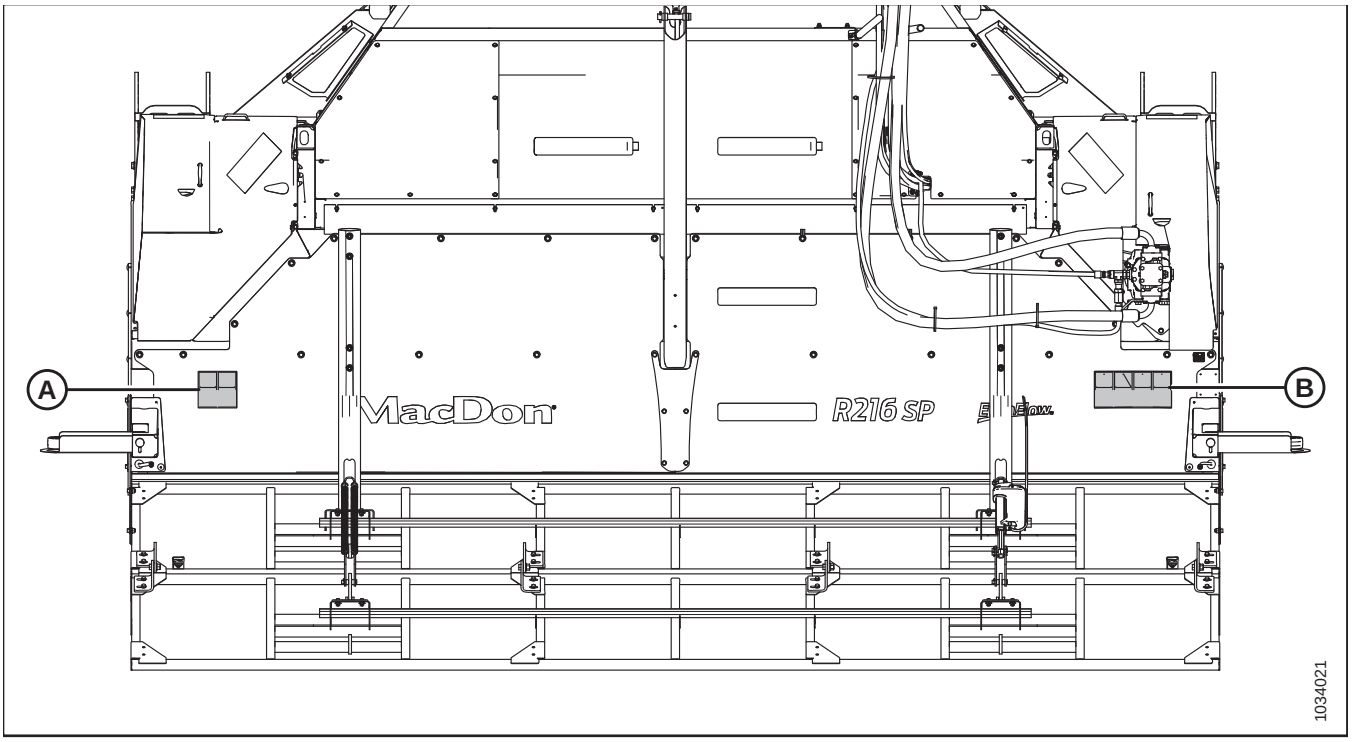


Figure 1.18: Safety Sign Decal Locations – Top View

A - MD #307746 **B - MD #325706**

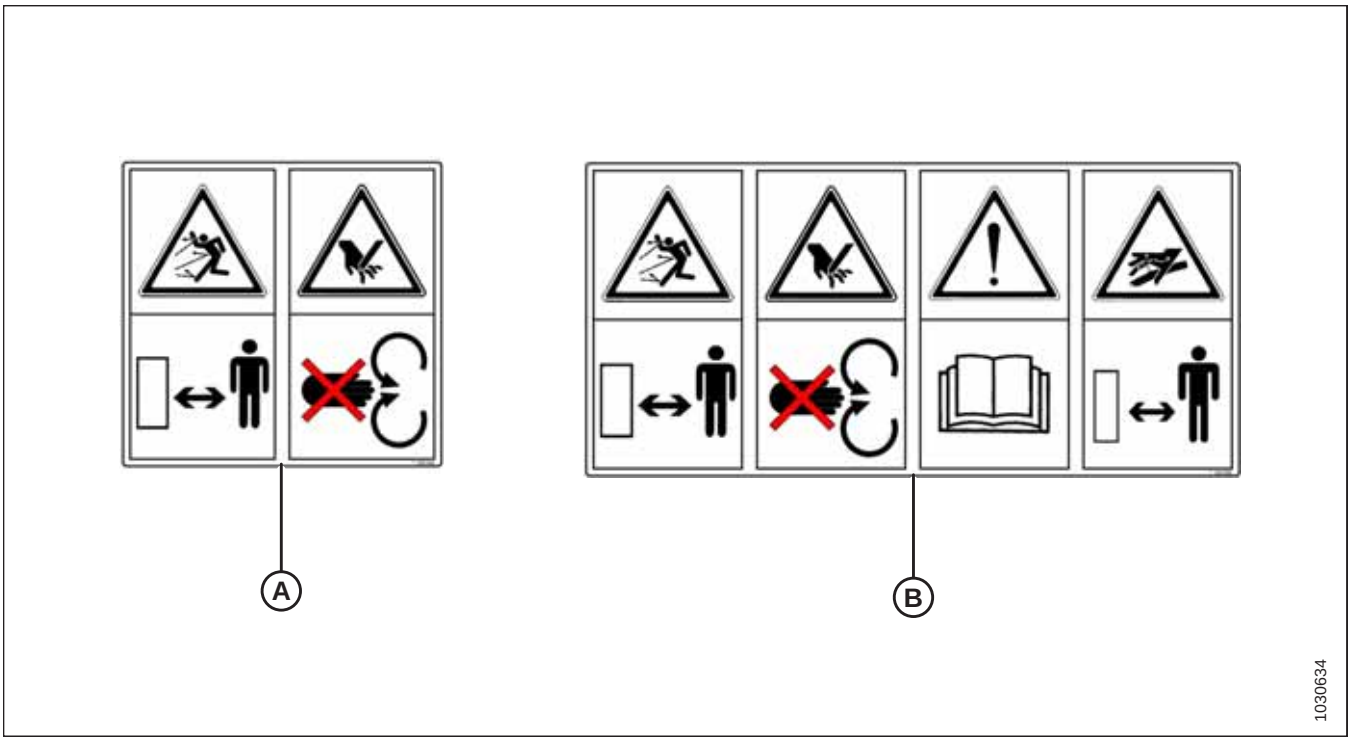


Figure 1.19: Safety Sign Decals

A - MD #307746 **B - MD #325706**

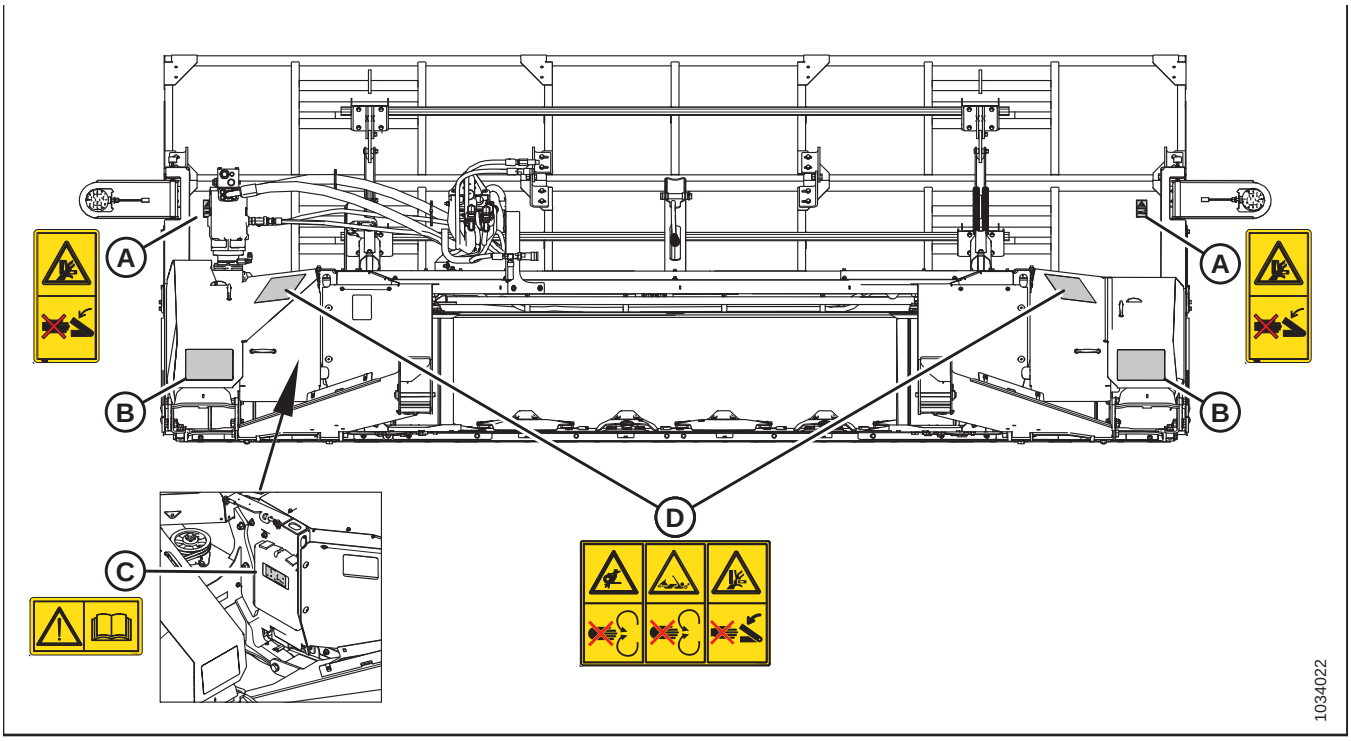


Figure 1.20: Safety Sign Decal Locations – Rear View

A - MD #246959
B- Reflector
C - MD #184372
D- MD #325070

1.10 Understanding Safety Signs

MD #190546

Slipping hazard

WARNING

To prevent injury:

- Do **NOT** use this area as a step or platform.
- Failure to comply could result in serious injury or death.

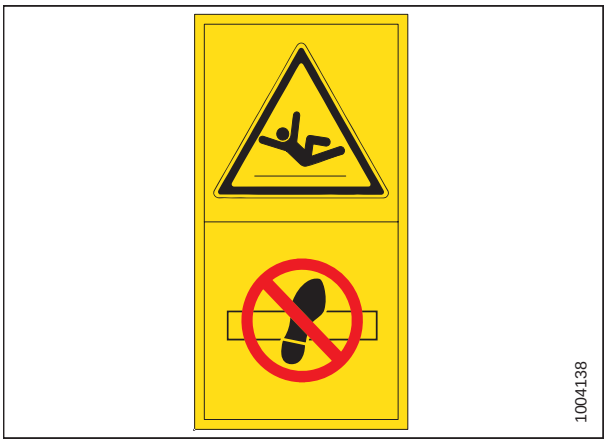


Figure 1.21: MD #190546

MD #246959

Pinch point hazard

CAUTION

To prevent injury:

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

Figure 1.22: MD #246959

MD #307746

Thrown objects hazard

WARNING

To prevent injury or death from thrown objects:

- Stand clear of header while machine is running.
- Crop materials exiting at high speed.
- Stop machine, look, listen, and wait for all movement to stop before approaching.

Blade cutting hazard

WARNING

To prevent injury from sharp cutting blades:

- Do **NOT** operate without shields in place.
- Disengage PTO, stop engine, and remove key before opening shield.
- Blades may continue to rotate after power is shut off.

Figure 1.23: MD #307746

- Listen and look for evidence of rotation before.

MD #325070

Driveline entanglement hazard

DANGER

To prevent injury:

- Stop engine and remove key before opening shield.
- Do **NOT** operate without shields in place.

Hand and arm entanglement hazard

WARNING

To prevent injury:

- Stop engine and remove key before opening shield.
- Do **NOT** operate without shields in place.

Pinch point hazard

CAUTION

To prevent injury:

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

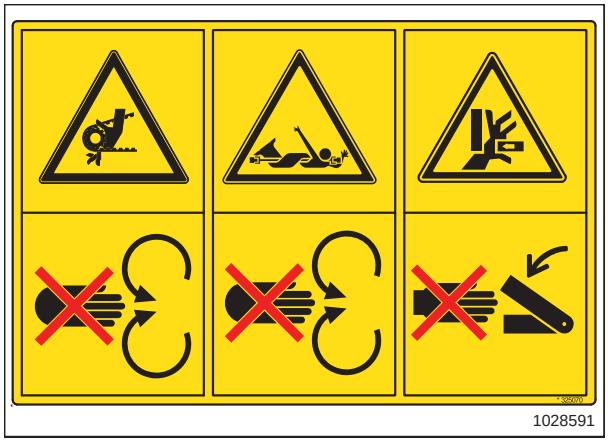


Figure 1.24: MD #325070

MD #325706

Thrown and sharp object/hydraulic oil pressure hazard

WARNING

- Crop materials exiting at high speed.
- Stop machine, look, listen, and wait for all movement to stop before approaching.
- Failure to comply could result in death or serious injury.
- Disengage power take-off, shut off tractor, and remove key before opening covers.
- Listen and look for evidence of rotation before lifting cover.
- Cutters may continue to rotate after power is shut off due to inertia.

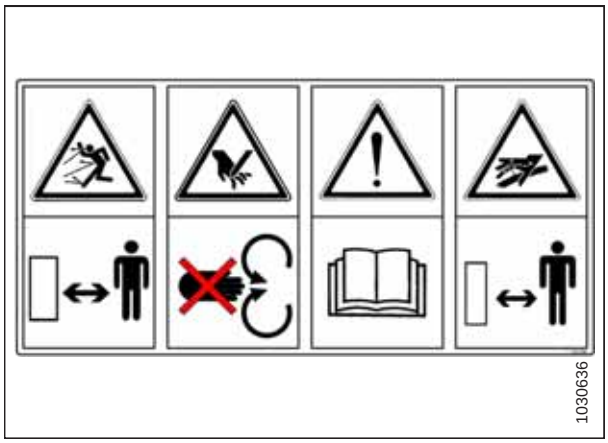


Figure 1.25: MD #325706

- 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 drive, put transmission in Neutral, and wait for all movement to stop before leaving operator's position.

- Shut off engine and remove key from ignition before servicing, adjusting, lubricating, cleaning, or unplugging machine.
- Engage locks to prevent lowering of self-propelled rotary disc header before servicing in the raised position.
- Use slow moving vehicle emblem and flashing warning lights when operating on roadways unless prohibited by law.
- High pressure oil easily punctures skin causing serious injury, gangrene, or death.
- If injured, seek emergency medical help.
- Do **NOT** use finger or skin to check for leaks.
- Lower load or relieve hydraulic pressure before loosening fittings.

Chapter 2: Product Overview

2.1 Specifications

NOTE:

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

Frame and Structure	
Width	5027 mm (198 in.)
Weight: base machine with steel conditioner	2156 kg (4750 lb.)
Weight: base machine with grass seed module and shield	2298 kg (5055 lb.)
Compatible windrower	Standard Header: MacDon M1240 and M205 Grass Seed Header: MacDon M1240
Lighting	Left and right turn signals
Manual storage	Plastic case on header – left header support deflector
Cutterbar	
Number of cutting discs	Ten
Blades per disc	Two 18° bevel down
Disc speed (full engine speed)	If used with M1240 Windrower: 2700 rpm If used with M205 Windrower: 2600 rpm
Blade max tip speed	83.6 m/s (187 mph)
Effective cutting width	4942 mm (16 ft. 2 in.)
Minimum cutting height	20 mm (25/32 in.) at 8° header tilt
Cutting angle range	0–8° below horizontal
Adjustable shoes or gauge rollers	Standard
Gear train protection	Shearpin (safecut)
Feeding Elements	
Converging drums	Four-drum type
Feed roller (standard headers only)	Standard
Diameter (peripheral)	152 mm (6 in.)
Length	3275 mm (6 in.)
Drive (with spring loader idler)	2 HA belt
Speed range	720–1040 rpm
Grass seed module and anti-shatter shield	Optional
Converging drums	Grass seed module adds four drums, for a total of eight drums on the header
Drum speed range	235–705 rpm

Tall crop kit (cutterbar deflectors and tall crop feed plates)	Optional
Drives	
Hydraulic motor	Piston type into 90° gearbox
Cutterbar	Direct drive through 90° gearbox and universal shaft
Conditioner drive	Belt drive (4HB) from 90° gearbox to conditioner
Conditioner roll timing	Timing gearbox
Hay Conditioner Options	
Steel rolls	Optional
Roll type	Steel on steel chevron conditioner rolls
Roll length	3275 mm (129 in.)
Roll diameter	229 mm (9 in.) roll diameter (outer) on 179 mm (7 in.) OD tube
Roll speed	1040 rpm (at disc speed of 2600 rpm)
Polyurethane rolls	Optional
Roll type	Polyurethane intermeshing conditioner rolls
Roll length	3275 mm (129 in.)
Roll diameter	254 mm (10 in.) roll diameter (outer) on 203 mm (8 in.) OD tube
Roll speed	1009 rpm
No conditioner (grass seed module with anti-shatter shield)	Optional
Swath width[1]	915–2438 mm (36–96 in.)
Forming shields	Full width angle-adjustable rear baffle on conditioner with adjustable windrower mounted forming shield

1. Actual swath width may vary based upon conditioner type, crop type, and crop volume.

2.2 Component Identification – Standard Header

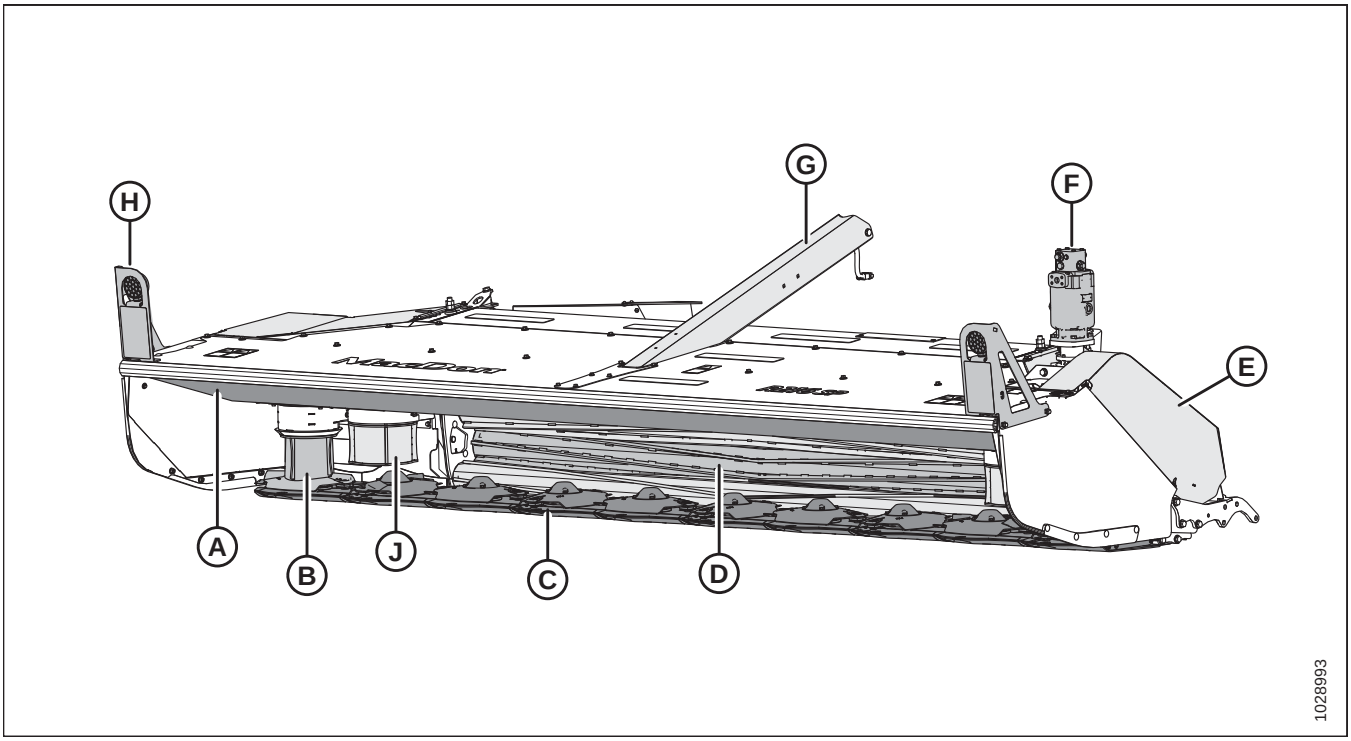


Figure 2.1: R216 Rotary Disc Header – Standard Header

A - Front Curtain
B - Disc Drum (Right Shown)
C - 10-Disc Cutterbar
D - Conditioner Rolls
E - Drive Shield (Left Shown)
F - Hydraulic Motor
G - Center-Link Tube (Welded to Frame)
H - Hazard/Brake Lights
J - Suspended Drum (Right Shown)

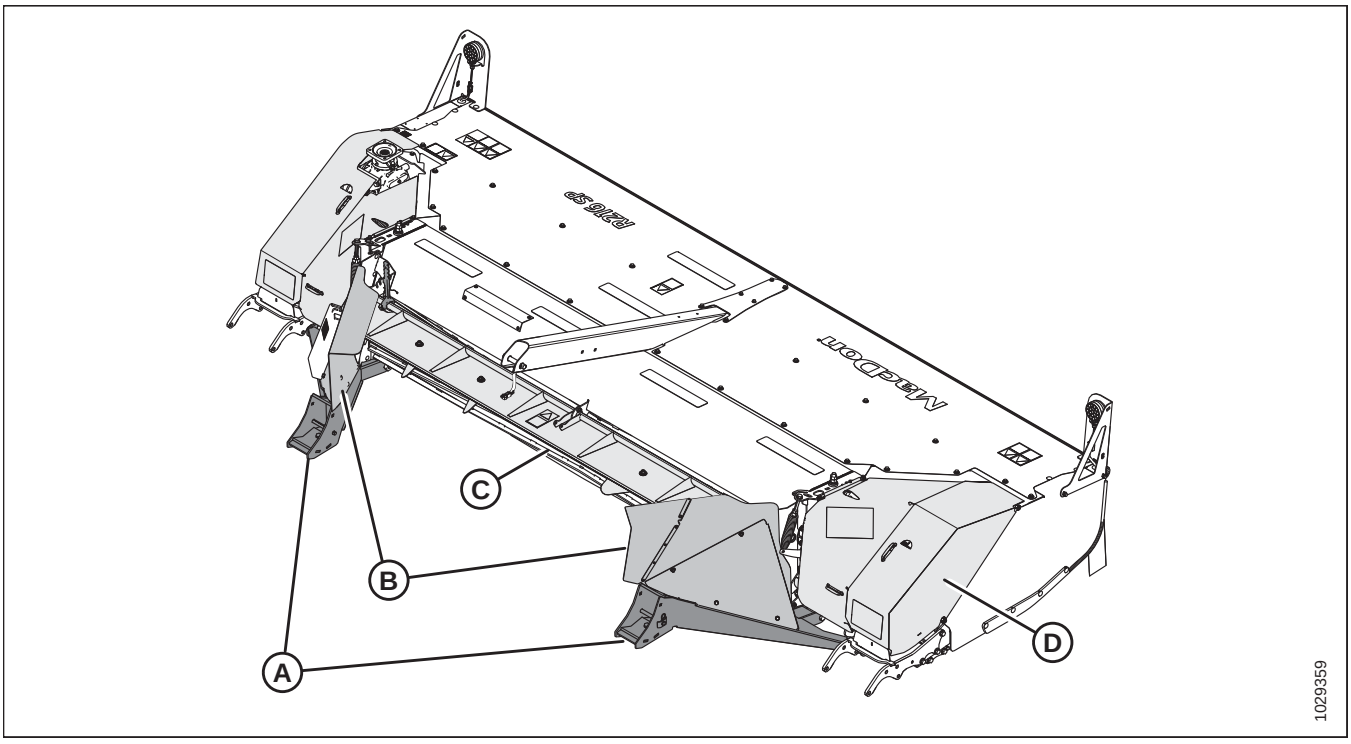


Figure 2.2: R216 Rotary Disc Header – Standard Header

A - Header Supports
B - Deflectors
C - Rear Crop Baffle
D - Drive Shield

2.3 Component Identification – Grass Seed Header

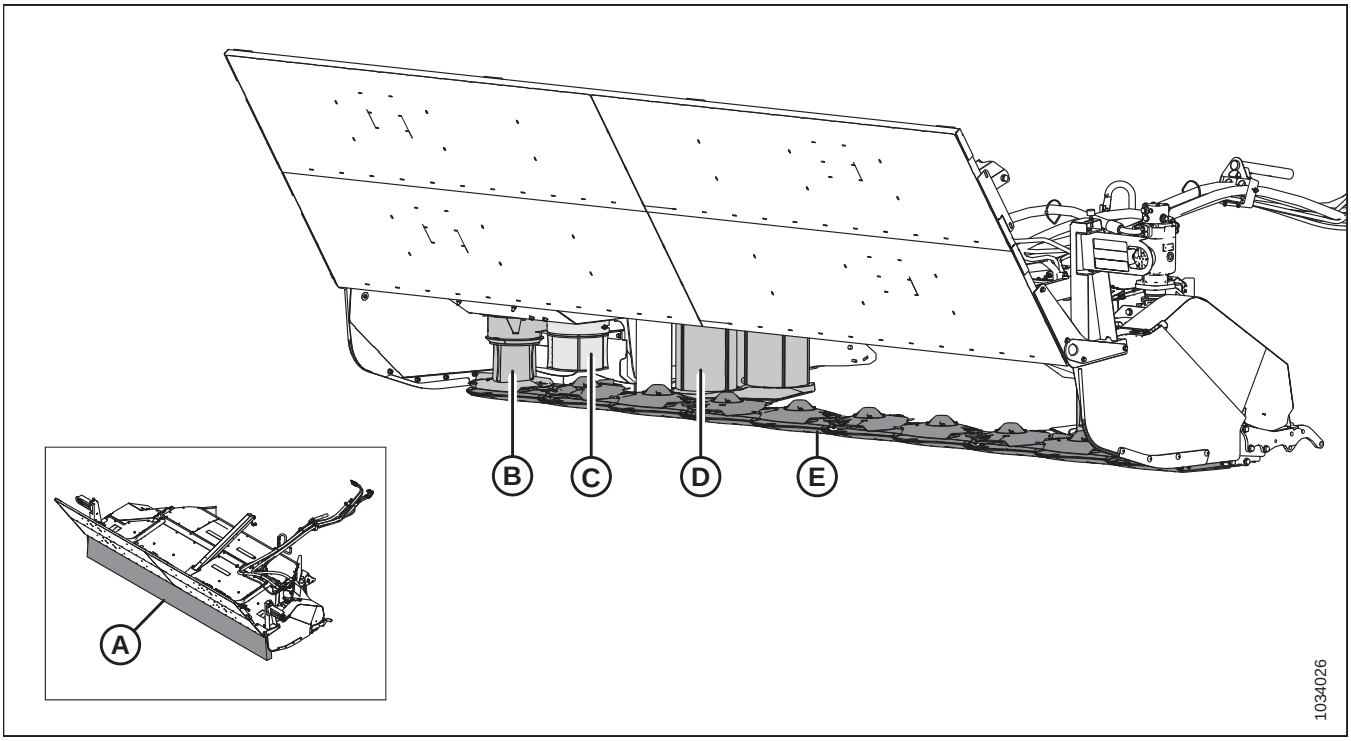


Figure 2.3: R216 Rotary Disc Header – Grass Seed Header

A - Front Curtain **B - Disc Drum (Right)** **C - Suspended Drum (Right)** **D - Grass Seed Module Drums x 2 (Right)**
E - 10-Disc Cutterbar

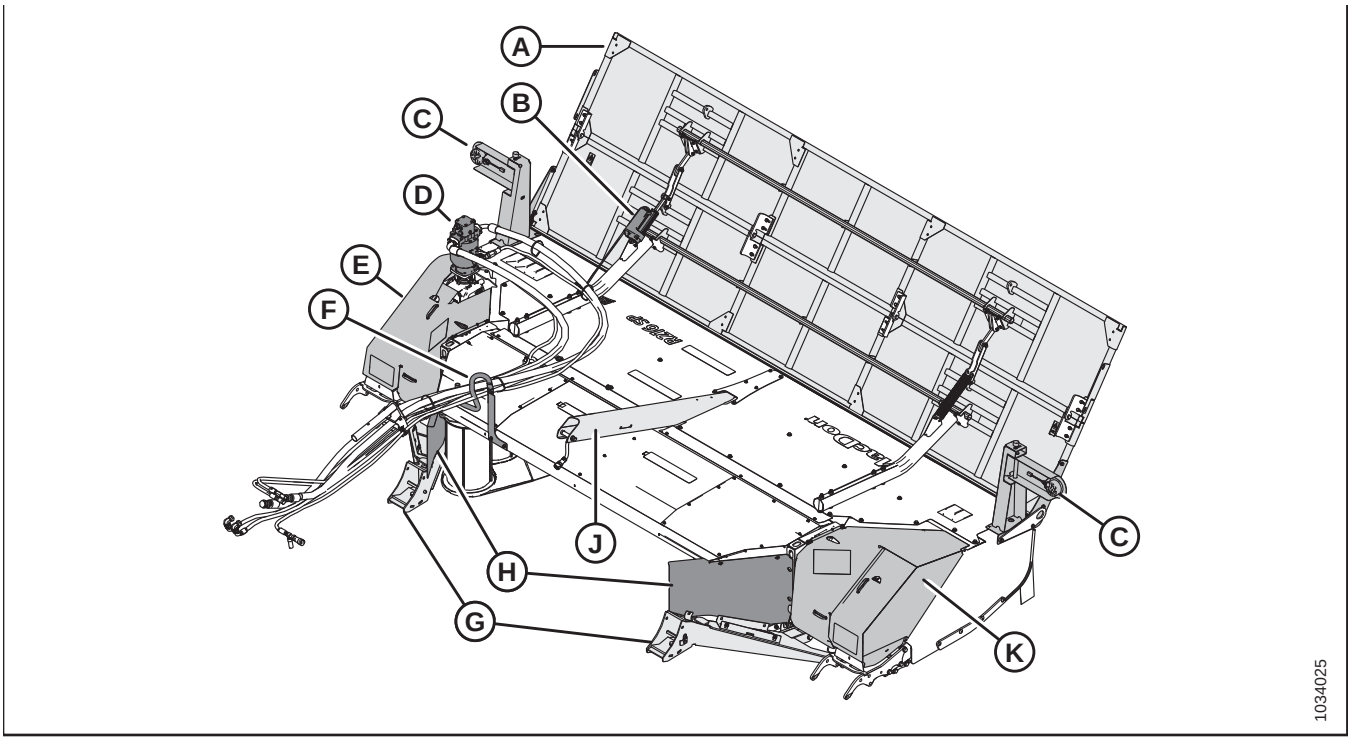


Figure 2.4: R216 Rotary Disc Header – Grass Seed Header

A - Anti-Shatter Shield
B Actuator for Anti-Shatter Shield
C - Hazard/Brake Lights
D - Hydraulic Motor
E - Left Drive Shield
F - Hose Guide
G - Header Supports
H - Deflectors
J - Center-Link Tube (Welded to Frame)
K - Right Drive Shield

2.4 Definitions

The following terms 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
Cab-forward	Windrower operation with Operator and cab facing in direction of travel
CDM	Cab display module on an M Series Windrower
Center-link	A hydraulic cylinder link between the header and machine used to change header angle
CGVW	Combined gross vehicle weight
Export header	Header configuration typical outside North America
FFFT	Flats from finger tight
Finger tight	Finger tight is a reference position where sealing surfaces or components are making contact with each other, and fitting has been tightened to a point where fitting is no longer loose
GSS	Grass Seed
GVW	Gross vehicle weight
Hard joint	A joint made with use of a fastener where joining materials are highly incompressible
Header	A machine that cuts and lays crop into a windrow and is attached to a windrower
Hex key	A tool of hexagonal cross-section used to drive bolts and screws that have a hexagonal socket in head (internal-wrenching hexagon drive); also known as an Allen key and various other synonyms
hp	Horsepower
HPT display	Harvest Performance Tracker display module on an M1 Series Windrower
JIC	Joint Industrial Council: A standards body that developed standard sizing and shape for original 37° flared fitting
M1 Series	MacDon M1170 and M1240 Windrowers
n/a	Not applicable
North American header	Header configuration typical in North America
NPT	National Pipe Thread: A style of fitting used for low-pressure port openings. Threads on NPT fittings are uniquely tapered for an interference fit
Nut	An internally threaded fastener that is designed to be paired with a bolt
ORB	O-ring boss: A style of fitting commonly used in port openings on manifolds, pumps, and motors
ORFS	O-ring face seal: A style of fitting commonly used for connecting hoses and tubes. This style of fitting is also commonly called ORS, which stands for O-ring seal

Term	Definition
PARK	The slot opposite the NEUTRAL position on operator's console of M1 Series windrowers
R2 SP Series	MacDon R216 Rotary Disc Headers for windrowers
rpm	Revolutions per minute
SAE	Society of Automotive Engineers
Screw	A headed and externally threaded fastener that threads into preformed threads or forms its own thread into a mating part
Soft joint	A joint made with use of a fastener where joining materials are compressible or experience relaxation over a period of time
Tension	Axial load placed on a bolt or screw, usually measured in Newtons (N) or pounds (lb.)
TFFT	Turns from finger tight
Torque	The product of a force X lever arm length, usually measured in Newton-meters (Nm) or foot-pounds (lbf·ft)
Torque angle	A tightening procedure where fitting is assembled to a precondition (finger tight) and then nut is turned farther a number of degrees to achieve its final position
Torque-tension	The relationship between assembly torque applied to a piece of hardware and axial load it induces in bolt or screw
Washer	A thin cylinder with a hole or slot located in the center that is to be used as a spacer, load distribution element, or locking mechanism
Windrower	Power unit for a header

Chapter 3: Operation

3.1 Break-In Period

After attaching the header to the windrower for the first time, operate the machine slowly for 5 minutes, watching and listening from the operator's seat for binding or interfering parts.

NOTE:

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

M1240 Windrowers:

DANGER

Before investigating an unusual sound or attempting to correct a problem, stop the engine, put the ground speed lever (GSL) in PARK, and remove the key.

M205 SP Windrowers:

DANGER

Before investigating an unusual sound or attempting to correct a problem, place ground speed lever (GSL) in N-DETENT, shut off engine, and remove key.

NOTE:

Perform the items specified in *4.4.2 Break-In Inspections, page 126*.

3.2 Engaging and Disengaging Header Safety Props

Safety props are located on both header lift cylinders on the windrower.

Proceed according to the model of windrower:

- If using an M1240 Windrower, refer to *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*.
- If using an M205 Windrower, refer to *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*.

3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower

Safety props are located on both header lift cylinders on the windrower. Engage the props anytime you are going to work on or around raised header. When engaged, safety props prevent a header from dropping suddenly if the lift system hydraulics lose pressure.

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop engine and remove key before leaving the operator's seat, and always engage safety props before going under the machine for any reason.

1. Start the engine.
2. Press HEADER UP switch (A) to raise the header to maximum height.

   NOTE:

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

   a. Press and hold HEADER UP switch (A) until both cylinders stop moving.

   b. Continue to hold the switch for 3–4 seconds. Cylinders are now phased.
3. Shut down the engine, and remove the key from the ignition.

Figure 3.1: Ground Speed Lever

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

   a. Pull lever (A) toward you to release, and then rotate toward header to lower the safety prop onto the cylinder.

   b. Repeat for the opposite lift cylinder.

   IMPORTANT:

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

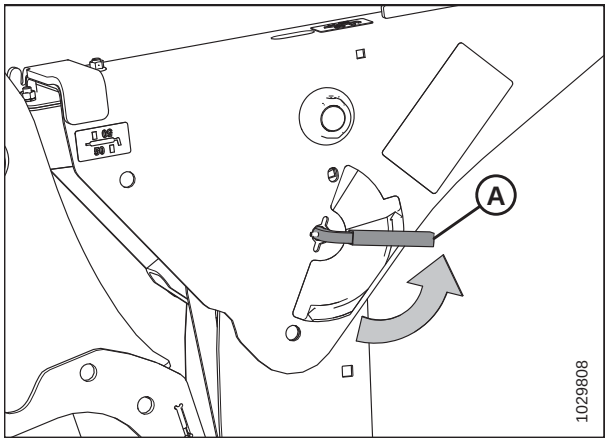


Figure 3.2: Safety Prop Lever

5. Disengage the safety props on both lift cylinders as follows:
   a. Turn lever (A) away from the header to raise the safety prop until the lever locks into the vertical position.
   b. Repeat for the opposite cylinder.

   NOTE:

   If the safety prop will **NOT** disengage, raise the header to release the prop.
6. Start the engine.
7. Lower the header fully.
8. Shut down the engine, and remove the key from the ignition.

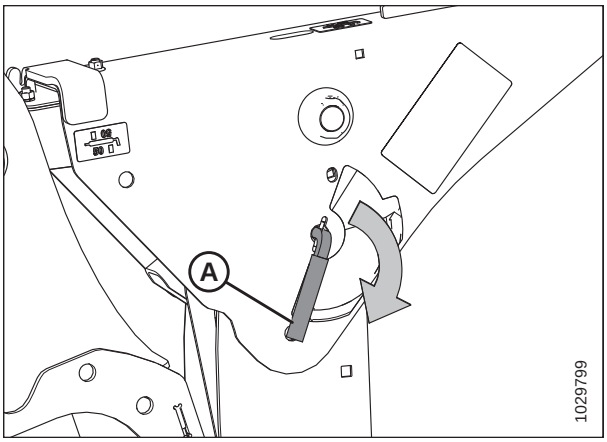


Figure 3.3: Safety Prop Lever

3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower

Safety props are located on both header lift cylinders on the windrower. Engage the props anytime you are going to work on or around raised header. When engaged, safety props prevent a header from dropping suddenly if the lift system hydraulics lose pressure.

DANGER

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

Follow these steps to engage or disengage the header safety props:

Engage safety props as follows:

1. Start the engine and press HEADER UP switch (A) to raise the header to maximum height.
2. Rephase the cylinders if one end of the header does not raise fully. If rephasing is required, proceed as follows:
   a. Press and hold HEADER UP switch (A) until both cylinders stop moving.
   b. Continue to hold the switch for 3–4 seconds. Cylinders are now phased.

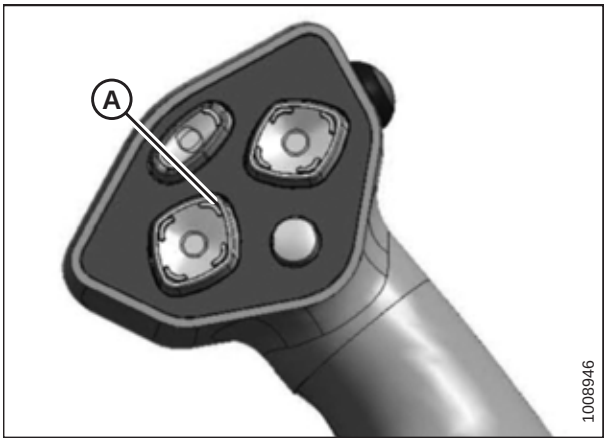


Figure 3.4: Ground Speed Lever (GSL)

3. Pull lever (A) and rotate it toward the header to lower safety prop (B) onto the cylinder. Repeat for the opposite cylinder.

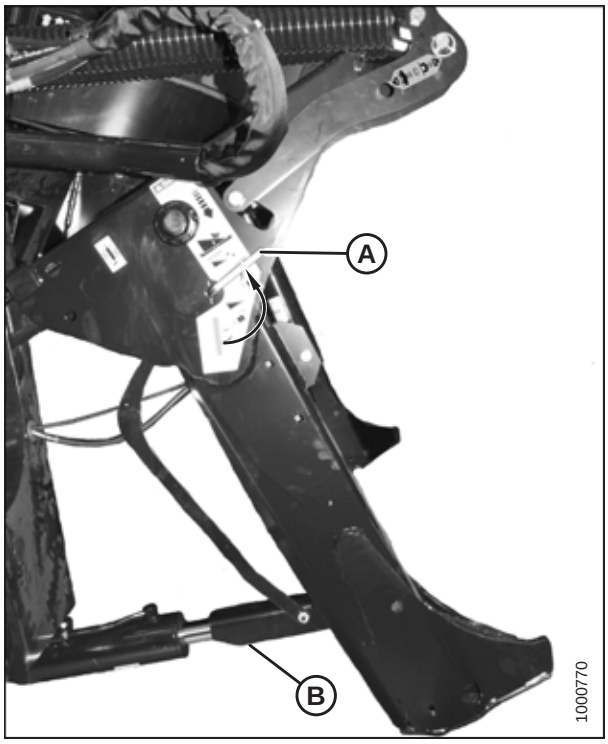


Figure 3.5: Safety Prop

Disengage safety props as follows:

DANGER

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

1. Turn lever (A) away from the header to raise the safety prop until the lever locks into vertical position. Repeat for the opposite cylinder.
2. Start the engine, choose a level area, and lower the header to the ground.
3. Shut down the engine, and remove the key from the ignition.

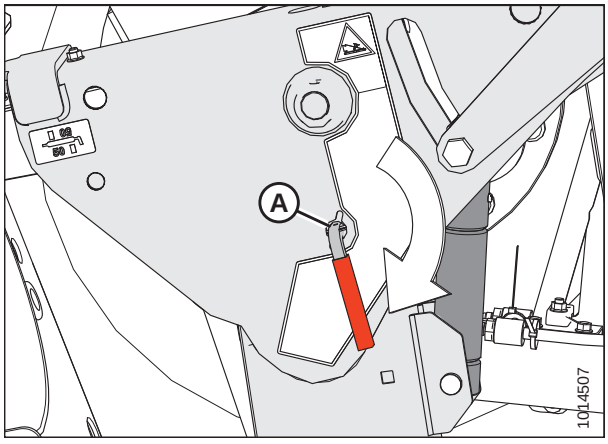


Figure 3.6: Safety Prop

3.3 Attaching Rotary Disc Header to M1240 Windrower

Attaching the header to the windrower will allow you to cut, condition, and lay a wide variety of grasses and hay crops in windrows.

3.3.1 Attaching Forming Shield

The forming shield controls the width and placement of the windrow.

DANGER

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

1. Shut down the engine, and remove the key from the ignition.
2. Position forming shield (A) in between windrower legs as shown.
3. Remove lynch pin (B) and clevis pin (C).
4. Mount forming shield (A) to bolt and spacer (D).

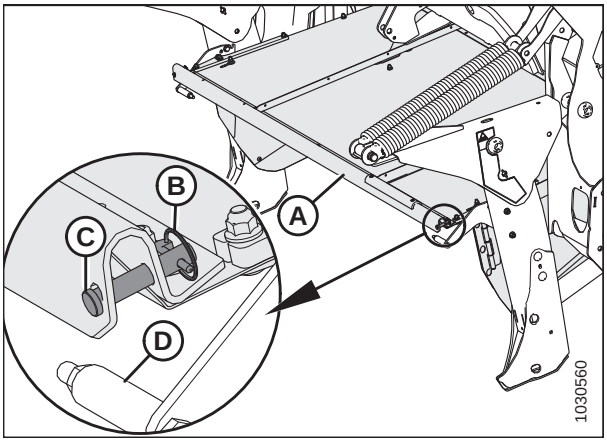


Figure 3.7: Forming Shield and Windrower

5. Secure forming shield (C) to bolt and spacer (D) using clevis pin (B) and lynch pin (A).
6. Repeat Steps *3, page 29* to *5, page 30* at the opposite side.

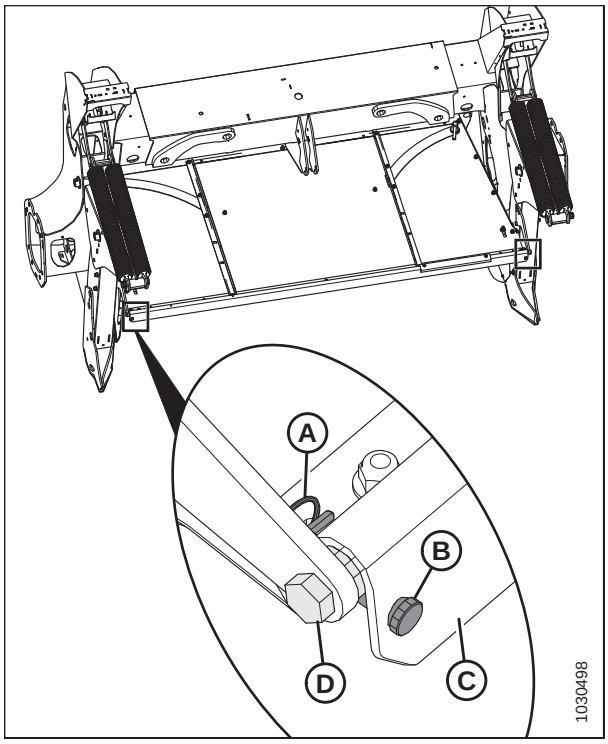


Figure 3.8: Forming Shield Secured to Front of Windrower Legs

7. Remove lynch pin (A) and washer (B) from straight pin (C).

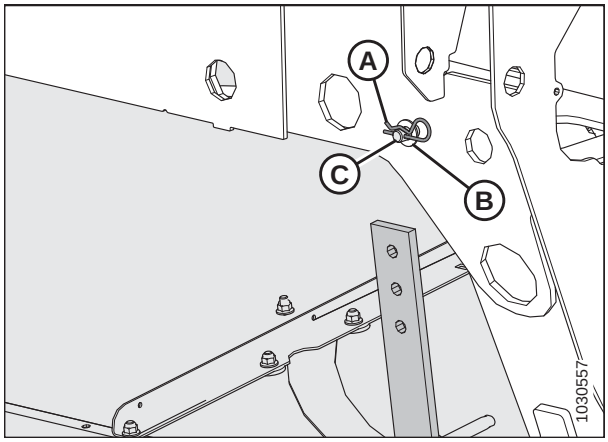


Figure 3.9: Lynch Pin and Washer at Rear of Windrower Leg

8. Attach rubber strap (D) to straight pin (C) at the rear of windrower leg. Secure with washer (B) and lynch pin (A).
9. Repeat Step *7, page 30* to Step *8, page 31* at the opposite side.

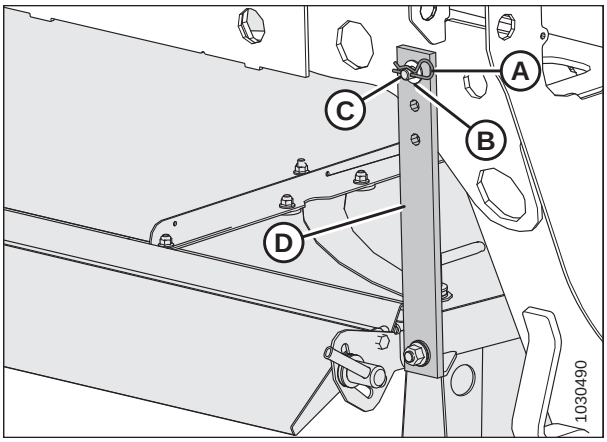


Figure 3.10: Rubber Strap Securing Forming Shield onto Windrower Leg

3.3.2 Attaching R216 Rotary Disc Header to M1240 Windrower

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

DANGER

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

1. Shut down the engine, and remove the key from the ignition.
2. **Hydraulic center-link without self-alignment:** Remove pin (A) and raise center-link (B) until the hook is above the attachment pin on the header. Replace pin (A) to hold center-link in place.

   IMPORTANT:

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

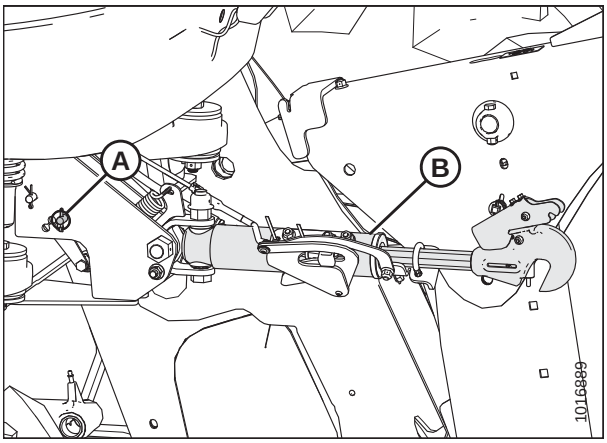


Figure 3.11: Hydraulic Center-Link

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

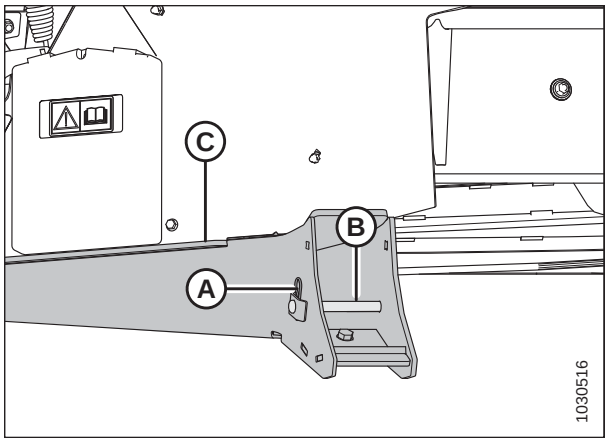


Figure 3.12: Header Support

4. Lift header support (A) and place 2 x 4 in. blocks (B) under the header support. A total of four 2 x 4 in. blocks (B) will be necessary to raise the boot up into field position. Ensure the boot's bottom edge (C) is parallel with the ground

   NOTE:

   Do **NOT** stack blocks (B) crosswise as doing so can make the header unstable when attempting to connect the header and windrower. Stack blocks (B) parallel with each other.

5. Repeat Step *4, page 32* on opposite side.

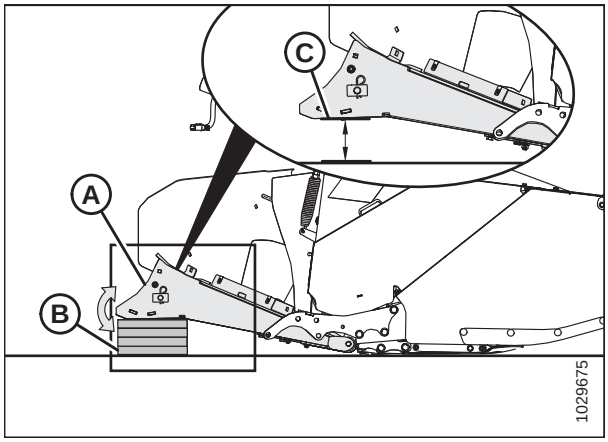


Figure 3.13: Header Support

DANGER

Check to be sure all bystanders have cleared the area.

6. Start the windrower engine. For instructions, refer to the windrower operator's manual.
7. **If lowering the header lift legs WITH a header or weight box attached**, proceed to Step *11, page 33*.

   If lowering the header lift legs WITHOUT a header or weight box attached to the windrower, fully release the tension in header float springs (A):

   - If prompted by the Harvest Performance Tracker (HPT) to remove the float, then remove the float and proceed to Step *8, page 33*.
   - If not prompted by the HPT to remove the float, then remove the float manually. For instructions, refer to the windrower operator's manual. Once the float is removed, proceed to Step *11, page 33*.

   IMPORTANT:

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

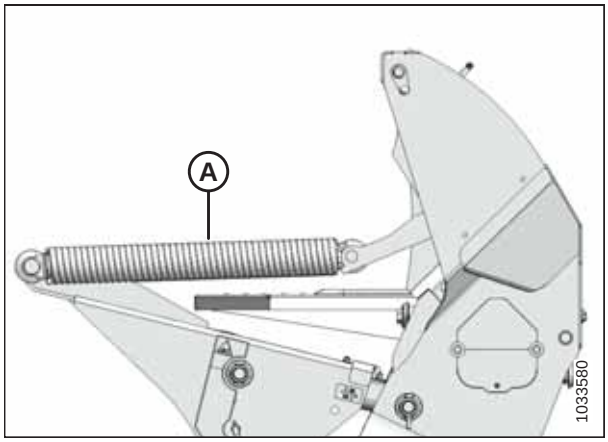


Figure 3.14: Header Float Springs

8. Press rotary scroll knob (A) on to highlight the QuickMenu options.
9. Rotate scroll knob (A) to highlight HEADER FLOAT symbol (B), and press the scroll knob to select. The Float Adjust page displays.

Figure 3.15: HPT Display

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

    NOTE:

    If the header float is active, the icon at soft key 3 will display Remove Float; if header float has been removed, the icon will display Resume Float.

Figure 3.16: HPT Display

11. Press HEADER DOWN switch (E) on the ground speed lever (GSL) to fully retract the header lift cylinders.
12. **Self-aligning hydraulic center-link:** Press REEL UP switch (B) on the GSL to raise the center-link until the hook is above the attachment pin on the header.

    IMPORTANT:

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

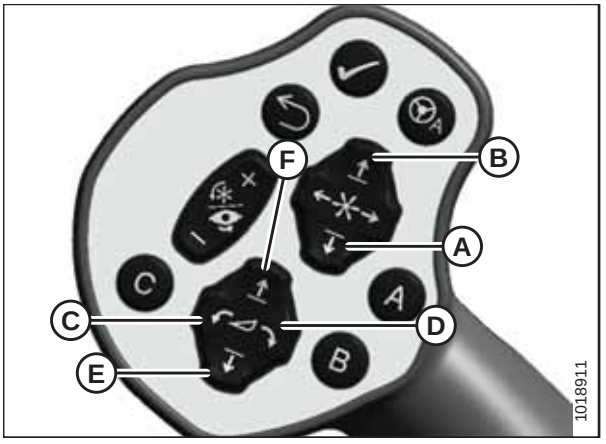


Figure 3.17: GSL

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

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

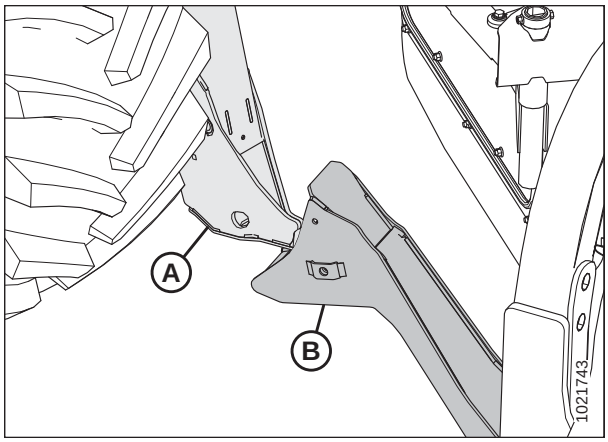


Figure 3.18: Header Support

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

       IMPORTANT:

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

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

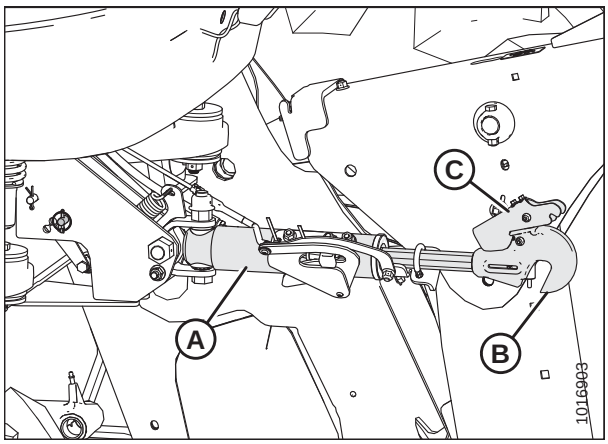


Figure 3.19: Hydraulic Center-Link

16. **Hydraulic center-link without self-alignment:**
    a. Press the HEADER TILT UP or HEADER TILT DOWN cylinder switches on the GSL to extend or retract the center-link cylinder until the hook is aligned with the header attachment pin.
    b. Shut down the engine, and remove the key from the ignition.
    c. Push down on rod end of link cylinder (B) until the hook engages and locks onto the header pin.

       IMPORTANT:

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

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

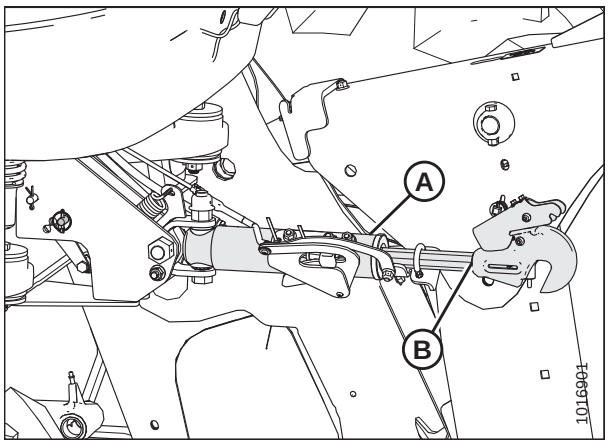


Figure 3.20: Hydraulic Center-Link

DANGER

Check to be sure all bystanders have cleared the area.

e. Start the engine.

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

    NOTE:

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

    a. Press and hold HEADER UP switch (A) until both cylinders stop moving.

    b. Continue to hold the switch for 3–4 seconds. Cylinders are now phased.

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

Figure 3.21: GSL

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

    a. Pull lever (A) toward you to release, and then rotate toward header to lower the safety prop onto the cylinder.

    b. Repeat for the opposite lift cylinder.

    IMPORTANT:

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

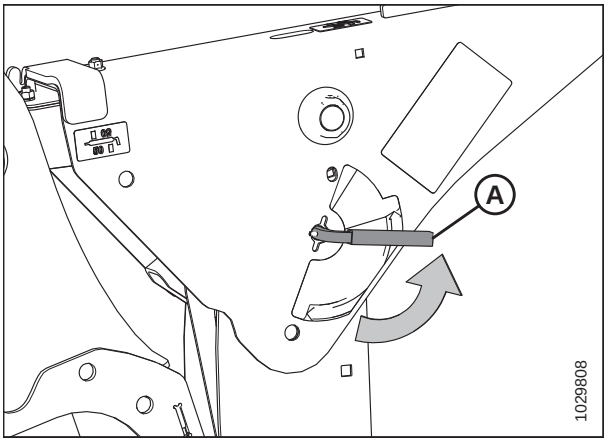


Figure 3.22: Safety Prop Lever

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

    IMPORTANT:

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

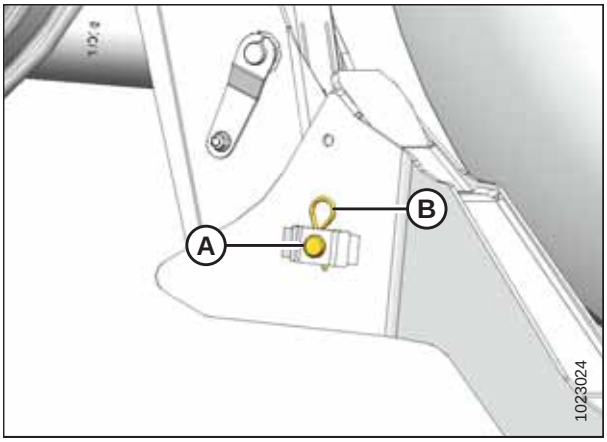


Figure 3.23: Header Support

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

    a. Turn lever (A) away from the header to raise the safety prop until the lever locks into the vertical position.

    b. Repeat for the opposite cylinder.

    NOTE:

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

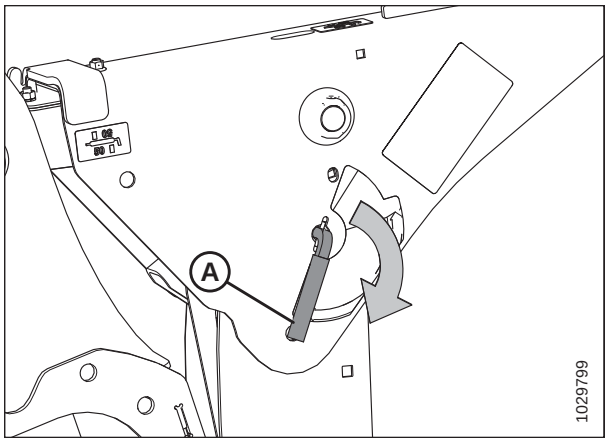


Figure 3.24: Safety Prop Lever

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

    NOTE:

    If not prompted by the HPT display to restore float, restore float manually.

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

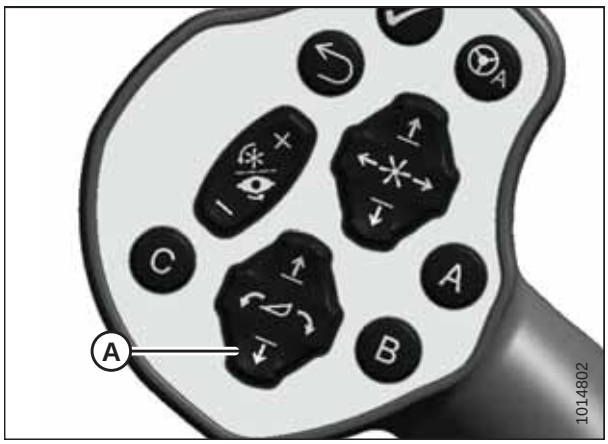


Figure 3.25: GSL

3.3.3 Connecting R216 Rotary Disc Header Hydraulics and Electrical to an M1240 Windrower

Connect header hydraulic and electrical components to the windrower in order to operate the header.

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

- Draper header ready windrowers include one set of hydraulic quick couplers which are compatible with the header drive hoses on the R216. One additional set of quick couplers (MD #B6277) is required.
- Rotary disc header ready windrowers include hard plumbed hydraulics connections.

IMPORTANT:

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

NOTE:

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

1. Open the windrower's left platform. For instructions, refer to windrower operator's manual.
2. Using a clean rag, remove dirt and moisture from the couplers on the left side of the windrower frame.

3. Retrieve hydraulic hoses (A) from the header and route the hose bundle under the windrower frame.

   NOTE:

   Adding anti-seize to the hose holder pin will make future removal easier.

4. Insert pin (B) into hole (C) in windrower frame.

   IMPORTANT:

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

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

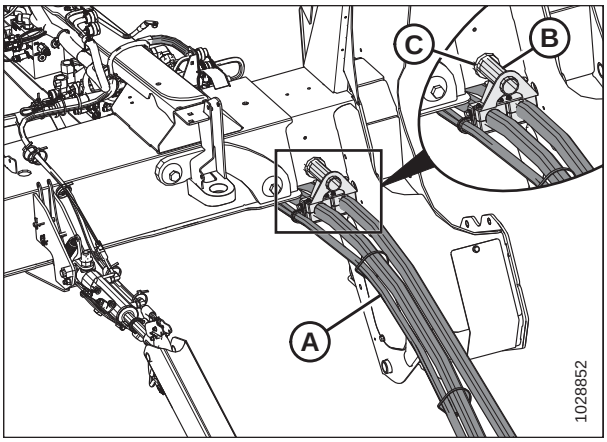


Figure 3.26: Hose Support Attachment

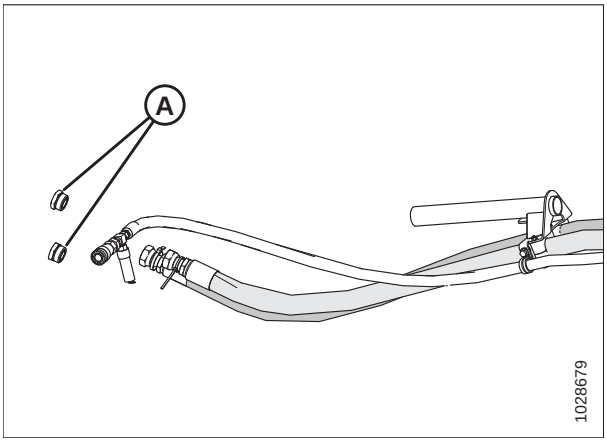


Figure 3.27: Hydraulic Hoses Protective Plugs

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

Windrower Configuration	Steps for Connecting Hydraulics and Electrical
Rotary disc/draper ready configuration (A)	Step *6, page 38* to Step *10, page 40*
Rotary disc only hard plumbed configuration (B)	Step Step *11, page 40* to Step *13, page 41*
Rotary disc ready configuration (B) with quick couplers installed	Steps *14, page 41* to *20, page 43*

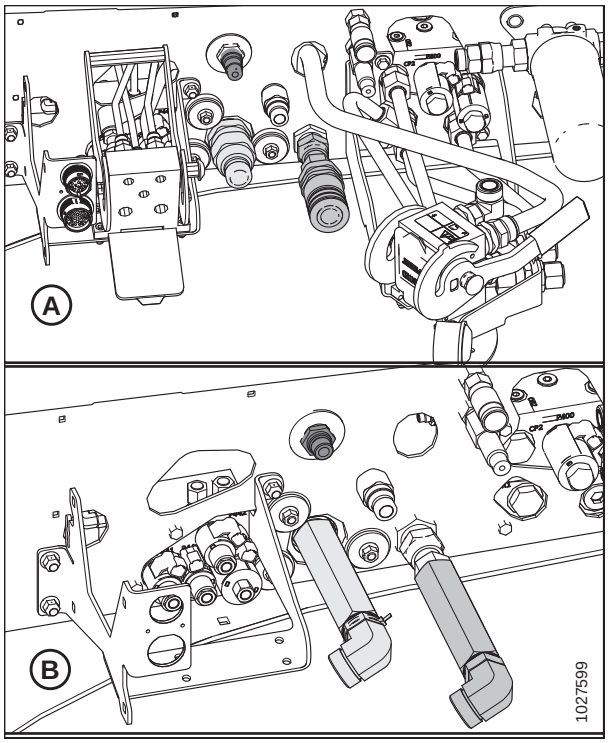


Figure 3.28: Header Hydraulics Configurations

Rotary disc/draper ready configuration with quick couplers:

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

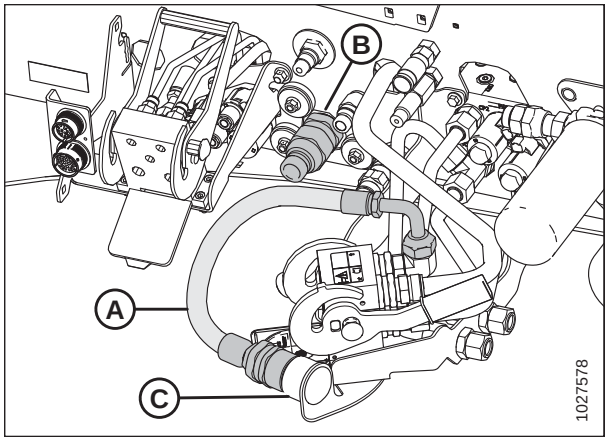


Figure 3.29: Couplers – Draper Ready

7. Connect hydraulic fittings to the hydraulic hoses as follows:

   a. Attach 90° elbow fitting (A) and 1 in. female coupler fitting (B) to disc pressure hose (C).

   b. Attach 90° elbow fitting (A) and 1 in. male coupler fitting (D) to disc return hose (E).

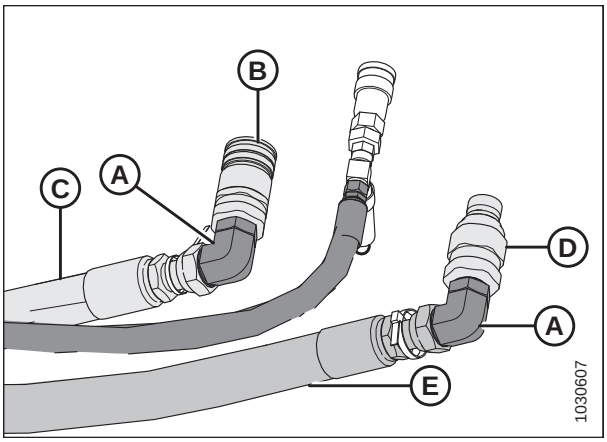


Figure 3.30: Hydraulic Fittings

8. Connect the hydraulic hoses to the windrower with quick coupler fittings as follows:

   a. Connect disc pressure hose (A) with coupler (B) and torque to 205–226 Nm (151–167 lbf·ft).

   b. Connect disc return hose (C) with coupler (D) and torque to 205–226 Nm (151–167 lbf·ft).

   c. Connect case drain hose (E) to fitting (F), with relief valve pointing towards the ground.

   NOTE:

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

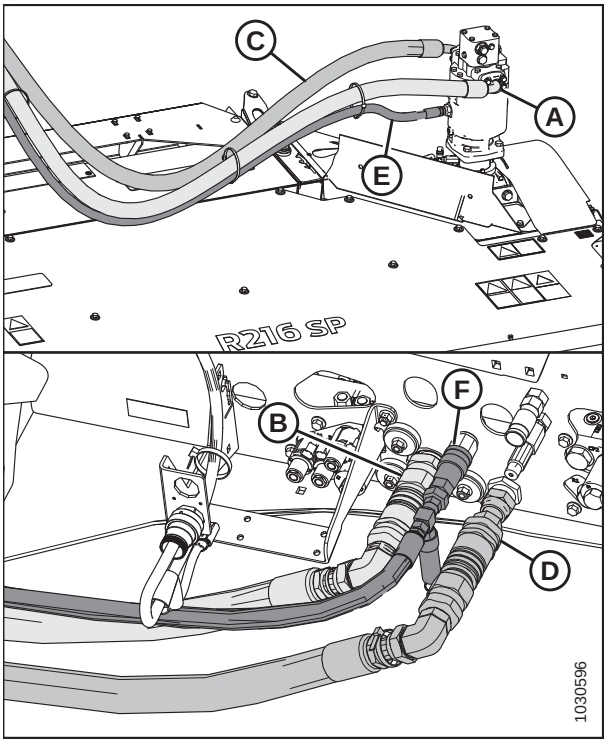


Figure 3.31: Hydraulics and Electrical – Draper Ready

9. **Grass seed and draper/disc configuration:** Connect the additional four hoses supplied with the grass seed version of the header as follows:

   a. Connect hose (green cable tie) with female quick coupler (A) to coupler (B) on the windrower frame.

   b. Connect hose (yellow cable tie) with male quick coupler (C) to coupler (D) on the windrower frame.

   c. Remove cap (not shown) from inboard bulkhead fitting (E). Connect hose (F) (red cable tie) to inboard bulkhead fitting (E).

      NOTE:

      The other end of hose (F) connects to the grass seed module drum on the left of the header.

   d. Remove cap (not shown) from outboard bulkhead fitting (G). Connect hose (H) (blue cable tie) to inboard bulkhead fitting (G).

      NOTE:

      The other end of hose (H) connects to the grass seed module drum on the right of the header.

10. To connect electrical harness, proceed to Step *21, page 44*.

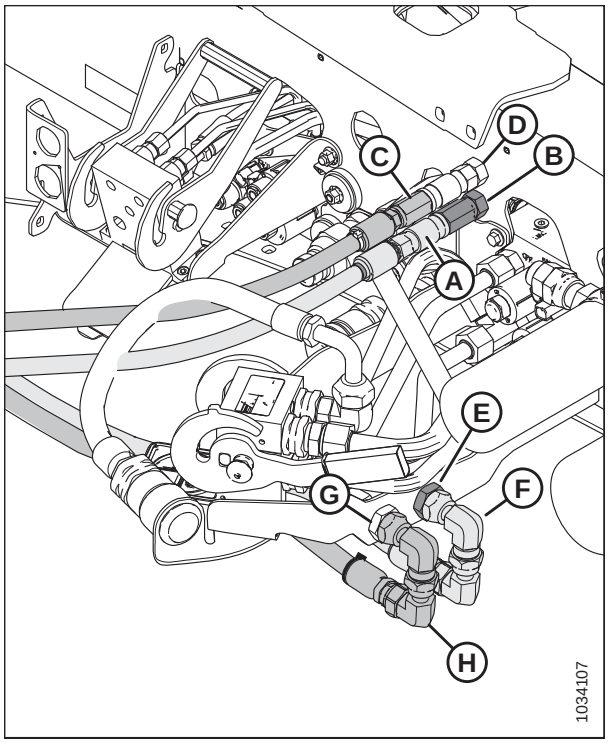


Figure 3.32: Grass Seed Hydraulic Connections – Draper/Disc Configuration

Hard plumbed fittings – rotary disc ready windrower:

11. Connect the hydraulic hoses to the windrower with hard plumbed fittings as follows:

   a. Connect disc pressure hose (A) marked with a red cable tie (B) to hard plumb fitting marked with a red cable tie (C) and torque to 205–226 Nm (151–167 lbf·ft).

   b. Connect disc return hose (D) to hard plumb fitting (E) and torque to 205–226 Nm (151–167 lbf·ft).

   c. Connect case drain hose (F) to fitting (G).

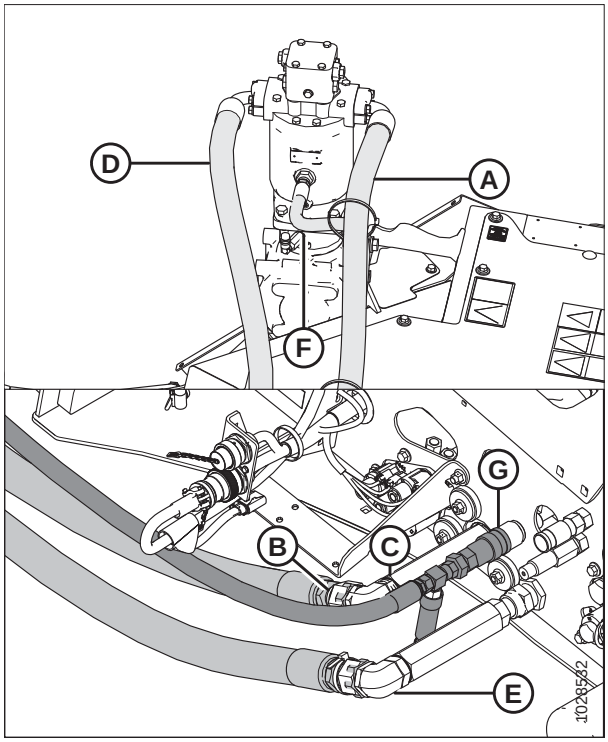


Figure 3.33: Hard Plumbed Connections on R216 Rotary Disc Header Ready Windrower

12. **Grass seed and rotary disc configuration:** Connect the additional four hoses supplied with the grass seed version of the header as follows:

    a. Remove plug (not shown) from drive manifold port R1. Install 45° fitting (A) in port R1. Connect hose (C) (blue cable tie) to fitting (A).

    NOTE:

    The other end of hose (C) connects to the grass seed module drum on the right of the header.

    b. Remove plug (not shown) from drive manifold port CP2. Install 45° fitting (B) in port CP2. Connect hose (D) (red cable tie) to fitting (B).

    NOTE:

    The other end of hose (D) connects to the grass seed module drum on the left of the header.

    c. Connect hose (green cable tie) with female quick coupler (E) to coupler (F) on the windrower frame.

    d. Connect hose (yellow cable tie) with male quick coupler (G) to coupler (H) on the windrower frame.

13. To connect electrical harness, proceed to Step *21, page 44*.

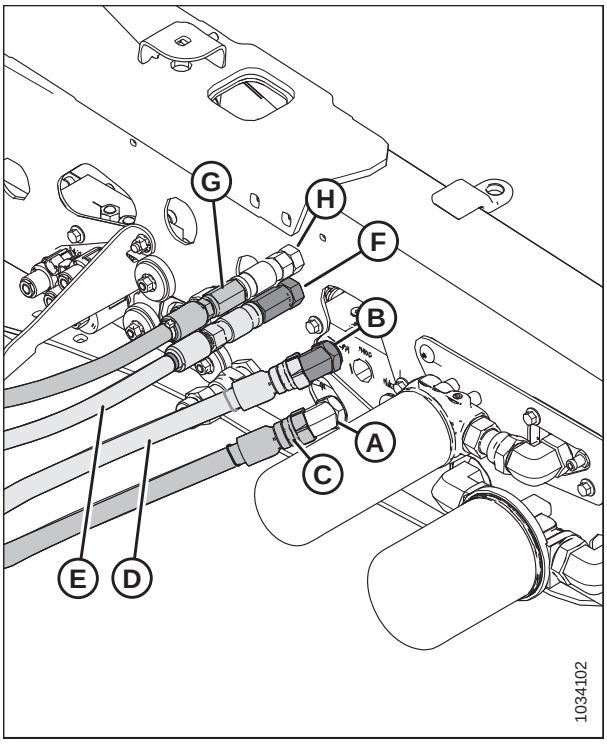


Figure 3.34: Grass Seed Hydraulic Connections – Rotary Disc Configuration

Quick coupler fittings – rotary disc ready windrower:

14. Connect hydraulic fittings to the hydraulic hoses as follows:

    a. Attach 90° elbow fitting (A) and 1 in. female coupler fitting (B) to disc pressure hose (C).

    b. Attach 90° elbow fitting (A) and 1 in. male coupler fitting (D) to disc return hose (E).

