MacDon

FC Series
FlexCorn™ Header

Operator's Manual

262988 Revision A

Original Instruction

The Harvesting Specialists.

FC3016 FlexCorn™ Header

Published April 2025

Declaration of Conformity

The signed version of these documents can be downloaded from our website *www.macdon.com/declarations*.

EC Declaration of Conformity

[1] MacDon

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

[2] Corn Header

[3] MacDon FC Series

[4] As per Shipping Document

[5] 21-Jun-24

LINAMAR HUNGARY ZRt, OROS Division
H-5900, Oroshaza, Csorvasi ut 27,
Hungary

[6] _____

Daniel Kapu
Director of Quality

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 4254-1:2015
EN ISO 4254-1:2015/A1:2021
EN ISO 4254-7:2017

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:

Guillaume Quenot
General Manager, MacDon Europe GmbH
Hagenauer Straße 59
65203 Wiesbaden (Germany)
gquenot@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 4254-1:2015
EN ISO 4254-1:2015/A1:2021
EN ISO 4254-7:2017

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:

Гуиллауме Яуенот
Управител, MacDon Europe GmbH
Hagenauer Straße 59
65203 Wiesbaden (Германия)
gquenot@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 4254-1:2015
EN ISO 4254-1:2015/A1:2021
EN ISO 4254-7:2017

Místo a datum prohlášení: [5]

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

Jméno a adresa osoby oprávněné k vyplnění technického souboru:

Guillaume Quenot
generální ředitel, MacDon Europe GmbH
Hagenauer Straße 59
65203 Wiesbaden (Německo)
gquenot@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 4254-1:2015
EN ISO 4254-1:2015/A1:2021
EN ISO 4254-7:2017

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:

Guillaume Quenot
Direktør, MacDon Europe GmbH
Hagenauer Straße 59
D-65203 Wiesbaden (Tyskland)
gquenot@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 4254-1:2015
EN ISO 4254-1:2015/A1:2021
EN ISO 4254-7:2017

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:

Guillaume Quenot
General Manager, MacDon Europe GmbH
Hagenauer Straße 59
65203 Wiesbaden
gquenot@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 4254-1:2015
EN ISO 4254-1:2015/A1:2021
EN ISO 4254-7:2017

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:

Guillaume Quenot
Gerente general - MacDon Europe GmbH
Hagenauer Straße 59
65203 Wiesbaden (Alemania)
gquenot@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 4254-1:2015
EN ISO 4254-1:2015/A1:2021
EN ISO 4254-7:2017

Deklaratsiooni koht ja kuupäev: [5]

Deklaratsiooni koostamiseks volitatud isiku nimi ja allkiri: [6]

Tehnilise dokumendi koostamiseks volitatud isiku nimi ja aadress:

Guillaume Quenot
Peadirektor, MacDon Europe GmbH
Hagenauer Straße 59
65203 Wiesbaden (Saksamaa)
gquenot@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 4254-1:2015
EN ISO 4254-1:2015/A1:2021
EN ISO 4254-7:2017

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 :

Guillaume Quenot
Directeur général, MacDon Europe GmbH
Hagenauer Straße 59
65203 Wiesbaden (Allemagne)
gquenot@macdon.com

UK Declaration of Conformity

[1] MacDon

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

[2] Corn Header

[3] MacDon FC Series

[4] As per Shipping Document

[5] 21-Jun-24

LINAMAR HUNGARY ZRt, OROS Division
H-5900, Oroshaza, Csorvasi ut 27,
Hungary

[6] _____

Daniel Kapu

Director of Quality

We, [1]

Declare, that the product:

Machine Type: [2]

Name & Model: [3]

Serial Number(s): [4]

fulfills all relevant provisions of the Supply of Machinery (Safety) Regulations 2008

Designated standards used are :

EN ISO 4254-1:2015

EN ISO 4254-1:2015/A1:2021

EN ISO 4254-7:2017

Place and date of declaration: [5]

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

Introduction

This instructional manual contains information on the MacDon FC Series FlexCorn™ Headers, which, teamed with a combine, make it possible to run larger headers in hilly terrain. This manual must be used in conjunction with your combine's operator manual.

Your machine

MacDon's FluidMotion™ Hydraulic Flex Control provides smooth, ground-following flex, ensuring you get the most from your corn harvest.

Your warranty

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

Your manual

Carefully read all the material provided before attempting to use the machine.

Use this manual as your first source of information about the machine. If you follow the instructions provided, it will work well for many years. Contact 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.

Since the header is compatible with many models of combine, carefully read the specifications for your combine and follow the combine manufacturer's recommendations for usage, setup, and operation of the combine.

The Table of Contents and Index will guide you to specific areas of this manual. Study the Table of Contents to familiarize yourself with how the information is organized.

The following conventions are used in this document:

- Right and left are determined from the operator's position. The front of the header is the side that faces the crop; the back of the header is the side that connects to the combine.
- Unless otherwise noted, use the standard torque values provided in Chapter *10.3 Torque Specifications, page 173*. When torque values of 30 Nm or less are listed, their equivalents will be provided in both foot-pounds (lbf·ft) and inch-pounds (lbf·in).

Keep this manual handy for frequent reference and to pass on to new Operators or Owners. Manual storage canister (A) is located above the drive gearbox on the left, rear side of the header.

Call your MacDon Dealer if you need assistance, information, or additional copies of this manual.

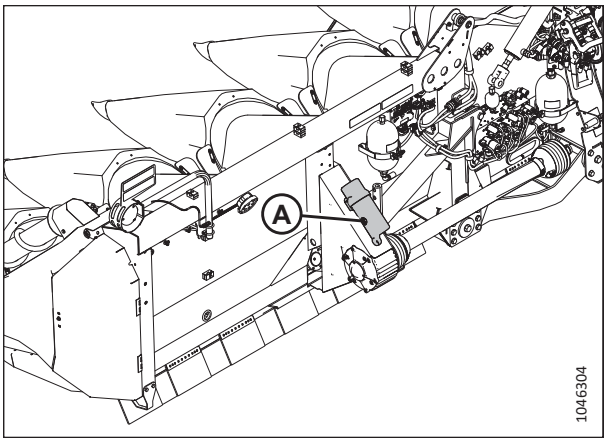


Figure 1: Manual Canister

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).

This document is available in English only.

Summary of Changes

At MacDon, we're continually 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
All	Completely reworked document. Reformatted and reorganized existing content. Added new content.	Technical Publications, Product Management, Product Support
5.19 Draining Hydraulic Accumulators – Manual Method, page 123	Represented the revised manifold in illustration.	ECN 65089
6.1 Breakaway Stubble Stompers, page 127	Stubble Stomper kit B7626 added to Options.	ECN 65616

Serial Number

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

Header Model: _____

Serial Number: _____

Model Year: _____

Serial number plate (A) is located at the left end of the header, on the top beam.

Figure 2: Serial Number Plate

Chapter 1: Safety

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

1.1 Safety Alert Symbols

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

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 it is not prevented, will result in death or serious injury.

WARNING

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

CAUTION

Indicates a potentially hazardous situation that, if it is not prevented, may result in minor or moderate injury. It may also be used to alert you to unsafe practices.

IMPORTANT:

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

NOTE:

Provides additional information or advice.

1.3 General Safety

Operating, servicing, and assembling machinery presents several safety risks. These risks can be reduced or eliminated by following the relevant safety procedures and wearing the appropriate personal protective equipment.

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

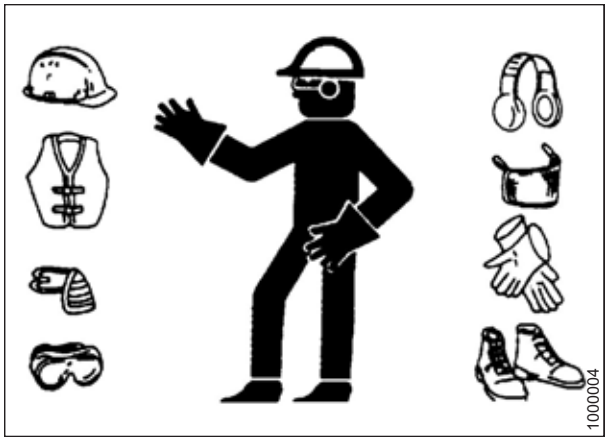


Figure 1.2: Safety Equipment

In addition, take the following precautions:

- Be aware that exposure to loud noises can cause hearing impairment. 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. Familiarize yourself with its use.
- Keep young children away from machinery at all times.
- Be aware that accidents often happen when Operators are fatigued or in a hurry. Take time to consider the safest way to accomplish a task. **NEVER** ignore the signs of fatigue.

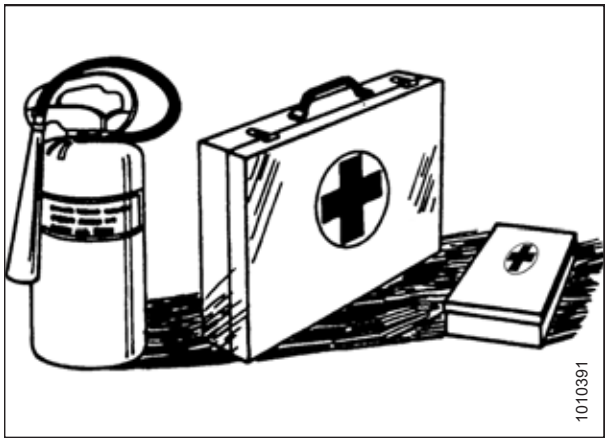


Figure 1.4: Safety Equipment

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

Figure 1.5: Safety around Equipment

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

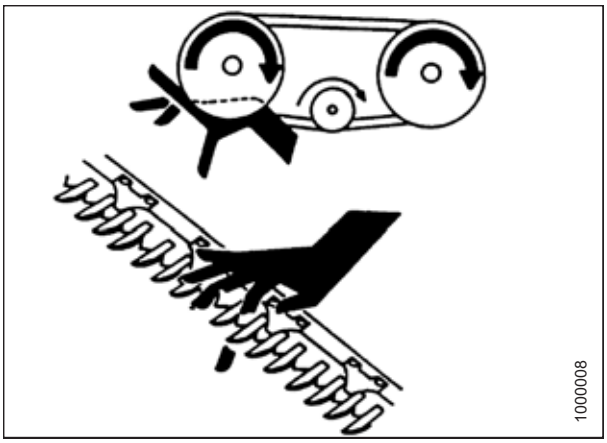


Figure 1.6: Safety around Equipment

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

Figure 1.7: Safety around Equipment

1.4 Maintenance Safety

Maintaining your equipment safely requires that you follow the relevant safety procedures and wear the appropriate personal protective equipment for the task.

To ensure your safety while maintaining the machine:

- Review the operator's manual and all safety items before operating or performing maintenance on the machine.
- Place all controls in Neutral, shut down the engine, set the parking brake, remove the key from the ignition, and wait for parts to stop moving before servicing the machine.
- Follow good shop practices:
  - Keep service areas clean and dry
  - Ensure that electrical outlets and tools are properly grounded
  - Keep the work area well lit

Figure 1.8: Wet Floors Present Safety Risks

- Relieve pressure from hydraulic circuits before servicing and/or disconnecting the machine.
- Ensure that all components are tight and that steel lines, hoses, and couplings are in good condition before applying pressure to hydraulic systems.
- Keep hands, feet, clothing, and hair away from all moving and/or rotating parts.
- Clear the area of bystanders when carrying out any maintenance, repairs, or adjustments.
- Install the transport lock or place safety stands under the frame before working under the machine.
- Moving a component by hand (for example, rotating a driveline) can cause components in other areas (belts, pulleys, and knives) to move. Stay clear of driven components at all times.
- Wear protective gear when working on the machine.
- Wear heavy gloves when working on knife components.

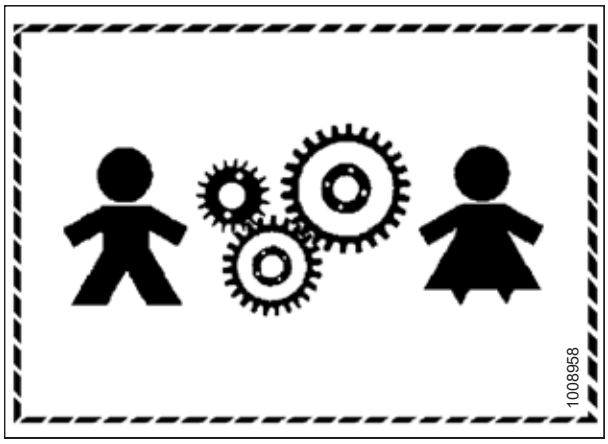


Figure 1.9: Equipment is NOT Safe for Children

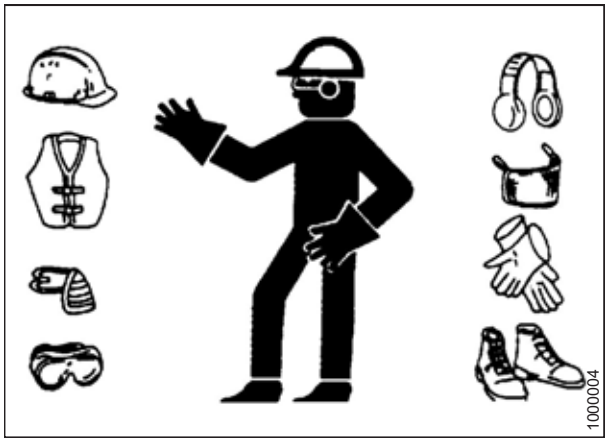


Figure 1.10: Personal Protective Equipment

1.5 Hydraulic Safety

Because hydraulic fluid is under extreme pressure, hydraulic fluid leaks can be very dangerous. Follow the proper safety procedures when inspecting hydraulic fluid leaks and servicing hydraulic equipment.

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

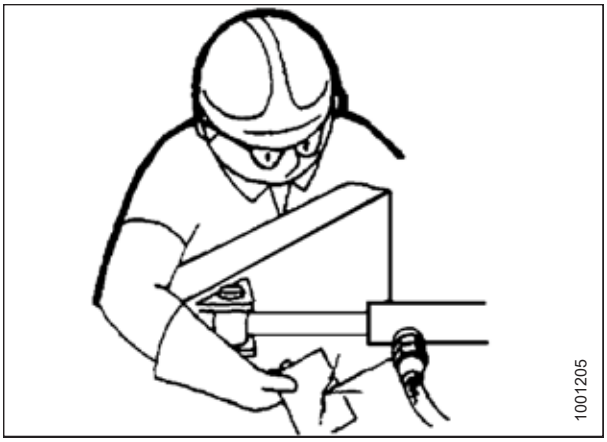


Figure 1.11: Testing for Hydraulic Leaks

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

Figure 1.12: Hydraulic Pressure Hazard

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

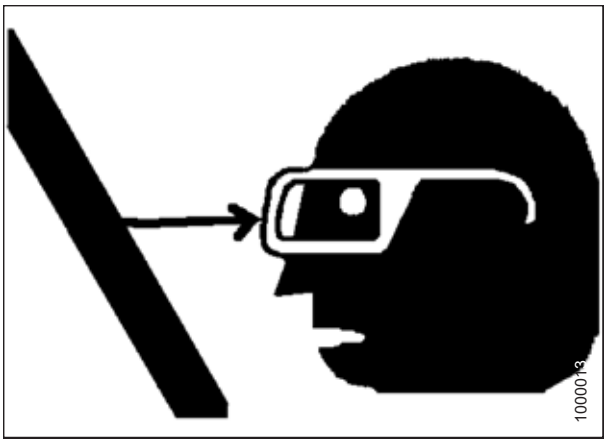


Figure 1.13: Safety around Equipment

1.6 Welding Precautions

To prevent damage to sensitive electronics, **NEVER** attempt to weld on an FC Series Header while it is connected to a combine.

WARNING

NEVER attempt welding on the header while it is connected to a combine. Severe damage to sensitive, expensive electronics can result from welding on the header while it is connected to a combine. It can be impossible to know what effect a high current may have regarding future malfunctions or a shorter lifespan.

For further welding precautions, consult the combine operator's manual.

Before welding on a header, you **MUST** detach the header from the combine, and then disconnect the following electrical components from the header:

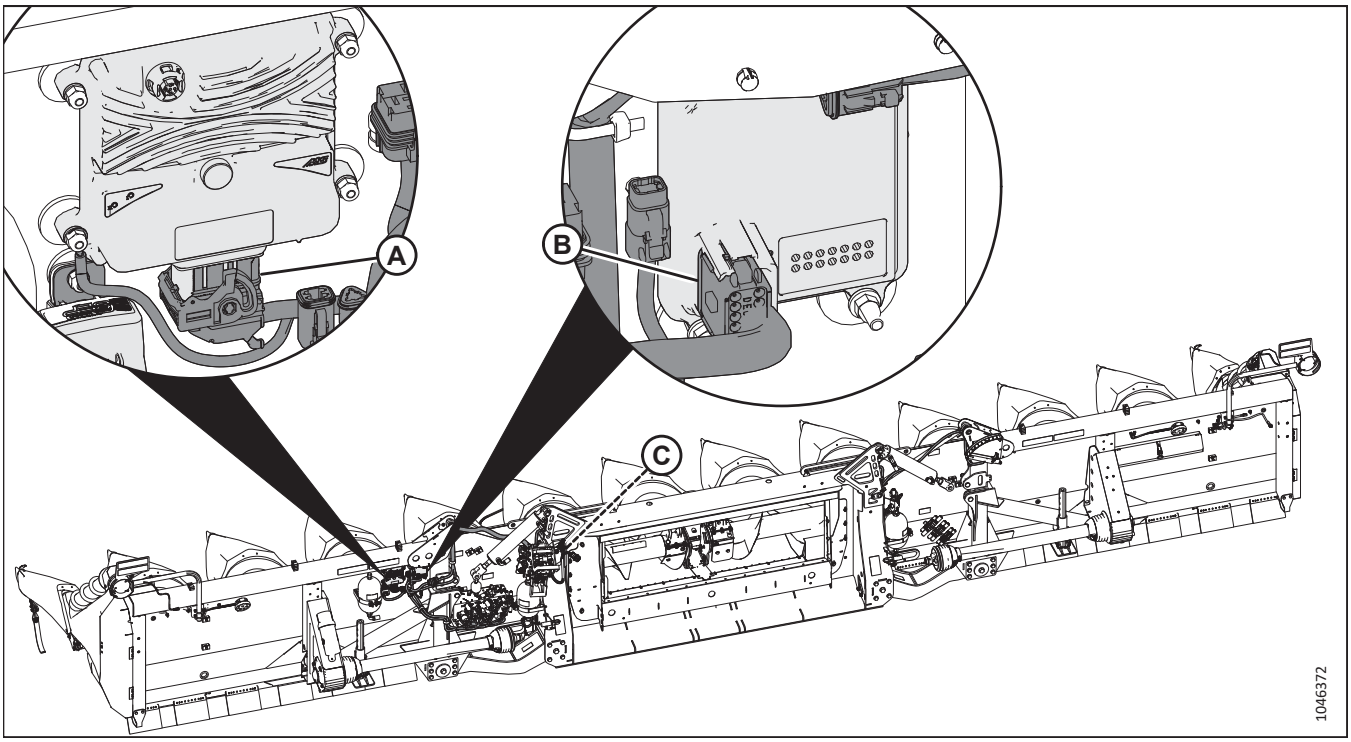


Figure 1.14: Electronic Modules

1. On the header frame, above the left driveshaft, locate header control module (A) and extension module (B).

   NOTE:

   For John Deere S7 and X9 combines, there is a second control module (C) mounted beside the multicoupler.

2. Disconnect the electrical harness bulkhead connector from the header control module, by pushing in tab (A) and unlatching arm (B).

3. Rotate arm (B) upward until it is in the position shown, and unplug the bulkhead connector from the module.

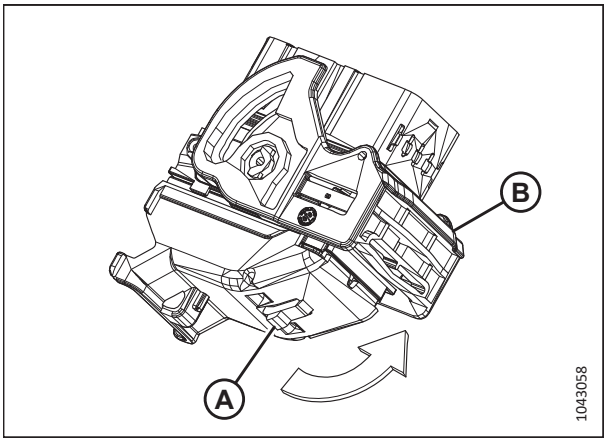


Figure 1.15: Control Module Bulkhead Connector

4. Disconnect the electrical harness connector from the extension module, by pushing in tabs (A) and pulling the connector out from the module.

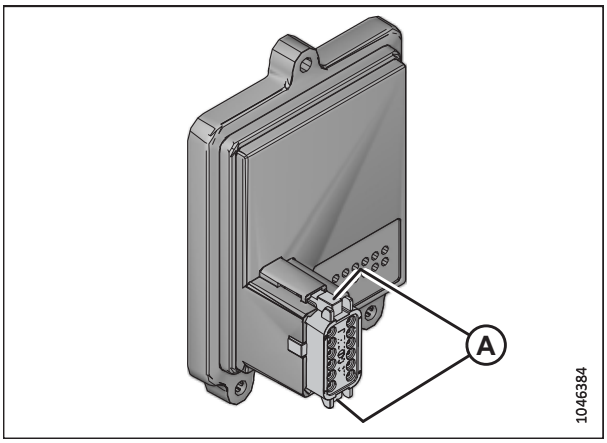


Figure 1.16: Extension Module

1.7 Decommissioning and Disposing of Agricultural Equipment

When agricultural equipment is no longer serviceable and needs to be decommissioned and disposed of, recyclable materials including ferrous and non-ferrous metals, rubber, and plastics; fluids such as lubricants, refrigerants, and fuels; and hazardous materials found in batteries, some light bulbs, and electronic equipment must be handled safely and not introduced into the environment.

Comply with local regulations and authorities.

Products with symbol (A) should **NOT** be disposed of with domestic waste.

Figure 1.17: Symbol for Do NOT Dispose with Domestic Waste

Materials with symbol (B) should be recycled as labelled.

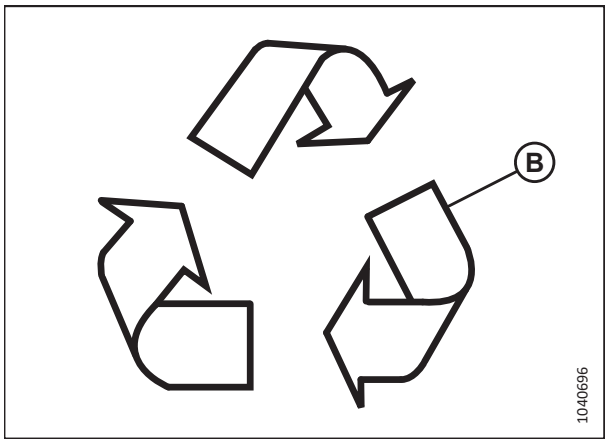


Figure 1.18: Symbol for Recycle as Labelled

- Use appropriate personal protective equipment when removing and handling objects and materials.
- Use appropriate personal protective equipment when handling objects with residue from pesticides, fertilizers, or other agricultural chemicals. Follow local regulations when handling and disposing of these objects.
- Safely release stored energy from suspension components, springs, hydraulic, and electrical systems.
- Recycle or reuse packaging material.
- Recycle or reuse plastics that are labelled with specifications for a material such as PP TV 20. Do **NOT** dispose of them with domestic waste.
- Return batteries to the vendor or take them to a collection point. Batteries contain hazardous substances. Do **NOT** dispose of batteries with domestic waste.
- Follow local regulations to correctly dispose of hazardous materials such as oils, hydraulic fluids, brake fluids, and fuels.
- Take refrigerants to qualified people at specialized facilities for disposal. Refrigerants must **NEVER** be released into the atmosphere.

1.8 Safety Signs

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

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

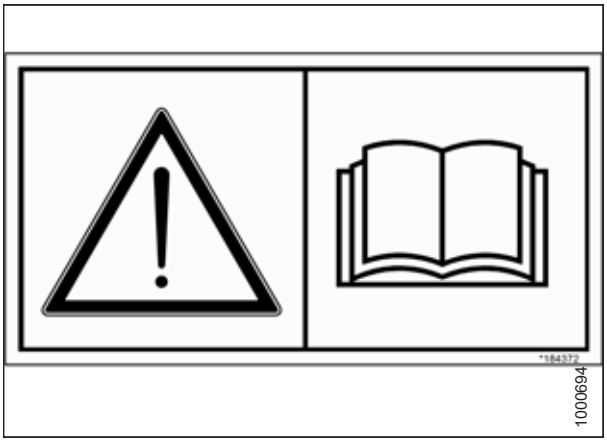


Figure 1.19: Operator's Manual Decal

1.8.1 Installing Safety Decals

Worn or damaged safety decals will need to be removed and replaced.

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

1.9 Safety Sign Locations

Replace any missing or damaged decals.

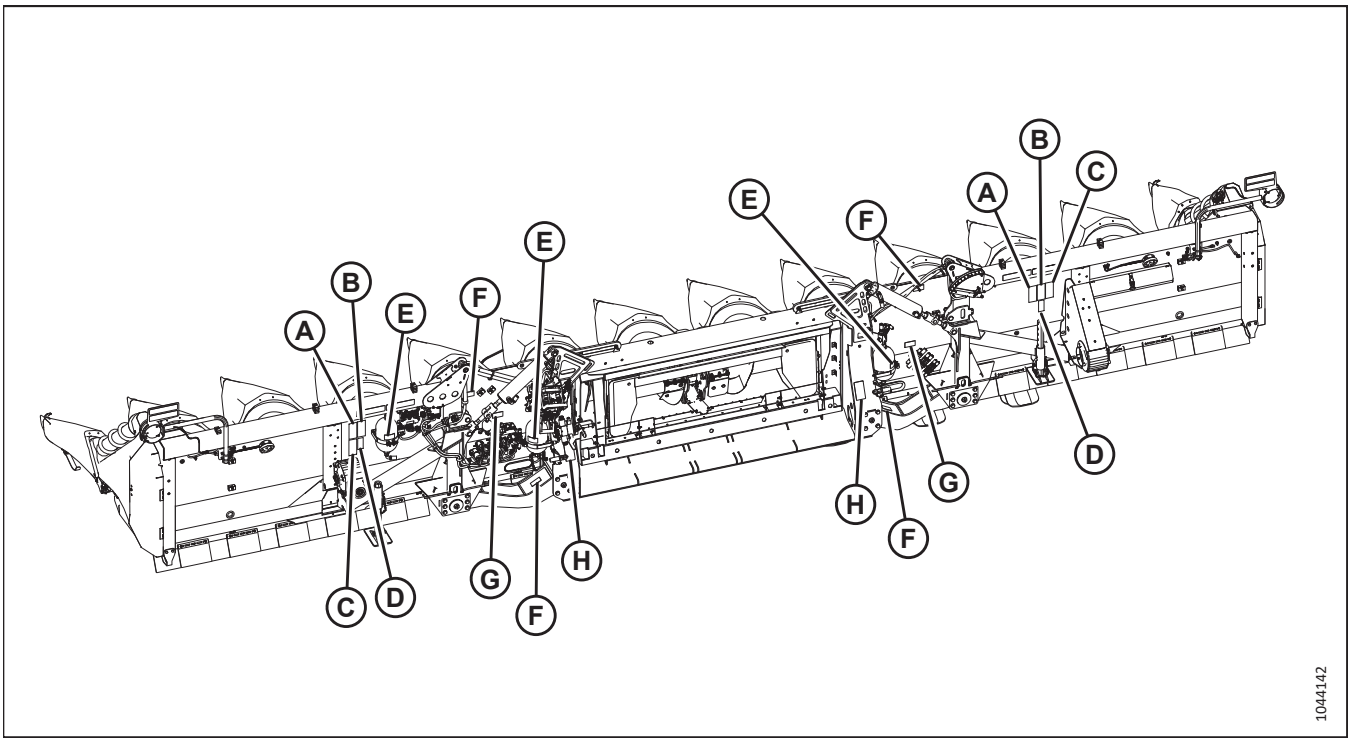


Figure 1.20: Header Decals – Rear

A - MD #1.326.700
B - MD #1.326.701
C - MD #1.326.703
D - MD #1.379.142
E - MD #1.369.071
F - MD #1.369.004
G - MD #1.369.003
H - MD #1.379.143

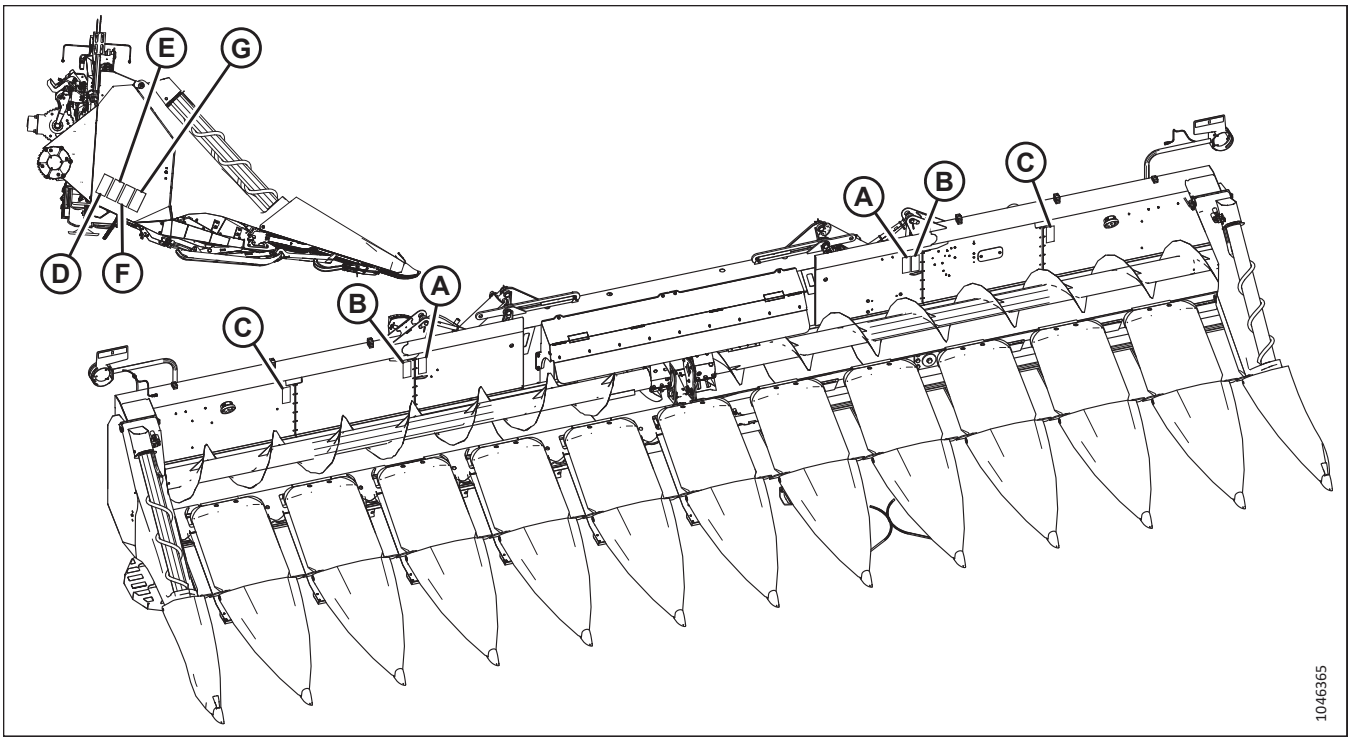


Figure 1.21: Header Decals – Front

A - MD #1.315.438
B - MD #1.326.702
C - MD #1.372.837
D - MD #1.372.836
E - MD #1.326.705
F - MD #1.315.439
G - MD #1.315.440

1.10 Understanding Safety Signs

Safety sign decals use illustrations to convey important safety or equipment maintenance information.

MD #1.315.438

General hazard pertaining to machine operation and servicing

DANGER

- Always stay clear of moving elements during operation.
- Always disengage the header drive, shut off the engine, and remove the key from the ignition before servicing or unclogging the header.

Figure 1.22: MD #1.315.438

MD #1.315.439

Header crushing hazard

DANGER

The header can lower unexpectedly. Shut off the machine, remove the key, and engage the feederhouse locks before going underneath the header.

Figure 1.23: MD #1.315.439

MD #1.315.440

Thrown objects hazard

WARNING

Machines equipped with a chopper are more dangerous because of objects thrown out unexpectedly. Do **NOT** stay close to an operating machine. Follow the instructions on use and maintenance of chopper knives.

Figure 1.24: MD #1.315.440

MD #1.326.700

General hazard pertaining to machine operation and servicing

DANGER

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

- Read the operator's manual and follow all safety instructions. If you do not have a manual, obtain one from your Dealer.
- Do **NOT** allow untrained persons to operate the machine.
- Review the safety instructions with all Operators every year.
- Ensure that all safety signs are installed and legible.
- Make certain everyone is clear of the machine before starting the engine and during operation.
- Keep riders off of the machine.
- Keep the shields in place and stay clear of moving parts.
- Disengage the header drive, put the transmission in Neutral, and wait for all movement to stop before leaving the operator's position.
- Shut down the engine and remove the key from the ignition before servicing the machine.
- To prevent a raised unit from falling, engage the safety props before servicing the unit in the raised position.

Figure 1.25: MD #1.326.700

MD #1.326.701

WARNING

If you stop the combine while the header is lifted, engage the combine feederhouse safety stops to prevent header movement.

Figure 1.26: MD #1.326.701

MD #1.326.702

DANGER

The header's snapping rolls and other moving parts cannot be covered completely due to their functions. To avoid personal injury or mortal accident

- Always keep your distance from the rotating parts of the machine.
- Do **NOT** feed crop material into machine by hand or attempt to manually unplug machine while it is running. The stalk rolls can feed the crop material in faster than you can release your grip on it.
- Always stop the engine before unclogging.

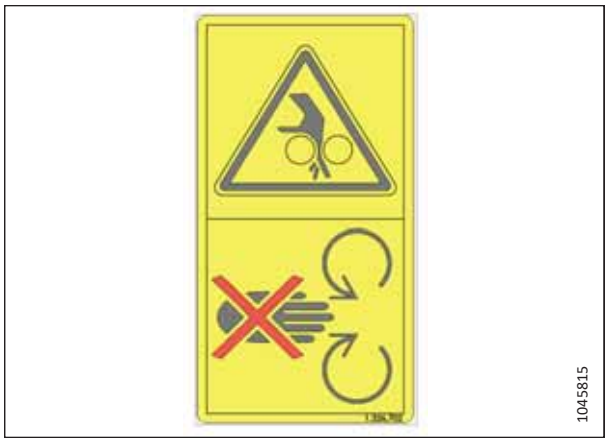


Figure 1.27: MD #1.326.702

MD #1.326.703

General hazard pertaining to machine operation and servicing

DANGER

Before beginning any maintenance or lubricating, stop the engine of the combine and remove the key.

Figure 1.28: MD #1.326.703

MD #1.326.705

Entanglement hazard

DANGER

- Never attempt to open or remove the shield while the engine is running.
- Keep every shield in its place.
- Avoid direct contact of your hand, leg, any part of your body or clothes with rotating or moving machine parts.
- Before approaching any moving parts, wait for them to completely stop.

Figure 1.29: MD #1.326.705

MD #1.369.003

High-pressure oil hazard

WARNING

High-pressure oil can cause severe injury. Remove power and drain pressure before servicing the hydraulic system.

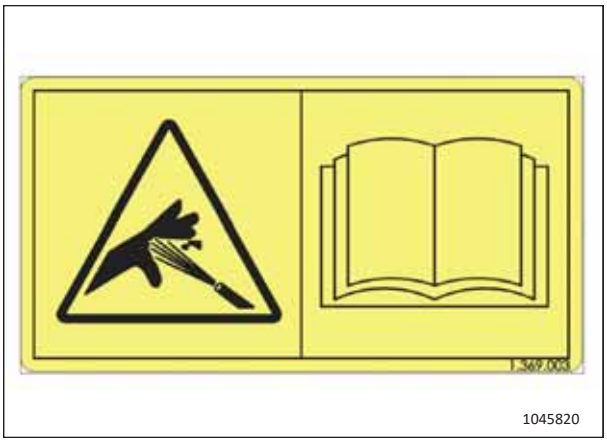


Figure 1.30: MD #1.369.003

MD #1.369.004

Pinch point hazard

CAUTION

To avoid injury from pinching or crushing

- Keep hands clear while the machine is operating.

Figure 1.31: MD #1.369.004

MD #1.369.071

Accumulator hazard

WARNING

Escaping fluid or gas from systems with pressurized accumulators can cause serious injury. Extreme heat can cause the accumulator to burst, and pressurized lines can be accidentally cut.

- Do **NOT** weld or use a torch near a pressurized accumulator or pressurized line.
- Relieve pressure from the pressurized or hydraulic system before removing the accumulator.
- Never attempt to relieve hydraulic system or accumulator pressure by loosening a fitting.
- Accumulators cannot be repaired.

Figure 1.32: MD #1.369.071

MD #1.372.836

Blade cutting hazard

WARNING

To prevent injury from sharp cutting blades

- Do **NOT** operate the header without shields in place.
- Disengage the power take-off, stop the engine, and remove the key from the ignition before opening the covers.
- Stop the engine and remove the key from the ignition before opening the shield. Blades may continue to rotate after the power is shut off. Listen and look for evidence of rotation before opening the shield.

Figure 1.33: MD #1.372.836

MD #1.372.837

Auger entanglement hazard

DANGER

To prevent injury from entanglement with a rotating auger

- Stand clear of the auger while the machine is running.

Figure 1.34: MD #1.372.837

MD #1.379.142

Entanglement hazard

DANGER

- Never attempt to open or remove the shield while the engine is running.
- Keep every shield in its place.
- Avoid direct contact of your hand, leg, any part of your body or clothes with rotating or moving machine parts.
- Before approaching any moving parts, wait for them to completely stop.

Figure 1.35: MD #1.379.142

MD #1.379.143

Crushing hazard

DANGER

If the engine is still operating, the combine can accidentally start. Never step between the header and the combine if the engine is not shut off.

Figure 1.36: MD #1.379.143

Chapter 2: Product Overview

Refer to this section to learn about the dimensions, weights, and equipment specifications for your corn header and its systems.

2.1 Product Specifications

Use the specification table to reference information about a machine's specific configuration. The table lists dimensions, weights, performance ranges, and features.

NOTE:

Items in the "Chop" column are for FC Corn headers with the factory-installed stalk chopping feature; Items in the "No Chop" column are for FC Corn headers without the stalk chopping feature. Specifications are subject to change without notice.

The following symbols and letters are used in specification tables:

S: standard /S_D standard (dealer installed); O_F: optional (factory installed) /O_D: optional (dealer installed); –: not available

Row Unit		No Chop	Chop
Rated operating speed	550 rpm	S	S
Radial pin torque limiting clutch	850 Nm (627 lbf·ft)	S	S
Snapping rolls			
Four point-to-point replaceable hardened carbide knives		S	S
Four replaceable serrated knives		S	S
Two replaceable sealed bearings		S	S
Adjustable vine knives		S	S
Snapping plates			
Hardened steel / straight cut edges		S	S
Adjustable range	18–37 mm (11/16–1 7/16 in.)	S	S
Chopping gearbox			
Rated operating speed	2800 rpm	—	S
Two bladed / reversible knives		—	S
Drive disconnect		—	S
Auger		**No Chop**	**Chop**
Low speed	126 rpm	S	S
High speed (factory setting)	141 rpm	S	S
Radial pin torque limiting clutch	1080–1320 Nm (797–974 lbf·ft)	S	S
Overall diameter	400 mm (15 3/4 in.)	S	S
Pitch	560 mm (22 in.)	S	S
Pan clearance	19–50.4 mm (3/4–2 in.)	S	S
Configuration			
Reverse flighting kit		S	S
Auger finger and paddle kit		S_D	S_D
Outboard rubber paddle kit		S	S
Snouts		**No Chop**	**Chop**

Standard gray			S	S
Case red			O_F	O_F
New Holland yellow			O_F	O_F
John Deere green			O_F	O_F
Hydraulic Flex Control System			**No Chop**	**Chop**
Flex range	15.1 degrees	Upward: 7.7 degrees Downward: 7.4 degrees	S	S
12 row	1123 mm (44 in.)	Upward: 564 mm (22 in.) Downward: 559 mm (22 in.)	S	S
16 row	1523 mm (61 in.)	Upward: 768 mm (31 in.) Downward: 755 mm (30 in.)	S	S
Cutting Height (In-cab adjustable)			**No Chop**	**Chop**
Cutting height without chopping		206–459 mm (8.1–18.1 in.)	–	S
Cutting height with chopping		112–365 mm (4.4–14.4 in.)	S	–
Stubble Stompers			**No Chop**	**Chop**
Three position with reverse breakaway protection			O_D	O_D
Stomping height - chopping		102–381 mm (4–15 in.)		S
Stomping height - non-chopping		206–381 mm (8–15 in.)	S	
Mounting position				
12 row header		Rows 3, 4, 5, 8, 9, and 10		
16 row header		Rows 5, 6, 7, 10, 11, and 12		
Attachments				
Rotary end dividers (REDs)	Flighting outside diameter:	170.1 mm (6.7 in.)	O_F	O_F
	Tube outside diameter:	114.3 mm (4.5 in.)		
	Speed:	0–777 rpm (at 40 l/min [10.6 gpm])		
Tall end divider			O_F	O_F
Ear saver kit			O_D	O_D
Auto header height control (three sensor system)			S	S
Row guidance (two sensor system)			O_F	O_F
Stubble lights			S	S
Break-away stubble stompers			O_D	O_D

2.2 Header Dimensions

The dimensions and weight of the various FC Series FlexCorn™ Headers are provided here.

DANGER

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

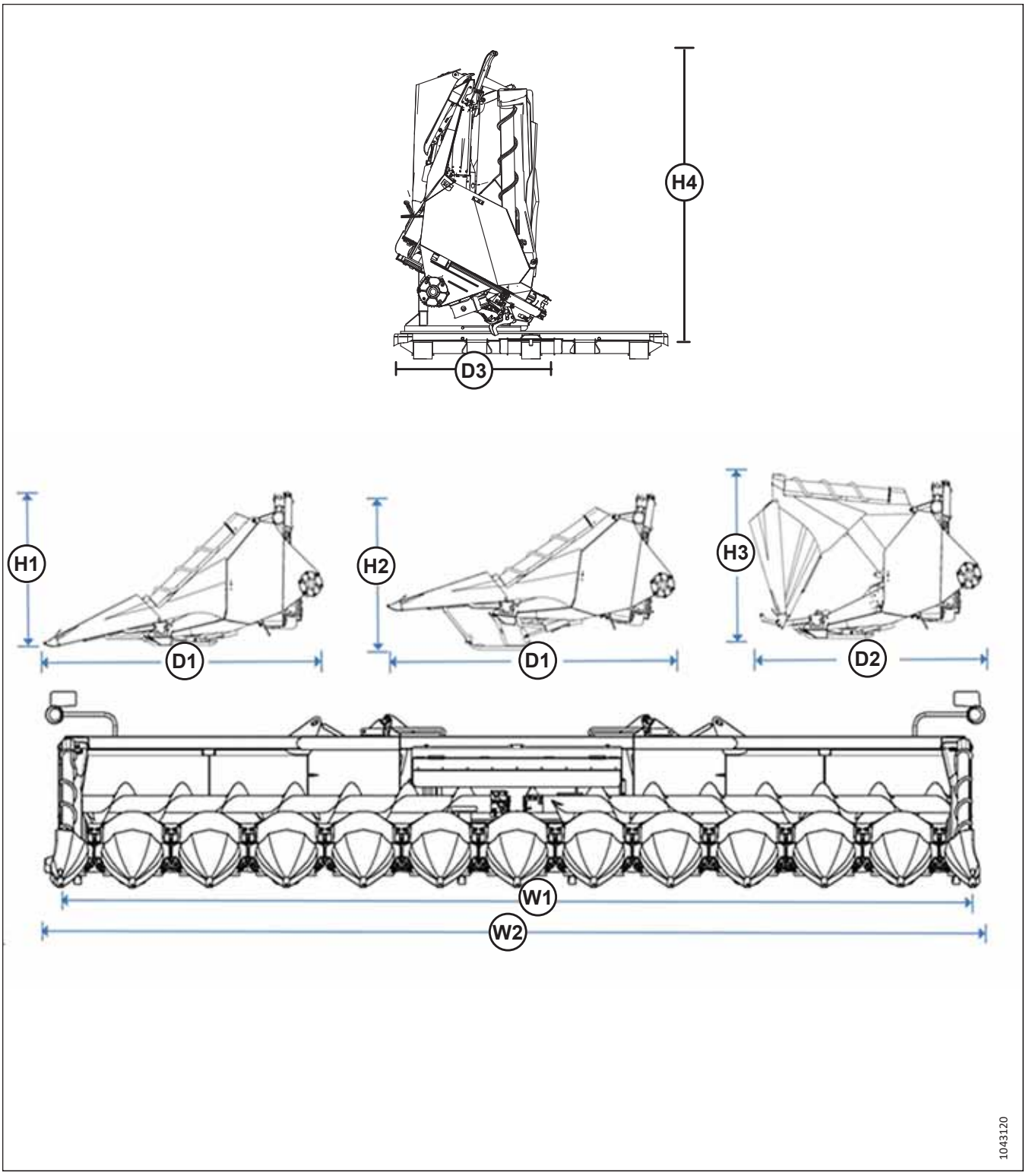


Figure 2.1: Header Dimensions

D1 - Header Length in Field Configuration

D2- Header Length in Transport Configuration

D3 - Header Length in Shipping Configuration

H1 - Header Height in Field Configuration with Skids Retracted

H2 - Header Height in Field Configuration with Skids Extended

H3 - Header Height in Transport Configuration

H4 - Header Height in Shipping Configuration

W1 - Effective Harvesting Width

W2 - Overall Header Width

Table 2.1 Header Dimensions – Common

Length in Field Configuration (D1)		Length in Shipping Configuration[1] (D3)		Length in Transport Configuration[2] (D2)		Height in Field Configuration with Skids Retracted (H1)		Height in Field Configuration with Skids Extended (H2)		Height in Shipping Configuration[1] (H4)		Height in Transport Configuration[2] (H3)	
m	ft.	m	ft.	m	ft.	m	ft.	m	ft.	m	ft.	m	ft.
2.99	9.81	1.33	4.35	2.46	8.08	1.41	4.62	1.65	5.40	2.35	7.71	1.62	5.32

Table 2.2 Flex Header Dimensions – Model Specific

Row Spec.	Model[3]	Weight		Effective Harvesting Width (W1)		Overall Width (W2)	
		kg	lb.	m	ft.	m	ft.
12R30	FC3012	4610	10,164	9.14	30.00	9.21	30.20
	FC3012C	4813	10,601	9.14	30.00	9.27	30.42
16R30	FC3016	5917	13,045	12.19	40.00	12.25	40.20
	FC3016C	6187	13,640	12.19	40.00	12.32	40.42

2.3 Definitions

The following terms, abbreviations, and acronyms are used in this manual.

Table 2.3 Definitions

Term	Definition
AHHC	Automatic header height control
API	American Petroleum Institute
Bolt	A headed and externally threaded fastener designed to be paired with a nut
Chopper (aka stalk chopper)	A factory-installed option that chops stalks into smaller pieces, helping residue to decompose faster.
FFFT	Flats from finger tight
Field configuration	Also known as working position. The configuration of the machine when working in the field.
Finger-tight	A reference position in which the sealing components are making contact with each other. The fitting is no longer loose and cannot be tightened further by hand.
Header	A machine that cuts crop and feeds it into an attached combine
n/a	Not applicable
Nut	An internally threaded fastener designed to be paired with a bolt
ORB	O-ring boss: A style of fitting commonly used in port openings on manifolds, pumps, and motors
ORFS	O-ring face seal: A style of fitting commonly used for connecting hoses and tubes. This style of fitting is also commonly called ORS, which stands for O-Ring Seal
RED	Rotary end divider
SAE	Society of Automotive Engineers

1. Shipping configuration is the configuration of the header when it is shipped from the factory.
2. Transport configuration is used to transport the header between fields after unloading and assembly tasks are complete.
3. Model numbers ending in “C” indicate that the header is equipped with a chopper.

Table 2.3 Definitions (continued)

Term	Definition
Screw	A headed and externally threaded fastener that threads into preformed threads or forms its own thread when it is inserted into a mating part
Shipping configuration	The configuration of the machine when it is shipped from the factory
TED	Tall end divider
Tension	An axial load placed on a bolt or screw, usually measured in Newtons (N) or pounds (lb.). This term can also be used to describe the force a belt exerts on a pulley or sprocket
TFFT	Turns from finger tight
Torque	The product of a force multiplied by the length of a lever arm, usually measured in Newton-meters (Nm), foot-pounds (lbf·ft), or inch-pounds (lbf·in)
Torque angle	A tightening procedure in which a fitting is assembled to a specified tightness (usually finger tight) and then the nut is turned farther by a specified number of degrees until it achieves its final position
Torque-tension	The relationship between the assembly torque applied to a piece of hardware and the axial load it induces in a bolt or screw
Transport configuration	The configuration of the machine when it is being transported between fields.
Washer	A thin cylinder with a hole or a slot located in the center, used as a spacer, a load distribution element, or a locking mechanism

2.4 How it Works – Header Function

This section provides an overview of the header row units and the hydraulic flex control system.

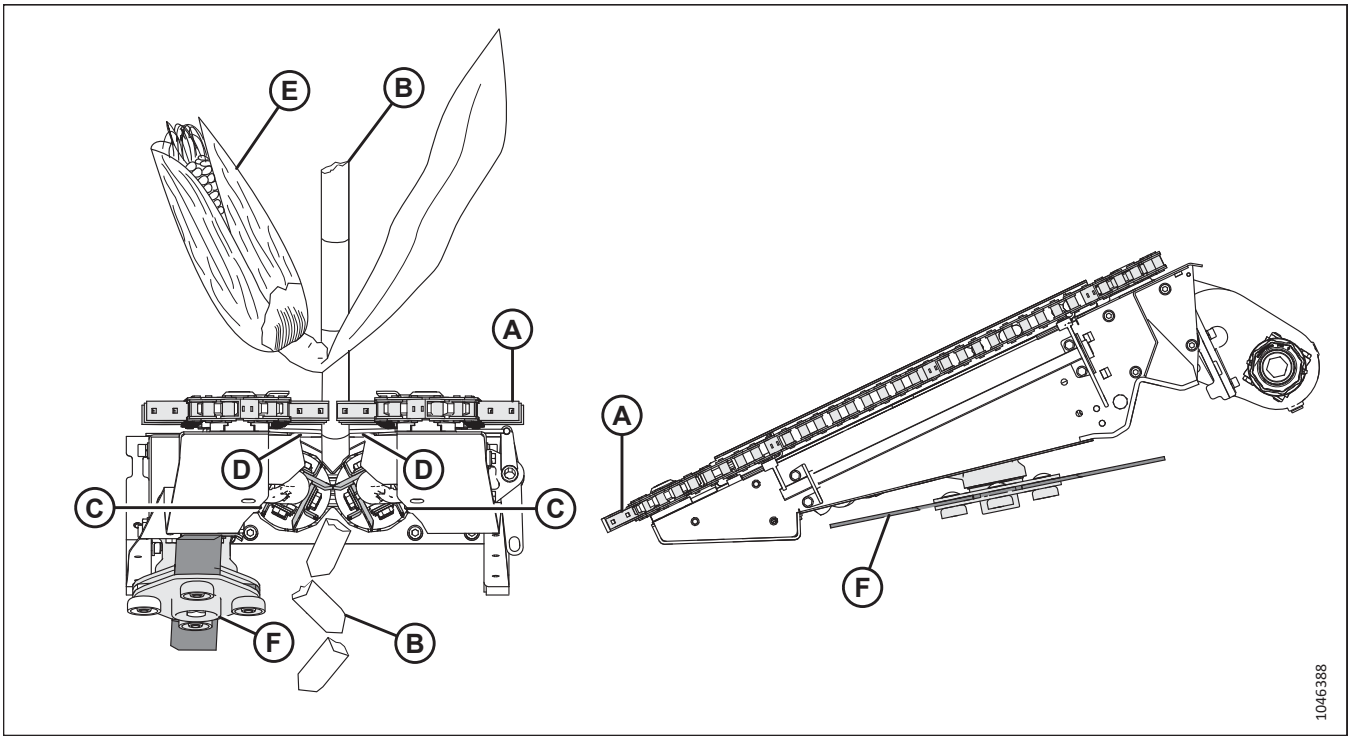


Figure 2.2: Corn Stalk Processed Through Row Unit

Corn Stalk Processing

The row units process the corn stalks as follows:

- Gathering chains (A) guide stalks (B) into the center of the row unit and assist the rearward motion
- Stalks enter counter-rotating snapping rolls (C), and the plant is pulled down through narrow deck plates (D)
- As ears of corn (E) contact the deck plates, they are separated from the plant; gathering chains (A) move the ears into the auger
- Stalk are processed as they move through snapping rolls (C) and left in the field
- If the corn head is equipped with optional stalk choppers (F), stalks are chopped into small pieces

Figure 2.3: FlexCorn™ Ground Following

Ground following

MacDon FlexCorn™ Headers are designed to maximize your harvest in the most challenging terrain.

Using two pivoting wings, FC 3016 headers flex up to 787 mm (31 in.) up and 762 mm (30 in.) down over a 15.1 degree range. Header flotation is provided by adjustable flex cylinders that can support over 98% of the header weight, which, in combination with adjustable skid shoes, help the header to instantly follow ground contours and deliver a consistent cut height.

2.5 ISOBUS Compatible Displays

This topic provides a list of ISOBUS compatible displays. Some headers require ISOBUS integration for control and diagnostics features.

The information provided in this topic is up to date at the time of publication. Contact your combine Dealer for the most current information.

Table 2.4 ISOBUS Compatible Displays

Manufacturer	Display Name / Model
Ag Leader®	InCommand® Go 16
	InCommand® Go 10
Case IH	Pro 700
	Pro 1200
John Deere	GreenStar™ 3 2630
	GreenStar™ 3 CommandCenter™
	Gen 4 CommandCenter™
	G5 and G5Plus Universal
	G5 and G5Plus CommandCenter™
	4240 Universal display
	4640 Universal display
New Holland	IntelliView™ IV display
	IntelliView™ 12 display
PTx Trimble	GFX-350™ display
	GFX-750™ display
	GFX-1060™ display
	GFX-1260™ display
	TMX-2050™ display
Raven	CR 7® display
	CR 12® display
Topcon	XC1 Series consoles
	XD Series consoles
	ID1 Series consoles

NOTE:

ISOBUS integration per manufacturer.

2.6 Combine Compatibility – John Deere S650, S660, S670, S760, and S770

John Deere S650, S660, S670, S760, and S770 use a lower reel drive circuit relief pressure and require an adjustment to work with FC3012 and FC3012C FlexCorn™ headers.

FC3012 and FC3012C FlexCorn™ headers: If the header will be used on John Deere S650, S660, S670, S760, and S770 combine models, the hydraulic manifold relief setting must be reduced to prevent the combine reel drive circuit from exceeding its relief setting.

FC3016 and FC3016C FlexCorn™ headers: due to the lower reel drive circuit relief pressure, these headers are not compatible with John Deere S650, S660, S670, S760, and S770 combine models.

NOTE:

Rotary end dividers will stall if the combine reel drive relief setting is exceeded. If this happens regularly, the header pressure relief setting will need adjustment.

For more information, contact your MacDon Dealer.

2.7 Gearbox Drive Configurations

Depending on the combine, drive and driven gearboxes are connected by a double joint coupling or shaft.

Gearbox assemblies (A) provide a nominal snapping unit input speed of 550 rpm. For all combine brands except CLAAS, gearboxes are connected by a double joint coupling (B). When a header is configured for CLAAS combines, the gearboxes are connected with a shaft (not shown).

NOTE:

For combine conversion instructions, contact your MacDon Dealer.

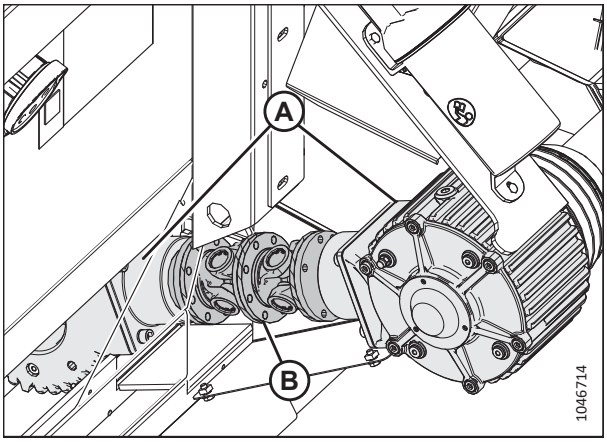


Figure 2.4: Gearbox Drive – Left Side

Chapter 3: Attaching Header to Combine

This section includes instructions for configuring and attaching the header.

NOTE:

Headers are configured for a specific combine brand. If the header will be attached to a different combine brand, remove the factory-installed mounting kit and install the mounting kit recommended for the new combine brand before attempting to attach the header to the combine.

NOTE:

Ensure that the combine feeder house lugs are free of dirt and debris. Ensure the locking mechanism is undamaged and moves freely. Make repairs to the locking mechanism before attaching the header to the combine.

NOTE:

Ensure that all electrical and hydraulic connectors are clean and free of dust and debris.

The first time you attach the header to a combine: When attaching the header to a combine for the first time, the following procedures and calibrations are required. Requirements change depending on the combine brand and model. Complete Step *1, page 29* to Step *10, page 29*.

Reattaching the header to a combine after adding or removing options or attachments: When header options or attachments have changed, the system requires calibration. Complete Step *2, page 29* to Step *4, page 29* and then complete calibration Step *8, page 29* to Step *10, page 29*.

Reattaching the header to a combine with no changes to the header: when there are no changes to the header, it can be reattached without calibration. Complete Step *2, page 29* to Step *4, page 29*.

1. Install the battery power electrical harness, and the combine cab harness. For instructions, refer to the FlexCorn™ Header Unloading and Assembly Instructions. The current version can be downloaded from our website (*www.macdon.com*).
2. Adjust the latching hooks. For instructions, refer to *3.1 Adjusting Latching Hooks, page 30*.
3. Attach the driveline(s) to the combine. For instructions, refer to *3.2 Attaching Drivelines to Combine, page 32*.
4. Connect the hydraulic and electrical systems. For instructions, refer to *3.3 Connecting Hydraulic and Electrical Systems, page 33*.
5. Configure your combine for the header. Refer to the combine configuration instructions *3.4 Configuring Combine, page 33*.
6. Setup the MacDon FlexCorn™ Header application. For instructions, refer to *3.4.5 Setting Up Header – FlexCorn™ Application, page 43*.
7. Enable the rotary end divider/draper header reel drive hydraulic circuit in the MacDon FlexCorn™ Header application. For instructions, refer to *3.4.6 Setting Rotary End Divider / Reel Drive Flow, page 45*.

   NOTE:

   The rotary end divider/draper header reel drive hydraulic circuit must be enabled even if the header is not equipped with rotary end dividers, because the hydraulic flex control system functions require this hydraulic circuit.
8. Calibrate the hydraulic flex control system. For instructions, refer to *3.4.7 Calibrating Hydraulic Flex Control System – FlexCorn™ Application, page 46*.
9. Calibrate the auto header height control in the MacDon FlexCorn™ Header application. For instructions, refer to *3.4.8 Calibrating Auto Header Height Control – FlexCorn™ Application, page 48*.
10. Calibrate the combine. For instructions, refer to the combine operator's manual.

3.1 Adjusting Latching Hooks

The first time you pick up the header with a different combine, you will need to adjust the latching hooks. Ensure the locking pins are securely seated before proceeding.

Refer to the applicable instructions for your combine model below.

Case IH 1000–2000

1. Locate the U-bolts on the transition frame on the rear of the header, just below the outboard corners of the delivery opening.
2. Adjust nuts (A) on the U-bolts as required to provide adequate clamping force. Refer to the combine operator's manual for the correct adjustments and latching methods.
3. Proceed to the instructions for attaching drivelines, *3.2 Attaching Drivelines to Combine, page 32*.

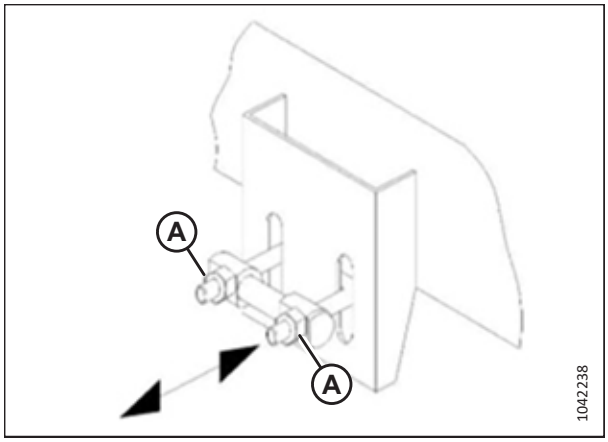


Figure 3.1: U-bolts – Case IH 1000–2000

Case IH Flagship and Legacy, New Holland CR and CX Series

1. Adjust hooks (A) on the combine until they are fully seated in the holes of the header.
2. Put combine locking arm (B) in header latch (C), and then tighten lower bolts (D).

   NOTE:

   Some combines have two of bolt (D) and some have three.
3. Proceed to the instructions for attaching drivelines, *3.2 Attaching Drivelines to Combine, page 32*.

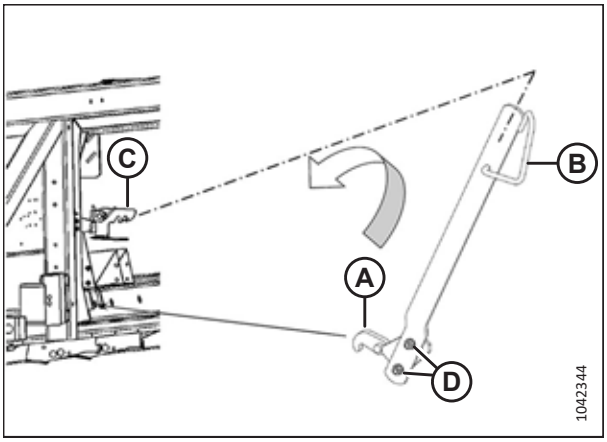


Figure 3.2: Header Latch – Case IH Flagship and Legacy, New Holland CR and CX Series

CLAAS Lexion 700, 7000, and 8000 Series

1. Locate latch axles (A) on the transition frame on the rear of the header, just below the outboard corners of the delivery opening.
2. If there is a difference between the axis line of latch axle (A) and that of the hole in the combine feeder house's clamping strap (B), set the clamping strap, then fix pivot pin (C).
3. Proceed to the instructions for attaching drivelines, *3.2 Attaching Drivelines to Combine, page 32*.

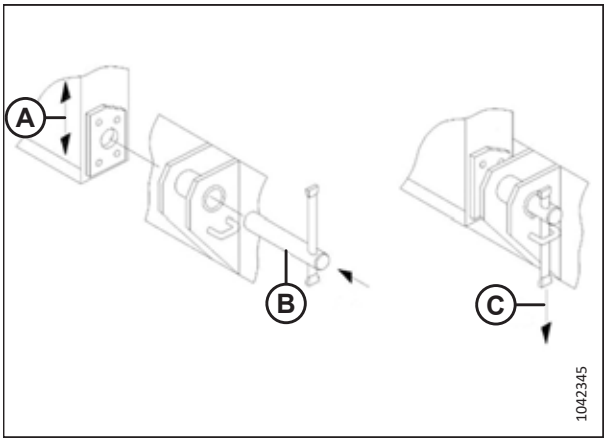


Figure 3.3: Axis Line of Latch Axle – CLAAS Lexion 700, 7000, and 8000 Series

John Deere S Series, S7 Series, and X9 Series

1. On the header, in the bottom corners of the transition frame, loosen hardware (A), adjust retainer plate (B) as needed to engage the lock, and then retighten the hardware.

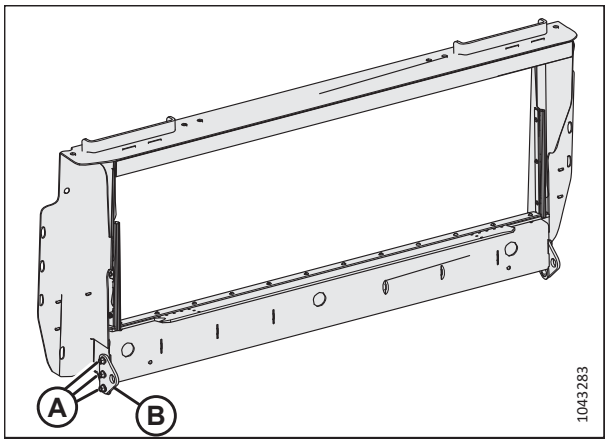


Figure 3.4: John Deere Transition Frame

3.2 Attaching Drivelines to Combine

All headers have a driveline on the left and right sides of the combine feeder house. The driveline(s) must be connected to the combine.

1. Connect the drive shafts and ensure that the protective shields are properly in place and that all rotating parts are adequately shielded. The shafts are installed at the factory with the protective shielding supplied by the shaft manufacturer.

   IMPORTANT:

   After connecting to the feeder drive shaft, position protective shield (A) on the drive shaft according to the instructions in the combine operator's manual.

2. To prevent rotation of header drive shaft shield (B), attach both original chain restraints (C) to the header.

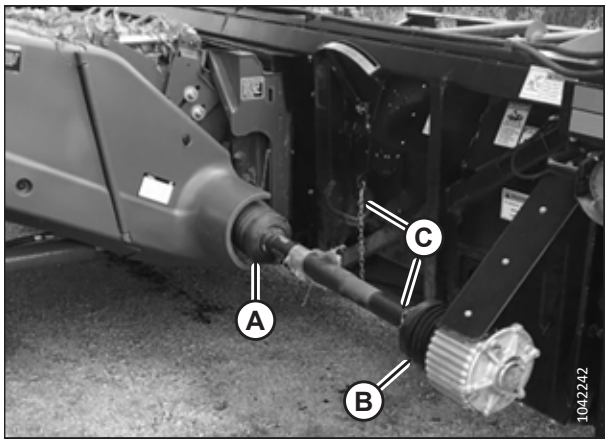


Figure 3.5: Header Driveline

3.3 Connecting Hydraulic and Electrical Systems

The header's hydraulic and electrical systems must be connected to the combine's hydraulic and electrical systems.

1. Connect the combine single/multi-point connector to multicoupler (A) on the left side of the header opening on the rear of the header. Refer to the combine operator's manual for the correct latching methods.

   NOTE:

   The connections vary for different combine brands.

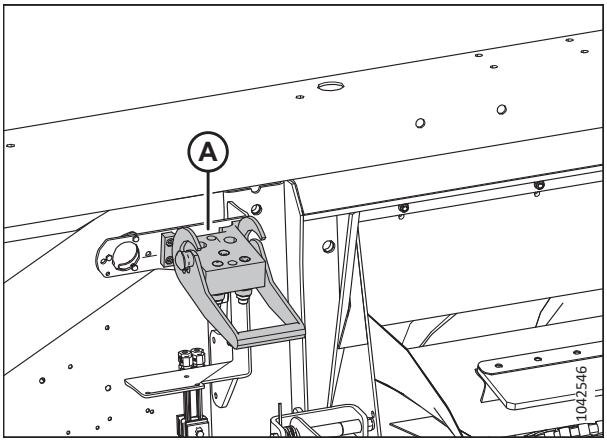


Figure 3.6: Multicoupler on a Header Configured for a Case or New Holland Combine

3.4 Configuring Combine

The combine must be configured to operate the header and any optional features.

Refer to the appropriate instructions for your combine brand:

- *3.4.1 Configuring Case IH Combines, page 33*
- *3.4.2 Configuring CLAAS Combines, page 36*
- *3.4.3 Configuring John Deere Combines, page 36*
- *3.4.4 Configuring New Holland Combines, page 40*

3.4.1 Configuring Case IH Combines

Case combine displays must be configured for compatibility with FlexCorn™ headers.

NOTE:

Before the header can function, ISOBUS Universal Terminal (UT/VT) software must be installed. To install the ISOBUS software, contact your Case Dealer.

1. From the home screen, select TOOLBOX.
2. Select the VT tab, and select the drop-down menu labeled SOFT KEYS.
3. Select 6 soft keys.

   NOTE:

   Case IH Pro 700 displays are configurable for 6 or 12 visible soft keys; the FlexCorn™ UT application is optimized for 6 soft keys. The 12 soft key setting may cause issues with the display.

Combine display configuration:

4. On the HEADER SETUP 1 page, from DECK PLATES menu (A) select INSTALLED.
5. From HYDRAULIC ROTATING DIVIDERS menu (B), select INSTALLED.

   IMPORTANT:

   The hydraulic rotating dividers (sometimes called draper header Reel Circuit or Header Aux Function) must be enabled and the speed setting turned up. The hydraulic flex control system will not function if this circuit is disabled.
6. From the FRAME TYPE menu (C), select RIGID.

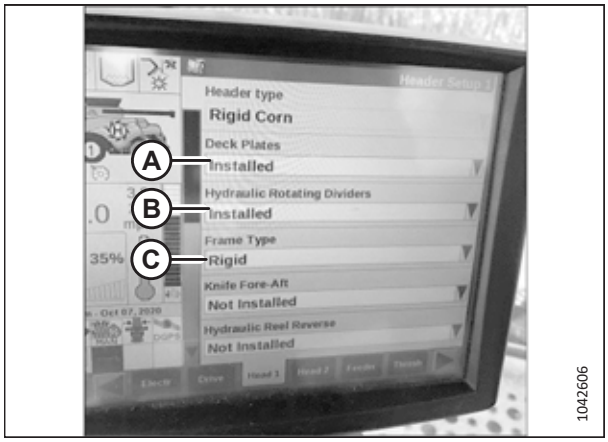


Figure 3.7: Header Setup Page

NOTE:

The combine must be steering ready, and have row guidance activated in order to use row guidance sensors. Contact your Case Dealer for more information.

Header Settings Quick Reference – Case Display

The following table provides recommended auto header height (AHHC) settings for FC Series corn headers connected to Case combines.

NOTE:

Some options/selections may not be available unless the combine display is in Dealer Mode.

Table 3.1 Combine Display Header Settings Quick Reference

Setup Parameter	Setting	Notes
Maximum work height	75 %	—
Header type	Corn	Required.
Cutting type	Row	Required.
Frame type	Rigid	Required.
Feeder speed corn	Full range	—
Header sensors	Enabled	Required.
Header pressure float	Disabled	—
Header tilt response	Fast	—
Pressure float override	20 %	—
Auto height override	No	—
Auto header lift	Yes	Customer preference
HHC raise rate	230	May by effected by header weight.
HHC lower rate	200	May by effected by header weight.
HHC height sensitivity	200	—
HHC tilt sensitivity	150	—
HHC tilt rate	100	—
Reel speed minimum	3.2 km/h (2.0 mph)	—
Reel speed slope	100	—
Reel drive type	Hydraulic	—

Table 3.1 Combine Display Header Settings Quick Reference (continued)

Setup Parameter	Setting	Notes
Reel speed sensor	No	—
Reel sensor horizontal	No	—
Reel end dividers	Yes	Required, even if the header is not equipped with REDs.
Knife fore/aft	No	—
Deck plates	Hydraulic	—
Header lateral tilt	Yes	Required.
Auto tilt	No	—
Auto level at headland	Yes	—

Configuring FlexCorn™ Application – Case IH Combines

The FlexCorn™ application runs on a compatible display to control, monitor, and perform diagnostics on the header.

The FlexCorn™ application is compatible with certain Case displays. For a list of compatible displays, refer to *2.5 ISOBUS Compatible Displays, page 25*.

1. From the main page of the combine display, select VT icon (A).

Figure 3.8: Case Display – Home Page

2. Select the MacDon FLEXCORN icon (A).

Figure 3.9: Case Display – Virtual Terminal

3. The first time the header is connected to the combine, it can take up to 5 minutes to load the ISOBUS application. During the loading process, leave the machine key in the ON position. You will see “LOADING OBJECT POOL” icon (A) in the lower left section of the display.

   NOTE:

   If the MacDon FlexCorn™ application does not appear within 5 minutes, confirm harness connections are secure and the in-cab controller power light is illuminated.

Figure 3.10: Case Display – Virtual Terminal

3.4.2 Configuring CLAAS Combines

To enjoy the best header features and performance, the CLAAS combine must be configured properly.

NOTE:

To connect with MacDon FlexCorn™ Headers, the combine must be equipped with an ISOBUS-compatible display. For a list of compatible displays, refer to *2.5 ISOBUS Compatible Displays, page 25*.

Setting up REDs

1. Reel drive must be engaged because the reel drive hydraulic circuit powers the hydraulic flex control system and the (optional) REDs. To engage the reel drive pump on the combine, pins XA13 and XC5 must be connected together. The pins are provided in the harness.

   NOTE:

   RED speed is controlled using the reel speed control on the side console.

3.4.3 Configuring John Deere Combines

John Deere combine displays must be configured for compatibility with FlexCorn™ headers.

NOTE:

To connect with MacDon FlexCorn™ headers, the combine must be equipped with an ISOBUS-compatible display. For a list of compatible displays, refer to *2.5 ISOBUS Compatible Displays, page 25*.

Combine display configuration:

IMPORTANT:

The combine reel circuit (sometimes called Header Auxiliary Function) must be enabled and the speed setting turned up. The hydraulic flex control system will not function if the combine reel circuit is disabled.

1. Enter the header settings detailed in Table *3.2, page 37* into the combine HEADER DETAILS page.

Table 3.2 Header Settings John Deere Combines

Setup Parameter	Suggested Setting	Comments
Header Width	Enter a value based on header configuration.	—
Row Configuration	Enter a value based on header configuration.	—
Rotary End Divider	Select the check box.	**Required** even when header does not have rotary end dividers installed.

2. To enable the header flex functionality on John Deere combines with GS4 displays, navigate to MENU – MACHINE SETTINGS – HEADER DETAILS and select ENABLE AUXILIARY FUNCTION (A).

3. To enable the header flex functionality on John Deere combines with GS3 displays, navigate to HEADER SETUP – HEADER WIDTH SETTINGS and select REEL INSTALLED.

Figure 3.11: John Deere GS4 Display – Header Details Dialog Box

Configuring AHHC and row guidance

4. Follow the instructions on the combine display to configure the AHHC and row guidance. For assistance, refer to the combine operator's manual.

5. Configure the combine display to run the FlexCorn™ application:
   - for S600 Series combines, refer to *Configuring FlexCorn™ Application – John Deere S600 Combines, page 37*.
   - For S700 Series combines, refer to *Configuring FlexCorn™ Application – John Deere S700 Combines, page 38*.

Configuring FlexCorn™ Application – John Deere S600 Combines

The FlexCorn™ application runs on a compatible display to control, monitor, and perform diagnostics on the header.

The FlexCorn™ application is compatible with certain John Deere displays. For a list of compatible displays, refer to *2.5 ISOBUS Compatible Displays, page 25*.

NOTE:

For some older John Deere S600 series combines, the PCAN connector must be connected to PCAN-VB on the in-cab harness.

1. Select MENU icon (A) at the bottom right corner of the display.
2. Select MacDon FLEXCORN icon (B), and wait for the application to load.

   NOTE:

   The loading status will be displayed with a progress bar. It may take 5 minutes to load the application on initial setup.
3. If the FlexCorn™ application does not appear on the display within 5 minutes, confirm harness connections are secure and the in-cab controller power light is illuminated.
4. if the MacDon FlexCorn™ application still does not populate, disconnect the PCAN connector on the in-cab harness, and reconnect it to PCAN-IB or PCAN-VB.

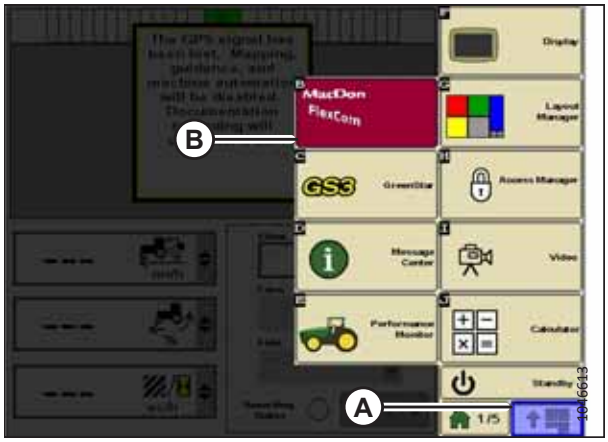


Figure 3.12: John Deere S600 Menu

Table 3.3 Header Setting John Deere S600 Series

Setup Parameter	Suggested Setting	Comments
Header Width	Enter a value based on header configuration.	—
Row Configuration	Enter a value based on header configuration.	—
Rotary End Divider	Check the check box.	**Required** even when header does not have rotary end dividers installed.

Configuring FlexCorn™ Application – John Deere S700 Combines

The FlexCorn™ application runs on a compatible display to control, monitor, and perform diagnostics on the header.

The FlexCorn™ application is compatible with certain John Deere displays. For a list of compatible displays, refer to *2.5 ISOBUS Compatible Displays, page 25*.

1. Select MENU icon (A) at the bottom right corner of the display.

Figure 3.13: John Deere S700 – Settings Page

2. Select Applications tab (A).

3. Select ISOBUS VT icon (B)

Figure 3.14: John Deere S700 – Menu Page

4. Select MACDON FLEXCORN (A) from the Connected ISOBUS Implements page.

   NOTE:

   The loading status will be displayed with a progress bar. It may take 5 minutes to load the application on initial setup.

Figure 3.15: ISOBUS Implement Page

5. If FlexCorn™ application (A) does not appear on the display within 5 minutes, confirm harness connections are secure and the in-cab controller power light is illuminated.

   NOTE:

   If the MacDon FlexCorn™ application does not appear within 5 minutes, confirm harness connections are secure and the in-cab controller power light is illuminated.

Figure 3.16: John Deere S700 – FlexCorn™ Application

3.4.4 Configuring New Holland Combines

New Holland combine displays must be configured for compatibility with FlexCorn™ headers.

NOTE:

Before the header can function, ISOBUS Universal Terminal (UT/VT) software must be installed. To install the ISOBUS software, contact your New Holland Dealer.

1. From the home screen, select TOOLBOX.
2. Select the VT tab, and select the drop-down menu labeled SOFT KEYS.
3. Select 6 soft keys.

   NOTE:

   New Holland Intelliview IV displays are configurable for 6 or 12 visible soft keys; the FlexCorn™ UT application is optimized for 6 soft keys. The 12 soft key setting may cause issues with the display.

Combine display configuration:

4. On the HEADER SETUP 1 page, from DECK PLATES menu (A) select INSTALLED.
5. From HYDRAULIC ROTATING DIVIDERS menu (B), select INSTALLED.

   IMPORTANT:

   The hydraulic rotating dividers (sometimes called draper header Reel Circuit or Header Aux Function) must be enabled and the speed setting turned up. The hydraulic flex control system will not function if this circuit is disabled.
6. From the FRAME TYPE menu (C), select RIGID.

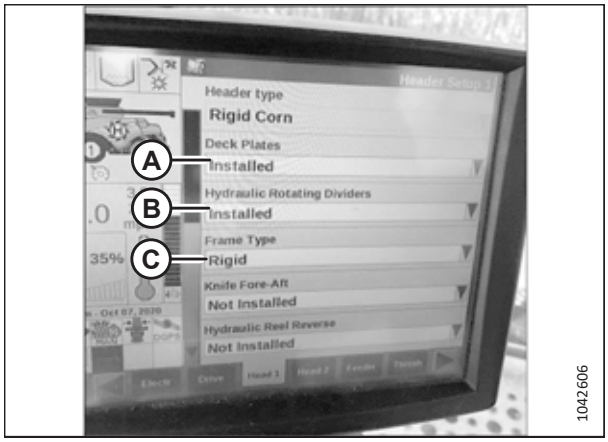


Figure 3.17: Header Setup Page

NOTE:

The combine must be steering ready, and have row guidance activated in order to use row guidance sensors. Contact your New Holland Dealer for more information.

Header Settings Quick Reference – New Holland Display

The following table provides recommended auto header height (AHHC) settings for FC Series corn headers connected to New Holland combines.

NOTE:

Some options/selections may not be available unless the combine display is in Dealer Mode.

Table 3.4 Combine Display Header Settings Quick Reference

Setup Parameter	Setting	Notes
Header type	Rigid corn or variable speed corn	—
Deck plates	Installed	—
Hydraulic rotating dividers	Installed	Required, even if the header is not equipped with rotating dividers.
Frame type	Rigid	Required

Table 3.4 Combine Display Header Settings Quick Reference (continued)

Setup Parameter	Setting	Notes
Knife fore/aft	Not installed	—
Hydraulic reel reverse	Not installed	—
Flip up kit	Not installed	—
Header blow-off	Not installed	—
Reel speed minimum	3.2 km/h (2.0 mph)	—
Reel speed offset	0.0 km/h (mph)	—
Maximum work height	75 %	Customer preference may supersede the recommendation.
Auto float	Installed	Required
Auto float II	Enabled	Required
Auto header lift	Installed	Customer preference may supersede the recommendation.
Auto tilt at headland	Installed	Customer preference may supersede the recommendation.
Auto level at headland	Installed	Customer preference may supersede the recommendation.
Pressure override threshold	20 bars (290 psi)	—
Height/tilt response	Fast	—
HHC height sensitivity	150	—
HHC tilt sensitivity	200	—
HHC raise slow rate	220	—
HHC raise fast rate	250	—
HHC lower slow rate	60	Setting affected by header weight.
HHC lower fast rate	150	Setting affected by header weight.
Header slip clutch	Not installed	—

Configuring FlexCorn™ Application – New Holland Combines

The FlexCorn™ application runs on a compatible display to control, monitor, and perform diagnostics on the header.

The FlexCorn™ application is compatible with certain New Holland displays. For a list of compatible displays, refer to *2.5 ISOBUS Compatible Displays, page 25*.

1. From the main page of the combine display, select VT icon (A).

Figure 3.18: New Holland Display – Home Page

2. Select the MacDon FLEXCORN icon (B).

Figure 3.19: New Holland Display – Virtual Terminal

3. The first time the header is connected to the combine, it can take up to 5 minutes to load the ISOBUS application. During the loading process, leave the machine key in the ON position. You will see “LOADING OBJECT POOL” icon (A) in the lower left section of the display.

   NOTE:

   If the MacDon FlexCorn™ application does appear within 5 minutes, confirm harness connections are secure and the in-cab controller power light is illuminated.

Figure 3.20: New Holland Display – Virtual Terminal

3.4.5 Setting Up Header – FlexCorn™ Application

Information about the header and the combine must be entered into the FlexCorn™ application.

1. Open the FlexCorn™ application in the combine virtual terminal (VT) display, and select SETUP (A) from the HOME page.

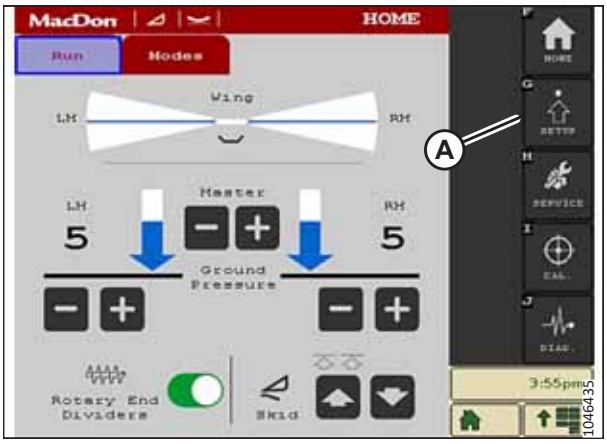


Figure 3.21: FlexCorn™ Application – Home Page

2. The FlexCorn™ application can move to a different VT-compatible display. To change where the application is displayed, select the DISPLAY tab then press and hold NEXT VT icon (A) until the application appears on the second display.

   NOTE:

   Most combine monitors can display ISOBUS UT/VT applications on run screens. For display setup instructions, refer to the combine/display operator's manual.

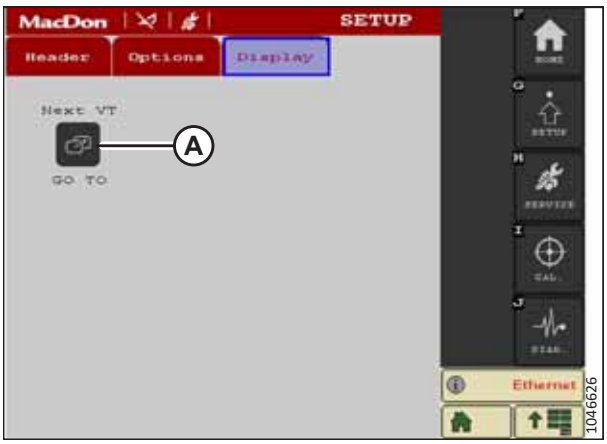


Figure 3.22: FlexCorn™ Setup Page

3. To modify header settings, select EDIT icon (A) under the HEADER tab.

Figure 3.23: FlexCorn™ Setup Page

4. Select the appropriate model from HEADER MODEL list (A).
5. Select the appropriate brand from COMBINE MAKE list (B).
6. To adjust wing kick, press WING KICK SETTING box (C). A number pad will display.

   NOTE:

   When the header is raised while in Flex mode, the wing kick feature flexes the wings to increase clearance below the header wings. This setting can be adjusted between 0% (wings level) and 75% (wings flexed up 75%).

7. Enter the desired wing kick setting value on the number pad and press ACCEPT.
8. Enable AUTO SKID SHOE REPHASE switch (D). This feature ensures that skid shoes are at the same height when the header is lifted.
9. When setup is complete, select ACCEPT icon (E).

   NOTE:

   To exit the header setup without saving, select CANCEL (F).

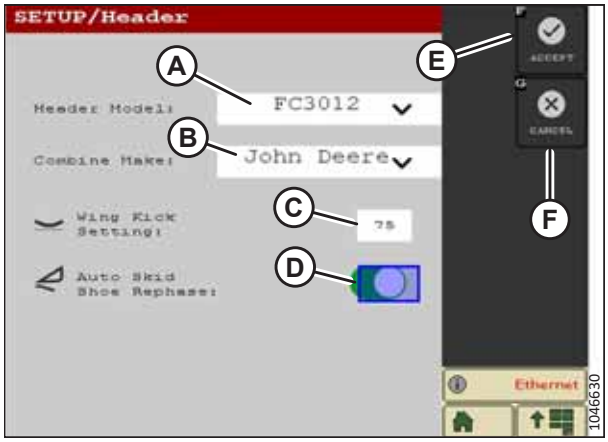


Figure 3.24: FlexCorn™ Header Setup

10. To modify the header options settings, select EDIT icon (A) under the OPTIONS tab.

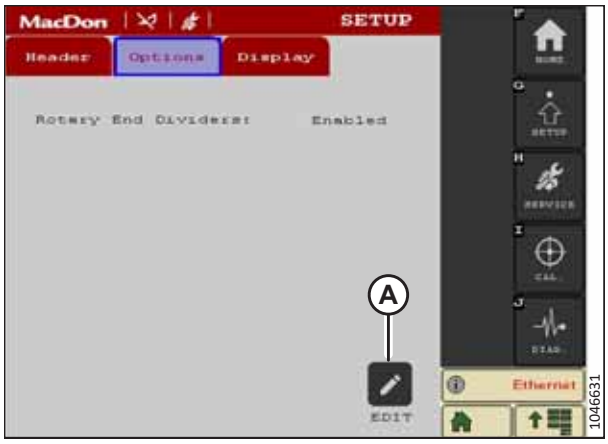


Figure 3.25: FlexCorn™ Options Setup

11. Select the appropriate optional equipment.
    - If rotary end dividers (REDs) are installed select box (A)
    - If REDs are not installed, clear box (A)

    IMPORTANT:

    If box (A) *is* checked when REDs are not installed, the combine's hydraulic reel drive may exceed relief pressure and the header will not function normally.

12. Press ACCEPT (B) to save settings.

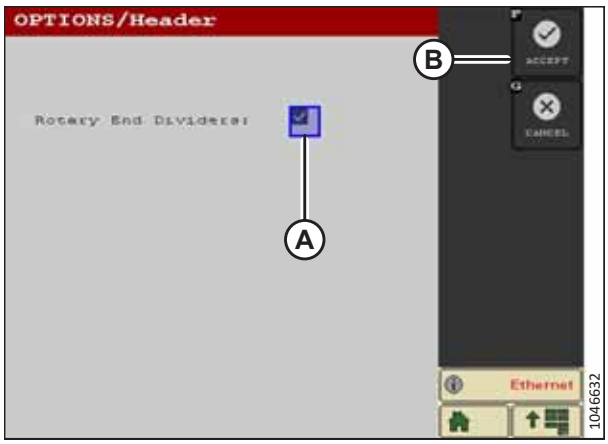


Figure 3.26: FlexCorn™ Options Setup

NOTE:

Do **NOT** control the REDs using the check box in Figure *3.26, page 44*. Always use REDs ON/OFF switch (A) from the FlexCorn™ RUN page.

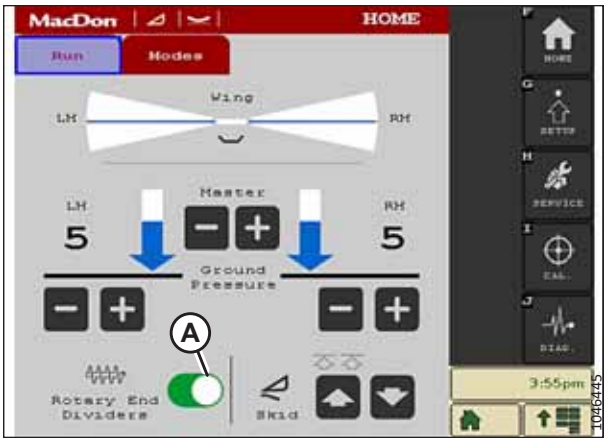


Figure 3.27: FlexCorn™ Options Setup

3.4.6 Setting Rotary End Divider / Reel Drive Flow

Setting the rotary end divider circuit (also known as the draper header reel drive circuit) flow rate ensures that header hydraulic flex control system functions properly.

DANGER

Ensure that all bystanders have cleared the area.

IMPORTANT:

The combine rotary end divider/reel drive circuit (sometimes called header auxiliary function) must be enabled and the speed setting adjusted, or the hydraulic flex control system will **NOT** function. The header can be damaged if rotary end dividers (REDs) are turned off using the combine reel drive speed control. Turn REDs on and off using the button on the FlexCorn application Home page. For instructions, refer to *4.2.12 Operating Rotary End Dividers (Option), page 72*.

NOTE:

ClAAS combines require connection of two wires on the header side of the combine multicoupler. For more information, refer to *3.4.2 Configuring CLAAS Combines, page 36*.

NOTE:

John Deere combines after model year 2021 (with certain software versions) may limit flow to the auxiliary circuit when a corn header is attached. Operator's may experience poor flex performance and stalling of the rotary end dividers (if equipped). Contact your local John Deere Dealer and inquire about Solution Number 220414 to increase the auxiliary/reel drive output flow rate.

To adjust pressure/flow with REDs installed:

1. Set rotary end divider/reel drive flow to approximately 50% using the dial on the combine console. Rotary end divider speed can be adjusted by using the reel drive speed; however, the combine reel drive speed should never be set below 25%.

   NOTE:

   - If the header is equipped with REDs, the combine reel drive flow should be 4–7 gpm to meet the requirements of the header.
   - If wing flex reactions are too slow, increase combine reel speed slightly.

2. Enable REDs. If REDs rotate too fast, reduce the combine reel speed slightly until the speed is functional.

To check the pressure/flow with no REDs installed:

1. Set the header into Service mode. For instructions, refer to *Selecting Header Modes – Service, page 56*.
2. Enable rotary end dividers on the SETUP OPTIONS page and set the REDs slider switch to the ON position on the FlexCorn™ Home page. For instructions, refer to *4.2.12 Operating Rotary End Dividers (Option), page 72*.
3. Select DIAGNOSTICS icon (A) from the HOME page.

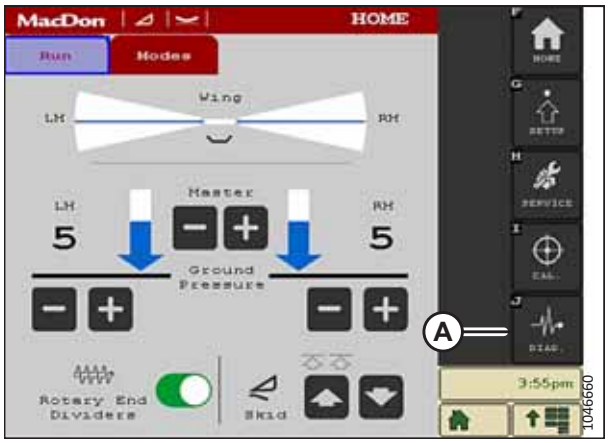


Figure 3.28: FlexCorn™ Application – Home Page

4. Under the Input/Output (I/O List) tab, select GENERAL from SYSTEM MENU (A).
5. Engage the threshing system and the header drive.
6. Set the combine reel speed to the lowest setting.
7. Monitor the psi data in the INPUT PRESSURE SENSOR area (B), and slowly increase the combine reel speed until the pressure is above 1000 psi.

   NOTE:

   If the header is not equipped with REDs, the combine reel drive flow should be 3–4 gpm to meet the requirements of the header.
8. Disable rotary end dividers on the SETUP OPTIONS page and set the REDs slider switch to the OFF position on the FlexCorn™ Home page. For instructions, refer to*4.2.12 Operating Rotary End Dividers (Option), page 72*.

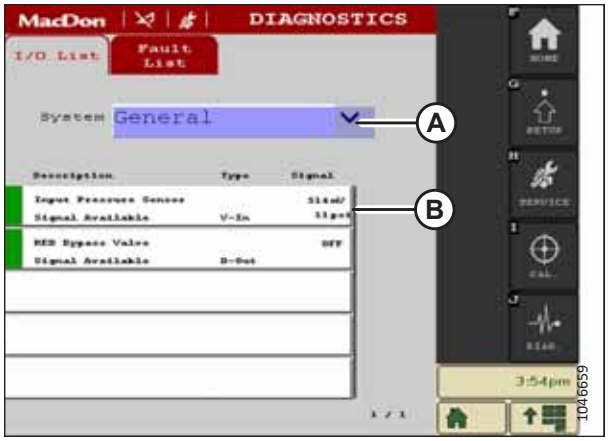


Figure 3.29: FlexCorn™ Diagnostics I/O List

3.4.7 Calibrating Hydraulic Flex Control System – FlexCorn™ Application

The header hydraulic flex control system must be calibrated to perform optimally during harvest. Calibration is needed when the header is used on a different combine, accessories are added or removed, the calibrations are manually reset, or the header controller is replaced.

DANGER

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

DANGER

Ensure that all bystanders have cleared the area.

1. Park the combine on a level surface.
2. Shut down the engine, and remove the key from the ignition.
3. Remove the wing locks to allow full wing movement. For instructions, refer to *4.2.11 Unlocking Header Wings, page 71*.
4. Position the header so its angle is at 23°.
5. Raise the feeder house fully.
6. Engage the combine threshing system and header drive.

   NOTE:

   The header must be engaged to complete the calibration. The hydraulic flex control system requires flow from the reel drive system.

7. Select CALIBRATION (A) icon from the FlexCorn™ HOME page.

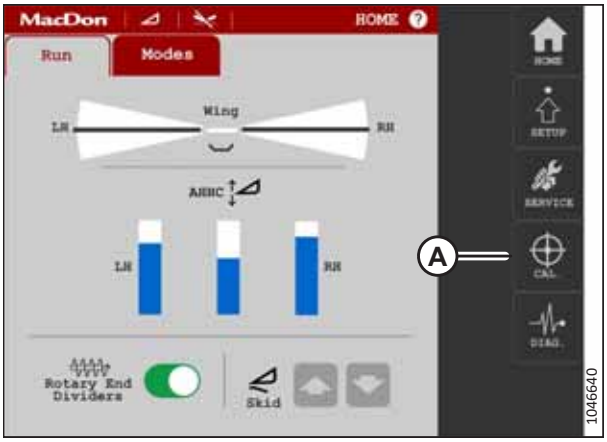


Figure 3.30: FlexCorn™ Application – Run Page

8. Select CALIBRATE icon (A). The header calibration will proceed automatically; a progress bar will show the progress of the calibration.

Figure 3.31: FlexCorn™ Calibration Page

9. Once the calibration is completed a status message will read CALIBRATION COMPLETE and the new calibration values will be displayed. Select ACCEPT (A) to save the new calibrations settings, or select CANCEL to exit without saving.

10. Proceed to calibrate auto header height control (AHHC) in the FlexCorn™ application. For instructions, refer to *3.4.8 Calibrating Auto Header Height Control – FlexCorn™ Application, page 48*.

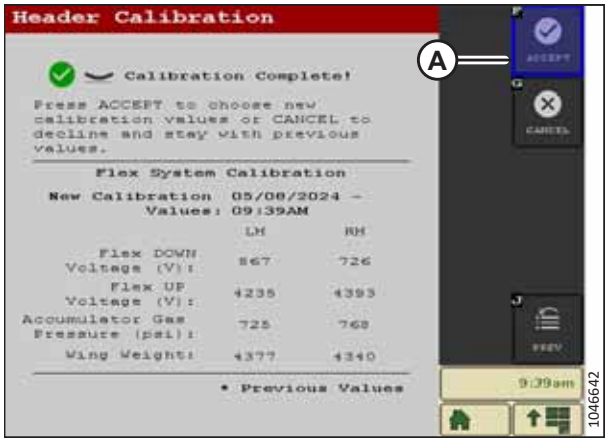


Figure 3.32: FlexCorn™ Calibration Page

3.4.8 Calibrating Auto Header Height Control – FlexCorn™ Application

The auto header height control (AHHC) system works in conjunction the combine systems. The AHHC system needs to be configured to work with the combine.

DANGER

Ensure that all bystanders have cleared the area.

NOTE:

The auto header height system must be calibrated in the FlexCorn™ application prior to completing the combine auto header height calibration

1. Ensure the combine is parked on level ground and the header angle is set to 23 degrees.

2. Engage the combine threshing system and header drive.

3. Select CAL (calibration) (A) from the application menu.

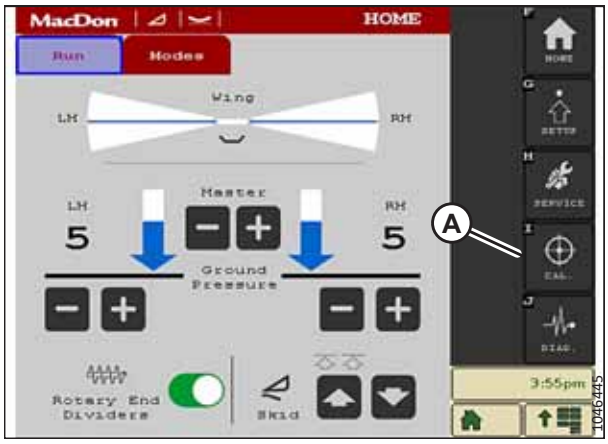


Figure 3.33: FlexCorn™ Application – Home Page

4. Select the AHHC tab from the top of the CALIBRATION page.
5. Select CALIBRATE AHHC icon (A).
6. The header will automatically level the wings and place the system in Rigid mode. Follow the prompts on the display.

   NOTE:

   At any point during the calibration select CANCEL to stop the calibration.
7. To prevent the AHHC dongles from sticking into the ground when prompted to lower the header, slowly drive forward while lowering the header.

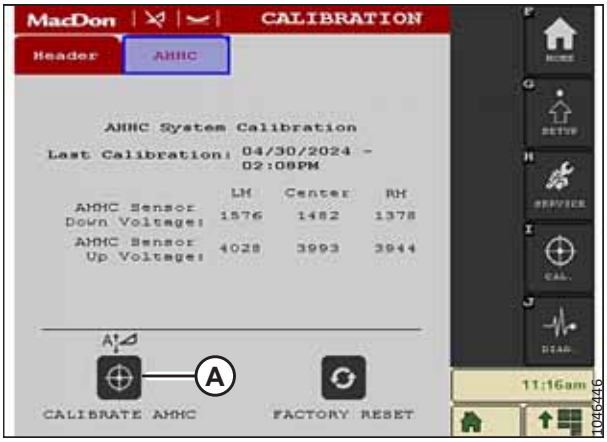


Figure 3.34: FlexCorn™ Application – Calibration Page

8. Once the calibration is complete, the wings will remain level and locked in Rigid mode, and CALIBRATION COMPLETE will be displayed. Press ACCEPT (A) to save the new settings.
9. Disengage the header drive and combine threshing system.

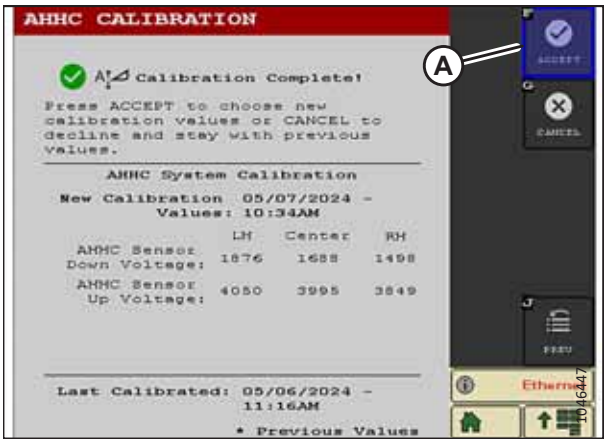


Figure 3.35: AHHC Calibration Page

3.4.9 Calibrating Combine

The calibrations requirements may be different for each combine model.

Refer to the combine operator's manual for instructions on performing the various calibrations, which may include:

- Auto header height
- Feeder house
- Feeder house engagement
- Header

NOTE:

The header must be in Rigid mode during combine calibrations.

NOTE:

When completing the feeder house engagement calibration on Case or New Holland combines, ensure the combine has warmed to operating temperature; this calibration must **NOT** be done with cold oil. Uncouple any header driveshafts from the combine.

3.4.10 Adjusting Row Guidance Sensor Voltage Orientation (Option)

When the row guidance option is installed, two sensors are installed on the snouts left of center. These sensors send signals to the combine, which allow the combine to automatically steer to keep aligned with the crop rows. The row guidance sensor orientation may need to be changed to match the combine voltage requirements.

DANGER

To prevent injury or death from the 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 the safety props. If the header is off the ground but not raised to its full height, place blocks under the header.

NOTE:

An optional voltage translator harness (MD #1.369.178) can be installed in line with the row guidance sensor to switch between John Deere and other combine brands. The following procedure describes how to manually change the sensor orientation.

1. Raise the header fully.
2. Shut down the engine, and remove the key from the ignition.
3. Engage the header safety props. For instructions, refer to the combine operator's manual.
4. To access the row guidance sensor, locate the sensors between the snout left of the center of the header, remove bolts (A) and remove the sensor wand assembly from end of the snout.

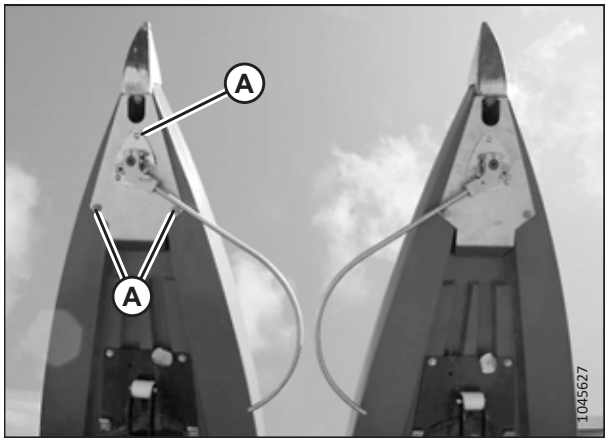


Figure 3.36: Row Guidance Sensor Wands

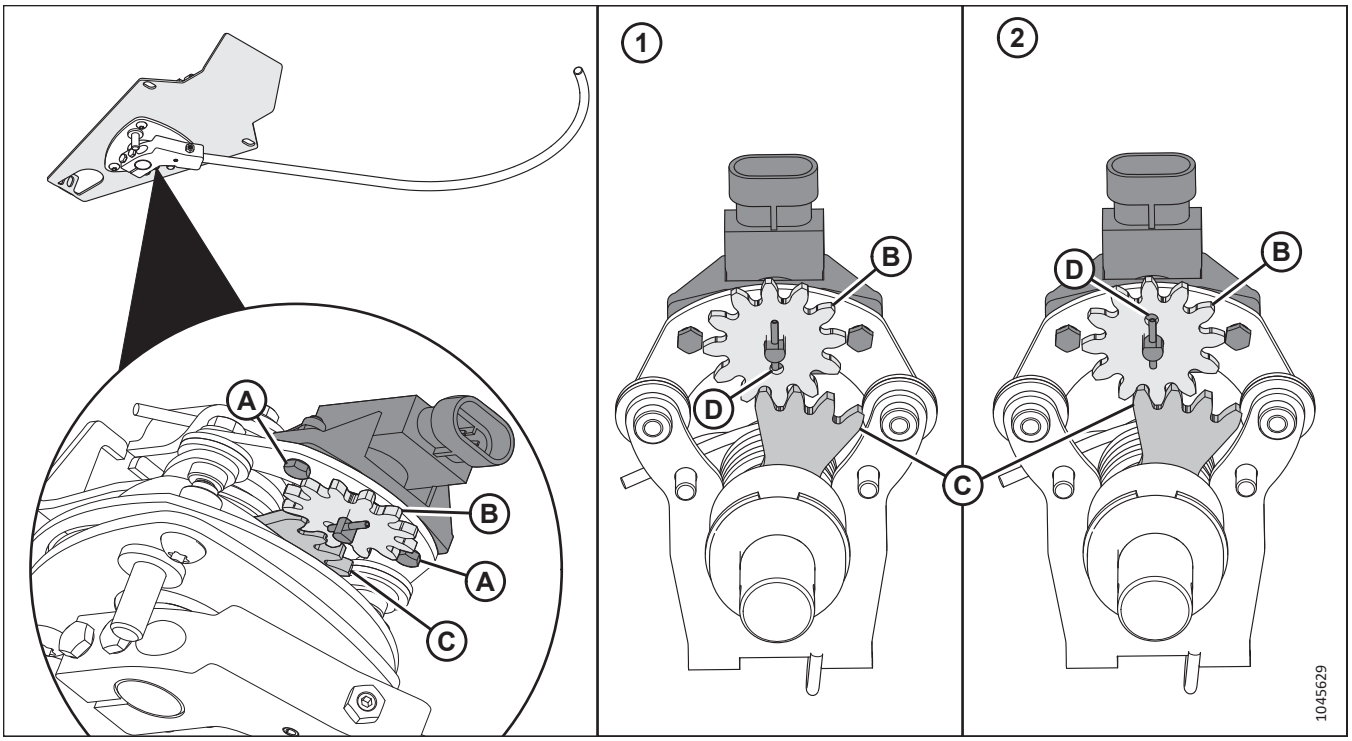


Figure 3.37: Row Guidance Sensor

1 - John Deere Configuration: Hole (D) Closest to Arm (C)
2 - Case, CLAAS, New Holland Configuration: Hole (D) Farthest from Arm (C)

5. Loosen nuts and bolts (A) enough to allow sensor gear (B) to disengage from arm (C).
6. Rotate sensor gear (B) until hole (D) is positioned correctly for the combine type. Refer to Figure *3.37, page 51*.
   - For John Deere combines refer to illustration section 1.
   - For Case, CLAAS, or New Holland combines, refer to illustration section 2.
7. Retighten nuts and bolts (A) to secure the sensor.
8. Install the sensor wand assembly into the end of the snout, and secure it with bolts (A).

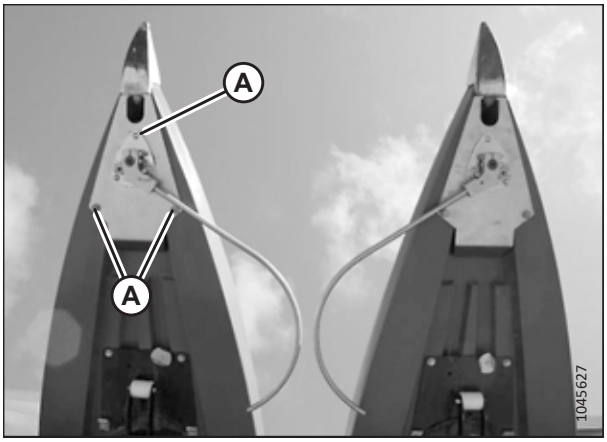


Figure 3.38: Row Guidance Sensor Wands

Chapter 4: Operation

Review the procedures in this section to ensure that you safely enjoy the best possible performance while operating the header.

4.1 Owner/Operator Responsibilities

Owning and operating heavy equipment comes with certain duties.

CAUTION

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

4.2 Operating the Header

Safely operating your machine requires familiarizing yourself with its capabilities.

WARNING

- **To prevent injury or death from objects thrown from the header, ensure that bystanders remain at least 100 m (300 ft.) from the header while it is operating.**
- **Always be aware of the presence of the stalk chopper (if equipped) when harvesting. Specified daily maintenance, correct settings, and safe operation are required to ensure that the stalk choppers operate properly and safety. Always consider possible circumstances where the knife can impact stones or other foreign objects lying on the ground. Any such impact can result in pieces separating from the hardened knife blade.**

Follow these steps when operating the corn header:

1. Sound the horn, and ensure all bystanders have cleared the area before starting the combine.
2. Lower the header into harvesting position.
3. Set the header in Flex mode. For instructions, refer to *Selecting Header Modes – Flex, page 54*.
4. Set the cutting height. For instructions, refer to *Selecting Header Modes – Flex, page 54*.
5. Set the header speed.
6. Engage the combine feeder drive and begin harvesting.

Figure 4.1: FlexCorn™ Harvesting

IMPORTANT:

Do **NOT** exceed a ground speed that is suitable for the ground condition, the combine feeder house capacity, and the corn head capacity

NOTE:

When operating unfamiliar machinery, perform an emergency stop during harvest operations to prepare for unexpected events such as,

- an accident
- foreign materials entering the corn header (e.g., irrigation pipe, gas tube, rocks, etc.)
- excessive crop loading (action of torque limiting clutches)
- clogging or blockage
- some other breakdown or fault

4.2.1 FlexCorn™ Application

With the MacDon FlexCorn™ application running on the combine display's virtual/universal terminal (VT/UT), the Operator can control, monitor, and diagnose FC FlexCorn™ Header performance from the cab.

Selecting Header Modes – Flex

Engage Flex mode when you want the hydraulic flex control system engaged and header wings to follow the contours of the ground.

DANGER

Ensure that all bystanders have cleared the area.

1. From the HOME page of the FlexCorn™ application, navigate to the MODES tab.
2. Engage the combine threshing system and header drive.

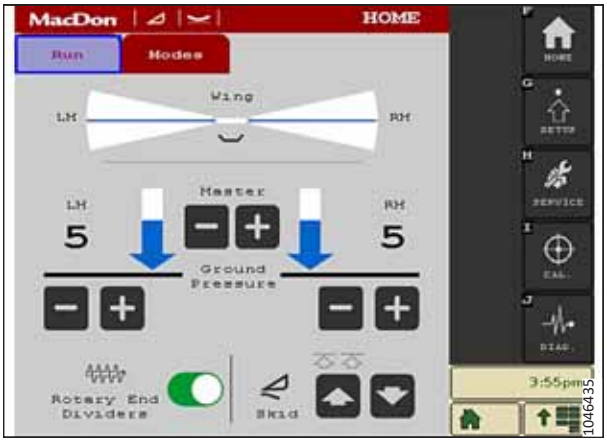


Figure 4.2: FlexCorn™ Application – Home Page

3. Select the FLEX icon to place the header in Flex mode. A warning will appear to alert the operator that the wings may move.
4. Select ACCEPT to enter into Flex mode.

NOTE:

When icon (A) shows the Flex icon, Flex mode is active.

NOTE:

Mode status icon (A) will flash when changing modes. The transition to Flex mode is fast, but changing to Rigid mode may take several minutes.

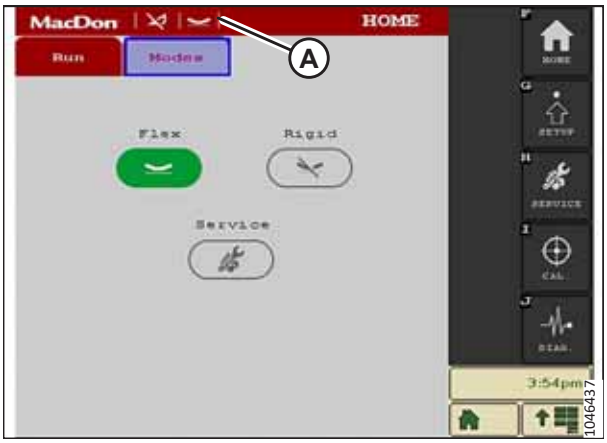


Figure 4.3: FlexCorn™ Application – Modes Page

When operating in the Flex mode the HOME page will show wing position (A), master (both wings) ground pressure control (B), and individual wing pressure controls (C).

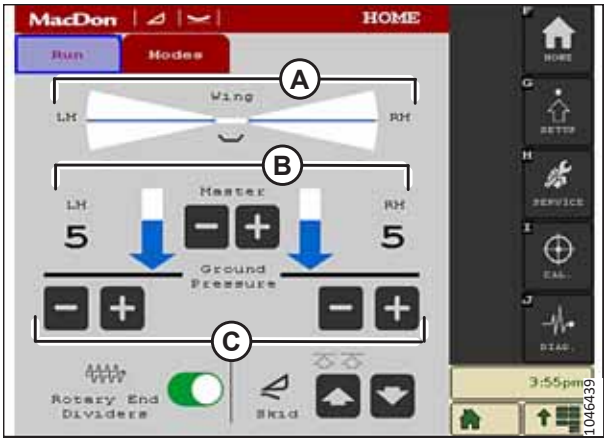


Figure 4.4: FlexCorn™ Application – Modes Page

Selecting Header Modes – Rigid

Rigid mode uses hydraulic valves to lock the wings straight. Use this mode when loading on a trailer, or whenever a straight header is required.

DANGER

Ensure that all bystanders have cleared the area.

1. From the HOME page of the FlexCorn™ application, navigate to the MODES tab.
2. Engage the combine threshing system and header drive.

   NOTE:

   The header must be engaged to switch to Rigid mode.

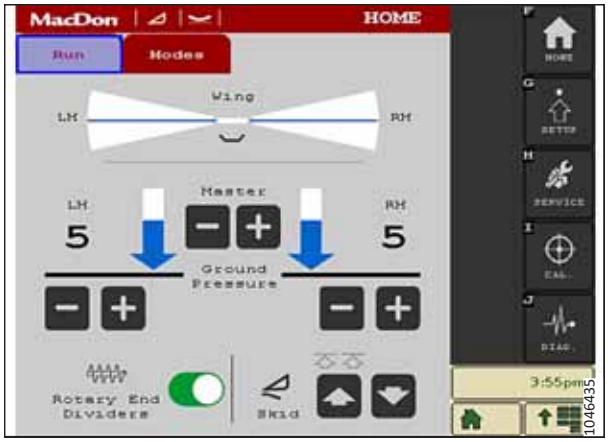


Figure 4.5: FlexCorn™ Application – Home Page

3. Select the RIGID icon to place the header in Rigid mode. A warning will appear to alert the operator that the wings may move.
4. Select ACCEPT to enter into Rigid mode.

   NOTE:

   When icon (A) shows the Rigid icon, Rigid mode is active.

   NOTE:

   Mode status icon (A) will flash when changing modes. Changing to Rigid mode may take several minutes.

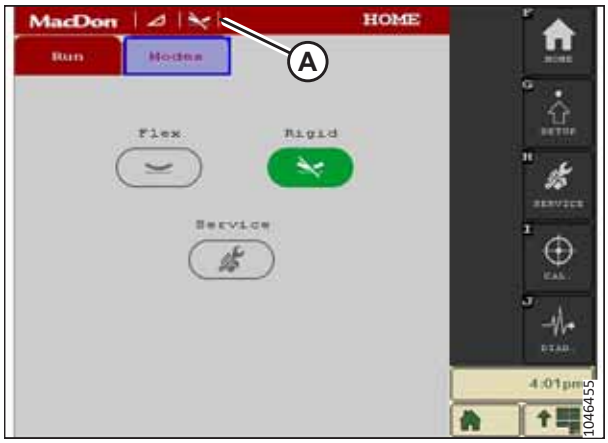


Figure 4.6: FlexCorn™ Application – Modes Page

Selecting Header Modes – Service

Set the header in Service mode to store the header for extended times or when the header requires serviced.

DANGER

Ensure that all bystanders have cleared the area.