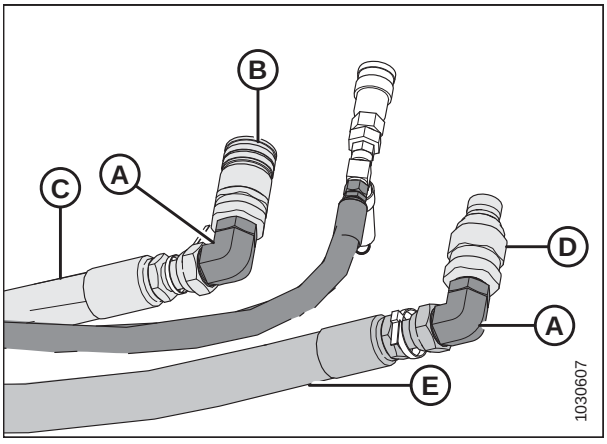


Figure 3.35: Hydraulic Fittings

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

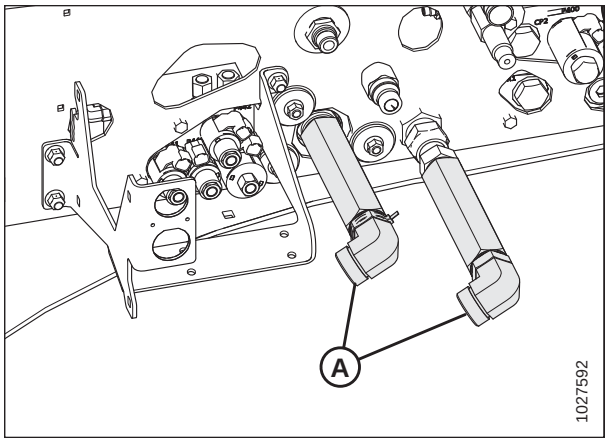


Figure 3.36: Hard Plumbed Connections – Rotary Disc Ready Windrower

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

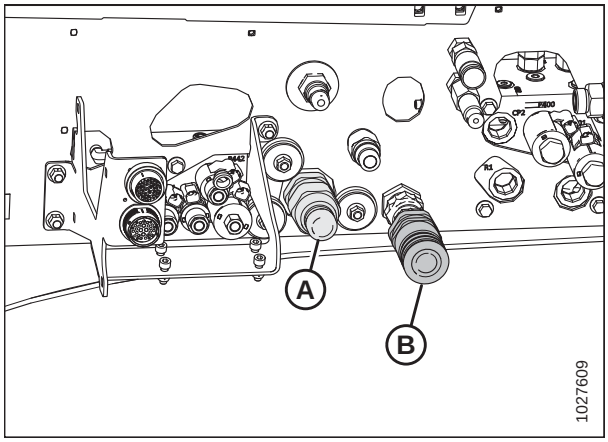


Figure 3.37: Quick Couplers on Rotary Disc Ready Windrower

18. Connect the hydraulic hoses to the windrower with quick coupler fittings as follows:

    a. Connect disc pressure hose (A) with coupler (B) and torque to 205–226 Nm (151–167 lbf·ft).

    b. Connect disc return hose (C) with coupler (D) and torque to 205–226 Nm (151–167 lbf·ft).

    c. Connect case drain hose (E) to fitting (F), with relief valve pointing towards the ground.

    NOTE:

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

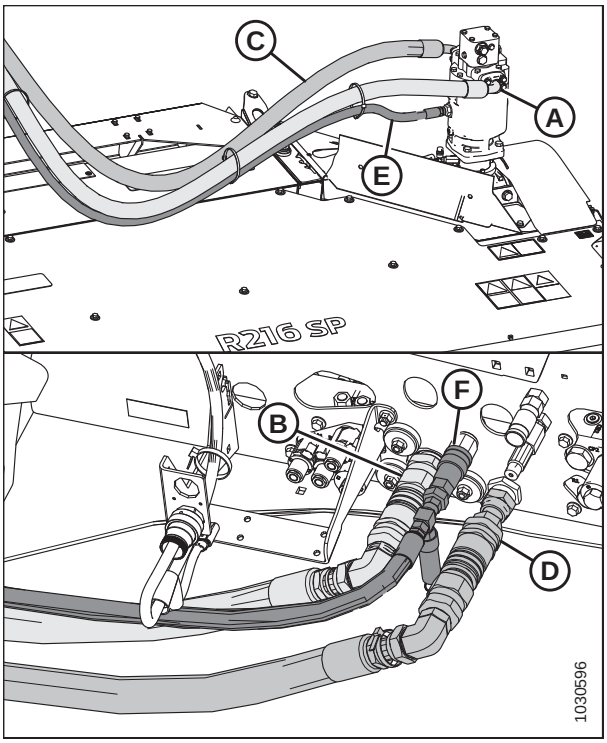


Figure 3.38: Hydraulic Connections

19. **Grass seed and rotary disc configuration:** Connect the additional four hoses supplied with the grass seed version of the header as follows:

    a. Remove plug (not shown) from drive manifold port R1. Install 45° fitting (A) in port R1. Connect hose (C) (blue cable tie) to fitting (A).

    NOTE:

    The other end of hose (C) connects to the grass seed module drum on the right of the header.

    b. Remove plug (not shown) from drive manifold port CP2. Install 45° fitting (B) in port CP2. Connect hose (D) (red cable tie) to fitting (B).

    NOTE:

    The other end of hose (D) connects to the grass seed module drum on the left of the header.

    c. Connect hose (green cable tie) with female quick coupler (E) to coupler (F) on the windrower frame.

    d. Connect hose (yellow cable tie) with male quick coupler (G) to coupler (H) on the windrower frame.

20. To connect electrical harness, proceed to Step *21, page 44*.

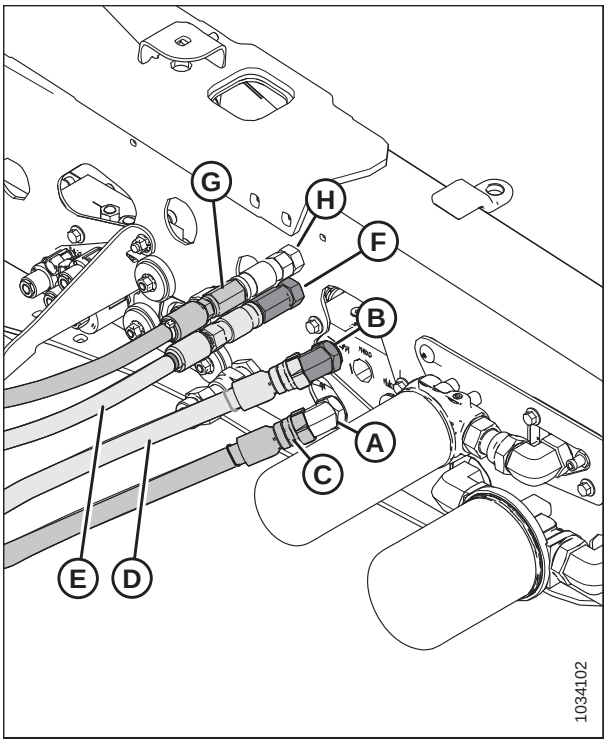


Figure 3.39: Grass Seed Hydraulic Connections – Rotary Disc Configuration

To connect electrical harness, follow these steps:

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

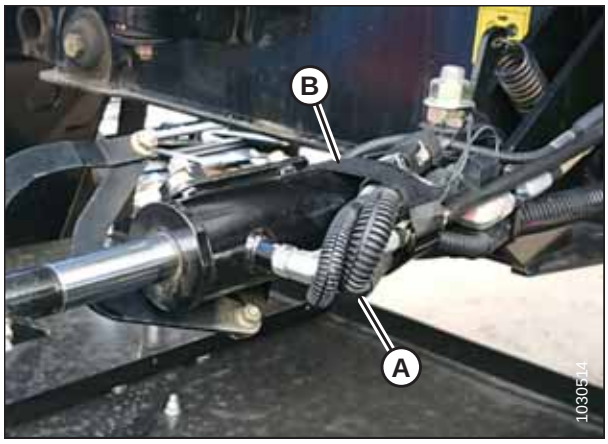


Figure 3.40: Electrical Harness Secured to Center-Link

22. Connect main header harness (A) to adapter harness (B).
23. **Standard headers equipped with optional electric baffle control kit:** Connect electric baffle control harness (C) to adapter harness (D).
24. **Grass seed version of header:** Connect actuator harness (C) to adapter harness (D).

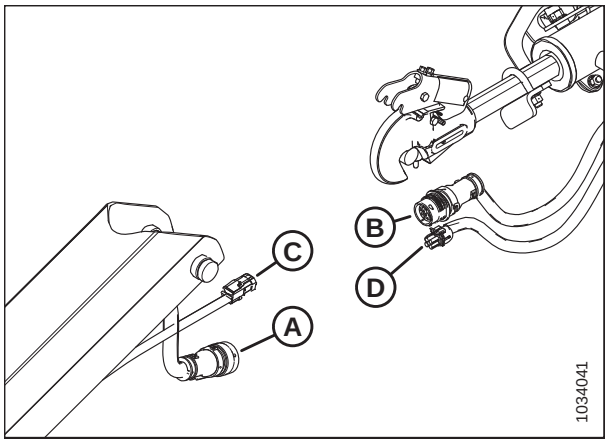


Figure 3.41: Electrical Harness Connection at Center-Link

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

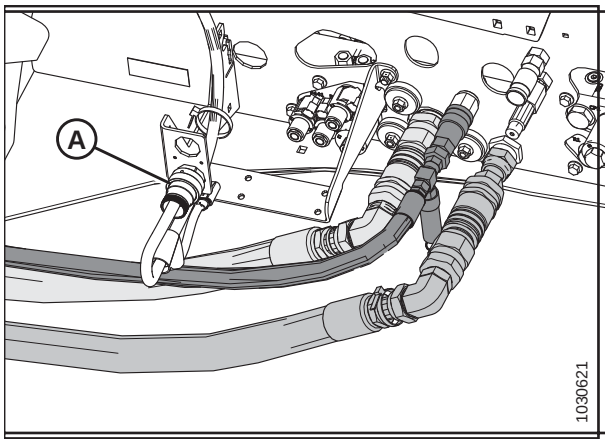


Figure 3.42: Electrical Connection at Windrower

26. Close the windrower's left platform. For instructions, refer to the windrower operator's manual.

3.4 Detaching Header from M1240 Windrower

Detach the header when replacing the header with a different one or when storing the header.

3.4.1 Detaching R216 Rotary Disc Header from an M1240 Windrower

Detach the header when replacing the header with a different one or when storing the header.

DANGER

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

DANGER

Check to be sure all bystanders have cleared the area.

1. Start the engine, and press switch (A) to lower the header to the ground.
2. Shut down the engine, and remove the key from the ignition.
3. Open the left platform. For instructions, refer to the windrower operator's manual.

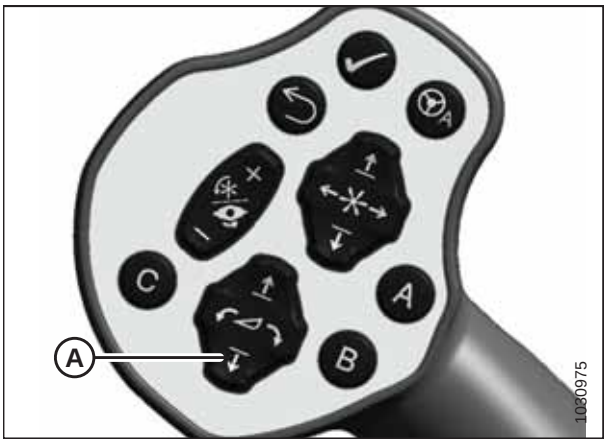


Figure 3.43: GSL

4. Disconnect hydraulic hoses (A), (B), and (C) from the windrower.

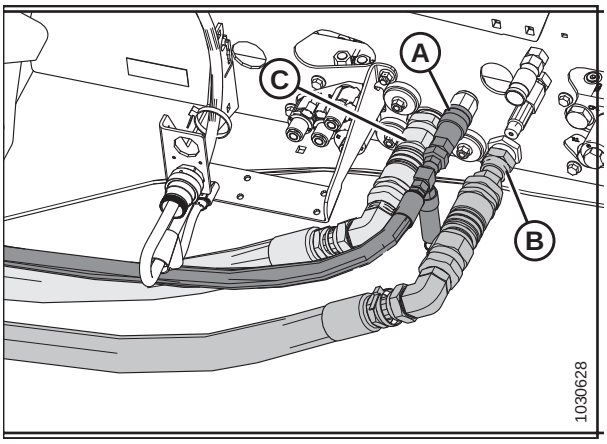


Figure 3.44: Header Drive Hydraulics

5. **Grass seed:** Disconnect additional four hoses (A), (B), (C), and (D).
6. Install caps and plugs on open lines to prevent buildup of dirt and debris while in storage.

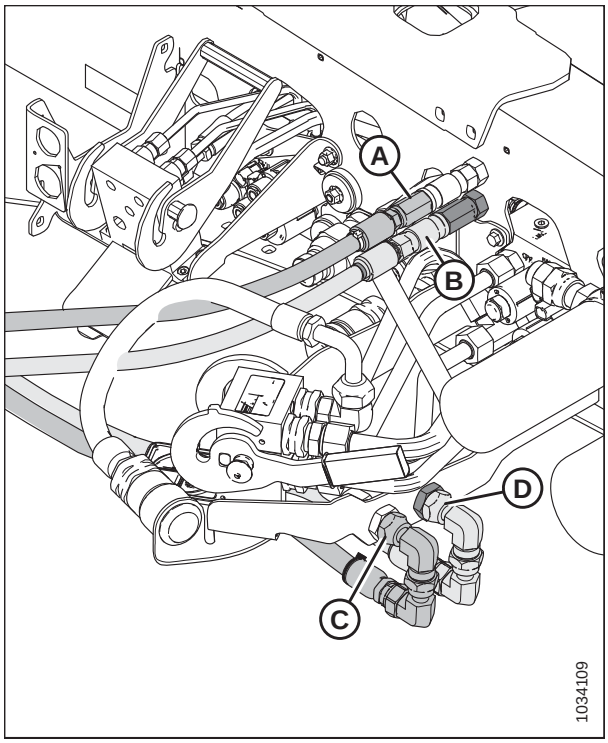


Figure 3.45: Grass Seed Hydraulic Connections – Draper/Disc Ready

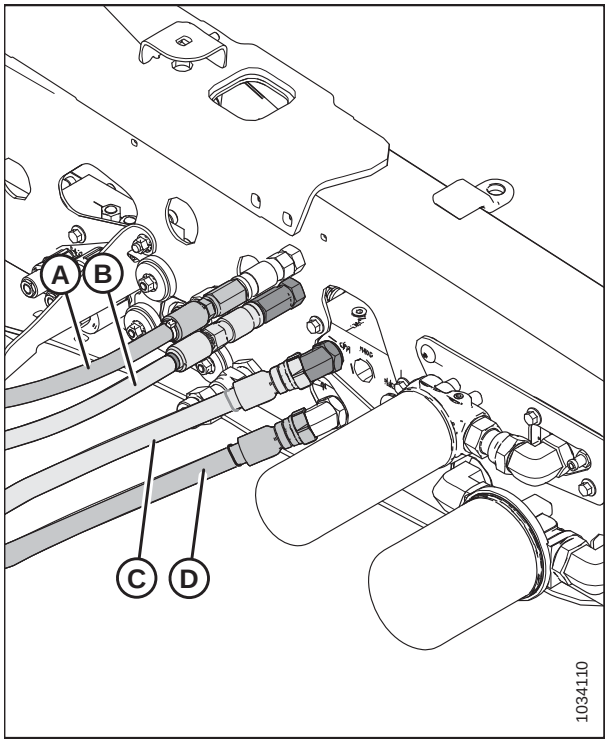


Figure 3.46: Grass Seed Hydraulic Connections – Rotary Disc Ready

7. Remove hose support (A) and hose bundle from windrower frame.

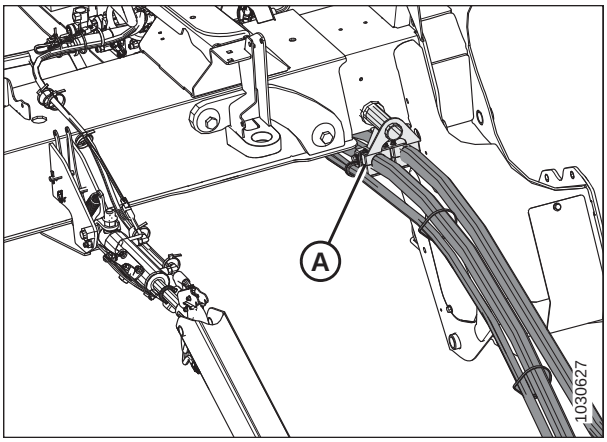


Figure 3.47: Hoses on Windrower

8. Rest hydraulic hose bundle (A) on header for storage as shown.

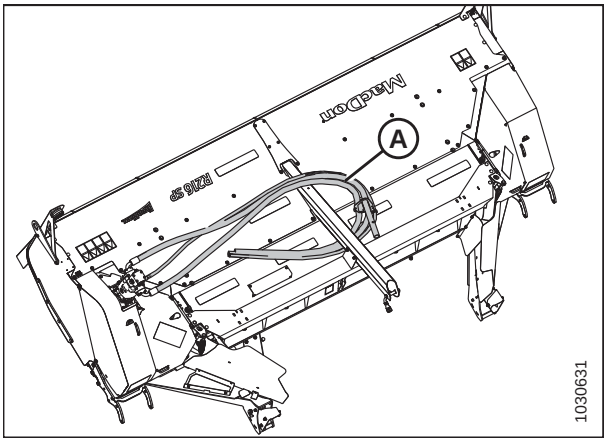


Figure 3.48: Hose Bundle Storage Position

9. Disconnect main header harness (A) from adapter harness (B).
10. **Standard headers equipped with optional electric baffle control kit:** Disconnect electric baffle control harness (C) from adapter harness (D).
11. **Grass seed:** Disconnect actuator harness (C) from adapter harness (D).

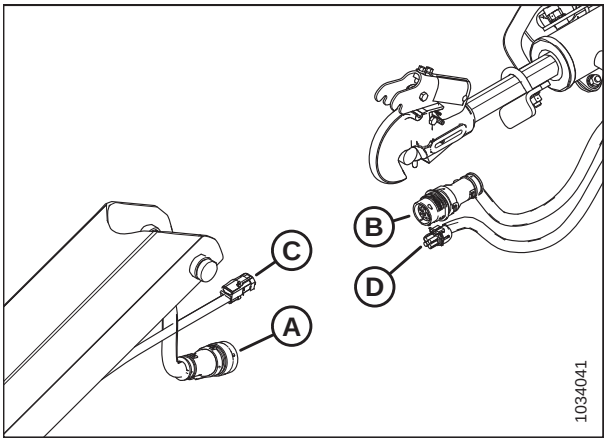


Figure 3.49: Electrical Harness Connection at Center-Link

12. Secure adapter harness (A) on the center link with an adjustable strap (B).

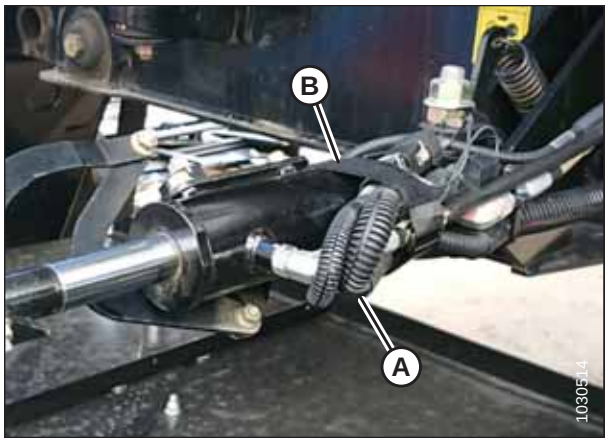


Figure 3.50: Adapter Harness

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

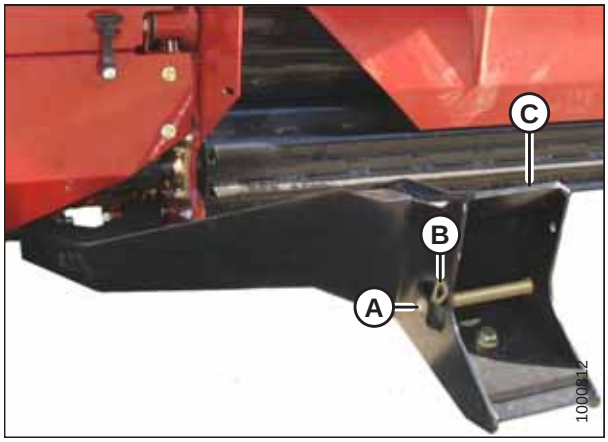


Figure 3.51: Header Supports

14. **Windrowers WITH center-link self-alignment kit:** Release center-link latch (A) before returning to the cab.

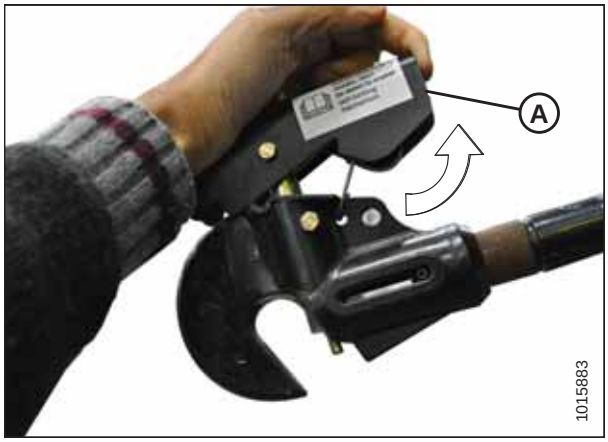


Figure 3.52: Center-Link

DANGER

Check to be sure all bystanders have cleared the area.

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

    NOTE:

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

17. Use HEADER TILT cylinder switches (A) on GSL to release load on center-link cylinder.
18. **Windrowers WITH center-link self-alignment kit:** Operate the link lift cylinder with REEL UP switch (B) to disengage the center-link from the header. Proceed to Step *22, page 50*.

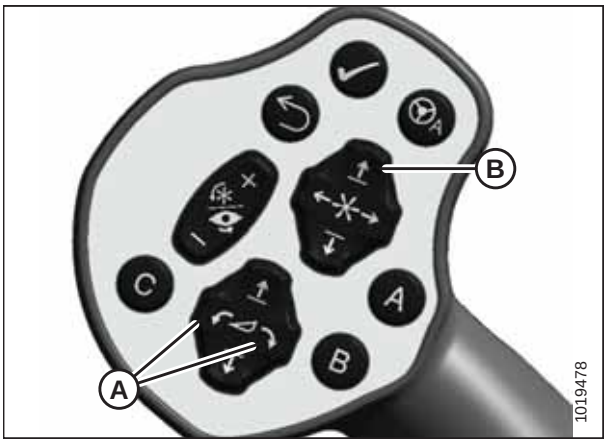


Figure 3.53: GSL

19. **Windrowers WITHOUT center-link self-alignment kit:** Shut down the engine, and remove the key from the ignition.
20. **Windrowers WITHOUT center-link self-alignment kit:** Lift hook release (A) and lift hook (B) off header pin.

DANGER

Check to be sure all bystanders have cleared the area.

21. **Windrowers WITHOUT center-link self-alignment kit:** Start the engine.

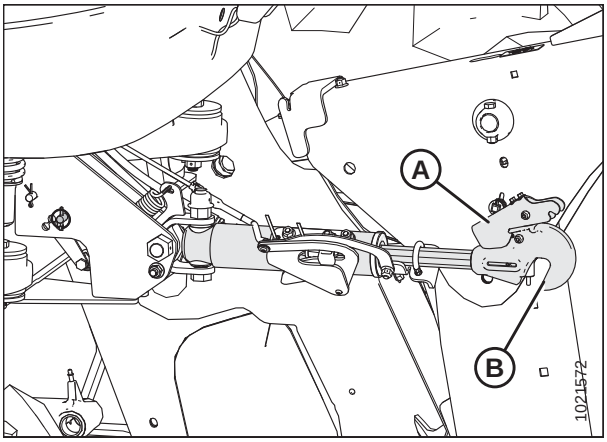


Figure 3.54: Hydraulic Center-Link

22. Back the windrower slowly away from header.
23. Reinstall clevis pin (A) through support (C) and secure with hairpin (B). Repeat for opposite side.

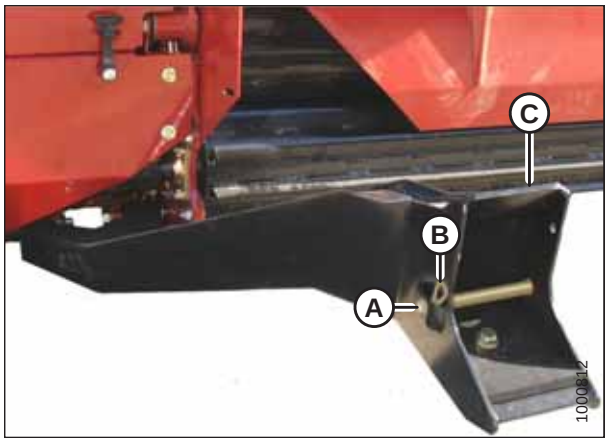


Figure 3.55: Header Support

3.4.2 Removing Forming Shield

The forming shield controls the width and placement of the windrow.

DANGER

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

NOTE:

It is **NOT** always necessary to remove the forming shield after detaching the header from the windrower.

1. Shut down the engine, and remove the key from the ignition.
2. Mark strap location, then remove and retain hairpin (A) and washer (B) from straight pin (C).
3. Pull rubber strap (D) away from straight pin (C).
4. Lower rear end of forming shield.
5. Reinstall washer (B) and hairpin (A) on straight pin (C) for storage.
6. Repeat Step *2, page 50* to Step *5, page 50* at the opposite side.

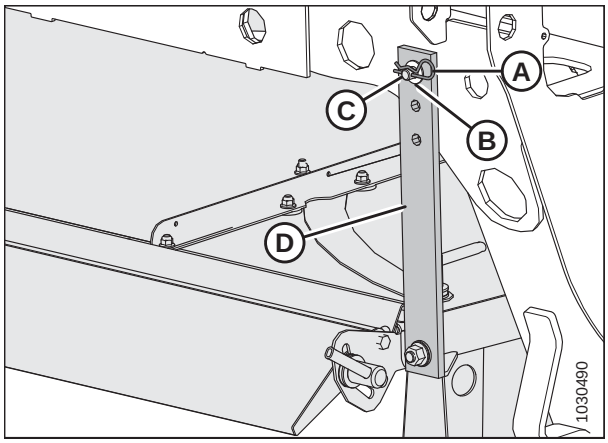


Figure 3.56: Rubber Strap Securing Forming Shield onto Windrower Leg

7. Remove lynch pin (A) and clevis pin (B) securing forming shield (C) to bolt and spacer (D). Repeat at the opposite side.

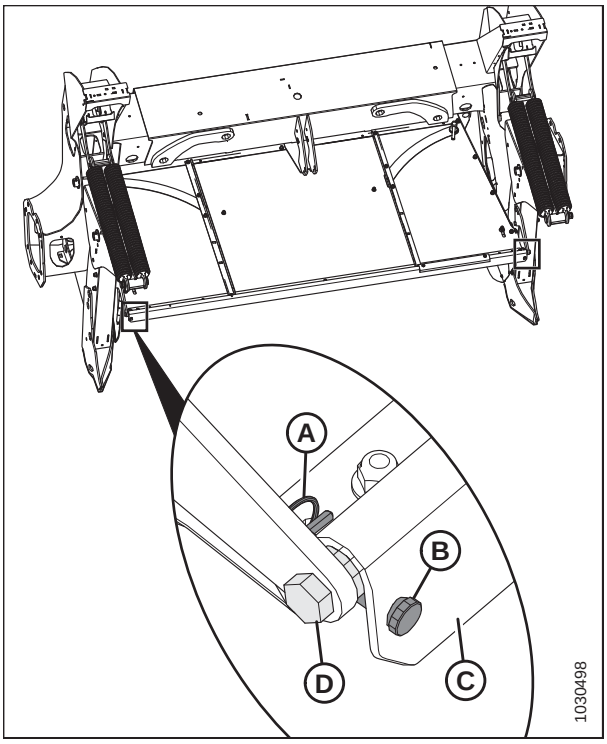


Figure 3.57: Forming Shield Secured to Front of Windrower Legs

8. Dismount forming shield (A) from bolts and spacers (B).
9. Reattach clevis pin and lynch pin to the forming shield for storage.
10. Remove the forming shield.

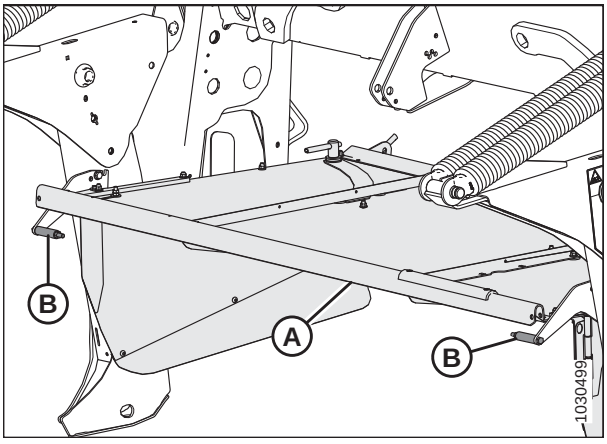


Figure 3.58: Forming Shield and Windrower

3.5 Attaching Rotary Disc Header to M205 SP Windrower

Attaching the header to the windrower will allow you to cut, condition, and lay a wide variety of grasses and hay crops in windrows.

3.5.1 Attaching Forming Shield to M205 SP Windrower

The forming shield controls the width and placement of the windrow.

DANGER

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

1. Shut down the engine, and remove the key from the ignition.
2. Position forming shield (A) in between windrower legs as shown.
3. Remove lynch pin (B) and clevis pin (C).
4. Mount forming shield (A) to bolt and spacer (D).

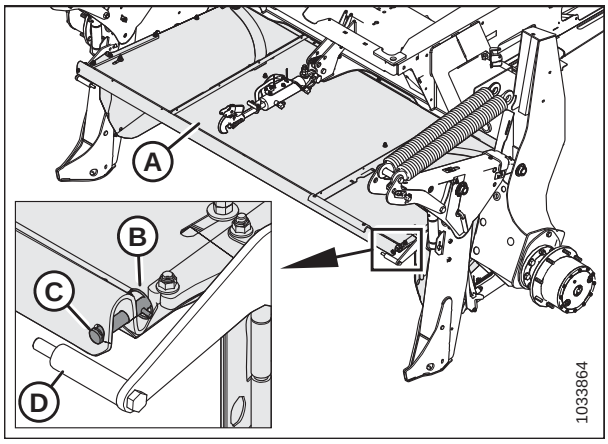


Figure 3.59: Forming Shield and Windrower

5. Secure forming shield (C) to bolt and spacer (D) using clevis pin (B) and lynch pin (A).
6. Repeat Step *3, page 52* to Step *5, page 53* at the opposite side.

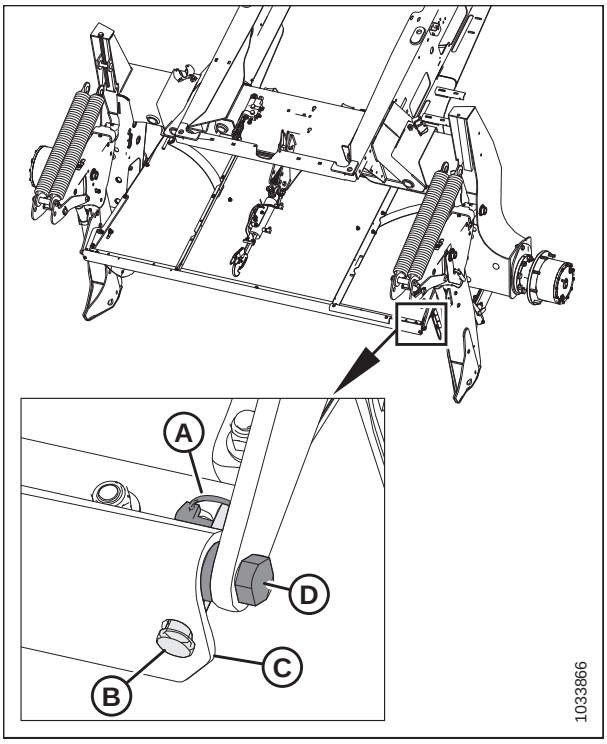


Figure 3.60: Forming Shield Secured to Front of Windrower Legs

7. Remove lynch pin (A) and washer (B) from straight pin (C).

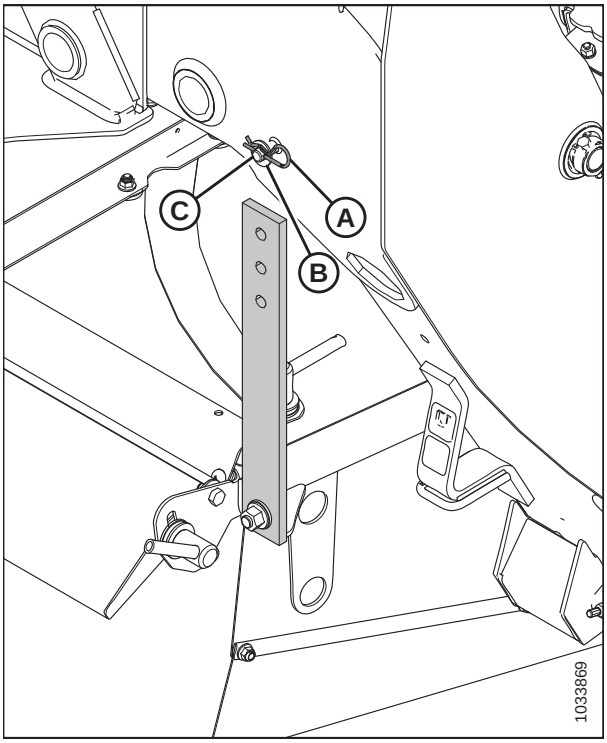


Figure 3.61: Lynch Pin and Washer at Rear of Windrower Leg

8. Attach rubber strap (D) to straight pin (C) at the rear of windrower leg. Secure with washer (B) and lynch pin (A).
9. Repeat Step *7, page 53* to Step *8, page 54* at the opposite side.
10. Proceed according to the type of center-link used on the M205 SP Windrower:
    - If equipped with a hydraulic center-link with optional self-alignment, proceed to *3.5.2 Attaching R216 Rotary Disc Header to M205 SP Windrower – Hydraulic Center-Link with Optional Self-Alignment, page 54*.
    - If equipped with a hydraulic center-link without optional self-alignment, proceed to *3.5.3 Attaching R216 Rotary Disc Header to M205 SP Windrower – Hydraulic Center-Link without Optional Self-Alignment, page 61*.

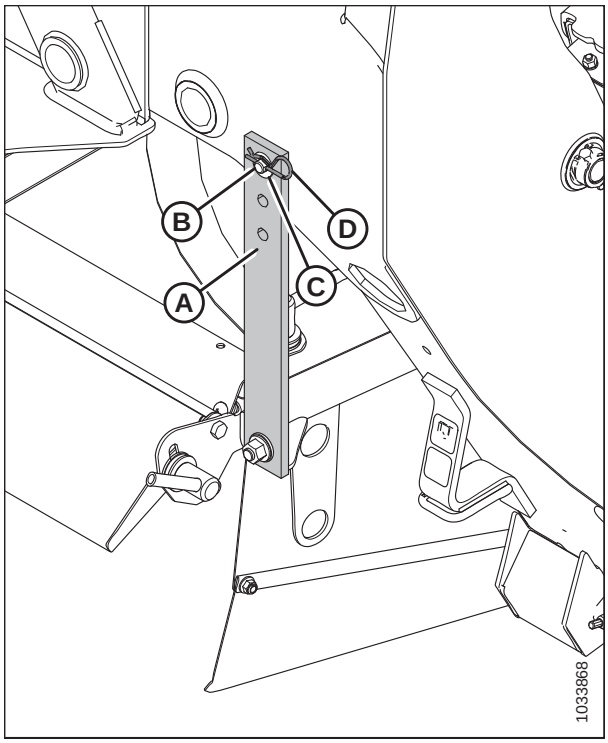


Figure 3.62: Rubber Strap Securing Forming Shield onto Windrower Leg

3.5.2 Attaching R216 Rotary Disc Header to M205 SP Windrower – Hydraulic Center-Link with Optional Self-Alignment

The optional self-aligning hydraulic center-link on an M205 SP Windrower allows vertical position control of the center-link from the cab.

DANGER

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

NOTE:

The R216 Rotary Disc Header requires conversion kit (MD #B7220) if being used with an M205 SP Windrower. Once configured for an M205 SP Windrower, the R216 Rotary Disc Header is incompatible with the optional Remote Baffle Control kit (MD #B6664).

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

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

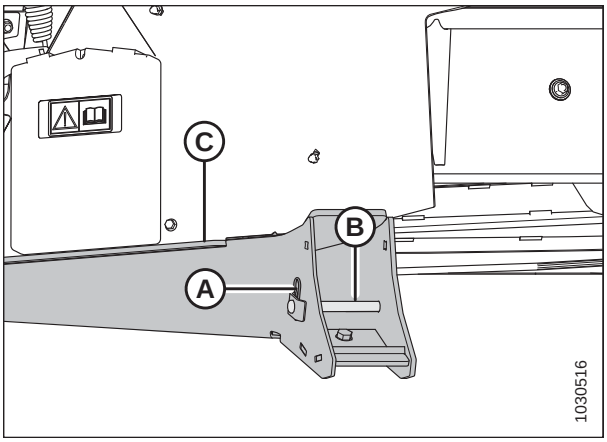


Figure 3.63: Header Support

3. Lift header support (A) and place 2 x 4 in. blocks (B) under the header support. A total of four 2 x 4 in. blocks (B) will be necessary to raise the boot up into field position. Ensure the boot's bottom edge (C) is parallel with the ground. Repeat for the opposite side.

   NOTE:

   Do **NOT** stack blocks (B) crosswise as doing so can make the header unstable when attempting to connect the header and windrower. Stack blocks (B) parallel with each other.

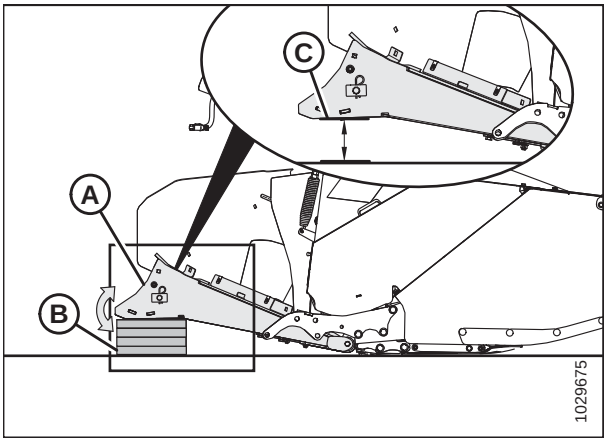


Figure 3.64: Header Support

4. Remove the float engagement pin from hole (A) to disengage the float springs, and insert the float engagement pin into storage hole (B). Secure with the lynch pin. Repeat for the opposite linkage.

   IMPORTANT:

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

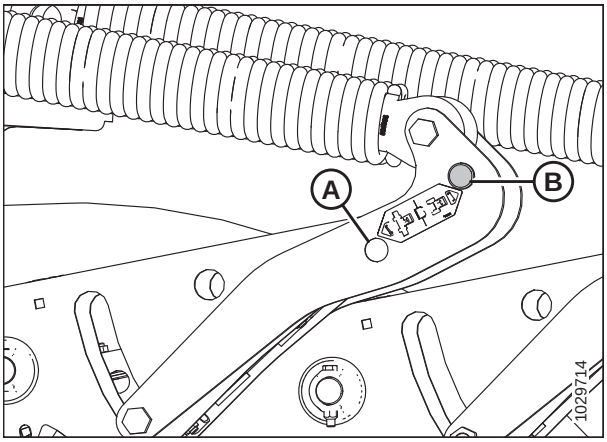


Figure 3.65: Float Linkage

DANGER

Check to be sure all bystanders have cleared the area.

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

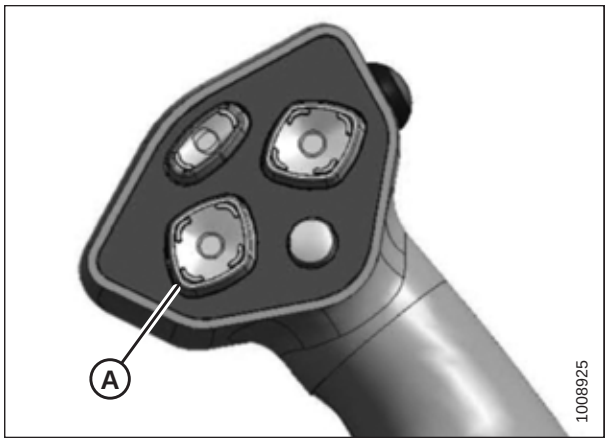


Figure 3.66: Ground Speed Lever

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

   IMPORTANT:

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

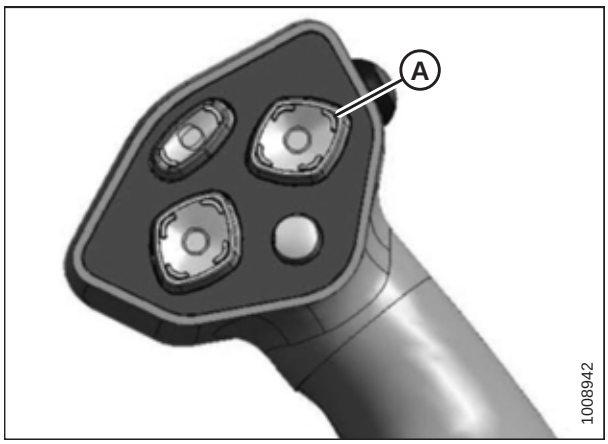


Figure 3.67: Ground Speed Lever

7. Slowly drive the windrower forward until the windrower feet (A) enter header supports (B). Continue driving slowly forward until the feet engage the supports and the header nudges forward.

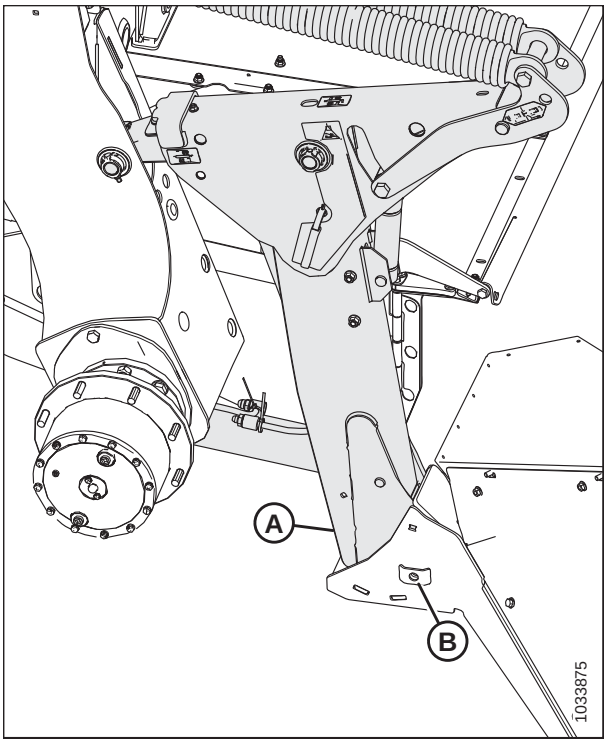


Figure 3.68: Header Support

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

   IMPORTANT:

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

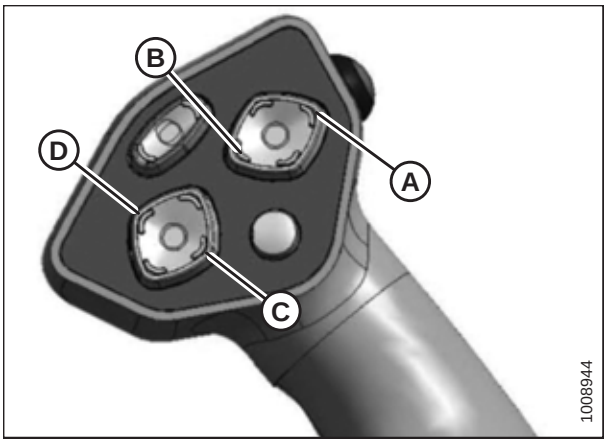


Figure 3.69: Ground Speed Lever

9. Adjust center-link cylinder (A) position with the REEL UP and REEL DOWN switches on the GSL until the hook is positioned above the header attachment pin.

   IMPORTANT:

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

10. Lower center-link (A) onto the header with the REEL DOWN switch until the center-link locks into position and hook release (B) is down.

11. Check that center-link is locked onto the header by pressing the REEL UP switch on the GSL.

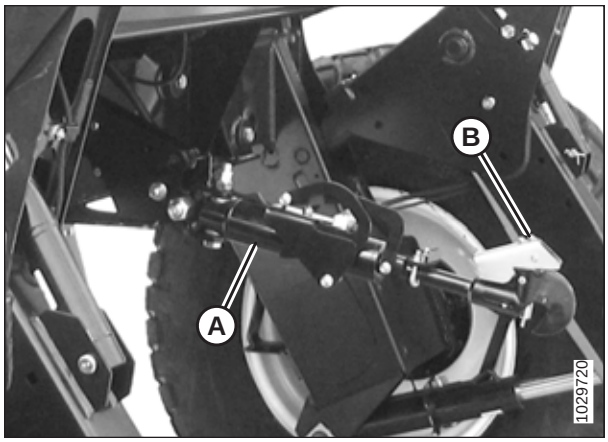


Figure 3.70: Hydraulic Center-Link

DANGER

Check to be sure all bystanders have cleared the area.

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

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

    a. Press and hold the HEADER UP switch until both cylinders stop moving.

    b. Continue to hold the switch for 3–4 seconds. Cylinders are now phased.

    NOTE:

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

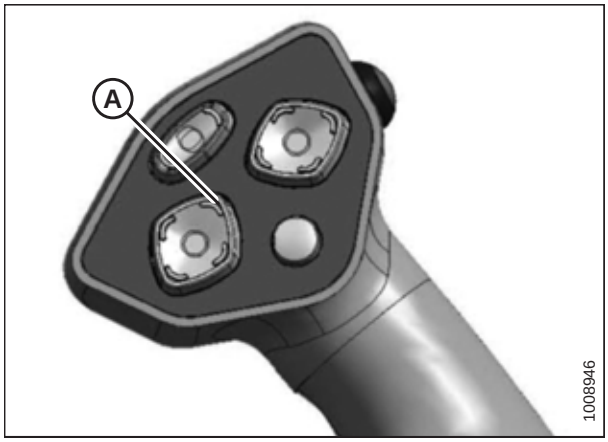


Figure 3.71: Ground Speed Lever

14. Pull lever (A) outward and rotate it toward the header to lower safety prop (B) onto the cylinder. Repeat for the opposite cylinder.

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

    b. Pull lever (A) outward and rotate it towards the header to release and lower safety prop (B) onto the lift cylinder.

    c. Repeat for the opposite lift cylinder.

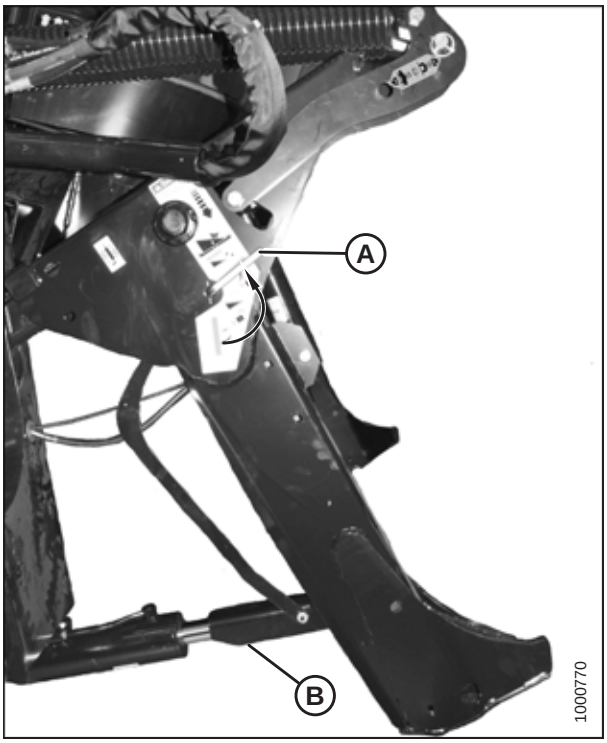


Figure 3.72: Safety Prop

15. Install clevis pin (A) through the support and windrower lift member, and secure with hairpin (B). Repeat for the opposite side of the machine.

    IMPORTANT:

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

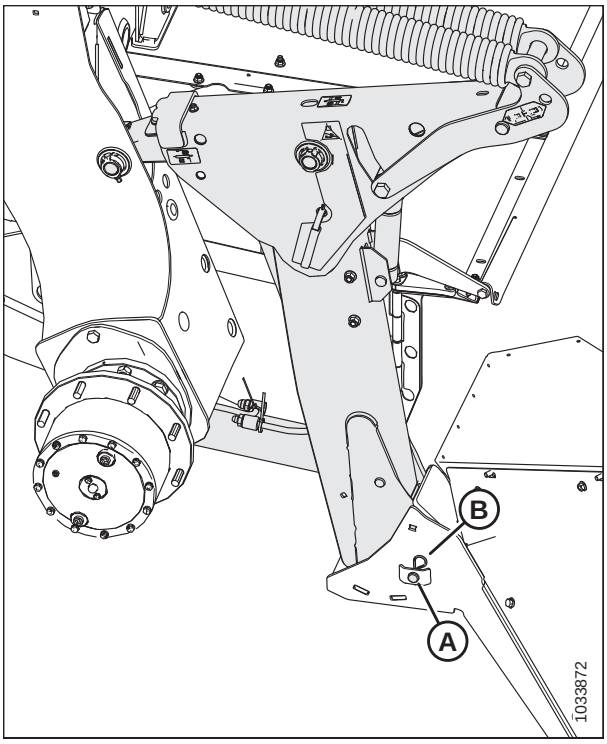


Figure 3.73: Header Support

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

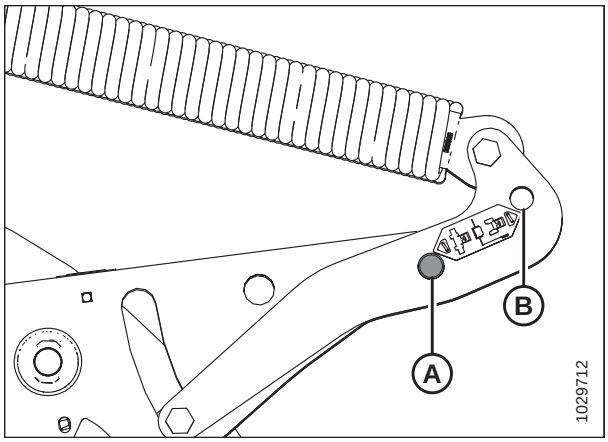


Figure 3.74: Header Float Linkage

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

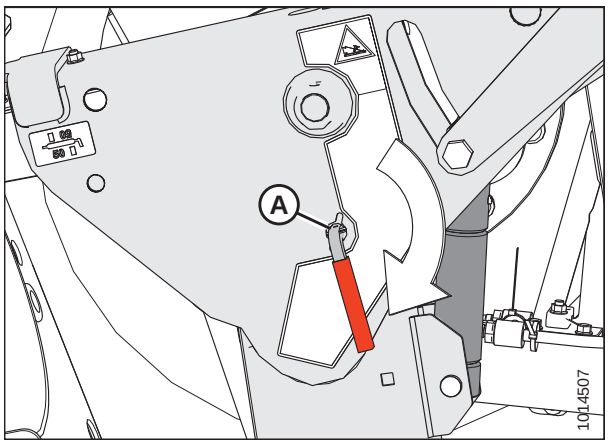


Figure 3.75: Safety Prop

DANGER

Check to be sure all bystanders have cleared the area.

19. Start the engine, and press HEADER DOWN switch (A) on the GSL to fully lower the header.
20. Shut down the engine, and remove the key from the ignition.
21. Proceed to *3.5.4 Connecting R216 Rotary Disc Header Hydraulics and Electrical to an M205 SP Windrower, page 67*.

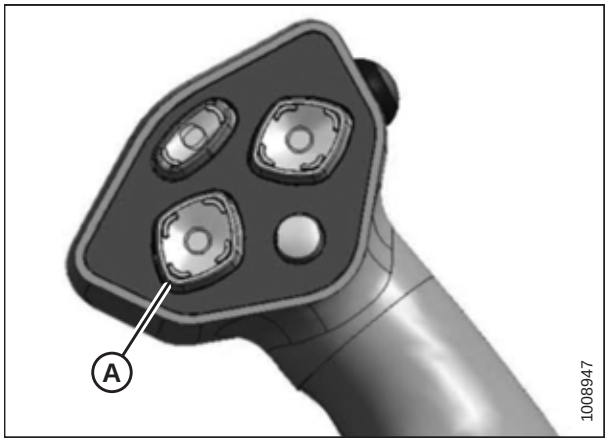


Figure 3.76: Ground Speed Lever

3.5.3 Attaching R216 Rotary Disc Header to M205 SP Windrower – Hydraulic Center-Link without Optional Self-Alignment

Attach the header to an M205 SP Windrower that is equipped without an optional self-aligning hydraulic center-link (allows the operator to control the vertical position of the center-link from the cab).

DANGER

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

1. Shut down the engine, and remove the key from the ignition.
2. Remove hairpin (A) from clevis pin (B), and remove the pin from header support (C) on both sides of the header.

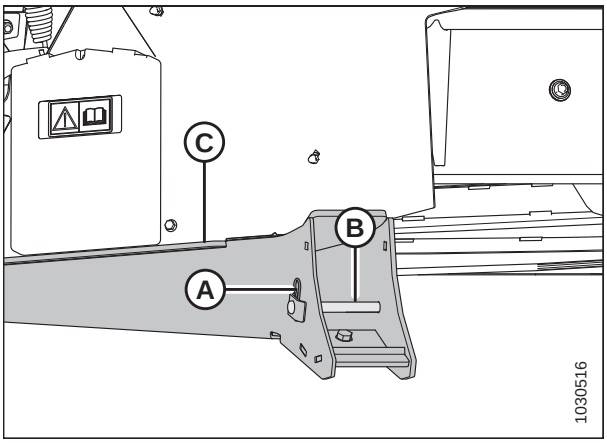


Figure 3.77: Header Support

3. Lift header support (A) and place 2 x 4 in. blocks (B) under the header support. A total of four 2 x 4 in. blocks (B) will be necessary to raise the boot up into field position. Ensure the boot's bottom edge (C) is parallel with the ground. Repeat for the opposite side.

   NOTE:

   Do **NOT** stack blocks (B) crosswise as doing so can make the header unstable when attempting to connect the header and windrower. Stack blocks (B) parallel with each other.

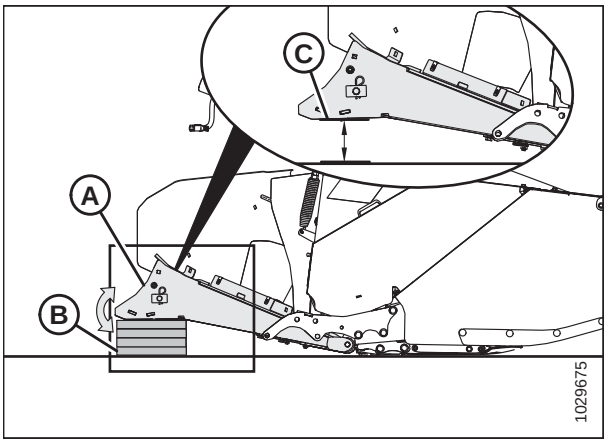


Figure 3.78: Header Support

4. To disengage the float springs, move the float engagement pin from engaged position (A) and insert the pin into storage hole (B). Secure the float engagement pin with a lynch pin. Repeat for opposite linkage.

   IMPORTANT:

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

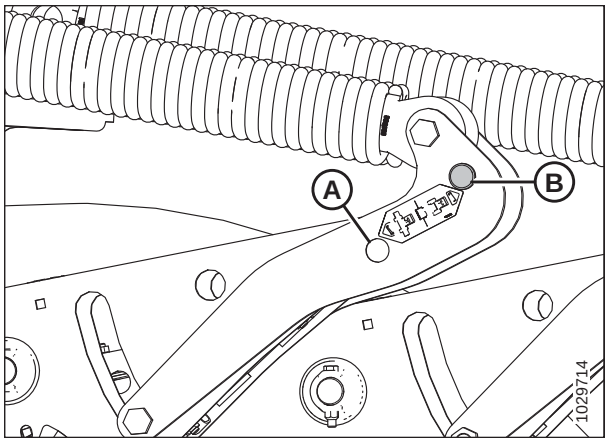


Figure 3.79: Header Float Linkage

DANGER

Check to be sure all bystanders have cleared the area.

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

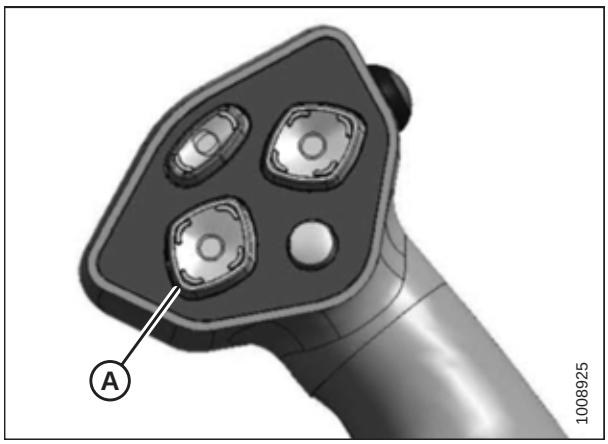


Figure 3.80: Ground Speed Lever

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

   IMPORTANT:

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

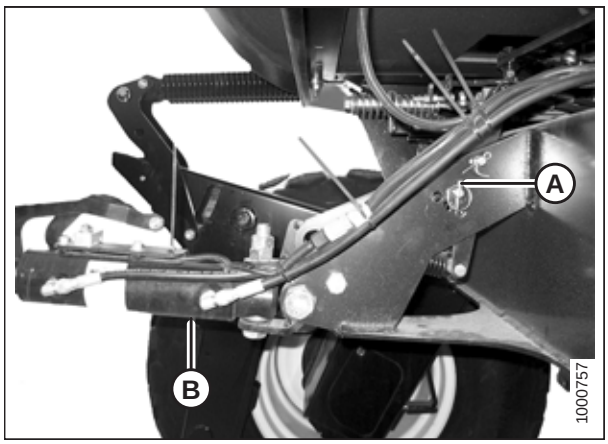


Figure 3.81: Hydraulic Center-Link

7. Slowly drive the windrower forward until windrower feet (A) enter header supports (B). Continue driving slowly forward until the feet engage the supports and the header nudges forward.

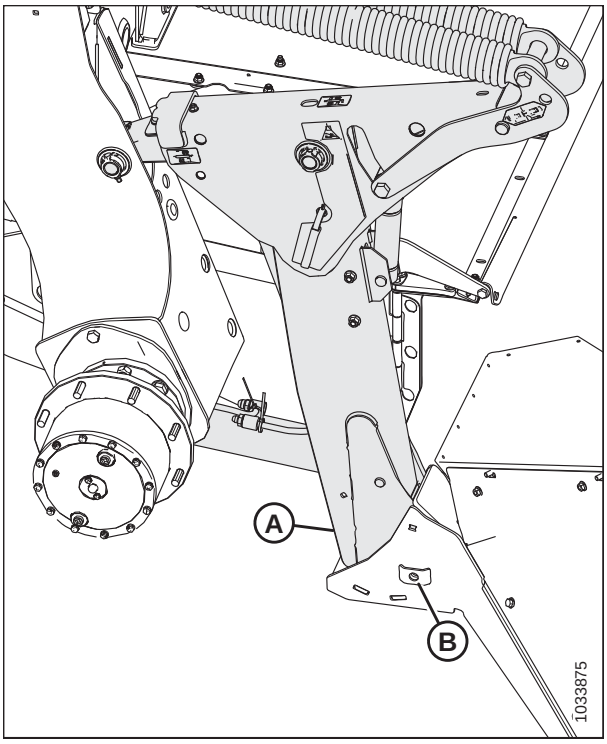


Figure 3.82: Header Support

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

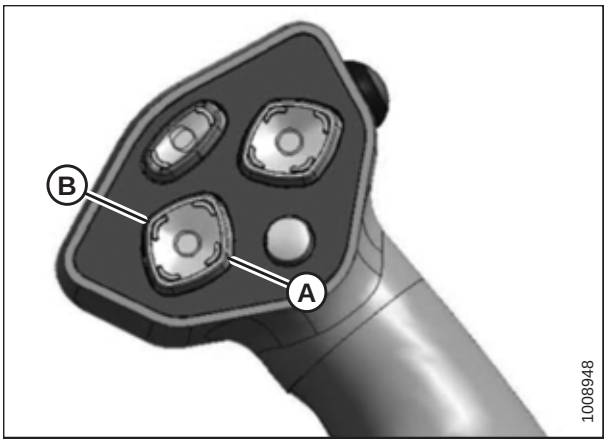


Figure 3.83: Ground Speed Lever

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

    IMPORTANT:

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

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

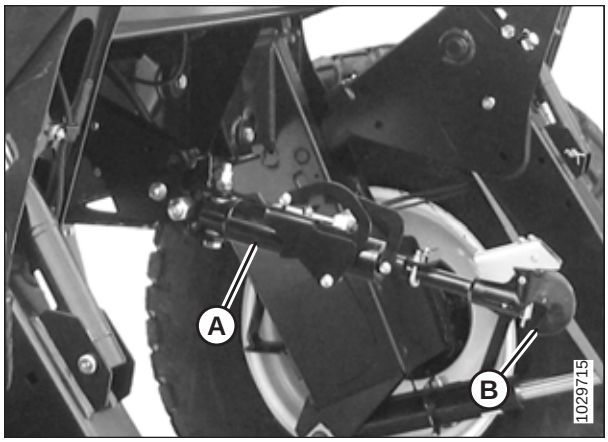


Figure 3.84: Hydraulic Center-Link

DANGER

Check to be sure all bystanders have cleared the area.

12. Start the engine.
13. Press HEADER UP switch (A) to raise the header to maximum height.
14. If one end of the header does **NOT** fully raise, rephase the lift cylinders as follows:

    a. Press and hold the HEADER UP switch until both cylinders stop moving.

    b. Continue to hold the switch for 3–4 seconds. Cylinders are now phased.

    NOTE:

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

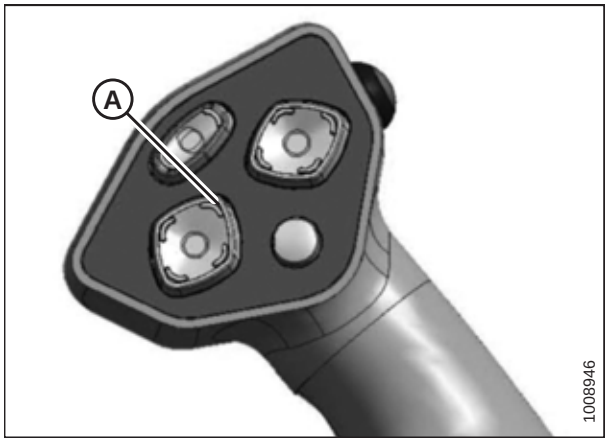


Figure 3.85: Ground Speed Lever

15. Pull lever (A) outward and rotate it toward the header to lower safety prop (B) onto the cylinder. Repeat for the opposite cylinder.

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

    b. Pull lever (A) outward and rotate it towards the header to release and lower safety prop (B) onto the lift cylinder.

    c. Repeat for the opposite lift cylinder.

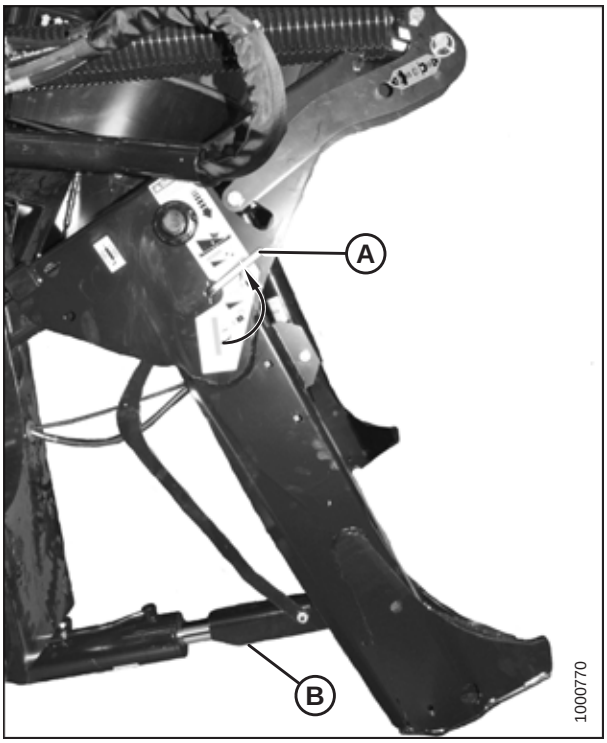


Figure 3.86: Safety Prop

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

    IMPORTANT:

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

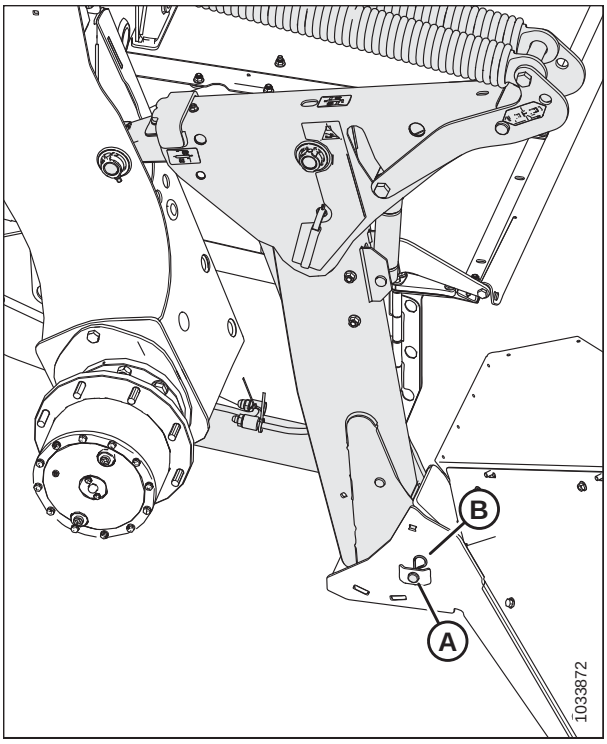


Figure 3.87: Header Support

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

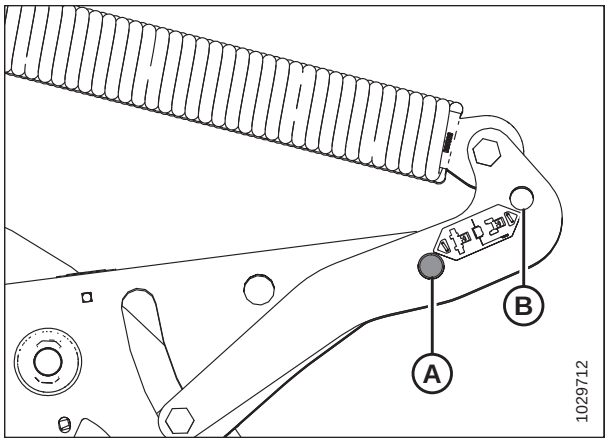


Figure 3.88: Header Float Linkage

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

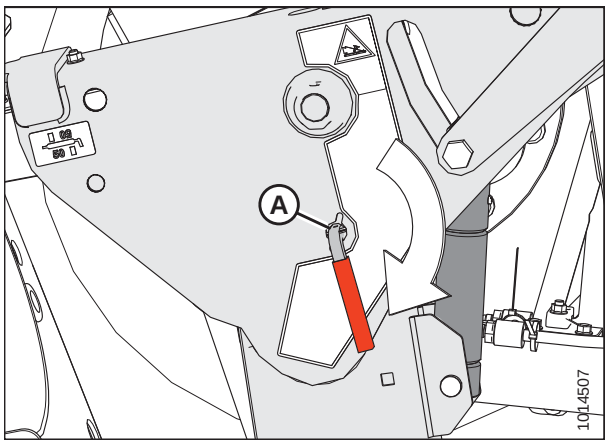


Figure 3.89: Safety Prop

DANGER

Check to be sure all bystanders have cleared the area.

20. Start the engine, and press HEADER DOWN switch (A) on the GSL to fully lower the header.
21. Shut down the engine, and remove the key from the ignition.
22. Proceed to *3.5.4 Connecting R216 Rotary Disc Header Hydraulics and Electrical to an M205 SP Windrower, page 67*.

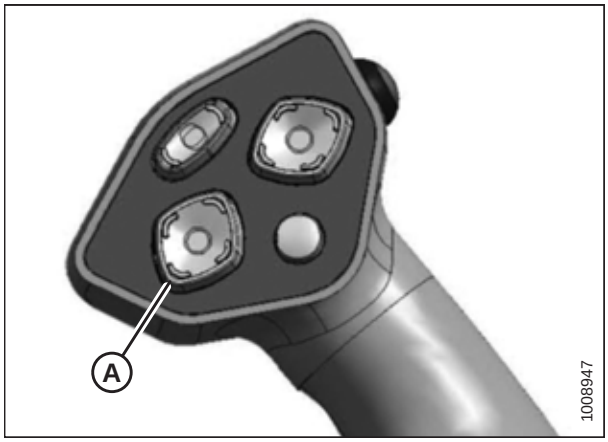


Figure 3.90: Ground Speed Lever

3.5.4 Connecting R216 Rotary Disc Header Hydraulics and Electrical to an M205 SP Windrower

Connect header hydraulic and electrical components to the windrower in order to operate the header.

DANGER

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

NOTE:

M205 compatibility kit MD #B7220 is required to connect a R216 Rotary Disc Header to an M205 SP Windrower. This kit supplies the hydraulic fittings used for hard-plumbed connections. If the M205 SP Windrower uses quick coupler connections, install quick coupler kit (MD #B5497) onto the R216 Rotary Disc Header pressure and return hoses.

1. Shut down the engine, and remove the key from the ignition.
2. Open the left platform. For instructions, refer to the windrower operator's manual.
3. Insert pin on header hose support (A) into hole (B) in windrower frame near left cab-forward leg.

   IMPORTANT:

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

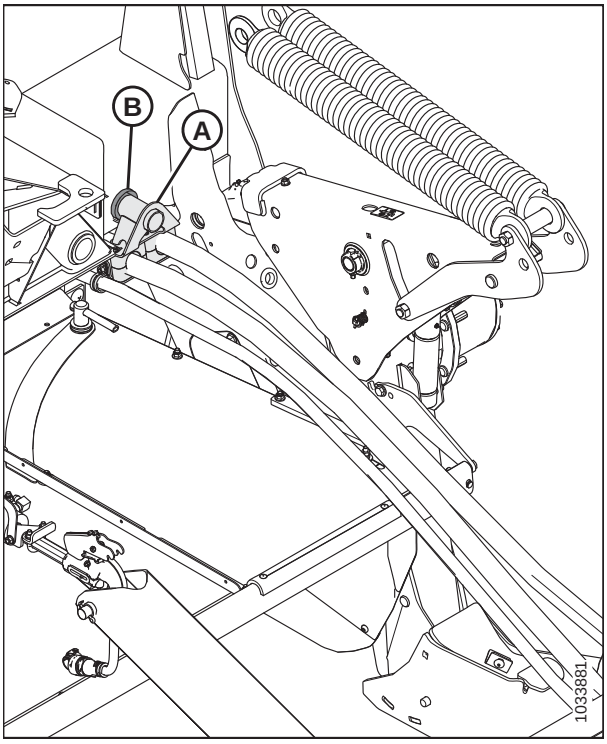


Figure 3.91: Hose Support Installed

NOTE:

When connecting the header hoses to the windrower in the following steps, you can adjust the length of the hoses as follows:

- Loosen nut (A) and clamp (B) to adjust the length of the case drain hose.
- Loosen nuts (C) and clamps (D) to adjust the length of the pressure and return hoses.
- Tighten hardware after making adjustments.

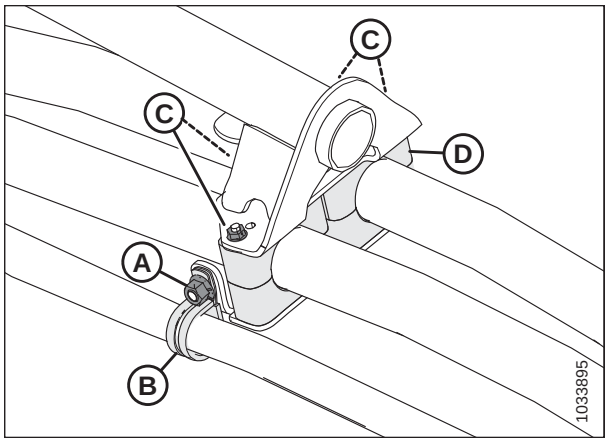


Figure 3.92: Hose Support Clamps

4. Proceed according to the type of hydraulic couplers or fittings used on the M205 SP Windrower:

- If the M205 SP Windrower is equipped with quick couplers (A) to connect to the header, proceed to Step *5, page 69*.

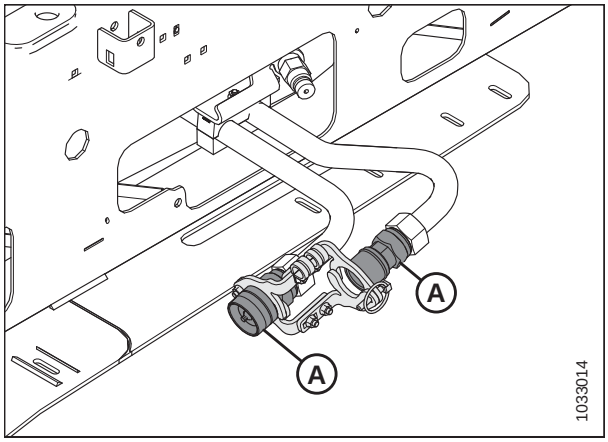


Figure 3.93: Pressure and Return Steel Lines with Quick Couplers

- If the M205 SP Windrower uses union fittings (A) instead of quick couplers to connect to the header, remove union fittings (A) from the steel lines and install the hard-plumbed connections provided in the M205 compatibility kit. For instructions, proceed to Step *13, page 71*.

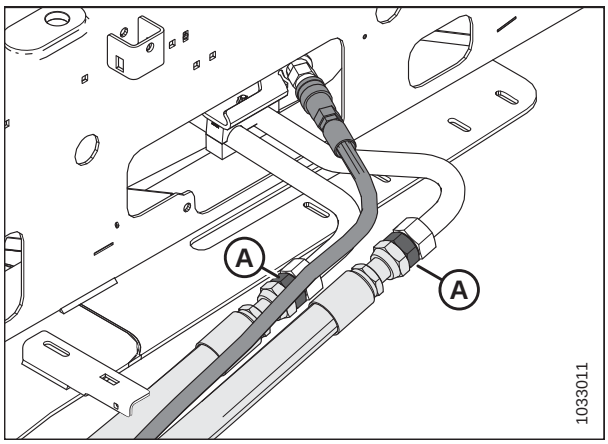


Figure 3.94: Pressure and Return Steel Lines with Union Fittings

- If the M205 SP Windrower has plugs (A) installed in the steel lines, remove the plugs from the steel lines and install the hard-plumbed connections provided in the M205 compatibility kit. For instructions, proceed to Step *13, page 71*.

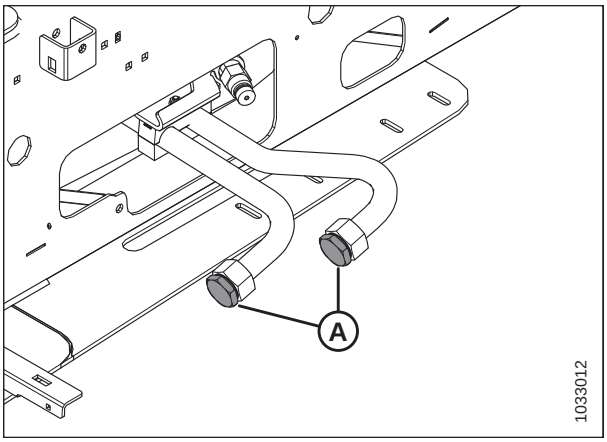


Figure 3.95: Pressure and Return Steel Lines with Plugs

5. **Quick coupler connections:** Connect male quick coupler (A) to pressure coupler (B). Connect female quick coupler (C) to return coupler (D).

   NOTE:

   For reference, the other end (E) of the pressure hose is connected to the front of the hydraulic motor. The other end (F) of the return hose is connected to the rear of the hydraulic motor.

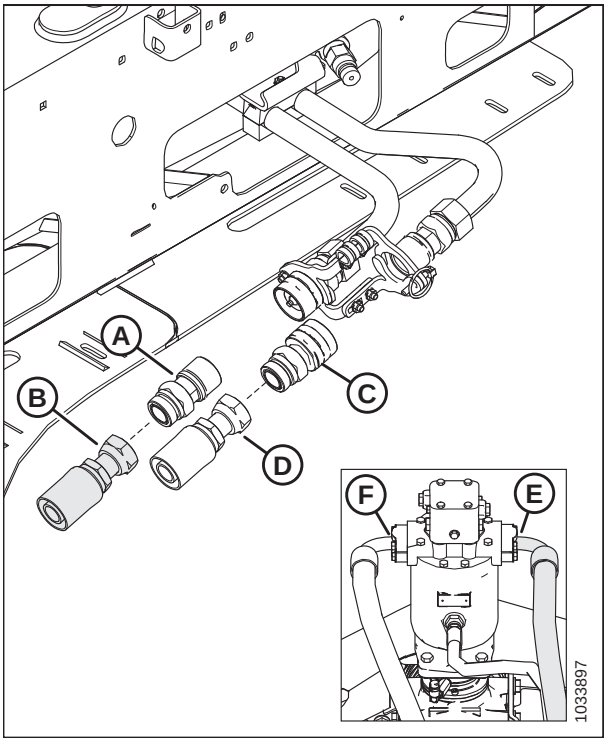


Figure 3.96: Header Pressure and Return Connections

6. **Quick coupler connections:** Connect pressure coupler (A) to inboard steel line coupler (B).

   NOTE:

   For reference, the other end (C) of the pressure hose is connected to the front of the hydraulic motor.

7. **Quick coupler connections:** Connect return coupler (D) to outboard steel line coupler (E).

   NOTE:

   For reference, the other end (F) of the return hose is connected to the rear of the hydraulic motor.

8. **Quick coupler connections:** Close coupler lock assembly (G) over couplers and secure with pin (H).

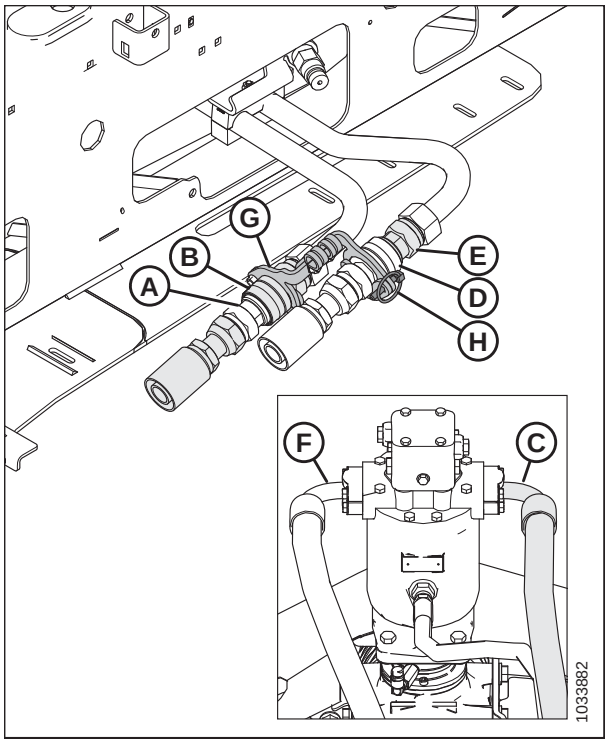


Figure 3.97: Header Pressure and Return Connections

9. **Quick coupler connections:** Confirm quick couplers are connected properly. Couplers will restrict oil flow if they are not fully mated (O-ring [A] will be visible). This will generate excessive heat, damaging the drive components and the couplers themselves. Couplers (B) at right are fully mated, and couplers (C) at right are not fully mated.

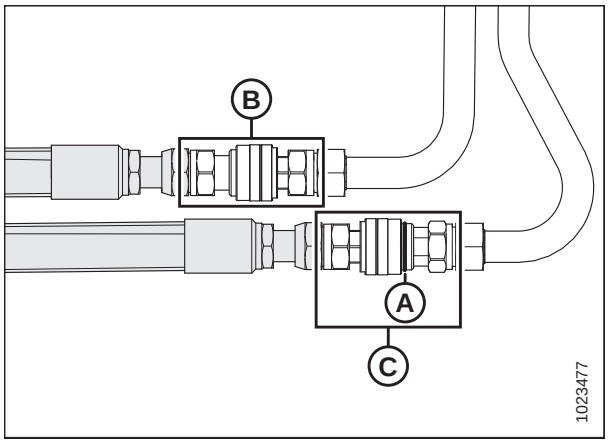


Figure 3.98: Quick Couplers – View from Top

10. **Quick coupler connections:** Connect case drain hose (A) to 1/2 in. male flat face fitting (B).

    NOTE:

    For reference, the other end of the case drain hose is connected to hydraulic motor port (D).

11. **Quick coupler connections:** Secure case drain hose to coupler lock assembly with two clamps (C).

12. **Quick coupler connections:** Proceed to Step *16, page 72*.

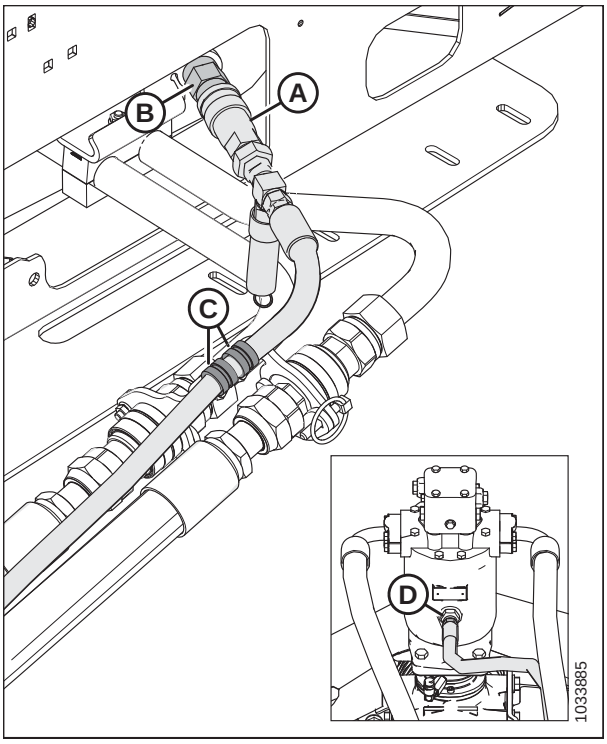


Figure 3.99: Case Drain Connection

13. **Hard-plumbed connections:** Connect pressure coupler (A) to inboard steel line (B) using adapter fittings (C) and (D).

    NOTE:

    For reference, other end (E) of the pressure hose is connected to the front of the hydraulic motor.

14. **Hard-plumbed connections:** Connect return coupler (G) to outboard steel line (H) using adapter fittings (J) and (K).

    NOTE:

    For reference, the other end (L) of the return hose is connected to the rear of the hydraulic motor.

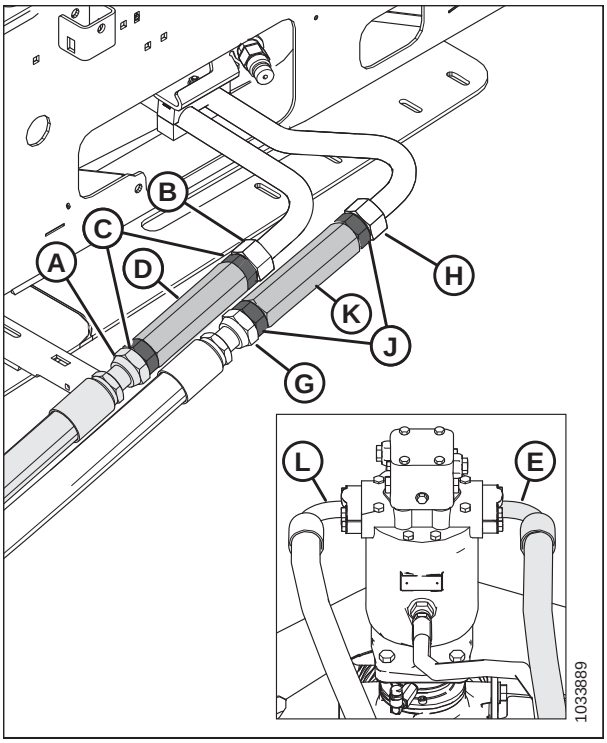


Figure 3.100: Header Pressure and Return Connections

15. **Hard-plumbed connections:** Connect case drain hose (A) to 1/2 in. male flat face fitting (B).

    NOTE:

    For reference, the other end of the case drain hose is connected to hydraulic motor port (C).

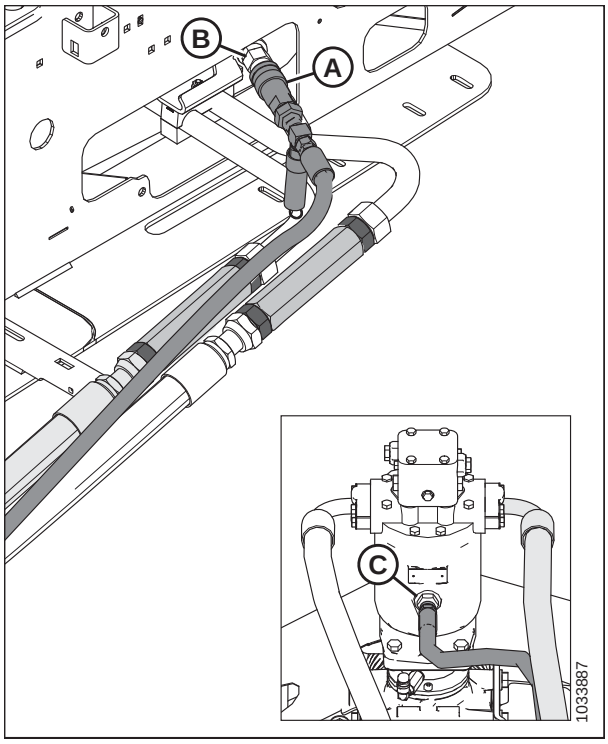


Figure 3.101: Case Drain Connection

16. Remove M205 adapter harness (A) from the storage location on center-link (B).
17. Connect harness (A) to header harness (C).

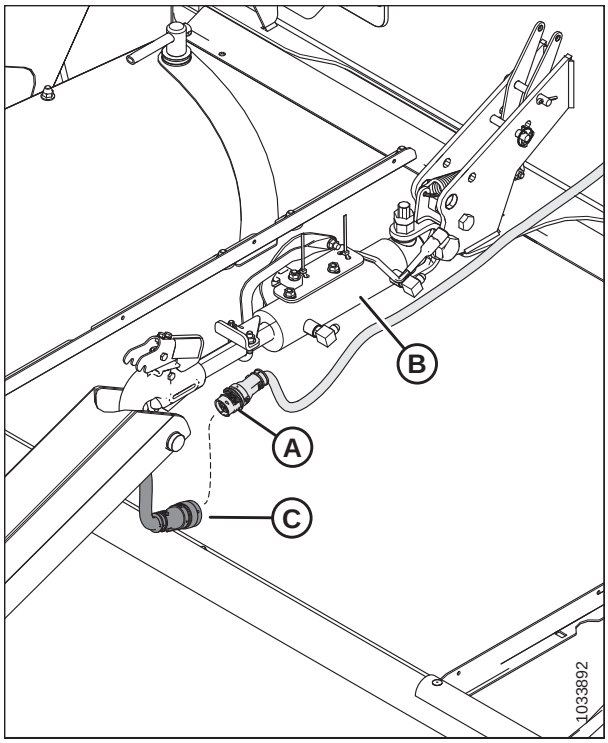


Figure 3.102: M205 Adapter Harness

3.6 Detaching Header from M205 SP Windrower

Detach the header when replacing the header with a different one or when storing the header.

3.6.1 Detaching R216 Rotary Disc Header from M205 SP Windrower

Detach the header when replacing the header with a different one or when storing the header.

DANGER

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

1. Start the engine and press HEADER UP switch (A) to raise the header to maximum height.
2. Rephase the cylinders if one end of the header does not raise fully. If rephasing is required, proceed as follows:
   a. Press and hold HEADER UP switch (A) until both cylinders stop moving.
   b. Continue to hold the switch for 3–4 seconds. Cylinders are now phased.

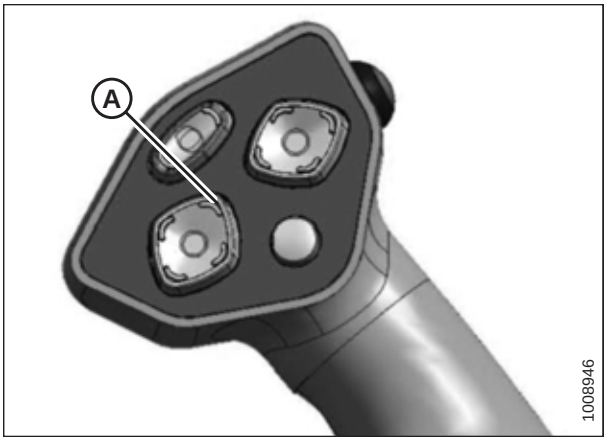


Figure 3.103: Ground Speed Lever (GSL)

3. Shut down the engine, and remove the key from the ignition.
4. Open the left platform. For instructions, refer to the windrower operator's manual.
5. Pull lever (A) outward and rotate it toward the header to lower safety prop (B) onto the cylinder. Repeat for the opposite cylinder.

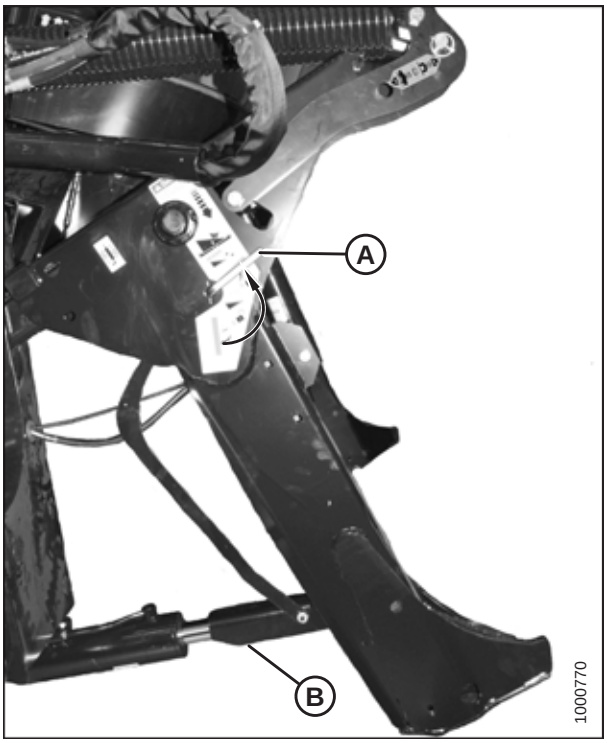


Figure 3.104: Safety Props

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

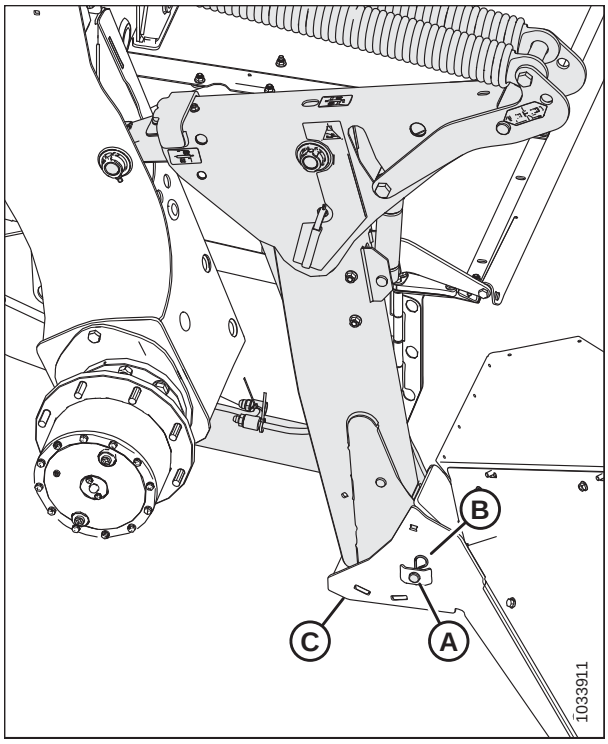


Figure 3.105: Header Boots

7. Remove the hairpin and clevis pin from location (A) to disengage float springs, and insert into storage hole (B). Secure with the hairpin.

   IMPORTANT:

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

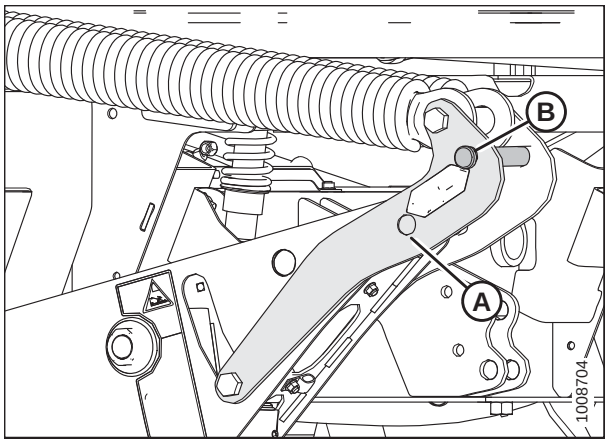


Figure 3.106: Header Float Linkage

DANGER

Check to be sure all bystanders have cleared the area.

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

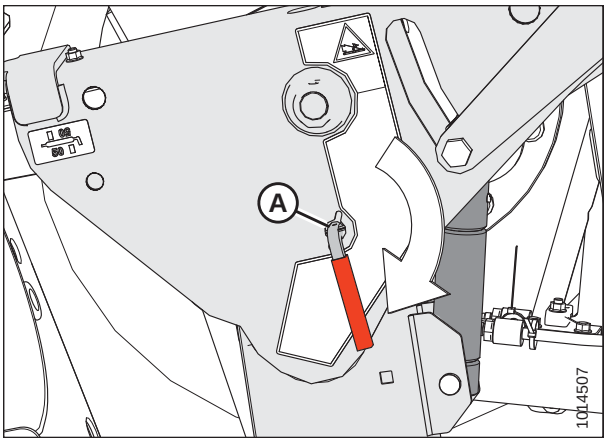


Figure 3.107: Safety Props

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

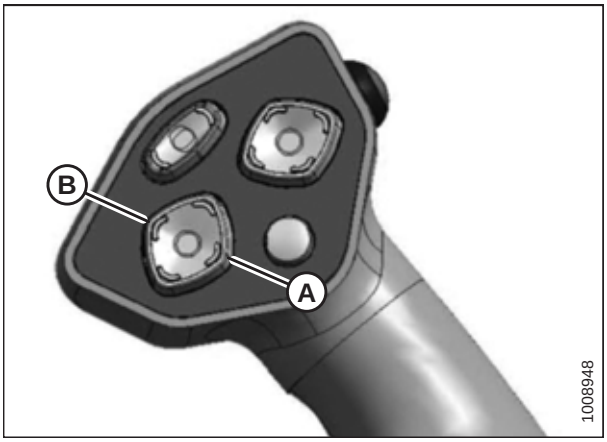


Figure 3.108: Ground Speed Lever

11. Shut down the engine, and remove the key from the ignition.
12. Lift hook release (C) and lift hook (B) off the header pin.

    NOTE:

    If the optional center-link lift cylinder is installed, lift release (C) and then operate the link lift cylinder from the cab to disengage the center-link (A) from the header.

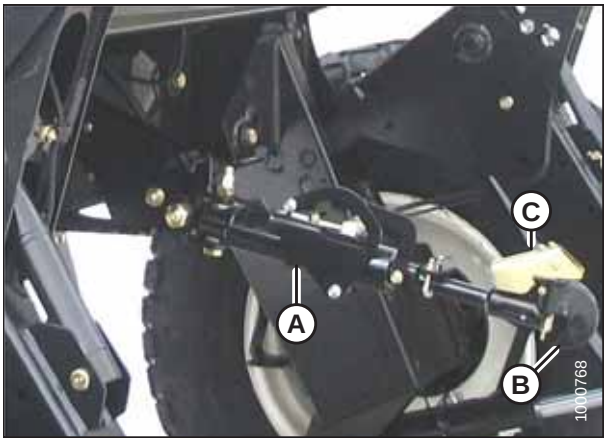


Figure 3.109: Hydraulic Center-Link

13. Proceed as follows:
    - If equipped with quick couplers (A), proceed to Step *14, page 76*.
    - If equipped with hard-plumbed couplers (B), proceed to Step *19, page 77*.

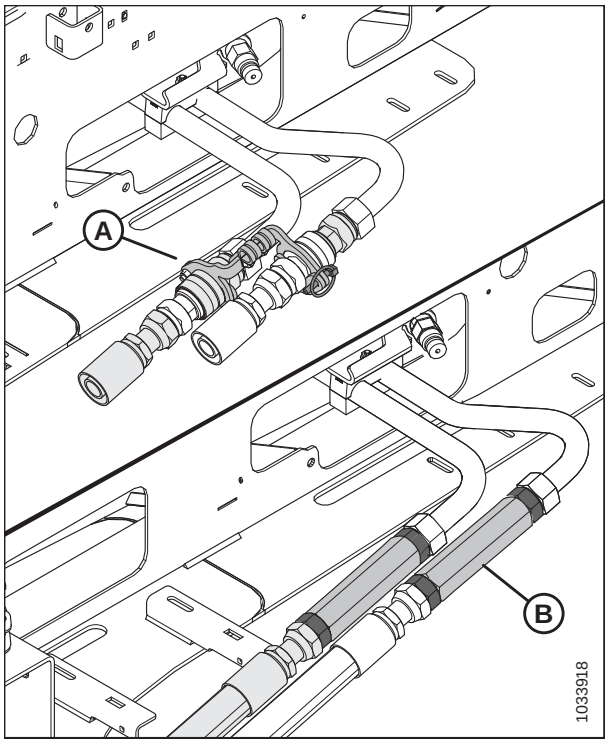


Figure 3.110: Quick Couplers and Hard-Plumbed Couplers

14. **Quick coupler connections:** Disconnect case drain hose (A) from fitting (B).
15. **Quick coupler connections:** Remove two clamps (C) and hose (A). Reinstall clamps (C).

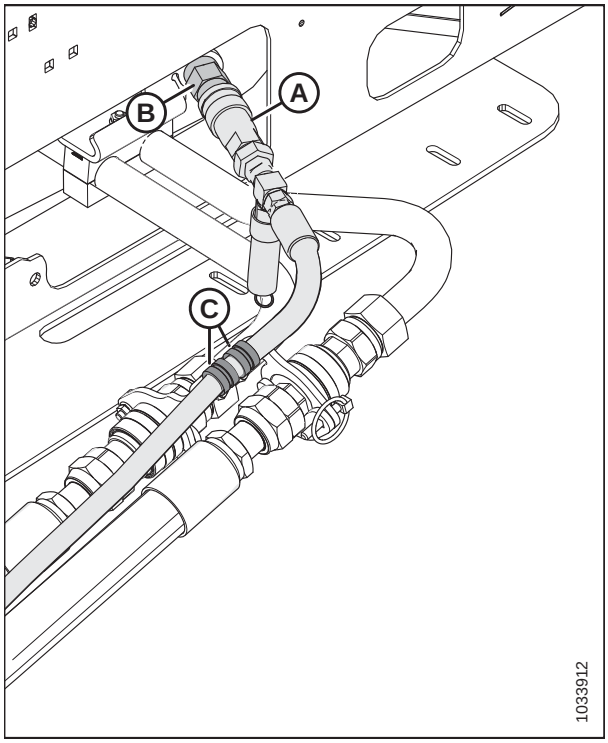


Figure 3.111: Case Drain Connection

16. **Quick coupler connections:** Remove pin (A). Open coupler lock assembly (B).
17. **Quick coupler connections:** Disconnect coupler (C) from steel line coupler (D). Disconnect coupler (E) from steel line coupler (F).
18. **Quick coupler connections:** Proceed to Step *21, page 77*.

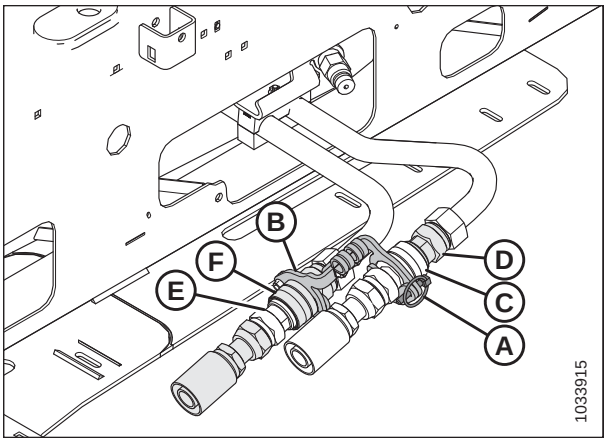


Figure 3.112: Header Pressure and Return Connections

19. **Hard-plumbed connections:** Disconnect case drain hose (A) from fitting (B).

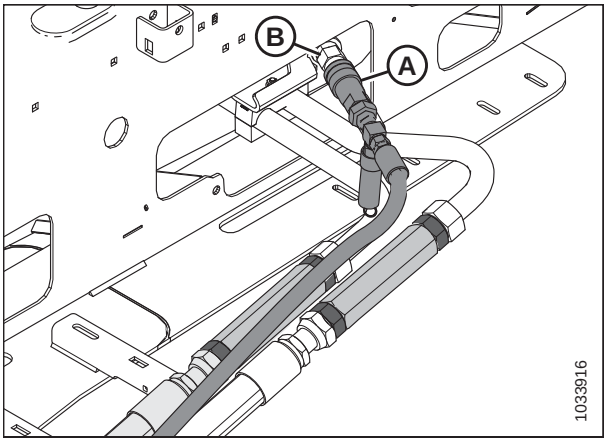


Figure 3.113: Case Drain Connection

20. **Hard-plumbed connections:** Disconnect hose with fitting (A) from steel line (B). Disconnect hose with fitting (C) from steel line (D).
21. Install caps and plugs on open lines to prevent buildup of dirt and debris while in storage.

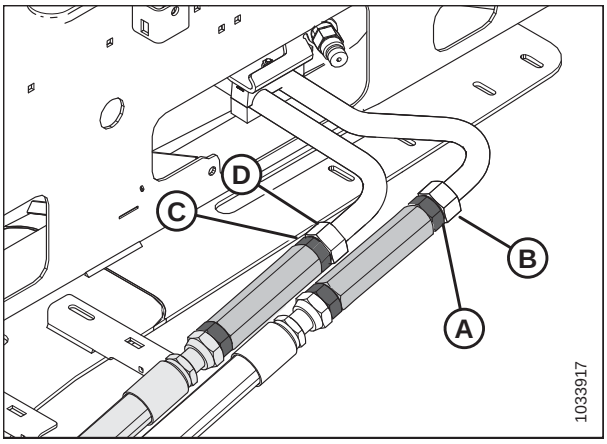


Figure 3.114: Header Pressure and Return Connections

22. Remove header hose support (A) from hole (B) in windrower frame near left cab-forward leg.

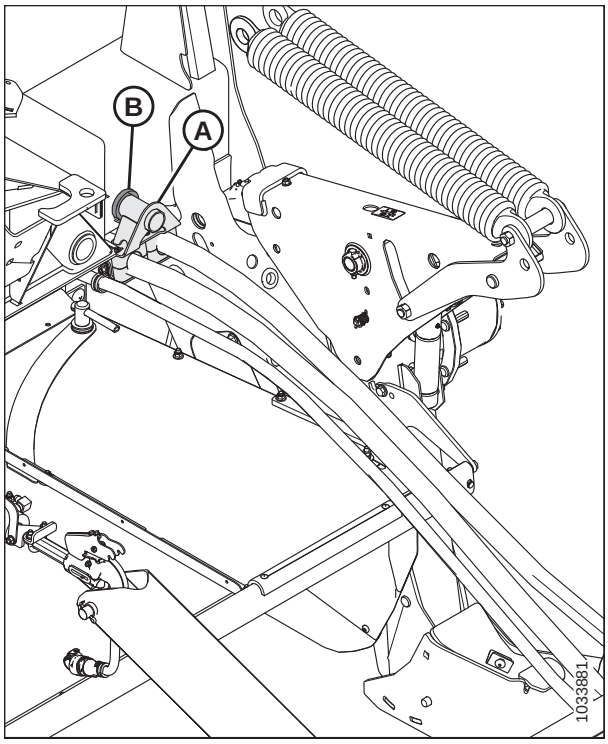


Figure 3.115: Hose Support Installed

23. Rest hydraulic hose bundle (A) on header for storage as shown.

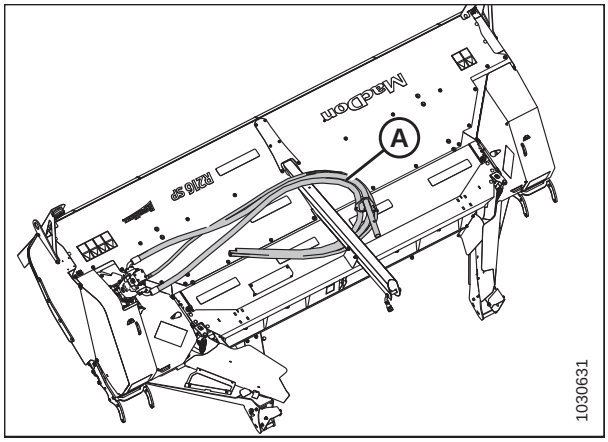


Figure 3.116: Hose Bundle Storage Position

24. Disconnect M205 SP Windrower adapter harness (A) from header connector (C). Install electrical caps on connectors.
25. Store harness (A) on center-link (B) using straps (not shown).
26. Back the windrower slowly away from the header.

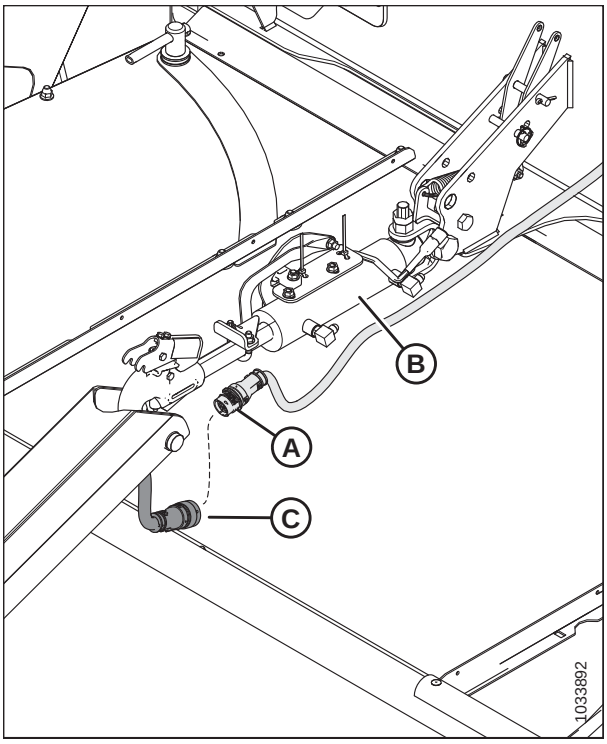


Figure 3.117: M205 SP Windrower Adapter Harness

27. Reinstall clevis pin (A) through boot (C), and secure with hairpin (B). Repate for opposite side.

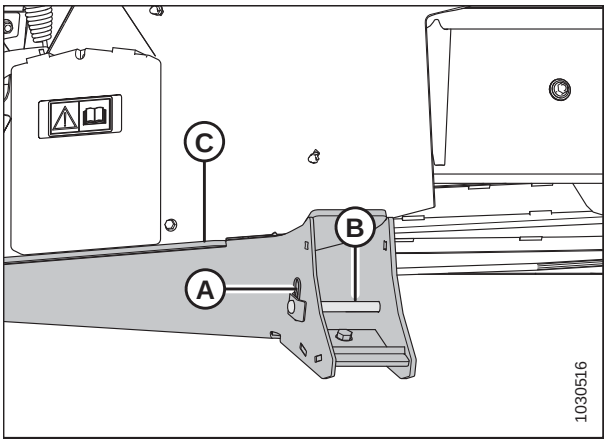


Figure 3.118: Header Boot

3.6.2 Removing the Forming Shield

The forming shield controls the width and placement of the windrow.

DANGER

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

NOTE:

It is **NOT** always necessary to remove the forming shield after detaching the header from the windrower.

1. Shut down the engine, and remove the key from the ignition.
2. Remove and retain hairpin (A) and washer (B) from straight pin (C).
3. Pull rubber strap (D) away from straight pin (C).
4. Lower rear end of forming shield.

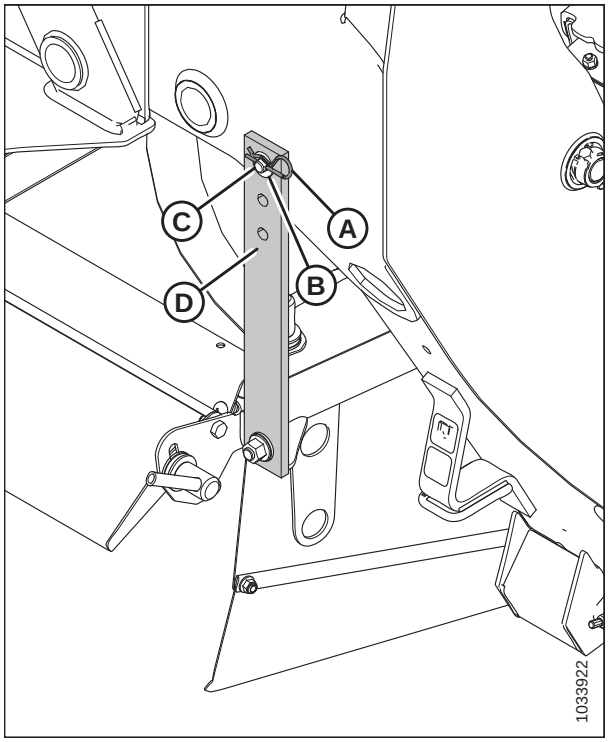


Figure 3.119: Rubber Strap Securing Forming Shield onto Windrower Leg

5. Reinstall washer (B) and hairpin (A) on straight pin (C) for storage.
6. Repeat Step *2, page 80* to Step *5, page 80*at the opposite side.

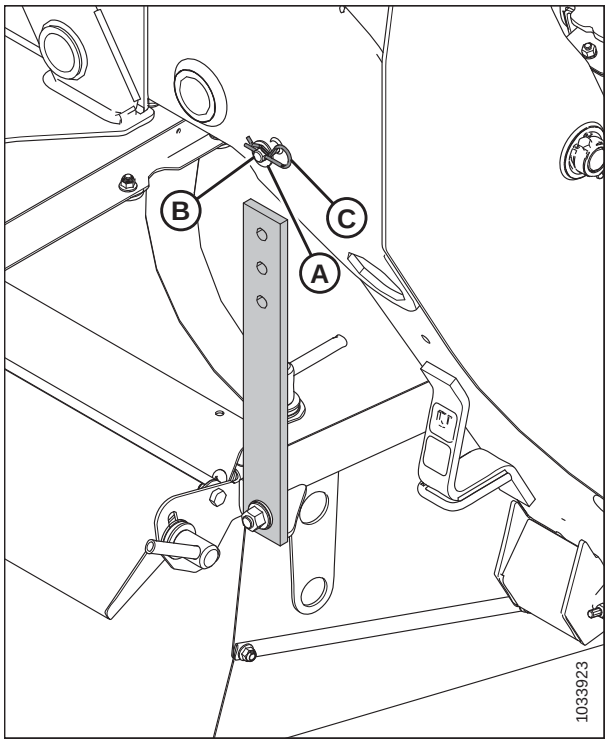


Figure 3.120: Lynch Pin and Washer at Rear of Windrower Leg

7. Remove lynch pin (A) and clevis pin (B) securing forming shield (C) to bolt and spacer (D). Repeat at the opposite side.

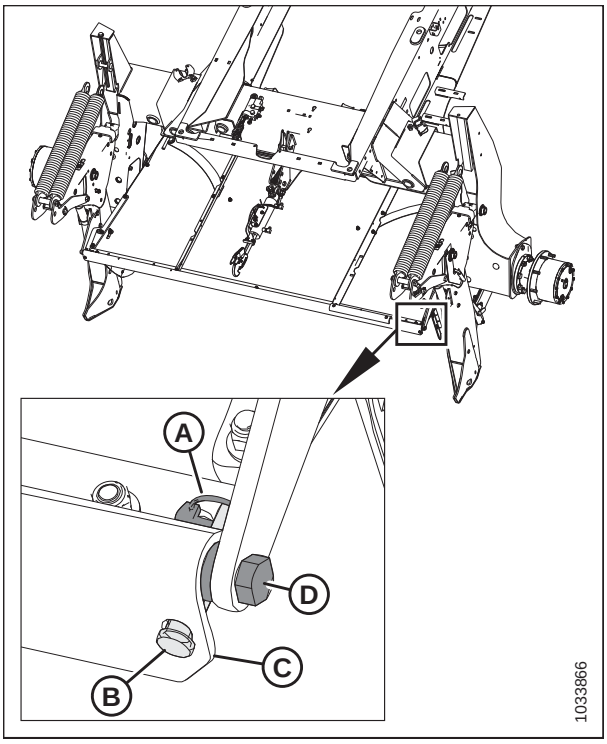


Figure 3.121: Forming Shield Secured to Front of Windrower Legs

8. Dismount forming shield (A) from bolts and spacers (B). Repeat at the opposite side.
9. Reattach clevis pin (C) and lynch pin (D) to the forming shield for storage. Repeat at the opposite side.
10. Remove the forming shield.

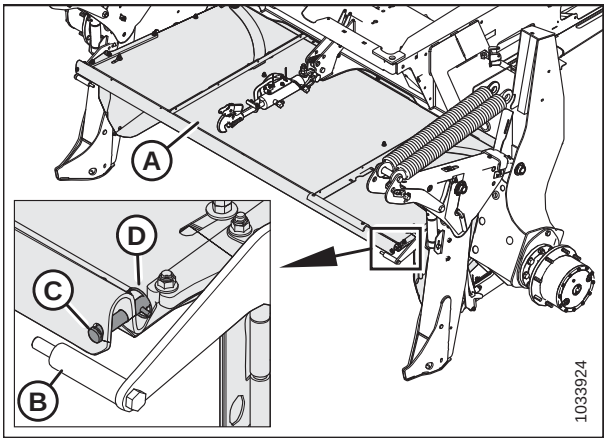


Figure 3.122: Forming Shield and Windrower

3.7 Driveshields

Driveshields protect drive components from damage and provide access to drive components for maintenance and servicing. Driveshields are located on the left and right ends of the header.

3.7.1 Opening Driveshields

The driveshields provide access to drive components for maintenance and servicing.

WARNING

To reduce the risk of personal injury, do NOT operate the machine without the driveshields in place and secured.

NOTE:

Images shown in this procedure are for the left driveshield—the right driveshield is similar.

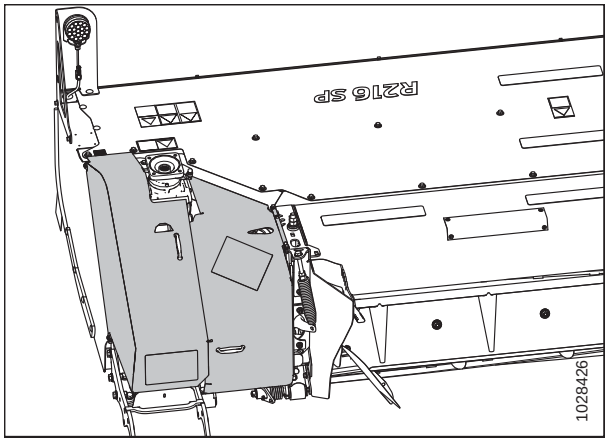


Figure 3.123: Left Driveshield

1. Push down on release lever (A) to disengage the release latch and pull handle (B).

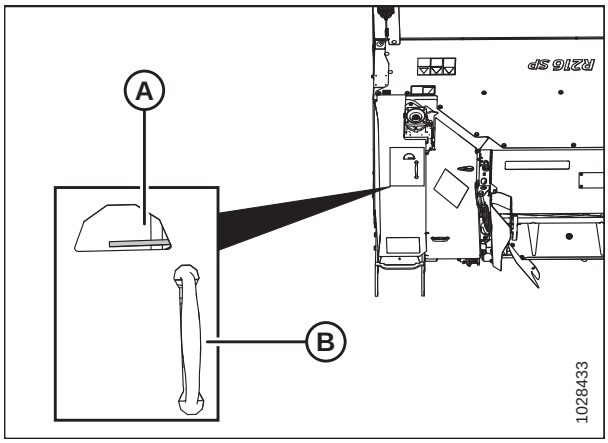


Figure 3.124: Driveshield Latch and Handle

2. Lift outboard driveshield panel (A) in an outboard direction toward the end of the header.

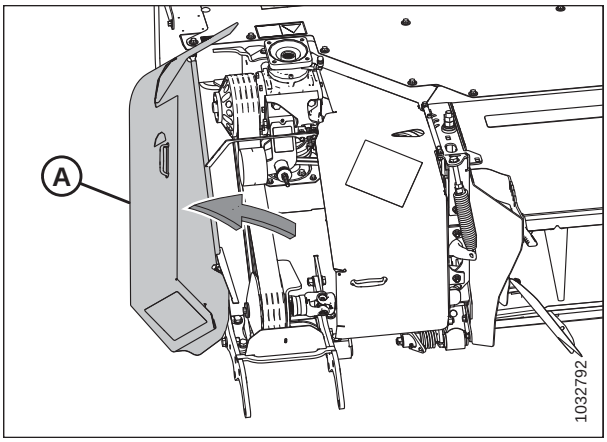


Figure 3.125: Opening Driveshield – Outboard Panel

3. Pull handle (A) and lift inboard driveshield panel (B) toward the middle of the header.
4. Repeat steps on opposite side of the header to open the opposite side driveshields.

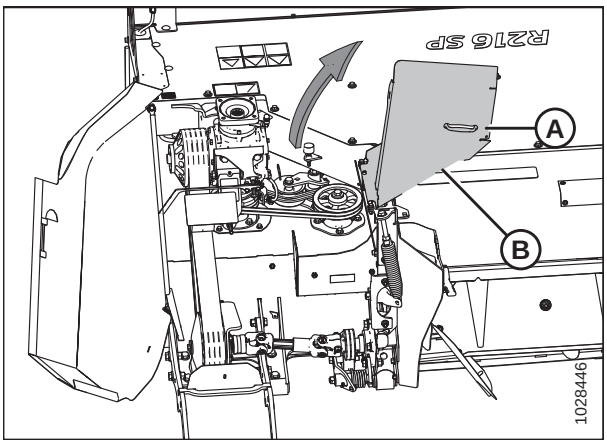


Figure 3.126: Driveshield – Inboard Panel

3.7.2 Closing Driveshields

Closing the driveshields before operating the machine will protect drive components from damage.

WARNING

To reduce the risk of personal injury, do NOT operate the machine without the driveshields in place and secured.

NOTE:

Images shown in this procedure are for the left driveshield—the right driveshield is similar.

1. While lifting driveshield, lift lock latch (A) to disengage driveshield lock.

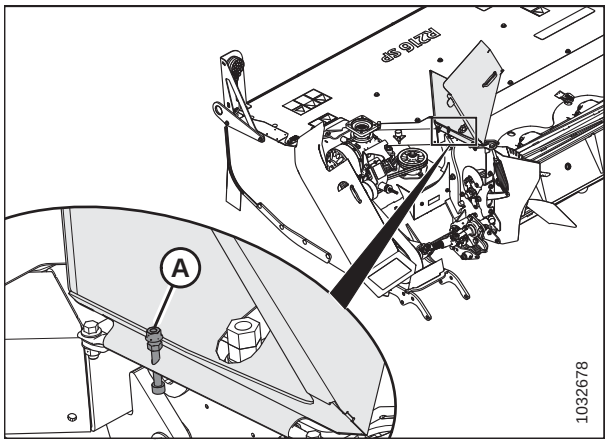


Figure 3.127: Driveshield Lock Latch

2. Move inboard-half of driveshield (A) back to closed position.

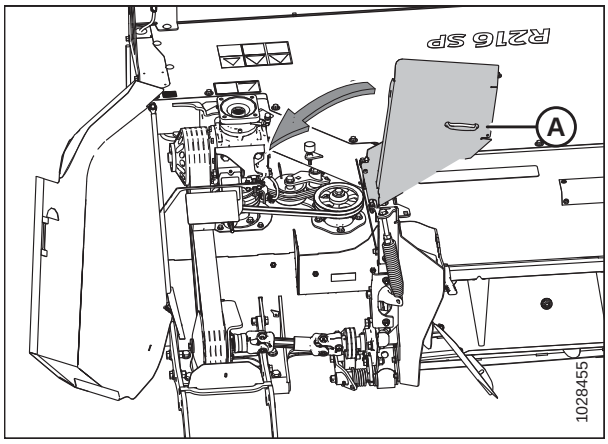


Figure 3.128: Left Driveshield

3. Move outboard-half of driveshield (A) back to closed position.

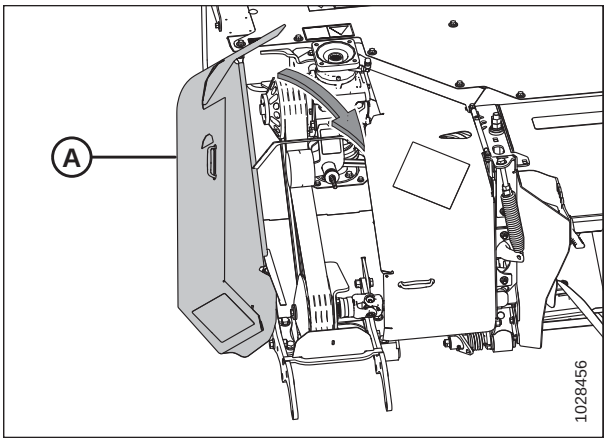


Figure 3.129: Left Driveshield

3.8 Cutterbar Curtain

The curtain is installed at the front of the header. It minimizes the risk of thrown objects being ejected at high speed from the cutterbar area.

WARNING

To reduce the risk of personal injury and machine damage, do NOT operate the machine without curtain installed and in good condition. Foreign objects can be ejected with considerable force when the machine is started.

NOTE:

Cutterbar curtain is attached at the front and the sides of the header. **ALWAYS** keep curtain lowered when operating the disc header.

IMPORTANT:

Replace curtain (A) if it becomes worn or damaged. For instructions, refer to *4.9.1 Inspecting Cutterbar Curtain, page 218*.

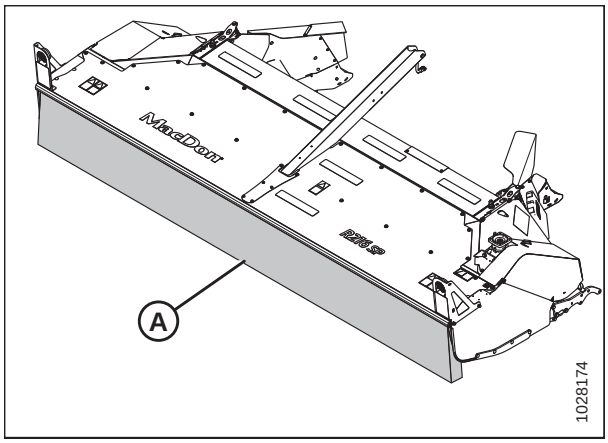


Figure 3.130: Cutterbar Curtains

3.8.1 Opening Cutterbar Curtain

The curtain is installed at the front of the header. It minimizes the risk of thrown objects being ejected at high speed from the cutterbar area.

DANGER

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

1. Push curtain (A) inward and up.

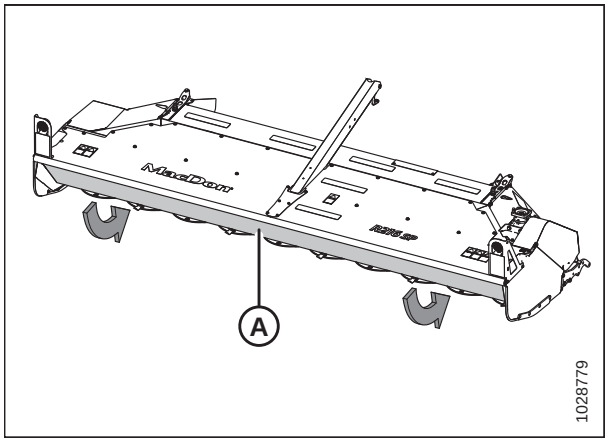


Figure 3.131: Cutterbar Curtain

2. Secure curtain in place at locations (A) using three clips provided.

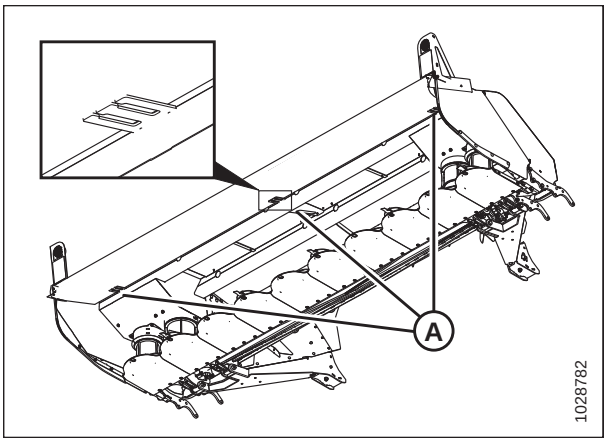


Figure 3.132: Cutterbar Curtain — View from Below

NOTE:

Cutterbar curtain (A) is held in place between the tines of retaining clips (B).

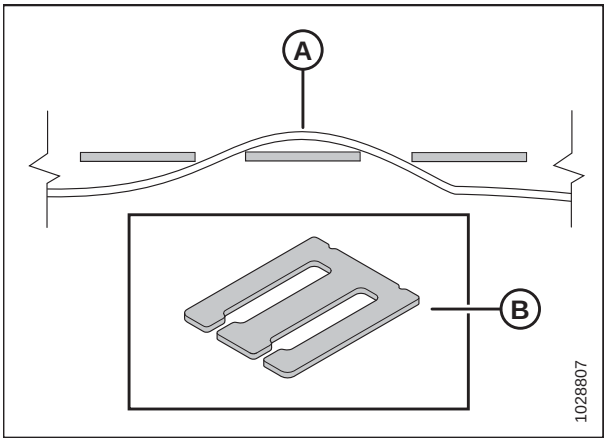


Figure 3.133: Cutterbar Curtain and Retaining Clips

3.8.2 Closing Cutterbar Curtain

The curtain is installed at the front of the header. It minimizes the risk of thrown objects being ejected at high speed from the cutterbar area.

CAUTION

To avoid injury, keep hands and fingers away from corners of doors when closing.

1. Pull curtain outward from retaining clips and lower curtain.

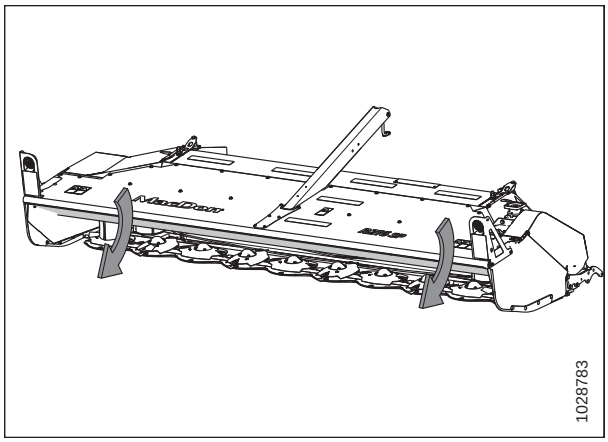


Figure 3.134: Cutterbar Curtain

3.9 Header Settings

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

Correct operation reduces crop loss and increases productivity. Proper adjustments and timely maintenance increases the length of service of the machine.

The variables listed in the following table and detailed in this manual affect the performance of the disc header. Most of the adjustments have been set at the factory, but settings can be changed to suit your crop conditions.

Table 3.1 Header Operating Variables

Variable	Refer to
Cutting height	*3.9.1 Cutting Height, page 89*
Float	*3.9.3 Header Float, page 94*
Header angle	*3.9.2 Cutterbar Angle, page 94*
Ground speed	*3.9.4 Ground Speed, page 95*
Crop stream configuration	*4.6.9 Reconfiguring Cutterbar Crop Stream, page 207*
Standard headers: Conditioner settings	*3.10 Conditioner, page 96*
Grass seed version of header: Operation	*3.11 Grass Seed Version Operation, page 107*

3.9.1 Cutting Height

Cutting height is determined by a combination of the cutterbar angle and the optional skid shoe or gauge roller settings. Adjust the cutting height for optimum cutting performance and to prevent build-up inside the header. Excessive build-up of mud and soil can lead to poor crop flow and increased wear on cutting components.

Optional adjustable gauge rollers and skid shoes are available to provide different cutting heights. For instructions, refer to:

- *Adjusting Skid Shoe Height, page 90*
- *Adjusting Gauge Roller Height, page 91*

Lowering the skid shoes (or gauge rollers) and decreasing the cutterbar angle increases the cutting height, resulting in higher stubble that helps material dry faster. This may be desirable in stony conditions to help reduce damage to cutting components.

Raising the skid shoes (or gauge rollers) and increasing the cutterbar angle decreases the cutting height, resulting in a shorter stubble.

To choose a header angle that maximizes performance for your crop and field conditions, refer to *3.9.2 Cutterbar Angle, page 94*.

To minimize cutterbar damage, scooping soil, and soil build-up at the cutterbar in damp conditions, the float should be set as light as possible without causing excessive bouncing. For instructions, refer to *3.9.3 Header Float, page 94*.

Adjusting Skid Shoe Height

Adjustable skid shoes are available to provide different cutting heights.

The adjustable skid shoes have three position settings: lowest working position (A), intermediate working position (B), and storage position (C).

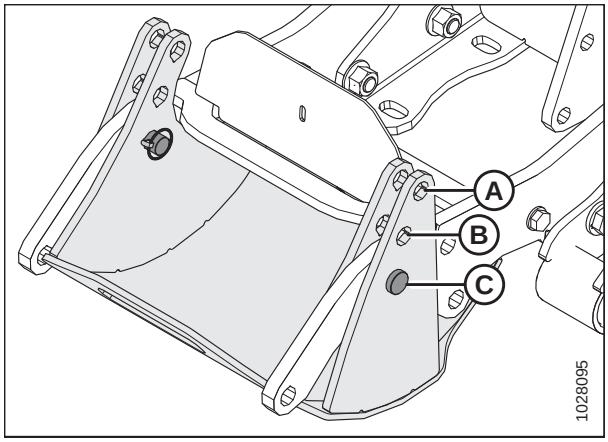


Figure 3.135: Skid Shoe Position Settings

To adjust skid shoe height, follow these steps:

DANGER

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

1. Raise the header fully.
2. Shut down the engine, and remove the key from the ignition.
3. Engage the lift cylinder safety props. For instructions, refer to the procedure according to the type of windrower:
   - **M1240 Windrower:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
   - **M205 SP Windrower:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*
4. Remove the lynch pin and the clevis pin from both sides of the skid shoe.
5. Position the skid shoe in the preferred working position by aligning skid shoe holes (A) with mounting holes in bracket (B).

   NOTE:

   This example shows the lowest working position.

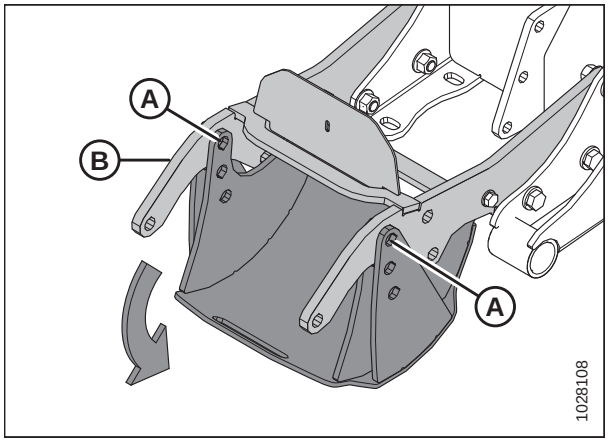


Figure 3.136: Positioning Skid Shoe

6. Replace the clevis pins and lynch pins (A) to secure the skid shoe in place.

   IMPORTANT:

   Install lynch pins (A) at the inboard side of the skid shoe.

7. Repeat the procedure on the second skid shoe. Ensure both skid shoes are set to the same position.

8. Adjust the cutterbar angle to the desired working position using the disc header angle controls. If the angle is not critical, set it to mid-position. For instructions, refer to *3.9.2 Cutterbar Angle, page 94*.

9. Check the header float. For instructions, refer to the windrower operator's manual.

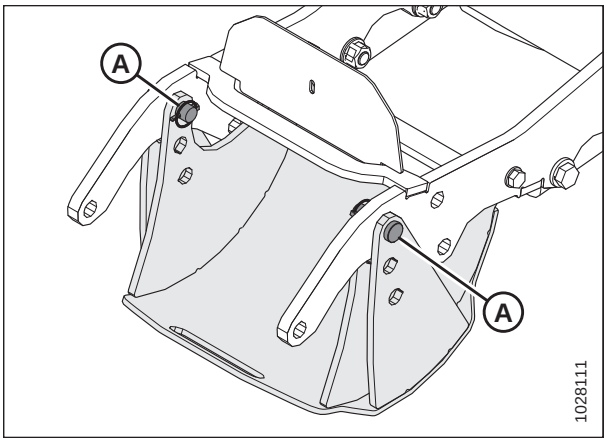


Figure 3.137: Skid Shoe in Lowest Working Position

Adjusting Gauge Roller Height

Optional adjustable gauge rollers are available to provide different cutting heights.

DANGER

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

1. Raise the header fully.
2. Shut down the engine, and remove the key from the ignition.
3. Engage the lift cylinder safety props. For instructions, refer to the procedure according to the type of windrower:
   - **M1240 Windrower:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
   - **M205 SP Windrower:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*

NOTE:

The left gauge roller is shown in the illustrations in this procedure. The right gauge roller is opposite.

The gauge roller has three position settings: lowest working position, intermediate working position, and storage position.

Lowest working position

To adjust the gauge rollers to the lowest working position, follow these steps:

4. Remove two lynch pins (A) and clevis pins (B) from the gauge roller plate.
5. Remove scraper plate (C) and hair pin (D).

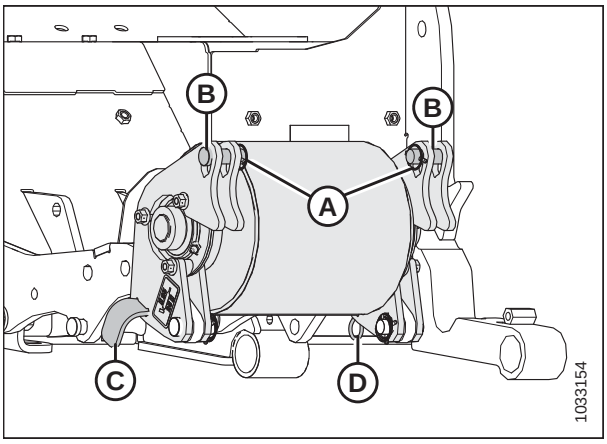


Figure 3.138: Gauge Roller

6. Swing the gauge roller forward and align the holes in the gauge roller plate to the bottom hole of the mounting plates.
7. Secure with clevis pins (A) and lynch pins (B).

   IMPORTANT:

   Lynch pins (B) should be installed at the inboard side of the gauge roller.
8. Install scraper plate (C) and hair pin (D).

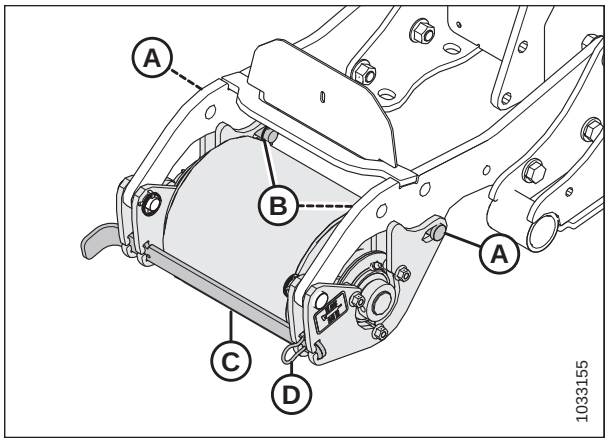


Figure 3.139: Gauge Roller Secured in Lowest Working Position

Intermediate working position

To adjust the gauge rollers to the intermediate position, follow these steps:

1. Support the gauge roller, and remove two clevis pins (A) and lynch pins (B).

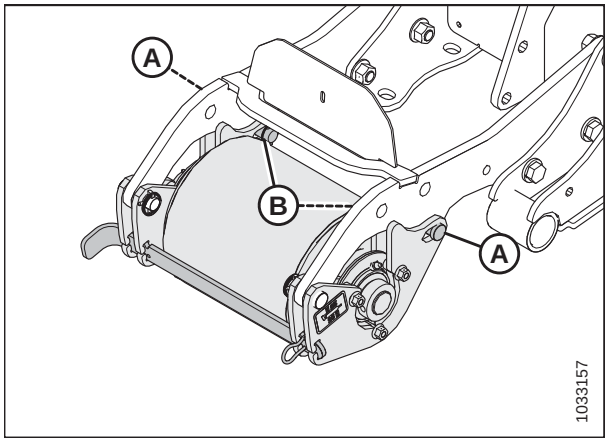


Figure 3.140: Gauge Roller Secured in Lowest Working Position

2. Swing the gauge roller upward and align the holes in the gauge roller plate to the top holes in the mounting plates.
3. Secure with clevis pins (A) and lynch pins (B).

   IMPORTANT:

   Lynch pins (B) should be installed at the inboard side of the gauge roller.

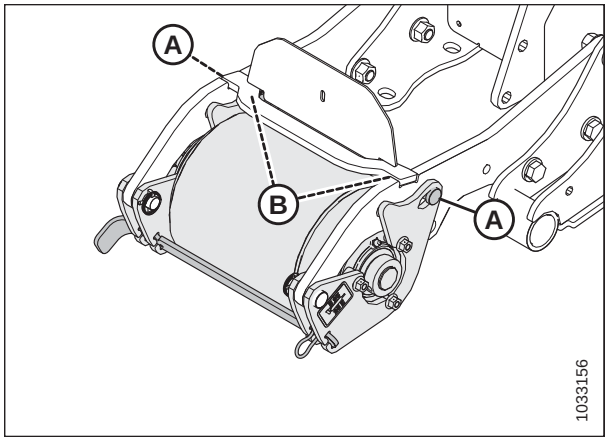


Figure 3.141: Gauge Roller Secured in Intermediate Working Position

Storage position

To adjust the gauge roller to the storage position, follow these steps:

1. Remove lynch pins (B) and clevis pins (A).
2. Remove hair pin (D) and scraper plate (C).

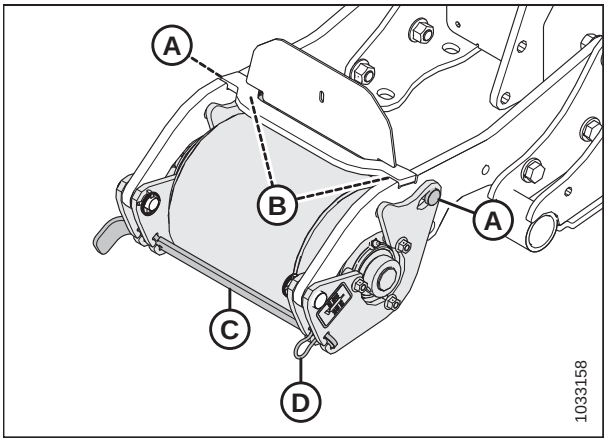


Figure 3.142: Gauge Roller Secured in Intermediate Working Position

3. Swing gauge roller fully backward, and reinstall scraper plate (C) in the slot.

   IMPORTANT:

   The scraper plate should be installed from the outboard side with its tab facing down as shown.

4. Install hair pin (D).
5. Reinstall clevis pins (B) and lynch pins (A) for storage.
6. Ensure both gauge rollers are in the same position.

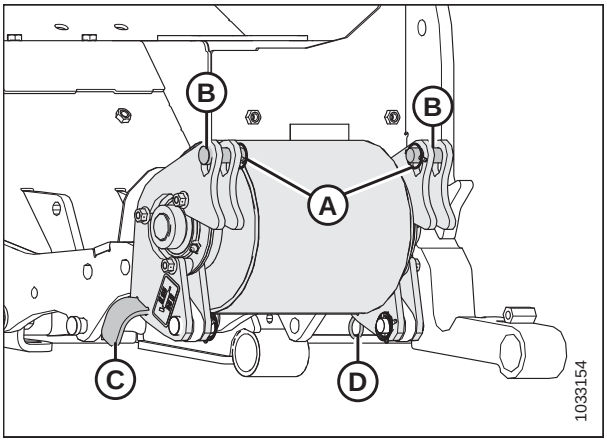


Figure 3.143: Gauge Roller Secured with Plate

3.9.2 Cutterbar Angle

Cutterbar angle (sometimes called header angle) is the angle at which the cutterbar approaches the crop and the ground. It is one of the settings that affects cutting height and quality.

Cutterbar angle (A) adjustment ranges from 0 to 8° below horizontal. Choose an angle that maximizes performance for your crop and field conditions. A flatter angle provides better clearance in stony conditions, while a steeper angle is required in downed crops for better lifting action.

Check the float after significantly adjusting the cutterbar angle because the adjustments affect the header float due to shifting the header center of gravity. Refer to your windrower operator's manual for instructions.

NOTE:

An angle of 3 to 5°, on the Harvest Performance Tracker (HPT) display, is suitable for most conditions. At steep cutterbar angles (7 to 10°) the cut pattern of the discs will become apparent, leaving a variation in stubble height between discs.

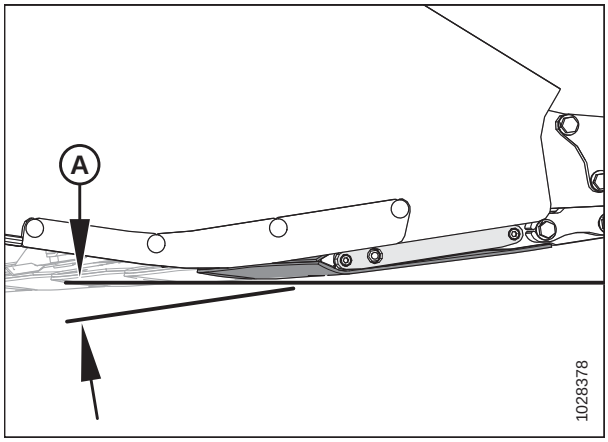


Figure 3.144: Cutterbar Angle

3.9.3 Header Float

The header float feature allows the header to closely follow ground contours and respond quickly to sudden changes or obstacles. The float setting is ideal when the cutterbar is on the ground with minimal bouncing, scooping, or pushing soil.

For instructions on setting and adjusting the header float, refer to your windrower operator's manual.

IMPORTANT:

- Set header float as light as possible—without excessive bouncing—to avoid frequent breakage of knife components, scooping soil, or soil build-up at the cutterbar in wet conditions.
- Avoid excessive bouncing (resulting in a ragged cut) by operating at a slower ground speed when the float setting is light.
- Install applicable header options (crop dividers, etc.) before setting header float.
- Adjust the float when adding or removing optional attachments that affect the weight of the header.
- Changing header angle affects the float. Check the float after making appropriate changes to header angle for crop type and conditions, field conditions, and speed settings.

3.9.4 Ground Speed

Choose a ground speed that allows the cutterbar to cut the crop smoothly and evenly. Try different combinations of disc speed and ground speed to suit your specific crop.

CAUTION

Reduce speed when turning, crossing slopes, or traveling over rough ground.

Refer to your windrower operator's manual for instructions on changing ground speed.

In tough cutting conditions (such as native grasses), set the disc speed to MAXIMUM.

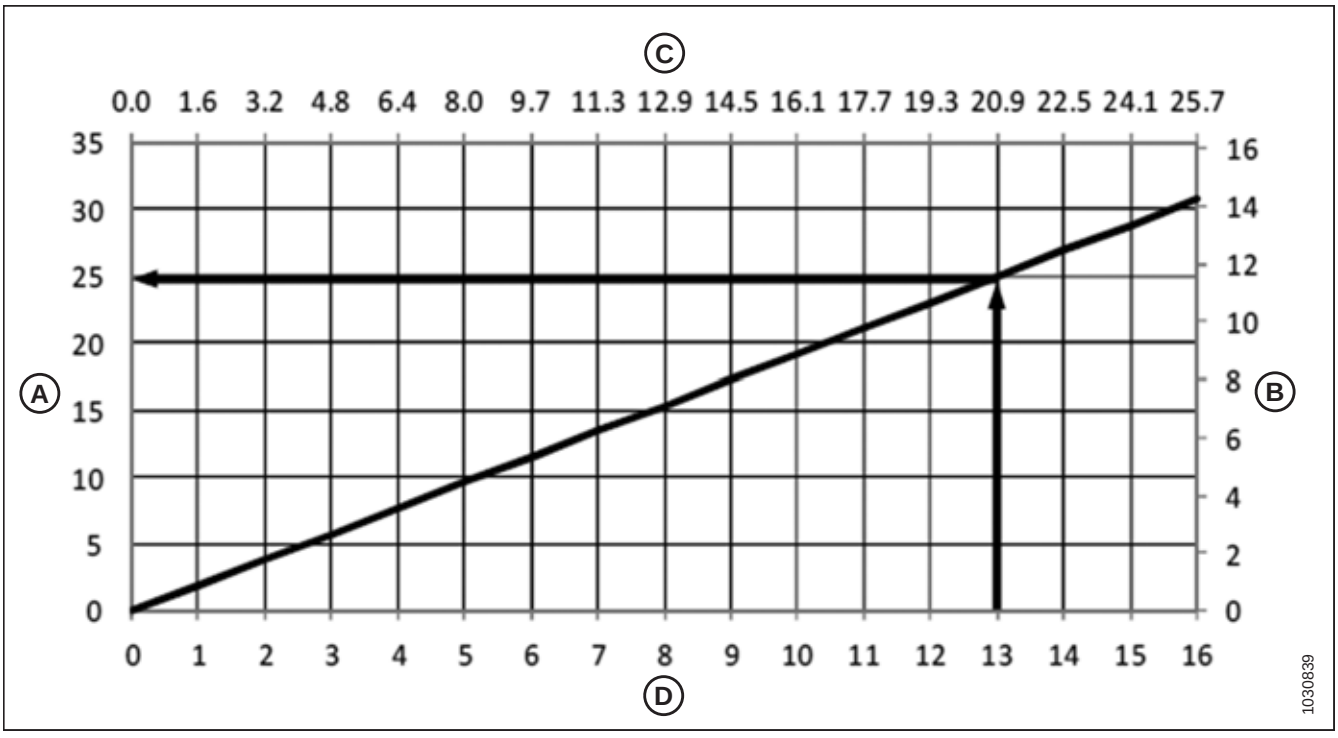
In light crops, reduce the disc header's disc speed while maintaining ground speed.

NOTE:

Operating the disc header at the minimum disc speed will extend the wear life of cutting components.

The chart below indicates the relationship between ground speed and area cut.

Figure 3.145: Ground Speed for R216 Rotary Disc Headers



A - Acres/Hour B - Hectares/Hour C - Kilometers/Hour D - Miles/Hour

Example: At ground speed of 21 km/h (13 mph) the area cut would be approximately 25 acres (12 hectares) per hour.

3.10 Conditioner

Rolls condition the crop by crimping and crushing the stem in several places, which allows the release of moisture resulting in faster drying times. There are two roll conditioner options—steel conditioner rolls and polyurethane rolls.

3.10.1 Roll Gap

The roll gap controls the degree to which crop is conditioned as it passes through the rolls. Roll gap is factory-set at approximately 6 mm (1/4 in.) for steel rolls, and 3 mm (1/8 in.) for polyurethane rolls.

Steel rolls can be operated over a large range of roll gap settings (intermesh). Using a roll gap of up to 25 mm (1 in.), they are suited to a wide range of crops (including alfalfa and thicker-stemmed cane-type crops). However, operating with too large of a gap may cause feeding problems.

Grass-type crops may require less gap for proper feeding and conditioning.

IMPORTANT:

If using settings below the factory setting, visually inspect the roll gap to ensure that there is no metal-to-metal contact between the upper and lower rolls.

Adjusting Roll Gap – Steel Rolls

To adjust the roll gap, follow the procedure below:

DANGER

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

1. Lower the header fully.
2. Shut down the engine, and remove the key from the ignition.
3. Loosen jam nut (A) on both sides of the conditioner.
4. Turn lower nut (B) counterclockwise until the upper roll rests on the lower roll. Ensure the rolls intermesh.
5. Turn lower nut (B) clockwise to increase gap or counterclockwise to decrease gap. Make adjustments to the roll gap based on header performance and crop conditions.
6. Once the gap is sized correctly, hold nut (B) and tighten jam nut (A) on both sides of the disc header.

   IMPORTANT:

   Make sure the roll gap adjustment nuts are adjusted equally on both sides of the disc header to achieve a consistent gap across the rolls.

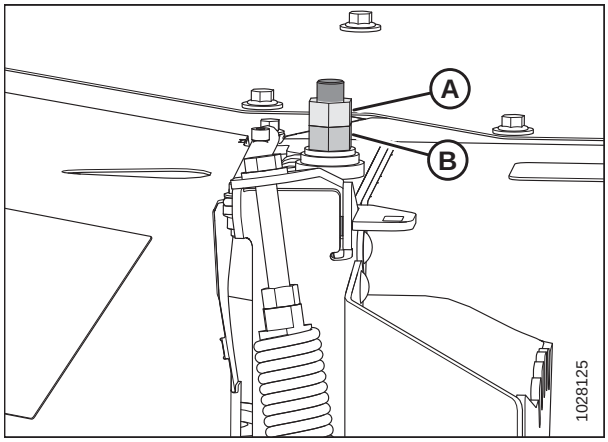


Figure 3.146: Roll Gap Adjustment

Adjusting Roll Gap – Polyurethane Rolls

To adjust the roll gap, follow the procedure below:

DANGER

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

1. Lower the header fully.
2. Shut down the engine, and remove the key from the ignition.
3. Loosen jam nut (A) on both sides of the conditioner.
4. Turn lower nut (B) counterclockwise until the upper roll rests on the lower roll.
5. Turn lower nut (B) clockwise to increase gap or counterclockwise to decrease gap. Make adjustments to the roll gap based on header performance and crop conditions.
6. Once the gap is sized correctly, hold nut (B) and tighten jam nut (A) on both sides of the header.

   IMPORTANT:

   Make sure the roll gap adjustment nuts are adjusted equally on both sides of the header to achieve a consistent gap across the rolls.

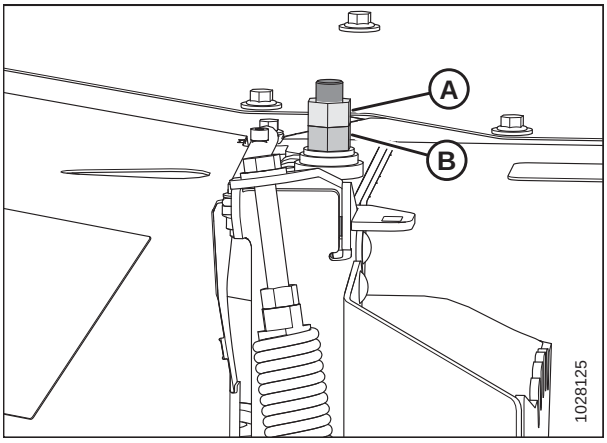


Figure 3.147: Roll Gap Adjustment – Left Side Shown

3.10.2 Roll Tension

Roll tension (the pressure holding the conditioner rolls together) is factory-set to maximum and should rarely require adjustment.

Heavy crops or tough forage can cause the rolls to separate; therefore, maximum roll tension is required to ensure that materials are sufficiently crimped.

Adjusting Roll Tension

To adjust roll tension, follow these steps:

DANGER

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

1. Lower the header fully.
2. Shut down the engine, and remove the key from the ignition.
3. Loosen jam nut (A) on both sides of the conditioner.
4. Adjust the spring drawbolt as follows:
   - Turn spring drawbolt (B) clockwise to tighten spring and **INCREASE** the roll tension.
   - Turn spring drawbolt (B) counterclockwise to loosen spring and **DECREASE** the roll tension.

   IMPORTANT:

   Turn each bolt equally. Roll tension changes by approximately 32 N (7.2 lbf) with each turn of the drawbolt.

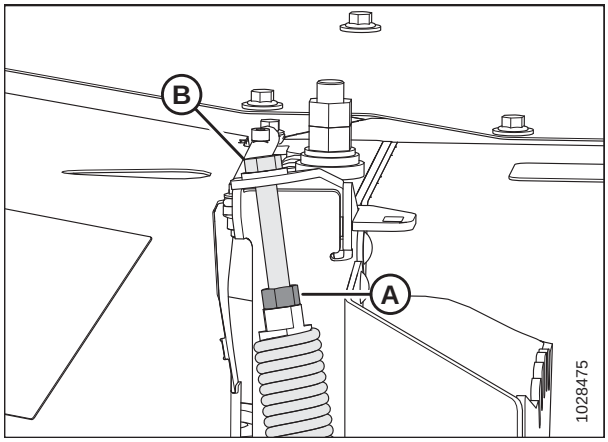


Figure 3.148: Roll Tension Adjuster

5. Measure the amount of exposed thread on spring drawbolt (A) at each end of the conditioner. Measurement (B) should be 12–15 mm (1/2–9/16 in.).
6. Tighten jam nut (C) on both sides of the conditioner.

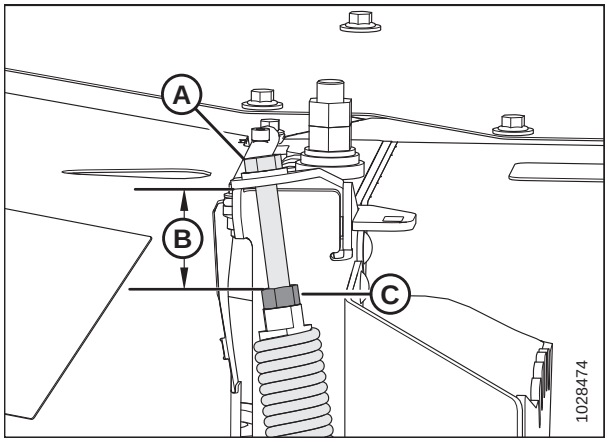


Figure 3.149: Roll Tension Adjuster

3.10.3 Roll Timing

For proper conditioning, the rolls must be properly timed with the bar on one roll centered between two bars on the other roll. The factory setting should be suitable for most crop conditions.

IMPORTANT:

Roll timing is critical when the roll gap is decreased because conditioning is affected and the bars may contact each other.

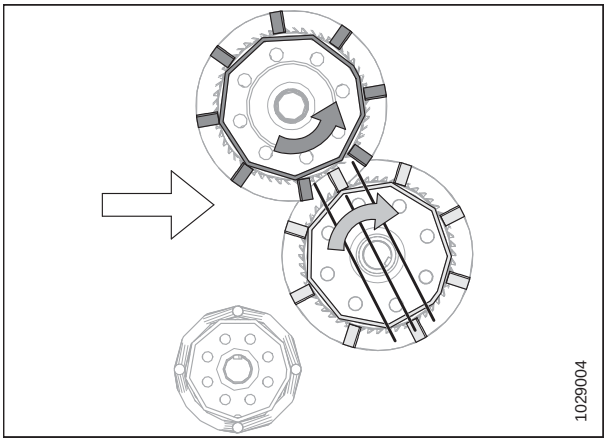


Figure 3.150: Properly Timed Rolls

Checking Roll Timing

Check roll timing if excessive noise is coming from the conditioner rolls.

DANGER

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

Roll timing is factory-set and should not require adjustment; however, if there is excessive noise coming from the conditioner rolls, the timing may need to be adjusted. For instructions, refer to *Adjusting Roll Timing, page 99*.

Adjusting Roll Timing

DANGER

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

1. Shut down the engine, and remove the key from the ignition.
2. On the right side of the header, engage lift release latch (A) and pull handle (B) to open outboard driveshield (C).
3. Lift at handle (D) to open inboard driveshield (E).

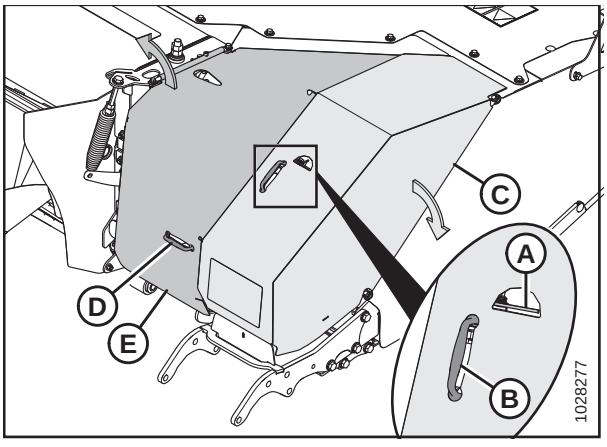


Figure 3.151: Right Driveshields

4. On the upper roll, loosen four bolts (A) securing yoke plate (B).

   NOTE:

   Only three of the four bolts are shown in the illustration.