IMPORTANT:

In Service mode, the residual hydraulic pressure from the accumulators drains back to the combine through the reel drive return line. When the accumulators drain, header wings lower until stopped by the ground, wing locks, or the flex cylinder range-limit.

1. Install the wing locks. For instructions, refer to *4.2.10 Locking Header Wings, page 70*.

2. From the HOME page of the FlexCorn™ application, navigate to the MODES tab.

3. Engage the combine threshing system and header drive.

   NOTE:

   The header must be engaged to switch to Service mode.

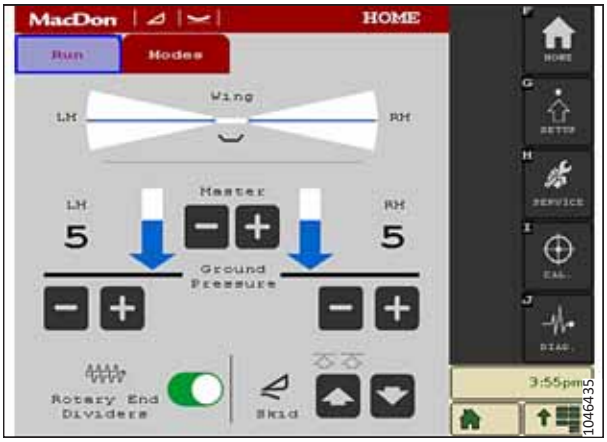


Figure 4.7: FlexCorn™ Application – Home Page

4. Select the SERVICE icon to place the header in Service mode. A warning appears to alert the operator that unsupported wings will lower.

   NOTE:

   Mode status icon (A) will flash when changing modes. Changing to Service mode may take several minutes.

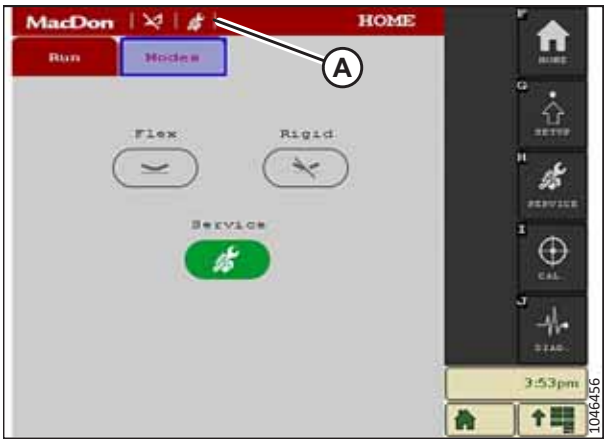


Figure 4.8: FlexCorn™ Application – Modes Page

5. Select ACCEPT (A) to enter into Service mode, or CANCEL to return to the previous page without entering Service mode.

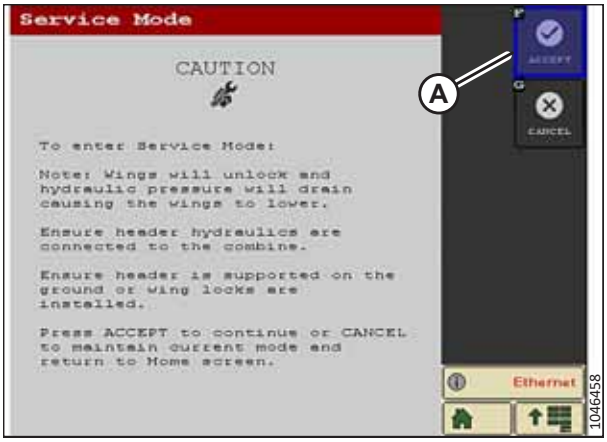


Figure 4.9: FlexCorn™ Application – Caution Page

NOTE:

When Service icon (A) is displayed, Service mode is active.

Figure 4.10: FlexCorn™ Application – Service Info

Selecting Header Diagnostics Page – Input/Output, Faults

Generic diagnostic information is available through the FlexCorn™ display. Input and output (I/O) signals can be used to diagnose and troubleshoot component and electrical harness issues. Active and previously active faults can guide the troubleshooting effort.

DANGER

Ensure that all bystanders have cleared the area.

1. On the HOME page of the FlexCorn™ application, select DIAGNOSTICS (A).

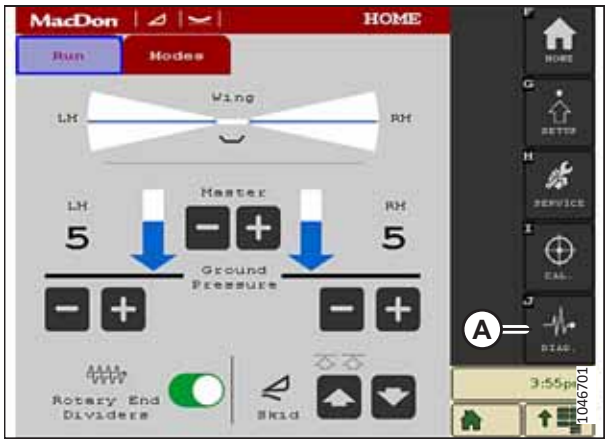


Figure 4.11: FlexCorn™ Application – Home Page

2. From the DIAGNOSTICS page, select I/O LIST tab (A) for inputs/outputs or FAULT LIST tab (B) for active or previously active faults.

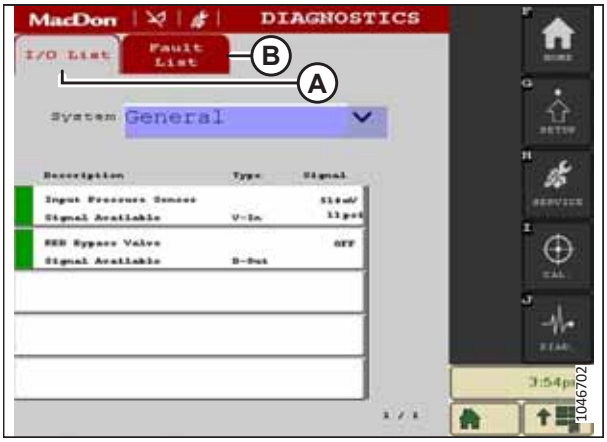


Figure 4.12: FlexCorn™ Application – Diagnostics I/O List

3. From I/O LIST page (A), select system (B). The inputs and outputs for that system will appear in list (C).
   - Input signals appear as raw input voltages (mV) or scaled values
   - Output signals appear as duty cycle (0–100%) or current (mA) signals
   - For a list of inputs/outputs per system, refer to Table *4.1, page 59*.

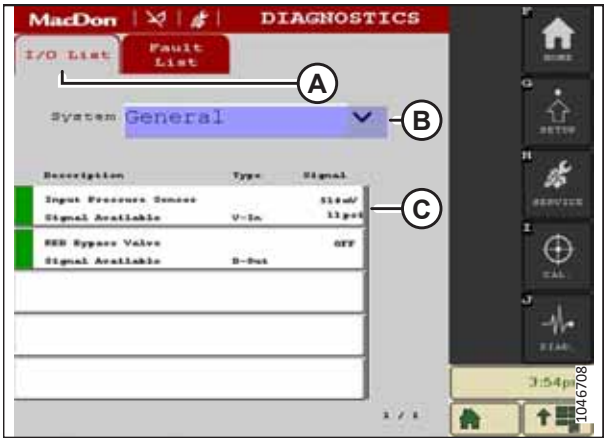


Figure 4.13: FlexCorn™ Application – Diagnostics I/O List

Table 4.1 Inputs and Outputs per System

System	Inputs/Outputs
General	Input pressure sensor
	Rotary end divider (RED) bypass valve
AHHC/Skid Shoe	AHHC sensors
	Skid shoe proximity sensors
	Skid shoe extend/retract valves
Hydraulic Flex Control System	Lift pressure sensors
	Control pressure sensors
	Flex position sensors
	Control lock valves
	Lift lock valves
	Flex PRR valves
	Control accumulator valve
	Lift drain valves
	Lift accumulator charge valves

4. From FAULT LIST tab (A), active or previously active faults appear in list (B).
   - To update the list, select REFRESH (C)
   - To delete previously active faults, select CLEAR CODES (D)
   - Previously active faults are marked with black triangle icon (E)
   - For active faults, refer to Figure *4.15, page 60*

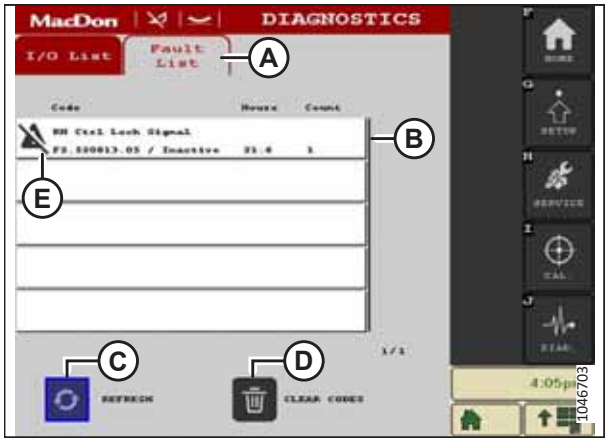


Figure 4.14: FlexCorn™ Application – Fault List

Active faults are marked with a yellow triangle icon (A).

- For fault details, select active fault (A). Refer to Figure *4.16, page 60*.
- For more indications that a fault is active, refer to Figure *4.17, page 61*.

Figure 4.15: FlexCorn™ Application – Fault List

A page of information is available for each active fault. To leave the page, select CANCEL (A).

Figure 4.16: FlexCorn™ Application – Active Fault

When a fault is active, a yellow triangle icon (A) will also appear at the relevant system on the home page, as well as on the DIAGNOSTICS menu button (B).

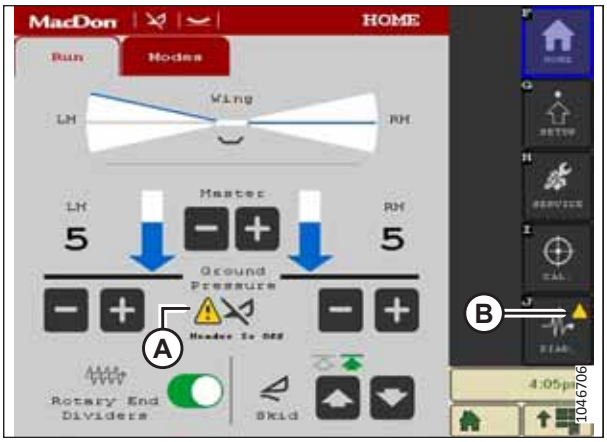


Figure 4.17: FlexCorn™ Application – Home Page

4.2.2 Extending Header Stands

The FlexCorn™ Header is equipped with stands which must be used when the header is disconnected from the combine. The stands provide clearance to prevent damage to components on the underside of the header.

DANGER

To prevent bodily injury or death from the unexpected start-up of the machine, always stop the engine and remove the key from the ignition before making adjustments to the machine.

DANGER

Ensure that all bystanders have cleared the area.

1. Set the header down on solid level ground or on a properly configured header trailer.
2. Shut down the engine, and remove the key from the ignition.

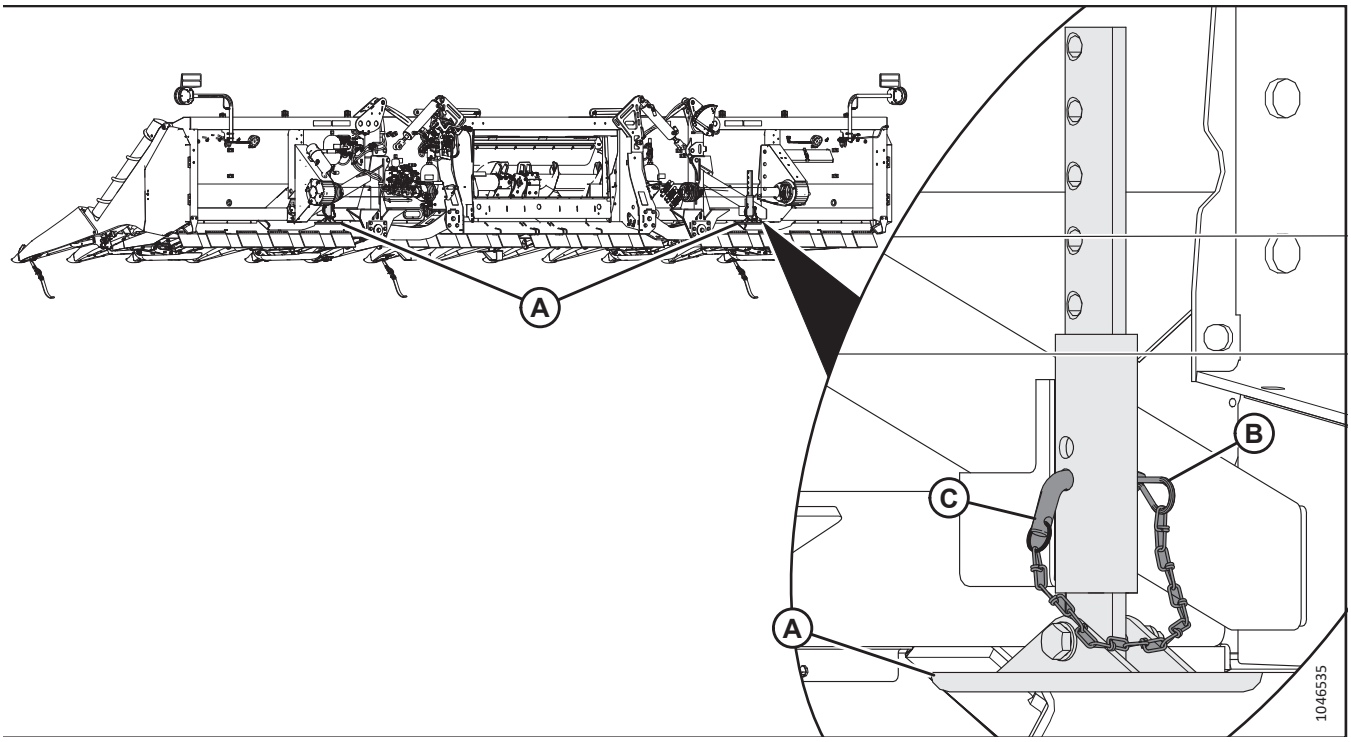


Figure 4.18: Header Stands

3. If the header is on dirt or asphalt, place blocks under stands (A) to prevent sinking.
4. While supporting stand (A), remove R-pin (B), and L-pin (C).
5. Lower the stand to the desired position, secure stand with L-pin, and R-pin.

   IMPORTANT:

   Adjust the header stands to a position that allows for easy unhooking from the combine, and provides sufficient clearance for the components on the underside of the header.
6. Repeat the adjustment procedure on the opposite header stand.

   IMPORTANT:

   Ensure both stands are adjusted to the same position.
7. Disconnect the header from the combine.

4.2.3 Setting Cutting Height

The FlexCorn™ system works with the combine's automatic header height control (AHHC) system to maintain a uniform cut height while harvesting.

Cutting height is maintained by sending voltage signals from sensor dongles (shown in Figure *4.19, page 63*) to the combine which are interpreted by the combine to automatically control the feeder house height and lateral tilt (if applicable), The FlexCorn™ system also automatically adjusts the adjustable skid shoes on the header to match the cut height at the ends of the header to the height at the center. To adjust cut height, adjust the combine AHHC setting in the cab.

DANGER

To prevent injury or death from the 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 the safety props. If the header is off the ground but not raised to its full height, place blocks under the header.

1. Raise the header fully.
2. Shut down the engine, and remove the key from the ignition.
3. Engage the header safety props. For instructions, refer to the combine operator's manual.
4. Ensure AHHC dongles (A) are not stuck or damaged.
5. Ensure the header and combine AHHC systems have been calibrated. For more information, refer to *3.4.8 Calibrating Auto Header Height Control – FlexCorn™ Application, page 48*.
6. Rephase the skid shoes cylinders. For more information, refer to *4.2.9 Manually Rephasing Adjustable Skid Shoes, page 69*.

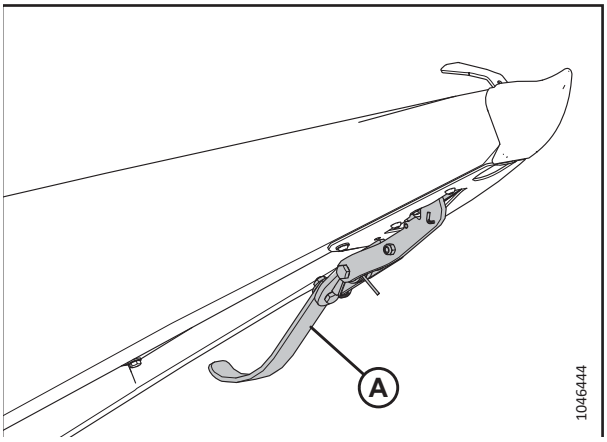


Figure 4.19: AHHC Sensor Dongle

4.2.4 Checking and Adjusting Snapping Plate (Header) Angle

A snapping plate angle greater than 23° will prevent ears from feeding smoothly up the snapping unit to the auger.

DANGER

To prevent bodily injury or death from the unexpected start-up of the machine, always stop the engine and remove the key from the ignition before making adjustments to the machine.

DANGER

Ensure that all bystanders have cleared the area.

1. Park the combine on a level surface.
2. On the FlexCorn™ application RUN page, press SKID SHOE RAISE icon (A) for 5 seconds until the skid shoes are fully retracted.
3. Lower the feeder house until the header is resting flat on even ground.
4. Shut down the engine, and remove the key from the ignition.

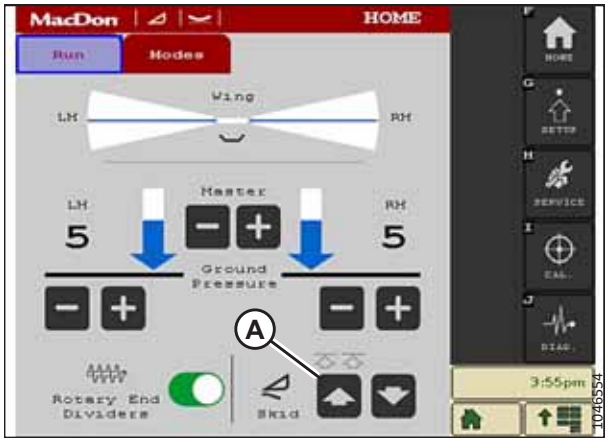


Figure 4.20: Front of Row Unit

5. Measure snapping plate angle (A) relative to the ground and adjust the feeder house angle until 23° is achieved.

   NOTE:

   If feeding issues are prevalent, ensure the snapping plate angle is not greater than 23°.

   IMPORTANT:

   If the snapping plate angle is less than 23°, watch carefully for ground contact at the choppers (if installed) and rear curtain.

6. If necessary, adjust the combine faceplate until the snapping plate angle is 23°. For instructions, refer to the combine operator's manual.

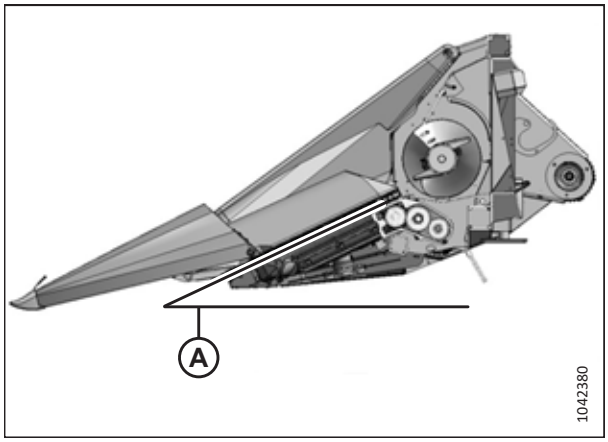


Figure 4.21: Snapping Plate Angle

4.2.5 Adjusting Header Ground Pressure

The header ground pressure adjustment changes the weight that outer skid shoes put on the ground.

Set ground pressure as light as possible while achieving the desired responsiveness and ground following performance.

1. Numbers (A) indicate the current ground pressure setting. Using MASTER +/- icons (B) or the independent Left/Right +/- icons (C). Initially, set ground pressure to 5.

2. If necessary, increase or decrease the setting based on performance and conditions:

   - If the skid shoes dig into the ground or push soil, reduce the ground pressure.
   - If the wings respond too slowly or the skid shoes float above the ground, increase the ground pressure.

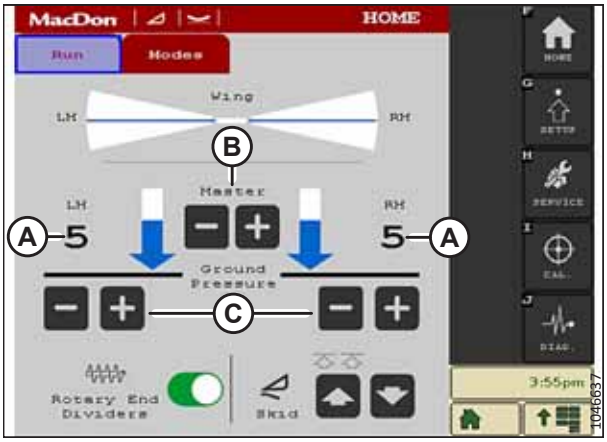


Figure 4.22: FlexCorn™ Run Page

4.2.6 Adjusting Auger Speed

For most conditions, the factory-installed 20T sprocket is best, but the (included) 16T/18T sprocket can be installed to slow the auger in difficult conditions.

DANGER

To prevent bodily injury or death from the unexpected start-up of the machine, always stop the engine and remove the key from the ignition before making adjustments to the machine.

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

2. Open the side shield.

3. Remove auger drive chain (A) by loosening Torx® bolt (B), then loosen draw bolt (C) until the drive chain is loose enough to remove.

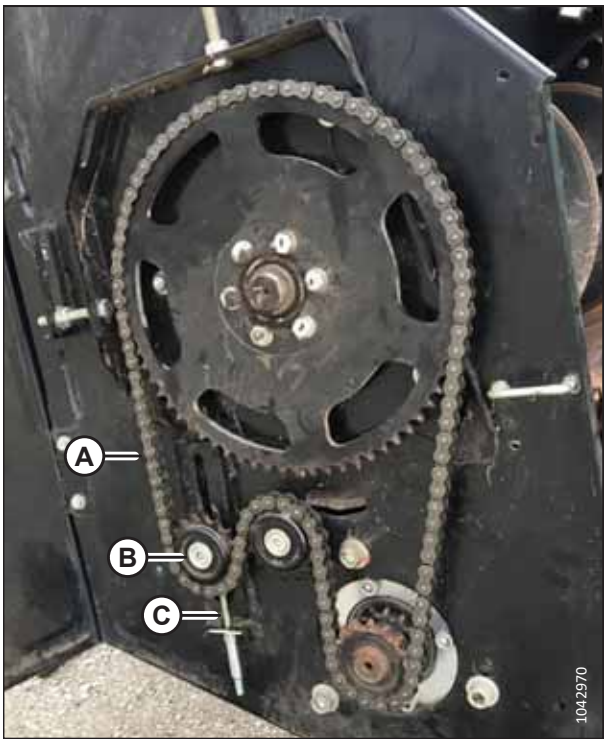


Figure 4.23: Auger Drive Chain

4. Remove retaining ring (A) from the sprocket.
5. Loosen set screws (B), and remove sprocket (C).
6. Install the new sprocket and tighten set screws.
7. Install retaining ring.
8. Install the auger drive chain and adjust the chain tension. For instructions, refer to *5.6 Checking and Adjusting Auger Drive Chain Tension, page 88*.
9. Close the side shield.
10. Repeat Step *2, page 65* to Step *9, page 66* on the opposite side of the header.

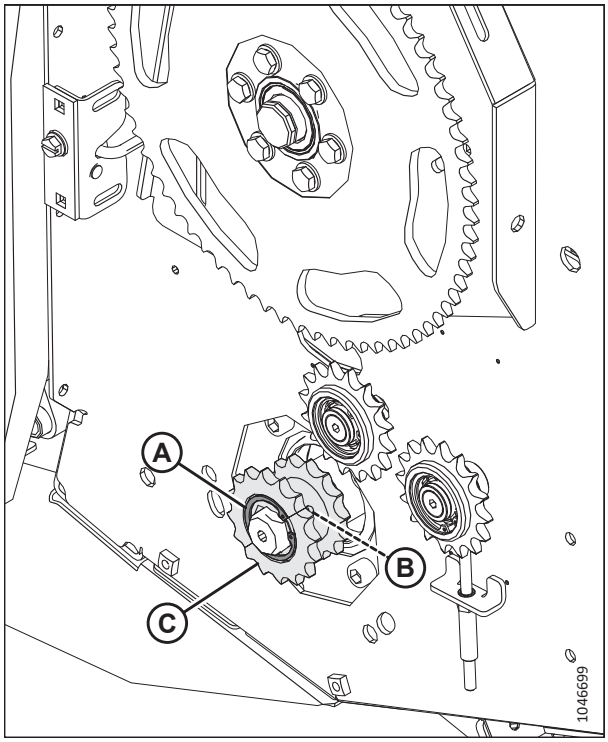


Figure 4.24: Auger Drive – Left Side

4.2.7 Reconfiguring Auger Center Flighting

For most conditions, the factory-configured reverse auger flighting is ideal; however, when stalks are very dry or when harvesting in high-trash conditions, the reverse auger flighting can be exchanged for the included paddle/finger flighting.

DANGER

To prevent bodily injury or death from the unexpected start-up of the machine, always stop the engine and remove the key from the ignition before making adjustments to the machine.

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

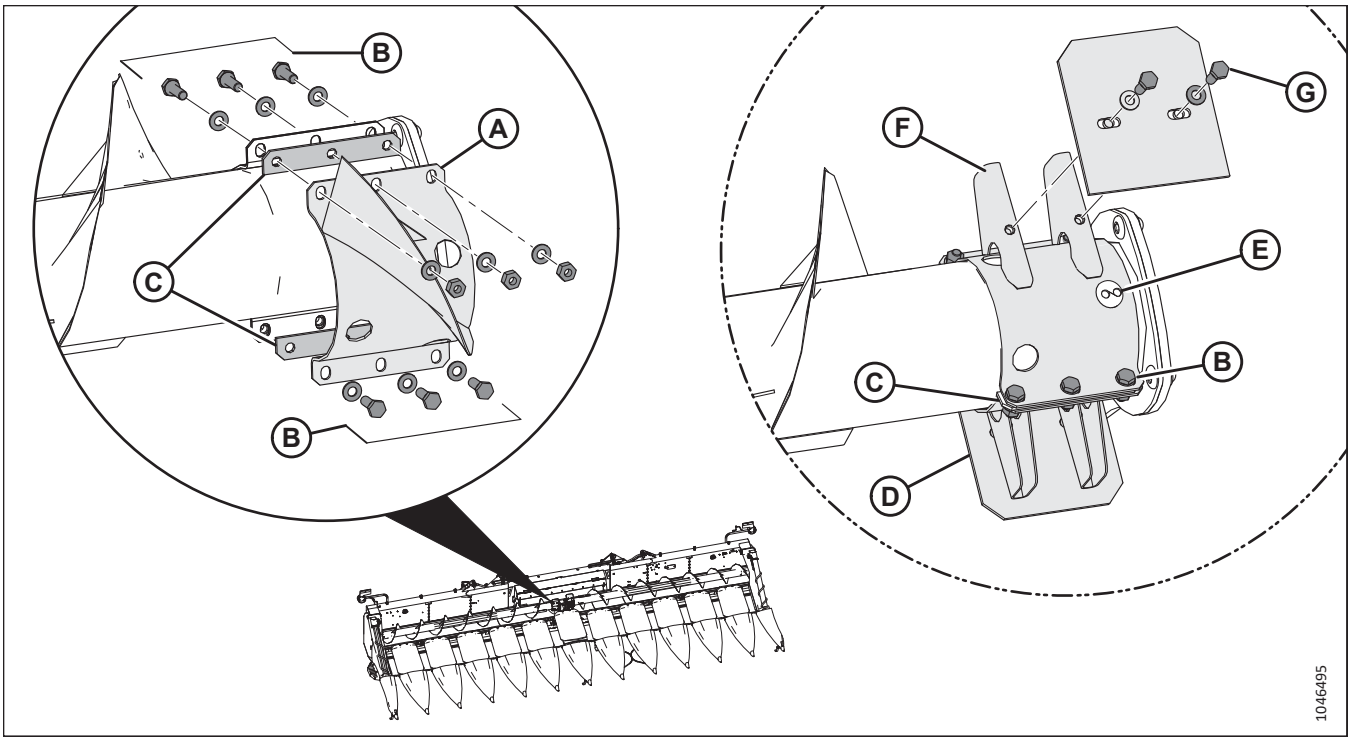


Figure 4.25: Auger Flighting Options – Right Side Enlarged

2. Remove existing reverse flighting assembly (A), by removing hardware (B) (6 nuts, 6 bolts, 12 washers) and spacers (C).

   NOTE:

   Retain hardware and spacers for installation.

3. Install paddle flighting assembly (D) by inserting spacers (C) between each paddle clamp, and securing the assembly to the auger tube with existing hardware (B) (6 x nuts, bolts, and 12 washers).

   NOTE:

   When installing the round clamps, hole (E) in clamp should align with holes in the auger. When installing the hardware, bolt heads should lead in the direction of auger rotation to prevent crop from wrapping on exposed threads.

4. In fluffy conditions without vines, a finger option may be appropriate. To switch to finger flighting (F) option, remove and retain bolts and washers (G) and remove paddles.

5. When positioned correctly, paddle flighting (A) should lag behind welded flighting (B) by 90 degrees.

6. Repeat the center flighting exchange procedure on the opposite auger. Offset the alignment of right paddle flighting (A) and left paddle flighting (C) assemblies by 90 degrees.

   NOTE:

   Correct timing between the left and right augers will aid in smooth feeding of crop into the feeder house. To adjust the auger timing, refer to *5.8 Checking and Adjusting Auger Timing – Two-Piece Augers, page 92*.

7. Torque all hardware.

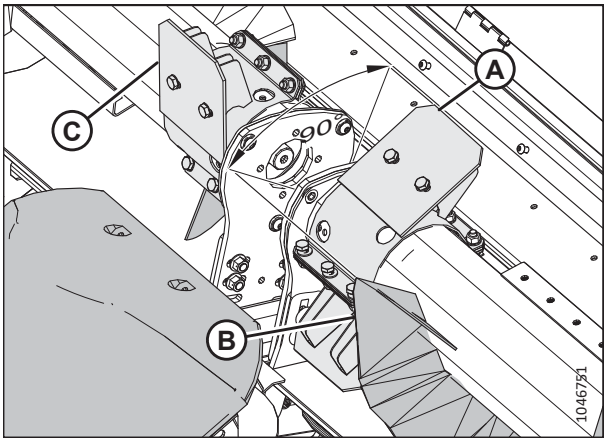


Figure 4.26: Auger Paddle Flighting

4.2.8 Activating Automatic Rephasing of Adjustable Skid Shoes

Hydraulically controlled skid shoes may become out of phase. This topic describes the procedure for activating the automatic rephasing feature.

DANGER

Ensure that all bystanders have cleared the area.

NOTE:

Debris in the skid shoe linkage can prevent the cylinders from being fully extended or retracted. Ensure debris is cleared from the skid shoe linkage. For instructions, refer to *5.5 Cleaning the Skid Shoe Linkage, page 87*.

For instructions on rephasing the skid shoes using the manual method, refer to *4.2.9 Manually Rephasing Adjustable Skid Shoes, page 69*.

1. Select SETUP (A) from the HOME page menu.

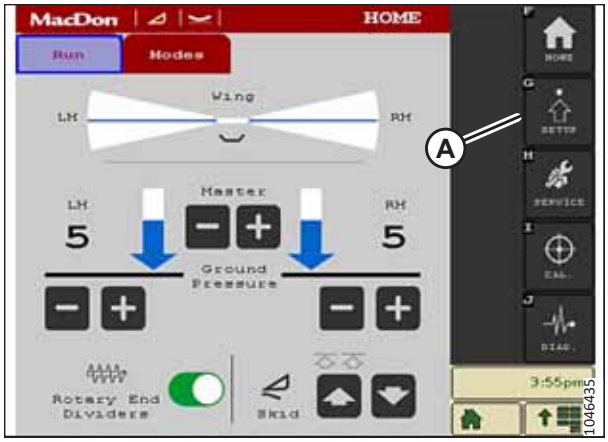


Figure 4.27: FlexCorn™ Application – Home Page

2. Under the HEADER tab, ensure AUTO SKID SHOE REPHASE is enabled (A). If it is not, select EDIT icon (B).

Figure 4.28: FlexCorn™ Application – Setup Page

3. Set the AUTO SKID SHOE REPHASE switch (A) to the on position. Press the ACCEPT icon (B) to save the setting.

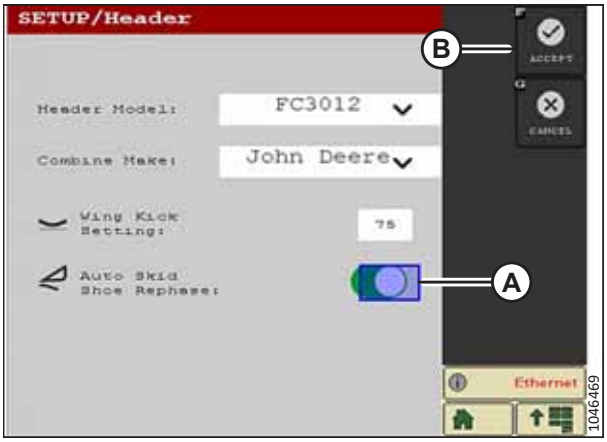


Figure 4.29: FlexCorn™ Application – Setup Page

4.2.9 Manually Rephasing Adjustable Skid Shoes

Hydraulically controlled skid shoes may become out of phase causing inconsistent stubble height on one side of the header. The FlexCorn™ Header has a mode that adjusts the skid shoes automatically, but for operator's that prefer to turn that feature off, this topic describes the procedure for manually rephasing the cylinders.

DANGER

Ensure that all bystanders have cleared the area.

The adjustable skid shoes are controlled hydraulically in series through a primary/secondary circuit. The cylinders are rephased by fully extending them to allow fluid to flow from one cylinder to the next. Debris in the skid shoe linkage can prevent the cylinders from being fully extended or retracted. Ensure debris is cleared from the skid shoe linkage. For instructions, refer to *5.5 Cleaning the Skid Shoe Linkage, page 87*.

1. Raise the header off the ground.
2. Engage the combine threshing header drive.
3. From the HOME page, press and hold SKID SHOE EXTEND icon (A) for 5 seconds.
4. Press and hold the SKID SHOE RETRACTED icon (B) for 5 seconds.

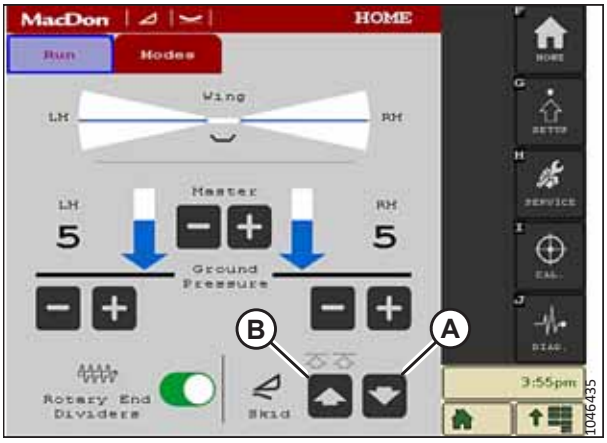


Figure 4.30: FlexCorn™ Application – Run Page

4.2.10 Locking Header Wings

Locking links prevent the wings from going below a level position. They should be used during off-season storage, or when servicing the header.

DANGER

To prevent injury or death from the unexpected start-up or fall of a raised machine, always shut off the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. If the feeder house is fully raised, always engage the safety props.

DANGER

Ensure that all bystanders have cleared the area.

NOTE:

Locking links **DO NOT** prevent upward movement.

1. With the header attached to the combine, place the header in Rigid mode. For instructions, refer to *Selecting Header Modes – Rigid, page 56*.
2. Shut down the engine, and remove the key from the ignition.

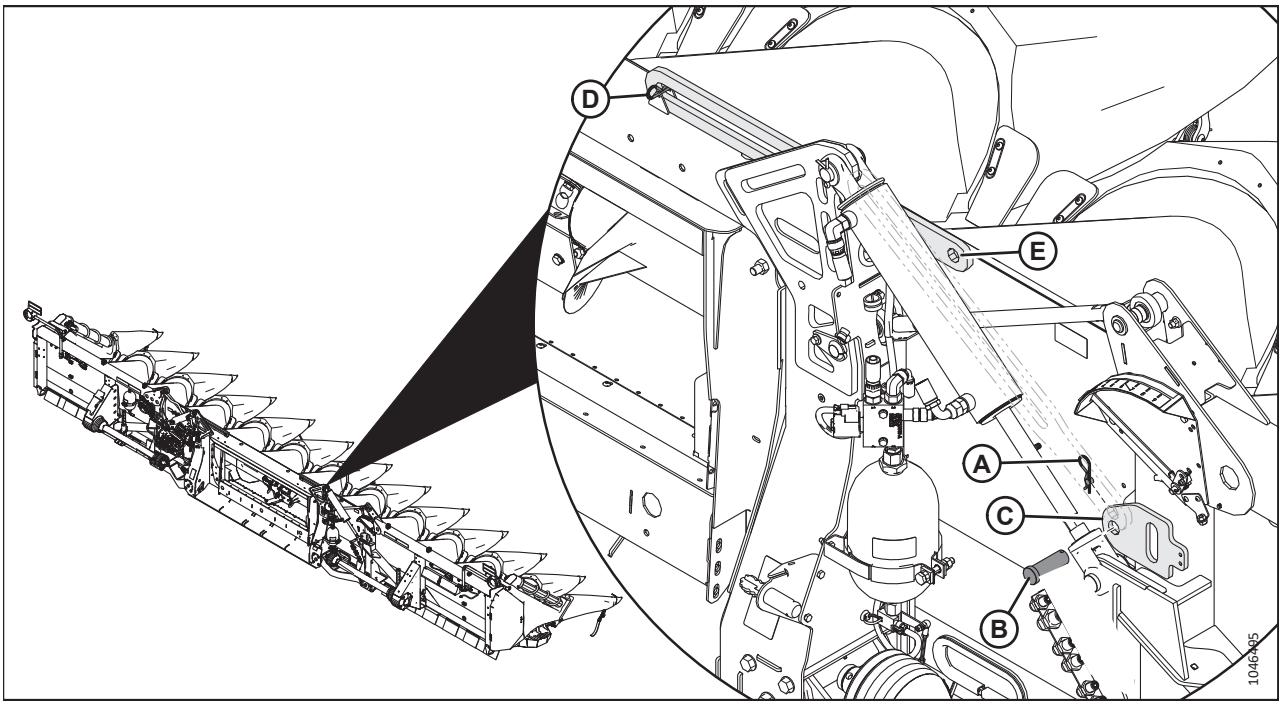


Figure 4.31: Wing Lock Links – Unlocked Position

3. Remove R-clip (A) and pin (B) from link mount plate (C).
4. Remove R-clip (D) from the lock link storage position.
5. Slide the lock link outwards away from the storage position, and align hole (E) in link with the hole in mount plate (C).
6. Install pin (B) through mounting plate and lock link, and secure it with R-clip (A).

   NOTE:

   If pins are difficult to install, the wing position sensors need to be adjusted. For instructions, refer to *5.16 Adjusting Wing Position Sensors, page 120*.

7. Secure R-clip (D) in the storage position.

8. Repeat Step *3, page 70* to Step *7, page 71* on the opposite wing.

NOTE:

If after adjusting the wing position sensors, the wing locks are still difficult to install, adjust the Wing Kick setting in the FlexCorn™ Application, this will automatically raise the wings when a header raise/lower cycle is completed.

NOTE:

In the event of electrical or hydraulic issues, ensure the header electrical and hydraulic multicoupler are connected. Place the header in Service mode, and use the feeder house to push the wings into the ground. This should allow enough room to install the wing lock links.

4.2.11 Unlocking Header Wings

Locking links prevent the wings from going below a level position. They must be unlocked to operate the header in Flex mode.

DANGER

To prevent injury or death from the unexpected start-up or fall of a raised machine, always shut off the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. If the feeder house is fully raised, always engage the safety props.

DANGER

Ensure that all bystanders have cleared the area.

1. With the header attached to the combine, place the header in Flex mode. For instructions, refer to *Selecting Header Modes – Flex, page 54*.

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

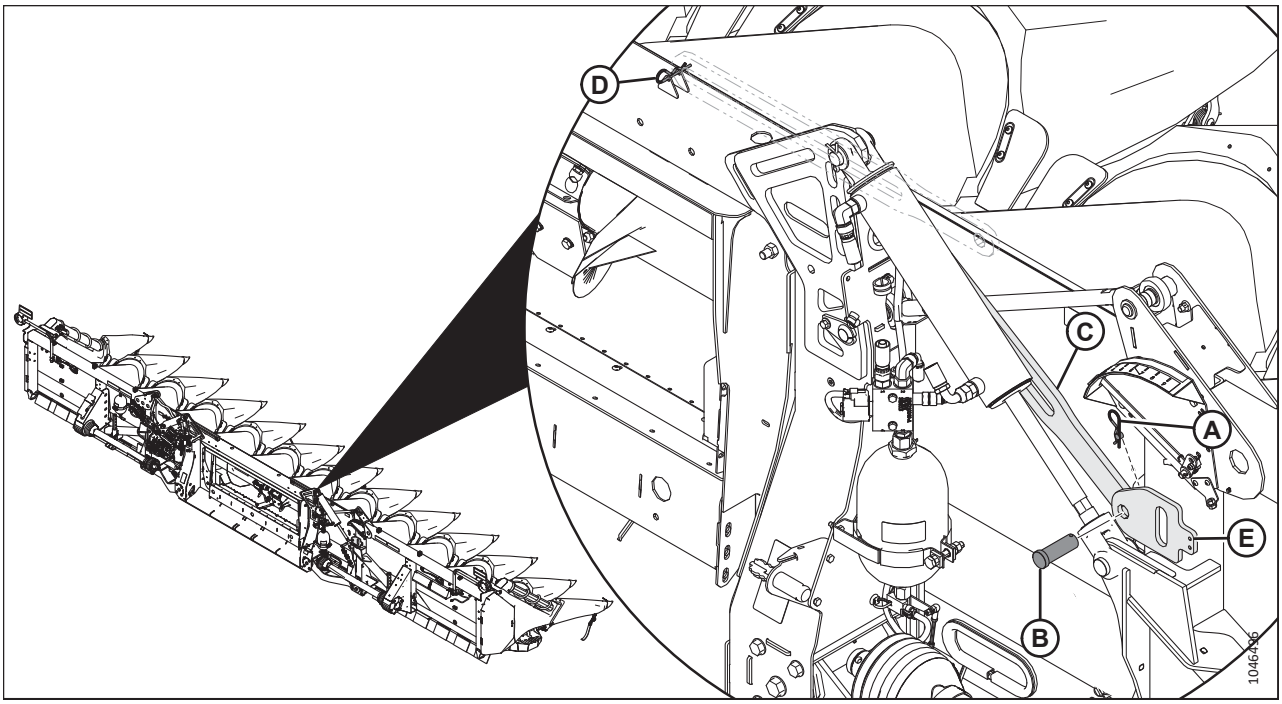


Figure 4.32: Wing Lock Links – Unlocked Position

3. Remove R-clip (A) and pin (B) from link mount plate (E).

   NOTE:

   If pins are difficult to remove, the wing position sensors need to be adjusted. For instructions, refer to *5.16 Adjusting Wing Position Sensors, page 120*.

4. Slide lock link (C) inboard towards the storage position.

5. Secure the lock link in the storage position with R-clip (D).

6. Store pin (B) in plate (E) and secure the pin with R-clip (A).

7. Repeat Step *3, page 72* to Step *6, page 72* on the opposite wing.

4.2.12 Operating Rotary End Dividers (Option)

Rotary end dividers (REDs) are turned on and off using the FlexCorn™ application.

1. Ensure the REDs option is enabled in the FlexCorn™ application. For instructions, refer to *3.4.5 Setting Up Header – FlexCorn™ Application, page 43*.

2. From the FlexCorn™ RUN page, toggle ROTARY END DIVIDERS switch (A) to engage or disengage the optional REDs.

   IMPORTANT:

   Do **NOT** turn off REDs by reducing the speed with the console buttons/dial. This will lead to poor performance and possible header damage.

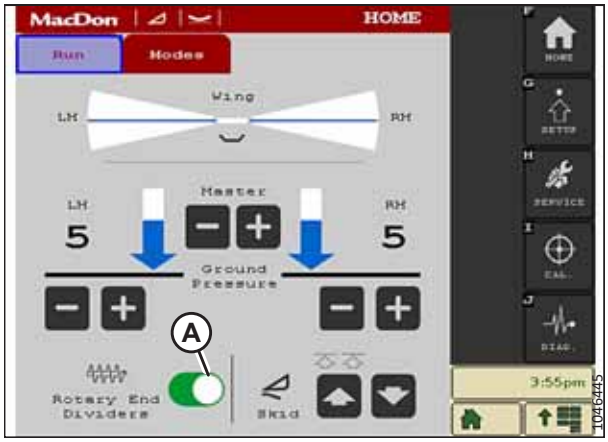


Figure 4.33: FlexCorn™ Application

4.2.13 Engaging or Disengaging Stalk Chopper (Option)

The stalk chopper can be engaged or disengaged by turning its hex knob 180°. Choppers can be individually engaged or disengaged as needed.

DANGER

To prevent injury or death from the 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 the safety props. If the header is off the ground but not raised to its full height, place blocks under the header.

WARNING

Wear cut-proof gloves when working around or handling knives.

NOTE:

A chopper wrench should be supplied with every header equipped with stalk choppers.

1. Shut down the engine, and remove the key from the ignition.
2. To check if the stalk chopper is engaged or disengaged, grab the center of stalk chopper (A) and rotate it. If the chopper is engaged, the snapping rolls should rotate with the chopper.
3. If the stalk chopper is disengaged, turn hex knob (B) 180° to engage it. Repeat this adjustment on every row as desired.

   NOTE:

   Stalk choppers operate independently of each other, so you do **NOT** need to engage or disengage all of them at the same time.

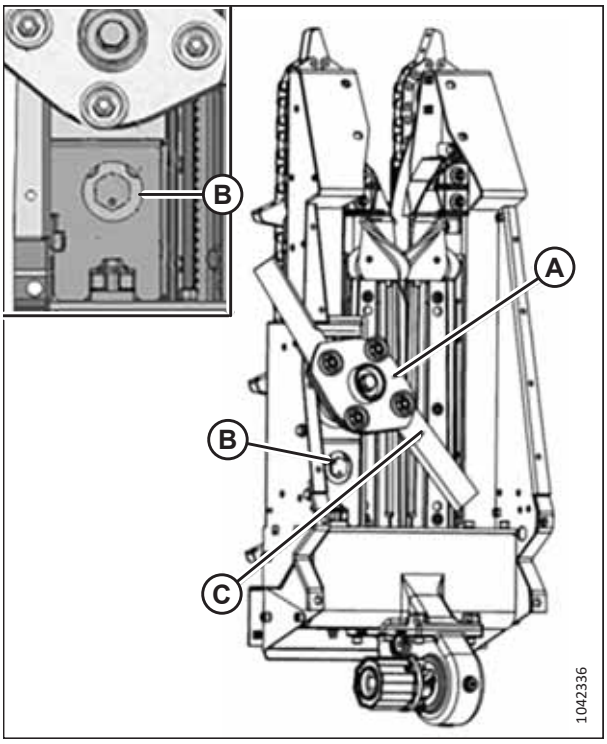


Figure 4.34: Stalk Chopper

WARNING

- **To prevent injury or death from objects thrown from the header, ensure that bystanders remain at least 100 m (300 ft.) from the header while it is operating.**
- **Always be aware of the presence of the stalk chopper (if equipped) when harvesting. Specified daily maintenance, correct settings, and safe operation are required to ensure that the stalk choppers operate properly and safety. Always consider possible circumstances where the knife can impact stones or other foreign objects lying on the ground. Any such impact can result in pieces separating from the hardened knife blade.**

4. Once you have ensured that the stalk chopper is engaged, grab each chopper knife (C) in turn, and rotate the knives to make sure they do not bind. Stalk chopper knives must move freely.

4.3 Transport

There are two ways to transport the header: you can attach it to the front of a combine or tow it on a trailer.

To reduce the header length for transport, the snouts should be in transport position:

- For header dimensions in transport position, refer to *2.2 Header Dimensions, page 21*
- For information about moving snouts with stalk deflectors into transport position, refer to *4.3.1 Moving Snouts with Stalk Deflectors into Transport Position, page 73*

For more information, refer to:

- *4.3.2 Transporting Header on Combine – Safety Recommendations, page 76*
- *4.3.3 Transporting Header on Trailer – Safety Recommendations, page 76*

4.3.1 Moving Snouts with Stalk Deflectors into Transport Position

Snouts with stalk deflectors have links that need to be adjusted before the snouts can be positioned in transport mode.

DANGER

To prevent bodily injury or death from the unexpected start-up of the machine, always stop the engine and remove the key from the ignition before making adjustments to the machine.

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

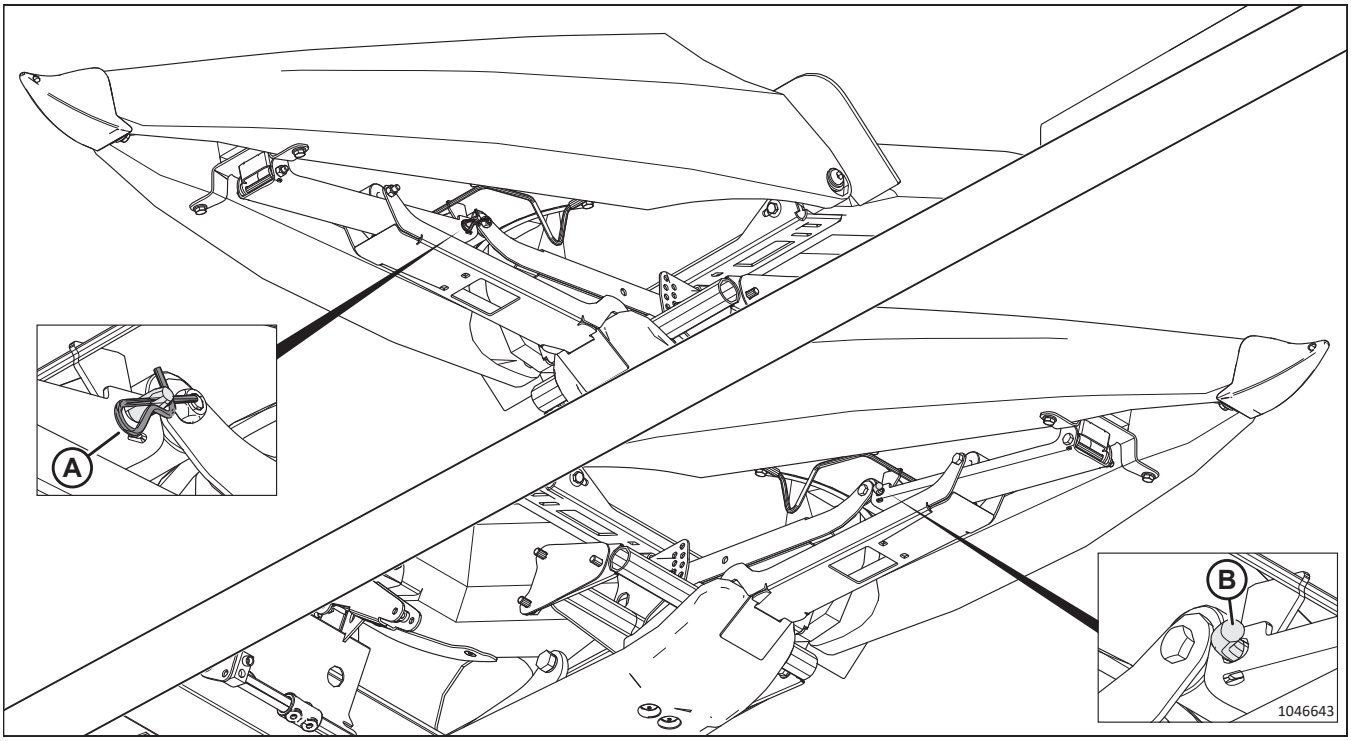


Figure 4.35: Snout and Deflector Link

2. Remove hairpin (A) and L-pin (B).

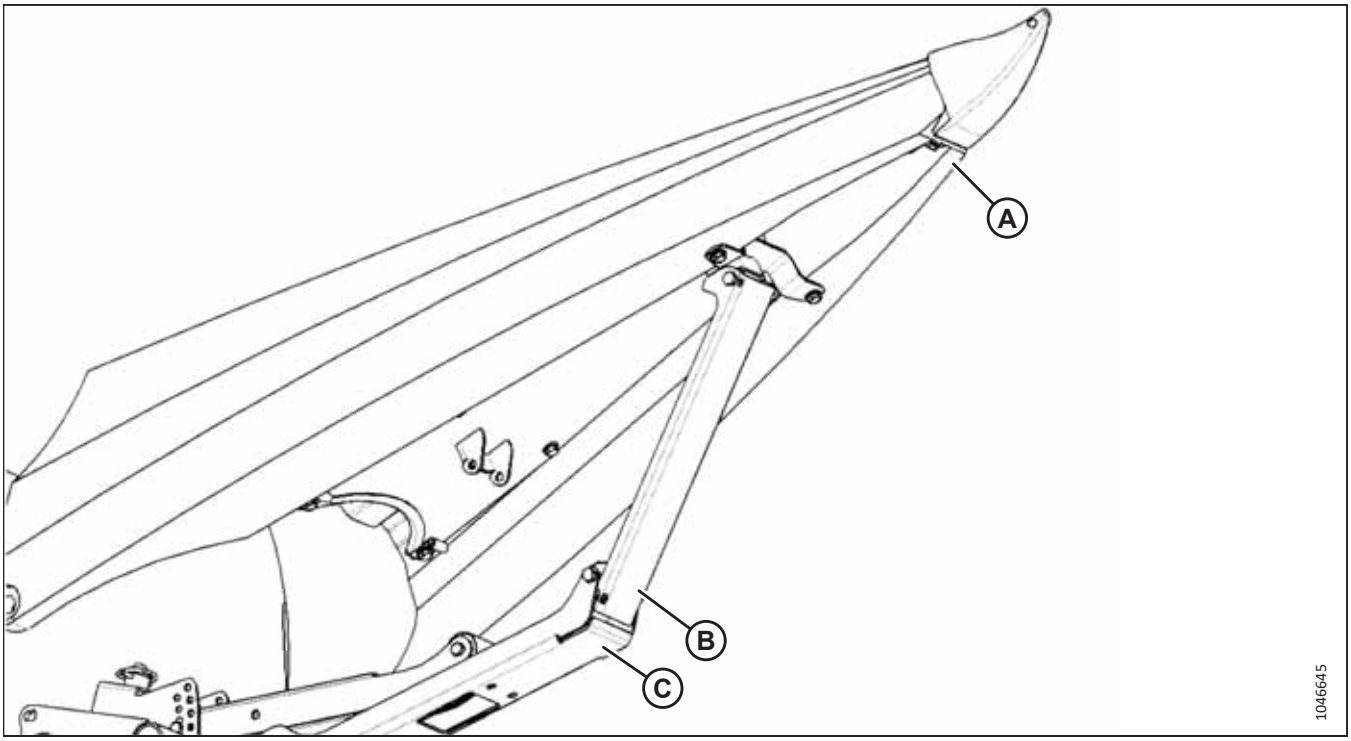


Figure 4.36: Snout and Deflector Link

3. Push snout up (A) until channel (B) slides out of roller (C).

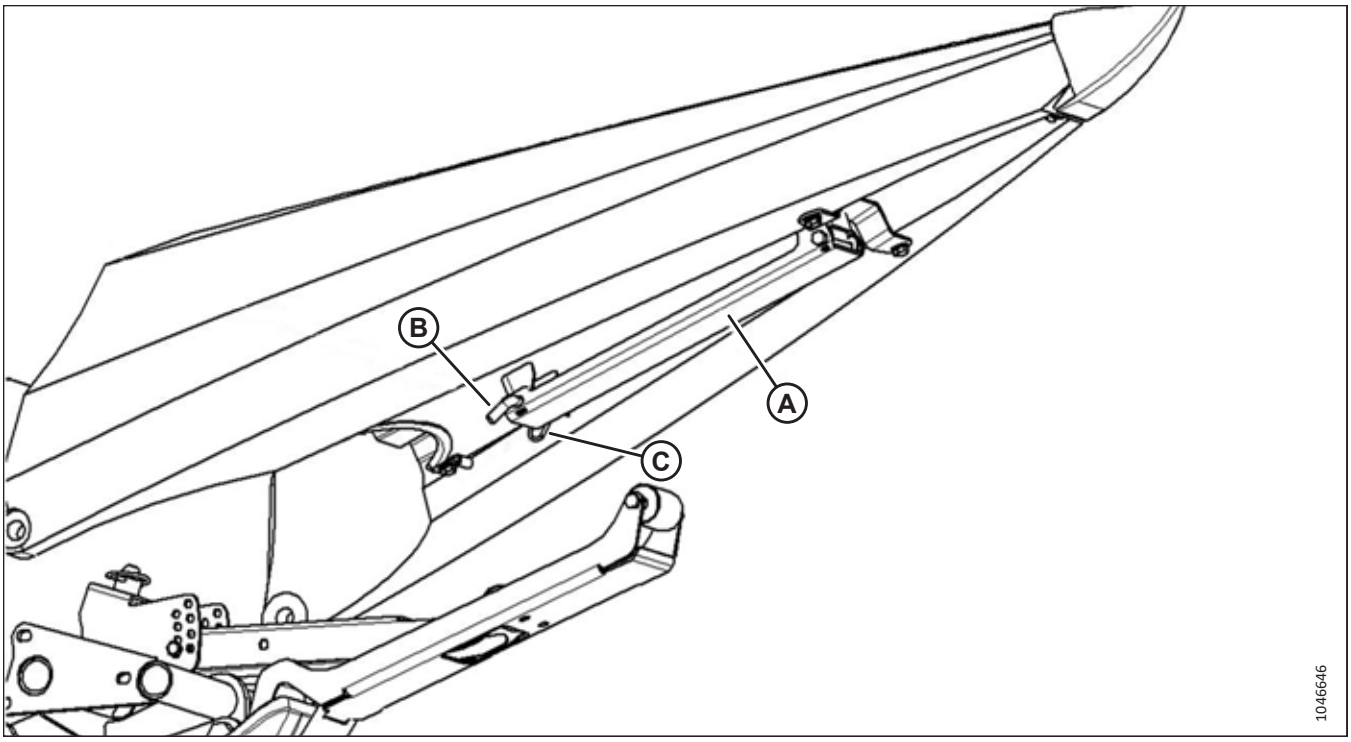


Figure 4.37: Snout and Deflector Link

4. Secure channel (A) to the snout using L-pin (B) and hairpin (C).

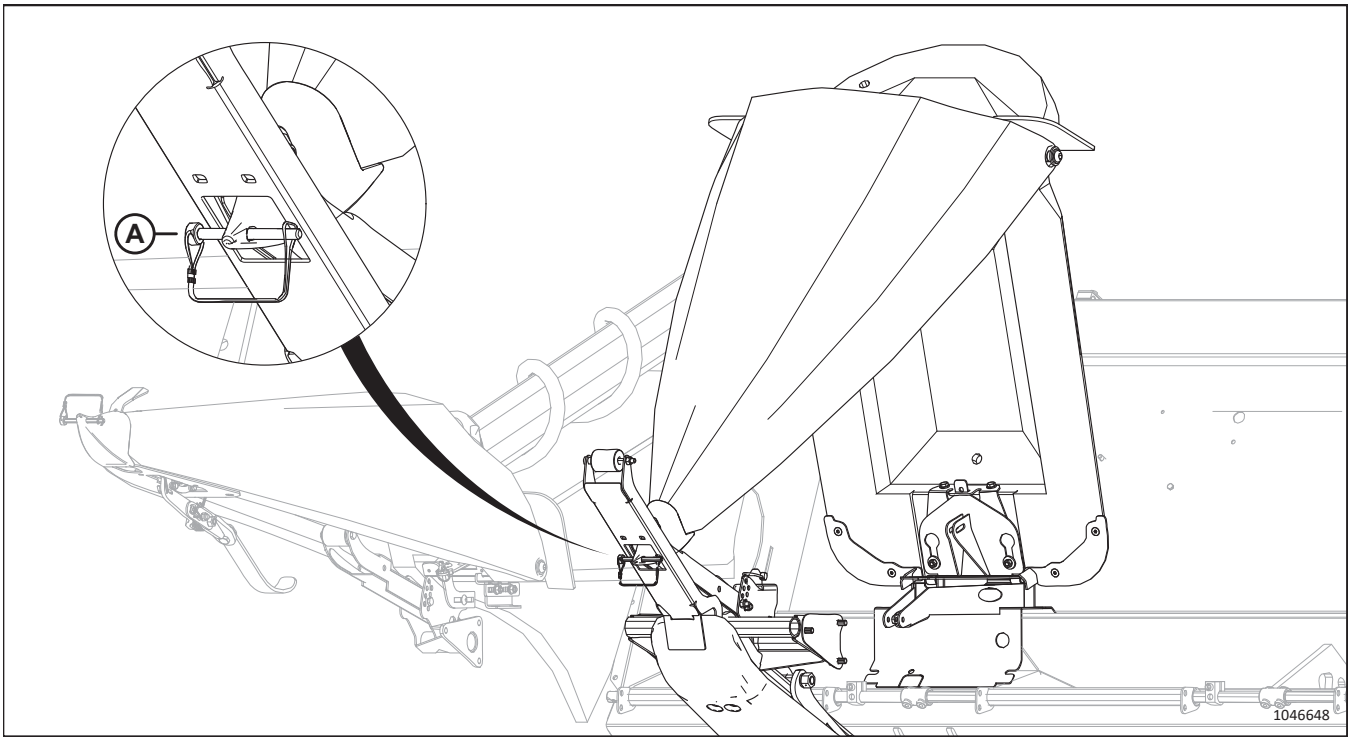


Figure 4.38: Snout and Deflector Link

5. Insert the snout tip through the rollers and secure it with lynch pin (A).

4.3.2 Transporting Header on Combine – Safety Recommendations

Follow these safety recommendations when attempting to transport the header while it is attached to a combine. Refer to the combine operator's manual for more information.