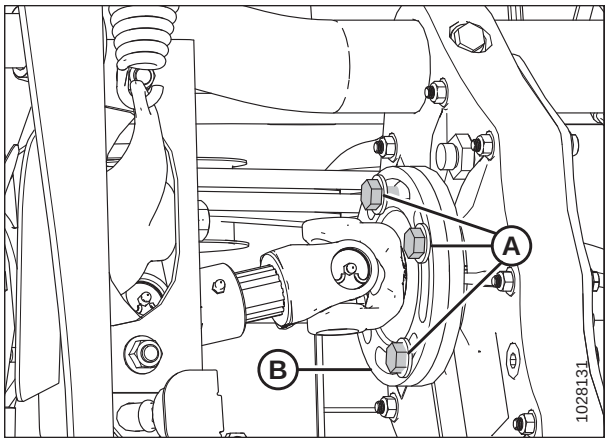


Figure 3.152: Conditioner Drive

5. Secure bottom roll (A).
6. Manually rotate upper roll (B) counterclockwise as shown until it stops rotating.
7. Make a mark (C) across yoke plate (D) and gearbox flange (E).

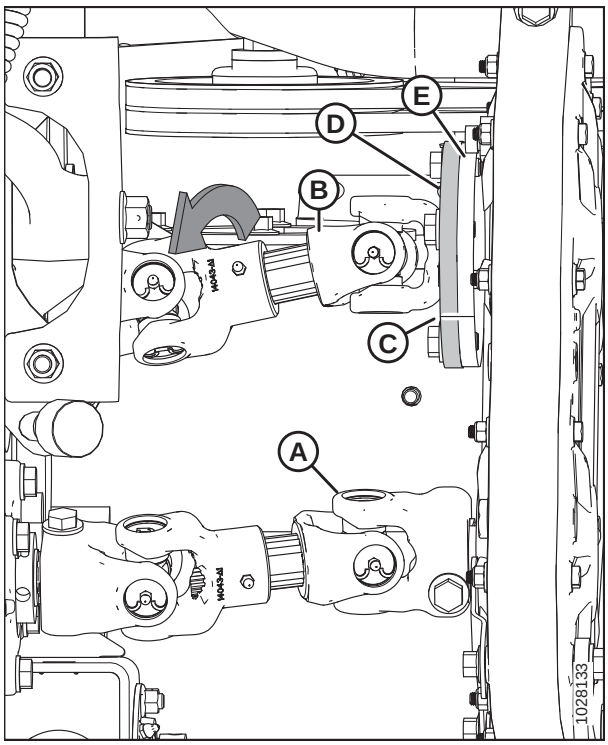


Figure 3.153: Conditioner Drive

8. Manually rotate upper roll (A) clockwise as shown until it stops rotating.
9. Make a second mark (B) on yoke flange (C), and align it with the mark previously made on gearbox flange (D).

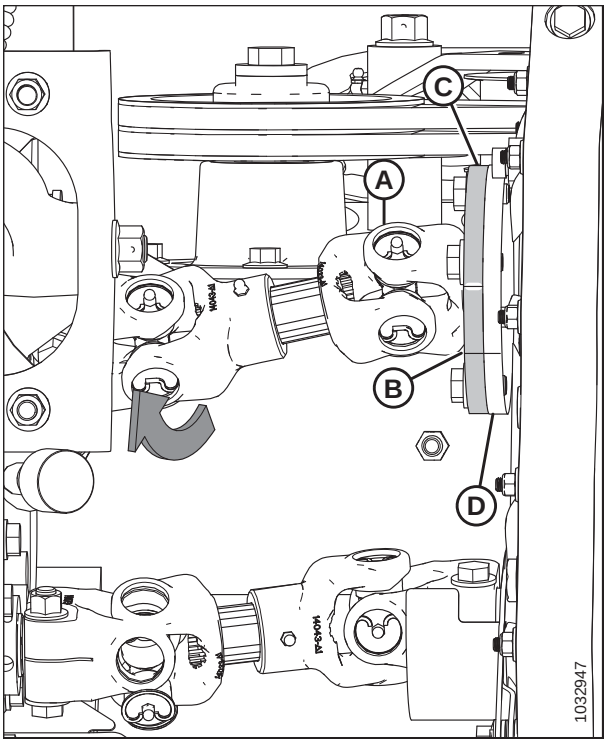


Figure 3.154: Conditioner Drive

10. Determine and mark center point (A) between marks (B) on yoke plate (C).
11. Rotate upper roll (D) counterclockwise as shown, until the bolt lines up with the marked center point (A).

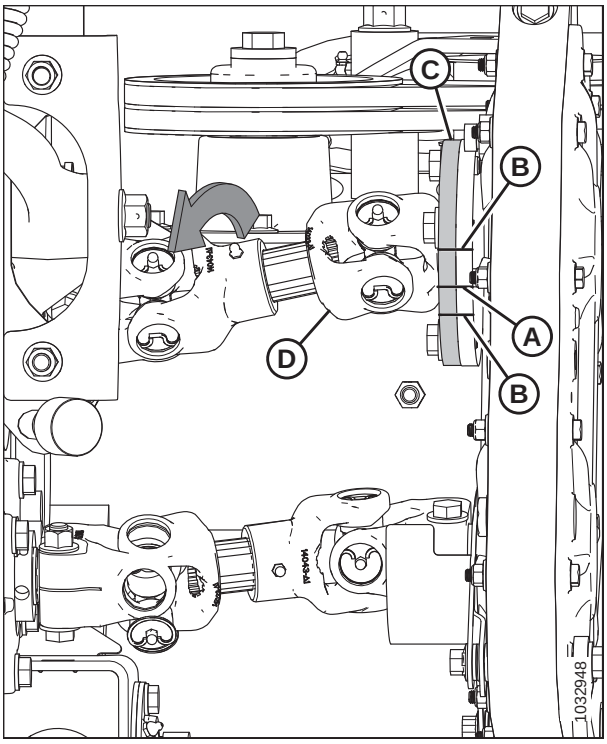


Figure 3.155: Conditioner Drive

12. Remove one of four bolts (A) from yoke plate (B). Ensure the bolt's threads are clean and free of lubricant.

    NOTE:

    Only three of the four bolts are shown in the illustration.

13. Apply medium-strength threadlocker (Loctite® 242 or equivalent) to the removed bolt.

14. Reinstall bolt in yoke plate (B). Torque bolt to 95 Nm (70 lbf·ft).

15. Repeat Step *12, page 102* to Step *14, page 102*for the other three bolts.

16. Close the right driveshields. For instructions, refer to *3.7.2 Closing Driveshields, page 84*.

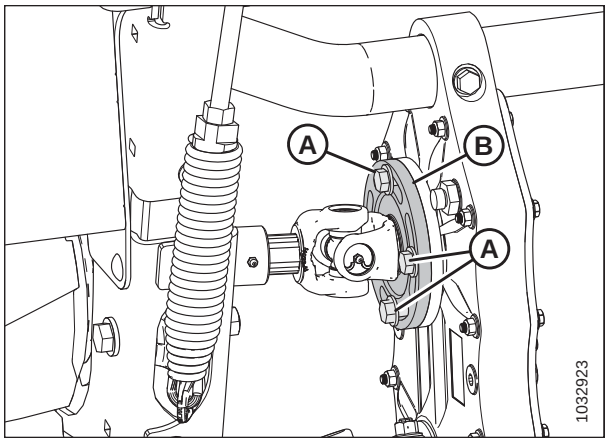


Figure 3.156: Conditioner Drive

3.10.4 Forming Shields – Roll Conditioner

The forming shield controls the width and placement of the windrow.

WARNING

Keep everyone at a safe distance from your operation. Ensure bystanders are never in line with the front or rear of the machine. Stones or other foreign objects can be ejected from either end with force.

Consider the following factors when setting the forming shield position:

- Weather conditions (rain, sun, humidity, and wind)
- Type and yield of crop
- Available drying time
- Method of processing (bales, silage, and green-feed)

A wider windrow will generally dry faster and more evenly, resulting in less protein loss. Fast drying is especially important in areas where the weather allows only a few days to cut and bale. A narrower windrow may be preferable for ease of pick-up and when drying is not critical (for example, when cutting for silage or green feed).

Positioning Forming Shield Side Deflectors

The position of the side deflectors controls the width and placement of the windrow. To ensure windrow placement is centered between the carrier wheels, adjust the left and right deflectors to the same position.

DANGER

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

1. Shut down the engine, and remove the key from the ignition.
2. Set forming shield side deflectors (A) to the desired width by repositioning adjuster handle (B).
3. To ensure windrow placement is centered, adjust both side deflectors to the same position.

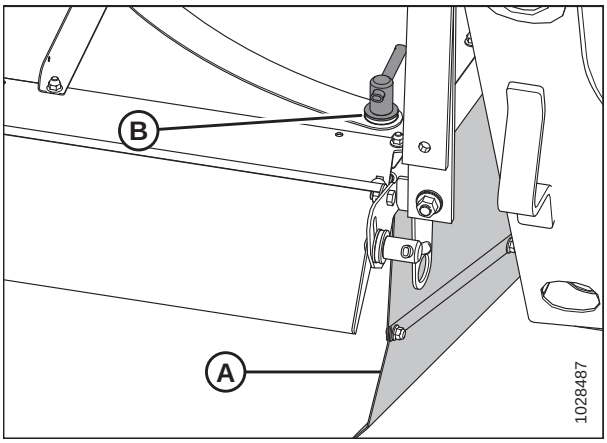


Figure 3.157: Forming Shield Side Deflector and Adjuster Handle

Positioning Rear Baffle

The rear baffle is used in conjunction with the forming shields to affect the windrow width.

NOTE:

An optional Remote Baffle Control kit (MD #B6664) is available for R216 Rotary Disc Headers configured for M1240 Windrowers **ONLY**. The Remote Baffle Control kit is incompatible with M205 Windowers. For more information, refer to *5.4 Remote Baffle Control Kit – MD #B6664, page 240*.

NOTE:

This procedure is used to manually position the rear baffle on headers that are NOT equipped with the Remote Baffle Control kit (MD #B6664).

The rear baffle is located immediately behind and above the conditioning rolls and can be positioned to do the following:

- Direct crop flow into forming shield for narrow and moderate width windrows.
- Direct crop downward to form a wide swath.
- Provide even material distribution across windrow with adjustable fins under rear baffle. For instructions, refer to *Positioning Rear Baffle Deflector Fins, page 105*.

To position the rear baffle, follow these steps:

DANGER

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

1. Shut down the engine, and remove the key from the ignition.
2. Remove lynch pin (A) securing rear baffle adjustment lever (B) to bracket (C).
3. Pull rear baffle adjustment lever (B) inboard to disengage from bracket (C).
4. Position rear baffle adjustment lever (B) as follows:
   - Move the lever forward to raise the baffle
   - Move the lever backward to lower the baffle
5. Release rear baffle adjustment lever (B) so that the tab engages the hole in bracket (C).
6. Secure baffle adjustment lever (B) with lynch pin (A).

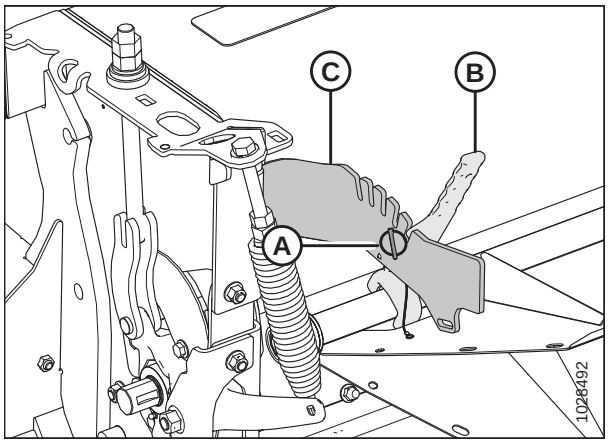


Figure 3.158: Left Side of Conditioner

Positioning Rear Baffle Deflector Fins

Four rear baffle deflector fins are located under the baffle. Fins are factory-configured to approximately 60°. The rear baffle deflector fins help spread the crop in the windrow.

To adjust fins, follow these steps:

DANGER

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

1. Shut down the engine, and remove the key from the ignition.
2. Deflector fins (A) are located on the underside of the rear baffle.

   NOTE:

   There are two fins on the left and two fins on the right of the header.

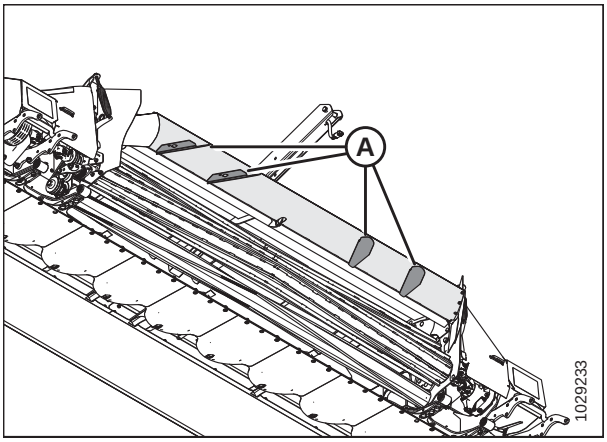


Figure 3.159: Deflector Fins Under Rear Baffle – View from Below

3. To adjust deflector fins (A), loosen existing bolt and nut (B). Once adjusted to the desired angle for windrow width, torque nut to 57.5 Nm (42 lbf·ft).
4. Repeat for the opposite deflector fins.

   NOTE:

   Fins may interfere with crop flow in large-stemmed crops, or when using the double windrower attachment. It may be necessary to remove fins in these conditions.

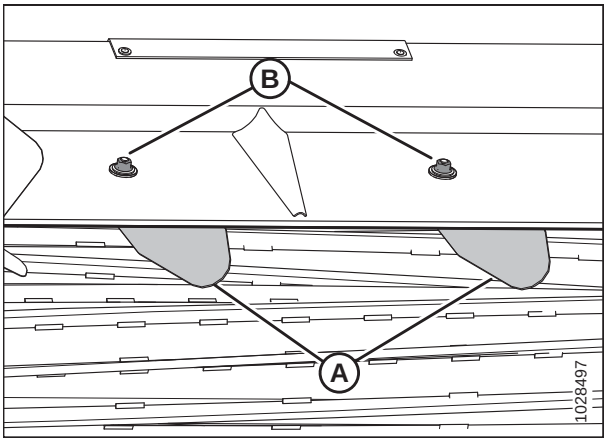


Figure 3.160: Left Deflector Fins in Field Position Under Baffle

NOTE:

Deflector fins (A) can be put in storage position by removing existing nut and bolt and reattaching fins on top of the baffle.

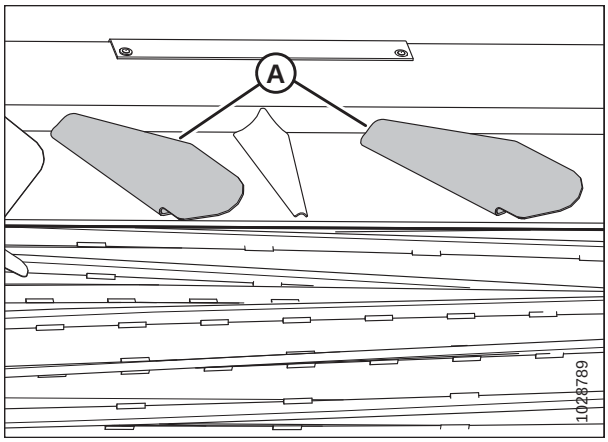


Figure 3.161: Left Deflector Fins in Storage Position

3.11 Grass Seed Version Operation

The optional grass seed (GSS) version of the header is intended for cutting delicate grass seed crops, and laying them in a windrow prior to a combine picking it up.

NOTE:

At the time of printing, the grass seed configuration is only available for (and required for) North American headers that are not equipped with conditioners. The current kit is **NOT** intended for converting standard headers (headers with conditioners) to grass seed. The kit is only compatible with M1240 Windrowers. It is incompatible with M205 SP Windrowers.

Anti-shatter shield (A) prevents the shattering of the grass seed heads as the header cuts. The grass seed drums (C) gently guide the crop into a windrow so the delicate grass seed heads aren't damaged. During field operation, fully extend the shield (shown) or fully retract the shield depending on the type of crop, and rotate hazard/brake lights (B) to the front (shown). To transport the header, fully retract the shield and rotate the hazard/brake lights outward.

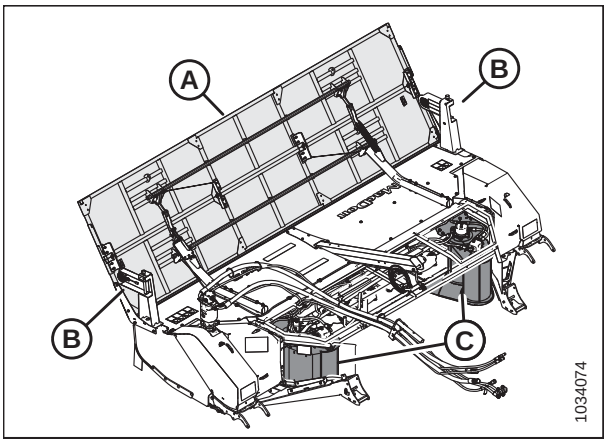


Figure 3.162: Grass Seed Version – Field Position

During the installation of the grass seed option, the cutterbar stream is reconfigured to produce one crop stream (A) instead of four. The one-crop stream is the recommended cutterbar configuration for grass seed headers. As the operator, you should not have to modify the crop stream configuration. For more information, refer to *Changing R216 Rotary Disc Header Cutterbar Crop Stream Configuration for Grass Seed Option, page 211*.

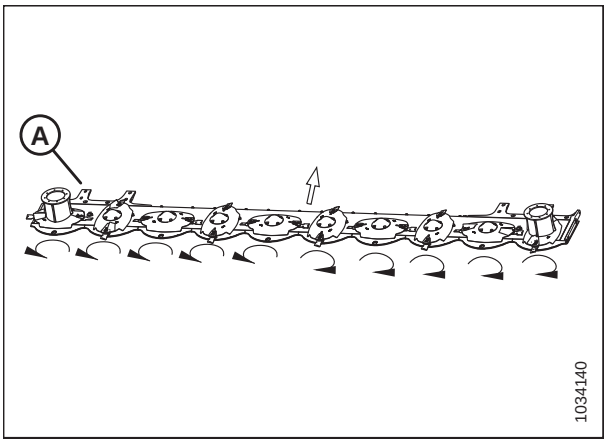


Figure 3.163: Cutterbar – One-Crop Stream

The grass seed option must be activated as an attachment through the Harvest Performance Tracker (HPT) the first time the header is connected to the windrower before any of the grass seed controls on the ground speed level (GSL) or operator's console will work. For instructions, refer to *3.11.1 Activating the Grass Seed Option, page 108*.

Once the grass seed is activated through the HPT, operate the attachment. For instructions, refer to the following:

- To operate the header in the field, refer to *3.11.2 Operating in the Field, page 110*.
- To prepare the header for transport, refer to *3.11.3 Preparing for Transport, page 113*.

3.11.1 Activating the Grass Seed Option

The grass seed (GSS) option must be activated in the windrower's control system the first time it is attached to a windrower. To activate the grass seed option with the Harvest Performance Tracker (HPT), follow these steps:

NOTE:

If necessary, refer to the windrower operator's manual to review navigating the HPT display. A header must be attached to the windrower.

1. Turn ignition key to ON to activate the HPT.
2. Press soft key 5 (A) to open the main menu or press SHIFT and SELECT on the ground speed lever.
3. Use the Harvest Performance Tracker (HPT) scroll knob (B) or the ground speed lever (GSL) scroll wheel (not shown) to place red cursor (C) over the icon you want to select.

   NOTE:

   Using the scroll knob will activate titles that explain each selection.
4. Press HPT scroll knob (B) or the GSL SELECT button (not shown) to select the highlighted icon.

   NOTE:

   Pressing the corresponding soft key will also work.
5. Scroll down and select HEADER SETUP menu (A).

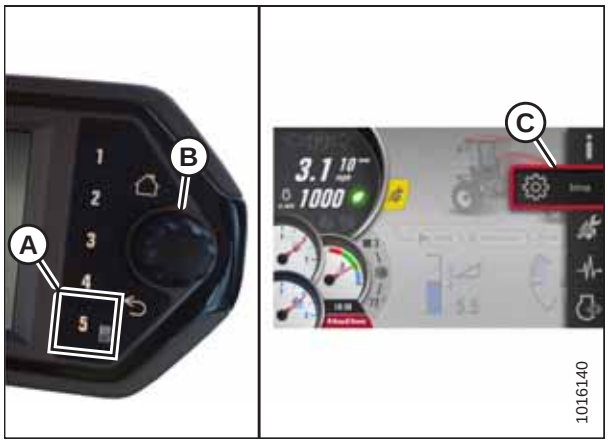


Figure 3.164: Opening the Main Menu

Figure 3.165: Header Setup Screen

6. Select the correct header size and type from the HEADER list.

Figure 3.166: Header Setup Screen

7. Select ATTACHMENTS from the HEADER SETUP screen.

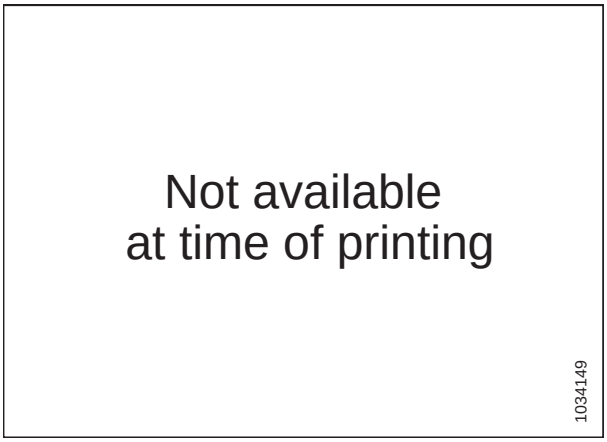


Figure 3.167: Header Setup Screen

8. Select grass seed (GSS) from the menu. The sensor is now active, and the HPT, ground speed lever (GSL), and operator console will control the grass seed attachment.

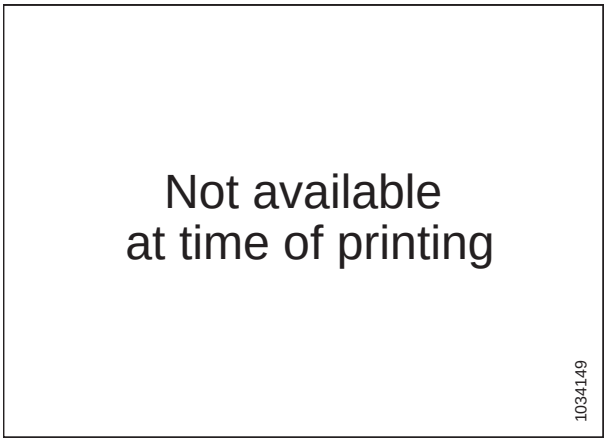


Figure 3.168: Header Setup Screen

9. Once the grass seed is activated, Run Screen 2 on the HPT will display speed (A) and pressure (B) of the grass seed drums.

Figure 3.169: Run Screen 2 – Grass Seed Active

3.11.2 Operating in the Field

Operate the anti-shatter shield and set the drum position and speed to lay the desired windrow.

DANGER

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

To operate the header in the field:

1. Shut down the engine, and remove the key from the ignition.
2. Manually rotate light brackets forward (A) as shown.
3. Start the engine.

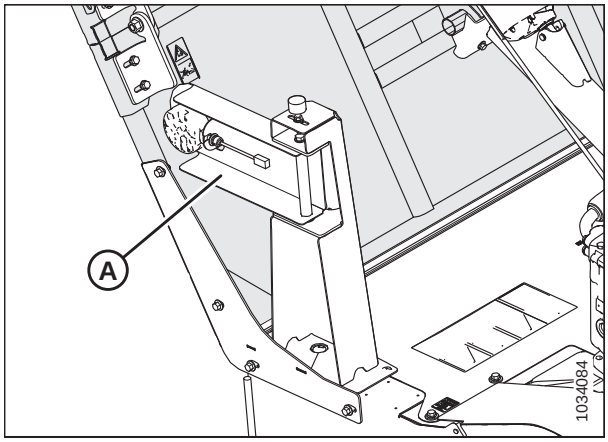


Figure 3.170: Grass Seed Version – Field Position

4. **FULLY** extend (A) or retract (C) the anti-shatter shield according to the type of crop as follows:

   - Fully extend (A) the shield by pressing F5 (B) on the operator console until the baffle position [appears as a pop-up on the Harvest Performance Tracker (HPT)] is “10”.
   - Fully retract (C) the shield by pressing F6 (D) on the operator console until the baffle position (appears as a pop-up on the HPT) is “0”.

   IMPORTANT:

   Do **NOT** operate the header in the field with the baffle position set to 1–9 for any purpose.

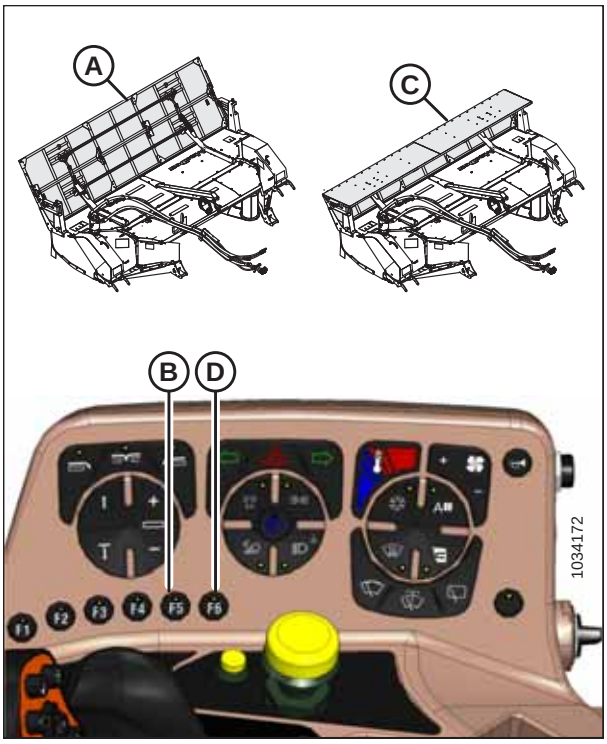


Figure 3.171: Grass Seed Version – Field Position

5. Adjust the drum speed and height as desired using the ground speed lever (GSL) or the operator's console:
   - To widen the windrow, press REEL UP (A) switch the on the GSL, or button (A) on the operator's console.
   - To narrow the windrow, press REEL DOWN (B) switch on the GSL, or button (B) on the operator's console.
   - To increase the drum speed, press switch (C) on the GSL, or button (C) on the operator's console.
   - To decrease the drum speed, press switch (D) on the GSL, or button (D) on the operator's console.

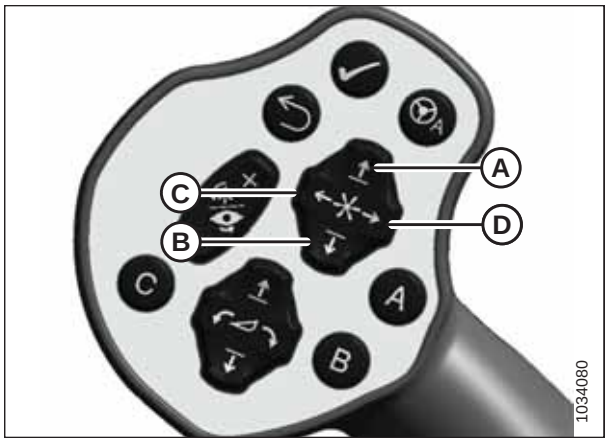


Figure 3.172: GSL – Grass Seed Drum Controls

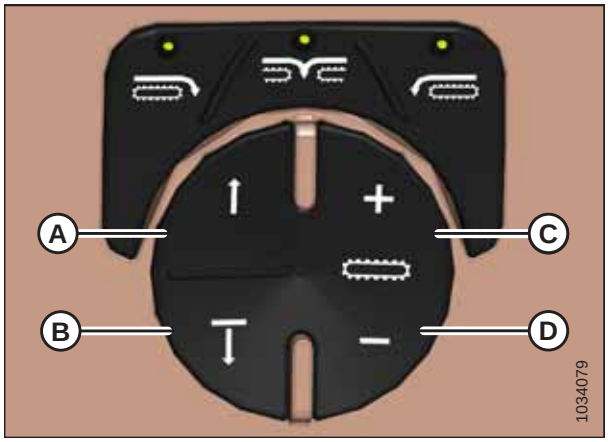


Figure 3.173: Operator's Console – Grass Seed Drum Controls

6. Check Run Screen 2 on the HPT as required to monitor grass seed drum speed (A) and pressure (B).

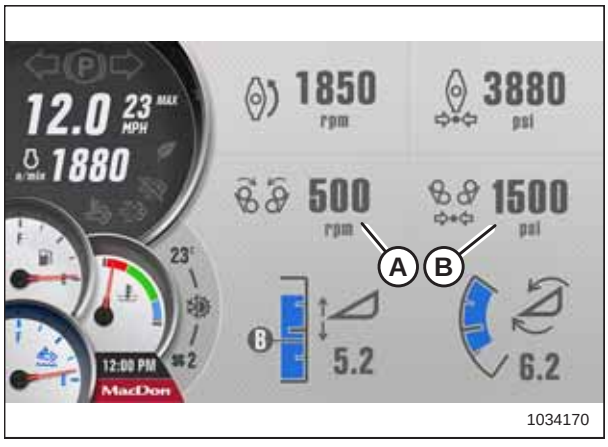


Figure 3.174: Run Screen 2 – Grass Seed Active

3.11.3 Preparing for Transport

Retract the anti-shatter shield and extend the hazard/brake lights.

DANGER

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

1. Start the engine.
2. **FULLY** retract (A) the shield by pressing F6 (B) on the operator console until the baffle position (appears as a pop-up on the Harvest Performance Tracker) is "0".

   IMPORTANT:

   Do **NOT** transport the header with the baffle position set to 1–10 for any purpose.
3. Shut down the engine, and remove the key from the ignition.

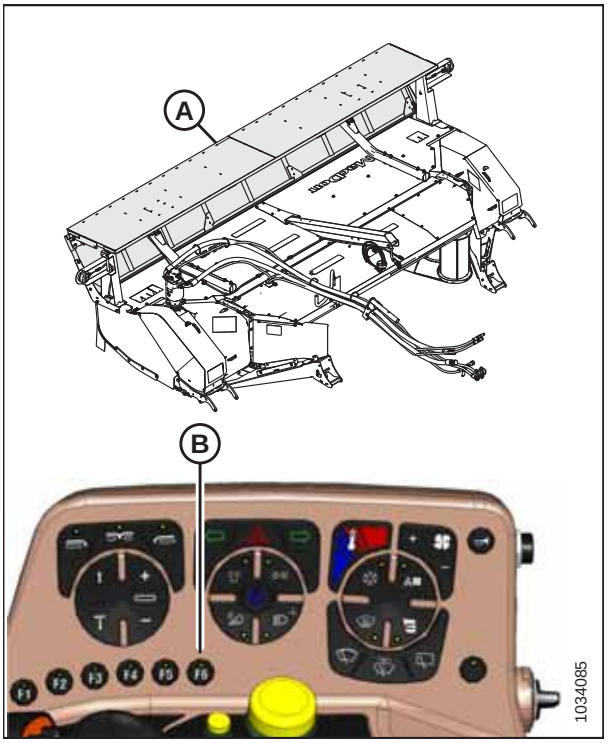


Figure 3.175: Grass Seed Version – Transport Position

4. Manually rotate light brackets outward (B) as shown.
5. Refer to the windrower's operator manual for transport instructions.

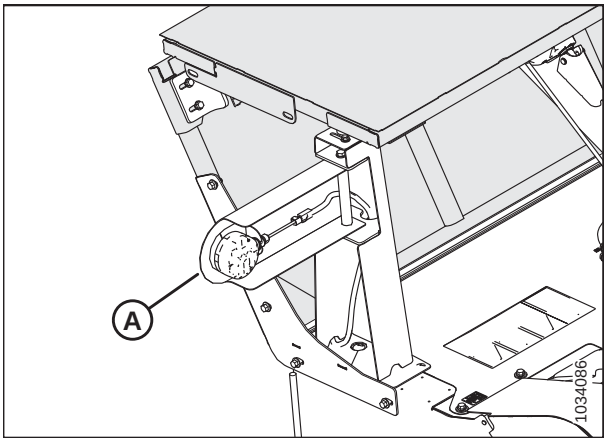


Figure 3.176: Anti-Shatter Shield and Lights – Transport Position

3.12 Cutterbar Deflectors

A Tall Crop kit (MD #B6967) is available for attaching to the cutterbar just below the header's conditioner rolls. Deflectors provide improved feeding into the conditioner rolls and prevent heavy crop with long stems from feeding under the rolls.

Cutterbar deflectors may not be well-suited for some crop and field conditions. Refer to the following table:

Table 3.2 Conditions for Using Cutterbar Deflectors

Crop/Field Condition	Use Deflector
Average crop/normal field conditions	No
Long-stemmed and heavy/normal field conditions	Yes
Long-stemmed and heavy/sandy soil	No
Long-stemmed and heavy/gopher mounds or rocks (refer to the note below table)	No

NOTE:

Removing the deflector helps feed dirt/rocks through the header and prevents debris build up, wear and damage from rocks.

3.12.1 Removing Cutterbar Deflectors

The cutterbar deflectors are used with roll conditioners only.

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop engine and remove key before leaving the operator's seat, and always engage safety props before going under the machine for any reason.

1. Raise the header fully.
2. Shut down the engine, and remove the key from the ignition.
3. Engage the lift cylinder safety props. For instructions, refer to the procedure according to the type of windrower:
   - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
   - **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*
4. Locate deflectors (A) and (D) on the back of the cutterbar.
5. Clean debris from deflectors and deflector area.
6. Remove bolt (B) from the cutterbar on outboard end of deflector. Retain the hardware.
7. Remove three bolts (C) and nuts securing deflector (A) to the cutterbar. Remove deflector (A).
8. Reinstall removed bolts (B) and (C), and nuts on the deflector for storage.
9. Repeat Step *4, page 114* to Step *8, page 114* for the left deflector (D).
10. Store the deflectors in a safe place.
11. If the cutterbar is being replaced, install the deflectors on the new cutterbar. For instructions, refer to .

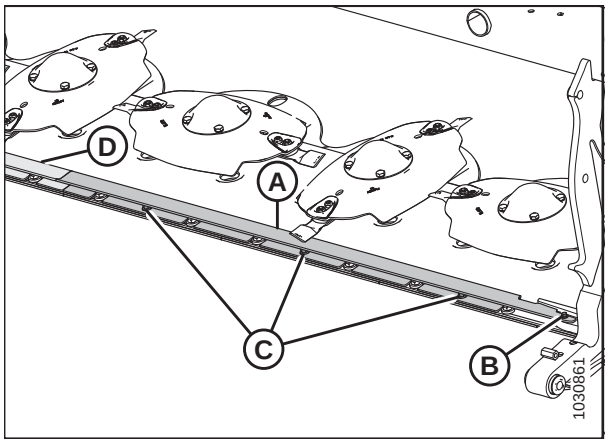


Figure 3.177: Right Deflector Plate – View from Rear

3.13 Haying Tips

3.13.1 Curing

Curing crops quickly helps maintain the highest quality of crop material as 5% of protein is lost from hay for each day that it lays on the ground after cutting.

Leaving the windrow as wide and fluffy as possible results in the quickest curing. Cured hay should be baled as soon as possible.

3.13.2 Topsoil Moisture

Table 3.3 Topsoil Moisture Levels

Level	% Moisture	Condition
Wet	Over 45%	Soil is muddy
Damp	25–45%	Shows footprints
Dry	Under 25%	Surface is dusty

- On wet soil, the general rule of wide and thin does not apply. A narrower windrow will dry faster than hay left flat on wet ground.
- When the ground is wetter than the hay, moisture from the soil is absorbed by the hay above it. Determine topsoil moisture level before cutting. Use a moisture tester or estimate level.
- If ground is wet due to irrigation, wait until soil moisture drops below 45%.
- If ground is wet due to frequent rains, cut hay when weather allows and let the forage lie on wet ground until it dries to the moisture level of the ground.
- Cut hay will dry only to the moisture level of the ground beneath it, so consider moving the windrow to drier ground.

3.13.3 Weather and Topography

- Cut as much hay as possible by midday when drying conditions are best.
- Slopes that face the sun receive up to 100% more exposure to the sun’s heat than slopes that do not face the sun. If hay is baled and chopped, consider baling sun-facing slopes and chopping slopes that do not.
- When relative humidity is high, the evaporation rate is low and hay dries slowly.
- Humid air is trapped around the windrow in calm conditions. Raking or tedding will expose the hay to fresher and drier air.
- Cut hay perpendicular to the direction of the prevailing winds if possible.

3.13.4 Windrow Characteristics

Producing windrows with the recommended characteristics will achieve the best results.

For instructions, refer to *3 Operation, page 25* for instructions on adjusting the header.

Table 3.4 Recommended Windrow Characteristics

Characteristic	Advantage
High and fluffy	Enables airflow through windrow, which is more important to the curing process than direct sunlight
Consistent formation (not bunching)	Permits an even flow of material into the baler, chopper, etc.
Even distribution of material across windrow	Results in even and consistent bales to minimize handling and stacking problems
Properly conditioned	Prevents excessive leaf damage

3.13.5 Driving on Windrow

Driving on previously cut windrows that will not be raked can lengthen drying time by a full day. If practical, set forming shields to produce a narrower windrow that the machine can straddle.

NOTE:

Driving on the windrow in high-yield crops may be unavoidable if a full width windrow is necessary.

3.13.6 Using Chemical Drying Agents

Hay drying agents work by removing wax from legume surfaces and allowing moisture to escape cut crop and evaporate faster; however, treated hay lying on wet ground will absorb ground moisture faster.

Before deciding to use a drying agent, carefully compare the relative costs and benefits for your area.

3.14 Transporting the Header

For information on transporting the header when attached to the windrower, refer to your windrower operator's manual.

Chapter 4: Maintenance and Servicing

Proper maintenance and servicing of your machine will ensure great performance and excellent crop yield.

The following instructions provide information about routine servicing for the header. A parts catalog is located in a plastic case on the fixed deflector on the left side of the header.

Log hours of operation and use the maintenance record provided (refer to *4.4.1 Maintenance Schedule/Record, page 124*) to keep track of your scheduled maintenance.

4.1 Daily Start-Up Check

CAUTION

- **Ensure the windrower and the header are properly attached, all controls are in neutral, and the windrower brakes are engaged.**
- **Clear the area of other persons, pets etc. Keep children away from machinery. Walk around to make sure no one is under, on, or close to it.**
- **Wear close-fitting clothing and protective shoes with slip resistant soles. As well, carry with you any protective clothing and personal safety devices that could be necessary throughout the day. Don't take chances.**
- **Remove foreign objects from the machine and surrounding area.**

Protect yourself. 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

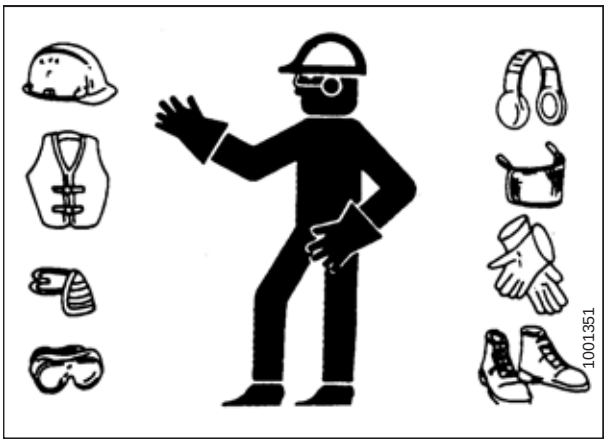


Figure 4.1: Safety Equipment

Use proper hearing protection:

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

Figure 4.2: Safety Equipment

Perform the following checks each day before startup:

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. For instructions, refer to *4.13.1 Checking Hydraulic Hoses and Lines, page 235*.

2. Clean all lights and reflective surfaces on the machine, and check lights for proper operation.

3. Perform all daily maintenance. For instructions, refer to *4.4.1 Maintenance Schedule/Record, page 124*.

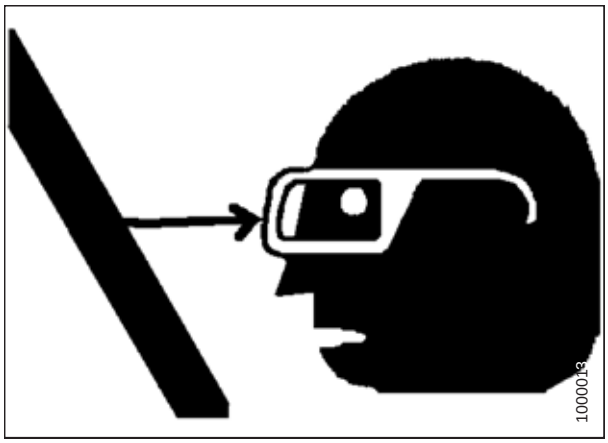


Figure 4.3: Safety around Equipment

4.2 Preparing Machine for Servicing

Prepare the machine to service it safely.

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop engine and remove key before leaving the operator's seat, and always engage safety props before going under the machine for any reason.

CAUTION

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

1. Lower the header fully. If you need to perform service in the raised position, always engage safety props. For instructions, refer to the procedure according to the type of windrower:
   - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
   - **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*
2. Park the windrower:
   - **M1240 Windrowers:** Place the ground speed lever (GSL) in PARK.
   - **M205 SP Windrowers:** Place the ground speed lever (GSL) into N-DETENT.
3. Shut down the engine, and remove the key from the ignition.
4. Wait for all moving parts to stop.

4.3 Recommended Safety Procedures

- Park on level surface when possible. Follow all recommendations in your windrower operator's manual.
- Wear close-fitting clothing and cover long hair. Never wear dangling items such as scarves or bracelets.

Figure 4.4: Safety Around Equipment

- Wear protective shoes with slip-resistant soles, a hard hat, protective glasses or goggles, and heavy gloves.

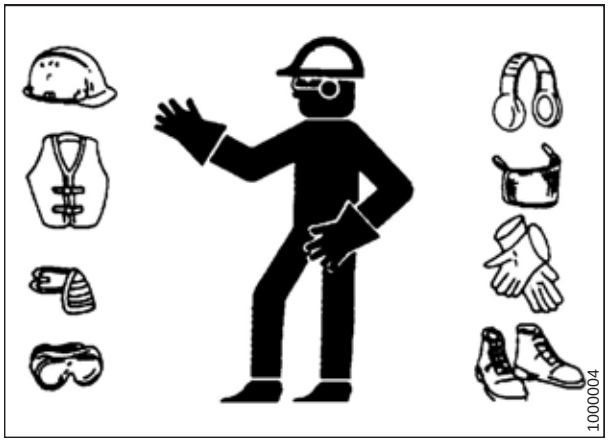


Figure 4.5: Safety Equipment

- Be aware that if more than one person is servicing the machine at the same time, rotating a driveline or other mechanically driven component by hand (for example, to access a lube fitting) will cause drive components in other areas (belts, pulleys, and discs) to move. Stay clear of driven components at all times.

Figure 4.6: Safety Around Equipment

- Be prepared if an accident should occur. Know where the first aid kits and fire extinguishers are located, and know how to use them.

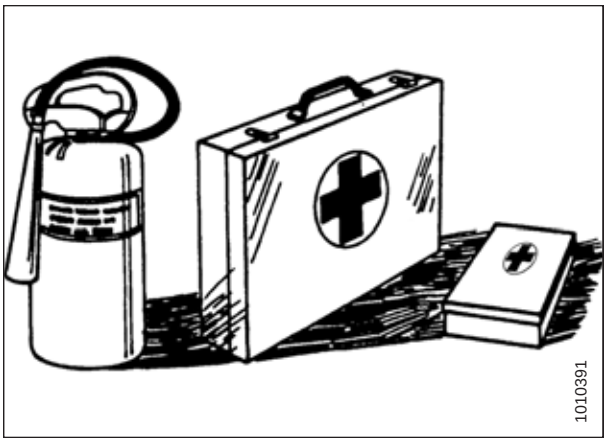


Figure 4.7: Safety Equipment

- 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.

Figure 4.8: Safety Around Equipment

- Use adequate light for the job at hand.
- Reinstall all shields removed or opened for service.
- Use only service and repair parts made or approved by the equipment manufacturer. Substituted parts may not meet strength, design, or safety requirements.
- Keep machinery clean. Never use gasoline, naphtha, or any volatile material for cleaning purposes. These materials may be toxic and/or flammable.

4.4 Maintenance Requirements

Regular maintenance is the best insurance against early wear and untimely breakdowns. Following the maintenance schedule will increase your machine's life. Periodic maintenance requirements are organized according to service intervals.

IMPORTANT:

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

If more than one interval is specified for a service item (e.g., 100 hours or annually), service the machine at whichever interval is reached first.

When servicing the machine, refer to the specific headings in this section. Refer to this manual's inside back cover and use only the specified fluids and lubricants.

Log hours of operation, use the maintenance record, and keep copies of your maintenance records. Refer to *4.4.1 Maintenance Schedule/Record, page 124*.

CAUTION

Carefully follow all safety messages. Refer to *4.3 Recommended Safety Procedures, page 122*.

4.4.1 Maintenance Schedule/Record

Keep a record of maintenance as evidence of a properly maintained machine. Daily maintenance records are not required to meet normal warranty conditions.

✎	Hour meter reading												
✎	Service date												
✎	Serviced by												
First use	Refer to *4.4.2 Break-In Inspections, page 126*.												
End of season	Refer to *4.4.4 End-of-Season Servicing, page 127*.												
Action	✓ Check			♦ Lubricate				▲ Change					
First 10 hours then Daily													
✓	Inspect cutterbar discs. Refer to *Inspecting Cutterbar Discs, page 139*.												
✓	Inspect disc blades. Refer to *Inspecting Disc Blades, page 153*.												
✓	Inspect accelerators. Refer to *Inspecting Accelerators, page 159*.												
✓	Inspect rock guards. Refer to *Inspecting Rock Guards, page 165*.												
✓	Inspect drums. Refer to *Inspecting Drums, page 168*.												
✓	Check hydraulic hoses and lines. Refer to *4.13.1 Checking Hydraulic Hoses and Lines, page 235*.												

Every 25 Hours													
♦	Lubricate idler pivot. Refer to *4.5 Lubrication, page 128*.												
♦	**Standard headers:** Lubricate upper and lower driveline universal joints. Refer to *4.5 Lubrication, page 128*.												
♦	**Standard headers:** Lubricate roller conditioner and feed roller bearings. Refer to *4.5 Lubrication, page 128*.												
♦	**Standard headers:** Lubricate conditioner driveline. Refer to *4.5 Lubrication, page 128*.												
♦	Lubricate gauge rollers (if equipped). Refer to *4.5 Lubrication, page 128*.												
Every 50 Hours													
♦	**Grass seed:** Lubricate the grass seed drum bearings. Refer to *4.5 Lubrication, page 128*.												
Every 100 Hours or Annually													
✓	**Standard headers:** Check conditioner drive belt tension. Refer to *Inspecting Conditioner Drive Belt, page 223*.												
✓	**Standard headers:** Check roll timing gearbox lubricant. Refer to *4.7.1 Checking and Changing Conditioner Roll Timing Gearbox Oil, page 212*.												
✓	Check header drive gearbox lubricant. Refer to *4.8.1 Checking Oil in Header Drive Gearbox, page 215*												
Every 250 Hours[2]													
▲	**Standard headers:** Change roll timing gearbox lubricant. Refer to *4.7.1 Checking and Changing Conditioner Roll Timing Gearbox Oil, page 212*.												
▲	Change header drive gearbox lubricant. Refer to *4.8.2 Changing Oil in Header Drive Gearbox, page 217*												
▲	Change cutterbar lubricant. Refer to *4.6.1 Lubricating Cutterbar, page 133*.												
♦	Lubricate the vertical drivelines at the left and right driven drums. Refer to *Lubricating Vertical Drivelines, page 193*.												

2. Begins after the first 150 hour service.

4.4.2 Break-In Inspections

From the factory the header is ready for normal operation. However, there are several things to check and change or adjust during the first 100 hours of use.

Table 4.1 Break-In Inspection Schedule

Inspection Interval	Item	Refer to
1 Hour	Check for loose hardware and tighten to required torque	*7.1 Torque Specifications, page 253*
5 Hours	Check for loose hardware and tighten to required torque	*7.1 Torque Specifications, page 253*
5 Hours	Check conditioner drive belt tension	*Inspecting Conditioner Drive Belt, page 223*
50 Hours	Change conditioner roll timing gearbox lubricant	*4.7.1 Checking and Changing Conditioner Roll Timing Gearbox Oil, page 212*
50 Hours	Change header drive gearbox lubricant	*4.8.2 Changing Oil in Header Drive Gearbox, page 217*
100 Hours	Check conditioner drive belt tension, and adjust tension if necessary.	*Inspecting Conditioner Drive Belt, page 223*

4.4.3 Preseason Servicing

CAUTION

- **Review the operator's manual to refresh your memory on safety and operating recommendations.**
- **Review all safety signs and other decals on the self-propelled disc 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 the operating characteristics of the machine.**
- **Check the first aid kit and fire extinguisher. Know where they are and how to use them.**

Perform the following procedures at the beginning of each operating season:

1. Lubricate machine completely. For instructions, refer to *4.5 Lubrication, page 128* and *4.6.1 Lubricating Cutterbar, page 133*.
2. Perform all annual maintenance. For instructions, refer to *4.4.1 Maintenance Schedule/Record, page 124*.

4.4.4 End-of-Season Servicing

DANGER

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

WARNING

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

CAUTION

Cover cutterbar to prevent injury from accidental contact.

Perform the following procedures at the end of each operating season:

1. Raise the header and engage lift cylinder safety props.
2. Clean the header thoroughly.
3. Check for worn components and repair as necessary.
4. 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.
5. Replace or tighten any missing or loose hardware. For instructions, refer to *7.1 Torque Specifications, page 253*.
6. Lubricate the header thoroughly leaving excess grease on fittings to keep moisture out of bearings.
7. Apply grease to exposed threads, cylinder rods, and sliding surfaces of components.
8. Oil cutterbar components to prevent rust.
9. Loosen drive belt.
10. Remove divider rods (if equipped) to reduce space required for inside storage.
11. Repaint all worn or chipped painted surfaces to prevent rust.
12. Store in a dry, protected place if possible. If stored outside, always cover header with a waterproof canvas or other protective material.

4.5 Lubrication

WARNING

To avoid personal injury, before servicing header or opening drive covers, refer to *4.2 Preparing Machine for Servicing, page 121*.

Greasing points are marked on the machine by decals on the left and right outboard shielding.

Log hours of operation and use the maintenance schedule provided to keep a record of scheduled maintenance. Refer to *4.4.1 Maintenance Schedule/Record, page 124*.

4.5.1 Greasing Procedure

Only use clean, high temperature, extreme pressure grease. Refer to this manual's inside back cover for a list of recommended fluids and lubricants.

DANGER

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

1. Shut down the engine, and remove the key from the ignition.
2. Open driveshields at the ends of the header to access greasing points. For instructions, refer to *3.7.1 Opening Driveshields, page 82*.
3. Wipe grease fitting with a clean cloth before greasing to avoid injecting dirt and grit.
4. Replace any loose or broken fittings immediately.
5. Inject grease through fitting with grease gun until grease overflows fitting (except where noted).
6. Leave excess grease on fitting to keep out dirt.
7. Remove and thoroughly clean any fitting that will not take grease and clean lubricant passageway. Replace fitting if necessary.

4.5.2 Lubrication Locations – Standard Headers

Standard headers are equipped with conditioners.

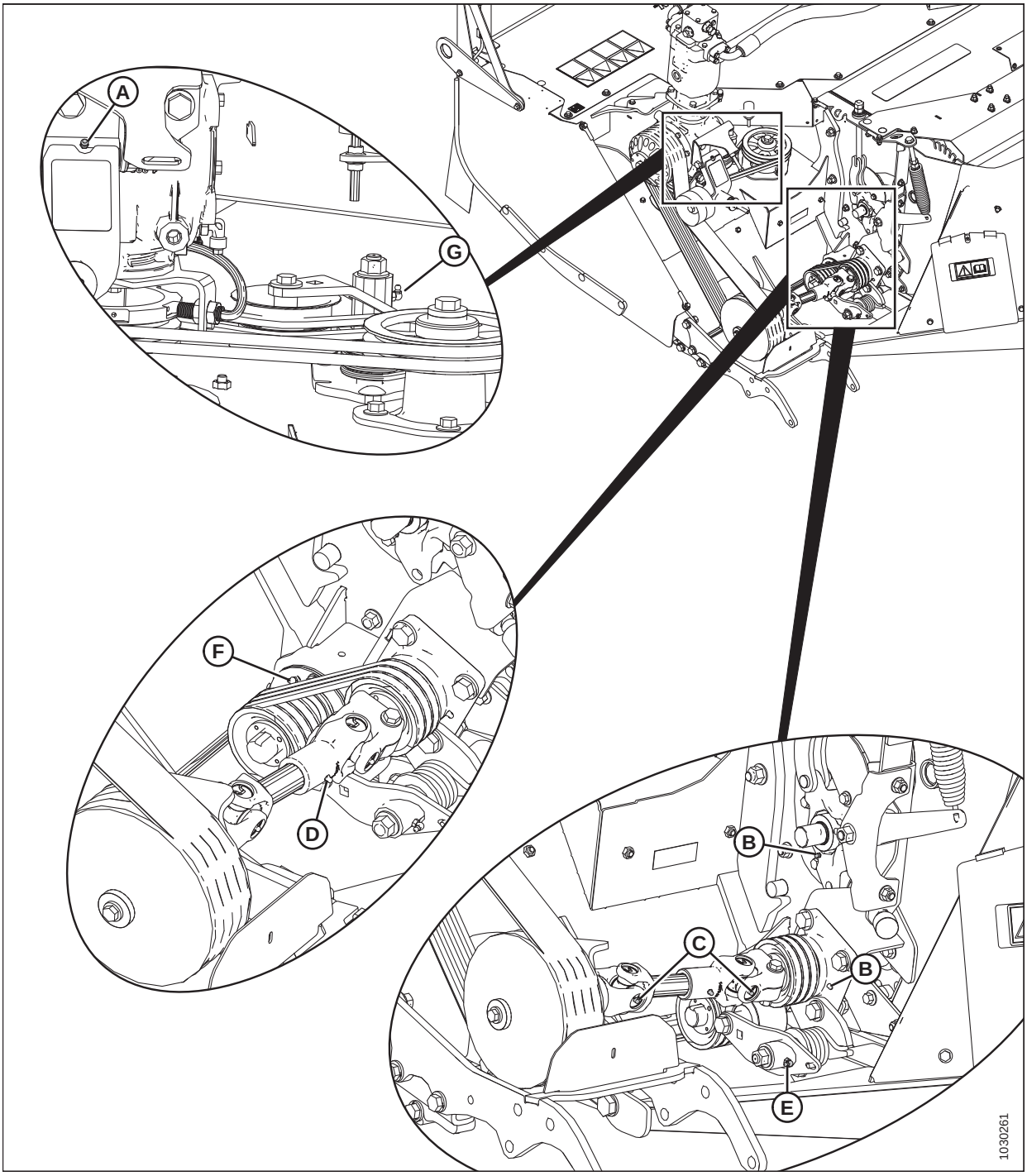


Figure 4.9: Left Side Lubrication Locations

A - Idler/Tensioner Pivot
B - Bearing, Roller Conditioner (Two Places)
C - U-Joint, Conditioner Driveline (Two Places)
D - Slip Joint, Conditioner Driveline[3]
E - Idler/Tensioner Pivot
F - Bearing, Feed Roll
G - Tensioner Arm

3. Use high-temperature, extreme-pressure (EP2) performance grease with 10% max molybdenum disulphide (NLGI grade 2) lithium base.

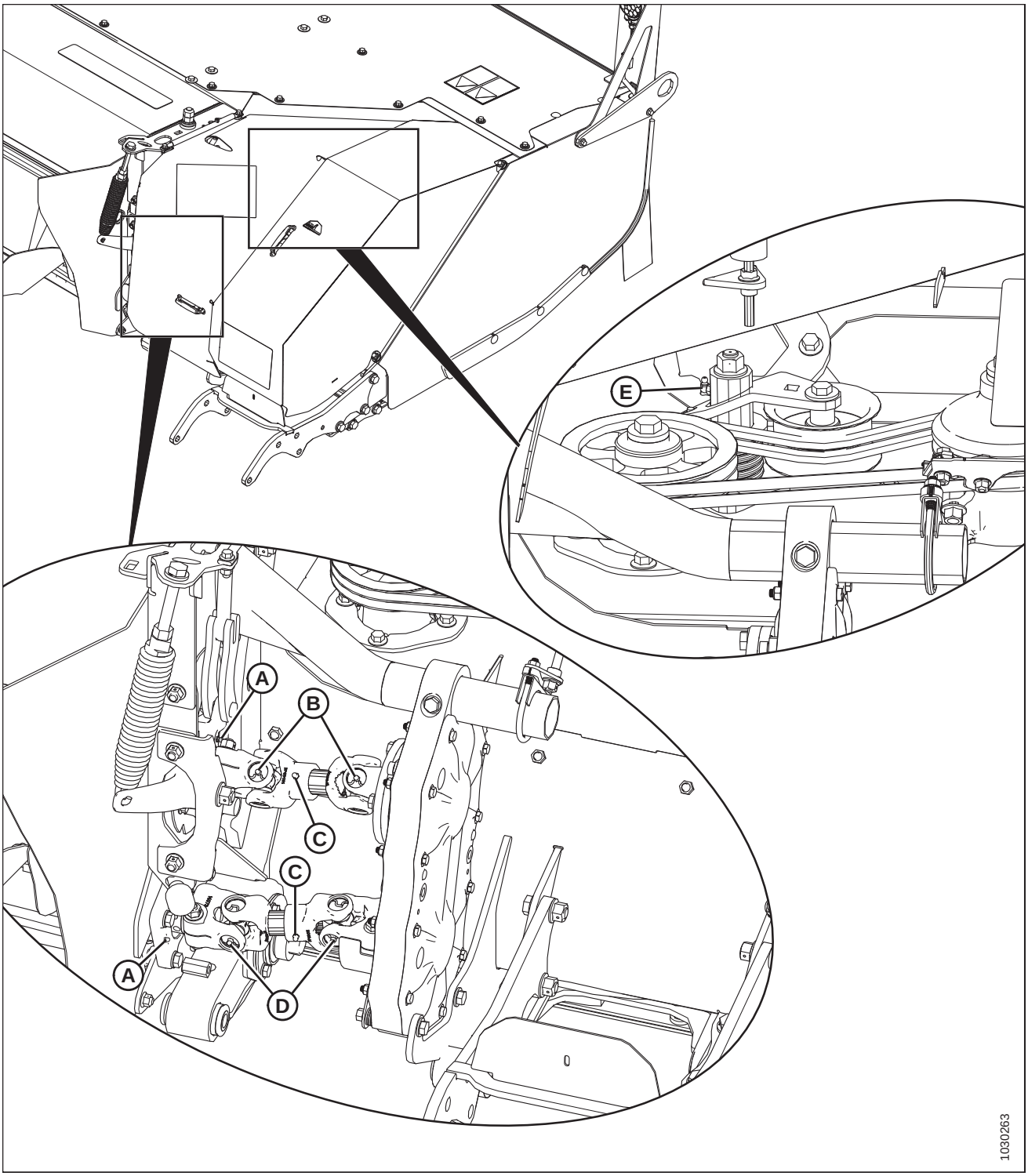


Figure 4.10: Right Side Lubrication Locations

A - Bearing, Roller Conditioner (Two Places)
B - U-Joint, Upper Driveline (Two Places)
C - Slip Joints, Conditioner Drivelines[4]
D - U-Joint, Lower Driveline (Two Places)
E - Idler Pivot

4. Use high-temperature, extreme-pressure (EP2) performance grease with 10% max molybdenum disulphide (NLGI grade 2) lithium base.

4.5.3 Lubrication Locations – Grass Seed (Option)

The grass seed (GSS) configuration is an option (MD #C2081).

Lubricate idler/tensioner locations (A) and (D) every 25 hours. Lubricate grass seed drum locations (B), (C), (E), and (F) every 50 hours. Use high-temperature, extreme-pressure performance grease with 1% max molybdenum disulphide (NLGI grade 2) lithium base for all locations.

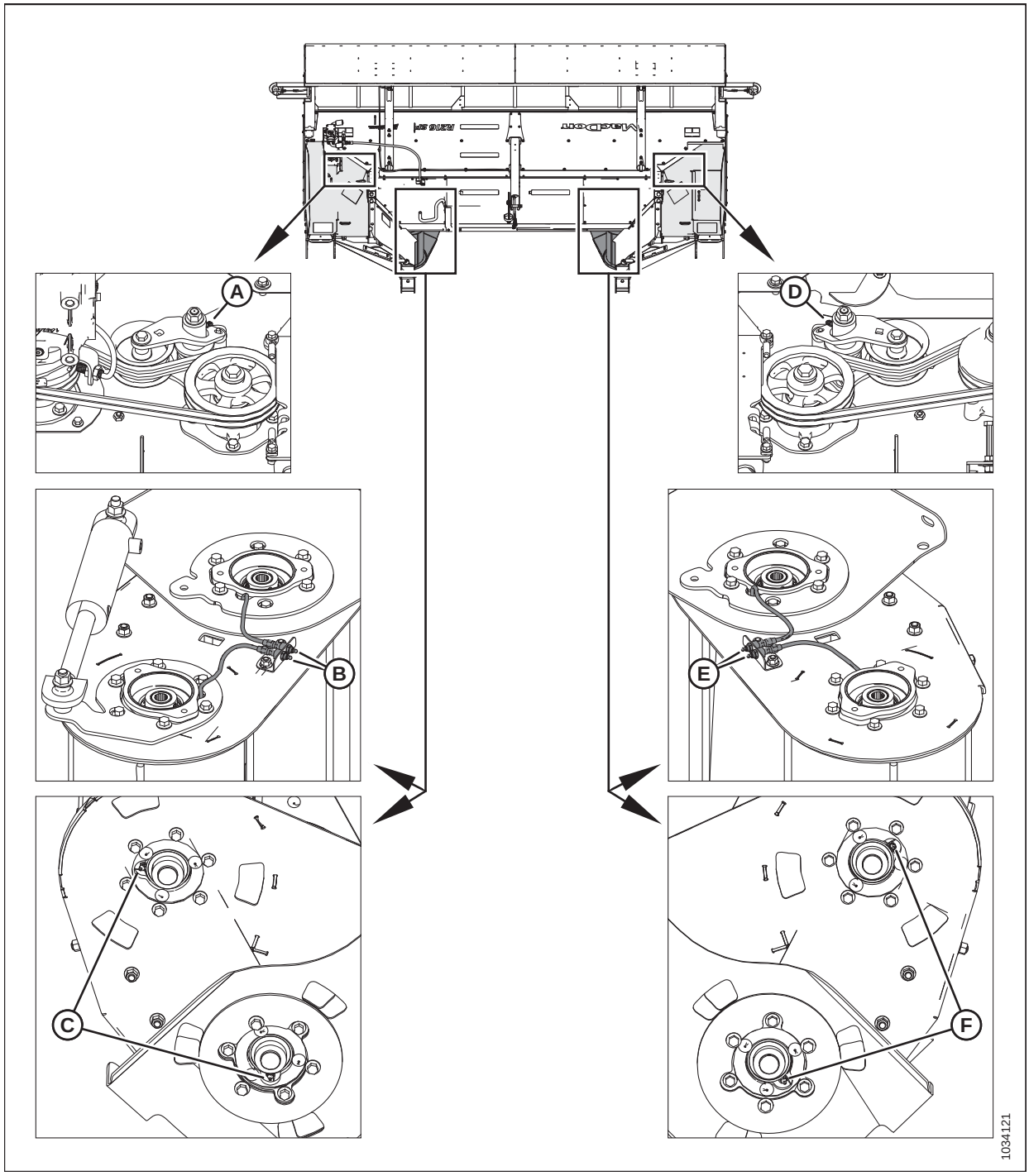


Figure 4.11: Lubrication Locations – Grass Seed

A - Left Idler/Tensioner Pivot
B - Top of Left Grass Seed Drum (Two Places)
C - Bottom of Left Grass Seed Drum (Two Places)
D - Right Idler/Tensioner Pivot
E - Top of Right Grass Seed Drum (Two Places)
F - Bottom of Right Grass Seed Drum (Two Places)

4.5.4 Lubrication Locations – Gauge Rollers (Option)

Gauge rollers (MD #B6855) are optional.

Grease two grease fittings (A) on both gauge rollers every 25 hours using high-temperature, extreme-pressure performance grease with 1% max molybdenum disulphide (NLGI grade 2) lithium base.

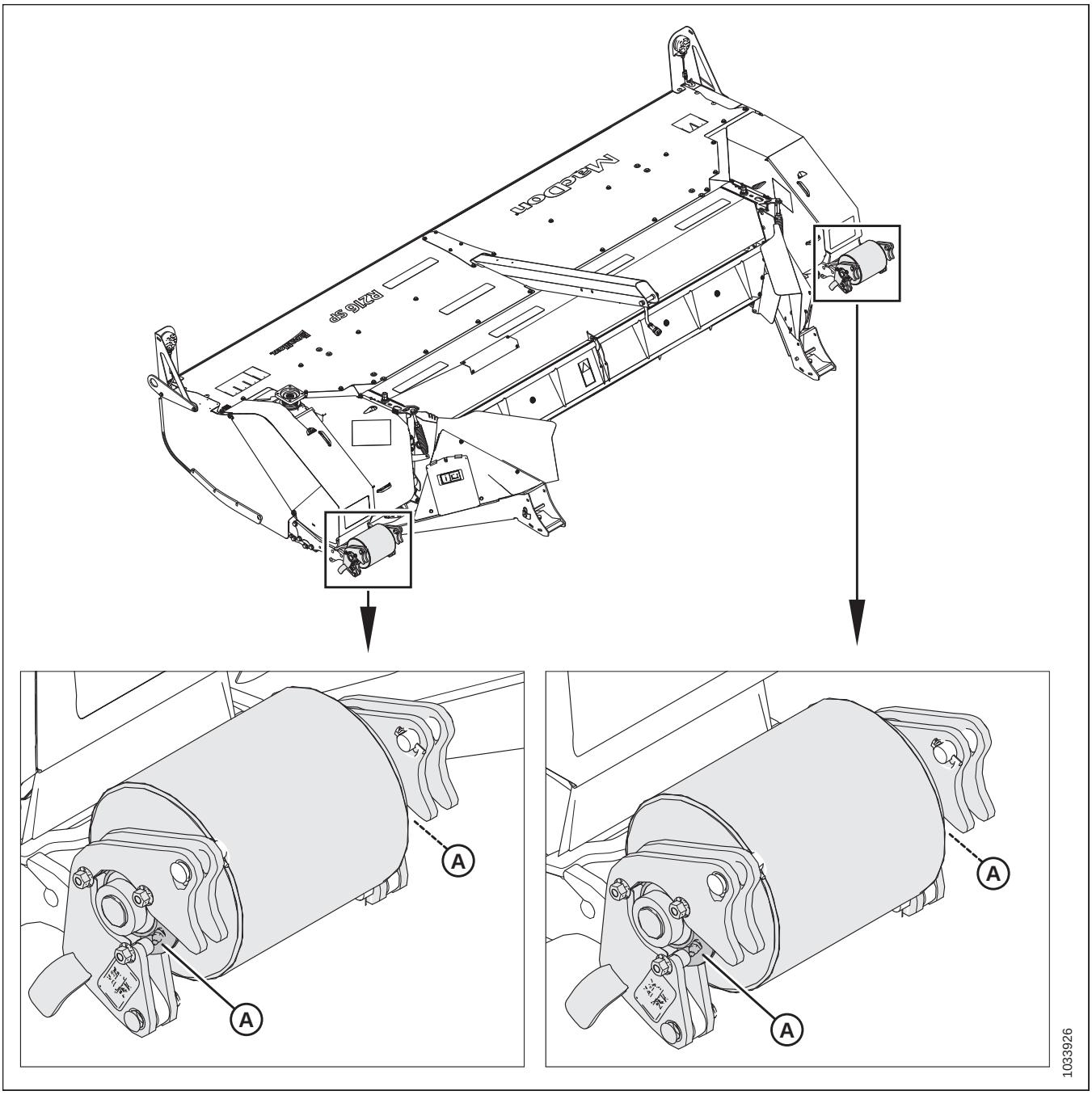


Figure 4.12: Gauge Rollers Lubrication Locations

4.6 Cutterbar System

Check and change the lubricant at regular intervals. For instructions, refer to *4.4 Maintenance Requirements, page 124*.

IMPORTANT:

Warm cold lubricant by idling the machine for 10 minutes prior to checking level.

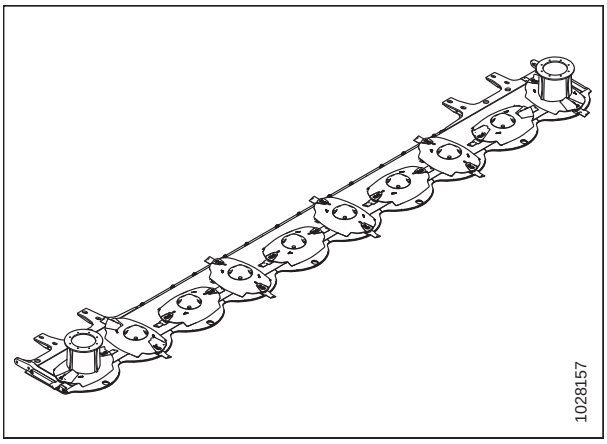


Figure 4.13: R216 SP Cutterbar

4.6.1 Lubricating Cutterbar

Checking and Adding Lubricant in Cutterbar

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.

WARNING

Exercise caution when working around the blades. Blades are sharp and can cause serious injury. Wear gloves when handling blades.

1. Park the machine on level ground.
2. Lower the header onto 25 cm (10 in.) blocks under both ends of the cutterbar.
3. Shut down the engine, and remove the key from the ignition.
4. Open cutterbar curtain (A). For instructions, refer to *3.8.1 Opening Cutterbar Curtain, page 86*.

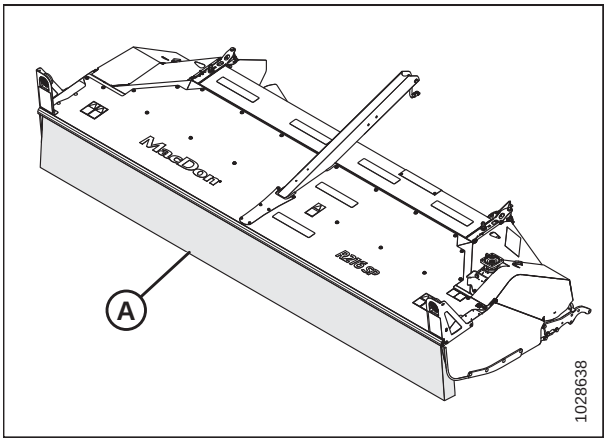


Figure 4.14: Cutterbar Curtain

5. Use a spirit (bubble) level (A) to ensure the cutterbar is level in both directions. Adjust the header accordingly.

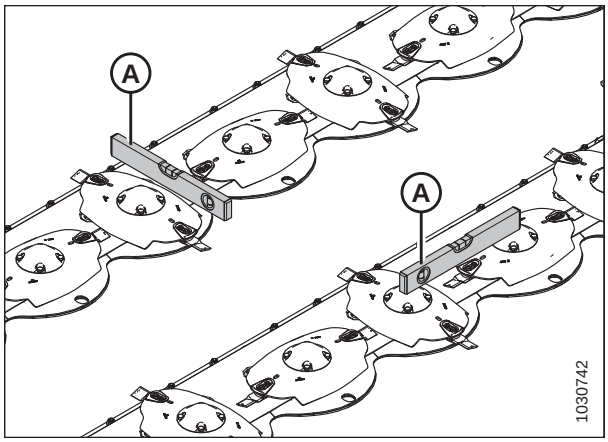


Figure 4.15: Spirit Level on Cutterbar

6. Clean the area around plug (A). Place a 5 liter (5.2 US qts) capacity container under plug (A).
7. Use a 17 mm socket to remove plug (A) and gasket (B) from cutterbar. Oil level must be up to the inspection plug hole. If additional lubricant is required, continue following this procedure and refer to the next step. If additional lubricant is **NOT** required, proceed to Step *22, page 135*.
8. Reinstall the inspection plug.

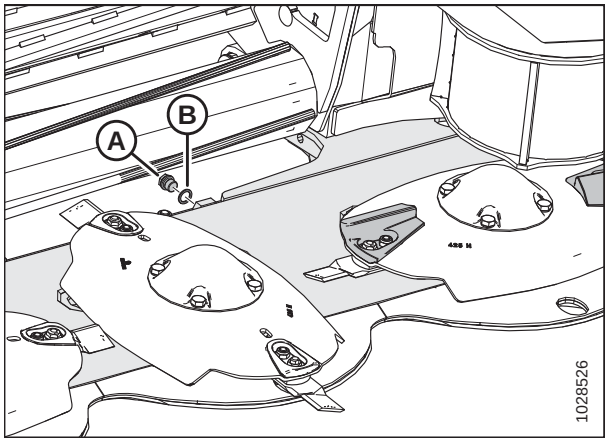


Figure 4.16: Cutterbar Oil Inspection Plug

DANGER

Never start or move the machine until you are sure all bystanders have cleared the area.

9. Start the engine, and raise the header slightly.
10. Lower the header onto blocks, so the right end is slightly higher than left end.
11. Shut down the engine, and remove the key from the ignition.

12. Remove plug (A) at the right end of the header.

    IMPORTANT:

    Do **NOT** remove bolts (B).

13. Add lubricant to the required level.

    IMPORTANT:

    Do **NOT** overfill the cutterbar. Overfilling can cause overheating, damage, or cutterbar component failure.

    NOTE:

    Refer to the inside back cover of this manual for lubrication specifications.

14. Replace plug (A) and torque to 30 Nm (22 lbf·ft).

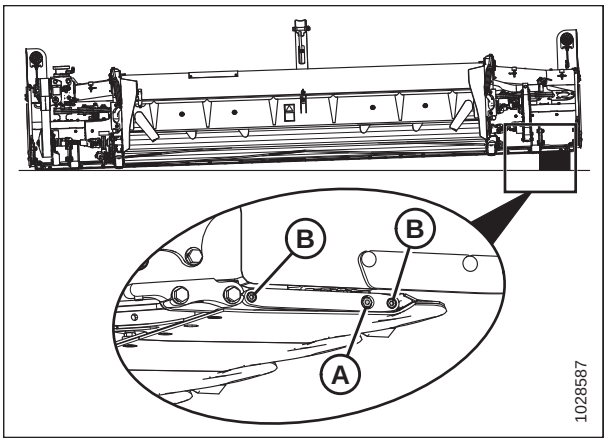


Figure 4.17: Cutterbar Oil Plug

DANGER

Never start or move the machine until you are sure all bystanders have cleared the area.

15. Start the engine and raise the header fully.
16. Shut down the engine, and remove the key from the ignition. Engage the windrower lift cylinder safety props.
17. Remove the block from under the header.
18. Disengage the windrower lift cylinder safety props.

DANGER

Never start or move the machine until you are sure all bystanders have cleared the area.

19. Start the engine and lower the header to a level position on the ground.
20. Shut down the engine, and remove the key from the ignition.
21. Recheck the oil level.
22. Check gasket (B) for breaks or cracks, and replace if necessary.
23. Install plug (A) and gasket (B). Tighten securely.

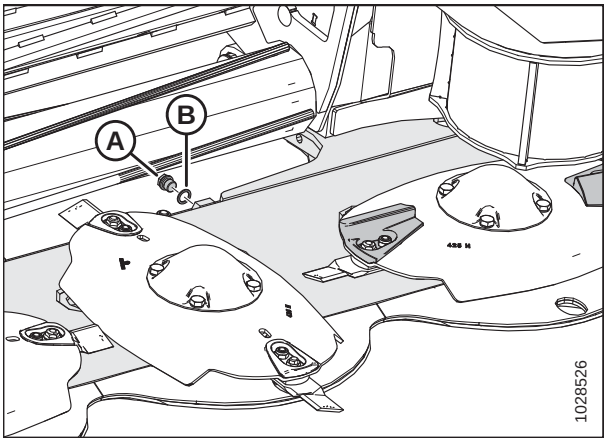


Figure 4.18: Cutterbar Oil Inspection Plug

24. Close cutterbar curtain (A). For instructions, refer to *3.8.2 Closing Cutterbar Curtain, page 87*.

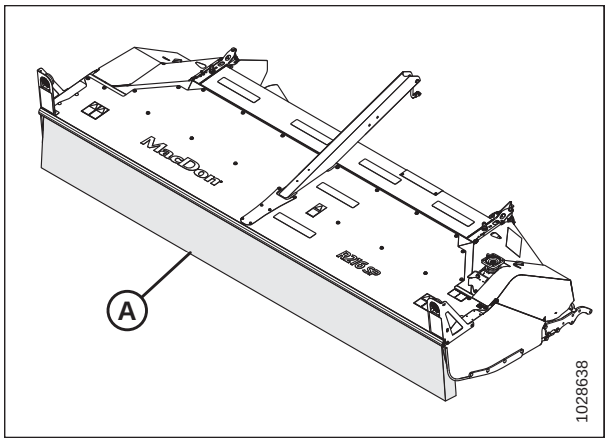


Figure 4.19: Cutterbar Curtain

Draining the Cutterbar

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.

WARNING

Exercise caution when working around the blades. Blades are sharp and can cause serious injury. Wear gloves when handling blades.

1. Start the engine, and raise the disc header.
2. Shut down the engine, and remove the key from the ignition.
3. Place block under each end of the disc header as shown, so the right end is lower than the left end.

   IMPORTANT:

   Always drain lubricant from the right end of the disc header. Draining lubricant from the left end of the disc header may lead to breather contamination or failure.
4. Tilt the header fully forward, and lower disc header onto the blocks.
5. Shut down the engine, and remove the key from the ignition.
6. Place a 10 liter (10.5 US qts) capacity container under the right end of the cutterbar, clean area around plug (A), and remove the plug.

   IMPORTANT:

   Do **NOT** remove hex head bolts (B) securing cutterbar end plate to cutterbar or lubricant leaks could result.
7. Allow sufficient time for lubricant to drain, then reinstall cutterbar plug (A).