CAUTION

- **Ensure that the combine and header comply with your local width regulations and lighting or marking requirements.**
- **Follow all recommended procedures in your combine operator's manual for transporting and towing a header.**
- **Before driving the combine on a roadway, ensure that the lights are clean and working properly. Position the amber lamps so that they can be seen by approaching traffic. Always use the lamps when travelling on roads.**
- **Do NOT use the field lamps when operating the combine on a roadway. They my confuse other drivers.**
- **Before driving on a roadway, clean the slow moving vehicle signs and reflectors, adjust the rear view mirrors, and clean the windows.**
- **Only travel with the header in Rigid mode.**
- **Fully raise the header (unless you are transporting the header across hills).**
- **Maintain adequate visibility and be alert for roadside obstructions, oncoming traffic, and bridges.**
- **When travelling downhill, reduce the combine's speed and keep the header as low as possible. Raise the header completely at the bottom of a slope to prevent the header from contacting the ground.**

4.3.3 Transporting Header on Trailer – Safety Recommendations

The header can be transported using a header trailer. Refer to the trailer operator's manual for instructions on safe use.

CAUTION

- **Ensure the trailer is rated for the header weight.**
- **Ensure that all snouts are in the bent knee position with the transport lynch pins installed.**
- **Ensure the header is in Rigid mode.**
- **Ensure the header is supported on the trailer by the header stands and the row unit skid shoes.**
- **Ensure header has been secured to the header trailer.**

Chapter 5: Maintenance and Servicing

This chapter contains the information necessary to perform routine maintenance and occasional servicing tasks on your machine. The word “maintenance” refers to scheduled tasks that help your machine operate safely and effectively; “Service” refers to tasks that must be performed when a part needs to be repaired or replaced. For advanced service procedures, contact your Dealer.

A parts catalog is provided in the plastic manual case at the rear by the left drive gearbox.

Log hours of operation and use the maintenance record provided (refer to *5.2.1 Maintenance Schedule/Record, page 78*) to keep track of your scheduled maintenance.

5.1 Preparing Machine for Servicing

Observe all safety precautions before beginning service on the machine.

DANGER

To prevent injury or death from the 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 the safety props. If the header is off the ground but not raised to its full height, place blocks under the header.

DANGER

Ensure that all bystanders have cleared the area.

Before servicing the machine, follow these steps:

1. If servicing any part of the hydraulic system, always place the header into Service mode to drain all the hydraulic pressure from the header.
2. Lower the header fully.
3. Shut down the engine, and remove the key from the ignition.
4. Engage the parking brake.
5. Wait for all of the moving parts to stop.

5.2 Maintenance Requirements

Regular maintenance is the best insurance against early wear and untimely breakdowns. Following the maintenance schedule will increase your machine’s life. Log hours of operation, use the maintenance record, and keep copies of your maintenance records (refer to *5.2.1 Maintenance Schedule/Record, page 78*).

Periodic maintenance requirements are organized according to service intervals. If a service interval specifies more than one timeframe, (e.g., 100 hours or annually), service the machine at whichever interval is reached first.

IMPORTANT:

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

When servicing the machine, refer to the appropriate section in this chapter and use only the specified fluids and lubricants. Refer to the inside back cover for the recommended fluids and lubricants.

CAUTION

Follow all safety messages. For instructions, refer to *1 Safety, page 1* and *5.1 Preparing Machine for Servicing, page 77*.

5.2.1 Maintenance Schedule/Record

Recording maintenance allows the user to keep track of when maintenance is performed. MacDon recommends keeping a record of daily maintenance as evidence of a properly maintained machine.

Action:		✓ – Check					♦ – Lubricate						▲ – Change					
✎	Hour meter reading																	
✎	Service date																	
✎	Serviced by																	
First Use (first 50 hours)		Refer to *5.2.2 Break-in Inspection, page 80*.																
Before Harvesting		Refer to *5.2.3 Equipment Servicing – Preseason, page 80*.																
End of Season		Refer to *5.2.4 Equipment Servicing – End of Season, page 81*.																
10 Hours or Daily (Whichever Occurs First)																		
✓	Check the condition of the stalk chopper knife blades and hardware (If equipped). Refer to *5.12.12 Checking Stalk Chopper Knives (Option), page 113*.																	
✓	Check the condition of the snapping roll knives. Refer to *5.12.6 Checking Snapping Roll Knives, page 106*.																	
✓	Perform a quick inspection of the snapping roll hardware. Refer to *5.12.8 Checking Snapping Roll Hardware, page 110*.																	
✓	Check the gathering chains for abnormal wear. Refer to *5.12.9 Checking Gathering Chains, page 111*.																	
✓	Check the row unit gearboxes for oil leaks. For the location of the gearbox, refer to *5.12.1 Checking and Adjusting Lubricant Level – Row Unit Gearbox, page 99*.																	
✓	Check the stalk chopper gearboxes (if equipped) for oil leaks. For the location of the gearbox, refer to *5.12.13 Changing Oil – Stalk Chopper Gearbox (Option), page 115*.																	
50 Hours																		
✓	Clean the area around the auger drive chains. Refer to *5.4 Cleaning Auger Drive Chain Area, page 87*.																	
✓	Check the tension of the auger drive chains. Refer to *_5.6 Checking and Adjusting Auger Drive Chain Tension, page 88*.																	
♦	Lubricate the auger drive chains. Refer to *5.3 Lubricating the Header, page 82*.																	
✓	Check the stalk chopper gearbox oil level, if equipped. Refer to *5.12.11 Checking and Adjusting Oil Level – Stalk Chopper Gearbox (Option), page 112*.																	
✓	Check the drive and driven gearboxes oil level (four per header). Refer to *5.10 Checking and Adjusting Oil Level – Drive and Driven Gearboxes, page 94*.																	
♦	Grease lower link pivot points (four per header). Refer to *5.3 Lubricating the Header, page 82*.																	

100 Hours or Annually (Whichever Occurs First)																		
♦	Grease the front grease fitting of the snapping rolls (two places per row). Refer to *5.3 Lubricating the Header, page 82*.																	
250 Hours or Annually (Whichever Occurs First)																		
✓	Check the row unit grease level (one per row, fill as required). Refer to *5.12.1 Checking and Adjusting Lubricant Level – Row Unit Gearbox, page 99*.																	
▲	Change the stalk chopper gearbox oil, if equipped (one per row). Refer to *5.12.13 Changing Oil – Stalk Chopper Gearbox (Option), page 115*.																	
▲	Change the drive and driven gearbox oil (four per header). Refer to *5.11 Changing Oil – Drive and Driven Gearboxes, page 96*.																	
♦	Grease the header drive shafts (two per header, five places each). Refer to *5.3 Lubricating the Header, page 82*.																	
♦	Grease the hex shaft chain couplings. Refer to *5.3 Lubricating the Header, page 82*.																	
♦	Grease the slip clutches. Refer to *5.3 Lubricating the Header, page 82*.																	
♦	Lubricate the snapping plate indicator cable. Refer to *5.3 Lubricating the Header, page 82*.																	
Annually																		
✓	Check that the snapping roll hardware is tight. Refer to *5.12.8 Checking Snapping Roll Hardware, page 110*.																	
✓	Check the snapping roll clearance. Refer to *5.12.4 Checking and Adjusting Snapping Roll Knife Clearance, page 104*.																	
✓	Check the accumulator charge pressure. Refer to *5.18 Checking Accumulator Charge Pressure, page 122*.																	

5.2.2 Break-in Inspection

Break-in inspections ensure that all components can operate for an extended period without requiring service or replacement. The break-in period is within the first 50 hours of operation after the machine's initial start up.

DANGER

To prevent injury or death from the 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 the safety props. If the header is off the ground but not raised to its full height, place blocks under the header.

Inspection Interval	Item	Refer to
First hour	1. Shut down the engine, and remove the key from the ignition. 2. Check the following: • Temperature of all gearboxes: maximum 110°C (230°F) • Loose parts or hardware • Tension of all chains • General visual inspection 3. If this inspection reveals any abnormality, determine the cause of the abnormality, or contact your Dealer for assistance.	—
50 Hours	Check the row unit grease level (one per row, fill as required)	*5.12.1 Checking and Adjusting Lubricant Level – Row Unit Gearbox, page 99*
50 Hours	Change the drive and driven gearbox oil (four per header).	*5.11 Changing Oil – Drive and Driven Gearboxes, page 96*
50 Hours	Change the stalk chopper gearbox oil, if equipped.	*5.12.13 Changing Oil – Stalk Chopper Gearbox (Option), page 115*

5.2.3 Equipment Servicing – Preseason

Equipment should be inspected and serviced at the beginning of each operating season after taking the machine out of storage.

CAUTION

- **Review this manual to refresh your memory on the safety and operating recommendations.**
- **Review all of the safety decals and the other decals on the header. Note the hazard areas.**
- **Be sure all of the shields and guards are properly installed and secured. Never alter or remove safety equipment.**
- **Be sure you understand and have practiced the safe use of all controls. Know the capacity and operating characteristics of the machine.**
- **Ensure that you have a first aid kit and fire extinguisher. Know where they are and how to use them.**

1. Lubricate the machine completely. For instructions, refer to *5.3 Lubricating the Header, page 82*.
2. Perform all annual maintenance tasks. For instructions, refer to *5.2.1 Maintenance Schedule/Record, page 78*.

5.2.4 Equipment Servicing – End of Season

Inspect and service the necessary equipment before storing the machine at the end of each operating season.

DANGER

To prevent injury or death from the 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 the safety props. If the header is off the ground but not raised to its full height, place blocks under the header.

DANGER

Ensure that all bystanders have cleared the area.

WARNING

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

At the end of the harvesting season, do the following:

1. Clean the header thoroughly.
2. To prevent rust from forming on the header, repaint all worn or chipped painted surfaces. If this is not possible, coat the unpainted area with rust protector.
3. Inspect the header so that it will be in proper operating condition for the next season.
   - Repair or replace any damaged or missing parts, including safety labels. Order replacements from your Dealer.
   - Immediately repairing these items will save time and effort at the beginning of the next season.
4. Tighten any loose hardware. For torque specifications, refer to Chapter *10.3 Torque Specifications, page 173*.
5. Lubricate the following:
   - Slides on the gathering chain front idlers
   - Gathering chains
   - Auger drive chains
6. Select Rigid mode. This will automatically straighten the wings and retract the skid shoes. For instructions, refer to *Selecting Header Modes – Rigid, page 56*.
7. Set the header onto a suitable trailer, or set the header onto the ground using the header stands. For instructions on using the header stands, refer to *4.2.2 Extending Header Stands, page 61*
8. Before disconnecting the header from the combine, select Service mode to allow oil to exit the header and reduce pressure in the accumulators and valves. For instructions, refer to *Selecting Header Modes – Service, page 56*.
9. Disconnect the header from the combine.
10. Store the header in a dry, protected place, if possible. If storing the header outdoors, cover the header with a waterproof canvas or another protective material.

5.3 Lubricating the Header

Some header components need to be lubricated in order to perform their function correctly and prevent machine damage.

DANGER

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

Refer to the inside back cover for the recommended lubricants.

Log hours of operation and use the Maintenance Record provided to keep a record of scheduled maintenance; refer to *5.2.1 Maintenance Schedule/Record, page 78*.

1. Determine the type of service required. Refer to *5.1, page 83*.
2. Wipe the grease fitting with a clean cloth before greasing it to avoid injecting dirt and grit.

   IMPORTANT:

   Use clean, high-temperature, extreme-pressure grease only.
3. Leave the excess grease on the fitting to keep the dirt out.
4. Replace any loose or broken grease fittings immediately.
5. Remove and thoroughly clean any fitting that will not take grease. Clean the lubricant passageway. Replace the fitting if necessary.

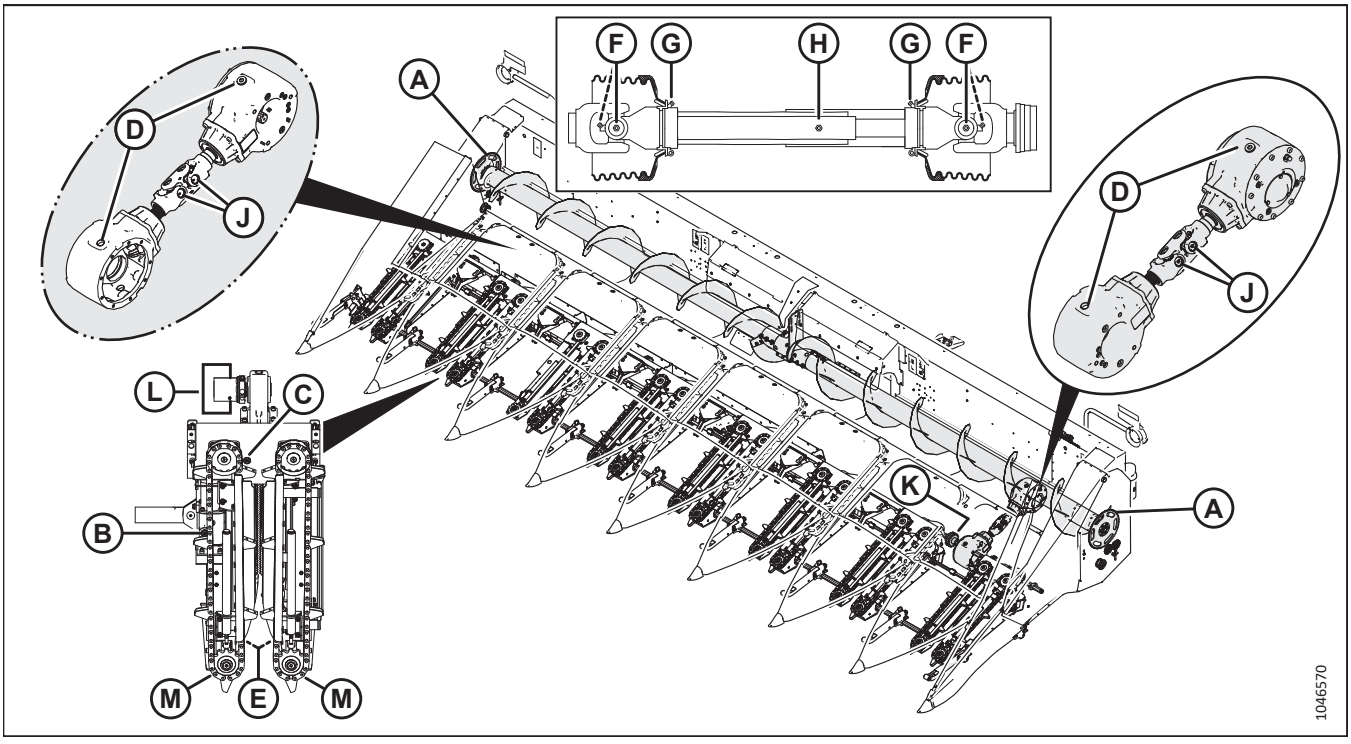


Figure 5.1: Lubrication Points

Table 5.1 Lubrication Table

Ref	Description	Lubrication Type	Interval
A	Auger drive chains (1 per side)	Chain lubricant or SAE 30W	Lubricate every 50 hours
B	Stalk chopper gearbox oil level (1 per row), if equipped	0.3 liters (0.3 quarts) SAE 80W-140 or SAE 85W-140	Replace after first 50 hours and then replace every 250 hours/annually
C	Row unit grease level (1 per row)	Semi–fluid grease – 2.5L (2.6 quarts) EP-00	Check every 50 hours
D	Drive and driven gearbox(s) oil level (4 per header)	0.9 liters (1.0 quarts) SAE 80W-140 or SAE 85W-140	Replace after first 50 hours and then replace every 250 hours/annually
E	Front grease fittings on snapping rolls (1 per row)	SAE multi-purpose grease[5]	Grease 100 hours
F G H	Header drive shaft (2 per header, 5 places each) One stroke = 3 grams of grease. • Location (F): 30 grams of grease • Location (G): 5 grams of grease • Location (H): 15 grams of grease **NOTE:** If equipped with the optional CV driveshaft, refer to Table *5.2, page 84* instead.	SAE multi-purpose grease[4]	Grease 250 hours
J	Drive gearbox coupling shaft (2 per header, 2 places each) **NOTE:** Grease the U-joints, as well as the sliding surfaces of the U-joint shafts and cross-shafts. Figure *5.1, page 82* shows the shafts used headers used for all combines except for CLAAS. The shafts used for CLAAS combines are similar.	SAE multi-purpose grease[4]	Grease 250 hours/annually
K	Hex shaft chain couplings	Chain lubricant or SAE 30W	Lubricate 250 hours/ annually
L	Slip clutches **NOTE:** You only need to grease one of the two grease points on each slip clutch.	SAE multi-purpose grease[5] **IMPORTANT:** Do **NOT** over-grease.	Grease 250 hours/annually
M	Gathering chains (2 per row)	Any lubricating oil is suitable for the gathering chains as long as it prevents corrosion.	End of season

4. High temperature extreme pressure (EP) performance with 10% max. molybdenum disulphide (NLGI Grade 2) lithium base
5. High-temperature extreme pressure (EP) performance with 1% max. molybdenum disulphide (NLGI Grade 2) lithium base

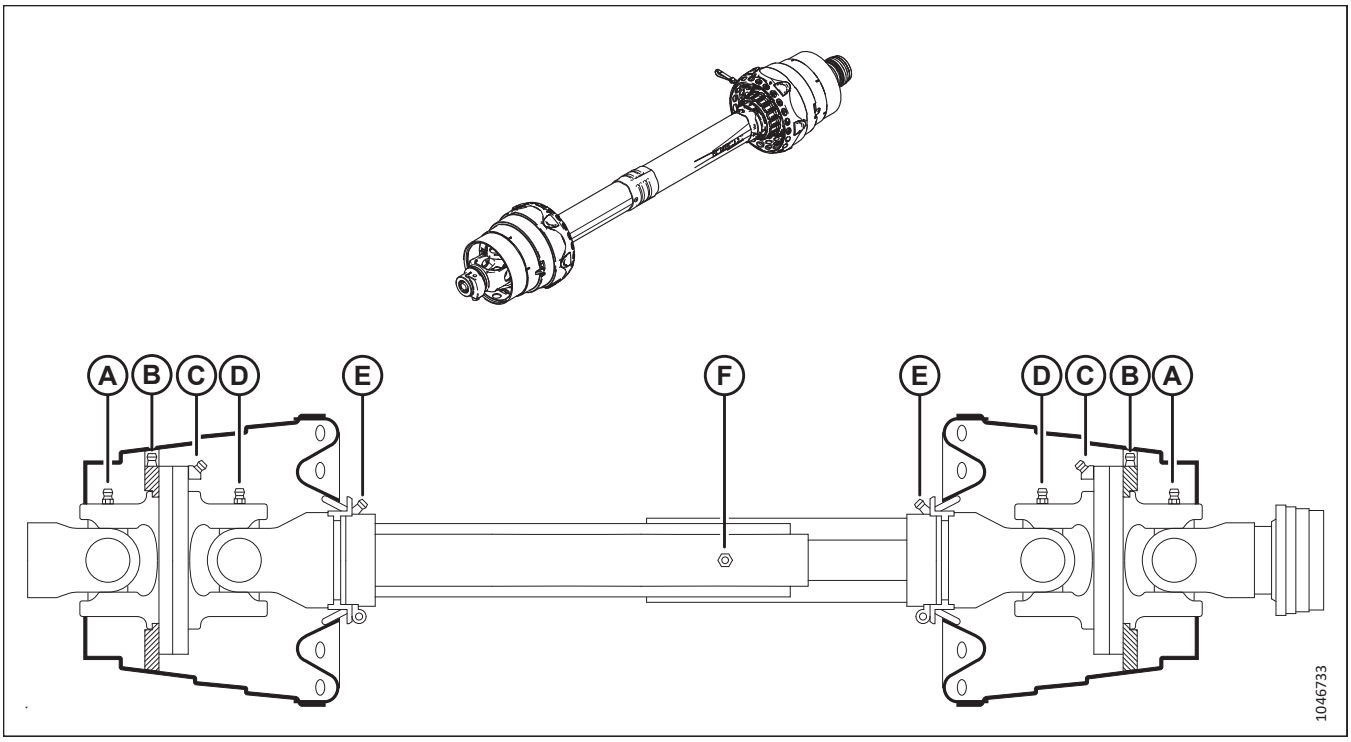


Figure 5.2: CV Driveshaft (optional) – Lubrication Points

Table 5.2 CV Driveshaft (optional) – Lubrication Points

Ref	Grease Quantity (grams) One stroke = 3 grams of grease	Lubrication Type	Interval
A	20	SAE multi-purpose grease[4]	Every 8 hours
B	5		
C	30		
D	20		
E	5		Every 60 hours
F	15		

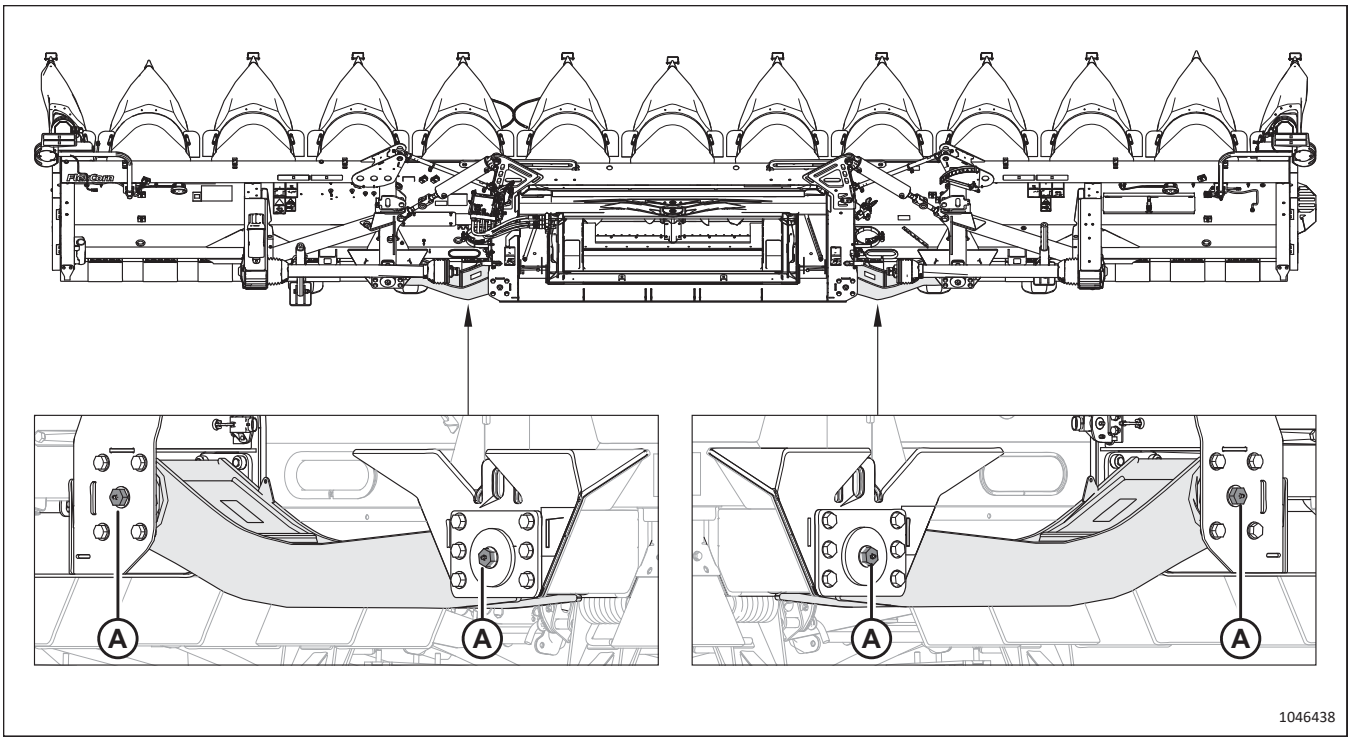


Figure 5.3: Lower Links – Lubrication Points

Table 5.3 Lower Links – Lubrication Table

Ref	Description	Lubrication Type	Interval
A	Lower links (2 per side)	EP NLGI Grade 2	Lubricate every 50 hours

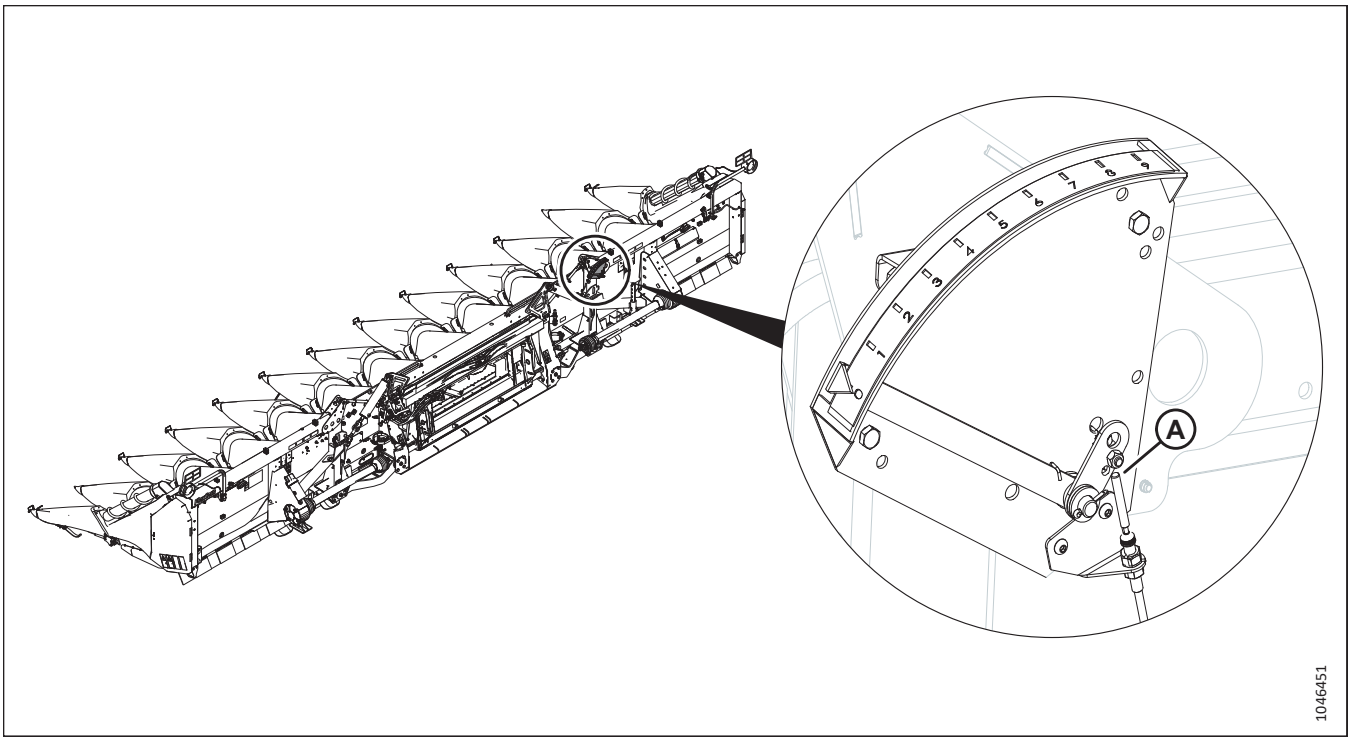


Figure 5.4: Snapping Plate Indicator Cable – Lubrication Point

Table 5.4 Snapping Plate Indicator Cable – Lubrication Table

Ref	Description	Lubrication Type	Interval
A	Top of snapping plate indicator cable	Chain lubricant or SAE 30W	Grease 250 hour/annually

5.4 Cleaning Auger Drive Chain Area

Clean the area around the auger drive chain every 50 hours.

DANGER

To prevent bodily injury or death from the unexpected start-up of the machine, always stop the engine and remove the key from the ignition before making adjustments to the machine.

1. Shut down the engine, and remove the key from the ignition.
2. Open shield (A).
3. Clean area (B) under the shield and around the auger drive chains.
4. Close the shield.
5. Repeat this procedure on the opposite side of the header.

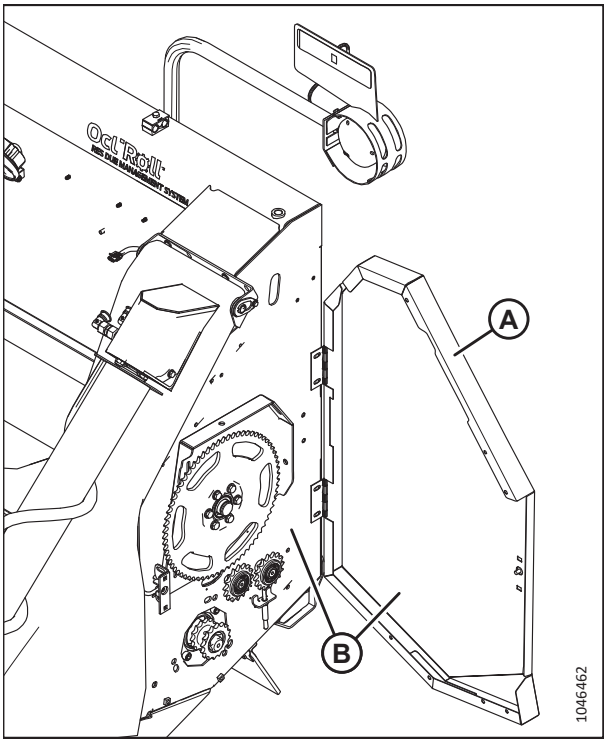


Figure 5.5: Auger Drive Chain – Left Side

5.5 Cleaning the Skid Shoe Linkage

Debris that collects around the skid shoe linkage can prevent the cylinders from being fully retracted.

DANGER

To prevent injury or death from the unexpected start-up or fall of a raised machine, always shut off the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. If the feeder house is fully raised, always engage the safety props.

DANGER

Ensure that all bystanders have cleared the area.

To ensure the skid shoe linkage is cleared from debris, follow these steps:

1. Raise the header fully.
2. Engage the combine threshing system and header drive.

3. From the HOME page, press and hold SKID SHOE RETRACT icon (A) for 5 seconds.

   NOTE:

   When the skid shoes are fully retracted, POSITION INDICATOR ICONS (B) will turn green; if skid shoes are not fully retracted, one or both indicators will be gray.

4. If the skid shoe(s) will not retract, press and hold SKID SHOE EXTEND icon (C) for 5 seconds.

5. Disengage the header drive and threshing system.

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

7. Engage the header safety props. For instructions, refer to the combine operator's manual.

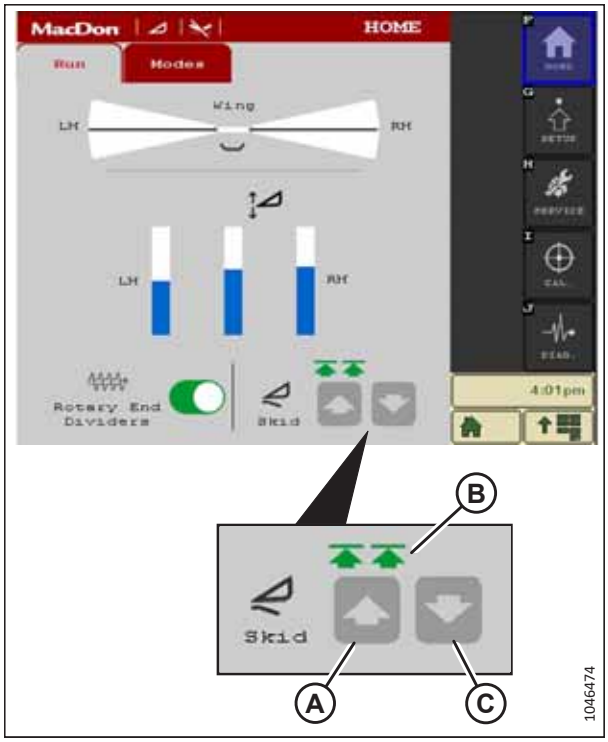


Figure 5.6: FlexCorn™ Application – Run Page

8. Remove debris and mud buildup from around all skid shoe linkages (A).

9. Repeat Step *2, page 87* to Step *3, page 88* to recheck position indicators.

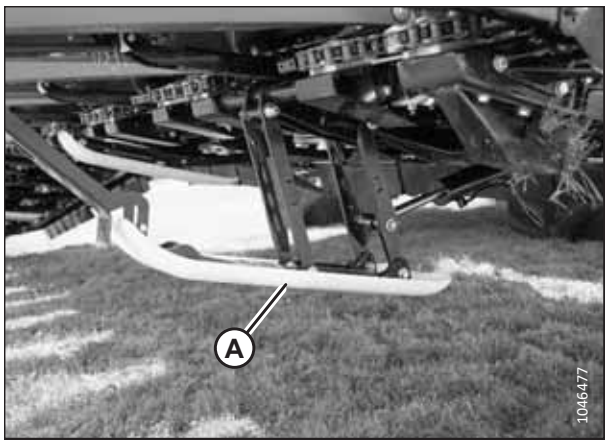


Figure 5.7: Skid Shoe Linkage

5.6 Checking and Adjusting Auger Drive Chain Tension

You will need to ensure that the auger drive chain is tensioned correctly every 50 hours.

NOTE:

Check chain tension after torquing the idler sprocket as tightening the sprocket can change the chain tension.

DANGER

To prevent bodily injury or death from the unexpected start-up of the machine, always stop the engine and remove the key from the ignition before making adjustments to the machine.

1. Shut down the engine, and remove the key from the ignition.
2. Open side shield (A).

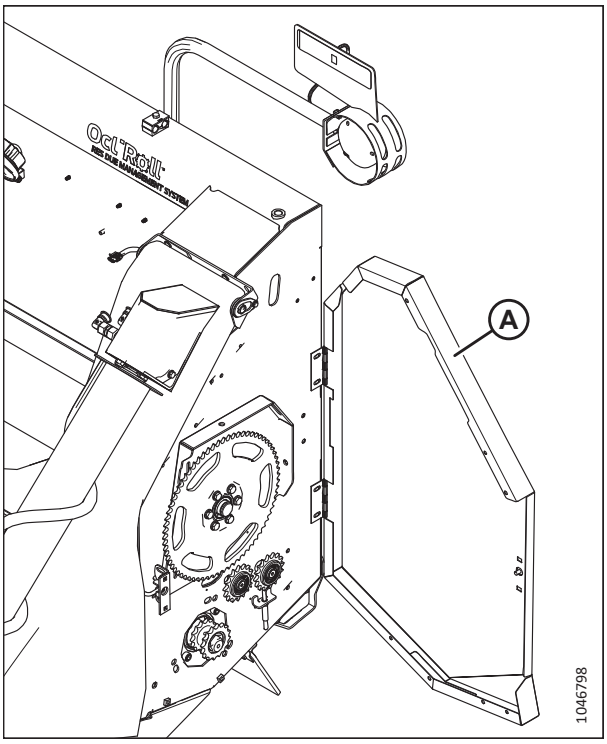


Figure 5.8: Left Side Shield

3. Check the tension of the auger drive chain. It should deflect 19 mm (3/4 in.) at location (A).
4. If the chain tension is not correct, loosen Torx® bolt (B) securing the tensioner pulley, then adjust draw bolt (C) to achieve correct chain tension. Retighten bolt (B).

   NOTE:

   It is better to have a loose chain than a tight one.
5. Close the side shield.

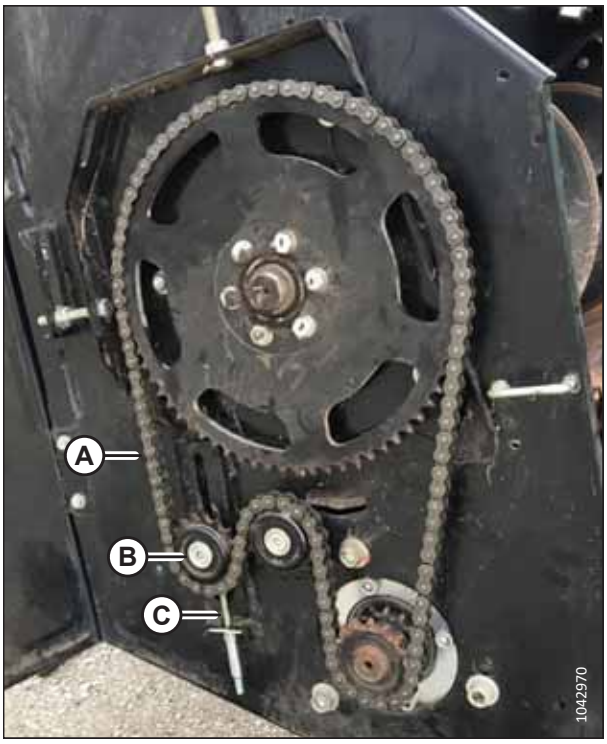


Figure 5.9: Auger Drive Chain

5.7 Checking and Adjusting Auger Position

To promote ear-on-ear feeding through the auger, the auger height should be 32–38 mm (1 1/4–1 1/2 in.) and the clearance between the rear of the auger and the rear horizontal stripper bar should be 6 mm (1/4 in.) on all headers. The auger height is not adjustable on folding headers.

DANGER

To prevent bodily injury or death from the unexpected start-up of the machine, always stop the engine and remove the key from the ignition before making adjustments to the machine.

1. Shut down the engine, and remove the key from the ignition.
2. Check gap (A) between the auger flighting and auger pan as shown in the illustration at right. If the gap is less than or greater than 32–38 mm (1 1/4–1 1/2 in.), adjustment is required.

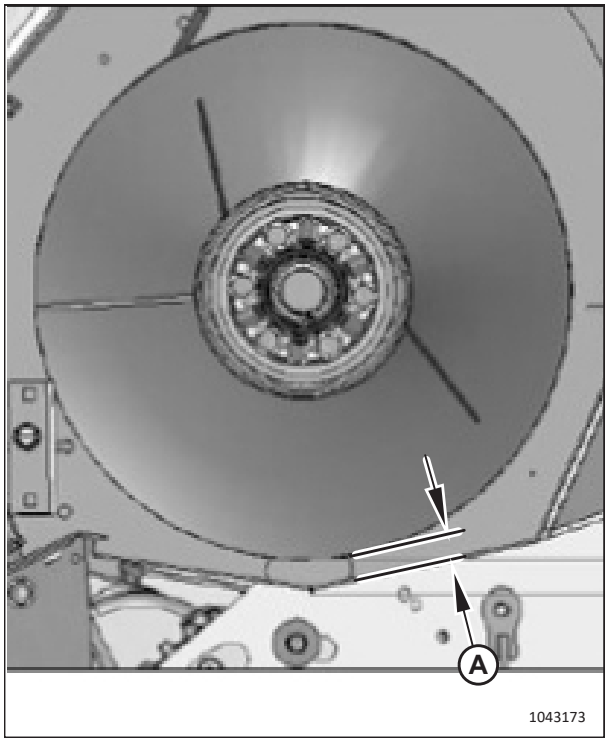


Figure 5.10: Clearance between Auger Flighting and Auger Pan

3. Check the gap between auger flighting (A) and rear horizontal stripper bar (B) as shown in the illustration at right. If the gap is less than or greater than 6 mm (1/4 in.) across the length of the auger, adjustment is required.

Figure 5.11: Auger-to-Stripper Bar Clearance

4. Open the right side shield.
5. Loosen bolts (A).
6. Loosen Torx® bolt (C) securing the tensioner pulley, and adjust draw bolt (D) to loosen the chain.
7. To adjust the auger-to-pan clearance, slightly loosen bolt (E), then use bolt (B) to move the auger.
8. To adjust the auger-to-stripper bar clearance, slightly loosen bolt (B), then use bolt (E) to move the auger.

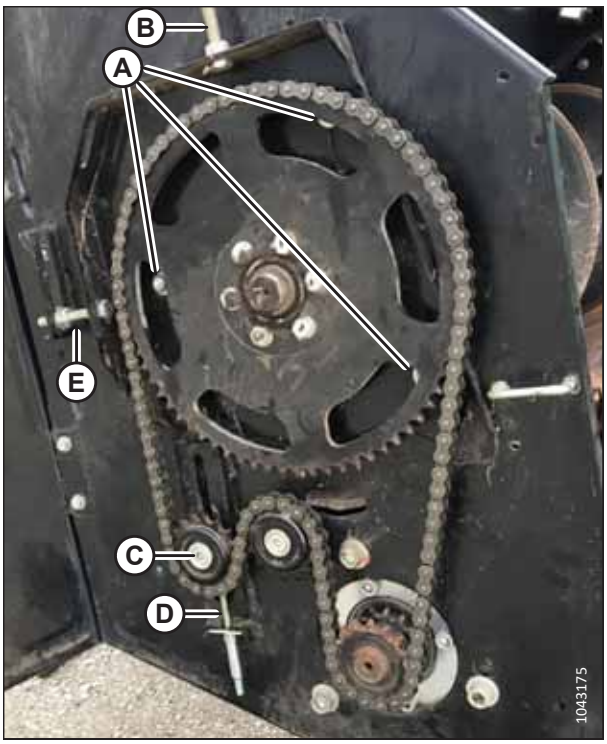


Figure 5.12: Auger Drive – Right Side

NOTE:

You can use a 38 x 89 mm (2 x 4 in.) block of wood as a gauge when setting the auger height.

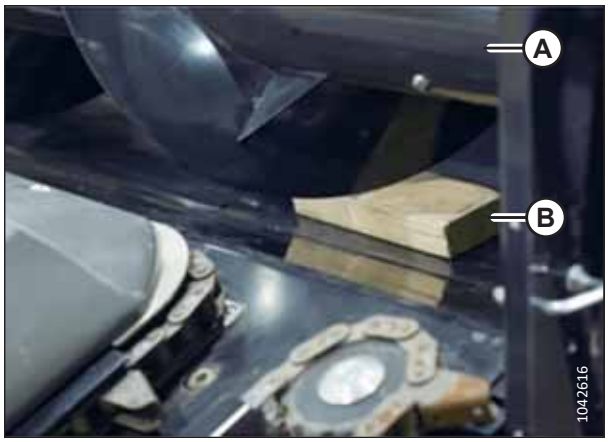


Figure 5.13: Auger Resting on Wood Block

9. Once the auger is positioned correctly, tighten all bolts.
10. Repeat this procedure on the left side of the header.
11. Adjust the center of the auger as follows:
    a. Support the auger so that it doesn't fall when the nuts are loosened.
    b. Loosen the nuts on the four bolts (A) connecting the vertical piece in the center of the auger to the frame above.
    c. Use a prybar to move the auger until the auger-to-pan and auger-to-stripper bar clearances are both correct.
    d. Retighten the nuts and remove the auger support.

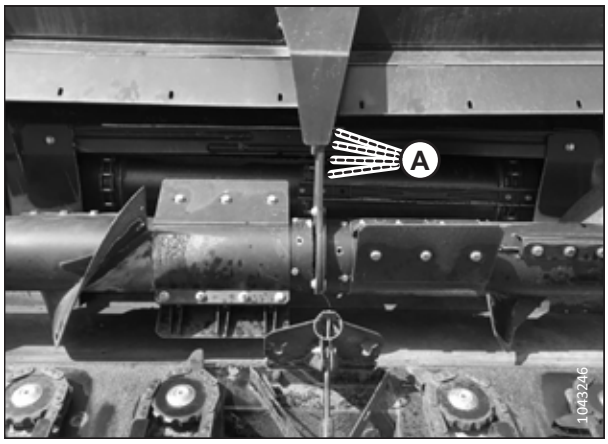


Figure 5.14: Center Auger Support Bolts

5.8 Checking and Adjusting Auger Timing – Two-Piece Augers

The auger timing must be checked, and if necessary, adjusted. Correct timing will aid in smooth feeding of crop into the feeder house.

DANGER

To prevent injury or death from the unexpected start-up or fall of a raised machine, always shut off the engine and remove the key from the ignition before leaving the operator's seat or making adjustments to the machine. If the feeder house is fully raised, always engage the safety props.

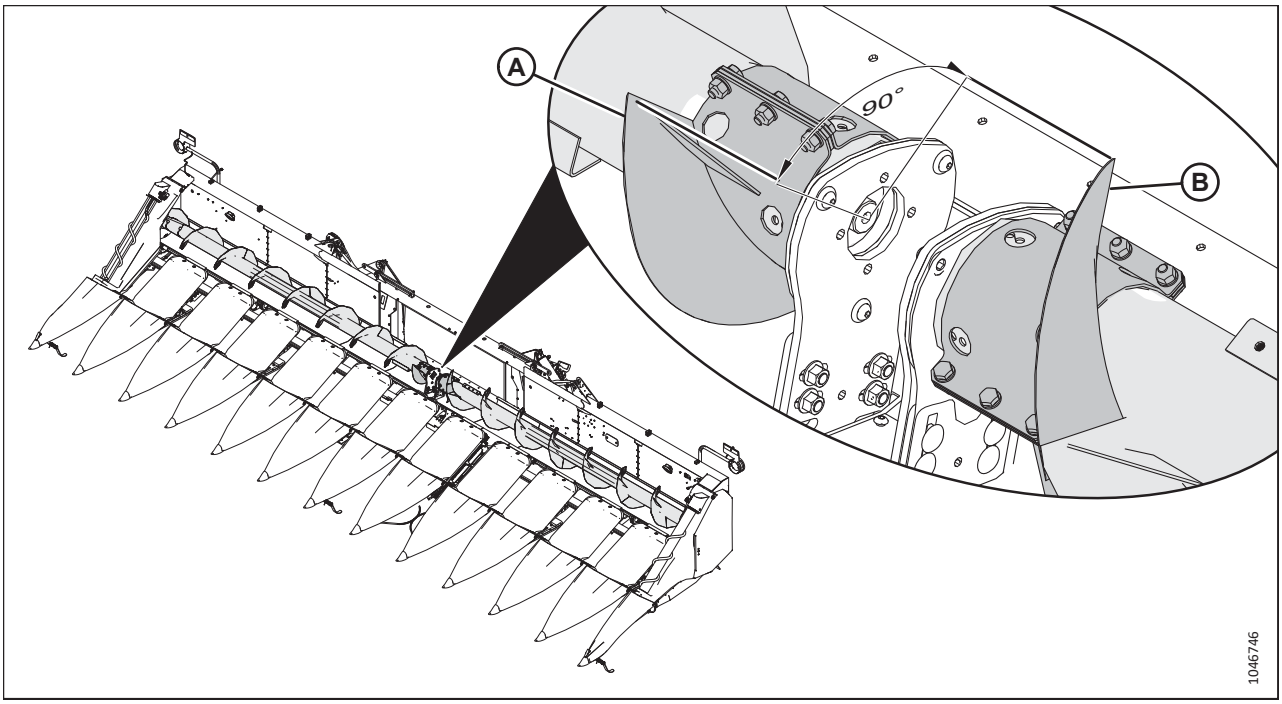


Figure 5.15: Two-Section Auger with Factory Flighting

1. Inspect flightings (A) and (B) at the center of the auger. They should be offset from each other by 90° as shown in the illustration at right. If the flightings are not correctly offset, proceed with adjustment.

   NOTE:

   The factory-installed reverse flighting is shown; the alternative paddle flighting is similar.

2. Raise the header fully.

3. Engage the header safety props. For instructions, refer to the combine operator's manual.

4. Disconnect the driveline from the combine.

5. Hand-turn the chopper (A) (if equipped) or use a 32 mm wrench to turn the input hex shaft (B) until the flightings are offset from each other by 90°.

6. Reconnect the driveline to the combine.

   NOTE:

   Alternatively, loosen the auger drive chain (for instructions, refer to *5.6 Checking and Adjusting Auger Drive Chain Tension, page 88*), remove the chain, rotate the auger to the desired position, and then reinstall and tension the chain.

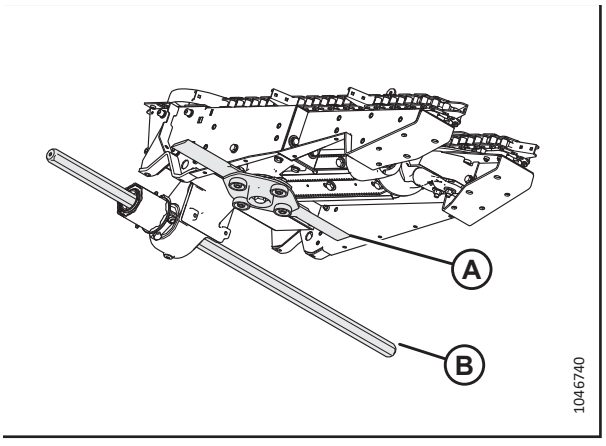


Figure 5.16: Row Unit with Chopper and Hex Shaft

5.9 Checking and Adjusting Auger Debris Shield Angle

Auger debris shields are installed in front of the delivery opening, above the auger. Headers with two-piece augers have two auger debris shields.

DANGER

To prevent bodily injury or death from the unexpected start-up of the machine, always stop the engine and remove the key from the ignition before making adjustments to the machine.

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

Figure 5.17: Auger Debris Shield

2. Check the angle of the auger debris shield. Auger flap (A) should be 51 mm (2 in.) above the auger.
3. If the angle of the auger debris shield needs to be adjusted, loosen bolts (B) on the sides of the shield, adjust the shield to the correct angle, and then retighten the bolts.

   NOTE:

   Only one of bolt (B) is visible in the illustration. The second one is hidden behind the auger debris shield.

5.10 Checking and Adjusting Oil Level – Drive and Driven Gearboxes

Check the drive and driven gearbox oil level every 50 hours. The oil level in each one should be checked with the header at harvesting height; the oil level changes significantly as the header is raised.

DANGER

To prevent bodily injury or death from the unexpected start-up of the machine, always stop the engine and remove the key from the ignition before making adjustments to the machine.

For oil type and quantity, refer to the inside back cover of this document.

1. Position the header so its angle is at 23°.
2. Lower the header until the adjustable skid shoes lightly touch the ground.
3. Shut down the engine, and remove the key from the ignition.

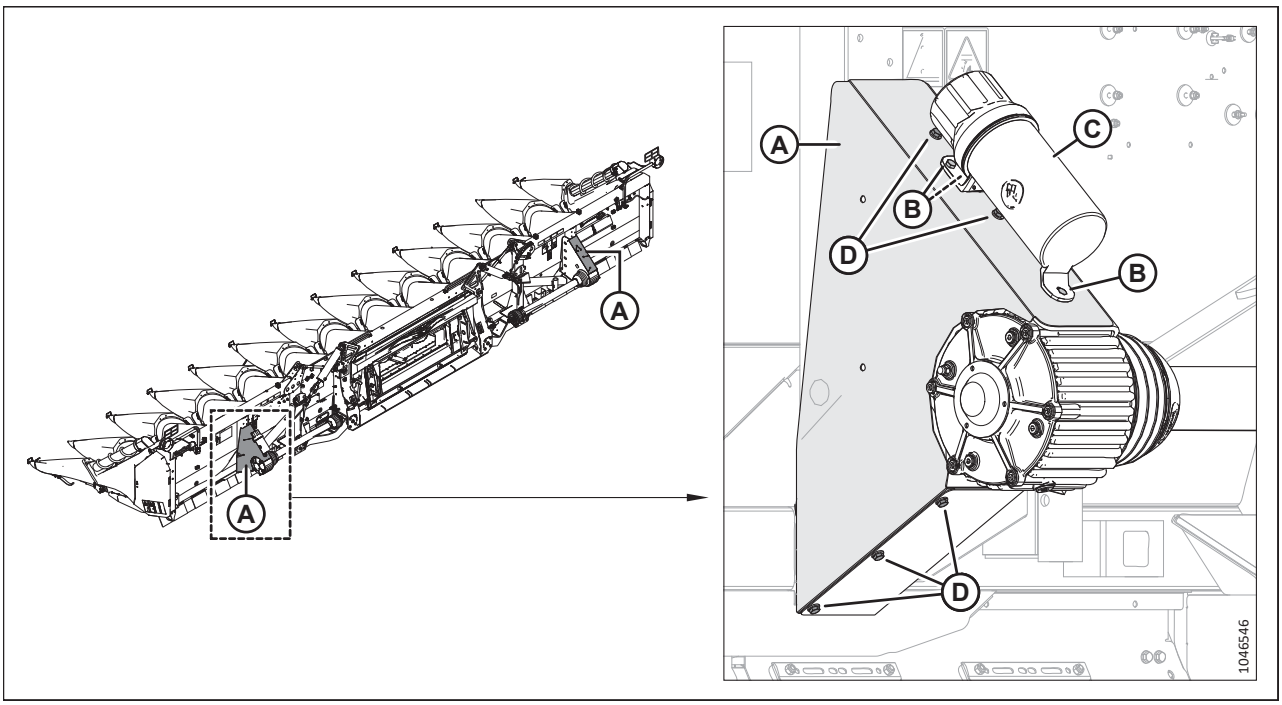


Figure 5.18: Drive Covers

4. Remove both drive covers (A) as follows:

   NOTE:

   If you are going to use a small squeeze bottle (1 L [1 qt]) to add oil to the gearbox, then you can skip to the next step because it will be easier to fill the gearbox through the oil level port instead of the breather.

   a. **Left side only:** Remove three bolts (B) securing manual case (C) to the cover. Remove the manual case.

   b. Remove five bolts and washers (D) securing cover to the frame. Remove the cover.

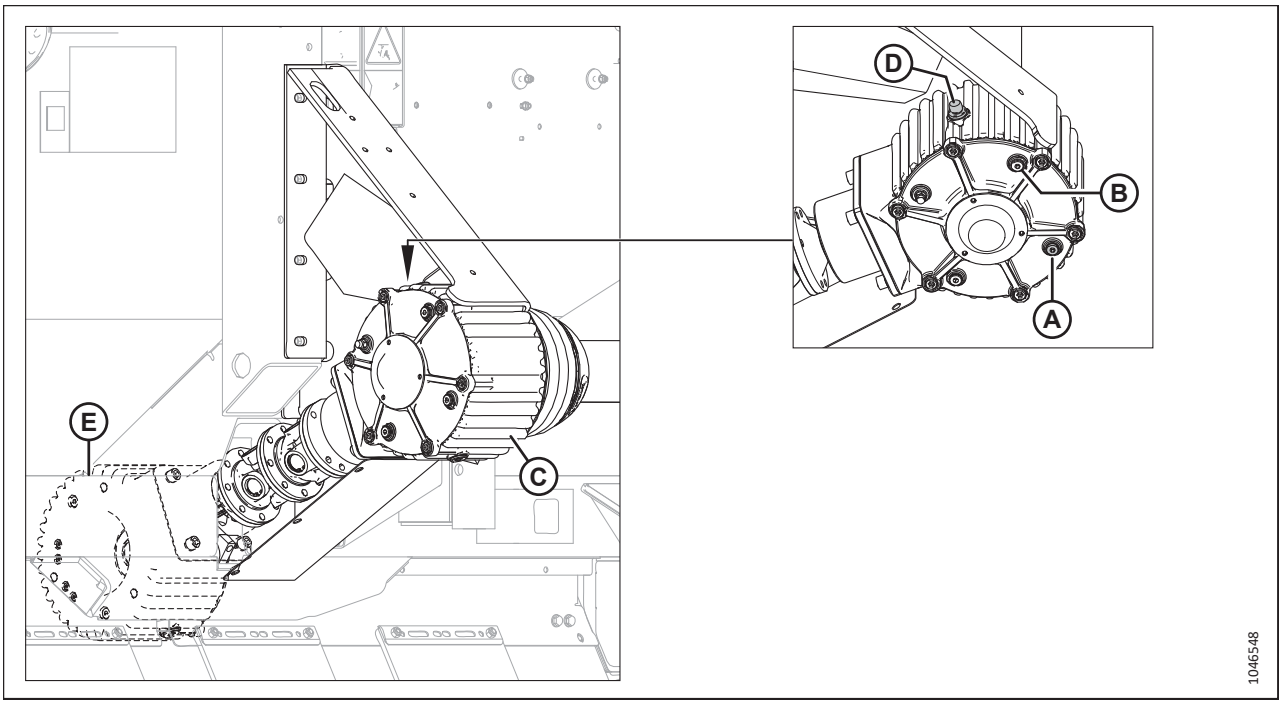


Figure 5.19: Drive and Driven Gearboxes

5. Remove level plug (A) from the drive gearbox (C). Oil should just drip out.

   NOTE:

   Oil level port (A) is always the second port from the bottom of the gearbox. Oil is typically filled through top port (B). However it is possible to remove breather (D) and fill the drive gearbox through the breather port, as it accepts a larger oil pump spout. However, the breather on the driven gearbox is inaccessible. Breather (D) should always be mounted on the top of the gearbox as shown. On headers configured for CLAAS combines, the drive gearbox is positioned higher up.

6. If the oil level is low, do the following:

   a. Remove top plug (B), or, if adding oil through the breather port, remove breather (D).

   b. Add oil through the breather port, or through top port (B), until oil begins to drip out of oil level port (A).

   c. Reinstall oil level plug (A).

   d. Reinstall top plug (B) or breather (D) if it was removed.

7. Repeat Step *5, page 96* and Step *6, page 96* for driven gearbox (E).

8. Reinstall the drive covers and the manual case if they were removed.

5.11 Changing Oil – Drive and Driven Gearboxes

Change the oil after the first 50 hours, and then every 250 hours after that or annually, whichever occurs first. The oil level in each one should be checked with the header at harvesting height; the oil level changes significantly as the header is raised.

DANGER

To prevent bodily injury or death from the unexpected start-up of the machine, always stop the engine and remove the key from the ignition before making adjustments to the machine.

For oil type and quantity, refer to the inside back cover of this document.

1. Position the header so its angle is at 23°.
2. Lower the header until the adjustable skid shoes lightly touch the ground.
3. Shut down the engine, and remove the key from the ignition.

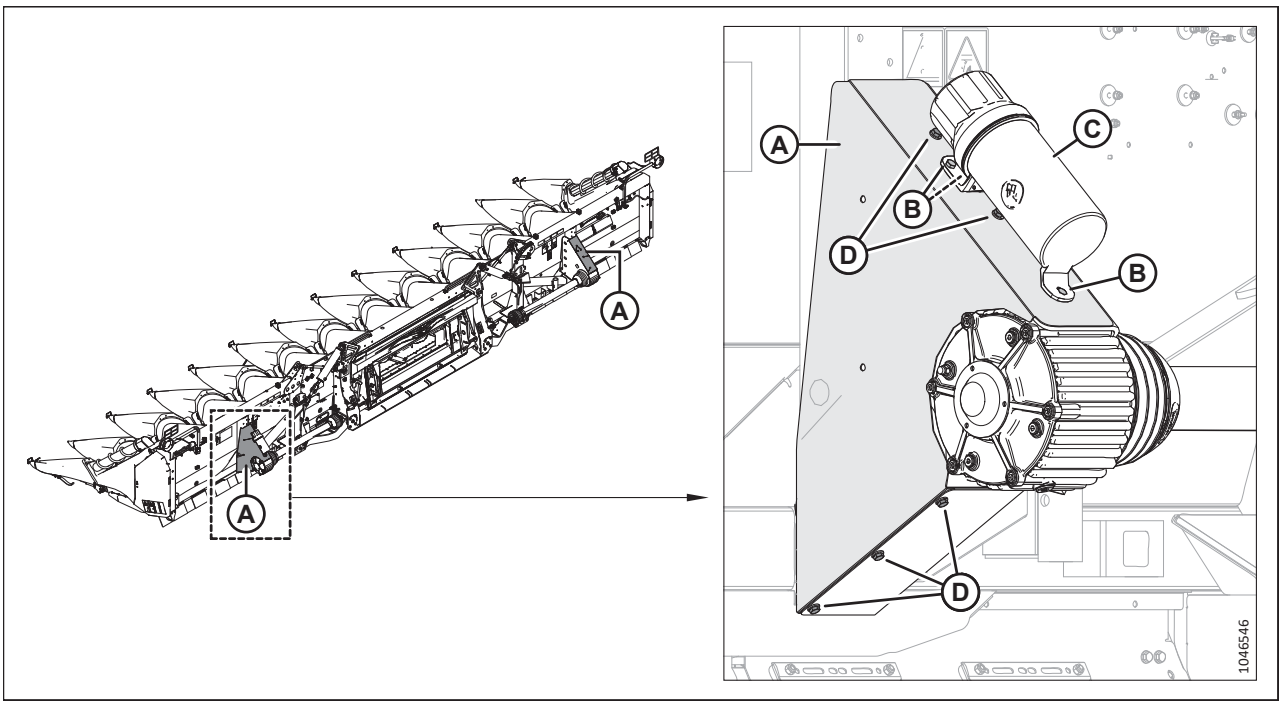


Figure 5.20: Drive Covers

4. Remove both drive covers (A) as follows:

   NOTE:

   If you are going to use a small squeeze bottle (1 L [1 qt]) to add oil to the gearbox, then you can skip to the next step because it will be easier to fill the gearbox through the oil level port instead of the breather.

   a. **Left side only:** Remove three bolts (B) securing manual case (C) to the cover. Remove the manual case.

   b. Remove five bolts and washers (D) securing cover to the frame. Remove the cover.

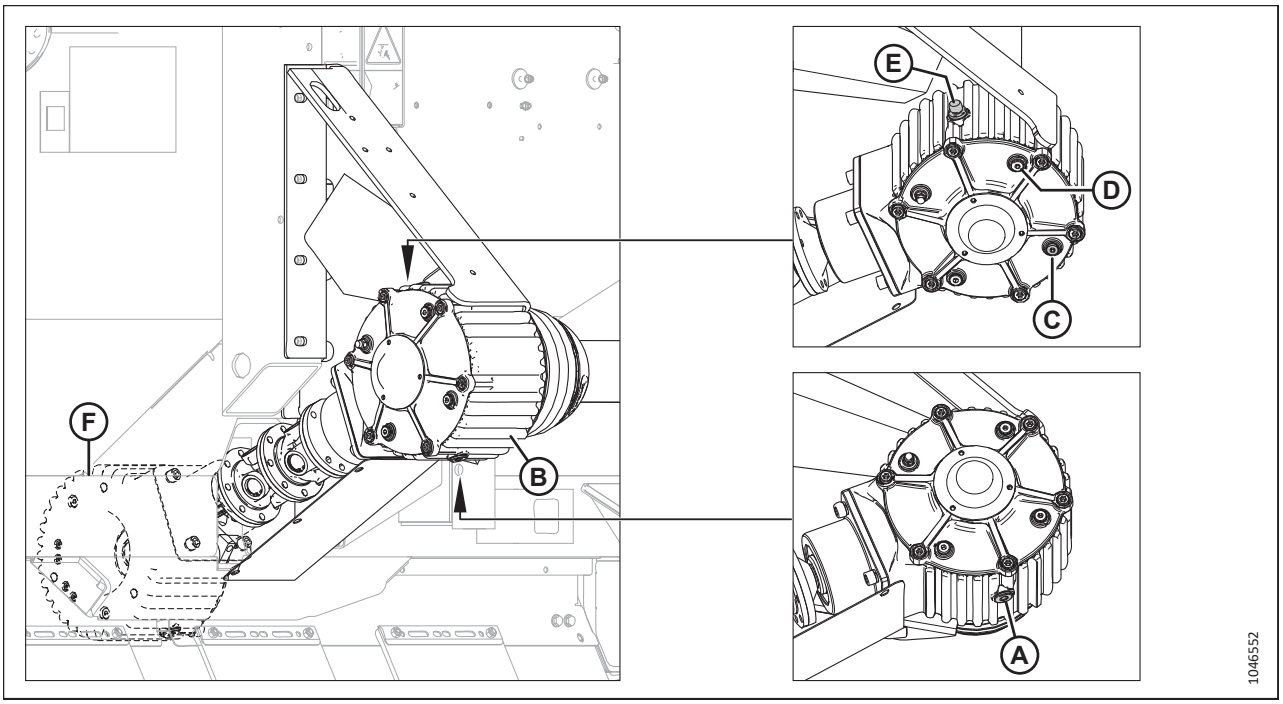


Figure 5.21: Drive and Driven Gearboxes

5. Place a container under drain plug (A) of drive gearbox (B).
6. Remove the drain plug.
7. Reinstall drain plug once the oil has drained out of the gearbox.
8. Remove the plug from oil level port (C) and top port (D).

   NOTE:

   Oil level port (C) is always the second port from bottom of the gearbox. Oil is typically filled through top port (D). However, it is possible to remove breather (E) and fill the drive gearbox through the breather port, as it accepts a larger oil pump spout. However, the breather on the driven gearbox is inaccessible. Breather (E) should always be mounted on the top of the gearbox as shown. On headers configured for CLAAS combines, the drive gearbox is positioned higher up.

9. Add oil through top port (D), or through breather (E), until oil begins to drip out of oil level port (C).
10. Reinstall oil level plug (C).
11. Reinstall top plug (D) or breather (E) if it was removed.
12. Repeat Step *5, page 98* to Step *9, page 98* for driven gearbox (F).
13. Reinstall the drive covers and the manual case if they were removed.
14. Dispose of the used oil according to regulations.

5.12 Row Units

There is a row unit assembly between each pair of snouts.

5.12.1 Checking and Adjusting Lubricant Level – Row Unit Gearbox

There is one gearbox in each row unit. The lubricant level in each one needs to be checked, and if necessary, adjusted every 250 hours or annually, whichever occurs first.

NOTE:

There is no service interval for changing the lubricant in the row unit gearbox.

DANGER

To prevent bodily injury or death from the unexpected start-up of the machine, always stop the engine and remove the key from the ignition before making adjustments to the machine.

DANGER

Ensure that all bystanders have cleared the area.

For lubricant type and quantity, refer to the inside back cover of this document.

1. Operate the header for approximately 5–10 minutes to warm up the hydraulic oil.
2. Position the header so its angle is at 23°.
3. Lower the header until the adjustable skid shoes lightly touch the ground.
4. Shut down the engine, and remove the key from the ignition.

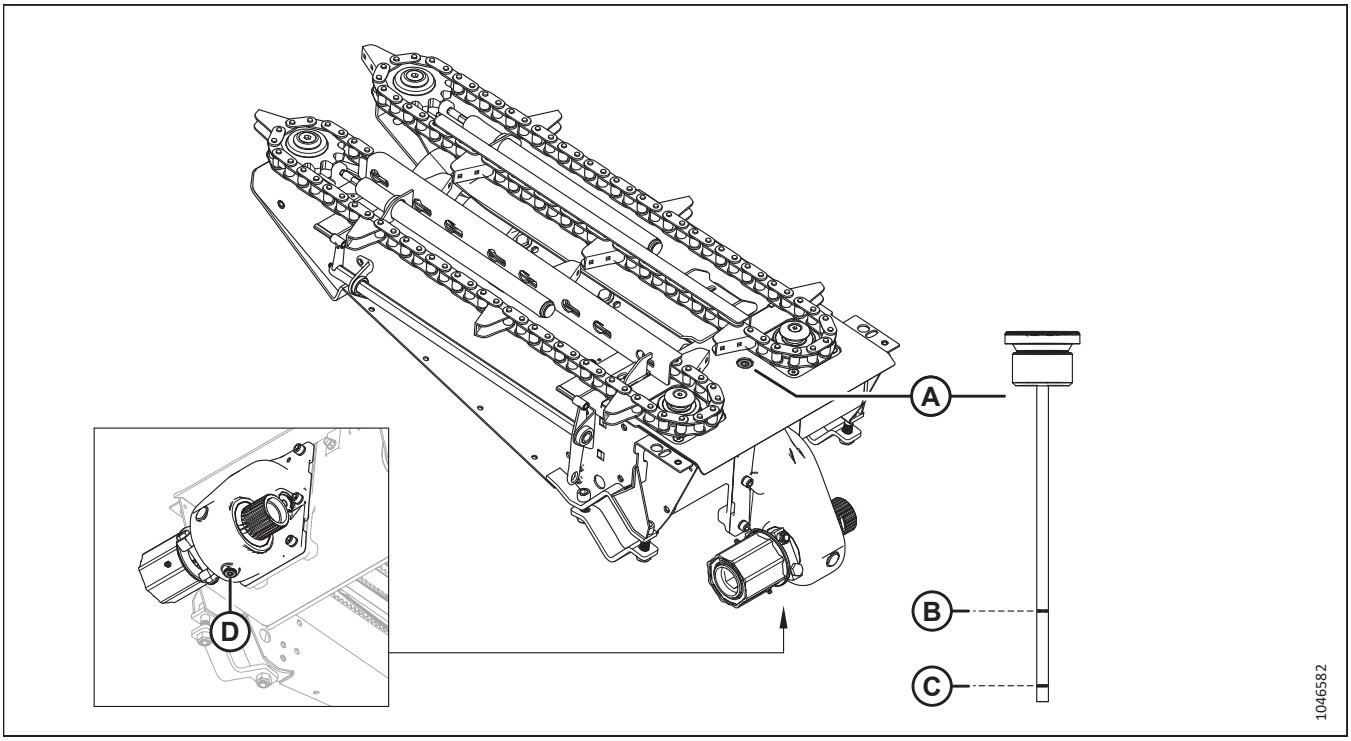


Figure 5.22: Row Unit Gearbox

A - Lubricant Fill Plug and Dipstick

D - Lubricant Drain Plug

5. Inspect the first row unit gearbox: Unscrew dipstick (A), wipe the dipstick, then replace but do not screw it back in, wait, then remove the dipstick again. The lubricant level should be midway between maximum (B) and minimum (C) fill lines.

6. If there isn't enough lubricant, add more.

7. Repeat this procedure for each of the row unit gearboxes.

5.12.2 Rephasing the Snapping Plates

The FlexCorn Header uses two adjustment cylinders (one cylinder on each wing) to adjust snapping plate position. The snapping plate cylinders are connected in parallel with hydraulic flow split in the header main manifold so they adjust simultaneously. Occasionally, left and right side snapping plates may go out of phase, resulting in irregular spacing. Rephasing the snapping plates ensures consistent operation and minimal crop loss.

DANGER

To prevent injury or death from the 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 the safety props. If the header is off the ground but not raised to its full height, place blocks under the header.

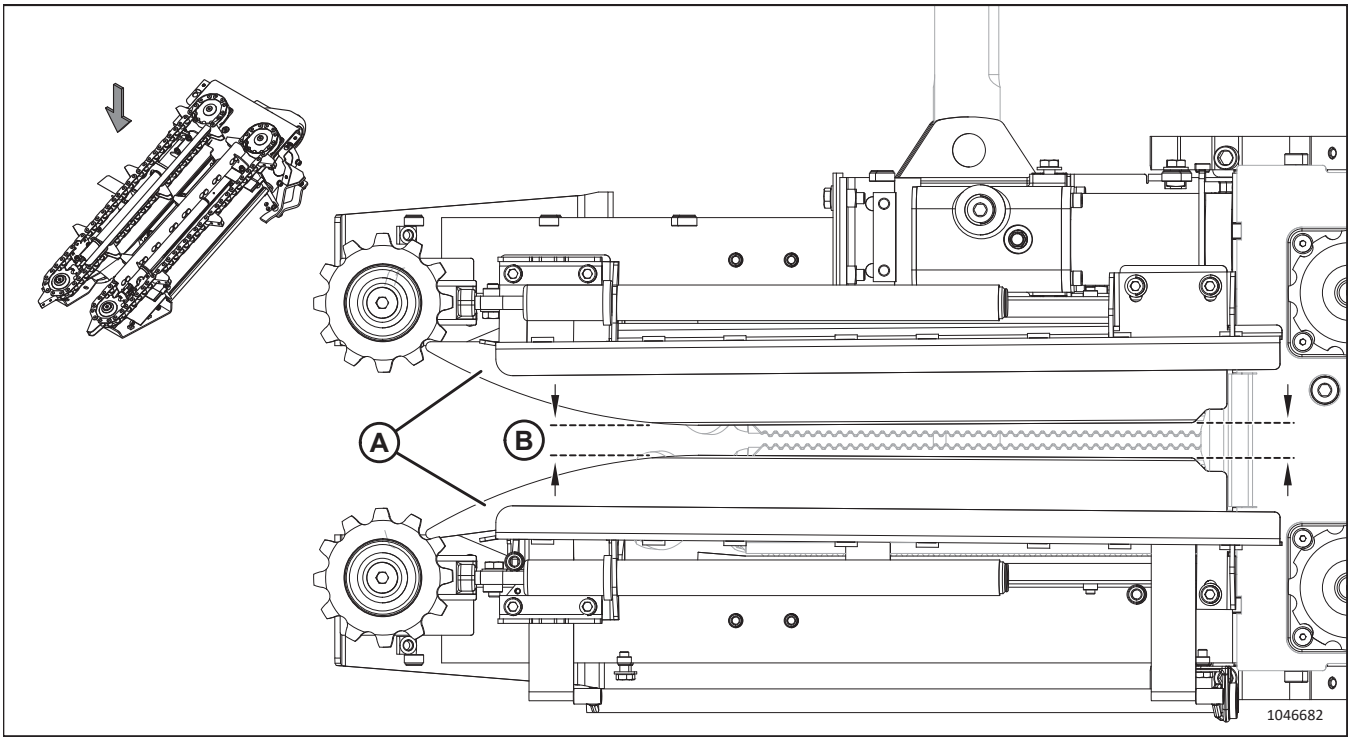


Figure 5.23: Row Unit – Snapping Plates

1. From the combine cab, hold SNAPPING PLATE CLOSE button until snapping plates (A) on both wings are closed completely.

2. Hold the SNAPPING PLATE OPEN BUTTON until snapping plates on both wings are opened completely.

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

4. Check and, if necessary, adjust snapping plate gap (B). For gap specifications and adjustment instructions, refer to *5.12.3 Checking and Adjusting Snapping Plate Gap, page 101*.

5.12.3 Checking and Adjusting Snapping Plate Gap

A correct snapping plate gap prevents crop loss during harvest without excess collection of stalk material.

Snapping plate tool (MD #1.369.047) is helpful for this procedure, but not required. This tool can be ordered from your Dealer.

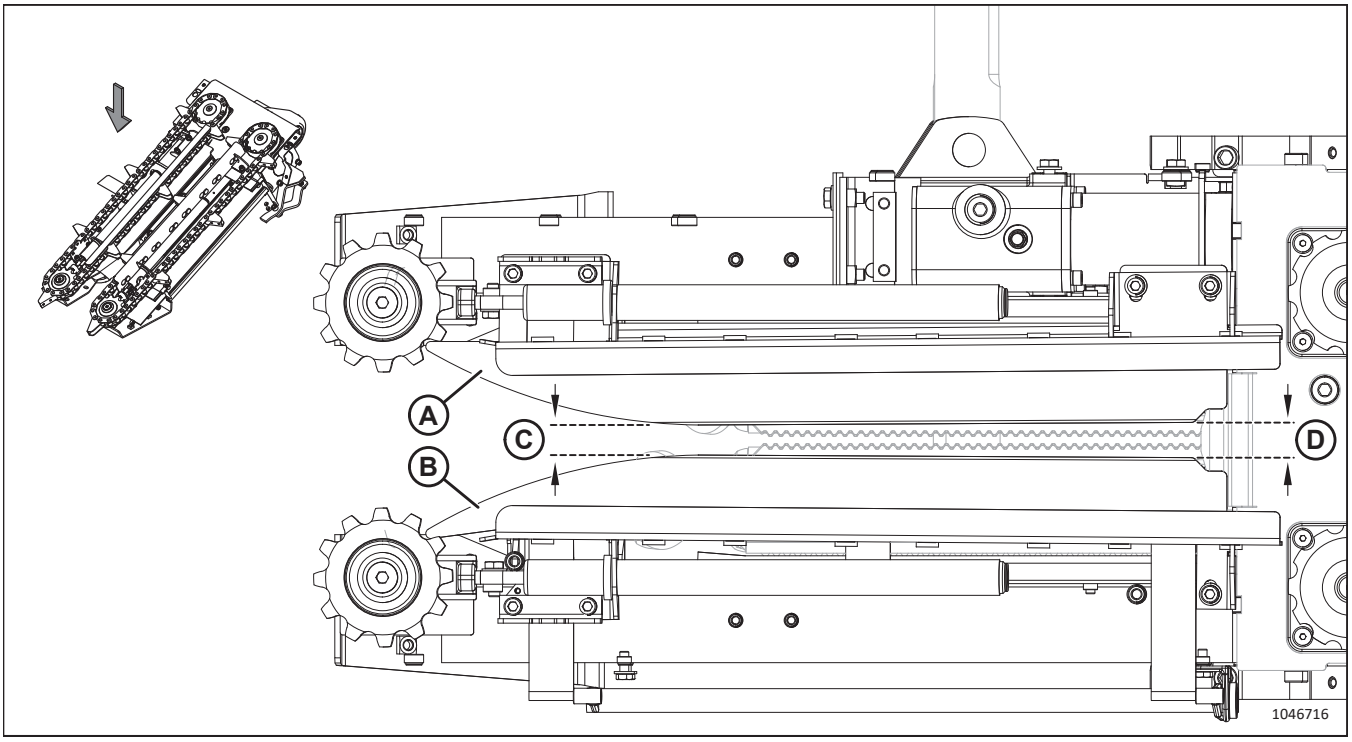


Figure 5.24: Row Unit without Gathering Chains

Each row on the header has one fixed snapping plate (A) and one moving snapping plate (B). Normally, the gap between the plates should measure 18 mm (23/32 in.) at front (C) and 23 mm (29/32 in.) at rear (D).

The gap can be adjusted when harvesting specialty crops with very large or small stalks (for example, popcorn).

To prevent plugging, the gap should be 5 mm (3/16 in.) smaller at the front than at the rear.

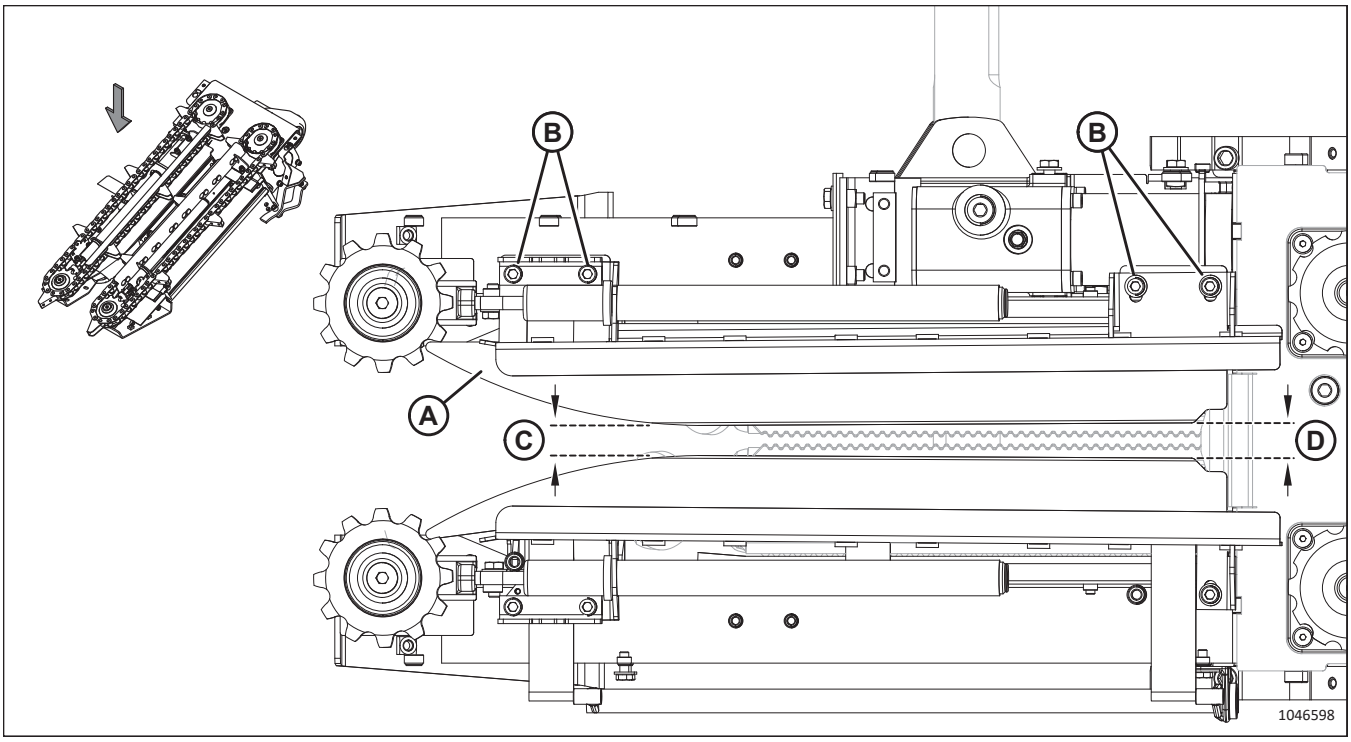


Figure 5.25: Row Unit without Gathering Chains

DANGER

To prevent injury or death from the 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 the safety props. If the header is off the ground but not raised to its full height, place blocks under the header.

To the adjust the snapping plate gap, first ensure that the fixed snapping plate is positioned correctly:

1. Set the in-cab snapping plate adjusting mechanism to the minimum snapping plate gap.
2. Shut down the engine, and remove the key from the ignition.
3. To adjust the gap without using snapping plate tool (MD #1.369.047):

   NOTE:

   Measure the gap between the snapping plates using a caliper feeler gauge, or a tape measure.

   a. Loosen four bolts (B).
   b. Adjust plate (A) until gaps (C) and (D) are correct.
   c. Tighten bolts (B).
   d. Adjust the gap on the remaining row units.
   e. Proceed to Step *5, page 103*.

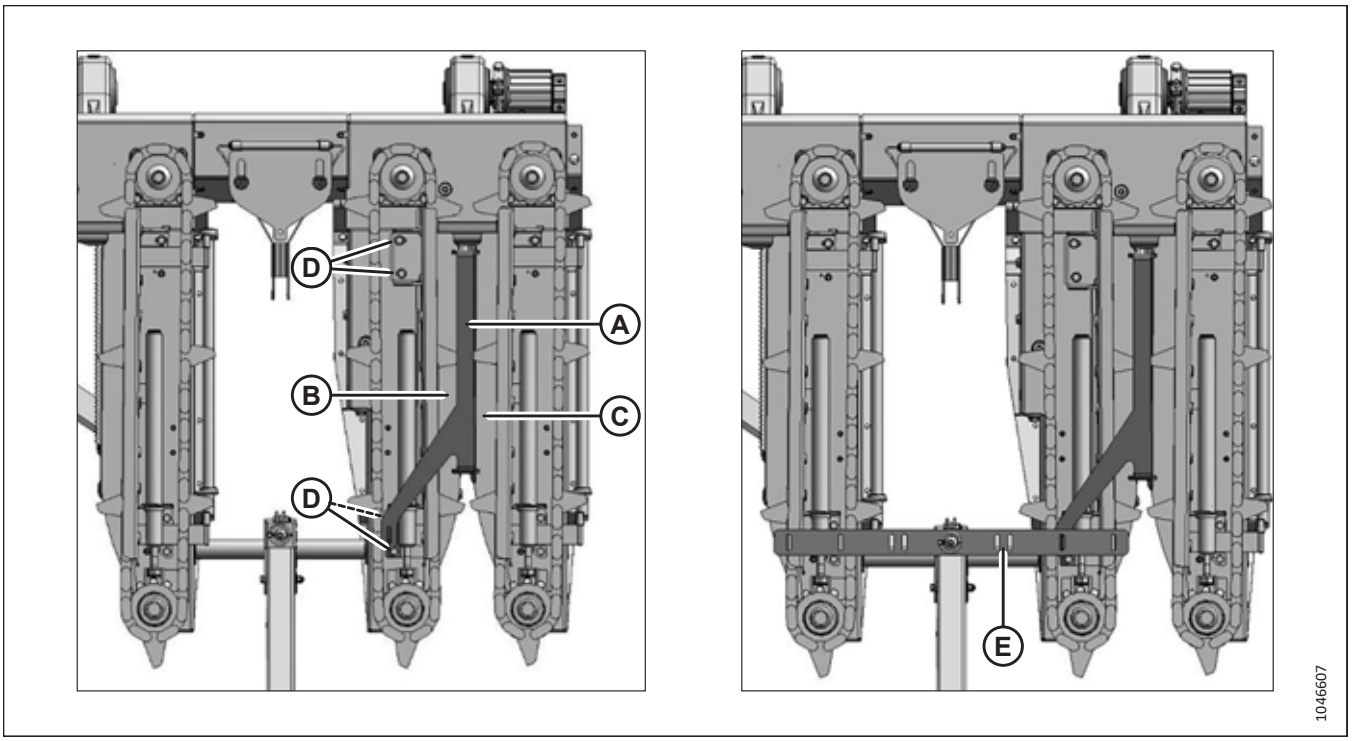


Figure 5.26: Row Unit with Snapping Plate Tool and Snout Seating Tool

4. To adjust the gap using snapping plate tool (MD #1.369.047):

    a. Position snapping plate tool (A) between snapping plates (B) and (C) in the first row. The snapping plates should lightly contact the lower tabs of the snapping plate tool.

    b. If adjustment is necessary, loosen bolts (D) and adjust fixed snapping plate (B) until the tabs just fit between the snapping plates, then retighten the bolts.

    NOTE:

    Snout Seating Tool (D) (MD #1.369.048) can be placed between the two brackets while setting the snapping plate clearance, so that the snouts align with the brackets after they are tightened down. This tool can be ordered from your Dealer.

    c. Adjust the gap on the remaining row units.

5. Once the fixed snapping plate is positioned correctly, you can adjust the moving snapping plate using in-cab controls to suit field and crop conditions as follows:

    - Adjusting the snapping plate so that gap is approximately 3 mm (1/8 in.) larger than the corn stalk.
    - If there is too much excess stalk material, widen the gap.
    - If crop is lost between the snapping plates, narrow the gap.

5.12.4 Checking and Adjusting Snapping Roll Knife Clearance

There is a row unit assembly between each pair of snouts, and each assembly contains two snapping rolls with attached knives. The clearance between those knives should be checked, and if necessary adjusted, annually or when a row unit is underperforming, or if snapping rolls have been installed.

DANGER

To prevent injury or death from the 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 the safety props. If the header is off the ground but not raised to its full height, place blocks under the header.

WARNING

Wear cut-proof gloves when working around or handling knives.

CAUTION

To avoid pinches and cuts, keep hands away from the snapping rolls when rotating the snapping rolls. When you rotate one roll, all rolls will rotate.

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

2. There is a pair of snapping rolls in each row. Rotate snapping rolls (A) and check the clearance between each pair. There should be a 1–2 mm (0.04–0.08 in.) gap (B) between opposing sharp knives.

   NOTE:

   In very dry conditions, a snapping roll gap of 3–4 mm (0.12–0.16 in.) might improve feeding performance.

   NOTE:

   If the header is equipped with a stalk chopper, you can rotate the snapping rolls by hand by turning the chopper assembly. If the header is not equipped with a stalk chopper, use a 32 mm wrench to turn the input hex shaft.

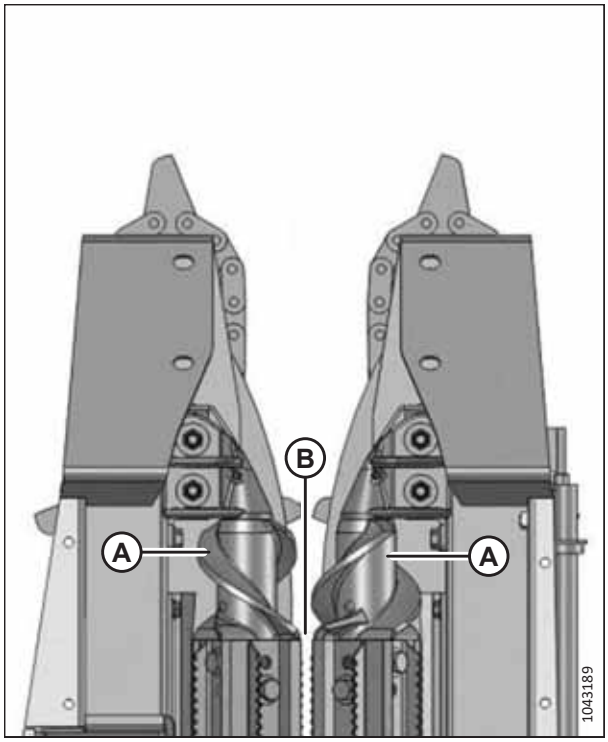


Figure 5.27: Snapping Roll Knife Clearance

3. If the clearance is inadequate, adjust the front of each snapping roll (A) as follows:

   a. Slightly loosen bolts (C) holding the snapping roll front support.

   b. Using a pry bar, slide the roll to adjust the gap between the opposing knives, and then retighten bolts (C).

   c. Repeat these steps on the second snapping roll. Make sure both rolls are adjusted the same amount. Gap (B) between the opposing knives should now be correct.

   d. Torque the nuts to 45 Nm (33 lbf·ft).

   e. After both rolls have been adjusted, rotate the rolls a full revolution to ensure that there is no contact between the snapping roll knives themselves, nor contact between the snapping roll knives and the vine knives.

   f. Check if the vine knives need adjustment. For instructions, refer to *5.12.5 Checking and Adjusting Vine Knife Clearance, page 105*.

   NOTE:

   The rear of the snapping roll is fixed in place and cannot be adjusted.

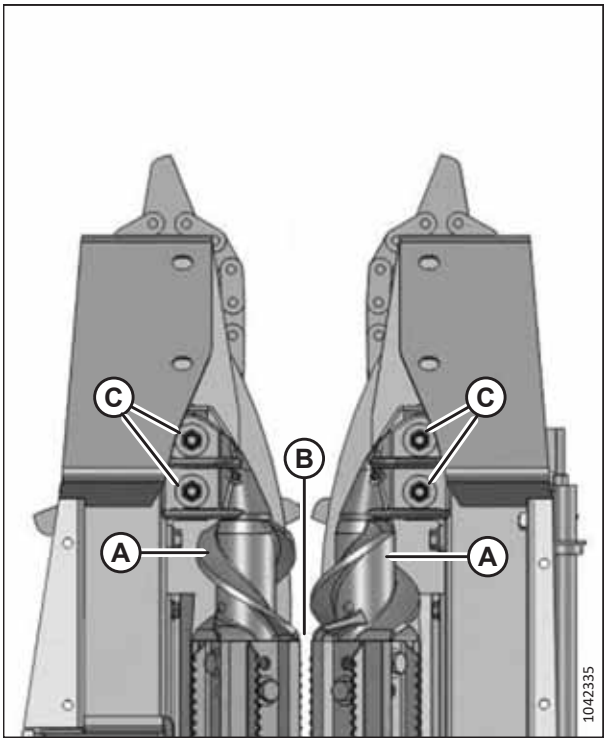


Figure 5.28: Snapping Roll Knife Clearance

5.12.5 Checking and Adjusting Vine Knife Clearance

Correct clearance between the vine knives prevents crop from wrapping around the snapping rolls.

DANGER

To prevent injury or death from the 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 the safety props. If the header is off the ground but not raised to its full height, place blocks under the header.

WARNING

Wear cut-proof gloves when working around or handling knives.

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

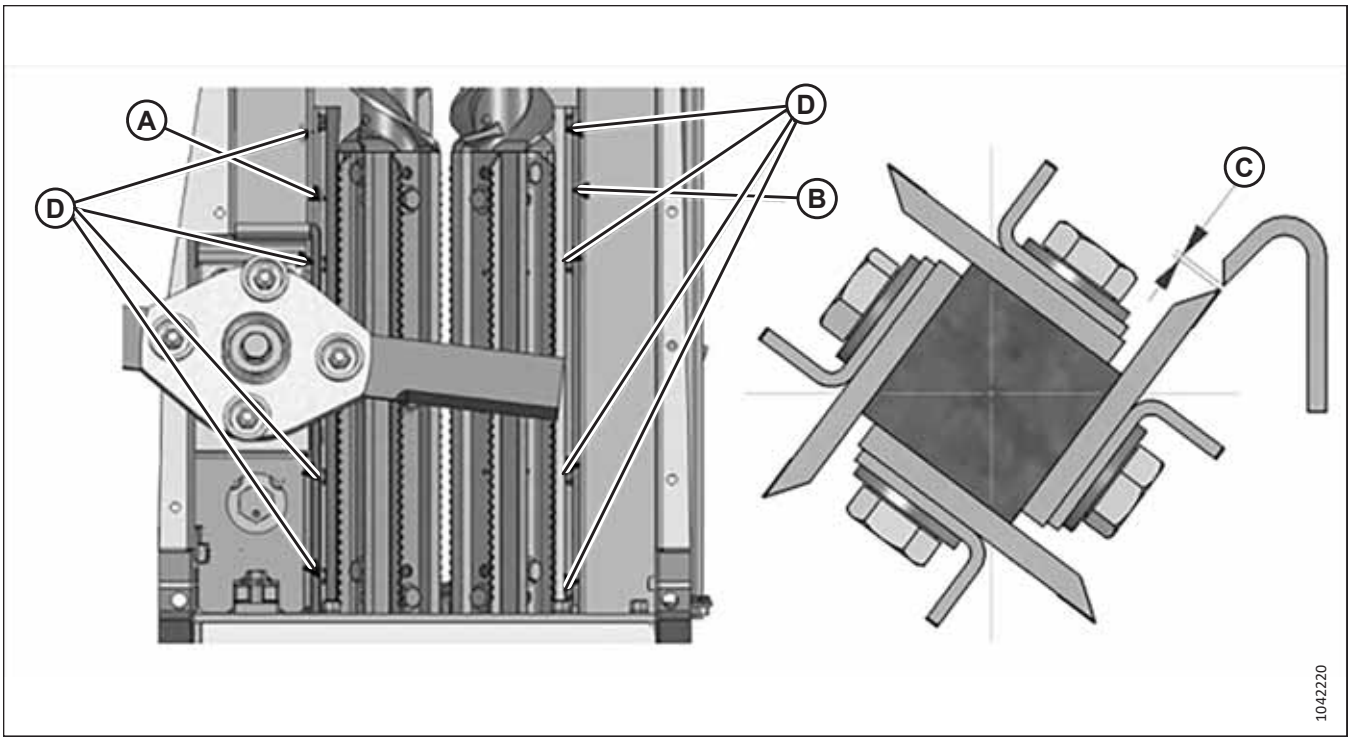


Figure 5.29: Vine Knives

2. Rotate the snapping rolls and check the clearance between the rolls and the vine knives (A) and (B). The gap (C) should be 1–2 mm (0.04–0.08 in.).

3. If the clearance is incorrect, adjust the position of the vine knives as follows:

   a. Loosen the four M8 bolts (D) securing one of the vine knives in place.

   b. Adjust the position of the knife, then retighten the bolts.

   c. Rotate the rolls a full revolution to ensure that there is no interference and that clearance gap (C) is now correct.

5.12.6 Checking Snapping Roll Knives

There are two snapping rolls with knives on each row unit. Check the snapping roll knives daily.

DANGER

To prevent injury or death from the 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 the safety props. If the header is off the ground but not raised to its full height, place blocks under the header.

WARNING

Wear cut-proof gloves when working around or handling knives.

IMPORTANT:

Never operate a header with damaged knives.

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

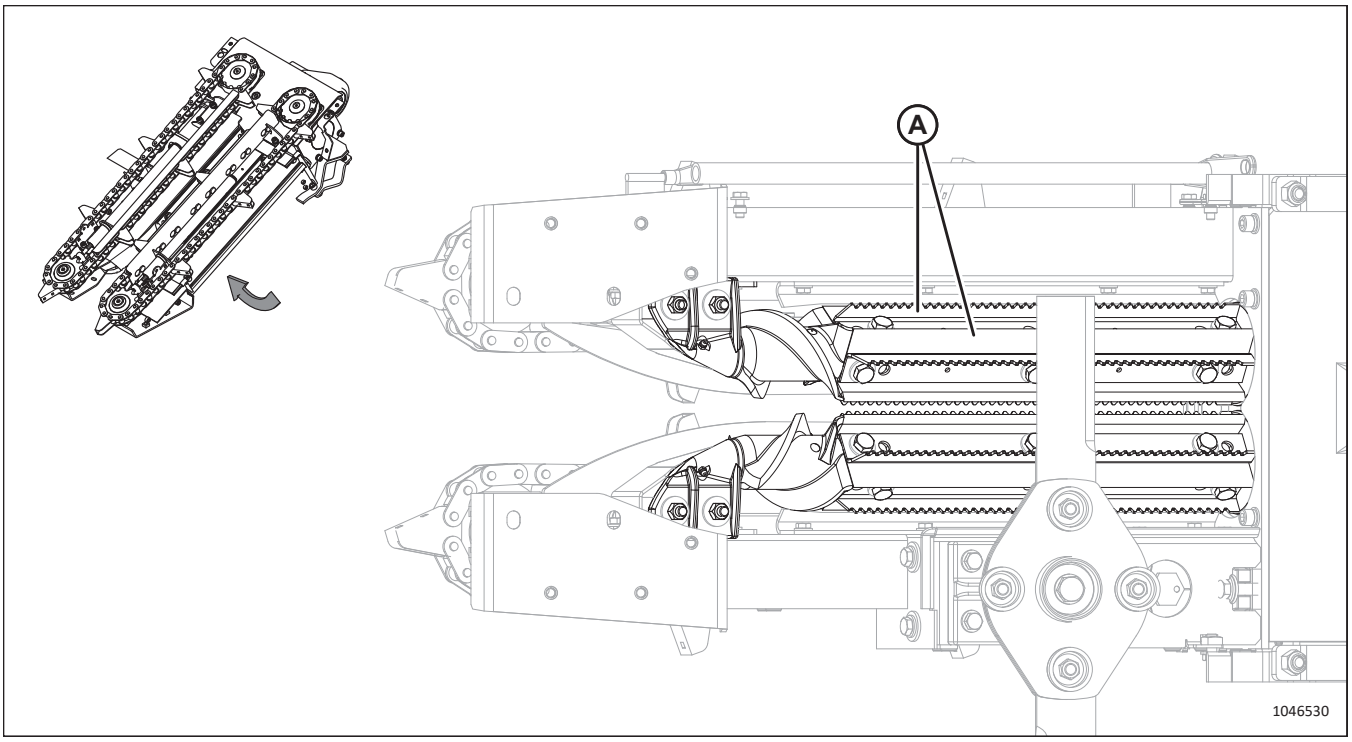


Figure 5.30: Row Unit

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

3. Check if knives (A) are worn. If knives are chipped or dull, replace them.

5.12.7 Replacing Snapping Roll Knives

If a snapping roll knife is chipped or dull, all the knives will need to be replaced.

Snapping gauge tool (MD #1.369.049) is recommend for this procedure, but not required. This tool is available from your Dealer.

DANGER

To prevent injury or death from the 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 the safety props. If the header is off the ground but not raised to its full height, place blocks under the header.

WARNING

Wear cut-proof gloves when working around or handling knives.

CAUTION

To avoid pinches and cuts, keep hands away from the snapping rolls when rotating the snapping rolls. When you rotate one roll, all rolls will rotate.

IMPORTANT:

Replace all knives on the snapping roll to maintain balance and clearance requirements.

1. Raise the header fully.

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

3. Engage the header safety props. For instructions, refer to the combine operator's manual.

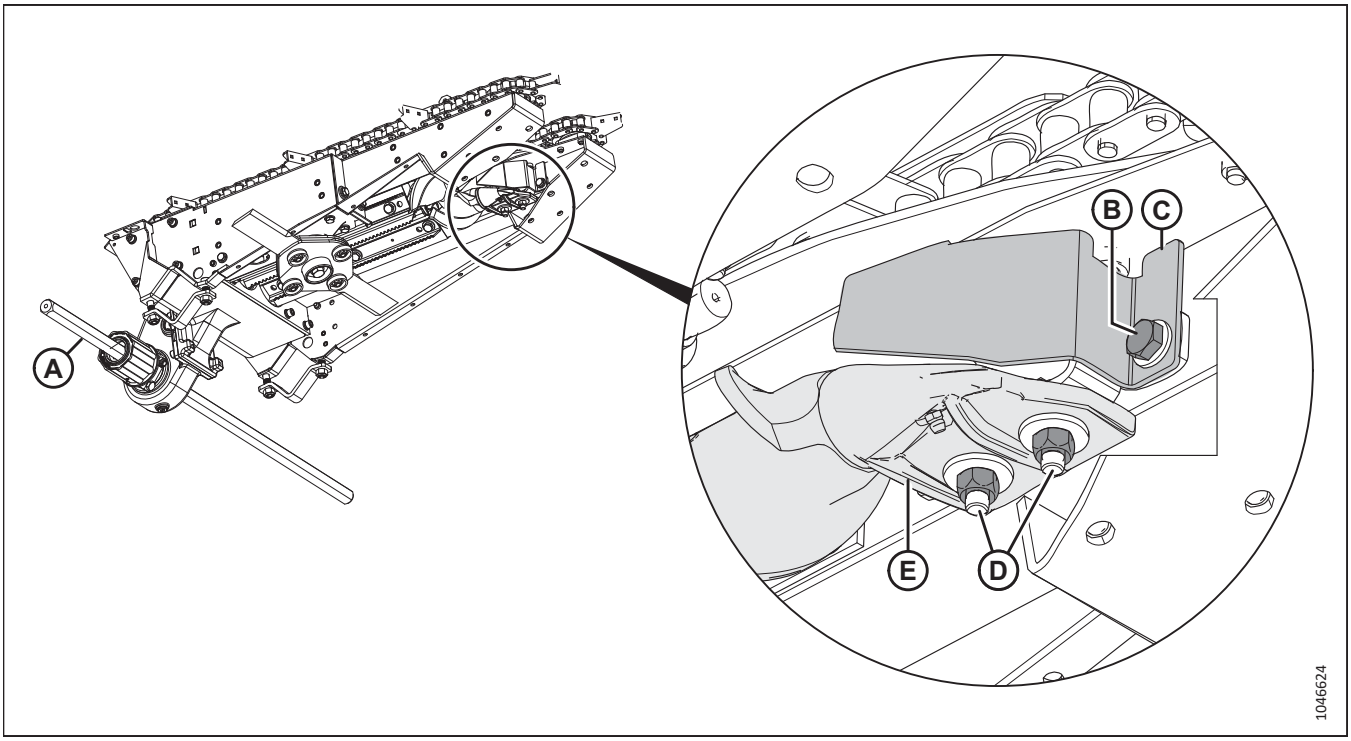


Figure 5.31: Row Unit

CAUTION

Ensure that nobody turns hex shaft (A) during this procedure. Turning the shaft will cause the stalk chopper (if equipped) and snapping rolls to spin, posing a risk of cuts and pinches to the person servicing the snapping roll.

4. Remove bolt and washer (B) from deflector (C). Set these parts aside.
5. Remove two nuts, washers and bolts (D) that attach snapping roll (E) to the row unit.
6. Pull the snapping roll out of the row unit.

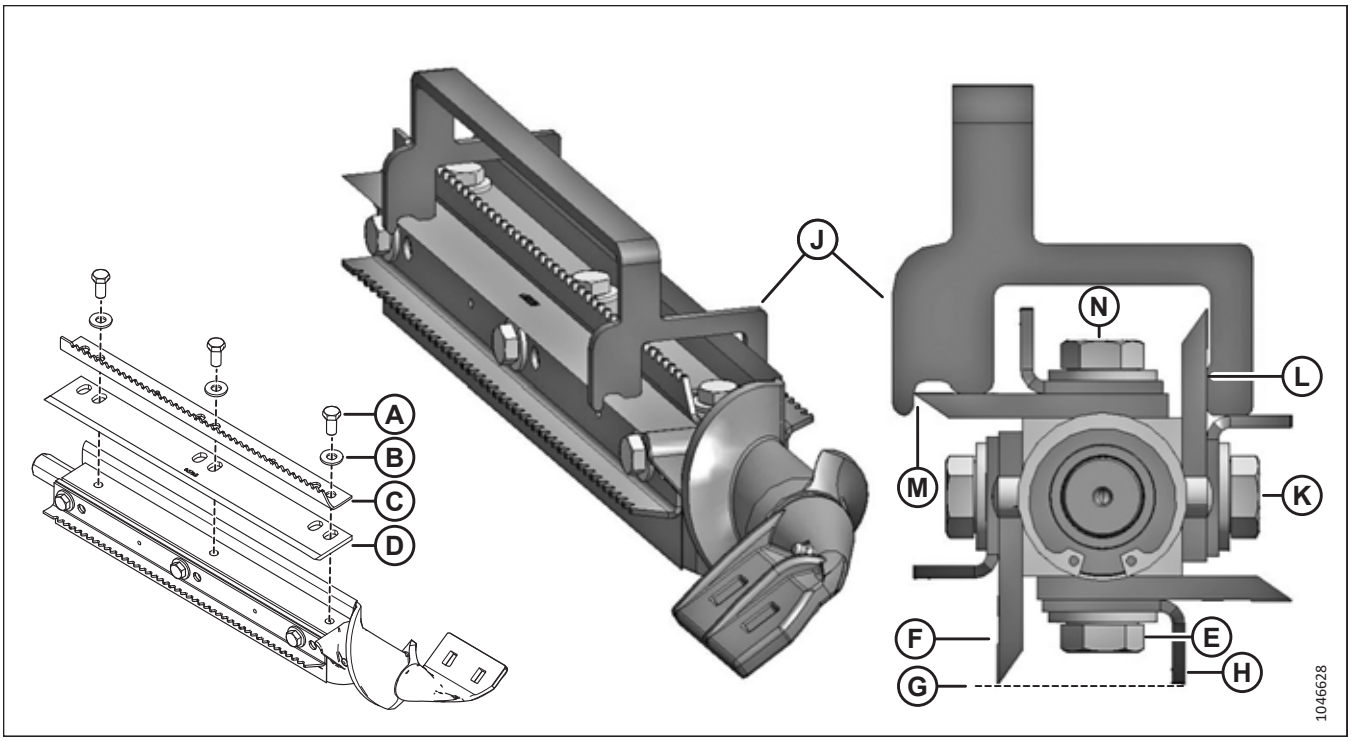


Figure 5.32: Snapping Roll

7. Remove three bolts (A), washers (B), serrated knife (C) and smooth knife (D) from the snapping roll. Repeat this step for all knives.
8. Install new serrated and smooth knives using three bolts and washers. Leave the bolts loose. Repeat this step for all knives.
9. To install the knives without using snapping gauge tool (MD #1.369.049):
    a. Tighten bolts (E).
    b. Slide smooth knife (F) until its tip aligns (G) with the tip of adjacent serrated knife (H).
    c. Tighten the bolts securing knife (F).
    d. Repeat these steps for the remaining knives.
10. To install the knives using snapping gauge tool (MD #1.369.049):
    a. Position tool (J) onto the knives as shown.
    b. Tighten bolts (K) to ensure that the tool contacts the smooth knife firmly at location (L).
    c. Slide the adjacent smooth knife until its tip (M) gently contacts the tool.
    d. Tighten bolts (N) securing the knife.
    e. Repeat these steps for the remaining knives.
11. Reinstall the snapping roll and deflector.
12. If required, replace the knives the other snapping roll in the row unit.
13. Check the clearance between the snapping rolls. For instructions, refer to *5.12.4 Checking and Adjusting Snapping Roll Knife Clearance, page 104*.

14. Check the clearance between the snapping rolls and the vine knives. For instructions, refer to *5.12.5 Checking and Adjusting Vine Knife Clearance, page 105*.

5.12.8 Checking Snapping Roll Hardware

The are two snapping rolls per row until. Ensure that the snapping roll hardware is always tight.

DANGER

To prevent injury or death from the 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 the safety props. If the header is off the ground but not raised to its full height, place blocks under the header.

WARNING

Wear cut-proof gloves when working around or handling knives.

IMPORTANT:

Never operate a header with damaged knives.

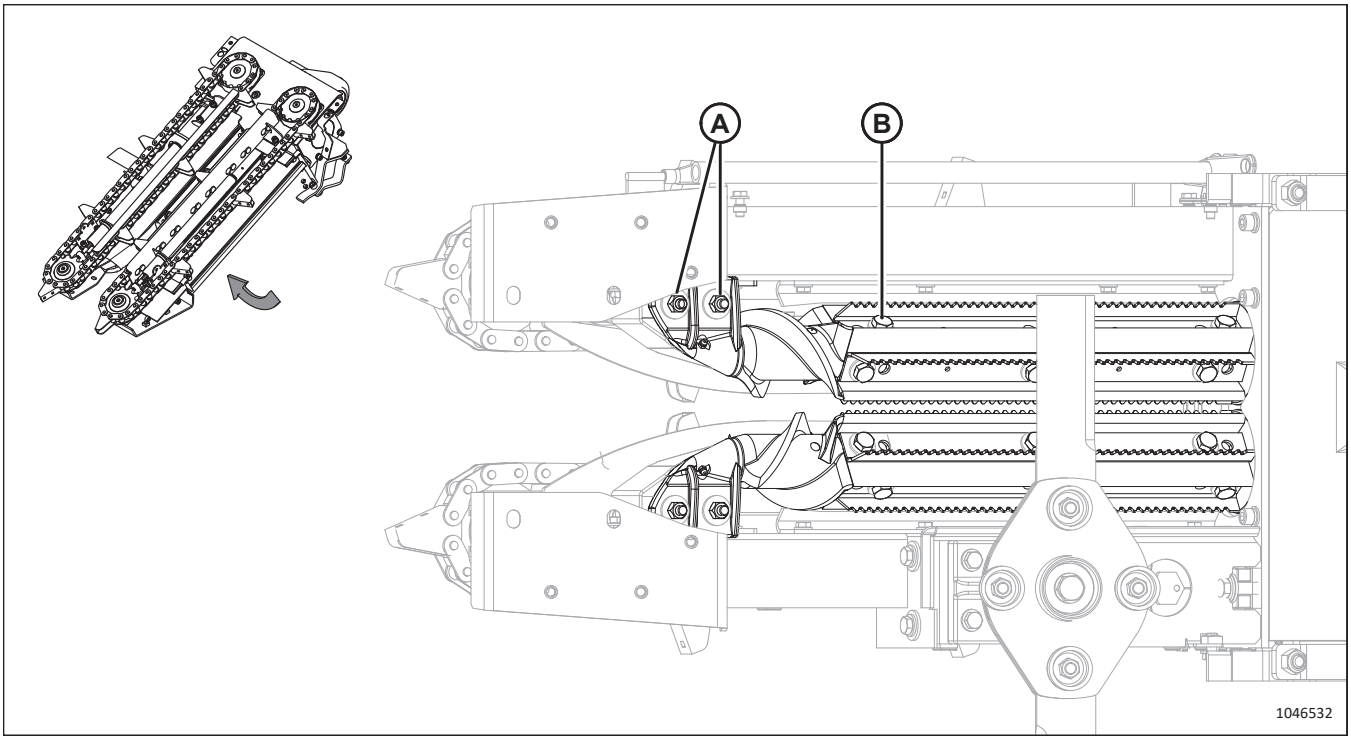


Figure 5.33: Row Unit

1. Shut down the engine, and remove the key from the ignition.
2. Check snapping roll hardware as follows:
   - **Daily:** perform a quick visual inspection of the snapping roll nuts (A) and bolts (B). Listen for any unusual sounds.
   - **First 50 hours, then annually:** check if the nuts and bolts are tight. Torque nuts (A) to 45 Nm (33 lbf·ft).

5.12.9 Checking Gathering Chains

The gathering chains help deliver the corn to the header's feed opening. There are two chains on each row unit that should be inspected daily.

DANGER

To prevent bodily injury or death from the unexpected start-up of the machine, always stop the engine and remove the key from the ignition before making adjustments to the machine.

1. Shut down the engine, and remove the key from the ignition.
2. Check gathering chains (A) daily for abnormal wear.

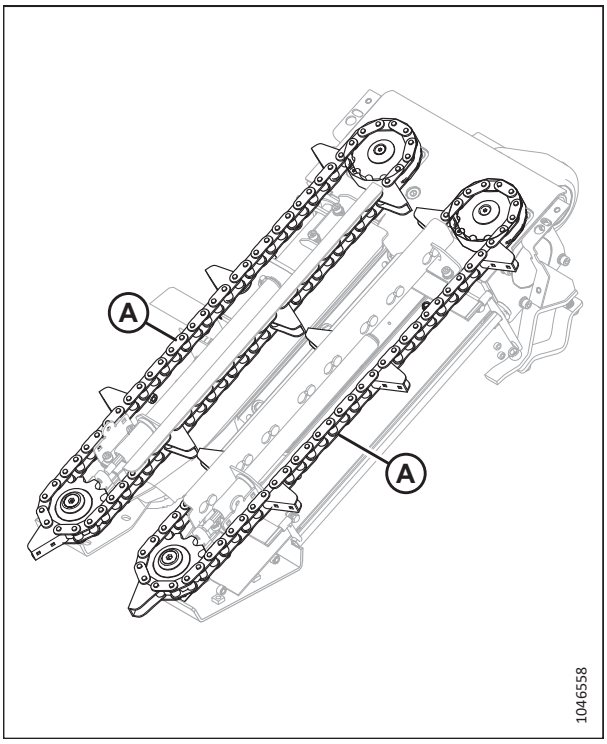


Figure 5.34: Gathering Chains

5.12.10 Removing Gathering Chains

Tool MD #2.405.227 is provided with the header so that the gathering chains can be removed for service.

DANGER

To prevent bodily injury or death from the unexpected start-up of the machine, always stop the engine and remove the key from the ignition before making adjustments to the machine.