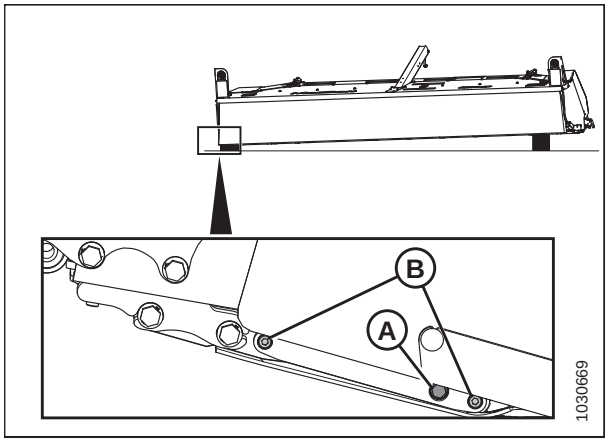


Figure 4.20: Disc Header Tilted Forward

NOTE:

Do **NOT** flush the cutterbar.

8. Fill the cutterbar with lubricant before operating the disc header. For instructions, refer to *Filling Cutterbar with Lubricant, page 137*.

IMPORTANT:

Dispose of used lubricant responsibly.

Filling Cutterbar with Lubricant

Fill the cutterbar with lubricant after completely draining the cutterbar of oil.

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.

WARNING

Exercise caution when working around the blades. Blades are sharp and can cause serious injury. Wear gloves when handling blades.

WARNING

Check to be sure all bystanders have cleared the area.

IMPORTANT:

The cutterbar should be completely empty of oil before filling it. For instructions, refer to *Draining the Cutterbar, page 136*.

If you are checking oil level or topping it up, refer to *Checking and Adding Lubricant in Cutterbar, page 133*.

1. Start the engine, and raise the header fully.
2. Shut down the engine, and remove the key from the ignition.
3. Place a block under each end of the disc header, so the right end is higher than the left end.
4. Lower the header onto the blocks.
5. Shut down the engine, and remove the key from the ignition.
6. Remove access plug (A) from the raised end of the cutterbar and add the **EXACT** amount of lubricant specified. Refer to the inside back cover of this manual for a list of recommended fluids, lubricants, and quantities for the machine.

IMPORTANT:

Do **NOT** overfill the cutterbar. Overfilling can cause overheating, damage, or failure of cutterbar components.

NOTE:

Do **NOT** remove hex bolts (B) securing the cutterbar end plate to the rest of the cutterbar, or lubricant leaks could result.

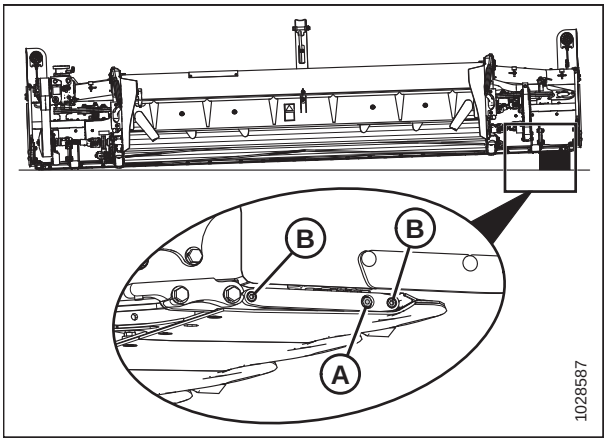


Figure 4.21: Cutterbar Access Plug

7. Install access plug (A). Torque to 30 Nm (22 lbf·ft).
8. Start the engine, and raise the header fully.
9. Shut down the engine, and remove the key from the ignition. Engage the windrower lift cylinder safety props. For instructions, refer to the procedure according to the type of windrower:
   - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
   - **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*
10. Remove the blocks from under the cutterbar.
11. Lower the header.
12. Shut down the engine, and remove the key from the ignition. Disengage the windrower lift cylinder safety props. For instructions, refer to the procedure according to the type of windrower:
   - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
   - **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*
13. Check the lubricant level. For instructions, refer to *Checking and Adding Lubricant in Cutterbar, page 133*.

4.6.2 Cutterbar Discs

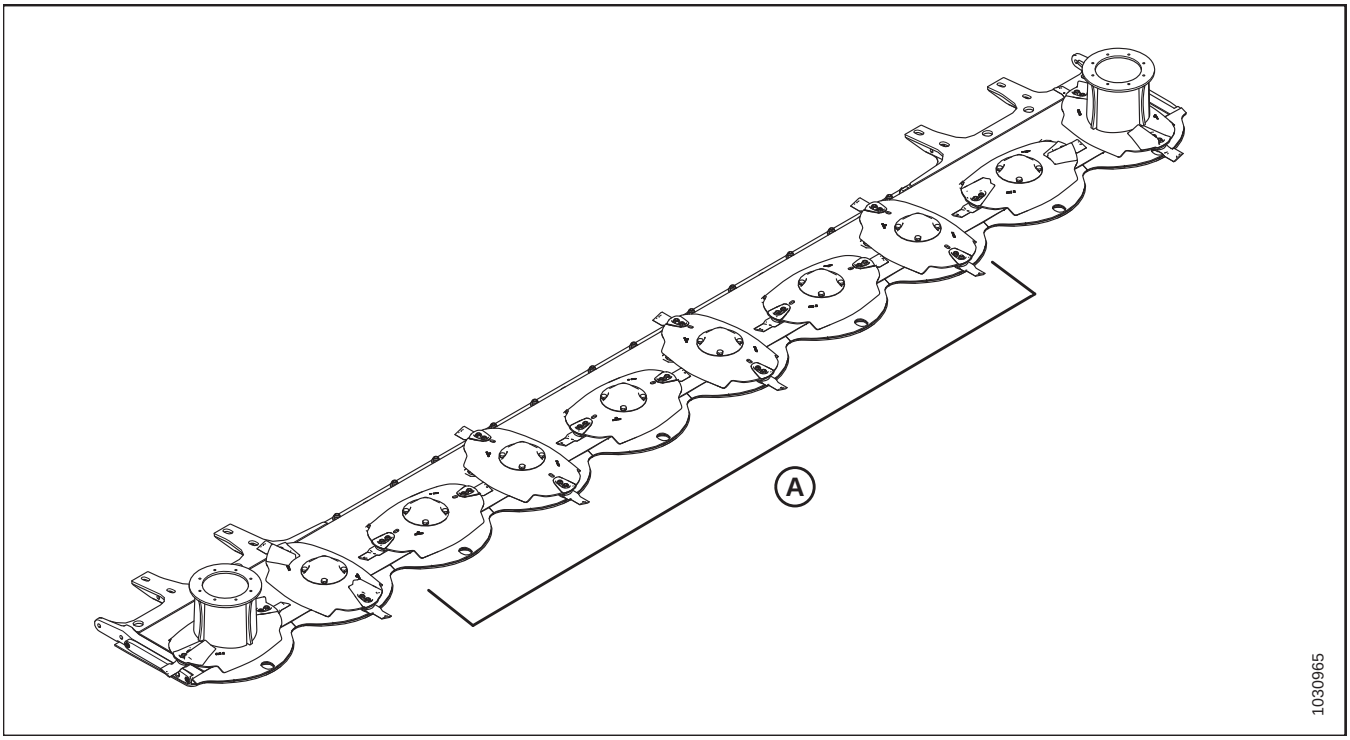


Figure 4.22: Interchangeable Cutterbar Discs

Cutterbar discs (A) are interchangeable and can be moved to a spindle that rotates in the opposite direction as long as the disc is in usable condition and the blades are oriented to cut in the correct direction.

Perform daily inspections to ensure that cutterbar discs have not suffered damage from rocks, or experienced excessive wear from abrasive working conditions.

The cutterbar discs are **NOT** repairable and must be replaced if severely damaged or worn.

IMPORTANT:

If holes appear in a cutterbar disc, replace the disc immediately. Do **NOT** attempt to repair the cutterbar discs. Always use factory replacement parts.

Inspecting Cutterbar Discs

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.

WARNING

Disc blades have two sharp cutting edges that can cause serious injury. Exercise caution and wear gloves when working with blades.

WARNING

Damaged or loose disc blades or blade attachment hardware can be ejected during machine operation and may cause personal injury or machine damage.

IMPORTANT:

Damaged blades may damage the cutterbar and result in poor cutting performance. Replace damaged blades immediately.

IMPORTANT:

Unbalanced cutterbar components can lead to premature cutterbar failure.

1. Place the header in a position where you can access the component that will be serviced.
2. Shut down the engine, and remove the key from the ignition.
3. If the header is fully raised, engage safety props. If the header is off the ground and not fully raised, place blocks under the header. Never work on or beneath an unsupported header. For instructions on engaging the safety props, refer to the procedure according to the type of windrower:
   - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
   - **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*
4. Inspect the cutterbar disc surface (D) for cracks, excessive wear, and disc distortion. Replace any damaged or worn discs as required.

   NOTE:

   Any damaged or worn cutterbar discs are **NOT** repairable and must be replaced if damaged.
5. Inspect the cutterbar disc edges (E) for cracks, excessive wear, and edge distortion. Replace any damaged or worn discs as required.

   NOTE:

   Any damaged or worn cutterbar discs are **NOT** repairable and must be replaced if damaged.
6. Ensure that disc blade fasteners (A) are securely attached to the cutterbar disc and that nut shields (B) are present and undamaged. Replace as required.

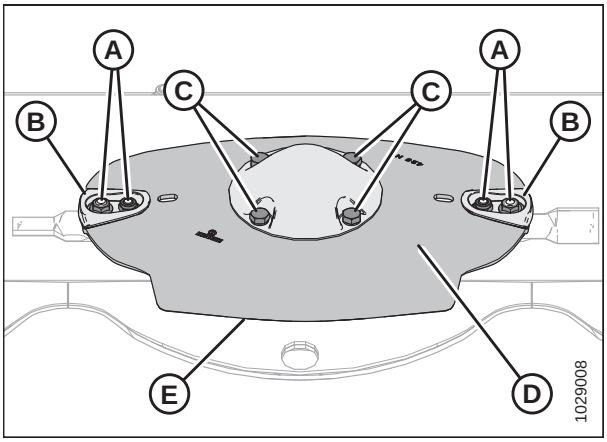


Figure 4.23: Cutterbar Disc

7. Check that cutterbar disc bolts (C) are securely attached to the spindles. Tighten as required.
8. Inspect the cutterbar disc for severe deformation. If the disc is deformed, dimension (A) must **NOT** exceed 48 mm (1 7/8 in.). Replace as required.

   NOTE:

   Dimension (A) shows space between the cutterbar and the edge of the cutterbar disc.

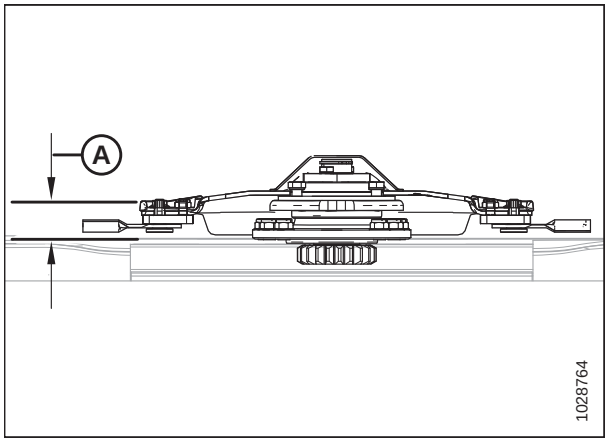


Figure 4.24: Cutterbar Disc – Cutaway View

9. Inspect the cutterbar disc for abrasion (A). The wear limit for abrasion is reached when the material thickness of the cutterbar discs is less than 3 mm (1/8 in.). Replace as required.

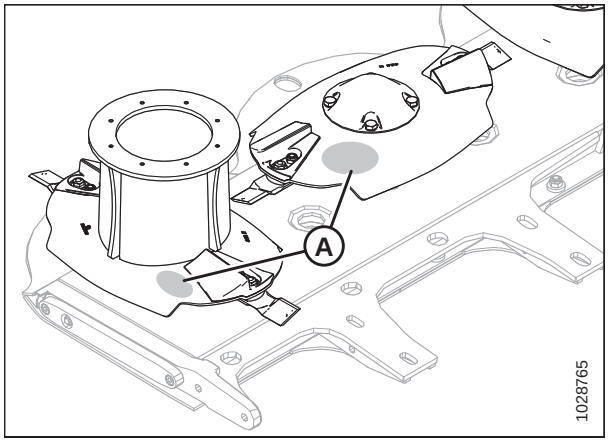


Figure 4.25: Cutterbar Disc – View from Above

Removing Cutterbar Discs

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.

WARNING

Disc blades have two sharp cutting edges that can cause serious injury. Exercise caution and wear gloves when working with blades.

1. Raise the header.
2. Shut off the engine, and remove the key from the ignition.
3. Engage the windrower lift cylinder safety props. For instructions, refer to the procedure according to the type of windrower:
   - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*

- **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*

4. Open cutterbar curtain (A). For instructions, refer to *3.8.1 Opening Cutterbar Curtain, page 86*.

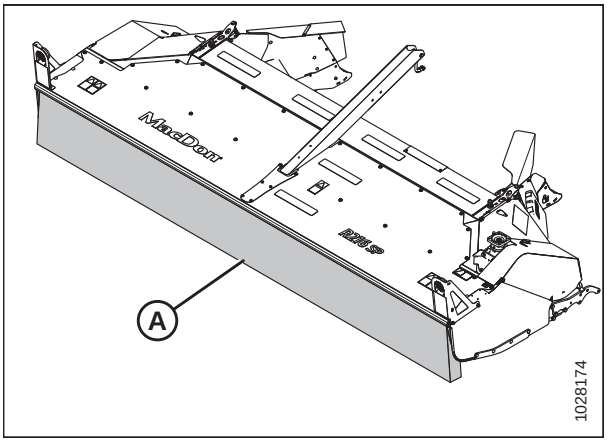


Figure 4.26: Cutterbar Curtain

5. Place a pin (or equivalent) in the front hole of rock guard (B) to prevent disc rotation while loosening bolts.
6. Remove four M12 bolts (A) and washers.

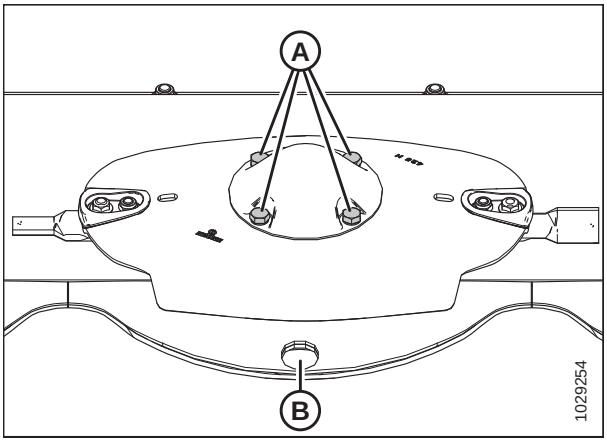


Figure 4.27: Cutterbar Disc Bolts

7. Remove cutterbar disc cap (A).
8. Remove cutterbar disc (B).

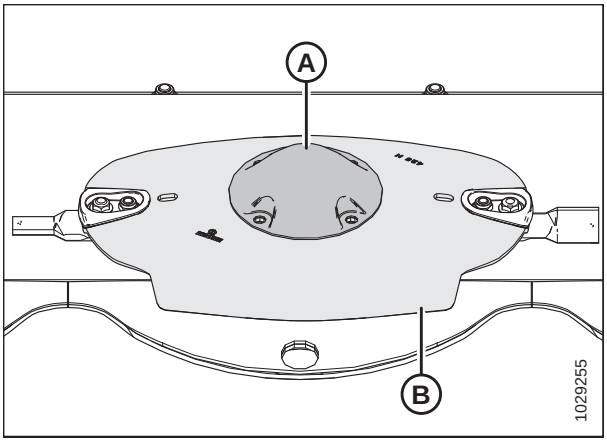


Figure 4.28: Cutterbar Disc and Cap

9. To remove the outboard cutterbar discs, refer to *Removing Left Driven Drum and Driveline, page 180* and *Removing Right Driven Drum and Driveline, page 187*.

Installing Cutterbar Discs

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.

WARNING

Exercise caution when working around the blades. Blades are sharp and can cause serious injury. Wear gloves when handling blades.

1. Place the header in a position where you can access the component that will be serviced.
2. Shut down the engine, and remove the key from the ignition.
3. If the header is fully raised, engage safety props. If the header is off the ground and not fully raised, place blocks under the header. Never work on or beneath an unsupported header. For instructions on engaging the safety props, refer to the procedure according to the type of windrower:
   - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
   - **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*
4. Place a pin (or equivalent) in the front hole of rock guard (D) to prevent disc rotation while tightening bolts.
5. Position new disc (A) on the spindle, ensuring that it is positioned at a 90° angle in relation to the adjacent discs.
6. Install cutterbar disc cap (B), and secure assembly with four M12 bolts and washers (C). Torque bolts to 85 Nm (63 lbf·ft).

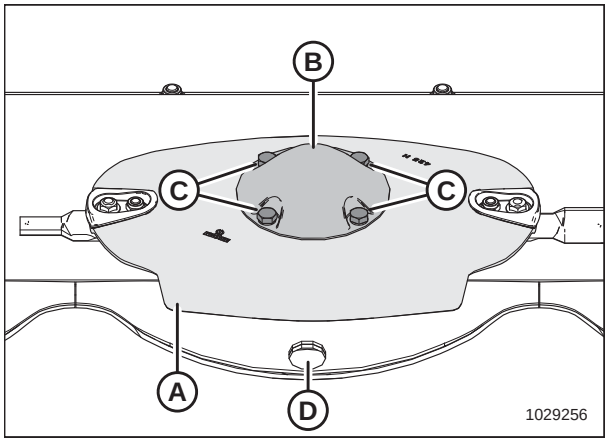


Figure 4.29: Cutterbar Disc and Cap

WARNING

Ensure the cutterbar is completely clear of foreign objects. Foreign objects can be ejected with considerable force when the machine is started and may result in serious injury or machine damage.

7. Remove pin (or equivalent) from the front hole of the rock guard.

8. Close the cutterbar curtain. For instructions, refer to *3.8.2 Closing Cutterbar Curtain, page 87*.

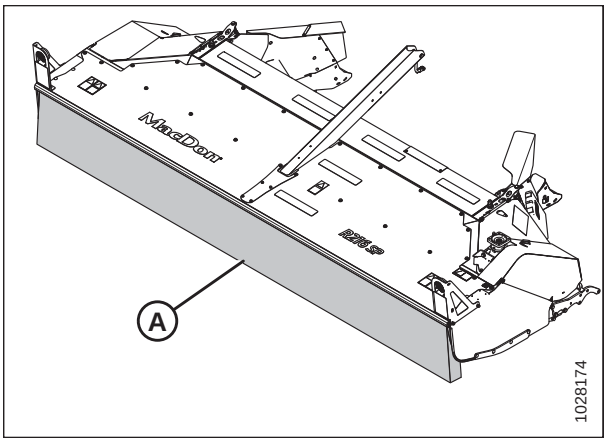


Figure 4.30: Cutterbar Curtain

9. To install the outboard cutterbar discs, refer to *Installing Left Driven Drum and Driveline, page 184* and *Installing Right Driven Drum and Driveline, page 190*.

4.6.3 Cutterbar Spindles

To prevent damage to the cutterbar and drive systems, each disc is attached to a spindle containing a shear pin (A).

If the disc contacts a large object such as a stone or stump, the pin will shear and the disc will stop rotating and move upwards while remaining attached to the spindle with a snap ring (B).

NOTE:

Once the spindle has risen due to shear pin failure, the spindle's bearing will become unloaded. Do **NOT** replace the spindle due to excessive play. Check play after torquing spindle nut and replacing damaged shear pins.

Refer to *4.6.8 Cutterbar Spindle Shear Pin, page 199* to replace shear pin.

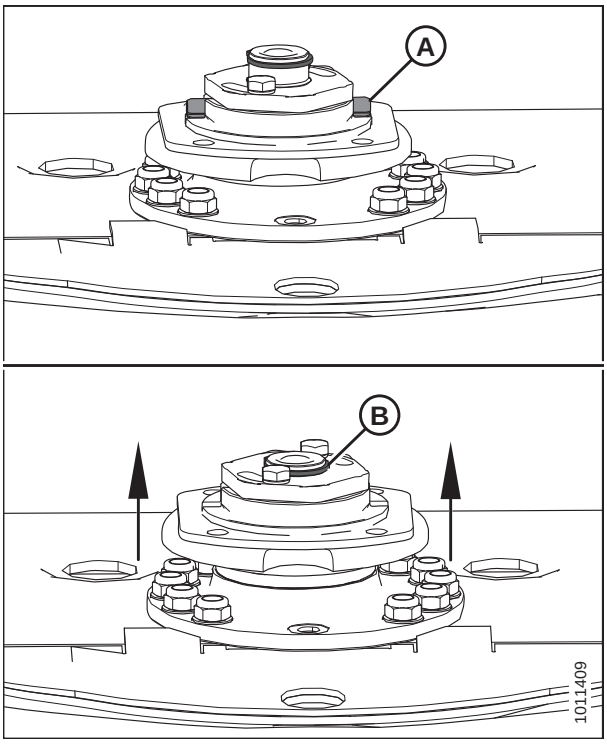


Figure 4.31: Cutterbar Spindles

IMPORTANT:

- Spindles that rotate clockwise have right-leading threading and are identified by a smooth top on the spindle gear shaft (A).
- Spindles that rotate counterclockwise have left-leading threading and are identified by machined grooves on the spindle gear shaft (B) and nut (C).
- If the spindle's position in cutterbar has changed, the rotational direction of that spindle **MUST** remain the same (that is, a clockwise spindle must maintain its clockwise rotation).
- Failure to maintain the rotation pattern can result in damage to the spindle and/or cutterbar components.
- Safecut components (shear pin) will not work if spindles are used in the wrong orientation.

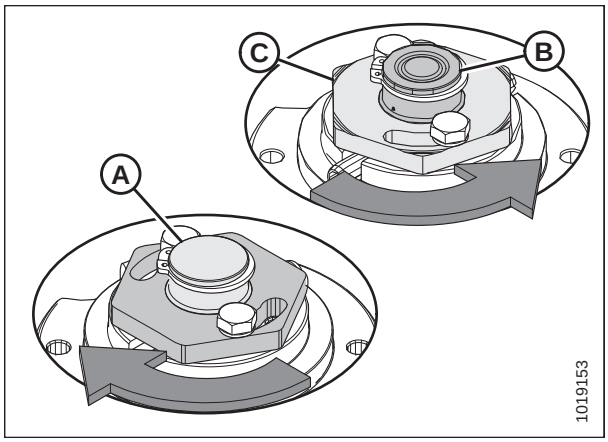


Figure 4.32: Cutterbar Spindles

Removing Cutterbar Spindles

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.

WARNING

Disc blades have two sharp cutting edges that can cause serious injury. Exercise caution and wear gloves when working with blades.

1. Park on a flat, level surface.
2. Place the header in a position where you can access the component that will be serviced.
3. Shut down the engine, and remove the key from the ignition.
4. If the header is fully raised, engage safety props. If the header is off the ground and not fully raised, place blocks under the header. Never work on or beneath an unsupported header. For instructions on engaging the safety props, refer to the procedure according to the type of windrower:
   - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
   - **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*
5. Open cutterbar curtain (A). For instructions, refer to *3.8.1 Opening Cutterbar Curtain, page 86*.

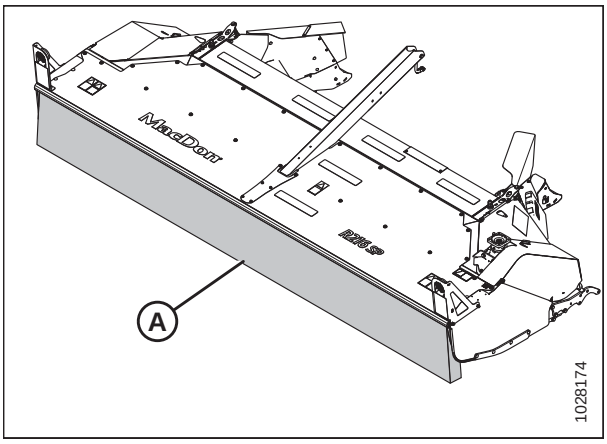


Figure 4.33: Cutterbar Curtain

6. Place a pin (or equivalent) in the front hole of the rock guard (B) to prevent disc rotation while loosening bolts.
7. Remove four M12 bolts (A) and washers.

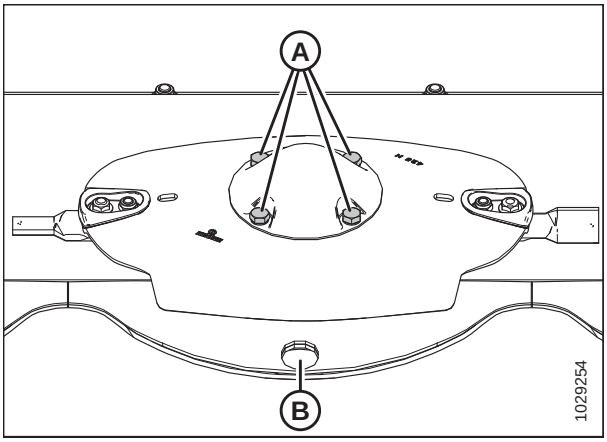


Figure 4.34: Cutterbar Disc Bolts

8. Remove cutterbar disc cap (A).
9. Remove cutterbar disc (B).

IMPORTANT:

Blades are rotation specific. Switch the entire disc when swapping spindles.

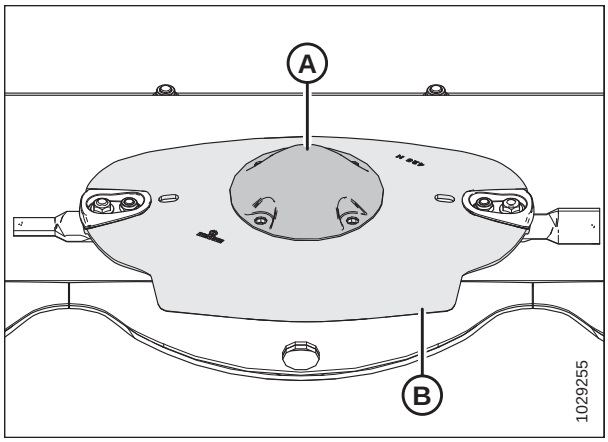


Figure 4.35: Cutterbar Disc and Cap

10. Remove spacer plate (A).

NOTE:

The area around the spindle must be cleaned thoroughly to prevent debris from entering into the cutterbar gearbox.

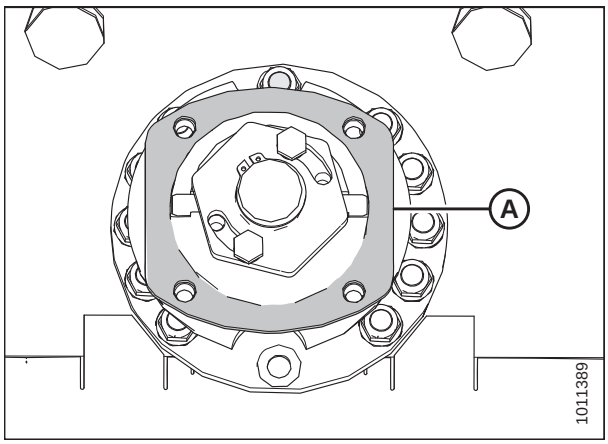


Figure 4.36: Spacer Plate

11. Rotate spindle hub (A) to access nuts (B), and remove eleven M12 lock nuts (B) and washers.

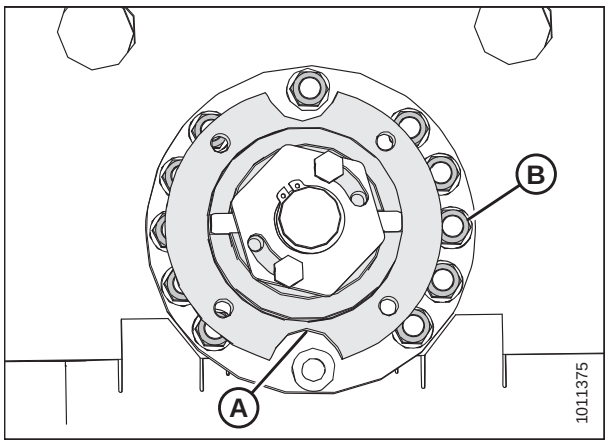


Figure 4.37: Left Spindle Hub and Hardware

12. Remove spindle (A) from the cutterbar.

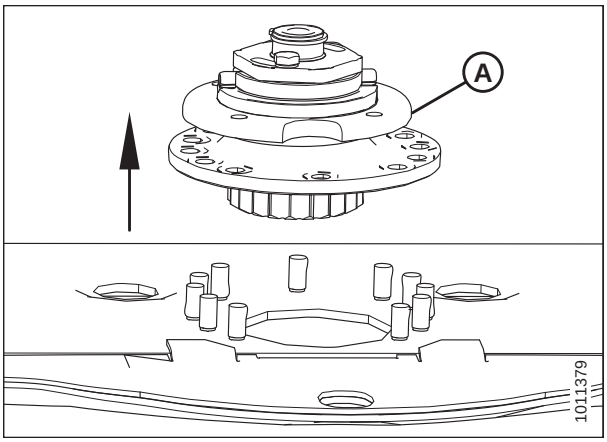


Figure 4.38: Left Spindle

Installing Cutterbar Spindles

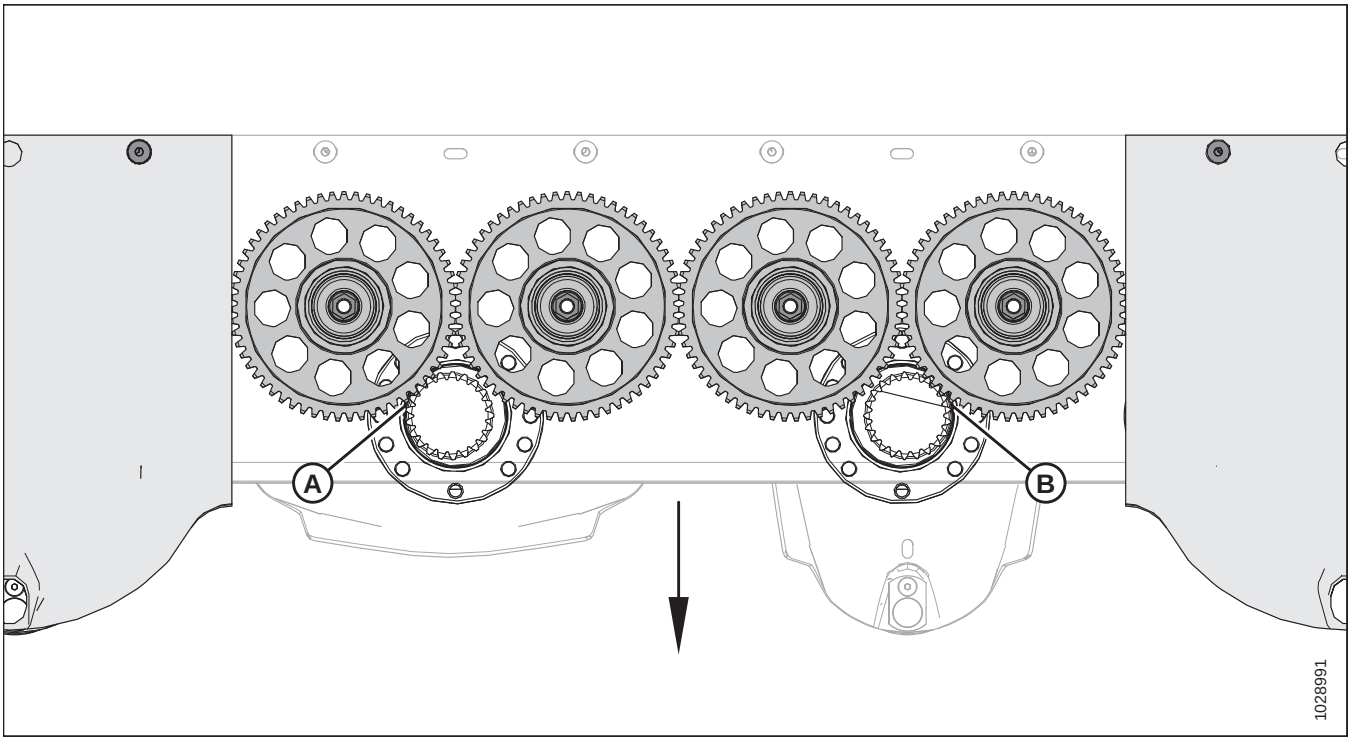


Figure 4.39: Underside of Cutterbar Spindles

NOTE:

Right discs (A) and left discs (B) are slightly offset as shown, depending on which idler gear the spindle is turning.

- Spindles that rotate clockwise have left-leading threading
- Spindles that rotate counterclockwise have right-leading threading

IMPORTANT:

Right discs (A) and left discs (B) are timed and must be at a 90° angle from adjacent discs when reinstalled. Misaligned discs could result in the following:

- Disc blades of co-rotating discs hitting each other
- Disc blades of diverging discs hitting adjacent discs

Check the clearance (timing) using disc timing tool (MD #307954) as shown in Figure *4.40, page 148* before tightening the spindle to the cutterbar. The disc is correctly timed if the spindle hub is aligned with the disc timing tool as shown. Turn the disc by hand to ensure the disc blades do **NOT** contact each other or adjacent discs. If contact occurs or the alignment is incorrect, lift the spindle clear of the mounting bolts, rotate the spindle 180° (ensuring that the base does not turn), and reinstall. Recheck the timing before bolting the hub down and tightening all of the nuts.

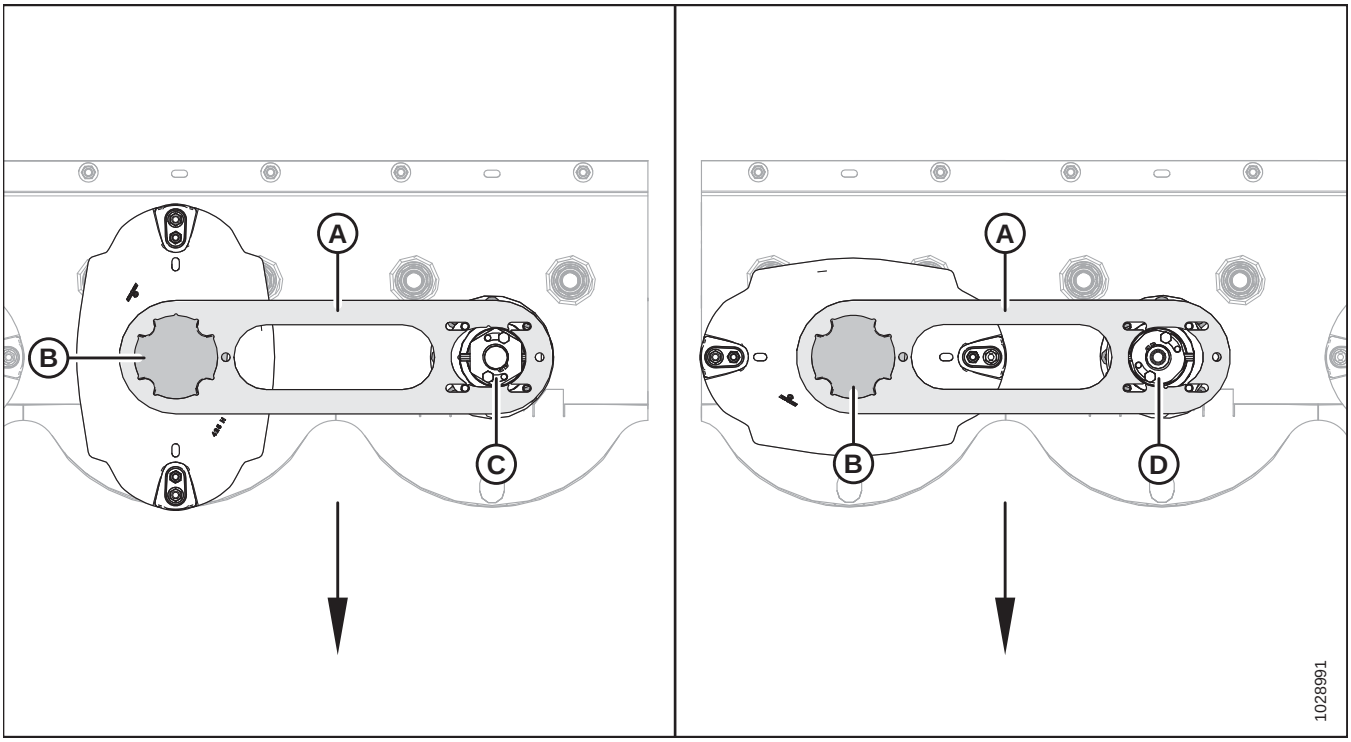


Figure 4.40: Checking Timing with Disc Timing Tool – View from Above

A - Disc Timing Tool (MD #307954)
B - Cutter Disc Cap
C - Right Disc, Correct Timing
D - Left Disc, Correct Timing

NOTE:

Spindles do **NOT** need to be bolted to the disc timing tool; visual confirmation of alignment will suffice. A disc timing tool (MD #307954) is provided with the header and is located on the panel on the right side of the header. For storage location of disc timing tool on header, refer to Figure *4.173, page 210*.

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.

WARNING

Disc blades have two sharp cutting edges that can cause serious injury. Exercise caution and wear gloves when working with blades.

1. Park on a flat, level surface.
2. Place the header in a position where you can access the component that will be serviced.
3. Shut down the engine, and remove the key from the ignition.
4. If the header is fully raised, engage safety props. If the header is off the ground and not fully raised, place blocks under the header. Never work on or beneath an unsupported header. For instructions on engaging the safety props, refer to the procedure according to the type of windrower:
   - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
   - **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*

NOTE:

To prevent oil from spilling from the cutterbar while installing disc spindles, ensure the disc header is on a flat, level surface, and is tilted all the way back.

5. Determine the suitable spindle rotation pattern for the crop conditions. For instructions, refer to *4.6.3 Cutterbar Spindles, page 143*.
6. Ensure that spindle O-ring (A) is properly seated, cleaned, and undamaged.

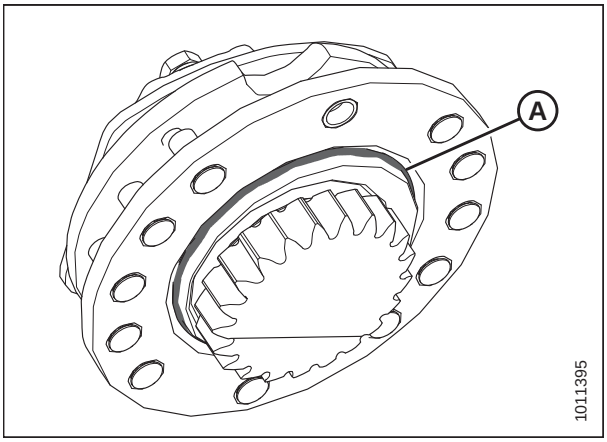


Figure 4.41: Left Spindle O-ring

7. Insert spindle (A) into the cutterbar.

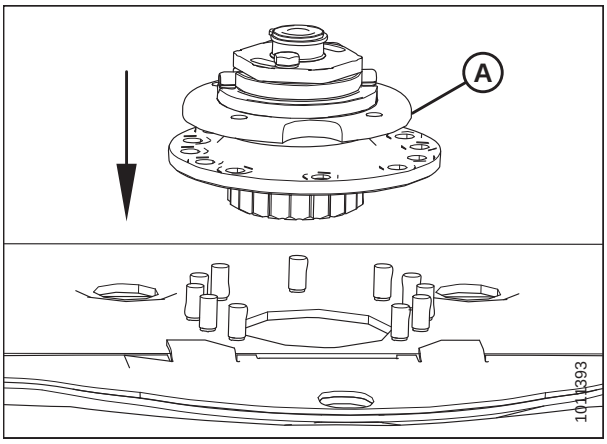


Figure 4.42: Left Spindle

8. Insert studs (A) into the spindle as shown.

   NOTE:

   Plugs are factory-installed as shown in position (B), but may come loose over time. Ensure the studs are inserted into the proper locations.

   IMPORTANT:

   Ensure clockwise spindles rotate clockwise and counterclockwise spindles (with machined grooves) rotate counterclockwise.

   IMPORTANT:

   The offset gear design makes it possible to install spindles that rotate in the wrong direction. If the spindles rotate in the wrong direction, the discs will not spin up after impact, potentially damaging cutterbar components.

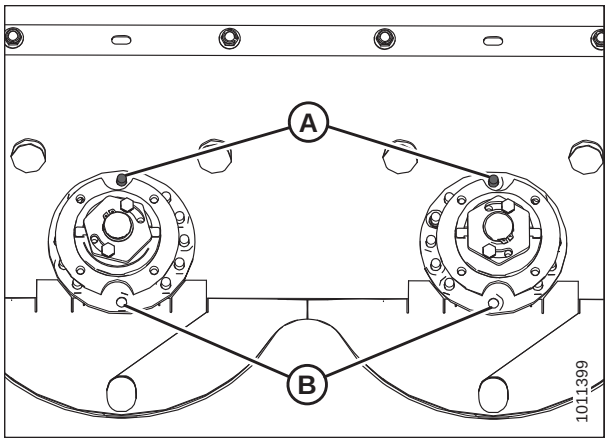


Figure 4.43: Spindle Orientation

9. Check and adjust disc timing as follows:

   NOTE:

   There are an odd number of teeth on the cutterbar gears which can make spindle hub alignment difficult.

   a. Place one end of disc timing tool (A) on adjacent disc (B) and the other end on left spindle as shown.

   b. Check bolt hole alignment (C) as shown.

   c. If alignment is slightly off, lift spindle and rotate it one tooth in either direction to try and line up bolt holes.

   d. Recheck with disc timing tool. If still not lining up, lift spindle and rotate hub 1/4 turn at a time, and recheck again with disc timing tool.

   e. Repeat until bolts are aligned.

      NOTE:

      Arrow points to the front of disc header.

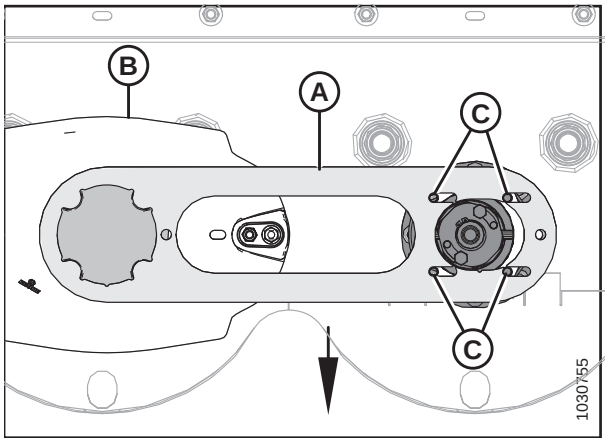


Figure 4.44: Alignment Tool

10. Ensure that hub (A) is fully seated into the cutterbar before tightening nuts (B).

11. Rotate spindle hub (A) to access the studs, and install eleven M12 lock nuts (B) and washers.

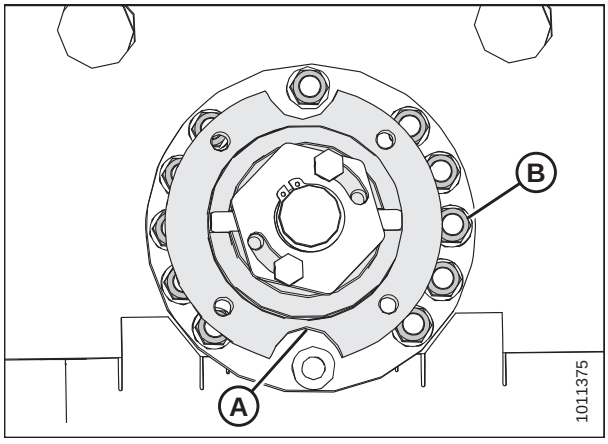


Figure 4.45: Left Spindle Hub

12. Torque bolts to 50 Nm (37 lbf·ft) following the tightening pattern shown at right.

    NOTE:

    Hub is removed from the illustration for clarity.

    IMPORTANT:

    Do **NOT** use an impact wrench when tightening as it will damage the weld studs.

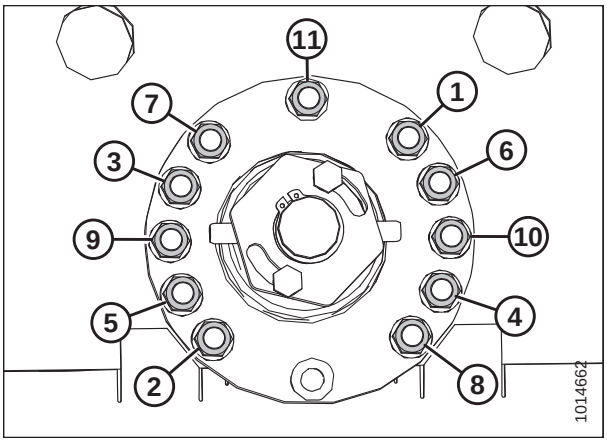


Figure 4.46: Tightening Pattern

13. Install spacer plate (A).

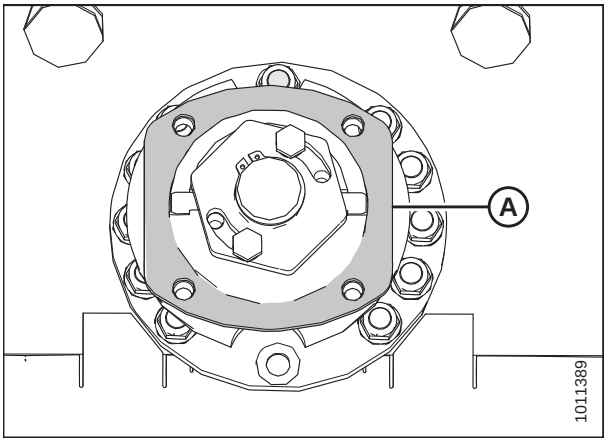


Figure 4.47: Spacer Plate

14. Place a pin (or equivalent) in front hole (D) of rock guard to prevent disc rotation while tightening bolts.

    IMPORTANT:

    Blades are rotation specific. Switch the entire disc when swapping spindles.

15. Position disc (A) on the spindle ensuring that it is positioned at a 90° angle in relation to the adjacent discs.

    NOTE:

    Turn disc (A) by hand to ensure its disc blades do not contact each other or adjacent discs.

16. Install cutterbar disc cap (B) and secure the assembly with four M12 bolts and washers (C). Torque the bolts to 85 Nm (63 lbf·ft).

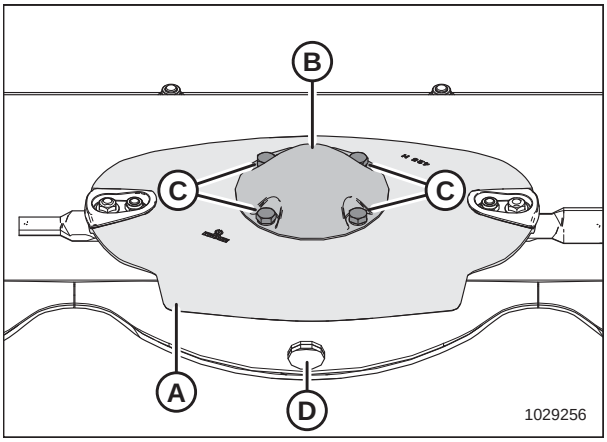


Figure 4.48: Cutterbar Disc and Cap

WARNING

Ensure the cutterbar is completely clear of foreign objects. Foreign objects can be ejected with considerable force when the machine is started and may result in serious injury or machine damage.

17. Remove the pin (or equivalent) from the front hole of the rock guard.

18. Close cutterbar curtain (A). For instructions, refer to *3.8.2 Closing Cutterbar Curtain, page 87*.

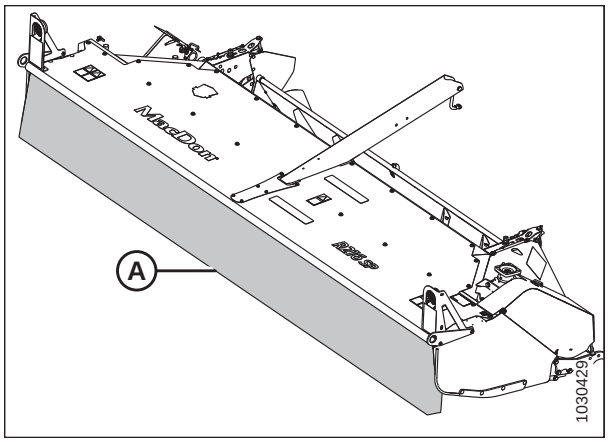


Figure 4.49: Cutterbar Curtain

4.6.4 Disc Blades

Each disc has two blades (A) attached at opposite ends that are free to rotate horizontally on a specially designed shoulder bolt.

Blade (A) has two cutting edges and can be flipped over so that the blade does not need replacing as often.

The blades are **NOT** repairable and must be replaced if severely worn or damaged.

IMPORTANT:

Always use factory replacement parts.

NOTE:

Discs are equipped with 18° bevel-down blades. For service parts, refer to the header parts catalog.

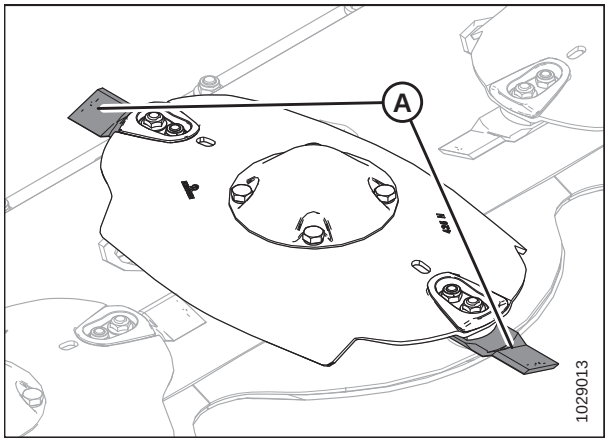


Figure 4.50: Disc Blades

Inspecting Disc Blades

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.

WARNING

Disc blades have two sharp cutting edges that can cause serious injury. Exercise caution and wear gloves when working with blades.

WARNING

Damaged or loose disc blades or blade attachment hardware can be ejected during machine operation and may cause personal injury or machine damage.

IMPORTANT:

Damaged blades may damage the cutterbar and result in poor cutting performance. Replace damaged blades immediately.

1. Place the header in a position where you can access the component that will be serviced.
2. Shut down the engine, and remove the key from the ignition.
3. If the header is fully raised, engage safety props. If the header is off the ground and not fully raised, place blocks under the header. Never work on or beneath an unsupported header. For instructions on engaging the safety props, refer to the procedure according to the type of windrower:
   - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
   - **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*
4. Check daily that the disc blades are securely attached to the disc.
5. Inspect blades for cracks, blade wear (A), and/or elongated holes (B) beyond safe operating limits (C).
6. Replace blades immediately when problems are noticed.

   IMPORTANT:

   Blades should be replaced in pairs or the disc may become unbalanced and damage the cutterbar.

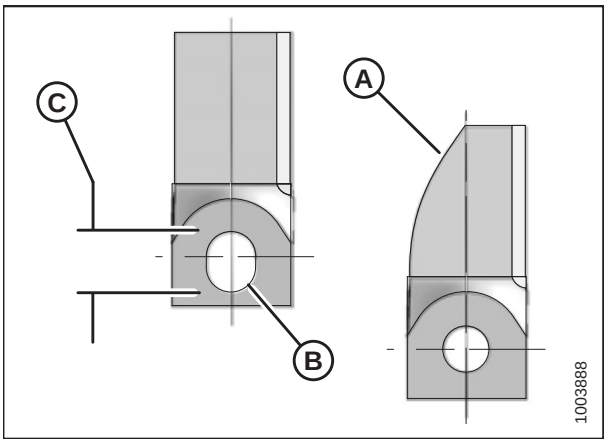


Figure 4.51: Disc Blades

A - Blade Wear to Center Line
B - Elongated Hole
C - Maximum Elongation 21 mm (13/16 in.)

IMPORTANT:

The disc blades have cutting edges on both sides so the blades can be turned over and reused. The twist in each blade determines the cutting direction. If you are unsure which direction the spindles rotate, refer to: *4.6.9 Reconfiguring Cutterbar Crop Stream, page 207* for instructions.

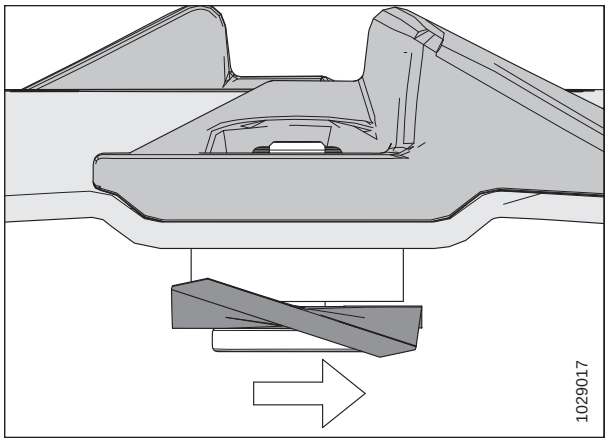


Figure 4.52: Counterclockwise Disc Rotation

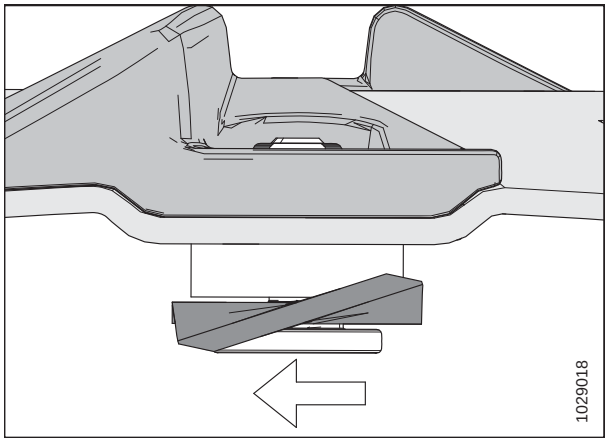


Figure 4.53: Clockwise Disc Rotation

Inspecting Disc Blade Hardware

WARNING

Damaged or loose disc blades or blade attachment hardware can be ejected during machine operation and may cause personal injury or machine damage.

Inspect the blade attachment hardware each time the blades are changed. Refer to *Removing Disc Blades, page 156* and *Installing Disc Blades, page 158* for the hardware replacement procedure.

1. Check and replace the bolt if:
   - Bolt has been removed and installed five times
   - Head (A) is worn flush with the bearing surface of the blade
   - Diameter of the bolt neck is worn (B) 3 mm (1/8 in.)

     NOTE:

     This can occur when disc speed is set too low in cane-type crops.
   - Bolt is cracked (C)
   - Bolt is visibly distorted (D)
   - Bolt shows evidence of interference (E) with adjacent parts

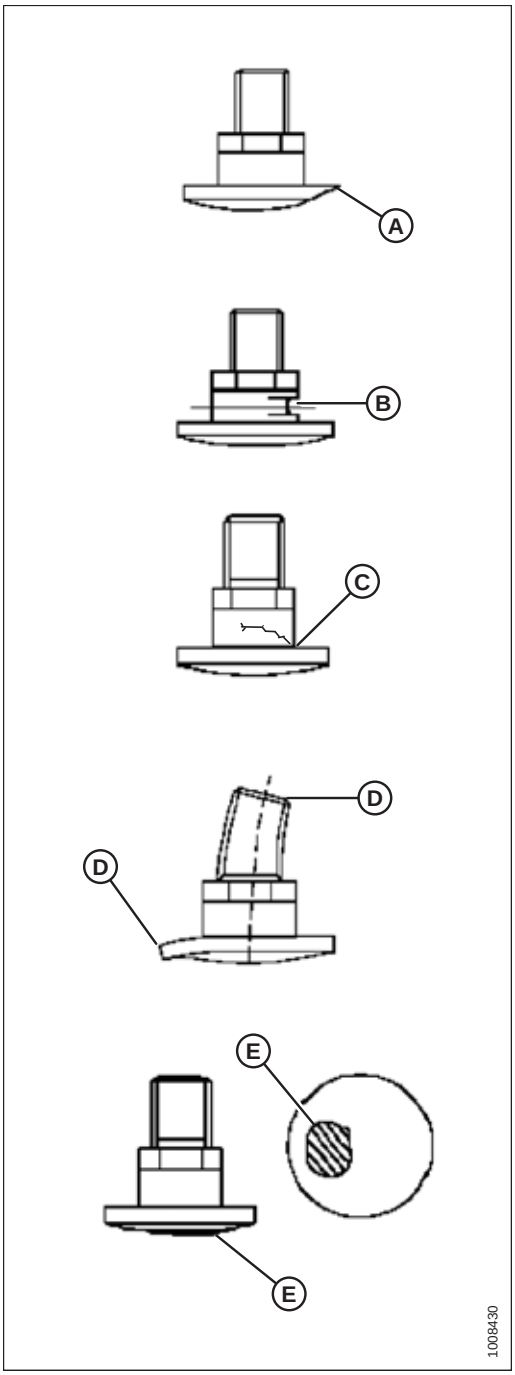


Figure 4.54: Disc Blade Bolts

2. Check and replace nuts under the following conditions:
   - Nut has been previously installed—nuts are one-time use only
   - Nut shows signs of wear (A) that is more than half the original height (B)
   - Nut is cracked

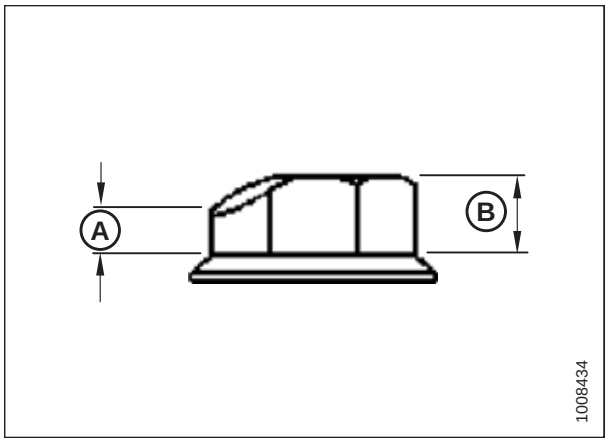


Figure 4.55: Disc Blade Nut

Removing Disc Blades

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.

WARNING

Disc blades have two sharp cutting edges that can cause serious injury. Exercise caution and wear gloves when working with blades.

1. Place the header in a position where you can access the component that will be serviced.
2. Shut down the engine, and remove the key from the ignition.
3. If the header is fully raised, engage safety props. If the header is off the ground and not fully raised, place blocks under the header. Never work on or beneath an unsupported header. For instructions on engaging the safety props, refer to the procedure according to the type of windrower:
   - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
   - **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*
4. Open cutterbar curtain (A). For instructions, refer to *3.8.1 Opening Cutterbar Curtain, page 86*.

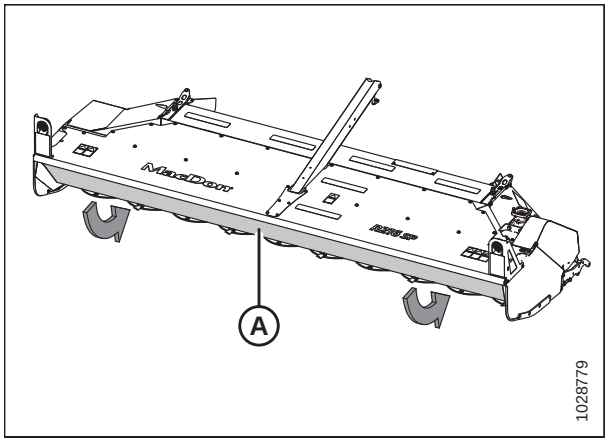


Figure 4.56: Cutterbar Curtain

5. Rotate disc (A) so blade (B) faces forward and lines up with hole (C) in rock guard.

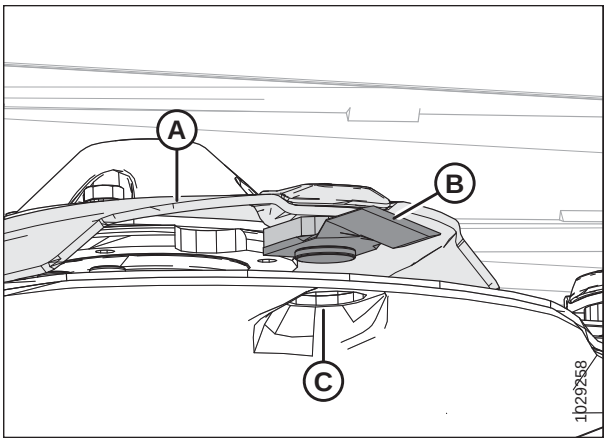


Figure 4.57: Disc Blade Aligned with Hole in Rock Guard

6. Place a pin (or equivalent) in the front hole of the neighboring rock guard to prevent disc rotation while loosening blade bolts.
7. Clean debris from the blade attachment area.
8. Remove nut (A) and discard.

   IMPORTANT:

   Nuts are one-time-use only. When flipping or changing a blade, replace using a **NEW** nut only.
9. Remove shoulder bolt (B) and blade (C).

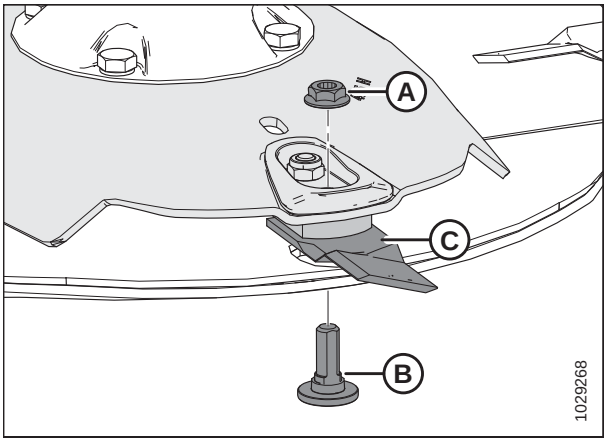


Figure 4.58: Disc Blade

Installing Disc Blades

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.

WARNING

Disc blades have two sharp cutting edges that can cause serious injury. Exercise caution and wear gloves when working with blades.

IMPORTANT:

If you are unsure which direction the spindles rotate, refer to *4.6.9 Reconfiguring Cutterbar Crop Stream, page 207*.

1. Place the header in a position where you can access the component that will be serviced.
2. Shut down the engine, and remove the key from the ignition.
3. If the header is fully raised, engage safety props. If the header is off the ground and not fully raised, place blocks under the header. Never work on or beneath an unsupported header. For instructions on engaging the safety props, refer to the procedure according to the type of windrower:
   - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
   - **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*
4. Place a pin (or equivalent) in the front hole of the rock guard to prevent disc rotation while tightening blade bolts.
5. Install a new or reversed blade (A) with shoulder bolt (B) onto disc (C).

   IMPORTANT:

   Nuts are one-time-use only. When flipping or changing a blade, replace using a **NEW** nut only.
6. Install new nut (D) and torque to 125 Nm (92 lbf·ft).
7. Remove pin (or equivalent) from the front hole of the rock guard.

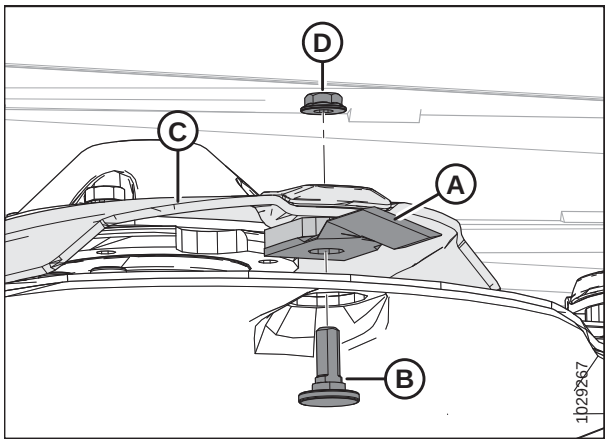


Figure 4.59: Disc Blade

WARNING

Ensure the cutterbar is completely clear of foreign objects.
Foreign objects can be ejected with considerable force when the machine is started and may result in serious injury or machine damage.

8. Close cutterbar curtain (A). For instructions, refer to *3.8.2 Closing Cutterbar Curtain, page 87*.

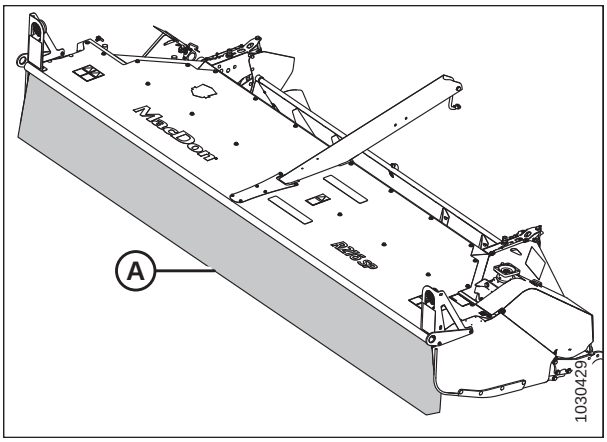


Figure 4.60: Cutterbar Curtain

4.6.5 Accelerators

Accelerators are mounted on each outboard disc and are designed to quickly move cut material off the disc and into the conditioner.

R216 Rotary Disc Headers have two pairs of accelerators (A) on the two pairs of outboard discs.

Periodically inspect accelerators for damage and loose or missing fasteners, and replace as necessary.

IMPORTANT:

Always replace accelerators in pairs to ensure proper disc balance.

NOTE:

The illustration at right shows the left side of the header. The right side is opposite.

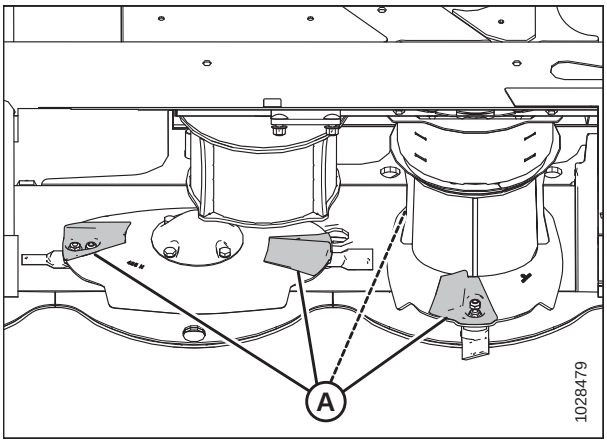


Figure 4.61: Accelerators

Inspecting Accelerators

Accelerators should be inspected regularly to ensure that they are in good condition and can effectively move crop off the disc and into the conditioner.

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.

WARNING

Disc blades have two sharp cutting edges that can cause serious injury. Exercise caution and wear gloves when working with blades.

To inspect accelerators, follow these steps:

1. Place the header in a position where you can access the component that will be serviced.
2. Shut down the engine, and remove the key from the ignition.
3. If the header is fully raised, engage safety props. If the header is off the ground and not fully raised, place blocks under the header. Never work on or beneath an unsupported header. For instructions on engaging the safety props, refer to the procedure according to the type of windrower:
   - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
   - **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*
4. Open the cutterbar curtain (A). For instructions, refer to *3.8.1 Opening Cutterbar Curtain, page 86*.

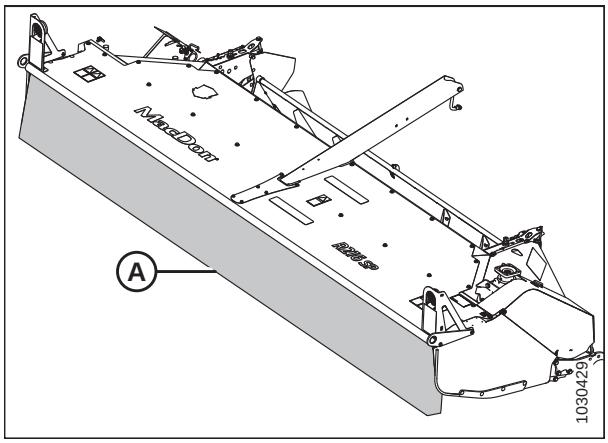


Figure 4.62: Cutterbar Curtain

5. Inspect accelerators (A) for damage and wear, and replace if worn to 50% or more of their original height or if they are no longer effectively moving crop.
6. Tighten or replace any loose or missing fasteners.

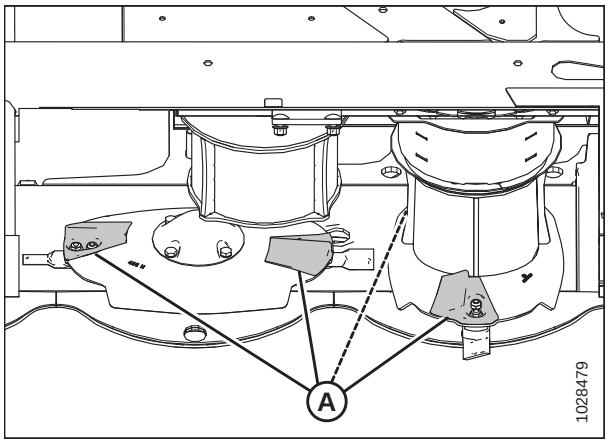


Figure 4.63: Accelerators – Left Side of Header Shown, Right Side Opposite

Removing Accelerators

Accelerators need to be removed from cutterbar discs when they are damaged or so worn that they can no longer effectively move crop from the discs to the conditioner.

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.

WARNING

Disc blades have two sharp cutting edges that can cause serious injury. Exercise caution and wear gloves when working with blades.

IMPORTANT:

Always replace accelerators in pairs to ensure proper disc balance.

To remove accelerators, follow these steps:

1. Place the header in a position where you can access the component that will be serviced.
2. Shut down the engine, and remove the key from the ignition.
3. If the header is fully raised, engage safety props. If the header is off the ground and not fully raised, place blocks under the header. Never work on or beneath an unsupported header. For instructions on engaging the safety props, refer to the procedure according to the type of windrower:
   - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
   - **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*
4. Open cutterbar curtain (A). For instructions, refer to *3.8.1 Opening Cutterbar Curtain, page 86*.

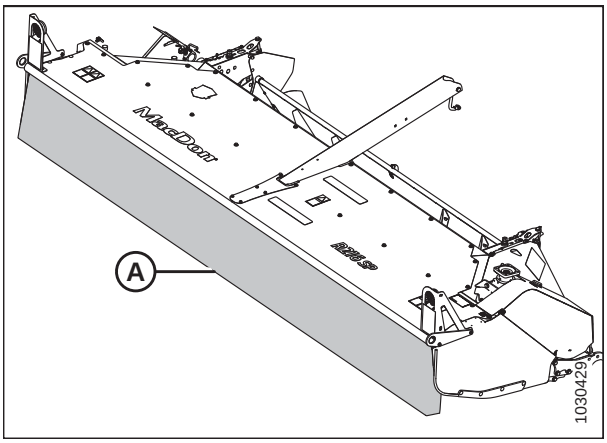


Figure 4.64: Cutterbar Curtain

5. Place a pin (or equivalent) in the front hole of the rock guard to prevent disc rotation while loosening bolts.
6. Line up the hole in the rock guard with the bolt to be removed.
7. Remove nut (A), flange bolt (B), and disc blade (C) from the disc. Discard the nut.

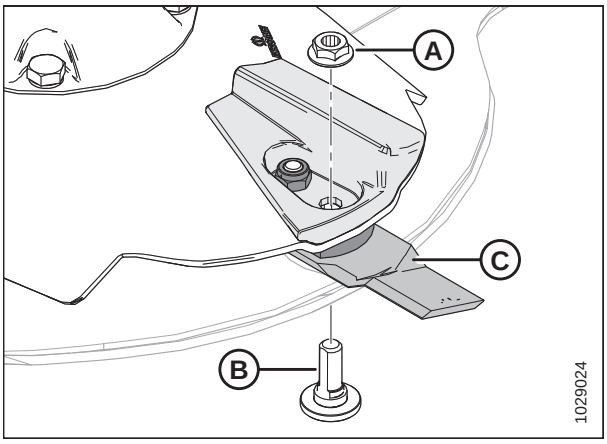


Figure 4.65: Accelerator Removal

8. Remove lock nut (A), accelerator (B), blade holder (C), and hex-socket bolt (D).
9. Repeat Step *5, page 161* to Step *8, page 162* for the second accelerator.
10. Remove the pin.

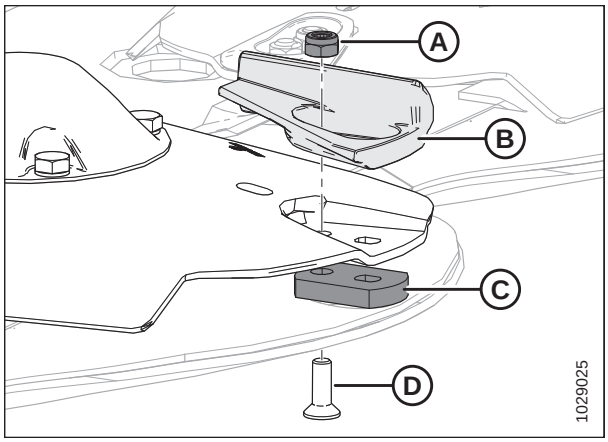


Figure 4.66: Accelerator Removal

Installing Accelerators

A new pair of accelerators should be installed on a cutterbar disc whenever the old ones are damaged or so worn that they can no longer effectively move crop off the disc and into the conditioner.

To install accelerators, follow these steps:

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.

WARNING

Disc blades have two sharp cutting edges that can cause serious injury. Exercise caution and wear gloves when working with blades.

IMPORTANT:

Always replace accelerators in pairs to ensure proper disc balance.

1. Place the header in a position where you can access the component that will be serviced.
2. Shut down the engine, and remove the key from the ignition.
3. If the header is fully raised, engage safety props. If the header is off the ground and not fully raised, place blocks under the header. Never work on or beneath an unsupported header. For instructions on engaging the safety props, refer to the procedure according to the type of windrower:
   - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
   - **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*
4. Open the cutterbar curtain. For instructions, refer to *3.8.1 Opening Cutterbar Curtain, page 86*.
5. Place a pin (or equivalent) in the front hole of the neighboring rock guard to prevent disc rotation while tightening blade bolts.

   IMPORTANT:

   Accelerators are unidirectional; both clockwise and counterclockwise accelerators are used on the cutterbar. Verify the direction of the disc before installing accelerators. If you are unsure which direction the spindle rotates, refer to *4.6.3 Cutterbar Spindles, page 143*.
6. Install lock nut (A), accelerator (B), blade holder (C), and hex-socket bolt (D). Do **NOT** tighten at this time.

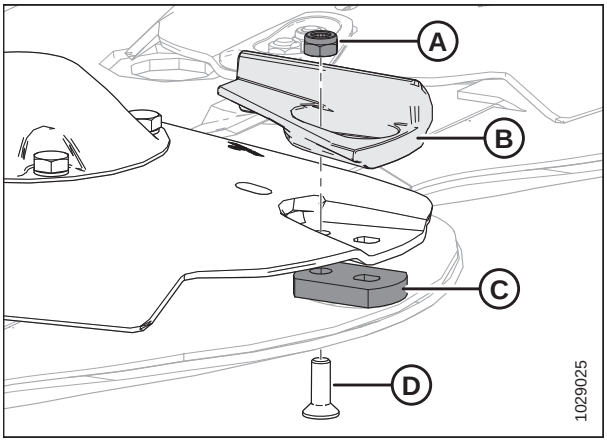


Figure 4.67: Accelerator Installation

7. Install new nut (A), flange bolt (B), and disc blade (C) onto the disc.

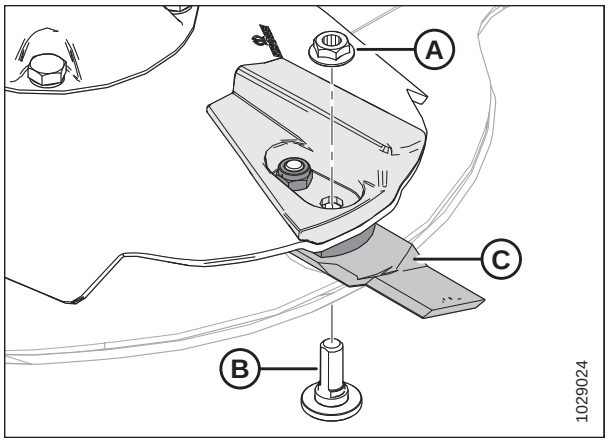


Figure 4.68: Accelerator Installation

8. Torque interior nut (A) to 58 Nm (43 lbf·ft).
9. Torque exterior nut (B) (closest to the blade) to 125 Nm (92 lbf·ft).
10. Repeat the installation procedure for the second accelerator.

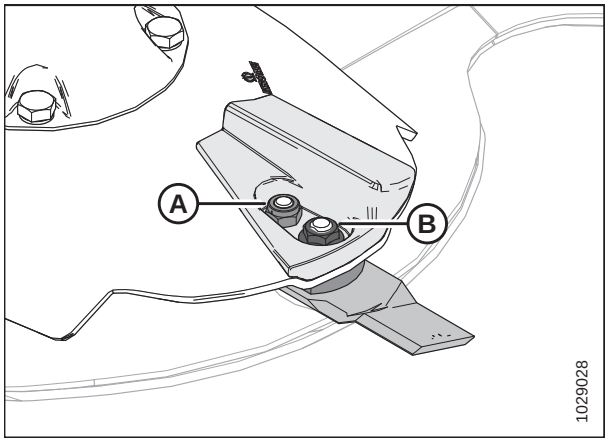


Figure 4.69: Accelerator Installation

WARNING

Ensure the cutterbar is completely clear of foreign objects. Foreign objects can be ejected with considerable force when the machine is started and may result in serious injury or machine damage.

11. Remove the pin (or equivalent) installed in Step *5, page 163*.
12. Close cutterbar curtain (A). For instructions, refer to *3.8.2 Closing Cutterbar Curtain, page 87*.