To remove a gathering chain, do the following:

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

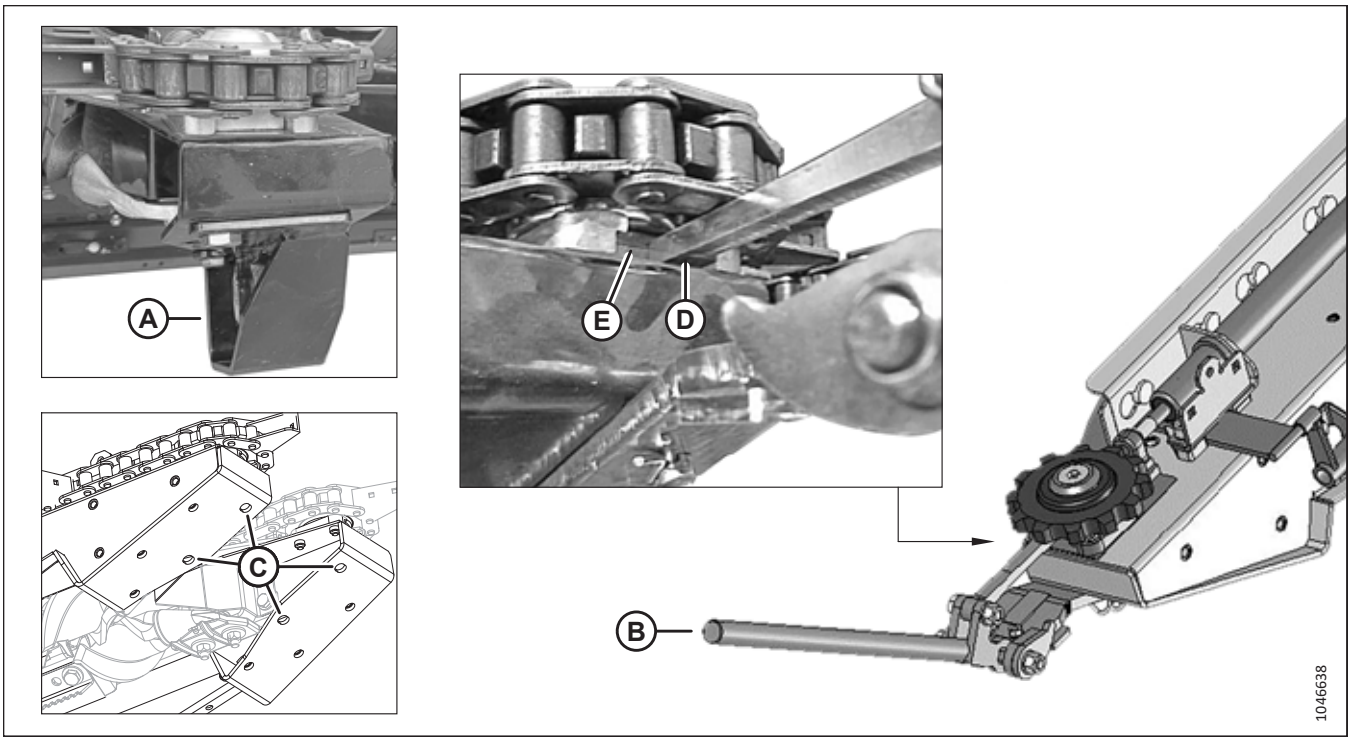


Figure 5.35: Row Unit and Gathering Chain Removal Tool

2. Remove metal skid shoe (A) if equipped.
3. Attach tool (B) (MD #2.405.227) to two holes (C) below the gathering chain.
4. Position tool arm (D) onto carriage surface (E).
5. Rotate the tool handle and lock it in place once you have removed the chain tension.
6. Remove the gathering chain.

To install a gathering chain, follow the removal steps in reverse.

NOTE:

Gathering chain lug timing: The gathering chain driver sprockets have reduced height to protect the internal gearbox parts if a foreign object is encountered in the field. As a result, it is normal for the gathering chain timing to shift while harvesting.

5.12.11 Checking and Adjusting Oil Level – Stalk Chopper Gearbox (Option)

If stalk choppers are installed on the header, each one will have a gearbox. The oil level in each gearbox needs to be checked, and if necessary, adjusted every 50 hours.

For oil type and quantity, refer to the inside back cover of this document.

DANGER

To prevent bodily injury or death from the unexpected start-up of the machine, always stop the engine and remove the key from the ignition before making adjustments to the machine.

DANGER

Ensure that all bystanders have cleared the area.

1. Position the header so its angle is at 23°.
2. Lower the header until the adjustable skid shoes lightly touch the ground.
3. Shut down the engine, and remove the key from the ignition.
4. Unscrew dipstick (A), wipe the dipstick, then replace but do **NOT** screw it back in, wait, then remove the dipstick again.
5. The oil level should be midway between maximum (B) and minimum (C) fill lines. If there isn't enough oil, add more.
6. Repeat this procedure for each stalk chopper gearbox.

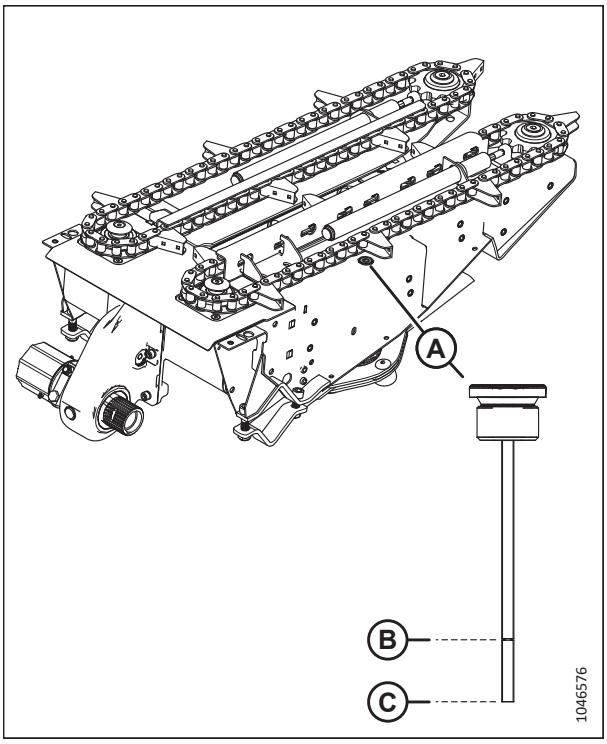


Figure 5.36: Stalk Chopper Gearbox Dipstick

5.12.12 Checking Stalk Chopper Knives (Option)

There are two stalk chopper knife blades under each row unit. Check the stalk chopper knives daily.

DANGER

To prevent injury or death from the 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 the safety props. If the header is off the ground but not raised to its full height, place blocks under the header.

WARNING

Wear cut-proof gloves when working around or handling knives.

IMPORTANT:

Never operate a header with damaged knives.

1. Raise the header fully.
2. Shut down the engine, and remove the key from the ignition.
3. Engage the header safety props. For instructions, refer to the combine operator's manual.

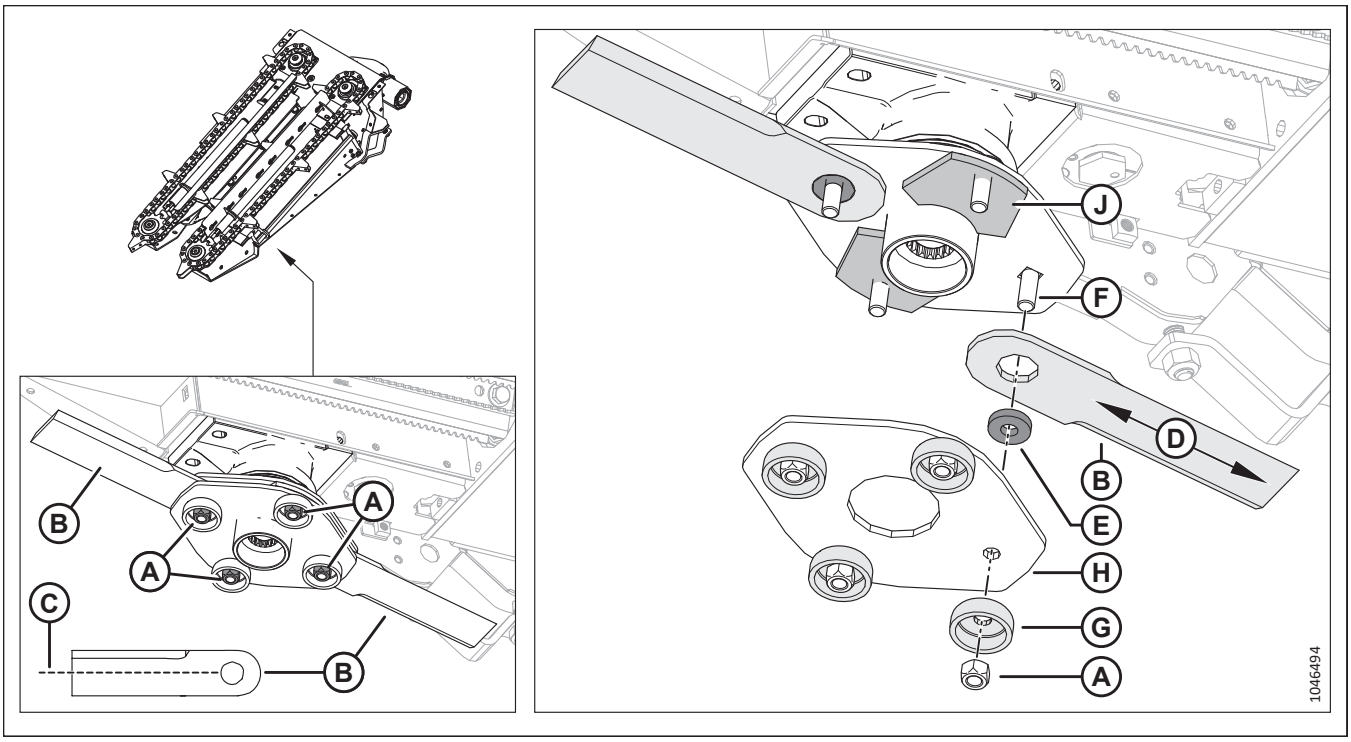


Figure 5.37: Stalk Chopper Gearbox

4. Check that chopper nuts (A) are tight.

5. Check if knives (B) require replacement:

   - If one knife edge is worn, then flip the knife over to use the other edge. However, replace the knife before wear reaches center-line (C), or if chopping performance has diminished.
   - If there is more than 1 mm (0.04 in.) of play (D) between a knife and its bushing (E), then replace the knife.
   - To replace a knife, proceed to Step *6, page 114*.

6. To replace a knife, do the following:

   IMPORTANT:

   Because of high rotational speed and balance requirements, replace both knives at the same time, including both nuts (A), bushings (E), and bolts (F).

   a. Remove all four nuts (A). Discard the two nuts associated with the knives.

   b. Remove all four caps (G).

   c. Remove plate (H).

   d. Remove and discard each bushing (E) and knife (B).

   e. Remove both spacers (J). You can leave their bolts installed in the gearbox.

   f. Remove and discard two bolts (F) associated the knives.

   g. Secure plate (H), both spacers (J), knives (B), and bushings (E) to the chopper gearbox using four bolts (F), four caps (G) and four nuts (A).

5.12.13 Changing Oil – Stalk Chopper Gearbox (Option)

If stalk choppers are installed on the header, each one will have a gearbox. Change the oil in each gearbox every 250 hours/ annually.

DANGER

To prevent injury or death from the 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 the safety props. If the header is off the ground but not raised to its full height, place blocks under the header.

DANGER

Ensure that all bystanders have cleared the area.

WARNING

Wear cut-proof gloves when working around or handling knives.

For oil type and quantity, refer to the inside back cover of this document.

1. Raise the header fully.
2. Engage the header safety props. For instructions, refer to the combine operator's manual.
3. Shut down the engine, and remove the key from the ignition.

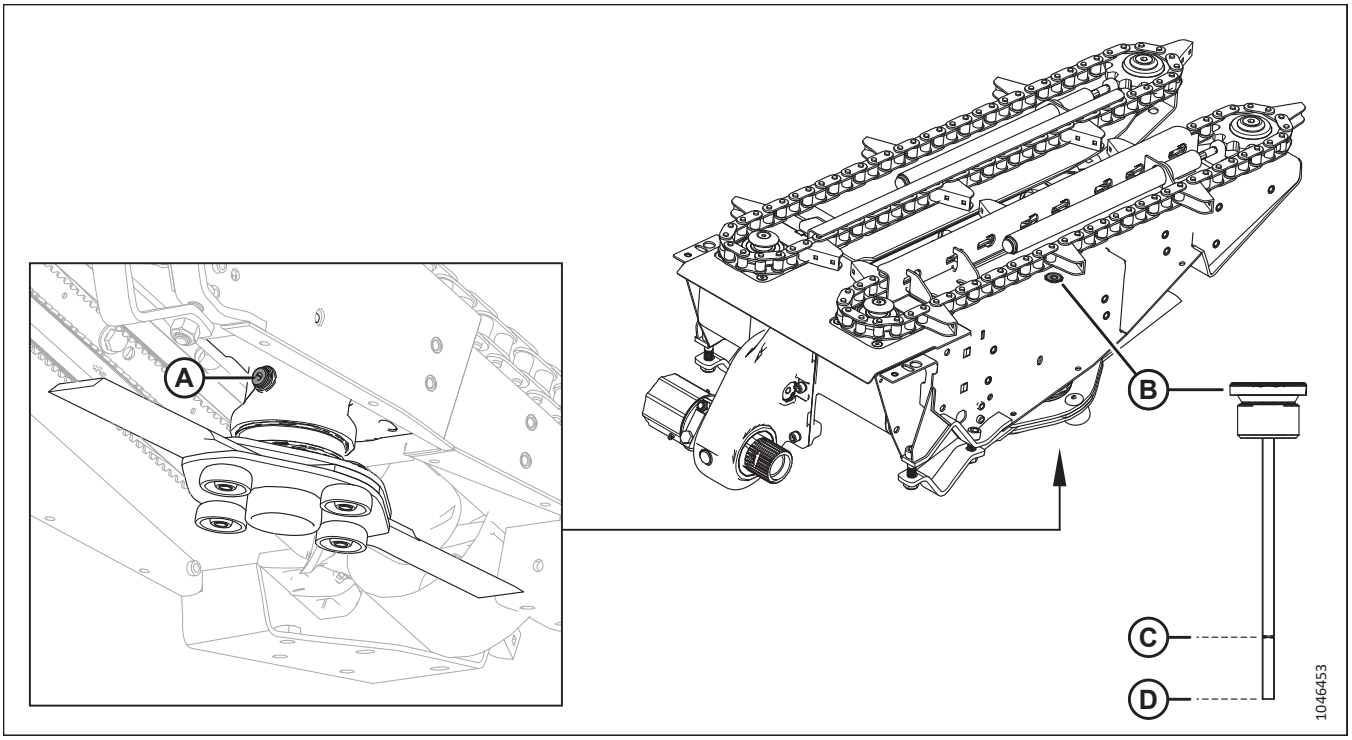


Figure 5.38: Stalk Chopper Gearbox

4. Retrieve a container that can hold at least 0.5 L (0.13 gal), and place it under drain plug (A).
5. Remove drain plug (A) and allow the oil to drain.
6. Reinstall plug (A).

7. Repeat Step *4, page 115* to Step *6, page 115* for every row unit.
8. Disengage the header safety props. For instructions, refer to the combine operator's manual.
9. Position the header so its angle is at 23°.
10. Lower the header until the adjustable skid shoes lightly touch the ground.
11. Shut down the engine, and remove the key from the ignition.
12. Remove fill plug/dipstick (B) and wipe the dipstick.
13. Add about 0.3 L (0.08 gal) of oil into fill port (B).
14. Reinstall the dipstick but do not screw it back in. Wait, then remove the dipstick.
15. The oil level should be midway between maximum (C) and minimum (D) fill lines on the dipstick. Adjust the oil level if necessary, then reinstall the dipstick.
16. Repeat Step *12, page 116* to Step *15, page 116* for every row unit.

5.13 Checking and Adjusting Snout Height

The snouts must be positioned properly so that they can work effectively.

DANGER

To prevent bodily injury or death from the unexpected start-up of the machine, always stop the engine and remove the key from the ignition before making adjustments to the machine.

DANGER

Ensure that all bystanders have cleared the area.

1. Position the header so its angle is at 23°.
2. Lower the header until the adjustable skid shoes lightly touch the ground.
3. Shut down the engine, and remove the key from the ignition.

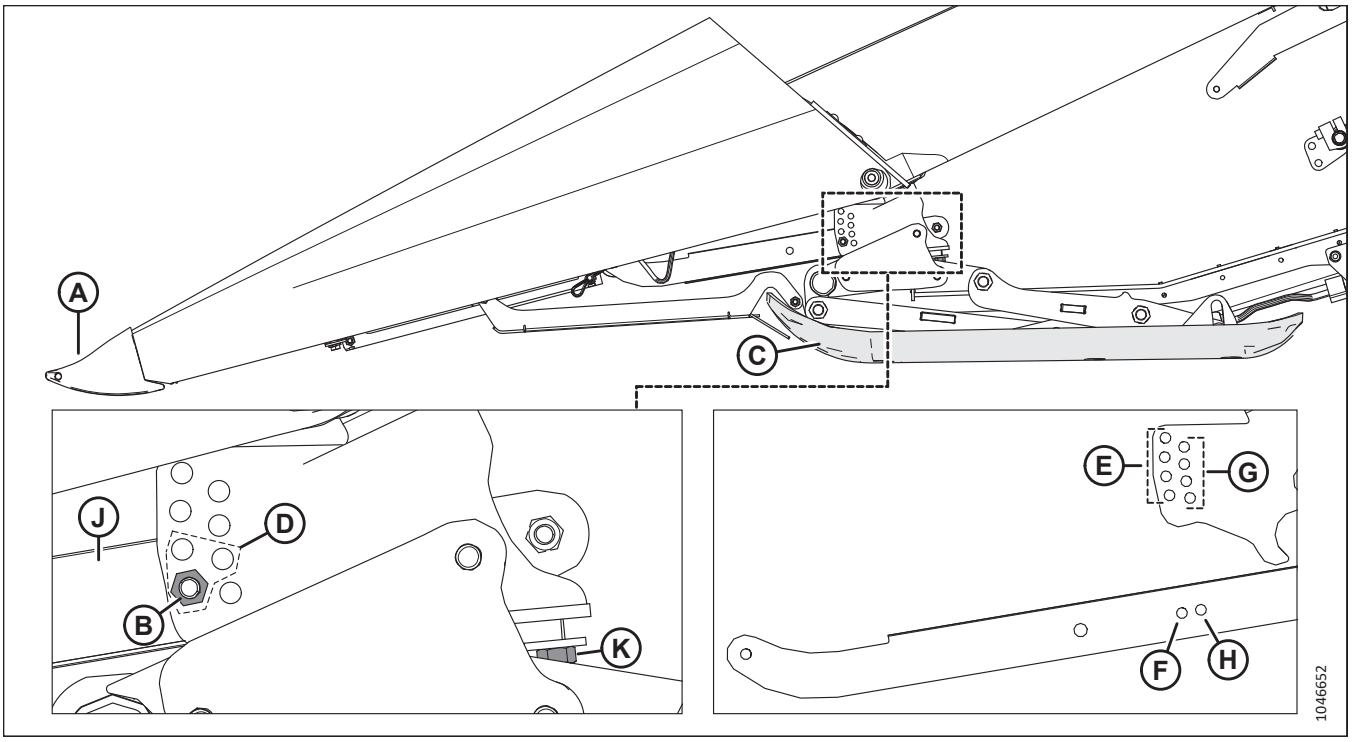


Figure 5.39: Snout Adjustment

4. Tip (A) of each center snout should be just off the ground. Gently press each tip down. With minimal pressure, you should be able to force the tips to touch the ground.

5. If necessary, adjust the position of each center snout as follows so that they are the same height across the header:

   - Make coarse adjustments by changing the position of front cross bolt (B). Ensure the support adjustment bolt head faces the gathering chain on the end snouts to avoid contact.

     IMPORTANT:

     Snouts equipped with adjustable skid shoes (C), controlled hydraulically, must use one of three holes (D).

   - Ensure cross bolt (B) is lined up in the correct hole. Front holes (E) on the fixed bracket should use front holes (F) on the arm and rear holes (G) on the fixed bracket should use rear holes (H) on the arm.
   - Ensure cross bolt (B) is slightly loose to allow snout support arm (J) to pivot up and down.
   - Fine tune the position of the snout by adjusting the rear eye bolt (K).

6. Set the end snouts 13–25 mm (1/2–1 in.) higher than the rest of the snouts to prevent them from catching crop and debris on the ground if the combine is turned while the header is on the ground.

5.14 Checking and Adjusting Transition Seal

A properly positioned transition seal helps prevent crop loss.

DANGER

To prevent bodily injury or death from the unexpected start-up of the machine, always stop the engine and remove the key from the ignition before making adjustments to the machine.

DANGER

Ensure that all bystanders have cleared the area.

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

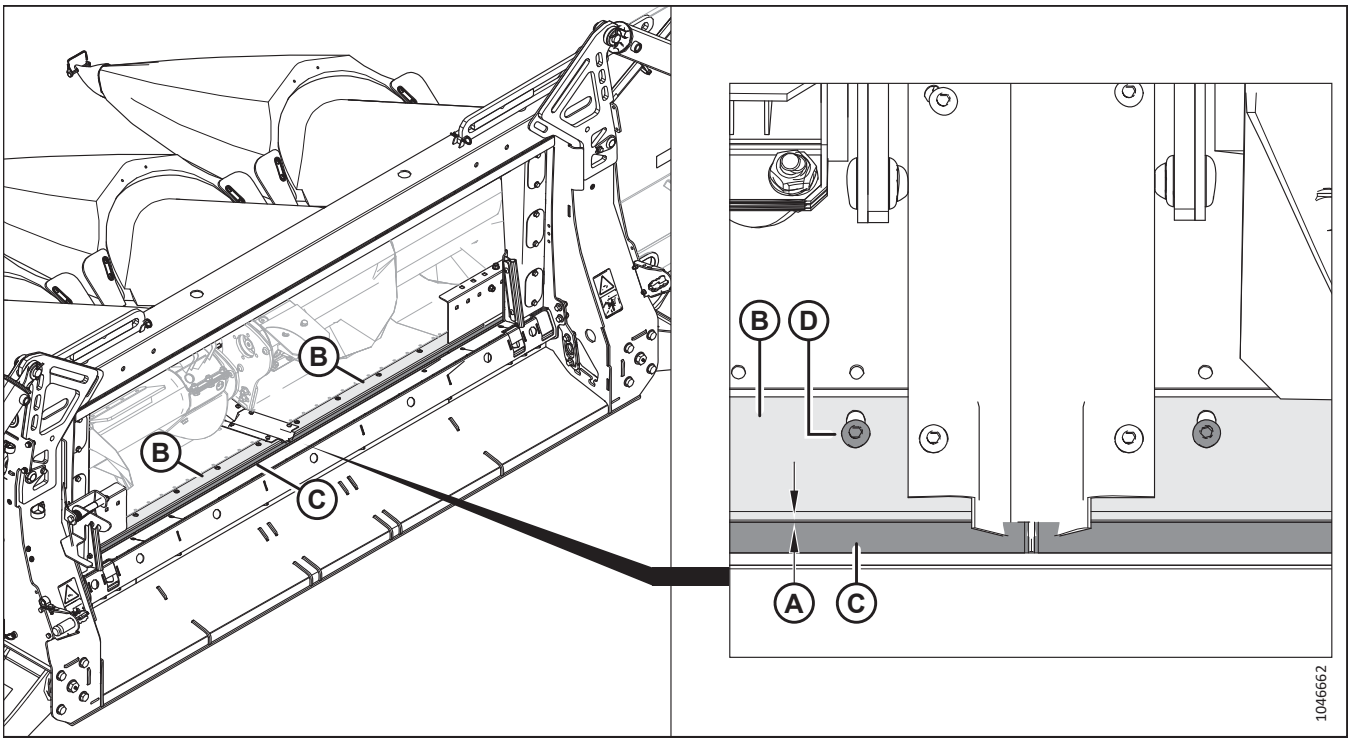


Figure 5.40: Transition Seal

3. There should be no gap (A) between both transition seals (B) and frame (C).
4. If there is a gap: loosen bolts (D), slide seals (B) to close the gap, and retighten the bolts.

5.15 Adjusting Auto Header Height Sensor Voltage

Auto header height control (AHHC) sensors are located on the two end snouts and the center snout.

DANGER

To prevent injury or death from the 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 the safety props. If the header is off the ground but not raised to its full height, place blocks under the header.

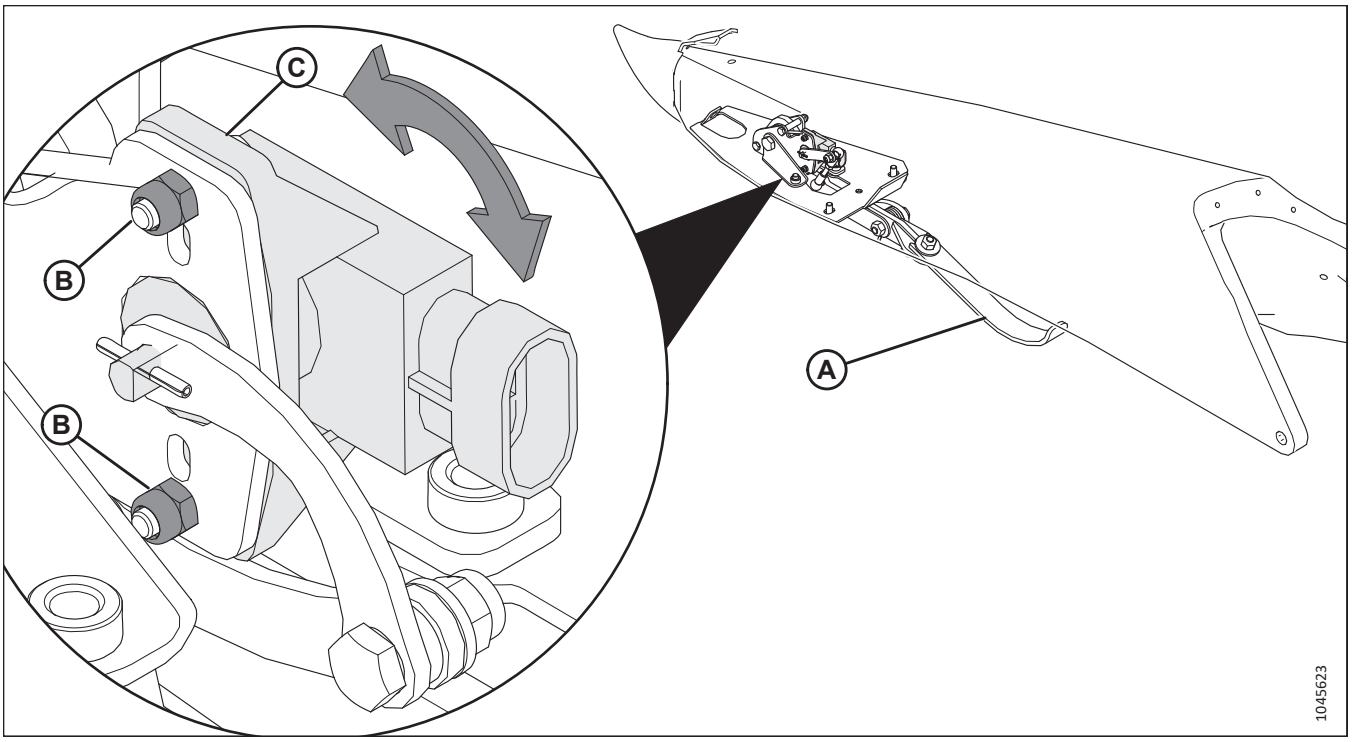


Figure 5.41: AHHC Sensor Inside End Snout

1. Raise the header fully.
2. To check the sensor output voltage range, open the diagnostics page in the combine monitor to view the voltage seen on each sensor, and then manually cycle the AHHC arm (A) through the entire range.

   NOTE:

   Some combines are not equipped to display the AHHC sensor voltage.
3. Ensure the sensor voltage is within the lower and upper limits. Refer to *5.15.1 Recommended Sensor Output Voltages for Combines, page 120*.
4. If the voltage is outside of the ideal range, shutdown the engine and remove the key from the ignition.
5. Engage the header safety props. For instructions, refer to the combine operator's manual.
6. Loosen nuts (B) and rotate sensor body (C) to adjust the voltage limits.
7. When the adjustment is complete, torque nuts (B) to 3 Nm (2.2 lbf·ft [22 lbf·in]).
8. If necessary, repeat the adjustment procedure on the remaining AHHC sensors.

5.15.1 Recommended Sensor Output Voltages for Combines

The auto header height control (AHHC) sensor output must be within a specific voltage range for each combine, or the AHHC feature will not work properly. The recommended lower and upper voltage values for best AHHC operation are provided.

Table 5.5 Combine Voltage Limits

Combine	Lower Voltage Limit (V)	Upper Voltage Limit (V)	Minimum Range (V)
All combine models except New Holland 10 V models	0.7	4.3	2.5
New Holland 10 V combines	2.8	7.2	4.1–4.4

NOTE:

Some combine models do not support checking sensor output voltage from the cab (for example, early Case, and CLAAS 500, 600, and 700 Series). For these models, check output voltage manually.

5.16 Adjusting Wing Position Sensors

Wing position sensors at both header wings report wing position to the controller. If header wings are not level when in Rigid mode, the sensors may need adjustment.

DANGER

To prevent injury or death from the 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 the safety props. If the header is off the ground but not raised to its full height, place blocks under the header.

DANGER

Ensure that all bystanders have cleared the area.

1. Follow the procedure for locking the wings. For instructions, refer to *4.2.10 Locking Header Wings, page 70*.
2. Set the header into Service mode. For instructions, refer to *Selecting Header Modes – Service, page 56*.
3. Ensure both left and right wing position sensors display 2.5 Volts (2500 mV) on the FlexCorn™ application diagnostic screen.
4. From the HOME page of the FlexCorn™ application, select DIAG (diagnostics) from the main menu.

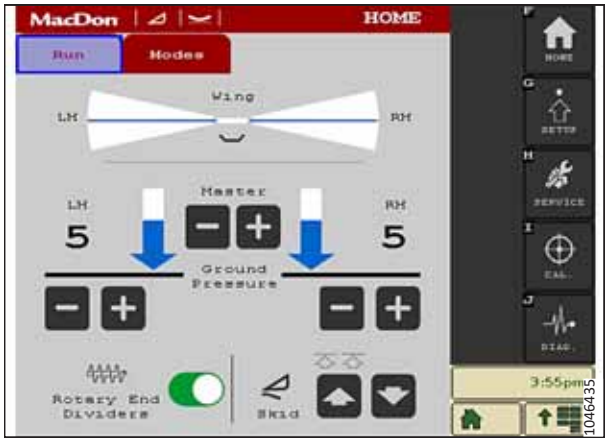


Figure 5.42: FlexCorn™ Application – Home Page

5. Select FLEX SYSTEM from menu (A), and use scroll icons (B) to find the relevant sensor voltage readout; in this case, LH Flex Position sensor (C).

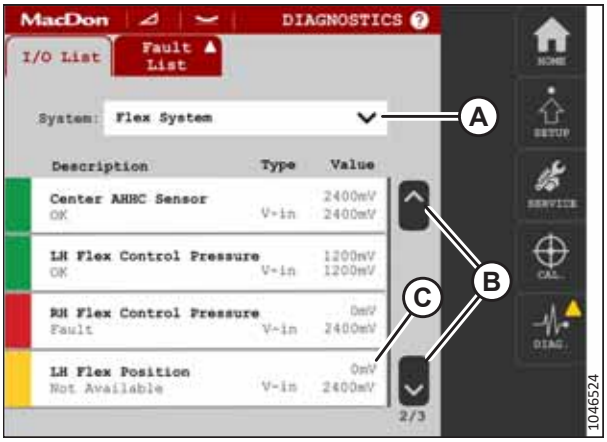


Figure 5.43: Diagnostics Page

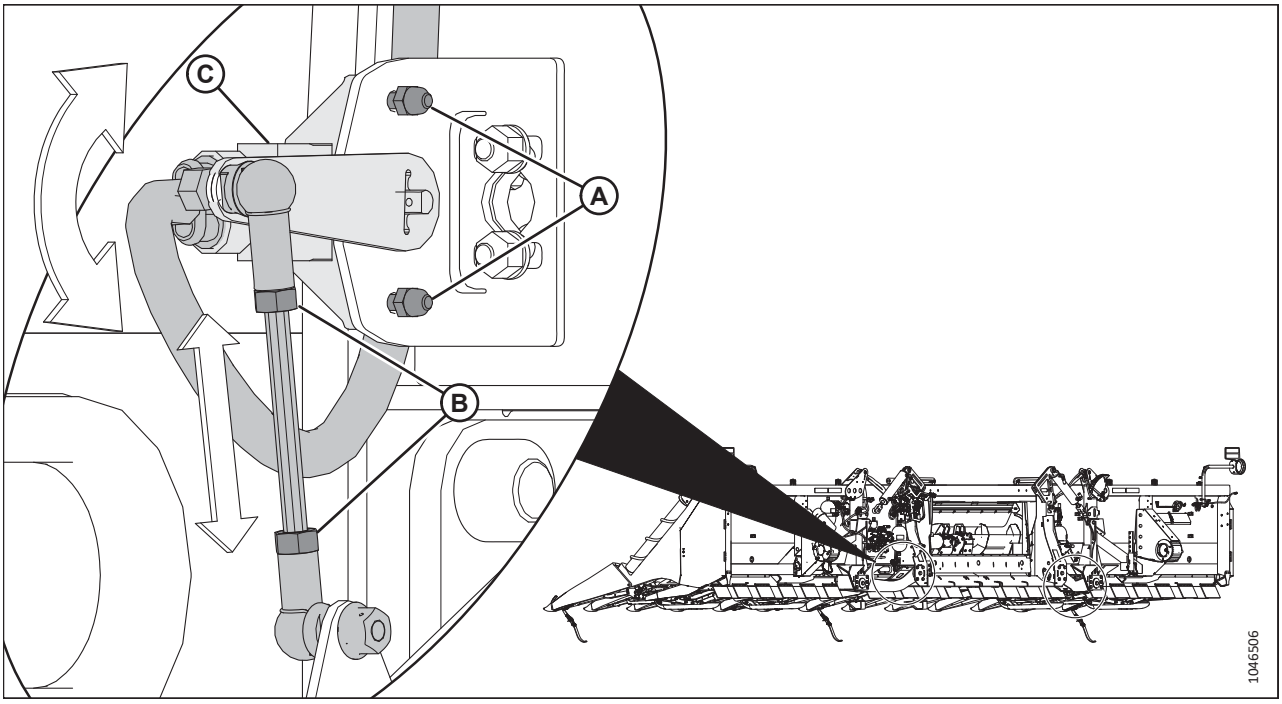


Figure 5.44: Wing Position Sensor – Left Shown

6. If sensor (C) voltage needs adjustment, follow these steps:
   a. For coarse adjustment, loosen nuts (A) and rotate the sensor.
   b. For fine adjustment, loosen lock nuts (B) and adjust the linkage.
   c. Tighten jam nuts (B) until they are snug, and then tighten one quarter-turn.
   d. Tighten nuts (A) on the sensor. Torque nuts to 8 Nm (6 lbf·ft [71 lbf·in]).
7. Repeat Step *5, page 121* to Step *6, page 121* for the opposite sensor.
8. After any sensor adjustment, repeat the header calibration procedure. For instructions, refer to *3.4.8 Calibrating Auto Header Height Control – FlexCorn™ Application, page 48*.

5.17 Checking and Adjusting Row Guidance Sensor Clearance (Option)

When the row guidance option is installed, two sensors are installed on the snouts left of center. These sensors send signals to the combine, which allow the combine to automatically steer to keep aligned with the crop rows. If this feature is malfunctioning, the sensor wands may be misaligned and require adjustment.

DANGER

To prevent injury or death from the 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 the safety props. If the header is off the ground but not raised to its full height, place blocks under the header.

NOTE:

For checking voltage from inside the combine cab, refer to the combine operator's manual.

The opening of the sensor wands should match the center of the row unit.

1. Raise the header fully.
2. Shut down the engine, and remove the key from the ignition.
3. Engage the header safety props. For instructions, refer to the combine operator's manual.
4. Ensure clearance (B) between sensor wands (A) is 15–25 mm (9/16–1 in.) and the gap is centered on the opening between the snapping rolls.
5. If adjustment is required, loosen three bolts (C), and rotate the wands (A) to achieve the correct clearance.
6. Retighten bolts (C).

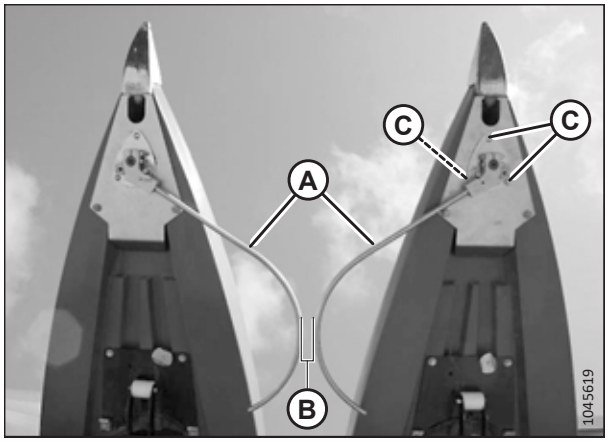


Figure 5.45: Row Guidance Sensor Wands

5.18 Checking Accumulator Charge Pressure

Check the accumulator charge pressure annually to ensure that the hydraulic system is maintaining pressure.

To check the accumulator charge pressure, do the following:

DANGER

Ensure that all bystanders have cleared the area.

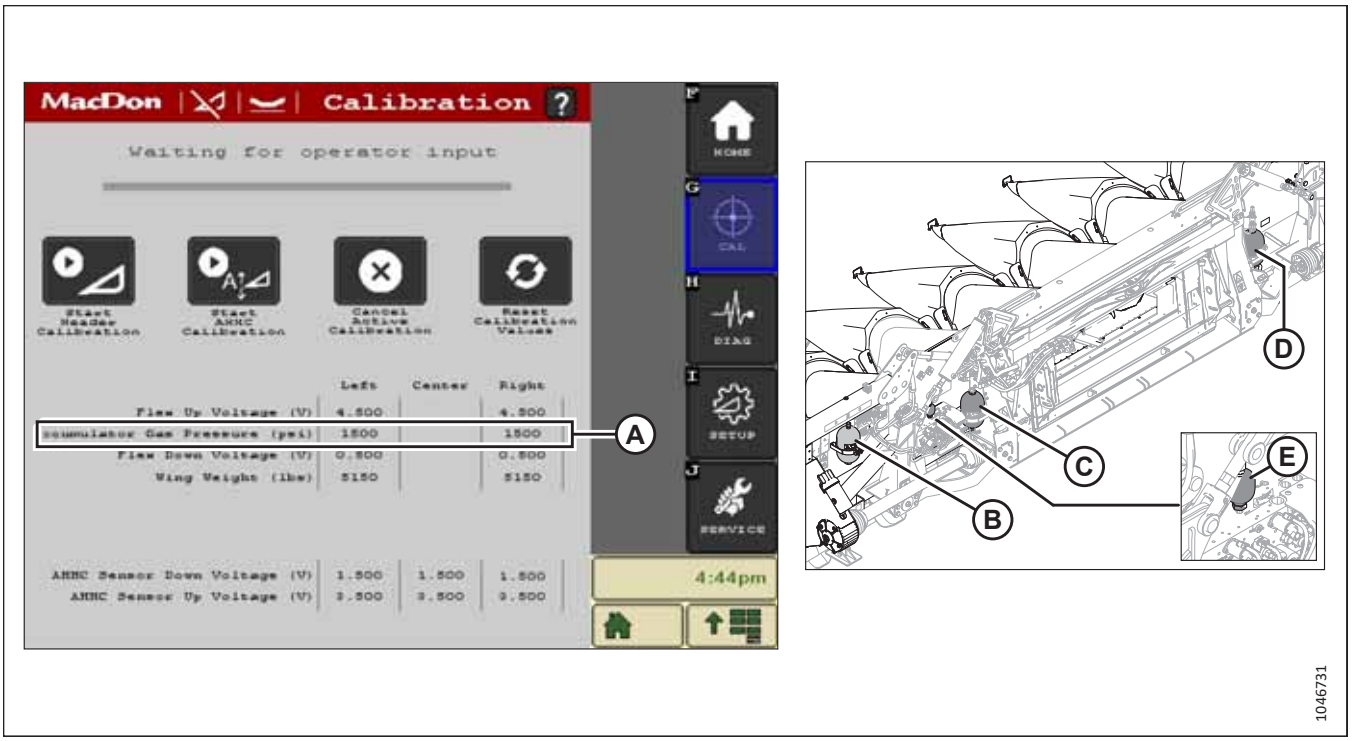


Figure 5.46: Accumulator Charge Pressure on Display

A - Accumulator Charge Pressure B - Control Accumulator C - Left Accumulator D - Right Accumulator E Expansion Accumulator -

1. Calibrate the hydraulic flex control system. For instructions, refer to *3.4.7 Calibrating Hydraulic Flex Control System – FlexCorn™ Application, page 46*.
2. If the calibration is successful, the charge pressure for left (C) and right (D) accumulators will appear at location (A) on the display.
3. If the pressure is outside the following range, contact your Dealer to adjust the accumulator gas pressure:
   - FC3012/FC3012C: 5861–6550 kPa (850–950 psi)
   - FC3016/FC3016C: 9998–10687 kPa (1450–1550 psi)
4. Annually, or if performance issues are observed, have your Dealer check the pressure in control (B) and expansion (E) accumulators. Special tools are required to check these pressures. These pressures cannot be checked using the FlexCorn™ display.
   - Control accumulator (B): 3447 kPa (500 psi)
   - Expansion accumulator (E): 1379 kPa (200 psi)

5.19 Draining Hydraulic Accumulators – Manual Method

If the header hydraulics must be serviced and the header is not connected to a combine and therefore can not enter Service mode using the FlexCorn™ application, follow this procedure to drain hydraulic oil from the accumulators manually.

DANGER

Ensure that all bystanders have cleared the area.

WARNING

Draining the system manually does NOT depressurize the flex cylinders! Ensure the wings are supported, and do NOT loosen any hydraulic connections on the flex cylinders or lift accumulator manifolds. Whenever possible, enter Service mode using a combine and the FlexCorn application. For instructions, refer to *Selecting Header Modes – Service, page 56*.

1. Ensure the header wings are supported on the ground.
2. Shut down the engine, and remove the key from the ignition.
3. Place an oil pan under the header multicoupler.

WARNING

The hose from port R on the multicoupler will contain a small amount of pressurized hydraulic fluid.

4. Slowly loosen, but do not fully disconnect, the fitting on the reel drive circuit return hose on the header multicoupler.

   NOTE:

   To identify the return hose connector on a combine-specific multicoupler, locate port “R” on the hydraulic manifold and follow the hose to the multicoupler.

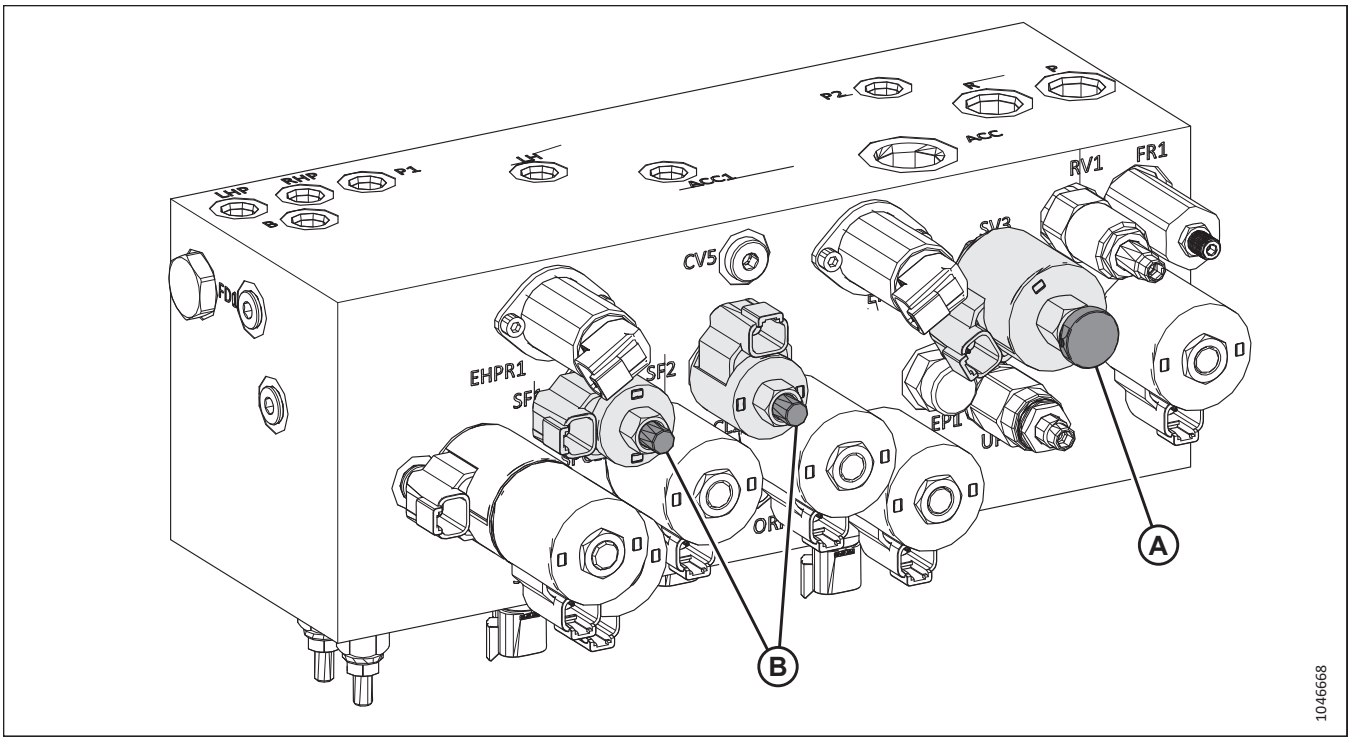


Figure 5.47: Hydraulic Manifold

5. On the header hydraulic manifold, locate manual override valves SV3 (A), SF1 (B), and SF2 (B) and engage manual override for all three as follows:

   - **SV3:** to engage manual override, press and hold the button on valve.
   - **SF1 and SF2 (knurled knob style):** to engage manual override, rotate knob in either direction until the knob is in the raised position.
   - **SF1 and SF2 (hex style [not shown]):** if the valves in SF1 and SF2 have a hex style knob, to engage override, rotate knob counter clockwise until the knob is in the raised position.

   When the override mechanism on valves (A) and (B) is engaged, hydraulic fluid is drained from the accumulators to the reel return line. The hydraulic system can be serviced after manual override is engaged on all three valves.

6. When service is complete, disengage manual override valves SV3 (A), SF1 (B), and SF2 (B) as follows:

   - **SV3:** to disengage manual override on SV3 valve, release the button.
   - **SF1 and SF2 (knurled knob style):** to disengage manual override, press the knob and rotate in either direction until the knob is secure in the detent position.
   - **SF1 and SF2 (hex style [not shown]):** if the valves in SF1 and SF2 have a hex style knob, to disengage manual override, push down on the knob and turn it clockwise to secure it.

7. Inspect the O-ring on multicoupler return (R) hose fitting, and replace it if there are signs of wear or damage.

8. Torque the multicoupler return fitting. For specifications refer to *10.3 Torque Specifications, page 173*.

Chapter 6: Options and Attachments

The following options and attachments are available for use with your header. See your Dealer for availability and ordering information.

6.1 Breakaway Stubble Stompers

Stubble stompers help prevent tire/track wear from chopped or short corn stubble.

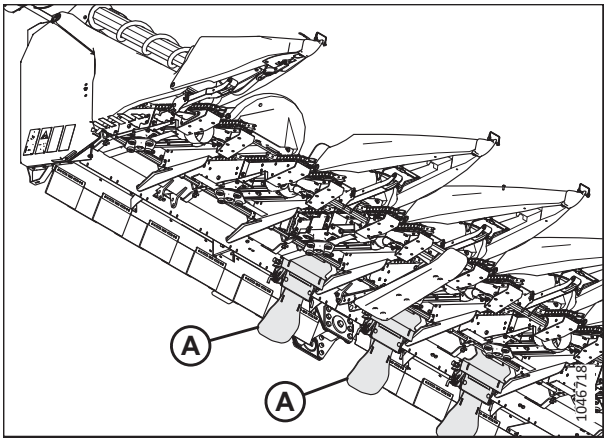


Figure 6.1: Stubble Stompers (A)

Compatibility: All sizes of header and row spacing.

Part number: B7626

Features and benefits:

- Spring loaded
- Adjustable

Ideal crop conditions: Any crop conditions

Ideal field conditions: Any field conditions

NOTE:

Breakaway stubble stompers (A) are sold in pairs and can mount to rows 3, 4, 5 and 8, 9, 10 for 12 row headers, and rows 5, 6, 7 and 11, 12, 13 for 16 row headers.

6.2 Rotary End Divider

Rotary end dividers (REDs) improve feeding and aid in downed crop conditions.

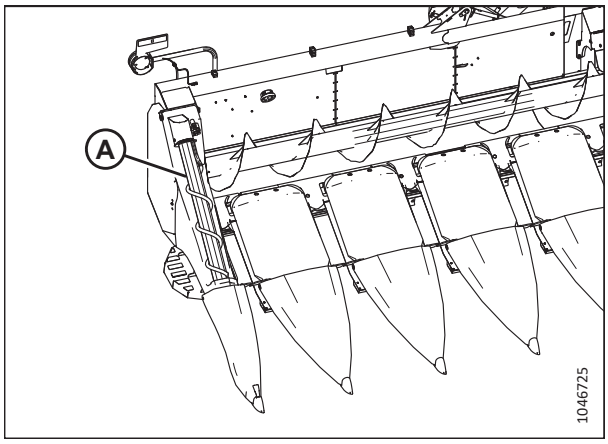


Figure 6.2: Rotary End Dividers (REDs) (A)

Compatibility: All sizes of header and row spacing.

Part number: Factory ordered configuration, but also available through MacDon Parts.

Features and benefits:

- Helps feeding in downed crop
- In-Cab adjustable speed

Ideal crop conditions: Any crop conditions

Ideal field conditions: Any field conditions

6.3 Row Guidance System

Row guidance uses two stainless steel feeler wands to keep the harvester centered on the row for optimum performance. MacDon's row guidance system works in conjunction with your combine's autosteer system.

Compatibility: All sizes of header and row spacing.

NOTE:
The combine must have row guidance enabled to use this kit.

Part number: Factory ordered configuration

Features and benefits:

- Reduces operator fatigue
- Improves performance in downed crop or when it is difficult to see defined rows

Ideal crop conditions: Any crop conditions

Ideal field conditions: Any field conditions

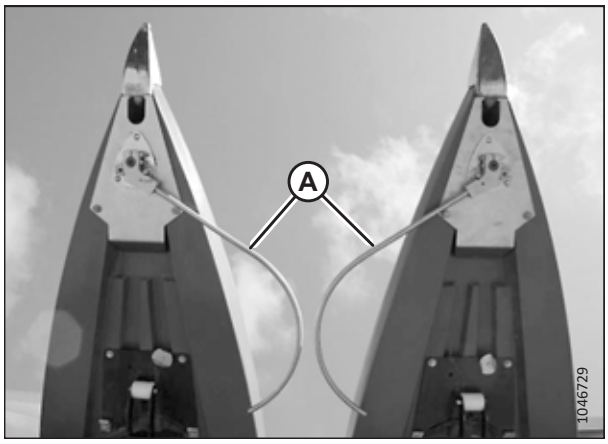


Figure 6.3: Row Guidance (A) Installed

6.4 Stalk Chopper

With the chopping option, stalks are consistently chopped into 5–7.5 cm (2–3 in.) pieces to aid in residue management.

Compatibility: All sizes of header

Part number: Factory ordered configuration

Features and benefits:

- Two blade rotary chopper with reversible blades (A)
- 2800 rpm chopper speed
- Front mount for optimal performance; shortest, consistent residue size
- Simple to engage/disengage on row chopping mechanism

Ideal crop conditions: Any crop conditions

Ideal field conditions: Any field conditions

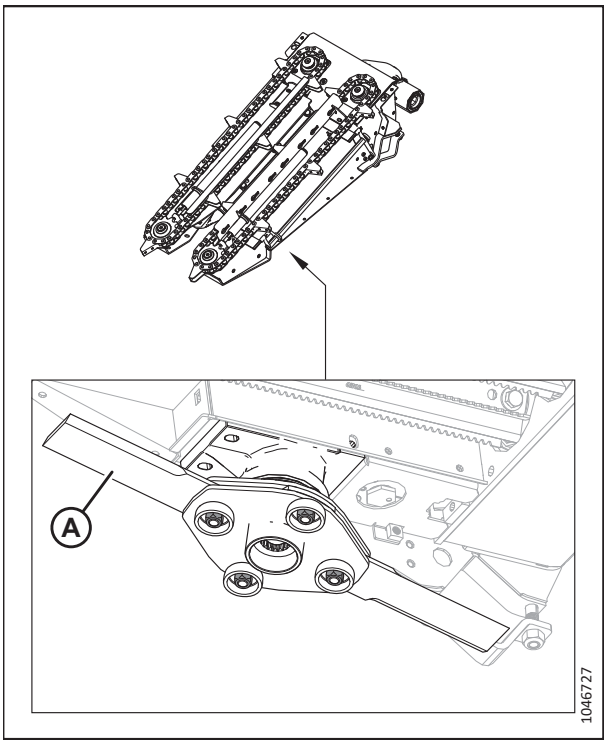


Figure 6.4: Stalk Chopper (A) Installed

6.5 Tall End Dividers

Tall end dividers (TEDs) assist in dividing rows and saving ears in tall standing corn.

Compatibility: All sizes of header. Also compatible with rotary end dividers (REDs).

Part number: Factory ordered configuration. If ordering separately, contact your Dealer.

Features and benefits:

- Reduces ear loss at the end row
- Improves row dividing in taller crop

Ideal crop conditions: Tall standing crop

Ideal field conditions: Any field conditions

NOTE:

Remove tall end dividers (A) for lodged crop conditions.

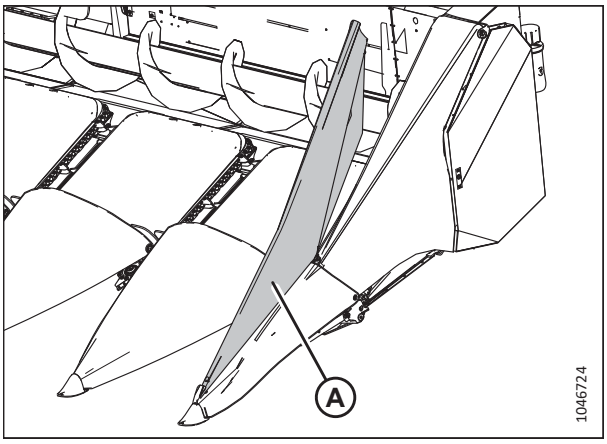


Figure 6.5: Tall End Divider (A) Installed – Left Side Shown, Right Side Similar

6.6 Upper Ear Saver Kit

The Upper Ear Saver kit attaches to the rear of the snout and aids in preventing ears from bouncing back out over the front of the header.

Part number: B6732

Features and benefits: Ear retention

Ideal crop conditions:

- Dry conditions in tall standing crop when harvesting lower
- Thin crop stands when traveling slower

Ideal field conditions: Any field conditions

NOTE:

Remove upper ear savers (A) for lodged crop conditions.

Figure 6.6: Upper Ear Savers (A) Installed

Chapter 7: Troubleshooting

Use the following table to determine the header problems and the recommended repair procedure.

Table 7.1 Troubleshooting

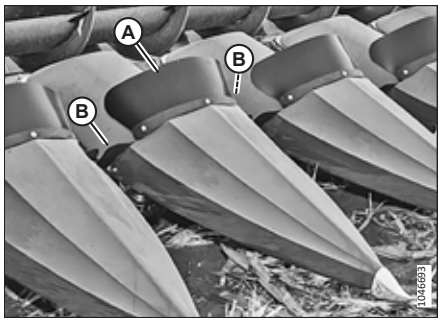
Problem	Solution	Refer to
Symptom: A large quantity of ears builds up between the auger and feeder		
This can result from improper adjustment of the combine for corn harvesting operation, including front feeder drum (rock retarder drum) position too low, threshing component speed, concave clearance or angle of the feeder front face.	Ensure that the combine is adjusted for corn harvesting in accordance with the instructions and settings as recommended in the combine operator's manual.	Combine operator's manual
Symptom: In laid or lodged corn stalks, the stalks do not feed properly into the snapping rolls		
Conflict with ear savers	Remove upper ear savers (A) (if equipped) from the snouts and check if the problem persists. If the crop is severely laid or lodged it may be necessary to remove one or both of the rubber ear savers (B) from the rear of the snouts to improve feeding to the row units.	**Figure 7.1: Ear Savers** 
Symptom: Row unit becomes plugged while harvesting laid or lodged cornstalks		
Gathering chain tensioner not moving freely	Ensure that the gathering chain tensioner is moving freely. You can release the tension in the chain using the gathering chain removal tool.	*5.12.10 Removing Gathering Chains, page 111*
Snapping plate gap not set properly	Confirm the snapping plates are set to specification.	*5.12.3 Checking and Adjusting Snapping Plate Gap, page 101*
Symptom: Stalks, grass, or weeds wrap on the snapping roll		
Vine knife gap too wide	Reduce the vine knife gap.	*5.12.5 Checking and Adjusting Vine Knife Clearance, page 105*
Symptom: Auger does not rotate		
Blocked auger	Clear any blockages from the auger.	—
Auger not tensioned properly	Check the auger drive chain tension.	*5.6 Checking and Adjusting Auger Drive Chain Tension, page 88*
Symptom: Corn ears are broken or split in the auger		
Auger rotates too quickly	Reduce the rotational speed of the auger by using the optional sprocket.	*4.2.6 Adjusting Auger Speed, page 65*
Auger positioned too low	Raise the auger.	*5.7 Checking and Adjusting Auger Position, page 90*
Symptom: Dry crop not feeding properly		
Incorrect row unit settings	Check that the snapping plate gap is correct.	*5.12.3 Checking and Adjusting Snapping Plate Gap, page 101*

Table 7.1 Troubleshooting (continued)

Problem	Solution	Refer to
	Check that all of the snapping plates are moving together. Check that the clamps to the moving rod are tight.	—
	Ensure that nothing is impeding the crop flow into the row unit path.	—
Incorrect operation	Slow down the header to allow more time for the header to process plants. **NOTE:** Speeding up the header tends to reduce Material Other than Grain (MOG).	—
	To reduce trash intake, increase the snapping plate opening using the combine controls.	—
	To reduce trash intake, cut slightly higher.	*4.2.3 Setting Cutting Height, page 62*
	Reduce the header angle. Ensure that the header angle does not exceed 23°.	*4.2.4 Checking and Adjusting Snapping Plate (Header) Angle, page 63*
Other incorrect settings	Increase the rotational speed of the auger by using the 18T or 20T sprocket.	*4.2.6 Adjusting Auger Speed, page 65*
	Raise the auger. **NOTE:** Set the auger height to 38 mm (1 1/2 in.).	*5.7 Checking and Adjusting Auger Position, page 90*
	Start with reverse flighting center configuration, combined with rubber auger flaps.	*4.2.7 Reconfiguring Auger Center Flighting, page 66*
	Increase the gap at the front of the snapping rolls. Do **NOT** exceed 5 mm. After adjusting the gap, make sure that the vine knives are not touching the rolls.	*5.12.4 Checking and Adjusting Snapping Roll Knife Clearance, page 104* and *5.12.5 Checking and Adjusting Vine Knife Clearance, page 105*
	On the two center row units, flip the gathering chains so that they run backwards (four chains in total).	*5.12.10 Removing Gathering Chains, page 111*
	If crop is breaking off at the front of the row, or in lodged crop, start by removing one ear saver, then the second ear saver if needed.	—
Skid shoes not retracting to their home position		
Debris	Clear debris from the top of the skid shoes.	*5.5 Cleaning the Skid Shoe Linkage, page 87*
Proximity sensor	Troubleshoot the proximity sensors.	*7.1 Troubleshooting Skid Shoe Proximity Sensors, page 133*

Table 7.1 Troubleshooting (continued)

Problem	Solution	Refer to
Header wings will not lower or get hung up		
Header wings locked	Unlock the header wings.	*4.2.11 Unlocking Header Wings, page 71*
Interference or blockages between header components	• Check for interference between linkages and frame components. • Check for material lodged between wing and center frame seal (transition seal).	—
Ground pressure set too light	Increase header ground pressure.	*4.2.5 Adjusting Header Ground Pressure, page 64*
Crop loss at the feeder house opening		
Gap at the seals between the left and right auger pans	Ensure that there is no gap at the auger pan seals.	—
Gap at the wing to center frame transition seal.	Ensure that there is no gap at the transition seal.	*5.14 Checking and Adjusting Transition Seal, page 117*
Wings not kicking at the end of a pass		
Problem with auto header height control (AHHC) dongles	Check AHHC dongles to make sure they are not stuck or damaged.	—
Problem with AHHC voltage	Use the display diagnostic screen to ensure scaled voltage of AHHC sensors is greater than 4 V. If the scaled voltage is not greater than 4 V, recalibrate the header AHHC system, then recalibrate combine AHHC system.	For the header AHHC calibration, refer to *3.4.8 Calibrating Auto Header Height Control – FlexCorn™ Application, page 48*. For the combine AHHC calibration, refer to the combine operator's manual.
Wings not level in Rigid mode		
Header wings unlocked	Lock the header wings.	*4.2.10 Locking Header Wings, page 70*
Rigid mode not selected	Select Rigid mode.	*Selecting Header Modes – Rigid, page 56*
Incorrect wing position sensor voltage	Adjust both left and right wing position sensors until they read 2.5 V on the display diagnostic screen.	*5.16 Adjusting Wing Position Sensors, page 120*

7.1 Troubleshooting Skid Shoe Proximity Sensors

The proximity sensors should be checked if the adjustable skid shoes are not retracting properly.

DANGER

To prevent injury or death from the 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 the safety props. If the header is off the ground but not raised to its full height, place blocks under the header.

DANGER

Ensure that all bystanders have cleared the area.

If the adjustable skid shoes are not retracting properly, do the following:

1. Raise the header fully.
2. Select Rigid mode. For instructions, refer to *Selecting Header Modes – Rigid, page 56*.
3. Shut down the engine, and remove the key from the ignition.
4. Engage the header safety props. For instructions, refer to the combine operator's manual.
5. Lock the header wings. For instructions, refer to *4.2.10 Locking Header Wings, page 70*.

   NOTE:

   Once you select Flex mode, the header will not move, but skid shoe adjustment buttons will work.
6. Engage the combine threshing system and header drive.
7. Press and hold SKID SHOE RETRACT icon (A) for 5 seconds to fully retract the skid shoes. Proceed as follows:
   - If the proximity sensors are working properly, then POSITION INDICATOR ICONS (B) will turn green when the skid shoes are fully retracted. No further action should be required.
   - If any of the POSITION INDICATOR ICONS (B) are gray, then press SKID SHOE EXTEND icon (C) for 5 second to fully extend the skid shoes. Proceed to the next step.
8. Shut down the engine, and remove the key from the ignition.

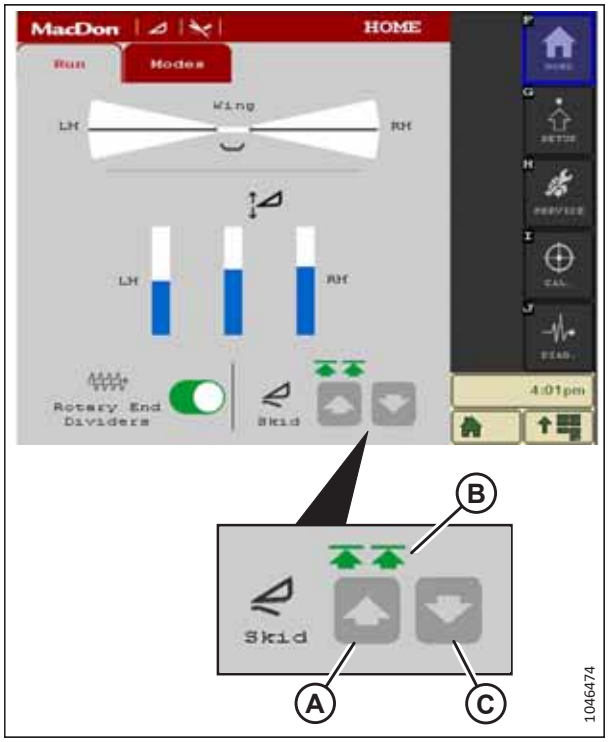


Figure 7.2: FlexCorn™ Application – Run Page

9. Remove debris and mud buildup from around all skid shoe linkages (A).

10. Engage the combine threshing system and header drive.

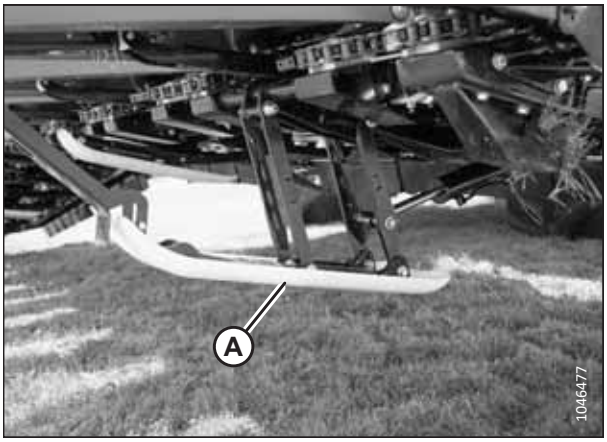


Figure 7.3: Skid Shoe Linkage

11. Press and hold SKID SHOE RETRACT icon (A) for 5 seconds to fully retract the skid shoes. Proceed as follows:

    - If the proximity sensors are working properly, then POSITION INDICATOR ICONS (B) will turn green when the skid shoes are fully retracted. No further action should be required.
    - If any of the POSITION INDICATOR ICONS (B) are gray, then proceed to the next step.

12. Press and hold SKID SHOE EXTEND icon (C) for 5 seconds to fully extend the skid shoes.

13. Turn the ignition key to the accessory position. Do **NOT** start the engine.

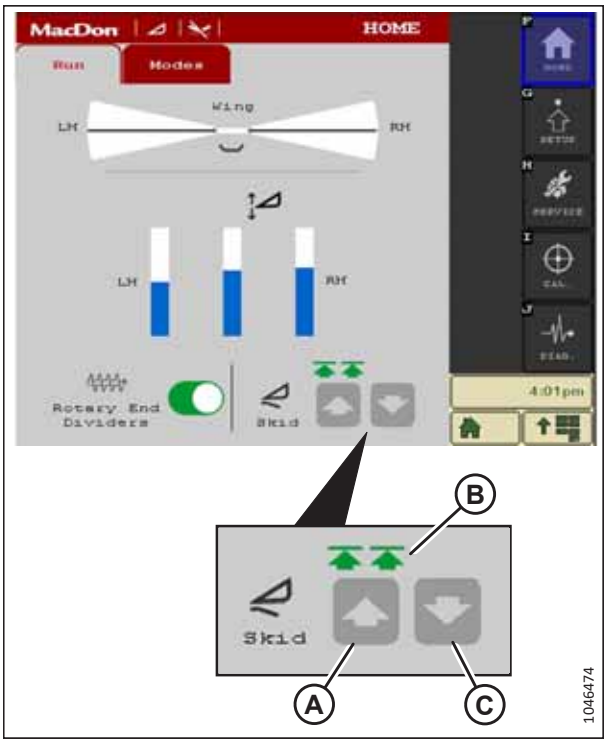


Figure 7.4: FlexCorn™ Application – Run Page

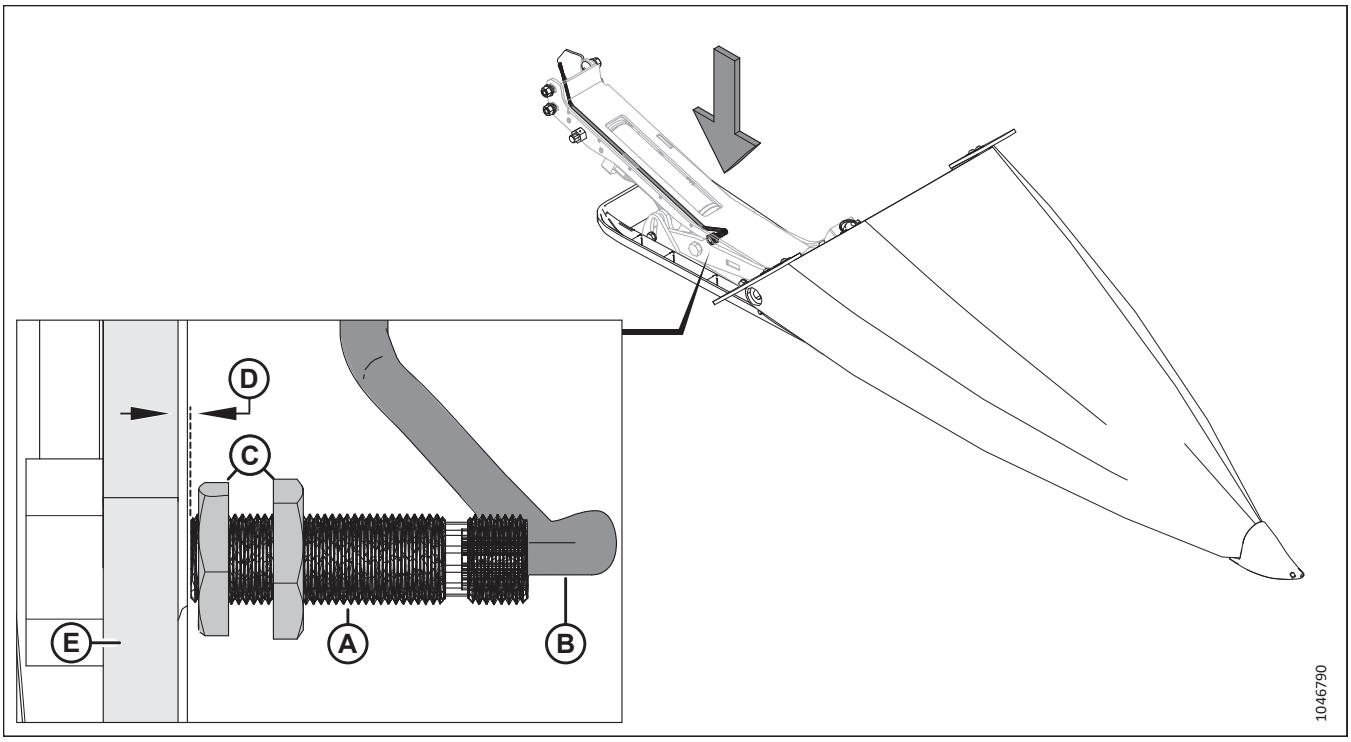


Figure 7.5: Adjustable Skid Shoe Proximity Sensor

14. Check adjustable skid shoe proximity sensor (A) (1 per shoe) by passing ferrous metal in front of it:
    - If the light on wiring harness (B) end of the sensor lights up, then the sensor is functional and connected properly.
    - If the light on wiring harness (B) end of the sensor lights up, but the POSITION INDICATOR ICONS on the FlexCorn™ display remain gray after the shoes are fully retracted, then adjust sensor nuts (C) until gap (D) between the sensor and skid shoe linkage (E) is 2–4 mm (5/64–5/32 in.)
    - If the light on the wiring harness end of the sensor does **NOT** light up, inspect wiring harness (B) for damage.
    - If none of the troubleshooting suggestions solve the problem, then replace the sensor.

Chapter 8: Electrical Schematics

The electrical schematics show you the entire electrical system in a readable format.

NOTE:

For a list of the schematics contained in this section, refer to Table *8.1, page 138*.

Electrical schematics are read from top to bottom. The top half of the schematic (A) shows inputs/power. The bottom half (B) shows outputs/grounds.

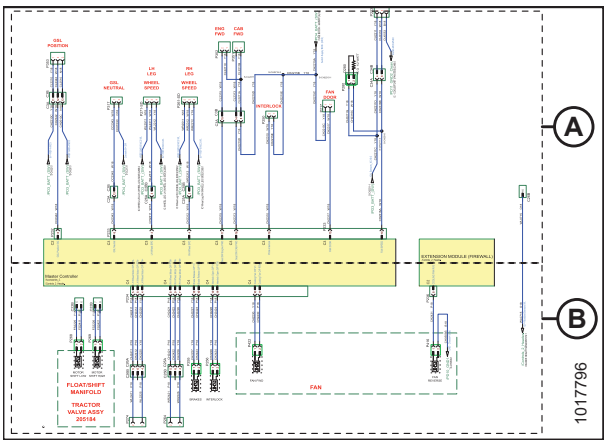


Figure 8.1: Schematic Orientation

MacDon supplied harnesses are identified using the following details:

- Callout (A) identifies the schematics sheet name and location of the wire jump
  - For example, "/PD1.K7" refers to sheet PD1, coordinate K7.
- Callout (B) refers to the component/splice/device/pin that the wire leads to
- Callout (C) details the signal on the wire

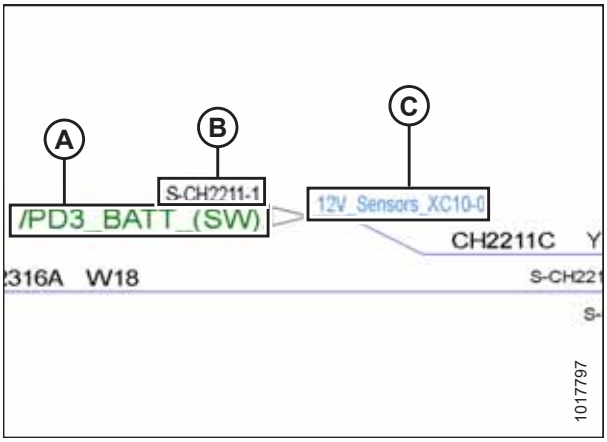


Figure 8.2: Schematic Orientation

Table 8.1 Schematic Table of Contents

Table 8.1 Schematic Table of Contents (continued)

Figure 8.3: Sheet PD1 – Power Distribution

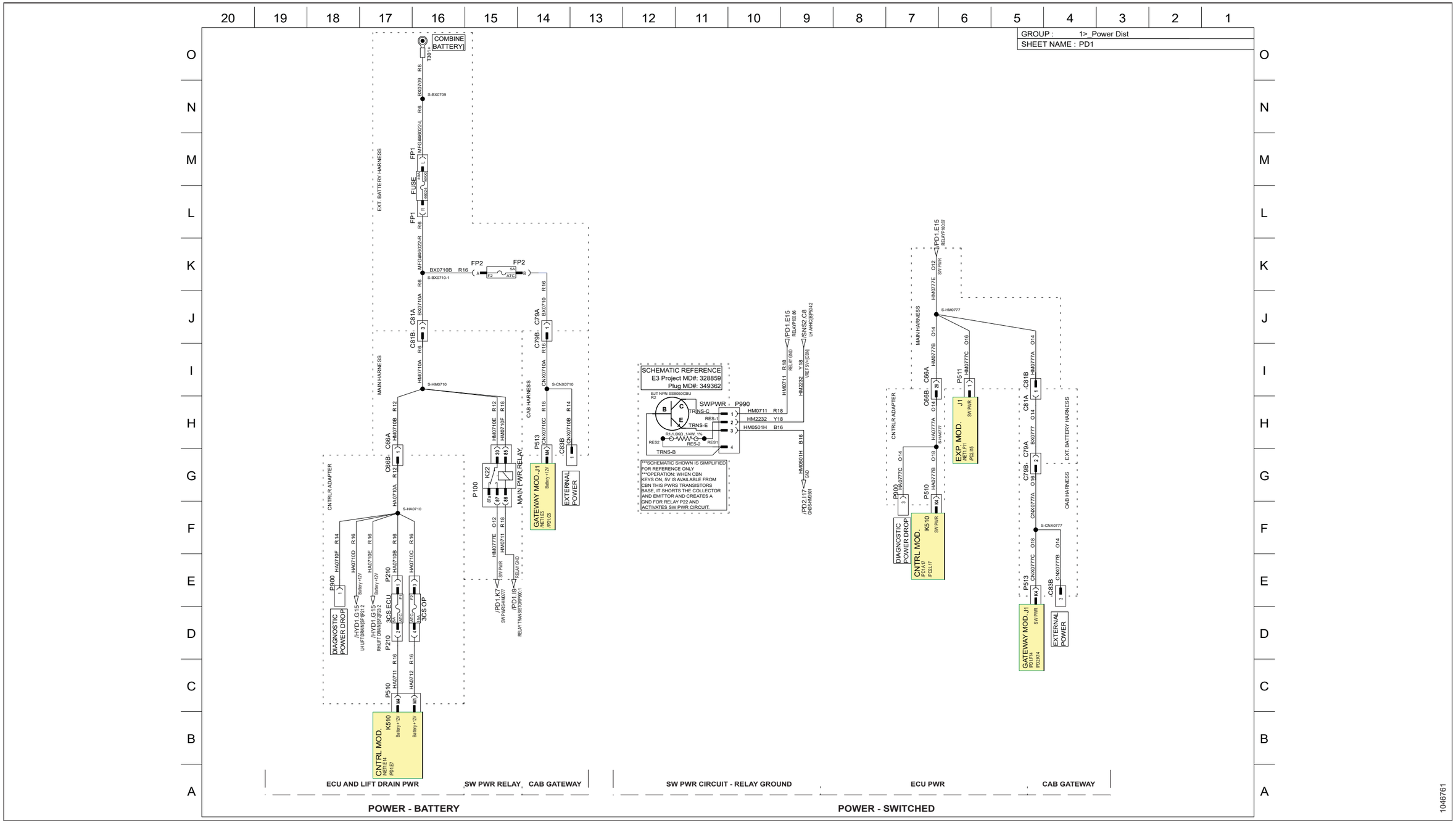


Figure 8.4: Sheet PD2 – Power Distribution

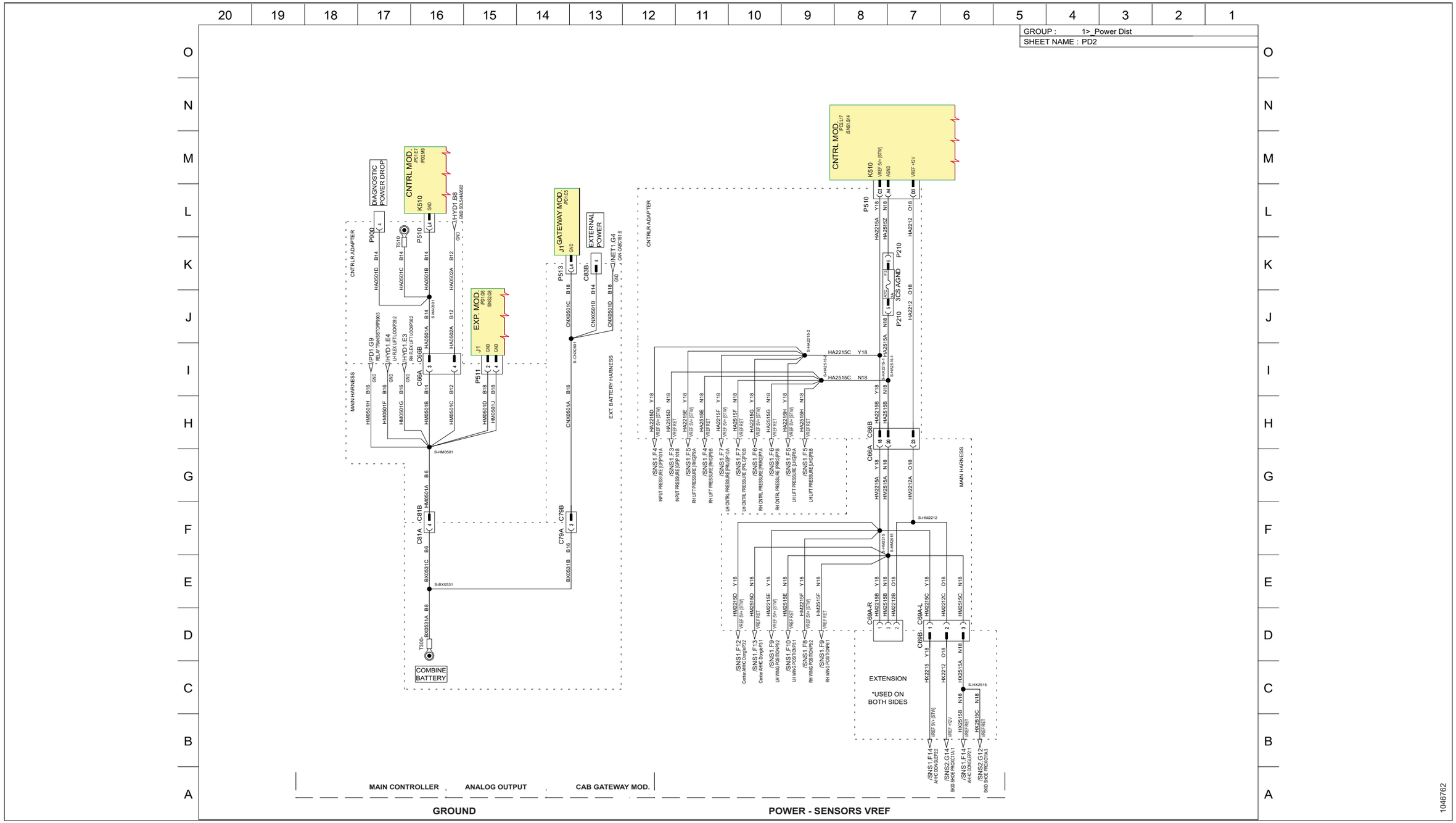


Figure 8.5: Sheet SNS1 – Sensors

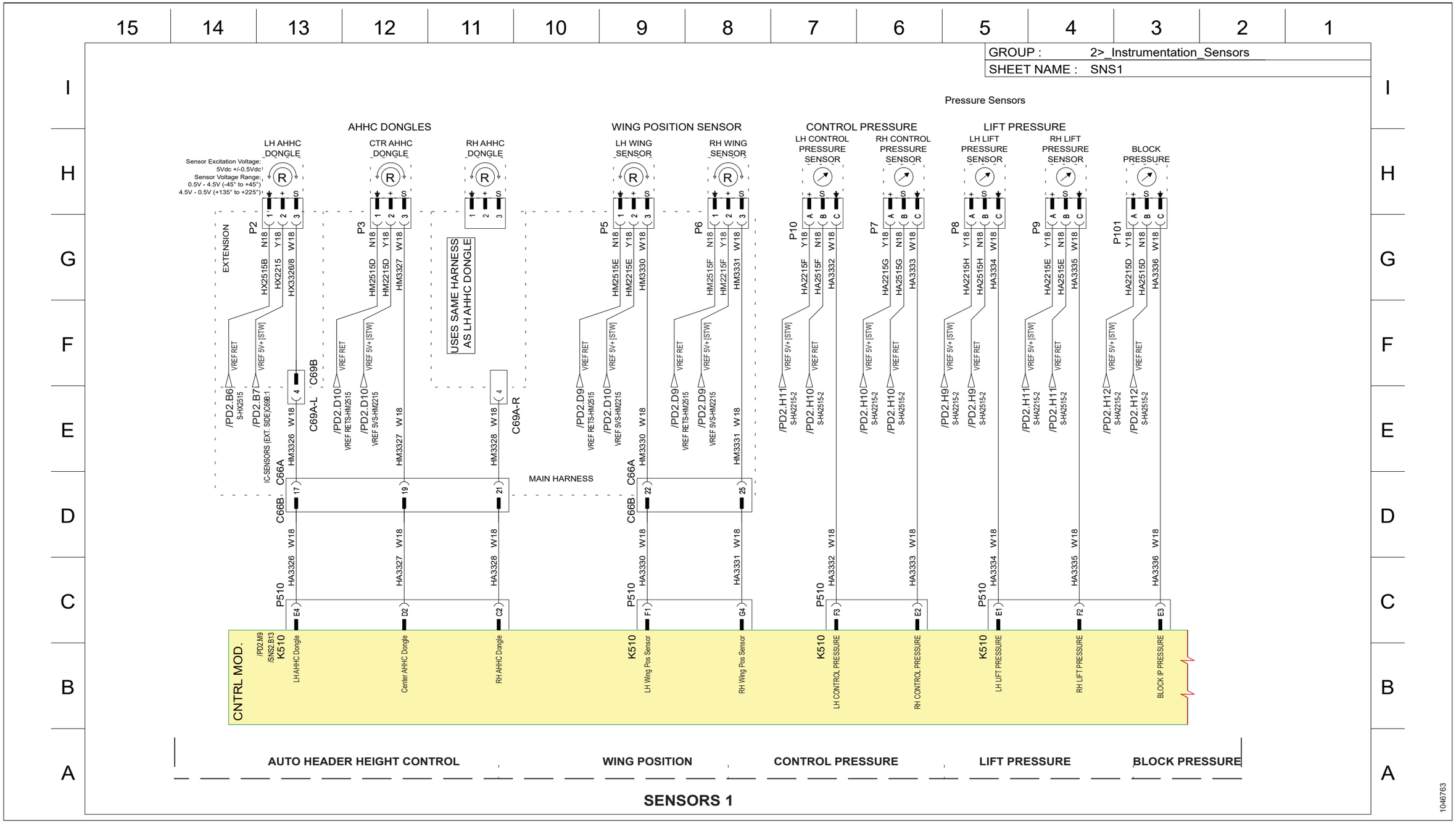


Figure 8.6: Sheet SNS2 – Sensors

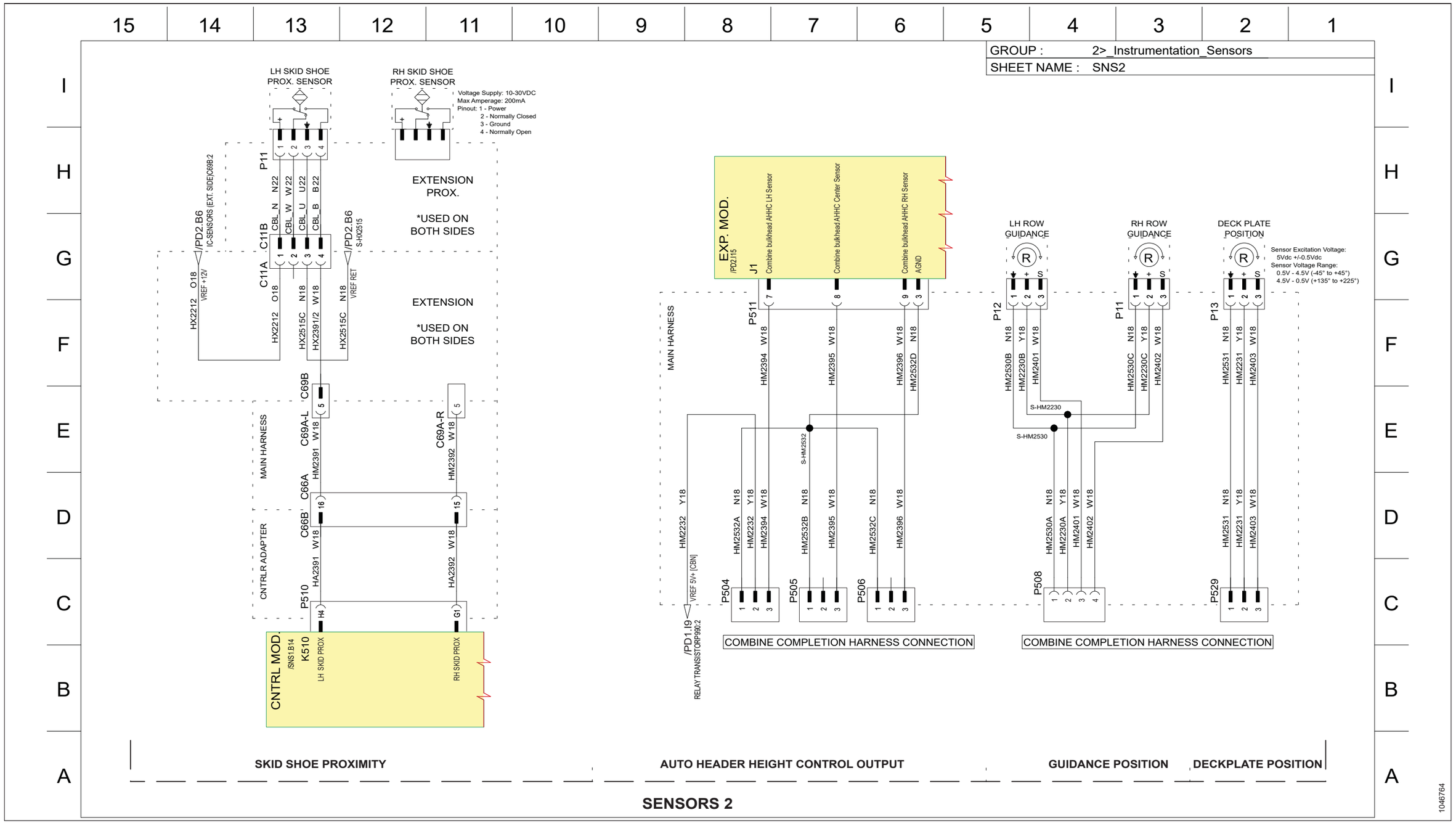


Figure 8.7: Sheet HYD1 – Hydraulic Control

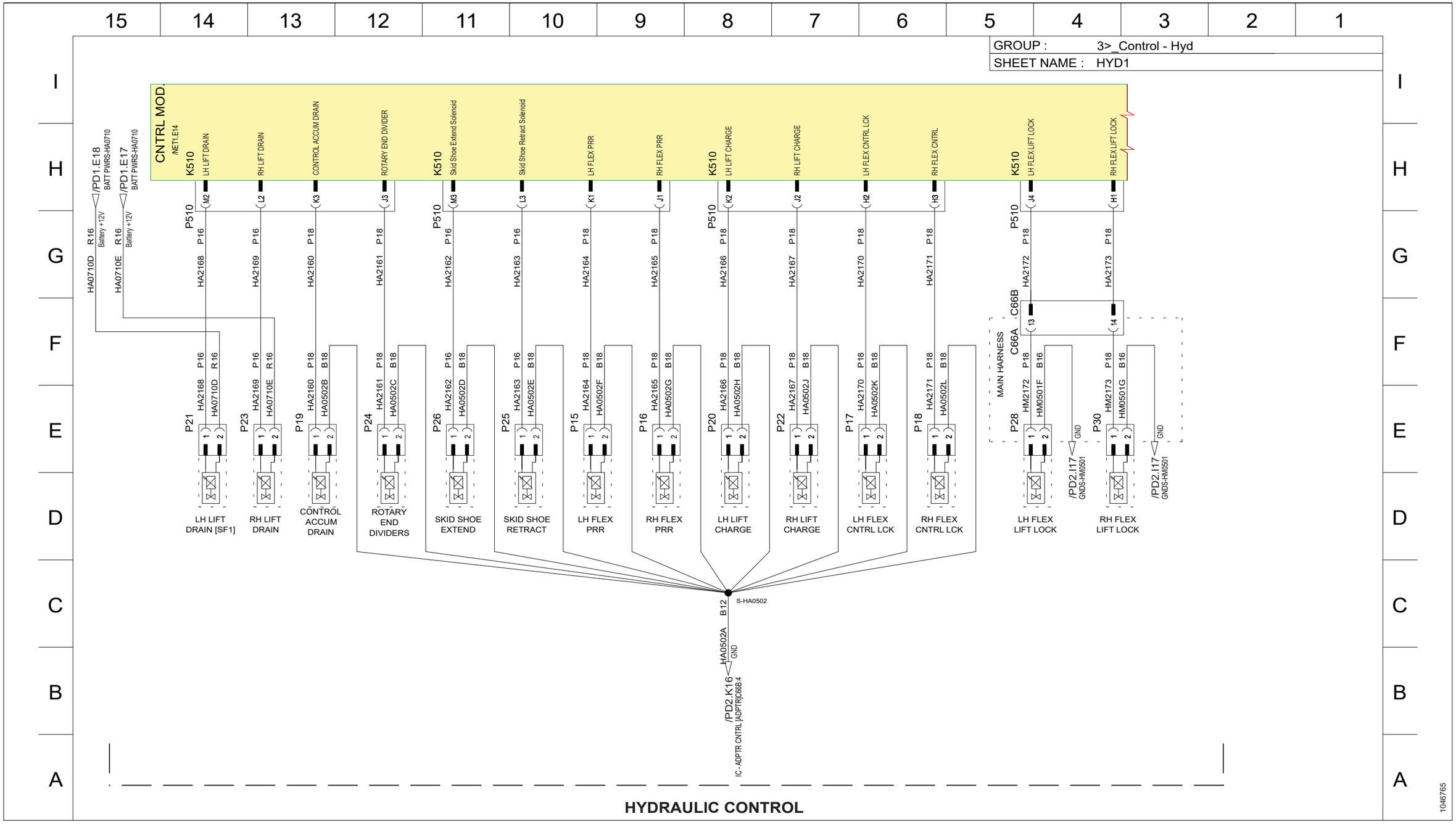


Figure 8.8: Sheet LTG1 – Lighting

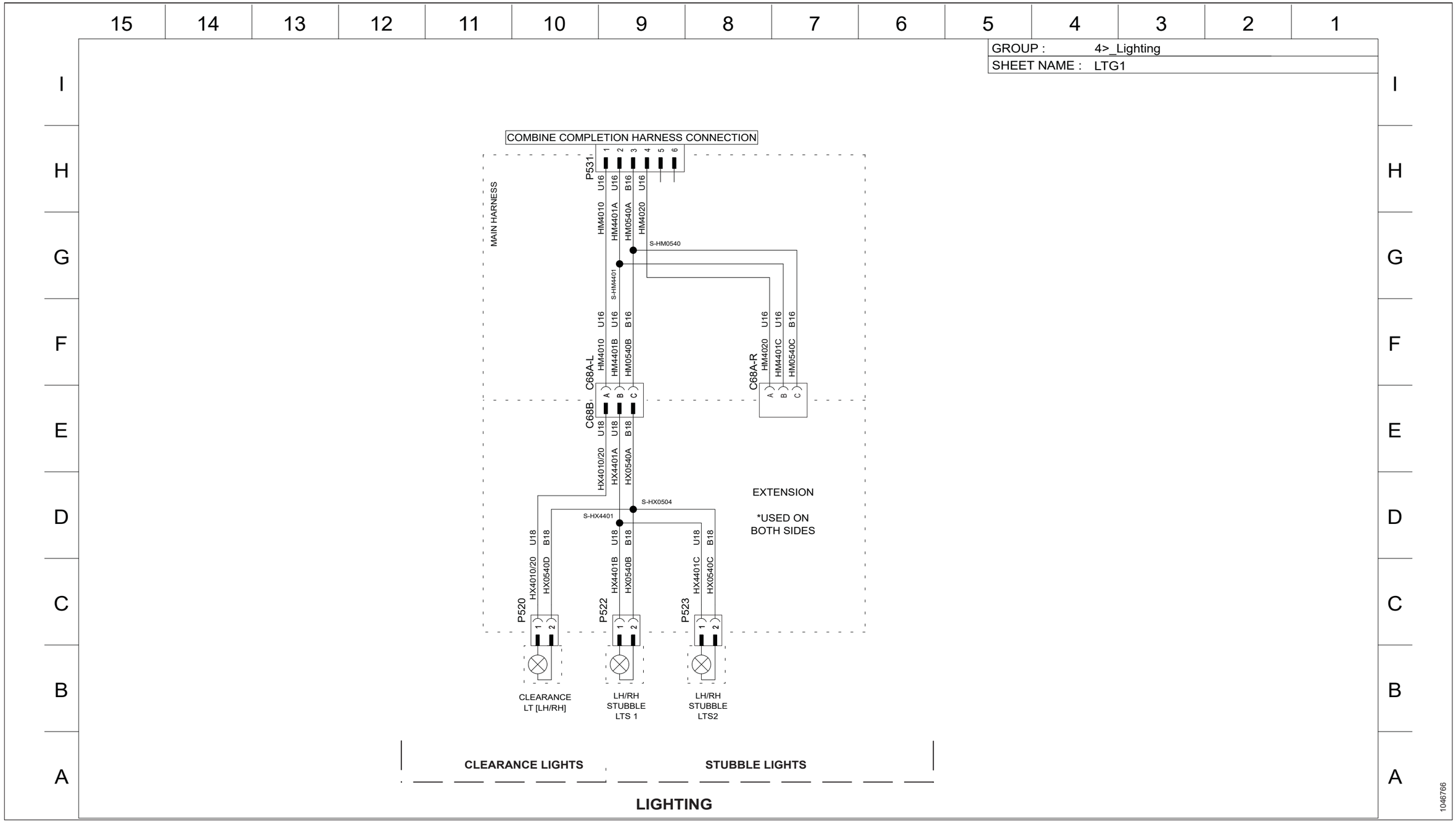


Figure 8.9: Sheet NET1 – Networks

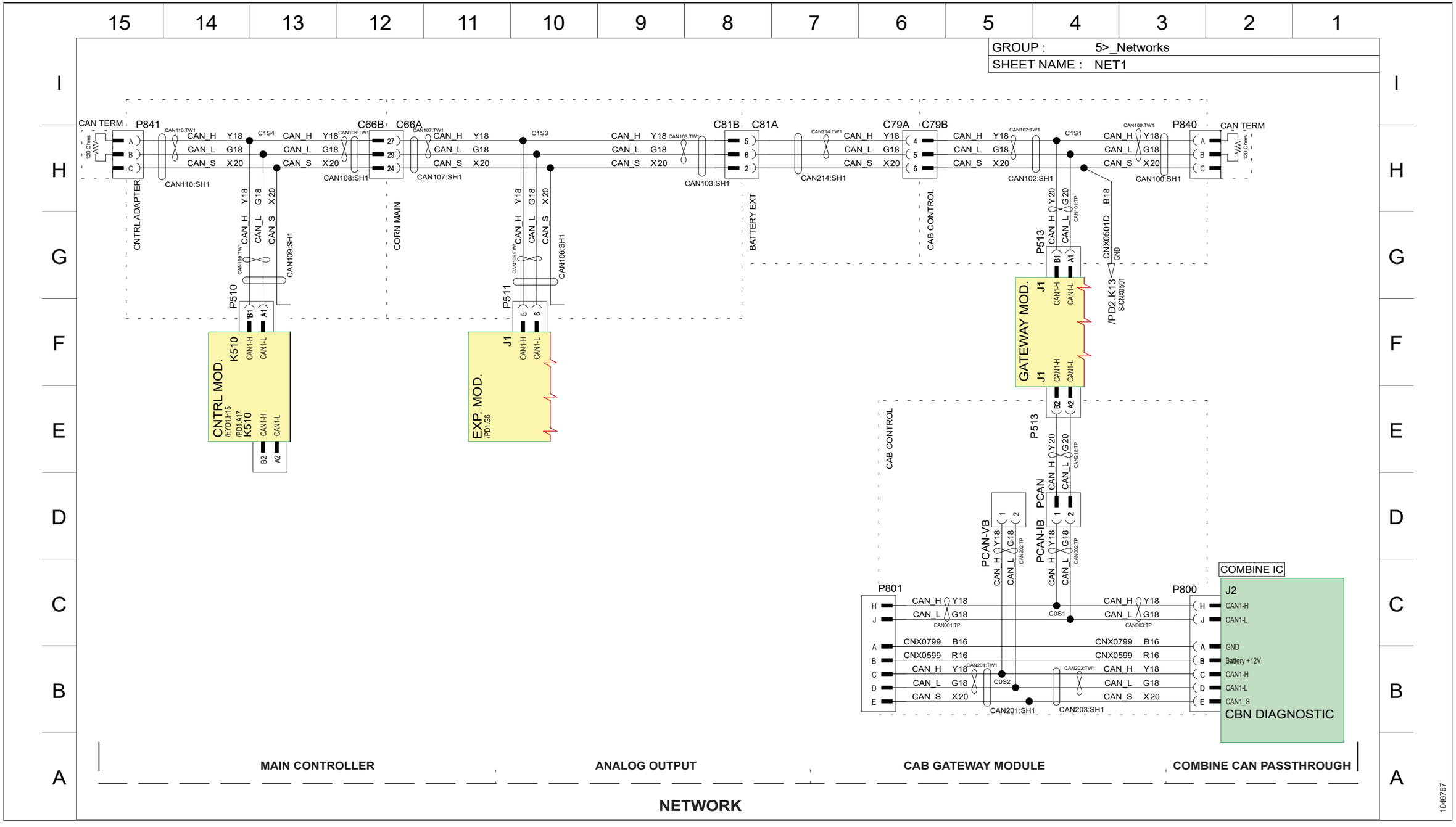
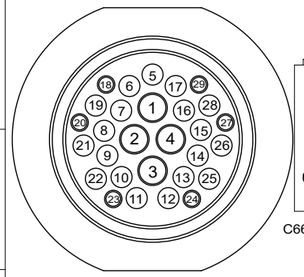


Figure 8.10: Sheet CONN1_Main – Reference

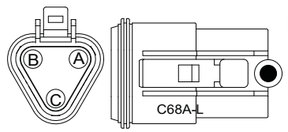
GROUP : 6>_Reference
SHEET NAME : CONN1_MAIN



C66A
IC - ADPTR CNTRL [MAIN]

252935
HDP24-24-29SE-L017, DEUTSCH, HDP, RECPT (REV), 29F, BLK, SEALED

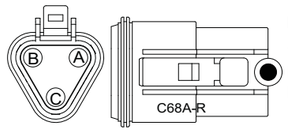
1	HM0710B	Ni	13	HM2172	Ni
2			14	HM2173	Ni
3	HM0501B	Ni	15	HM2392	Ni
4	HM0501C	Ni	16	HM2391	Ni
5			17	HM3326	Ni
6			18	HM2215A	Ni
7			19	HM3327	Ni
8			20	HM2515A	Ni
9			21	HM3328	Ni
10			22	HM3330	Ni
11			23	HM2212A	Ni
12			24	CAN_S	Au



C68A-L
IC-LH EXT. LIGHTS

134040
DT06-3S-P012, DEUTSCH, DT, PLUG, 3F, BLK, SEALED
WEDGELOCK: W3S-P012

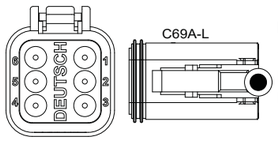
A	HM4010	Ni
B	HM4401B	Ni
C	HM0540B	Ni



C68A-R
IC-RH EXT. LIGHTS

134040
DT06-3S-P012, DEUTSCH, DT, PLUG, 3F, BLK, SEALED
WEDGELOCK: W3S-P012

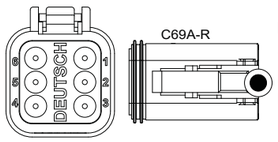
A	HM4020	Ni
B	HM4401C	Ni
C	HM0540C	Ni



C69A-L
IC - LH EXT SENSOR

134036
DT06-6S-P012, DEUTSCH, DT, RECPT, 6F, BLK, SEALED
WEDGELOCK: W6S-P012

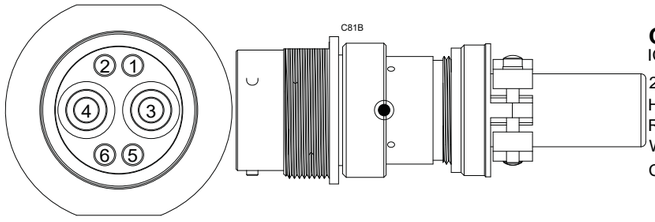
1	HM2215C	Ni
2	HM2212C	Ni
3	HM2515C	Ni
4	HM3326	Ni
5	HM2391	Ni
6		



C69A-R
IC - RH EXT SENSOR

134036
DT06-6S-P012, DEUTSCH, DT, RECPT, 6F, BLK, SEALED
WEDGELOCK: W6S-P012

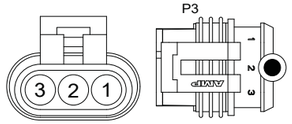
1	HM2215B	Ni
2	HM2212B	Ni
3	HM2515B	Ni
4	HM3328	Ni
5	HM2392	Ni
6		



C81B
IC - CAB CONTROL

293035
HD34-18-6PN-059, DEUTSCH, HD, RECPT, 6M, METAL, SEALED W/BACKSHELL
CAP: HDC26-18

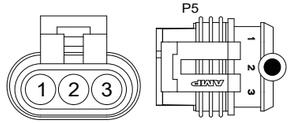
1	HM0777A	Ni
2	CAN_S	Au
3	HM0710A	Ni
4	HM0501A	Ni
5	CAN_H	Au
6	CAN_L	Au



P3
Center AHHC Dongle

134091
282087-1, TYCO, SUPERSEAL 1.5, PLUG, 3F, BLK, SEALED

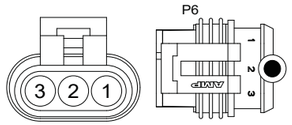
1	HM2515D	Sn
2	HM2215D	Sn
3	HM3327	Sn



P5
LH WING POSITION

134091
282087-1, TYCO, SUPERSEAL 1.5, PLUG, 3F, BLK, SEALED

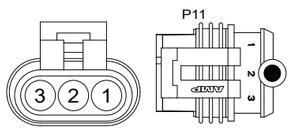
1	HM2515E	Sn
2	HM2215E	Sn
3	HM3330	Sn



P6
RH WING POSITION

134091
282087-1, TYCO, SUPERSEAL 1.5, PLUG, 3F, BLK, SEALED

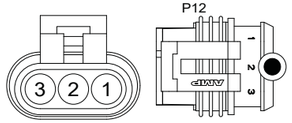
1	HM2515F	Sn
2	HM2215F	Sn
3	HM3331	Sn



P11
RH ROW GUIDE

134091
282087-1, TYCO, SUPERSEAL 1.5, PLUG, 3F, BLK, SEALED
CAP: MD# 500384

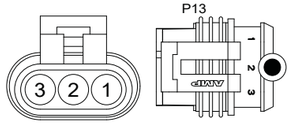
1	HM2530C	Sn
2	HM2230C	Sn
3	HM2402	Sn



P12
LH ROW GUIDE

134091
282087-1, TYCO, SUPERSEAL 1.5, PLUG, 3F, BLK, SEALED
CAP: MD# 500384

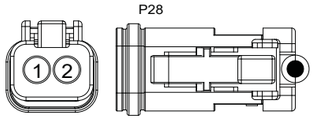
1	HM2530B	Sn
2	HM2230B	Sn
3	HM2401	Sn



P13
DECK PLATE POSITION

134091
282087-1, TYCO, SUPERSEAL 1.5, PLUG, 3F, BLK, SEALED
CAP: MD# 500384

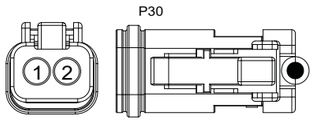
1	HM2531	Sn
2	HM2231	Sn
3	HM2403	Sn



P28
LH FLEX LIFT LOCK

500317
DT06-2S-EP06, DEUTSCH, DT, PLUG, 2F, BLK, SEALED
LOCK: W2S-P012

1	HM2172	Ni
2	HM0501F	Ni



P30
RH FLEX LIFT LOCK

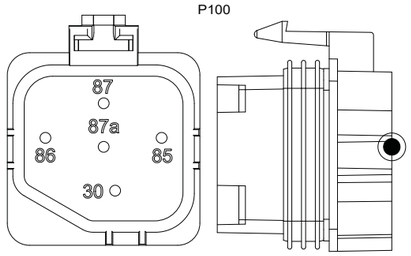
500317
DT06-2S-EP06, DEUTSCH, DT, PLUG, 2F, BLK, SEALED
LOCK: W2S-P012

1	HM2173	Ni
2	HM0501G	Ni

1046768

Figure 8.11: Sheet CONN2_MAIN – Reference

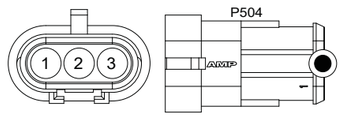
GROUP : 6>_Reference
SHEET NAME : CONN2_MAIN



P100
RELAY

134917
12077993, DELPHI, MP 630 SPECIAL , PLUG, 5F, BLK, SEALED
RELAY: 7794307

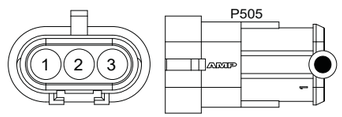
85	HM0710F	Sn
30	HM0710E	Sn
86	HM0711	Sn
87	HM0777E	Sn
87a		



P504
LH AHHC [B]

134690
282105-1, TYCO, Superseal 1.5, RECPT, 3M, BLK, SEALED

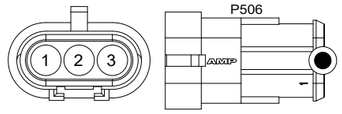
1	HM2532A	Sn
2	HM2232	Sn
3	HM2394	Sn



P505
CTR AHHC [C]

134690
282105-1, TYCO, Superseal 1.5, RECPT, 3M, BLK, SEALED

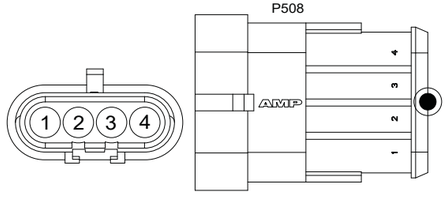
1	HM2532B	Sn
2		
3	HM2395	Sn



P506
RH AHHC [D]

134690
282105-1, TYCO, Superseal 1.5, RECPT, 3M, BLK, SEALED

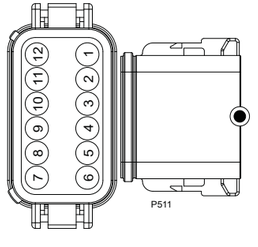
1	HM2532C	Sn
2		
3	HM2396	Sn



P508
ROW GUIDANCE [G]

282106-1, TYCO, SUPERSEAL 1.5, RECPT., 4M, BLK, SEALED

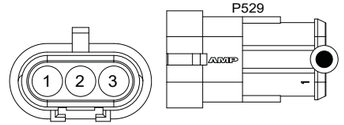
1	HM2530A	Sn
2	HM2230A	Sn
3	HM2401	Sn
4	HM2402	Sn



P511
MODULE-CAN-ANALOG

252003
DT06-12SA, DEUTSCH, DT, PLUG, 12F, GRAY, SEALED
WEDGELOCK: W12S

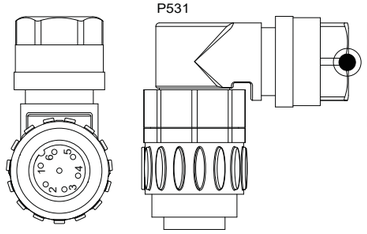
1	HM0777C	Ni
2	HM0501D	Ni
3	HM2532D	Ni
4	HM0501J	Ni
5	CAN_H	Au
6	CAN_L	Au
7	HM2394	Ni
8	HM2395	Ni
9	HM2396	Ni
10		
11		
12		



P529
DECKPLATE POSITION

134690
282105-1, TYCO, Superseal 1.5, RECPT, 3M, BLK, SEALED

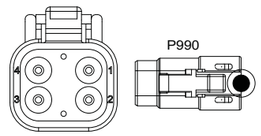
1	HM2531	Sn
2	HM2231	Sn
3	HM2403	Sn



P531
LIGHTING [F]

134760
C016 10K006 000 10, AMPHENOL, ECO MATE, PLUG, 6M, BLUE, SEALED

1	HM4010	Sn
2	HM4401A	Sn
3	HM0540A	Sn
4	HM4020	Sn
5		
6		



P990
RELAY TRANSISTOR

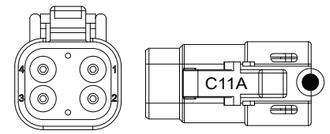
134033
DT06-4S-P012, DEUTSCH, DT, PLUG, 4S, BLK, SEALED
W4S-P012, Lock

1	HM0711	Au
2	HM2232	Au
3	HM0501H	Ni
4		

1046769

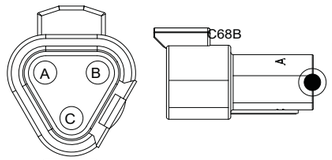
Figure 8.12: Sheet CONN3_EXT/BATT/PLUG – Reference

GROUP : 6>_Reference
SHEET NAME : CONN3_EXT/BATT/PLUG



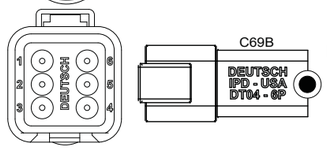
C11A
SKID SHOE PROX
134166
DTM06-4S, DEUTSCH, DTM, PLUG, 4S, GRAY, SEALED
WEDGELOCK: WM-4S

1	HX2212	Ni
2		
3	HX2515C	Ni
4	HX2391/2	Ni



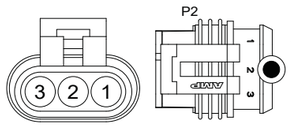
C68B
IC-LIGHTS (EXT. SIDE)
134391
DT04-3P-E004, DEUTSCH, DT, RECPT, 3M, BLK, SEALED
WEDGELOCK: W3P

A	HX4010/20	Ni
B	HX4401A	Ni
C	HX0540A	Ni



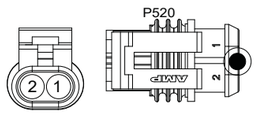
C69B
IC-SENSORS (EXT. SIDE)
293023
DT04-6P-E004, DEUTSCH, DT, RECPT, 6P, BLK, SEALED
WEDGELOCK: W6P

1	HX2215	Ni
2	HX2212	Ni
3	HX2515A	Ni
4	HX3326/8	Ni
5	HX2391/2	Ni
6		



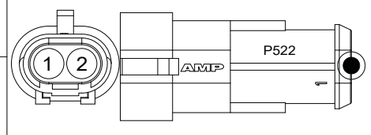
P2
AHHC DONGLE
134091
282087-1, TYCO, SUPERSEAL 1.5, PLUG, 3F, BLK, SEALED

1	HX2515B	Sn
2	HX2215	Sn
3	HX3326/8	Sn



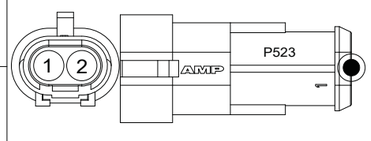
P520
CLEARANCE LTS
134553
282080-1, TYCO, SUPERSEAL 1.5, PLUG, 2F, BLK, SEALED

1	HX4010/20	Sn
2	HX0540D	Sn



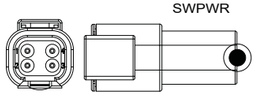
P522
STUBBLE LTS
MD # 500498
282104-1, TYCO, SUPERSEAL 1.5, PLUG, 2M, BLK, SEALED
CAP: 282080-1

1	HX4401B	Sn
2	HX0540B	Sn



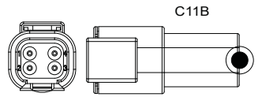
P523
STUBBLE LTS
MD # 500498
282104-1, TYCO, SUPERSEAL 1.5, PLUG, 2M, BLK, SEALED
CAP: 282080-1

1	HX4401C	Sn
2	HX0540C	Sn



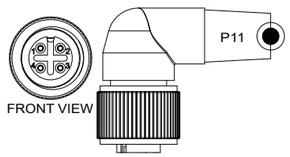
SWPWR
TRANSISTOR PLUG
134032
DT04-4P, DEUTSCH, DT, RECPT, 4M, GRAY, SEALED
W4P, Lock

1	TRNS-C	Au
2	RES-1	Au
3	TRNS-E	Ni
4	TRNS-B, RES-2	Ni



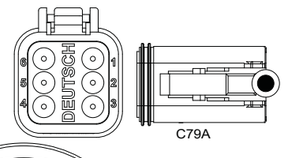
C11B
IC-PROX SENSOR
134165
DTM04-4P, DEUTSCH, DTM, RECPT, 4M, GRAY, SEALED
WEDGELOCK: WM-4P

1	CBL_N	Ni
2	CBL_W	Ni
3	CBL_U	Ni
4	CBL_B	Ni



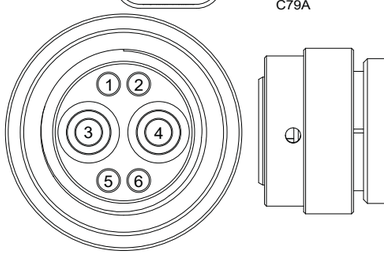
P11
PROX SENSOR
MD # 500543
XS2F-M12PVC4A2M, XS2, RECPT, 4F, CODE A, 2M LONG