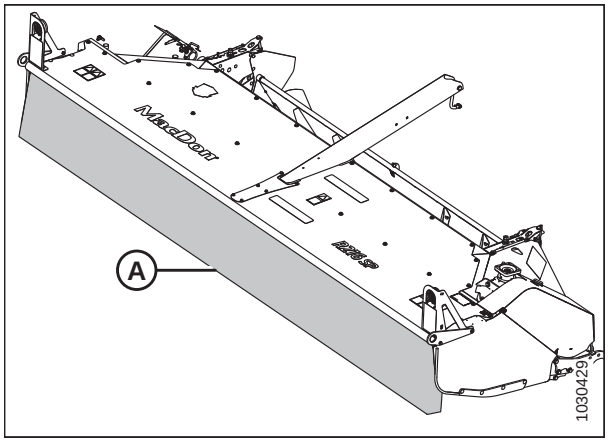


Figure 4.70: Cutterbar Curtain

4.6.6 Rock Guards

The machine is equipped with rock guards at each cutting disc location. Rock guards prevent the cutterbar from digging into the ground and protect the disc from coming in contact with stones and other debris. Periodically inspect rock guards for damage and replace as necessary.

Inspecting Rock Guards

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.

WARNING

Exercise caution when working around the blades. Blades are sharp and can cause serious injury. Wear gloves when handling blades.

1. Place the header in a position where you can access the component that will be serviced.
2. Shut down the engine, and remove the key from the ignition.
3. If the header is fully raised, engage safety props. If the header is off the ground and not fully raised, place blocks under the header. Never work on or beneath an unsupported header. For instructions on engaging the safety props, refer to the procedure according to the type of windrower:
   - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
   - **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*
4. Inspect rock guards for wear, cracks, damage, or distortion. Replace if worn to 75% or less of their original thickness.
5. Check for loose or missing fasteners; tighten or replace fasteners as needed.

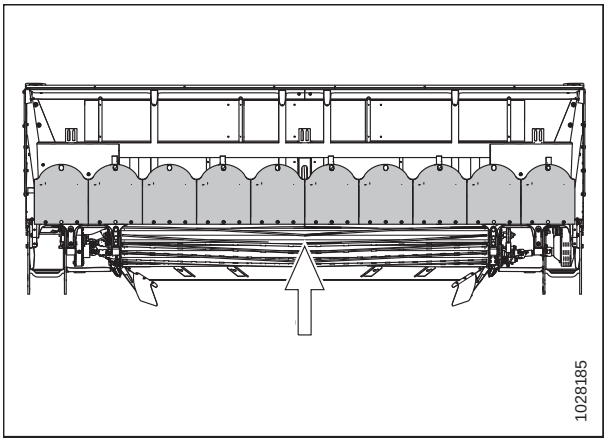


Figure 4.71: Rock Guards

Removing Rock Guards

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.

1. Place the header in a position where you can access the component that will be serviced.
2. Shut down the engine, and remove the key from the ignition.

3. If the header is fully raised, engage safety props. If the header is off the ground and not fully raised, place blocks under the header. Never work on or beneath an unsupported header. For instructions on engaging the safety props, refer to the procedure according to the type of windrower:
   - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
   - **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*
4. Remove two hex head screws, washers, and lock nuts (A).

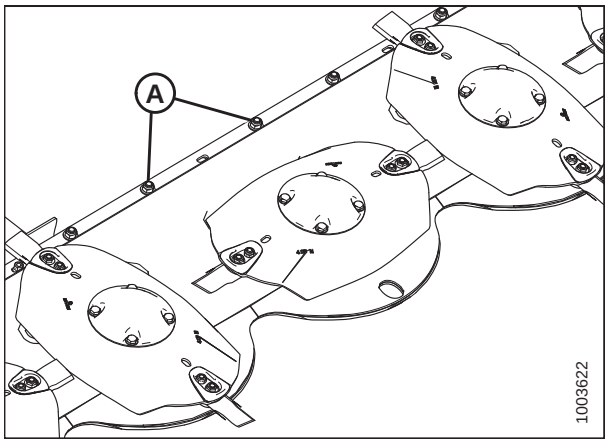


Figure 4.72: Rock Guards

5. Slide rock guard (A) forward (in the direction of arrow [B]) and remove.

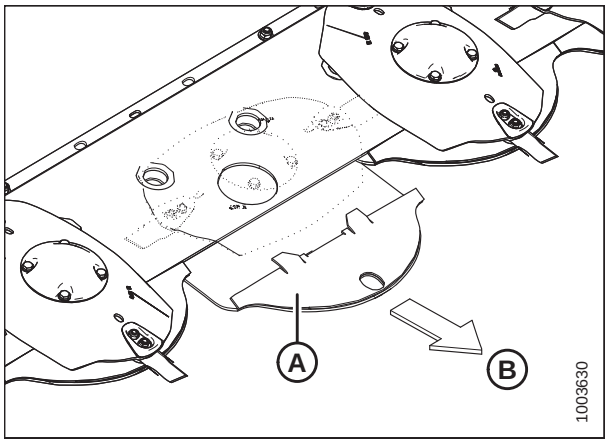


Figure 4.73: Rock Guards

Installing Rock Guards

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.

1. Place the header in a position where you can access the component that will be serviced.
2. Shut down the engine, and remove the key from the ignition.
3. If the header is fully raised, engage safety props. If the header is off the ground and not fully raised, place blocks under the header. Never work on or beneath an unsupported header. For instructions on engaging the safety props, refer to the procedure according to the type of windrower:
   - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*

- **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*

4. Guide the rock guard onto the cutterbar until tabs (A) sit on top of the cutterbar and the bottom back bolt holes line up.

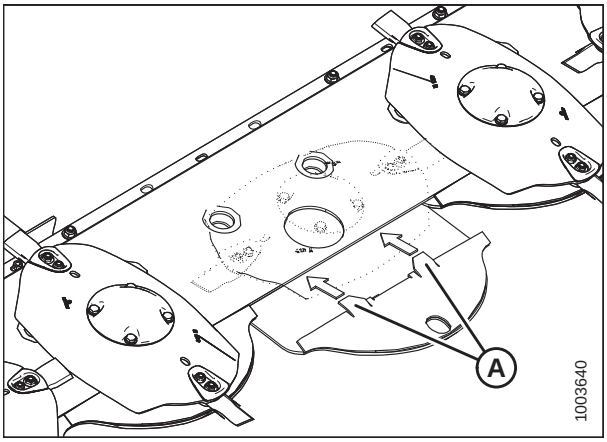


Figure 4.74: Rock Guards

5. Center the rock guard if there are gaps on either side, and install two hex head screws, washers, and lock nuts (A).

   NOTE:

   Lock nuts (A) and washers are installed on top.

6. Torque hardware to 68 Nm (50 lbf·ft).

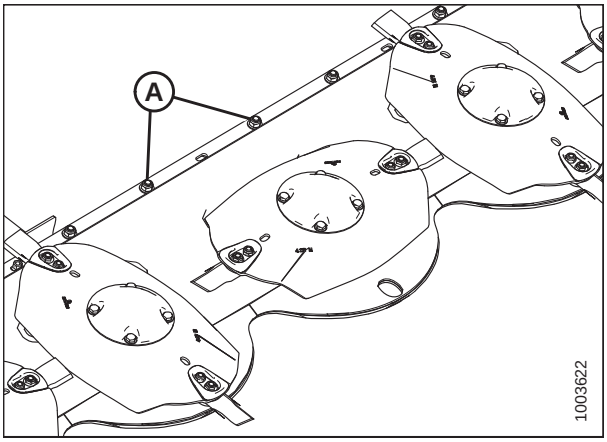


Figure 4.75: Rock Guards

4.6.7 Drums

Suspended and driven drums deliver cut material from the ends of the cutterbar and help maintain an even crop flow into the conditioner.

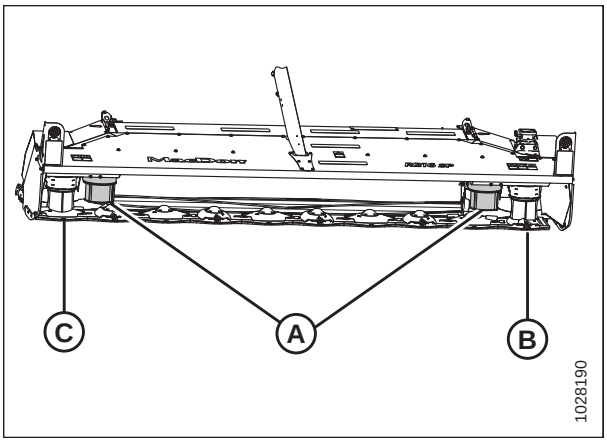


Figure 4.76: Driven and Suspended Drums

A - Suspended Drums

B - Left Driven Drum

C - Right Driven Drum

Inspecting Drums

Inspect drums daily for signs of damage or wear.

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.

WARNING

Disc blades have two sharp cutting edges that can cause serious injury. Exercise caution and wear gloves when working with blades.

1. Place the header in a position where you can access the component that will be serviced.
2. Shut down the engine, and remove the key from the ignition.
3. If the header is fully raised, engage safety props. If the header is off the ground and not fully raised, place blocks under the header. Never work on or beneath an unsupported header. For instructions on engaging the safety props, refer to the procedure according to the type of windrower:
   - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
   - **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*
4. Open cutterbar curtain (A). For instructions, refer to *3.8.1 Opening Cutterbar Curtain, page 86*.

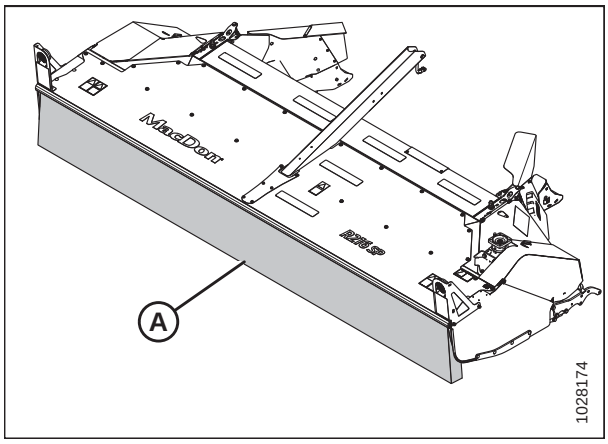


Figure 4.77: Cutterbar Curtain

5. Inspect drums (A), (B), and (C) for damage and wear, and replace if the drums are worn at the center to 50% or more of their original thickness. Do **NOT** repair drums.
6. Examine the drums for large dents. Replace dented drums to prevent an imbalance in the cutterbar.
7. Tighten or replace loose or missing fasteners.

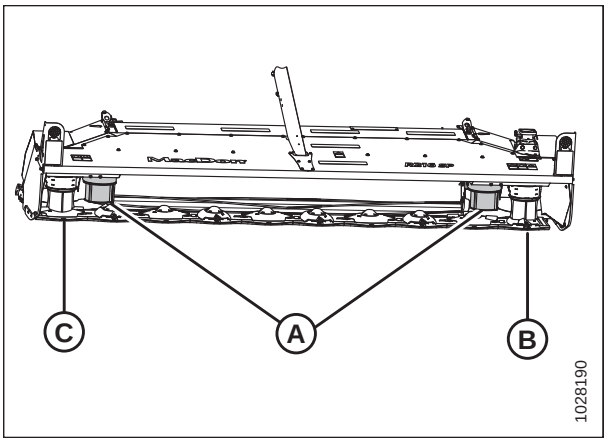


Figure 4.78: Driven and Suspended Drums

A - Suspended Drums

B - Left Driven Drum

C - Right Driven Drum

8. Inspect the left and right driven drums for severe deformation. If the drum is deformed, dimension (A) must **NOT** exceed 48 mm (1 7/8 in.). Replace as required.

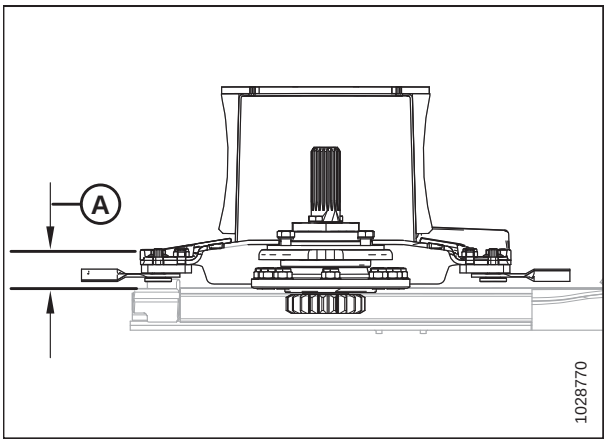


Figure 4.79: Driven Drum – Cutaway View

9. Inspect the left and right driven drums for abrasion (A). The wear limit for abrasion is reached when the material thickness of the drums is less than 3 mm (1/8 in.). Replace as required.

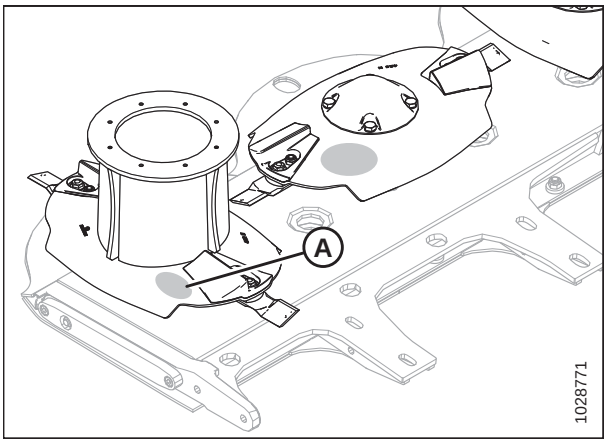


Figure 4.80: Driven Drum – View from Above

WARNING

Ensure the cutterbar is completely clear of foreign objects. Foreign objects can be ejected with considerable force when the machine is started and may result in serious injury or machine damage.

10. Close cutterbar curtain (A). For instructions, refer to *3.8.2 Closing Cutterbar Curtain, page 87*.

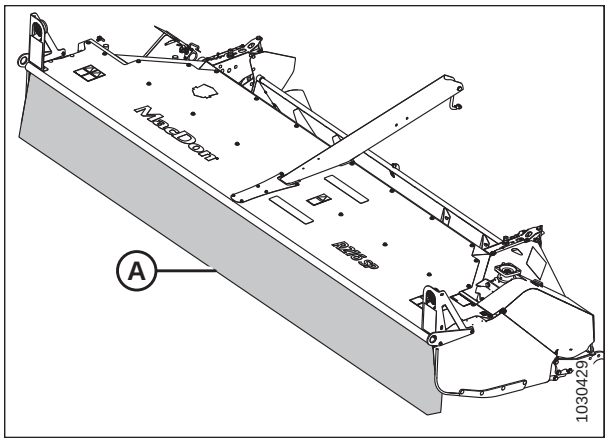


Figure 4.81: Cutterbar Curtain

Removing Suspended Drums

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.

WARNING

Exercise caution when working around the blades. Blades are sharp and can cause serious injury. Wear gloves when handling blades.

NOTE:

Illustrations show right suspended drum, left suspended drum is opposite.

1. Place the header in a position where you can access the component that will be serviced.
2. Shut down the engine, and remove the key from the ignition.
3. If the header is fully raised, engage safety props. If the header is off the ground and not fully raised, place blocks under the header. Never work on or beneath an unsupported header. For instructions on engaging the safety props, refer to the procedure according to the type of windrower:
   - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
   - **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*
4. Open cutterbar curtain (A). For instructions, refer to *3.8.1 Opening Cutterbar Curtain, page 86*.

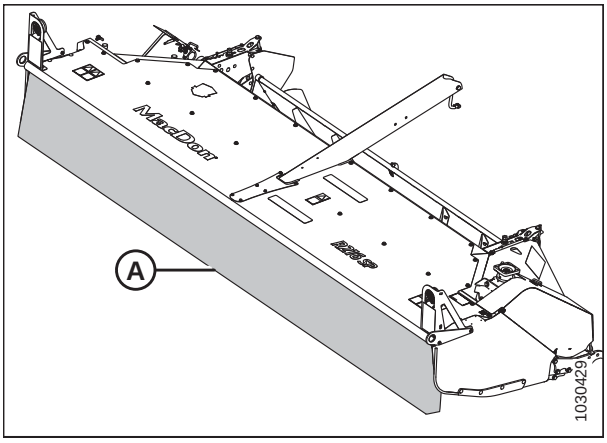


Figure 4.82: Cutterbar Curtain

5. Loosen two M10 hex flange head bolts (A). Remove driveline shield (B).

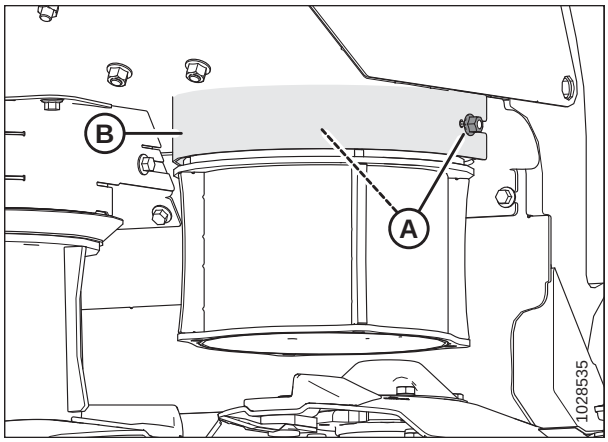


Figure 4.83: Driveline Shield

6. Remove four M12 hex flange head bolts (A) securing suspended drum (B) to shaft (C), and remove suspended drum (B).

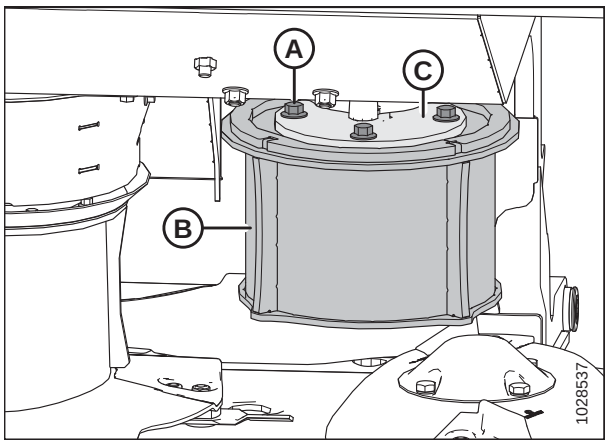


Figure 4.84: Suspended Drum

7. Remove two M10 hex flange head bolts (A) and remove driveline shield (B).
8. Repeat Step *5, page 172* to Step *7, page 172* to remove the opposite suspended drum.

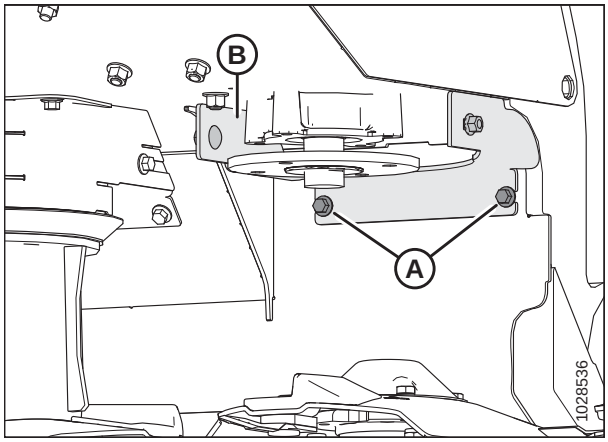


Figure 4.85: Driveline Shield

Installing Suspended Drums

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.

WARNING

Exercise caution when working around the blades. Blades are sharp and can cause serious injury. Wear gloves when handling blades.

NOTE:

Illustrations show the right suspended drum, the left suspended drum is opposite.

1. Place the header in a position where you can access the component that will be serviced.
2. Shut down the engine, and remove the key from the ignition.
3. If the header is fully raised, engage safety props. If the header is off the ground and not fully raised, place blocks under the header. Never work on or beneath an unsupported header. For instructions on engaging the safety props, refer to the procedure according to the type of windrower:
   - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
   - **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*
4. Open the cutterbar curtain. For instructions, refer to *3.8.1 Opening Cutterbar Curtain, page 86*.
5. Position suspended drum (B) to shaft (C) as shown.
6. Apply a bead of medium-strength threadlocker (Loctite® 243 or equivalent) around the threads of four M12 hex flange head bolts (A). Use the bolts to secure suspended drum to shaft, and torque to 100 Nm (74 lbf·ft).

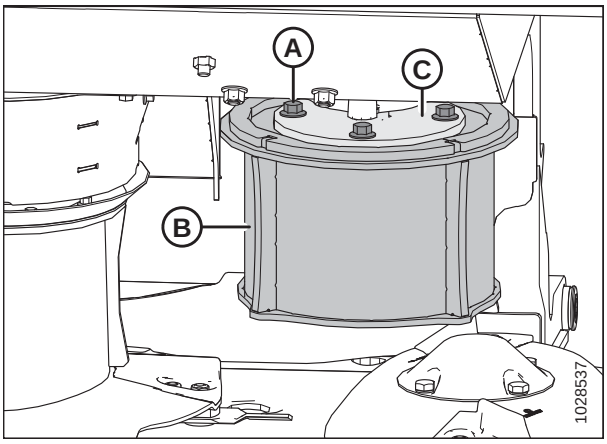


Figure 4.86: Suspended Drum

7. Position driveline shield (B) as shown. Use two M10 hex flange head bolts (A) to secure driveline shield (B) in place.
8. Repeat Step *5, page 173* to Step *7, page 174* to install the opposite suspended drum.

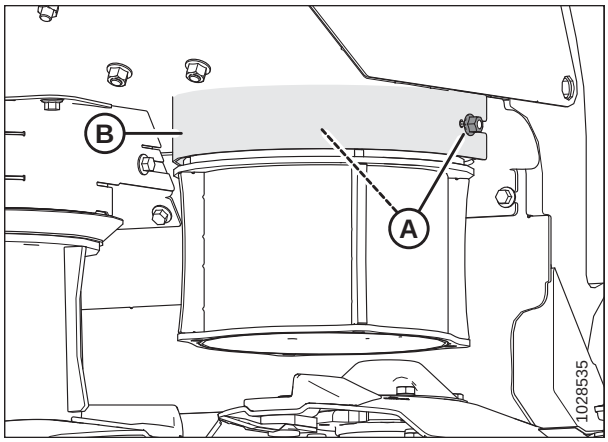


Figure 4.87: Driveline Shield

9. Close cutterbar curtain (A). For instructions, refer to *3.8.2 Closing Cutterbar Curtain, page 87*.

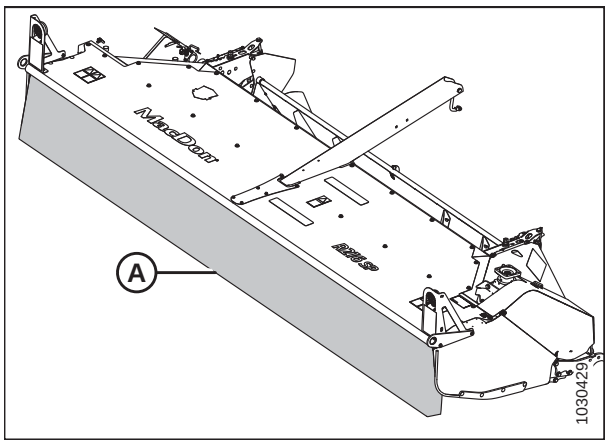


Figure 4.88: Cutterbar Curtain

Replacing Left Suspended Drum Drive Belt

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.

WARNING

Exercise caution when working around the blades. Blades are sharp and can cause serious injury. Wear gloves when handling blades.

1. Place the header in a position where you can access the component that will be serviced.
2. Shut down the engine, and remove the key from the ignition.
3. If the header is fully raised, engage safety props. If the header is off the ground and not fully raised, place blocks under the header. Never work on or beneath an unsupported header. For instructions on engaging the safety props, refer to the procedure according to the type of windrower:
   - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
   - **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*

4. Open cutterbar curtain (A). For instructions, refer to *3.8.1 Opening Cutterbar Curtain, page 86*.

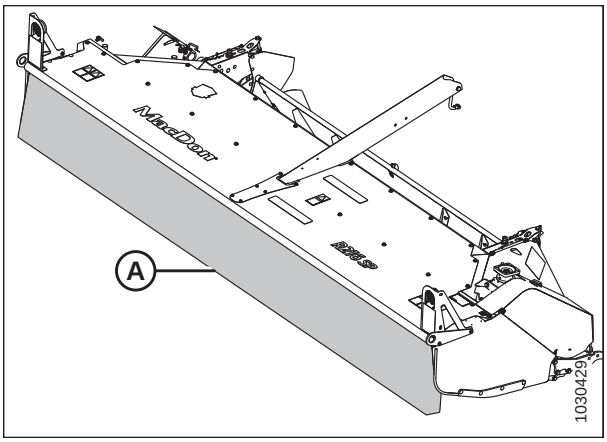


Figure 4.89: Cutterbar Curtain

Removing left suspended drive belt

5. On the left side of the header, remove two M10 hex flange bolts (A). Remove driveline shield (B).

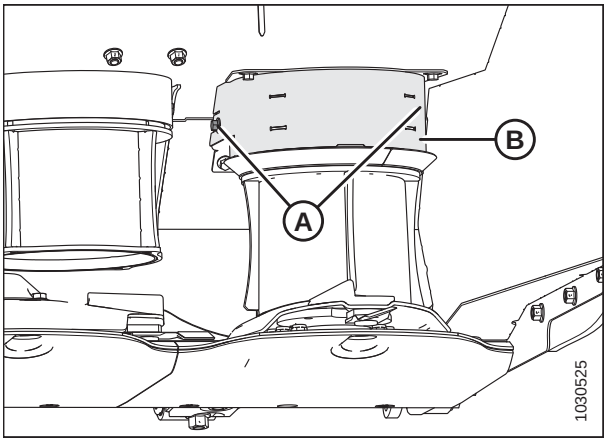


Figure 4.90: Left Driveline

6. Open left driveshield (A). For instructions, refer to *3.7.1 Opening Driveshields, page 82*.

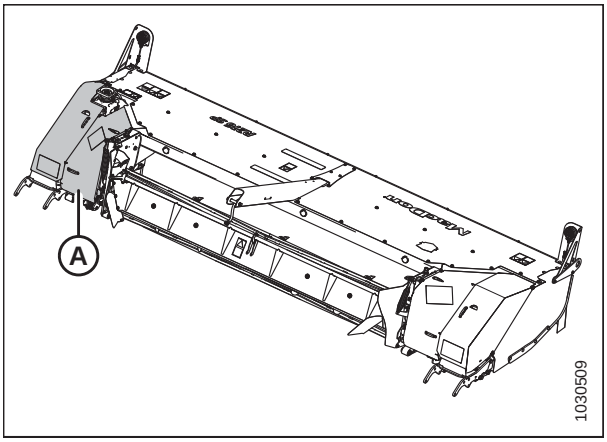


Figure 4.91: Left Driveshield

7. Loosen two bolts (A) at front.
8. Remove two bolts (B) and shield plate (C).
9. Remove four bolts (D) securing spindle spline to the gearbox hub.

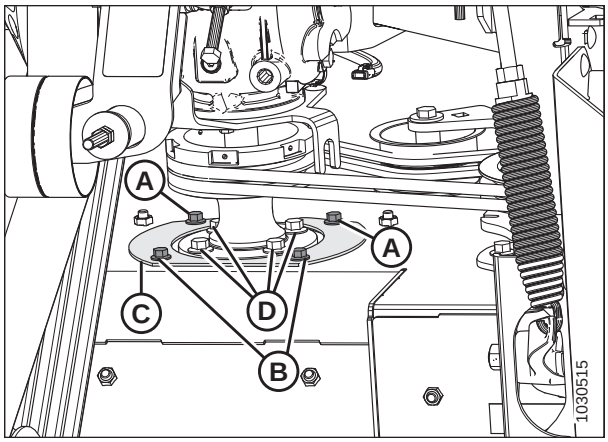


Figure 4.92: Gear Hub and Shield Plate

NOTE:

Removing the four bolts dismounts spindle spline (A) from the gearbox hub.

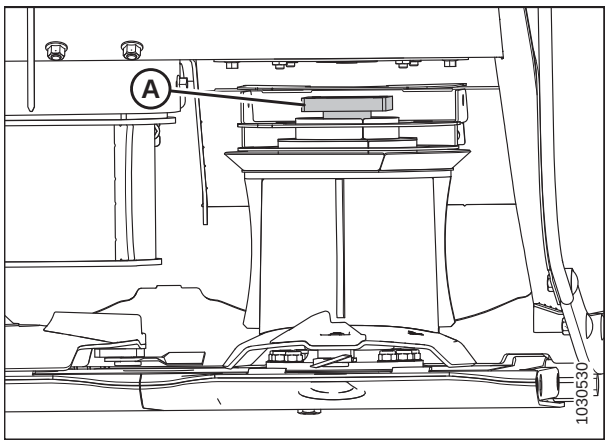


Figure 4.93: Left Driven Drum – Spindle Spline Dismounted

10. Using a ratchet, remove belt tension by rotating tensioner (A) clockwise.
11. Remove belt (B) from the pulley, and slide the belt through opening (C).
12. Remove the ratchet to release the tensioner.

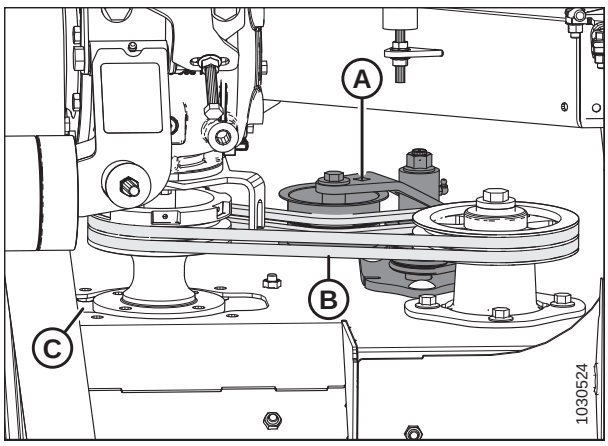


Figure 4.94: Left Drum Belts

Installing left suspended drive belt

13. Slide belt (A) through opening (B).
14. Using a ratchet, rotate tensioner (E) clockwise.
15. Position belt (A) on gearbox hub (D) and pulley (C) as shown.
16. Remove the ratchet to release tensioner (E).

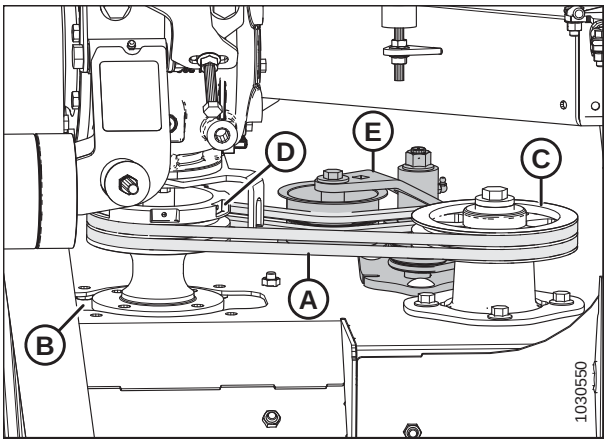


Figure 4.95: Left Drum Belts

17. Hold spindle spline (A) up and secure on gear hub (B) with four bolts (C).

    NOTE:

    Frame panel made transparent to show connection between spindle spline (A) and gear hub (B).

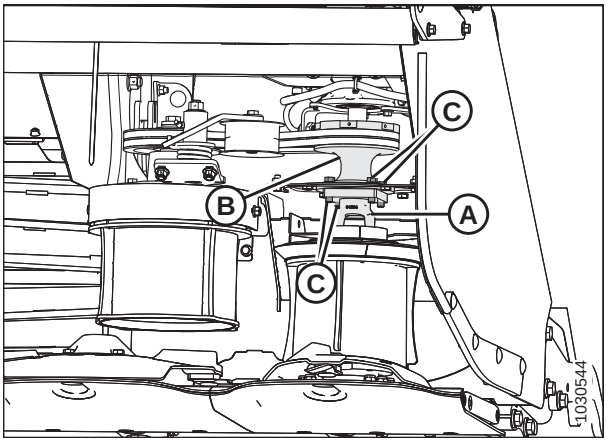


Figure 4.96: Left Driven Drum – Spindle Spline Dismounted

18. Slide shield plate (A) forward, and tighten two bolts (B).
19. Install and tighten two more bolts (C).

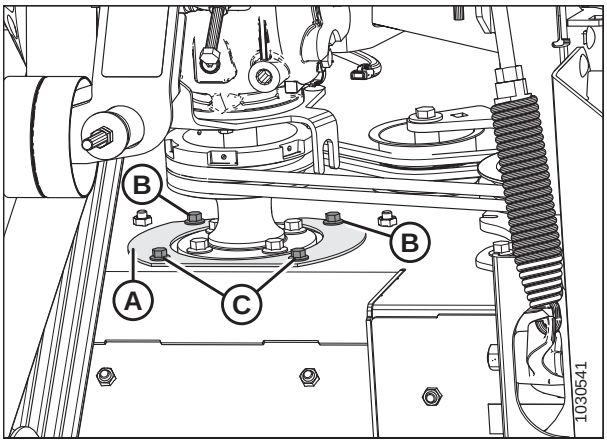


Figure 4.97: Gear Hub and Shield Plate

20. Close left driveshield (A). For instructions, refer to *3.7.2 Closing Driveshields, page 84*.

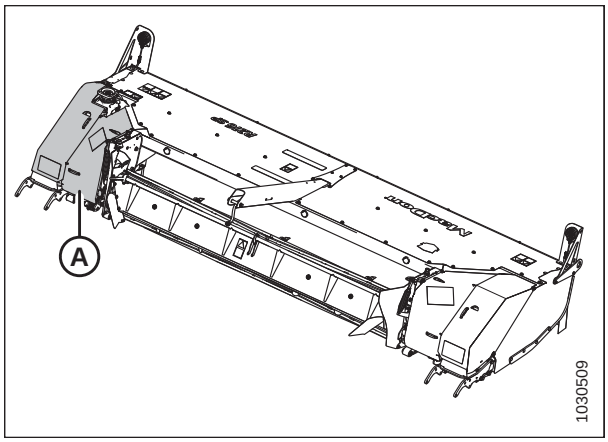


Figure 4.98: Left Driveshield

21. Install driveline shield (B) using two bolts (A).

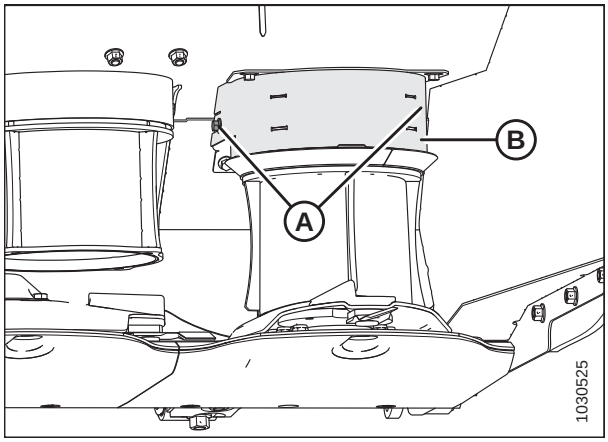


Figure 4.99: Left Driveline

22. Close cutterbar curtain (A). For instructions, refer to *3.8.2 Closing Cutterbar Curtain, page 87*.
23. Disengage the windrower safety props. For instructions, refer to the procedure according to the type of windrower:
    - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
    - **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*

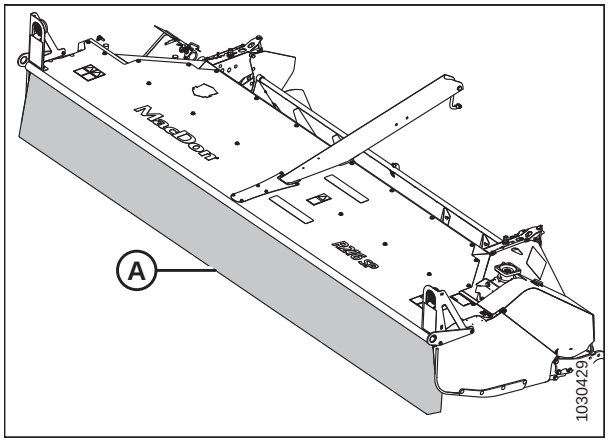


Figure 4.100: Cutterbar Curtain

Replacing Right Suspended Drum Drive Belt

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.

WARNING

Exercise caution when working around the blades. Blades are sharp and can cause serious injury. Wear gloves when handling blades.

1. Place the header in a position where you can access the component that will be serviced.
2. Shut down the engine, and remove the key from the ignition.
3. If the header is fully raised, engage safety props. If the header is off the ground and not fully raised, place blocks under the header. Never work on or beneath an unsupported header. For instructions on engaging the safety props, refer to the procedure according to the type of windrower:
   - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
   - **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*

Removing right suspended drive belt

4. Open right driveshield (A). For instructions, refer to *3.7.1 Opening Driveshields, page 82*.

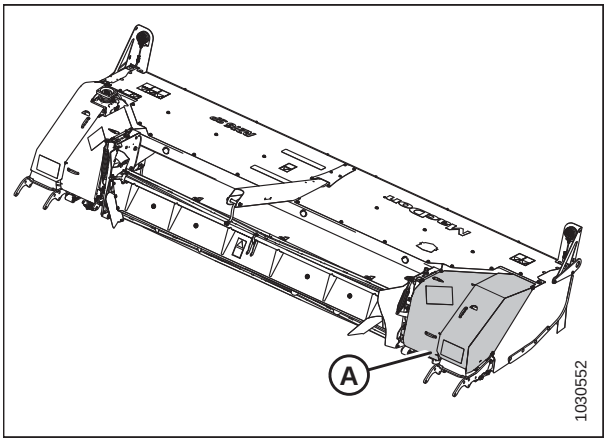


Figure 4.101: Right Driveshield

5. Using a ratchet, release belt tension by rotating counterclockwise on tensioner (A).
6. Remove belt (B) from the pulleys.

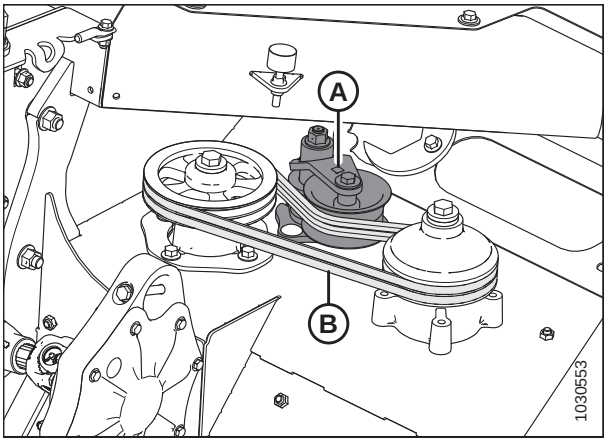


Figure 4.102: Right Drum Belts

Installing right suspended drive belt

7. Using a ratchet, rotate tensioner (A) counterclockwise to move it away from the pulleys.
8. Slide belt (B) on pulleys as shown.
9. Remove ratchet from tensioner to release tensioner.

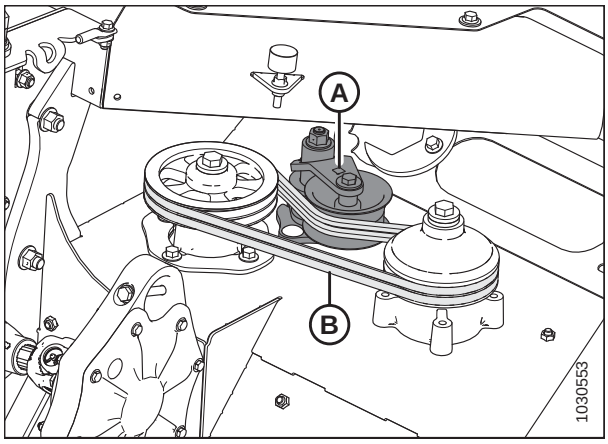


Figure 4.103: Right Drum Belts

10. Close right driveshield (A). For instructions, refer to *3.7.2 Closing Driveshields, page 84*.
11. Disengage the windrower safety props. For instructions, refer to the procedure according to the type of windrower:
    - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
    - **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*

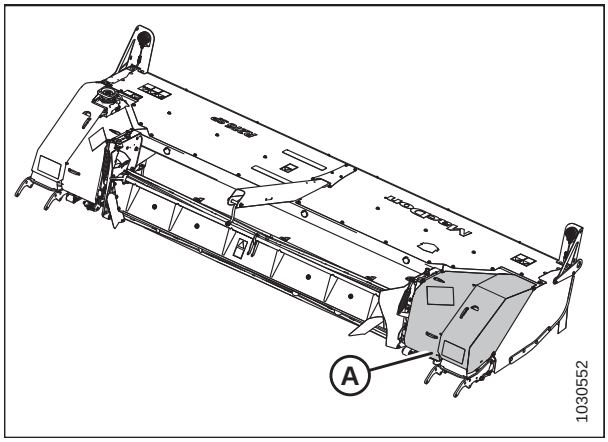


Figure 4.104: Right Driveshield

Removing Left Driven Drum and Driveline

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.

WARNING

Exercise caution when working around the blades. Blades are sharp and can cause serious injury. Wear gloves when handling blades.

1. Place the header in a position where you can access the component that will be serviced.
2. Shut down the engine, and remove the key from the ignition.
3. If the header is fully raised, engage safety props. If the header is off the ground and not fully raised, place blocks under the header. Never work on or beneath an unsupported header. For instructions on engaging the safety props, refer to the procedure according to the type of windrower:
    - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*

- **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*

4. Open cutterbar curtain (A). For instructions, refer to *3.8.1 Opening Cutterbar Curtain, page 86*.

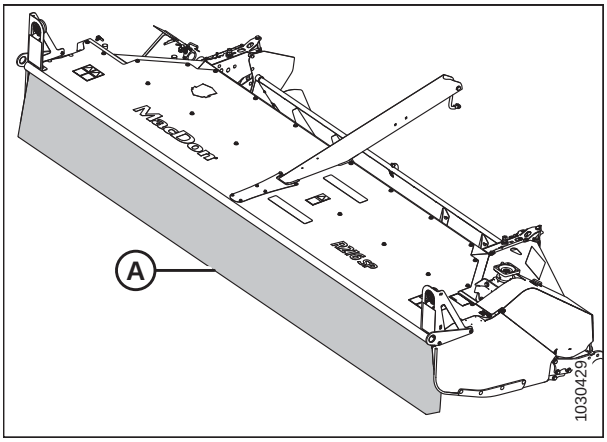


Figure 4.105: Cutterbar Curtain

5. Remove four M10 hex flange head bolts (A) and loosen two M10 hex flange head bolts (B). Remove driveline shield (C).

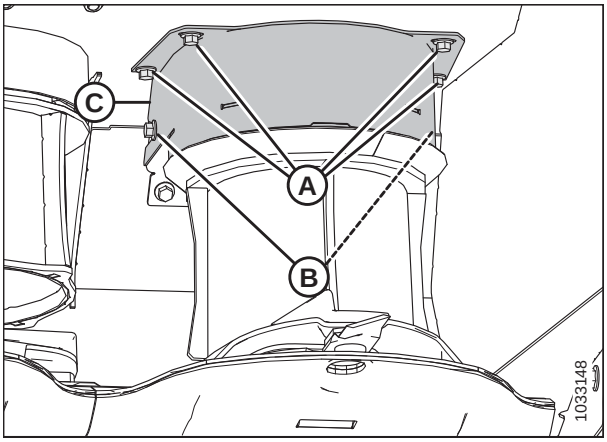


Figure 4.106: Driveline Shield

6. Remove eight M8 hex flange head bolts (A) and two drum shields (B).

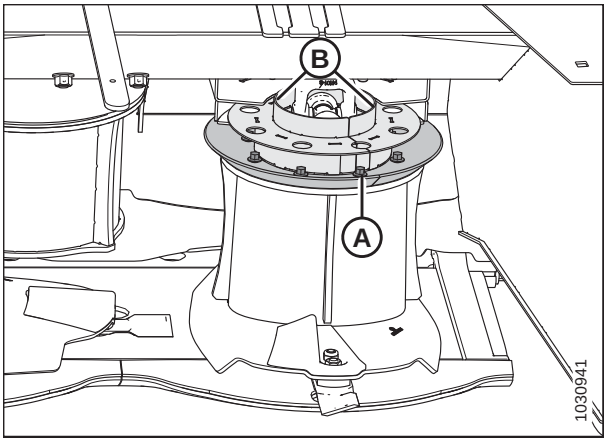


Figure 4.107: Driveline Shields

7. Remove two M10 hex flange head bolts (A) and remove driveline shield (B).

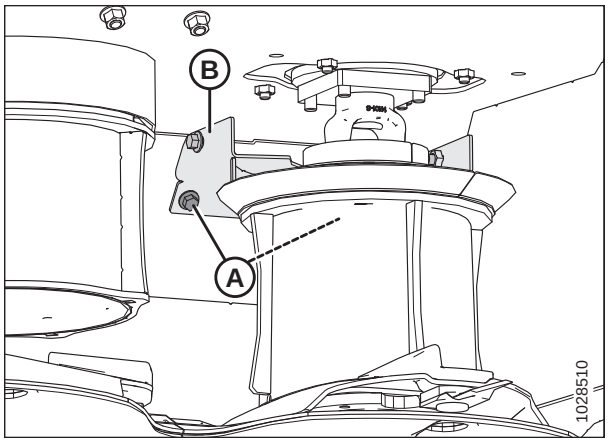


Figure 4.108: Driveline Shield

8. Remove four M12 hex flange head bolts (A) securing driveline assembly (B) to hub drive (C).

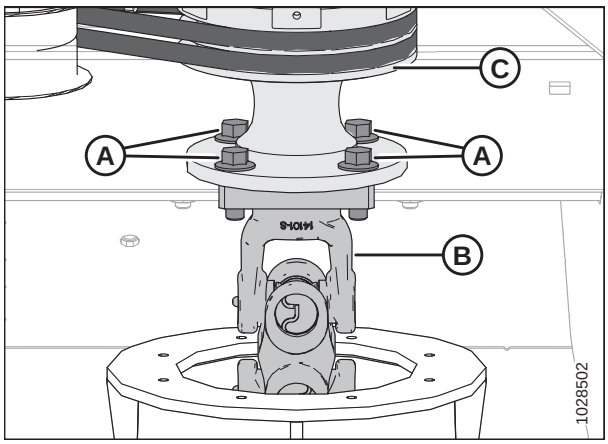


Figure 4.109: Driveline

9. Slide driveline (A) downwards, tilt it to the side, and pull the driveline up and out of the drum.

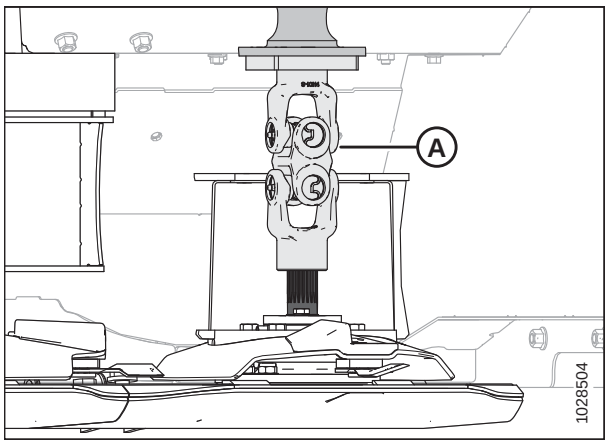


Figure 4.110: Drum and Tube Shield – Cutaway View

10. Use an 18 mm deep socket and an extension to remove four M12 bolts (A) and washers holding drum disc assembly (B) in place.
11. Remove drum disc assembly (B).

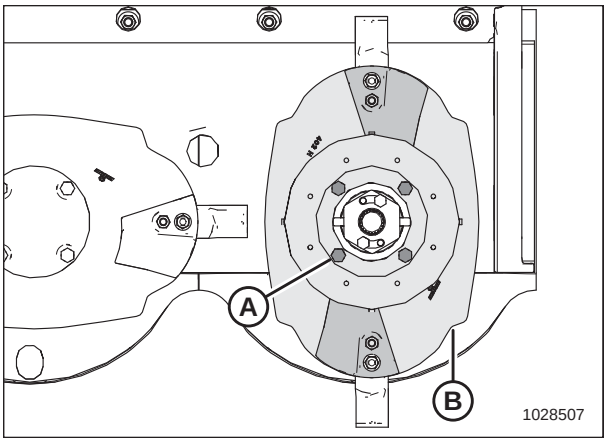


Figure 4.111: Driven Drum – View from Above

Installing Left Driven Drum and Driveline

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.

WARNING

Exercise caution when working around the blades. Blades are sharp and can cause serious injury. Wear gloves when handling blades.

1. Place the header in a position where you can access the component that will be serviced.
2. Shut down the engine, and remove the key from the ignition.
3. If the header is fully raised, engage safety props. If the header is off the ground and not fully raised, place blocks under the header. Never work on or beneath an unsupported header. For instructions on engaging the safety props, refer to the procedure according to the type of windrower:
   - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
   - **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*
4. Ensure spacer (A) is on the spindle.
5. Apply an anti-seize compound to spindle splines (B).

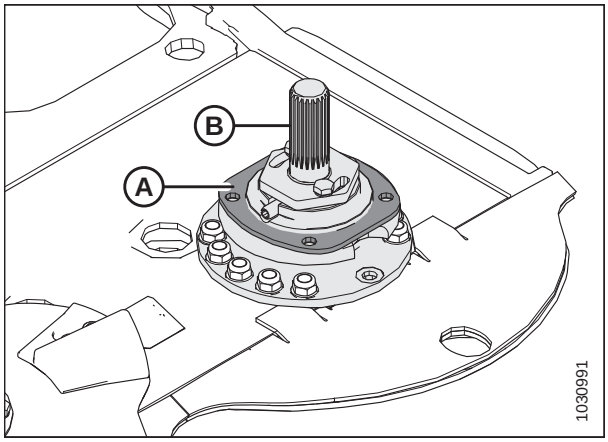


Figure 4.112: Driven Spindle

6. Position drum disc assembly (B) over the spindle ensuring disc is rotated 90° from the neighboring disc.
7. Using an 18 mm deep socket and an extension, secure the drum disc in place with four M12 bolts (A) and washers. Torque hardware to 85 Nm (63 lbf·ft).

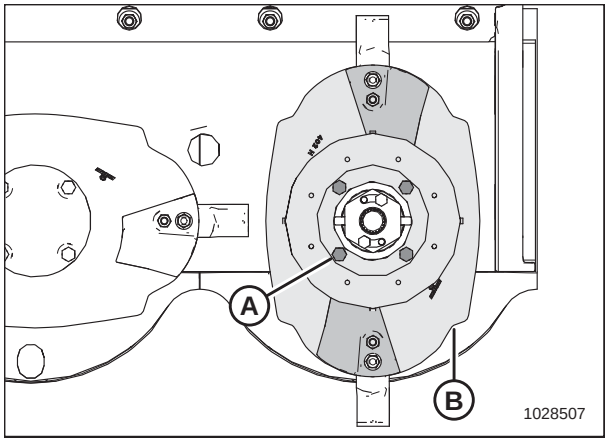


Figure 4.113: Driven Drum – View from Above

8. Insert driveline (B) at an angle and guide it past hub drive (C) and drum (D).
9. Insert splined spindle end (A) into the splined bore of driveline (B).

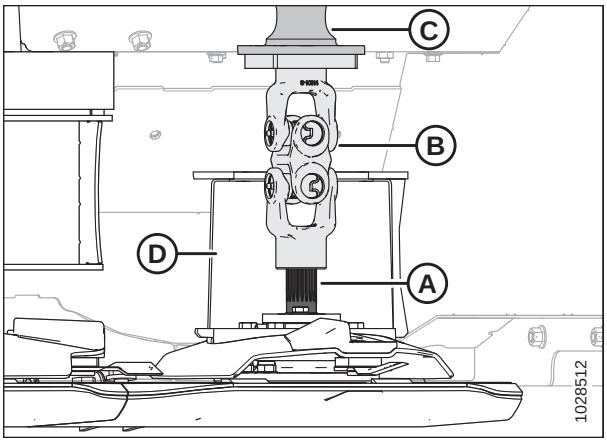


Figure 4.114: Drum and Tube Shield – Cutaway View

10. Place a bead of high-strength threadlocker (Loctite® 262 or equivalent) around the threads of four M12 hex flange head bolts (A). Use the bolts to secure driveline assembly (B) to hub drive (C). Torque bolts to 100 Nm (74 lbf·ft).

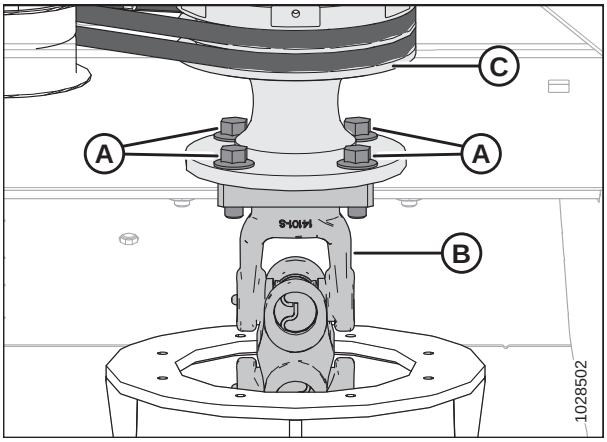


Figure 4.115: Driveline

11. Position driveline shield (B) as shown. Apply a bead of medium-strength threadlocker (Loctite® 243 or equivalent) around the threads of two M10 hex flange head bolts (A). Use bolts (A) to secure driveline shield (B) in place.

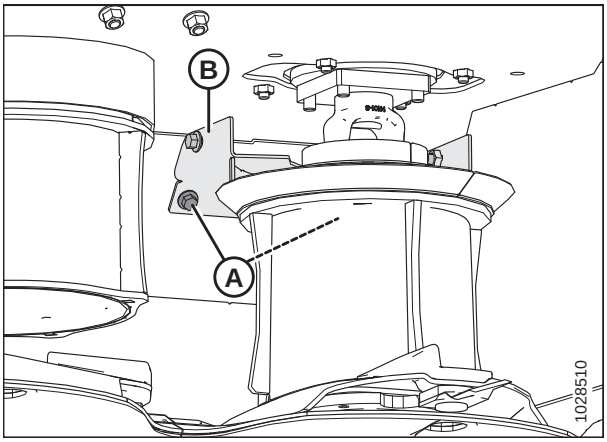


Figure 4.116: Driveline Shield

12. Position two drum shields (B) as shown. Apply a bead of medium-strength threadlocker (Loctite® 243 or equivalent) around the threads of eight M8 hex flange head bolts (A). Use the bolts to secure the drum shields in place. Torque hardware to 27 Nm (20 lbf·ft).

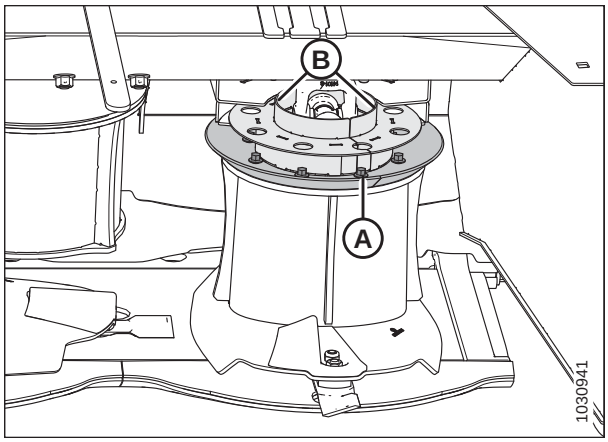


Figure 4.117: Driveline Shields

13. Position driveline shield (C) as shown. Apply a bead of medium-strength threadlocker (Loctite® 243 or equivalent) around the threads of four M10 hex flange head bolts (A) and two M10 hex flange head bolts (B). Use bolts (A) and (B) to secure driveline shield (C) in place.
14. Tighten all hardware on driveline shields.

WARNING

Ensure the cutterbar is completely clear of foreign objects. Foreign objects can be ejected with considerable force when the machine is started and may result in serious injury or machine damage.

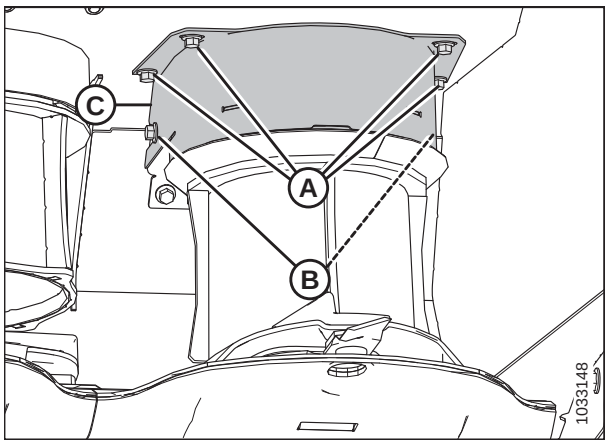


Figure 4.118: Driveline Shield

15. Close cutterbar curtain (A). For instructions, refer to *3.8.2 Closing Cutterbar Curtain, page 87*.

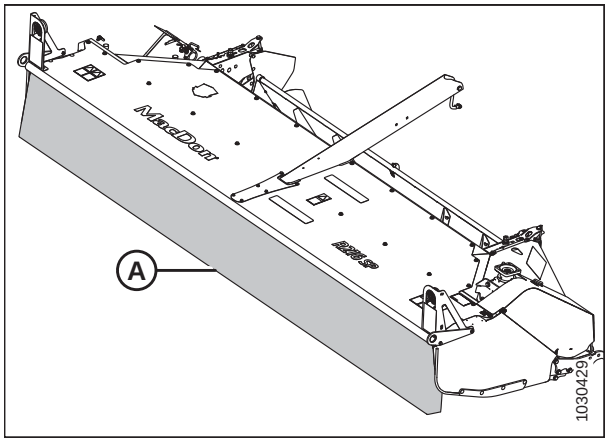


Figure 4.119: Cutterbar Curtain

Removing Right Driven Drum and Driveline

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.

WARNING

Exercise caution when working around the blades. Blades are sharp and can cause serious injury. Wear gloves when handling blades.

1. Place the header in a position where you can access the component that will be serviced.
2. Shut down the engine, and remove the key from the ignition.
3. If the header is fully raised, engage safety props. If the header is off the ground and not fully raised, place blocks under the header. Never work on or beneath an unsupported header. For instructions on engaging the safety props, refer to the procedure according to the type of windrower:
   - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
   - **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*
4. Open cutterbar curtain (A). For instructions, refer to *3.8.1 Opening Cutterbar Curtain, page 86*.

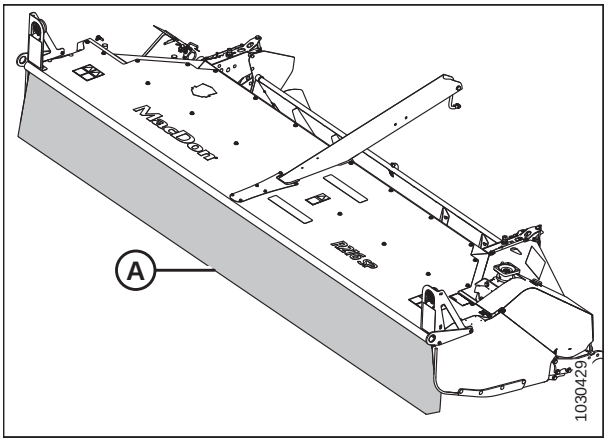


Figure 4.120: Cutterbar Curtain

5. Remove four M10 hex flange head bolts (A) and loosen two M10 hex flange head bolts (B). Remove driveline shield (C).

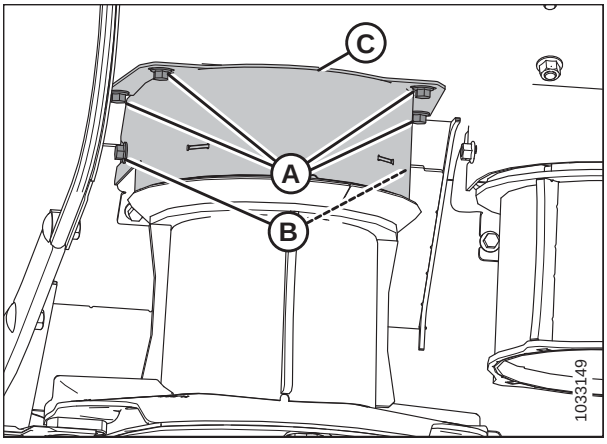


Figure 4.121: Driveline Shield

6. Remove eight M8 hex flange head bolts (A) and two drum shields (B).

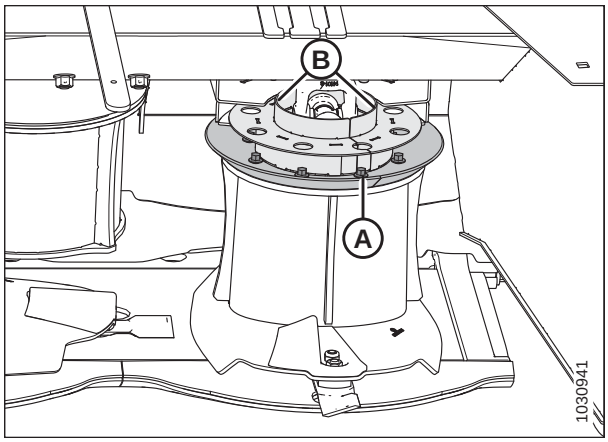


Figure 4.122: Driveline Shields

7. Remove two M10 hex flange head bolts (A) and remove driveline shield (B).

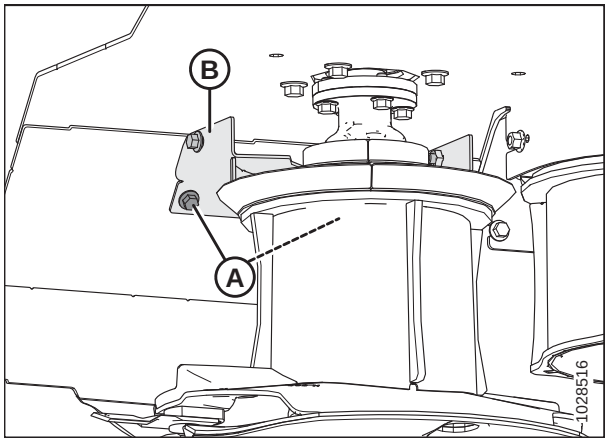


Figure 4.123: Driveline Shield

8. Remove four M10 hex flange head bolts (A) securing driveline assembly (B) to hub drive (C).

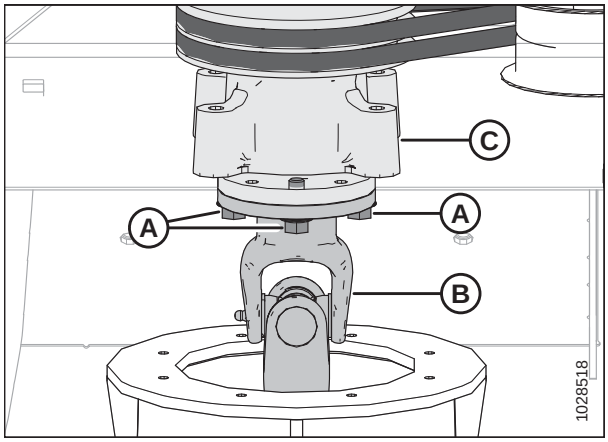


Figure 4.124: Driveline

9. Slide driveline (A) downwards, tilt it to the side, and pull the driveline up and out of the drum.

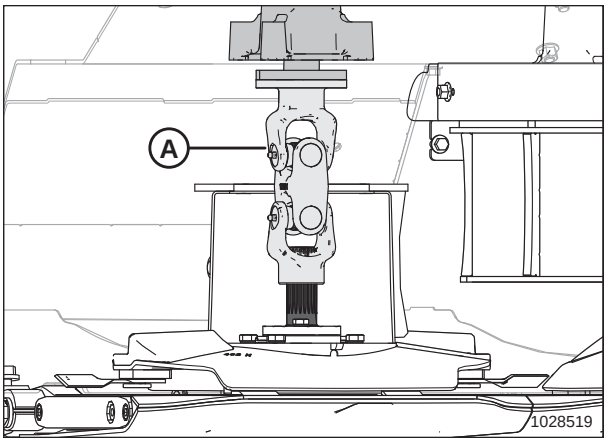


Figure 4.125: Drum and Tube Shield – Cutaway View

10. Use an 18 mm deep socket and an extension to remove four M12 bolts (A) and washers holding drum disc assembly (B) in place.
11. Remove drum disc assembly (B).

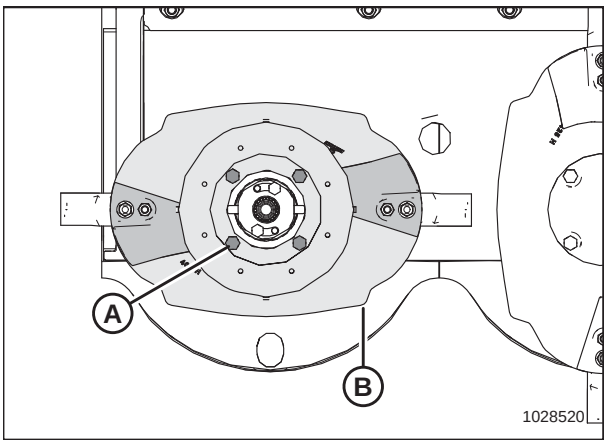


Figure 4.126: Right Driven Drum – View from Above

Installing Right Driven Drum and Driveline

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.

WARNING

Exercise caution when working around the blades. Blades are sharp and can cause serious injury. Wear gloves when handling blades.

1. Place the header in a position where you can access the component that will be serviced.
2. Shut down the engine, and remove the key from the ignition.
3. If the header is fully raised, engage safety props. If the header is off the ground and not fully raised, place blocks under the header. Never work on or beneath an unsupported header. For instructions on engaging the safety props, refer to the procedure according to the type of windrower:
   - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
   - **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*
4. Ensure spacer (A) is on the spindle.
5. Apply an anti-seize compound to spindle splines (B).

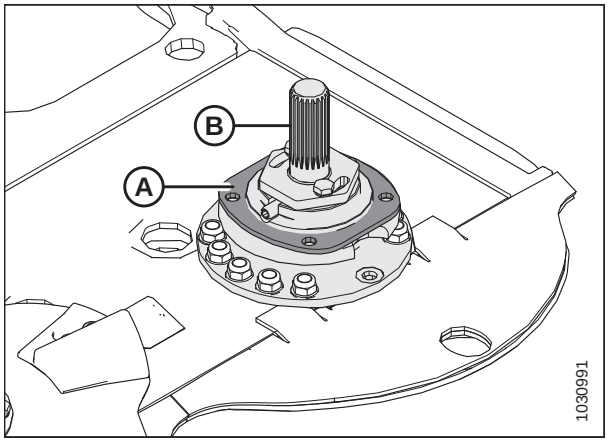


Figure 4.127: Right Driven Spindle

6. Position drum disc assembly (B) 90° from neighboring disc.
7. Use an 18 mm deep socket and an extension to install four M12 bolts (A) and washers that hold the drum disc in place. Torque hardware to 85 Nm (63 lbf·ft).

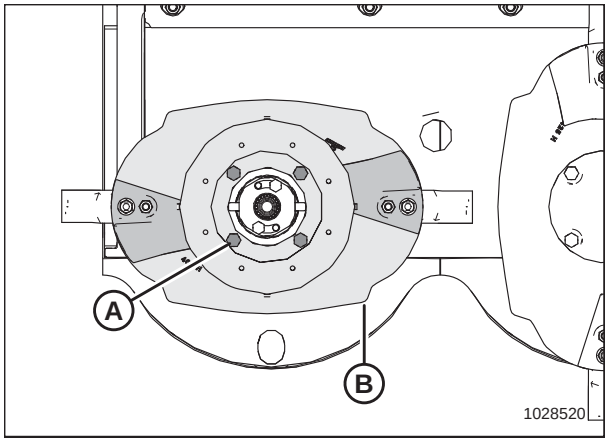


Figure 4.128: Right Driven Drum – View from Above

8. Insert driveline (B) at an angle and guide it past hub drive (C) and drum (D).
9. Insert splined spindle end (A) into the splined bore of driveline (B).

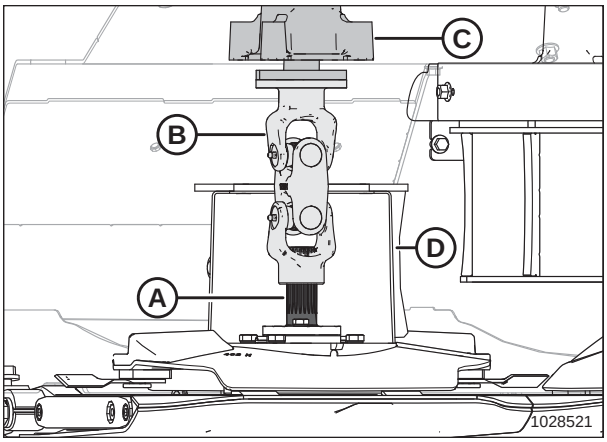


Figure 4.129: Drum and Tube Shield – Cutaway View

10. Place a bead of high-strength threadlocker (Loctite® 262 or equivalent) around the threads of four M10 hex flange head bolts (A). Use the bolts to secure driveline assembly (B) to hub drive (C). Torque the bolts to 57.5 Nm (42 lbf·ft).

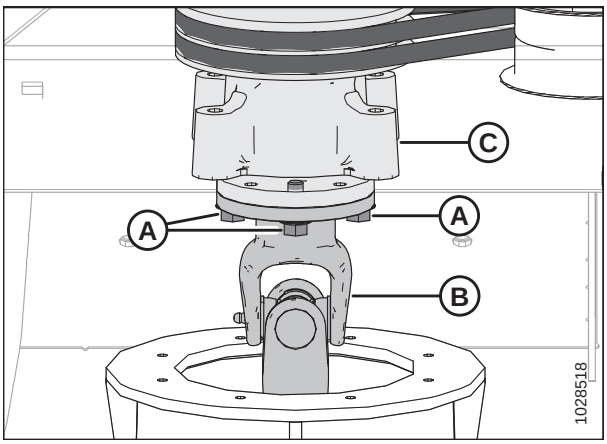


Figure 4.130: Driveline

11. Position driveline shield (B) as shown. Apply a bead of medium-strength threadlocker (Loctite® 243 or equivalent) around the threads of two M10 hex flange head bolts (A). Use M10 hex flange head bolts (A) to secure driveline shield (B) in place.

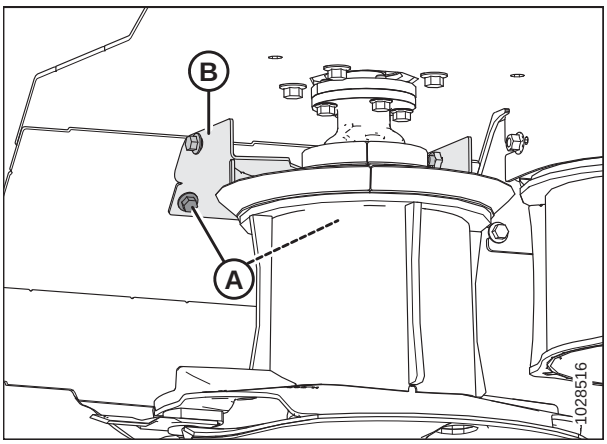


Figure 4.131: Driveline Shield

12. Position two drum shields (B) as shown. Apply a bead of medium-strength threadlocker (Loctite® 243 or equivalent) around the threads of eight M8 hex flange head bolts (A). Use the bolts to secure the drum shields in place. Torque hardware to 27 Nm (20 lbf·ft).

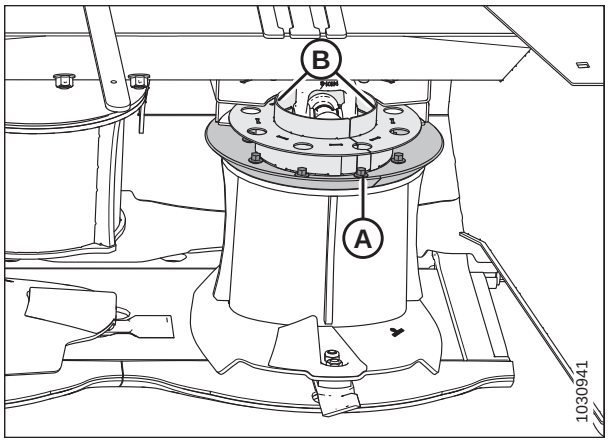


Figure 4.132: Driveline Shields

13. Position driveline shield (C) as shown. Apply a bead of medium-strength threadlocker (Loctite® 243 or equivalent) around the threads of four M10 hex flange head bolts (A) and two M10 hex flange head bolts (B). Use bolts (A) and (B) to secure driveline shield (C) in place.
14. Tighten all hardware on driveline shields.

WARNING

Ensure the cutterbar is completely clear of foreign objects. Foreign objects can be ejected with considerable force when the machine is started and may result in serious injury or machine damage.

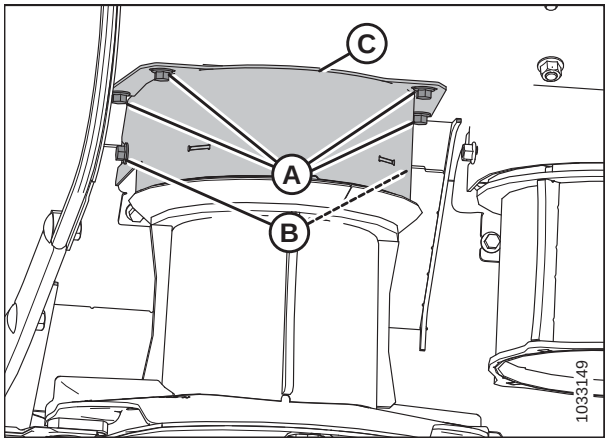


Figure 4.133: Driveline Shield

15. Close cutterbar curtain (A). For instructions, refer to *3.8.2 Closing Cutterbar Curtain, page 87*.

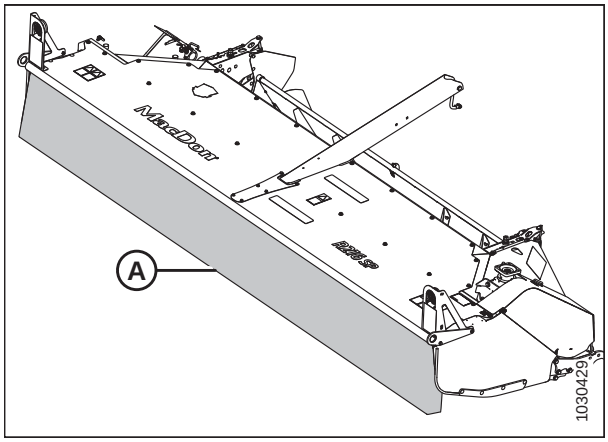


Figure 4.134: Cutterbar Curtain

Lubricating Vertical Drivelines

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.

WARNING

Exercise caution when working around the blades. Blades are sharp and can cause serious injury. Wear gloves when handling blades.

1. Place the header in a position where you can access the component that will be serviced.
2. Shut down the engine, and remove the key from the ignition.
3. If the header is fully raised, engage safety props. If the header is off the ground and not fully raised, place blocks under the header. Never work on or beneath an unsupported header. For instructions on engaging the safety props, refer to the procedure according to the type of windrower:
   - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
   - **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*
4. Open cutterbar curtain (A). For instructions, refer to *3.8.1 Opening Cutterbar Curtain, page 86*.

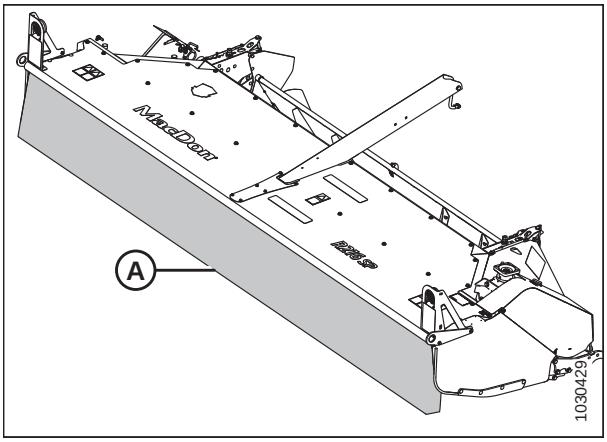


Figure 4.135: Cutterbar Curtain

5. On the left of the header, remove four M10 hex flange head bolts (A) and loosen two M10 hex flange head bolts (B). Remove driveline shield (C).

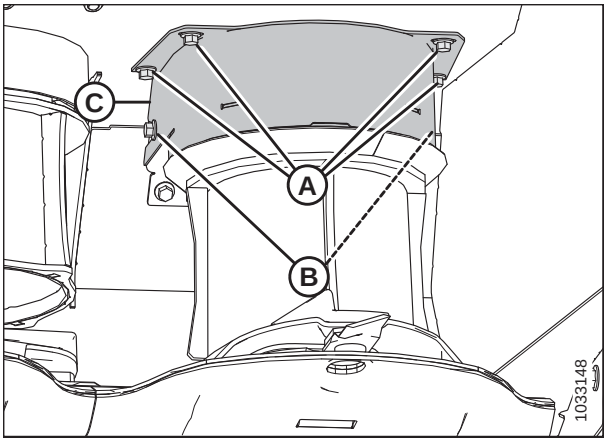


Figure 4.136: Driveline Shield – Left Drum

6. Remove eight M8 hex flange head bolts (A) and two drum shields (B).

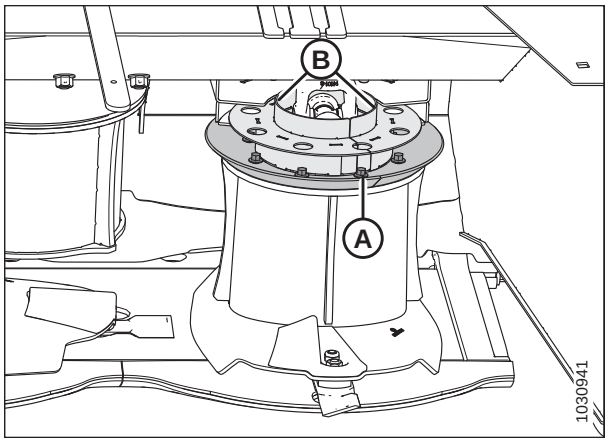


Figure 4.137: Driveline Shields – Left Drum

7. Remove two M10 hex flange head bolts (A) and remove driveline shield (B).

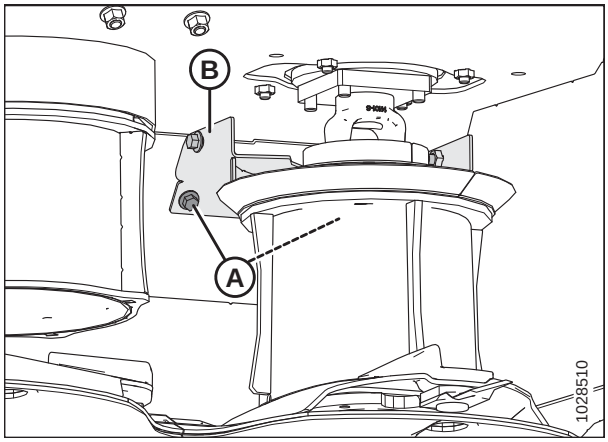


Figure 4.138: Driveline Shield – Left Drum

8. On the right of the header, remove four M10 hex flange head bolts (A) and loosen two M10 hex flange head bolts (B). Remove driveline shield (C).