1	CBL_N	
2	CBL_W	
3	CBL_U	
4	CBL_B	
5		



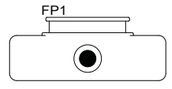
C79A
IC - DISPLAY ADAPTER
134036
DT06-6S-P012, DEUTSCH, DT, RECPT, 6F, BLK, SEALED
WEDGELOCK: W6S-P012
BACKSHELL: 1011-239-0605
CAP: 1011-347-0605

1	BX0710	Ni
2	BX0777	Ni
3	BX0531B	Ni
4	CAN_H	Au
5	CAN_L	Au
6	CAN_S	Au



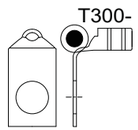
C81A
IC-BATTERY/CAB EXT. (EXT. SIDE)
293036
HD36-18-6SN-059, DEUTSCH, HD, RECPT., 6F, METAL, SEALED
CAP: AHDC04-18-T

1	BX0777	Ni
2	CAN_S	Au
3	BX0710A	Ni
4	BX0531C	Ni
5	CAN_H	Au
6	CAN_L	Au

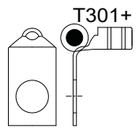


FP1
FUSE HOLDER
500582
BK/HHX, EATON, MAXI, PLUG, 2F, BLK, SEALED
Fuse, MAXI, 30A

L	MFG#46022-L	Sn
R	MFG#46022-R	Sn



T300- BX0531A
RING, M10 (3/8"), INSULATED, 90 DEGREE



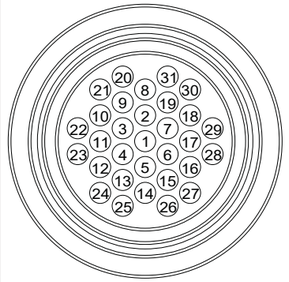
T301+ BX0709
RING, M10 (3/8"), INSULATED, 90 DEGREE

1046770

Figure 8.13: Sheet CONN4_CNTRLR – Reference

GROUP : 6>_Reference

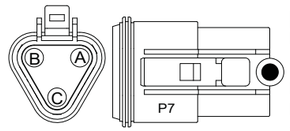
SHEET NAME : CONN4_CNTRLR



C66B
IC - ADPTR CNTRL [ADPTR]

252923
HDP26-24-29PE-L017, DEUTSCH, HDP, PLUG, 29M, BLK, SEALED

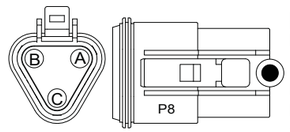
1	HA0710A	Ni	16	HA2391	Ni
2			17	HA3326	Ni
3	HA0501A	Ni	18	HA2215B	Ni
4	HA0502A	Ni	19	HA3327	Ni
5			20	HA2515B	Ni
6			21	HA3328	Ni
7			22	HA3330	Ni
8			23	HA2212	Ni
9			24	CAN_S	Au
10			25	HA3331	Ni
11			26	HA0777A	Ni
12			27	CAN_H	Au
13	HA2172	Ni	28		
14	HA2173	Ni	29	CAN_L	Au
15	HA2392	Ni			



P7
RH CNTRL PRESSURE [PRRG]

134040
DT06-3S-P012, DEUTSCH, DT, PLUG, 3F, BLK, SEALED
WEDGELOCK: W3S-P012

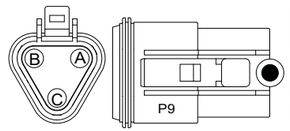
A	HA2215G	Ni
B	HA2515G	Ni
C	HA3333	Ni



P8
LH LIFT PRESSURE [LHG]

134040
DT06-3S-P012, DEUTSCH, DT, PLUG, 3F, BLK, SEALED
WEDGELOCK: W3S-P012

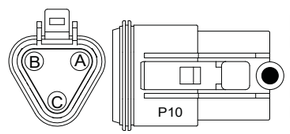
A	HA2215H	Ni
B	HA2515H	Ni
C	HA3334	Ni



P9
RH LIFT PRESSURE [RHG]

134040
DT06-3S-P012, DEUTSCH, DT, PLUG, 3F, BLK, SEALED
WEDGELOCK: W3S-P012

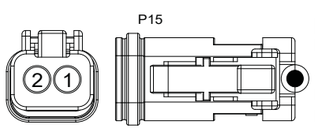
A	HA2215E	Ni
B	HA2515E	Ni
C	HA3335	Ni



P10
LH CNTRL PRESSURE [PRLG]

134040
DT06-3S-P012, DEUTSCH, DT, PLUG, 3F, BLK, SEALED
WEDGELOCK: W3S-P012

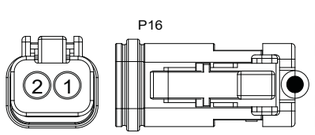
A	HA2215F	Ni
B	HA2515F	Ni
C	HA3332	Ni



P15
LH FLEX PRR [EHPR1]

500317
DT06-2S-EP06, DEUTSCH, DT, PLUG, 2F, BLK, SEALED
LOCK: W2S-P012

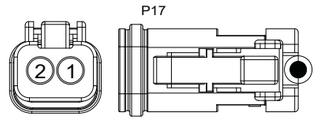
1	HA2164	Ni
2	HA0502F	Ni



P16
RH FLEX PRR [EHPR2]

500317
DT06-2S-EP06, DEUTSCH, DT, PLUG, 2F, BLK, SEALED
LOCK: W2S-P012

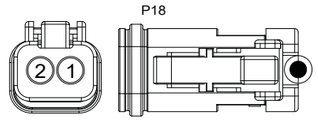
1	HA2165	Ni
2	HA0502G	Ni



P17
LH FLEX CNTRL LCK [SV1]

500317
DT06-2S-EP06, DEUTSCH, DT, PLUG, 2F, BLK, SEALED
LOCK: W2S-P012

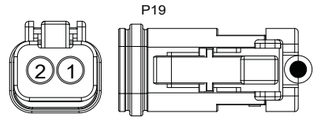
1	HA2170	Ni
2	HA0502K	Ni



P18
RH FLEX CONTROL LOCK [SV2]

500317
DT06-2S-EP06, DEUTSCH, DT, PLUG, 2F, BLK, SEALED
LOCK: W2S-P012

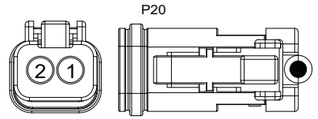
1	HA2171	Ni
2	HA0502L	Ni



P19
CONTROL ACCUM DRAIN [SV3]

500317
DT06-2S-EP06, DEUTSCH, DT, PLUG, 2F, BLK, SEALED
LOCK: W2S-P012

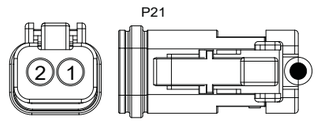
1	HA2160	Ni
2	HA0502B	Ni



P20
LH LIFT ACCUM CHRG [SPCL1]

500317
DT06-2S-EP06, DEUTSCH, DT, PLUG, 2F, BLK, SEALED
LOCK: W2S-P012

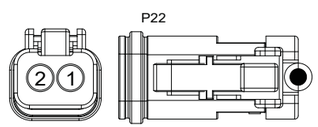
1	HA2166	Ni
2	HA0502H	Ni



P21
LH LIFT DRAIN [SF1]

500317
DT06-2S-EP06, DEUTSCH, DT, PLUG, 2F, BLK, SEALED
LOCK: W2S-P012

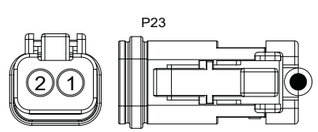
1	HA2168	Ni
2	HA0710D	Ni



P22
RH LIFT ACCUM CHRG [SPCL2]

500317
DT06-2S-EP06, DEUTSCH, DT, PLUG, 2F, BLK, SEALED
LOCK: W2S-P012

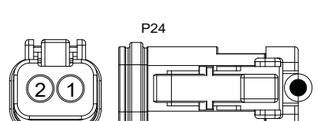
1	HA2167	Ni
2	HA0502J	Ni



P23
RH LIFT DRAIN [SF2]

500317
DT06-2S-EP06, DEUTSCH, DT, PLUG, 2F, BLK, SEALED
LOCK: W2S-P012

1	HA2169	Ni
2	HA0710E	Ni



P24
ROTARY END DIVIDERS [SV4]

500317
DT06-2S-EP06, DEUTSCH, DT, PLUG, 2F, BLK, SEALED
LOCK: W2S-P012

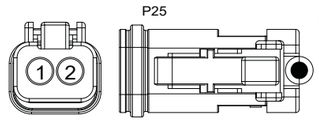
1	HA2161	Ni
2	HA0502C	Ni

1046771

Figure 8.14: CONN5_CNTRLR – Reference

GROUP : 6>_Reference

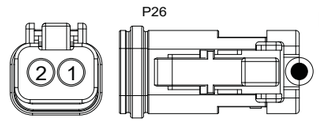
SHEET NAME : CONN5_CNTRLR



P25
SKID SHOE RET [SP1O]

500317
DT06-2S-EP06, DEUTSCH, DT, PLUG, 2F, BLK, SEALED
LOCK: W2S-P012

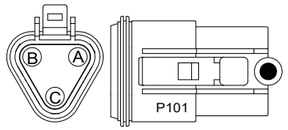
1	HA2163	Ni
2	HA0502E	Ni



P26
SKID SHOE EXT [SP1I]

500317
DT06-2S-EP06, DEUTSCH, DT, PLUG, 2F, BLK, SEALED
LOCK: W2S-P012

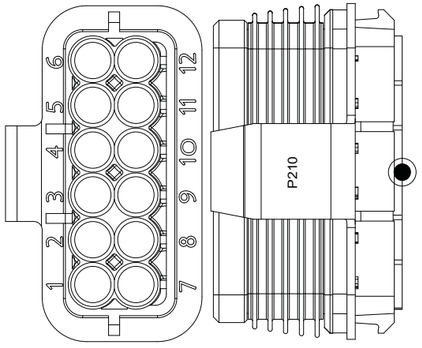
1	HA2162	Ni
2	HA0502D	Ni



P101
INPUT PRESSURE [GP]

134040
DT06-3S-P012, DEUTSCH, DT, PLUG, 3F, BLK, SEALED
WEDGELOCK: W3S-P012

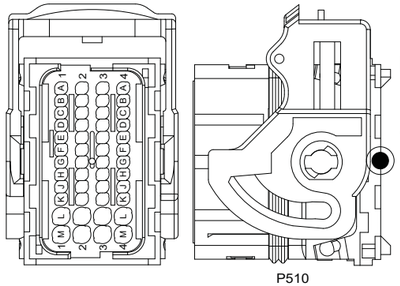
A	HA2215D	Ni
B	HA2515D	Ni
C	HA3336	Ni



P210
FUSE HOLDER

MD # 500544
FRH-A12, GEP POWER PRODUCTS, FRH, PLUG, 12F, BLK, SEALED
TPA: GEP # FRH-A12-T / MD # 500546
COVER: GEP # FRH-A12-C / MD # 500545
MTG BRACKET: GEP # FRH-A12-MB-A1 / MD # 500547

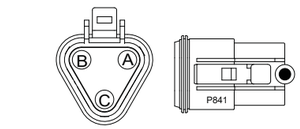
1	HA0710B	Sn	
2	HA0711	Sn	
3	HA0710C	Sn	
4	HA0712	Sn	
5	HA2515A	Sn	
6	HA2515Z	Sn	
7			
8			
9			
10			
11			
12			



P510
CONTROLLER

252920
64320-1311, MOLEX, 64320, PLUG, 48F, BLK, SEALED, KEY A
COVER: 64320-1301

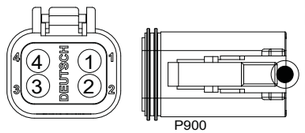
A1	CAN_L	Au	G1	HA2392	Sn
A2			G2		
A3			G3		
A4	HA2515Z	Sn	G4	HA3331	Sn
B1	CAN_H	Au	H1	HA2173	Sn
B2			H2	HA2170	Sn
B3			H3	HA2171	Sn
B4			H4	HA2391	Sn
C1			J1	HA2165	Sn
C2	HA3328	Sn	J2	HA2167	Sn
C3	HA2215A	Sn	J3	HA2161	Sn
C4			J4	HA2172	Sn
D1			K1	HA2164	Sn
D2	HA3327	Sn	K2	HA2166	Sn
D3	HA2212	Sn	K3	HA2160	Sn
D4			K4	HA0777B	Sn
E1	HA3334	Sn	L1		
E2	HA3333	Sn	L2	HA2169	Sn
E3	HA3336	Sn	L3	HA2163	Sn
E4	HA3326	Sn	L4	HA0501B	Sn
F1	HA3330	Sn	M1	HA0712	Sn
F2	HA3335	Sn	M2	HA2168	Sn
F3	HA3332	Sn	M3	HA2162	Sn
F4			M4	HA0711	Sn



P841
CAN TERMINATOR

134040
DT06-3S-P012, DEUTSCH, DT, PLUG, 3F, BLK, SEALED
WEDGELOCK: W3S-1939-P012
TERMINATOR: DT04-3P-P006

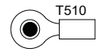
A	CAN_H	Au
B	CAN_L	Au
C	CAN_S	Au



P900
DIAGNOSTICS POWER

134033
DT06-4S-P012, DEUTSCH, DT, PLUG, 4S, BLK, SEALED
WEDGELOCK: W4S-P012
CAP: 1011-346-0405
BACKSHELL: 1011-235-0405

1	HA0710F	Ni
2		
3	HA0777C	Ni
4	HA0501D	Ni



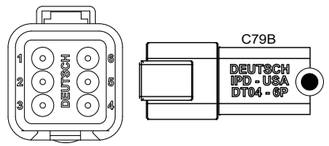
T510	HA0501C	

RING, M8 (5/16"), INSULATED

1046772

Figure 8.15: CONN6_CAB – Reference

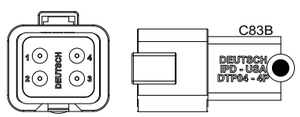
GROUP : 6>_Reference
SHEET NAME : CONN6_CAB



C79B
IC - CORN DISPLAY

293023
DT04-6P-E004, DEUTSCH, DT, RECPT, 6P, BLK, SEALED
WEDGELOCK: W6P

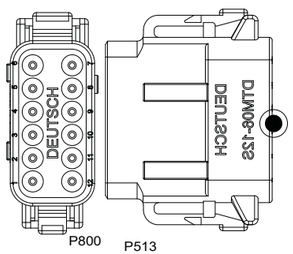
1	CNX0710A	Ni
2	CNX0777A	Ni
3	CNX0501A	Ni
4	CAN_H	Au
5	CAN_L	Au
6	CAN_S	Au



C83B
IC - EXT PWR

134594
DTP04-4P-E004, DEUTSCH, DTP, RECPT, 4M, BLK, SEALED
WEDGELOCK: WP-4P

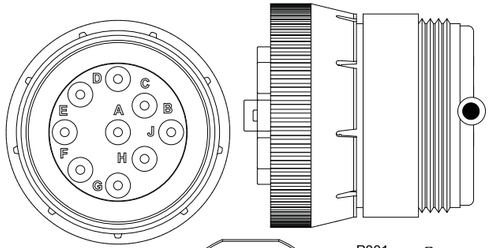
1	CNX0710B	Ni
2		
3	CNX0777B	Ni
4	CNX0501B	Ni



P513
GATEWAY

252920
64320-1311, MOLEX, 64320, PLUG, 48F, BLK, SEALED, KEY A
COVER: 64320-1301

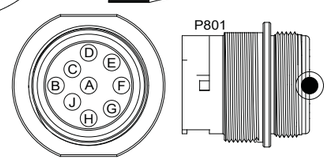
A1	CAN_L	Au
A2	CAN_L	Au
A3		
A4		
B1	CAN_H	Au
B2	CAN_H	Au
B3		
B4		
C1		
C2		
C3		
C4		



P800
DIAGNOSTIC J1939

134044
HD16-9-1939S, DEUTSCH, HD16, PLUG, 9F, BLK, SEALED

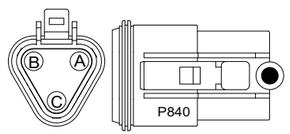
A	CNX0799	Ni
B	CNX0599	Ni
C	CAN_H	Au
D	CAN_L	Au
E	CAN_S	Au
F		
G		
H	CAN_H	Au
J	CAN_L	Au



P801
DIAGNOSTIC J1939 EXT.

134674
HD10-9-1939P-B022, DEUTSCH, HD, PLUG (REV), 9M, BLK, SEALED

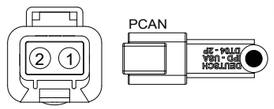
A	CNX0799	Ni
B	CNX0599	Ni
C	CAN_H	Au
D	CAN_L	Au
E	CAN_S	Au
F		
G		
H	CAN_H	Au
J	CAN_L	Au



P840
CAN TERMINATOR

134040
DT06-3S-P012, DEUTSCH, DT, PLUG, 3F, BLK, SEALED
WEDGELOCK: W3S-1939-P012
TERMINATOR: DT04-3P-P006

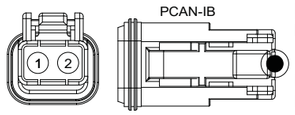
A	CAN_H	Au
B	CAN_L	Au
C	CAN_S	Au



PCAN
CAN CONFIG

293017
DT04-2P-E004, DEUTSCH, DT, RECPT, 2P, BLACK, SEALED
LOCK: W2P

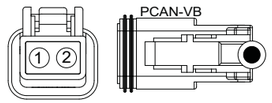
1	CAN_H	Au
2	CAN_L	Au



PCAN-IB
IMPLEMENTATION BUS

252991
DT06-2S-E004, DEUTSCH, DT, PLUG, 2F, BLK, SEALED
LOCK: W2S

1	CAN_H	Au
2	CAN_L	Au



PCAN-VB
VEHICLE BUS

134789
DT06-2S, DEUTSCH, DT, PLUG, 2F, GRY, SEALED
LOCK: W2S-P012
CAP: 1011-344-0205

1	CAN_H	Au
2	CAN_L	Au

1046773

8.1 Electrical Schematics – John Deere Completion, Model Year 2025 Headers with Model Year 2025 Combines

The electrical schematics show you the entire electrical system in a readable format.

These schematics apply to headers from model year 2025 (or newer) paired with combines from model year 2025 (or newer) equipped with the digital header connection (9-pin combine connection). The following schematics are included:

- Network: Figure *8.16, page 156*
- Position sensors and plugs: Figure *8.17, page 157*
- Power distribution: Figure *8.18, page 158*
- Lights and valves: Figure *8.19, page 159*

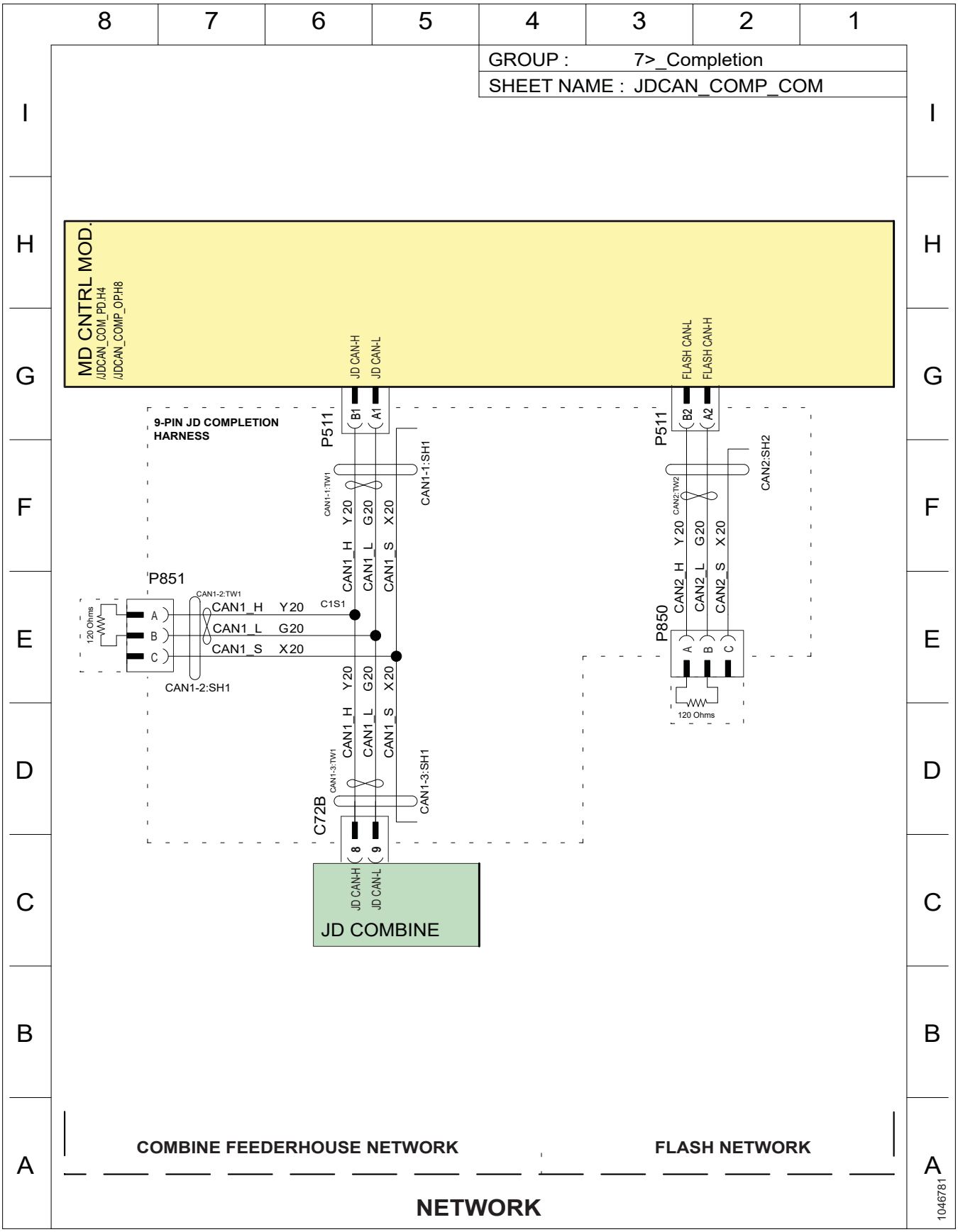


Figure 8.16: Sheet JDCAN_COMP_COM – Completion

Figure 8.17: Sheet JDCAN_COM_IP – Completion

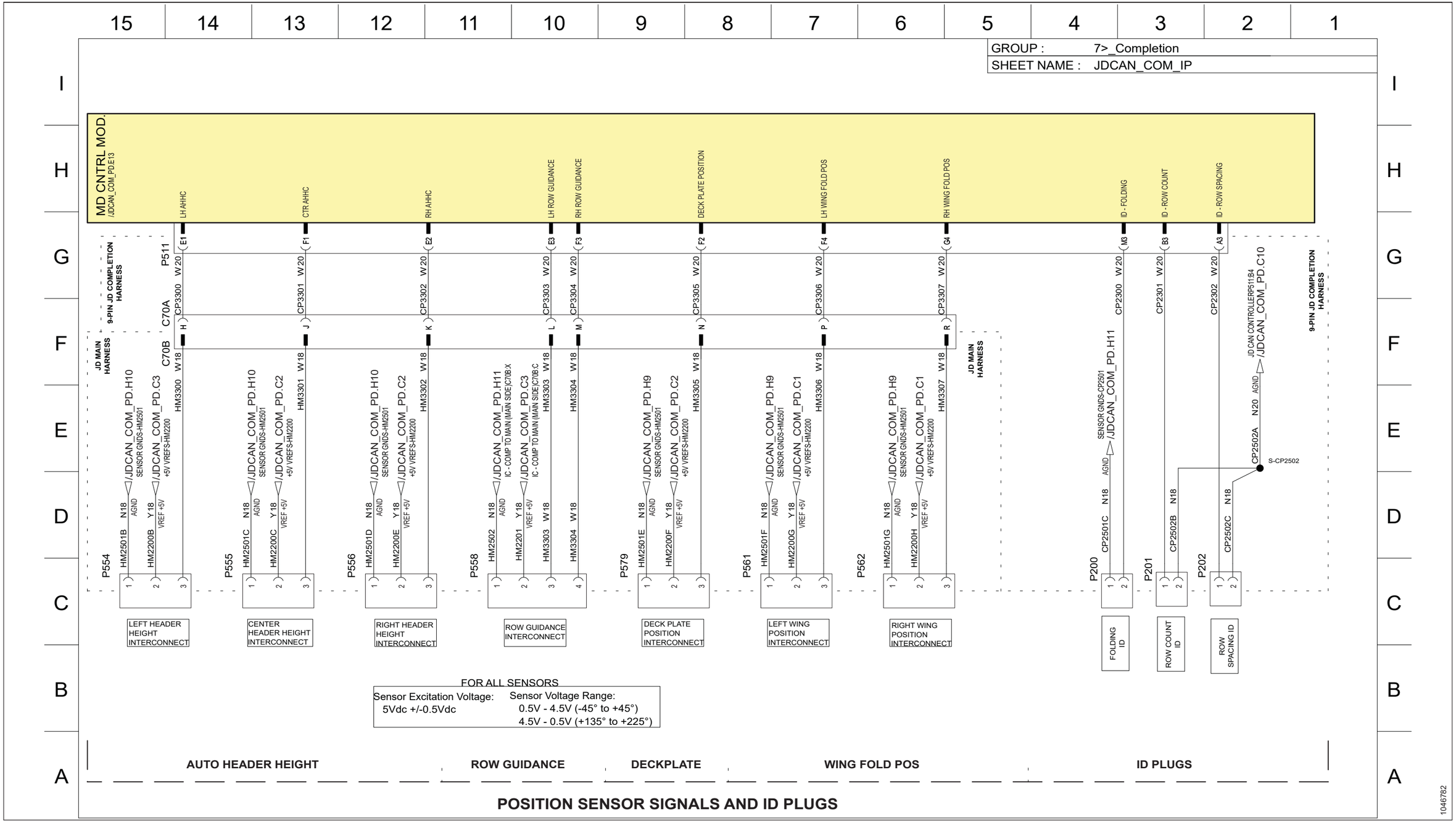
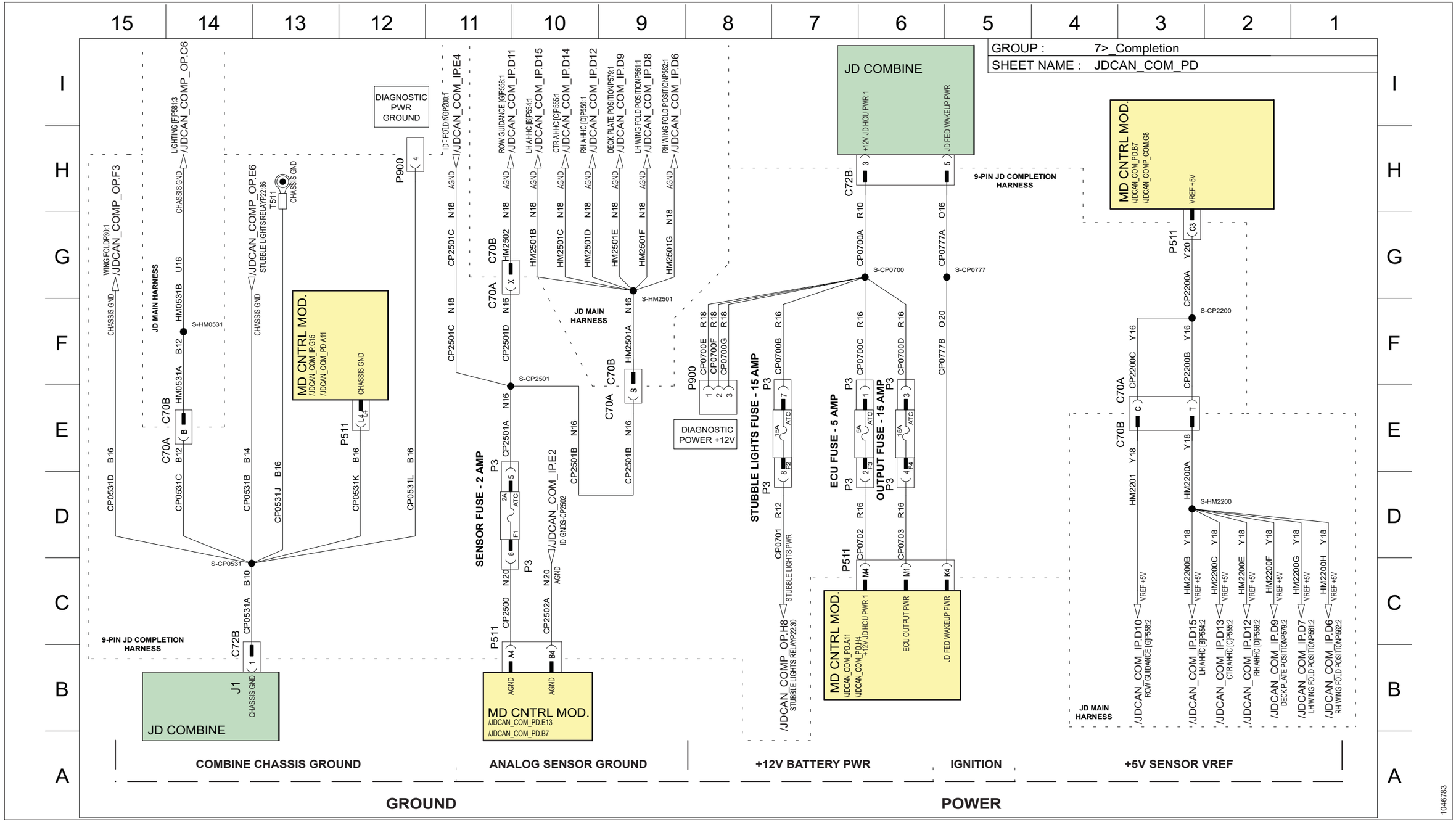


Figure 8.18: Sheet JDCAN_COM_PD – Completion



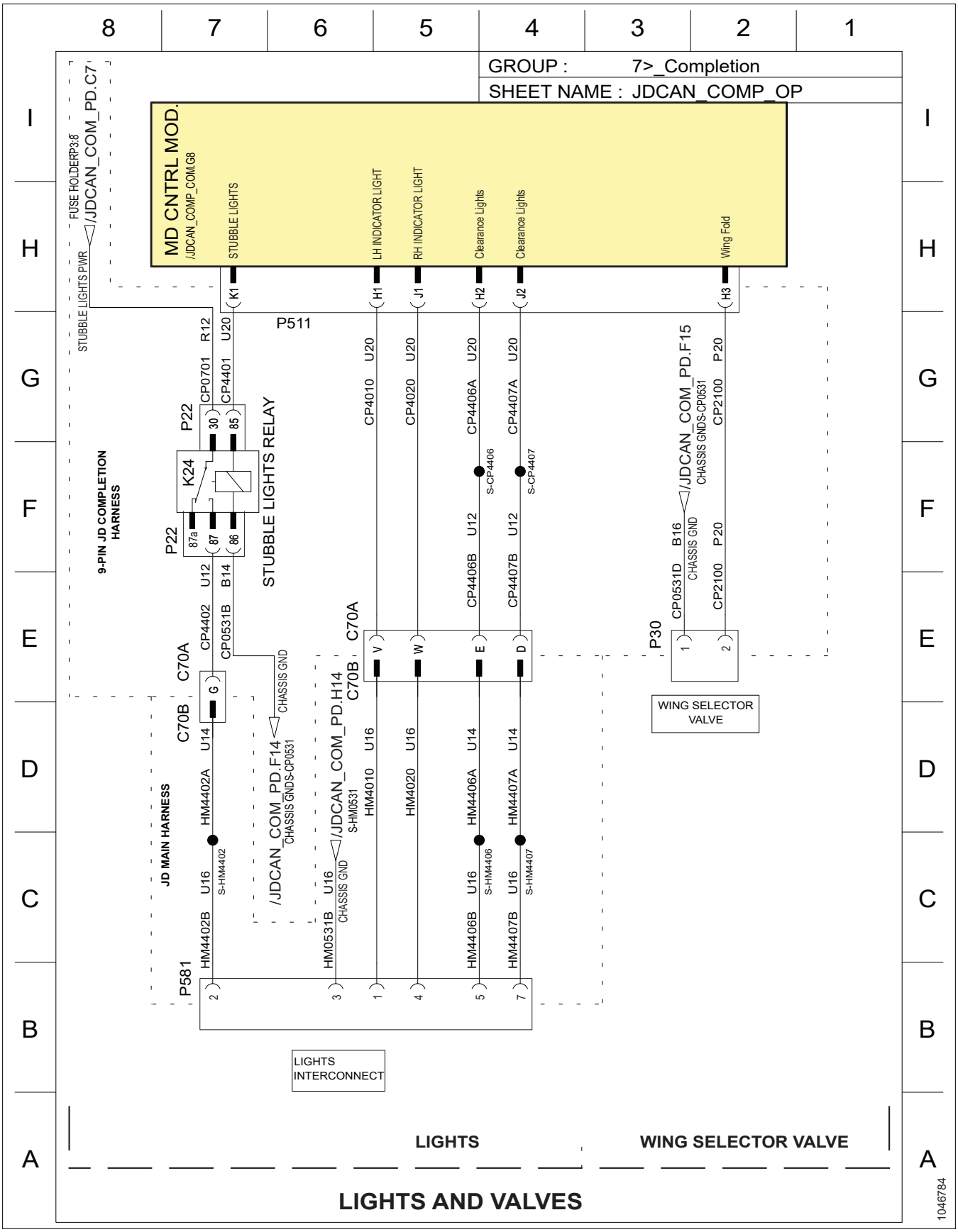


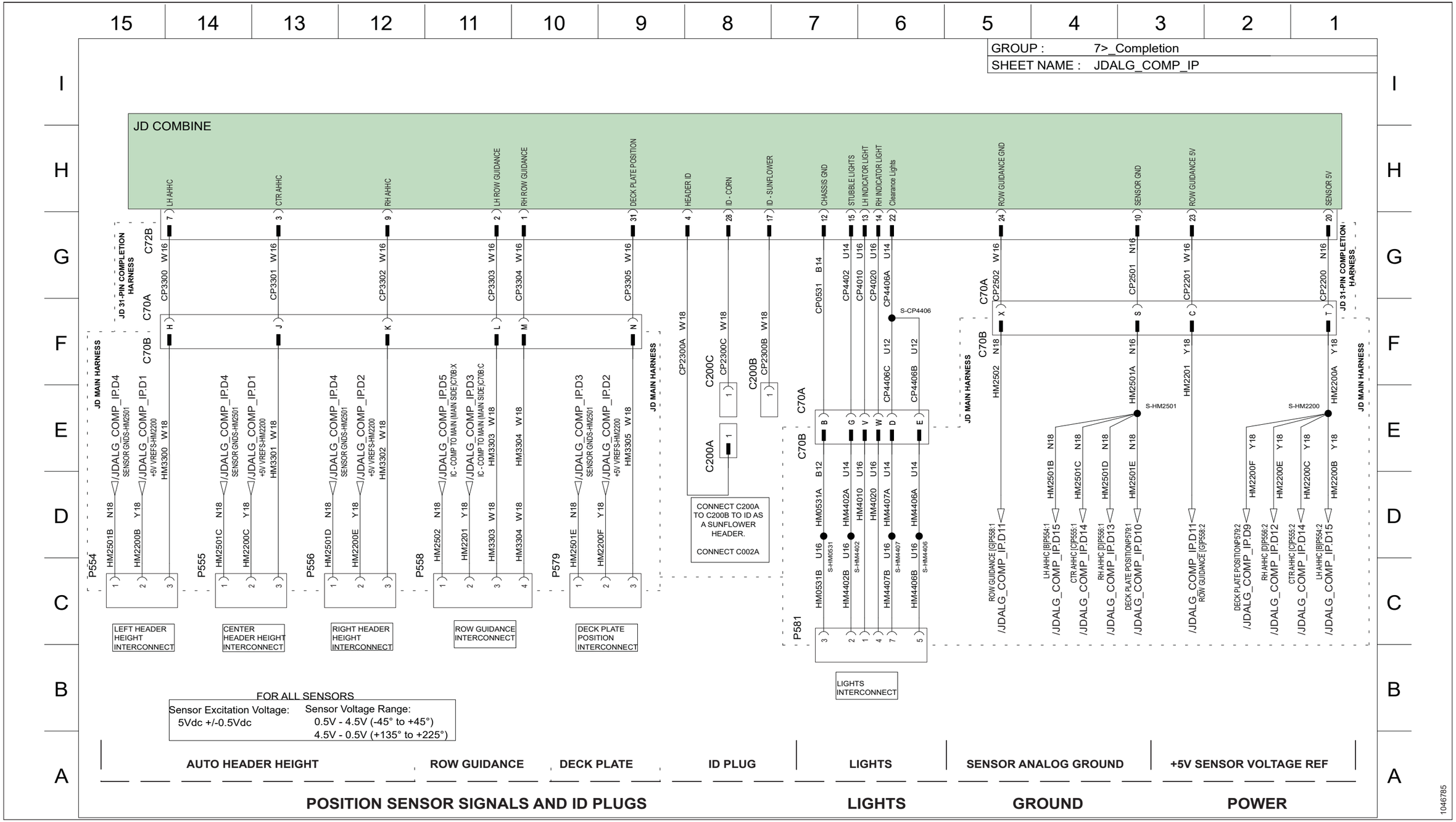
Figure 8.19: Sheet JDCAN_COMP_COM – Completion

8.2 Electrical Schematics – John Deere Completion, Model Year 2025 Headers with Combines up to Model Year 2024

The electrical schematics show you the entire electrical system in a readable format.

These schematics apply to headers from model year 2025 (or newer) paired with combines up to model year 2024, excluding X9 Series, equipped with the analog header connection (31-pin combine connection). Refer to Figure *8.20, page 161*.

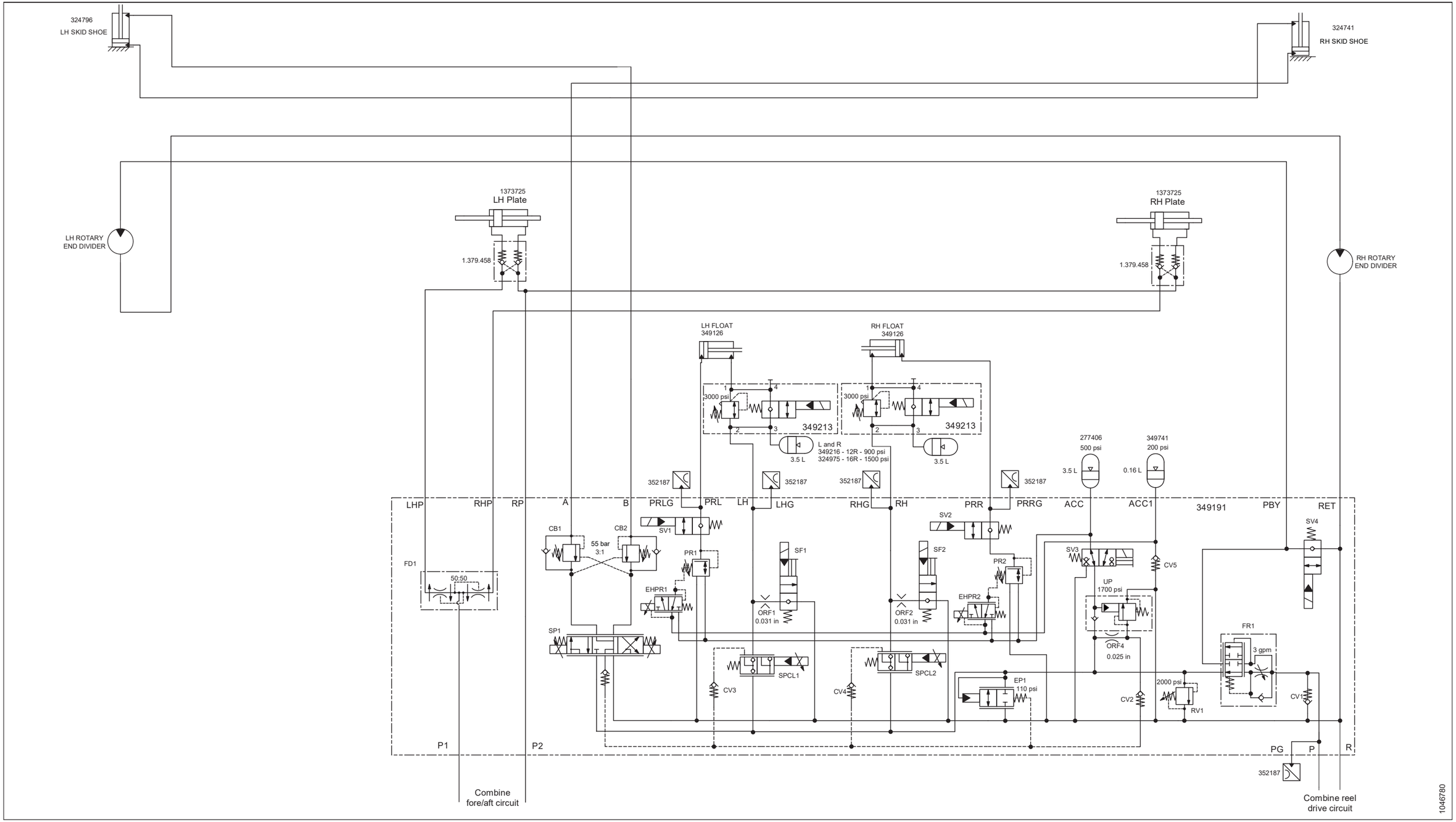
Figure 8.20: Sheet JDALG_COM_IP – Completion



Chapter 9: Hydraulic Schematics

Use the schematics in this section for additional hydraulic information to help with diagnosing hydraulic issues.

Figure 9.1: Hydraulic Schematics – FC Series Header



Chapter 10: Reference

Refer to the topics in this chapter as needed.

10.1 FlexCorn™ Header Fault Codes

If a fault is detected by the controller, a fault is code is shown on the display used to monitor header functions.

Fault codes appear in a sequence (e.g., xx.xxxxxx.xx) defined as follows:

- The first two digits are the source address (SA). This number identifies which module generated the fault.
- The next six digits are the suspect parameter number (SPN). This number reports the component or condition of the fault (e.g., SPN: 520508 = right lift pressure sensor).
- The last two digits represent the failure mode indicator number (FMI). The following table provides a brief description of the FMI fault codes:

Table 10.1 FMI Code Descriptions

FMI	Description
0	Data valid but above normal operating range. Most severe level.
1	Data valid but below normal operating range. Most severe level.
2	Data erratic, intermittent, or incorrect.
3	Voltage above normal or shorted to high source.
4	Voltage below normal or shorted to low source.
5	Current below normal or open circuit.
6	Current above normal or grounded circuit.
7	Mechanical system not responding or improperly adjusted.
8	Abnormal frequency or pulse width or period.
9	Abnormal update rate.
10	Abnormal rate of change.
11	Root cause not known.
12	Bad intelligent unit or component.
13	Out of calibration.
14	Special instructions.
15	Data valid but above normal operating range. Least severe level.
16	Data valid but above normal operating range. Moderately severe level.
17	Data valid but below normal operating range. Least severe level.
18	Data valid but below normal operating range. Moderately severe level.
19	Received network data in error.
31	Condition exists.

Table 10.2 FlexCorn Controller Fault Codes

Fault Codes			Severity	MacDon Short Description	Recommendation
SA	SPN	FMI			
F2	520450	03	med	Center AHHC sensor signal	–
F2	520450	04	med	Center AHHC sensor signal	–
F2	520451	03	med	Left AHHC sensor signal	–
F2	520451	04	med	Left AHHC sensor signal	–
F2	520452	03	med	Right AHHC sensor signal	–
F2	520452	04	med	Right AHHC sensor signal	–
F2	520453	03	med	Left flex position sensor signal	–
F2	520453	04	med	Left flex position sensor signal	–
F2	520454	03	med	Right flex position sensor signal	–
F2	520454	04	med	Right flex position sensor signal	–
F2	520455	03	med	Left lift pressure sensor signal	–
F2	520455	04	med	Left lift pressure sensor signal	–
F2	520456	03	med	Right lift pressure sensor signal	–
F2	520456	04	med	Right lift pressure sensor signal	–
F2	520457	03	med	Left control pressure sensor signal	–
F2	520457	04	med	Left control pressure sensor signal	–
F2	520458	03	med	Right control pressure sensor signal	–
F2	520458	04	med	Right control pressure sensor signal	–
F2	520459	03	med	Input pressure sensor signal	–
F2	520459	04	med	Input pressure sensor signal	–
F2	520500	15	low	Center AHHC sensor	Perform AHHC calibration.
F2	520500	17	low	Center AHHC sensor	Perform AHHC calibration.
F2	520501	15	low	Left AHHC sensor	Perform AHHC calibration.
F2	520501	17	low	Left AHHC sensor	Perform AHHC calibration.
F2	520502	15	low	Right AHHC sensor	Perform AHHC calibration.
F2	520502	17	low	Right AHHC sensor	Perform AHHC calibration.
F2	520503	15	low	Left flex position sensor	Perform header calibration.
F2	520503	17	low	Left flex position sensor	Perform header calibration.
F2	520504	15	low	Right flex position sensor	Perform header calibration.
F2	520504	17	low	Right flex position sensor	Perform header calibration.

Table 10.2 FlexCorn Controller Fault Codes (continued)

Fault Codes			Severity	MacDon Short Description	Recommendation
SA	SPN	FMI			
F2	520507	15	low	Left lift pressure sensor	–
F2	520507	17	low	Left lift pressure sensor	–
F2	520507	02	med	Left lift pressure sensor	–
F2	520508	15	low	Right lift pressure sensor	–
F2	520508	17	low	Right lift pressure sensor	–
F2	520508	02	med	Right lift pressure sensor	–
F2	520509	15	low	Left control pressure sensor	–
F2	520509	17	low	Left control pressure sensor	–
F2	520509	02	med	Left control pressure sensor	–
F2	520510	15	low	Right control pressure sensor	–
F2	520510	17	low	Right control pressure sensor	–
F2	520510	02	med	Right control pressure sensor	–
F2	520511	15	low	Input pressure sensor	–
F2	520511	17	low	Input pressure sensor	–
F2	520511	02	med	Input pressure sensor	–
F2	520602	13	med	Calibration control	Default values are in use for header calibration. Perform header calibration.
F2	520602	14	med	Calibration control	Default values are in use for AHHC calibration. Perform AHHC calibration.
F2	520603	07	med	Accumulator control	Left lift accumulator gas pressure low/accumulator failed.
F2	520603	14	med	Accumulator control	Right lift accumulator gas pressure low/accumulator failed.
F2	520604	07	med	Flex control	Check left hand control pressure sensor/EHPR1 valve.
F2	520604	14	med	Flex control	Check right hand control pressure sensor/EHPR2 valve.
F2	520610	07	med	Header height control	–
F2	520610	14	med	Header height control	–
F2	520611	07	med	REDs control	Rotary end dividers (REDs) are enabled, but not installed.

Table 10.2 FlexCorn Controller Fault Codes (continued)

Fault Codes			Severity	MacDon Short Description	Recommendation
SA	SPN	FMI			
F2	520714	12	med	Analog output module	Ensure analog output module is connected and powered on.
F2	520715	04	med	Analog output no. 1	–
F2	520715	06	med	Analog output no. 1	–
F2	520715	19	med	Analog output no. 1	–
F2	520715	16	med	Analog output no. 1	–
F2	520715	18	med	Analog output no. 1	–
F2	520716	04	med	Analog output no. 2	–
F2	520716	06	med	Analog output no. 2	–
F2	520716	19	med	Analog output no. 2	–
F2	520716	16	med	Analog output no. 2	–
F2	520716	18	med	Analog output no. 2	–
F2	520717	04	med	Analog output no. 3	–
F2	520717	06	med	Analog output no. 3	–
F2	520717	19	med	Analog output no. 3	–
F2	520717	16	med	Analog output no. 3	–
F2	520717	18	med	Analog output no. 3	–
F2	520800	06	med	Skid extend signal	–
F2	520800	05	med	Skid extend signal	–
F2	520801	06	med	Skid retract signal	–
F2	520801	05	med	Skid retract signal	–
F2	520802	06	med	Left flex prr valve signal	–
F2	520802	05	med	Left flex prr valve signal	–
F2	520803	06	med	Right flex prr valve signal	–
F2	520803	05	med	Right flex prr valve signal	–
F2	520804	06	med	Left lift accumulator charge signal	–
F2	520804	05	med	Left lift accumulator charge signal	–
F2	520805	06	med	Right lift accumulator charge signal	–
F2	520805	05	med	Right lift accumulator charge signal	–

Table 10.2 FlexCorn Controller Fault Codes (continued)

Fault Codes			Severity	MacDon Short Description	Recommendation
SA	SPN	FMI			
F2	520806	06	med	Left lift accumulator drain signal	–
F2	520806	05	med	Left lift accumulator drain signal	–
F2	520807	06	med	Right lift accumulator drain signal	–
F2	520807	05	med	Right lift accumulator drain signal	–
F2	520808	06	med	Control accumulator signal	–
F2	520808	05	med	Control accumulator signal	–
F2	520809	06	med	REDs bypass signal	–
F2	520809	05	med	REDs bypass signal	–
F2	520810	06	med	Left lift lock signal	–
F2	520810	05	med	Left lift lock signal	–
F2	520811	06	med	Right lift lock signal	–
F2	520811	05	med	Right lift lock signal	–
F2	520812	06	med	Left control lock signal	–
F2	520812	05	med	Left control lock signal	–
F2	520813	06	med	Right control lock signal	–
F2	520813	05	med	Right control lock signal	–

10.2 FlexCorn™ Controller Module Status Codes

The controller module is a mobile machine controller that allows multiple input and outputs.

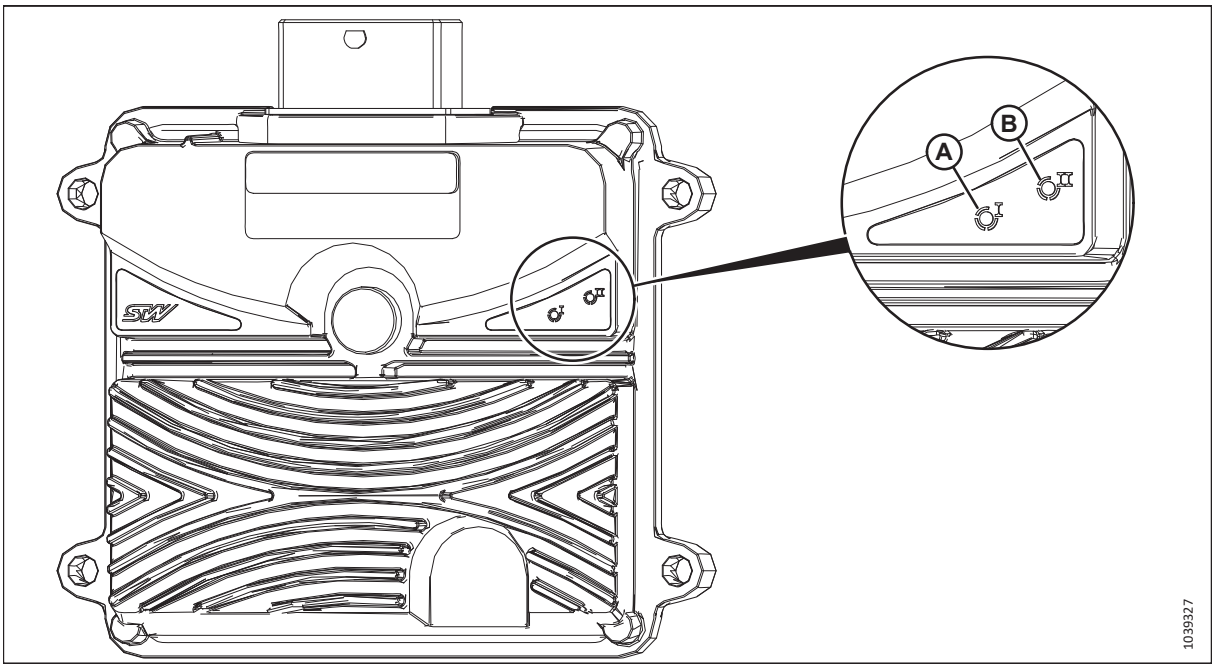


Figure 10.1: Header Controller and ISOBUS Display Module

A - User LED 1 **B - Power ON LED**

The header controller module is located on the back of the header, to the left side of the opening.

NOTE:

John Deere S7 and X9 combines have a second controller mounted beside the hydraulic multicoupler.

Table 10.3 Header Controller LED 1

Color	Blinks Per Second	Status	Troubleshooting
Green	1	No errors	N/A
Amber	1	CAN Bus 1 - header to display bus error	Inspect CAN wiring between header controller and display controller controllers for damage.
Red	1	System/module error	Restart controller[6]. Reinstall controller software.
Green	Solid on	Application error	Restart controller [6] Reinstall controller software.
Amber	Solid on	Application error	Restart controller [6] Reinstall controller software.
Red	Solid on	Application error	Restart controller [6] Reinstall controller software.
None	Off	Application error	Restart controller [6] Reinstall controller software.

6. Turn combine key switch off, wait until controller lights turn off, then turn key on.

The ISOBUS display controller is located inside the combine cab.

Table 10.4 ISOBUS Display Controller LED 1

Color	Blinks Per Second	Status	Troubleshooting
Green	1	No errors	N/A
Amber	1	CAN Bus 1 - header to display bus error	Inspect CAN wiring between header controller and display controller controllers for damage.
Amber	2	CAN Bus 2 - ISOBUS/display bus - error	Inspect CAN wiring between header controller and display controller controllers for damage.
Red	1	Application error	Restart controller [6] Reinstall controller software.
Green	Solid on	Application error	Restart controller [6] Reinstall controller software.
Amber	Solid on	Application error	Restart controller [6] Reinstall controller software.
Red	Solid on	Application error	Restart controller [6] Reinstall controller software.
None	Off	Application error	Restart controller [6] Reinstall controller software.

10.3 Torque Specifications

The following tables provide torque values for various bolts, cap screws, and hydraulic fittings. Refer to these values only when no other torque value has been specified in a given procedure.

- Tighten all bolts to the torque values specified in the charts below, unless you are directed otherwise in this manual.
- Replace removed hardware with hardware of the same strength and grade.
- Refer to the torque value tables as a guide when periodically checking the tightness of bolts.
- Understand the torque categories for bolts and cap screws by reading the markings on their heads.

Jam nuts

Jam nuts require less torque than nuts used for other purposes. When applying torque to finished jam nuts, multiply the torque applied to regular nuts by 0.65 to obtain the modified torque value.

Self-tapping screws

Refer to the standard torque values when installing the self-tapping screws. Do **NOT** install the self-tapping screws on structural or otherwise critical joints.

10.3.1 Torque Specifications for Fasteners

Specifications are provided for the appropriate final torque values to secure various sizes of metric bolts, screws, and nuts.

NOTE:

The torque values provided in the following metric bolt torque tables apply to hardware installed dry; that is, hardware with no grease, oil, or threadlocker on the threads or heads. Do **NOT** add grease, oil, or threadlocker to bolts or cap screws unless you are directed to do so in this manual.

Table 10.5 Torque Values for Fasteners (Nm)

Size	Quality		
Bolts/Screws	Class 8.8	Class 10.9	Class12.9
Nuts	Class 8	Class 10	Class 12
M6	10	14	16
M8	23	33	40
M10	45	63	75
M12	78	110	130
M14	122	175	210
M16	195	270	325
M18	260	370	440
M20	370	525	630
M24	640	900	1080
M30	1260	1800	2160

Table 10.6 Torque Values for Fasteners (lbf·ft)

Size	Quality		
Bolts/Screws	Class 8.8	Class 10.9	Class 12.9
Nuts	Class 8	Class 10	Class 12
M6	7	10	12
M8	17	24	30
M10	33	46	55
M12	58	81	96
M14	90	129	155
M16	144	199	240
M18	192	273	325
M20	273	387	465
M24	472	664	797
M30	929	1328	1593

10.3.2 Torque Specifications for Hydraulic Fittings

The standard torque values for hydraulic ring tube fittings are provided. If a procedure specifies a different torque value for the same type and size of fitting found in this topic, use the value specified in the procedure instead.

Table 10.7 Dimensions and Torque Specifications – L Series

Size	Minimum Tube Wall Thickness	Torque Value	
		Nm	lbf·ft (*lbf·in)
6	6 x 1	25	*221
8	8 x 1	40	30
10	10 x 1	50	37
12	12 x 1.5	70	52
15	15 x 1.5	90	66
18	18 x 1.5	115	85
22	22 x 2	210	155
28	28 x 2	310	229
35	35 x 3	500	369
42	42 x 3	600	443

Table 10.8 Dimensions and Torque Specifications – S Series

Size	Minimum Tube Wall Thickness	Torque Value	
		Nm	lbf·ft
6	6 x 2	35	26
8	8 x 1.5	55	41
10	10 x 1.5	70	52
12	12 x 1.5	85	63
14	14 x 2	110	81
16	16 x 1.5	120	89
20	20 x 2	200	148
25	25 x 2.5	340	251
30	30 x 3	480	354
38	38 x 4	850	627

10.4 Conversion Chart

This manual uses both SI units (including metric) and US customary units (sometimes referred to as standard units) of measurement. A list of those units along with their abbreviations and conversion factors is provided here for your reference.

Table 10.9 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 Fluids and Lubricants

Ensure your machine operates at top efficiency by using clean fluids and lubricants only.

- Use clean containers to handle all fluids and lubricants.
- Store fluids and lubricants in an area protected from dust, moisture, and other contaminants.

Lubricant	Specification	Description	Use	Capacities
Grease	SAE multi-purpose	High temperature extreme pressure (EP) performance with 1% max. molybdenum disulphide (NLGI Grade 2) lithium base	As required unless otherwise specified	—
		High temperature extreme pressure (EP) performance with 10% max. molybdenum disulphide (NLGI Grade 2) lithium base	Header drive shaft	—
Semi-fluid grease	EP-00	Extreme pressure (EP) performance with lithium base	Row unit gearbox	2.5 liters (2.6 quarts)
Gear lubricant	SAE 80W-140 or SAE 85W-140	API service class GL-5	Stalk chopper gearbox	0.3 liters (0.3 quarts)
			Input drive and driven gearboxes	0.9 liters (1.0 quarts)
Chain lubricant	Chain lubricant or SAE 30W oil	Chain oil is formulated to provide good wear protection and resistance to foaming. It protects the chain and drive sprockets against wear.	Auger drive chain, hex shaft chain couplings, and snapping plate indicator chain	—
Any lubricating oil	Unspecified	Any lubricating oil is suitable for the gathering chains as long as it prevents corrosion.	Gathering chains	—

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