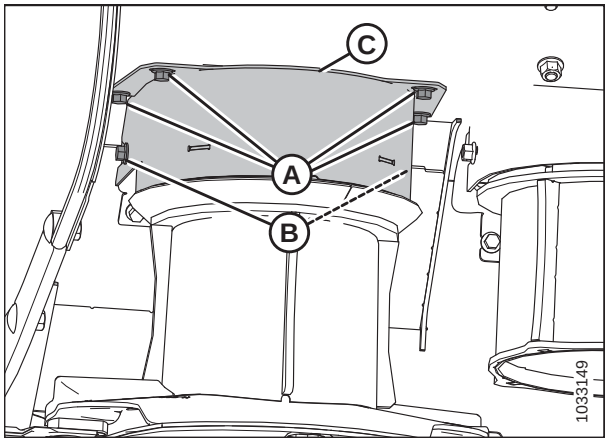


Figure 4.139: Driveline Shield – Right Drum

9. Remove eight M8 hex flange head bolts (A) and two drum shields (B).

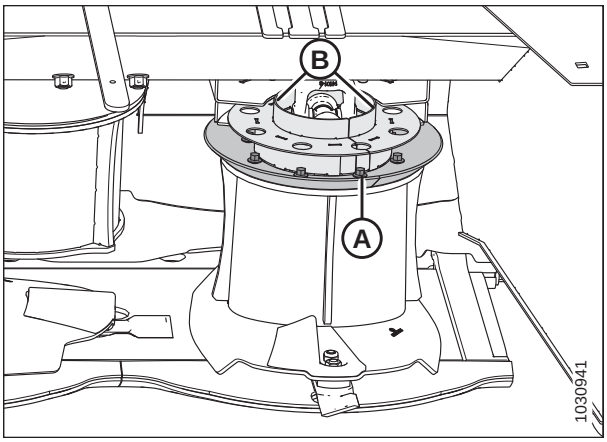


Figure 4.140: Driveline Shields – Right Drum

10. Remove two M10 hex flange head bolts (A) and remove driveline shield (B).

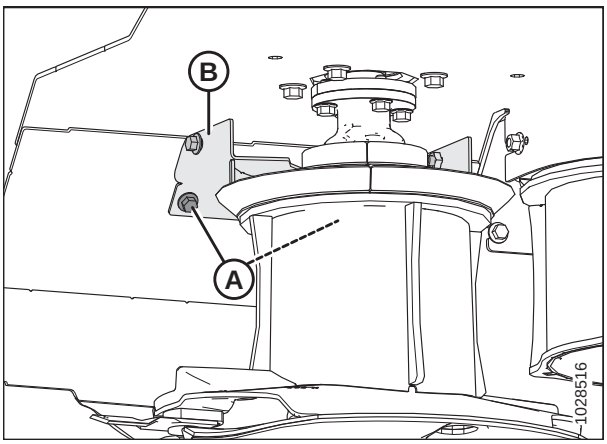


Figure 4.141: Driveline Shield – Right Drum

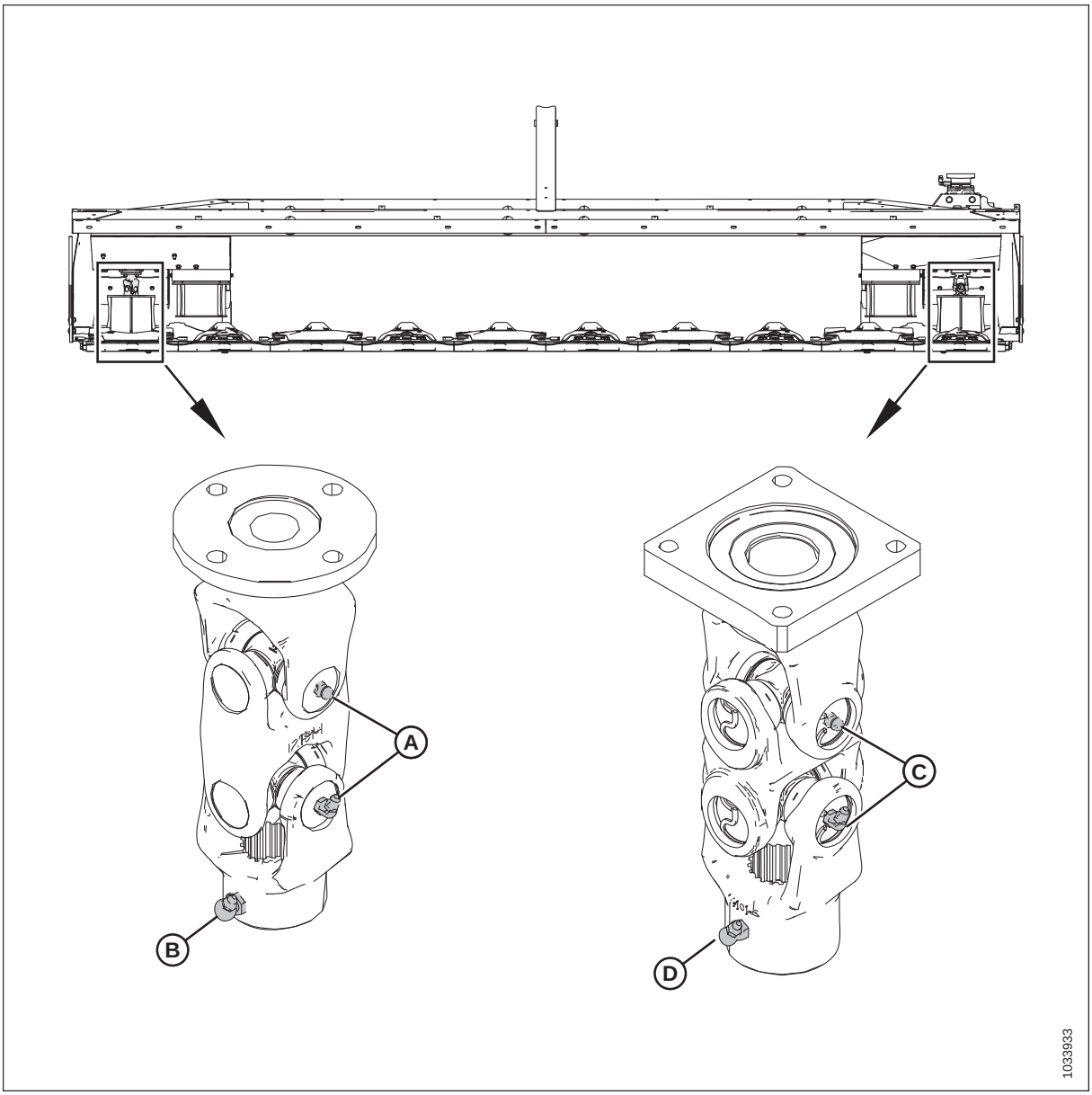


Figure 4.142: Vertical Drivelines Lubrication Locations

11. Lubricate the left and right vertical drivelines every 250 hours at the following locations:

    - Two grease fittings (A) on right driveline U-joints
    - One grease fitting (B) on right driveline shaft
    - Two grease fittings (C) on left driveline U-joints
    - One grease fitting (D) on left driveline shaft

    IMPORTANT:

    Fittings (A) and (C) – use high-temperature, extreme-pressure performance grease with **1%** max molybdenum disulphide (NLGI grade 2) lithium base.

    Fittings (B) and (D) – use high-temperature, extreme-pressure performance grease with **10%** max molybdenum disulphide (NLGI grade 2) lithium base.

12. On the right of the header, position driveline shield (B) as shown. Apply a bead of medium-strength threadlocker (Loctite® 243 or equivalent) around the threads of two M10 hex flange head bolts (A). Use M10 hex flange head bolts (A) to secure driveline shield (B) in place.

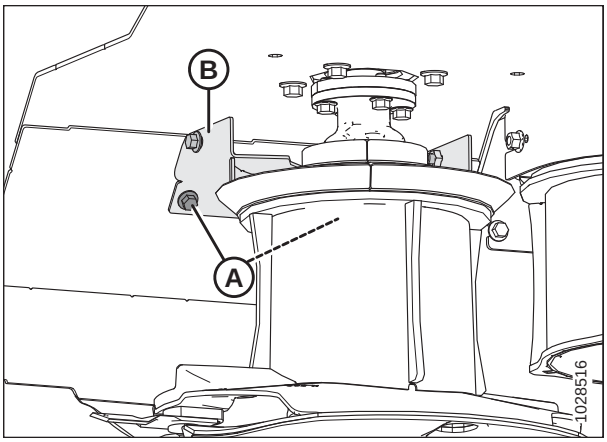


Figure 4.143: Driveline Shield – Right Drum

13. Position two drum shields (B) as shown. Apply a bead of medium-strength threadlocker (Loctite® 243 or equivalent) around the threads of eight M8 hex flange head bolts (A). Use the bolts to secure the drum shields in place. Torque hardware to 27 Nm (20 lbf·ft).

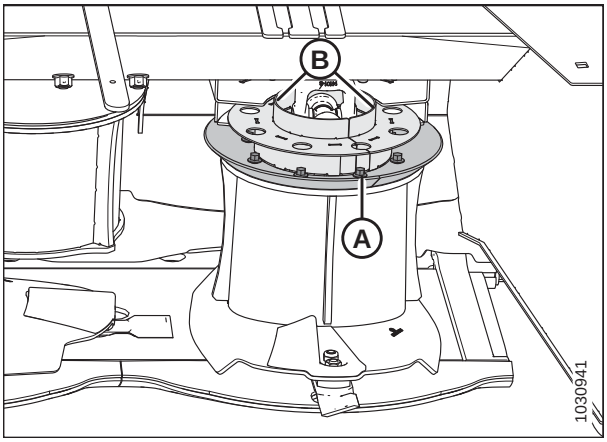


Figure 4.144: Driveline Shields – Right Drum

14. Position driveline shield (C) as shown. Apply a bead of medium-strength threadlocker (Loctite® 243 or equivalent) around the threads of four M10 hex flange head bolts (A) and two M10 hex flange head bolts (B). Use bolts (A) and (B) to secure driveline shield (C) in place.
15. Tighten all hardware on driveline shields.

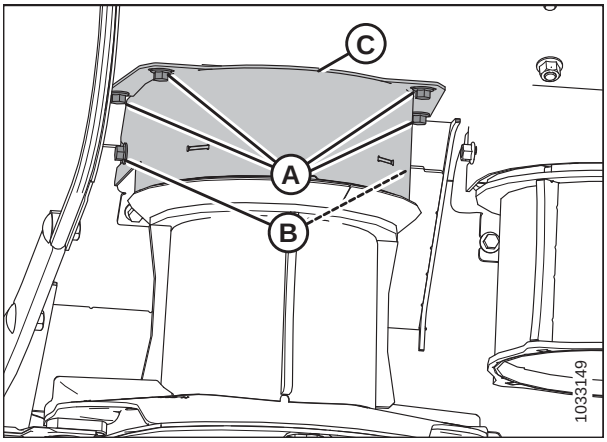


Figure 4.145: Driveline Shield – Right Drum

16. On the left of the header, position driveline shield (B) as shown. Apply a bead of medium-strength threadlocker (Loctite® 243 or equivalent) around the threads of two M10 hex flange head bolts (A). Use bolts (A) to secure driveline shield (B) in place.

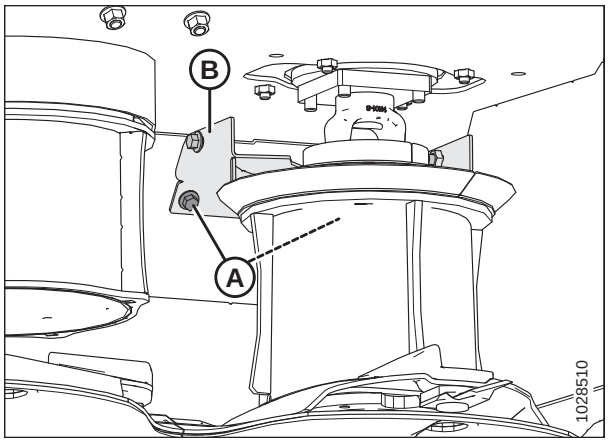


Figure 4.146: Driveline Shield – Left Drum

17. Position two drum shields (B) as shown. Apply a bead of medium-strength threadlocker (Loctite® 243 or equivalent) around the threads of eight M8 hex flange head bolts (A). Use the bolts to secure the drum shields in place. Torque hardware to 27 Nm (20 lbf·ft).

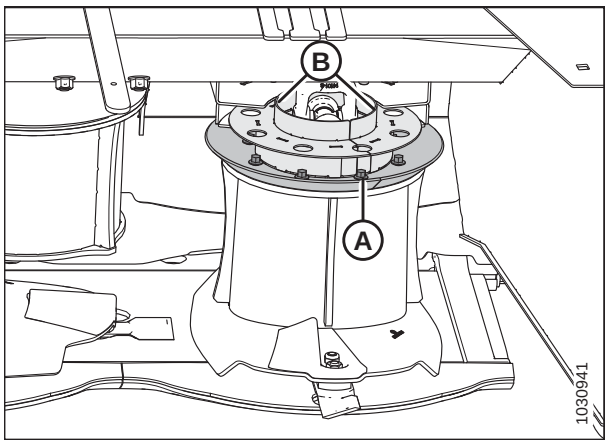


Figure 4.147: Driveline Shields – Left Drums

18. Position driveline shield (C) as shown. Apply a bead of medium-strength threadlocker (Loctite® 243 or equivalent) around the threads of four M10 hex flange head bolts (A) and two M10 hex flange head bolts (B). Use bolts (A) and (B) to secure driveline shield (C) in place.
19. Tighten all hardware on driveline shields.

⚠ WARNING

Ensure the cutterbar is completely clear of foreign objects. Foreign objects can be ejected with considerable force when the machine is started and may result in serious injury or machine damage.

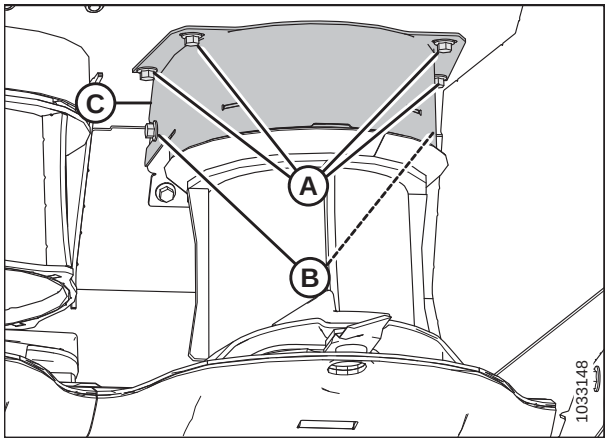


Figure 4.148: Driveline Shield – Left Drums

4.6.8 Cutterbar Spindle Shear Pin

To prevent damage to the cutterbar and drive systems, each disc is attached to a spindle containing shear pin (A).

If the disc contacts a large object such as a stone or stump, the pin will shear and the disc will stop rotating and move upwards while remaining attached to the spindle with snap ring (B).

IMPORTANT:

Ensure correct orientation of the shear pins during replacement:

- Spindles that rotate **clockwise** have right-leading threading.
- Spindles that rotate **counterclockwise** have left-leading threading.

NOTE:

Once a spindle has risen due to shear pin failure, the spindle's bearing will become unloaded. Do **NOT** replace the spindle due to excessive play. Check play after torquing spindle nut and replacing damaged shear pins.

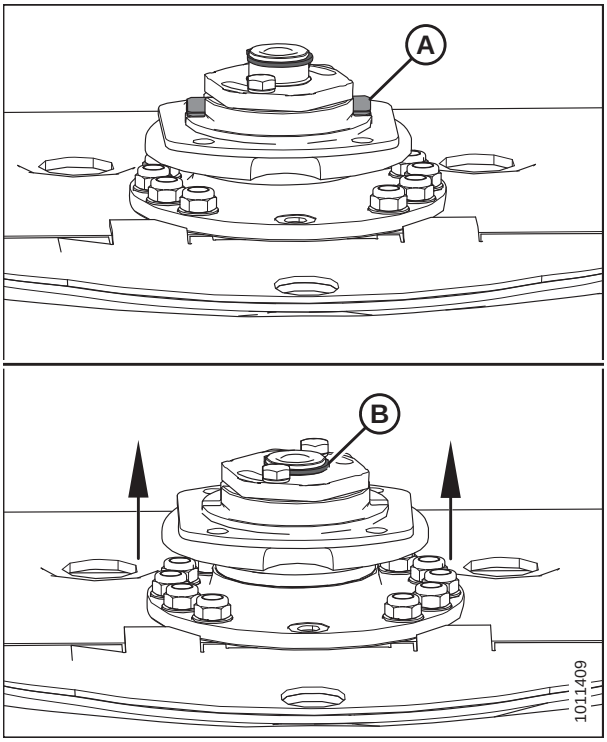


Figure 4.149: Cutterbar Spindles

NOTE:

A special spindle-nut wrench (A) is located under the panel on the right side of the header. This tool is used to loosen and tighten the spindle nuts.

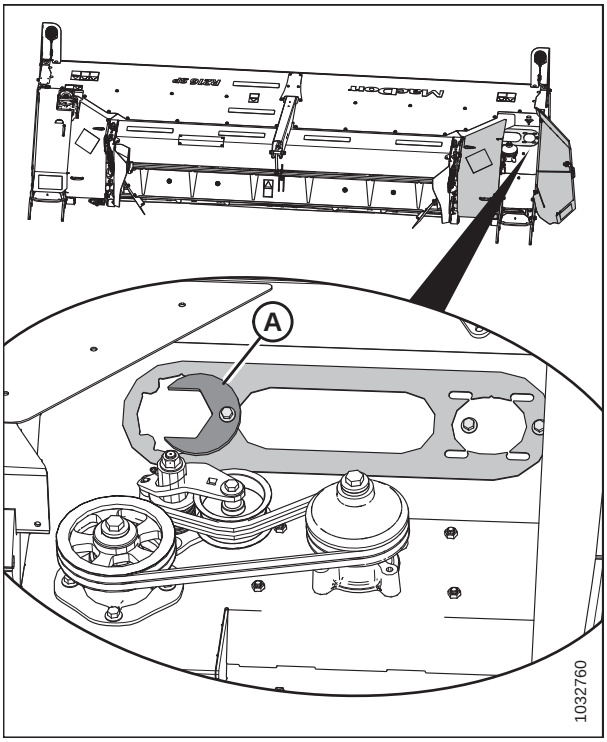


Figure 4.150: Safecut Spindle-Nut Wrench

Removing Cutterbar Spindle Shear Pin

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.

WARNING

Disc blades have two sharp cutting edges that can cause serious injury. Exercise caution and wear gloves when working with blades.

1. Place the header in a position where you can access the component that will be serviced.
2. Shut down the engine, and remove the key from the ignition.
3. If the header is fully raised, engage safety props. If the header is off the ground and not fully raised, place blocks under the header. Never work on or beneath an unsupported header. For instructions on engaging the safety props, refer to the procedure according to the type of windrower:
   - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
   - **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*
4. Open cutterbar curtain (A). For instructions, refer to *3.8.1 Opening Cutterbar Curtain, page 86*.
5. Clean any debris from the work area.

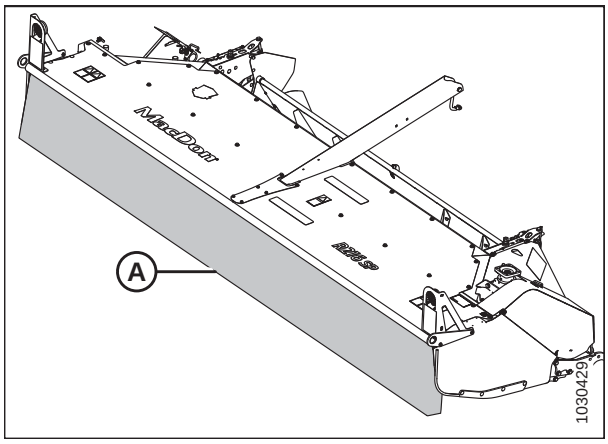


Figure 4.151: Cutterbar Curtain

6. Refer to the applicable disc removal procedure for the type of disc with a broken shear pin:
   - To remove cutterbar disc (A), refer to *Removing Cutterbar Discs, page 140*.
   - To remove left driven drum (B), refer to *Removing Left Driven Drum and Driveline, page 180*.
   - To remove right driven drum (C), refer to *Removing Right Driven Drum and Driveline, page 187*.

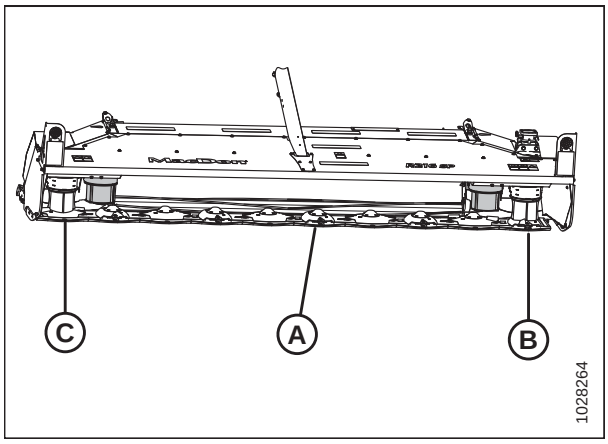


Figure 4.152: Cutterbar Disc and Driven Drums

7. Remove spacer plate (A) and retaining ring (B).

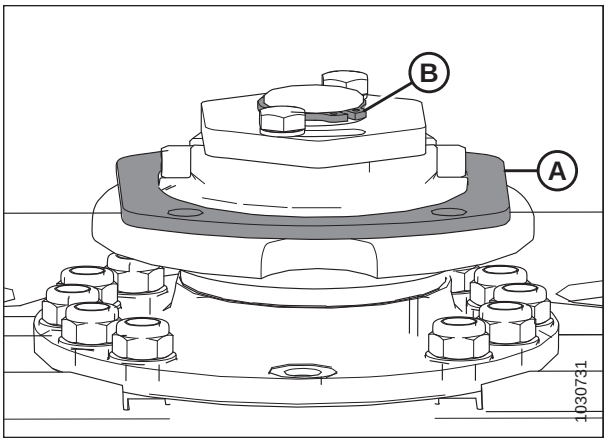


Figure 4.153: Cutterbar Spindle

8. Remove the M12 bolt and remove safecut spindle-nut wrench (A) from its storage location.

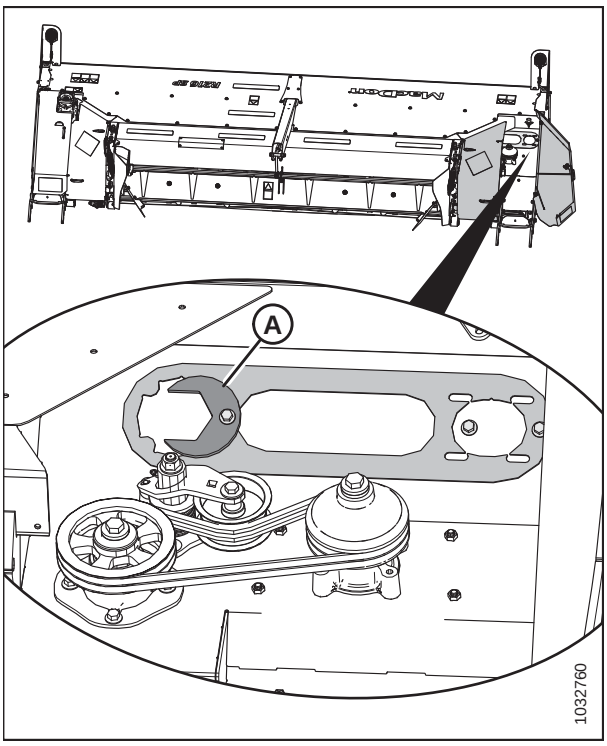


Figure 4.154: Safecut Spindle-Nut Wrench

IMPORTANT:

- Spindles that rotate clockwise have right-leading threading and a smooth top on spindle gear shaft (A).
- Spindles that rotate counterclockwise have left-leading threading and machined grooves on spindle gear shaft (B) and nut (C).
- If a spindle's position in the cutterbar has changed, the rotational direction of that spindle **MUST** remain the same (that is, a clockwise spindle must maintain its clockwise rotation).
- Failure to maintain a proper rotation pattern can result in damage to the spindle and/or cutterbar components.

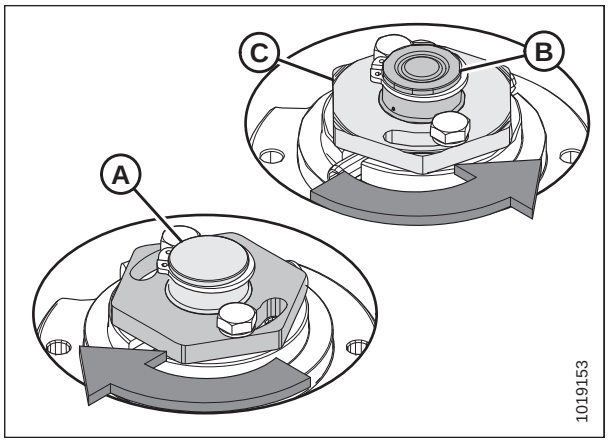


Figure 4.155: Cutterbar Spindles

9. Remove two M10 bolts and washers (A).
10. Inspect the threads of two M10 bolts (A), and replace bolts if damaged.

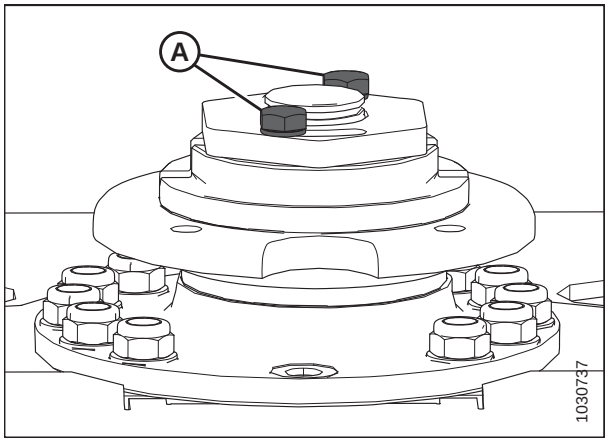


Figure 4.156: Cutterbar Spindle

11. Use the safecut spindle-nut wrench to remove nut (A).
12. Remove hub (B). Inspect hub for damage, and replace if necessary.

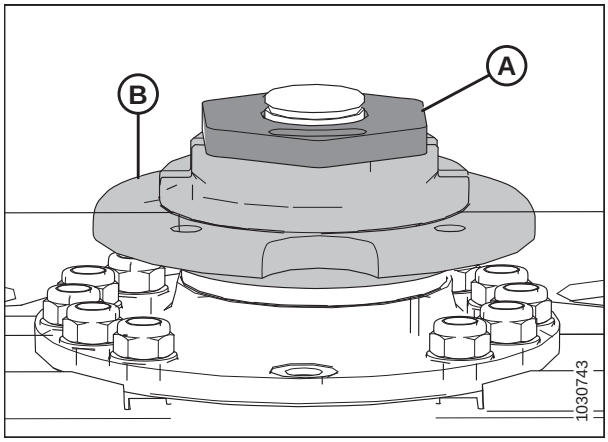


Figure 4.157: Cutterbar Spindle

13. Remove damaged shear pins (A) using pin punch (B).

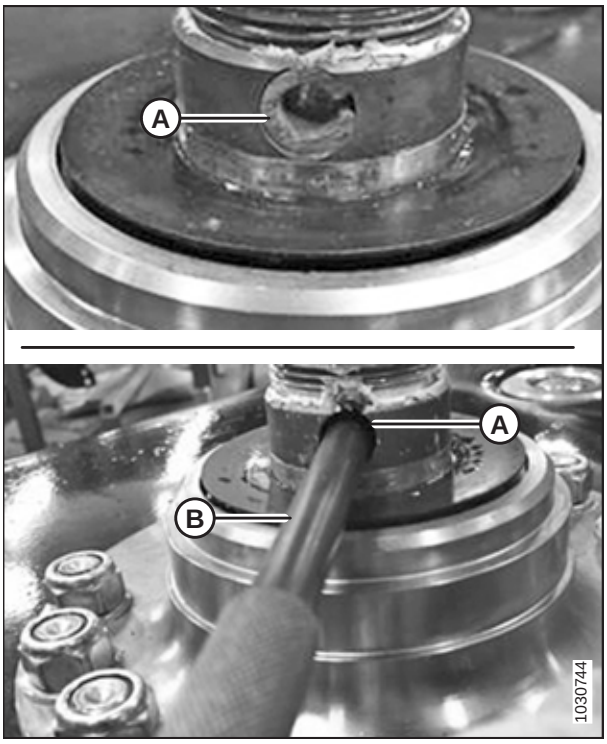


Figure 4.158: Removing Shear Pin

14. Remove and clean Belleville washer (A).

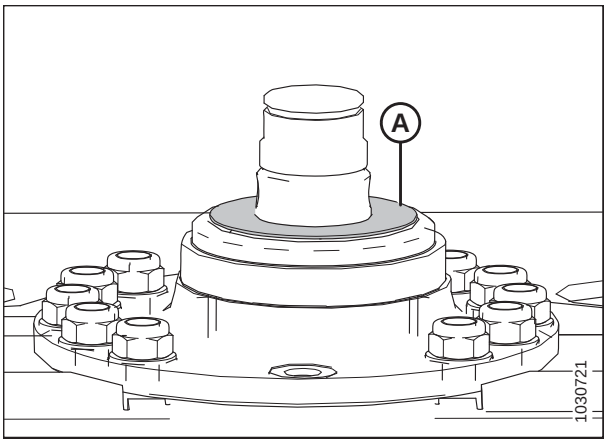


Figure 4.159: Belleville Washer

Installing Cutterbar Spindle Shear Pin

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.

WARNING

Disc blades have two sharp cutting edges that can cause serious injury. Exercise caution and wear gloves when working with blades.

1. Place the header in a position where you can access the component that will be serviced.
2. Shut down the engine, and remove the key from the ignition.
3. If the header is fully raised, engage safety props. If the header is off the ground and not fully raised, place blocks under the header. Never work on or beneath an unsupported header. For instructions on engaging the safety props, refer to the procedure according to the type of windrower:
   - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
   - **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*
4. Fill the space above the bearing with grease. Refer to the inside back cover of this manual for a list of recommended fluids, lubricants, and capacities for the machine.
5. Reinstall Belleville washer (A) with its dome down and outside edges up.

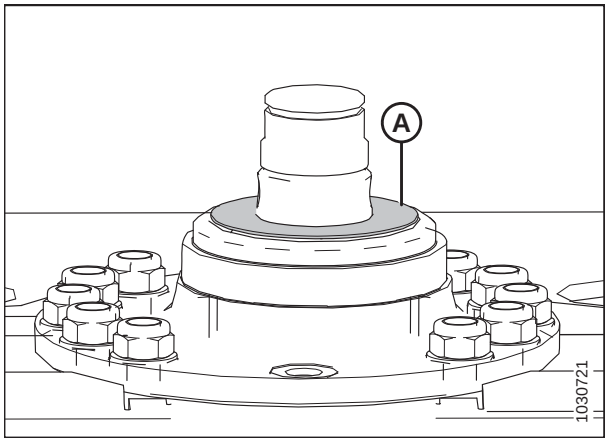


Figure 4.160: Cutterbar Spindle

6. Place hub (A) on spindle (B), and line up the slots in the hub with the holes in the spindle shaft.
7. Position new shear pins with grooves (C) as shown.

   IMPORTANT:

   Ensure that the grooves (C) in the shear pins are parallel with the cutterbar.

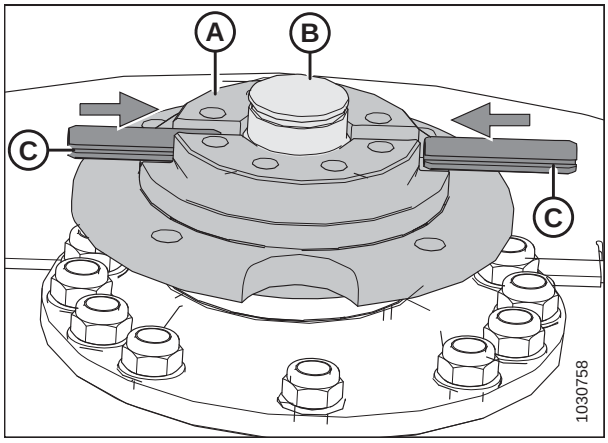


Figure 4.161: Shear Pin Orientation

8. Install new shear pin (A) with a pin punch and hammer. Repeat on the other side of spindle.

   NOTE:

   Ensure that the ends of the shear pins do **NOT** protrude past the step in the hub.

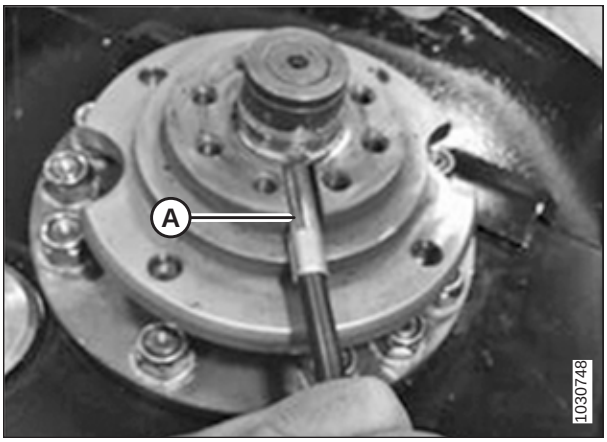


Figure 4.162: Cutterbar Spindle

9. Install nut (A) and spacer plate (B).

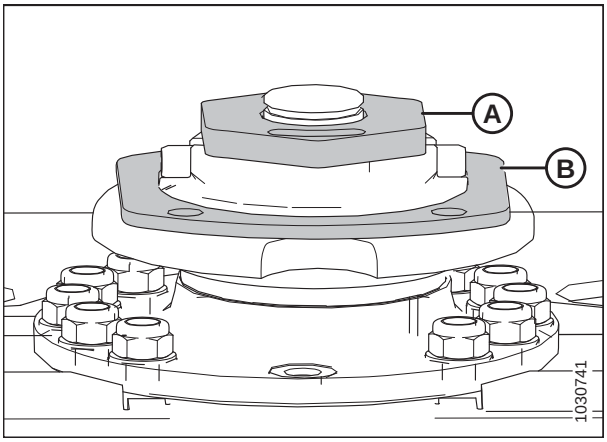


Figure 4.163: Cutterbar Spindle

10. Attach safecut spindle-nut wrench (B) 90° (D) to the torque wrench (A).

    IMPORTANT:

    If the wrench is not attached correctly, the proper torque will **NOT** be applied to the nut.

11. Position safecut spindle-nut wrench (B) on spindle nut (C). Torque nut to 300 Nm (221 lbf·ft).

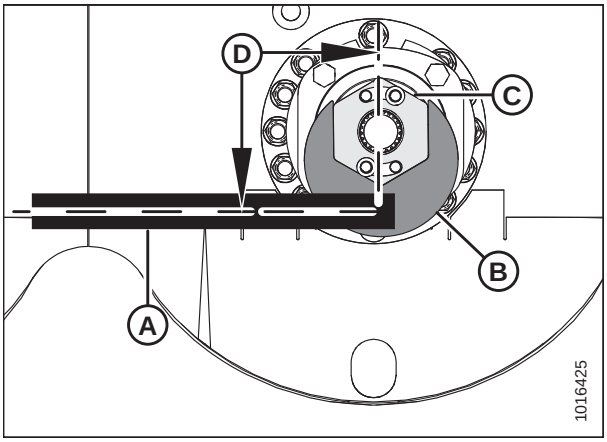


Figure 4.164: Spindle Nut

12. Install two M10 bolts (A) and washers. Torque hardware to 55 Nm (40 lbf·ft).

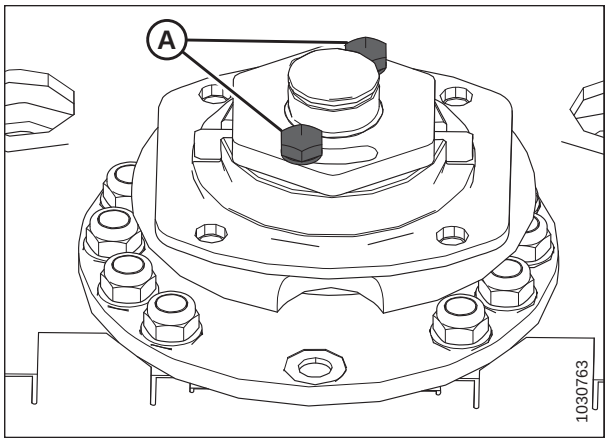


Figure 4.165: Cutterbar Spindle

13. Install retaining ring (A).

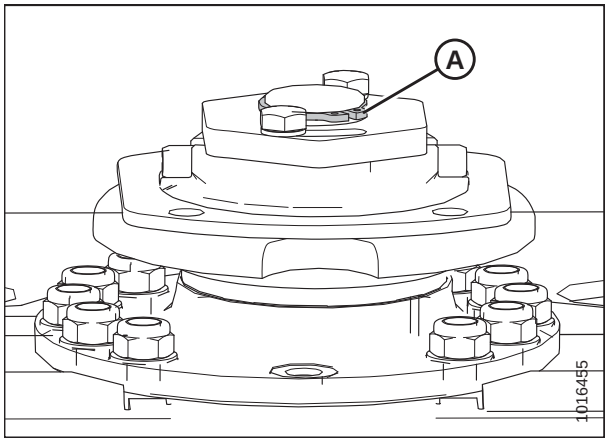


Figure 4.166: Cutterbar Spindle

14. Depending on the type of disc with the new shear pin, refer to the applicable disc installation procedure:
    - Install cutterbar disc (A). For instructions, refer to to *Installing Cutterbar Discs, page 142*.
    - Install left driven drum (B). For instructions, refer to *Installing Left Driven Drum and Driveline, page 184*.
    - Install right driven drum (C). For instructions, refer to *Installing Right Driven Drum and Driveline, page 190*.

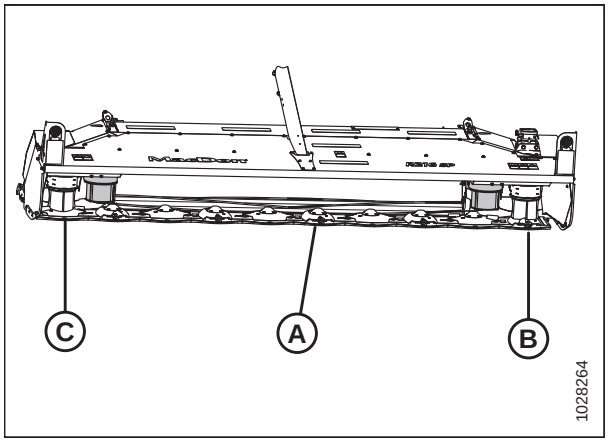


Figure 4.167: Cutterbar Disc and Driven Drums

WARNING

Ensure the cutterbar is completely clear of foreign objects. Foreign objects can be ejected with considerable force when the machine is started and may result in serious injury or machine damage.

15. Close cutterbar curtain (A). For instructions, refer to *3.8.2 Closing Cutterbar Curtain, page 87*.
16. Return safecut spindle-nut wrench to its storage location. For storage location of wrench (B), refer to Figure *4.173, page 210*.

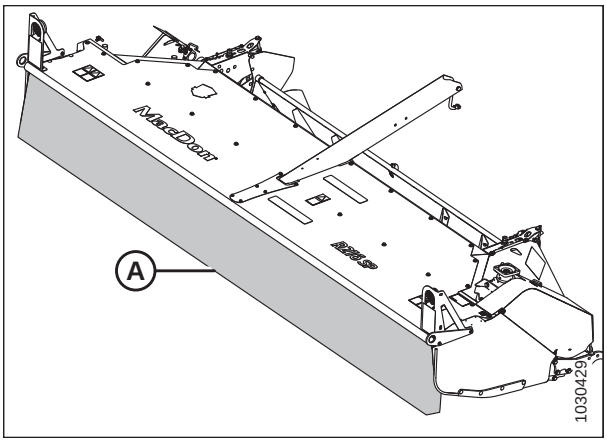


Figure 4.168: Cutterbar Curtain

4.6.9 Reconfiguring Cutterbar Crop Stream

Discs are factory-installed to produce four crop streams, but the disc rotation pattern can be changed by swapping discs (and their corresponding spindles) to suit crop conditions. Each spindle and disc pair is designed to rotate in one direction and must be changed as sets when altering crop flows.

There are three types of crop steam configurations:

- Four crop steams (A) and two crop streams (B) are recommended for **standard headers (headers with conditioners)** only. These configurations are **NOT** recommended for the grass seed (GSS) version of the header. Reducing or increasing the number of crop streams will produce the following results:
  - Reducing the number of crop streams will result in narrower windrows.
  - Increasing the number of crop streams will result in smoother, wider windrows.

    NOTE:

    Increasing the number of crop streams will also increase the number of diverging disc pairs which may negatively affect cut quality in certain conditions.
  - For instructions on changing the crop stream to between four streams and two streams, refer to *Changing R216 Rotary Disc Header Cutterbar Crop Stream Configuration, page 208*.
- One crop steam (C) is intended for the **grass seed (GSS) version** of the header. During the installation of the grass seed kit, the cutterbar is reconfigured to the one crop stream, and the operator should not have to change it. For more information, refer to *Changing R216 Rotary Disc Header Cutterbar Crop Stream Configuration for Grass Seed Option, page 211*.

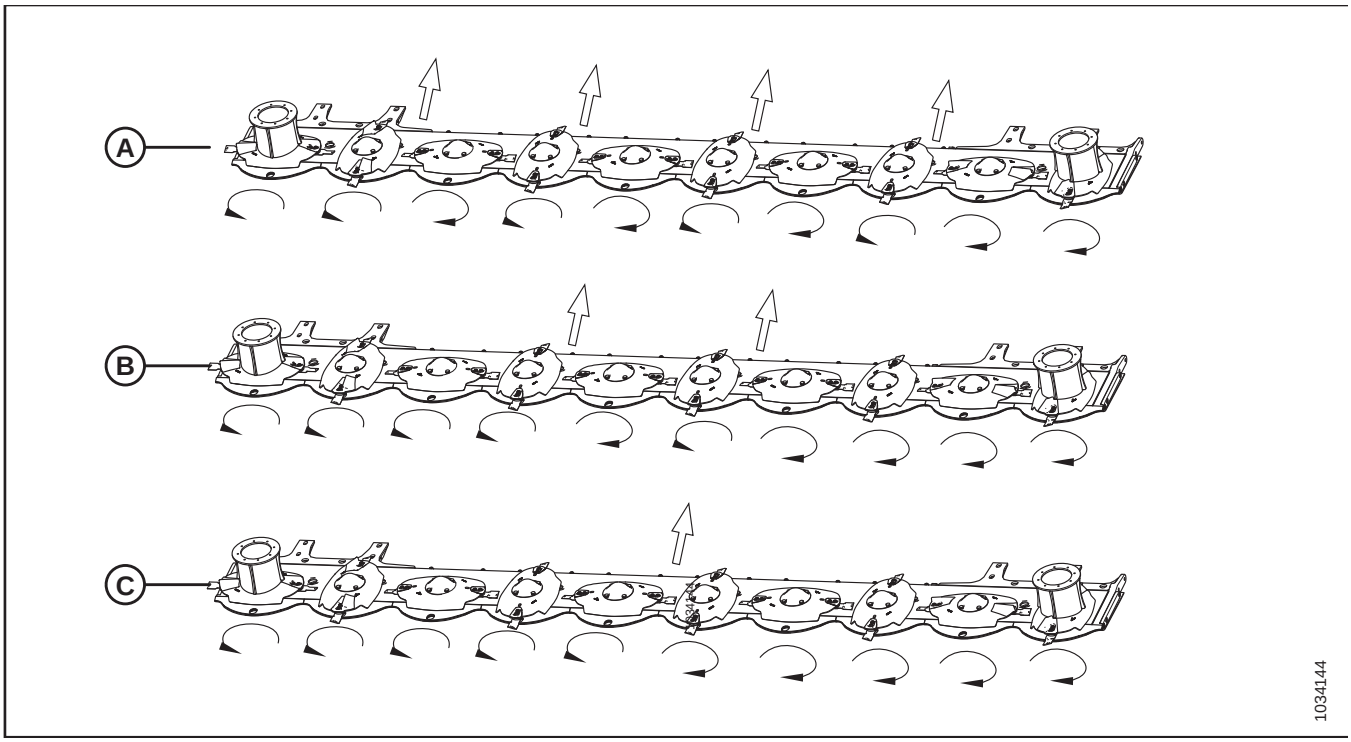


Figure 4.169: Cutterbar Crop Stream Configurations

Changing R216 Rotary Disc Header Cutterbar Crop Stream Configuration

Discs are factory-installed to produce four crop streams, but the disc rotation pattern can be changed by swapping discs (and their corresponding spindles) to suit crop conditions. Each spindle and disc pair is designed to rotate in one direction and must be changed as sets when altering crop flows.

NOTE:

This procedure is intended for standard headers (headers equipped with conditioners). If the headers is equipped with the grass seed (GSS) option, it is recommended that the cutterbar use the one-crop stream configuration specifically intended for grass seed. For more information, refer to *Changing R216 Rotary Disc Header Cutterbar Crop Stream Configuration for Grass Seed Option, page 211*.

Reducing or increasing the number of crop streams will produce the following results:

- Reducing the number of crop streams will result in narrower windrows.
- Increasing the number of crop streams will result in smoother, wider windrows.

NOTE:

Increasing the number of crop streams will also increase the number of diverging disc pairs which may negatively affect cut quality in certain conditions.

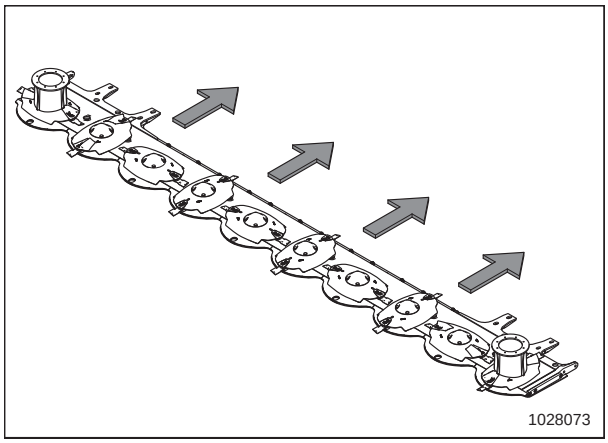


Figure 4.170: R216 Cutterbar

IMPORTANT:

- Spindles that rotate clockwise have right-leading threading and are identified by a smooth top on the spindle gear shaft (A).
- Spindles that rotate counterclockwise have left-leading threading and are identified by machined grooves on the spindle gear shaft (B) and nut (C).
- If the spindle's position in cutterbar has changed, the rotational direction of that spindle MUST remain the same (that is, a clockwise spindle must maintain its clockwise rotation).
- Failure to maintain the rotation pattern can result in damage to the spindle and/or cutterbar components.
- Safecut components (shear pin) will not work if spindles are used in the wrong orientation.

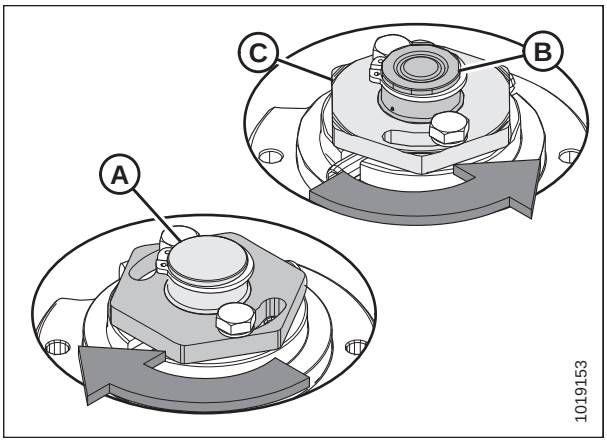


Figure 4.171: Cutterbar Spindles

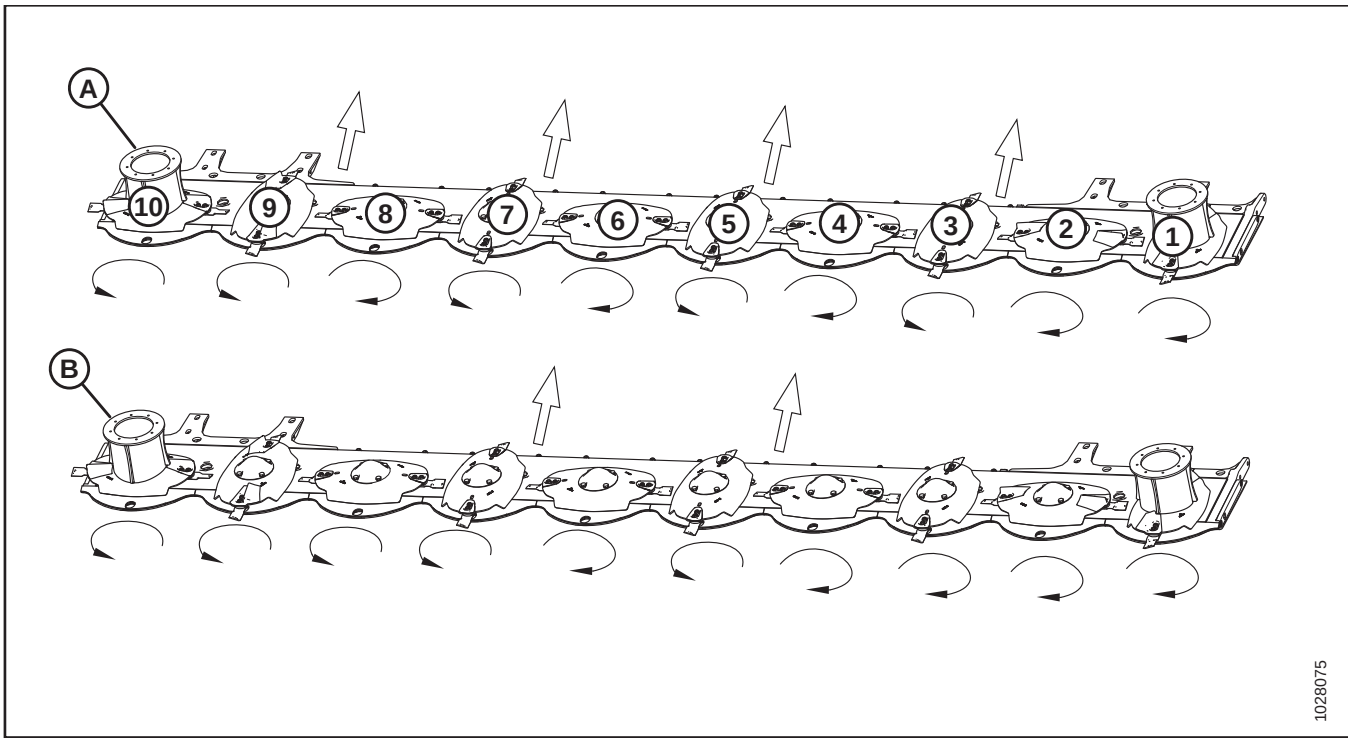


Figure 4.172: R216 Rotary Disc Header (10 Disc) Spindle Rotation Pattern and Crop Streams

A - Four Crop Streams **B - Two Crop Streams**

NOTE:

For instructions, refer to *Removing Cutterbar Spindles, page 145* and *Installing Cutterbar Spindles, page 147*.

To change R216 Rotary Disc Header (10 disc) spindle rotation from four crop streams (A) to two crop streams (B):

- Swap disc/spindle (3) with disc/spindle (8).

NOTE:

Switching from four streams to two streams is a recommended setting when cutting light alfalfa and using the double windrower attachment (DWA).

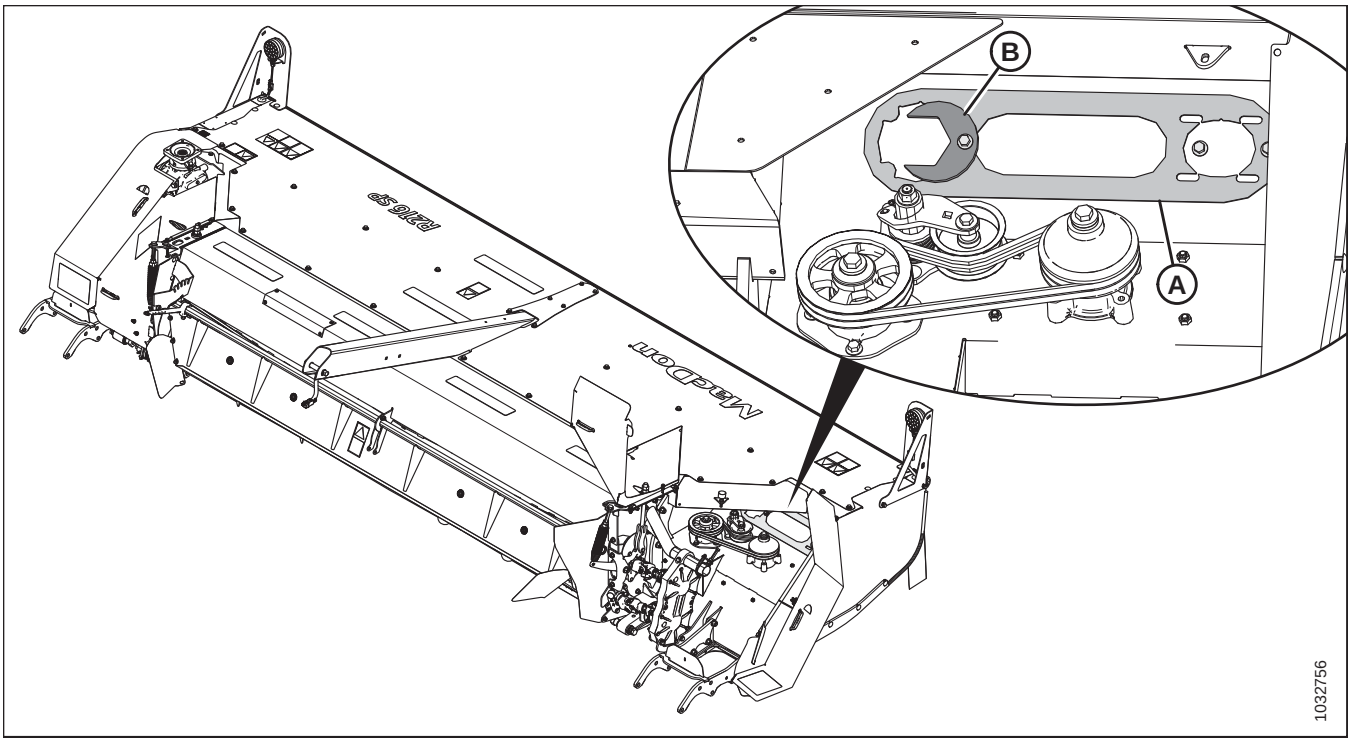


Figure 4.173: Disc Timing Tool Location on Header

A - Disc Timing Tool (MD #307954)

B - Safecut Spindle-Nut Wrench (MD #246314)

NOTE:

A disc timing tool (A) (MD #307954) is provided with the header and is located on the panel on the right side of the header. For instructions on using the disc timing tool, refer to *Installing Cutterbar Spindles, page 147*.

Changing R216 Rotary Disc Header Cutterbar Crop Stream Configuration for Grass Seed Option

Discs are factory-installed to produce four crop streams. During the installation of the grass seed option, the cutterbar stream is reconfigured to produce one crop stream instead of four. This procedure is provided for reference to show how the four-crop stream configuration was changed for grass seed.

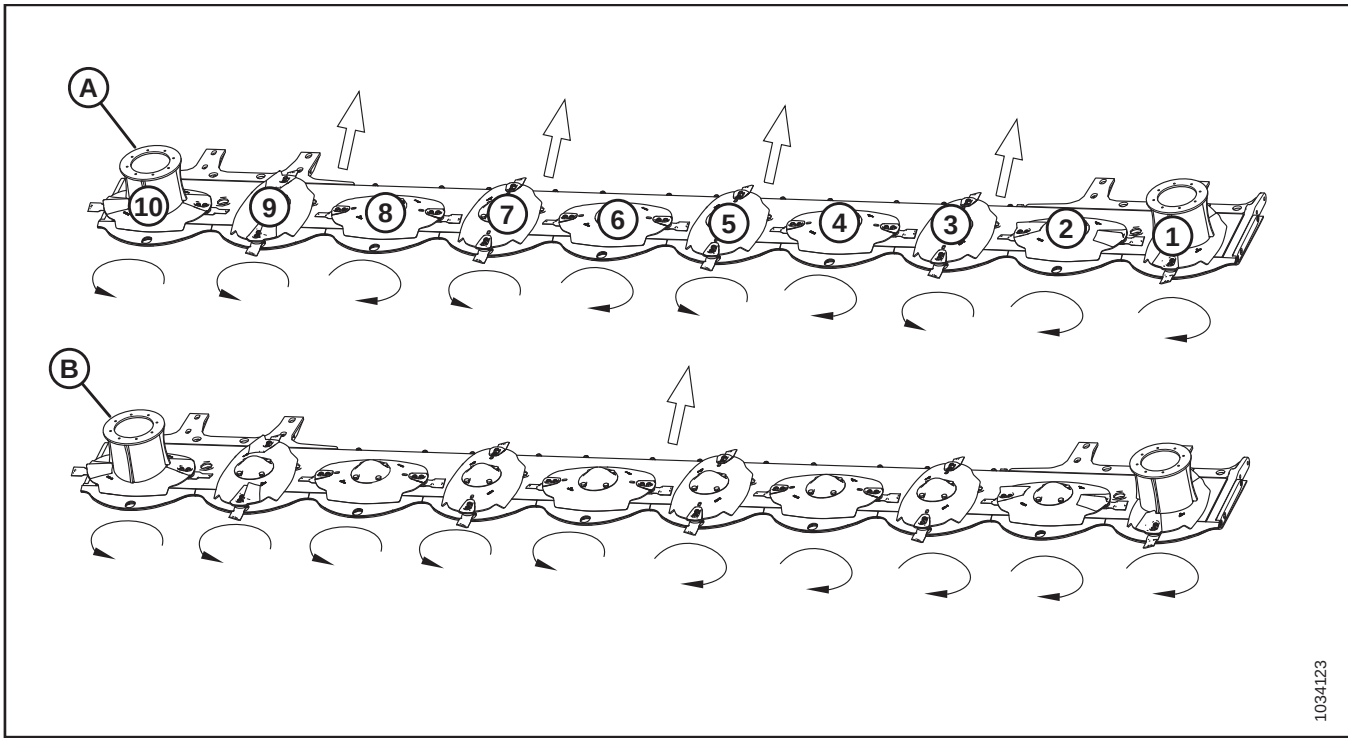


Figure 4.174: R216 Rotary Disc Header (10 Disc) Spindle Rotation Pattern and Crop Streams

A - Four Crop Stream **B - One Crop Stream**

To change R216 Rotary Disc Header (10 disc) spindle rotation from four crop streams (A) to one crop stream (B):

1. Swap disc/spindle (3) with disc/spindle (8). For instructions, refer to *Removing Cutterbar Spindles, page 145* and *Installing Cutterbar Spindles, page 147*
2. Swap disc/spindle (5) with disc/spindle (6). For instructions, refer to *Removing Cutterbar Spindles, page 145* and *Installing Cutterbar Spindles, page 147*

NOTE:

Switching from 4 streams to 1 stream is a recommended setting to improve the performance of the header while operating with the grass seed package.

4.7 Conditioner Roll Timing Gearbox

The conditioner roll timing gearbox is located inside the drive compartment at the right of the header and transfers power from the gearbox-driven lower roll to the upper roll.

Gearbox (A) does not require routine maintenance or service other than checking and changing oil.

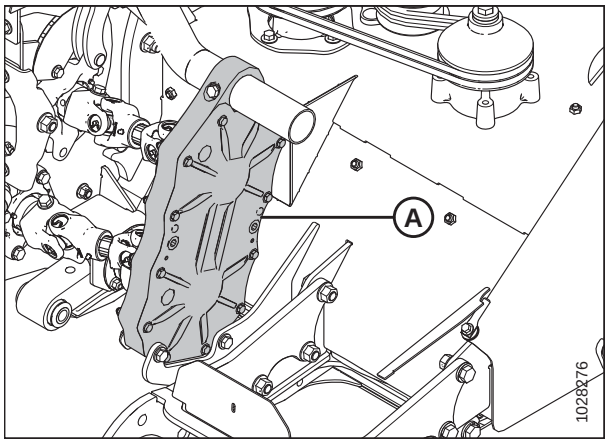


Figure 4.175: Conditioner Roll Timing Gearbox

4.7.1 Checking and Changing Conditioner Roll Timing Gearbox Oil

Change the oil after the first 50 hours of operation. Perform subsequent oil changes every 250 hours or annually (preferably before the start of the cutting season). Refer to this manual's inside back cover for a list of recommended fluids, lubricants, and capacities.

DANGER

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

IMPORTANT:

Check the gearbox oil level when the oil is warm. If the oil is cold, idle the machine for approximately 10 minutes prior to checking.

1. Lower the rotary disc header to the ground and adjust the header angle (tilt) so that the cutterbar is level (parallel) with the ground.
2. Shut down the engine, and remove the key from the ignition.
3. On the right side of the header, engage lift release latch (A) and pull handle (B) to open outboard driveshield (C).
4. Lift at handle (D) and open inboard driveshield (E).

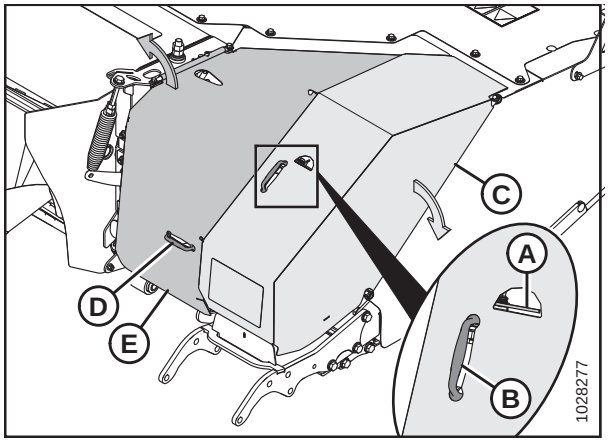


Figure 4.176: Right Driveshields

5. Remove right driveshield (A). For instructions, refer to *4.11.1 Removing Driveshields, page 228*.

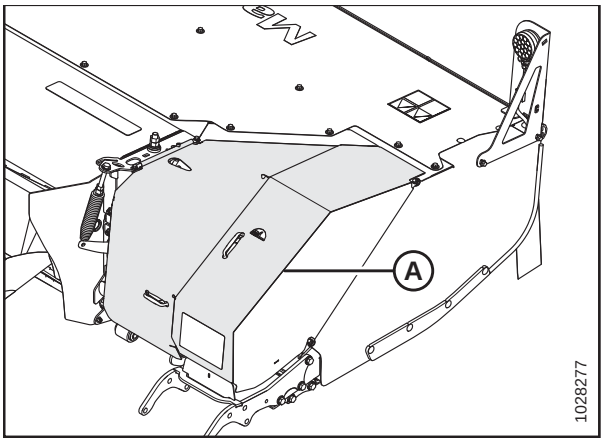


Figure 4.177: Right Driveshield

Checking conditioner roll timing gearbox oil level:

6. Clean around oil level sight glass (A) and breather (B) on the inboard side of the gearbox.
7. Ensure that the lubricant is level with the top of the sight glass. If necessary, add lubricant through breather (B). Refer to this manual's inside back cover for a list of recommended fluids, lubricants, and capacities.

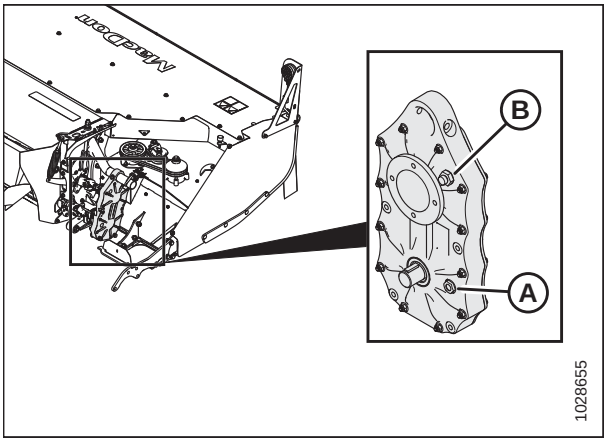


Figure 4.178: Roll Timing Gearbox

Changing conditioner roll timing gearbox oil:

DANGER

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

8. Raise the header to provide sufficient access to oil drain plug (A).
9. Shut down the engine, and remove the key from the ignition.
10. Engage the windrower lift cylinder safety props.

    For instructions, refer to the procedure according to the type of windrower:

    - **M1240 Windrower:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
    - **M205 SP Windrower :** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*
11. Clean around oil drain plug (A) on the bottom of the gearbox and around oil level plug (B) on the inboard side of the gearbox.
12. Place a 1 liter (1.05 qts [US]) container underneath the conditioner gearbox.
13. Remove oil drain plug (A) using a hex key.
14. Allow sufficient time for the oil to drain, then reinstall oil drain plug (A), and tighten.
15. Fill with the specified volume of oil as listed on the inside back cover of this manual or until level is visible in sight glass (B).

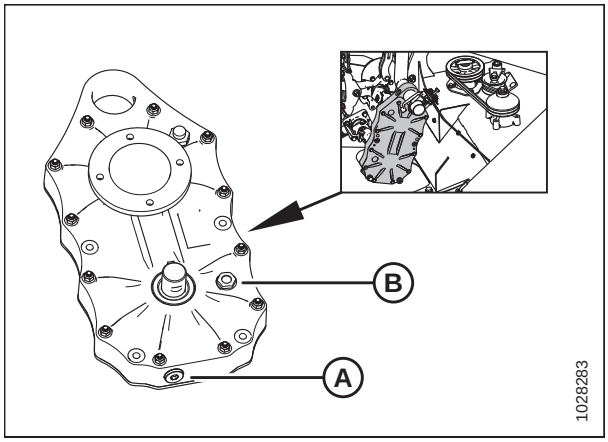


Figure 4.179: Roll Timing Gearbox

16. Reinstall driveshields. For instructions, refer to *4.11.2 Installing Driveshields, page 229*.
17. Lower the header fully.
18. Properly dispose of oil.

4.8 Header Drive Gearbox

Header drive gearbox (A) transfers power from the hydraulic motor to the cutterbar and conditioner. It is located inside the drive compartment at the left end of the header.

The only regular servicing required is maintaining the lubricant level and changing the lubricant according to the intervals specified in this manual. For more information, refer to *4.4 Maintenance Requirements, page 124*.

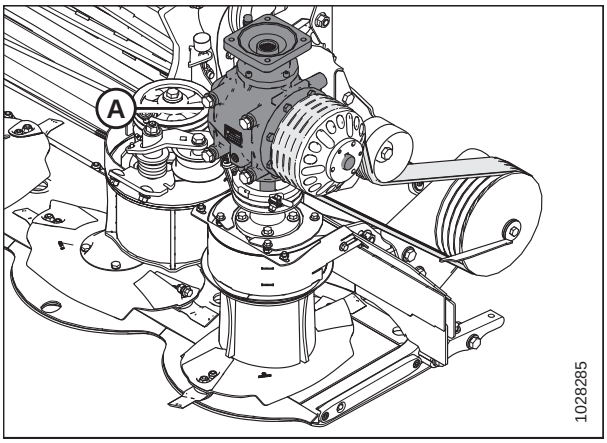


Figure 4.180: Header Drive Gearbox

4.8.1 Checking Oil in Header Drive Gearbox

Change oil after the first 50 hours of operation. Perform subsequent oil changes every 250 hours or annually (preferably before the start of the cutting season).

IMPORTANT:

Check the gearbox oil level when the oil is warm. If the oil is cold, idle the machine for approximately 10 minutes prior to checking.

DANGER

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

1. Park the windrower on a level surface.
2. Start the engine.
3. Adjust the header height until the cutterbar is parallel with the ground.
4. Shut down the engine, and remove the key from the ignition.
5. Open the left driveshield. For instructions, refer to *3.7.1 Opening Driveshields, page 82*.

6. Locate gearbox (A) on the left side of the header.

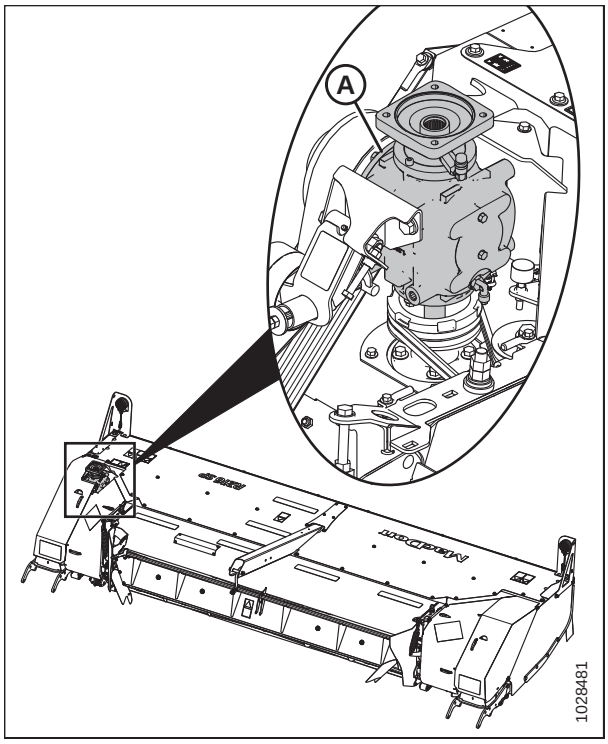


Figure 4.181: Header Drive Gearbox Location

7. Clean the area around check plug (A).
8. Remove check plug (A) with an 13 mm (1/2 in.) socket.
9. Ensure the lubricant is even with the bottom of the check hole (with check plug [A] removed) or slightly runs out of the check hole.
10. If necessary, remove fill plug (B) and add lubricant to the gearbox through the fill hole until lubricant runs out of the check hole (with check plug [A] removed). Refer to the inside back cover of this manual for a list of recommended fluids, lubricants, and capacities for the machine.
11. Reinstall the plug(s) and torque to 23 Nm (17 lbf·ft).
12. Close the left driveshield.
13. Lower the header fully.
14. Shut down the engine, and remove the key from the ignition.

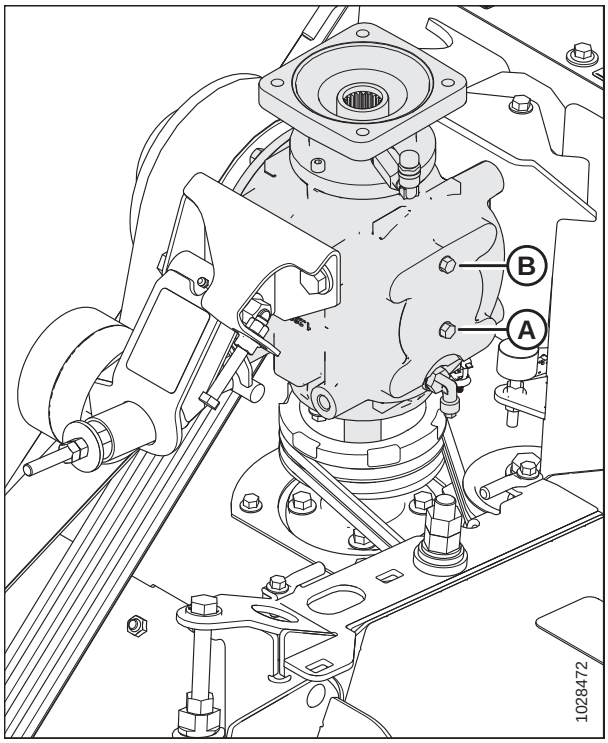


Figure 4.182: Header Drive Gearbox

4.8.2 Changing Oil in Header Drive Gearbox

Change oil after the first 50 hours of operation. Perform subsequent oil changes every 250 hours or annually (preferably before the start of the cutting season).

DANGER

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

1. Lower the header fully.
2. Shut down the engine, and remove the key from the ignition.
3. Open the cutterbar curtain. For instructions, refer to *3.8.1 Opening Cutterbar Curtain, page 86*.
4. Open the left driveshield. For instructions, refer to *3.7.1 Opening Driveshields, page 82*.
5. Clean around oil drain plug (A) on the bottom of the gearbox and around check plug (B) on the inboard side of the gearbox.
6. Place a 4 liter (1 gal. [US]) container under drain (A).
7. Remove oil drain plug (A).
8. Allow sufficient time for oil to drain, reinstall oil drain plug (A), and tighten.
9. Remove check plug (B) and fill plug (C).
10. Add lubricant through the fill hole (with fill plug [C] removed) until the oil level is even with the check hole (with check plug [B] removed). Refer to the inside back cover of this book for a list of recommended fluids, lubricants, and capacities for the machine.
11. Replace check plug (B) and fill plug (C). Tighten plugs.
12. Clean up any spilled oil and properly dispose of used oil and wipes.
13. Close the cutterbar curtain. For instructions, refer to *3.8.2 Closing Cutterbar Curtain, page 87*.

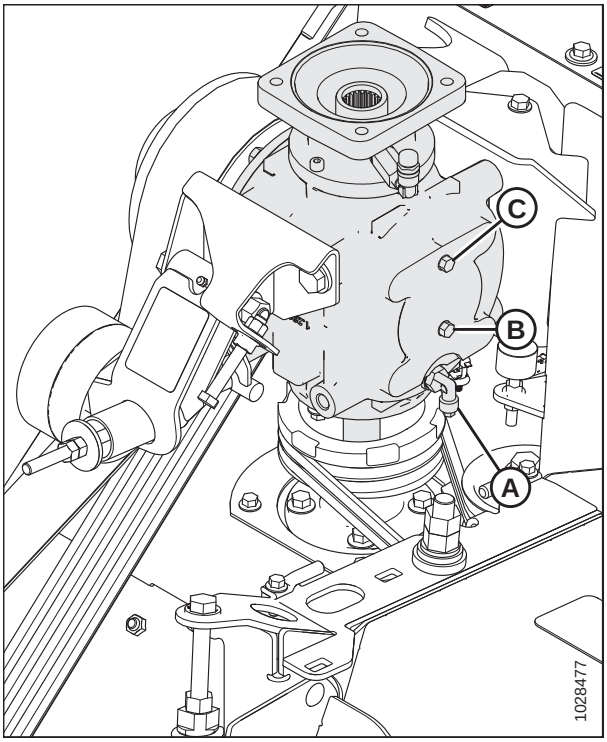


Figure 4.183: Header Drive Gearbox

4.9 Cutterbar Curtain

Rubber curtain (A) is installed at the front of the header. The curtain forms a barrier that minimizes the risk of thrown objects being ejected from the cutterbar area. Always keep curtains down during operation.

Replace the curtains if they become worn or damaged.

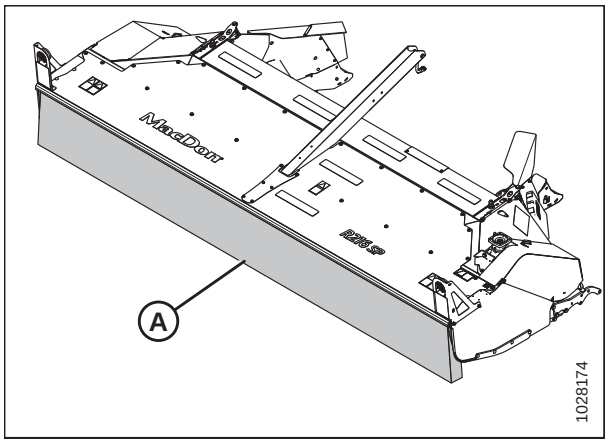


Figure 4.184: Cutterbar Curtain

4.9.1 Inspecting Cutterbar Curtain

The cutterbar curtain is an important safety feature that reduces the potential for thrown objects. Always keep the curtain down when operating the header.

WARNING

To reduce the risk of personal injury and machine damage, do NOT operate the machine without curtain installed and in good condition. Foreign objects can be ejected with considerable force when the machine is started.

CAUTION

To avoid injury, keep hands and fingers away from corners of doors when closing.

Check cutterbar curtain (A) for the following conditions:

- Rips and tears: Replace curtain.
- Cracking: While the curtain may look whole, this is an indicator that failure is imminent—replace curtain.
- Missing bolts: Replace missing hardware before operating.

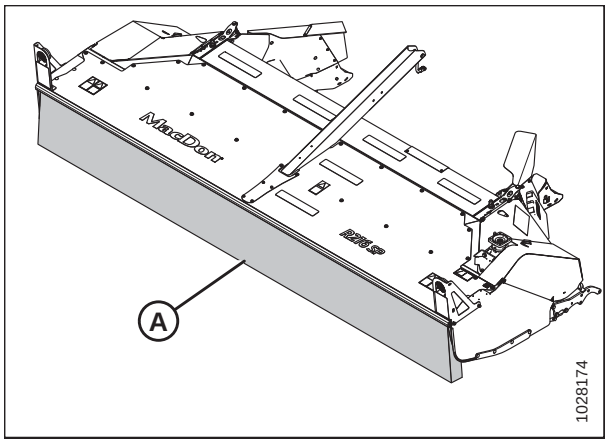


Figure 4.185: Cutterbar Curtain

4.9.2 Removing Cutterbar Curtain

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.

1. Place the header in a position where you can access the component that will be serviced.
2. Shut down the engine, and remove the key from the ignition.
3. If the header is fully raised, engage safety props. If the header is off the ground and not fully raised, place blocks under the header. Never work on or beneath an unsupported header. For instructions on engaging the safety props, refer to the procedure according to the type of windrower:
   - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
   - **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*
4. Remove hex flange head bolt and washer (A) securing curtain (B) to the inboard side of the end panel.

   NOTE:

   Cutterbar removed from illustration for clarity.
5. Loosen six lock nuts (C) securing curtain (B) to the front of the header frame. Do **NOT** remove nuts at this time.

   NOTE:

   Curtain seam is on the inside.

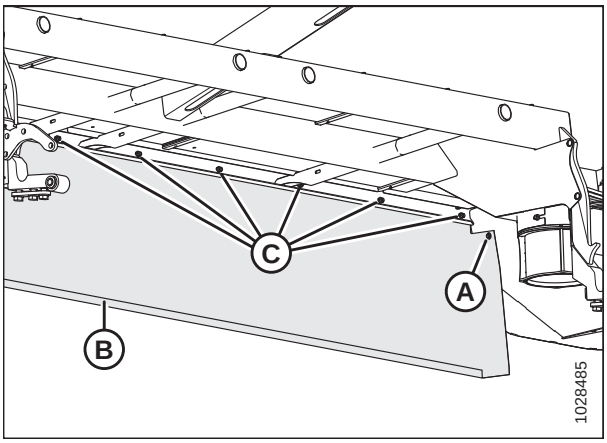


Figure 4.186: Cutterbar Curtain – View from Below

6. Remove bumper (A) by sliding it off of bumper mount (D).

   NOTE:

   Top shield removed from illustration for clarity.
7. Remove six M10 bolts (B), six lock nuts (C), and bumper mount (D).
8. Repeat Steps *4, page 219* to *7, page 219* at the opposite end of the header.
9. Remove curtain (E).

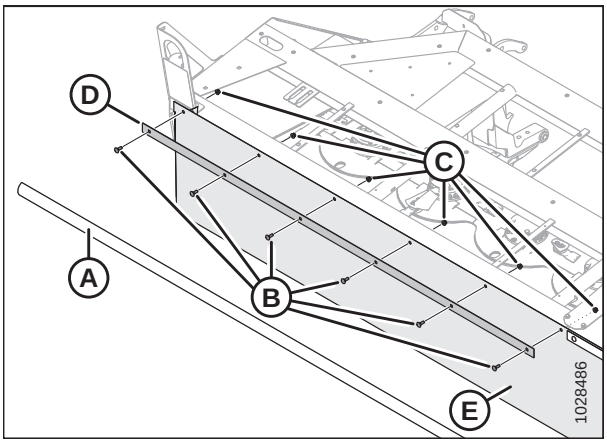


Figure 4.187: Cutterbar Curtain – View from Front

4.9.3 Installing Cutterbar Curtain

DANGER

To avoid bodily injury or death from unexpected start-up or fall of a raised machine, always stop the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. Never work on or beneath an unsupported header. If the header is fully raised, always engage safety props. If the header is off the ground and not fully raised, place blocks under the header.

1. Place the header in a position where you can access the component that will be serviced.
2. Shut down the engine, and remove the key from the ignition.
3. If the header is fully raised, engage safety props. If the header is off the ground and not fully raised, place blocks under the header. Never work on or beneath an unsupported header. For instructions on engaging the safety props, refer to the procedure according to the type of windrower:
   - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
   - **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*
4. Position curtain (E) on the front of the header frame.

   NOTE:

   Top shield removed from illustration for clarity.
5. Secure curtain with bumper mount (D), six M10 bolts (B), and six lock nuts (C). Do **NOT** tighten nuts at this time.
6. Slide bumper (A) onto bumper mount (D) from outboard end.

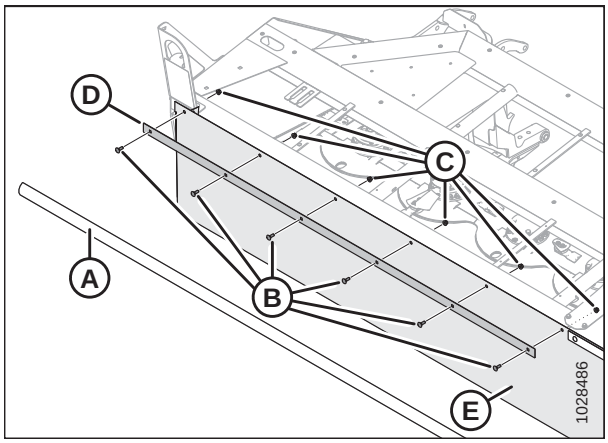


Figure 4.188: Cutterbar Curtain – View from Front

7. Tighten six lock nuts (C) securing curtain (B) to the front of the header frame.

   NOTE:

   Cutterbar removed from illustration for clarity.
8. Secure the curtain to the inboard side of the end panel with a hex flange head bolt and washer (A). Torque bolt to 29 Nm (21 lbf·ft).
9. Repeat Steps *4, page 220* to *8, page 220* at the opposite end of the header.
10. Disengage the windrower safety props. For instructions, refer to the procedure according to the type of windrower:
    - **M1240 Windrowers:** *3.2.1 Engaging and Disengaging Header Safety Props – M1240 Windrower, page 26*
    - **M205 SP Windrowers:** *3.2.2 Engaging and Disengaging Header Safety Props – M205 SP Windrower, page 27*
11. Lower the header.

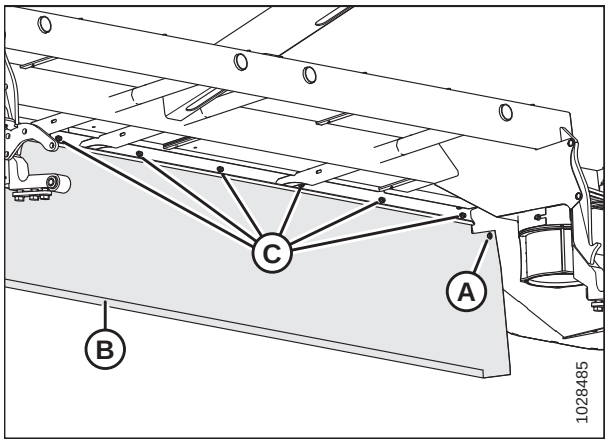


Figure 4.189: Cutterbar Curtain – View from Below

4.10 Conditioner

Rolls condition the crop by crimping and crushing the stem in several places, which allows the release of moisture resulting in faster drying times. There are two roll conditioner options—steel conditioner rolls and polyurethane rolls.

4.10.1 Inspecting Conditioner Components

Inspect conditioner roll bearings, feed roll bearings, and driveline U-joints for signs of wear or damage.

DANGER

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

WARNING

Exercise caution when working around the blades. Blades are sharp and can cause serious injury. Wear gloves when handling blades.

1. Lower the header fully.
2. Shut down the engine, and remove the key from the ignition.
3. Open driveshields (A). For instructions, refer to *3.7.1 Opening Driveshields, page 82*.

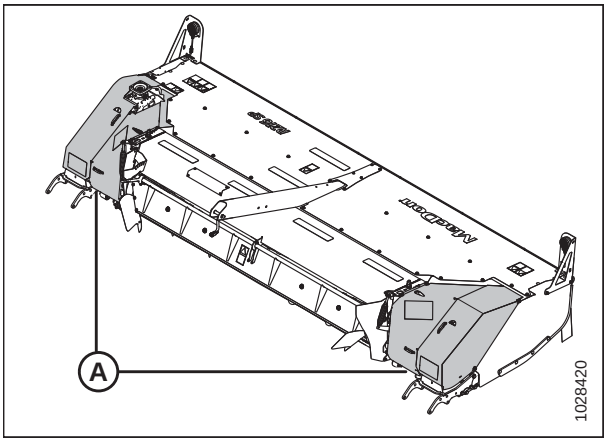


Figure 4.190: Driveshields

4. Inspect feed roll left bearing (A) for signs of wear or damage. If the bearing needs replacing, contact your Dealer.

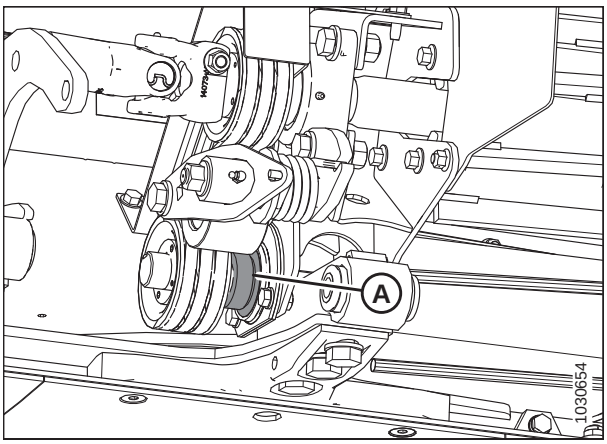


Figure 4.191: Feed Roll Left Bearing – View from Below

5. Inspect feed roll right bearing (A) for signs of wear or damage. If the bearing needs replacing, contact your Dealer.

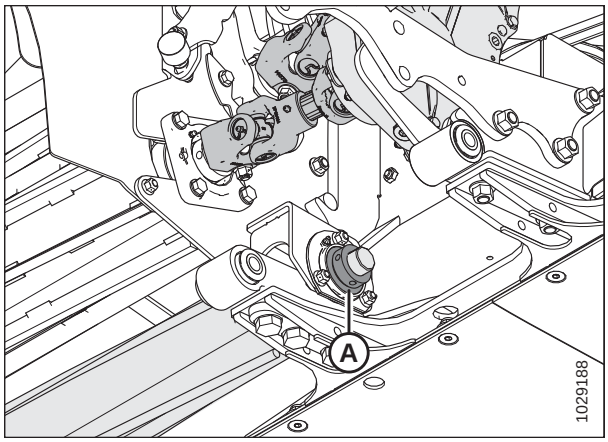


Figure 4.192: Feed Roll Right Bearing – View from Below

6. Inspect conditioner roll left bearings (A) for signs of wear or damage. If the bearings need replacing, contact your Dealer.

   NOTE:

   Bearings are located on the inboard side of the feed roll tensioner assembly driver pulley and left roll arm.

7. Inspect conditioner driveline U-joints (B) for signs of wear or damage. If the U-joints need replacing, contact your Dealer.

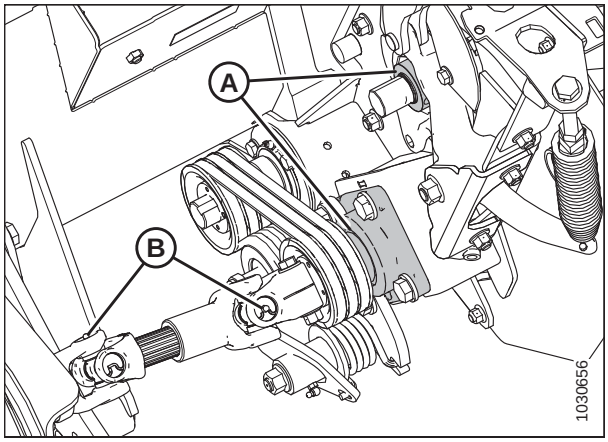


Figure 4.193: Conditioner Roll Left Bearings

8. Inspect conditioner drive U-joints (A) for signs of wear or damage. If the U-joints need replacing, contact your Dealer.
9. Inspect conditioner roll right bearings (B) for signs of wear or damage. If the bearings need replacing, contact your Dealer.

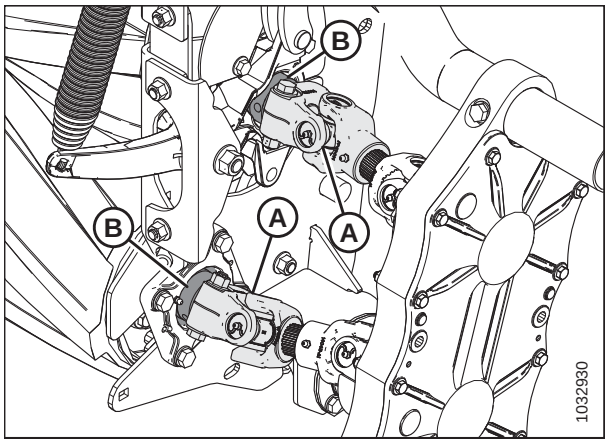


Figure 4.194: Conditioner Drive U-Joints and Conditioner Roll Right Bearings

10. Inspect roll timing gearbox bearings (A) for signs of wear or damage. If the bearings need replacing, contact your Dealer.

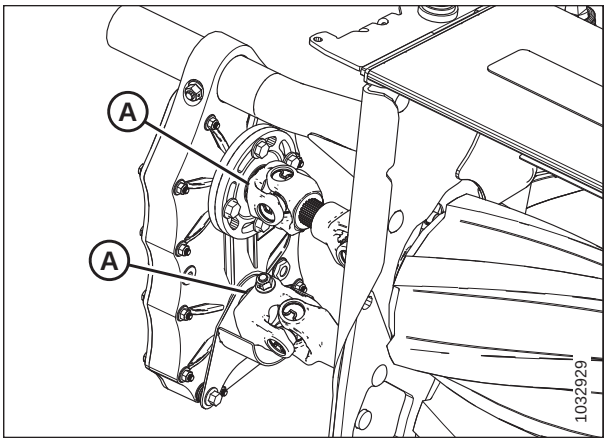


Figure 4.195: Roll Timing Gearbox Bearings

Conditioner Drive Belt

The conditioner drive belt is located inside the left driveshield and is tensioned with a spring tensioner.

Inspecting Conditioner Drive Belt

Check the belt tension after the first 25 hours, and then check and inspect for damage or wear every 100 hours.

DANGER

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

1. Lower the rotary disc header fully.
2. Shut down the engine, and remove the key from the ignition.
3. Open left driveshield (A). For instructions, refer to *3.7.1 Opening Driveshields, page 82*.

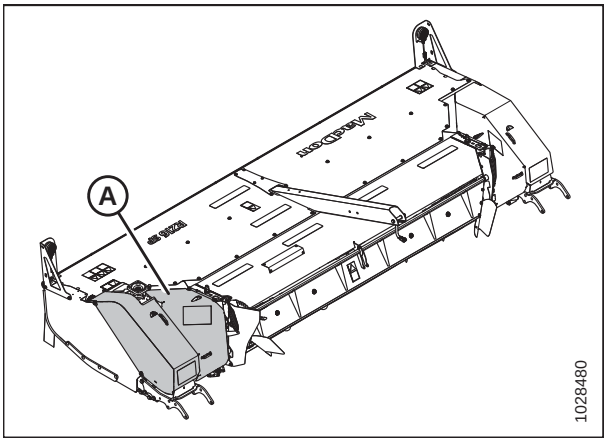


Figure 4.196: Left Driveshield

4. Inspect drive belt (A) and replace if damaged or cracked.
5. Check that jam nut (B) and adjuster nut (C) are tight.

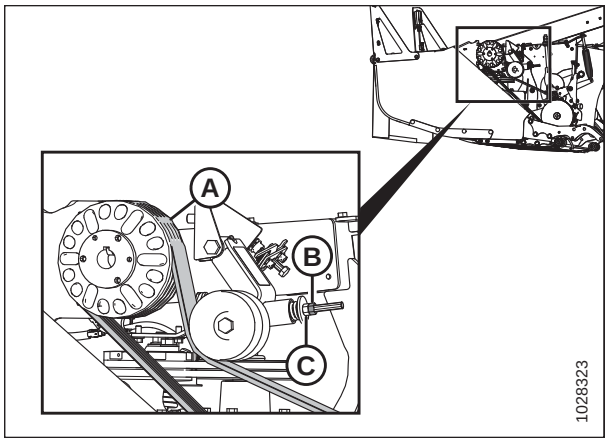


Figure 4.197: Conditioner Drive

6. Measure the length of belt tensioner spring (A) and ensure spring length (B) is 17 mm (11/16 in.) in accordance with spring tension decal (C). If the spring length requires adjustment, refer to *Installing Conditioner Drive Belt, page 226*.
7. Close the driveshield. For instructions, refer to *3.7.2 Closing Driveshields, page 84*.

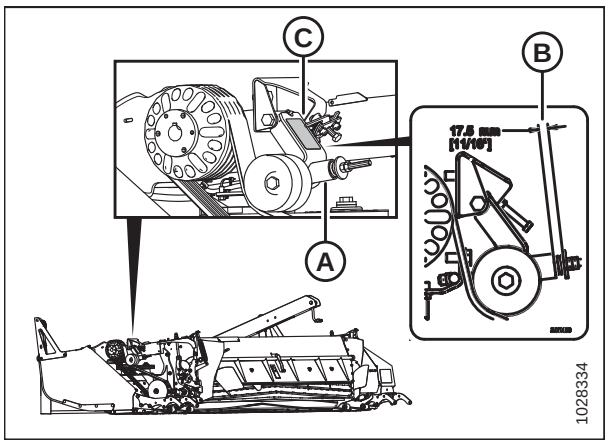


Figure 4.198: Belt Tension Spring

Removing Conditioner Drive Belt

DANGER

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

1. Lower the header fully.
2. Shut down the engine, and remove the key from the ignition.
3. Remove the left driveshield. For instructions, refer to *3.7.1 Opening Driveshields, page 82*.
4. Turn jam nut (A) counterclockwise to unlock the tension adjustment.
5. Turn jam nut (A) and adjuster nut (B) counterclockwise to fully extend tensioner spring (C), and release the tension from conditioner drive belt (D).
6. Fully loosen hardware, then slide threaded rod (E) forward and down to disengage the rod pivot point from the disc speed sensor bracket.

   NOTE:

   The threaded rod pivot point must be disengaged from the disc speed sensor bracket to allow the tensioner assembly to rotate enough to remove the drive belt.
7. Remove drive belt (D).

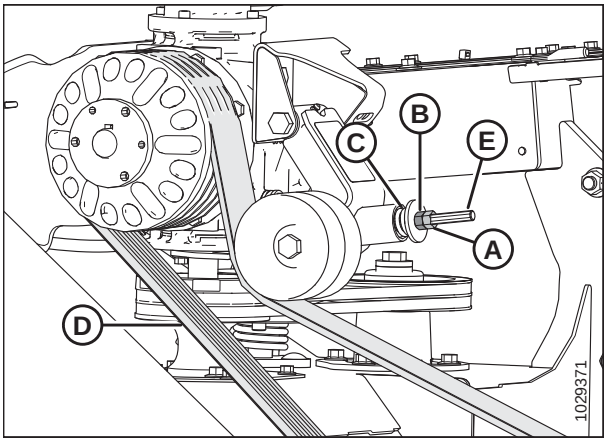


Figure 4.199: Conditioner Drive

Installing Conditioner Drive Belt

DANGER

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

1. Lower the header fully.
2. Shut down the engine, and remove the key from the ignition.
3. Open left driveshield (A). For instructions, refer to *3.7.1 Opening Driveshields, page 82*.

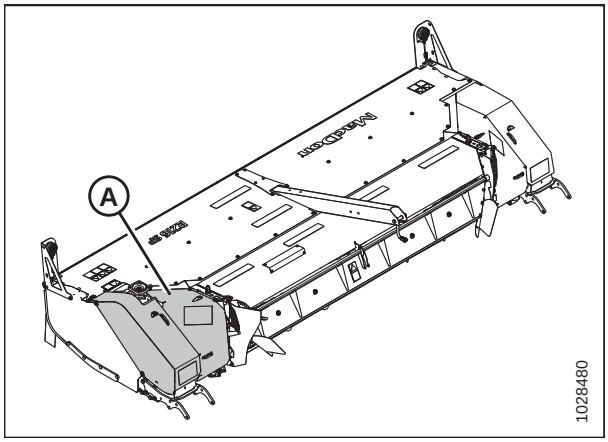


Figure 4.200: Left Driveshield

4. Install drive belt (A) onto driven pulley (C) first, and then onto drive pulley (B), ensuring that the belt is in the pulley grooves.

   NOTE:

   If necessary, loosen the jam nut and adjuster nut to relieve the spring tension.

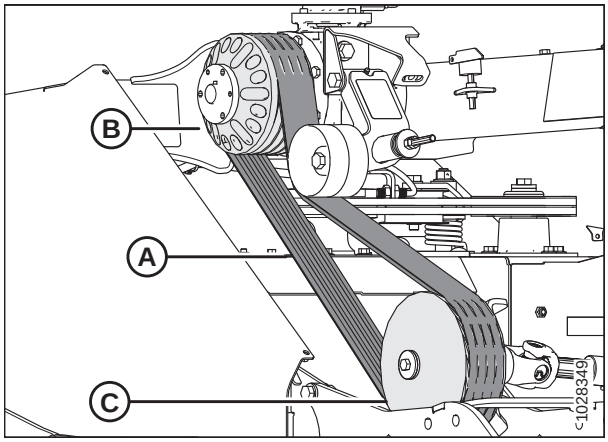


Figure 4.201: Conditioner Drive

5. Check position of the bracket, center-to-center distance (C) between drive pulley (D) and driven pulley (E) should be 723 mm (28 7/16 in.). If not, loosen M16 hex head bolt and lock nuts (A) on pulley mount bracket (B), and adjust the position of the bracket.
6. Torque hardware to 170 Nm (126 lbf·ft).

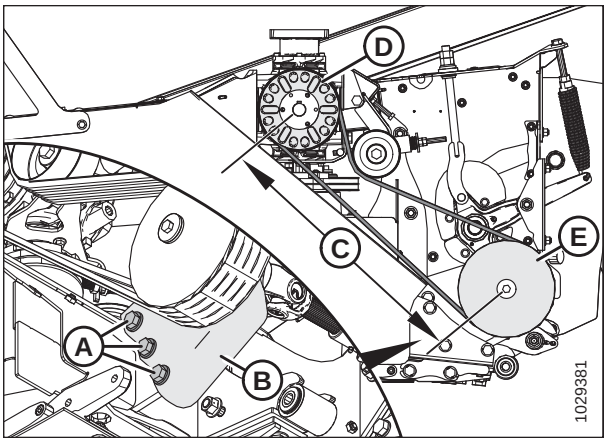


Figure 4.202: Conditioner Drive

7. With hardware fully loosened, slide threaded rod (E) up and backward into the disc speed sensor bracket, then snug the hardware to engage the rod pivot point with the bracket.
8. Measure the length of tensioner spring (C). For proper belt tension, dimension (D) should be set to 17 mm (11/16 in.).
9. To adjust spring tension, loosen jam nut (A) by turning it counterclockwise.
10. Turn adjuster nut (B) clockwise to increase tensioner spring/belt tension or turn adjuster nut (B) counterclockwise to decrease tensioner spring/belt tension.
11. Once the correct spring measurement has been achieved, hold adjuster nut (B) in place and tighten jam nut (A) against it by turning the jam nut clockwise.
12. Reconnect speed sensor (B) to wiring harness (A).
13. Close the left driveshield. For instructions, refer to *3.7.2 Closing Driveshields, page 84*.

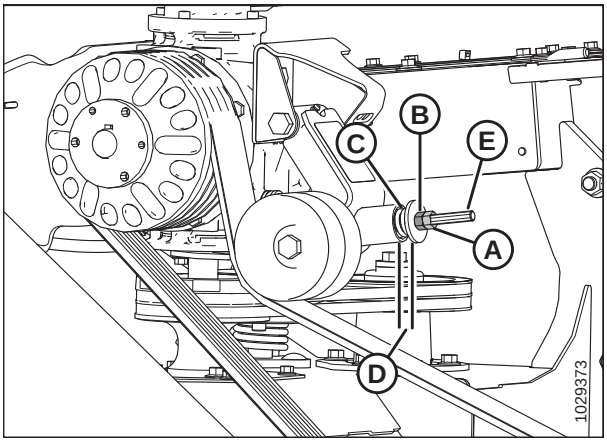


Figure 4.203: Conditioner Drive

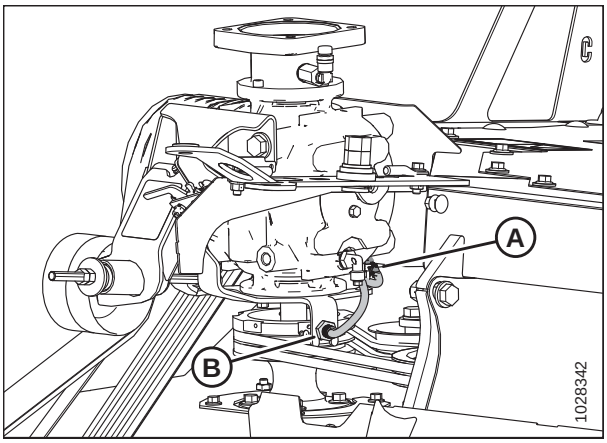


Figure 4.204: Speed Sensor

4.11 Replacing Driveshields

If driveshields are missing, severely damaged, or are not securely installed due to damage, they must be replaced.

4.11.1 Removing Driveshields

WARNING

To reduce the risk of personal injury, do NOT operate the machine without the driveshields in place and secured.

NOTE:

Images shown in this procedure are for the left driveshield—the right driveshield is similar.

1. Open the driveshields. For instructions, refer to *3.7.1 Opening Driveshields, page 82*.

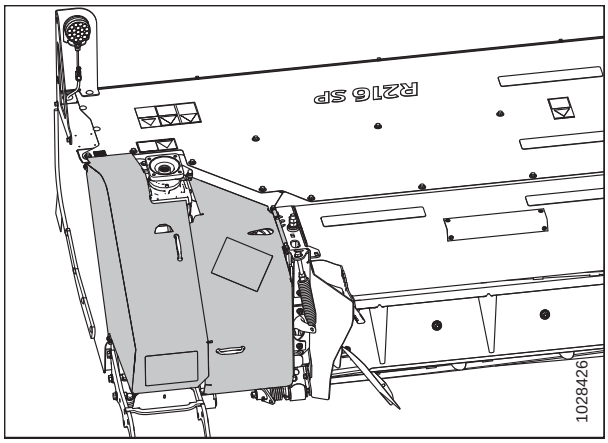


Figure 4.205: Left Driveshield

2. Remove bolt (C), retainer pin (B), two washers (A), and a hex flange center lock nut from the top and bottom of the outboard half of the driveshield.
3. Remove bolt (C), retainer pin (B), and the hex flange center lock nut from the front and rear of the inboard half of the driveshield.

   NOTE:

   The inboard half of the driveshield does **NOT** use washers (A).

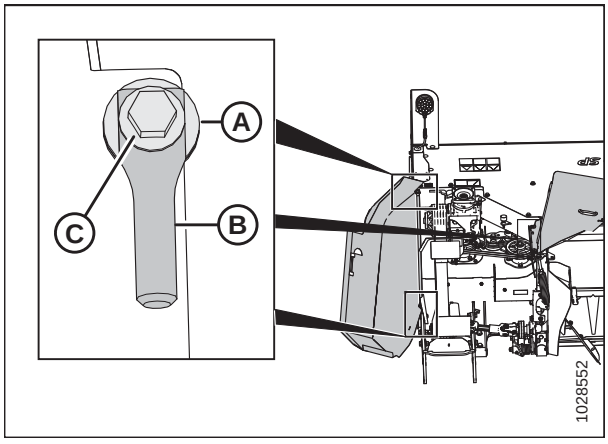


Figure 4.206: Retaining Pins on Driveshields

4. Pull outboard side (A) and inboard side (B) of driveshield away from the disc header to remove.

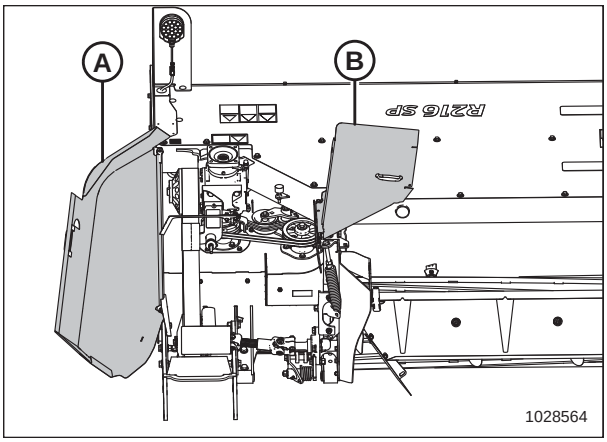


Figure 4.207: Inboard and Outboard Half of Driveshield

4.11.2 Installing Driveshields

CAUTION

Do NOT operate the machine without the driveshields in place and secured.

NOTE:

Images shown in this procedure are for the left driveshield—the right driveshield is similar.

1. Position outboard half (A) and inboard half (B) of driveshield as shown.

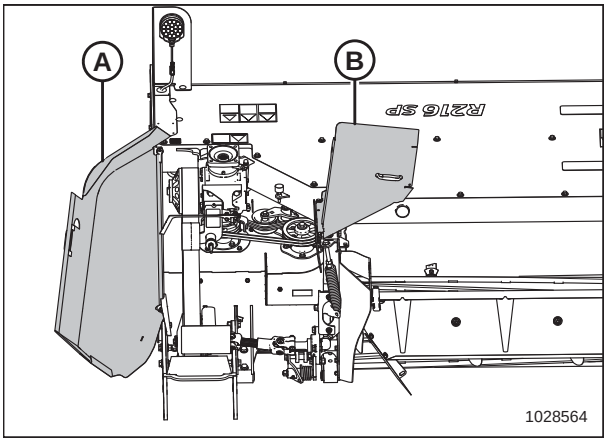


Figure 4.208: Inboard and Outboard Half of Driveshield

2. Secure the top of the outboard half of the driveshield with two washers (A), retaining pin (B), bolt (C), and a hex flange center lock nut.
3. Secure the front and rear of the inboard half of the driveshield with retaining pin (B), bolt (C), and a hex flange center lock nut.

   NOTE:

   The inboard half of the driveshield does **NOT** use washers (A).

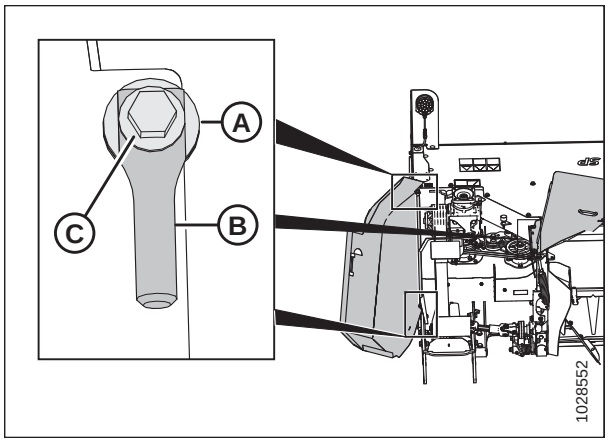


Figure 4.209: Retaining Pins and Hardware on Driveshield

4. Close the driveshields. For instructions, refer to *3.7.2 Closing Driveshields, page 84*.

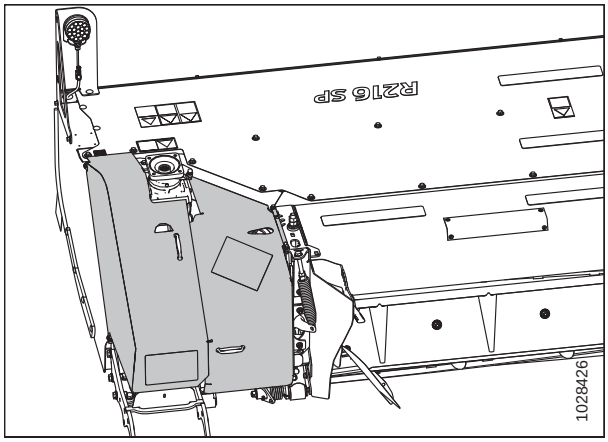


Figure 4.210: Left Driveshield

4.12 Electrical System

4.12.1 Maintaining Electrical System

- Use electrical tape and cable ties as required to prevent the wiring harness from dragging or rubbing.
- Keep lights clean.
- Replace damaged lights.

4.12.2 Replacing Amber Hazard/Signal Light

DANGER

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

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

2. Detach harness (A) on light (B) from main header harness (C).
3. Loosen nut (D), and then remove light (B) from light bracket (E). Discard the light.
4. Loosen nut (D) on new light fixture (B), then insert the light into light bracket (E).
5. Tighten nut (D) to secure the light in place. Torque to 16 Nm (12 lbf·ft).
6. Connect light harness (A) to main header harness (C).
7. Check operation of the new light.

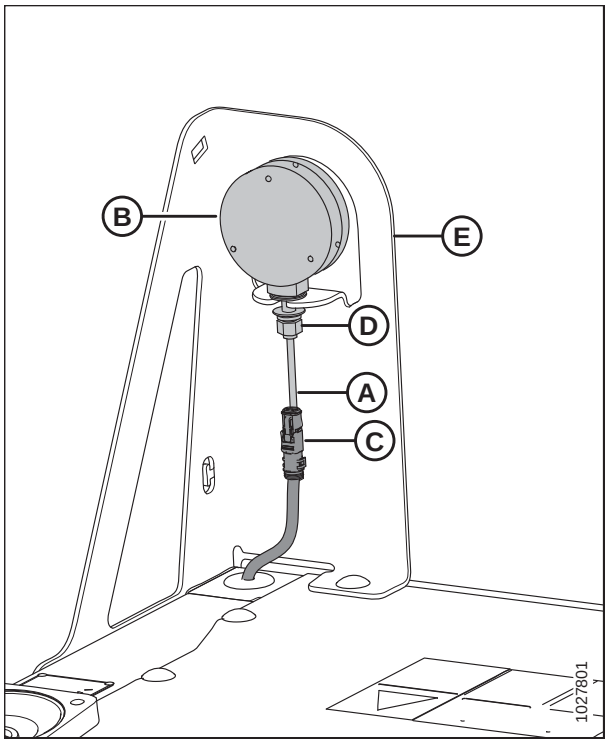


Figure 4.211: Left Amber Hazard/Signal Light – Standard Headers

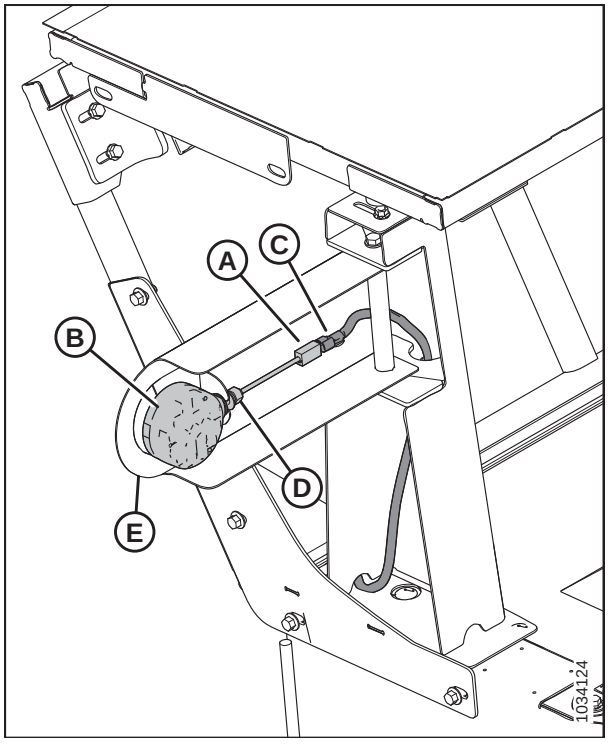


Figure 4.212: Left Amber Hazard/Signal Light – Grass Seed

4.12.3 Replacing Header Disc Speed Sensor

If the header disc sensor malfunctions or is damaged, use this procedure to replace it.

DANGER

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

1. Lower the header to the ground.
2. Stop the engine, and remove the key.
3. Open the left driveshield. For instructions, refer to *3.7.1 Opening Driveshields, page 82*.
4. Disconnect wire harness (A) from speed sensor connector (B).
5. Remove fir tree clip and cable tie (E). Retain the clip for reinstallation.
6. Loosen nut (C) from the end of the sensor and remove the sensor from bracket (D).
7. Remove the nut from the end of the new sensor, install the new sensor into bracket (D) and secure with nut (C).
8. Connect sensor wire (B) to harness (A).

   NOTE:

   Ensure wires are clear of the belt and pulley.
9. Secure with fir tree clip (E) and the new cable tie.

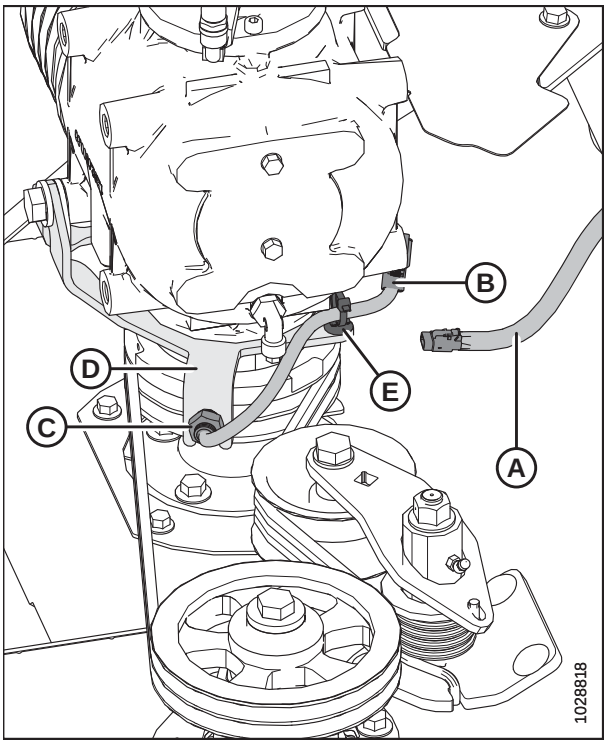


Figure 4.213: Header Disc Speed Sensor

10. Adjust nuts (A) as required to achieve a 2–3 mm (1/16–1/8 in.) gap (B) between sensor (C) and the high end of pulley (D) (M1240 Windrowers) or encoder (D) (M205 SP Windrowers). Ensure the sensor face and pulley face are parallel. Bend bracket (E) as required. Rotate hub (F) to by hand to check that there is sufficient gap all the way around the pulley or encoder.
11. Tighten nuts (A) to 15 Nm (11 lbf·ft).
12. Close the left driveshield. For instructions, refer to *3.7.2 Closing Driveshields, page 84*.
13. Start the windrower, engage the header, and check the operation of speed sensor on the monitor. The sensor may require re-calibrating. For instructions, refer to the windrower operator's manual.

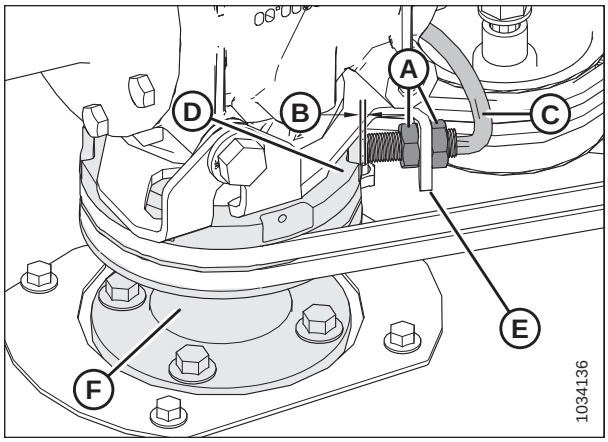


Figure 4.214: Header Disc Speed Sensor – M1240 Windrower Sensor Bracket Shown

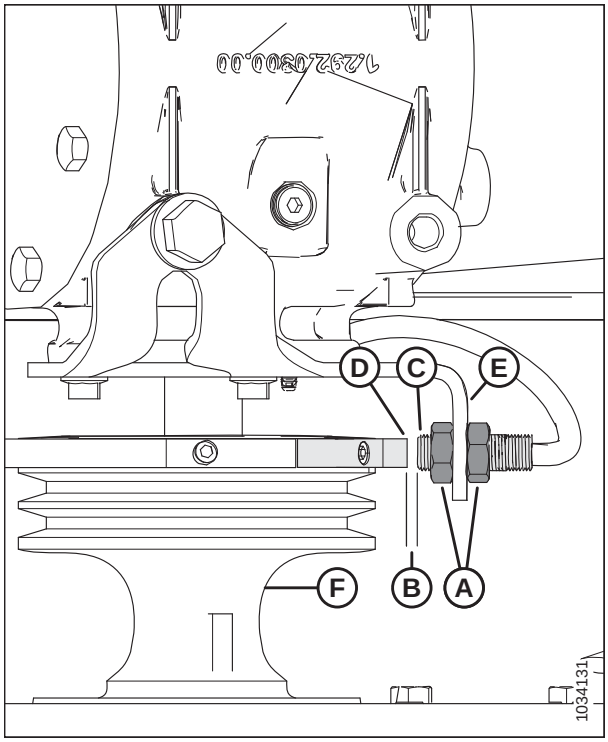


Figure 4.215: Header Disc Speed Sensor – M205 SP Windrower Sensor Encoder Shown

4.13 Hydraulics

4.13.1 Checking Hydraulic Hoses and Lines

Check hydraulic hoses and lines daily for signs of leaks.

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.**

Figure 4.216: Hydraulic Pressure Hazard

- **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.

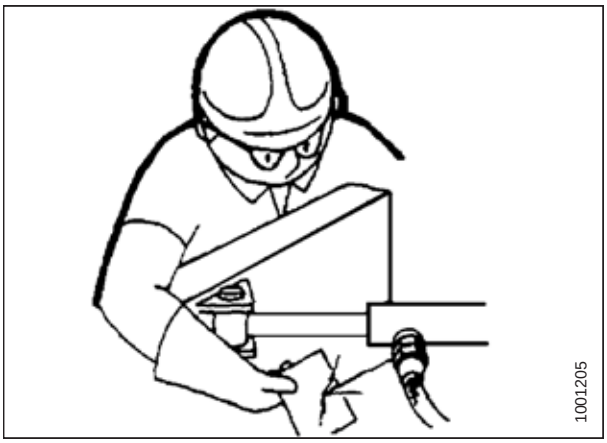


Figure 4.217: Testing for Hydraulic Leaks

Chapter 5: Options and Attachments

5.1 Tall Crop Kit (Cutterbar Deflectors and Tall Crop Feed Plates) – MD #B6967

The tall crop kit supplies cutterbar deflectors and tall crop feed plates to improve crop feeding from the cutterbar into the conditioner in thick stemmed crops such as sorghum.

Cutterbar Deflectors

A two-piece cutterbar deflector is attached to the cutterbar just below the header's conditioner rolls. Deflectors provide improved feeding into the conditioner rolls and prevent heavy crop with long stems from feeding under the rolls.

Cutterbar deflectors may not be well-suited for some crop and field conditions. Refer to the following table:

Table 5.1 Conditions for Using Cutterbar Deflectors

Crop/Field Condition	Use Deflector
Average crop/normal field conditions	No
Long-stemmed and heavy/ normal field conditions	Yes
Long-stemmed and heavy/ sandy soil	No
Long-stemmed and heavy/ gopher mounds or rocks[5]	No

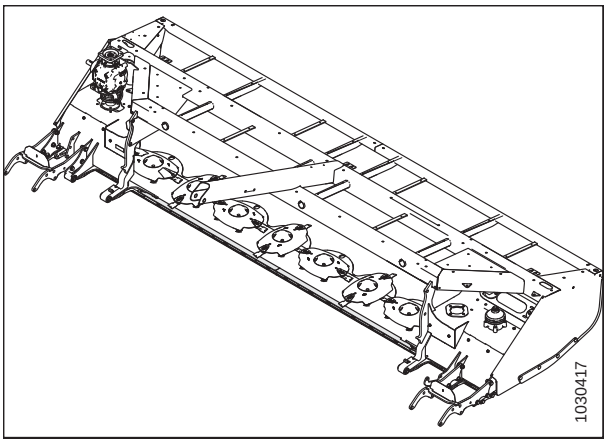


Figure 5.1: Cutterbar Deflectors

Tall Crop Feed Plates

The tall crop feed plates assist the feeding of tall crops into the conditioner by encouraging material flow from behind the drums. Do **NOT** use this kit in medium to light alfalfa as it will degrade the cutterbar's cutting performance.

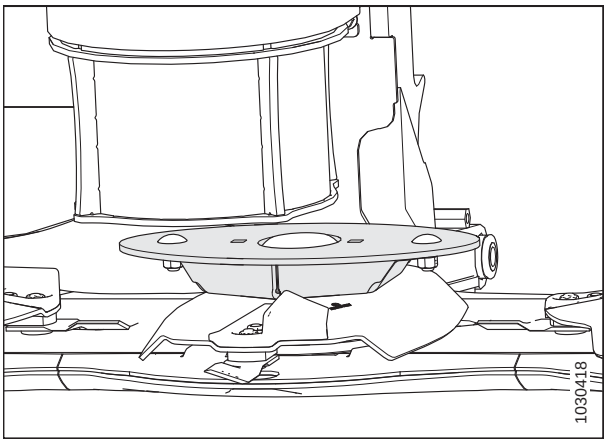


Figure 5.2: Tall Crop Feed Plate

5. Removing the deflector helps feed dirt/rocks through the header and prevents debris build up, wear and damage from rocks.

5.2 Double Windrow Attachment

This kit allows disc headers to lay a double windrow when installed on a windrower. The kit includes a draper deck, linkage assembly, hydraulics, and installation instructions.

M1240 Windrowers

MD #C2070 consists of:

- MD #B6693 – Deck
- MD #B6694 – Mounting frame and hydraulic/electrical connections
- Double Windrow Attachment (DWA) manual

M205 SP Windrowers

MD #C1987 consists of:

- MD #B4655 – Deck
- MD #B5270 – Linkage assembly
- MD #B5301 – Hydraulic kit
- Double Windrow Attachment (DWA) manual

5.3 Grass Seed Configuration – MD #C2081

The optional grass seed (GSS) version of the R216 Rotary Disc Header is intended for cutting delicate grass seed crops, and laying them in a windrow prior to a combine picking it up. At the time of printing, it is only available for (and required for) North American headers that are not equipped with conditioners. The current kit is **NOT** intended for converting standard headers (headers with conditioners) to grass seed. The kit is only compatible with M1240 Windrowers. It is incompatible with M205 SP Windrowers.

M1240 Windrowers

MD #C2081 consists of:

- MD #B7221 – Grass seed module (A), hydraulics, and instructions
- MD #B7222 – Grass seed anti-shatter shield (B) and electrical components

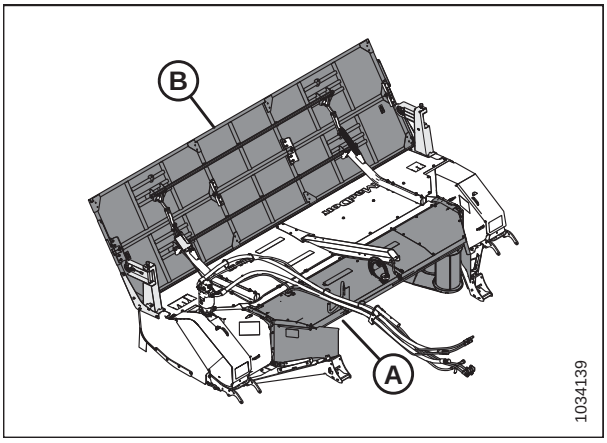


Figure 5.3: Grass Seed Version – Field Position

5.4 Remote Baffle Control Kit – MD #B6664

The Remote Baffle Control kit (MD #B6664), allows the operator to electronically adjust the disc header baffle from inside the windrower.

The Remote Baffle Control kit is incompatible with M205 SP Windrowers.

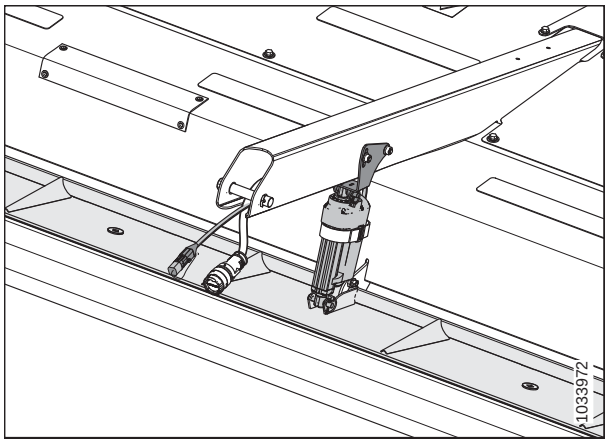


Figure 5.4: Electric Remote Baffle Kit

Adjust the position of the rear baffle from inside the cab as follows:

- To adjust the baffle up and down, press F5 (A) and F6 (B) keys respectively.
- A pop-up will appear on the HPT display for 3 seconds indicating the baffle position from 0–10.

Figure 5.5: Operator's Console

5.5 Adjustable Gauge Roller Kit – MD #B6855

The adjustable gauge roller kit allows the header to achieve the desired cutting height for optimum cutting performance. Adjustable gauge rollers are recommended only for dry and hard packed terrain.

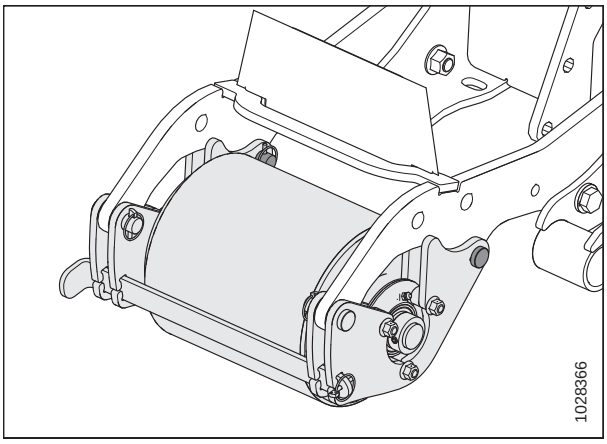


Figure 5.6: Adjustable Gauge Roller

5.6 Polyurethane Intermeshing Roller – MD #B6661

Rolls condition the crop by crimping and crushing the stem in several places, which allows the release of moisture resulting in faster drying times. A polyurethane roll conditioner is better suited for crushing stems while providing reduced crimping and is recommended for alfalfa, clover, legumes, and similar crops. The kit includes the conditioner and installation hardware.

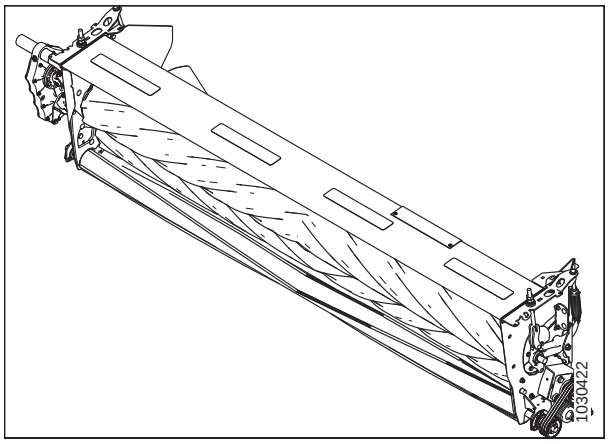


Figure 5.7: Polyurethane Intermeshing Roller – MD #B6661

5.7 Steel Intermeshing Roller – MD #B6662

Rolls condition the crop by crimping and crushing the stem in several places, which allows the release of moisture resulting in faster drying times. Steel rolls with a larger gap (up to 25 mm [1 in.]) may be desirable for thick-stemmed cane-type crops; however, too large of a gap may cause feeding problems. Steel rolls are recommended for these types of situations. The kit includes the conditioner and installation hardware.

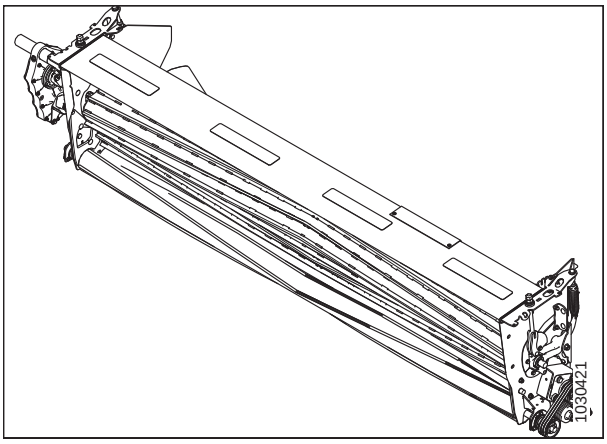


Figure 5.8: Steel Intermeshing Roller – MD #B6662

5.8 Adjustable Skid Shoes Kit – MD #B6848

The adjustable skid shoes kit allows the header to achieve the desired cutting height for optimum cutting performance. Skid shoes are recommended for most conditions including wet or muddy terrain.

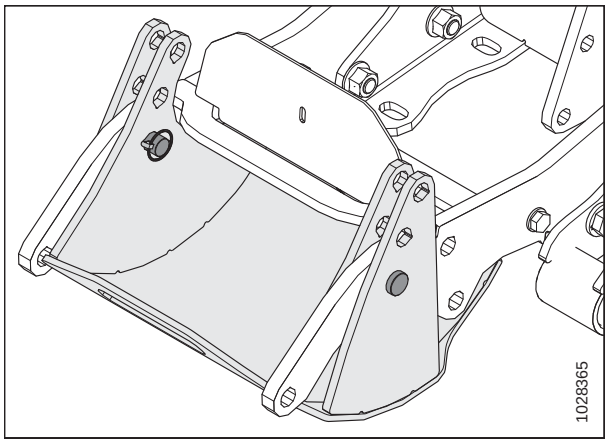


Figure 5.9: Adjustable Skid Shoe – MD #B6848

5.9 Tall Crop Divider Kit – MD #B6808

Tall crop dividers attach to the ends of the disc header for clean crop division and cutterbar entry in tall crops. The kit includes left and right dividers and attachment hardware.

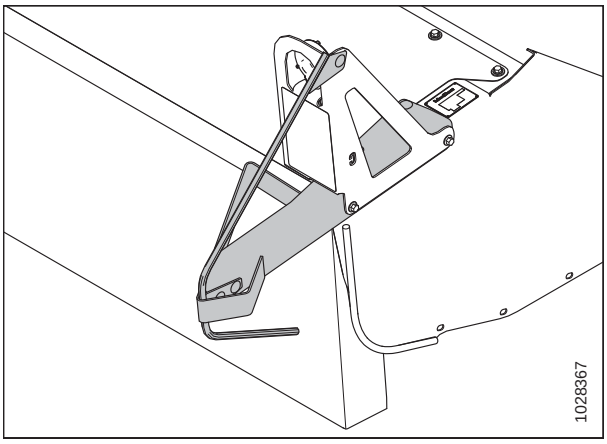


Figure 5.10: Tall Crop Divider – MD #B6808

Chapter 6: Troubleshooting

6.1 Performance Problems

Problem	Solution	Refer to
Symptom: Ragged or uneven cutting of crop		
Header angle too flat for blades to pick up downed crop	Increase header angle.	*3.9.1 Cutting Height, page 89*
Header float too light, causing bouncing	Adjust to heavier float setting.	Refer to windrower operator's manual
Excessive ground speed	Reduce ground speed.	—
Symptom: Strips of uncut crop left on field		
Dull, bent, or badly worn disc blades	Replace disc blades.	• *Removing Disc Blades, page 156* • *Installing Disc Blades, page 158*
Buildup of dirt between rock guards	Decrease header angle and increase float. In some conditions, it may be necessary to carry header slightly with header lift cylinders.	• *3.9.1 Cutting Height, page 89* • Refer to windrower operator's manual
Excessive header speed	Reduce header disc speed.	—
Foreign object on cutterbar	Disengage header and stop engine. When all moving parts are completely stopped, remove foreign object.	*4.6 Cutterbar System, page 133*
Disc not turning	Replace spindle shear pin.	—
Ground speed too slow	Increase ground speed.	—
Symptom: Uneven formation and bunching of windrow		
Swath baffle (deflector) bypassing or dragging crop	Adjust rear deflector for proper crop control.	*Positioning Rear Baffle Deflector Fins, page 105*
Crop is tall/tangled.	Install tall crop kit.	*5.1 Tall Crop Kit (Cutterbar Deflectors and Tall Crop Feed Plates) – MD #B6967, page 237*
Forming shields improperly adjusted	Adjust roll conditioner forming shields.	• *Positioning Forming Shield Side Deflectors, page 103* • *Positioning Rear Baffle, page 104*
Roll gap too large	Adjust roll gap.	• *Adjusting Roll Gap – Steel Rolls, page 96*
Conditioner rolls running too slow	Maintain rated header speed.	Refer to windrower operator's manual
Conditioner drive belt slipping	Adjust conditioner drive belt tension.	*Conditioner Drive Belt, page 223*

Problem	Solution	Refer to
Symptom: Conditioner rolls plugging		
Ground speed too fast	Reduce ground speed.	—
Roll gap too large for proper feeding	Decrease roll gap.	• *Adjusting Roll Gap – Steel Rolls, page 96*
Roll gap too small in thick-stemmed cane-type crops	Increase roll gap.	• *Adjusting Roll Gap – Steel Rolls, page 96*
Swath baffle set too low	Raise swath baffle.	*3.10.4 Forming Shields – Roll Conditioner, page 103*
Roll speed too low	Increase disc speed.	—
Foreign object between rolls	Disengage header and stop engine. When all moving parts are completely stopped, remove foreign object.	*4.6.2 Cutterbar Discs, page 138*
Cutting height too low	Decrease header angle to raise cutting height.	*3.9.1 Cutting Height, page 89*
Backing into windrow	Raise header before backing up.	—
Rolls improperly timed	Adjust roll timing.	*Adjusting Roll Timing, page 99*
Conditioner drive belt slipping	Adjust conditioner drive belt tension.	*Conditioner Drive Belt, page 223*
Symptom: Uneven windrow formation in light crop		
Uneven feeding	Reduce header speed.	Refer to windrower operator's manual
Symptom: Plugging behind end hourglass deflectors		
Ground speed too slow	Increase ground speed.	—
Symptom: Not cutting short enough in down crop		
Ground speed too fast	Reduce ground speed.	—
Broken, bent, or dull blades	Turn blades over or replace blades.	• *Removing Disc Blades, page 156* • *Installing Disc Blades, page 158*
Cutting height too high	Adjust header angle steeper to lower cutting height if field conditions allow.	*3.9.1 Cutting Height, page 89*
Symptom: Material being pulled out by roots when cutting, and tall crop leaning into machine		
Crop in conditioner rolls before crop is cut	Increase roll gap.	• *Adjusting Roll Gap – Steel Rolls, page 96*
Symptom: Damaged leaves and broken stems		
Insufficient roll gap	Increase roll gap.	• *Adjusting Roll Gap – Steel Rolls, page 96*
Roll timing off	Check roll timing and adjust if necessary.	• *Checking Roll Timing, page 99* • *Adjusting Roll Timing, page 99*

Problem	Solution	Refer to
Symptom: Cutting height varies from one side to the other		
Float not properly balanced	Adjust header float.	Refer to windrower operator's manual
Symptom: Slow crop drying		
Crop is bunched in windrow	Adjust forming shields/baffle.	• *Positioning Forming Shield Side Deflectors, page 103* • *Positioning Rear Baffle Deflector Fins, page 105*
Rolls not crimping crop sufficiently	Decrease roll gap.	• *Adjusting Roll Gap – Steel Rolls, page 96*
Symptom: Excessive drying or bleaching of crop		
Excessive crimping	Increase roll gap.	• *Adjusting Roll Gap – Steel Rolls, page 96*
Crop is spread too wide in windrow	Adjust forming shields.	• *Positioning Forming Shield Side Deflectors, page 103* • *Positioning Rear Baffle Deflector Fins, page 105*
Symptom: Poorly formed or bunchy windrows		
Forming shields not properly positioned	Adjust forming shields.	• *Positioning Forming Shield Side Deflectors, page 103* • *Positioning Rear Baffle Deflector Fins, page 105*

6.2 Mechanical Problems

Problem	Solution	Refer to
Symptom: Excessive noise		
Bent disc blade	Replace blade.	• *Removing Disc Blades, page 156* • *Installing Disc Blades, page 158*
Conditioner roll timing off	Check roll timing and adjust if necessary.	• *Checking Roll Timing, page 99* • *Adjusting Roll Timing, page 99*
Bent drum deflector	Replace drum.	*4.6.7 Drums, page 167*
Conditioner roll gap too small	Check gap and adjust if necessary.	• *Adjusting Roll Gap – Steel Rolls, page 96*
Symptom: Excessive vibration or noise in header		
Mud deposits on conditioner rolls	Clean rolls.	—
Conditioner rolls contacting each other	Increase roll gap.	• *Adjusting Roll Gap – Steel Rolls, page 96*
Conditioner rolls contacting each other	Check roll timing.	*Checking Roll Timing, page 99*
Symptom: Excessive heat in cutterbar		
Incorrect level of lubricant in cutterbar —either too little or too much	Drain lubricant and refill with specified amount.	*Draining the Cutterbar, page 136*
Symptom: Spindle bearing failure		
Material wrapped around spindle	Remove disc and remove material.	• *Removing Disc Blades, page 156* • *Installing Disc Blades, page 158*
Unbalanced drums/discs	Replace unbalanced components	• *4.6.2 Cutterbar Discs, page 138* • *4.6.7 Drums, page 167*
Symptom: Frequent blade damage		
Mud on cutterbar	Remove mud from cutterbar. Do **NOT** allow mud to dry on cutterbar.	—
Header float set too heavy	Increase float.	Refer to windrower operator's manual
Cutting too low in rocky field conditions	Decrease header angle, increase float.	• *3.9.1 Cutting Height, page 89* • Refer to windrower operator's manual
Ground speed too high in rocky field conditions. At high ground speed, header tends to dig rocks from ground instead of floating over them	Reduce ground speed.	—
Disc blades incorrectly mounted	Check all blade mounting hardware and ensure blades are free to move.	*Inspecting Disc Blade Hardware, page 154*

Problem	Solution	Refer to
Symptom: Excessive wear of cutting components		
Header angle too steep	Reduce header angle.	*3.9.1 Cutting Height, page 89*
Crop residue and dirt deposits on cutterbar	Clean cutterbar.	—
Mud on cutterbar	Remove mud from cutterbar. Do **NOT** allow mud to dry on cutterbar.	—
Symptom: Machine pulling to one side		
Header dragging on one end and pulling to that side	Adjust header float on both ends.	Refer to windrower operator's manual
Symptom: Breakage of conditioner roll timing belt		
Belt not in proper groove in pulley	Move belt to proper groove.	*Inspecting Conditioner Drive Belt, page 223*
Foreign object between rolls	Disengage header and stop the engine. When all moving parts are completely stopped, remove foreign object.	*4.10.1 Inspecting Conditioner Components, page 221*
Belt pulleys and idlers misaligned	Align pulleys and idler.	See MacDon Dealer
Symptom: Conditioner roll does not rotate		
Faulty drive belt	Check drive belt pulleys.	*Inspecting Conditioner Drive Belt, page 223*
Symptom: Disc does not turn when engaging header		
Hoses not connected	Connect hoses.	
Poor electrical connection at pump solenoid	Check connection at windrower.	Refer to windrower operator's manual
Symptom: Header runs while unloaded, but slows or stops when starting to cut		
Defective hydraulic motor	Repair/replace hydraulic motor.	See MacDon Dealer
Defective hydraulic pump in windrower	Repair/replace pump.	See MacDon Dealer
Defective relief valve in windrower	Repair/replace relief valve.	See MacDon Dealer
Cold oil in hydraulic drive system	Reduce ground speed until oil reaches operating temperature.	—

6.3 Grass Seed Problems

Grass seed problems are specific to headers configured with the grass seed (GSS) option (MD #C2081).

Problem	Solution	Refer to
Symptom: Rear drum not turning		
Debris buildup	• Check for debris buildup around drums and remove as necessary. This will most likely occur on the front set of drums. If the left drums cannot turn, the right drums will probably not turn since the motors are plumbed in series. • Check for crop wrapped around drums (should be visible from the cab).	—
Drum attachment/speed setting	Check that the grass seed is set as an attachment in the Harvest Performance Tracker (HPT) and the drum speed is set.	*3.11.1 Activating the Grass Seed Option, page 108*
Drive motor issue	Check the drive motor. Motors are plumbed in series, so motors/drums down the line likely will not spin if there is a motor issue.	—
Symptom: Rear drums not moving in/out		
Debris buildup	Check for debris buildup around drums and remove as necessary.	—
Part failure	• Check the adjustment linkage and structure around it for failed parts. • Check the hydraulic cylinder that pivots the drums on the left side.	—
Symptom: Anti-shatter shield not folding/unfolding		
Actuator disconnected	Confirm linear actuator is working and plugged in correctly.	—
Linkage component failure	• Confirm linkage is in the correct position when folded or unfolded. • Check the pins along the linkage or the pins that attach the actuator for failures in those areas.	—
Header plugging in corners		
Debris buildup.	Check for debris buildup and remove as necessary.	—

Chapter 7: Reference

7.1 Torque Specifications

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

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

Jam nuts

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

Self-tapping screws

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

7.1.1 Metric Bolt Specifications

Table 7.1 Metric Class 8.8 Bolts and Class 9 Free Spinning Nut

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

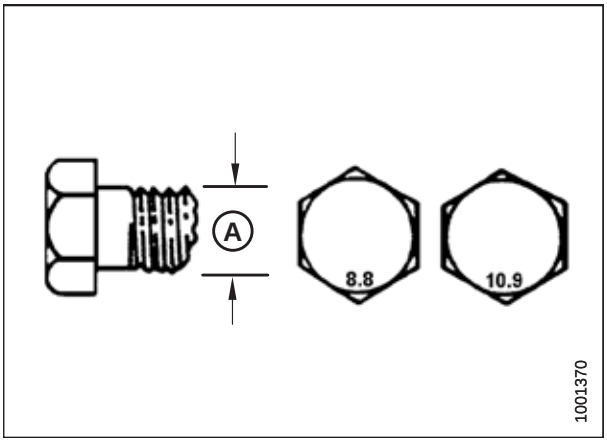


Figure 7.1: Bolt Grades

Table 7.2 Metric Class 8.8 Bolts and Class 9 Distorted Thread Nut

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

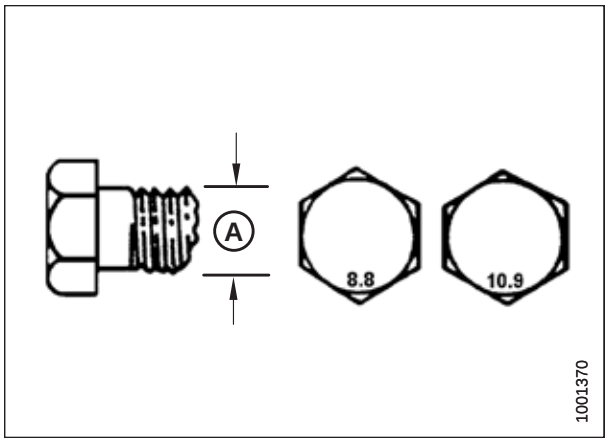


Figure 7.2: Bolt Grades

Table 7.3 Metric Class 10.9 Bolts and Class 10 Free Spinning Nut

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

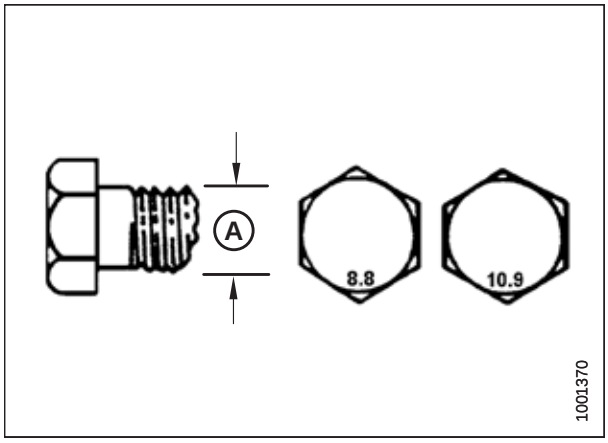


Figure 7.3: Bolt Grades

Table 7.4 Metric Class 10.9 Bolts and Class 10 Distorted Thread Nut

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

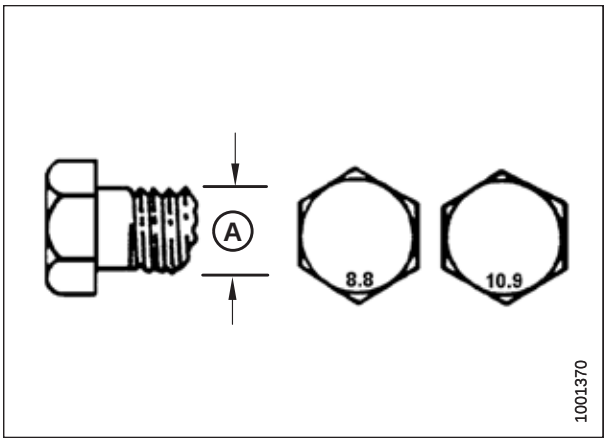


Figure 7.4: Bolt Grades

7.1.2 Metric Bolt Specifications Bolting into Cast Aluminum

Table 7.5 Metric Bolt Bolting into Cast Aluminum

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

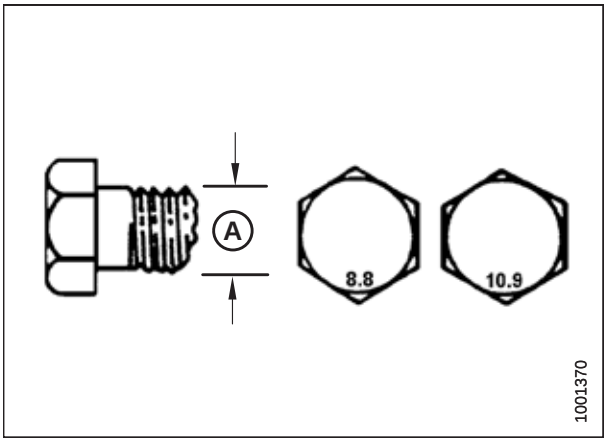


Figure 7.5: Bolt Grades

7.1.3 O-Ring Boss Hydraulic Fittings – Adjustable

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

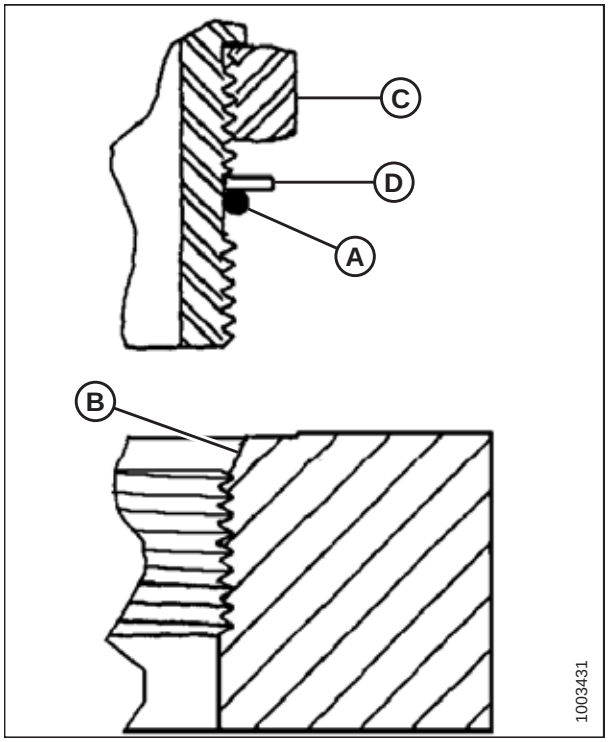


Figure 7.6: Hydraulic Fitting

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

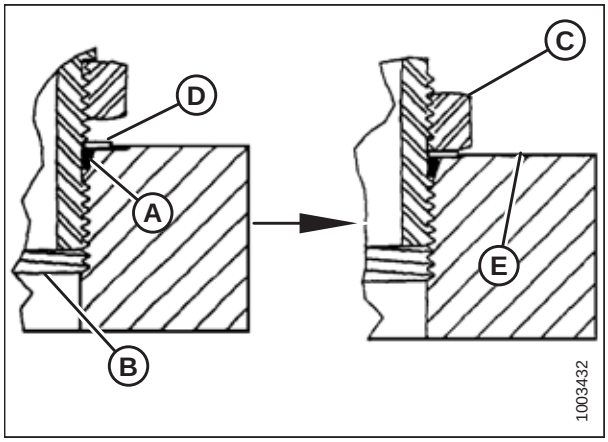


Figure 7.7: Hydraulic Fitting

Table 7.6 O-Ring Boss (ORB) Hydraulic Fittings – Adjustable

SAE Dash Size	Thread Size (in.)	Torque Value[6]	
		Nm	lbf·ft (*lbf·in)
-2	5/16–24	6–7	*53–62
-3	3/8–24	12–13	*106–115

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

Table 7.6 O-Ring Boss (ORB) Hydraulic Fittings – Adjustable (continued)

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

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

7.1.4 O-Ring Boss Hydraulic Fittings – Non-Adjustable

1. Inspect O-ring (A) and seat (B) for dirt or obvious defects.
2. Check that O-ring (A) is **NOT** on threads and adjust if necessary.
3. Apply hydraulic system oil to O-ring.
4. Install fitting (C) into port until fitting is hand-tight.
5. Torque fitting (C) according to values in Table *7.7, page 258*.
6. Check final condition of fitting.

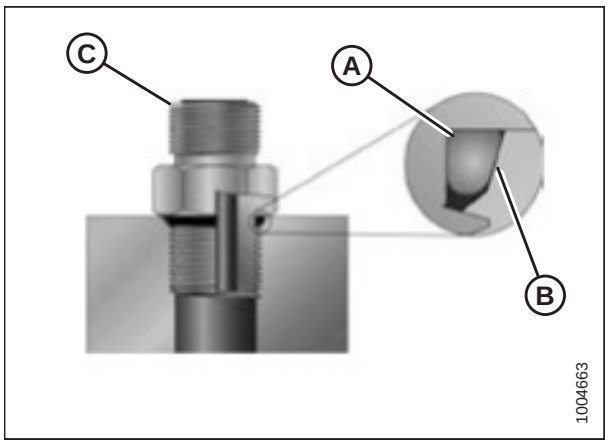


Figure 7.8: Hydraulic Fitting

Table 7.7 O-Ring Boss (ORB) Hydraulic Fittings – Non-Adjustable

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

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

7.1.5 O-Ring Face Seal Hydraulic Fittings

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

Figure 7.9: Hydraulic Fitting

2. Apply hydraulic system oil to O-ring (B).
3. Align tube or hose assembly so that flat face of sleeve (A) or (C) comes in full contact with O-ring (B).
4. Thread tube or hose nut (D) until hand-tight. The nut should turn freely until it is bottomed out.
5. Torque fittings according to values in Table *7.8, page 259*.

   NOTE:

   If applicable, hold hex on fitting body (E) to prevent rotation of fitting body and hose when tightening fitting nut (D).
6. Use three wrenches when assembling unions or joining two hoses together.
7. Check final condition of fitting.

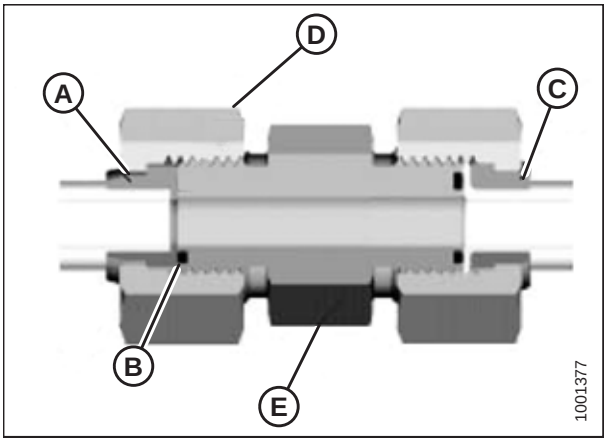


Figure 7.10: Hydraulic Fitting

Table 7.8 O-Ring Face Seal (ORFS) Hydraulic Fittings

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

9. Torque values and angles shown are based on lubricated connection as in reassembly.
10. O-ring face seal type end not defined for this tube size.

Table 7.8 O-Ring Face Seal (ORFS) Hydraulic Fittings (continued)

SAE Dash Size	Thread Size (in.)	Tube O.D. (in.)	Torque Value[11]	
			Nm	lbf·ft
-14	Note[10]	7/8	–	–
-16	1 7/16	1	150–165	111–122
-20	1 11/16	1 1/4	205–226	151–167
-24	1–2	1 1/2	315–347	232–256
-32	2 1/2	2	510–561	376–414

7.1.6 Tapered Pipe Thread Fittings

Assemble pipe fittings as follows:

1. Check components to ensure that fitting and port threads are free of burrs, nicks, scratches, or any form of contamination.
2. Apply pipe thread sealant (paste type) to external pipe threads.
3. Thread fitting into port until hand-tight.
4. Torque connector to appropriate torque angle. The turns from finger tight (TFFT) and flats from finger tight (FFFT) values are shown in Table *7.9, page 260*. Make sure that tube end of a shaped connector (typically 45° or 90°) is aligned to receive incoming tube or hose assembly. Always finish alignment of fitting in tightening direction. Never back off (loosen) pipe threaded connectors to achieve alignment.
5. Clean all residue and any excess thread conditioner with appropriate cleaner.
6. Assess final condition of fitting. Pay special attention to possibility of cracks to port opening.
7. Mark final position of fitting. If a fitting leaks, disassemble fitting and check for damage.

NOTE:

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

Table 7.9 Hydraulic Fitting Pipe Thread

Tapered Pipe Thread Size	Recommended TFFT	Recommended FFFT
1/8–27	2–3	12–18
1/4–18	2–3	12–18
3/8–18	2–3	12–18
1/2–14	2–3	12–18
3/4–14	1.5–2.5	12–18
1–11 1/2	1.5–2.5	9–15
1 1/4–11 1/2	1.5–2.5	9–15

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

Table 7.9 Hydraulic Fitting Pipe Thread (continued)

Tapered Pipe Thread Size	Recommended TFFT	Recommended FFFT
1 1/2–11 1/2	1.5–2.5	9–15
2–11 1/2	1.5–2.5	9–15

7.2 Conversion Chart

Table 7.10 Conversion Chart

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

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Recommended 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.

IMPORTANT:

Do **NOT** overfill the cutterbar when adding lubricant. Overfilling could result in overheating and failure of cutterbar components.

Table .11 Recommended Lubricants

Specification	Description	Use	Capacities
Lubricant: Grease			
SAE Multipurpose	High temperature extreme pressure (EP) performance with 1% max. Molybdenum Disulphide (NLGI Grade 2) lithium base	As required unless otherwise specified	—
SAE Multipurpose	High temperature extreme pressure (EP) performance with 10% max. Molybdenum Disulphide (NLGI Grade 2) lithium base	Driveline slip-joints	—
Lubricant: Gear Lubricant			
SAE 80W-90	High thermal and oxidation stability API service class GL-5	4.9 m (16 ft.) cutterbar	10 liters (10.5 qts [US])
SAE 80W-140	Gear lubricant API service class GL-5	Conditioner roll timing gearbox	0.7 liters (0.75 qts [US])
SAE 80W-140	Fully Synthetic Oil API GL-5 Minimum, SAE J2360 Preferred	Header drive 90° gearbox	1.8 liters (1.9 qts [US])

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